

TECHNICAL MEMO

DATE Wednesday, August 2nd, 2023

MEMO REFERENCE NO. ASIO-2023-ML-016

SUBJECT Statement Regarding use of Flaps 45 in Challenger 605 Circling Approach - Challenger 605 N605TR (MSN 5715) - Impact with Terrain on Approach to Runway 11 at Truckee Tahoe Airport (KTRK) on July 26th, 2021

FROM Bombardier Air Safety Investigation Office (ASIO)

TO U.S. National Transportation Safety Board (NTSB)

CC Transportation Safety Board of Canada (TSB)

ASIO CASE REF. NO. CL600-2B16 (604 Variant).5715.26-7-21

NTSB CASE REF NO. WPR21FA286

TSB CASE REF NO. A21F0101

Introduction

In the course of its investigation of Challenger 605 MSN 5715, registration N605TR, which impacted terrain while on approach to Truckee Tahoe Airport (KTRK), Truckee, California, on July 26th, 2021, the U.S. National Transportation Safety Board (NTSB) requested that Bombardier provide a statement regarding the acceptability of flight crew deploying flaps to 45 degrees earlier than described in the Challenger 605 Circling Approach procedure. This memo provides the requested statement.

Bombardier Statement

The Airplane Flight Manual (AFM) is the regulator-approved document for flying the Challenger airplane. The AFM contains limitations, procedures and performance data for the operation of the airplane. It is the responsibility of pilots who are qualified to operate the Challenger airplane to be entirely familiar with the information contained in the AFM and to ensure that the airplane is operated at all times within the approved flight envelope. Observance of the limitations contained in the LIMITATIONS chapter of the AFM is mandatory. The EMERGENCY PROCEDURES, NORMAL PROCEDURES, CONSOLIDATED CHECKLISTS, ABNORMAL PROCEDURES and PERFORMANCE chapters of the AFM, in many instances define actions which, if not observed, could result in a significant adverse effect on the safety of the airplane.

The Flight Crew Operating Manual Volume 1 (FCOM1) is not a regulator-approved document. FCOM1 presents already existing AFM limitations and procedures in an expanded form, describing in detail how and why the procedure steps are accomplished, but within the constraints of the AFM. In other words, nothing written in FCOM1 can contradict the AFM, or allow operations outside of the approved flight envelope. The FCOM1 also provides an operational perspective of aircraft operations. For example, a series of additional normal approach and landing profiles and procedures, which are not contained in the

AFM, are presented for guidance purposes. As long as the aircraft is operated within the AFM guidance and flight envelope, strict adherence to these non-AFM procedures is recommended but not mandatory.

The additional normal and landing procedures and profiles in FCOM1 have been designed so that, when followed, the aircraft is flown within the approved AFM flight envelope and the objectives of the procedures are attained in an efficient manner, taking into account complex aircraft systems, operational considerations and flight crew recommended best practices. While recommended, these procedures obviously cannot account for the large variability of airport approaches which could be encountered, air traffic control requirements, or other operational and environmental factors; they are idealized generic procedures. Thus, it is expected that flight crews may have to adapt these procedures to operational realities. While Bombardier expects that training organizations will use the FCOM1 additional normal approach and landing profiles and procedures as a reference when training and evaluating flight crews, it is understood that flight crews operating outside of the training environment can and will deviate from these procedures; this is permitted provided that the aircraft is flown in accordance with the AFM at all times.

The Circling Approach profile and procedure (see Appendix 1) is an additional normal approach provided in FCOM1 and which is not included in the AFM. Therefore, for example, flight crews can elect to deploy the flaps to the fully down position (45 degrees) earlier than specified in the procedure. Such a choice could be made necessary by the peculiarities of the specific approach being flown or possibly by other operational circumstances. Flight crews who deviate from the procedure in this manner need to ensure that the aircraft continues to be flown in accordance with the AFM (respecting maximum flap extension speeds and margin to stall, for example), in accordance with Air Traffic Control instructions, and in respect of any other operational constraints (for example, flight crews should consider the effect on circling category, adjust their maneuvering speeds, assess any increased fuel consumption due to the additional drag from the fully extended flaps which might affect their ability to divert to an alternate airport, etc.).

Appendix 1: Challenger 605 Circling Approach

BOMBARDIER CHALLENGER 605	NORMAL PROCEDURES Approach and Landing	Vol. 1	04-08-9
		REV 42, Feb 23/17	

1. APPROACH AND LANDING (CONT'D)

F. Circling Approach

When performing a circling approach, maintain the airplane configuration from the final approach fix (FAF) onwards (flaps 30° and landing gear down). At the circling MDA with the field in sight, maneuver to establish a downwind leg parallel to the runway at a distance of approximately 1 1/2 miles.

At the established downwind:

- (1) Circling MDA Maintain
- (2) Flaps.....30 degrees
- (3) AirspeedFlaps 30° speed
+ 10 KIAS

When abeam the runway threshold:

- (4) Chronometer Start Time for 15 to 30 seconds,
plus or minus wind correction.

After the desired timing has elapsed, start the turn towards the base leg:


- (5) Descent Initiate

Approaching 400 feet, start turn towards final, and when landing is assured:

- (6) Flaps.....45 degrees
- (7) Airspeed $V_{REF} + WIND$ Wind correction is half steady state crosswind plus all gust (regardless of direction). Maximum correction is + 20 KIAS.

NOTE

The autopilot, if used, should be disconnected no later than 320 feet AGL.



PFD negative barometric altitude is indicated by a yellow NEG flag within the barometric altitude window.

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CL-605 Flight Crew Operating Manual		
PSP 605-6		

Appendix 1: Challenger 605 Circling Approach (cont'd)

