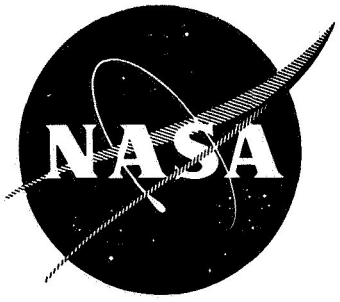
QUIET ENGINE DEFINITION PROGRAM
FINAL REPORT

BY
JOHN H. LEWIS, III, PROGRAM MANAGER

VOLUME V
QE-3 PERFORMANCE



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FINAL REPORT
ON THE
QUIET ENGINE DEFINITION PROGRAM
PWA-3516

by

John H. Lewis, III, Program Manager

VOLUME V
QE-3 PERFORMANCE

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PREFACE

The Final Report for the Quiet Engine Definition Program has been prepared in five volumes. This volume describes the performance of the QE-3 engine, which underwent a design study in Task III. A summary of the over-all program and discussions of Tasks I, II, and III are given in the other four volumes, which are listed below:

Volume I	Summary
Volume II	Task I
Volume III	Task II
Volume IV	Task III

PRELIMINARY PERFORMANCE ESTIMATES

QE-3 TURBOFAN ENGINE

Introduction

This report presents performance and installation data for an advanced study engine designated the QE-3. The engine is a high bypass ratio turbofan in the 22,000 lb. thrust class.

The QE-3 is the final selected study engine under Task III of the NASA-Lewis Research Center Quiet Engine Definition Program. Having evolved from earlier Tasks of the Quiet Engine Program, its cycle and configuration were especially selected to achieve low noise in a practical engine. While representing modern commercial engine technology, the QE-3 features a low tip speed, single stage fan intended to minimize fan generated noise, and high bypass ratio coupled with low turbine temperature intended to minimize jet exhaust noise.

This TDM provides tables and curves for determining engine internal performance at any power setting anywhere within its flight envelope.

The specified Takeoff Rating is the maximum thrust approved for takeoff operation. Takeoff thrust has been flat rated to standard day plus 25°F ambient temperature.

The Maximum Continuous Rating is the maximum thrust approved for continuous operation. It is authorized for normal climb operation. Maximum continuous thrust has been flat rated to standard day plus 15°C ambient temperature.

The Maximum Cruise Rating is the maximum thrust approved for long-time cruise operation. Maximum Cruise thrust has been flat rated to standard day plus 15°C ambient temperature.

The first set of tables contains basic engine part-power data up to takeoff power. The tabulated data are for standard ambient temperature (ICAO Standard Atmosphere) and may be corrected for non-standard ambient temperatures by the procedure given in page 3.

The second set of tables contains takeoff performance (on the runway) for a range of ambient temperatures.

The third, and forth sets contain Maximum Continuous, Maximum Climb, and Maximum Cruise thrusts at standard ambient temperature, standard minus 125°F, standard plus 15°C, standard plus 40°F.

Following are tables and curves which present correction factors for determining the effect of airbleed and power extraction on thrust and fuel flow, the engine operating envelope and engine starting torque characteristics.

Engine performance data which may be obtained from this supplement are:

1. Net thrust and thrust split
2. Fuel consumption
3. Airflow
4. Bypass ratio
5. Rotor speeds
6. Primary and fan duct exhaust pressures and temperatures (for exhaust system design studies only)
7. High pressure (compressor discharge) airbleed pressures and temperatures
8. Low pressure (compressor interstage) pressures and temperatures

The compressor interstage pressures and temperatures are offered for study purposes and comment and do not necessarily reflect a final engine design.

POWER SETTING	ALTITUDE	MACH NO.	TAM	FNT	TSFC	WAT2
TAKE-OFF	S.L.	0.	84°F	21900	.347	768.
MAX CONT.	35,000	.82	STD	5200	.631	874.
MAX CRUISE	35,000	.82	STD	4900	.626	861.

Performance Assumptions

The engine performance listed in Tables 1 through 5 is based on the following assumptions:

ICAO Standard Atmosphere
Fuel Heating Value - 18,400 Btu/lb.
Ram Recovery - 100%
No external bleed or power extraction
Reference Exhaust System
Bypass Stream - short ducts, converging nozzles
Gas Generator - convergent nozzle

Type - Axial flow jet propulsion engine with multistage compressor and fan driven by multistage reaction turbines, designed for operation with fixed area exhaust nozzles.

Installation Drawing	LR-80216
Estimated Weight	4950 pounds
Engine Length	116.4 inches
Maximum Diameter	70.85 inches
Exhaust Nozzle Areas	
Duct (bypass air)	10.07 sq. ft.
Engine (gas generator)	3.78 sq. ft.

General Notes

The front engine mount is located on the O.D. of the fan case and the rear mount is located on the turbine exhaust case. The mount system is capable of accepting thrust reverser, target spoiler and cowl loads, which are transmitted through the engine cases.

The accessory drive shown is a full duty design mounted on the gas generator and incorporating main and angle gearboxes. The drive is designed to accept the full complement of engine and airframe accessories utilized on a JT3D installation.

The weight estimate includes fuel pump, fuel control, full duty gearbox, ignition system, variable geometry actuation system, and acoustic lining in the fan ducts and fan-to-compressor transition section.

Performance Calculation Procedure

Note: Ambient temperature corrections to total net thrust and SFC should be made prior to all other corrections.

1. Ambient Temperature Correction to Total Net Thrust and SFC.

   a. Thrust at takeoff, maximum climb and continuous, or maximum cruise power, adjusted for ambient temperature, may be obtained directly from tables (2), (3) and (4) as a function of altitude Mach number, and TAM:

      FNT (am) = FNT from the appropriate table as indicated above, or is given as a requirement.

   b. The standard day equivalent of SFC at any power may be obtained from table (1) as a function of FNT (am). SFC and fuel flow, adjusted for ambient temperature, may be computed from the following relationships:

$$\text{SFC (am)} = \text{SFC (std)} \left[\frac{\text{TAM}}{\text{TAM}_{\text{std}}}\right]^{0.62}$$

$$\text{Wf (am)} = \text{SFC (am)} \times \text{FNT (am)}$$

2. Total Net Thrust and Fuel Flow Corrections Due to Duct Pressure Loss, Engine Airbleed, and High Rotor Power Extraction.

   The method described here for determining inlet loss corrections is a simplified procedure which will usually suffice for hand calculations. It does not account for distorted inlet conditions or for the engine rematch which occurs due to inlet losses when the exhaust nozzles are unchoked. Appendix I describes a more accurate though more complex method for inlet loss corrections which does take into account engine rematch. Both methods yield the same result when the exhaust nozzles are choked.

a. Obtain corrected total airflow, WAT2, and bypass ratio, BPR from table (1) as functions of FNT(am). Compute WAP, WAT, and WAD

$$WAT = WAT2 \times (\delta t_2 / \sqrt{\theta_{t2}})$$

$$WAP = \frac{WAT2}{1 + BPR} \quad \frac{\delta t2}{\sqrt{\theta_{t2}}}$$

$$WAD = WAT - WAP$$

b. Read CDD and CDP from table (1) as a function of altitude, Mach number and Fnt(am).

c. Read CBL, CBL', CBLD, CBLD', CPX and CPX' from the appropriate tables (Table 5, pages 1 through 6) as functions of FNT(am) / δam and Mach number.

d. Compute the fractional decrease in net thrust and fuel flow from the following equations (any increase is denoted by a minus sign):

$$\frac{\Delta FNT}{FNT} = (1 + CDD = CDP) \frac{P_{t2}}{P_{t2}} + CDD \frac{\Delta P_{tf3}}{P_{tf3}} + CDP \frac{\Delta P_{t7.5}}{Pt7.5}$$
$$+ CBL \left(\frac{WBL}{WAP}\right) 1 + CBL \left(\frac{WBL}{WAP}\right)_2 + CPX \frac{HPX}{HPX\ ref}$$
$$+ CBLD \frac{WBLD}{WAD}$$

$$\frac{\Delta WF}{WF} = \frac{\Delta P_{t2}}{P_{t2}} + CBL' \left(\frac{WBL}{WAP}\right)_1 + CBL' \left(\frac{WBL}{WAP}\right)_2 + CPX' \frac{HPX}{HPX\ ref}$$
$$+ CBLD' \frac{WBLD}{WAD}$$

e. Compute the total net thrust and fuel flow, corrected for ambient temperature, duct loss, airbleed and high rotor power extraction from the following equations:

$$FNT = FNT_{(am)} \left[1 - \frac{\Delta FNT}{FNT}\right]$$

$$WF = WF = WF_{(am)} \left[1 - \frac{\Delta WF}{WF}\right]$$

3. Corrected Duct Net Thrust, Corrected Airflow, Bypass Ratio, Rotor Speeds, and Exhaust Pressure and Temperature Ratios.

a. Compute

$$\frac{\Delta FNT\ (loss)}{FNT} = CBL\left(\frac{WBL}{WAP}\right)_1 + CBL\left(\frac{WBL}{WAP}\right)_2 + CPX \quad \frac{HPX}{HPX\ ref}$$

$$\frac{FNT\ (loss)}{\delta am} = \frac{FNT\ (am)}{\delta am} \left[1 - \frac{\Delta FNT\ (loss)}{FNT}\right]$$

b. The corrected duct net thrust, total corrected airflow, corrected low rotor speed, turbine exhaust pressure ratio and fan duct exhaust pressure and temperature ratios adjusted for non-standard ambient temperature, airbleed and high rotor power extraction may be obtained as functions of altitude, Mach number and FNT (loss)/δam from table (1) (Read FNDAM, WAT2, NIC2, PEP2, PDP2, and TDT2, respectively, as functions of FNTAM).

c. The bypass ratio, turbine exhaust temperature ratio* and high rotor speed adjusted for non-standard ambient temperature, airbleed, and high rotor power extraction may be obtained as functions of altitude, Mach number and FNT(am)/ δ am from table (1). (Read BPR, TET2, and N2C2, respectively, as functions of FNTAM.)

4. Airbleed Pressure and Temperature Ratio.

a. Obtain low pressure (compressor interstage) bleed pressure ratio, Pt3.4/Pt2, and temperature ratio*, Tt3.4/Tt2, as functions of altitude, Mach number and FNT(loss)/δam from table (1). (Read P34P2 and T34T2, respectively, as functions of FNTAM.)

b. Obtain low pressure (compressor interstage) bleed system pressure loss, $\Delta P/P$, from curve number Figure 3 as a function of $W_{BL}\sqrt{Tt3.4/Pt3.4}$.

c. Compute

$$Pt\ port\ (interstage) = \frac{Pt3.4}{Pt2} X\ Pt2\ X\ \left(1 - \frac{\Delta P}{P}\right)$$

d. Obtain high pressure (compressor discharge) bleed system pressure ratio, Pt4/Pt2, and temperature ratio*, Tt4/Tt2, as functions of altitude, Mach number and FNT (loss)/δam from table (1). (Read P4P2 and TfT2, respectively, as functions of FNTAM.)

* See paragraph 5., below.

e. Obtain high pressure (compressor discharge) bleed system pressure loss, $\Delta P/P$, from curve number , Figure 3 , as a function of WBL $\sqrt{Tt4}/Pt4$.

f. Compute

$$\text{Pt port (high pressure)} = \frac{Pt4}{Pt2} \times Pt2 \times \left(1 - \frac{\Delta P}{P}\right)$$

5. Airbleed and Exhaust Temperature Calculations.

The temperature ratios computed in paragraphs 3 and 4, above, require an additional ambient temperature adjustment, as indicated in all but the last of the following equations for temperature:

a. Low pressure airbleed

$$Tt3.4 + (Tt3.4/Tt2) \times Tt2 \times (TAM\ std/TAM)^{0.015}$$

b. High pressure airbleed

$$Tt4 = (Tt4/Tt2) \times Tt2 \times (TAM\ std/TAM)^{0.068}$$

c. Turbine exhaust temperature

$$Tt7.5 = (Tt7.5/Tt2) \times Tt2 \times (TAM/TAM\ std)^{0.057}$$

d. Fan duct exhaust temperature

$$Ttf3 = (Ttf3/Tt2) \times Tt2$$

List of Symbols and Dimensions

Altitude	Pressure altitude per ICAO Standard Atmosphere
BPR	Bypass ratio, WAD/WAP
CBL	Thrust correction factor due to airbleed
CBL'	Fuel flow correction factor due to airbleed
CDD	Thrust correction factor due to fan duct pressure loss
CDP	Thrust correction factor due to primary duct pressure loss
CPX	Thrust correction factor due to power extraction from the high pressure rotor
CPX'	Fuel flow correction factor due to power extraction from the high pressure rotor
FND	Net fan duct thrust, lb.
FNDAM	Corrected net fan duct thrust, FND/δ am
FNT	Total net thrust
FNTAM	Corrected total net thrust, FNT/δ am
FNT(am)	Total net thrust adjusted for non-standard ambient temperature
FNT(loss)	Total net thrust adjusted for non-standard ambient temperature, airbleed, and power extraction
HPX	Horsepower extracted from the high rotor for accessory drives
HPX ref	Reference horsepower (constant for a given engine)
N1C2	Corrected low rotor speed, N1/$\sqrt{\theta t2}$, rpm
N2C2	Corrected high rotor speed, N2/$\sqrt{\theta t2}$, rpm
Pt2	Total pressure at fan inlet, psia
PDP2	Fan duct exhaust pressure ratio, Ptf3/Pt2
PEP2	Primary (turbine) exhaust pressure ratio, Pt7.5/Pt2
Ptf3	Fan duct exhaust total pressure, psia
Pt port	Available pressure at bleed port
Pt3.4	Total pressure in interstage bleed manifold
Pt4	Total pressure at compressor discharge bleed station
Pt7.5	Primary (turbine) exhaust total pressure
P4P2	Compressor discharge bleed pressure ratio, Pt4/Pt2
P34P2	Interstage bleed pressure ratio, Pt3.4/Pt2
SFC	Thrust specific fuel consumption, lb/hr/lb
SFC(am)	SFC adjusted for non-standard ambient temperature
SFC(std)	SFC at non-standard thrust, prior to adjustment for non-standard ambient temperature
TAM	Ambient temperature, °F
TAM std	Standard ambient temperature per ICAO Standard Atmosphere
TDT2	Fan duct exhaust temperature ratio, Ttf3/Tt2
TET2	Primary (turbine) exhaust temperature ratio, Tt7.5/Tt2
Ttf3	Fan duct exhaust total temperature, °R
Tt2	Total temperature at fan inlet
Tt3.4	Interstage bleed total temperature
Tt4	Compressor discharge bleed total temperature
Tt7.5	Primary (turbine) exhaust total temperature

List of Symbols and Dimensions (Cont'd)

T4T2	Compressor discharge bleed temperature ratio, Tt4/Tt2
T34T2	Interstage bleed temperature ratio, Tt3.4/Tt2
WAD	Fan duct airflow, lb/sec
WAP	Primary (compressor inlet) airflow
WAT2	Total (fan inlet) corrected airflow
WBL	Airbleed mass flow from the high compressor (interstage or discharge)
$(WBL/WAP)_1$	Ratio of low pressure (interstage) airbleed to primary (compressor inlet) airflow
$(WBL/WAP)_2$	Ratio of high pressure (compressor discharge) airbleed to primary (compressor inlet) airflow
WF	Fuel flow, lb/hr
WF(am)	Fuel flow adjusted for non-standard ambient temperature
δ am	Relative altitude ambient pressure, psia/14.696
δ t2	Relative compressor inlet pressure, Pt2/14.696
θ t2	Relative compressor inlet temperature, Tt2/518.7
ΔFNT/FNT	Fractional decrease in total net thrust
ΔPtf3/Ptf3	Fractional total pressure loss in fan duct exhaust system
ΔPt2/Pt2	Fractional total pressure loss in inlet duct
ΔPt7.5/Pt7.5	Fractional total pressure loss in primary exhaust system
ΔWF/WF	Fractional decrease in fuel flow

MAX CO	Maximum Continuous Power
MAX CL	Maximum Climb Power
MAX CR	Maximum Cruise Power

TDM 2157-
Revision II

QE-3 TURBOFAN ENGINE PERFORMANCE

STANDARD DAY

TABLE I

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE SEA LEVEL TAM 59.00F
STANDARD DAY TAM

