FED ALL

FUEL QUANTITY INDICATING SYSTEM - ADJUSTMENT/TEST

WARNING:
- LANDING GEAR - MAKE SURE THAT THE GROUND SAFETIES AND CHOCKS ARE IN POSITION.
- FLIGHT CONTROLS - MAKE SURE THAT THE GROUND SAFETIES AND NOTICES ARE IN POSITION.
- OBSERVE THE SAFETY PRECAUTIONS IN (Ref. 28-00-00, P. BLOCK 301).
- MAKE SURE THAT THE FIRE FIGHTING EQUIPMENT IS AVAILABLE AND IS ADEQUATE.
- MAKE SURE THAT YOU ISOLATE THE ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS.

1. Operational (BITE) Test
A. Reason for the Job
   To do the tests that follow with the Built-In Test Equipment (BITE):
   (1) Operational (BITE) test.
   (2) Operational (Diagnostic) test.
B. Equipment and Materials

<table>
<thead>
<tr>
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<th>DESIGNATION</th>
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</thead>
<tbody>
<tr>
<td>Referenced Procedures</td>
<td></td>
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<tr>
<td>- (Ref. 24-41-00, P. Block 301)</td>
<td>AC External Power Control</td>
</tr>
<tr>
<td>- (Ref. 28-00-00, P. Block 301)</td>
<td>Fuel - General</td>
</tr>
<tr>
<td>- (Ref. 28-42-00, P. Block 001)</td>
<td>Fuel Quantity Indicating System</td>
</tr>
<tr>
<td>- 28-42, P. Block 001A</td>
<td>TSM - FQI Fault Codes</td>
</tr>
</tbody>
</table>

C. Procedure
(1) Job Set-Up
   (a) Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

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   (b) On panel 476VU, make sure that the PWR SUPPLY switch is in the OFF and guarded position, and the FUELLING POWERED legend is off.
(c) Make sure that the circuit breakers that follow are closed:

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(b) Make sure that the access door 144DR is closed.

(c) Make sure that the circuit breakers that follow are closed:

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<table>
<thead>
<tr>
<th>PANEL</th>
<th>SERVICE</th>
<th>IDENT.</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>22VU</td>
<td>FUEL/TK LO LVL/L OUTER &amp; R INR &amp; CTR R</td>
<td>1QJ</td>
<td>208/B26</td>
</tr>
<tr>
<td>22VU</td>
<td>FUEL/TK LO LVL/R OUTER &amp; L INR &amp; CTR L</td>
<td>2QJ</td>
<td>208/B27</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/SUPPLY &amp; IND</td>
<td>1QT</td>
<td>805/L83</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY/1</td>
<td>3QT</td>
<td>805/L84</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY/2</td>
<td>4QT</td>
<td>805/L85</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FUELLING/OVERFLOW</td>
<td>5QJ</td>
<td>805/L86</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FUELLING/HI LVL</td>
<td>6QJ</td>
<td>805/L87</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FUELLING/CTL &amp; REFUEL VALVE</td>
<td>1QU</td>
<td>805/L88</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FUELLING/TRANSFER VALVE</td>
<td>2QU</td>
<td>805/L89</td>
</tr>
</tbody>
</table>

NOTE: Operation of ANN LT switch on panel 436VU, will cause test displays to appear on FUEL QTY indicator on panel 430VU.

(2) Test

(a) To perform the operational (BITE) test, do test steps 1. thru 7.

(b) To perform the operational (diagnostic) test, only do test steps 1., 6. and 7.

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On panel 128VU:</td>
<td>On panel 430VU:</td>
</tr>
<tr>
<td>ACTION</td>
<td>RESULT</td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>- open FUEL/FQI/CHAN SUPPLY 1 circuit breaker 3QT</td>
<td>- digital displays for LH and center tanks go blank</td>
</tr>
<tr>
<td>- close circuit breaker 3QT</td>
<td>- digital displays change to sevens then after a short delay revert to normal</td>
</tr>
<tr>
<td>- open FUEL/FQI/CHAN SUPPLY 2 circuit breaker 4QT</td>
<td>- digital display for RH tank goes blank</td>
</tr>
<tr>
<td>- close circuit breaker 4QT.</td>
<td>- digital displays change to sevens then after short delay revert to normal.</td>
</tr>
</tbody>
</table>

2. On panel 472VU:
   - place ANN LT switch in TEST position
   - put the ANN LT switch in the READ position
   - press the MFA reset buttons on panels 470VU, 471VU and 472VU
   - make sure that CHAN 1 and CHAN 2 and SYS MONITOR fault annunciators are off. (Ref. 28-42-00, P. Block 001 ).

   On panel 472VU:
   - all lights come on
   - the fuel lights go off
   - the maintenance panel controls and indications are activated.
   - all memorized fault annunciators go off.

3. Open the access door 144DR. | - the refuel/defuel panel 110VU, is energized. |

3. Not applicable. | |
<table>
<thead>
<tr>
<th>ACTION</th>
<th>RESULT</th>
</tr>
</thead>
</table>
| 4. On panel 476VU:  
  - lift the guard and put the POWER SUPPLY switch in the NORM position. | On panel 476VU:  
  - make sure that the FUELLING POWERED legend comes on |
| 5. On panel 436VU:  
  - Put the ANN LT switch in TEST position for not less than 1 minute. | On panel 430VU:  
  - the FUEL QTY indicator LO legends come on and the digital displays change to 8"s within 2 seconds.  
  After approximately 16 seconds, displays change to 7"s if system is satisfactory or blank for a fault condition (Ref. TSM 28-42).  
  - Put the ANN LT switch in the BRT position.  
  - the FUEL QTY indicator LO legends go off and the digital display goes back to normal. Note the indications. |
| 5. On panel 436VU:  
  - Hold the ANN LT switch in the TEST position for not less than 1 minute. | On panel 430VU:  
  - the FUEL QTY indicator LO legends come on.  
  If lowered accuracy does not exist:  
    - the FUEL QTY indicator will display all 8"s for 15 seconds.  
  If lowered accuracy does exist:  
    - the FUEL QTY indicator will display LA.  
  After 4 seconds all displays will change to all 8"s for 15 seconds.  
  If the system is satisfactory:  
    - the FUEL QTY indicator displays will change from 8"s to 7"s.  
  If a fault condition does exist:  
    - the FUEL QTY indicator displays will change from 8"s to blanks (Ref. TSM 28-42).  
  After displaying 7"s for 30 seconds displays return to normal fuel indications. |
<table>
<thead>
<tr>
<th>ACTION</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Put the ANN LT switch in the BRT position.</td>
<td>- the FUEL QTY indicator LO legends go off.</td>
</tr>
</tbody>
</table>

5. On panel 436VU:
    - Put the ANN LT switch in the TEST position for not less than 1 minute.
On panel 430VU:
    - the FUEL QTY indicator LO legends come on and display changes to 8"s within 2 seconds.
    - after approximately 16 seconds, the display changes to 7"s if the system is satisfactory or blank for a fault condition (Ref. TSM 28-42).
On refueling panel 476VU:
    - the preselector digital display changes to 8"s then 7"s.

5. - Put the ANN LT switch in the BRT position. On panel 430VU:
    - the FUEL QTY indicator LO legends go off and the display goes back to normal. Note the indications.
On panel 476VU:
    - the preselector digital display goes back to normal. Note the indications.

5. On panel 436VU:
    - Hold the ANN LT switch in the TEST position for not less than 1 minute.
On panel 430VU:
    - the FUEL QTY indicator LO legends come on.
If lowered accuracy does not exist:
    - the FUEL QTY indicator on panel 430VU and the PRESELECTED and the ACTUAL indicator on panel 476VU display all 8"s for 15 seconds.
If lowered accuracy does exist:
    - the FUEL QTY indicator on panel 430VU will display LA.
<table>
<thead>
<tr>
<th>ACTION</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>- the PRESELECTED and the ACTUAL indicators on panel 476VU will display three 8&quot;s. After 4 seconds all displays will change to all 8&quot;s for 15 seconds. If the system is satisfactory:</td>
<td>- the FUEL QTY, PRESELECTED and ACTUAL indicator displays will change from 8&quot;s to 7&quot;s. If a fault condition does exist:</td>
</tr>
<tr>
<td>- the FUEL QTY indicator display on panel 430VU will change from 8&quot;s to blanks (Ref. TSM 28-42) - the PRESELECTED and ACTUAL indicator display on panel 476VU will change from 8&quot;s to 7&quot;s. After approximately 30 seconds, all displays return to normal fuel indications.</td>
<td>- the FUEL QTY indicator display on panel 430VU will change from 8&quot;s to blanks (Ref. TSM 28-42) - the PRESELECTED and ACTUAL indicator display on panel 476VU will change from 8&quot;s to 7&quot;s. After approximately 30 seconds, all displays return to normal fuel indications.</td>
</tr>
<tr>
<td>- Put the ANN LT switch in the BRT position.</td>
<td>On panel 430VU: - the FUEL QTY indicator LO legends go off.</td>
</tr>
<tr>
<td>6. On panel 110VU: - Lift the guard and push (in) the TEST p/bsw for not less than 1 minute.</td>
<td>On panel 110VU: - all the HIGH LEVEL and OVERFLOW lights come on. - after 5 seconds, the FUEL QTY, PRESELECTED and ACTUAL indicators will display all 8&quot;s for 16 seconds then: If the system is satisfactory; - the FUEL QTY, PRESELECTED and ACTUAL indicator displays will change from all 8&quot;s to all 7&quot;s. If a fault condition does exist: - the PRESELECTED and ACTUAL indicator displays will change from all 8&quot;s to all 7&quot;s. After approximately 30 seconds all displays return to normal fuel indications.</td>
</tr>
<tr>
<td>ACTION</td>
<td>RESULT</td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Release (out) the TEST p/bsw and lower the guard.</td>
<td>all the HIGH LEVEL and OVERFLOW lights go off.</td>
</tr>
</tbody>
</table>

6. On panel 110VU:
   - Lift the guard and push (in) the HI LVL TEST p/bsw for not less than 1 minute
   - all the HIGH LEVEL and OVERFLOW lights come on.
   - If lowered accuracy does not exist:
     - the FUEL QTY, PRESELECTED and ACTUAL indicators will display all 8"s for 15 seconds.
   - If lowered accuracy does exist:
     - the FUEL QTY indicator will display LA
     - the PRESELECTED and ACTUAL indicators will each display three 8"s.
   - After 4 seconds all displays will change to all 8"s for 15 seconds.
   - If the system is satisfactory:
     - the FUEL QTY, PRESELECTED and ACTUAL indicator displays will change from 8"s to 7"s.
   - If a fault condition does exist:
     - the FUEL QTY indicator displays will change from 8"s to blanks (Ref. TSM 28-42)
     - the PRESELECTED and ACTUAL indicator display will change from 8"s to 7"s.
   - After approximately 30 seconds, all displays return to normal fuel indications.

