FUEL QUANTITY (CAN BUS) - ADJUSTMENT/TEST

1. Fuel Quantity System Calibration and Check Setup (Airplanes with CAN bus type fuel level sensors).

NOTE: All G1000 aircraft must have software version 0767.00 or later. The software version is shown on the upper right corner of the MFD on the first page shown after the MFD is powered on in normal operation.

NOTE: If the fuel quantity indicator on the Garmin G1000 system has a red X on it during normal operation, examine the fuel quantity sensors and wiring and refer to the Garmin G1000 Line Maintenance Manual for more Garmin system troubleshooting. If the values given on the PFD are not the same as the values given in the calibration procedure, refer to the Garmin G1000 Line Maintenance Manual for troubleshooting.

A. Do a Fuel Quantity Calibration and Check Setup.

(1) Make the airplane level.

(a) Make the wings level to 0.0 degrees, +0.25 or -0.25 degree. Refer to Chapter 8, Leveling - Maintenance Practices.

(b) Make the airplane level to 1.50 degrees, +0.25 or -0.25 degrees nose up position. Refer to Chapter 8, Leveling - Maintenance Practices.

(2) Put the selector valves in the ON position.

(3) Defuel the airplane. Refer to Chapter 12, Fuel - Servicing.

(a) Drain the fuel tanks until the two tanks are empty.

(4) Put the fuel selector valves in the OFF position.

(5) Add unusable fuel to each fuel tank. Refer to the Pilot's Operating Handbook for the unusable fuel quantity.

(6) Put the BATTERY switch and the AVIONICS 1 and AVIONICS 2 switches to the ON position to start the G1000 system in normal mode.

(7) Make sure the fuel quantity indications do not show red Xs.

(8) Disengage the RIGHT FUEL QTY and LEFT FUEL QTY circuit breakers and make sure that red Xs are shown for the fuel quantity.

(9) Engage the RIGHT FUEL QTY and LEFT FUEL QTY circuit breakers and make sure no red Xs are shown for the fuel quantity.

(10) Make sure L-R FUEL LOW annunciation is seen.

NOTE: The annunciation will be seen when the fuel quantity indicates less than 25 gallons in each tank.

(11) Disengage the MFD and both PFD circuit breakers.

(12) Engage the PFD 2 circuit breaker while the ENT button is pushed on PFD 2.

(13) Release the ENT button after the words INITIALIZING SYSTEM show on PFD 2.

NOTE: PFD 2 is now in the configuration mode.

(14) Engage the MFD circuit breaker while the ENT button is pushed on the MFD.

(15) Release the ENT button after the words INITIALIZING SYSTEM show on the MFD.

CAUTION: Before you do the calibration procedure, you must turn on the G1000 system and let it become stable for a minimum of three minutes.

NOTE: The MFD is now in the configuration mode.

(16) Use the FMS outer knob to go to the GRS page group on the MFD.

(17) Use the FMS inner knob to go to the GIA page group and GIA CAN CONFIGURATION.

(18) Engage the PFD 1 circuit breaker while the ENT button is pushed on PFD 1.

(19) Release the ENT button after the words INITIALIZING SYSTEM show on PFD 1.

NOTE: PFD 1 is now in the configuration mode.

(20) Use the Flight Management System (FMS) outer knob to go to the CAL page group.

(21) Use the FMS inner knob to go to the FUEL TANK CALIBRATION page.

(22) Do the steps that follow:

(a) If only a fuel quantity system check is needed refer to Fuel Quantity System Check (Airplanes with CAN bus type fuel level sensors) .

(b) If a fuel quantity system calibration is needed refer to Fuel Quantity System Calibration (Airplanes with CAN bus type fuel level sensors).

2. Fuel Quantity System Calibration (Airplanes with CAN bus type fuel level sensors).

A. Do the Fuel Quantity System Calibration.

(1) If not completed before, do the Fuel Quantity System Calibration and Check Setup (Airplanes with CAN bus type fuel level sensors).

(2) Push the softkeys on the FUEL CALIBRATION page of the PFD, in the sequence that follows, to enter the password.

(a) Push Softkey 12 (far right softkey).

(b) Push Softkey 11.

(c) Push Softkey 10.

