

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

7A9
Revision 8
British Aerospace
(formerly ARMSTRONG WHITWORTH)
Argosy
AW.650
Series 101

February 9, 2004

TYPE CERTIFICATE DATA SHEET NO. 7A9

This data sheet which is a part of type certificate No. 7A9 prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Civil Air Regulations.

Type Certificate Holder BRITISH AEROSPACE
(Commercial Aircraft) Ltd
Airlines Division
Chester Road, Woodford, Bramhall
Stockport, Cheshire SK7 1QR
England

I - Armstrong Whitworth Argosy Type A.W. 650 Series 101 (Transport Category), Approved December 2, 1960.

Engines 4 Rolls-Royce Dart 526 turbo-propeller.

Fuel Aviation Kerosene to Spec.D.Eng. R.D.2482 (AVTUR/40) and/or D.Eng. R.D.2494 (AVTUR/50) and/or American Spec. MIL-F-5616 (JP1); and/or Canadian Spec. 3-GP-23C (Type 1)

Wide-cut gasoline to Spec.D.Eng.R.D.2486 (AVTAG)*, and/or American Spec. MIL-J-5624E (JP4)* and/or Canadian Spec. 3-GP-22C (Type 2)*
*when fuel of this type is used the engine controls may require adjustment.

Rating	Static Sea Level Ratings				
	Shaft H.P.	Jet Thrust (lb.)	Compressor Speed (r.p.m.)	Propeller Speed (r.p.m.)	Turbine Max. Gas Temp. (°C)
	Max. takeoff (WET)	1870 min.	495	15,000	1395
Max. takeoff	1835 min.	485	15,000	1395	795
Max. continuous	1835 min.	485	15,000	1395	820

Propeller and propeller limits 4 Rotol type R186/4-30-4/16
Diameter: 11 ft. 6 in.
Pitch settings at 0.7 radius station:
Ground fine 0°, fine 19°30', feathered 84°55'
Restricted speed range: Idling below 7000 engine r.p.m. on ground.

Airspeed limits (I.A.S.)

Vne (never exceed)	310 m.p.h. (270 kt.) S.L. to 10,000'
	decreasing linearly to
	224 m.p.h. (195 kt.) at 25,000'
Vno (normal operating)	270 m.p.h. (235 kt.) S.L. to 10,000'
	decreasing linearly to
	201 m.p.h. (175 kt.) at 25,000'
Va (manoeuvring)	178 m.p.h. (155 kt.)
Vfe (flaps down 0-12°)	207 m.p.h. (180 kt.)
Vfe (flaps down 12°-24°)	184 m.p.h. (160 kt.)
Vfe (flaps down 24°-40°)	161 m.p.h. (140 kt.)
Vlo (landing gear operation)	184 m.p.h. (160 kt.)
Vle (landing gear extended)	184 m.p.h. (160 kt.)
Vllo (landing light operation)	184 m.p.h. (160 kt.)
Vlle (landing light extended)	184 m.p.h. (160 kt.)
Vfdo (fuel dump operation)	207 m.p.h. (180 kt.)
Vmc (minimum control)	103 m.p.h. (90 kt.)