- Release (out) the HI LVL TEST p/bsw and lower the guard. | all the HIGH LEVEL and OVERFLOW lights go off. |

6. On panel 476VU:
   - Press (in) the HI LVL TEST p/bsw.
   - All the TK FULL and OVERFLOW FULL legends come on.
   - All the TK FULL and OVERFLOW FULL legends go off.
<table>
<thead>
<tr>
<th>ACTION</th>
<th>RESULT</th>
</tr>
</thead>
</table>
| 7. On panel 472VU:  
- Hold the FAULT SIM switch in the CHAN 1 position. | On panel 472VU:  
- the CHAN 1 FAULT annunciator comes on (System operates on Channel 2).  
On panel 430VU:  
- the FUEL QTY indications do not change by more than 100 kg per tank. |
| - Hold FAULT SIM switch in the CHAN 2 position. | On panel 472VU:  
- the CHAN 2 FAULT annunciator comes on  
- the CHAN 1 FAULT annunciator goes off (System operates on channel 1).  
On panel 430VU:  
- the FUEL QTY indications do not change by more than 100 kg per tank. |
| - Release (out) the FAULT SIM switch. | On panel 472VU:  
- the CHAN 2 FAULT annunciator goes off. |
| 7. On panel 472VU:  
- Hold the FAULT SIM switch in the CHAN 1 position | On panel 472VU:  
- the CHAN 1 FAULT annunciator comes on (System operates on Channel 2).  
On panel 430VU:  
- the FUEL QTY indications do not change by more than 100 lb per tank. |
| - Hold the FAULT SIM switch in the CHAN 2 position. | On panel 472VU:  
- the CHAN 2 FAULT annunciator comes on  
- the CHAN 1 FAULT annunciator goes off (System operates on Channel 1).  
On panel 430VU: |
<table>
<thead>
<tr>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Release (out) the FAULT SIM switch.</td>
</tr>
<tr>
<td>- Hold the FAULT SIM switch in the CHAN 1 position.</td>
</tr>
<tr>
<td>- Hold the FAULT SIM switch in the CHAN 2 position.</td>
</tr>
<tr>
<td>- Press (in) the SYS MONITOR p/bsw.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>- the FUEL QTY indications do not change by more than 100 lb per tank.</td>
</tr>
<tr>
<td>On panel 472VU:</td>
</tr>
<tr>
<td>- the CHAN 2 FAULT annunciator goes off.</td>
</tr>
<tr>
<td>On panel 472VU:</td>
</tr>
<tr>
<td>- CHAN 1 FAULT annunciator comes on (system now operates on Channel 2).</td>
</tr>
<tr>
<td>On panel 430VU:</td>
</tr>
<tr>
<td>- the FUEL QTY indications do not change by more than 100 lb per tank.</td>
</tr>
<tr>
<td>On panel 476VU:</td>
</tr>
<tr>
<td>- the preselector indications do not change by more than 100 lb.</td>
</tr>
<tr>
<td>On panel 472VU:</td>
</tr>
<tr>
<td>- CHAN 2 FAULT annunciator comes on.</td>
</tr>
<tr>
<td>- CHAN 1 FAULT annunciator goes off (system now operates on Channel 1).</td>
</tr>
<tr>
<td>On panel 472VU:</td>
</tr>
<tr>
<td>- the SYS MONITOR TEST legend comes on.</td>
</tr>
<tr>
<td>On panel 430VU:</td>
</tr>
<tr>
<td>- the FUEL QTY indicators display all dashes for 15 ± 5 seconds.</td>
</tr>
<tr>
<td>For no failure condition:</td>
</tr>
<tr>
<td>On panel 430VU:</td>
</tr>
<tr>
<td>- FUEL QTY indicator displays change to 888 for outer tanks</td>
</tr>
<tr>
<td>ACTION</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>and -888 for center tank and inner tanks. For failure condition: On panel 430VU: - FUEL QTY indicator displays change to failure code(s) alternating with dashes at 5 second intervals (Ref. TSM 28-42).</td>
</tr>
<tr>
<td>- Release (out) the SYS MONITOR p/bsw.</td>
</tr>
<tr>
<td>9. On panel 472VU: - Put the ANN LT switch in the OFF position.</td>
</tr>
<tr>
<td>- Press (in) the SYS MONITOR p/bsw.</td>
</tr>
<tr>
<td>ACTION</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>5 second intervals (Ref. TSM 28-42).</td>
</tr>
</tbody>
</table>
| - Release (out) the SYS MONITOR p/bsw. | On panel 472VU:  
  - the SYS MONITOR TEST legend goes off.  
On panel 430VU:  
  - the FUEL QTY indicator display goes back to the normal presentation.  
On panel 476VU:  
  - the preselector displays go back to the normal presentation. |
| 9. On panel 472VU: |  |
| - Put the ANN LT switch in the OFF position. | |

(3) Reset procedure for FQI computer  
(Ref. Fig. 501)

(a) On panel 472VU, put the ANN LT switch in the TEST position and make sure that all the panel 472VU lights come on.

(b) On panel 472VU, put the ANN LT switch in the READ position.

(c) Open the access door 211PZ and gain access to rack 92VU.

(d) On panel 472VU, press (in) the SYS MONITOR P/BSW. Make sure that the SYS MONITOR TEST legend comes on.


(e) Immediately, on rack 92VU, press (in) the computer (15QT) RECIRCULATION/MEMORY CLEAR P/BSW for a minimum of 10 seconds.

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POST SB 28-2025 for A/C  
POST SB 28-2010 for A/C
402-405, 407-408, 416-419, 424, 426, 428-430, 435, 446-449

(f) Immediately, on rack 92VU, press (in) the computer (15QT) RESET/ MEMORY CLEAR P/BSW for a minimum of 10 seconds.

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(f) On panel 472VU, release (out) the SYS MONITOR P/BSW. Make sure that the SYS MONITOR TEST legend goes off.

(g) Press (in) the MFA reset buttons on panels 470VU, 471VU and 472VU.

(h) On panel 472VU, put the ANN LT switch in the OFF postion.

(j) Close the access door 211PZ.

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(4) Close-Up

(a) Close the refuel/defuel panel access door 144DR.

(b) De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

FED 401-405, 407-414

(4) Close-Up

(a) On panel 476VU, put the PWR SUPPLY switch in the OFF position and guarded.

(b) Make sure that the FUELLING POWERED legend goes off.

(c) De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

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2. Functional Test - Capacitance and Insulation Resistance from the Fuel Quantity Computer (15QT) using the Goodrich Test Set

NOTE: If testing of the individual tanks is required at the tank connectors, reference paragraph 3.

A. Reasons for the Job

(1) To measure the total capacitance and insulation resistance of the fuel probes and the compensators in the
outer, inner, and center tank, individually with the Goodrich PSDA60-2R tester, and PSDA300-3 interface box, at the Fuel Quantity Computer (15QT) on the 92VU shelf.

NOTE: The PSDA300-3 interface box can not be used to test for individual probe capacitance or resistance.

NOTE: This test does NOT require access to any of the fuel quantity harness connectors on the wing spars and/or main gear well (bay). If access to these connectors is required, reference paragraph 3.

NOTE: The PSDA310-1 interface box is used for testing the CTR, INR, and OUTR Tanks at the tank wall connectors. The PSDA300-3 is used to test the entire fuel system from the Fuel Quantity Computer (15QT).

NOTE: For a complete list of approved FedEx Fuel Quantity Test Equipment (Ref. Fig. 505).

NOTE: To verify which fuel quantity system is installed on any particular aircraft, perform the following steps:

- Sign into the FedEx IMS system.
- Once the “ALL SYSTEMS ACCESS PATH” screen is displayed, clear the screen using the CLEAR command at the bottom of the screen.
- Type “NAT001” and press ENTER.
- On the “FedEx Maxi-Merlin” Main Menu screen, type CCMDM on the SEL/TRAN line and ENTER.
- On the Modification Display screen, enter the letter “E” on the Modification Type line, and use E.O. Number 6-2840-7-5015 on the Modification Nbr line. Press ENTER.
- On the new screen, select the ACNs (PF5 key) and ENTER.
- Displays now show the status of each aircraft modification status. Letter “O” is open,
letter “C” is closed/complete, letter “S” is scheduled, and letter “I” is initial aircraft

B. ITEM  |   DESIGNATION
---------|--------------------------------------------------
A. PSA300-3 | Goodrich Interface Cable - FQI (Kit)
B. PSD60-2R | Goodrich Test Set - Fuel System
C. 55-0781-11 | Interface Test Cable (Included with PSA300-3 test kit)

C. Procedures

(1) Fuel Probes and Compensators - Outer, Inner, and Center Fuel Tanks.

(a) Job set-up

1) Defuel the relevant tank(s) per (Ref. 28-25-00, P. Block 301) . Remove all usable fuel.

   NOTE: It is not necessary to drain the residual (unusable) fuel from the associated tank as long as all usable fuel is removed per (Ref. 28-25-00, P. Block 301) . When testing the fuel quantity probes and compensator capacitance, should the capacitance values tested be outside of the allowable tolerance range, then that specific tank(s) MUST have the residual fuel drained through the water drain valves per (Ref. 12-32-28, P. Block 301) and then that tank(s) is/are to be tested once again.

2) Open, safety and tag the following circuit breakers:

   NOTE: Reference the FedEx GMM 6-1-200 for Danger Tags/Placards and Circuit Breaker Collars policy and procedures.
3) Enter the Avionics Compartment (i.e. 121BL; 131AZ; 132AZ; 211PZ).

4) Locate the 15QT Fuel Quantity Computer on the 92VU shelf and CAREFULLY disconnect the 15QT-B and 15QT-C plugs on the front face of the Fuel Quantity Computer. DO NOT REMOVE THE 15QT COMPUTER DURING THIS TEST.

**NOTE:** Due to development of the PSDA60-2R tester there may be slight variations in the panel markings and the display functions of the test set. Reference the Goodrich maintenance manual for specific details.

5) Open the PSD60-2R test set and perform the following:

a) Move the POWER switch to the ON position and check for the battery condition. If the low battery level is indicated on the digital display,
replace the batteries. Move the POWER switch to the OFF position.

6) Open the PSDA300-3 interface box and connect the ground clip of the test cable to an approved aircraft ground.

7) CAREFULLY connect the leads of the interface cable PSDA300-3 to the PSDA60-2R tester as follows:
   a) The lead LO-Z to the TANK UNITS LO-Z connector.
   b) The lead HI-Z to the TANK UNITS HI-Z SHIELD connector.
   c) The ground lead plug to the CHASSIS ground connector.

**NOTE:** Examine the test leads of the interface cable (PSDA300-3) before installing them on the PSD60-2R test set. If the test leads are damaged STOP IMMEDIATELY and secure another PSDA300-3 interface box. Installing the damaged BNC connectors on the PSD60-2R tester will damage this unit as well.

**NOTE:** Use care when connecting and disconnecting the test leads. DO NOT place any strain on the wires. Only touch the BNC connector when installing and disconnecting the from the PSD60-2R TESTER unit.
8) On the PSDA60-2R tester, perform the following:
   a) Move the POWER switch to the ON position and WAIT three (3) minutes for the test set to stabilize.
   b) Move the FUNCTION SELECT (FUNCT) switch to MEASURE EXT position.
   c) Move the MEGGER SELECT (SELECT) switch to TU position.

9) On the PSDA300-3 interface box, move the PROBE SELECT switch to the PROBE position.

10) On the PSDA300-3 interface box, rotate the TANK SELECT rotary knob to the tank position to be tested (i.e. RT OUTR/AUX PROBE; RT INNER; CENTER; LT INNER; LT OUTER). Record below, any stray capacitance values shown on the digital display of the PSD60-2R tester.

<table>
<thead>
<tr>
<th>RT OUTR/AUX PROBE:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RT INNER:</td>
<td></td>
</tr>
<tr>
<td>CENTER:</td>
<td></td>
</tr>
<tr>
<td>LT INNER:</td>
<td></td>
</tr>
<tr>
<td>LT OUTER:</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The AUX CARGO 1 and AUX CARGO 2 positions of the PSDA300-3 ramp tester are not used on FedEx aircraft and therefore no capacitance and/or resistance values need to be recorded.

NOTE: The TAIL position on the PSDA300-3 interface box refers to the Trim Tank. This position will not be used on A310-200 aircraft.

NOTE: The recorded values (step 10 above) are subtracted from the reading of the TOTAL probe capacitance to get the actual tank...
compensator/probe capacitance. Reject the test harness of the PSDA300-3 interface box if the stray capacitance value in any position is greater than 1.0pf.

