SERVICE LETTER No. 851

Piper Aircraft Corporation

Lock Haven, Pennsylvania, U.S.A.

August 31, 1978 S/M

This Service Letter consists of three (3) parts, each part dealing with a different subject and/or aircraft effectivities. Each part should be reviewed carefully to determine its applicability to your aircraft.

PART A

Subject: Fuel Valve Internal Leak Check

Models Affected:	Serial Numbers Affected:
PA-24-400 Comanche	26-2 to 26-148 Inclusive
PA-30 Twin Comanche	30-2 to 30-2000 Inclusive
PA-39 Twin Comanche "C/R"	39-1 to 39-155 Inclusive

Compliance Time: Recommended at the next periodic inspection interval - not to exceed fifty (50) hours of operation, and at each fifty (50) hours of operation thereafter.

Purpose:

Inter-port leakage within the fuel selector valve could cause fuel transfer from one tank to another, resulting in possible fuel mismanagement. Combined with other possible fuel system malfunctions, this condition could result in air ingestion and rough engine operation.

Instructions:

1. Position aircraft on relatively level ground with a minimum of one (1) gallon in each tank. Drain fuel selector sump using normal preflight procedures.

SPECIAL NOTE:
Observe all safety precautions required when handling gasoline.

2. With fuel selector in the "off" position, drain fuel selector by operating drain lever through the access panel located between the front seats. Valve should be held "open" for one minute. Collect content and discard. NOTE: Because of residual fuel in the fuel selector sump bowl, several attempts may be required to drain all fuel from the sump bowl. A leaking fuel valve is indicated by continued draining when the fuel selector is in the "off" position. The volume and rate of this drainage depends on the size of the leak.

continued

Instructions: (continued)

3. Close drain valve and wait three (3) minutes. Drain fuel selector for one (1) minute, collecting contents in a graduated container. Close drain valve. Contents collected must be less than one half (1/2) fluid ounce.

4. If fuel collected exceeds one half (1/2) fluid ounce, repeat Item 3, above.

5. If repeated collected fuel exceeds one half (1/2) fluid ounce, an excessive internal leaking fuel selector is indicated. Clean the fuel selector valve in accordance with the procedures in the appropriate Service Manual. Repeat steps 1. through 4., above. If excessive internal leaking is still indicated, replace fuel valve with a new unit.

Make proper log book entry as to compliance with Part A of this Service Letter.

NOTE:

The leak check described above can be accomplished by the pilot/owner.

Material Required:

Reference Instruction No. 5, above; refer to appropriate Parts Catalog for material identification and to appropriate Service Manual for procedures if replacement is necessary.

PART B

Subject: Fuel System Draining Procedure - Water Contamination

Models Affected:	Serial Numbers Affected:
PA-30 Twin Comanche	30-2 to 30-2000 Inclusive
PA-39 Twin Comanche "C/R"	39-1 to 39-155 Inclusive

Compliance Time: Recommended at each Pre-flight inspection.

Purpose:

The accumulation of water in the fuel tanks and related lines could cause rough engine operation or complete power interruption if the water freezes during cold weather operation. Strict adherence to the preventive practice specified below and in the appropriate airplane Owners Handbook (PA-30) or Pilots Operating Manual (PA-39) can keep water accumulation and accompanying problems to a minimum.

Instructions:

The following information will be made available in a forthcoming revision to the PA-39 Pilots Operating Manual; for the PA-30 series, it is recommended that this section of this Service Letter be detached and included with the aircraft operating paperwork.

The following "sections" refer to the Owner's Handbook and/or Pilot's Operating Manual, whichever applies.

Airplane and Systems:

1. The cells should be kept full of fuel during storage and the aircraft refueled as soon as possible after each flight to prevent accumulation of moisture and deterioration of the cells.

