



Interim Report for Boeing 737-900ER

Dated 14 May 2008

Pending completion and confirmation of the manufacturer's acceptance and publication of the Final Report by EASA, the European Aviation Safety Agency (EASA) completed and accepted the following Interim evaluation of the Boeing 737-900ER aircraft under a 'catch-up' procedure for the Joint Aviation Authorities (JAA).

Evan Nielsen
EASA – Head of Certification Flight Standards

Cologne, 15 May 2008

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Boeing 737-900ER Interim Special Evaluation Report

Dated 14th May 2008

1. Evaluation Team

Co-ordinator & Desktop Study

Captain Paul Stephens – Flight Operations Training Inspector UK
CAA/Chairman JOEB Boeing 737 NG

Flyout Team

Captain Garth Gray – Regional Manager Operations (Stansted) UK CAA
Mrs Janice Fisher – Head of Cabin Safety Inspectorate UK CAA

2. Background

This evaluation has been conducted following an enquiry from the Futura as to how the Boeing 737-900ER was being categorised for the UK AOC holder XL Airways.

The UK CAA were informed by EASA that Boeing had not made the request for such an evaluation and therefore the aircraft would have to be considered a new type in the interim.

The UK CAA in conjunction with EASA requested Boeing to formally request an evaluation of this aircraft.

EASA agreed that the UK CAA under the Chairmanship of Captain Paul Stephens (who is in the employ of the UK CAA and the JOEB Chairman for the Boeing 737 NG) conduct an evaluation of this aircraft with the specific objective of establishing whether this could be considered a sub-variant of the Boeing 737-900 or a separate type within the existing licence endorsement.

Boeing and XL Airways were requested to send all relevant and applicable paperwork to Captain Stephens so a desktop review could be completed.

Captain Stephens with the agreement of UK CAA arranged for a type rated Flight Operations Inspector and the Manager of UK CAA Cabin Safety Inspectorate to fly to Seattle to conduct this evaluation.

The results of the desktop evaluation, the observation of the ground technical familiarisation training, aircraft inspection and fly out are detailed below.

3. Desktop Study Reports

Documents Reviewed during period 8th-13th May 2008

XL Airways Cabin Crew Notice CCN15/08 B737-900ER Differences dated 22 April 2008
XL Airways Aircrew Notice AN(737)11/05 Introduction of B737-900ER dated 29 April 2008
XL Airways B737-900ER Aircrew Notice AN(737)../08 dated 15 April 2008
XL Airways B737-900ER Line Training Aircrew Notice (Training) AN(TRG)../08 dated 15 APRIL 2008
XL Airways Operations Manual Section 2.1 Cabin Crew Chapter 7 Difference and XL Airways Part B (B737) Volume 3 CDL/MEL Revision 1 dated April 2008-05-13 Familiarisation Training AL21 dated September 2007
Boeing XL Airways QRH D6-27370-8Q8-SBE dated 25 January 2008 for the – 800 CFM56, -800W/CFM56 and –800WSFP2/CFM56
Boeing XL Airways FCOM 737-81Q/8Q8/86N/8FH/96N Doc No D6-27370-8Q8-SBE Revision 23 date 25 January 2008
Boeing Operational Differences Table 800-900ER dated 5 August 2008
Boeing Operational Differences Table 900-900ER dated 5 August 2008
Boeing Operational Differences Table 800/900-900ER revision 10 dated 13 August 2007
Boeing Operational Differences Table 800/900-800SFP dated 5 August 2008
Boeing 737 FCOM Chapter PD Section 40-47 dated 18 April 2008 (Doc No: D6-27370-8Q8-SBE for 737-900ERW CFM56-7B27 KG JAA CATH Engines)
Boeing Flight Crew Training Manual 737-600/700/800/900/900ER Revision 7 dated 31 October 2007
Boeing 737-600/700/800/900 Aircraft Flight Manual Revision 1 to D631A001.96.NER dated 5 February 2008 Revision Highlights
Boeing 737 Dispatch Deviation Guide Revision 46 dated 14 June 2007 Doc No: D6-32545-TBC
Boeing 737 FCOM Compania Hispano Irlandes de Aviacion S.A. Doc No: D6-27370-86N-FUA dated 17 April 2008 covering –800,-800W and -900ERW
Boeing 737 FCOM Doc No: D6-27370-TBC dated 28 September 2006
Boeing 737 600/700/800/900 FCOM Doc No: D6-27370-TBC Revision 21 dated 25 January 2008
JAA MMEL Supplement 737-600/700/800/900 Revision 14
FAA MMEL Boeing 737 100/200/300/400/500/600/700/800/900 Revision 52 dated 29 April 2008
FAA B737 100-900 Flight Standards Board Report Revision 10 dated 30 August 2007

4. General Comments/Observations

There is no Boeing 737-900ER simulator

Aux Fuel Tank management procedures could not be found (XL have declared these are not fitted. Futura have not been approached to ask if they have these additional tanks fitted)

The -900ER can be supplied with a maximum authorised passenger seating capacity of 189 passengers with blanks in the MID emergency exits which requires a minimum cabin crew complement of four (4). It can also be supplied with a maximum authorised passenger seating capacity of 215 passengers with two MID emergency exits fitted. This requires an extra cabin crew seat to be positioned at 4R position raising the minimum cabin crew complement to five (5). This cabin crew member is then responsible for the emergency exit at 4L.