**NOTE:** When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite resistance values will be displayed on the test set as .0.0.0.0 and the display will flash (pulse). Typical resistance readings on the PSD60-2R tester will display zeros (“0”) with flashing (pulsing) colons signifying “over limit” or “maximum resistance.” This reading is the preferred display for this test. Short circuits will be displayed as 0000.

When performing a resistance test on all A310-200 aircraft, do not use any readings from the “TAIL” position as these aircraft are not equipped with a trim tank.

11) On the PSDA60-2R tester, move the MEGGER SELECT (SELECT) knob to the LO-Z/HI-Z position.

12) On the PSDA300-3 interface box, rotate the TANK SELECT rotary knob through all of the tank positions (i.e. RT OUTR/AUX PROBE; RT INNER; CENTER; TAIL; LT INNER; LT OUTER) and measure the megohm resistance between the LO-Z and the HI-Z wires in the test harness. If the reading is less than infinity
(infinite), then reject the test harness of the PSDA300-3 interface box.

13) Repeat step 12 with the PSD60-2R MEGGER SELECT switch at each of these positions and verify the resistance value is infinite:
   a) LO-Z/SHIELD
   b) HI-Z/SHIELD
   c) SHLD/GND
   d) LO-Z/GND
   e) HI-Z/GND

14) Move the POWER SWITCH on the PSD60-2R tester to the OFF position.

15) End of job set-up procedure.

(b) Total Capacitance and Insulation Resistance Measurement of each Fuel Tank

1) CAREFULLY connect the test lead of the PSDA300-3 interface box to the 15QT-B and 15QT-C cable plugs for the Fuel Quantity Computer that were previously removed (see step C.(1) a.4.).

2) Verify that the AIRFRAME GROUND clip on the PSDA300-3 interface box is connected to a valid aircraft ground.

3) Verify the BNC connectors of the PSDA300-3 interface box are properly attached to the HI-Z and LO-Z receptacles on the PSD60-2R tester. Verify the “banana” ground plug on the PSDA300-3 interface box is installed in the CHASSIS jack of the PSD60-2R tester.

NOTE: When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite resistance values will be displayed on the test set as .0.0.0.0 and the display will flash (pulse). Short circuits will be displayed as 0000
NOTE: Verify proper selection of the capacitance table when testing the fuel system. There is one table for the Intertechnique (Table 501) System (original installation) and another table for the Goodrich (Table 501A) System. (FedEx E.O. #6-2840-7-5015 installs the Goodrich Fuel Quantity System.)

4) On the PSD60-2R test set, perform the following:
   a) Move the POWER switch to the ON position.
   b) If a FREQUENCY SELECT switch is incorporated set the frequency to 1000 Hz.
   c) If a CAPACITANCE MEASUREMENT MODE selector switch is installed, move the MODE switch to the MODE B position.
   d) Move the FUNCTION SELECT (FUNCT) switch to the MEASURE EXT position.
   e) Move the MEGGER SELECT (SELECT) to the TU position.

NOTE: Most FedEx PSD60-2R TESTER testers do not have a frequency selector or capacitance measurement mode switch installed.

NOTE: When selecting the parameter for measurement, let the PSDA60-2R tester stabilize before recording any measurements. The measured value should be constant for more than ten (10) seconds.

5) On the PSDA300-3 interface box, rotate the TANK SELECT knob to the fuel tank to be
tested. Verify the PROBE SELECT switch is in the PROBE position. Perform the following:

a) On the PSD60-2R tester the total capacitance for the tank will be displayed in the LCD window.

b) Record this shown capacitance, then subtract the previously recorded capacitance of the PSDA300-3 cable.

c) Record the new value on the space provided below.

_______________ pF. Tank capacitance value (total minus the PSDA300-3 cable capacitance).

**NOTE:** Verify proper selection of the capacitance table when testing the fuel system. There is one table for the Intertechnique (Table 502) System (original installation) and another table for the Goodrich (Table 502A) System. (FedEx E.O. #6-2840-7-5015 installs the Goodrich Fuel Quantity System.)

6) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) knob to the LO-Z/HI-Z position.

7) On the PSDA300-3 interface box, verify the PROBE SELECT switch is still in the PROBE position.

8) On the PSD60-2R tester, note that the displayed resistance value is greater than 500 megahoms. A resistance value lower than 500 megahoms is an indication of failed wiring. A specific test of the fuel tank being examined will need to be accomplished. Perform a full resistance and capacitance test of the failed tank using the PSD60-2R tester with the PSDA310-1 per step number three (#3) in this section.

**NOTE:** Typical resistance readings on the PSD60-2R tester will display zeros ("0") with flashing (pulsing) colons signifying “over limit” or
“maximum resistance.” This reading is the preferred display for this test.

9) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) knob to the following positions verifying that the displayed resistance values are greater than 500 megahoms:
   a) LO-Z/SHIELD
   b) HI-Z/SHIELD
   c) SHIELD/GND
   d) LO-Z/GND
   e) HI-Z/GND

10) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) to the TU position.

11) On the PSDA300-3 interface box, move the PROBE SELECT switch to the COMP position. Perform the following:
   a) On the PSD60-2R tester the tank compensator probe for the tank will be displayed in the LCD window.
   b) Record this shown capacitance, then subtract the previously recorded capacitance of the PSDA300-3 cable.
   c) Record the new value on the space provided below.
      ________________________ pF (Tank compensator value (total minus the PSDA300-3 cable capacitance)).

12) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) knob to the LO-Z/HI-Z position.

13) On the PSDA300-3 interface box, verify the PROBE SELECT switch is still in the COMP position.

14) On the PSD60-2R tester, note that the displayed resistance value is greater than 500 megahoms. A resistance value lower than 500 megahoms is an indication of failed wiring. A specific test of the fuel tank being examined will need to be accomplished. Perform a full resistance and capacitance
test of the failed tank using the PSD60-2R tester with the PSDA310-1 interface box.

**NOTE**: Typical resistance readings on the PSD60-2R tester will display zeros ("0") with flashing (pulsing) colons signifying “over limit” or “maximum resistance.” This reading is the preferred display for this test.

15) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) knob to the following positions verifying that the displayed resistance values are greater than 500 megahoms:
   a) LO-Z/SHIELD
   b) HI-Z/SHIELD
   c) SHIELD/GND
   d) LO-Z/GND
   e) HI-Z/GND

16) Compare previously recorded capacitance probe and compensator probe values to the table(s) below. Carefully select the appropriate table.

**NOTE**: Verify proper selection of the capacitance table when testing the fuel system. There is one table for the Intertechnique (Table 502) System (original installation) and another table for the Goodrich (Table 502A) System. (FedEx E.O. #6-2840-7-5015 installs the Goodrich Fuel Quantity System.)

**NOTE**: For a complete list of approved FedEx Fuel Quantity Test Equipment, reference (Ref. Fig. 505).

This is the Intertechnique Table and is not to be used when the Goodrich Fuel Quantity System is installed.

**NOTE**: Use TABLE 501 when testing the A310-200 aircraft for capacitance of probes, which have never been immersed in fuel (i.e. new fuel
probe and/or compensator installation):

### TABLE 501

**INTERTECHNIQUE - DRY PROBE/COMPENSATOR TABLE**

<table>
<thead>
<tr>
<th>FUEL TANK</th>
<th>CAPACITANCE VALUE</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTER TANK PROBES</td>
<td>201.50pF</td>
<td>± 1.25 pF</td>
</tr>
<tr>
<td>OUTER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>± 0.50 pF</td>
</tr>
<tr>
<td>INNER TANK PROBES</td>
<td>227.50pF</td>
<td>± 1.25 pF</td>
</tr>
<tr>
<td>INNER TANK COMPENSATOR</td>
<td>28.50pF</td>
<td>± 0.50 pF</td>
</tr>
<tr>
<td>CENTER TANK PROBES</td>
<td>328.50pF</td>
<td>± 1.75 pF</td>
</tr>
<tr>
<td>CENTER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>± 0.50 pF</td>
</tr>
</tbody>
</table>

**NOTE:** Use TABLE 501A when testing 310-200 aircraft for capacitance of probes which have already been immersed in fuel (i.e. fuel transferred from tank):

### TABLE 501A

**INTERTECHNIQUE - WET PROBE/COMPENSATOR TABLE**

<table>
<thead>
<tr>
<th>FUEL TANK</th>
<th>CAPACITANCE VALUE</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTER TANK PROBES</td>
<td>203.00pF</td>
<td>± 1.25 pF</td>
</tr>
<tr>
<td>OUTER TANK COMPENSATOR</td>
<td>28.50pF</td>
<td>± 0.50 pF</td>
</tr>
<tr>
<td>INNER TANK PROBES</td>
<td>229.00pF</td>
<td>± 1.25 pF</td>
</tr>
</tbody>
</table>
## TABLE 501A

### INTERTECHNIQUE - WET PROBE/COMPENSATOR TABLE

<table>
<thead>
<tr>
<th>FUEL TANK</th>
<th>CAPACITANCE VALUE</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>INNER TANK COMPENSATOR</td>
<td>28.80pF</td>
<td>± 0.50pF</td>
</tr>
<tr>
<td>CENTER TANK PROBES</td>
<td>329.75pF</td>
<td>± 1.75 pF</td>
</tr>
<tr>
<td>CENTER TANK COMPENSATOR</td>
<td>28.50pF</td>
<td>± 0.50pF</td>
</tr>
</tbody>
</table>

**NOTE**: Capacitance tolerances for tanks that have been only pumped empty of fuel will probably exceed the tolerance values listed above. For general troubleshooting of the FQIS for a tank pumped empty (all usable fuel removed) at the start of the test, +5pF for Tank Units and +7pF for Compensator Units may be considered normal. If the values fall outside of these limits, all fuel (usable and unusable) must be removed, then the system tested again.

This is the Goodrich Table and is not to be used when the Intertechnique Fuel Quantity System is installed.

**NOTE**: Use TABLE 502 when testing the A310-200 aircraft for capacitance of probes, which have never been immersed in fuel (i.e. new fuel probe and/or compensator installation):
**TABLE 502**

**GOODRICH – DRY PROBE/COMPENSATOR TABLE**

<table>
<thead>
<tr>
<th>FUEL TANK</th>
<th>CAPACITANCE VALUE</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTER TANK PROBES</td>
<td>201.07pF</td>
<td>± 1.00pF</td>
</tr>
<tr>
<td>OUTER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>± 0.50pF</td>
</tr>
<tr>
<td>INNER TANK PROBES</td>
<td>227.17pF</td>
<td>± 1.00pF</td>
</tr>
<tr>
<td>INNER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>± 0.50pF</td>
</tr>
<tr>
<td>CENTER TANK PROBES</td>
<td>325.62pF</td>
<td>± 1.00pF</td>
</tr>
<tr>
<td>CENTER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>± 0.50pF</td>
</tr>
</tbody>
</table>

**NOTE:** Use TABLE 502A when testing 310-200 aircraft for capacitance of probes which have already been immersed in fuel (i.e. fuel transferred from tank):

**TABLE 502A**

**GOODRICH – WET PROBE/COMPENSATOR TABLE**

<table>
<thead>
<tr>
<th>FUEL TANK</th>
<th>CAPACITANCE VALUE</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTER TANK PROBES</td>
<td>201.07pF</td>
<td>+1.90 / 1.00</td>
</tr>
<tr>
<td>OUTER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>+0.70 / 0.50</td>
</tr>
<tr>
<td>INNER TANK PROBES</td>
<td>227.17pF</td>
<td>+1.90 / 1.00</td>
</tr>
<tr>
<td>INNER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>+0.70 / 0.50</td>
</tr>
</tbody>
</table>
TABLE 502A

GOODRICH - WET PROBE/COMPENSATOR TABLE

<table>
<thead>
<tr>
<th>FUEL TANK</th>
<th>CAPACITANCE VALUE</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTER TANK PROBES</td>
<td>325.62pF</td>
<td>+2.75 / 1.50</td>
</tr>
<tr>
<td>CENTER TANK COMPENSATOR</td>
<td>28.30pF</td>
<td>+0.70 /0.50</td>
</tr>
</tbody>
</table>

NOTE:
Capacitance tolerances for tanks that have been only pumped empty of fuel will probably exceed the tolerance values listed above. For general troubleshooting of the FQIS for a tank pumped empty (all usable fuel removed) at the start of the test, +5pF for Tank Units and +7pF for Compensator Units may be considered normal. If the values fall outside of these limits, all fuel (usable and unusable) must be removed, then the system tested again.