Operating Tips; Airplane and Systems; Operating Instructions:

2. When the aircraft has been exposed to below freezing temperatures or it is suspected that water may have entered the tanks, fuel should be drained using the following expanded procedure before flight.

   a. To drain main and auxiliary cells open the strainer quick drain for ten (10) to twelve (12) seconds with the fuel cell selector on the main cell, then change the selector to the auxiliary cell and repeat the process. Draining each cell for the recommended time should produce a half (1/2) pint or more of fuel per cell.
   b. To drain tip tanks, if installed, turn the master switch on and select the tip tank position on the electrical selector switch. Open the strainer quick drain for twenty (20) to twenty-five (25) seconds with the fuel cell selector on the auxiliary cell. Draining the tip tank for the recommended time should produce one (1) pint or more of fuel per tank.

NOTE: The fuel should be collected in a container and examined for water contamination. If water is present, repeat the above procedure until all water is removed. If it is observed that any fuel cell is draining slower than normal, a complete check of the system should be carried out to determine the cause before flight. Ice formation may cause slow fuel drainage when the aircraft has been exposed to below freezing temperatures. If this is the case, the aircraft should be placed in a warm hangar until normal fuel drainage is attained and all water is removed.

Handling and Servicing - Operating Tips:

3. All fuel cells are equipped with fuel caps that periodically need to be inspected for proper sealing. In addition, each fuel cell has a filler neck scupper drain tube for water that may collect around the filler neck. These drains should be free flowing with no restrictions. The fuel cell filler cover plate gaskets must also be in good condition and show no evidence of aging, hardening or deterioration. By assuring that the fuel caps are sealing properly, there are no restrictions in the drains and the cover plate gaskets are in good condition, water contamination of the fuel can be kept to a minimum.

4. In order to minimize water contamination of the fuel during cleaning operations avoid directing water into the vents, drain tubes, around sealed cover plates and filler cap access openings.

PART C

Subject: Fuel System Draining Procedures - Water Contamination

Models Affected: PA-24-400 Comanche

Serial Numbers Affected: 26-2 to 26-148 Inclusive

Compliance Time: Recommended at each Pre-flight Inspection.

Purpose:

The accumulation of water in the fuel tanks and related lines could cause rough engine operation or complete power interruption if the water freezes during cold weather operation. Strict adherence to the preventive practice specified below and in the appropriate airplane Owner's Handbook can keep water accumulation and accompanying problems to a minimum.

Instructions:

It is recommended that this section of this Service Letter be detached and included with the aircraft operating paperwork.

The following "sections" refer to the PA-24-400 Owner's Handbook.

Airplane and Systems:

1. The cells should be kept full of fuel during storage and the aircraft refueled as soon as possible after each flight to prevent accumulation of moisture and deterioration of the cells.

General Maintenance; Operating Instructions; Airplane and Systems:

2. When the aircraft has been exposed to below freezing temperatures or it is suspected that water may have entered the tanks, fuel should be drained using the following expanded procedure before flight.

   a. To drain main and auxiliary cells open the strainer quick drain for ten (10) to twelve (12) seconds with the fuel cell selector on the main cell, then change the selector to the auxiliary cell and repeat the process. Draining each cell for the recommended time should produce a half (1/2) pint or more of fuel per cell.

NOTE: The fuel should be collected in a container and examined for water contamination. If water is present, repeat the above procedure until all water is removed. If it is observed that any fuel is draining slower than normal, a complete check of the system should be carried out to determine the cause before flight. Ice formation may cause slow fuel drainage when the aircraft has been exposed to below freezing temperatures. If this is the case, the aircraft should be placed in a warm hangar until normal fuel drainage is attained and all water is removed.

General Maintenance; Operating Instructions:

3. All fuel cells are equipped with fuel caps that periodically need to be inspected for proper sealing. In addition, each cell has a filler neck scupper drain tube for water that may collect around the filler neck. These drains should be free flowing with no restrictions. The fuel cell filler cover plate gaskets must also be in good condition and show no evidence of aging, hardening or deterioration. By assuring that the fuel caps are sealing properly, there are no restrictions in the drains and the cover plate gaskets are in good condition, water contamination of the fuel can be kept to a minimum.

4. In order to minimize water contamination of the fuel during cleaning operations avoid directing water into the vents, drain tubes, around sealed cover plates and filler cap access openings.

Effectivity Date:

This Service Letter is effective upon receipt.

Summary:

This information is submitted to affected owners/operators to assist in maintaining your aircraft fuel system in maximum operating, trouble-free condition.