Civil Aviation Authority
United Kingdom

TYPE-CERTIFICATE DATA SHEET

UK.TC.E.00102

for

AS907 series engines

Type Certificate Holder

Honeywell International Inc.

111 South 34th Street

Phoenix

AZ 85034

USA

Model(s):	AS907-1-1A AS907-2-1A AS907-2-1G AS907-2-1S AS907-3-1E
Issue:	01
Date of issue:	28 March 2024

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Section 1 General (All Models)

I. General

This Type-Certificate Data Sheet (TCDS) is the concise definition of the type-certificated product accepted and or approved by the CAA in the UK for the affected types and models.

This TCDS includes:

1. Details of the type design that affect the TCDS that have been approved or accepted by the CAA in the UK from 01 January 2021.

2. Details of the type design that affected the TCDS and were approved or accepted by EASA before 01 January 2021, and were incorporated into EASA TCDS IM.E.058 at Issue 08 dated 15 May 2020 and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement.

Section 2 AS907

I. General

1. Type / Variant or Model

Type: AS907

Models: AS907-1-1A, AS907-2-1A, AS907-2-1G, AS907-2-1S, AS907-3-1E

2. Type Certificate Holder

Honeywell International Inc.

111 South 34th Street

Phoenix

AZ 85034

USA

Design Organisation Approval No.: Not Applicable.

3. Manufacturer

Honeywell International Inc.

4. Date of Application

Engine Model	Application Date
AS907-1-1A	09 November 1998
AS907-2-1G	03 May 2006
AS907-2-1A	01 April 2013
AS907-3-1E	26 November 2013
AS907-2-1S	01 March 2016

5. CAA Type Certification date

Engine Model	Certification Date
AS907-1-1A	22 October 2002
AS907-2-1G	22 July 2011
AS907-2-1A	02 September 2014
AS907-3-1E	05 December 2014
AS907-2-1S	20 February 2019

Type Certification for the AS907-1-1A engine model is granted, in accordance with article 2 paragraph 3 (a) (i) of EU Commission Regulation EC 1702/2003, based on the JAA Validation Recommendation

II. Certification Basis

1. Reference Date for determining the applicable airworthiness requirements.

Engine Model	Application date at FAA (Certificating Authority)
AS907-1-1A	04 November 1998
AS907-2-1G	20 April 2006
AS907-2-1A	31 August 2012
AS907-3-1E	26 February 2009
AS907-2-1S	07 September 2015

2. State of Design Airworthiness Authority Type Certification Data Sheet Number

FAA TCDS E00010LA

3. State of Design Airworthiness Authority Certification Basis

Engine Model	State of Design Authority Certification basis (see Canadian TC E-39)
AS907-1-1A AS907-2-1G	• 14 CFR part 33, effective February 1, 1965, as amended by 33-1 through 33-20, effective December 13, 2000. • 14 CFR part 34, effective September 10, 1990 as amended by 34-1 through 34-5A, effective October 23, 2013. Fuel Venting and Exhaust Emissions Standards; See NOTE.
AS907-2-1A	• 14 CFR part 33, effective February 1, 1965, as amended by 33-1 through 33-33, effective September 20, 2012, excluding Amendments 33-22 and 33-31. • 14 CFR part 34, effective September 10, 1990 as amended by 34-1 through 34-5A, effective October 23, 2013. Fuel Venting and Exhaust Emissions Standards; See NOTE.
AS907-3-1E AS907-2-1S	• 14 CFR part 33, effective February 1, 1965, as amended by 33-1 through 33-33, effective September 20, 2012, excluding Amendment 33-22. • 14 CFR part 34, effective September 10, 1990 as amended by 34-1 through 34-5A, effective October 23, 2013. Fuel Venting and Exhaust Emissions Standards; See NOTE.

NOTE: The following emissions standards promulgated in 14 CFR part 34, Amendment 34-5A, effective October 23, 2013, and 40 CFR part 87, effective July 18, 2012, have been complied with for all models listed in Engine Table of Models.