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C.G. range (landing gear extended)	<u>Landing gear retraction moment +112,000 in.-lb. (moves C.G. 1.5 in. aft approx.)</u>				
	<u>Weight</u>	<u>Forward</u>		<u>Aft</u>	
	(lb.)	% <u>S.M.C.</u>	Aft of <u>Datum (in.)</u>	% <u>S.M.C.</u>	Aft of <u>Datum (in.)</u>
	52,000	15.6	23.30	21.6	32.40
	62,000	8.8	12.89	28.8	43.29
	76,000	9.0	13.23	29.0	43.57
	88,000	13.1	19.38	29.1	43.83
	Straight line variation between weights.				
Datum	Zero moment datum is located on the center line of the aircraft 350 in. aft of the extreme tip of the nose. The datum pegs are located on each side of the aircraft on the fuselage datum line. Horizontal arms to the rear of the datum are positive(+).				
Standard mean chord (S.M.C.)	152.16 in. actual (152 in. projected horizontally). The leading edge of the S.M.C. is at - 0.48 in. from datum.				
Leveling means	Leveling pegs for use in conjunction with C.G. datum pegs are provided in the fuselage skin, forward of the datum pegs.				
Maximum weight	Landing				84,000 lb.
	Takeoff				88,000 lb.
	Zero Fuel Gross Weight				77,500 lb.
	3-engine ferrying				(See NOTE 4)
Minimum crew	2. Pilot and copilot (-245). (See NOTE 5)				
Supernumary crew	1 in jump seat at (-217)				
Provision	2 in radio rack seats (-185).				
Maximum passengers	85 on main deck (See approved weight and balance report for actual number and location). (See NOTE 5)				
Maximum freight		<u>Volume</u> (cu.ft.)	<u>Max. Floor</u> <u>Loading</u> (p.s.f.)	<u>Capacity</u> (lb.)	<u>Arm</u> (in.)
	Main hold	-3680	350	28,000	(+3)
	Front door	60	200	500	(-300)
	Rear door	200	200	500	(+318)
Fuel capacity	(See NOTE 1(b) for data on system fuel and oil.)				
			<u>Total per</u> <u>Group</u>	<u>Usable</u>	
	Two inboard wing tank groups (Nos. 1 and 2 tanks combined) each		992 U.S. gal.	982 U.S. gal.	
	Two outboard wing tank groups (Nos. 3, 4 and 5 tanks combined) each		992 U.S. gal.	987 U.S. gal.	
Oil capacity	See NOTE 1(b) for data on system fuel and oil. 31.82 U.S. pints per engine. Total oil 15.91 U.S. gal.				
Max. operating altitude	25,000 ft.				
Other operating limitations	Aircraft shall be operated in compliance with the operating limitations specified in the A.R.B. approved Airplane Flight Manual.				

