
AIRWORTHINESS DIRECTIVE

On the effective date specified below, and for the reasons set out in the background section, the CASA delegate whose signature appears below revokes Airworthiness Directive (AD) AD/B737/198 Amdt 1 and issues the following AD under subregulation 39.001(1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

Boeing 737 Series Aeroplanes

**AD/B737/198
Amdt 2**

Centre Tank Fuel Pumps

18/2011

Applicability: All Model 737-600, -700, -700C, -800 and -900 series aeroplanes.

Requirement: 1. Model 737-600, -700, -700C, -800 and -900 series aeroplanes with a line number 1234 and below:

- a. If not previously accomplished in accordance with the original issue of this Directive - Remove the Aircraft Flight Manual (AFM) revision required by AD/B737/190 Amdt 1.
- b. If not previously accomplished in accordance with the original issue of this Directive - Revise the Limitations Section of the Aircraft Flight Manual (AFM) by incorporating the procedures included at Annex A to this Amendment (this may be accomplished by inserting a copy of Annex A into the AFM).

The limitations contained in this Amendment supersede any conflicting basic AFM limitations.

- c. If not previously accomplished in accordance with the original issue of this Directive - Install a placard adjacent to each pilot's primary flight display (PFD) that reads as follows either:

"AD/B737/198 fuel usage restrictions required" or

"AD 2002-19-52 fuel usage restrictions required"

2. For all Model 737-600, -700, -700C, -800 and -900 series aeroplanes:
 - a. Fuel pumps with the following part numbers may not be installed on any aeroplane as a replacement part, unless the pump has been inspected to ensure that the wire bundle is properly routed in the pump since the most recent assembly of the end cap and motor-impeller housing (whether during manufacture, after maintenance or inspection, or after overhaul) in accordance with Boeing Alert Service Bulletin (ASB) 737-28A1197 dated 23 September 2002 or Crane Hydro-Aire Service Bulletin (SB) Crane Hydro-Aire Motor-Impeller-28-01, including Appendix A, dated 17 September 2002:

Boeing 737 Series Aeroplanes

AD/B737/198 Amdt 2 (continued)

| Hydro-Aire Part Number | Boeing Part Number |
|------------------------|--------------------|
| 60-989100-4 | 60B89004-14 |
| 60-755100-4 | 60B92404-8 |

- b. Fuel pump motor-impeller assembly having any part number may not be installed on any aeroplane in any pump position as a replacement part, unless the assembly has been inspected since the most recent assembly of the end cap motor-impeller housing (whether during manufacture, after maintenance or inspection, or after overhaul) using X-ray methods to ensure that the wire bundle is properly routed in the pump in accordance with Boeing ASB 737-28A1197 or Crane Hydro-Aire SB Crane Hydro-Aire Motor-Impeller-28-01, including Appendix A.

3. Remove the Requirement 1.b. AFM revision and the Requirement 1.c. placard.

Note 1: Requirement 3 is optional terminating actions for the fuel usage restrictions at Requirements 1.b and c.

Note 2: FAA AD 2002-19-52 Amdt 39-12900 refers.

Compliance: For Requirement 1 - Within 14 days after the effective date of this Amendment.

Despite the new AD/B737/198 Amdt 2, an exclusion or alternate method of compliance that was in force before the coming into effect of AD/B737/198 Amdt 2 continues to be in force.

For Requirement 2 - As of the effective date of this Amendment.

For Requirement 3 - When all fuel pumps for the centre wing tank, horizontal stabilizer tank, centre auxiliary tanks, together with auxiliary fuel tanks 1 and 4 on an aeroplane have been inspected using X-ray methods in accordance with Boeing ASB 737-28A1197 or Crane Hydro-Aire SB Crane Hydro-Aire Motor-Impeller-28-01, including Appendix A.

Inspection of a pump by Crane Hydro-Aire before the effective date of the original issue of this Directive is considered equivalent to an inspection performed in accordance with Crane Hydro-Aire SB Crane Hydro-Aire Motor-Impeller-28-01, including Appendix A.

Inspection of a pump in accordance with Boeing ASB 737-28A1197 or Crane Hydro-Aire SB Crane Hydro-Aire Motor-Impeller-28-01, including Appendix A, before the effective date of the original issue of this Directive is acceptable for removal of the AFM revision and placard.