- Fuel Venting Emission Standards: 14 CFR §§ 34.10(b) and 34.11; in addition, 40 CFR
- §§ 87.10(b) and 87.11 as amended.
- Smoke Number (SN) Emission Standards: 14 CFR § 34.21(e)(2); addition, 40 CFR
- § 87.23(c)(1).
- Carbon Monoxide (CO) Emission Standards: 14 CFR § 34.21(d)(1)(ii); in addition,
- 40 CFR § 87.23(c)(1).
- Hydrocarbons (HC) Emission Standards: 14 CFR § 34.21(d)(1)(i); in addition, 40 CFR
- § 87.23(c)(1).
- Oxides of Nitrogen (NOx) Emission Standards: 14 CFR § 34.23(b)(1); in addition, 40 CFR § 87.23(c)(3).

In addition to the FAA's finding of compliance based on the certification requirements defined in this TCDS, the engine manufacturer has declared that the ICAO emissions standards identified in Annex 16, Volume II, Third Edition, Part III, Chapter 2, Section 2.2.2 for SN, Section 2.3.2 for CO and HC, Section 2.3.2.e for NOx (also known as CAEP/8) and Part II Chapter 2 for fuel venting have also been demonstrated.

4. UK CAA Certification Basis

4.1 Airworthiness Standards

Engine Model	UK CAA Airworthiness Standards
AS907-1-1A	JAR-E Change 10, dated 15 August 1999, plus NPA-E-13, dated 10 March 1999, plus NPA-E-20, dated 03 December 1999
AS907-2-1G	JAR-E Amendment 11, dated 01 November 2001, plus CS-E, Original Issue, dated 24 October 2003, paragraphs CS-E 50(f), CS-E 850 and CS-E 890
AS907-2-1A	CS-E Amendment 3, dated 23 December 2010, except paragraph CS-E 515, plus JAR-E Amendment 11, dated 01 November 2001, paragraph JAR-E 515
AS907-3-1E	CS-E Amendment 3, dated 23 December 2010, except paragraph CS-E 515, plus JAR-E Amendment 11, dated 01 November 2001, paragraph JAR-E 515
AS907-2-1S	CS-E Amendment 3, dated 23 December 2010, except paragraph CS-E 515, plus JAR-E Amendment 11, dated 01 November 2001, paragraph JAR-E 515

4.2 Special Conditions (SC)

Engine Model	UK CAA Airworthiness Standards
AS907-1-1A	Certification of PLDs
AS907-2-1G	None
AS907-2-1A	20 Seconds Transient Over-Temperature
AS907-3-1E	20 Seconds Transient Over-Speed
AS907-2-1S	Transient Over-Temperature and Over-Speed Limit Approval for up to 20 seconds.

4.3 Equivalent Safety Findings (ESF)

Engine Model	UK CAA Airworthiness Standards
AS907-1-1A	JAR-E890(b)1-Thrust Reverser Endurance Tests
AS907-2-1G	None
AS907-2-1A	None
AS907-3-1E	None
AS907-2-1S	CS-E 40, CS-E 60 and CS-E 740 – Approval for a single flight use of transient Over-Temperature periods up to 2 minutes.

4.4 Deviations

Engine Model	UK CAA Airworthiness Standards
AS907-1-1A	None
AS907-2-1G	
AS907-2-1A	
AS907-3-1E	
AS907-2-1S	

4.5 Environmental Protection

Engine Model	UK CAA Airworthiness Standards
AS907-1-1A	CS-34 Issue dated 23.10.2003 in accordance with ICAO Annex 16 Volume II, Amendment 6, dated 20 November 2008. The NOx Standard is in accordance with Part III, Chapter 2, § 2.3.2, d) (**CAEP/6)**
AS907-2-1G	CS-34 Amendment 4 as adopted by CAA ORS9 Decision No.36 (applicable from 20 December 2023), meeting the requirement of ICAO Annex 16 Volume II, Amendment 10 applicable 1 January 2021. NOx standard in accordance with ICAO Annex 16 Volume II, Part III, Chapter 2, § 2.3.2 d) **(CAEP/6)**. Maximum nvPM mass concentration levels in compliance with Part III, Chapter 4, paragraph 4.2.2.1. nvPM mass and number emissions in compliance with Part III, Chapter 4, paragraph 4.2.2.2 a) 1) and 4.2.2.2 b) 1) (**CAEP/11** In-Production standard.
AS907-2-1A AS907-3-1E AS907-2-1S	CS-34 Amendment 4 as adopted by CAA ORS9 Decision No.36 (applicable from 20 December 2023), meeting the requirement of ICAO Annex 16 Volume II, Amendment 10 applicable 1 January 2021. NOx standard in accordance with ICAO Annex 16 Volume II, Part III, Chapter 2, § 2.3.2 e) (**CAEP/8)**. Maximum nvPM mass concentration levels in compliance with Part III, Chapter 4, paragraph 4.2.2.1. nvPM mass and number emissions in compliance with Part III, Chapter 4, paragraph 4.2.2.2 a) 1) and 4.2.2.2 b) 1) (**CAEP/11** In-Production standard).

