



**TYPE CERTIFICATE DATA SHEET Nº EM-2017T03**

Type Certificate Holder:

**GE Honda Aero Engines**  
9050 Centre Pointe Dr  
Suite 200  
West Chester, OH 45069  
**United States of America**

EM-2017T03-00
Sheet 01
GE Honda Aero Engines
HF120
01 August 2017

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 2017T03, 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** HF120

**TYPE** The HF120 engine is a dual rotor, medium bypass ratio turbofan with a single stage fan, 2-stage low pressure compressor, single stage radial flow high pressure compressor, single annular reverse flow combustor, single stage high pressure turbine, 2-stage low pressure turbine, lobed exhaust mixer, and a Full Authority Digital Engine Control (FADEC).

<b>RATINGS</b> ((See NOTE 1)	HF120
Static Thrust, at sea level, kN (lbf)	
- Takeoff (5 min) – see NOTE 2-	9.32 (2,095)
- Maximum Continuous	9.15 (2,057)
Flat Rating Ambient Temp., °C (°F)	
- Takeoff - 5 min	25 (77)
- Maximum Continuous – static	25 (77)

<b>COMPONENTS/ CONFIGURATION</b>	For information regarding components and engine configuration, refer to the approved parts list: HF120-H1A	
<b>FADEC</b>	- FADEC Hardware (P/N)	34100-Q0A
	- FADEC Software OS (P/N)	34211-Q0A
	- FADEC Software AS (P/N)	34221-Q0A
<b>FUEL PUMP METERING UNIT</b>	Motive flow (P/N) (see NOTE 10)	24100-Q0A
<b>IGNITION SYSTEM</b>	One ignition unit (P/N)	31311-Q0A
	Two igniter plugs (P/N)	31111-Q0A
<b>FUEL TYPE</b>	Refer to HF120 Service Bulletin 73-0001 and its latest revision for detailed information pertaining to fuels and additives. This Service Bulletin lists the eligible fuels and additives conforming to GE Aviation Specification D50TF2 (Class A and C only).	
<b>OIL</b>	Refer to HF120 Service Bulletin 79-0001 and its latest revision for detailed information pertaining to Type 2 oils. This Service Bulletin lists the approved oils conforming to GE Aviation Specification D50TF1.	
<b>REFERENCE PRESSURE RATIO</b>	The ratio of the mean total pressure at the last compressor discharge plane of the compressor to the mean total pressure at the compressor entry plane when the engine is developing take-off thrust rating in ISA sea level static conditions.	20:1
<b>PRINCIPAL DIMENSIONS mm (in)</b>	Length (fan duct front flange to aft end of rear fan duct)	1511 (59.5)
	Width (maximum envelope)	655 (25.8)
	Height (maximum envelope)	777 (30.5)
<b>MASS kg (lb)</b>	Includes basic engine, basic engine accessories, and optional equipment as listed in the manufacturer's engine specifications.	211 (466)

**CENTER OF GRAVITY**

<b>LOCATION ENGINE ONLY</b>	Station (axial)	5273 (207.6)
mm (in.)	Waterline	2537.5 (99.9)
	Buttline	2476.5 (97.5)

**IMPORT REQUIREMENTS**

Each engine exported to Brazil separately and/or spare parts must have their Export Airworthiness Approval through the FAA Form 8130-3, Authorized Release Certificate, certifying that the engine is in compliance with the ANAC approved Type Design, defined by the Brazilian Type Certificate No. 2017T03, is in condition for safe operation and has undergone a final operational check. The original Authorized Released Certificate should be sent with the engine and a copy remains with the issuing organization.

Note: ANAC approved Type Design corresponds to the FAA approved Type Design, an Authorized Release Certificate indicating compliance with the FAA approved Type Design defined by the FAA Type Certificate No. E00085EN is acceptable to establish compliance with the ANAC approved Type Design.

**CERTIFICATION BASIS**

- RBAC 33, which corresponds to 14 CFR Part 33, amendments 33-1 through 33-28, effective 23 December 2008.

- RBAC 34, which corresponds to 14 CFR Part 34, amendments 34-1 through 33-4, effective 29 June 2009. See note 12.

