## Statens Luftfartsvæsen

## **Civil Aviation Administration - Denmark**



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Emne: Operation of engine anti-ice system

Hoslagt fremsender Statens Luftfartsvæsen (SLV) kopi af gældende procedurer for anvendelse af "engine anti-ice system" på MD-80 fly.

For så vidt angår Deres ønske om SLVs besvarelse af Deres private kommentering af medsendte notat, som er udarbejdet af SLV - finder SLV ikke at kunne forsvare anvendelse af ressourcer til besvarelse af henvendelser af den karakter.

Med venlig hilsen

M.G.Madsen

Łuftfartsinspektør Flyveoperationer

Kopi af SAS Aircraft Operations Manual MD-80, AOM 2.12, page 4 and 5 hoslagt.

## **AIRCRAFT OPERATION MANUAL MD-80**

AOM 2.12 Page 4

ICE AND RAIN PROTECTION
Operation

CONDITIONS	NORMAL PROCEDURES
(cont'd)	System shutdown
	6. Tail de-ice cycle PERFORM.
	7. AIR FOIL anti-ice switches OFF.
	- Set L SYS and R SYS anti-ice switches to OFF.
	- Check WING ANTI-ICE ON advisory light to be off.
,	8. PNEU X-FEED VALVE levers, both
2.2. OPERATION OF ENGINE ANTI-ICE SYSTEM	General
	- Engine anti-ice shall be turned on at any time during ground and flight operations when icing conditions exist or are anticipated.
	<ul> <li>During ground operation (use OAT), takeoff and approach (use RAT), engine anti-ice shall be used whenever the temperature is +6°C or less and either the dewpoint is at or within 3°C of ambient temperature or moist conditions are evi- dent (such as rain, sleet, snow, fog or water, ice on the taxiway or runway). En- gine anti-ice shall also be turned on before entering clouds when RAT is +6°C or less.</li> </ul>
	- Engine anti-ice switches shall be operated one at a time to prevent surging of both engines simultaneously and also prevent surges in the pneumatic system.
	During ground operation at temperatures of +3°C or below and simultaneous high moisture conditions (rain, sleet, snow or fog) the engine anti-icing system may not be capable of keeping the engines clear of ice during prolonged taxiing and/or long periods of idling. Periodic engine run-ups (70% N <sub>1</sub> for a minimum of 15 seconds or alternately 60% N <sub>1</sub> for a minimum of 40 seconds) shall be made in these conditions. Such run-ups need not normally be made more frequently than at 10 minutes intervals. Consider use of more frequent intervals during adverse conditions.
	Additionally, takeoff under these icing conditions shall always be preceded by an engine rup-up as above, with observation of EPR and EGT to assure normal engine operation. Due consideration shall be taken to surrounding traffic, runway/taxiway conditions, etc. Engine run-ups on the ground are equally applicable to taxi-in as well as ground holding and taxi-out.
	<ul> <li>An engine run-up shall always be performed after a de-/anti-ice treatment (except partial de-/anti-ice treatment), to reduce risk of smoke from de-/anti-ice fluid entering the cabin during takeoff roll.</li> </ul>
	<ul> <li>In flight, it is recommended to keep EPR at or above 1.2 to achieve sufficient heating of the inlet when the engine anti-ice system is on.</li> </ul>
	If engine anti-ice is on for takeoff, do not switch it off until, at earliest, after climb power is set.
	<ul> <li>When descending from high altitudes, the nacelles are cold and may be subject to sudden and severe icing in clouds and moist conditions at lower altitudes.</li> </ul>
	If icing has been encountered during the later stages of the flight, the response of each engine shall be checked prior to initial approach.
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## **AIRCRAFT OPERATION MANUAL MD-80**

AOM 2.12 Page 5

ICE AND RAIN PROTECTION
Operation

CONDITIONS	NORMAL PROCEDURES	
(cont'd)	System turn on	
	1. ENG IGN switch	.GRD START & CONTIN.
	CAUTION.  If it is suspected that ice already has formed on engines, set switch to OVRD. After ENG anti-ice switches are set to ON and engines are stabilized, set switch to GRD START & CONTIN.	
	2. ENG anti-ice switches	.ON, ONE AT A TIME.
	<ul> <li>Move ENG anti-ice switches to ON, one at a time. Wait until first engine is stabilized before turning on anti-ice for the other engine.</li> </ul>	
	- Check ENG VALVE caution to be off.	
	- Check ENG ANTI-ICE ON lights to be on.	
	System shutdown	
	3. ENG anti-ice switches	.OFF.
	- Check ENG VALVE caution to be off.	
	- Check ENG ANTI-ICE ON lights to be off.	
	4. ENG IGN switch	.AS REQ.
2.3. OPERATION OF WIND- SHIELD WIPERS AND RAIN REPELLENT	CAUTION. Do not operate windshield wipers on dry glass.	
	1. WIPER selector	.SET.
	- Set WIPER selector to SLOW or FAST as required.	
	When conditions permit	
	2. WIPER selector	.PARK-OFF.
	- Set WIPER selector to PARK and allow wipers to park out of view.	
	- Set WIPER selector to OFF.	

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