FLIGHT CASE		MACH NO. 0 RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	1	T/O	21888	.337	7374	21888	17376	3346	9078	768	5.22
1	2	MAX CO	20263	.331	6698	20263	16199	3239	8977	741	5.27
1	3	MAX CL	20263	.331	6698	20263	16199	3239	8977	741	5.27
1	4	MAX CR	18923	.326	6172	18923	15217	3153	8894	717	5.30
1	5		16794	.321	5398	16794	13628	3009	8756	677	5.37
1	6		15561	.319	4967	15561	12696	2918	8668	653	5.41
1	7		14429	.317	4570	14429	11830	2827	8584	629	5.46
1	8		13371	.314	4204	13371	11010	2736	8503	607	5.50
1	9		12323	.313	3857	12323	10189	2642	8418	584	5.53
1	10		11272	.313	3525	11272	9351	2537	8330	559	5.56
1	11		10248	.314	3221	10248	8518	2419	8239	534	5.56
1	12		9271	.316	2931	9271	7725	2307	8142	508	5.56
1	13		8358	.318	2657	8358	6981	2203	8040	483	5.57
1	14		7445	.321	2386	7445	6240	2104	7923	456	5.60
1	15		6482	.326	2112	6482	5460	1999	7778	426	5.66
1	16		5482	.335	1839	5482	4645	1881	7603	391	5.74
1	17		4579	.348	1593	4579	3899	1752	7427	358	5.82
1	18		3839	.361	1386	3839	3283	1615	7269	327	5.87
1	19		3156	.378	1193	3156	2709	1461	7082	297	5.96
1	20		2423	.412	998	2423	2086	1269	6726	260	6.09
FLIGHT		MACH NO. .15									
1	1	T/O	18495	.402	7426	18495	14560	3340	9066	771	5.27
1	2	MAX CO	16986	.397	6744	16986	13481	3234	8967	743	5.31
1	3	MAX CL	16986	.397	6744	16986	13481	3234	8967	743	5.31
1	4	MAX CR	15744	.394	6210	15744	12581	3146	8882	720	5.36
1	5		13800	.393	5429	13800	11146	3000	8745	681	5.43
1	6		12687	.394	4996	12687	10314	2908	8658	657	5.49
1	7		11672	.394	4598	11672	9546	2817	8575	634	5.54
1	8		10725	.395	4232	10725	8816	2727	8495	612	5.58
1	9		9784	.397	3882	9784	8084	2632	8411	589	5.62
1	10		8853	.401	3549	8853	7346	2527	8323	565	5.66
1	11		7963	.407	3243	7963	6630	2412	8233	541	5.67
1	12		7124	.414	2953	7124	5955	2303	8137	517	5.70
1	13		6334	.422	2676	6334	5317	2203	8035	493	5.72
1	14		5551	.433	2402	5551	4686	2104	7918	467	5.78
1	15		4736	.449	2127	4736	4028	1997	7775	438	5.87
1	16		3903	.475	1855	3903	3350	1878	7604	406	5.98
1	17		3160	.510	1610	3160	2738	1744	7432	374	6.11
1	18		2564	.547	1403	2564	2242	1604	7280	346	6.20
1	19		2029	.598	1213	2029	1790	1448	7104	317	6.35
1	20		1484	.688	1021	1484	1324	1260	6793	284	6.59

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE SEA LEVEL TAM 59.00F
STANDARD DAY TAM

FLIGHT MACH NO. 0

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	1	T/O	5.05	1.68	17.01	2.42	1.51	1.14	1.36	2.60	.89	.29
2	2	MAX CO	4.79	1.65	16.02	2.37	1.47	1.13	1.32	2.53	.95	.30
2	3	MAX CL	4.79	1.65	16.02	2.37	1.47	1.13	1.32	2.53	.95	.30
2	4	MAX CR	4.59	1.65	15.22	2.33	1.44	1.12	1.29	2.48	1.00	.31
2	5		4.28	1.62	13.93	2.27	1.39	1.11	1.25	2.41	1.09	.33
2	6		4.10	1.59	13.16	2.24	1.36	1.10	1.22	2.37	1.15	.34
2	7		3.94	1.56	12.45	2.20	1.33	1.10	1.20	2.33	1.21	.35
2	8		3.79	1.53	11.79	2.17	1.31	1.09	1.18	2.29	1.28	.36
2	9		3.64	1.53	11.13	2.14	1.28	1.08	1.16	2.26	1.35	.37
2	10		3.49	1.51	10.48	2.10	1.26	1.08	1.15	2.22	1.42	.38
2	11		3.35	1.48	9.87	2.06	1.23	1.07	1.13	2.18	1.50	.39
2	12		3.21	1.48	9.27	2.02	1.21	1.06	1.12	2.15	1.59	.41
2	13		3.08	1.46	8.68	1.99	1.19	1.06	1.10	2.11	1.68	.42
2	14		2.94	1.44	8.05	1.95	1.17	1.05	1.09	2.08	1.77	.43
2	15		2.77	1.41	7.34	1.90	1.15	1.05	1.08	2.05	1.88	.44
2	16		2.61	1.39	6.57	1.85	1.12	1.04	1.06	2.03	2.02	.45
2	17		2.46	1.35	5.86	1.80	1.10	1.03	1.05	2.01	2.16	.45
2	18		2.32	1.35	5.25	1.75	1.09	1.03	1.04	1.99	2.28	.46
2	19		2.17	1.32	4.65	1.69	1.07	1.02	1.03	1.97	2.42	.46
2	20		1.89	1.27	3.95	1.61	1.05	1.02	1.03	1.97	2.57	.47

FLIGHT MACH NO. .15

2	1	T/O	5.02	1.68	16.90	2.41	1.50	1.14	1.34	2.59	1.06	.34
2	2	MAX CO	4.77	1.65	15.92	2.36	1.46	1.13	1.31	2.52	1.14	.36
2	3	MAX CL	4.77	1.65	15.92	2.36	1.46	1.13	1.31	2.52	1.14	.36
2	4	MAX CR	4.57	1.65	15.11	2.33	1.43	1.12	1.28	2.47	1.21	.38
2	5		4.26	1.59	13.83	2.27	1.38	1.11	1.23	2.39	1.34	.40
2	6		4.08	1.59	13.07	2.23	1.35	1.10	1.20	2.36	1.43	.42
2	7		3.92	1.56	12.37	2.20	1.33	1.09	1.18	2.32	1.52	.44
2	8		3.78	1.53	11.72	2.17	1.30	1.09	1.16	2.28	1.62	.45
2	9		3.63	1.53	11.07	2.13	1.28	1.08	1.15	2.24	1.73	.47
2	10		3.48	1.51	10.42	2.10	1.25	1.07	1.13	2.21	1.85	.49
2	11		3.34	1.48	9.82	2.06	1.23	1.07	1.12	2.17	1.99	.51
2	12		3.21	1.48	9.23	2.02	1.21	1.06	1.10	2.13	2.14	.54
2	13		3.07	1.46	8.64	1.98	1.18	1.06	1.09	2.10	2.30	.56
2	14		2.93	1.44	8.01	1.94	1.16	1.05	1.08	2.07	2.48	.58
2	15		2.77	1.41	7.31	1.90	1.14	1.04	1.06	2.04	2.72	.61
2	16		2.61	1.39	6.57	1.85	1.12	1.04	1.05	2.02	3.04	.64
2	17		2.46	1.35	5.86	1.80	1.10	1.03	1.04	2.00	3.40	.67
2	18		2.33	1.35	5.27	1.75	1.08	1.03	1.03	1.97	3.79	.71
2	19		2.18	1.32	4.69	1.69	1.07	1.02	1.02	1.96	4.28	.75
2	20		1.94	1.27	4.03	1.62	1.05	1.02	1.01	1.95	5.02	.81

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE SEA LEVEL TAM 59.00F
STANDARD DAY TAM

FLIGHT MACH NO. 0.3

CASE		RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	21	T/O	16081	.472	7584	16081	12619	3325	9034	775	5.38
1	22	MAX CO	14638	.470	6879	14638	11596	3215	8936	749	5.45
1	23	MAX CL	14638	.470	6879	14638	11596	3215	8936	749	5.45
1	24	MAX CR	13451	.470	6328	13451	10745	3125	8852	726	5.50
1	25		11624	.474	5516	11624	9424	2972	8710	689	5.62
1	26		10632	.478	5082	10632	8693	2880	8627	667	5.69
1	27		9718	.482	4682	9718	8011	2791	8548	646	5.76
1	28		8864	.487	4314	8864	7360	2705	8471	625	5.80
1	29		8011	.494	3954	8011	6705	2609	8386	604	5.88
1	30		7194	.503	3620	7194	6065	2508	8302	582	5.93
1	31		6408	.516	3306	6408	5437	2400	8212	561	5.99
1	32		5681	.530	3009	5681	4861	2301	8117	540	6.06
1	33		5003	.545	2727	5003	4322	2207	8017	519	6.15
1	34		4323	.566	2448	4323	3777	2111	7901	497	6.27
1	35		3616	.600	2168	3616	3207	2003	7760	471	6.43
1	36		2919	.650	1898	2919	2635	1881	7602	444	6.64
1	37		2302	.719	1655	2302	2124	1743	7441	417	6.87
1	38		1821	.796	1451	1821	1721	1604	7304	394	7.08
1	39		1400	.902	1263	1400	1363	1455	7149	371	7.36
1	40		1007	1.074	1082	1007	1024	1292	6930	348	7.78
1	41		636	1.408	895	636	694	1105	6421	321	8.61
1	42		353	1.956	690	353	436	894	4724	296	10.79

FLIGHT MACH NO. 0.45

1	43	T/O	14316	.547	7834	14316	11252	3294	8981	777	5.55
1	44	MAX CO	12883	.550	7089	12883	10251	3183	8881	752	5.64
1	45	MAX CL	12883	.550	7089	12883	10251	3183	8881	752	5.64
1	46	MAX CR	11729	.555	6511	11729	9434	3087	8796	731	5.72
1	47		10018	.566	5666	10018	8223	2930	8657	697	5.88
1	48		9123	.573	5230	9123	7577	2843	8580	679	5.97
1	49		8297	.582	4828	8297	6964	2759	8506	661	6.05
1	50		7513	.592	4444	7513	6382	2673	8427	643	6.15
1	51		6740	.605	4076	6740	5797	2582	8347	624	6.25
1	52		5999	.622	3733	5999	5221	2488	8265	605	6.33
1	53		5297	.643	3408	5297	4672	2395	8177	587	6.43
1	54		4651	.667	3103	4651	4167	2309	8085	569	6.55
1	55		4049	.694	2809	4049	3696	2226	7985	550	6.70

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE SEA LEVEL TAM 59.00F
STANDARD DAY TAM

FLIGHT MACH NO. 0.3

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	21	T/O	4.94	1.68	16.58	2.39	1.49	1.14	1.30	2.54	1.24	.40
2	22	MAX CO	4.70	1.65	15.61	2.35	1.45	1.13	1.26	2.48	1.35	.42
2	23	MAX CL	4.70	1.65	15.61	2.35	1.45	1.13	1.26	2.48	1.35	.42
2	24	MAX CR	4.50	1.62	14.81	2.31	1.42	1.12	1.23	2.42	1.45	.45
2	25		4.19	1.59	13.51	2.25	1.37	1.11	1.18	2.35	1.64	.49
2	26		4.02	1.59	12.79	2.22	1.34	1.10	1.16	2.31	1.77	.51
2	27		3.87	1.56	12.12	2.19	1.31	1.09	1.14	2.28	1.90	.54
2	28		3.73	1.53	11.50	2.15	1.29	1.08	1.12	2.24	2.04	.56
2	29		3.58	1.53	10.86	2.12	1.27	1.08	1.10	2.20	2.22	.59
2	30		3.45	1.51	10.25	2.08	1.24	1.07	1.09	2.16	2.41	.62
2	31		3.31	1.48	9.66	2.05	1.22	1.07	1.07	2.13	2.64	.66
2	32		3.18	1.46	9.08	2.01	1.20	1.06	1.06	2.09	2.89	.69
2	33		3.05	1.46	8.51	1.98	1.18	1.05	1.04	2.06	3.19	.73
2	34		2.91	1.44	7.89	1.94	1.16	1.05	1.03	2.03	3.56	.78
2	35		2.76	1.41	7.21	1.89	1.13	1.04	1.02	2.00	4.06	.83
2	36		2.61	1.39	6.52	1.85	1.11	1.03	1.00	1.98	4.75	.90
2	37		2.47	1.35	5.86	1.80	1.09	1.03	.99	1.95	5.67	.98
2	38		2.35	1.35	5.31	1.75	1.08	1.02	.98	1.93	6.74	1.08
2	39		2.22	1.32	4.78	1.70	1.06	1.02	.98	1.90	8.23	1.19
2	40		2.04	1.29	4.21	1.64	1.05	1.02	.97	1.89	10.62	1.37
2	41		1.69	1.25	3.52	1.56	1.04	1.01	.96	1.89	15.42	1.65
2	42		1.18	1.17	2.63	1.43	1.02	1.01	.95	1.94	25.54	1.91

FLIGHT MACH NO. 0.45

2	43	T/O	4.81	1.68	16.05	2.36	1.47	1.13	1.23	2.48	1.42	.46
2	44	MAX CO	4.57	1.65	15.07	2.32	1.43	1.12	1.19	2.41	1.57	.49
2	45	MAX CL	4.57	1.65	15.07	2.32	1.43	1.12	1.19	2.41	1.57	.49
2	46	MAX CR	4.38	1.62	14.28	2.28	1.40	1.11	1.16	2.36	1.71	.53
2	47		4.09	1.59	13.03	2.23	1.35	1.10	1.11	2.29	1.97	.58
2	48		3.94	1.56	12.37	2.20	1.32	1.09	1.09	2.25	2.15	.61
2	49		3.80	1.56	11.75	2.16	1.30	1.09	1.07	2.21	2.34	.65
2	50		3.66	1.53	11.14	2.13	1.27	1.08	1.05	2.17	2.55	.69
2	51		3.52	1.51	10.54	2.10	1.25	1.07	1.03	2.14	2.81	.73
2	52		3.39	1.51	9.96	2.07	1.23	1.07	1.02	2.10	3.10	.78
2	53		3.27	1.48	9.40	2.03	1.21	1.06	1.00	2.06	3.45	.83
2	54		3.15	1.46	8.85	2.00	1.19	1.06	.99	2.03	3.87	.89
2	55		3.02	1.46	8.29	1.96	1.17	1.05	.98	1.99	4.35	.95

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE SEA LEVEL TAM 59.00F
STANDARD DAY TAM

FLIGHT MACH NO. 0.6

CASE		RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	56	MAX CO	11549	.638	7366	11549	9304	3133	8803	748	5.84
1	57	MAX CL	11549	.638	7366	11549	9304	3133	8803	748	5.84
1	58	MAX CR	10413	.648	6750	10413	8503	3032	8719	729	5.95
1	59		8804	.669	5887	8804	7374	2882	8590	701	6.15
1	60		7991	.681	5445	7991	6801	2804	8519	686	6.26
1	61		7247	.694	5033	7247	6272	2726	8446	672	6.38
1	62		6498	.712	4628	6498	5730	2643	8369	657	6.51
1	63		5759	.736	4240	5759	5180	2558	8289	640	6.65
1	64		5062	.767	3881	5062	4645	2475	8209	625	6.78
1	65		4415	.802	3541	4415	4148	2397	8122	608	6.92
1	66		3820	.843	3222	3820	3687	2325	8033	594	7.10
1	67		3254	.894	2910	3254	3246	2251	7932	579	7.32
1	68		2696	.965	2602	2696	2802	2173	7813	563	7.60
1	69		2144	1.077	2309	2144	2354	2084	7687	546	7.93
1	70		1643	1.242	2040	1643	1937	1985	7559	530	8.32
1	71		1206	1.495	1803	1206	1566	1875	7441	514	8.70
1	72		833	1.912	1593	833	1242	1763	7328	500	9.09
1	73		496	2.829	1403	496	943	1657	7209	487	9.54
1	74		169	7.250	1228	169	644	1549	7075	473	10.03
1	76		-343	-2.670	918	-343	145	1340	6608	448	11.45

FLIGHT MACH NO. 0.7

1	77	MAX CO	10833	.700	7586	10833	8826	3087	8740	742	5.99
1	78	MAX CL	10833	.700	7586	10833	8826	3087	8740	742	5.99
1	79	MAX CR	9730	.714	6948	9730	8069	2989	8659	725	6.12
1	80		8190	.741	6069	8190	7006	2851	8536	698	6.32
1	81		7439	.756	5626	7439	6481	2778	8468	685	6.43
1	82		6705	.775	5196	6705	5967	2702	8396	674	6.57
1	83		5956	.802	4774	5956	5428	2621	8321	660	6.73
1	84		5220	.837	4370	5220	4885	2542	8242	646	6.89
1	85		4541	.880	3997	4541	4372	2467	8161	632	7.06
1	86		3915	.932	3647	3915	3894	2398	8078	619	7.24
1	87		3334	.994	3313	3334	3451	2331	7988	606	7.44

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE SEA LEVEL TAM 59.00F
STANDARD DAY TAM

FLIGHT MACH NO. 0.6

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	56	MAX CO	4.41	1.62	14.33	2.28	1.41	1.12	1.10	2.33	1.78	.57
2	57	MAX CL	4.41	1.62	14.33	2.28	1.41	1.12	1.10	2.33	1.78	.57
2	58	MAX CR	4.22	1.62	13.56	2.25	1.37	1.11	1.07	2.28	1.97	.61
2	59		3.96	1.56	12.42	2.19	1.32	1.10	1.03	2.21	2.31	.68
2	60		3.83	1.56	11.83	2.16	1.30	1.09	1.01	2.17	2.54	.73
2	61		3.71	1.53	11.26	2.13	1.28	1.08	.99	2.13	2.79	.78
2	62		3.57	1.53	10.68	2.10	1.26	1.08	.97	2.09	3.09	.83
2	63		3.44	1.51	10.10	2.07	1.23	1.07	.95	2.05	3.46	.90
2	64		3.32	1.48	9.55	2.04	1.21	1.06	.93	2.02	3.91	.97
2	65		3.20	1.48	9.02	2.01	1.19	1.06	.92	1.98	4.43	1.06
2	66		3.09	1.46	8.50	1.97	1.17	1.05	.90	1.95	5.08	1.16
2	67		2.97	1.46	7.96	1.94	1.15	1.05	.89	1.91	5.90	1.27
2	68		2.84	1.44	7.38	1.90	1.13	1.04	.88	1.88	7.05	1.41
2	69		2.72	1.41	6.79	1.87	1.12	1.04	.86	1.85	8.74	1.61
2	70		2.60	1.41	6.22	1.83	1.10	1.03	.85	1.83	11.26	1.89
2	71		2.49	1.39	5.72	1.79	1.08	1.03	.84	1.80	15.09	2.31
2	72		2.39	1.35	5.26	1.75	1.07	1.02	.83	1.77	21.53	2.99
2	73		2.28	1.32	4.83	1.71	1.05	1.02	.83	1.74	35.67	4.45
2	74		2.17	1.32	4.42	1.66	1.04	1.01	.82	1.71	102.82	11.41
2	76		1.82	1.27	3.60	1.57	1.02	1.01	.81	1.66	-49.16	-4.12

