



European Aviation Safety Agency

EASA

**TYPE CERTIFICATE
DATA SHEET**

EASA.A.189

Jetstream 4100 Series

Type Certificate Holder:

BAE SYSTEMS

Regional Aircraft
BAE SYSTEMS (Operations) Limited
Prestwick International Airport
Monkton
Ayrshire
Scotland
KA9 2RW
United Kingdom

(Aircraft manufactured by British Aerospace/
Jetstream Aircraft Ltd. Prestwick 1991 to 1998)

For Models: Jetstream 4100 Series, all Models

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SECTION 1: General (All Models)

1. Data Sheet No.: EASA.A.189 (replacing UK CAA BA 27)

2. Airworthiness Category: Large Aeroplanes

3. Performance Category: A

4. Certifying Authority: EASA

5. Type Certificate Holder
BAE Systems (Operations) Ltd
Prestwick International Airport
Monkton
Ayrshire
Scotland
KA9 2RW

6. Construction Numbers: 41001 and subsequent.

Note: Last three digits are sequential build reference.
First two digits denote airframe type.

SECTION 2: Jetstream 4100 Series (All Models except 4124)

I. General

1. **Aircraft:** Jetstream 4100 Series (All Models except 4124)

II. Certification Basis

1. **Reference Date for Determining the Applicable Requirements - JAA Certification Application Date:** 24 May 1989
2. **EASA (JAA) Certification Date:** 23 November 1992
3. **EASA Certification Basis:**

JAA Airworthiness Requirements:

The Airworthiness Requirements which compliance has been demonstrated for the Jetstream 4100 design, using 24th May 1989 as the reference date, are:

JAR 25 Large Aeroplanes	Change 12	10 May 1988
Amendment (OP) 88/1		18 October 1988
JAR 1 Definitions	Change 4	1 June 1987

The requirement to which the Type Certification Holder elected to comply with are:

- a) Propeller position in Minimum Control Speed Demonstrations, NPA 25B-182 dated 7th May 1987.
- b) High Speed Characteristics, NPA 25B-190 dated 19th November 1986.
- c) Landing Distance, Second Method, NPA 25B-193 dated December 1988.
- d) ACJ's associated with adoption of FAR amendments 25-61/25-66, NPA 25D-210 dated December 1988.
- e) Discrete Source Damage Due to Rotor Burst, NPA 25C-213, dated 4th April 1992.

No further requirements due to design changes or experience gained during development and testing have been identified.

Additional National Design Requirements for the issue of a Type Certificate are listed in CRI A2.

JAA Special Conditions:

No Special Conditions related to novel or unusual design features have been identified.

The following Special Conditions related to general experience:
[Associated Certification Review Items (CRI) shown in parentheses]

- a) Special Condition JS41/01, (CRI F1)
Battery duration during operation without normal electrical power - NPA 25F-179 Rev 4, dated May 1989.
- b) Special Condition JS41/02, (CRI A7)
Terminology "Resistant to Fire" NPA 25D-181, dated June 1988.
- c) Special Condition JS41/03, (CRI F2)
Miscellaneous Electrical Requirements, NPA 25D, F-191 Rev 2, dated May 1989.
- d) Special Condition JS41/04, (CRI C1)
Unified Discrete Gust Requirement and Associated Means of Compliance, NPA 25C-205, dated June 1990.
- e) Special Condition JS41/05, (CRI F3)
Protection from external High Intensity Radiated Fields (HIRF).
- f) Special Condition JS41/06, (CRI F4)
Protection from the effects of Lightning Strikes.
- g) Special Condition JS41/07, (CRI C4)
Rapid Decompression.
- h) Special Condition JS41/08, (CRI C6)
Improved Seat Safety Standards, NPA 25C, D-211 dated April 1989.

The Type Certification Holder originally elected to comply with NPA 25C, D-211 dated April 1989 before it was made a Special Condition.

