

A. INSPECTION

1. Ensure Inverter and EXT AC switches on overhead panel are "OFF"
2. Disconnect and remove Fuel Quantity Power Supply Unit (PSU) from R/H avionics rack.
3. Apply AC power to aircraft (Turn on inverter or use external AC cart).
4. Check for 115VAC at PIN 4 of PSU tray connector
 - i. If no power present, T/S power system, check Circuit Breaker
5. Inspect flight deck indicators for condition and security
6. Turn off AC power (Turning off Inverter and/or EXT AC)
7. Re-install Fuel Quantity Power Supply Unit (PSU)

B. BASIC CAPACITANCE & RESISTANCE CHECK (FUEL ON BOARD – FROM FLIGHT DECK)

1. Record indicated fuel quantity indicated before disconnecting anything
2. Record fuel quantity as read on dip sticks
3. Setup PSD60 tester near PSU.
4. Ensure Inverter and EXT AC switches on overhead panel are "OFF" before disconnecting any connectors.
5. Connect the following cables to the PSD60 (REF FIG 1-1):
 - i. Grounding cable (Cable #4) from Jack J7 to aircraft ground
 - ii. Connect Cable 1-End A to J5 (Hi-Z)
 - iii. Connect Cable 2-End A to J4 (LO-Z)
 - iv. Connect Cable 3-End A to J6 (COMP)
6. Disconnect 3 leads from front of PSU, leave PSU installed in tray.
7. Connect the following to the aircraft side leads that were removed from the PSU (REF FIG 1-2)
 - i. Connect Cable 1-End B to wire removed from "SHIELDED" jack on PSU
 - ii. Connect Cable 2-End B to wire removed from "TANK UNIT" jack on PSU
 - iii. Connect Cable 3-End B to wire removed from "COMP" jack on PSU
8. Power on PSD60
9. Apply AC power to aircraft
 - i. Inverter switch to "ON" or,
 - ii. EXT AC switch to "ON" with EXT AC applied
10. Allow aircraft and tester 3 minutes to stabilize
11. Set "FUNCTION SWITCH" (S2) to "Measure EXT"
12. Set "CAP/MEG SELECT SWITCH" (S3) to "TU"
 - i. Tank Units (TU) are measured and displayed in Pico farads (pF)
 - ii. Record displayed pF value on Table 1-1 under "TANK UNITS"
13. Set "CAP/MEG SELECT SWITCH" (S3) to "COMP"
 - i. Record displayed pF value on Table 1-1 under "COMP"
14. Verify recorded capacitance values against recorded onboard fuel quantity (REF Table 1-3)
 - i. Dry tank standard value = 473 pF
 - ii. 100 LBS of fuel = ~2.8 pF
 - iii. 15 Gallons of fuel = ~2.8 pF
 - iv. Calculated Value = Dry Tank (473) + Onboard Fuel
15. Set "CAP/MEG SELECT SWITCH" (S3) to "LOZ-HIZ"
 - i. Refer to Table 1-2 for allowed minimum resistance levels
 - ii. Record resistance value on Table 1-1 under "Lo-Z / Hi-Z"
16. Set "CAP/MEG SELECT SWITCH" (S3) to remaining positions
 - i. Record resistance values on Table 1-1 as required
17. Verify all recorded resistance values on Table 1-2 against standards on Table 1-1

C. FUEL QUANTITY CALIBRATION (ALTERNATE METHOD – FUEL IN TANKS)

1. Record indicated fuel quantity indicated before disconnecting anything
2. Record fuel quantity as read on dip sticks
3. Setup PSD60 tester near PSU.
4. Ensure Inverter and EXT AC switches on overhead panel are “OFF” before disconnecting any connectors.
5. Connect the following cables to the PSD60 (REF FIG 1-1):
 - i. Grounding cable (Cable #4) from Jack J7 to aircraft ground
 - ii. Connect Cable 1-End A to J1 (Hi-Z) – Indicator
 - iii. Connect Cable 2-End A to J2 (LO-Z) – Indicator
 - iv. Connect Cable 3-End A to J3 (COMP) – Indicator
6. Connect the following to the PSU (REF FIG 1-2)
 - i. Connect Cable 1-End B to “SHIELDED” jack on PSU
 - ii. Connect Cable 2-End B to “TANK UNIT” jack on PSU
 - iii. Connect Cable 3-End B to “COMP” jack on PSU. Depending on cable configuration, an adaptor is likely required to connect Cable 3 to the PSU “COMP” jack. See 6in compensator adaptor cable.
7. Power on PSD60
8. Set “FUNCTION SWITCH” (S2) to “Measure INT”
9. Set “CAP/MEG SELECT SWITCH” (S3) to “COMP”
 - i. Internal compensator simulation value is now displayed
 - ii. Reference compensator value as per AMM is 200 pF, use this value or value measured in step B-13
 - iii. Adjust value using D-2 COMP course adjustment and V-2 COMP fine adjustment
10. Set “CAP/MEG SELECT SWITCH” (S3) to “TU” and prepare for empty adjustment
 - i. Internal tank unit simulation value is now displayed
 - ii. Empty tank unit value as per AMM is 473.3 pF, use this value
 - iii. Adjust value using D-1 TU course adjustment and D-2 TU fine adjustment
11. Open “CALIBR ADJUST” cover from PSU
12. Apply AC power to aircraft
 - i. Inverter switch to “ON” or,
 - ii. EXT AC switch to “ON” with EXT AC applied
13. Set “FUNCTION SWITCH” (S2) to “SIMULATE TU & COMP”
14. Allow 60 seconds for PSU and Indicator to stabilize
15. Adjust “EMPTY” potentiometer on the power unit to attain ZERO indication on the aircraft indicator
16. Set PSD-60 “FUNCTION SWITCH” (S2) to “Measure INT”
17. Set “CAP/MEG SELECT SWITCH” (S3) to “TU” and prepare for full adjustment
 - i. Internal tank unit simulation value is now displayed
 - ii. Full tank unit value as per AMM is 1036.3 pF, use this value
 - iii. Adjust value using D-1 TU course adjustment and D-2 TU fine adjustment
18. Allow 60 seconds for PSU and Indicator to stabilize
19. Adjust “FULL” potentiometer on the power unit to attain full indication on the aircraft indicator
20. Repeat empty adjustment (Step C-10 to C-15) and recertify empty indication
21. Turn Inverter and EXT AC switches on overhead panel to “OFF” before disconnecting any connectors
22. Disconnect test harnesses, reconnect aircraft wiring to PSU. Close calibration potentiometer cover.
23. Apply AC power to aircraft
24. Verify indicated fuel quantity matches dip quantity from step C-2