FLIGHT MACH NO. 0.7

2	77	MAX CO	4.28	1.62	13.75	2.25	1.39	1.11	1.04	2.26	1.91	.62
2	78	MAX CL	4.28	1.62	13.75	2.25	1.39	1.11	1.04	2.26	1.91	.62
2	79	MAX CR	4.11	1.59	13.01	2.22	1.36	1.10	1.01	2.21	2.12	.67
2	80		3.87	1.56	11.95	2.17	1.31	1.09	.96	2.14	2.51	.75
2	81		3.75	1.56	11.42	2.14	1.29	1.09	.94	2.10	2.76	.81
2	82		3.63	1.53	10.87	2.11	1.27	1.08	.92	2.06	3.06	.87
2	83		3.50	1.51	10.31	2.08	1.25	1.07	.90	2.02	3.43	.94
2	84		3.38	1.51	9.75	2.05	1.22	1.07	.89	1.99	3.91	1.03
2	85		3.26	1.48	9.23	2.02	1.20	1.06	.87	1.95	4.47	1.13
2	86		3.15	1.48	8.72	1.99	1.18	1.06	.85	1.92	5.17	1.25
2	87		3.04	1.46	8.22	1.95	1.16	1.05	.84	1.88	6.03	1.39

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. 0.										
1 88	T/O	17137	.336	5750	24919	19564	3535	9307	817	5.18
1 89	MAX CO	16111	.330	5320	23428	18485	3445	9190	793	5.19
1 90	MAX CL	16111	.330	5320	23428	18485	3445	9190	793	5.19
1 91	MAX CR	15220	.325	4940	22132	17561	3362	9101	773	5.22
1 92		13803	.317	4376	20071	16067	3228	8972	738	5.28
1 93		12969	.313	4064	18859	15179	3150	8895	717	5.31
1 94		12096	.310	3755	17588	14237	3065	8814	693	5.35
1 95		11189	.308	3449	16270	13240	2972	8724	667	5.39
1 96		10318	.306	3157	15003	12274	2874	8633	641	5.44
1 97		9516	.304	2890	13837	11376	2777	8545	617	5.49
1 98		8752	.302	2642	12727	10509	2679	8456	593	5.53
1 99		7983	.301	2406	11608	9622	2572	8365	567	5.56
1 100		7225	.303	2188	10506	8730	2449	8269	540	5.56
1 101		6498	.305	1982	9449	7867	2326	8167	513	5.56
1 102		5821	.307	1787	8464	7068	2215	8058	486	5.58
1 103		5152	.310	1596	7492	6277	2109	7936	457	5.60
1 104		4447	.315	1403	6467	5445	1997	7782	425	5.66
1 105		3714	.326	1210	5400	4575	1871	7593	388	5.75
1 106		3063	.339	1040	4453	3794	1731	7408	353	5.84
1 107		2523	.354	894	3669	3139	1579	7234	320	5.90
1 108		2019	.376	758	2935	2520	1406	7016	286	5.99
FLIGHT MACH NO. .15										
1 110	T/O	14667	.396	5801	21327	16576	3532	9292	819	5.21
1 111	MAX CO	13709	.391	5362	19935	15584	3441	9176	795	5.23
1 112	MAX CL	13709	.391	5362	19935	15584	3441	9176	795	5.23
1 113	MAX CR	12875	.386	4975	18722	14731	3357	9089	775	5.26
1 114		11560	.381	4406	16809	13361	3222	8962	740	5.32
1 115		10790	.379	4090	15690	12549	3143	8885	719	5.37
1 116		9987	.378	3777	14522	11694	3057	8803	696	5.41
1 117		9163	.379	3469	13324	10798	2962	8714	671	5.46
1 118		8385	.379	3178	12192	9944	2864	8624	646	5.51
1 119		7665	.380	2909	11145	9145	2768	8537	622	5.57
1 120		6975	.381	2659	10142	8367	2670	8448	598	5.61
1 121		6291	.385	2422	9148	7584	2562	8357	573	5.65
1 122		5630	.391	2202	8187	6811	2441	8262	547	5.68
1 123		5002	.399	1996	7274	6072	2322	8162	521	5.69
1 124		4420	.407	1799	6427	5392	2214	8053	496	5.73
1 125		3848	.418	1608	5595	4721	2109	7932	469	5.78
1 126		3249	.435	1413	4724	4016	1996	7779	438	5.87
1 127		2638	.463	1221	3836	3293	1867	7595	403	6.00
1 128		2104	.500	1051	3059	2651	1722	7414	369	6.13
1 129		1670	.543	906	2428	2125	1568	7246	338	6.24
1 130		1280	.604	772	1861	1644	1394	7043	307	6.41

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT MACH NO. 0

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 88	T/O	5.69	1.74	18.82	2.52	1.58	1.16	1.43	2.75	.80	.27
2 89	MAX CO	5.36	1.71	17.97	2.48	1.54	1.15	1.40	2.68	.84	.28
2 90	MAX CL	5.36	1.71	17.97	2.48	1.54	1.15	1.40	2.68	.84	.28
2 91	MAX CR	5.11	1.71	17.18	2.44	1.51	1.14	1.36	2.62	.88	.29
2 92		4.78	1.65	15.93	2.38	1.46	1.13	1.32	2.53	.95	.30
2 93		4.60	1.65	15.20	2.34	1.43	1.12	1.29	2.48	1.00	.31
2 94		4.41	1.62	14.43	2.31	1.41	1.12	1.26	2.44	1.05	.32
2 95		4.21	1.59	13.62	2.27	1.37	1.11	1.23	2.40	1.11	.33
2 96		4.03	1.59	12.83	2.24	1.34	1.10	1.21	2.36	1.18	.34
2 97		3.86	1.56	12.09	2.20	1.32	1.09	1.19	2.32	1.25	.36
2 98		3.70	1.53	11.39	2.16	1.29	1.08	1.17	2.28	1.32	.37
2 99		3.54	1.51	10.70	2.12	1.26	1.08	1.15	2.24	1.40	.38
2 100		3.39	1.51	10.04	2.08	1.24	1.07	1.13	2.20	1.48	.39
2 101		3.25	1.48	9.40	2.04	1.21	1.06	1.12	2.16	1.57	.40
2 102		3.10	1.46	8.75	2.00	1.19	1.06	1.10	2.12	1.66	.42
2 103		2.95	1.44	8.09	1.96	1.17	1.05	1.09	2.09	1.77	.43
2 104		2.78	1.41	7.34	1.91	1.14	1.05	1.08	2.06	1.89	.44
2 105		2.60	1.39	6.52	1.86	1.12	1.04	1.06	2.04	2.03	.45
2 106		2.44	1.35	5.76	1.80	1.10	1.03	1.05	2.02	2.18	.45
2 107		2.29	1.32	5.11	1.74	1.08	1.03	1.04	2.00	2.31	.46
2 108		2.11	1.29	4.45	1.68	1.07	1.02	1.03	1.99	2.46	.47

FLIGHT MACH NO. .15

2 110	T/O	5.65	1.74	18.73	2.51	1.57	1.16	1.42	2.74	.94	.31
2 111	MAX CO	5.32	1.71	17.87	2.47	1.54	1.15	1.38	2.67	1.00	.33
2 112	MAX CL	5.32	1.71	17.87	2.47	1.54	1.15	1.38	2.67	1.00	.33
2 113	MAX CR	5.08	1.68	17.07	2.43	1.51	1.14	1.35	2.60	1.05	.34
2 114		4.75	1.65	15.83	2.37	1.46	1.13	1.30	2.52	1.15	.36
2 115		4.57	1.65	15.09	2.34	1.43	1.12	1.27	2.47	1.21	.38
2 116		4.39	1.62	14.32	2.30	1.40	1.11	1.24	2.42	1.29	.39
2 117		4.19	1.59	13.52	2.27	1.37	1.11	1.22	2.38	1.38	.41
2 118		4.01	1.56	12.74	2.23	1.34	1.10	1.19	2.34	1.47	.43
2 119		3.85	1.56	12.02	2.19	1.31	1.09	1.17	2.30	1.57	.44
2 120		3.69	1.53	11.32	2.16	1.29	1.08	1.15	2.26	1.68	.46
2 121		3.53	1.51	10.64	2.12	1.26	1.08	1.13	2.22	1.81	.48
2 122		3.38	1.48	9.99	2.08	1.23	1.07	1.12	2.19	1.95	.51
2 123		3.24	1.48	9.35	2.04	1.21	1.06	1.10	2.15	2.10	.53
2 124		3.09	1.46	8.71	2.00	1.19	1.06	1.09	2.11	2.28	.55
2 125		2.95	1.44	8.05	1.96	1.16	1.05	1.08	2.08	2.47	.58
2 126		2.77	1.41	7.31	1.91	1.14	1.04	1.06	2.05	2.73	.61
2 127		2.60	1.39	6.51	1.86	1.12	1.04	1.05	2.03	3.06	.64
2 128		2.45	1.35	5.77	1.80	1.10	1.03	1.03	2.01	3.46	.68
2 129		2.30	1.32	5.14	1.74	1.08	1.03	1.02	1.98	3.90	.72
2 130		2.13	1.29	4.51	1.68	1.06	1.02	1.02	1.97	4.47	.76

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. .3										
1 132	T/O	12913	.460	5946	18776	14476	3519	9244	820	5.28
1 133	MAX CO	12035	.457	5494	17500	13606	3431	9140	800	5.32
1 134	MAX CL	12035	.457	5494	17500	13606	3431	9140	800	5.32
1 135	MAX CR	11214	.453	5083	16306	12786	3343	9056	780	5.38
1 136		9948	.452	4492	14465	11483	3204	8930	746	5.46
1 137		9212	.452	4166	13395	10713	3121	8853	725	5.51
1 138		8454	.454	3841	12293	9920	3031	8769	703	5.58
1 139		7705	.458	3528	11204	9116	2934	8682	680	5.65
1 140		7010	.462	3236	10194	8366	2837	8597	657	5.72
1 141		6352	.466	2962	9237	7648	2744	8509	634	5.79
1 142		5733	.473	2710	8336	6958	2646	8424	612	5.85
1 143		5126	.482	2469	7454	6266	2541	8336	589	5.92
1 144		4545	.494	2246	6609	5598	2427	8242	567	5.98
1 145		3999	.509	2034	5816	4967	2319	8141	544	6.05
1 146		3495	.525	1833	5082	4383	2218	8034	522	6.15
1 147		2998	.546	1638	4360	3806	2116	7914	498	6.27
1 148		2481	.580	1440	3608	3196	2001	7764	471	6.44
1 149		1971	.634	1251	2866	2589	1870	7594	441	6.66
1 150		1529	.707	1082	2223	2056	1722	7425	413	6.91
1 151		1184	.794	939	1721	1634	1570	7276	388	7.15
FLIGHT MACH NO. .45										
1 153	T/O	11690	.529	6184	16998	13038	3493	9176	819	5.37
1 154	MAX CO	10827	.526	5695	15744	12222	3404	9085	801	5.45
1 155	MAX CL	10827	.526	5695	15744	12222	3404	9085	801	5.45
1 156	MAX CR	9999	.525	5254	14540	11414	3312	9004	781	5.53
1 157		8747	.529	4630	12719	10143	3171	8876	750	5.65
1 158		8032	.534	4287	11680	9407	3083	8799	730	5.72
1 159		7312	.540	3947	10632	8663	2989	8714	710	5.82
1 160		6625	.547	3625	9634	7955	2894	8630	690	5.92
1 161		5995	.556	3332	8717	7275	2802	8551	670	6.01
1 162		5412	.565	3058	7870	6652	2713	8469	652	6.11
1 163		4842	.577	2795	7040	6026	2618	8385	632	6.21
1 164		4285	.594	2545	6231	5407	2519	8296	612	6.32
1 165		3765	.615	2316	5475	4811	2418	8205	591	6.41
1 166		3280	.639	2097	4770	4258	2324	8107	572	6.53
1 167		2835	.666	1889	4122	3752	2236	8002	553	6.69
1 168		2389	.705	1684	3474	3239	2142	7879	533	6.90
1 169		1936	.766	1482	2815	2702	2033	7736	511	7.18
1 170		1495	.864	1293	2174	2172	1906	7580	487	7.52
1 171		1118	1.008	1127	1626	1709	1766	7434	466	7.87
1 172		823	1.195	984	1197	1345	1630	7299	447	8.25
1 173		571	1.496	854	830	1026	1493	7149	429	8.70
1 174		350	2.093	732	509	739	1354	6953	412	9.32

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT MACH NO. .3

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 132	T/O	5.52	1.74	18.43	2.50	1.56	1.15	1.38	2.69	1.08	.36
2 133	MAX CO	5.23	1.71	17.58	2.45	1.53	1.15	1.34	2.62	1.15	.38
2 134	MAX CL	5.23	1.71	17.58	2.45	1.53	1.15	1.34	2.62	1.15	.38
2 135	MAX CR	5.00	1.68	16.76	2.41	1.50	1.14	1.31	2.56	1.23	.40
2 136		4.68	1.65	15.51	2.36	1.45	1.12	1.26	2.48	1.36	.43
2 137		4.50	1.62	14.78	2.32	1.42	1.12	1.23	2.43	1.45	.45
2 138		4.31	1.62	14.01	2.29	1.39	1.11	1.20	2.38	1.57	.47
2 139		4.13	1.59	13.23	2.25	1.36	1.10	1.17	2.34	1.69	.50
2 140		3.96	1.56	12.50	2.22	1.33	1.09	1.15	2.30	1.83	.52
2 141		3.80	1.56	11.78	2.18	1.30	1.09	1.13	2.26	1.98	.55
2 142		3.65	1.53	11.12	2.14	1.28	1.08	1.11	2.22	2.15	.58
2 143		3.50	1.51	10.46	2.11	1.25	1.07	1.09	2.18	2.34	.61
2 144		3.35	1.48	9.83	2.07	1.22	1.07	1.07	2.15	2.58	.65
2 145		3.21	1.48	9.20	2.03	1.20	1.06	1.06	2.11	2.84	.69
2 146		3.07	1.46	8.58	1.99	1.18	1.05	1.05	2.07	3.15	.73
2 147		2.93	1.44	7.93	1.95	1.16	1.05	1.03	2.04	3.53	.77
2 148		2.76	1.41	7.21	1.90	1.13	1.04	1.02	2.01	4.06	.83
2 149		2.60	1.39	6.47	1.85	1.11	1.03	1.00	1.98	4.82	.91
2 150		2.45	1.35	5.77	1.80	1.09	1.03	.99	1.96	5.81	1.00
2 151		2.32	1.32	5.19	1.75	1.07	1.02	.98	1.94	7.03	1.10

FLIGHT MACH NO. .45

2 153	T/O	5.34	1.71	17.94	2.47	1.54	1.15	1.31	2.62	1.21	.41
2 154	MAX CO	5.09	1.71	17.07	2.42	1.51	1.14	1.27	2.55	1.30	.43
2 155	MAX CL	5.09	1.71	17.07	2.42	1.51	1.14	1.27	2.55	1.30	.43
2 156	MAX CR	4.87	1.68	16.23	2.39	1.48	1.13	1.24	2.49	1.40	.45
2 157		4.56	1.65	14.99	2.33	1.42	1.12	1.19	2.41	1.59	.50
2 158		4.39	1.62	14.26	2.30	1.39	1.11	1.16	2.36	1.72	.53
2 159		4.20	1.59	13.50	2.26	1.37	1.10	1.13	2.32	1.87	.56
2 160		4.03	1.59	12.76	2.23	1.34	1.10	1.10	2.28	2.05	.59
2 161		3.88	1.56	12.09	2.19	1.31	1.09	1.08	2.24	2.24	.63
2 162		3.73	1.53	11.44	2.16	1.28	1.08	1.06	2.20	2.45	.67
2 163		3.58	1.53	10.79	2.12	1.26	1.08	1.04	2.16	2.70	.71
2 164		3.44	1.51	10.15	2.09	1.23	1.07	1.02	2.12	3.00	.76
2 165		3.31	1.48	9.55	2.05	1.21	1.06	1.01	2.08	3.36	.82
2 166		3.17	1.48	8.96	2.01	1.19	1.06	.99	2.04	3.78	.88
2 167		3.04	1.46	8.36	1.97	1.17	1.05	.98	2.01	4.29	.94
2 168		2.90	1.44	7.72	1.93	1.15	1.04	.96	1.97	4.97	1.02
2 169		2.75	1.41	7.04	1.89	1.13	1.04	.95	1.95	5.98	1.13
2 170		2.60	1.39	6.35	1.84	1.10	1.03	.94	1.92	7.49	1.29
2 171		2.47	1.35	5.74	1.80	1.08	1.03	.92	1.89	9.69	1.50
2 172		2.35	1.35	5.21	1.75	1.07	1.02	.92	1.86	12.76	1.77
2 173		2.22	1.32	4.70	1.70	1.05	1.02	.91	1.84	17.81	2.20
2 174		2.06	1.29	4.18	1.65	1.04	1.01	.90	1.81	28.12	3.00

