

Subject: TAKEOFF WEIGHT PENALTY DURING OPERATIONS WITH ANTI-ICE ON FOR AIRPLANES THAT ARE NOT SUBMITTED TO ENGINE HEALTH MONITORING PROGRAM

Purpose: To inform flight crew about takeoff weight penalty during operations with anti-ice on due to possible lack of ITT and N2 margin should an engine failure occur during takeoff.

Background: Embraer and Rolls-Royce detected that the Embraer 145 family airplanes may present an insufficient ITT and N2 margin during takeoff with one engine inoperative when the anti-ice reference is selected on (REF A-ICE ON). This is due to E1 (2) ATTCS NO MRGN warning CAS message trigger values (ITT and N2 margins) being miscalculated by the FADEC only when REF A-ICE is selected ON. Rolls-Royce informed that a future FADEC software version will fix this miscalculation. Meanwhile, a takeoff weight penalty must be applied to guarantee that the engine thrust will be sufficient to meet the performance requirements.

Recommended Action: If the following conditions are met:

- airplane is not submitted to Engine Health Monitoring, as described in Chapter 5 of the AE3007A Series Engine Maintenance Manual CSP34022 dated October 20, 2010 or later revision, and
- REF A-ICE takeoff data on MFD page is selected ON, apply the following weight penalties:

For Legacy 600, decrease the calculated maximum takeoff weight by:

Engine →	AE3007A1P	AE3007A1E
Altitude (ft) ↓		
0	450 kg (995 lb)	450 kg (995 lb)
1000	450 kg (995 lb)	450 kg (995 lb)
2000	950 kg (2095 lb)	500 kg (1105 lb)
3000	1500 kg (3310 lb)	450 kg (995 lb)
4000	1600 kg (3530 lb)	450 kg (995 lb)
5000	1600 kg (3530 lb)	750 kg (1655 lb)
6000	1650 kg (3640 lb)	1500 kg (3310 lb)
7000	1750 kg (3860 lb)	1600 kg (3530 lb)
8000	1750 kg (3860 lb)	1650 kg (3640 lb)
9000	1700 kg (3750 lb)	1750 kg (3860 lb)
10000	1700 kg (3750 lb)	1850 kg (4080 lb)
11000	1700 kg (3750 lb)	1800 kg (3970 lb)
12000	1700 kg (3750 lb)	1750 kg (3860 lb)
13000 to 13800	1700 kg (3750 lb)	1650 kg (3640 lb)

CAUTION: WHENEVER E1 (2) ATTCS NO MRGN WARNING EICAS MESSAGE IS PRESENTED, THE ASSOCIATED EMERGENCY PROCEDURE MUST BE ACCOMPLISHED.

- For EMB-145STD, EMB-145EU, EMB-145ER, EMB-145EP, EMB-145MK, EMB-145MP, EMB-145LU and EMB-145LR, decrease the calculated maximum takeoff weight by:

Engine →	AE3007A1, AE3007A1/1	AE3007A1P
Altitude (ft) ↓		
0	1650 kg (3640 lb)	600 kg (1320 lb)
1000	1600 kg (3530 lb)	1100 kg (2425 lb)
2000	1550 kg (3420 lb)	1650 kg (3640 lb)
3000	1500 kg (3310 lb)	1650 kg (3640 lb)
4000	1650 kg (3640 lb)	1600 kg (3530 lb)
5000	1700 kg (3750 lb)	1550 kg (3420 lb)
6000	1700 kg (3750 lb)	1550 kg (3420 lb)
7000	1700 kg (3750 lb)	1550 kg (3420 lb)
8000	1700 kg (3750 lb)	1550 kg (3420 lb)
9000*	1550 kg (3420 lb)	1500 kg (3310 lb)
10000*	1550 kg (3420 lb)	1500 kg (3310 lb)
11000*	1550 kg (3420 lb)	1500 kg (3310 lb)
12000*	1550 kg (3420 lb)	1500 kg (3310 lb)
13000*	1550 kg (3420 lb)	1500 kg (3310 lb)
14000*	1550 kg (3420 lb)	1500 kg (3310 lb)

(*) Only applicable to EMB-145LR models.

CAUTION: WHENEVER E1 (2) ATTCS NO MRGN WARNING EICAS MESSAGE IS PRESENTED, THE ASSOCIATED EMERGENCY PROCEDURE MUST BE ACCOMPLISHED.

- For EMB-140ER, EMB-140LR EMB-135ER, EMB-135LR and EMB-145XR, decrease the calculated maximum takeoff weight by:

Engine →	AE3007A1/3	AE3007A1E
Altitude (ft)		

↓		
0	1150 kg (2535 lb)	450 kg (995 lb)
1000	1150 kg (2535 lb)	450 kg (995 lb)
2000	1150 kg (2535 lb)	500 kg (1105 lb)
3000	1200 kg (2645 lb)	450 kg (995 lb)
4000	1550 kg (3420 lb)	450 kg (995 lb)
5000	1600 kg (3530 lb)	750 kg (1655 lb)
6000	1650 kg (3640 lb)	1500 kg (3310 lb)
7000	1600 kg (3530 lb)	1600 kg (3530 lb)
8000	1450 kg (3200 lb)	1650 kg (3640 lb)
9000	N/A	1750 kg (3860 lb)
10000	N/A	1850 kg (4080 lb)

CAUTION: WHENEVER E1 (2) ATTCS NO MRGN WARNING EICAS MESSAGE IS PRESENTED, THE ASSOCIATED EMERGENCY PROCEDURE MUST BE ACCOMPLISHED.

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