SETUP		INSULATION / RESISTANCE TEST										TESTED CAPACITANCE		PHYSICAL FUEL QTY	
TANK	TESTER MODE	LO-Z/ HI-Z	COMP/ HI-Z	LO-Z/ COMP	LO-Z/ SH	COMP / SH	HI-Z / SH	SH/ GND	LO-Z/ GND	COMP / GND	HI-Z / GND	TANK UNITS	COMP	IND QTY	DIP QTY
	3-WIRE MODE														
	2-WIRE MODE														
	3-WIRE MODE														
	2-WIRE MODE														
	3-WIRE MODE														
	2-WIRE MODE														
	3-WIRE MODE														
	2-WIRE MODE														
DRY TANK		N/A	N/A	200	15	200	15	0	10	200	10				
WET TANK		N/A	N/A	100	7.5	100	7.5	0	5	100	5				
													IAW AMM 28-41-1 TABLE 102		

Table 1-1

AIRCRAFT WIRING TO BE TESTED	PSD60 MEGGER SELECT	DRY TANK VALUE	WET TANK VALUE
TANK – GROUND	HI-Z/GND	10 MEG	5 MEG
TANK – GROUND	LO-Z/GND	10 MEG	5 MEG
TANK – SHIELD	LO-Z/SHIELD	15 MEG	7.5 MEG
TANK – SHIELD	HI-Z/SHIELD	15 MEG	7.5 MEG
TANK – COMPENSATOR	LO-Z/COMP	200 MEG	100 MEG
COMPENSATOR – GROUND	COMP/GND	200 MEG	100 MEG
SHIELD – GROUND	SHIELD/GND	20 MEG	20 MEG
SHIELD – COMP	COMP/SHIELD	200 MEG	100 MEG
SHIELD – GROUND	SHIELD/GND	0 MEG	0 MEG

Table 1-2*

**NOTE: To achieve "DRY TANK" values tank must be sumped 100%, compensator probe must be physically dry and it sits at the lowest part of the tank. These numbers are "ideal" and rarely achieved on an aircraft outside of the factory.*

POUNDS	FUEL QTY		ADDED CAPACITANCE (+pF) (Approx. Values)
	GALLONS	LITERS	
1000	149.25	568.18	28
1500	223.88	852.27	42
2000	298.51	1136.36	56
2500	373.13	1420.45	70
3000	447.76	1704.55	84
3500	522.39	1988.64	98
4000	597.01	2272.73	112
4500	671.64	2556.82	126
5000	746.27	2840.91	140
5500	820.90	3125.00	154
6000	895.52	3409.09	168

