TL.113-58/03

INTER-DEPARTMENTAL MEMORANDUM

Ref 6867/04/J
Date March 4, 1958
To S. E. Harper
From J. D. Hodge
Subject ENGINE INSTALLATION TEMPERATURE FLIGHT TESTS

R.F.T. No. 5031, covering flight tests to measure the structural and system temperatures relating to the engine installation in Arrow 1 aircraft 25201, 25202, and 25203, is attached.

These tests are to be carried out during Engineering Flights in the Phase 1 Program.

WE/bb

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C. V. Lindow

AVRO AIRCRAFT LIMITED

MALTON, ONTARIO.

REQUISITION FOR FLIGHT TEST

R.F.T. No. 5031

Sheet No. 1 of 3

Date. March 4, 1958

AIRCRAFT	ASSIGNMENT NO.	WORK ORDER NO.
25201 25202 25203	X73-390	

FLIGHT MEASUREMENTS OF ENGINE INSTALLATION TEMPERATURES ENGINEERING FLIGHT PROGRAM

1. OBJECT

To measure the structural and system temperatures related to the engine installation in the Arrow 1 (A/C No. 25201, 25202, and 25203.)

2. INSTRUMENTATION

In re instrumentation report FAR/C105/1 Issue 7 data is required by the Thermoelastics group from readings of the following instruments.

Section 1, items 1, 2, 3,
Section 2, items 1, 2, 3, 13, 14, 15.
Section 3, items 3, 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16, 25, 26, through 57.
Section 4, items T_3, T_5, T_9, T_{11}, T_{12}, M10, M11.
Section 5, items 4, 5.
Section 7, item 1.

Sampling frequencies for the above quantities are given in FAR/C105/1.

3. PROCEDURE

3.1 All the quantities listed in paragraph 2 should be recorded throughout the first engineering flight and on all subsequent flights that cover other areas of the flight envelope.

Inspection of the test results may allow deletion of some of the quantities to be measured for subsequent flights which cover similar ranges of flight conditions.

3.2 The aircraft should be flown under the conditions laid down in para. 4; the level flight cases for 10 minutes each or the maximum permissible time, whichever is the shorter. Flight at some of the conditions given may be curtailed due to adverse results appearing during the continuous monitoring of some of the more critical quantities.

R.F.T. Prepared By: E.L. Dant	Approved By: K. Hoige	Authorized By:
Date for Completion	Priority	Estimated Completion Date:

AVRO AIRCRAFT LIMITED

MALTON, ONTARIO.

REQUISITION FOR FLIGHT TEST

R.F.T. No. 5031

Sheet No. 2 of 3

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3. PROCEDURE Cont'd

3.3 Following inspection of the results obtained longer duration of runs in the level flight cases may be requested.

4. TEST CONDITIONS

4.1 STABILIZED CASES

4.1.1. (a) Straight and level flight at M = .92, 40,000' alt, cruise r.p.m. A/B off.

(b) Straight and level flight at M = .92, 30,000' alt, cruise r.p.m. A/B off.

4.1.2. Straight and level flight at M = .04, 5,000' alt, cruise r.p.m.

4.1.3. (a) Straight and level flight at M = 1.5, 40,000 ', cruise power.

(b) Straight and level flight at M = 1.5, 50,000', cruise power.

4.1.4. Straight and level flight at M = 1.09, 5,000', (or max. power)

4.1.5. (a) Straight and level flight M = 2.0 (or max) 30,000'

(b) Straight and level flight M = 2.0 (or max) 40,000'

(c) Straight and level flight M = 2.0 (or max) 60,000'

4.2 TRANSIENT CASES

4.2.1. Deceleration at 40,000' (const) from M = 2.0 (or max) to M = .92 cruise.

4.2.2. Descent from Max alt. to sea level M = .92

(a) Normal descent.

(b) low rate of descent (as used to extend range)

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Sheet No. 3 of 3

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4. TEST CONDITION Cont'd

4.2.3. Dive from 60,000' to 30,000'.

4.2.4. Decelerate at 5,000 ft. from max speed to minimum by reducing power on both engines to idle until more power is required to maintain safe flying speed.

5. DATA

5.1. Tabulated readings (vs time) at the sampling frequency requested.

5.2. Continuous trace readings when specifically requested.

5.3. Pilots comments.

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