III. Technical Characteristics

1. Type Design Definition

Engine Model	UK CAA Airworthiness Standards
AS907-1-1A	Equipment List 3030001-4
AS907-2-1G	Equipment List 3030002-1 /-2
AS907-2-1A	Equipment List 70040702-1/-2
AS907-3-1E	Equipment List 70040119-1
AS907-2-1S	Equipment List 70041011-1

2. Description

Turbofan, one stage fan directly driven by a three-stage low pressure turbine, four-stage axial and single stage centrifugal compressor, driven by a two-stage high pressure turbine, annular combustor, bypass duct and exhaust mixer.

3. Equipment

Engine equipment is specified by the Engine Equipment List part number as referenced in the Type Design Definition.

4. Dimensions

Engine Model	Overall Length mm	Overall Width mm	Overall Height mm
AS907-1-1A	2460	1156	1340
AS907-2-1G	2281	1156	1340
AS907-2-1A	2281	1156	1340
AS907-3-1E	2282	1116	1329
AS907-2-1S	2282	1156	1340

5. Dry Weight

Engine Model	Weight (1) Kg
AS907-1-1A	696
AS907-2-1G	696
AS907-2-1A	696
AS907-3-1E	687
AS907-2-1S	696

(1) The engine weight includes all components of the basic engine as defined by the approved Engine Equipment List. Components that are certified as part of the aircraft, but mounted on the engine, are not included in the weight.

6. Ratings

	Static Thrust (1)(3) kN		Static Thrust (1)(4) kN	
Engine Model	Max Continuous	Take off (5 minutes)(2)	Maximum Continuous	Take off (5 minutes)(2)
AS907-1-1A	30.63	30.73	30.82 at ISA +15°C	30.89 at ISA +20°C
AS907-2-1G	32.49	34.37	32.64 at ISA +17°C	34.54 at ISA +17°C
AS907-2-1A	33.39	33.39	33.50 at ISA +14°C	33.50 at ISA +20°C
AS907-3-1E	32.60	33.91	32.63 at ISA +22.5°C	33.98 at ISA +18°C
AS907-2-1S	32.90	34.04	33.04 at ISA +15°C	34.10 at ISA +18.9°C

(1) The ratings are based on static test stand operation under the following conditions;

(a) No loading of aircraft accessory drives.

(b) No aircraft compressor bleed air extraction.

(c) Fan exhaust and turbine exhaust nozzles conforming to Honeywell International Inc. drawings N10780-1 and N10781-1.

(d) Bellmouth inlet conforming to Honeywell International Inc. drawing 5837800-1.

(e) Dry inlet air.

(f) No exhaust nozzle back pressure.

(2) The normal 5 minutes take-off time may be extended to 10 minutes for engine out contingency.

(3) Sea level standard day (ISA) conditions.

(4) Sea level conditions at breakpoint ambient temperature.

7. Control System

Fuel controls and power management are provided by a dual channel full authority digital electronic control (FADEC) in conjunction with a hydro-mechanical unit (HMU) incorporating an integral fuel pump. The configuration of this system, including hardware and software, is controlled by the approved engine equipment list for each specific engine model and aircraft application.

8. Fluids (Fuel, Oil Coolant, Additives)

See applicable Installation Manual.

9. Aircraft Accessory Drives

Refer to the Installation and Operating Manual Section 13 for additional information on provisions and connections for airframe provided components.

