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SERVICE INFORMATION LETTER

DATE: November 7, 2017

1. SUBJECT: Fuel Management – Dipstick Use and Fuel Samples

2. MODEL: F-28A, 280, F-28C, F-28C-2, F-28C-2R, 280C, F-28F, F-28F-R, 280F, and 280FX Helicopters

3. EFFECTIVITY: All

4. BACKGROUND:

A review of accident data shows that fuel starvation is a major cause of engine failures. Fuel starvation due to exhaustion ("running out of gas") is all too common and easily preventable. Enstrom would remind all owners and operators the importance of operating with adequate fuel reserves. The principal fuel requirements are stated in 14 CFR §91.151 and must not be ignored.

- Enstrom helicopters are equipped with a standard fuel gauge located in the instrument panel. In addition, Enstrom provides a simple tool, a wooden dipstick, to check the fuel level.

Fuel starvation may also be caused by the presence of water or debris in the fuel tanks. This can normally be avoided by properly draining and sampling the fuel sumps prior to flight.

- Enstrom has set forth a preflight inspection procedure for sampling the fuel tanks and the fuel filter as part of the Preflight Inspection checklist in the Rotorcraft Flight Manual.

Prior to any flight, a pilot should verify the fuel level in the tank using the fuel dipstick and verify the fuel type and cleanliness via the fuel tank sumps and fuel filter drain.

5. COMPLIANCE:

Fuel management procedures must comply with the following:

- Fuel requirements as stated in 14 CFR §91.151
- Fuel limitations as stated in the applicable Rotorcraft Flight Manuals
- Fuel servicing requirements as defined in the applicable F-28/280 Maintenance Manuals

Enstrom also recommends that owners/operators adhere to the guidelines set forth as follows:

- Using the fuel dipstick in accordance with paragraph 6
- Sampling the left and right fuel tanks and the fuel filter in accordance with paragraph 7

6. FUEL DIPSTICK GUIDELINES:

NOTE: The following Fuel Dipstick Guidelines pertain to 20-gallon fuel tank systems only. Early F-28A, unless modified to 20-gallon tanks, are equipped with 15-gallon tanks.

6.1 Aircraft attitude

6.1.1 The helicopter should be resting on the skids. Move the ground handling wheels up, if necessary.

6.1.2 Take note of ground slope and the effect to the distribution of fuel not only in the tank being checked but across both tanks, as the tanks are interconnected and gravity fed.

6.1.3 Check both tanks.

6.2 Fuel Dipstick Placement – Stick the Tank

6.2.1 The fuel dipstick has a line marking, **TOP OF TANK/NECK**. Insert the fuel dipstick until this line marking is level with the top of the fuel tank as shown in *Figure 1*.

6.2.2 Avoid lowering the dipstick past the top of the fuel tank. If the fuel dipstick is inserted too low, remove the dipstick, dry off, and check again.

NOTE: Do not lower the line marking, TOP OF TANK/NECK, below the top of the fuel tank. Inserting the fuel dipstick lower than the TOP OF TANK/NECK line will yield a fuel indication higher than the actual.

Figure 1. Proper placement of the fuel dipstick. The **TOP OF TANK/NECK** line is at the level of the top of the fuel tank.

6.3 Fuel Dipstick Indication

6.3.1 The dipstick is marked for the total fuel onboard assuming the tanks are filled equally. That is, if the stick reads 8 gallons in one tank and 12 gallons in the other tank, the total quantity is 10 gallons, not 20.

6.3.2 Aircraft attitude, filling technique, and pilot technique can affect the level in the individual tanks; that is, one tank may have less fuel than the other. The pilot should check both tanks and average the dipstick readings.

6.3.3 The fuel dipstick has a line marking, **10 GAL 60 LBS / 1/4**. A fuel level indication at the 1/4 mark means that each fuel tank contains 5 gal (30 lbs) or 10 gal (60 lbs) total.

6.3.4 If the fuel level indication on the dipstick is lower than **1/4**, take-off is not recommended.

CAUTION

TAKE-OFF IS NOT RECOMMENDED IF EITHER TANK IS BELOW 1/4.