5. Comments on Boeing Sourced Manuals

FCOM & FCTM – the Boeing 737-900 and 737-900ER are referenced separately.

There is currently performance data for 600/700/800/900 to 900ER engine configurations.

The -900 performance is based on CFM56-7B26 engines.

The -900ER AFM indicates CFM56-7B27 engines. The QRH subsequently sent in contains the appropriate data.

6. Physical and Operational Differences between 737-800 to 737-900ER series

The Boeing 737-900ER is 2.7m longer than the Operators current -800 fleet. 2 x MID emergency exits with integral slide fitted just aft the wing trailing edge. The right exit has a cabin crew seat that must be manned.

The -900ER lift off attitude is 0.5° lower than the -800 series.

The -900ER is a performance category D (The -800 is performance category C)

At Flap 30 settings the flare body angle between the -800 and -900ER is negligible at 0.2° lower.

At Flap 40 settings the landing body attitude is 1° difference between the -800 and -900ER.

At Flap 40 settings the landing body attitude required is 1.6° difference between the -900 and the -900ER.

At Flap 30 settings the landing body attitude required is 1° difference between the -900 and the -900ER.

The emergency exit lighting at MID exits is type specific to the -900ER.

The minimum use height for autopilot single channel use is 140ft agl on the -900ER and 158ft on the -800.

There are separate wind limitations published for use with autopilot and flight director on the -900ER of HWind32 kts, TWind 28kts and XWind 27kts.

There is an ILS & GLS annunciator on the overhead panel on the -900ER (XL have declared that they do not have GLS fitted on their aircraft).

There is a separate entry for GLS approaches in the FCOM (see 13 above).

There are flap load limiter differences between the -800 and -900ER.

The mid exit door area heater system is a new feature on the -900ER.

The -900ER auto speed brake system differs to the -800.

The -900ER has differing speed brake load alleviations.

The -900ER is fitted with two tail skid protection devices which is similar to the -800SFP variant.

The -900ER has performance limitations attached during tail skid retraction mechanism failure.

The APU drain mast has been repositioned to account for the rear bulkhead repositioning.

The leading edge slats are sealed during Take-off flaps settings 10, 15 and 25.

The -900ER has increased spoiler deflections on the ground.

The -900ER has modified speed brake handle detent.

Revised placard speeds for the -900ER.

7. Flyout Report Conducted 13th May 2008

Boeing provides an Operator Differences Table (ODT), comparing the current aircraft operated by the Operator and the new aircraft and inform of the differences. They have extracted information from the FCOM, FCTM, and the QRH. This information is used by the Operator to produce their own company specific difference-training syllabus.

Currently XL operate the B737-800 and B737-800(SF). Many of the features incorporated on the B737-900ER have been utilised on the B737-800(SF). Therefore, the difference training material produced by XL only covers those features not on the B737-800(SF).

Yesterday, (May 12, 2008) Boeing briefed (type A training) the XL crew and myself on all the differences from B737NG to B737-900ER to prepare us to safely operate the B737-900(ER). This also included an aircraft visit. Today, (May 13, 2008) I as a current B737-700 pilot undertook to operate the the B737-900ER G-XLAP. The briefing provided by Boeing was adequate to prepare me to operate this aircraft safely.

Therefore, I believe this base information is adequate to prepare a current B737NG to operate the B737-900ER. The only aspect that needs practical training is the pair of Type 2 doors placed at row 29. (XL have completed practical training using an equivalent door trainer from the B757)

I have now flown the aircraft and can report as a 'Line Pilot' that the handling characteristics of the B737-900ER are the same as any other B737NG. All take-off flap settings (F1, 5, 15, and 25) and landing flap settings (F30 and F40) were used with no adverse comments.

To that end the Type A training is acceptable to prepare B737NG crews for operating the B737-900ER. The XL crew have received this training therefore I see no reason which would not permit them to operate the aircraft.

8. Chairman Recommendation

I, Captain Paul Stephens in my capacity as a Flight Operations Training Inspector of the United Kingdom Civil Aviation Authority and as Chairman of the Joint Operational Evaluation Board for the Joint Airworthiness Authorities hereby recommend that the Boeing 737-900ER should be categorised as a separate variant '-900ER' within the licence endorsement 'Boeing 737 600-900'.

I also recommend that the FAA B737 100-900 Flight Standards Board Report Revision 10 dated 30 August 2007 regarding the technical training be termed 'familiarisation' with regard to JAR terminology. Individual operators who wish to place into service the -900ER should ensure that all flight and cabin crews are briefed fully prior to operating on the aircraft and that a method of confirmation of that knowledge be established by a means acceptable to the National Authority under whose registration responsibility it falls.



Captain Paul W Stephens
Chairman JOEB Boeing 737NG