17) Repeat this test section again for any other fuel tanks that need to be examined for proper fuel quantity indication readings.

18) End of capacitance and resistance testing.

(c) Close-up

1) On the PSD60-2R tester, move the POWER switch to the OFF position.

2) On the PSD60-2 tester, carefully remove the BNC connectors on the TANK UNITS LO-Z and HI-Z receptacles.

3) On the PSD60-2 tester, remove the “banana” ground connector. Close tester lid and secure it (engage locks)

4) On the PSDA300-3 interface box interface cables, carefully remove the 15QT-B and 15QT-C electrical connectors from the Fuel Quantity Computer (15QT) cables. Remove the
AIRFRAME GROUND clip (alligator clip) from the airframe ground. Stow the interface cable in the PSDA300-3 case, then close and secure the lid.

5) Carefully attach the 15QT-B and 15QT-c electrical connectors to the front of the Fuel Quantity Computer (15QT).

**CAUTION:** Exercise extreme caution when attaching the 15QT-B and 15QT-C connectors to the front of the 15QT Computer. Do not force plugs onto the computer. Verify that the connectors are properly seated (connected) before moving to the next step.

6) Remove the PSD60-2R tester, the PSDA300-3 interface box, and all other tooling from the avionics compartment and close all open doors as required.

7) Remove the collars and tags from the 1QT; 3QT; and 4QT circuit breakers and reset them (activates fuel quantity system). (These circuit breakers were previously opened when this test began.)

8) Perform a successful Functional Test of the Fuel Quantity Computer per (Ref. 28-42-38, P. Block 501).

9) Record the following in the aircraft's log book:
   “Performed a successful total capacitance test of the (list fuel tank(s) tested).
   Capacitance value was ________ (record value here) and compensator value was _____ (record value here). This (these) fuel tank(s) are qualified for further service per (Ref. 28-42-00, P. Block 501).”

10) If the test failed and the fuel tank under test must be placed on MEL, contact FedEx MOCC for deferral procedures. The following
must, at a minimum, be included in the deferral section:

a) Name of failed tank (i.e. CTR; L INR; L OUTR, etc.)

b) Description of failure (i.e. Capacitance value too high or too low; resistance values too low, etc.). Record the failed value.

11) Job completed.

3. Functional Test - Capacitance and Insulation Resistance from the individual tank wall connectors using Goodrich PSD60-2R Tester and PSDA A310-1 Interface Box

NOTE: For a complete list of approved FedEx Fuel Quantity Test Equipment. (Ref. Fig. 505)

NOTE: If testing of the individual tanks is required at the Fuel Quantity Computer (15QT), reference step number three (#3) of this section.

A. Reasons for the Job

(1) To measure the total capacitance and insulation resistance of the fuel probes and the compensators in the outer, inner, and center tank individually with the Goodrich PSDA60-2R tester, and PSDA310-1 interface box, at the individual tank wall connectors (left and right aft wing spar and gear bay). This test set does test individual capacitance probes.

NOTE: The PSDA310-1 interface box is the only approved FedEx test equipment used for testing the fuel quantity system at the individual tank wall connector.

NOTE: To verify which fuel quantity system is installed on any particular aircraft, perform the following steps:

- Sign into the FedEx IMS system.
- Once the “ALL SYSTEMS ACCESS PATH” screen is displayed, clear the screen using the CLEAR command at the bottom of the screen.
- Type “NAT001” and press ENTER.
- On the “FedEx Maxi-Merlin” Main Menu screen, type CCMDM on the SEL/TRAN line and ENTER.
- On the Modification Display screen, enter the letter “E” on the Modification Type line, and
use E.O. Number 6-2840-7-5015 on the Modification Nbr line. Press ENTER.

- On the new screen, select the ACNs (PF5 key) and ENTER.
- Displays now show the status of each aircraft modification status. Letter “O” is open, letter “C” is closed/complete, letter “S” is scheduled, and letter “I” is initial aircraft

B. Equipment and Materials

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESIGNATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. PSDA310-1</td>
<td>Goodrich Interface Test Set (Test Cable)</td>
</tr>
<tr>
<td>B. PSD60-2R</td>
<td>Goodrich Test Set – Fuel System</td>
</tr>
<tr>
<td>C. Access Platform</td>
<td>2.44 meter (8 foot) for main gear bay access</td>
</tr>
<tr>
<td>D. Access Platform</td>
<td>4 meter (13 foot) for rear wing spar connectors</td>
</tr>
</tbody>
</table>

WARNING: MAKE CERTAIN LANDING GEAR GROUND SAFETIES AND CHOCKS ARE INSTALLED PRIOR TO BEGINNING ANY WORK. VERIFY THE AIRCRAFT IS TETHERED (REFERENCE THE GROUND SERVICING AND HANDLING MANUAL 2-74 IF REQUIRED). MAKE CERTAIN FLIGHT CONTROL GROUND SAFETIES AND NOTICES ARE IN PLACE. MAKE CERTAIN THAT FIRE FIGHTING EQUIPMENT IS AVAILABLE AND ADEQUATE. MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED BEFORE POWER IS SUPPLIED TO THE AIRCRAFT. OBSERVE THE SAFETY PRECAUTIONS IN (Ref. 28-00-00, P. Block 301).

NOTE: If necessary, reference the FedEx Circuit Breaker Reset Procedure in (Ref. 24-00-00, P. Block 201) for all circuit breaker “resets.”

NOTE: If necessary, reference the FedEx GMM in section 6-1-200 for policy/procedures when installing Danger Tags/Placards and Circuit Breaker Collars.
C. Procedures Outer Tanks

(1) Fuel Probes and Compensators - Outer Tanks.

(a) Job set up

1) Defuel the relevant tank(s) per (Ref. 28-25-00, P. Block 301).

NOTE: It is not necessary to drain the residual (unusable) fuel from the associated tank as long as all usable fuel is removed pre 28-25-00. P. Block 301. When resting the fuel quantity probes and compensator capacitance, should the capacitance values tested be outside of the allowable tolerance range, then that specific tank(s) MUST have the residual fuel drained thorough the water drain valves per 12-32-28, P. Block 301 and then that tank(s) is/are to be tested once again.

2) Drain off water and residual fuel per (Ref. 12-32-28, P. Block 301).

3) Open, safety and tag the following circuit breakers:

<table>
<thead>
<tr>
<th>PANEL</th>
<th>SERVICE</th>
<th>IDENT.</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>128VU</td>
<td>FUEL/FQI/SUPPLY &amp; IND</td>
<td>1QT</td>
<td>805/L53</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY 1</td>
<td>3QT</td>
<td>805/L84</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY 2</td>
<td>4QT</td>
<td>805/L85</td>
</tr>
</tbody>
</table>

(b) Test Procedures for Outer Tank (OUTR TK)

NOTE: For a complete list of approved FedEx Fuel Quantity Test Equipment. (Ref. Fig. 505)

1) Lower the slats and flaps per (Ref. 27-50-00, P. Block 301). Set SLATS/FLAPS
Control Handle in the 30/40 position (Slats 30; Flaps 40).

**NOTE**: When using the green hydraulic electric pumps to lower and/or raise the slats/flaps, DO NOT ACTIVATE THE PTU'S. Activating the PTU's will either slow down or inhibit Slat/Flap movement due to decreased pump capacity. Select the HYDRAULICS page on the ECAM DU when activating the green electric pumps to monitor pump pressure. Only lower and/or raise the slats/flaps one detent (position) at a time allowing for hydraulic pressure recovery before moving the SLATS/FLAPS Control Handle to the next detent.

2) Position the 4-meter (13-foot) access platform under the rear spar connector. Open access door(s) 581CB (681CB) and 581BB (681BB).

3) Carefully remove the fuel tank harness adapter from the rear spar tank wall connector (Ref. Fig. 503) as follows:

<table>
<thead>
<tr>
<th>POSITION</th>
<th>SERVICE</th>
<th>IDENTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>LW OUTR</td>
<td>HI-Z CONNECTOR</td>
<td>25QT1</td>
</tr>
<tr>
<td>LW OUTR</td>
<td>LO-Z CONNECTOR</td>
<td>26QT1</td>
</tr>
<tr>
<td>RW OUTR</td>
<td>HI-Z CONNECTOR</td>
<td>25QT2</td>
</tr>
<tr>
<td>RW OUTR</td>
<td>HI-Z CONNECTOR</td>
<td>26QT2</td>
</tr>
</tbody>
</table>

4) Connecting test equipment (Ref. Fig. 504 Sheet 1 and Fig 504 Sheet 2).qq
   a) Open the PSD60-2R test set (Ref. Fig. 502) and move the POWER switch to the ON position and check for the
battery condition. If the low battery level is indicated on the digital display, replace the batteries. Move the POWER switch to the OFF position.

b) Carefully connect the leads of the PSDA310-1 interface box to the PSDA60-2R tester as follows (Ref. Fig. 504 Sheet 1 and Fig. 502):

- The ground lead plug to the CHASSIS ground connector.
- The lead LO-Z to the TANK UNITS LO-Z connector.
- The lead HI-Z to the TANK UNITS HI-Z SHIELD connector.

NOTE: Examine the test leads of the PSDA310-1 interface box before installing them on the PSD60-2R test set. If the test leads are damaged IMMEDIATELY STOP ALL MAINTENANCE ACTIONS and secure another PSDA310-1 interface box. Installing the damaged BNC connectors on the PSD60-2R tester will damage this unit as well.

NOTE: Use care when connecting and disconnecting the test leads. DO NOT place any strain on the wires. Only touch the BNC connector when installing and disconnecting them from the PSD60-2R TESTER unit.

c) On the PSD60-2R test set, perform the following:

- Move the POWER switch to the ON position and WAIT three (3) minutes for the test set to stabilize.
- If a FREQUENCY SELECT switch is incorporated set the frequency to 1000 Hz.
- If a CAPACITANCE MEASUREMENT MODE selector switch is installed, move the MODE switch to the MODE B position.
- Move the FUNCTION SELECT (FUNCT) switch to the MEASURE EXT position.
- Move the MEGGER SELECT (SELECT) to the TU position.

NOTE: Most FedEx PSD60-2R TESTER ramp testers do not have a frequency selector or capacitance measurement mode switch installed.

d) On the PSDA310-1 interface box, rotate the knob to the TOTAL position. Record below, any stray capacitance values shown on the digital display of the PSD60-2R tester. Once recorded, move the rotary knob to each position and record below any stray capacitance values shown on the digital display of the PSD60-2R test set.

TOTAL:

COMP:

1:

2:

3:

4:

5:

6:

7:

NOTE: When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds.
NOTE: The recorded values above are subtracted from the readings of the TOTAL, COMP (compensator), and individual probe capacitance values. Reject any test harness of the PSDA310-1 interface box if the stray capacitance value in any position is greater than 1.0pF.

e) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) knob to the LO-Z/HI-Z position.

f) On the PSDA310-1 interface box, move the rotary knob through all of the tank positions (i.e. TOTAL; COMP; 1; 2; etc.) and measure the megohm resistance between the LO-Z and the HI-Z wires in the test harness. If the reading is less than infinity (infinite), then reject the test harness of the PSDA310-1 interface box.