(d) Push Softkey 9.

(3) Push the SCALE softkey to select the scale function.

NOTE: The SCALE softkey will be gray with black letters when it is selected.

NOTE: The scale function needs to be selected when overwriting the 0.00 LBS calibration points for both the left and right tank.

(4) Push the TNK SEL softkey to highlight the CURRENT TANK field.

(5) Turn the inner FMS knob to select LEFT.

(6) Push the ENT button to select the tank.

(7) Make sure that the airplane is level at 1.50 degrees, +0.25 or -0.25 degrees nose up and 0.0 degrees wings level attitude.

(8) After 90 seconds, make sure that the CALIBRATED TOTAL value shown for the LEFT tank is stable.

(9) Push the EMPTY softkey and push the enter (ENT) button to overwrite the 0.00 LB calibration point in the CALIBRATION TABLE.

(a) Push the ENT button again to make sure the calibration is complete.

NOTE: There will be several calibration points in 67.10LB increments in the CALIBRATION TABLE. If the SCALE function operates correctly, small changes to the calibration points can occur when the EMPTY and ENT buttons are pushed.

(10) Push the TNK SEL softkey to highlight the CURRENT TANK field.

(11) Turn the inner FMS knob to select RIGHT.

(12) Push the ENT button to select the tank.

(13) Make sure that the CALIBRATED TOTAL value shown for the RIGHT tank is stable.

(14) Push the EMPTY softkey and push the ENT button to overwrite the 0.00 LB calibration point in the CALIBRATION TABLE.

(a) Push the ENT button again to make sure the calibration is complete.

NOTE: There will be several calibration points in 67.10LB increments in the CALIBRATION TABLE. If the SCALE function operates correctly, small changes to the calibration points can occur when the EMPTY and ENT buttons are pushed.

(15) Do the Fuel Quantity System Check (Airplanes with CAN bus type fuel level sensors).

3. Fuel Quantity System Check (Airplanes with CAN bus type fuel level sensors).

A. Do the Fuel Quantity System Check.

(1) If not completed before, do the Fuel Quantity System Calibration and Check Setup (Airplanes with CAN bus type fuel level sensors).

(2) Make sure that the airplane is level at 1.50 degrees, +0.25 or -0.25 degrees nose up and 0.0 degrees wings level attitude.

(3) Make sure that the left and right fuel quantity pointers are on the red line on the MFD on the GIA page group and GIA

CAN CONFIGURATION.

(4) Make sure the CALIBRATED VALUE on the CALIBRATION TABLE on PFD 1 agrees with the values in Table 501, Calibration Table.

(a) On PFD 1 on the FUEL TANK CALIBRATION page, find the CALIBRATED VALUE next to 0.00LB. Find that number on Table 501 in a "0.00LB Calibrated Value" column.

(b) On Table 501, find the value in the 67.10LB Calibrated Value (+0.3 or -0.3) column next to the chosen 0.00LB Calibrated Value.

(c) Compare the 67.10LB Calibrated Value on Table 501 to the 67.10LB CALIBRATED VALUE on PFD 1.

NOTE: For example, if the 0.00LB CALIBRATED VALUE is 5.00 then the 67.10 CALIBRATED VALUE should be 25.55, +0.3 or -0.3.

(d) If the 67.10LB CALIBRATED VALUE does not agree with Table 501, +0.3 or -0.3, do a Fuel Calibration Data Load and Fuel Quantity System Calibration (Airplanes with CAN bus type fuel level sensors).