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. 0.6										
1 179	MAX CO	9923	.599	5945	14429	11242	3353	9006	794	5.61
1 180	MAX CL	9923	.599	5945	14429	11242	3353	9006	794	5.61
1 181	MAX CR	9073	.604	5477	13193	10418	3261	8929	775	5.70
1 182		7835	.614	4814	11393	9192	3120	8800	745	5.85
1 183		7122	.624	4444	10357	8469	3028	8720	729	5.97
1 184		6448	.635	4093	9377	7787	2936	8641	711	6.08
1 185		5814	.648	3771	8455	7132	2850	8566	695	6.20
1 186		5243	.662	3471	7624	6544	2767	8489	679	6.32
1 187		4705	.677	3186	6842	5981	2681	8411	663	6.44
1 188		4157	.700	2908	6045	5393	2591	8327	647	6.59
1 189		3634	.729	2648	5285	4815	2501	8241	629	6.74
1 190		3149	.764	2406	4579	4272	2417	8151	613	6.89
1 191		2704	.805	2178	3931	3774	2338	8055	597	7.08
1 192		2288	.856	1959	3328	3302	2261	7951	581	7.30
1 193		1878	.928	1742	2731	2829	2178	7826	564	7.59
1 194		1474	1.042	1535	2143	2350	2083	7692	546	7.95
1 195		1107	1.215	1346	1610	1907	1976	7554	528	8.36
1 196		793	1.490	1182	1153	1517	1858	7430	512	8.77
1 197		525	1.973	1036	763	1179	1742	7309	497	9.21
1 198		279	3.239	904	406	859	1628	7177	483	9.71
FLIGHT MACH NO. 0.7										
1 21	MAX CO	9459	.649	6143	13754	10771	3306	8947	785	5.72
1 22	MAX CL	9459	.649	6143	13754	10771	3306	8947	785	5.72
1 23	MAX CR	8589	.658	5648	12489	9941	3217	8864	767	5.83
1 24		7338	.675	4951	10671	8727	3074	8735	739	6.01
1 25		6653	.687	4572	9674	8044	2986	8659	724	6.13
1 26		5992	.704	4216	8713	7366	2899	8585	708	6.26
1 27		5412	.719	3889	7869	6787	2820	8512	692	6.37
1 28		4873	.736	3586	7086	6236	2741	8440	680	6.50
1 29		4326	.760	3286	6290	5675	2658	8360	666	6.67
1 30		3783	.792	2998	5501	5095	2573	8278	651	6.84
1 31		3269	.834	2728	4754	4533	2491	8193	636	7.01
1 32		2801	.885	2479	4073	4016	2415	8105	622	7.20
1 33		2371	.946	2243	3447	3537	2344	8012	608	7.41
1 34		1956	1.028	2010	2844	3065	2271	7902	594	7.68
1 35		1557	1.146	1785	2264	2603	2196	7779	579	8.02
1 36		1183	1.331	1575	1721	2159	2115	7652	564	8.43
1 37		854	1.624	1387	1242	1759	2025	7531	549	8.84
1 38		574	2.129	1223	835	1409	1927	7421	536	9.27
1 39		312	3.439	1075	454	1074	1818	7309	524	9.74
1 40		66	14.164	939	96	748	1715	7187	511	10.23
1 41		-210	-3.863	815	-306	363	1603	7048	495	10.73
1 42		-529	-1.323	701	-770	-94	1488	6850	476	11.24

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT MACH NO. 0.6

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 179	MAX CO	4.89	1.68	16.28	2.38	1.49	1.14	1.19	2.46	1.43	.48
2 180	MAX CL	4.89	1.68	16.28	2.38	1.49	1.14	1.19	2.46	1.43	.48
2 181	MAX CR	4.69	1.65	15.48	2.35	1.45	1.13	1.15	2.41	1.56	.51
2 182		4.40	1.62	14.27	2.29	1.40	1.11	1.10	2.32	1.80	.57
2 183		4.22	1.62	13.54	2.26	1.37	1.11	1.07	2.28	1.98	.61
2 184		4.06	1.59	12.84	2.23	1.34	1.10	1.04	2.24	2.18	.65
2 185		3.92	1.56	12.19	2.19	1.31	1.09	1.02	2.20	2.41	.70
2 186		3.78	1.56	11.57	2.16	1.29	1.09	.99	2.15	2.66	.75
2 187		3.64	1.53	10.96	2.13	1.27	1.08	.97	2.11	2.94	.81
2 188		3.50	1.51	10.34	2.09	1.24	1.07	.95	2.07	3.30	.87
2 189		3.36	1.51	9.74	2.06	1.22	1.07	.94	2.04	3.75	.95
2 190		3.24	1.48	9.17	2.03	1.20	1.06	.92	2.00	4.29	1.04
2 191		3.11	1.46	8.60	1.99	1.17	1.05	.91	1.96	4.95	1.13
2 192		2.99	1.46	8.03	1.95	1.16	1.05	.89	1.92	5.79	1.25
2 193		2.85	1.44	7.42	1.92	1.14	1.04	.88	1.89	6.96	1.40
2 194		2.72	1.41	6.79	1.88	1.12	1.04	.86	1.86	8.75	1.61
2 195		2.59	1.41	6.19	1.83	1.10	1.03	.85	1.83	11.46	1.91
2 196		2.48	1.39	5.65	1.79	1.08	1.02	.84	1.81	15.75	2.38
2 197		2.37	1.35	5.17	1.75	1.06	1.02	.83	1.77	23.44	3.18
2 198		2.26	1.32	4.71	1.70	1.05	1.02	.82	1.74	43.44	5.24

FLIGHT MACH NO. 0.7

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 21	MAX CO	4.74	1.68	15.67	2.35	1.47	1.13	1.12	2.40	1.50	.51
2 22	MAX CL	4.74	1.68	15.67	2.35	1.47	1.13	1.12	2.40	1.50	.51
2 23	MAX CR	4.54	1.65	14.86	2.32	1.43	1.12	1.08	2.34	1.66	.55
2 24		4.26	1.62	13.67	2.26	1.38	1.11	1.03	2.26	1.94	.62
2 25		4.11	1.59	12.99	2.23	1.35	1.10	1.00	2.22	2.13	.67
2 26		3.96	1.56	12.34	2.20	1.33	1.10	.98	2.17	2.37	.72
2 27		3.83	1.56	11.73	2.17	1.30	1.09	.95	2.13	2.61	.78
2 28		3.70	1.53	11.17	2.14	1.28	1.08	.93	2.09	2.89	.84
2 29		3.57	1.53	10.57	2.10	1.26	1.08	.91	2.05	3.26	.91
2 30		3.43	1.51	9.97	2.07	1.23	1.07	.89	2.01	3.71	.99
2 31		3.30	1.48	9.40	2.04	1.21	1.06	.87	1.97	4.28	1.10
2 32		3.18	1.48	8.86	2.01	1.19	1.06	.86	1.93	4.97	1.22
2 33		3.07	1.46	8.33	1.97	1.17	1.05	.84	1.90	5.84	1.36
2 34		2.94	1.46	7.75	1.94	1.15	1.05	.83	1.86	7.04	1.53
2 35		2.82	1.44	7.16	1.90	1.13	1.04	.81	1.83	8.77	1.78
2 36		2.70	1.41	6.58	1.86	1.11	1.03	.80	1.80	11.46	2.13
2 37		2.59	1.41	6.04	1.82	1.09	1.03	.79	1.77	15.73	2.66
2 38		2.48	1.39	5.57	1.78	1.08	1.02	.78	1.74	23.20	3.58
2 39		2.38	1.35	5.12	1.74	1.06	1.02	.77	1.71	42.36	5.89
2 40		2.27	1.35	4.70	1.70	1.05	1.02	.76	1.67	197.56	24.63
2 41		2.16	1.32	4.29	1.66	1.03	1.01	.76	1.64	-61.24	-6.79
2 42		2.00	1.29	3.88	1.61	1.01	1.01	.75	1.61	-23.91	-2.33

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT CASE		RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. 0.8											
1	46	MAX CO	9055	.703	6361	13167	10366	3249	8877	773	5.83
1	47	MAX CL	9055	.703	6361	13167	10366	3249	8877	773	5.83
1	48	MAX CR	8194	.713	5843	11916	9568	3164	8793	755	5.95
1	49		6956	.735	5114	10114	8394	3022	8667	730	6.15
1	50		6288	.752	4728	9144	7748	2941	8597	716	6.28
1	51		5666	.771	4368	8239	7134	2864	8526	702	6.41
1	52		5099	.791	4033	7415	6563	2788	8454	690	6.54
1	53		4559	.814	3711	6629	6023	2711	8380	678	6.69
1	54		4013	.846	3397	5835	5467	2631	8302	665	6.87
1	55		3471	.892	3097	5048	4896	2552	8222	651	7.06
1	56		2975	.948	2820	4326	4363	2477	8139	638	7.24
1	57		2520	1.016	2559	3664	3867	2407	8051	624	7.44
1	58		2077	1.111	2308	3020	3373	2340	7955	612	7.70
1	59		1654	1.248	2063	2405	2891	2272	7845	600	8.02
1	60		1264	1.450	1833	1838	2436	2206	7729	587	8.39
1	61		910	1.782	1622	1323	2013	2137	7613	575	8.80
1	62		602	2.378	1432	876	1635	2062	7504	563	9.24
1	63		340	3.728	1267	494	1304	1981	7406	552	9.65
1	64		89	12.463	1115	130	982	1888	7302	542	10.13
1	65		-181	-5.366	975	-263	613	1779	7188	529	10.59
1	66		-548	-1.541	846	-798	93	1671	7058	511	10.99
FLIGHT MACH NO. .82											
1	68	MAX CO	8977	.713	6404	13053	10305	3238	8860	770	5.86
1	69	MAX CL	8977	.713	6404	13053	10305	3238	8860	770	5.86
1	70	MAX CR	8109	.725	5878	11792	9507	3152	8775	753	5.99
1	71		6888	.747	5149	10017	8342	3011	8653	728	6.18
1	72		6222	.765	4759	9048	7705	2932	8582	714	6.32
1	73		5613	.784	4403	8162	7095	2856	8514	701	6.43
1	74		5047	.805	4063	7338	6536	2781	8442	689	6.57
1	75		4504	.830	3737	6549	5994	2704	8368	677	6.73
1	76		3958	.864	3420	5756	5439	2625	8290	664	6.91
1	77		3418	.912	3118	4970	4871	2548	8210	650	7.09
1	78		2919	.973	2839	4244	4333	2474	8127	638	7.29
1	79		2461	1.047	2576	3579	3837	2406	8040	625	7.50
1	80		2026	1.146	2321	2946	3355	2338	7942	612	7.75
1	81		1601	1.295	2074	2329	2871	2271	7832	600	8.08
1	82		1209	1.525	1843	1757	2411	2207	7718	588	8.46
1	83		863	1.891	1632	1255	1996	2139	7605	576	8.87
1	84		558	2.586	1442	811	1621	2066	7499	564	9.29
1	85		295	4.319	1276	429	1291	1988	7402	554	9.71
1	86		45	24.761	1122	66	968	1897	7299	544	10.18
1	87		-240	-4.066	982	-350	577	1788	7187	531	10.64
1	88		-615	-1.385	853	-894	44	1683	7059	513	11.04

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT MACH NO. 0.8

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	46	MAX CO	4.58	1.65	14.97	2.32	1.45	1.13	1.05	2.33	1.57	.54
2	47	MAX CL	4.58	1.65	14.97	2.32	1.45	1.13	1.05	2.33	1.57	.54
2	48	MAX CR	4.39	1.62	14.20	2.28	1.41	1.12	1.02	2.27	1.74	.59
2	49		4.13	1.59	13.05	2.23	1.37	1.11	.96	2.19	2.05	.67
2	50		3.99	1.59	12.43	2.20	1.34	1.10	.94	2.15	2.27	.72
2	51		3.86	1.56	11.83	2.17	1.31	1.09	.91	2.10	2.51	.78
2	52		3.74	1.56	11.28	2.14	1.29	1.09	.89	2.06	2.79	.85
2	53		3.61	1.53	10.72	2.11	1.27	1.08	.87	2.02	3.12	.92
2	54		3.48	1.51	10.14	2.08	1.25	1.07	.85	1.98	3.54	1.01
2	55		3.36	1.51	9.58	2.05	1.22	1.07	.83	1.94	4.09	1.12
2	56		3.24	1.48	9.04	2.01	1.20	1.06	.81	1.90	4.76	1.26
2	57		3.12	1.48	8.52	1.98	1.18	1.06	.79	1.86	5.60	1.41
2	58		3.01	1.46	7.99	1.95	1.16	1.05	.78	1.83	6.79	1.62
2	59		2.89	1.46	7.44	1.92	1.14	1.04	.76	1.80	8.51	1.91
2	60		2.78	1.44	6.89	1.88	1.12	1.04	.75	1.76	11.10	2.31
2	61		2.67	1.41	6.36	1.84	1.10	1.03	.74	1.73	15.38	2.95
2	62		2.57	1.41	5.88	1.81	1.09	1.03	.73	1.70	23.15	4.08
2	63		2.48	1.39	5.45	1.77	1.07	1.02	.72	1.67	40.87	6.61
2	64		2.39	1.35	5.04	1.73	1.06	1.02	.71	1.64	154.81	22.75
2	65		2.28	1.35	4.65	1.69	1.04	1.02	.70	1.60	-75.70	-10.06
2	66		2.17	1.32	4.27	1.66	1.02	1.01	.70	1.57	-24.77	-2.95

FLIGHT MACH NO. .82

2	68	MAX CO	4.54	1.65	14.81	2.31	1.44	1.12	1.04	2.31	1.59	.55
2	69	MAX CL	4.54	1.65	14.81	2.31	1.44	1.12	1.04	2.31	1.59	.55
2	70	MAX CR	4.36	1.62	14.03	2.27	1.41	1.12	1.00	2.26	1.76	.59
2	71		4.10	1.59	12.92	2.22	1.36	1.11	.95	2.18	2.07	.68
2	72		3.97	1.59	12.30	2.19	1.34	1.10	.92	2.13	2.29	.74
2	73		3.84	1.56	11.74	2.16	1.31	1.09	.90	2.09	2.54	.80
2	74		3.72	1.56	11.18	2.13	1.29	1.09	.88	2.05	2.82	.86
2	75		3.59	1.53	10.62	2.10	1.27	1.08	.86	2.00	3.16	.94
2	76		3.47	1.51	10.05	2.07	1.24	1.07	.83	1.96	3.59	1.03
2	77		3.34	1.51	9.49	2.04	1.22	1.07	.81	1.93	4.15	1.15
2	78		3.22	1.48	8.97	2.01	1.20	1.06	.80	1.89	4.87	1.29
2	79		3.11	1.48	8.45	1.98	1.18	1.06	.78	1.85	5.76	1.46
2	80		2.99	1.46	7.92	1.94	1.16	1.05	.76	1.81	6.96	1.68
2	81		2.87	1.46	7.37	1.91	1.14	1.04	.75	1.78	8.80	1.99
2	82		2.77	1.44	6.83	1.88	1.12	1.04	.74	1.75	11.66	2.44
2	83		2.67	1.41	6.32	1.84	1.10	1.03	.72	1.72	16.27	3.15
2	84		2.57	1.41	5.85	1.81	1.09	1.03	.71	1.69	25.10	4.47
2	85		2.48	1.39	5.43	1.77	1.07	1.02	.70	1.65	47.26	7.74
2	86		2.39	1.35	5.02	1.73	1.06	1.02	.70	1.62	307.12	45.78
2	87		2.28	1.35	4.64	1.69	1.04	1.02	.69	1.59	-57.34	-7.73
2	88		2.17	1.32	4.26	1.65	1.01	1.02	.68	1.56	-22.28	-2.70