JAA Exemptions:

The following Exemptions from the requirements have been granted:
[Associated Certification Review Item (CRI) shown in parentheses]

- a) Exemption JS41/01, (CRI C3)
The JS4100 Bulkheads/Structure in front of the forward left and right hand seats are exempted from complying with the HIC of JAR 25.562(c)(5). Refer to Appendix to CRI A1-Post TC Issue 3 for closure of this Exemption.
- b) Exemption JS41/02,
The standby compass has been exempted from complying with the requirements of JAR 25.1327(b). Refer to Appendix to CRI A1-Post TC Issue 3 for closure of this Exemption .

JAA Equivalent Safety Findings:

The following requirements have been complied with by means of Equivalent Safety Findings:

- a) JAR 25.729(e)(2) Landing Gear Aural Warning, (CRI D4)
- b) JAR 25.783(f) External Doors, Means of Preventing Pressurisation, (CRI D6)
- c) JAR 25.815 Width of Aisle, (CRI D1)
- d) JAR 25.1182(a) Fire Protection of Nacelle Zone 5, (CRI E3)

EASA Special Conditions (Post TC):

- a) Special Condition CRI H-01
Enhanced Airworthiness Programme for Aeroplane Systems - ICA on EWIS.

EASA Equivalent Safety Findings (Post TC):

- a) JAR 25.1549(d) Powerplant Instrument Marking, (CRI G-01)

EASA Environmental Standards:

ICAO Annex 16 Volume 1, Second Edition Part II Chapter 3 for noise and Volume 2, First Edition Part II Chapter 2, for fuel venting.

Note: The TPE 331-14GR and -HR engines comply with the applicable fuel venting requirements by design.

III Technical Characteristics and Operational Limitations

1. **Type Design Definition:** JS-4100/TBS.JAA/2

2. **Description:**

Low wing turboprop transport with conventional tail unit configuration, powered by two turbopropeller engines mounted conventionally above the wings driving five bladed counter-rotating propellers.

3. **Equipment:**

The basic required equipment as prescribed in the applicable airworthiness regulations must be installed in the aircraft for certification. All of the required equipment that must be installed as well as optional equipment installations approved by the JAA or EASA are listed in the Jetstream 4100 Master Equipment Register Document No. AWR/063/JM41. The Illustrated Parts Catalogue also contains all equipment approved for installation in the aeroplane.

4. **Dimensions:**

Length	19.33 m	63 ft. 5.0 in
Wingspan	18.42 m	60 ft. 5.3 in
Height	5.61 m	18 ft. 5.0 in
Wing Area	32.38 m ²	384.5 ft ²

5. Engines:

Left: TPE 331-14GR Garrett single shaft turbo-propeller.
Reduction gear ratio 22.97:1
[output shaft rotates clockwise when viewed from rear].

Right: TPE 331-14HR Garrett single shaft turbo-propeller.
Reduction gear ratio 22.93:1
[output shaft rotates anti-clockwise when viewed from rear].

Engine Limits:

Pre Mod JM 41300:

Maximum permissible torque for take-off and continuous operation is 100%. This equates to 1119 KW (1500 SHP) at 100% rotational speed.

Maximum permissible engine rotational speed for normal operation is 101%.

Post Mod JM 41300:

Maximum permissible torque for take-off and continuous operation is 100%. This equates to 1230 KW (1650 SHP) at 100% rotational speed.

Maximum permissible engine rotational speed for normal operation is 101%.

For detailed engine limitations see Aircraft Flight Manual J41.01 and relevant Engine Type Certificate Data Sheet.

6. **Auxiliary Power Unit (APU):** Not applicable.

7. Propellers:

Pre Mod JM 41300:

McCauley 5 bladed, constant speed, variable pitch 114 inches dia. propellers, type B5JFR36C1101/114GCA-O and C5JFR36C1102/L114GCA-0 rotating clockwise and anti-clockwise respectively when viewed from the rear.

Post Mod JM 41300:

McCauley 5 bladed, constant speed, variable pitch 114 inches dia. propellers, type B5JFR36C1103/114HCA-O and C5JFR36C1104/L114HCA-0 rotating clockwise and anti-clockwise respectively when viewed from the rear.

