**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL**

**TYPE CERTIFICATE DATA SHEET Nº EM-2007T12**

Type Certificate Holder:

**HONEYWELL INTERNATIONAL INC.**
111 South 34th Street
Phoenix, AZ 85034
**USA**

EM-2007T12
Sheet 01
HONEYWELL
AS907-1-1A
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Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. EM-2007T12 meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

**MODEL** AS907-1-1A

**TYPE** Turbofan: One stage fan, four stage axial flow high pressure compressor, one stage centrifugal high pressure compressor, annular combustor, two stage high pressure turbine, and three stage low pressure turbine.

| **STATIC THRUST RATINGS** (See NOTE 12) | | AS907-1-1A |
|---|---|---|
| | Max. continuous, at: | |
| | Sea level, up to ISA+15˚C, kg (lb) | 2 721 (6 929) |
| | Takeoff, at: | |
| | Sea Level, up to ISA+20 C, kg (lb) | 2 721 (6 944) |

**FUEL TYPE**

Fuels are conforming to Honeywell International Inc. Specifications EMS53111 (Jet A type), EMS53112 (Jet A-1 and JP-8 Types, EMS53313 (Jet B and JP-4 Types) and EMS53116 (JP-5 Types). Refer to approved fuel types (see NOTE 11)
No fuel control adjustment is required when changing from primary to alternate fuels.
Refer to engine installation manual for approved fuel additives (See NOTE 11)

**FUEL CONTROL INJECTION**

Fuel control and power management are controlled by a Full Authority Digital Eletronic Control (FDEC) system which features a dual-channel electronic control in the form of two electronic control units (ECUS). The Hardware and software configurations of this systems and the associated engine Hydromechanical unit with integral fuel pump are controlled by an approved engine equipment list. (See NOTE 12)

**OIL, LUBRICATION**

Oil conforming to Honeywell International Inc. Specification EMS53110.

**TEMPERATURE LIMITS**

External engine components maximum temperature (limiting temperature of specific components) is as specified in the engine installation manual (See NOTE 12).
Operation at an engine fuel inlet temperature as high as 185ºF (85ºC) with a vapor volume to liquid volume ratio (V/L) equal to 0.45, and as low as -65ºF (-54ºC) with fuel at a viscosity of 12.0 centistokes or less during starting is approved.

**PRESSURE LIMITS**

Fuel and Oil Pressure Limits:
Fuel pump inlet pressure: minimum 5 psi above true vapor pressure
Maximum 35 psig
Oil pressure: Oil pressure is not regulated and pressure limits vary with $N_2$ speed. Refer to engine installation manual (See NOTE 11).
Operation at an engine fuel inlet temperature as high as 185ºF (85ºC) with a vapor volume to liquid volume ratio (V/L) equal to 0.45, and as low as -65ºF (-54ºC) with fuel at a viscosity of 12.0 centistokes or less during starting is approved.

**IGNITION**

The AS907-1/AS977-1 ignition system is a dual channel system, with each channel supplying 3 sparks per second with the 0.5 joule of energy per spark.

**COMPRESSION**

See NOTE 15.

**WEIGHT MAXIMUM DRY, POUNDS**

| Model | kg | (lb) |
|---|---|---|
| AS907-1-1A | 695 810 | (1 534) |

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 under title RBHA/FAR 25, which are mounted on the engine, are not included in the basic weight

**IMPORT REQUIREMENTS** Each engine imported separately and/or spare parts must be accompanied by an Airworthiness Certificate for Export and/or an Airworthiness Approval Tag, respectively, issued by the FAA, attesting that the particular engine and/or parts were submitted to the governmental quality control before delivery and are in conformity with the ANAC approved type design.

**CERTIFICATION BASIS** Brazilian Type Certificate No. EM-2007T12 based on the RBHA 33, which endorses the FAR 33 effective 01 February 1965, as amended by 33-1 through 33-20, effective 13 December 2000; and FAR 34 dated 10 September 1990 as amended by 34-1 through 34-3, effective 03 February 1999.

| Model | Application | Issued TC |
|---|---|---|
| AS907-1-1A | 13 Dec. 2006 | 27 Dec. 2007 |

**PRODUCTION BASIS** Production Certificate N. 413, issued 04 March 1965. Reissued Production Certificate n. 413NM to Honeywell International Inc. on January 2000.

**NOTES:**

**NOTE 1** Maximum permissible operating speeds for the low and high-pressure rotors of the engine are as follows:

| | Low Pressure Rotor (N1) rpm | High Pressure Rotor (N2) rpm |
|---|---|---|
| Maximum Continuous | 9 723 | 27 319 |
| Takeoff | 9 812 | 27 568 |
| Maximum Transient (20 seconds) | 9 957 | 28 075 |

**NOTE 2** Temperature Limits:

Maximum indicated Interturbine Temperature (ITT) Limits: ºC (ºF)

| Model | Max. Continuous | Takeoff (See NOTE 8) | Starting (Ground/Air) | Transient (20 Seconds) |
|---|---|---|---|---|
| AS907-1-1A | 928 (1 702) | 946 (1 735) | * | 962(1764) |

*Varies with N2 speed, refer to engine installation manual (See NOTE 11).