NOTE: When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite (infinity) resistance values will be displayed on the test set as .0.0.0.0 and the display will flash (pulse). Typical resistance readings on the PSD60-2R tester will display zeros ("0") with flashing (pulsing) colons signifying "over limit" or "maximum resistance." This reading is the preferred display for this test. Short circuits will be displayed as 0000.
g) Repeat steps
   - LO-Z SHIELD
   - HI-Z SHIELD
   - SHLD/GND
   - LO-Z/GND
   - HI-Z/GND

h) Move the POWER SWITCH on the PSD60-2R tester to the OFF position.

5) Total Capacitance, Compensator, and Individual Probe Capacitance values for the OUTR TK (Ref. Table 503 for the Intertechnique System and Table 504 for the Goodrich System).
   a) Connect the PSDA310-1 interface box to the OUTR TK as follows:
      - Connect the AIRFRAME GROUND clip (“alligator clip”) on the tester to a valid aircraft ground
      - CAREFULLY connect PSDA310-1 connector 25QT to the tank wall connector 25QT1 (25QT2).
      - CAREFULLY connect PSDA310-1 connector 26QT to the tank wall connector 26QT1 (26QT2).
   b) On the PSD60-2R tester, move the POWER switch to the ON position and WAIT three (3) minutes for the test set to stabilize.
   c) On the PSD60-2R tester, move the S-2 FUNCTION SELECT (FUNCT) knob to the MEASURE EXT position.
   d) On the PSD60-2R tester, move the S-3 MEGGER SELECT (SELECT) knob to the TU position.
   e) On the PSDA310-1 interface box, rotate the rotary knob through each position. Record capacitance values for each position and compare them to the values Table 503 or Table 504.

NOTE: If the recorded capacitance value do not meet the
standards in Tables 503 or 504, repairs will be required for that fuel tank.

**NOTE**: Verify proper selection of the capacitance table when testing the fuel system. There is one table for the Intertechnique (Table 503) System (original installation) and another table for the Goodrich (Table 504) System. (FedEx E.O. #6-2840-7-5015 installs the Goodrich Fuel Quantity System.)

**NOTE**: For a complete list of approved FedEx Fuel Quantity Test Equipment, Ref. (Ref. Fig. 505).

Following is TABLE 503, the Intertechnique and is not to be used when the Goodrich Fuel Quantity System is installed.

**NOTE**: If necessary, FAX a copy of these capacitance measurements to FedEx MOCC and/or FedEx Engineering.

**NOTE**: Actual measurement of each PSDA310-1 interface box position is the value shown on the PSD60-2R tester MINUS the PSDA310-1 cable capacitance. (The cable capacitance values were recorded in test step 4d.)
### TABLE 503
OUTER TANK CAPACITANCE MEASUREMENTS - INTERTECHNIQUE SYSTEM

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>LW PROBE FIN</th>
<th>RW PROBE FIN</th>
<th>WET</th>
<th>DRY</th>
<th>TOLERANCE</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>N/A</td>
<td>N/A</td>
<td>202.00</td>
<td>200.5</td>
<td>±1.00</td>
<td></td>
</tr>
<tr>
<td>COMP</td>
<td>28QT1</td>
<td>28QT2</td>
<td>28.5</td>
<td>28.3</td>
<td>±0.50</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>28QT1</td>
<td>28QT2</td>
<td>23.7</td>
<td>23.55</td>
<td>±0.25</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>29QT1</td>
<td>29QT2</td>
<td>18.65</td>
<td>18.55</td>
<td>±0.25</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>30QT1</td>
<td>30QT2</td>
<td>47.65</td>
<td>47.35</td>
<td>±0.30</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>31QT1</td>
<td>31QT2</td>
<td>32.80</td>
<td>32.60</td>
<td>±0.25</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>24QT1</td>
<td>24QT2</td>
<td>26.65</td>
<td>26.55</td>
<td>±0.20</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>32QT1</td>
<td>32QT2</td>
<td>22.90</td>
<td>22.75</td>
<td>±0.25</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>33QT1</td>
<td>33QT2</td>
<td>28.50</td>
<td>28.35</td>
<td>±0.25</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**: If fuel was transferred and drained from the tank under test only use the WET capacitance values shown above.

**NOTE**: If a new fuel probe or compensator was installed and has NEVER been immersed in fuel, use the DRY capacitance value(s) shown above.

Following is TABLE 504, the Goodrich and is not to be used when the Intertechnique Fuel Quantity System is installed.

**Aircraft:** -
Date:

Position: Left Wing Right Wing (Circle applicable tank)

**NOTE**: If necessary, FAX a copy of these capacitance measurements to FedEx MOCC and/or FedEx Engineering.

**NOTE**: Actual measurement of each PSDA310-1 interface box position is the value shown on the PSD60-2R tester MINUS the PSDA310-1 cable capacitance. (The cable capacitance values were recorded in test step 4d.)

**NOTE**: If fuel was transferred and drained from the tank under test only use the WET capacitance values shown above.

**NOTE**: If a new fuel probe or compensator was installed and has NEVER been immersed in fuel, use the DRY capacitance value(s) shown above.

---

**TABLE 504**

**OUTER TANK CAPACITANCE MEASUREMENTS - GOODRICH SYSTEM**

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>LW PROBE FIN</th>
<th>RW PROBE FIN</th>
<th>WET EMPTY</th>
<th>DRY EMPTY</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>N/A</td>
<td>N/A</td>
<td>202.97 (max)</td>
<td>202.07 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200.07 (min)</td>
<td>200.07 (min)</td>
<td></td>
</tr>
<tr>
<td>COMP</td>
<td>28QT1</td>
<td>28QT2</td>
<td>29.00 (max)</td>
<td>28.80 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>27.80 (min)</td>
<td>27.80 (min)</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 504
OUTER TANK CAPACITANCE MEASUREMENTS – GOODRICH SYSTEM

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>LW PROBE FIN</th>
<th>RW PROBE FIN</th>
<th>WET EMPTY</th>
<th>DRY EMPTY</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28QT1</td>
<td>28QT2</td>
<td>29.97 (max)</td>
<td>29.77 (max)</td>
<td>28.77 (min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>28.77 (min)</td>
<td>28.77 (min)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>29QT1</td>
<td>29QT2</td>
<td>19.13 (max)</td>
<td>18.93 (max)</td>
<td>17.93 (min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17.93 (min)</td>
<td>17.93 (min)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>30QT1</td>
<td>30QT2</td>
<td>46.18 (max)</td>
<td>45.98 (max)</td>
<td>44.98 (min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>44.98 (min)</td>
<td>44.98 (min)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>31QT1</td>
<td>31QT2</td>
<td>32.75 (max)</td>
<td>32.55 (max)</td>
<td>31.55 (min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>31.55 (min)</td>
<td>31.55 (min)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>24QT1</td>
<td>24QT2</td>
<td>26.97 (max)</td>
<td>26.77 (max)</td>
<td>25.77 (min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25.77 (min)</td>
<td>25.77 (min)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>32QT1</td>
<td>32QT2</td>
<td>22.58 (max)</td>
<td>22.38 (max)</td>
<td>21.38 (min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21.38 (min)</td>
<td>21.38 (min)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>33QT1</td>
<td>33QT2</td>
<td>28.39 (max)</td>
<td>28.19 (max)</td>
<td>27.19 (min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>27.19 (min)</td>
<td>27.19 (min)</td>
<td></td>
</tr>
</tbody>
</table>

6) Measuring resistance for the OUTR TK (Ref. Table 503 and Table 504)

a) On the PSD60-2R tester, move the FUNCTION SELECT (FUNCT) knob to the
MEASURE EXT and MEGGER SELECT (SELET) knob to the LO-Z/HI-Z position.

b) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

c) Verify the displayed resistance value displayed on the PSD60-2R tester is greater than 100 megahoms.

d) On the PSDA310-1 interface box, move the rotary knob to the COMP position, then through positions 1; 2; 3; 4; 5; 6; 7 and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megahoms.

**NOTE :** When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite (infinity) resistance values will be displayed on the test set as .0.0.0.0 and the display will flash (pulse). Typical resistance readings on the PSD60-2R tester will display zeros (“0”) with flashing (pulsing) colons signifying “over limit” or “maximum resistance.” This reading is the preferred display for this test. Short circuits will be displayed as 0000.

e) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

f) On the PSD60-2R tester, verify the FUNCTION SELECT (FUNCT) knob is still in the MEASURE EXT position. Move the MEGGER SELECT (SELECT) knob to the LO-Z/SHIELD position.

g) On the PSD60-2R tester, the displayed resistance value will show a “short
On the PSDA310-1 interface box, move the rotary knob to the COMP position then position 1 (probe 1). The displayed resistance value will show a “short circuit” (0000). This is a normal reading. (See NOTE below.)

j) On the PSDA310-1 interface box, move the rotary knob to position 2, then through positions 3; 4; 5; 6; 7 and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megohms.

NOTE: A temperature compensation circuit is installed on the number one (#1) capacitance probe. This circuit connects from the LO-Z (terminal 2) to the Compensator shield (terminal 4) and the tank unit shield (terminal 1). The LO-Z shield will read 0000 on the PSD60-2R tester.

k) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

l) On the PSD60-2R tester, move the MEGGER SELECT (SELECT) knob to the HI-Z/SHIELD (SHLD) position.

m) On the PSD60-2R tester, the displayed resistance value shall show a resistance value of greater than 100 megohms.

n) On the PSDA310-1 interface box, move the rotary knob to the COMP position, then through positions 1; 2; 3; 4; 5; 6; 7 and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megohms.

p) Repeat steps “j” through “m” rotating the MEGGER SELECT (SELECT) knob to the SHIELD/GND (SHLD-GND); LO-Z/HI-Z-GND; HI-Z/GND positions. Move the rotary knob on the PSDA310-1 interface box through all positions (TOTAL; COMP; 1;
2; 3; 4; 5; 6; 7). The resistance values shall be greater than 100 megahoms when testing the TOTAL position, however, the resistance values shall be greater than 500 megahoms in all other positions (COMP; 1; 2; 3; 4; 5; 6; 7).

7) Close up
a) De-energize the aircraft electrical network as required.
b) On the PSD60-2R tester, move the POWER switch to the OFF position.
c) CAREFULLY disconnect the test leads from the PSD60-2R tester with the chassis ground the last lead that is disconnected. Stow all test leads then close, secure, and remove the tester.
d) CAREFULLY disconnect the PSDA310-1 interface box test leads from the wing spar connectors. Stow the test leads then close, secure, and remove the tester.
e) Using extreme CAUTION, carefully connect the aircraft's fuel harness electrical connectors to the aircraft. Take care to verify proper pin/socket mating when installing these electrical connectors.
f) Verify that the working area is clean and clear of tools and miscellaneous items of equipment.
g) If required, raise the Slats and Flaps per (Ref. 27-50-00, P. Block 301).
h) Remove the safety clips and tags, then close the circuit breakers 1QT, 3QT, and 4QT.
j) Return the aircraft to normal configuration.
k) If any of the resistance and/or capacitance values failed, notify FedEx MOCC for a maintenance deferral.
If a maintenance deferral is required,
the following must, at a minimum, be included in the deferral section:

- Description of failure (i.e. capacitance value too high, resistance value too low, etc.).
- Displayed failed value (i.e. resistance reading, displayed capacitance value).

1) If all resistance and capacitance values are within limits, state the following in the aircraft's logbook:

   “Performed a successful resistance and capacitance test of the L OUTR TK (R OUTR TK). All values are normal. This fuel tank is qualified for further service.”

