

*St. Catharines  
S/L Armstrong*

SECRET  
Report 71/PROJ 7/7

AVRO AIRCRAFT LIMITED

DESIGN CERTIFICATE

FOR FLIGHT TRIALS OF ARROW 1 AIRCRAFT

SERIAL NO. 25202 to 25205 INCL.

Aircraft ..... Arrow (CF-105) Mk. 1  
Serial No. 25202 to 25205 incl. Contractor Avro Aircraft Limited.  
Spec. No. AAMS-105/1 Issue 1 Dec. 1956 Appendix .....  
Contract, I.T.P. or Loan Agreement No. ....  
Engine Type ..... Two Pratt & Whitney J.75 Model JT4A25

Arrow 1 aircraft are hereby certified for the purpose of carrying out flight trials.

The limitations and restrictions specified herein shall be applicable to all aircraft covered by this certificate except where specifically noted.

The aircraft are to be operated in accordance with the following:-

1. The recommendations and limitations of Part 4 of the Arrow 1 Pilot's Operating Instructions dated April 1958.
2. The limitations specified in Model Specification AAMS-105/1 Issue 1 December 1956 up to and including amendment No. 2 (Preliminary).
3. Operating restrictions listed in Section C of this document.
4. Special limitations listed in Section B of this Certificate. These over-rule the recommendations and/or requirements of 1, 2 and 3 above where applicable.

DATED

*24th May 1958* SIGNED *[Signature]*

DESIGN CERTIFICATE ARROW 1 SERIAL NO. 25202 to 25205 INCL.

SECTION B - SPECIAL LIMITATIONS FOR ARROW FLIGHT TRIALS

These limitations together with the Operating Restrictions listed in Section C shall supersede the appropriate limitations of Model Specification AAMS-105/1 Issue 1 December 1956, and the Pilot's Operating Instructions dated April 1958.

1. Taxiing and Take-off Limitations

- 1.1 The cross-wind component for take-off must not exceed 25 knots.
- 1.2 Nose wheel steering is not to be used for take-off.

2. Flight Limitations

- 2.1 a) The aircraft are limited to speeds not exceeding 500 knots EAS or 1.75 Mach number.  
b) Serial No. 25202 only: The aircraft is limited to speeds not exceeding 350 knots EAS.
- 2.2 The aircraft are not to be flown at altitudes exceeding 50,000 ft. for periods exceeding 5 minutes.
- 2.3 a) The aircraft are limited to intentional maneuver normal load factors not exceeding a positive load factor equal to  $\frac{250,000}{W}$ , and a negative load factor equal to  $\frac{141,000}{W}$ , where  $w$  is the weight of the aircraft at the beginning of the maneuver.

$$\text{e.g. } w = 62,500 \text{ lb.}$$

$$n \text{ pos} = \frac{250,000}{62,500} = 4.0$$

$$n \text{ neg} = \frac{141,000}{62,500} = 2.26$$

- b) Serial No. 25202 only: The aircraft is limited to intentional maneuver normal load factors not exceeding 2.0 "g" and not less than 0 "g".
- 2.4 The aircraft are limited to intentional rates of roll not exceeding 2.0 rad/sec.
- 2.5 The aircraft are not to be stalled intentionally.
- 2.6 The aircraft are not to be flown in inverted flight.
- 2.7 The aircraft are not to be spun intentionally.

3. Landing Limitations

- 3.1 All wheels must be in contact with the ground and the speed must be less than 185 knots before the brake parachute may be selected.

4. Special Limitations

- 4.1 The aircraft are not to be flown in icing conditions (airframe de-icing system inoperative).
- 4.2 The rain repellant system is not to be operated (system inoperative).

SECTION C - OPERATING RESTRICTIONS

The aircraft shall be operated in accordance with the limitations and restrictions resulting from incomplete qualification testing of the installed equipment, as delineated in Qualification Status Report 71/REL 00/1-3.

A list of equipment items requiring particular attention is given below:

Note: The "number of flights" limitation is effective from the date of original installation of the noted equipment item, irrespective of total aircraft flights.

<u>Avro Part No.</u>	<u>Description</u>	<u>Limitation</u>
7-1091-303	Wheel Complete - Nose Landing Gear	The lesser of 10 landings, or 100 miles rolling, or excess pressure loss.
7-1062-5569	Cross-shaft Bearing, Rear	Five flights, with preflight inspection.
7-1156-12	Control Panel and TRU	10 hours flight or 200 hours ground application of power.
7-1662-2	Proportioner	Check for by-pass valve operation during each refueling.
7-1956-37	Compensator	The lesser of 10 flights or 25 hours cumulative.



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<u>Avro Part No.</u>	<u>Description</u>	<u>Limitation</u>
7-3258-37	Compensator	The lesser of 10 flights or 25 hours cumulative.
CS-V-104	Air Charging Valve and Gauge	Check for leakage after charging and prior to each flight.

General

The aircraft shall be serviced, taken off and landed where the ground air temperature is not less than -20°F.