ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: D-36 ser. 4A   BYPASS RATIO: 5.0
UNIQUE ID NUMBER: 13ZM002   PRESSURE RATIO (π_{oo}):   19.9
COMBUSTOR:
ENGINE TYPE: TF   RATED THRUST (F_{oo}) (kN):   63.8

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 (DATE: -   )
-    OUT OF SERVICE   (DATE: -   )

MEASURED DATA

MODE	POWER SETTING ($\%F_{oo}$)	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOX	
TAKE-OFF	100	0.7	0.634	0.00	0.50	26.00	14.8
CLIMB OUT	85	2.2	0.533	0.00	0.40	22.00	
APPROACH	30	4.0	0.211	0.00	2.70	9.00	
IDLE	7	26.0	0.092	5.40	20.70	5.50	
LTO TOTAL FUEL (kg) or EMISSIONS (g)		265					-
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)				12.0	48.8	56.3	14.8
SIGMA (D_p/F_{oo} in g/kN, or SN)				0.8	3.0	2.5	
RANGE (D_p/F_{oo} in g/kN, or SN)				11.2-13	42.2-52	54.5-59	

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: 17/05/1984-10/12/1984

REMARKS

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

Compliance with Fuel Venting requirements: x   ('x' if complies, 'PR' if pre-regulation,
                                                          '-' if information is not available)