Table 1-3

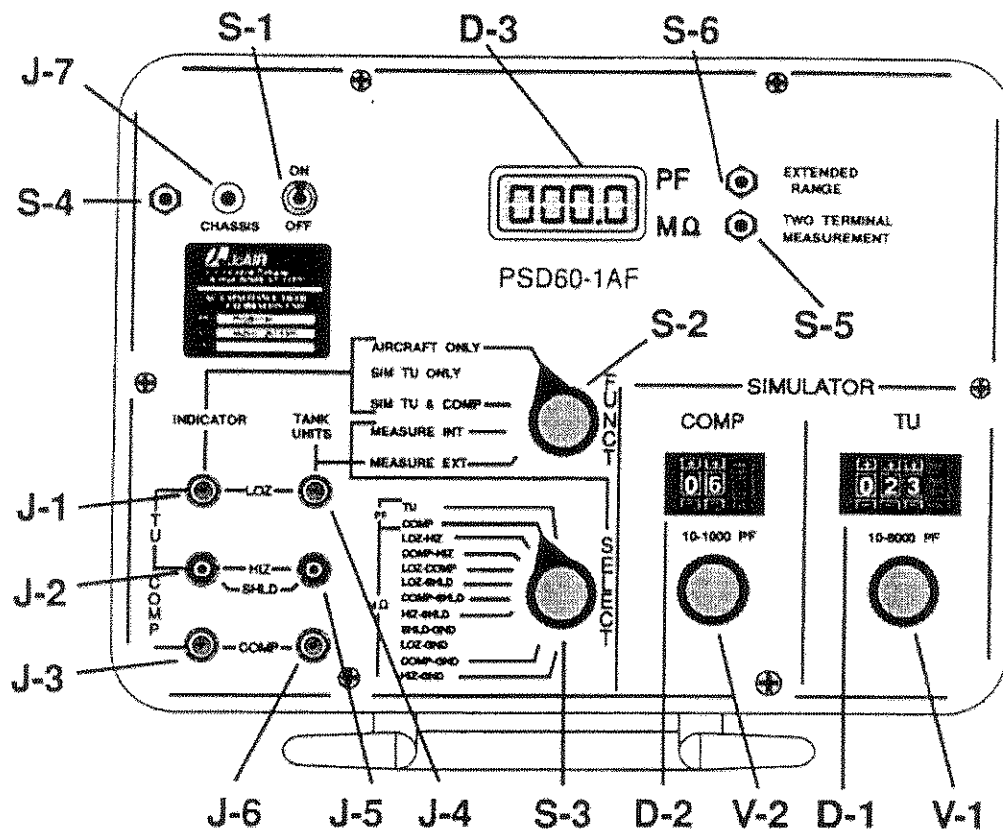


Fig 1-1



Fig 1-2

CV580 FQIS TROUBLESHOOTING

- 1) CHECK FOR 115VAC AT PIN 4 OF FUEL QTY POWER SUPPLY TRAY CONNECTOR
 - a. IF NOT PRESENT CHECK CIRCUIT BREAKER
- 2) WITH POWER REMOVED, REMOVE 3 LEADS FROM FUEL QTY POWER SUPPLY UNIT (PSU)
- 3) CONNECT CABLE #4 FROM "CHASSIS" JACK (J7) TO AIRCRAFT STRUCTURE/GROUND
- 4) CONNECT TEST 3 CABLE TEST HARNESS TO PSD-60 "TANK UNITS" CONNECTIONS AS FOLLOWS:
 - a. CABLE 1 TO J5 (HI-Z)
 - b. CABLE 2 TO P4 (LO-Z)
 - c. CABLE 3 TO P6 (COMP)
- 5) CONNECT TEST LEADS TO AIRCRAFT WIRING REMOVED FROM PSU
 - a. A/C WIRE REMOVED FROM "SHIELDED" PSU JACK TO CABLE 1 (HI-Z) T-FITTING
 - b. A/C WIRE REMOVED FROM "TANK UNIT" PSU JACK TO CABLE 2 (LO-Z) T-FITTING
 - c. A/C WIRE REMOVED FROM "COMP" PSU JACK TO CABLE 3 (COMP) T-FITTING

NOTE: For resistance and capacitance checks connection back to the PSU is not required as you are only testing the aircraft shielded wiring and probes. Connection to PSU only required for calibration and indicator testing.
- 6) POWER ON TESTER, ~~SELECT 400Hz POWER~~ [FREQ SELECT NOT REQ'D ON KFL TESTER]
- 7) POWER ON AIRCRAFT AC INSTRUMENTS AND POWER SUPPLY
- 8) ALLOW 3 MINUTES FOR TESTER TO STABILIZE

RESISTANCE CHECKS

- 9) SELECT "MEASURE EXT" ON FUNCTION SELECT SWITCH (A3S1)
- ~~10) SELECT "MEGGER MODE" SWITCH TO "3-WIRE" (S12)~~ [NOT REQ'D ON KFL TESTER]
- 11) SELECT APPROPRIATE "MEGGER SELECT" FUNCTION AS LISTED IN TABLE BELOW (A3S2)

AIRCRAFT WIRING TO BE TESTED	PSD60 MEGGER SELECT	DRY TANK VALUE	WET TANK VALUE
TANK – GROUND	HI-Z/GND	10 MEG	5 MEG
TANK – GROUND	LO-Z/GND	10 MEG	5 MEG
TANK – SHIELD	LO-Z/SHIELD	15 MEG	7.5 MEG
TANK – SHIELD	HI-Z/SHIELD	15 MEG	7.5 MEG
TANK – COMPENSATOR	LO-Z/COMP	200 MEG	100 MEG
COMPENSATOR – GROUND	COMP/GND	200 MEG	100 MEG
SHIELD – GROUND	SHIELD/GND	20 MEG	20 MEG
SHIELD – COMP	COMP/SHIELD	200 MEG	100 MEG
SHIELD – GROUND	SHIELD/GND	0 MEG	0 MEG

NOTE: To achieve "DRY TANK" values tank must be sumped 100%, compensator probe must be physically dry and it sits at the lowest part of the tank. These numbers are "ideal" and rarely achieved on an aircraft outside of the factory.

- 12) VERIFY ALL RESITANCE VALUES WITHIN TOLERANCE. REF AMM CH28-41-1 TABLE 102
- 13) IF ANY VALUES ARE SUSPECT, SWITCH "MEGGER MODE" TO "2-WIRE" AND RECORD RESULTS

CAPACITANCE CHECKS

14) VERIFY SETUP AS PER STEPS 2-8

15) SELECT "MEASJRE EXT" ON FUNCTION SELECT SWITCH (A3S1)

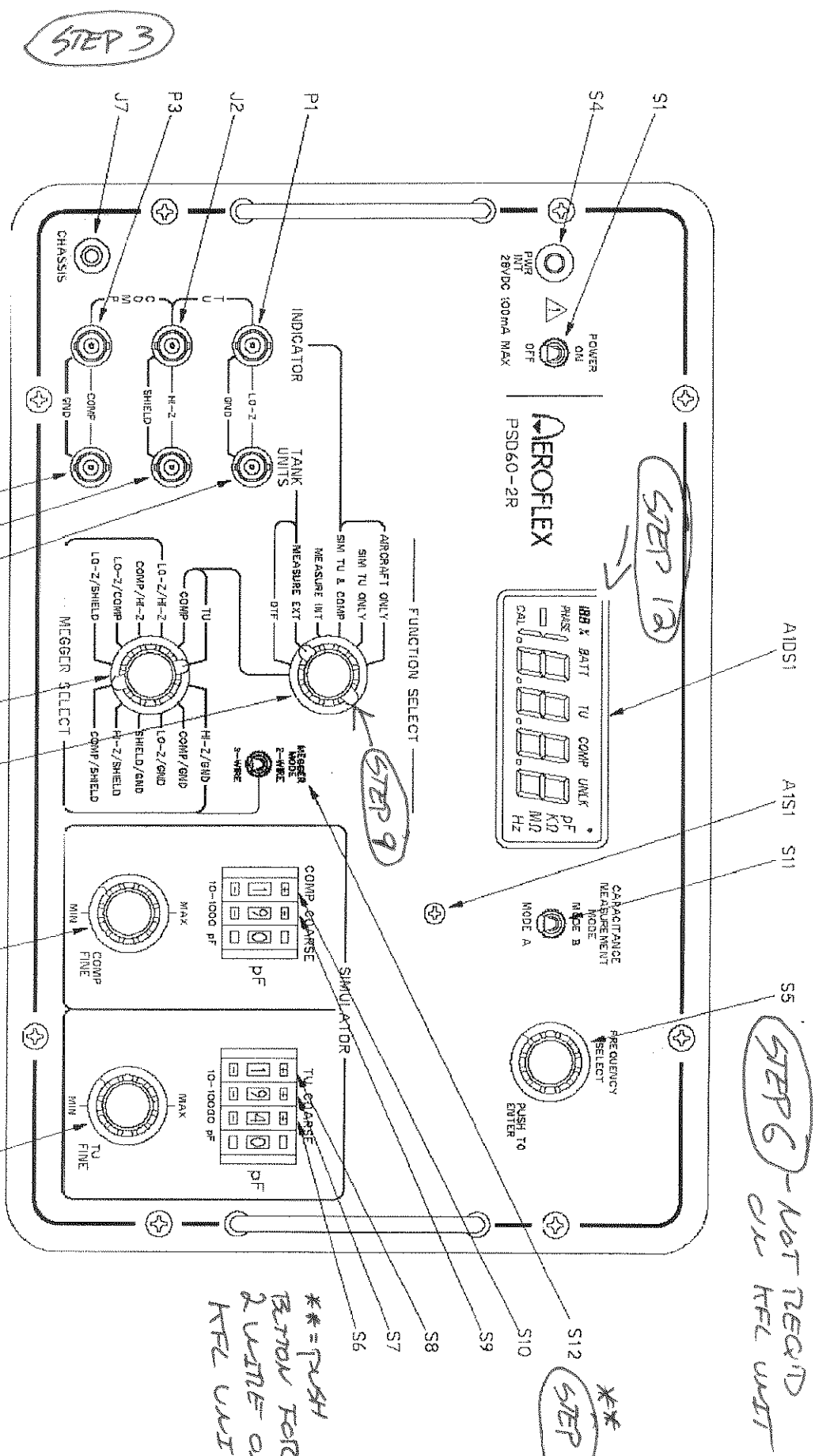
16) TURN MEGGER SELECT TO "TU"