Accessory Drive	Drive Type	Internal Spline Config	RPM and Rotation Facing Drive End	Accessory Maximum Torque[2] Nm			Maximum Weight kg	Maximum Overhung Moment Nm[5]
				Tc	To	Ts		
Generator/ Alternator D30[1]	AS468B-AV1 modified as follows: rpm, torques, accessory weight and moment as shown	AS468B	13665[3] CW	27.34	41.02[4]	180.79	15.74 18.46[7]	14.52 21.47[7]
Hydraulic Pump D10[1]	AS468B-AV1 modified as follows: rpm, torques, accessory weight and moment as shown	AS468B	5974[3] CW	28.25	42.37[4] 43.84[4][6]	174.46	10.16	11.74

CW = clockwise To = torque overload (5 minutes per 4 hour period)

Tc = continuous torque Ts = static torque

(1) Accessory pads are identified by these symbols on the installation drawing

(2) Total combined accessory power extraction limits are specified in the installation manual

(3) Drive speeds are based on 100% design HP rotor speed of 28100 rpm

(4) 5 minutes per 4 hour period

(5) At quick attach/detach (QAD) interface

(6) AS907-3-1E model only

(7) AS907-3-1E and AS907-2-1S models only

10. Maximum Permissible Air Bleed Extraction

For all engine models, the bleed extraction limits are specified in the applicable Installation Manual.

IV. Operating Limitations

1. Temperature Limits

1.1. Interstage Turbine Temperature (ITT) Limits:

Engine Model	Maximum Temperature °C			
	Maximum Continuous	Take-off	Transient	Starting
AS907-1-1A	928	946	962(1)	See Installation Manual
AS907-2-1G	950	955	970(1)	See Installation Manual
AS907-2-1A	950	955	970(1)	See Installation Manual
AS907-3-1E	950	955	970(2)	See Installation Manual
AS907-2-1S	950	955	970(1)	See Installation Manual

(1) 20 seconds maximum

(2) 2 minutes maximum

1.2. Oil Inlet Temperature Limits:

Engine Model	Maximum Temperature °C		Minimum Temperature °C	
	Continuous	Transient (2 minutes)	Continuous	Starting
AS907-1-1A	138	154	5	minus 40
AS907-2-1G	138	154	5	minus 40
AS907-2-1A	138	154	5	minus 40
AS907-3-1E	138	154	5	minus 40
AS907-2-1S	138	154	5	minus 40

1.3. Fuel Inlet Temperature Limits:

Engine Model	Maximum (1) °C	Minimum(2) °C
AS907-1-1A	85	minus 54
AS907-2-1G	85	minus 54
AS907-2-1A	85	minus 54
AS907-3-1E	55	minus 54
AS907-2-1S	85	minus 54

(1) With a vapour volume to liquid volume ratio (V/L) equal to 0.45

(2) With fuel at a viscosity of 12 centistokes or less during starting.

2. Pressure Limits

2.1. Fuel Pump Inlet Pressure

Minimum pressure: whichever is highest of the following:

(a) 34.5 kPa above the true vapour pressure of the fuel

(b) Pressure corresponding to a vapour-to-liquid ratio of 0.45

(c) 35% of atmospheric pressure

(d) 13.8 KPa (absolute)

Maximum pressure: 241 kPa (gauge).

2.2. Oil Pressure Limits

Oil pressure is not regulated and varies with N2 speed. Refer to the applicable Installation Manual.

3. Rotational Speed Limits (rpm)

Engine Model	Low Pressure Rotor N1 rpm (%)			High Pressure Rotor N2 rpm (%)		
	Maximum Continuous	Take-off	Transient (20 seconds)	Maximum Continuous	Take-off	Transient (20 seconds)
AS907-1-1A(1)	9723 (95.7)	9812 (96.6)	9957 (98.0)	27319 (97.2)	27568 (98.1)	28075 (99.9)
AS907-2-1G(1)	9800 (96.5)	9830 (96.8)	9957 (98.0)	27599 (98.2)	27714 (98.6)	28075 (99.9)
AS907-2-1A(1)	9800 (96.5)	9830 (96.8)	9957 (98.0)	27530 (98.0)	27714 (98.6)	28075 (99.9)
AS907-3-1E(1)	9830 (96.8)	9830 (96.8)	9957 (98.0)	27599 (98.2)	27714 (98.6)	28075 (99.9)
AS907-2-1S(1)	9800 (96.5)	9830 (96.8)	9957 (98.0)	27599 (98.2)	27714 (98.6)	28075 (99.9)

(1) 100% N1 = 10156 rpm
(2) 100% N2 = 28100 rpm

4. Installation Assumptions:

The installation assumptions are quoted in the applicable Installation Manual.

5. Time Limited Dispatch

AS907-1-1A, AS907-2-1G, AS907-2-1A, AS907-3-1E and AS907-2-1S engines have been approved for Time Limited Dispatch. The maximum rectification period for each dispatchable state is specified in the Airworthiness Limitations Section of the applicable Light Maintenance Manual.