Notes:

- (1) Mod JK42618 permits post Mod JM 41300 propellers to be fitted to aircraft with 1500 shp engines at MTOW of 24,000 lb.
- (2) Mod JK42843 permits post Mod JM 41300 propellers to be fitted to aircraft with 1500 shp engines at MTOW of 23,000 lb.

Propeller Limits:

Continuous ground operation between 82% and 90% and below 68% rpm is prohibited.

Except for takeoff, continuous ground operation is prohibited when the torque is greater than 60% and the wind is greater than 15 kts unless the wind is from within ± 45 degrees of the nose of the aircraft.

For detailed propeller limitations see Aircraft Flight Manual J41.01 and relevant Propeller Type Certificate Data Sheet.

8. Fluids (Fuel/Oil/Additives):

For details of approved fuels, oils and additives see the Aircraft Flight Manual J41.01

9. Fluid Capacities:

9.1 Fuel Capacity:

Fuel Capacity	Imp Gal	US Gal	litres	kg	lb
Usable	727	874	3306	2639	5819
Unusable	4	5	19	15	33
Total	731	879	3325	2654	5852

9.2 Oil Capacity:

Each engine and oil tank combined:
5.68 litres
1.25 Imperial gallons
6 U.S. quarts

- 10. Air Speeds:** Refer to Aircraft Flight Manual J41.01
- 11. Maximum Operating Altitude:** 26,000 feet.
25,000 feet [Modifications JK 43414A & B]
- 12. All Weather Capability:** CAT I
CAT II [Modified Flight Control Computer required]

13. Maximum Weights:

Pre Mod JM41300:

Condition	Max Wt (kg)	Max Wt (lb)
Taxi and Ramp	10483	23110
Take-off	10433	23000
Landing	10115	22300
Zero Fuel	9389	20700
Jacking Weight	8981	19800

Post Mod JM41300 or JK42794:

Condition	Max Wt (kg)	Max Wt (lb)
Taxi and Ramp	10936	24110
Take-off	10886	24000
Landing	10569	23300
Zero Fuel	9707	21400
Jacking Weight	8981	19800

- 14. Centre of Gravity Range:** Refer to Aircraft Flight Manual J41.01
- 15. Datum:** Refer to Weight and Balance Manual

- 16. Standard Mean Chord (SMC):** 1.77m (5 ft 9.69 in.).
Note: Leading edge of SMC is 7.79m (25 ft 7.02 in.) aft of Strn. 0
- 17. Levelling Means:** Refer to Weight and Balance Manual
- 18. Minimum Flight Crew:** Two (Pilot and Co-pilot) for all types of flight
- 19. Maximum Passenger Seating Capacity:** 30 Passengers
- 20. Emergency Exits:**

	Type	Size	
		mm	inches
1. One Passenger Entry Door - Left Side (Forward Cabin)	Type I	1422 x 737	56 x 29
2. One Service Door - Right Side (Rear Cabin)	Type II	1118 x 508	44 x 20
3. Two Overwing Emergency Exits - Left & Right Side	Type III	914 x 508	36 x 20

Additionally, approved for flight crew emergency evacuation purposes, an openable escape window is available on the left side of the flight deck.

21. Baggage/Cargo Compartments:

	Class	Max Allowable Load	
		kg	lb
Rear baggage bay	D	544	1200
Ventral pod	D	159	350
forward right stowage	A	45	100
forward left stowage	A	23	50

Or as otherwise placarded on the airplane.