- Equivalent Level of Safety (ELOS) Findings:

ELOS No. TC2596EN-E-P-1 to 14 CFR 21.21 and 33.68(b)

<u>Model</u>	<u>Application</u>	<u>Issued TC</u>
HF120	13 June 2016	01 August 2017

**PRODUCTION BASIS**

PC108:	and	PC347CE:
General Electric Company		Honda Aero Inc.
One Neumann Way		2989 Tucker St.
Cincinnati, OH 45216-6301		Burlington, NC 27215
USA		USA

**NOTES:****NOTE 1 ENGINE RATINGS**

Engine ratings are based on calibrated test stand performance operating in test cell mode (engine capabilities), which disables the FADEC power management functions. For installed thrust ratings see note 11:

- Sea level static, standard pressure (101.3 kPa), 15°C
- No customer bleed or customer horsepower extraction
- Ideal inlet, 100% ram recovery
- Fuel lower heating value of 18576 BTU/#
- 0% humidity
- Horsepower extraction from motive flow set to zero

**NOTE 2 TAKEOFF TIME LIMIT**

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

**NOTE 3 MAXIMUM PERMISSIBLE ENGINE ROTOR SPEEDS**

Low pressure rotor (N1)	19,055 rpm	(100.0%)
High pressure rotor (N2)	49,200 rpm	(100.9%)*

\* Note: 100 percent N2 is 48,777 rpm

**NOTE 4 MAXIMUM PERMISSIBLE TEMPERATURES**

Synthesized Interstage Turbine Temperature (ITT), °C (°F):

Takeoff 5 minute (see NOTE 2)	860 (1580) *
Maximum Continuous	854 (1569)
	* 2 minutes maximum transient 885 (1625)
Ground starts (manual or auto)	556 (1033)
Inflight starts (manual or auto)	556 (1033)

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<b>NOTE 4</b>	Oil temperature limits, °C (°F):	
<b>CONT...</b>	Continuous	143 (290)
	Transient (15 minutes)	166 (330)

**NOTE 5 FUEL AND OIL PRESSURE LIMITS**FUEL PRESSURE LIMITS AT THE ENGINE PUMP INLET

See section 0.4.3.2 of GHAE HF120 Engine Installation Manual, GEK 112115, for definition of minimum and maximum fuel pressures.

OIL PRESSURE LIMITS

See Figure 8-3 of GHAE HF120 Operating Instructions, GEK 112116, for definition of minimum and maximum oil pressures.

**NOTE 6 ACCESSORY DRIVE CHARACTERISTICS**

Accessory	Rotation Facing Gearbox Pad	Gear Ratio To Core Rotor	Maximum Steady State Drive Shaft rpm	Maximum Mass, Kg (lb)	Maximum Overhung Moment, N.m (in.lbf)	Shear Torque, N.m (in.lbf)	Maximum Continuous Torque, N.m (in.lbf) See Comments B,C
Starter / Generator (SG)	CW	0.2511	12,354	20.4 (45)	265	180.8 (1600)	25.1 (222)

## Comments:

A. Maximum core engine speed is 49,200 rpm.

B. Maximum continuous overload torque for the SG pad is 34.2 Nm (302.5 in-lb) at 6001 rpm for 5 minutes (21.5 kW)(28.8 hp).

