

# SERVICE *No. 821A* BULLETIN

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\* **PIPER CONSIDERS** \*  
\* **COMPLIANCE MANDATORY** \*  
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FAA Approved

Date May 14, 1986 M

(Service Bulletin No. 821A supersedes and voids Special Advisory 31T-16, dated October 26, 1984 and Service Bulletin No. 821, dated April 18, 1986)

SUBJECT: Special Inspection of Fuel Quantity Probes

REASON FOR REVISION: Amend Capacitance Charts, Amend Purpose

MODELS AFFECTED: SERIAL NUMBERS AFFECTED:

PA-31T Cheyenne	31T-7400002 through 31T-7720069
PA-31T Cheyenne II	31T-7820001 through 31T-8120104
PA-31T1 Cheyenne I	31T-7804001 through 31T-8104101
PA-31T1 Cheyenne IA	31T-8304001 through 31T-1104017
PA-31T2 Cheyenne IIXL	31T-8166001 through 31T-1166006
PA-31T3 T-1040	31T-8275001 through 31T-8375005,
	31T-8475001 and 31T-5575001

Affected are all Cheyenne and T-1040 Aircraft listed above which have replaced Fuel Quantity Probes, Piper Part Numbers 50946-04 (550-578) or 50946-05 (550-579) after September 1, 1985 and prior to February 28, 1986.

COMPLIANCE TIME: To coincide with the next regularly scheduled inspection event, but not to exceed the next ten (10) hours of operation.

PURPOSE: Fuel Quantity Probes for the above listed aircraft have part number identification stamped on both the body and the top surface of the probe. It has been determined that a group of Fuel Quantity Probes, Piper Part Numbers 50946-04 (550-578) and 50946-05 (550-579) have been incorrectly identified on the TOP surface of the affected part. This condition could lead to installation of the fuel quantity probes at incorrect locations in the fuel tanking system, resulting in erroneous fuel quantity indications, fuel mismanagement, and/or fuel exhaustion. One operator has experienced fuel exhaustion and an off-airport emergency landing because of improper fuel probe installation. This Service Bulletin provides instructions for proper identification and location of fuel quantity probes.

INSTRUCTIONS: Verification of the Fuel Quantity Probe's identity may be accomplished by either of the following methods:

1. A capacitance check of individual probes, with tanks dry, that coincides with the respective values for each probe shown on the appropriate attached chart.

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INSTRUCTIONS: (Cont'd.)

2. Removal of the fuel quantity probe and verification that the part identification stamp on the probe BODY coincides with the vendor model number and location shown on the appropriate attached chart.
3. All aircraft must be in conformity with the appropriate chart, and if not, must be corrected prior to further flight by installing the correct Fuel Quantity Probe in the proper location. A fuel quantity calibration check must also be performed by either of the following two methods.
  - A. A wet calibration in accordance with the current revision of the appropriate maintenance manual.
  - B. A capacitance check of the entire system using the appropriate attached capacitance chart.
4. Make appropriate logbook entry of compliance with this Service Bulletin.

MATERIAL REQUIRED: If replacement is required by inspection, one (1) or two (2) Fuel Quantity Probes, Piper Part Number 50946-04 (550-578) and/or one (1) or two (2) Fuel Quantity Probes, Piper Part Number 50946-05 (550-579), per aircraft.

AVAILABILITY OF PARTS: Your Piper Cheyenne Field Service Facility.

EFFECTIVITY DATE: This Service Bulletin is effective upon receipt.

SUMMARY: Please contact your Cheyenne Field Service Facility to make arrangements for compliance with this Service Bulletin.

Any applicable factory participation will remain in effect for a period of time not to exceed 180 days from the date of this Service Release.

NOTE: If you are no longer in possession of this aircraft, please forward this information to the present owner/operator.

# **PIPER CHEYENNE SERVICE MANUAL**

TABLE IX-II. SCALE ERROR READINGS

Dial (lbs.)	Capacitance Tester Settings (pF)	With Tip Tanks
	Standard System	
1200	---	138.8
1000	---	127.6
980	115.8	---
800	105.8	116.5
600	94.7	105.4
400	83.6	94.3
200	72.4	83.1
0	61.3	72.0
	+/- 3pF	+/- 3pF

TABLE IX-III. TANK UNIT CAPACITANCE (DRY)

Unit Location	Piper Part No.	Tank Unit Model	Capacitance (pF)	Tolerance ( $\pm$ pF)
Tip Tanks	50946-03 550 577	PBA1021	10.75	0.75
Main Inboards	50946-04 550 578	PBA1020-1	12.46	0.75
Main Outboards	50946-05 550 579	PBA1020-2	23.60	0.75
Nacelles	50946-02 550 576	PBA1020-3	21.88	0.75

NOTE: Electrical leakage resistance between "H" and "L" or between "H" or "L" and the Tank Sensor Unit mounting flange must measure 10 or more megohms.

**PIPER AIRCRAFT  
T-1040  
MAINTENANCE MANUAL**

CHART 2804. INDICATOR SCALE SPAN CALIBRATION

Dial (lbs.)	Capacitance Tester Settings (pF)	
	Standard System	With Tip Tanks
1200	---	138.8
1000	---	127.6
980	115.8	---
800	105.8	116.5
600	94.7	105.4
400	83.6	94.3
200	72.4	83.1
0	61.3	72.0
	+/- 3pF	+/- 3pF

CHART 2805. TANK UNIT CAPACITANCE, DRY

Unit Location	Piper Part No.	Tank Unit Model	Capacitance (pF)	Tolerance (+/- pF)
Main Inboards	50946-04 550 578	PBA1020-1	12.46	+/- 0.75
Main Outboards	50946-05 550 579	PBA1020-2	23.60	+/- 0.75
Nacelles	50946-02 550 576	PBA1020-3	21.88	+/- 0.75
Tip Tank	50946-03	PBA1021	10.75	+/- 0.75

NOTE: Electrical leakage resistance between "H" and "L" or between "H" or "L" and the Tank Sensor Unit mounting flange must measure 10 or more megohms.