6.3.4 The fuel dipstick is not calibrated. Variations in tolerances in the fuel tanks and the dipstick limit the accuracy of the dipstick. If greater accuracy is needed, a separate dipstick should be calibrated (para. 6.4) and dedicated for each aircraft.

6.4 Fuel Dipstick Calibration

NOTE: The aircraft should be level laterally and longitudinally for the calibration procedure.

6.4.1 Empty both fuel tanks completely.

6.4.2 Add 1 gal fuel to each tank. This amount equals the unusable fuel or zero quantity.

6.4.3 Add 1/2 gal to each tank and wait 15 minutes.

6.4.4 Stick both fuel tanks. Using a ball point pen, or other permanent marking device, mark the left and right 1 gal level on the dipstick.

6.4.5 Repeat steps 6.4.3 and 6.4.4 until 5 gal has been added to each tank for a total of 10 gal, which will also be equivalent to 1/4 tank.

6.4.6 Repeat steps 6.4.3 and 6.4.4 until an additional 5 gal has been added to each tank for a total of 20 gal, which will also be equivalent to 1/2 tank.

6.4.7 Repeat steps 6.4.3 and 6.4.4 until an additional 5 gal has been added to each tank for a total of 30 gal, which will also be equivalent to 3/4 tank.

6.4.6 Repeat steps 6.4.3 and 6.4.4 until an additional 5 gal has been added to each tank for a total of 40 gal, which will also be equivalent to a full tank.

NOTE: The following fuel sample procedure (paragraph 7) is titled *Fuel Management* under the *Preflight Inspection* paragraph of the respective Enstrom model rotorcraft flight manual, latest revision (see paragraph 15).

NOTE: For the Enstrom F-28A/C and 280/C maintenance manuals, the following procedure precedes the exterior Preflight Inspection checklist (see paragraph 15).

7. FUEL SAMPLE PROCEDURES:

7.1 Left fuel tank drain – Drain sample into jar. Verify the fuel grade, check the cleanliness, and check that the fuel is free of water.

WARNING

Sample the left and right fuel tank sumps before checking the fuel filter.

NOTE

Aircraft should be level or slightly nose down. Rock the aircraft by moving the tail up and down to displace any water or contaminants to the tank sump. If water is found, rock the aircraft and re-sample. Check the other tank. Repeat until no water is found. Then check the fuel filter.

7.2 Right fuel tank drain – Drain sample into jar. Verify the fuel grade, check the cleanliness, and check that the fuel is free of water.

7.3 Fuel filter – Secure and drain fuel sample into jar. Verify the fuel grade, check the cleanliness, and check that the fuel is free of water.

8. PARTS: N/A

9. SPECIAL TOOLS: N/A

10. MAN-HOURS: N/A

11. WARRANTY: N/A

12. WEIGHT CHANGE: N/A

13. LOG BOOK ENTRY: N/A

14. REPETITIVE ACTION: N/A

15. REFERENCES - ENSTROM MANUAL PUBLICATIONS

15.1 Rotorcraft Flight Manuals (RFM):

The fuel sample procedure (paragraph 7) is concurrent with content contained in the Enstrom RFM publications listed below.

Model	RFM Document Number	Page or Section Reference
F-28A	28-AC-009	Page FM-0-10
F-28C	28-AC-017	Page FM-8-6
F-28F	28-AC-018	Paragraph 4-4
280	28-AC-013	Page FM-7-10
280C	28-AC-016	Page FM-8-6
280F	28-AC-019	Section 4, Paragraph II.B
280FX	28-AC-020	Paragraph 4-4

15.2 F-28A/C and 280/280C Maintenance Manuals (MM): The fuel sample procedure (paragraph 7) precedes the Exterior Preflight Inspection checklist in the applicable maintenance manuals listed below.

Model	MM	Page Reference*
F-28A	F-28A Maintenance Manual	MM-3-1 and MM-3-2
280	280 Maintenance Manual	
F-28C	F-28 - 280C Maintenance Manual Supplement	MM-18-1 and MM-18-2
280C		

* The subsequent Preflight Inspection steps to "*drain fuel sump*," where applicable, may be omitted from the checklist on condition that the *Fuel Management* procedure has been accomplished in accordance with paragraph 7.