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT CASE	MACH NO. .9 RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 93	MAX CO	8693	.758	6591	12641	10032	3186	8793	759	5.98
1 94	MAX CL	8693	.758	6591	12641	10032	3186	8793	759	5.98
1 95	MAX CR	7837	.772	6050	11396	9271	3101	8711	743	6.11
1 96		6636	.798	5295	9649	8166	2967	8592	720	6.32
1 97		5996	.818	4906	8720	7563	2895	8527	707	6.45
1 98		5415	.839	4541	7873	6998	2824	8459	695	6.56
1 99		4852	.863	4186	7056	6452	2751	8387	683	6.71
1 100		4300	.894	3844	6253	5907	2676	8313	672	6.89
1 101		3757	.936	3517	5463	5355	2601	8237	659	7.06
1 102		3229	.993	3206	4695	4810	2528	8158	647	7.26
1 103		2734	1.067	2918	3976	4282	2458	8077	635	7.46
1 104		2268	1.165	2642	3298	3783	2393	7987	623	7.70
1 105		1812	1.309	2372	2635	3276	2328	7884	612	8.00
1 106		1394	1.520	2119	2027	2801	2265	7779	600	8.34
1 107		1018	1.853	1886	1480	2358	2205	7674	589	8.70
1 108		679	2.463	1673	988	1952	2145	7571	579	9.10
1 109		388	3.826	1483	564	1595	2081	7476	569	9.50
1 110		138	9.513	1312	201	1280	2007	7384	558	9.90
1 112		-426	-2.362	1009	-620	516	1819	7180	538	10.81
1 113		-837	-1.044	875	-1217	-71	1725	7057	522	11.21
1 114		-1644	-.459	754	-2390	-1244	1557	6908	486	11.15
1 115		-2056	-.314	646	-2990	-1853	1439	6715	463	11.40
1 116		-2283	-.239	546	-3320	-2206	1347	6462	450	11.94

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 10000 FT. TAM 23.34F
STANDARD DAY TAM

FLIGHT MACH NO. .9

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 93	MAX CO	4.40	1.65	14.19	2.28	1.42	1.12	.98	2.25	1.64	.57
2 94	MAX CL	4.40	1.65	14.19	2.28	1.42	1.12	.98	2.25	1.64	.57
2 95	MAX CR	4.23	1.62	13.46	2.24	1.39	1.11	.95	2.20	1.82	.62
2 96		3.99	1.59	12.39	2.19	1.35	1.10	.90	2.12	2.15	.72
2 97		3.87	1.56	11.84	2.17	1.32	1.10	.87	2.07	2.38	.78
2 98		3.75	1.56	11.31	2.14	1.30	1.09	.85	2.03	2.63	.84
2 99		3.63	1.53	10.77	2.11	1.28	1.08	.83	1.99	2.93	.92
2 100		3.51	1.53	10.22	2.08	1.26	1.08	.80	1.95	3.31	1.01
2 101		3.39	1.51	9.68	2.05	1.24	1.07	.78	1.91	3.79	1.12
2 102		3.27	1.51	9.15	2.02	1.22	1.07	.76	1.87	4.40	1.26
2 103		3.16	1.48	8.65	1.99	1.19	1.06	.75	1.83	5.20	1.43
2 104		3.05	1.46	8.14	1.96	1.17	1.05	.73	1.79	6.27	1.64
2 105		2.94	1.46	7.61	1.92	1.15	1.05	.71	1.76	7.85	1.95
2 106		2.83	1.44	7.09	1.89	1.13	1.04	.70	1.73	10.19	2.38
2 107		2.73	1.44	6.60	1.86	1.12	1.04	.68	1.69	13.95	3.04
2 108		2.64	1.41	6.13	1.83	1.10	1.03	.67	1.66	20.90	4.23
2 109		2.56	1.41	5.71	1.79	1.08	1.03	.66	1.63	36.56	6.87
2 110		2.47	1.39	5.31	1.76	1.07	1.02	.65	1.60	102.30	17.80
2 112		2.28	1.35	4.57	1.69	1.04	1.02	.64	1.53	-32.99	-4.78
2 113		2.18	1.32	4.21	1.65	1.01	1.02	.63	1.50	-16.77	-2.19
2 114		2.05	1.29	3.88	1.61	.95	1.01	.63	1.47	-8.42	-.99
2 115		1.90	1.27	3.56	1.57	.92	1.01	.62	1.43	-6.63	-.70
2 116		1.73	1.25	3.25	1.53	.90	1.01	.62	1.40	-5.92	-.55

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

FLIGHT MACH NO. .3

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 117	MAX CO	9431	.447	4213	20524	15673	3639	9421	848	5.24
1 118	MAX CL	9431	.447	4213	20524	15673	3639	9421	848	5.24
1 119	MAX CR	8885	.443	3933	19335	14872	3557	9305	830	5.27
1 120		8045	.438	3521	17506	13620	3432	9150	800	5.33
1 121		7556	.435	3285	16441	12891	3354	9073	782	5.38
1 122		7042	.434	3053	15325	12101	3268	8997	762	5.43
1 123		6534	.433	2830	14219	11319	3186	8919	742	5.48
1 124		6004	.435	2609	13066	10481	3095	8836	719	5.53
1 125		5465	.438	2391	11891	9622	2996	8746	694	5.60
1 126		4936	.442	2180	10741	8776	2890	8650	670	5.69
1 127		4453	.446	1986	9689	7994	2789	8558	645	5.77
1 128		4003	.452	1810	8710	7239	2687	8469	622	5.83
1 129		3561	.461	1641	7748	6496	2577	8373	597	5.90
1 130		3138	.473	1484	6828	5768	2457	8274	573	5.97

FLIGHT MACH NO. .45

1 131	MAX CO	8622	.510	4395	18761	14217	3611	9337	845	5.31
1 132	MAX CL	8622	.510	4395	18761	14217	3611	9337	845	5.31
1 133	MAX CR	8056	.508	4091	17532	13409	3530	9226	827	5.36
1 134		7243	.504	3651	15761	12251	3407	9092	801	5.46
1 135		6747	.504	3399	14683	11521	3324	9021	784	5.53
1 136		6237	.505	3151	13571	10759	3239	8943	764	5.60
1 137		5733	.509	2916	12476	9977	3152	8865	745	5.67
1 138		5222	.514	2684	11363	9187	3056	8781	724	5.75
1 139		4715	.521	2455	10259	8399	2954	8690	702	5.86
1 140		4241	.529	2245	9230	7654	2853	8603	681	5.96
1 141		3801	.539	2049	8272	6950	2757	8516	660	6.06
1 142		3391	.550	1866	7380	6283	2658	8426	640	6.17
1 143		2988	.566	1692	6503	5612	2553	8334	618	6.28
1 144		2606	.587	1529	5670	4967	2445	8236	596	6.40
1 145		2254	.612	1379	4906	4364	2342	8134	575	6.52
1 146		1933	.639	1236	4206	3815	2248	8023	555	6.68
1 147		1616	.678	1096	3517	3268	2148	7894	534	6.90
1 148		1286	.743	955	2799	2685	2030	7738	510	7.21
1 149		970	.850	824	2110	2115	1891	7569	484	7.58
1 150		707	1.007	712	1538	1631	1739	7413	461	7.97
1 151		502	1.225	615	1093	1252	1593	7265	442	8.40
1 152		327	1.613	527	711	917	1445	7094	423	8.93
1 153		176	2.514	443	383	620	1292	6819	404	9.76

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
FLIGHT MACH NO. .3											
2 117	MAX CO	6.04	1.77	19.58	2.57	1.61	1.17	1.43	2.80	1.00	.34
2 118	MAX CL	6.04	1.77	19.58	2.57	1.61	1.17	1.43	2.80	1.00	.34
2 119	MAX CR	5.69	1.74	18.82	2.53	1.58	1.16	1.39	2.73	1.05	.35
2 120		5.25	1.71	17.61	2.47	1.53	1.15	1.34	2.63	1.15	.38
2 121		5.04	1.68	16.88	2.44	1.50	1.14	1.31	2.58	1.22	.39
2 122		4.84	1.68	16.12	2.40	1.47	1.13	1.28	2.52	1.30	.41
2 123		4.65	1.65	15.36	2.36	1.44	1.12	1.25	2.47	1.38	.43
2 124		4.46	1.62	14.57	2.33	1.41	1.12	1.22	2.42	1.49	.45
2 125		4.26	1.59	13.75	2.29	1.38	1.11	1.19	2.38	1.61	.48
2 126		4.06	1.59	12.91	2.25	1.34	1.10	1.16	2.33	1.75	.51
2 127		3.89	1.56	12.13	2.21	1.31	1.09	1.14	2.29	1.90	.54
2 128		3.72	1.53	11.41	2.17	1.29	1.08	1.12	2.25	2.07	.57
2 129		3.55	1.51	10.69	2.13	1.26	1.08	1.10	2.21	2.27	.60
2 130		3.40	1.51	10.00	2.09	1.23	1.07	1.08	2.17	2.51	.64
FLIGHT MACH NO. .45											
2 131	MAX CO	5.80	1.77	19.11	2.54	1.59	1.16	1.37	2.73	1.10	.38
2 132	MAX CL	5.80	1.77	19.11	2.54	1.59	1.16	1.37	2.73	1.10	.38
2 133	MAX CR	5.48	1.74	18.31	2.50	1.56	1.15	1.33	2.66	1.17	.40
2 134		5.11	1.71	17.10	2.44	1.51	1.14	1.27	2.56	1.30	.43
2 135		4.91	1.68	16.35	2.41	1.48	1.13	1.24	2.51	1.39	.45
2 136		4.71	1.65	15.58	2.37	1.45	1.13	1.21	2.46	1.49	.48
2 137		4.53	1.65	14.83	2.34	1.42	1.12	1.18	2.41	1.62	.50
2 138		4.34	1.62	14.05	2.30	1.39	1.11	1.15	2.36	1.76	.54
2 139		4.15	1.59	13.24	2.26	1.35	1.10	1.12	2.31	1.93	.57
2 140		3.97	1.56	12.48	2.23	1.32	1.09	1.09	2.27	2.12	.61
2 141		3.82	1.56	11.76	2.19	1.30	1.09	1.07	2.23	2.34	.65
2 142		3.65	1.53	11.07	2.15	1.27	1.08	1.05	2.18	2.59	.69
2 143		3.50	1.51	10.38	2.11	1.24	1.07	1.03	2.14	2.89	.74
2 144		3.35	1.48	9.71	2.07	1.22	1.06	1.01	2.10	3.26	.80
2 145		3.21	1.48	9.08	2.03	1.19	1.06	.99	2.06	3.69	.87
2 146		3.07	1.46	8.45	1.99	1.17	1.05	.98	2.02	4.21	.93
2 147		2.91	1.44	7.77	1.95	1.15	1.04	.96	1.99	4.92	1.02
2 148		2.75	1.41	7.02	1.90	1.12	1.04	.95	1.96	6.00	1.14
2 149		2.59	1.39	6.28	1.85	1.10	1.03	.93	1.93	7.69	1.31
2 150		2.45	1.35	5.63	1.80	1.08	1.03	.92	1.90	10.18	1.54
2 151		2.32	1.32	5.06	1.75	1.06	1.02	.91	1.87	13.84	1.86
2 152		2.17	1.32	4.51	1.69	1.05	1.02	.90	1.85	20.54	2.41
2 153		1.96	1.27	3.93	1.63	1.04	1.01	.90	1.83	36.74	3.62

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

FLIGHT MACH NO. 0.6

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 154	MAX CO	8062	.575	4635	17544	13216	3564	9230	836	5.40
1 155	MAX CL	8062	.575	4635	17544	13216	3564	9230	836	5.40
1 156	MAX CR	7513	.574	4312	16350	12470	3489	9141	821	5.46
1 157		6646	.574	3815	14462	11274	3357	9016	794	5.61
1 158		6130	.578	3542	13339	10533	3273	8945	778	5.70
1 159		5628	.583	3283	12247	9791	3191	8868	760	5.78
1 160		5123	.591	3030	11148	9030	3099	8787	741	5.88
1 161		4623	.602	2781	10060	8273	3001	8702	723	6.01
1 162		4145	.614	2546	9019	7541	2903	8617	705	6.14
1 163		3709	.629	2333	8071	6869	2813	8537	688	6.27
1 164		3320	.643	2135	7224	6262	2724	8454	671	6.40
1 165		2929	.664	1943	6373	5635	2628	8368	654	6.54
1 166		2546	.691	1760	5539	5007	2531	8277	635	6.70
1 167		2190	.727	1591	4765	4413	2439	8181	617	6.86
1 168		1866	.768	1433	4060	3867	2353	8082	600	7.04
1 169		1566	.818	1282	3409	3363	2271	7970	583	7.29
1 170		1274	.890	1134	2771	2858	2183	7840	565	7.59
1 171		982	1.009	990	2136	2341	2081	7694	546	7.98
1 172		720	1.196	860	1566	1865	1965	7546	527	8.42
1 173		496	1.509	748	1080	1448	1835	7414	509	8.87
1 174		310	2.096	650	674	1095	1712	7281	493	9.36
1 175		133	4.203	561	290	748	1587	7134	477	9.92

FLIGHT MACH NO. 0.7

1 179	MAX CO	7818	.618	4831	17013	12771	3522	9160	827	5.45
1 180	MAX CL	7818	.618	4831	17013	12771	3522	9160	827	5.45
1 181	MAX CR	7243	.618	4475	15762	12025	3445	9077	812	5.55
1 182		6336	.622	3943	13788	10793	3308	8956	785	5.72
1 183		5813	.629	3658	12649	10054	3229	8883	769	5.81
1 184		5302	.638	3383	11537	9317	3147	8804	752	5.92
1 185		4794	.650	3115	10432	8570	3054	8722	735	6.04
1 186		4311	.664	2862	9381	7849	2960	8642	719	6.18
1 187		3859	.681	2628	8398	7151	2870	8566	702	6.30
1 188		3456	.698	2411	7520	6541	2786	8487	687	6.43
1 189		3072	.718	2206	6685	5956	2700	8406	673	6.59
1 190		2679	.748	2004	5830	5337	2608	8319	658	6.77
1 191		2301	.789	1814	5006	4721	2518	8230	641	6.96
1 192		1956	.838	1639	4257	4152	2435	8135	626	7.16
1 193		1641	.900	1476	3570	3625	2359	8037	611	7.38
1 194		1343	.980	1316	2923	3125	2281	7923	596	7.66
1 195		1058	1.098	1162	2302	2629	2200	7793	580	8.01
1 196		792	1.284	1017	1724	2158	2113	7658	563	8.43
1 197		556	1.597	888	1210	1726	2016	7526	548	8.90

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

FLIGHT CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
FLIGHT MACH NO. 0.6											
2 154	MAX CO	5.50	1.74	18.40	2.50	1.57	1.16	1.29	2.64	1.18	.41
2 155	MAX CL	5.50	1.74	18.40	2.50	1.57	1.16	1.29	2.64	1.18	.41
2 156	MAX CR	5.25	1.71	17.63	2.46	1.54	1.15	1.25	2.57	1.26	.43
2 157		4.91	1.68	16.33	2.40	1.49	1.14	1.19	2.47	1.43	.48
2 158		4.72	1.68	15.59	2.37	1.46	1.13	1.15	2.42	1.55	.51
2 159		4.55	1.65	14.86	2.33	1.43	1.12	1.12	2.37	1.68	.54
2 160		4.37	1.62	14.11	2.30	1.39	1.11	1.09	2.32	1.84	.58
2 161		4.18	1.59	13.35	2.26	1.36	1.10	1.06	2.27	2.03	.62
2 162		4.01	1.59	12.59	2.23	1.33	1.10	1.03	2.23	2.26	.67
2 163		3.86	1.56	11.91	2.19	1.30	1.09	1.01	2.18	2.51	.72
2 164		3.72	1.53	11.26	2.16	1.28	1.08	.98	2.14	2.80	.78
2 165		3.57	1.53	10.61	2.12	1.25	1.08	.96	2.10	3.15	.84
2 166		3.42	1.51	9.95	2.08	1.23	1.07	.94	2.06	3.59	.92
2 167		3.28	1.48	9.33	2.05	1.20	1.06	.92	2.02	4.13	1.01
2 168		3.15	1.48	8.73	2.01	1.18	1.05	.91	1.98	4.80	1.11
2 169		3.01	1.46	8.11	1.97	1.16	1.05	.89	1.94	5.66	1.23
2 170		2.87	1.44	7.46	1.93	1.14	1.04	.88	1.91	6.86	1.39
2 171		2.72	1.41	6.78	1.88	1.11	1.04	.86	1.88	8.77	1.61
2 172		2.58	1.41	6.13	1.84	1.09	1.03	.85	1.85	11.76	1.94
2 173		2.46	1.39	5.56	1.79	1.08	1.02	.84	1.81	16.77	2.49
2 174		2.34	1.35	5.05	1.74	1.06	1.02	.83	1.78	26.41	3.48
2 175		2.22	1.32	4.56	1.70	1.04	1.02	.82	1.75	60.29	6.98
FLIGHT MACH NO. 0.7											
2 179	MAX CO	5.31	1.74	17.82	2.46	1.55	1.15	1.23	2.57	1.22	.43
2 180	MAX CL	5.31	1.74	17.82	2.46	1.55	1.15	1.23	2.57	1.22	.43
2 181	MAX CR	5.09	1.71	17.01	2.43	1.52	1.14	1.19	2.50	1.31	.46
2 182		4.76	1.68	15.71	2.37	1.47	1.13	1.12	2.41	1.50	.51
2 183		4.58	1.65	14.99	2.34	1.44	1.12	1.09	2.35	1.63	.54
2 184		4.41	1.62	14.26	2.30	1.41	1.12	1.05	2.30	1.79	.59
2 185		4.23	1.62	13.52	2.27	1.38	1.11	1.02	2.26	1.98	.63
2 186		4.07	1.59	12.80	2.24	1.35	1.10	.99	2.21	2.20	.68
2 187		3.92	1.56	12.14	2.20	1.32	1.09	.97	2.16	2.45	.74
2 188		3.78	1.56	11.50	2.17	1.29	1.09	.94	2.12	2.73	.80
2 189		3.64	1.53	10.88	2.13	1.27	1.08	.92	2.07	3.07	.87
2 190		3.49	1.51	10.23	2.10	1.24	1.07	.90	2.03	3.51	.95
2 191		3.35	1.51	9.61	2.06	1.22	1.07	.88	1.99	4.07	1.06
2 192		3.22	1.48	9.01	2.03	1.19	1.06	.86	1.95	4.76	1.18
2 193		3.10	1.48	8.44	1.99	1.17	1.05	.85	1.91	5.65	1.32
2 194		2.96	1.46	7.83	1.95	1.15	1.05	.83	1.88	6.85	1.51
2 195		2.83	1.44	7.21	1.91	1.13	1.04	.82	1.84	8.63	1.75
2 196		2.70	1.41	6.58	1.87	1.11	1.03	.80	1.81	11.42	2.12
2 197		2.58	1.41	6.00	1.83	1.09	1.03	.79	1.78	16.12	2.71

