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Inter-Departmental Memorandum

Ref 1722/07/J
Date June 27, 1958
To S. E. Harper
From T. Roberts
Subject FLYING CONTROL DEVELOPMENT TESTING

Herewith R.F.T. 5070 covering tests required on A/C 25202 for the first series of flights with 3 axis damping.

These tests are intended to cover the period when only 12 channels of telemetry are available.

T. Roberts
Technical Design Coordinator
FLIGHT TEST

/b

c.c.

Messrs R.N. Lindley
J. Chamberlin
C.V. Lindow
F.H. Brame
F.P. Mitchell
D. Rogers
D.N. Scard (6)
J. Booth
J. Ames
J. Lynch
J. Gale
S. Kwiatkowski
C.S. Marshall
J. Lucas
A. Thomann
R.R. Carley

W/C G. Waterman

W/C G. Waterman (2) AVRO T.S.D. RCAF
for transmittal to
S/L.K. Owen, C.E.P.E
Detachment

Central Files



AVRO AIRCRAFT LIMITED

MALTON, ONTARIO

REQUISITION FOR FLIGHT TEST

UNCLASSIFIED
SECRET

R.F.T. NO. 07- 5070

SHEET NO. 1 OF 4

DATE: June 27, 1958

AIRCRAFT 25202

ASSIGNMENT NO. X73-383

WORK ORDER NO.

FLYING CONTROL DEVELOPMENT TESTING

1. OBJECTIVE

To assess the behaviour of the 3 axis damper.

2. INSTRUMENTATION

2.1 Telemetry

Item Ref.

- | | |
|--|--------|
| 1. Angle of attack | 15-006 |
| 2. Angle of sideslip | 15-010 |
| 3. Normal acceleration - near C.G. | 15-020 |
| 4. Roll rate | 15-018 |
| 5. Port elevator angle - full range | 15-001 |
| 6. Port aileron angle - full range | 15-003 |
| 7. Rudder angle -full range | 15-005 |
| 8. Port aileron differential servo position | 15-048 |
| 9. Port elevator differential servo position | 15-046 |

2.2 Structural Integrity

10. Vibration pick-up accelerometer No. 42
11. Vibration pick-up accelerometer No. 58
12. Vibration pick-up accelerometer No. 38

Accelerometer nos. are as in fig. 5 of C105 Instrumentation, Issue 7.

R.F.T. PREPARED BY:

APPROVED BY: *Sh*

AUTHORIZED: *[Signature]*

DATE FOR COMPLETION

PRIORITY

ESTIMATED COMPLETION
DATE:



AVRO AIRCRAFT LIMITED

MALTON, ONTARIO

REQUISITION FOR FLIGHT TEST

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SHEET NO. 2 OF 4

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AIRCRAFT 25202

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3. TEST PROCEDURE

- 3.1 Flight conditions should be attained with dampers off except at Mach nos. greater than 1.6 above 40,000'. At each condition pilot to assess aircraft handling with dampers OFF, in yaw roll and pitch, before engaging damper.

After engaging the following damper modes in straight and level flight, assess aircraft handling with damper engaged by gentle movement of controls, followed by abrupt movement of controls. Aircraft response to be within incremental 1 g normal acceleration, acceleration, 30°/sec roll rate and 20% limiting.

Where indicated, the "step input" in the Normal Yaw Damper differential servo should be used to produce a rudder "step" of approximately 1 sec duration or where roll axis damper engaged, until roll angle becomes 45°, to give sideslip within 20% limiting as shown in 71/FAR/23. Step control settings to be given in pilot briefings, these to be obtained from S. Kwiatkowski.

3.2 Yaw Axis only.

- 3.2.1 Engage Normal (gear up) and assess. Apply step input.
3.2.2 Engage Normal (gear down) and assess. Apply step input.
3.2.3 Engage Emergency (gear up) and assess.
3.2.4 Engage Emergency (gear down) and assess.

3.3 Yaw and Pitch Axes together.

- 3.3.1 Engage Normal (gear up) and assess. Apply step input.
3.3.2 Engage Normal (gear down) and assess. Apply step input.
3.3.3 Tap control stick to excite elevators.

R.F.T. PREPARED BY:

APPROVED BY: *Sh*

AUTHORIZED BY:

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REQUISITION FOR FLIGHT TEST

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3.4 Yaw and Roll Axis together.

3.4.1 Engage Normal (gear up) and assess. Apply step input.

3.4.2 Engage Normal (gear down) and assess. Apply step input.

3.4.3 Tap control stick to excite ailerons.

3.5 Yaw, Roll and Pitch Axis together.

3.5.1 Engage Normal (gear up) and assess. Apply step input.

3.5.2 Engage Normal (gear down) and assess. Apply step input.

NOTE:- All take-offs should be with dampers off.

4. TEST CONDITIONS

4.1 At 20,000' and M = 0.7 carry out items 3.2 to 3.5 inclusive.

4.2 At 10,000' at 400 kts. EAS perform items 3.2.1, 3.2.3, 3.3.1, 3.3.3, 3.4.1, 3.4.3, and 3.5.1. Carry out willeron and elevator stick taps and rudder kicks, dampers off.

4.3 At 10,000' at 450 kts. repeat as for 4.2.

4.4 At 10,000' at 500 kts. repeat as for 4.2.

4.5 At 50,000' and M = 1.5 repeat 4.1, and control taps as in 4.2.

4.6 At 50,000' and M = 1.4 repeat 4.2.

4.7 At 50,000' and M = 1.6 repeat 4.2.

R.F.T. PREPARED BY:

APPROVED BY: *SL*

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5. DATA

5.1 Sanborn records of parameters listed in 2.

5.2 Pilot's comments.

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