22. Wheels and Tyres:

Landing Gear: Hydraulically retractable tricycle
Track: 6.096m (20ft)
Wheelbase: 7.315m (24ft)

Nosegear: 2 wheels per unit
Tyres: 17.5 x 6.25 - 6 (8 Ply)
Maximum Tyre Pressure: 2.90 bar (42 psi)

Main gear: 2 wheels per unit
Tyres: 22 x 6.75 - 10 (10 Ply)
Maximum Tyre Pressures: 8.28 bar (120 psi)
8.62 bar (125 psi) - Modification JM 41300

IV Operating and Service Instruction

The following publications provide the necessary information to enable the subject aircraft to be operated and maintained satisfactorily:

- | | | |
|-----|---|-------------------|
| 1. | Aircraft Flight Manual: | J41.01 |
| 2. | Manufacturers Operations Manual: | SA4.4100/MOM/- |
| 3. | Jetstream 4100 Maintenance Review Board Report: | J4100/MRB/1 |
| 4. | Manufacturers Maintenance Manual: | SA4.4100/AMM/- |
| 5. | Structural Repair Manual: | SA4.4100/SRM/400 |
| 6. | Wiring Diagram Manual: | SA4.4100/WM/- |
| 7. | Illustrated Parts Catalogue: | SA4.4100/IPC/- |
| 8. | Weight and Balance Manual: | SA4.4100/WBM/- |
| 9. | Master Minimum Equipment List: | SA4.4100/MMEL/400 |
| 10. | Manufacturers Service Bulletins approved under the authority of CAA UK Approval DAI/9386/92, DAI/1011/55 or JAR 21 Approval CAA.JA.02034 or EASA Part 21 Approval EASA.21J.047. | |
| 11. | FAR Part 26 Compliance Source Document for BAE Systems BAe Jetstream 4100 Aircraft: | MSD/002/J41 |

Note: Airworthiness Limitations and Certification Maintenance Requirements are listed in the Manufacturers Maintenance Manual, Chapter 5.

V. Notes

1. Cabin Interior and Seating Configurations must be approved.
2. Jetstream 4100 Series aeroplanes were allocated Model Numbers according to the certificating authority of the State of Registry. The following table includes all the Models except Model 4124 which is covered in Section 3.

<u>Model Number</u>	<u>Airworthiness Authority</u>
No specific Model Number	Members of the JAA (Joint Aviation Authorities)
4101	FAA (USA)
4102	CAA (UK)
4107	CASA (Australia)
4112	Transport Canada
4120	Republic of South Korea
4121	Republic of South Africa
4122	Royal Thai Army

Aeroplanes imported for registration in an EASA Member State must comply with a Model Number acceptable to EASA.

SECTION 3: Jetstream 4100 Series (Model 4124)

I. General

- 1. Aircraft:** Jetstream 4100 Series
Model 4124

Maritime Surveillance and Rescue Variant

Modification JM41T-4124 was originally approved by the UK CAA on behalf of the Hong Kong CAA under Airworthiness Approval Note 26187.

This Variant is based on a standard Jetstream 4100 passenger aircraft and has the following additions which are identified by Modification JM41T-4124:

- a) The passenger cabin and rear baggage compartment are replaced and equipped with special role equipment for the maritime surveillance and rescue missions.
- b) The special role equipment includes search radar, FLIR and special communication and navigation systems controlled by mission crew with some duplicated inputs at the flight deck as appropriate.
- c) Three 9g compatible mission crew seats and consoles are provided together with five standard 16g passenger seats.
- d) A reconfigured rear cabin bulkhead is installed with an in-flight access door enabling the rear bay to be used either as a type D baggage compartment or as a mission bay equipped with a "baggage door" modified to be openable in flight and equipped with a flare launcher.
- e) A survey camera installation is provided which requires significant cut outs and reinforcing to the lower pressure shell, floor structure and composite ventral fairing.
- f) The camera cut out necessitates the re-routing of elevator cables and other essential systems in this area.
- g) A forward mounted ventral 360 degree radar scanner and random are installed for the maritime search role together with a nose mounted forward looking infra-red sensor.
- h) The search radar necessitates relocated static ports/piping and reduced rudder travel to maintain certificated performance/handling limits.
- i) Associated additional antennae and relocated antennae necessary for the surveillance roles are provided on the upper and lower fuselage.
- j) Associated additional electrical power and distribution systems are provided for the additional surveillance, communication and navigation systems.