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

FLIGHT CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. 0.8										
1 203	MAX CO	7616	.661	5035	16574	12401	3466	9084	815	5.54
1 204	MAX CL	7616	.661	5035	16574	12401	3466	9084	815	5.54
1 205	MAX CR	7008	.663	4644	15249	11656	3387	9008	800	5.65
1 206		6064	.673	4082	13196	10408	3253	8885	773	5.84
1 207		5544	.682	3782	12063	9680	3176	8809	758	5.94
1 208		5033	.694	3494	10952	8956	3091	8731	742	6.06
1 209		4544	.709	3220	9889	8253	3004	8656	727	6.19
1 210		4073	.727	2961	8863	7563	2918	8581	712	6.32
1 211		3642	.747	2722	7925	6921	2836	8505	698	6.46
1 212		3250	.769	2499	7072	6331	2755	8429	684	6.61
1 213		2859	.797	2280	6221	5743	2671	8346	671	6.79
1 214		2471	.838	2071	5377	5137	2585	8262	657	6.98
1 215		2100	.893	1875	4569	4540	2502	8173	642	7.19
1 216		1769	.958	1694	3849	4006	2425	8082	627	7.39
1 217		1451	1.049	1522	3157	3473	2354	7982	615	7.65
1 218		1144	1.182	1352	2490	2955	2281	7866	601	7.99
1 219		862	1.384	1193	1876	2464	2210	7742	588	8.38
1 220		609	1.720	1048	1325	2010	2137	7618	574	8.83
1 221		390	2.355	918	849	1608	2055	7501	562	9.29
1 222		204	3.956	805	443	1254	1966	7395	550	9.75
1 223		25	27.783	701	55	907	1860	7279	539	10.28
1 224		-192	-3.145	607	-419	456	1744	7154	524	10.76
1 225		-458	-1.135	521	-997	-109	1633	7001	504	11.23
FLIGHT MACH NO. .82										
1 228	MAX CO	7584	.670	5079	16503	12342	3454	9071	813	5.56
1 229	MAX CL	7584	.670	5079	16503	12342	3454	9071	813	5.56
1 230	MAX CR	6963	.672	4679	15152	11588	3374	8993	797	5.68
1 231		6016	.683	4111	13090	10336	3241	8870	771	5.86
1 232		5491	.693	3806	11948	9618	3164	8792	755	5.97
1 233		4986	.706	3518	10850	8901	3080	8716	740	6.09
1 234		4496	.721	3240	9784	8209	2994	8640	725	6.23
1 235		4029	.740	2982	8768	7519	2909	8568	710	6.36
1 236		3606	.761	2743	7847	6890	2829	8493	697	6.50
1 237		3215	.783	2517	6996	6303	2748	8416	684	6.65
1 238		2823	.813	2295	6143	5717	2665	8333	670	6.83
1 239		2435	.857	2086	5298	5110	2580	8249	656	7.02
1 240		2065	.914	1888	4494	4518	2499	8162	642	7.23
1 241		1727	.987	1705	3758	3965	2424	8070	629	7.46
1 242		1413	1.082	1529	3076	3452	2351	7967	614	7.71
1 243		1110	1.225	1359	2415	2935	2279	7853	601	8.05
1 244		827	1.450	1200	1800	2440	2210	7730	588	8.46
1 245		578	1.823	1054	1258	1997	2138	7609	575	8.89

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

FLIGHT MACH NO. 0.8

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 203	MAX CO	5.11	1.71	17.10	2.42	1.53	1.15	1.17	2.49	1.25	.44
2 204	MAX CL	5.11	1.71	17.10	2.42	1.53	1.15	1.17	2.49	1.25	.44
2 205	MAX CR	4.91	1.68	16.28	2.39	1.50	1.14	1.12	2.43	1.36	.48
2 206		4.59	1.65	15.01	2.33	1.45	1.13	1.05	2.33	1.57	.54
2 207		4.43	1.65	14.30	2.30	1.42	1.12	1.02	2.28	1.72	.58
2 208		4.26	1.62	13.61	2.27	1.39	1.11	.99	2.23	1.89	.63
2 209		4.11	1.59	12.92	2.24	1.36	1.10	.96	2.19	2.09	.68
2 210		3.96	1.59	12.26	2.21	1.33	1.10	.93	2.14	2.33	.74
2 211		3.82	1.56	11.63	2.17	1.31	1.09	.90	2.09	2.61	.81
2 212		3.69	1.53	11.05	2.14	1.28	1.08	.88	2.05	2.92	.88
2 213		3.55	1.53	10.43	2.11	1.26	1.08	.86	2.00	3.32	.96
2 214		3.42	1.51	9.82	2.07	1.23	1.07	.84	1.96	3.84	1.07
2 215		3.28	1.48	9.23	2.04	1.21	1.06	.82	1.92	4.51	1.21
2 216		3.16	1.48	8.67	2.00	1.19	1.06	.80	1.88	5.33	1.36
2 217		3.04	1.46	8.11	1.97	1.16	1.05	.78	1.85	6.49	1.57
2 218		2.91	1.46	7.52	1.93	1.14	1.05	.76	1.81	8.22	1.86
2 219		2.79	1.44	6.93	1.89	1.12	1.04	.75	1.78	10.88	2.27
2 220		2.67	1.41	6.36	1.85	1.10	1.03	.74	1.74	15.35	2.94
2 221		2.57	1.41	5.84	1.81	1.08	1.03	.73	1.71	23.88	4.17
2 222		2.47	1.39	5.39	1.77	1.07	1.02	.72	1.67	45.56	7.26
2 223		2.36	1.35	4.94	1.73	1.05	1.02	.71	1.64	365.71	52.42
2 224		2.25	1.35	4.52	1.69	1.03	1.02	.70	1.61	-47.44	-6.09
2 225		2.12	1.32	4.11	1.65	1.01	1.01	.69	1.57	-19.74	-2.24

FLIGHT MACH NO. .82

2 228	MAX CO	5.08	1.71	16.96	2.42	1.53	1.15	1.16	2.48	1.26	.44
2 229	MAX CL	5.08	1.71	16.96	2.42	1.53	1.15	1.16	2.48	1.26	.44
2 230	MAX CR	4.87	1.68	16.12	2.38	1.50	1.14	1.11	2.41	1.37	.48
2 231		4.56	1.65	14.86	2.33	1.44	1.13	1.04	2.32	1.58	.55
2 232		4.39	1.62	14.15	2.29	1.42	1.12	1.00	2.27	1.73	.59
2 233		4.23	1.62	13.47	2.26	1.39	1.11	.97	2.22	1.91	.64
2 234		4.08	1.59	12.78	2.23	1.36	1.10	.94	2.17	2.12	.69
2 235		3.94	1.59	12.14	2.20	1.33	1.10	.91	2.12	2.36	.75
2 236		3.80	1.56	11.54	2.17	1.30	1.09	.89	2.08	2.64	.82
2 237		3.67	1.53	10.95	2.13	1.28	1.08	.87	2.03	2.96	.89
2 238		3.53	1.53	10.34	2.10	1.26	1.08	.84	1.99	3.37	.98
2 239		3.40	1.51	9.73	2.07	1.23	1.07	.82	1.95	3.90	1.10
2 240		3.27	1.48	9.16	2.03	1.21	1.06	.80	1.91	4.59	1.24
2 241		3.15	1.48	8.60	2.00	1.18	1.06	.78	1.87	5.49	1.41
2 242		3.02	1.46	8.03	1.96	1.16	1.05	.77	1.83	6.67	1.63
2 243		2.90	1.46	7.45	1.93	1.14	1.04	.75	1.80	8.49	1.93
2 244		2.78	1.44	6.87	1.89	1.12	1.04	.74	1.76	11.38	2.40
2 245		2.67	1.41	6.31	1.85	1.10	1.03	.72	1.73	16.22	3.14

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

FLIGHT CASE	MACH NO. 0.9 RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 252	MAX CO	7435	.706	5246	16179	12116	3401	9008	802	5.66
1 253	MAX CL	7435	.706	5246	16179	12116	3401	9008	802	5.66
1 254	MAX CR	6780	.711	4819	14754	11296	3315	8927	786	5.80
1 255		5821	.726	4229	12666	10076	3190	8801	760	5.98
1 256		5306	.738	3918	11547	9384	3114	8728	745	6.09
1 257		4809	.752	3619	10465	8694	3032	8655	731	6.22
1 258		4336	.770	3338	9436	8038	2951	8585	717	6.35
1 259		3889	.791	3076	8462	7388	2873	8513	704	6.48
1 260		3476	.814	2830	7563	6797	2798	8439	691	6.63
1 261		3082	.841	2592	6707	6220	2719	8361	679	6.80
1 262		2691	.878	2363	5856	5633	2638	8280	665	6.98
1 263		2305	.930	2145	5016	5038	2558	8198	652	7.18
1 264		1940	1.001	1942	4221	4463	2483	8112	640	7.41
1 265		1605	1.092	1752	3492	3927	2412	8019	627	7.64
1 266		1271	1.231	1564	2765	3373	2342	7911	614	7.96
1 267		972	1.430	1390	2116	2865	2274	7802	602	8.29
1 268		697	1.763	1228	1516	2382	2210	7687	590	8.70
1 269		455	2.377	1081	990	1949	2145	7576	579	9.13
1 270		250	3.810	951	543	1569	2075	7474	568	9.56
1 271		68	12.340	835	147	1225	1997	7374	558	10.01
1 272		-104	-6.914	728	-228	883	1903	7267	547	10.50
1 273		-360	-1.743	629	-785	349	1788	7148	533	10.98
1 274		-873	-.618	540	-1902	-761	1631	7012	501	11.07
1 275		-1234	-.372	459	-2687	-1553	1499	6827	474	11.31

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 20000 FT. TAM -12.32F
STANDARD DAY TAM

FLIGHT MACH NO. 0.9

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 252	MAX CO	4.91	1.68	16.30	2.38	1.51	1.14	1.10	2.41	1.28	.46
2 253	MAX CL	4.91	1.68	16.30	2.38	1.51	1.14	1.10	2.41	1.28	.46
2 254	MAX CR	4.70	1.68	15.44	2.35	1.47	1.13	1.05	2.35	1.41	.50
2 255		4.41	1.65	14.23	2.29	1.43	1.12	.98	2.26	1.64	.57
2 256		4.26	1.62	13.57	2.26	1.40	1.11	.95	2.21	1.79	.62
2 257		4.11	1.59	12.92	2.23	1.37	1.11	.92	2.16	1.98	.67
2 258		3.97	1.59	12.29	2.20	1.34	1.10	.89	2.11	2.19	.73
2 259		3.84	1.56	11.69	2.17	1.32	1.09	.86	2.07	2.45	.80
2 260		3.72	1.56	11.12	2.14	1.29	1.09	.84	2.02	2.74	.87
2 261		3.59	1.53	10.54	2.11	1.27	1.08	.81	1.97	3.09	.95
2 262		3.46	1.51	9.95	2.08	1.25	1.07	.79	1.93	3.53	1.06
2 263		3.33	1.51	9.38	2.04	1.22	1.07	.77	1.89	4.12	1.19
2 264		3.21	1.48	8.83	2.01	1.20	1.06	.75	1.85	4.91	1.36
2 265		3.09	1.48	8.29	1.98	1.18	1.06	.73	1.81	5.92	1.57
2 266		2.96	1.46	7.72	1.94	1.16	1.05	.72	1.77	7.48	1.88
2 267		2.85	1.46	7.18	1.91	1.14	1.04	.70	1.74	9.76	2.30
2 268		2.74	1.44	6.64	1.87	1.12	1.04	.69	1.71	13.63	2.98
2 269		2.64	1.41	6.13	1.84	1.10	1.03	.67	1.67	20.85	4.22
2 270		2.55	1.41	5.68	1.80	1.08	1.03	.66	1.64	37.90	7.07
2 271		2.46	1.39	5.26	1.76	1.07	1.02	.65	1.60	139.55	23.91
2 272		2.36	1.35	4.85	1.72	1.05	1.02	.64	1.57	-89.47	-13.96
2 273		2.25	1.35	4.46	1.68	1.03	1.02	.64	1.53	-26.06	-3.65
2 274		2.13	1.32	4.08	1.64	.98	1.02	.63	1.50	-10.65	-1.34
2 275		1.98	1.29	3.72	1.60	.94	1.01	.62	1.47	-7.43	-.83

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -47.98F
STANDARD DAY TAM

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. .3										
1 277	MAX CO	6847	.440	3016	23057	17320	3818	9592	881	5.16
1 278	MAX CL	6847	.440	3016	23057	17320	3818	9592	881	5.16
1 279	MAX CR	6666	.437	2915	22446	16920	3777	9580	873	5.18
1 280		6151	.428	2634	20713	15811	3654	9463	850	5.24
1 281		5841	.424	2477	19670	15117	3580	9350	835	5.28
1 282		5503	.422	2322	18530	14331	3505	9247	816	5.30
1 283		5181	.419	2170	17448	13591	3430	9158	799	5.34
1 284		4843	.416	2016	16309	12800	3344	9075	779	5.39
1 285		4488	.415	1864	15113	11961	3254	8992	758	5.44
1 286		4132	.416	1717	13916	11103	3164	8907	735	5.50
1 287		3764	.418	1573	12676	10195	3064	8817	710	5.56
1 288		3384	.422	1428	11397	9260	2952	8714	684	5.65
1 289		3033	.427	1294	10213	8379	2840	8613	657	5.73
1 290		2708	.433	1171	9119	7552	2731	8517	631	5.81
1 291		2398	.441	1057	8074	6744	2616	8416	605	5.88
1 292		2095	.453	949	7055	5949	2489	8308	578	5.97
1 293		1812	.469	849	6101	5188	2358	8194	551	6.04
1 294		1556	.486	757	5241	4502	2241	8074	526	6.15
1 295		1307	.510	666	4402	3832	2123	7936	498	6.29
FLIGHT MACH NO. .45										
1 296	MAX CO	6437	.501	3228	21677	16013	3818	9594	883	5.19
1 297	MAX CL	6437	.501	3228	21677	16013	3818	9594	883	5.19
1 298	MAX CR	6141	.496	3049	20678	15408	3751	9575	871	5.23
1 299		5638	.488	2750	18985	14379	3627	9373	849	5.32
1 300		5307	.486	2580	17871	13645	3554	9268	831	5.35
1 301		4987	.484	2416	16793	12931	3482	9179	816	5.40
1 302		4670	.482	2253	15725	12229	3405	9103	801	5.47
1 303		4321	.482	2084	14550	11443	3316	9020	782	5.55
1 304		3971	.485	1925	13374	10617	3224	8940	761	5.62
1 305		3620	.489	1769	12190	9782	3129	8852	740	5.70
1 306		3262	.495	1616	10986	8917	3022	8758	716	5.80
1 307		2917	.503	1468	9823	8092	2913	8662	693	5.91
1 308		2597	.513	1333	8745	7298	2806	8568	670	6.02
1 309		2307	.524	1209	7768	6570	2702	8476	649	6.13
1 310		2021	.539	1090	6806	5840	2590	8376	625	6.26
1 311		1747	.560	979	5883	5125	2473	8271	602	6.38
1 312		1494	.586	876	5032	4459	2360	8159	578	6.51
1 313		1268	.615	781	4271	3860	2257	8043	556	6.68
1 314		1048	.655	686	3528	3273	2150	7903	533	6.92
1 315		816	.725	592	2747	2638	2021	7732	507	7.27
1 316		595	.848	505	2005	2021	1867	7548	480	7.68
1 317		420	1.026	431	1415	1522	1702	7381	456	8.12