- a. TANK UNITS MEASURED IN PICO FARADS (Pf) ARE DISPLAYED
- b. DRY TANK SHOULD BE 473 +/- 11.8 IAW AMM CH 28-41-1 PAGE 109 STEP B (4)
- c. TO CALCULATE APPROXIMATE WET VALUES USE THE FOLLOWING:
 - i. 100 LBS OF FUEL = 2.8 pF
 - ii. 15 GALLONS OF FUEL = 100 LBS = 2.8 pF
 - iii. DRY TANK = 473 pF
 - iv. DRY TANK (473Pf) + ON BOARD FUEL (IN pF) = EXPECTED VALUE
 - v. WET VALUES +/- 6 pF

17) TURN MEGGER SELECT TO "COMP"

- a. COMPENSATOR DRY SHOULD BE 88.3 +/- 3 pF IAW AMM 28-41-1 PAGE 110 STEP D(4)
- b. NO WET VALUES FOR COMPENSATOR ARE PROVIDED IN AMM. EXPECT HIGHER THAN DRY VALUE BY AS MUCH AS DOUBLE

*NOTE: KFL PSD-60-2R SLIGHTLY DIFFERENT LAYOUT BUT SAME FUNCTIONALITY



STEP 3

STEP 1a

STEP 9

STEP 11

STEP 1c

FIGURE 1-1

*** = PUSH
BUTTON FOR
2 WAVE OR
KFL UNIT

STEP 6 - NOT READ
OR KFL UNIT

STEP 1c

PSD60
REF

SECTION II OPERATION

2.1 GENERAL INFORMATION

The PSD60-2R is a general purpose test set and must be used in conjunction with an aircraft specific interface cable in order to gain access to the aircraft fuel quantity system. Manufacturers of test sets historically have made or specified cables which best utilize their particular test set. Contact Aeroflex for interface cabling.

The following precautions should be observed at all times:

- A. Connect the PSD60-2R chassis jack to airframe ground during all operations (measurement and simulation).
- B. Never connect cable leads to the TANK UNITS and INDICATOR jacks at the same time. (PSD60-2R TANK UNITS jacks are always active.)
- C. Do not use cables which may connect shield to airframe ground within the cables. SHIELD and GROUND must be isolated to allow correct operation of the megger.

2.2 CAPACITANCE MEASUREMENT

1. Connect CHASSIS jack (J7) to Airframe.
2. Turn power ON, select the desired LO-Z frequency, and allow three minutes for test set to stabilize.
3. Check battery condition, if "LO BAT" is displayed on the display replace batteries.
4. Connect TANK UNITS LO-Z, HI-Z and COMP connectors (P4, J5, and P6) to the aircraft interface with the appropriate interface cables.
5. Turn the FUNCTION SELECT switch (A3S1) to MEASURE EXT.
6. Turn the MEGGER SELECT switch (A3S2) to COMP or TU.
7. Select the correct Capacitance Measurement Mode by setting S11.
8. The capacitance of the system's TU or COMP is measured and displayed in pF on the test set's display.

TU = TANK UNITS IN pF

100 LBS OF FUEL = ~ 2.8 pF

15 Gallons OF FUEL = ~ 2.8 pF

DRY TANK = 473 pF +/- 11.8

EXAMPLE: TANK WET WITH 1000 LB SHOULD BE ~ 490-510
150 GAL

2.3 CAPACITANCE SIMULATION

CAUTION: Some procedures may specify that the test set should not be connected to airframe ground when simulating capacitance. This is because some test sets connect airframe ground and shield together, thereby grounding the shield at a point other than the "Single-Point" ground. This test set isolates case and shield ground in the simulate mode, so this precaution is not necessary. **The test set should be connected to airframe ground for all tests.**

1. Connect CHASSIS jack (J7) to Airframe.
2. Turn power ON, select the desired LO-Z frequency, and allow three minutes for test set to stabilize.
3. Check battery condition, if "LO BAT" is displayed on the display replace batteries.
4. Turn the FUNCTION SELECT switch (A3S1) to MEASURE INT.
5. Connect INDICATOR LO-Z, HI-Z, and COMP connectors (P1, J2, and P3) to the aircraft interface with the appropriate interface cables. Assure that no cables are connected to P4, J5, and P6.
6. Turn the MEGGER SELECT switch (A3S2) to TU.
7. Adjust TU decade (S6, S7, and S8) below desired capacitance value.
8. Adjust TU FINE knob (C1) to desired capacitance value.
9. Turn the MEGGER SELECT switch (A3S2) to COMP and adjust COMP decade (S9 and S10) and COMP FINE knob (C2) to desired capacitance value.
10. Turn FUNCTION SELECT switch (A3S1) to SIM TU & COMP.