6. ETOPS Capability

AS907-1-1A, AS907-2-1G, AS907-2-1A, AS907-3-1E and AS907-2-1S engines are not approved for ETOPS capability in accordance with CS-E 1040.

V. Operating and Service Instructions

Engine Model	Installation Manual	Operating Instructions	Light Maintenance Manual	Heavy Maintenance Manual
AS907-1-1A	24-IM-8014	24-IM-8014	72-05-12	72-05-13
AS907-2-1G	24-IM-8029	24-IM-8029	72-05-16	72-05-17
AS907-2-1A	24-IM-8014	24-IM-8014	72-05-22	72-05-23
AS907-3-1E	24-IM-8030	24-IM-8030	72-05-19	72-05-20
AS907-2-1S	24-IM-8034	24-IM-8034	72-05-25	72-05-26

VI. Notes

1. For additional authorised operation and installation detailed information, refer to FAA approved sections of the applicable engine Installation Manual.

2. The CAA accepted approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in chapter 5 of the applicable Light Maintenance Manual.

3. Power setting, power checks and control of engine thrust output in all operations is based on low pressure rotor speed (N1). Speed sensors are included in the engine assembly for this purpose.

4. The engine is approved for use with the thrust reversers (T/R) listed below. These thrust reversers are not part of the engine type design:

Engine Model	T/R Manufacturer	Left Hand T/R Installation Drawing	Right Hand T/R Installation Drawing
AS907-1-1A	Safran Nacelles (formerly Aircelle and Hurel-Hispano)	13A025-03-0G	13A026-02-0G
		13A016-00-0G	13A017-00-0G
AS907-2-1G	Safran Nacelles (formerly Aircelle)	31A516-01-0G	31A517-01-0G
AS907-2-1A	Safran Nacelles (formerly Aircelle)	33A016-01-0G	33A017-01-0G
AS907-3-1E	Safran Nacelles (formerly Aircelle)	32A716-02-0G	32A717-02-0G
AS907-2-1S	Safran Nacelles	35L0016-00-0	35L0017-00-0

5. The engine Type Design includes an air turbine starter (ATS) and starter control valve (ATSCV).

6. The software contained in the FADEC has been designed and developed in accordance with RTCA/DO178B, criticality Level A.

7. For the AS907-1-1A, AS907-2-1G, AS907-2-1A and AS907-2-1S engines aircraft installations fuel from the engine pump is used to drive jet or turbine pumps in the aircraft fuel system (motive flow). The AS907-3-1E engine fuel pump does not drive aircraft system motive flow. Refer to the applicable Installation Manual.

Section 3 Administration

I. Acronyms and Abbreviations

Acronym / Abbreviation	Definition
ARINC	Aeronautical Radio, Incorporated
CNA	Common Nozzle Assembly
DIS	Drawing Introduction Sheet
EASA	European Union Aviation Safety Agency
EBU	Engine Build Unit
EEC	Engine Electronic Controller
EMI	Electro Magnetic Interference
FADEC	Full Authority Digital Engine Control
HP	High Pressure
ICAO	International Civil Aviation Organisation
IP	Intermediate Pressure
LP	Low Pressure
rpm	Revolutions per Minute
SC	Special Conditions
TCDS	Type Certificate Data Sheet
CAA	Civil Aviation Authority
AEO	All Engine Operative
CS-E	Certification Specifications for Engines
CW	Clockwise
W25	Core Engine Air Mass Flow
WAI	Wing Anti-Ice
psi	Pound per square inch
psia	Pound per square inch gauge
psig	Pounds per Square inch gauge
WAI	Wing Anti-Ice
TCCA	Transport Canada Civil Aviation

II. Type Certificate Holder Record

Not applicable

III. Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
1	28 Mar 2024	- Section 1 is added to provide explanatory notes about the details of the type design that affect the TCDS, that have been approved or accepted by the CAA in the UK from 01 January 2021 and that the design changes accepted by EASA before 01 January 2021 were incorporated into EASA TCDS IM.E.058 at Issue 08 dated 15 May 2020 and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement - Introduction of CAEP/11 for nvPM compliance- UK.MAJ.00355 Rev 0.	Issue 1 28 Mar 2024

– END –