ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: D-36 ser. 4A   BYPASS RATIO: 5
UNIQUE ID NUMBER: 13ZM002   PRESSURE RATIO (π_{oo}):   19.9
ENGINE TYPE: TF   RATED OUTPUT (F_{oo}) (kN): 63.77

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{oo} (g/kN) or SN	14.0	48.8	59.6	17.4
AS % OF ORIGINAL LIMIT	71.4 %	41.4 %	74.7 %	65.0 %
AS % OF CAEP/2 LIMIT (NOx)			93.4 %	
AS % OF CAEP/4 LIMIT (NOx)			106.2 %	
AS % OF CAEP/6 LIMIT (NOx)			113.6 %	
AS % OF CAEP/8 LIMIT (NOx)			129.8 %	

DATA STATUS

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

TEST ENGINE STATUS

- X   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_{oo})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg) HC	CO	NOx	SMOKE NUMBER
TAKE-OFF	100	0.7	0.634	0	0.5	26	14.8
CLIMB OUT	85	2.2	0.533	0	0.4	22	–
APPROACH	30	4.0	0.211	0	2.7	9	–
IDLE	7	26.0	0.092	5.4	20.7	5.5	–
LTO TOTAL FUEL (kg) or EMISSIONS (g)			265	8424	32993	13662	–
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				7	7	7	7
AVERAGE D_p/F_{oo} (g/kN) or AVERAGE SN (MAX)				12	48.8	56.3	14.8
SIGMA (D_p/F_{oo} in g/kN, or SN)				0.8	3	2.5	–
RANGE (D_p/F_{oo} in g/kN, or SN)				11.2-13.0	42.2-52.0	54.5-59.0	–

ACCESSORY LOADS

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

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	99.9-101.5
TEMPERATURE (K)	268-295
ABS HUMIDITY (kg/kg)	0.0017-0.0083

FUEL

SPEC	RT
H/C	1.95
AROM (%)	18.5

MANUFACTURER: IVCHENKO PROGRESS ZMBK
TEST ORGANIZATION: IVCHENKO PROGRESS ZMBK
TEST LOCATION: ZAPOROJE
TEST DATES: FROM 17 May 84   TO 10 Dec 84

REMARKS

1. Applicable Nox regulation paragraph 2.3.2 a) (Original)

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