C. Maximum transient overload torque for the SG pad is 360.3 in-lb at 6001 rpm for 5 seconds (25.6 kW)(34.3 hp).

D. Maximum horsepower extraction at the SG pad is 18.1 kW (24.2 hp).

**NOTE 7**

**MAXIMUM PERMISSIBLE BLEED AIR EXTRACTION**

Engine Bleed Air Extraction Limits (See Comment A)		
	Pressure Altitude m (feet)	CDP Bleed Flow kg/min (% of W25)
HP Bleed	-305 (-1000)	18.6 (17.0%)
	-305(-1000) to 14,020 (46,000)	Linear Transition between -305 m and 14,020 m altitude
	14,020 (46,000)	10.1 (15.0%)
	Pressure Altitude m (feet)	Fan Bleed Flow % of W2
Fan Bleed	All altitudes	1.0%
HP Bleed Air Extraction Limits Above 7925 m (26,000 feet) (See Comment A)		
	Pressure Altitude m (feet)	CDP Bleed Flow kg/min (% of W25)
HP Bleed	7,925 (26,000)	7.8 (10.0%)
	7,925 (26,000) to 14,020 (46,000)	Linear Transition between 7925 m and 14020 m altitude
	14,020 (46,000)	5.8 (12.0%)
HP Bleed Air Extraction Limits Below 26,700 rpm Core Speed (See Comments A, B)		
	Core Speed rpm	CDP Bleed Flow kg/min (%of W25)
HP Bleed	23,900	16.3 (19.0%)
	23,900 to 26,700	Linear Transition between 23,900 rpm and 26,700 rpm Core Speed
	26,700	18.6 (19.0%)

Comments

- A. Bleed extraction limit details are described in GHAE HF120 Installation Manual GEK 112115
- B. Bleed extraction below 26,700 rpm applies to all regions of the environmental operating envelope at ground idle

**NOTE 8 LIFE LIMITS**

Life limits established for critical rotating components for: HF120-H1A are published in Chapter 5 of the GHAE HF120 Line Maintenance Manual, GEK 112112-H1.

**NOTE 9 TIME LIMITED DISPATCH CRITERIA**

Criteria pertaining to the dispatch and maintenance requirements for the engine control systems are specified in the HF120-H1A FADEC Control System Summary Document, GEK 112118-H1A and the Airworthiness Limitations Section of the GHAE HF120 Line Maintenance Manual, GEK 112112-H1, which defines the various configurations and maximum operating intervals.

**NOTE 10 MOTIVE FLOW**

Fuel from the motive flow port on the FPMU may be extracted to the drive jet or turbine pumps in the airplane fuel system. See paragraph 7.2.8 of the GHAE HF120 Installation Manual GEK 112115 for flow characteristics.

**NOTE 11 BASIC MODEL NUMBER AND SUFFIX**

The following models incorporate the following general characteristics:

HF120 – base model

A suffix may be added to the basic engine model number on the engine name plate to identify minor variations in the engine configuration, installation components or de-rated thrust peculiar to the aircraft installation requirements. For example: HF120-xnxGxx. Engines that have suffix to the base model are summarized below:

1. HF120-H1A– Same as HF120 except reduced thrust ratings to accommodate HA420 power management. All limitations identical except as noted below. There are minor hardware differences to accommodate different aircraft installation positions (left hand, right hand) and/or additional/optional equipment.

**NOTE 12 EMISSIONS STANDARDS**

The following emission standards promulgated in RBAC 34, which corresponds to 14 CFR Part 34, amendments 34-1 through 33-4, effective 29 June 2009, have been complied with for : HF120H1A

Fuel Venting Emissions Standards: RBAC 34.10(b) and 34.11, which correspond to 14 CFR 34.10(b) and 34.11.

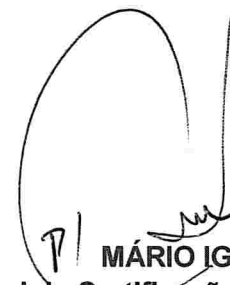
Smoke Number (SN) Emission Standards: RBAC 34.21(e)(1), which corresponds to 14 CFR 34.23(a)(1).

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**NOTE 13** **INSTALATION, OPERATION AND MAINTENANCE INSTRUCTIONS**

The list of documents and their references that follows is required by RBAC 33.4 and 33.5, which correspond to 14 CFR 33.4 and 33.5:

<b>Document</b>	<b>HF 120 reference (last updating)</b>
Engine Installation Manual	GEK 112115
Engine Operating Instructions	GEK 112116
Engine Line Maintenance Manual	GEK 112112-H1
Line Maintenance Illustrated Parts Catalog	GEK 112119-H1
Standard Practices Manual	GEK 9250
Overhaul Manual	GEK 112114-H1
Overhaul Illustrated Parts Catalog	GEK 112113-H1
Service Bulletin Collection	As published by GHAE



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