

Supplement 005
TO THE AIRPLANE FLIGHT MANUAL DA 42 NG
Diesel Operation

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This Supplement to the Airplane Flight Manual has been approved by EASA with EASA Approval No. 10047558.



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0.1 RECORD OF REVISIONS

Rev. No.	Reason	Chapter	Page(s)	Date of Revision	Approval Note	Date of Approval	Date Inserted	Signature

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1. GENERAL

This Supplement supplies the information necessary for operation of a DA 42 NG with Diesel Fuel according to EN 590.

The information contained in this Supplement is to be used in conjunction with the complete AFM. The limitations and information contained herein either supplement or, in the case of conflict, override those in the Airplane Flight Manual or its previous Temporary Revisions.

This Supplement is a permanent part of this AFM and must remain in this AFM at all times if OÄM 42-251 is implemented.

NOTE

For Diesel Fuel operation a dedicated engine and Garmin G1000 software is required. Refer to MSB42NG-002 and MSB42NG-003, latest effective issue.

2. LIMITATIONS

2.4 POWER-PLANT LIMITATIONS

k) Fuel temperature

Minimum : - 30 °C

Maximum : 60 °C

2.5 ENGINE INSTRUMENTS MARKINGS

Indi- cation	Red arc/bar = lower prohibited range	Yellow arc/bar = caution range	Green arc/bar = normal operating range	Yellow arc/bar = caution range	Red arc/bar = upper prohibited range
Diesel Fuel temp.	below -30°C	-30° to +4°C	+5° to 55°C	55° to 60°C	above 60°C

2.14 FUEL

Diesel Fuel:

Diesel (EN 590)

and blends of the approved fuel grades see CAUTION below.

CAUTION

Additional temperature limitations must be observed if the airplane is operated with Diesel Fuel or blends of Diesel Fuel with JET Fuel.

CAUTION

For Diesel fuel operation no fuel additives are permitted.

NOTE

If the airplane is operated with Diesel Fuel or a blend of Diesel Fuel with JET Fuel, the use of the auxiliary tanks, if installed (OÄM 42-056), is not permitted.

2.15 LIMITATION PLACARDS

In the Forward View of the Pilot:

No engine start below	No take-off below	Diesel Fuel Class
-5°C (+23°F)	+5°C (+41°F)	Diesel Fuel of unknown class or unknown fuel blend
-10°C (+14°F)	-5°C (+23°F)	Diesel Fuel Class C
-15°C (+5°F)	-10°C (+14°F)	Diesel Fuel Class D, E or F

2.16 OTHER LIMITATIONS

2.16.1 FUEL TEMPERATURE

Diesel Fuel of an unknown class, blends of Diesel Fuel with JET Fuel, or unknown fuel grade:

Engine starting fuel temperature min. -5 °C (+23 °F)
Take-off fuel temperature min.+5 °C (+41 °F)
Maximum fuel temperature +60 °C (+140 °F)

Diesel Fuel Class C:

Engine starting fuel temperature min. -10 °C (+14 °F)
Take-off fuel temperature min. -5°C (+23°F)
Maximum fuel temperature +60 °C (+140 °F)

Diesel Fuel Class D, E or F:

Engine starting fuel temperature min. -15 °C (+5 °F)
Take-off fuel temperature min. -10°C (+14°F)
Maximum fuel temperature +60 °C (+140 °F)

For more information about Diesel Fuel classes refer to Section 7.9.5 - FUEL SYSTEM.

3. EMERGENCY PROCEDURES

No change.

4A. NORMAL OPERATING PROCEDURES

4A.6 CHECKLISTS FOR NORMAL OPERATING PROCEDURES

4A.6.2 BEFORE STARTING THE ENGINE

WARNING

If Diesel Fuel of an unknown class or a blend of Diesel Fuel with JET Fuel is used, the engine must not be started if the fuel temperature indication prior to operation is below -5 °C (+23 °F).

NOTE

Make sure which fuel grade is being used (see Section 7.9.5). If it is not possible to determine the fuel grade, the Diesel Fuel temperature limitations must be observed.