Table 501. Calibration Table

0.00LB Calibrated Value	67.10LB Calibrated Value (+0.3 or -0.3)	0.00LB Calibrated Value	67.10LB Calibrated Value (+0.3 or -0.3)	0.00LB Calibrated Value	67.10LB Calibrated Value (+0.3 or -0.3)	0.00LB Calibrated Value	67.10LB Calibrated Value (+0.3 or -0.3)
0.00	21.08	0.10	21.17	0.20	21.26	0.30	21.35
0.40	21.44	0.50	21.53	0.60	21.62	0.70	21.71
0.80	21.80	0.90	21.88	1.00	21.97	1.10	22.06
1.20	22.15	1.30	22.24	1.40	22.33	1.50	22.42
1.60	22.51	1.70	22.60	1.80	22.69	1.90	22.78
2.00	22.87	2.10	22.96	2.20	23.05	2.30	23.14
2.40	23.23	2.50	23.32	2.60	23.41	2.70	23.50
2.80	23.58	2.90	23.67	3.00	23.76	3.10	23.85
3.20	23.94	3.30	24.03	3.40	24.12	3.50	24.21
3.60	24.30	3.70	24.39	3.80	24.48	3.90	24.57
4.00	24.66	4.10	24.75	4.20	24.84	4.30	24.93
4.40	25.02	4.50	25.11	4.60	25.19	4.70	25.28
4.80	25.37	4.90	25.46	5.00	25.55	5.10	25.64
5.20	25.73	5.30	25.82	5.40	25.91	5.50	26.00
5.60	26.09	5.70	26.18	5.80	26.27	5.90	26.36
6.00	26.45	6.10	26.54	6.20	26.63	6.30	26.72
6.40	26.81	6.50	26.89	6.60	26.98	6.70	27.07
6.80	27.16	6.90	27.25	7.00	27.34	7.10	27.43
7.20	27.52	7.30	27.61	7.40	27.70	7.50	27.79
7.60	27.88	7.70	27.97	7.80	28.06	7.90	28.15
8.00	28.24	8.10	28.33	8.20	28.42	8.30	28.50
8.40	28.59	8.50	28.68	8.60	28.77	8.70	28.86
8.80	28.95	8.90	29.04	9.00	29.13	9.10	29.22
9.20	29.31	9.30	29.40	9.40	29.49	9.50	29.58
9.60	29.67	9.70	29.76	9.80	29.85	9.90	29.94
10.00	30.03	10.10	30.12	10.20	30.20	10.30	30.29

10.40	30.38	10.50	30.47	10.60	30.56	10.70	30.65
10.80	30.74	10.90	30.83	11.00	30.92	11.10	31.01
11.20	31.10	11.30	31.19	11.40	31.28	11.50	31.37
11.60	31.46	11.70	31.55	11.80	31.64	11.90	31.73
12.00	31.81	12.10	31.90	12.20	31.99	12.30	32.08
12.40	32.17	12.50	32.26	12.60	32.35	12.70	32.44
12.80	32.53	12.90	32.62	13.00	32.71	13.10	32.80
13.20	32.89	13.30	32.98	13.40	33.07	13.50	33.16
13.60	33.25	13.70	33.34	13.80	33.43	13.90	33.51
14.00	33.60	14.10	33.69	14.20	33.78	14.30	33.87
14.40	33.96	14.50	34.05	14.60	34.14	14.70	34.23
14.80	34.32	14.90	34.41	15.00	34.50	15.10	34.59
15.20	34.68	15.30	34.77	15.40	34.86	15.50	34.95
15.60	35.04	15.70	35.12	15.80	35.21	15.90	35.30
16.00	35.39	16.10	35.48	16.20	35.57	16.30	35.66
16.40	35.75	16.50	35.84	16.60	35.93	16.70	36.02
16.80	36.11	16.90	36.20	17.00	36.29	17.10	36.38
17.20	36.47	17.30	36.56	17.40	36.65	17.50	36.74
17.60	36.82	17.70	36.91	17.80	37.00	17.90	37.09
18.00	37.18	18.10	37.27	18.20	37.36	18.30	37.45
18.40	37.54	18.50	37.63	18.60	37.72	18.70	37.81
18.80	37.90	18.90	37.99	19.00	38.08	19.10	38.17
19.20	38.26	19.30	38.35	19.40	38.43	19.50	38.52
19.60	38.61	19.70	38.70	19.80	38.79	19.90	38.88

(5) Add 30 gallons of fuel to the left fuel tank. Refer to Chapter 12, Fuel - Servicing.

(6) Make sure fuel is sensed in the LEFT tank.

(7) Add 30 gallons of fuel to the right fuel tank. Refer to Chapter 12, Fuel - Servicing.

(8) Make sure fuel is sensed in the RIGHT tank.

(9) Make sure that the airplane is level at 1.50 degrees, +0.25 or -0.25 degrees nose up and 0.0 degrees wings level attitude.