NOTE: Connecting test harnesses and interface boxes should not add capacitance to the system. However, if the cable is suspect, connect only the cable to P4, J5, and P6 and read its capacitance per measurement procedure. If cable capacitance is less than 1 pF above displayed reading with no cables connected to test set, subtract its capacitance from the amount being simulated. If over 1 pF, repair cable; shields are probably improperly terminated.

NOTE: When simulating tank unit only, as in the case of an uncompensated system, FUNCTION SELECT switch (A3S1) should be in the SIM TU ONLY position.

NOTE: The AIRCRAFT ONLY position disconnects both simulators. This is used when delta values are simulated and actual dry tanks are used for empty.

2.4 RESISTANCE MEASUREMENT

1. Connect CHASSIS jack (J7) to Airframe.
2. Turn power ON, select the desired LO-Z frequency, and allow three minutes for test set to stabilize.
3. Check battery condition, if "LO BAT" is displayed on the display replace batteries.
4. Connect TANK UNITS LO-Z, HI-Z and COMP connectors (P4, J5, and P6) to the aircraft interface with the appropriate interface cables.
5. Turn the FUNCTION SELET switch (A3S1) to MEASURE EXT, and select desired points to be measured using the MEGGER SELECT switch. (A3S1)
6. The resistance between the points selected will be displayed in ohms on the test set display.

2.5 DTF MEASUREMENT

1. Connect CHASSIS jack (J7) to Airframe.
2. Turn power ON, select the desired LO-Z frequency, and allow three minutes for test set to stabilize.
3. Check battery condition, if "LO BAT" is displayed on the display replace batteries.
4. Connect TANK UNITS LO-Z, HI-Z and COMP connectors (P4, J5, and P6) to the interface box with the appropriate interface cable.
5. Without the aircraft interface connected to the airplane, place the FUNCTION SELECT switch (A3S1) in DTF mode.
6. When the unit nulls all stray capacitance, 0pF will be indicated on the units display.
7. Connect the interface to the airplane and read the capacitance indicated on the units display.
8. Divide the displayed capacitance by the capacitance per foot of the specific coax measured. This number will yield the length of the coax, or the distance to the fault of the coax.

2.6 ERROR CODES

ER0 –

Not used at this time.

ER1 – LO-Z SHORT

The LO-Z signal is shorted and/or the REFHI/REFLO signal is to low.

ER2 – INVALID FUNCTION

This error appears when attempting to calibrate the unit with one of the selector switches placed in an invalid position.

ER3 –

Not used at this time.

ER4 –

Not used at this time.

ER5 –

Not used at this time.

ER6 – CAL DATA ERROR

This error code is caused by the loss of calibration data in the EEPROM chip.

ER7 – A/D ERROR

The A/D converter is not communicating correctly with the processor.

ER8 – STACK ERROR

The microprocessor had a stack overflow.

ER9 – DIVIDE BY 0 ERROR

The main board microprocessor tried to divide by 0.

ER10 – SWITCH ERROR

The microprocessor detected that the function select switches are in an invalid mode.

-ER- – INVALID FUNCTION

The function switches are in an invalid position.

-SH- – MEGGER REFERENCE SHORT

The ohmmeter drive signal has been shorted.

-OR- – OVERRANGE

The measured value is too big to be displayed for the selected range.

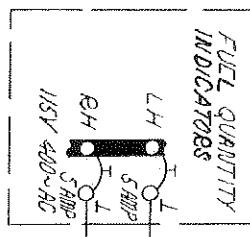
%BATT displays 'LO BATT'

The batteries do not have sufficient charge to operate the unit.

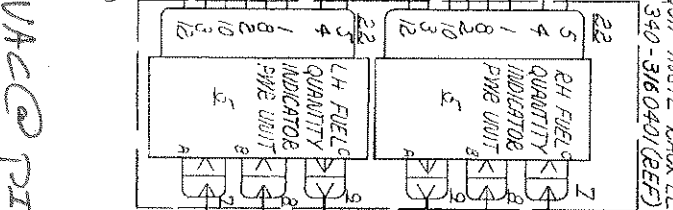
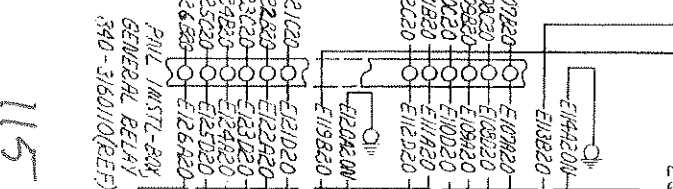
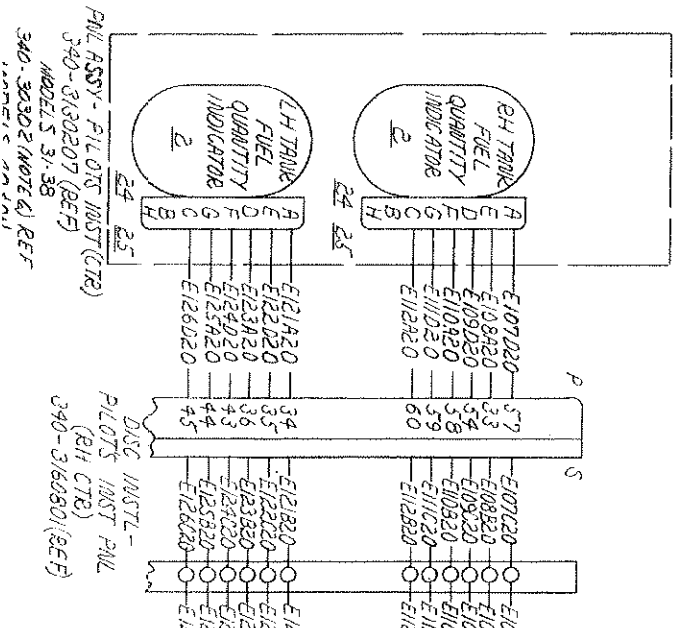
%BATT displays 'Er'

The processor is bypassing the calibration data error (ER6).