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -47.98F
STANDARD DAY TAM

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
FLIGHT MACH NO. .3											
2 277	MAX CO	6.60	1.82	21.32	2.69	1.68	1.18	1.51	2.98	.89	.31
2 278	MAX CL	6.60	1.82	21.32	2.69	1.68	1.18	1.51	2.98	.89	.31
2 279	MAX CR	6.57	1.82	20.93	2.67	1.66	1.18	1.49	2.94	.91	.32
2 280		6.18	1.80	19.75	2.60	1.61	1.17	1.43	2.82	.99	.33
2 281		5.82	1.77	19.05	2.56	1.59	1.16	1.40	2.76	1.04	.35
2 282		5.52	1.74	18.33	2.53	1.56	1.15	1.37	2.70	1.09	.36
2 283		5.27	1.71	17.60	2.49	1.53	1.15	1.33	2.64	1.16	.38
2 284		5.04	1.68	16.81	2.45	1.50	1.14	1.30	2.58	1.23	.39
2 285		4.82	1.68	15.99	2.41	1.46	1.13	1.27	2.52	1.31	.41
2 286		4.62	1.65	15.17	2.37	1.43	1.12	1.24	2.47	1.41	.44
2 287		4.41	1.62	14.33	2.33	1.40	1.11	1.21	2.42	1.53	.46
2 288		4.19	1.59	13.40	2.29	1.36	1.10	1.18	2.37	1.67	.49
2 289		3.98	1.56	12.54	2.25	1.33	1.09	1.15	2.33	1.83	.52
2 290		3.81	1.56	11.73	2.20	1.30	1.09	1.12	2.28	2.00	.55
2 291		3.62	1.53	10.95	2.16	1.27	1.08	1.10	2.24	2.20	.59
2 292		3.45	1.51	10.18	2.11	1.24	1.07	1.08	2.20	2.45	.63
2 293		3.28	1.48	9.45	2.07	1.21	1.06	1.06	2.15	2.74	.67
2 294		3.12	1.46	8.73	2.02	1.18	1.06	1.05	2.11	3.07	.72
2 295		2.95	1.44	7.98	1.97	1.16	1.05	1.03	2.07	3.50	.77
FLIGHT MACH NO. .45											
2 296	MAX CO	6.62	1.82	21.14	2.67	1.67	1.18	1.47	2.93	.95	.33
2 297	MAX CL	6.62	1.82	21.14	2.67	1.67	1.18	1.47	2.93	.95	.33
2 298	MAX CR	6.57	1.82	20.47	2.64	1.64	1.18	1.43	2.87	1.00	.35
2 299		5.91	1.77	19.28	2.57	1.60	1.16	1.37	2.75	1.09	.37
2 300		5.59	1.74	18.56	2.53	1.57	1.16	1.34	2.69	1.15	.39
2 301		5.34	1.71	17.85	2.50	1.54	1.15	1.30	2.63	1.22	.41
2 302		5.13	1.71	17.11	2.46	1.51	1.14	1.27	2.57	1.30	.43
2 303		4.90	1.68	16.27	2.42	1.48	1.13	1.23	2.51	1.40	.45
2 304		4.70	1.65	15.48	2.38	1.44	1.12	1.20	2.46	1.52	.48
2 305		4.50	1.65	14.65	2.34	1.41	1.12	1.17	2.40	1.65	.51
2 306		4.29	1.62	13.79	2.30	1.38	1.11	1.14	2.35	1.82	.55
2 307		4.09	1.59	12.94	2.26	1.34	1.10	1.11	2.31	2.01	.59
2 308		3.90	1.56	12.14	2.22	1.31	1.09	1.08	2.26	2.23	.63
2 309		3.74	1.53	11.39	2.18	1.28	1.08	1.06	2.21	2.48	.6
2 310		3.56	1.51	10.62	2.14	1.25	1.07	1.03	2.17	2.78	.72
2 311		3.39	1.51	9.90	2.10	1.22	1.07	1.01	2.13	3.16	.78
2 312		3.24	1.48	9.19	2.05	1.20	1.06	1.00	2.09	3.60	.85
2 313		3.09	1.46	8.51	2.01	1.17	1.05	.98	2.05	4.16	.93
2 314		2.92	1.44	7.78	1.96	1.15	1.04	.96	2.01	4.91	1.02
2 315		2.74	1.41	6.96	1.91	1.12	1.04	.95	1.98	6.10	1.14
2 316		2.57	1.39	6.16	1.85	1.10	1.03	.93	1.95	8.04	1.34
2 317		2.42	1.35	5.47	1.80	1.08	1.02	.92	1.92	10.96	1.61

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -65.82F
STANDARD DAY TAM

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. .6										
1 321	MAX CO	6169	.559	3451	20774	15116	3773	9575	875	5.24
1 322	MAX CL	6169	.559	3451	20774	15116	3773	9575	875	5.24
1 323	MAX CR	5839	.554	3237	19664	14494	3702	9438	863	5.29
1 324		5282	.550	2903	17786	13382	3579	9261	839	5.39
1 325		4957	.549	2722	16692	12695	3512	9176	825	5.45
1 326		4634	.548	2541	15605	12005	3439	9101	811	5.52
1 327		4288	.549	2356	14439	11260	3355	9027	794	5.61
1 328		3929	.554	2176	13232	10460	3266	8949	776	5.71
1 329		3581	.560	2005	12059	9667	3177	8864	756	5.80
1 330		3228	.569	1838	10872	8835	3075	8775	737	5.92
1 331		2885	.581	1676	9715	8027	2969	8683	717	6.05
1 332		2561	.596	1526	8623	7256	2867	8594	698	6.19
1 333		2275	.611	1389	7659	6570	2770	8507	680	6.33
1 334		2004	.628	1260	6749	5915	2671	8415	661	6.49
1 335		1732	.655	1134	5831	5224	2566	8318	641	6.65
1 336		1476	.690	1019	4969	4569	2464	8215	621	6.83
1 337		1244	.733	912	4189	3963	2370	8109	602	7.02
1 338		1034	.784	811	3482	3414	2281	7991	584	7.27
1 339		826	.860	710	2782	2860	2185	7849	565	7.61
1 340		623	.985	614	2099	2303	2074	7691	544	8.04
1 341		442	1.194	528	1490	1794	1947	7531	523	8.54
FLIGHT MACH NO. .7										
1 345	MAX CO	6074	.596	3622	20453	14769	3731	9457	867	5.28
1 346	MAX CL	6074	.596	3622	20453	14769	3731	9457	867	5.28
1 347	MAX CR	5710	.592	3379	19230	14097	3653	9341	854	5.35
1 348		5126	.591	3028	17263	12939	3537	9187	830	5.45
1 349		4795	.591	2832	16146	12266	3470	9112	816	5.52
1 350		4447	.592	2631	14976	11563	3394	9039	801	5.62
1 351		4087	.595	2433	13763	10792	3308	8964	785	5.73
1 352		3725	.603	2246	12545	9995	3223	8885	767	5.83
1 353		3369	.613	2065	11346	9198	3132	8798	749	5.94
1 354		3019	.626	1890	10168	8396	3032	8710	731	6.08
1 355		2689	.642	1727	9055	7614	2931	8626	714	6.22
1 356		2387	.660	1575	8037	6900	2837	8544	695	6.35
1 357		2115	.679	1436	7122	6260	2746	8458	680	6.51
1 358		1843	.706	1300	6205	5607	2649	8366	664	6.70
1 359		1571	.744	1170	5291	4932	2550	8269	647	6.91
1 360		1325	.793	1051	4461	4304	2458	8169	630	7.12
1 361		1101	.854	940	3707	3725	2373	8065	613	7.35
1 362		891	.935	833	2999	3179	2290	7943	597	7.65
1 363		689	1.057	729	2321	2637	2203	7803	579	8.03
1 364		502	1.258	632	1691	2126	2109	7655	562	8.50
1 365		340	1.606	546	1145	1663	2003	7514	545	9.02

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -47.98F
STANDARD DAY TAM

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
FLIGHT MACH NO. .6											
2 321	MAX CO	6.58	1.82	20.54	2.63	1.65	1.18	1.41	2.85	1.00	.35
2 322	MAX CL	6.58	1.82	20.54	2.63	1.65	1.18	1.41	2.85	1.00	.35
2 323	MAX CR	6.13	1.80	19.82	2.59	1.62	1.17	1.36	2.77	1.05	.37
2 324		5.59	1.74	18.57	2.53	1.58	1.16	1.29	2.66	1.16	.40
2 325		5.35	1.74	17.87	2.49	1.55	1.15	1.26	2.60	1.24	.43
2 326		5.14	1.71	17.15	2.45	1.52	1.14	1.22	2.54	1.32	.45
2 327		4.93	1.68	16.35	2.42	1.49	1.14	1.18	2.48	1.43	.48
2 328		4.73	1.68	15.55	2.38	1.45	1.13	1.15	2.42	1.56	.51
2 329		4.53	1.65	14.75	2.34	1.42	1.12	1.11	2.37	1.70	.55
2 330		4.34	1.62	13.94	2.31	1.39	1.11	1.08	2.32	1.89	.59
2 331		4.14	1.59	13.11	2.27	1.35	1.10	1.05	2.27	2.10	.64
2 332		3.96	1.56	12.34	2.23	1.32	1.09	1.02	2.22	2.36	.69
2 333		3.80	1.56	11.62	2.19	1.29	1.09	.99	2.17	2.64	.75
2 334		3.64	1.53	10.91	2.15	1.26	1.08	.97	2.13	2.98	.81
2 335		3.48	1.51	10.19	2.11	1.24	1.07	.95	2.09	3.42	.89
2 336		3.32	1.48	9.50	2.07	1.21	1.06	.93	2.04	3.97	.98
2 337		3.18	1.48	8.84	2.03	1.18	1.06	.91	2.00	4.66	1.09
2 338		3.03	1.46	8.19	1.99	1.16	1.05	.89	1.96	5.54	1.21
2 339		2.88	1.44	7.47	1.94	1.14	1.04	.88	1.92	6.84	1.38
2 340		2.72	1.41	6.73	1.89	1.11	1.03	.86	1.89	8.91	1.62
2 341		2.57	1.39	6.03	1.84	1.09	1.03	.85	1.86	12.33	2.00
FLIGHT MACH NO. 0.7											
2 345	MAX CO	6.20	1.80	20.00	2.59	1.63	1.17	1.35	2.77	1.01	.36
2 346	MAX CL	6.20	1.80	20.00	2.59	1.63	1.17	1.35	2.77	1.01	.36
2 347	MAX CR	5.83	1.77	19.21	2.55	1.61	1.17	1.30	2.70	1.08	.38
2 348		5.39	1.74	18.00	2.49	1.56	1.15	1.23	2.59	1.20	.42
2 349		5.18	1.71	17.29	2.46	1.53	1.15	1.20	2.53	1.28	.45
2 350		4.98	1.71	16.52	2.42	1.50	1.14	1.16	2.47	1.38	.48
2 351		4.77	1.68	15.72	2.39	1.47	1.13	1.12	2.41	1.50	.51
2 352		4.58	1.65	14.94	2.35	1.44	1.12	1.08	2.36	1.65	.55
2 353		4.39	1.62	14.16	2.31	1.40	1.12	1.05	2.30	1.82	.59
2 354		4.20	1.62	13.36	2.28	1.37	1.11	1.01	2.25	2.03	.64
2 355		4.03	1.59	12.61	2.24	1.34	1.10	.99	2.20	2.28	.70
2 356		3.88	1.56	11.89	2.20	1.31	1.09	.96	2.16	2.55	.76
2 357		3.73	1.53	11.22	2.17	1.28	1.08	.93	2.11	2.88	.83
2 358		3.57	1.53	10.53	2.13	1.25	1.08	.91	2.06	3.30	.91
2 359		3.41	1.51	9.83	2.09	1.22	1.07	.89	2.02	3.85	1.02
2 360		3.27	1.48	9.18	2.05	1.20	1.06	.87	1.98	4.55	1.14
2 361		3.13	1.48	8.55	2.01	1.17	1.05	.85	1.94	5.44	1.29
2 362		2.98	1.46	7.90	1.97	1.15	1.05	.83	1.90	6.68	1.48
2 363		2.84	1.44	7.22	1.93	1.13	1.04	.82	1.86	8.56	1.74
2 364		2.70	1.41	6.54	1.88	1.11	1.03	.80	1.83	11.63	2.14
2 365		2.57	1.41	5.91	1.83	1.09	1.03	.79	1.80	17.02	2.81

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -47.98F
STANDARD DAY TAM

FLIGHT CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. 0.8										
1 370	MAX CO	6009	.633	3802	20234	14500	3673	9349	857	5.34
1 371	MAX CL	6009	.633	3802	20234	14500	3673	9349	857	5.34
1 372	MAX CR	5610	.631	3538	18893	13769	3596	9241	843	5.42
1 373		5009	.632	3164	16868	12579	3484	9115	819	5.52
1 374		4655	.633	2945	15675	11911	3414	9042	805	5.62
1 375		4286	.636	2727	14434	11185	3335	8969	790	5.74
1 376		3913	.644	2520	13176	10397	3252	8892	773	5.84
1 377		3550	.654	2322	11956	9614	3168	8809	756	5.96
1 378		3198	.667	2134	10769	8837	3077	8726	740	6.09
1 379		2860	.683	1953	9631	8091	2983	8644	724	6.24
1 380		2538	.704	1786	8546	7350	2891	8564	707	6.39
1 381		2251	.725	1633	7581	6680	2804	8483	692	6.53
1 382		1982	.750	1486	6675	6055	2715	8397	678	6.71
1 383		1711	.786	1344	5761	5413	2623	8307	663	6.91
1 384		1441	.839	1210	4854	4750	2532	8214	648	7.13
1 385		1203	.903	1087	4052	4149	2447	8117	631	7.34
1 386		980	.991	971	3301	3580	2369	8012	617	7.61
1 387		763	1.122	856	2569	3009	2290	7886	602	7.98
1 388		564	1.328	749	1899	2475	2212	7752	587	8.40
1 389		388	1.679	652	1308	1988	2133	7619	573	8.88
1 390		237	2.392	566	797	1556	2045	7493	560	9.40
FLIGHT MACH NO. .82										
1 395	MAX CO	5999	.640	3838	20201	14454	3659	9326	855	5.36
1 396	MAX CL	5999	.640	3838	20201	14454	3659	9326	855	5.36
1 397	MAX CR	5596	.639	3574	18845	13709	3585	9226	840	5.43
1 398		4988	.640	3191	16796	12530	3473	9099	816	5.54
1 399		4628	.641	2968	15585	11841	3401	9028	802	5.64
1 400		4256	.646	2748	14332	11114	3322	8954	787	5.76
1 401		3882	.654	2538	13073	10336	3241	8877	770	5.87
1 402		3519	.664	2338	11849	9561	3157	8794	754	5.99
1 403		3168	.678	2148	10667	8788	3066	8711	737	6.12
1 404		2833	.694	1967	9539	8046	2973	8631	722	6.27
1 405		2515	.715	1799	8470	7315	2883	8552	705	6.41
1 406		2229	.738	1645	7506	6653	2797	8470	691	6.56
1 407		1959	.764	1497	6595	6025	2709	8385	677	6.75
1 408		1687	.802	1353	5682	5381	2617	8295	662	6.95
1 409		1421	.858	1218	4784	4728	2528	8202	647	7.17
1 410		1178	.929	1094	3967	4118	2445	8104	632	7.41
1 411		956	1.021	976	3220	3555	2367	7997	617	7.68
1 412		741	1.163	861	2494	2991	2289	7874	602	8.03
1 413		541	1.394	753	1821	2449	2213	7741	588	8.47
1 414		365	1.798	656	1229	1962	2137	7612	575	8.95
1 415		218	2.610	570	736	1543	2050	7488	562	9.46

