

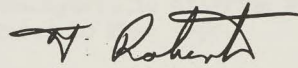
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AVRO AIRCRAFT LIMITED

Inter-Departmental Memorandum

Ref: 9822/22/J  
Date: June 3, 1958  
To: S. E. Harper  
From: T. Roberts  
Subject: NOSE WHEEL STEERING TEST

R.F.T. No. 5058, covering taxi trials to determine the characteristics of the nose wheel steering system on aircraft 25202, is attached.



T. Roberts  
Technical Design Coordinator  
FLIGHT TEST

WCE\*bb

C.C.

Messrs

C. Lindow  
F. Mitchell  
P. Martin  
D. Scard (6)  
J. Lynch  
F. Brame  
C. Marshall  
J. Booth  
D. Rogers  
J. Scott  
J. Booth  
J. Ames  
J. Gale

W/C G. Waterman  
W/C G. Waterman (2)

W. Harris

AVRO T.S.D. RCAF  
For transmittal to  
S/L K. Owne C.E.P.E.  
Detachment

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AVRO AIRCRAFT LIMITED

MALTON, ONTARIO

## REQUISITION FOR FLIGHT TEST

SECRET

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R.F.T. NO. \_\_\_\_\_

SHEET NO. 1 OF 3DATE: June 14th. 1958

AIRCRAFT	25202	ASSIGNMENT NO. X73-369	WORK ORDER NO.
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TAXI-TRIAL EVALUATION OF NOSE WHEEL STEERING SYSTEM CHARACTERISTICS1. OBJECT

To obtain a Pilot's evaluation of the Electro-Hydraulic Nose Wheel Steering System, for three distinct Rudder Bar Angle vs Nose Wheel Angle steering characteristics, each in conjunction with a chosen system gain, as selected at will by the Pilot.

2. EQUIPMENT

- 2.1 Arrow 1 Aircraft No. 25202 with Electro-Hydraulic Steering System installation, as per Memo 9572/09/J dated 26 May, 1958.
- 2.2 Recording equipment as required.

3. PROCEDURE3.1 General

A qualitative handling assessment should be carried out for the Rudder Bar Angle vs Nose Wheel Angle steering characteristics 1, 2, and 3, used in conjunction with the following recommended values of system gain:- 100, 50, and 30% maximum gain.

The taxi speeds used in the trials, should be up to the maximum considered feasible by the Pilot, for each particular System Gain/Steering Characteristic (SG/SC) combination.

It is a definite aim of the evaluation, to attempt steering up to high a/c speeds, and at the higher speeds, say above 60 knots, steering characteristics 1 or 2 in conjunction with 100% - 50% System Gain should be suitable. However, if steering is to be used at low a/c speeds only, say below 60 knots, characteristic 3 in conjunction with 100% - 50% System Gain may prove acceptable.

R.F.T. PREPARED BY <i>W. Harris</i> W. Harris, J.E. Smith	APPROVED BY <i>W. Harris</i>	AUTHORIZED BY <i>W. Harris</i>
DATE FOR COMPLETION	PRIORITY	ESTIMATED COMPLETION DATE:



AVRO AIRCRAFT LIMITED

MALTON, ONTARIO

## REQUISITION FOR FLIGHT TEST

SECRET

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R.F.T. NO. 5058SHEET NO. 2 OF 3DATE: June 14th, 1958

AIRCRAFT 25202	ASSIGNMENT NO. X73-369	WORK ORDER NO.
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3. PROCEDURE3.1 General Cont'd.

It is considered that the initial evaluation 3.2.1 will prove the SG/SC combinations using 30% System Gain to be unacceptable, due to sluggish system response, with the consequent tendency to over-steer.

SG/SC combinations with 30% System Gain are therefore not called for in 3.2.2 - 3.2.5.

3.2 Test Configurations

- 3.2.1 Examination of general manoeuvrability at low a/c speeds (say up to 40 knots) for all SG/SC combinations.
- 3.2.2 Steering a straight course up to maximum a/c ground speed.  
Recommended SG/SC:- 100% - 50% gain  
Charact. 1 or 2
- 3.2.3 Steering round various turning radii.  
Recommended SG/SC:- 100% - 50% gain  
Characts. 1, 2 or 3
- 3.2.4 Steering a number of S-turns with continuous acceleration of the a/c up to high a/c speed.  
Recommended SG/SC:- 100% - 50% gain  
Characts. 1 or 2
- 3.2.5 The above tests 3.2.1 - 4 repeated for a number of different runway conditions.

R.F.T. PREPARED BY: W. Harris, J.E. Smith	APPROVED BY:	AUTHORIZED BY:
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# REQUISITION FOR FLIGHT TEST

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R.F.T. NO. 5058

SHEET NO. 3 OF 3

DATE: June 14th, 1958

AIRCRAFT 25202

ASSIGNMENT NO. X73-369

WORK ORDER NO.

## 3.3 Recordings

Continuous recordings should be made of:-

3.3.1 Rudder Bar Angle.

3.3.2 Nose Wheel Angle.

3.3.3 Steering Jack differential pressure.

3.3.4 Steering engagement and disengagement.

3.3.5 Pilot's commentary.

## 4. DATA REQUIRED

4.1 Pilots handling assessment report.

4.2 Oscillographs of 3.3.1, 3.3.2, 3.3.3, and 3.3.4.

4.3 Recording of Pilot's commentary.

## 5. REMARKS

It is considered that in Test Configuration 3.2.1 the SG/SG combinations using 10% and 30% gains, may prove unacceptable, due to sluggish system response.

Should this prove to be the case, the 10% and 30% gain SG/SG combinations may be omitted in 3.2.2, 3.2.3, 3.2.4, and 3.2.5.

R.F.T. PREPARED BY:  
W. Harris, J.E. Smith

APPROVED BY:

AUTHORIZED BY:

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