P/WL INSTL - CRT B/B 57H 106
340-3160107(REF)

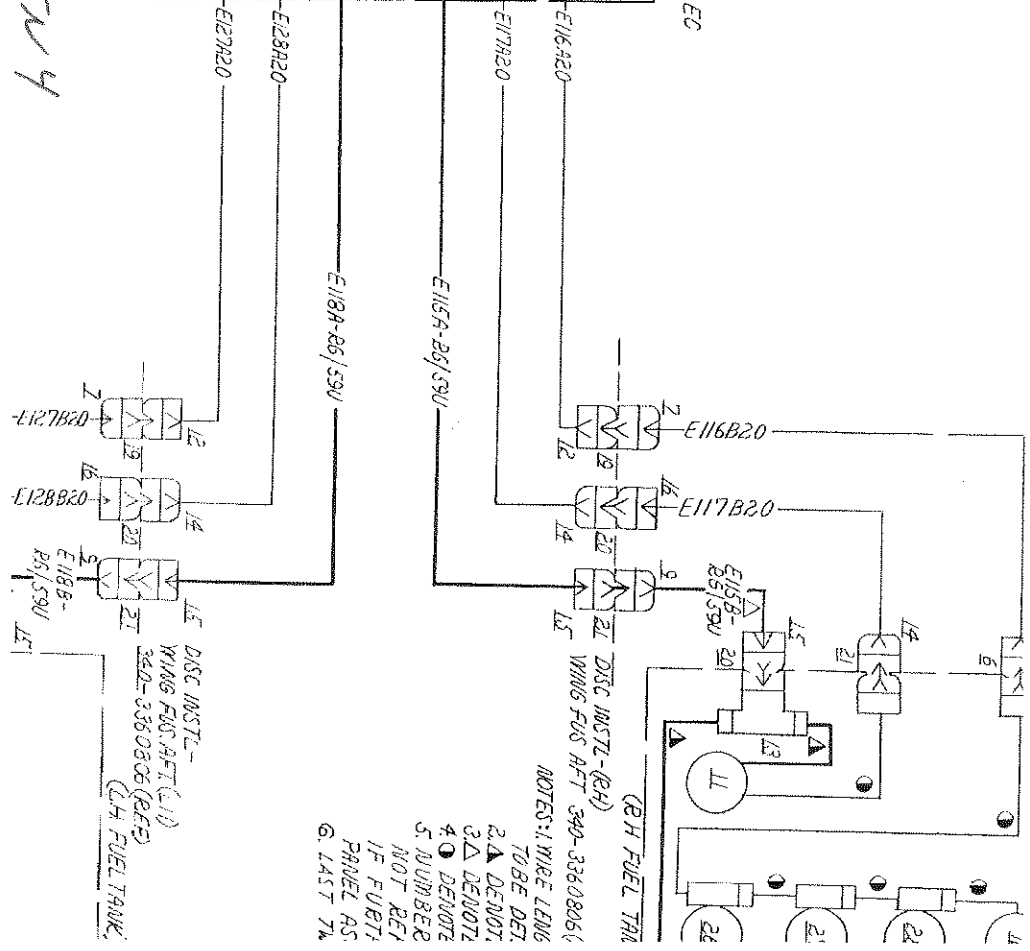


P/WL INSTL - SPLICE
CRT B/B 57H 106
340-3160117(REF)



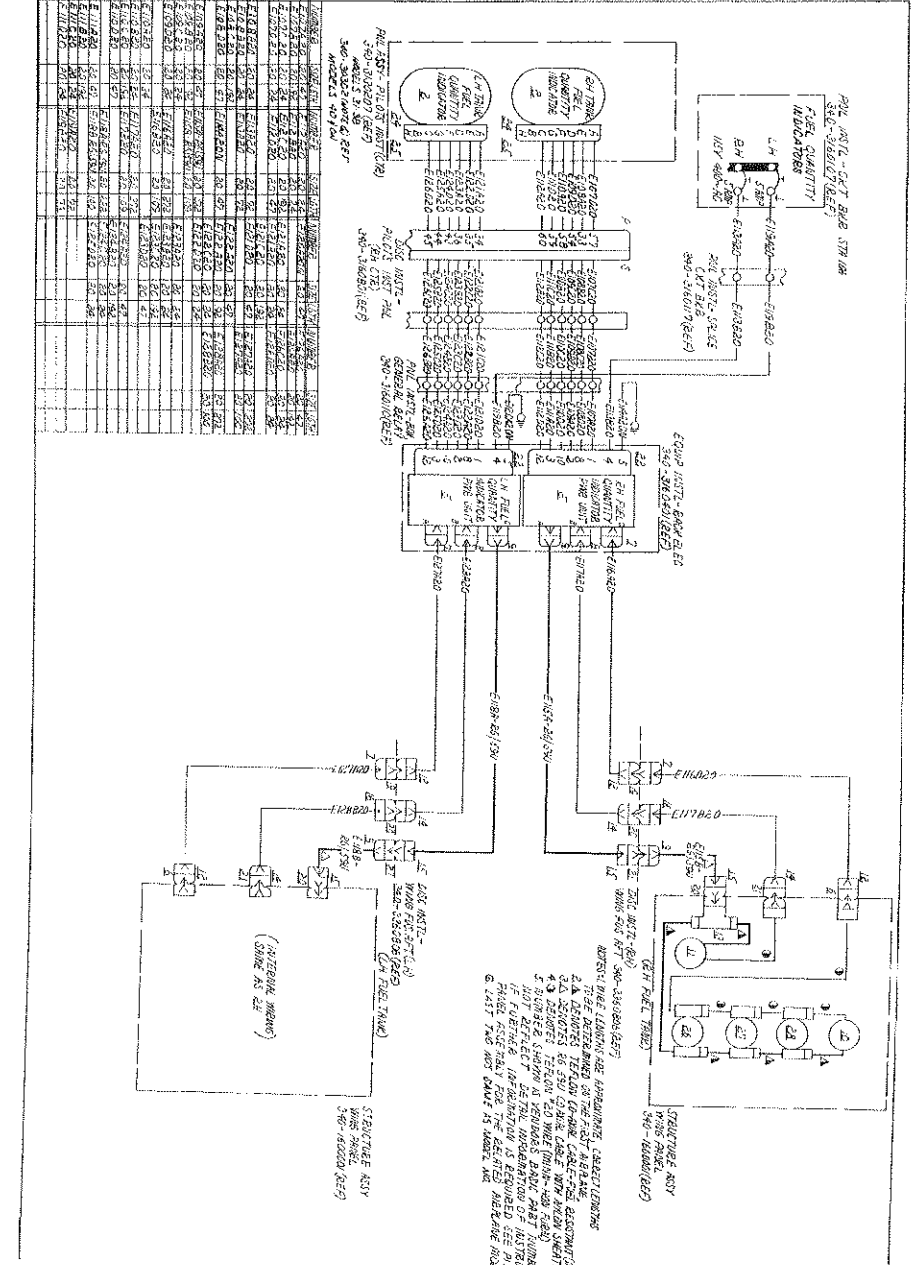
EQUIP INSTL - BACK ELEC
340-3160401(REF)

