



Federal Aviation Administration

Memorandum

Date: NOV 30 2007

To: All Airports Regional Division Managers

Rick Marinelli

From: Rick Marinelli, Manager, Airport Engineering Division, AAS-100, x77669

Prepared by: George Legarreta, Engineer, Airport Engineering Division, AAS-100, x78766

Subject: Engineering Brief No. 63B
Taxiways for Airbus A380 Taxiing Operations

Engineering Brief No. 63B, *Taxiways for Airbus A380 Taxiing Operations*, is attached. The engineering brief reflects the operational findings from the July 17, 2007 Flight Standards Service memorandum to the Office of Airport Safety and Standards. Beyond the normal Flight Standardization Board tasks, the evaluation team focused on two unique operational issues: (1) taxiing on taxiways as narrow as 75 feet without taxiway centerline lighting and without the aid of the on-board taxi camera system and (2) operations on runways as narrow as 150 feet wide (see engineering brief No. 65A).

The engineering brief describes when a modification-to-standard (MoS) is required for designated A380 taxi routes. Whether or not a MoS is issued, the engineering brief describes certain actions to take to ensure safer taxiing operations on these taxi routes. It further acknowledges that, although additional taxiway centerline lighting or taxi speed limitations are not required, the airport operator may deem them necessary to overcome unusual site conditions.

Finally, approval authority for MoS complying with the specific conditions of this engineering brief is delegated to the Regional Office level. When you approve a MoS using this engineering brief, please provide a copy to the Airport Engineering Division, AAS-100.

Attachment

ENGINEERING BRIEF NO. 63B

TAXIWAYS FOR AIRBUS A380 TAXIING OPERATIONS

November 27, 2007

A. BACKGROUND

In August 2003, Engineering Brief (EB) No. 63, *Use of Non-Standard 75-Foot-Wide Straight Taxiway Sections for Airbus A380 Taxiing Operations*, was issued to give Regional Division Managers approval authority to issue a modification to standards (MoS) for A380 taxiing on 75-foot- (23-m) wide straight taxiway sections. *Section D, Specific Conditions*, of that engineering brief identified seven imposed conditions. Issued in April 2006, EB No. 63A deleted *Item 2, Taxiing Speed*, under *Section D, Specific Conditions*. Although EB No. 63A deleted the taxiing speed limitation, it did not prohibit airport operators from imposing their own taxi speed restrictions to address an unusual airport condition.

On July 17, 2007, the Flight Standards Service issued a memorandum to the Office of Airport Safety and Standards describing the Flight Standardization Board's findings for the A380 (see attachment). In addition to the normal FSB tasking, the evaluation team focused on two unique operational issues: operations on runways as narrow as 150 feet (45 m) wide (see EB No. 65A) and taxiing on taxiways as narrow as 75 feet (23 m) without taxiway centerline lighting and without the aid of the taxi camera system (TCS).

The evaluation team concluded that under normal visibility conditions the aircraft could safely taxi without taxiway centerline lighting and that the onboard TCS was found not to be necessary for safe taxiing on 75-foot- (23-m) wide taxiways using average pilot skills and knowledge. These findings were also valid for the combined conditions. Based on the results of this evaluation, the Flight Operations Evaluation Board chairman will allow the TCS to be inoperative in the master minimum equipment list.

In conclusion, A380 aircraft may operate on existing 75-foot wide taxiways. For airport operators who previously received a MoS under EB #63A, this revised EB deletes the requirements for having an operative TCS (item D-2) and additional taxiway centerline lighting (item D-3). Although additional taxiway centerline lighting or taxiing speed limitations are not required, the airport operator may deem them necessary to overcome unusual site conditions. Lastly, item D-6 of EB #63A is modified to reflect the Flight Standardization Board's conclusions.

B. PURPOSE

This engineering brief describes when a MoS submittal is required for designated A380 taxi routes and gives approval authority to Regional Division Managers to approve such MoSs. Issuance of a MoS requires Regional Managers to forward a copy to the Airport Engineering Division, AAS-100.

C. CANCELLATION

Engineering Brief No. 63, *Use of Non-Standard 75-Foot Wide Straight Taxiway Sections for Airbus A380 Taxiing Operations*, dated April 2006, is cancelled.

D. GENERAL GUIDANCE

1. Taxi Routes. Proposed taxi routes should be designated by the airport operator and included in the airport's *A380 Operational Plan*. The use of existing taxiways does not require filing of a MoS.

2. Jet Blast Effects. All designated A380 taxi routes in the airport's *A380 Operational Plan* should be evaluated for the effects of jet blast.

a. Pre-A380 Service. The FAA will assist the airport operator in identifying areas that will require remedial action(s) to minimize excessive jet blast exposures.

b. Post-A380 Service. The airport operator should take action to remedy problems due to excessive jet blast exposure in areas not previously identified. The airport operator should inform the appropriate FAA Airports District or Regional Office of what corrective action(s) was taken to address a troublesome area.