For this Model 4124 the information in Section 2 of this TCDS remains applicable with the exception of the following:

II. Certification Basis

- 1. Reference Date for Determining The Applicable Requirements - CAA Certification Application Date:** 08 August 1997
- 2. EASA (CAA) Certification Date:** 10 December 1998
- 3. EASA Certification Basis:** Unchanged

III Technical Characteristics and Operational Limitations

1.	Type Design Definition:	JS-4100/CD.4124/1
2.	Description:	Unchanged
3.	Equipment:	Unchanged
4.	Dimensions:	Unchanged
5.	Engines:	Unchanged
6.	Auxiliary Power Unit (APU):	Unchanged
7.	Propellers:	Unchanged
8.	Fluids (Fuel/Oil/Additives):	Unchanged
9.	Fluid Capacities:	Unchanged
10.	Air Speeds:	Refer to Aircraft Flight Manual J41.01 with Particular Amendment P85
11.	Maximum Operating Altitude:	Unchanged
12.	All Weather Capability:	Unchanged
13.	Maximum Weights:	Unchanged
14.	Centre of Gravity Range:	Refer to Aircraft Flight Manual J41.01 with Particular Amendment P85
15.	Datum:	Unchanged
16.	Standard Mean Chord (SMC):	Unchanged
17.	Levelling Means:	Unchanged
18.	Minimum Flight Crew:	Unchanged
19.	Maximum Passenger Seating Capacity:	Unchanged – although limited at certification due to cabin configuration
20.	Emergency Exits:	Unchanged
21.	Baggage/Cargo Compartments:	The forward right hand stowage is not part of the 4124. The rear baggage bay has been modified, to accommodate additional special role equipment, and to allow access from the cabin through an internal door. The D classification is maintained with this door closed.
22.	Wheels and Tyres:	Unchanged

IV Operating and Service Instruction

The following publications provide the necessary information to enable the subject aircraft to be operated and maintained satisfactorily:

- | | | |
|-----|--|--|
| 1. | Aircraft Flight Manual: | J41.01 with Particular Amendments P85 & P47 and Supplement 7 |
| 2. | Manufacturers Operations Manual: | SA4.4100/MOM/414 |
| 3. | Jetstream 4100 Maintenance Review Board Report: | J4100/MRB/1 |
| 4. | Manufacturers Maintenance Manual: | SA4.4100/AMM/414 |
| 5. | Structural Repair Manual: | SA4.4100/SRM/400 |
| 6. | Wiring Diagram Manual: | SA4.4100/WM/414 |
| 7. | Illustrated Parts Catalogue: | SA4.4100/IPC/414 |
| 8. | Weight and Balance Manual: | SA4.4100/WBM/414 |
| 9. | Master Minimum Equipment List: | SA4.4100/MMEL/400 |
| 10. | Manufacturers Service Bulletins approved under the authority of CAA UK Approval DAI/1011/55 or JAR 21 Approval CAA.JA.02034 or EASA Part 21 Approval EASA.21J.047. | |
| 11. | FAR Part 26 Compliance Source Document for BAE Systems BAe Jetstream 4100 Aircraft: | MSD/002/J41 |

Note: Airworthiness Limitations and Certification Maintenance Requirements are listed in the Manufacturers Maintenance Manual, Chapter 5.

V. Notes

Operational approval for use of the mission equipment is not included and will need to be evaluated by the State of Registry.

SECTION 4: Change Record

Issue	Date	Changes	TC issue
Issue 1.0	30/09/09	First Issue of EASA TCDS	Initial Issue, 30/09/09
Issue 2.0	20/10/10	Section 2, sub section V, Note 2 added. Section 4 added.	30/09/09
Issue 3.0	15/01/15	Section 1, item 1, Data Sheet No., "(replacing UK CAA BA 27)" added Section 2, sub section I, item 1, Aircraft applicability amended to read "Jetstream 4100 Series (All Models except 4124)" Section 2, sub section II, item 3, EASA Certification Basis, Special Condition H-01 added Section 2, sub section IV, item 11, EWIS Source Document added Section 3, sub section IV, item 11, EWIS Source Document added	30/09/09