115 VAC @ PIN 4



NOTES: WIRE LEGS TO BE DET. 2. Δ DENOT. 3. Δ DENOT. 4. ○ DENOT. 5. NUMBER NOT REF. I/F FUEL TANK. P/WL AS. G. 4457 7A.

DISC INSTL - WING FUS. AFT (LH) 340-3360806(REF) (LH FUEL TANK)



1. FUEL TANKS - 380-240000 (REF)
 2. FUEL QUANTITY INDICATORS
 3. FUEL PUMPS - 380-240000 (REF)
 4. FUEL FILTERS - 380-240000 (REF)
 5. EQUIDISTANT MANIFOLD
 6. STRUCTURE SKY WITH PANEL - 380-100000 (REF)
 7. ENGINE INLET MANIFOLDS - 380-100000 (REF)
 8. ENGINE FUEL INLET MANIFOLDS - 380-100000 (REF)

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	REFERENCE
1	FUEL TANK	2	EA	380-240000 (REF)
2	FUEL QUANTITY INDICATOR	2	EA	380-240000 (REF)
3	FUEL PUMP	2	EA	380-240000 (REF)
4	FUEL FILTER	2	EA	380-240000 (REF)
5	EQUIDISTANT MANIFOLD	1	EA	380-240000 (REF)
6	STRUCTURE SKY WITH PANEL	1	EA	380-100000 (REF)
7	ENGINE INLET MANIFOLD	2	EA	380-100000 (REF)
8	ENGINE FUEL INLET MANIFOLD	2	EA	380-100000 (REF)

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3. Preferred Fuel Quantity Adjust - Tanks Empty

A. Compensator Capacitance Measurement.

- (1) Pull fuel Quantity Circuit Breakers located at station 106.
- (2) Disconnect aircraft tank, shield and compensator connections from the power unit.
- (3) Zero adjust test instrument, Reference 1.B.
- (4) Connect the removed aircraft compensator and shield leads to the test unit leads, thru the test leads to Bridge receptacles. Reference figure 505.
- (5) Ground the aircraft tank unit lead, Reference Figure 505.
- (6) Accomplish compensator capacitance measurement, Reference 1.C.

NOTE: Subtract the capacitance of test lead
from the value read on the Cap. Control.

- (7) The Compensator measured capacitance must be $88.3 \text{ uuf} \pm 3 \text{ uuf}$.
- (8) If the Compensator Capacitance value is not obtained the Compensator or wiring is faulty. Reference trouble shooting.

B. Tank Unit Capacitance Measurement.

- (1) Pull fuel Quantity Circuit Breakers located at Station 106.
- (2) Disconnect aircraft tank, shield and compensator connections from the power unit.
- (3) Zero adjust test instrument, Reference 1.B.
- (4) Connect removed aircraft tank unit and shield leads to the test unit lead thru the test leads to Bridge receptacles. Reference figure 506.
- (5) Ground the aircraft compensator test lead, Reference figure 506.
- (6) Accomplish tank unit capacitance measurement, Reference 1. C.

NOTE: Subtract the capacitance of test lead
from the value read on the cap. control.

- (7) The tank unit measured capacitance must be $473.3 \text{ uuf} \pm 11.8 \text{ uuf}$.
- (8) If the tank unit capacitance value is not obtained the tank units or wiring is faulty. Reference trouble shooting.

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4. Substitution Fuel Quantity Adjust - Fuel in Tanks

A. General

- (1) Normally accomplished whenever a power unit or indicator is replaced, as well as at the completion of the correction of system wiring difficulties.

B. Test Unit Preliminary Set Up.

- (1) Set Compensator section, Reference 1. D, to 200.0 mmfd.

NOTE: The value set on the Cap. Control in step (1) above has been compensated for the test lead Capacitance of test lead number

- (2) Set Empty Decade section, Reference 1. E, to 473.3 uuf or the actual recorded tank capacitance value.

NOTE: Subtract test lead capacitance from the Cap. Control value in step (2) above, reset Cap. Control to this new value.

- (3) Set Full Decade section, Reference 1. F, to 1036.3 or actual recorded empty tank capacitance value plus 562.9.

NOTE: Subtract the test lead Capacitance for test lead from Cap. Control value in (3) above, reset Cap. Control to this new value.

C. Aircraft System Calibration

- (1) Disconnect the shielded, Compensator and tank unit connector from the front of the power unit.
- (2) Connect the Simmonds test unit as illustrated in Figure 508.
- (3) Set the full adjustment on the power unit to approximately midrange position.

NOTE: One type power unit has stops on the "full" adjustment allowing approximately ten turns rotation. Set this type five turns from the stop. Another type unit allows 360° rotation with a "catch" or friction spot at one point of rotation. Set this type 180° from the friction spot.

- (4) Test unit must be set up as outlined in 4. B.
- (5) Turn on the inverter or supply external AC power to the airplane and allow the power unit to warm up for approximately five minutes.
- (6) Close fuel Quantity Circuit Breakers located at Station 106.
- (7) Position Decade full-empty switch (12) to empty.

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- (8) Adjust empty adjustment on the power unit to attain Zero indication on the Aircraft Indicator.
- (9) Position Decade full-empty switch (12) to Full.
- (10) Adjust full on the power unit to attain full reading on the aircraft indicator.
- (11) Repeat empty and full adjustments as many times as necessary to calibrate system indications.
- (12) Remove all test equipment and restore aircraft to normal.