**NOTE 2 (Cont.)** Maximum Oil Inlet Temperature Limits:

Continuous, ºC (ºF): 138 (280) Transient (2 Minutes) ºC (ºF): 154 (310)

External engine components maximum temperature (limiting temperature of specific components) is as specified in the engine installation manual (See NOTE 11)

Operation of an engine fuel inlet temperature as high as 85C (185F) with a vapor volume to liquid volume ratio (V/L) equal to 0.45, and as low as -65 F (-54C) with fuel at a viscosity of 12.0 centistokes or less during starting is approved.

**NOTA 3** Fuel and Oil Pressure Limits:

Fuel pump inlet pressure: minimum 5 psi above true vapor pressure
Maximum 35 psig

Oil pressure: Oil pressure is not regulated and pressure limits vary with $N_2$ speed. Refer to engine installation manual (See NOTE 11).

**NOTE 4** Accessory Drive Provisions:

| Accessory Drive | Drive Type (one each) | Internal Spline Configuration | RPM and Rotation Facing Drive End | Note (b) Accessory Max. Torque (lb-in) | | | Maximum Weight (pounds) | Overhung Moment (lb-in) |
|---|---|---|---|---|---|---|---|---|
| | | | | Tc | To | Ts | | |
| Generator / Alternator D30* | AS468B-AV1 modified as follows: rpm, torques, accessory weight and moment as shown | AS468B | 13 665 Note (a) CW | 242 | 363 | 1 600 | 34.7 | 128.5 |
| Hydraulic Pump D10* | AS468B-AV1 modified as follows: rpm, torques, accessory weight and moment as shown | AS468B | 5 974 Note (a) CW | 250 | 375 | 1 544 | 22.3 | 103.9 |

CW = Clockwise To = Torque Overload (5 min. per 4 hr. period) Tc = Continuous Torque Ts = Static Torque

* Accessory pads are identified by these symbols on the installation drawing.

Notes: (a) Drive speeds are based on a 100% design HP rotor speed of 28 100 rpm.
(b) Total combined accessory power extraction limits are specified in the engine installation manual (See NOTE 12).

**NOTE 5** Engine ratings are based on static stand operation and under the following conditions:
(a) No loading on accessories drives.
(b) No aircraft compressor bleed air extraction.
(c) Fan exhaust and turbine exhaust nozzles conforming to Honeywell. International Inc. Drawing 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. Fuel from the engine pump is extracted to drive jet or turbine pumps in the aircraft fuel system (motive flow).

**NOTE 6** The engine meets the requirements for operation in icing conditions within the envelope defined in RBHA/FAR 25, Appendix C.

**NOTE 7** Certain engine parts are life limited. These limits are included in the engine Light Maintenance Manual, airworthiness Limitations Section.

**NOTE 8** The normal 5-minute takeoff time limit may be extended to 10 minutes for engine out contingency.

**NOTE 9** Fuel from the engine pump is extracted to drive jet or turbine pumps in the aircraft fuel system (motive flow). Refer to the engine installation manual (See NOTE 11).

**NOTE 10** Power setting, power checks and control of the engine thrust output in all operations are based on low-pressure rotor speed (N1). Speed Sensors are included in the engine assembly for this purpose.

**NOTE 11** For additional performance, authorized operation and installation detailed information, refer to approved sections of the engine installation manual as follows: Model AS907-1-1A: IM-8014

**NOTE 12** Time Limit Dispatch (TLD): The engine control system has been approved for TLD operations. Airworthiness limitations pertaining to the maximum approved dispatch intervals and maintenance requirements of the engine control system are specified in the engine Light Maintenance Manual, Airworthiness Limitations Section.

**NOTE 13** Recommended engine inspection intervals are included in the engine Light Maintenance Manual, Chapter 5.

**NOTE 14** The engine type design does not include a thrust reverser. Considerations for the installation of a thrust reverser are contained in the engine installation manual (See NOTE 11). The engine has demonstrated compatibility with the following thrust reversers:

PART NUMBERS

| MANUFACTURER | LEFT HAND | RIGHT HAND |
|---|---|---|
| Hurel-Hispano | 13A025-03-OG | 13A026-02-OG |
| Hurel-Hispano | 13A012-00-OG with installation kit 13A016-00-OG | 13A013-00-OG with installation kit 13A017-00-OG |

**NOTE 15** For aircraft compressor bleed airflow limits, refer to the engine installation manual (See NOTE 11).

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