(10) Push the TNK SEL softkey to highlight the CURRENT TANK field.

(11) Turn the inner FMS knob to select LEFT.

(12) Push the ENT button to select the tank.

(13) Make sure the CALIBRATED TOTAL value for the LEFT tank is stable and between 133 to 269 LBS.

(14) Push the TNK SEL softkey to highlight the CURRENT TANK field.

(15) Turn the inner FMS knob to select RIGHT.

(16) Push the ENT button to select the tank.

(17) Make sure the CALIBRATED TOTAL value for the RIGHT tank is stable and between 133 to 269 LBS.

(18) If the values are in tolerance, the procedure is complete.

(19) If the CALIBRATED TOTAL values are not in the range, drain the fuel from the tanks and do the fuel calibration procedure again.

(20) Put the AVIONICS 1 and AVIONICS 2 switches to the OFF position.

(21) Put the BATTERY switch to the OFF position.

4. Fuel Calibration Configuration Load

NOTE: Do not do the calibration configuration load unless the master configuration module is replaced and the fuel calibration configuration load file cannot be loaded from the PFD1. If you do the calibration configuration load it is necessary to drain the airplane of fuel and do the Fuel Quantity System Calibration.

A. Do the Fuel Calibration Configuration Load.

(1) Connect external electrical power to the airplane.

(2) Put the BATTERY switch and the AVIONICS 1 and AVIONICS 2 switches to the ON position to start the G1000 system in normal mode.

(3) Disengage PFD 1, MFD, and PFD 2 circuit breakers on the avionics circuit breaker panel.

(4) Remove the database cards from the bottom SD card slots on PFD 1, MFD, and PFD 2.

(5) Install the SD loader card in the top SD card slot on PFD 1.

(6) Start the system in configuration mode.

(a) Engage the PFD 2 circuit breaker while the ENT button is pushed on PFD 2.

(b) Release the ENT button after the words INITIALIZING SYSTEM show on PFD 2.

NOTE: PFD 2 is now in the configuration mode.

(c) Engage the MFD circuit breaker while the ENT button is pushed on the MFD.

(d) Release the ENT button after the words INITIALIZING SYSTEM show on the MFD.

NOTE: The MFD is now in the configuration mode.

(e) Engage the PFD 1 circuit breaker while the ENT button is pushed on PFD 1.

(f) Release the ENT button after the words INITIALIZING SYSTEM show on PFD 1.

NOTE: PFD 1 is now in the configuration mode.

(7) Push the NO softkey when asked "DO YOU WANT TO UPDATE THE SYSTEM FILES?".

(8) Use the FMS knobs to go to the SYSTEM group's SYSTEM UPLOAD page.

(9) Push the inner FMS knob to start the cursor.

(10) Use the cursor to highlight "Fuel Calibration".

(11) Push the ENT button.

(12) Turn the inner FMS knob to expand the FILE menu.

(13) Highlight the "Cessna Caravan-Default Fuel Calibration" file.

(14) Push the ENT button.

(15) Push the LOAD softkey to start the software update.

(16) Monitor the upload status.

(a) If the upload fails, push the LOAD softkey again. If the upload fails five times, contact Customer Service for assistance; (316) 517-5800 or Fax (316) 517-7271.

(b) If the upload is successful, push to the ENT to accept the end of the upload.

(17) Push the "UPDT CFG" softkey.

(18) Select "YES" when asked "Update Config Module?".

(19) Push the ENT button.

(20) When the update is complete, push the ENT button.

(21) Disengage PFD 1, MFD, and PFD 2 circuit breakers.

(22) Install the database cards in the bottom SD card slots on PFD 1, MFD, and PFD 2.

(23) Remove the SD loader card from the top SD card slot on PFD 1.

(24) Engage the PFD 1, MFD, and PFD 2 circuit breakers.

(25) Put the BATTERY switch and the AVIONICS 1 and AVIONICS 2 switches to the OFF position.

(26) Disconnect the external electrical power from the airplane.

B. Do the Fuel Calibration Data Post-Maintenance Checks.

(1) Do a check of the fuel quantity calibration. Refer to Fuel Quantity System Calibration (Airplanes with CAN bus type fuel level sensors).