



UNCLASSIFIED

G. Armstrong

Inter-Departmental Memorandum

Ref h231/07/J
Date September 25, 1958
To Mr. S. E. Harper
From T. Roberts
Subject ARROW 1 - FLYING CONTROL DEVELOPMENT

Herewith R.F.T. 07-5070 Add. 6, covering the testing required on the 11th flight of A/C 25202 with three axes damping activated.

T. Roberts

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AVRO AIRCRAFT LIMITED

MALTON, ONTARIO

REQUISITION FOR FLIGHT TEST

CONFIDENTIAL

R.F.T. NO. 07-5070 Add. 6

SHEET NO. 1 OF

DATE: September 25, 1958

AIRCRAFT 25202

ASSIGNMENT NO. X73-383

WORK ORDER NO.

FLYING CONTROL DEVELOPMENT

The following testing is required on the 11th flight of A/C 25202.

1. OBJECTIVES

- 1.1 To obtain a preliminary assessment of the pitch damper.
- 1.2 To check behaviour of clean aircraft with low viscous dampers.
- 1.3 Obtain "high speed camera" records of undercarriage doors.
- 1.4 Check on cockpit pressure fluctuations.

2. INSTRUMENTATION2.1 Telemetry2.1.1 Stability and Control

1. Angle of sideslip
2. Normal acceleration - near C.G.
3. Lateral acceleration - near C.G.
4. Roll rate.
5. Port elevator angle - full range.
6. Port aileron angle - full range.
7. Rudder angle - full range.
8. Port aileron differential servo position
9. Port elevator differential servo position.

R.F.T. PREPARED BY: *[Signature]*APPROVED BY: *[Signature]*AUTHORIZED BY: *[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

DATE: September 25, 1958

AIRCRAFT 25202

ASSIGNMENT NO. X73-383

WORK ORDER NO.

2.1.1 Stability and Control Cont'd

10. Volts output from stick force transducer - roll axis.

2.1.2 Structural Integrity

11. Elevator vibration pick-up accelerometer No. 38.

2.1.3 Basic Data

12. Range Time.

Numbering of parameters is not meant to signify any order of allocation of telemetry channels.

2.2 Other Instrumentation

1. Pressure aft of navigator's bulkhead as cockpit indication.
2. Hinge box deflection at trailing edge on fuselage.

3. AIRCRAFT CONFIGURATION

- 3.1 Aircraft fuel load should be approx. 6,000 lb. of fuel per side.

4. TEST PROCEDURE

- 4.1 Take-off dampers off and climb to $M = 0.7$ at 20,000 ft. Chase pilot to observe elevator throughout climb.
- 4.2 At $M = 0.7$ at 20,000 ft. engage yaw and roll damper, normal gear up mode, assess handling.
- 4.3 Disengage roll damper and engage yaw and pitch axes. Assess handling, apply steady commands and step inputs. Check aircraft trimming characteristics.
- 4.4 Climb at approx. 300 kts. EAS to 36,000 ft., disengage pitch axis on completion of climb.

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- 4.5 At 36,000 ft. accel. to 1.3 M.N. in increments of 0.1 M.N. Carry out elevator stick taps at each M.N. step in conjunction with operations controller.
- 4.6 During climb if cockpit pressure fluctuations occur pilot to note aircraft altitude, cabin altitude and any fluctuation in altimeter installed in cockpit giving pressure aft. of navigator's bulkhead.
- 4.7 On returning to base, lower gear at or below 200 kts. EAS and accelerate to speed at which U/C door vibration occurs, within aircraft limitations. Inform chase plane to take high speed cine records of doors when vibration occurs.

5. DATA

- 5.1 Telemetry records of data in 2.
- 5.2 High speed cine records of U/C doors.
- 5.3 Pilot's comments.

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