3. Taxiway Bridge and Culvert Load Bearing Capacity. All designated A380 taxi routes in the airport's *A380 Operational Plan* that cross over a bridge, culvert or such structures should be evaluated for their load bearing capacity to support the maximum design taxi weight of the heaviest A380 derivative.

4. Excursions from Non-standard Taxiways. Taxiways should be widened to the Airplane Design Group VI design standard wherever repeated excursions from full-strength pavement occur. Damage to surfaces, lighting, or signage should be repaired as soon as possible.

E. NEW TAXIWAYS OR RECONSTRUCTED 75-FOOT WIDE TAXIWAYS

New taxiway construction or reconstruction of a taxiway that receives AIP Federal funding or PFC authority is subject to Airplane Design Group VI design standards, as specified in *AC 150/5300-13, Airport Design*, and construction standards in accordance with *AC 150/5320-6, Airport Pavement Design and Evaluation*. Any proposed deviation from those standards must be approved through the modification to standard procedures detailed in *FAA ORDER 5300.1, Modifications To Agency Airport Design, Construction, And Equipment Standards*.



Rick Marinelli
Manager, Airport Engineering Division

Attachment



**Federal Aviation
Administration**

Memorandum

Date: JUL 17 2007

To: David Bennett, Director, Airport Safety and Standards, AAS-1
From: James J. Ballough, Director, Flight Standards Service, AFS-1 *JJB*
Prepared by: Jerry Ostronic, Aviation Safety Inspector, Air Carrier Operations, AFS-200
Subject: Airbus A380 Operations Evaluation Results

The Flight Standardization Board (FSB) completed its operations evaluation of the Airbus A380 on June 14, 2007. In addition to the normal FSB tasking, the evaluation team focused on two unique operational issues, operations on runways as narrow as 45 meters (150 feet) wide and taxiing on taxiways as narrow as 75 feet without taxiway centerline lighting and without the aid of the taxi camera system.

Operations Issue Paper O-9 was developed and issued to Airbus to identify the FAA's concerns for the operation of the A380 on runways narrower than the standard Airplane Design Group-VI criteria of 60 meters (200 feet) wide. Airbus and the FAA agreed to a three-pronged approach to evaluating and demonstrating that the aircraft could be safely operated on runways as narrow as 45 meters. Throughout the development and certification flight program, all runway centerline lateral deviation data were recorded with differential global positioning system for all takeoffs and landings. These data were made available to the FAA team for evaluations. All flight testing for both normal and failure cases was conducted on 45-meter wide runways, or if wider, was considered to be 45 meters for evaluation purposes. Additionally, a subset of A380 takeoff and landing runway centerline lateral deviation data was extracted from the total and compared to pre-existing A330/340 runway centerline lateral runway deviation data obtained under approximately the same configuration, pilot, and meteorological conditions. Finally, subjective evaluations were conducted by the FSB operations evaluation pilots assisted by inputs from FAA certification flight test pilots. These FSB evaluations were supported by subjective reports of the multinational Joint Operations Evaluation Board operations evaluation pilots. In all, 14 pilots took part in the evaluations for the use of 45-meter wide runways. The team found that the A380 could be safely operated on runways as narrow as 45 meters with the use of average pilot skills and knowledge. The following statement will replace the current statement in the FAA Airbus A380 Aircraft Flight Manual for minimum runway width requirements.

"This aircraft has been shown to be safely controllable and to be compliant with applicable airworthiness requirements when operating on runways with a width of 45 meters (150 feet) or more."

Additionally, the FAA will issue domestic and/or foreign air carriers (operating into the U.S.) operating the A380 Operations Specifications that specify the following:

- Runways for takeoffs and landings shall be at least 45 meters (150 feet) wide with stabilized runway shoulders on both sides of the runway extending an additional 15 meters (50 feet) outward from the runway edge.
- Runways as narrow as 45 meters (150 feet) wide without stabilized shoulders may be used for takeoffs and landings provided applicable flight manual procedures for takeoffs on 45-meter wide runways without stabilized runway shoulders are followed, and procedures are implemented for the full length of the runway to be inspected for foreign object damage after takeoff prior to successive aircraft operations.

As per your request, the team also evaluated the adequacy of 75-foot wide taxiway restrictions contained in engineering briefing 63 (EB63). In particular, the requirement for taxiway centerline lighting for normal operations and the required use of the onboard taxi camera system were evaluated. The team conducted this evaluation under the full range of lighting conditions and found that the aircraft could be safely taxied on 75-foot wide taxiways under normal visibility conditions without taxiway centerline lighting using average pilot skills and knowledge. Likewise, the onboard taxi camera system was found not to be necessary for safe taxi on 75-foot wide taxiways using average pilot skills and knowledge. This finding is also valid for the combined conditions of no taxiway centerline lighting and inoperative onboard taxi camera system under day and night lighting conditions with no other operational requirement for taxiway centerline lighting. Based on the results of this evaluation, the Flight Operations Evaluation Board chairman will allow the taxi camera system to be inoperative in the master minimum equipment list.

END