



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

\*\* DATA SUPERSEDED \*\* SEE SHEET: 21GE182

ENGINE IDENTIFICATION: GE90-110B1 BYPASS RATIO: 7.3  
UNIQUE ID NUMBER: 7GE097 PRESSURE RATIO ( $\pi_{00}$ ): 39.7  
ENGINE TYPE: TF RATED OUTPUT ( $F_{00}$ ) (kN): 492.6

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{00}$ (g/kN) or SN	8.4	60.3	72.0	4.6
AS % OF ORIGINAL LIMIT	42.7 %	51.1 %	60.3 %	30.2 %
AS % OF CAEP/2 LIMIT (NOx)			75.4 %	
AS % OF CAEP/4 LIMIT (NOx)			83.3 %	
AS % OF CAEP/6 LIMIT (NOx)			91.9 %	
AS % OF CAEP/8 LIMIT (NOx)			103.5 %	

### DATA STATUS

- PRE-REGULATION  
x CERTIFICATION  
- REVISED (SEE REMARKS)

### TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES  
x DEDICATED ENGINES TO PRODUCTION STANDARD  
- OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
(ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
- OUT OF PRODUCTION  
- OUT OF SERVICE

### MEASURED DATA

MODE	POWER SETTING (% $F_{00}$ )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	4.320	0.03	0.07	44.44	3.58
CLIMB OUT	85	2.2	3.470	0.03	0.07	33.85	2.25
APPROACH	30	4.0	1.080	0.06	2.29	15.78	1.42
IDLE	7	26.0	0.370	4.55	40.59	5.11	0.96
LTO TOTAL FUEL (kg) or EMISSIONS (g)			1479	2679	24212	30616	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE $D_p/F_{00}$ (g/kN) or AVERAGE SN (MAX)				5.44	49.15	62.15	3.58
SIGMA ( $D_p/F_{00}$ in g/kN, or SN)				0.12	0.47	1	0.87
RANGE ( $D_p/F_{00}$ in g/kN, or SN)				5.31-5.51	48.72-49.65	61.05-63.02	3.03-4.58

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
STAGE BLEED 0 % CORE FLOW AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.058-97.865
TEMPERATURE (K)	290.72-294.22
ABS HUMIDITY (kg/kg)	0.00514-0.00761

### FUEL

SPEC	Jet A1
H/C	1.94-1.96
AROM (%)	11.9-12.5

MANUFACTURER: GE Transportation  
TEST ORGANIZATION: Peebles Test Operation  
TEST LOCATION: Site 4D  
TEST DATES: FROM 23 Nov 03 TO 23 Nov 03

### REMARKS

- Smoke numbers corrected for fuel aromatics volume.
- GE Report R2003AE462
- Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
- NOx levels in accordance with Part III, Chapter 2, 2.3.2 d) (CAEP/6)

If REVISED, this data supersedes databank UID  
Compliance with fuel venting requirements: 0 ('x' if complies, PR if pre-regulation)