4A.6.19 REFUELING

NOTE

If the airplane is operated with Diesel Fuel additional temperature limitations (refer to Section 2.16.1 - FUEL TEMPERATURE) must be observed. No fuel additives are permitted.

If JET Fuel is used, make sure that no Diesel Fuel is remaining in the tanks, neither in the left nor in the right tank (see fuel grade, Section 7.9.5 - FUEL SYSTEM). Otherwise the temperature limitations for Diesel Fuel operation must be observed.

Refueling of the Auxiliary Tanks (if installed)

CAUTION

If the airplane is operated with Diesel Fuel or a blend of Diesel Fuel with JET Fuel the use of the auxiliary tanks is not permitted.

4B. ABNORMAL OPERATING PROCEDURES

No change.

5. PERFORMANCE

5.3 PERFORMANCE TABLES AND DIAGRAMS

5.3.6 TAKE-OFF DISTANCE

Below 10° C (50° F) OAT:

Increase take-off ground roll (normal and short field operation) by 7%.

Increase take-off distance over a 15m obstacle I (normal and short field operation) by 7%.

NOTE

Calculate the increase in take-off distance from the basic AFM value before calculating additional corrections from other Supplements.

5.3.7 CLIMB PERFORMANCE

Below 10° C (50° F) OAT:

Climb with Flaps UP:

Reduce climb performance by 60 ft/min (0.31 m/s)

Climb with Flaps APP:

Reduce climb performance by 60 ft/min (0.31 m/s)

NOTE

Calculate the decrease in climb performance from the basic AFM value before calculating additional corrections from other Supplements.

5.3.8 ONE ENGINE INOPERATIVE CLIMB PERFORMANCE

Below 10° C (50° F) OAT:

Reduce one engine inoperative climb performance by 30 ft/min (0.16 m/s)

NOTE

Calculate the decrease in climb performance from the basic AFM value before calculating additional corrections from other Supplements.

6. MASS AND BALANCE

No change.

7. SYSTEM DESCRIPTION

7.9 POWER PLANT

7.9.5 FUEL SYSTEM

Fuel Temperature

There are six different classes for Diesel fuel according to EN 590. Each class has a temperature limit to prevent fuel filter plugging due to fuel flocculation. Refer to the table below:

Property	Unit	Limits					
		Class A	Class B	Class C	Class D	Class E	Class F
CFPP	° C	+5	0	-5	-10	-15	-20
CFPP	° F	+41	+32	+23	+14	+5	-4

CFPP Cold filter plugging point

The lower yellow bar indicates that the airplane is not ready for take-off if Diesel Fuel (unknown class) or a blend of Diesel Fuel with JET Fuel is used (approved only if OÄM 42-251 is incorporated). If the fuel grade is uncertain, take-off is not allowed in this temperature range either.

In the temperature range below -5 °C (23 °F) the engine must not be started if Diesel Fuel (unknown class) or a blend of Diesel Fuel with JET Fuel grades is used. If the fuel blend is uncertain, the engine must not be started in this temperature range either.

If the airplane is being operated with JET Fuel grades or Diesel Fuel class C, D, E or F, operation in the yellow temperature range is permissible (refer to Section 2.15 - LIMITATION PLACARDS).

Approved fuel grades are listed in Section 2.14 - FUEL. As the fuel grade is important concerning operating temperature limitations, the pilot must be sure about the fuel grade. Cold Diesel Fuel tends to flocculate, which can lead to clogging of the fuel filter. The fuel filter is not heated.

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If the airplane is operated in a cold environment, it must be changed from Diesel Fuel operation to JET Fuel operation. To ensure that no blend of JET Fuel with Diesel Fuel is in one of the tanks, each tank must be refilled at least twice with more than 17.2 US gal (65 liter) of JET Fuel. Otherwise both tanks must be drained before refueling with JET Fuel.

CAUTION

If the airplane is operated with Diesel Fuel or a blend of Diesel Fuel with JET Fuel the use of the auxiliary tanks, if installed (OÄM 42-056), is not permitted.

8. AIRPLANE HANDLING, CARE AND MAINTENANCE

No change.



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