Date remains unchanged to that detailed in Amendment 1 of this Directive.

This Amendment becomes effective on 30 September 2011.

Boeing 737 Series Aeroplanes

AD/B737/198 Amdt 2 (continued)

Background: The United States Federal Aviation Administration (FAA) has received reports indicating that fuel pumps on Boeing Model 737, 747 and 757 series aeroplanes have failed as a result of chafing of the stator lead wire bundle. This occurred when the stationary wire bundle came into contact with the rotor in the pump motor. The pumps failed when the pump power was short-circuited to the rotor and the circuit protection device tripped.

Examination of failed pumps showed that arcing had occurred in the pump bearings both inside and outside of the explosion-proof cavity of the pump. Such arcing could result in an ignition source in the fuel tank. The fuel pump failures have been attributed to the manufacturing assembly process during which the stator lead wire bundle was improperly installed and positioned in the end cap.

The original issue of this Directive superseded AD/B737/190 Amdt 1, which was cancelled. The Directive required an amendment to the AFM which is intended to ensure that the centre tank pump inlets are covered with fuel during pump operation, preventing fuel vapours from coming into contact with any ignition source resulting from a fuel pump failure and installation of a placard adjacent to both PFDs advising that fuel usage restrictions apply. The Directive also provided optional terminating action for Requirements 1.b. and c.

This Amendment limits the applicability of the fuel usage restrictions to aeroplanes before line number 1234, whilst at the same time retaining the requirement to ensure that fuel pumps that have not been inspected are not installed on aeroplanes as replacement spares.

Amendment 2 allows alternate wording for the placard detailed in Requirement 1 (c). This is to allow easier cross referencing to FAA AD 2011-18-03 which details alternative terminating actions for the requirements of this AD.

Alternative Methods of Compliance for AD 2002-19-52 that are approved by the FAA are acceptable as a means of compliance against this AD.

The original issue of this Directive became effective on 3 October 2002.

Amendment 1 of this Directive became effective on 23 June 2005.



Mike Higgins
Delegate of the Civil Aviation Safety Authority

5 September 2011

Boeing 737 Series Aeroplanes

AD/B737/198 Amdt 2 (continued)

**AD/B737/198 Amdt 2
Annex A**

Centre Tank Fuel Pumps

18/2011

**Model 737-600, -700, -700C, -800 and -900
Series Aeroplanes
Aircraft Flight Manual Revision**

Certificate Limitations

The centre tank fuel pumps must be OFF for takeoff if centre tank fuel is less than 5,000 pounds (2,300 kilograms) with the airplane readied for initial taxi.

Both centre tank fuel pump switches must be selected OFF when centre tank fuel quantity reaches approximately 1,000 pounds (500 kilograms) during climb and cruise or 3,000 pounds (1,400 kilograms) during descent and landing. The fuel pumps must be positioned OFF at the first indication of fuel pump low pressure.

The CWT fuel quantity indication system must be operative to dispatch with CWT mission fuel.

Note: The CONFIG indicator will annunciate when centre tank fuel exceeds 1,600 pounds (800 kilograms) and the centre tank fuel pump switches are OFF. Do not accomplish the CONFIG non-normal procedure prior to or during takeoff with less than 5,000 pounds (2,300 kilograms) of centre tank fuel or during descent and landing with less than 3,000 pounds (1,400 kilograms) of centre tank fuel.

Note: In a low fuel situation, both centre tank pumps may be selected ON and all centre tank fuel may be used.

If the main tanks are not full, the zero fuel gross weight of the airplane plus the weight of centre tank fuel may exceed the maximum zero fuel gross weight by up to 5,000 pounds (2,300 kilograms) for takeoff, climb and cruise and up to 3,000 pounds (1,400 kilograms) for descent and landing, provided that the effects of balance (CG) have been considered.

If a centre tank fuel pump fails with fuel in the centre tank, accomplish the FUEL PUMP LOW PRESSURE non-normal procedure.

When defuelling centre or main wing tanks, the Fuel Pump Low Pressure indication lights must be monitored and the fuel pumps positioned to OFF at the first indication of fuel pump low pressure. Defuelling with passengers on board is prohibited.