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LEAD	REFERENCE TO	DRY-READING MINIMUM	WET-READING MINIMUM
Tank	Ground	10 Meg.	5 Meg.
Tank	Shield Cable Center Conductor	15 Meg.	7.5 Meg.
Tank	Compensator	200 Meg.	100 Meg.
Compensator	Ground	200 Meg.	100 Meg.
Shield Cable Center Conductor	Ground	20 Meg.	20 Meg.
Shield Cable Center Conductor	Compensator	200 Meg.	100 Meg.
Shield	Ground	0 Meg.	0 Meg.

TABLE 102

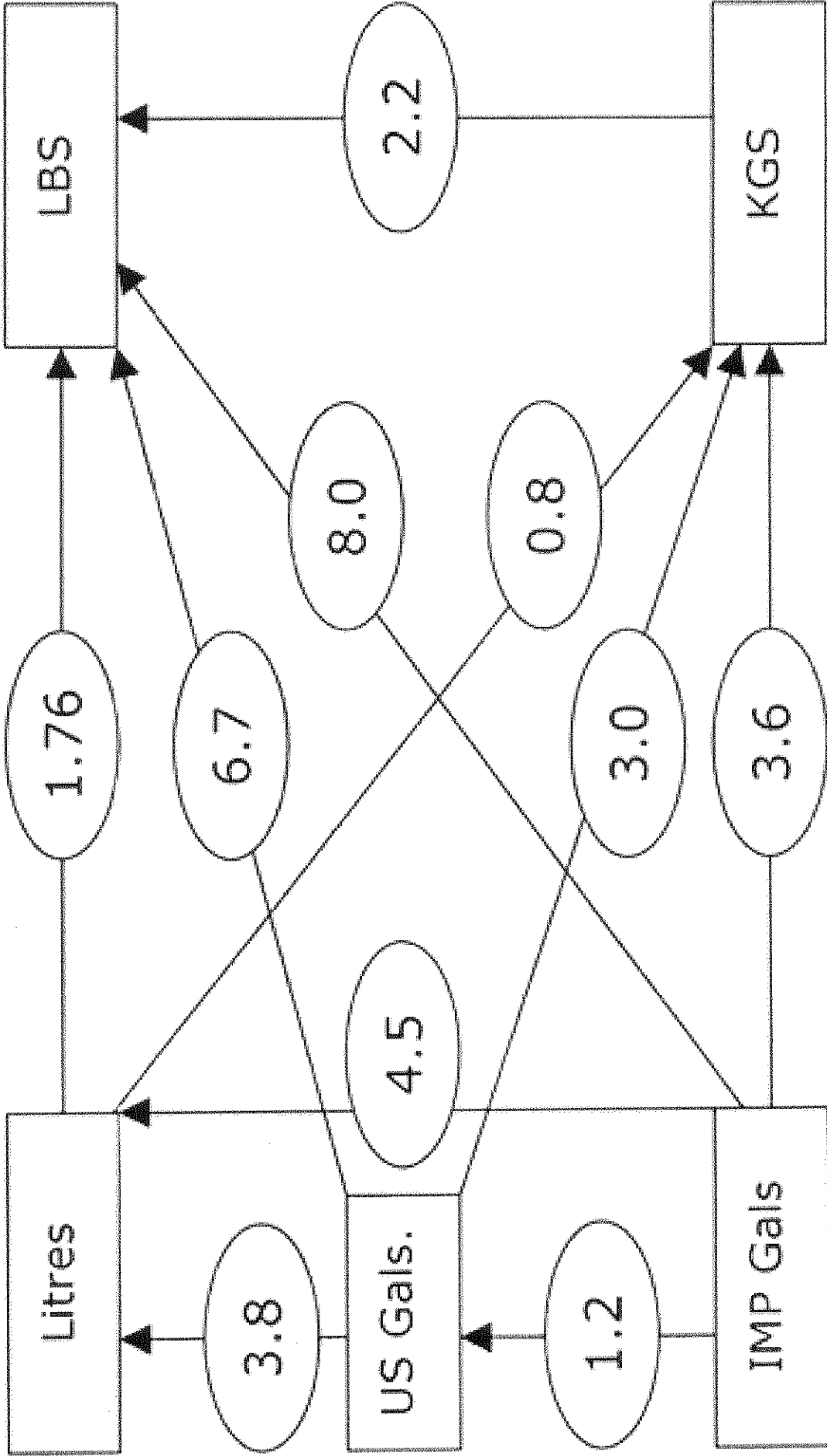
(3) Use a volt Ohmeter for necessary continuity measurements.

B. Total Tank Unit Capacitance Measurement.

- (1) Test instrument Zero adjustment, Reference 28-41-2, 1. C.
- (2) Connect test instrument and harness, reference 28-41-2, Figure 506.
- (3) Measure tank unit Capacitance by information contained in 28-41-2, 1. B.
- (4) Capacitance must measure $473.3 \text{ uuf} \pm 11.8 \text{ uuf}$. If the tank unit capacitance is not as specified the wiring or individual tank units are at fault.

C. Individual Tank Units (Dry Tanks) Capacitance Measurement.

- (1) Test instrument Zero adjustment, reference 28-41-2, 1. C.
- (2) Connect test instrument and harness, reference Figure 506.
- (3) Measure tank unit by information contained in 28-41-2, 1. B.
- (4) Reference general instructions 1. B. for recommended tank unit checking sequence.
- (5) Capacitance must be as shown in Table 103. If the tank unit Capacitance is not as specified the wiring or individual tank units are at fault.



FUEL QTY			ADDED CAPACITANCE (+pF)
POUNDS	GALLONS	LITERS	
1000	149.25	568.18	28
1500	223.88	852.27	42
2000	298.51	1136.36	56
2500	373.13	1420.45	70
3000	447.76	1704.55	84
3500	522.39	1988.64	98
4000	597.01	2272.73	112
4500	671.64	2556.82	126
5000	746.27	2840.91	140
5500	820.90	3125.00	154
6000	895.52	3409.09	168