D. Procedures Inner Tanks

   (1) Fuel Probes and Compensators - Inner Tanks

       (a) Job Set up

           1) Defuel the relevant tank(s) per (Ref.
               28-25-00, P. Block 301).

           NOTE: It is not necessary to drain the residual (unusable) fuel from the associated tank as long as all usable fuel is removed per 28-25-00. P. Block 301. When resting the fuel quantity probes and compensator capacitance, should the capacitance values tested be outside of the allowable tolerance range, then that specific tank(s) MUST have the residual fuel drained thorough the water drain valves per 12-32-28, P. Block 301 and then that tank(s) is/are to be tested once again.
2) Drain off water and residual fuel per (Ref. 12-32-28, P. Block 301).

3) Open, safety and tag the following circuit breakers:

<table>
<thead>
<tr>
<th>PANEL</th>
<th>SERVICE</th>
<th>IDENT.</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>128VU</td>
<td>FUEL/FQI/SUPPLY &amp; IND</td>
<td>1QT</td>
<td>805/L53</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY 1</td>
<td>3QT</td>
<td>805/L84</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY 2</td>
<td>4QT</td>
<td>805/L85</td>
</tr>
</tbody>
</table>

NOTE: To verify which fuel quantity system is installed on any particular aircraft, perform the following steps:

- Sign into the FedEx IMS system.
- Once the “ALL SYSTEMS ACCESS PATH” screen is displayed, clear the screen using the CLEAR command at the bottom of the screen.
- Type “NAT001” and press ENTER.
- On the “FedEx Maxi-Merlin” Main Menu screen, type CCMDM on the SEL/TRAN line and ENTER.
- On the Modification Display screen, enter the letter “E” on the Modification Type line, and use E.O. Number 6-2840-7-5015 on the Modification Nbr line. Press ENTER.
- On the new screen, select the ACNs (PF5 key) and ENTER.
- Displays now show the status of each aircraft modification status. Letter “O” is open, letter “C” is closed/complete, letter “S” is scheduled, and letter “I” is initial aircraft.
Test Procedures for Inner Tank (INR TK)

NOTE: For a complete list of approved FedEx Fuel Quantity Test Equipment, Ref. (Ref. Fig. 505).

1) Lower the slats and flaps per Ref. 27-50-00, P. Block 301. Set SLATS/FLAPS Control Handle in the 30/40 position (Slats 30; Flaps 40).

NOTE: When using the green hydraulic electric pumps to lower and/or raise the slats/flaps, DO NOT ACTIVATE THE PTU'S. Activating the PTU's will either slow down or inhibit Slat/Flap movement due to decreased pump capacity. Select the HYDRAULICS page on the RECAM DU when activating the green electric pumps to monitor pump pressure. Only lower and/or raise the slats/flaps one detent (position) at a time allowing for hydraulic pressure recovery before moving the SLATS/FLAPS Control Handle to the next detent.

2) Position the 4-meter (13-foot) access platform under the rear spar connector. Open access door(s) 581CB (681CB) and 581BB (681BB). (Ref. Fig. 503)

3) Carefully remove the fuel tank harness adapter from the rear spar tank wall connector (Ref. Fig. 503) as follows:

<table>
<thead>
<tr>
<th>POSITION</th>
<th>SERVICE CONNECTOR</th>
<th>IDENTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>LW OUTR</td>
<td>HI-Z</td>
<td>25QT1</td>
</tr>
<tr>
<td>LW OUTR</td>
<td>LO-Z</td>
<td>26QT1</td>
</tr>
<tr>
<td>RW OUTR</td>
<td>HI-Z</td>
<td>25QT2</td>
</tr>
</tbody>
</table>
4) Connecting test equipment (Ref. Fig. 504 Sheet 1 and Fig. 504 Sheet 2).

a) Open the PSD60-2R test set (Ref. Fig. 502) and move the POWER switch to the ON position and check for the battery condition. If the low battery level is indicated on the digital display, replace the batteries. Move the POWER switch to the OFF position.

b) CAREFULLY connect the leads of the interface cable PSDA300-3 to the PSDA60-2R tester as follows (Ref. Fig. 504 Sheet 1 and Fig. 504 Sheet 2):

- The ground lead plug to the CHASSIS ground connector.
- The lead LO-Z to the TANK UNITS LO-Z connector.
- The lead HI-Z to the TANK UNITS HI-Z SHIELD connector.

NOTE: Examine the test leads of the interface cable PSDA300-3 before installing them on the PSD60-2R test set. If the test leads are damaged IMMEDIATELY STOP ALL MAINTENANCE ACTIONS and secure another PSDA300-3 interface box. Installing the damaged BNC connectors on the PSD60-2R tester will damage this unit as well.

NOTE: Use care when connecting and disconnecting the test leads. DO NOT place any strain on the wires. Only touch the BNC connector when installing and disconnecting.
them from the PSD60-2R test set.

c) On the PSD60-2R test set, perform the following:
   - Move the POWER switch to the ON position and WAIT three (3) minutes for the test set to stabilize.
   - If a FREQUENCY SELECT switch is incorporated set the frequency to 1000 Hz.
   - If a CAPACITANCE MEASUREMENT MODE selector switch is installed, move the MODE switch to the MODE B position.
   - Move the FUNCTION SELECT (FUNCT) switch to the MEASURE EXT position.
   - Move the MEGGER SELECT (SELECT) to the TU position.

   **NOTE:** Most FedEx PSD60-2R TESTER ramp testers do not have a frequency selector or capacitance measurement mode switch installed.

d) On the PSDA310-1 interface box, rotate the knob to the TOTAL position. Record below, any stray capacitance values shown on the digital display of the PSD60-2R tester. Once recorded, move the rotary knob to each position and record below any stray capacitance values shown on the digital display of the PSD60-2R tester.

   TOTAL:

   COMP:
   
   1:
   
   2:
   
   3:
   
   4:
   
   5:
NOTE: Positions 6 and 7 are NOT used for the INR TK probe measurements.

NOTE: When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds.

NOTE: The recorded values above are subtracted from the readings of the TOTAL, COMP (compensator), and individual probe capacitance values. Reject any test harness of the PSDA310-1 interface box if the stray capacitance value in any position is greater than 1.0pF.

e) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) knob to the LO-Z/HI-Z position.

f) On the PSDA310-1 interface box, move the rotary knob through all of the tank positions (i.e. TOTAL; COMP; 1; 2; etc.) and measure the megahom resistance between the LO-Z and the HI-Z wires in the test harness. If the reading is less than infinity (infinite), then reject the test harness of the PSDA310-1 interface box.

NOTE: When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite (infinity) resistance values will be displayed on the test set as .0.0.0.0 and the display will flash (pulse). Typical
resistance readings on the PSD60-2R tester will display zeros ("0") with flashing (pulsing) colons signifying “over limit” or “maximum resistance.” This reading is the preferred display for this test. Short circuits will be displayed as 0000.

g) Repeat steps “e” and “f” with the PSD60-2R MEGGER SELECT (SELECT) at each of these positions and verify the resistance value is infinite:

- LO-Z/SHIELD
- HI-Z/SHIELD
- SHLD/GND
- LO-Z/GND
- HI-Z/GND

h) Move POWER SWITCH on the PSD60-2R tester to the OFF position.

5) Total capacitance, Compensator, and Individual Probe Capacitance values for the INT TK (Ref. Table 505 [Intertechnique System] and Table 506 [Goodrich System])

a) Connect the PSDA310-1 interface box to the INR TK as follows:

- Connect the AIRFRAME GROUND clip ("alligator clip") on the tester to a valid aircraft ground
- On the PSDA310-1 interface box, connect adapter cable P/N 55-0782-01 to the PSDA310-1 connector 25QT.
- CAREFULLY connect PSDA310-1 connector 34QT to the tank wall connector 34QT1 (34QT2).
- CAREFULLY connect PSDA310-1 connector 26QT to the tank wall connector 35QT1 (34QT2).

b) On the PSD60-2R tester, move the POWER switch to the ON position and WAIT.
three (3) minutes for the test set to stabilize.

c) On the PSD60-2R tester, move the S-2 FUNCTION SELECT (FUNCT) knob to the MEASURE EXT position.
d) On the PSD60-2R tester, move the S-3 MEGGER SELECT (SELECT) knob to the TU position.
e) On the PSDA310-1 interface box, rotate the rotary knob through each position. Record capacitance values for each position and compare them to the values in Table 505 or Table 506.

**NOTE:** If the recorded capacitance value do not meet the standards in Tables 505 or 506, repairs will be required for that fuel tank.

**NOTE:** Verify proper selection of the capacitance table when testing the fuel system. There is one table for the Intertechnique (Table 505) System (original installation) and another table for the Goodrich (Table 506) System. (FedEx E.O. #6-2840-7-5015 installs the Goodrich Fuel Quantity System.)

**NOTE:** For a complete list of approved FedEx Fuel Quantity Test Equipment, Ref. (Ref. Fig. 505).

Following is TABLE 505, the Intertechnique and is not to be used when the Goodrich Fuel Quantity System is installed.

Aircraft: 

Date: 

Position: Left Wing Right Wing (Circle applicable tank)
NOTE: If necessary, FAX a copy of these capacitance measurements to FedEx MOCC and/or FedEx Engineering.

NOTE: Actual measurement of each PSDA310-1 interface box position is the value shown on the PSD60-2R tester MINUS the PSDA310-1 cable capacitance. (The cable capacitance values were recorded in test step 4d.)

### TABLE 505
#### INNER TANK CAPACITANCE MEASUREMENTS - INTERTECHNIQUE SYSTEM

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>LW PROBE FIN</th>
<th>RW PROBE FIN</th>
<th>WET</th>
<th>DRY</th>
<th>TOLERANCE</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>N/A</td>
<td>N/A</td>
<td>228.00</td>
<td>226.50</td>
<td>± 1.00</td>
<td></td>
</tr>
<tr>
<td>COMP</td>
<td>41QT1</td>
<td>41QT2</td>
<td>28.80</td>
<td>28.50</td>
<td>± 0.50</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>41QT1</td>
<td>41QT2</td>
<td>20.25</td>
<td>20.20</td>
<td>± 0.25</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>40QT1</td>
<td>40QT2</td>
<td>15.95</td>
<td>15.90</td>
<td>± 0.25</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>39QT1</td>
<td>39QT2</td>
<td>105.70</td>
<td>105.15</td>
<td>± 0.40</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>38QT1</td>
<td>38QT2</td>
<td>62.45</td>
<td>62.10</td>
<td>± 0.30</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>37QT1</td>
<td>37QT2</td>
<td>22.95</td>
<td>22.80</td>
<td>± 0.25</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: If fuel was transferred and drained from the tank under test only use the WET capacitance values shown above.

NOTE: If a new fuel probe or compensator was installed and has NEVER been immersed in fuel, use the DRY
capacitance value(s) shown above.

Following is TABLE 506, the Goodrich and is not to be used when the Intertechnique Fuel Quantity System is installed.

Aircraft: -

Date: 

Position: Left Wing Right Wing (Circle applicable tank)

NOTE: If necessary, FAX a copy of these capacitance measurements to FedEx MOCC and/or FedEx Engineering.

NOTE: Actual measurement of each PSDA310-1 interface box position is the value shown on the PSD60-2R tester MINUS the PSDA310-1 cable capacitance. (The cable capacitance values were recorded in test step 4d.)

NOTE: If fuel was transferred and drained from the tank under test only use the WET capacitance values shown above.

