

MODELS: (cont.)	HF120
<p>COMPONENTS / CONFIGURATIONS</p> <p>IGNITION SYSTEM</p> <p>One ignition unit</p> <p>Two igniter plugs</p>	<p>For information regarding components and engine configuration, refer to the approved parts list:</p> <p>HF120-H1A</p> <p>31311-Q0A</p> <p>31111-Q0A</p>

<p>PRINCIPAL DIMENSIONS (in)</p> <p>Length (fan duct front flange to aft end of rear fan duct)</p> <p>Width (maximum envelope)</p> <p>Height (maximum envelope)</p> <p>WEIGHT (DRY) (lbs)</p> <p>Includes basic engine, basic engine accessories, and optional equipment as listed in the manufacturer's engine specifications.</p> <p>CENTER OF GRAVITY LOCATIONS (in)</p> <p>(Engine only)</p> <p>Station (axial)</p> <p>Waterline</p> <p>Buttline</p>	<p>59.5 in</p> <p>25.8 in</p> <p>30.5 in</p> <p>466 lbs</p> <p>207.6 in</p> <p>99.9 in</p> <p>97.5 in</p>
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FUEL 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).

OIL 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.

CERTIFICATION BASIS
HF120

- 14 CFR Part 33, effective February 1, 1965, including Amendments 33-1 through 33-30.
- Fuel Venting and Exhaust Emissions Standards, 14 CFR Part 34, Amendment 5A, effective October 23, 2013, and 40 CFR Part 87, effective December 31, 2012. See note 12.
- Equivalent Level of Safety (ELOS) Findings:
ELOS No. TC2596EN-E-P-1 to 14 CFR § 21.21 and 33.68(b)

TYPE CERTIFICATE E00085EN

MODELS	APPLICATION DATE	ISSUED/AMENDED
HF120	Feb. 27, 2007	Dec 13, 2013

PRODUCTION BASIS

None

NOTES

NOTE 1. 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 2. MAXIMUM PERMISSIBLE TEMPERATURES

Synthesized Interstage Turbine Temperature (ITT)

Takeoff 5 minute (see NOTE 8)	1580°F (860°C)*
Maximum Continuous	1569°F (854°C)

* 2 minutes maximum transient 1625°F (885°C)

Ground starts (manual or auto)	1033°F (556°C)
Inflight starts (manual or auto)	1033°F (556°C)

Oil temperature limits

Continuous	290°F (143°C)
Transient (15 minutes)	330°F (165°C)

NOTE 3. 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 4. ACCESSORY DRIVE CHARACTERISTICS

Accessory	Rotation Facing Gearbox Pad	Gear Ratio To Core Rotor	Maximum Steady State Drive Shaft RPM	Maximum Weight LB	Maximum Overhung Moment IN-LB	Shear Torque IN-LB	Maximum Continuous Torque IN-LB See Comments B,C
Starter / Generator (SG)	CW	0.2511	12,354	45	265	1600	222

Comments:

- A. Maximum core engine speed is 49,200 rpm.
- B. Maximum continuous overload torque for the SG pad is 302.5 in-lb at 6001 rpm for 5 minutes (28.8 hp).
- C. Maximum transient overload torque for the SG pad is 360.3 in-lb at 6001 rpm for 5 seconds (34.3 hp).
- D. Maximum horsepower extraction at the SG pad is 24.2 hp.

NOTE 5. ENGINE RATINGS

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

1. Sea level static, standard pressure (14.696 psia), 59°F
2. No customer bleed or customer horsepower extraction
3. Ideal inlet, 100% ram recovery
4. Fuel lower heating value of 18576 BTU/#
5. 0% humidity
6. Horsepower extraction from motive flow set to zero

NOTE 6. MAXIMUM PERMISSIBLE BLEED AIR EXTRACTION

Engine Bleed Air Extraction Limits (See Comment A)

	Pressure Altitude feet	CDP Bleed Flow lbm/min (% of W25)
HP Bleed	-1000	41.0 (17.0%)
	-1000 to 46,000	Linear Transition between -1000 feet and 46,000 feet altitude
	46,000	22.2 (15.0%)

	Pressure Altitude feet	Fan Bleed Flow % of W2
Fan Bleed	All altitudes	1.0%

HP Bleed Air Extraction Limits Above 26,000 feet (See Comment A)

	Pressure Altitude feet	CDP Bleed Flow lbm/min
HP Bleed	26,000	17.1 (10.0%)
	26,000 to 46,000	Linear Transition between 26,000 feet and 46,000 feet altitude
	46,000	12.8 (12.0%)

HP Bleed Air Extraction Limits Below 26,700 RPM Core Speed (See Comments A, B)

	Core Speed RPM	CDP Bleed Flow lbm/min (% of W25)
HP Bleed	23,900	36.0 (19.0%)
	23,900 to 26,700	Linear Transition between 23,900 RPM and 26,700 RPM Core Speed
	26,700	41.0 (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 7. 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 8. TAKEOFF TIME LIMIT

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

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.

Maximum continuous at sea level, static thrust, lb: 1922

Takeoff (5 min. see NOTE 8) at sea level, static thrust, lb.: 2037

NOTE 12. EMISSIONS STANDARDS

The following emission standards promulgated in 14 CFR Part 34, Amendment 5A, effective October 23, 2013, and 40 CFR Part 87, effective December 31, 2012 have been complied with for : HF120H1A

Fuel Venting Emissions Standards: 14 CFR §§ 34.10(b) and 34.11; in addition 40 CFR §§ 87.10(b) and 87.11.

Smoke Number (SN) Emission Standards: 14 CFR § 34.23(a)(1); in addition, 40 CFR § 87.23(c)(1).

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 II, Chapter 2, Section 2.2.2 for SN, and Part II Chapter 2 for fuel venting have also been demonstrated.

NOTE 13 (Removed)

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