Control surface movements	<table border="0"> <tr> <td>Elevator</td> <td>Up 25°</td> <td>Down 15°</td> </tr> <tr> <td> Spring tab (elevator locked)</td> <td>Up 26 1/2°</td> <td>Down 26 1/2°</td> </tr> <tr> <td> Trim tab (elevator locked)</td> <td>Up 20°</td> <td>Down 33°</td> </tr> <tr> <td>Rudder</td> <td>Right 20°</td> <td>Left 20°</td> </tr> <tr> <td> Spring tab (rudder locked)</td> <td>Right 20°</td> <td>Left 20°</td> </tr> <tr> <td> Geared tab (neutral trim)</td> <td>Right 7°</td> <td>Left 7°</td> </tr> <tr> <td>Ailerons</td> <td>Up 23°</td> <td>Down 14°</td> </tr> <tr> <td> Spring tab (aileron locked)</td> <td>Up 20°</td> <td>Down 20°</td> </tr> <tr> <td> Geared tab (neutral trim)</td> <td>Up 3 1/2°</td> <td>Down 3 1/2°</td> </tr> <tr> <td> Trim tab (aileron locked)</td> <td>Up 15°</td> <td>Down 5°</td> </tr> <tr> <td>Flaps</td> <td colspan="2">40° Total angle of travel.</td> </tr> </table>	Elevator	Up 25°	Down 15°	Spring tab (elevator locked)	Up 26 1/2°	Down 26 1/2°	Trim tab (elevator locked)	Up 20°	Down 33°	Rudder	Right 20°	Left 20°	Spring tab (rudder locked)	Right 20°	Left 20°	Geared tab (neutral trim)	Right 7°	Left 7°	Ailerons	Up 23°	Down 14°	Spring tab (aileron locked)	Up 20°	Down 20°	Geared tab (neutral trim)	Up 3 1/2°	Down 3 1/2°	Trim tab (aileron locked)	Up 15°	Down 5°	Flaps	40° Total angle of travel.	
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Serial Nos. eligible	The United Kingdom Certificate of Airworthiness for export endorsed as noted under "Certification basis" must be submitted for each individual aircraft for which application for certification is made.																																	
Certification basis	<p>CAR 10. Type Certificate No. 7A9 issued December 2, 1960. Date of Application for Type Certificate November 20, 1956.</p> <p>Each aircraft and any replacement parts manufactured in the U.K. must be designated as "import" and clearly labeled as such in accordance with CAR 10.30. A U.S. Airworthiness Certificate may be issued on basis of a U.K. Certificate of Airworthiness for Export signed by a representative of the Ministry of Aviation containing the following notation: "The aeroplane covered by this certificate has been examined and found to comply with British Civil Airworthiness Requirements (1956) and the Special Requirements for Argosy notified by the U.S.A. Government to the Government of the U.K. and conforms to TC 7A9." (This certification equivalent to CAR.4b effective December 31, 1953, plus Amendments 4b-1 thru 4b-10 inclusive and SR-422B dated July 9, 1959).</p> <p>Compliance with the ditching requirements has been demonstrated.</p> <p>Compliance with ice protection requirements has been demonstrated.</p>																																	
Equipment	<p>The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. Approved equipment is shown in Armstrong Whitworth Schedule of Equipment TP.30. The following additional equipment is required:</p> <p>(a) Stall Warning Indicator, SafeFlite Part Nos. C.72907, C.72902 and C.72906/2.</p>																																	
Service Information	Service bulletins, structural repair manuals, vendor manuals, aircraft flight manuals, and overhaul and maintenance manuals, which contain a statement that the document is CAA approved, or CAA approved through the Manufacturers CAA Approval Ref. DAI/1103/38, or DAI/1011/55 on or after March 1, 1990, are accepted by the FAA and are considered FAA approved. These approvals pertain to the type design only.																																	
NOTE 1.	<p>(a) Current weight and balance report, including list of equipment included in the certificated empty weight, and loading instructions when necessary, must be in each aircraft at the time of original certification and at all times thereafter (except in the case of operators having an approved weight control system).</p> <p>(b) "<u>Unusable Fuel and System Oil</u>" and all hydraulic fluid must be included in the certificated empty weight. Unusable fuel is that quantity of fuel in the system and in the tanks which is unavailable to the engine under critical flight conditions as defined in CAR 4B.416. This unusable fuel includes "system fuel" which is defined as the quantity required to fill the system and tanks to the tank outlet level when the airplane is in the ground level attitude. The fuel gauges are calibrated with the unusable fuel level as the zero datum. The total amount of fuel is as follows:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Usable fuel <u>@ 6.75 lb./gal.</u></td> <td style="text-align: center;">Unusable fuel <u>@ 6.75 lb./gal.</u></td> </tr> <tr> <td style="text-align: center;">3939 U.S. gal.</td> <td style="text-align: center;">30 U.S. gal.</td> </tr> </table> <p><u>System Oil</u> is that amount of oil required to fill the oil systems and tanks which is not available for normal engine lubrication. The propeller feathering oil is not considered usable oil and is included in "System Oil". System oil weight is 65 lb. The oil tank capacity shown in this data sheet is the total oil for which the tanks are placarded. Dipstick readings indicate the amount of oil required to fill the tank.</p>	Usable fuel <u>@ 6.75 lb./gal.</u>	Unusable fuel <u>@ 6.75 lb./gal.</u>	3939 U.S. gal.	30 U.S. gal.																													
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- NOTE 2. Refer to the "List of Fatigue and/or Throw Away Lives of Components or Assemblies", in the Argosy 650, Series 100 Maintenance Schedule, Publication No. T.P. 18, Revision No. 44 dated December 1969 or a later ARB-approved issue for the retirement lives of the airplane parts which are critical from the fatigue standpoint. These values of retirement or service life cannot be increased without FAA Engineering approval.
- NOTE 3. All aircraft must be maintained and repaired in accordance with the Air Registration Board approved Maintenance and Structural Repair Manuals.
- NOTE 4. Ferry permits may be issued to Argosy Type AW650 aircraft on which one engine is inoperative, with its propeller removed or feathered under the following conditions:
- Operation of aircraft shall be in accordance with pertinent limitations contained in the applicable portion of the approved Airplane Flight manual, pertinent appendices and existing instructions.
- NOTE 5. Aircraft without the emergency exit in the roof of the rear fuselage (modification No. 13ANB) are eligible for cargo operations only and a maximum crew of five.
- NOTE 6. A FAA Certificate of Airworthiness is not to be issued until compliance is found to SFAR 88.

....END....