NOTE: If a new fuel probe or compensator was installed and has NEVER been immersed in fuel, use the DRY capacitance value(s) shown above.
### TABLE 506
INNER TANK CAPACITANCE MEASUREMENTS – GOODRICH SYSTEM

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>LW PROBE FIN</th>
<th>RW PROBE FIN</th>
<th>WET EMPTY</th>
<th>DRY EMPTY</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>N/A</td>
<td>N/A</td>
<td>229.07 (max)</td>
<td>228.17 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>226.17 (min)</td>
<td>226.17 (min)</td>
<td></td>
</tr>
<tr>
<td>COMP</td>
<td>41QT1</td>
<td>41QT2</td>
<td>29.00 (max)</td>
<td>28.80 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>27.80 (min)</td>
<td>27.80 (min)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>41QT1</td>
<td>41QT2</td>
<td>30.54 (max)</td>
<td>30.34 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>29.34 (min)</td>
<td>29.34 (min)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>40QT1</td>
<td>40QT2</td>
<td>17.28 (max)</td>
<td>17.08 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16.08 (min)</td>
<td>16.08 (min)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>39QT1</td>
<td>39QT2</td>
<td>100.72 (max)</td>
<td>100.52 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>99.52 (min)</td>
<td>99.52 (min)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>38QT1</td>
<td>38QT2</td>
<td>59.31 (max)</td>
<td>59.11 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>58.11 (min)</td>
<td>58.11 (min)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>37QT1</td>
<td>37QT2</td>
<td>22.82 (max)</td>
<td>22.62 (max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21.62 (min)</td>
<td>21.62 (min)</td>
<td></td>
</tr>
</tbody>
</table>

6) Measuring resistance for the INR TK (Ref. Table 505 and Table 506)

a) On the PSD60-2R tester, move the FUNCTION SELECT (FUNCT) knob to the
MEASURE EXT and MEGGER SELECT (SELET) knob to the LO-Z/HI-Z position.

b) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

c) Verify the displayed resistance value displayed on the PSD60-2R tester is greater than 100 megahoms.

d) On the PSDA310-1 interface box, move the rotary knob to the COMP position, then through positions 1; 2; 3; 4; 5; and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megahoms.

NOTE : When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite resistance values will be displayed on the test set as .0.0.0.0 and the display will flash (pulse). Typical resistance readings on the PSD60-2R tester will display zeros ("0") with flashing (pulsing) colons signifying “over limit” or “maximum resistance.” This reading is the preferred display for this test. Short circuits will be displayed as 0000.

e) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

f) On the PSD60-2R tester, verify the FUNCTION SELECT (FUNCT) knob is still in the MEASURE EXT position. Move the MEGGER SELECT (SELECT) knob to the LO-Z/SHIELD position.

g) On the PSD60-2R tester, the displayed resistance value will show a “short
circuit" (0000). This is normal reading. (See NOTE below.)

h) On the PSDA310-1 interface box, move the rotary knob to the COMP position then position 1 (probe 1). The displayed resistance value will show a “short circuit” (0000). This is a normal reading. (See NOTE below).

j) On the PSDA310-1 interface box, move the rotary knob to position 2, then through positions 3; 4; 5; and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megaohms.

NOTE: A temperature compensation circuit is installed on the number one (#1) capacitance probe. This circuit connects from the LO-Z (terminal 2) to the Compensator shield (terminal 4) and the tank unit shield (terminal 1). The LO-Z shield will read 0000 on the PSD60-2R tester.

k) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

l) On the PSD60-2R tester, move the MEGGER SELECT (SELECT) knob to the HI-Z/SHELDR (SHLD) position.

m) On the PSD60-2R tester, the displayed resistance value shall show a resistance value of greater than 100 megohms.

n) On the PSDA310-1 interface box, move the rotary knob to the COMP position, then through positions 1; 2; 3; 4; 5; 6; 7 and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megahoms.

p) Repeat steps “j” through “m” rotating the MEGGER SELECT (SELECT) knob to the SHIELD/GND (SHLD-GND); LO-Z/HI-Z-GND; HI-Z/GND positions. Move the rotary knob on the PSDA310-1 interface box through all positions (TOTAL; COMP; 1;
The resistance values shall be greater than 100 megahoms when testing the TOTAL position, however, the resistance values shall be greater than 500 megahoms in all other positions (COMP; 1; 2; 3; 4; 5).

7) Close up

a) De-energize the aircraft electrical network as required.

b) On the PSD60-2R tester, move the POWER switch to the OFF position.

c) CAREFULLY disconnect the test leads from the PSD60-2R tester with the chassis ground the last lead that is disconnected. Stow all test leads then close, secure, and remove the tester.

d) CAREFULLY disconnect the PSDA310-1 interface box test leads from the wing spar connectors. Stow the test leads then close, secure, and remove the tester.

e) Using extreme CAUTION, carefully connect the aircraft's fuel harness electrical connectors to the aircraft. Take care to verify proper pin/socket mating when installing these electrical connectors.

f) Verify that the working area is clean and clear of tools and miscellaneous items of equipment.

g) If required, raise the Slats and Flaps per (Ref. 27-50-00, P. Block 301).

h) Remove the safety clips and tags, then close the circuit breakers 1QT, 3QT, and 4QT.

i) Return the aircraft to normal configuration.

j) If any of the resistance and/or capacitance values failed, notify FedEx MOCC for a maintenance deferral. If a maintenance deferral is required,
the following must, at a minimum, be included in the deferral section:

- Description of failure (i.e. capacitance value too high, resistance value too low, etc.)
- Displayed failed value (i.e. resistance reading, displayed capacitance value).

1) If all resistance and capacitance values are within limits, state the following in the aircraft's logbook: “Performed a successful resistance and capacitance test of the L INR TK (R INR TK). All values are normal. This fuel tank is qualified for further service.”

E. Procedures Center Tanks

(1) Fuel Probes and Compensators – Center Tank.

(a) Job set up

1) Defuel the Center tank per (Ref. 28-25-00, P. Block 301).

NOTE: It is not necessary to drain the residual (unreadable) fuel from the associated tank as long as all usable fuel is removed per 28-25-00. P. Block 301. When resting the fuel quantity probes and compensator capacitance, should the capacitance values tested be outside of the allowable tolerance range, then that specific tank(s) MUST have the residual fuel drained through the water drain valves per 12-32-28, P. Block 301 and then that tank(s) is/are to be tested once again.
2) Drain off water and residual fuel per (Ref. 12-32-28, P. Block 301).

3) Open, safety and tag the following circuit breakers:

<table>
<thead>
<tr>
<th>PANEL</th>
<th>SERVICE</th>
<th>IDENT.</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>128VU</td>
<td>FUEL/FQI/SUPPLY &amp; IND</td>
<td>1QT</td>
<td>805/L53</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY 1</td>
<td>3QT</td>
<td>805/L84</td>
</tr>
<tr>
<td>128VU</td>
<td>FUEL/FQI/CHAN SUPPLY 2</td>
<td>4QT</td>
<td>805/L85</td>
</tr>
</tbody>
</table>

(b) Test Procedures for Center Tank (CTR TK)

NOTE: To verify which fuel quantity system is installed on any particular aircraft, perform the following steps:
- Sign into the FedEx IMS system.
- Once the “ALL SYSTEMS ACCESS PATH” screen is displayed, clear the screen using the CLEAR command at the bottom of the screen.
- Type “NAT001” and press ENTER.
- On the “FedEx Maxi-Merlin” Main Menu screen, type CCMDM on the SEL/TRAN line and ENTER.
- On the Modification Display screen, enter the letter “E” on the Modification Type line, and use E.O. Number 6-2840-7-5015 on the Modification Nbr line. Press ENTER.
- On the new screen, select the ACNs (PF5 key) and ENTER.
- Displays now show the status of each aircraft modification status. Letter “O” is open, letter “C” is closed/complete, letter “S” is scheduled, and letter “I” is initial aircraft.

NOTE: For a complete list of approved FedEx Fuel Quantity Test Equipment, (Ref. Fig. 505).
1) Open the R Main Landing Gear (MLG) Bay Door per (Ref. 32-12-11, P. Block 301).

**NOTE:** It is highly recommended that locks be installed on all MLG door cylinders when the door is in the open position for maintenance.

2) Position the 2.44 meter (8 foot) access platform in the R MLG Bay in order to gain access to the 42QT and 43QT electrical connectors. (Ref. Fig. 503)

3) Carefully remove the fuel tank harness adapter from the rear spar tank wall connector (Ref. Fig. 503) as follows:

<table>
<thead>
<tr>
<th>POSITION</th>
<th>SERVICE</th>
<th>IDENTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTR</td>
<td>HI-Z CONNECTOR</td>
<td>42QT</td>
</tr>
<tr>
<td>CTR</td>
<td>LO-Z CONNECTOR</td>
<td>43QT</td>
</tr>
</tbody>
</table>

4) Connecting test equipment (Ref. Fig. 504 Sheet 1 and Fig. 504 Sheet 2).

   a) Open the PSD60-2R test set (Ref. Fig. 502) and move the POWER switch to the ON position and check for the battery condition. If the low battery level is indicated on the digital display, replace the batteries. Move the POWER switch to the OFF position.

   b) CAREFULLY connect the leads of the PSDA310-1 interface box to the PSDA60-2R tester as follows (Ref. Fig. 504 Sheet 1 and Fig. 504 Sheet 2):

   - The ground lead plug to the CHASSIS ground connector.
   - The lead LO-Z to the TANK UNITS LO-Z connector.
   - The lead HI-Z to the TANK UNITS HI-Z SHIELD connector.
NOTE: Examine the test leads of the PSDA310-1 interface box before installing them on the PSD60-2R test set. If the test leads are damaged IMMEDIATELY STOP ALL MAINTENANCE ACTIONS and secure another PSDA300-3 interface box. Installing the damaged BNC connectors on the PSD60-2R tester will damage this unit as well.

NOTE: Use care when connecting and disconnecting the test leads. DO NOT place any strain on the wires. Only touch the BNC connector when installing and disconnecting them from the PSD60-2R TESTER unit.

c) On the PSD60-2R test set, perform the following:

- Move the POWER switch to the ON position and WAIT three (3) minutes for the test set to stabilize.
- If a FREQUENCY SELECT switch is incorporated set the frequency to 1000 Hz.
- If a CAPACITANCE MEASUREMENT MODE selector switch is installed, move the MODE switch to the MODE B position.
- Move the FUNCTION SELECT (FUNCT) switch to the MEASURE EXT position.
- Move the MEGGER SELECT (SELECT) to the TU position.

NOTE: Most FedEx PSD60-2R TESTER ramp testers do not have a frequency selector or capacitance measurement mode switch installed.

d) On the PSDA310-1 interface box, rotate the knob to the TOTAL position. Record below, any stray capacitance values shown on the digital display of the
PSD60-2R tester. Once recorded, move the rotary knob to each position and record below any stray capacitance values shown on the digital display of the PSD60-2R TESTER tester.

TOTAL:

COMP:

RT:

LT:

CT:

NOTE: When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds.

NOTE: The recorded values above are subtracted from the readings of the TOTAL, COMP (compensator), and individual probe capacitance values. Reject any test harness of the PSDA310-1 interface box if the stray capacitance value in any position is greater than 1.0pF.

e) On the PSD60-2R tester, rotate the MEGGER SELECT (SELECT) knob to the LO-Z/HI-Z position.

f) On the PSDA310-1 interface box, move the rotary knob through all of the tank positions (i.e. TOTAL; COMP; R/H; CENTER; L/H) and measure the megohm resistance between the LO-Z and the HI-Z wires in the test harness. If the reading is less than infinity (infinite), then reject the test
harness of the PSDA310-1 interface box.

