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1.0 INTRODUCTION

This Advisory Circular (AC) is provided for information and guidance purposes. It may describe an example of an acceptable means, but not the only means of demonstrating compliance with regulations and standards. This AC on its own does not change, create, amend or permit deviations from regulatory requirements nor does it establish minimum standards.

1.1 Purpose

The purpose of this AC is to describe Transport Canada Civil Aviation (TCCA) Flight Test personnel involvement in production test flights. This advisory, however does not address the content of the manufacturer's Production Flight Test Operations Procedures manual.

1.2 Applicability

This document is applicable to TCCA Headquarters, Regional personnel and TCCA approved aircraft manufacturers.

1.3 Description of Changes

Not Applicable.

2.0 REFERENCES AND REQUIREMENTS

2.1 Reference Documents

It is intended that the following reference materials be used in conjunction with this document:

- (a) Part V, Subpart 61 of the *Canadian Aviation Regulations (CAR)—Manufacture of Aeronautical Products*; and
- (b) Standard 561—*Standard for Approved Manufacturers*.

2.2 Cancelled Documents

Not applicable.

2.3 Definition

The following definition is used in this document:

- (a) **Production Flight Test Procedure (FTP)** means a documented procedure that provides details of the ground inspections, ground tests and test flights to be conducted on an aircraft by the manufacturer prior to the issuance of a Certificate of Airworthiness (CofA).

3.0 BACKGROUND

The referenced existing regulations require an approved manufacturer to ensure that each completed aeronautical product conforms fully to the approved design data and are in a condition for safe operation. In the case of an aircraft, the final inspection and test process includes production test flights done in accordance with an approved FTP as specified in subsection 561.08(b) of Standard 561. The FTP can be in the form of worksheets, which detail each step in the procedure and associated pass/fail criteria and that are completed by the flight crew. The Minister is responsible for and will promote aviation safety through TCCA review and acceptance of a manufacturer's production FTP and conduct or witness production test flights on selected new production aircraft.

4.0 PRODUCTION FLIGHT TEST PROCEDURES/TCCA FLIGHT TEST PARTICIPATION

4.1 Production Flight Test Procedure

The manufacturer is responsible for the development of an FTP, acceptable to the Minister, as part of the completed product inspection procedure. In coordination with the Manufacturing/Maintenance Inspector, the FTP and all subsequent amendments will be reviewed and acceptance determined by the Chief, Flight Test, National Aircraft Certification.

4.2 TCCA Flight Test Participation

- (1) For the purpose of making inspections or audits relating to compliance, any aircraft, aerodrome or other facility relating to aeronautics, TCCA Engineering Test Pilots (ETP) and/or Flight Test Engineers (FTE) will carry out/observe some of the production test flights on a sampling basis. The intent of this participation is to:
 - (a) ensure the aircraft performance, handling qualities and systems operation conforms to those same aspects associated with the approved type design;
 - (b) obtain first hand operational knowledge of ongoing changes to the type design;
 - (c) validate changes to the FTP as a result of changes in the type design; and
 - (d) audit the conduct of production test flights.
- (2) It is the intention that the first five aircraft, as a minimum, of a new type production line will be flown by a TCCA flight test crew with a continuing target rate of approximately one in every ten aircraft produced. This frequency of participation may vary with the production rate, the experience gained during the test flights, the in-service record of the specific aircraft type and changes to the type design.
- (3) TCCA participation will be coordinated between the manufacturer's Production Flight Test Operations Department, the TCCA Manufacturing Inspector and the TCCA flight test crew. The TCCA flight test crew may consist of an ETP, a FTE, or both. In all cases except single seat aircraft, a company Production Flight Test Pilot will be on board and act as Aircraft Commander. It is expected that for the first five aircraft of a new type, the TCCA flight test crew will be the same personnel as were involved in the type certification process.
- (4) It is not intended that the TCCA participation on a selected serial number include the entire FTP schedule, nor is it intended that there would be required TCCA participation in follow up test flights to confirm snag clearance. The extent of the participation will be established from a review of the previous FTP and snag clearance records.
- (5) At the discretion of the manufacturer, the TCCA flight test crew may participate in any flight of the FTP. This may reduce the time and expense of TCCA participation. Where the manufacturer elects to accomplish first flight, or the entire FTP prior to TCCA crew participation, a subset of completed test points to be re-flown by TCCA flight test crews will be specified by TCCA.
- (6) Following participation in a test flight or sequence of test flights on a production aircraft, the TCCA ETP and/or FTE should document any significant observations in a Flight Test debrief note. Copies of the debrief note should be provided to the TCCA Manufacturing/Maintenance Inspector and to the manufacturer's airworthiness and production flight test operations departments. Any items requiring a written response from the company will be identified in the debrief note. This debrief note, along with the completed FTP, shall form part of the production records and be managed accordingly.

5.0 CONTACT OFFICE

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Suggestions for amendment to this document are invited and should be submitted via the Transport Canada Civil Aviation Issues Reporting System (CAIRS) at the following Internet address:

<http://www.tc.gc.ca/CAIRS>

or by e-mail at: CAIRS_NCR@tc.gc.ca

Original signed by D.B. Sherritt 2007-11-23

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