**NOTE:** When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite (infinity) resistance values will be displayed on the test set as .0.0.0.0 and the display will flash (pulse). Typical resistance readings on the PSD60-2R tester will display zeros ("0") with flashing (pulsing) colons signifying “over limit” or “maximum resistance.” This reading is the preferred display for this test. Short circuits will be displayed as 0000.

g) Repeat steps “e” and “f” with the PSD60-2R MEGGER SELECT (SELECT) at each of these positions and verify the resistance value is infinite:
- LO-Z/SHIELD
- HI-Z/SHIELD
- SHLD/GND
- LO-Z/GND
- HI-Z/GND

h) Move the POWER SWITCH on the PSD60-2R tester to the OFF position.

5) Total Capacitance, Compensator, and Individual Probe Capacitance values for the CTR TK (Ref. Table 507 for Intertechnique
Connect the PSDA310-1 interface box to the INR TK as follows:

- Connect the AIRFRAME GROUND clip ("alligator clip") on the tester to a valid aircraft ground
- On the PSDA310-1 interface box, connect adapter cable P/N 55-0782-02 to the PSDA310-1 connector 25QT.
- On the PSDA310-1 interface box, connect adapter cable P/N 55-0782-03 to the PSDA310-1 connector 26QT.
- CAREFULLY connect PSDA310-1 connectors 25QT and 26QT to the CTR TK wall connectors 42QT and 43QT.

b) On the PSD60-2R tester, move the POWER switch to the ON position and WAIT three (3) minutes for the test set to stabilize.

c) On the PSD60-2R tester, move the S-2 FUNCTION SELECT (FUNCT) knob to the MEASURE EXT position.

d) On the PSD60-2R tester, move the S-3 MEGGER SELECT (SELECT) knob to the TU position.

e) On the PSDA310-1 interface box, rotate the rotary knob through each position. Record capacitance values for each position and compare them to the values in Table 507 or Table 508.

**NOTE**: If the recorded capacitance value do not meet the standards in Tables 507 or 508, repairs will be required for that fuel tank.

**NOTE**: Verify proper selection of the capacitance table when testing the fuel system. There is one table for the Intertechnique (Table 507) System (original installation) and another table for the Goodrich System and Table 508 for the Goodrich System.)
(Table 508) System. (FedEx E.O. #6-2840-7-5015 installs the Goodrich Fuel Quantity System.)

NOTE: For a complete list of approved FedEx Fuel Quantity Test Equipment, Ref. (Ref. Fig. 505).

Following is TABLE 507, the Intertechnique and is not to be used when the Goodrich Fuel Quantity System is installed.

Aircraft: -

Date: ________________________________

NOTE: If necessary, FAX a copy of these capacitance measurements to FedEx MOCC and/or FedEx Engineering.

NOTE: Actual measurement of each PSDA310-1 interface box position is the value shown on the PSD60-2R tester MINUS the PSDA310-1 cable capacitance. (The cable capacitance values were recorded in test step 4d.)

**TABLE 507**

**CENTER TANK CAPACITANCE MEASUREMENTS - INTERTECHNIQUE SYSTEM**

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>PROBE FIN</th>
<th>WET</th>
<th>DRY</th>
<th>TOLERANCE</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>N/A</td>
<td>329.75</td>
<td>328.50</td>
<td>± 1.50</td>
<td></td>
</tr>
<tr>
<td>COMP</td>
<td>45QT</td>
<td>28.50</td>
<td>28.30</td>
<td>± 0.50</td>
<td></td>
</tr>
<tr>
<td>RT</td>
<td>45QT</td>
<td>116.60</td>
<td>116.15</td>
<td>± 0.50</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>47QT</td>
<td>96.10</td>
<td>95.75</td>
<td>± 0.55</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 507
**CENTER TANK CAPACITANCE MEASUREMENTS - INTERTECHNIQUE SYSTEM**

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>PROBE FIN</th>
<th>WET</th>
<th>DRY</th>
<th>TOLERANCE</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT</td>
<td>46QT</td>
<td>116.75</td>
<td>116.25</td>
<td>± 0.55</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** If fuel was transferred and drained from the tank under test only use the WET capacitance values shown above.

**NOTE:** If a new fuel probe or compensator was installed and has NEVER been immersed in fuel, use the DRY capacitance values shown above.

Following is TABLE 508, the Goodrich and is not to be used when the Intertechnique Fuel Quantity System is installed.

**Aircraft:**

**Date:**

**NOTE:** If necessary, FAX a copy of these capacitance measurements to FedEx MOCC and/or FedEx Engineering.

**NOTE:** Actual measurement of each PSDA310-1 interface box position is the value shown on the PSD60-2R tester MINUS the PSDA310-1 cable capacitance. (The cable capacitance values were recorded in test step 4d.)

**NOTE:** If fuel was transferred and drained from the tank under test only use the WET...
capacitance values shown above.

**NOTE:** If a new fuel probe or compensator was installed and has NEVER been immersed in fuel, use the DRY capacitance value(s) shown above.

### TABLE 508
CENTER TANK CAPACITANCE MEASUREMENTS - GOODRICH SYSTEM

<table>
<thead>
<tr>
<th>PSDA310-1 INTERFACE BOX POSITION</th>
<th>PROBE FIN</th>
<th>WET</th>
<th>DRY</th>
<th>TOLERANCE</th>
<th>ACTUAL MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>N/A</td>
<td>328.37 (max)</td>
<td>326.62 (max)</td>
<td>324.12 (min)</td>
<td>324.62 (min)</td>
</tr>
<tr>
<td>COMP</td>
<td>45QT</td>
<td>29.00 (max)</td>
<td>28.80 (max)</td>
<td>27.80 (min)</td>
<td>27.80 (min)</td>
</tr>
<tr>
<td>RT</td>
<td>45QT</td>
<td>127.50 (max)</td>
<td>127.00 (max)</td>
<td>125.00 (min)</td>
<td>125.00 (min)</td>
</tr>
<tr>
<td>CT</td>
<td>47QT</td>
<td>92.16 (max)</td>
<td>91.66 (max)</td>
<td>89.76 (min)</td>
<td>89.86 (min)</td>
</tr>
<tr>
<td>LT</td>
<td>46QT</td>
<td>110.36 (max)</td>
<td>109.88 (max)</td>
<td>107.86 (min)</td>
<td>107.86 (min)</td>
</tr>
</tbody>
</table>

6) Measuring resistance for the CTR TK (Ref. Table 507 and Table 508).

a) On the PSD60-2R tester, move the FUNCTION SELECT (FUNCT) knob to the
MEASURE EXT and MEGGER SELECT (SELET) knob to the LO-Z/HI-Z position.

b) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

c) Verify the displayed resistance value displayed on the PSD60-2R tester is greater than 100 megahoms.

d) On the PSDA310-1 interface box, move the rotary knob to the COMP position, then through positions R/H; CENTER; L/H and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megahoms.

**NOTE:** When selecting the parameter for measurement, allow the PSDA60-2R tester to stabilize before recording any readings. The measured value should be constant for more than ten (10) seconds. Infinite resistance values will be displayed on the test set as 0.0.0.0.0 and the display will flash (pulse). Typical resistance readings on the PSD60-2R tester will display zeros ("0") with flashing (pulsing) colons signifying “over limit” or “maximum resistance.” This reading is the preferred display for this test. Short circuits will be displayed as 0000.

e) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

f) On the PSD60-2R tester, verify the FUNCTION SELECT (FUNCT) knob is still in the MEASURE EXT position. Move the MEGGER SELECT (SELECT) knob to the LO-Z/SHIELD position.

g) On the PSD60-2R tester, the displayed resistance value will show a “short
circuit” (0000). This is normal reading. (See NOTE below.)

h) On the PSDA310-1 interface box, move the rotary knob to the COMP position then position 1 (probe 1). The displayed resistance value will show a “short circuit” (0000). This is a normal reading. (See NOTE below).

j) On the PSDA310-1 interface box, move the rotary knob to position 2, then through positions 3; 4; 5; and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megaohms.

NOTE: A temperature compensation circuit is installed on the number one (#1) capacitance probe. This circuit connects from the LO-Z (terminal 2) to the Compensator shield (terminal 4) and the tank unit shield (terminal 1). The LO-Z shield will read 0000 on the PSD60-2R tester.

k) On the PSDA310-1 interface box, move the rotary knob to the TOTAL position.

l) On the PSD60-2R tester, move the MEGGER SELECT (SELECT) knob to the HI-Z/SHIELD (SHLD) position.

m) On the PSD60-2R tester, the displayed resistance value shall show a resistance value of greater than 100 megahoms.

n) On the PSDA310-1 interface box, move the rotary knob to the COMP position, then through positions R/H; CENTER; L/H and verify the displayed resistance value on the PSD60-2R tester is greater than 500 megahoms.

p) Repeat steps “f” through “i” rotating the MEGGER SELECT (SELECT) knob to the SHIELD/GND (SHLD-GND); LO-Z/HI-Z-GND; HI-Z/GND positions. Move the rotary knob on the PSDA310-1 interface box through all positions (TOTAL; COMP;
RT; CT; LT). The resistance values shall be greater than 100 megahoms when testing the TOTAL position, however, the resistance values shall be greater than 500 megahoms in all other positions (COMP; RT; CT; LT).

7) Close-up
   a) De-energize the aircraft electrical network as required.
   b) On the PSD60-2R tester, move the POWER switch to the OFF position.
   c) CAREFULLY disconnect the test leads from the PSD60-2R tester with the chassis ground the last lead that is disconnected. Stow all test leads then close, secure, and remove the tester.
   d) CAREFULLY disconnect the PS DA310-1 test leads from the wing spar connectors. Stow the test leads then close, secure, and remove the tester.
   e) Using extreme CAUTION, CAREFULLY connect the aircraft's fuel harness electrical connectors to the aircraft. Take care to verify proper pin/socket mating when installing these electrical connectors.
   f) Verify that the working area is clean and clear of tools and miscellaneous items of equipment.
   g) If required, close the R MLG door (reference (Ref. 32-12-11, P. Block 301 ) ).
   h) Remove the safety clips and tags, then close the circuit breakers 1QT, 3QT, and 4QT.
   j) Return the aircraft to normal configuration.
   k) If any of the resistance and/or capacitance values failed, notify FedEx MOCC for a maintenance deferral. If a maintenance deferral is required,
the following must, at a minimum, be included in the deferral section:

- Description of failure (i.e. capacitance value too high, resistance value too low, etc.).

- Displayed failed value (i.e. resistance reading, displayed capacitance value).

1) If all resistance and capacitance values are within limits, state the following in the aircraft's logbook: “Performed a successful resistance and capacitance test of the CTR TK. All values are normal. This fuel tank is qualified for further service.”
Figure 501
Figure 501 (Sheet 1)
Figure 502

Figure 502. PSD60-2R TESTER - TYPICAL Figure 502 (Sheet 1)
Figure 502

Figure 502. PSD60-2R TESTER - TYPICAL CONNECTIONS Figure 502  (Sheet 2)
Figure 503

Figure 503. TANK CONNECTOR LOCATION AND IDENTIFICATION  Figure 503 (Sheet 1)
Figure 504

Figure 504. PSDA60-2R TESTER TO PSDA310-1 INTERFACE BOX CONNECTIONS

Figure 504 (Sheet 1)
Figure 504
Figure 504. PSDA310-1 INTERFACE BOX Figure 504 (Sheet 2)
<table>
<thead>
<tr>
<th>TESTER</th>
<th>A310-200</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSD60-2R</td>
<td>YES</td>
</tr>
<tr>
<td>PSDA300-3</td>
<td>YES. (Used at 15 QT Fuel Quantity Computer location only)</td>
</tr>
<tr>
<td>PSDA310-1</td>
<td>YES. Used to test CTR, INR, and OUTR TK. Applicable on both Intertechnique and Goodrich Systems.</td>
</tr>
</tbody>
</table>

**Figure 505**

Figure 505. FedEx Test Equipment for Fuel Quantity System - Adjustment/Test (Sheet 1)