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -47.98F
STANDARD DAY TAM

FLIGHT MACH NO. .8

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 370	MAX CO	5.86	1.77	19.31	2.55	1.61	1.17	1.29	2.70	1.02	.37
2 371	MAX CL	5.86	1.77	19.31	2.55	1.61	1.17	1.29	2.70	1.02	.37
2 372	MAX CR	5.54	1.74	18.50	2.51	1.59	1.16	1.24	2.62	1.10	.39
2 373		5.19	1.71	17.33	2.45	1.54	1.15	1.18	2.52	1.23	.44
2 374		4.99	1.71	16.57	2.42	1.51	1.14	1.13	2.45	1.32	.46
2 375		4.80	1.68	15.79	2.38	1.48	1.13	1.09	2.40	1.43	.50
2 376		4.61	1.65	15.01	2.35	1.45	1.13	1.05	2.34	1.57	.54
2 377		4.42	1.65	14.25	2.32	1.42	1.12	1.01	2.29	1.73	.58
2 378		4.25	1.62	13.51	2.28	1.38	1.11	.98	2.23	1.92	.64
2 379		4.08	1.59	12.77	2.25	1.35	1.10	.95	2.18	2.15	.69
2 380		3.92	1.56	12.06	2.21	1.32	1.10	.92	2.13	2.42	.76
2 381		3.78	1.56	11.41	2.17	1.30	1.09	.89	2.09	2.73	.83
2 382		3.63	1.53	10.77	2.14	1.27	1.08	.87	2.04	3.10	.91
2 383		3.48	1.51	10.10	2.10	1.24	1.07	.84	1.99	3.58	1.02
2 384		3.34	1.51	9.45	2.06	1.22	1.07	.82	1.95	4.25	1.15
2 385		3.20	1.48	8.84	2.03	1.19	1.06	.80	1.91	5.07	1.31
2 386		3.07	1.46	8.23	1.99	1.17	1.05	.78	1.87	6.21	1.52
2 387		2.93	1.46	7.59	1.95	1.14	1.05	.77	1.83	7.97	1.81
2 388		2.79	1.44	6.94	1.91	1.12	1.04	.75	1.79	10.74	2.25
2 389		2.67	1.41	6.33	1.86	1.10	1.03	.74	1.76	15.55	2.96
2 390		2.56	1.41	5.78	1.82	1.08	1.03	.72	1.72	25.41	4.38
FLIGHT MACH NO. .82											
2 395	MAX CO	5.79	1.77	19.15	2.54	1.61	1.17	1.28	2.68	1.03	.37
2 396	MAX CL	5.79	1.77	19.15	2.54	1.61	1.17	1.28	2.68	1.03	.37
2 397	MAX CR	5.50	1.74	18.37	2.50	1.58	1.16	1.23	2.61	1.10	.39
2 398		5.15	1.71	17.18	2.44	1.53	1.15	1.16	2.50	1.23	.44
2 399		4.96	1.71	16.42	2.41	1.51	1.14	1.12	2.44	1.33	.47
2 400		4.76	1.68	15.63	2.38	1.48	1.13	1.08	2.38	1.44	.50
2 401		4.57	1.65	14.87	2.34	1.44	1.13	1.04	2.33	1.58	.55
2 402		4.39	1.62	14.11	2.31	1.41	1.12	1.00	2.27	1.75	.59
2 403		4.22	1.62	13.37	2.27	1.38	1.11	.97	2.22	1.94	.64
2 404		4.05	1.59	12.65	2.24	1.35	1.10	.93	2.17	2.17	.70
2 405		3.90	1.56	11.95	2.20	1.32	1.09	.91	2.12	2.44	.77
2 406		3.76	1.56	11.32	2.17	1.29	1.09	.88	2.07	2.76	.85
2 407		3.61	1.53	10.67	2.13	1.27	1.08	.86	2.02	3.14	.93
2 408		3.47	1.51	10.01	2.09	1.24	1.07	.83	1.98	3.64	1.04
2 409		3.32	1.51	9.37	2.06	1.21	1.07	.81	1.93	4.31	1.18
2 410		3.19	1.48	8.77	2.02	1.19	1.06	.79	1.89	5.20	1.35
2 411		3.05	1.46	8.15	1.98	1.17	1.05	.77	1.85	6.38	1.57
2 412		2.92	1.46	7.52	1.94	1.14	1.05	.75	1.81	8.22	1.89
2 413		2.79	1.44	6.89	1.90	1.12	1.04	.74	1.78	11.25	2.37
2 414		2.67	1.41	6.29	1.86	1.10	1.03	.72	1.74	16.62	3.20
2 415		2.56	1.41	5.75	1.82	1.08	1.03	.71	1.71	27.65	4.82

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -47.98F
STANDARD DAY TAM

FLIGHT MACH NO. 0.9

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 420	MAX CO	5962	.671	3998	20076	14291	3607	9242	845	5.42
1 421	MAX CL	5962	.671	3998	20076	14291	3607	9242	845	5.42
1 422	MAX CR	5544	.671	3721	18670	13505	3537	9155	830	5.49
1 423		4896	.674	3298	16487	12313	3420	9032	805	5.64
1 424		4518	.677	3060	15213	11577	3344	8963	791	5.75
1 425		4132	.685	2830	13913	10820	3266	8889	775	5.86
1 426		3759	.695	2613	12658	10074	3190	8809	760	5.99
1 427		3401	.708	2407	11452	9326	3107	8729	744	6.11
1 428		3057	.723	2211	10296	8590	3019	8652	729	6.25
1 429		2729	.743	2026	9189	7876	2932	8575	714	6.40
1 430		2427	.765	1857	8172	7203	2850	8498	699	6.54
1 431		2145	.790	1695	7223	6569	2767	8415	686	6.70
1 432		1873	.823	1540	6306	5939	2680	8330	672	6.90
1 433		1602	.869	1392	5394	5306	2593	8242	658	7.11
1 434		1342	.934	1254	4518	4679	2510	8151	644	7.34
1 435		1101	1.022	1125	3708	4076	2432	8055	630	7.59
1 436		868	1.152	1000	2923	3488	2356	7943	616	7.90
1 437		653	1.349	881	2199	2922	2282	7820	603	8.29
1 438		459	1.681	772	1547	2398	2213	7698	590	8.71
1 439		288	2.337	674	971	1922	2143	7578	578	9.19
1 440		146	4.027	588	491	1514	2067	7467	566	9.66
1 441		23	21.888	511	79	1154	1979	7359	555	10.15
1 442		-114	-3.841	440	-385	723	1872	7239	543	10.71

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 30000 FT. TAM -47.98F
STANDARD DAY TAM

FLIGHT MACH NO. 0.9

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 420	MAX CO	5.55	1.74	18.53	2.51	1.59	1.16	1.23	2.61	1.03	.38
2 421	MAX CL	5.55	1.74	18.53	2.51	1.59	1.16	1.23	2.61	1.03	.38
2 422	MAX CR	5.31	1.74	17.77	2.47	1.56	1.15	1.18	2.54	1.11	.40
2 423		4.98	1.71	16.50	2.41	1.51	1.14	1.11	2.44	1.26	.45
2 424		4.79	1.68	15.74	2.38	1.49	1.13	1.07	2.38	1.36	.48
2 425		4.60	1.65	14.99	2.34	1.46	1.13	1.02	2.32	1.49	.52
2 426		4.43	1.65	14.25	2.31	1.43	1.12	.98	2.27	1.64	.57
2 427		4.26	1.62	13.54	2.28	1.40	1.11	.95	2.21	1.81	.62
2 428		4.10	1.59	12.84	2.25	1.37	1.11	.91	2.16	2.01	.68
2 429		3.95	1.59	12.15	2.21	1.34	1.10	.88	2.11	2.25	.74
2 430		3.81	1.56	11.52	2.18	1.31	1.09	.85	2.06	2.53	.82
2 431		3.67	1.53	10.90	2.14	1.29	1.09	.83	2.01	2.87	.90
2 432		3.53	1.53	10.27	2.11	1.26	1.08	.80	1.97	3.28	1.00
2 433		3.39	1.51	9.64	2.07	1.23	1.07	.78	1.92	3.84	1.13
2 434		3.26	1.48	9.04	2.04	1.21	1.06	.76	1.88	4.58	1.29
2 435		3.13	1.48	8.46	2.00	1.19	1.06	.74	1.83	5.58	1.50
2 436		3.00	1.46	7.85	1.96	1.16	1.05	.72	1.79	7.07	1.80
2 437		2.87	1.46	7.24	1.92	1.14	1.04	.70	1.76	9.40	2.23
2 438		2.75	1.44	6.66	1.89	1.12	1.04	.69	1.72	13.35	2.93
2 439		2.64	1.41	6.11	1.85	1.10	1.03	.67	1.69	21.27	4.28
2 440		2.55	1.41	5.62	1.81	1.08	1.03	.66	1.65	41.93	7.73
2 441		2.45	1.39	5.17	1.76	1.07	1.02	.65	1.61	261.04	43.88
2 442		2.34	1.35	4.73	1.72	1.05	1.02	.64	1.57	-53.14	-8.02

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. .3										
1 445	MAX CO	5416	.430	2331	23015	17296	3818	9593	880	5.17
1 446	MAX CL	5416	.430	2331	23015	17296	3818	9593	880	5.17
1 447	MAX CR	5414	.430	2330	23006	17291	3817	9593	880	5.17
1 448		5249	.427	2241	22308	16837	3771	9580	871	5.19
1 449		5003	.422	2110	21260	16167	3697	9558	858	5.23
1 450		4767	.417	1986	20259	15525	3623	9421	843	5.26
1 451		4498	.414	1861	19118	14740	3546	9307	826	5.29
1 452		4228	.411	1738	17970	13954	3469	9207	808	5.33
1 453		3961	.408	1617	16831	13169	3386	9118	788	5.37
1 454		3672	.407	1494	15606	12304	3292	9034	767	5.42
1 455		3381	.407	1375	14368	11419	3198	8947	743	5.48
1 456		3078	.408	1257	13080	10490	3098	8852	718	5.54
1 457		2765	.412	1140	11750	9522	2985	8748	691	5.63
1 458		2465	.417	1029	10476	8577	2866	8640	663	5.72
1 459		2193	.423	928	9319	7706	2752	8538	636	5.81
1 460		1936	.431	835	8227	6861	2634	8436	608	5.88
1 461		1685	.443	747	7163	6031	2503	8326	581	5.97
1 462		1451	.460	667	6165	5236	2368	8209	553	6.04
1 463		1238	.478	592	5262	4516	2244	8083	526	6.16
1 464		1033	.502	519	4388	3819	2121	7938	498	6.31
1 465		811	.546	443	3445	3057	1976	7746	463	6.56
FLIGHT MACH NO. .45										
1 467	MAX CO	5091	.490	2495	21634	15991	3818	9595	882	5.20
1 468	MAX CL	5091	.490	2495	21634	15991	3818	9595	882	5.20
1 469	MAX CR	5089	.490	2494	21627	15985	3818	9595	882	5.20
1 470		4834	.485	2343	20542	15327	3743	9573	869	5.24
1 471		4606	.480	2209	19574	14744	3674	9448	857	5.29
1 472		4351	.476	2072	18493	14060	3596	9332	841	5.34
1 473		4082	.475	1938	17346	13295	3520	9233	823	5.37
1 474		3826	.473	1809	16261	12585	3446	9145	808	5.44
1 475		3552	.472	1675	15097	11808	3358	9066	790	5.51
1 476		3264	.473	1544	13870	10962	3262	8982	769	5.59
1 477		2974	.477	1418	12640	10092	3167	8892	747	5.67
1 478		2679	.483	1294	11387	9202	3059	8797	724	5.76
1 479		2389	.491	1172	10152	8320	2944	8695	699	5.88
1 480		2117	.501	1060	8995	7483	2832	8594	675	6.01
1 481		1872	.512	958	7954	6709	2723	8497	652	6.12
1 482		1636	.527	862	6953	5950	2608	8397	628	6.25
1 483		1408	.548	771	5984	5199	2486	8288	604	6.38
1 484		1199	.575	689	5094	4503	2369	8174	580	6.51
1 485		1010	.604	610	4292	3876	2261	8050	557	6.69
1 486		828	.646	534	3518	3262	2150	7906	533	6.95
1 487		634	.721	457	2695	2594	2013	7724	505	7.33

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

FLIGHT MACH NO. .3

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 445	MAX CO	6.60	1.82	21.32	2.70	1.68	1.18	1.51	2.99	.89	.31
2 446	MAX CL	6.60	1.82	21.32	2.70	1.68	1.18	1.51	2.99	.89	.31
2 447	MAX CR	6.60	1.82	21.31	2.70	1.68	1.18	1.51	2.99	.89	.31
2 448		6.57	1.82	20.86	2.68	1.66	1.18	1.48	2.94	.92	.32
2 449		6.49	1.80	20.16	2.64	1.63	1.17	1.45	2.87	.96	.33
2 450		6.04	1.77	19.45	2.60	1.60	1.16	1.41	2.80	1.01	.34
2 451		5.69	1.74	18.72	2.56	1.57	1.16	1.38	2.74	1.06	.35
2 452		5.40	1.74	17.97	2.52	1.54	1.15	1.35	2.68	1.13	.37
2 453		5.16	1.71	17.18	2.48	1.51	1.14	1.32	2.61	1.19	.39
2 454		4.93	1.68	16.35	2.44	1.48	1.13	1.28	2.56	1.28	.41
2 455		4.71	1.65	15.50	2.40	1.44	1.12	1.25	2.50	1.37	.43
2 456		4.49	1.62	14.61	2.35	1.41	1.12	1.22	2.44	1.49	.45
2 457		4.26	1.59	13.67	2.31	1.37	1.11	1.18	2.39	1.63	.48
2 458		4.03	1.59	12.74	2.26	1.34	1.10	1.15	2.35	1.79	.51
2 459		3.84	1.56	11.88	2.22	1.30	1.09	1.13	2.30	1.97	.55
2 460		3.66	1.53	11.07	2.17	1.27	1.08	1.11	2.26	2.17	.58
2 461		3.47	1.51	10.26	2.13	1.24	1.07	1.08	2.21	2.42	.62
2 462		3.30	1.48	9.50	2.08	1.21	1.06	1.07	2.17	2.71	.67
2 463		3.13	1.46	8.75	2.03	1.18	1.06	1.05	2.12	3.06	.71
2 464		2.95	1.44	7.96	1.98	1.16	1.05	1.03	2.09	3.51	.77
2 465		2.74	1.41	7.05	1.92	1.13	1.04	1.01	2.06	4.20	.84

FLIGHT MACH NO. .45

2 467	MAX CO	6.63	1.82	21.14	2.69	1.67	1.18	1.46	2.94	.95	.33
2 468	MAX CL	6.63	1.82	21.14	2.69	1.67	1.18	1.46	2.94	.95	.33
2 469	MAX CR	6.63	1.82	21.13	2.68	1.67	1.18	1.46	2.94	.95	.33
2 470		6.56	1.82	20.41	2.64	1.64	1.18	1.43	2.87	1.01	.35
2 471		6.14	1.80	19.72	2.60	1.61	1.17	1.39	2.80	1.05	.36
2 472		5.78	1.77	18.97	2.56	1.59	1.16	1.35	2.73	1.11	.38
2 473		5.49	1.74	18.24	2.53	1.56	1.15	1.32	2.67	1.18	.40
2 474		5.25	1.71	17.49	2.49	1.52	1.15	1.29	2.61	1.26	.42
2 475		5.02	1.68	16.68	2.45	1.49	1.14	1.25	2.54	1.35	.44
2 476		4.80	1.68	15.83	2.41	1.46	1.13	1.22	2.49	1.47	.47
2 477		4.59	1.65	14.98	2.37	1.42	1.12	1.18	2.43	1.60	.50
2 478		4.37	1.62	14.10	2.33	1.39	1.11	1.15	2.38	1.76	.53
2 479		4.15	1.59	13.19	2.28	1.35	1.10	1.12	2.33	1.95	.57
2 480		3.95	1.56	12.32	2.24	1.32	1.09	1.08	2.28	2.17	.62
2 481		3.78	1.53	11.53	2.20	1.29	1.08	1.06	2.23	2.42	.66
2 482		3.59	1.53	10.74	2.15	1.26	1.08	1.04	2.19	2.73	.72
2 483		3.42	1.51	9.98	2.11	1.23	1.07	1.02	2.15	3.11	.78
2 484		3.26	1.48	9.25	2.06	1.20	1.06	1.00	2.10	3.57	.85
2 485		3.10	1.46	8.53	2.02	1.17	1.05	.98	2.06	4.14	.92
2 486		2.92	1.44	7.77	1.97	1.15	1.04	.96	2.02	4.92	1.02
2 487		2.73	1.41	6.90	1.91	1.12	1.04	.95	1.99	6.21	1.15

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. .6										
1 489	MAX CO	5042	.549	2770	21428	15523	3818	9596	882	5.22
1 490	MAX CL	5042	.549	2770	21428	15523	3818	9596	882	5.22
1 491	MAX CR	5008	.549	2748	21282	15424	3807	9593	881	5.22
1 492		4596	.541	2487	19533	14429	3696	9429	861	5.30
1 493		4342	.538	2334	18451	13796	3621	9327	848	5.37
1 494		4070	.537	2187	17297	13076	3552	9230	833	5.42
1 495		3810	.537	2045	16191	12375	3481	9150	819	5.48
1 496		3536	.536	1897	15028	11642	3399	9071	802	5.57
1 497		3246	.539	1750	13796	10844	3308	8990	784	5.67
1 498		2952	.545	1609	12545	10006	3216	8904	765	5.77
1 499		2663	.553	1474	11318	9158	3116	8813	744	5.88
1 500		2375	.565	1341	10094	8299	3005	8718	724	6.02
1 501		2103	.579	1218	8937	7474	2896	8625	703	6.15
1 502		1856	.595	1105	7887	6727	2794	8534	683	6.30
1 503		1632	.613	1000	6936	6042	2692	8440	665	6.46
1 504		1405	.639	897	5971	5327	2582	8337	644	6.64
1 505		1192	.674	803	5066	4636	2476	8232	624	6.83
1 506		999	.717	716	4244	4004	2378	8120	604	7.03
1 507		826	.769	635	3509	3433	2285	8000	585	7.28
1 508		654	.846	554	2780	2855	2186	7852	565	7.63
1 509		486	.979	476	2066	2271	2069	7687	542	8.09
FLIGHT MACH NO. .7										
1 514	MAX CO	5158	.588	3033	21920	15596	3818	9595	883	5.23
1 515	MAX CL	5158	.588	3033	21920	15596	3818	9595	883	5.23
1 516	MAX CR	4931	.584	2882	20958	15060	3763	9526	873	5.26
1 517		4493	.578	2595	19095	14019	3644	9336	853	5.37
1 518		4220	.577	2435	17934	13336	3576	9242	838	5.42
1 519		3949	.577	2280	16783	12652	3510	9161	824	5.48
1 520		3676	.577	2123	15622	11953	3438	9086	810	5.57
1 521		3383	.580	1962	14377	11186	3353	9008	793	5.67
1 522		3079	.587	1806	13087	10352	3262	8926	775	5.79
1 523		2788	.596	1661	11850	9524	3172	8841	757	5.90
1 524		2500	.607	1519	10626	8696	3071	8751	738	6.02
1 525		2220	.623	1382	9436	7880	2965	8660	720	6.18
1 526		1959	.641	1257	8327	7100	2864	8572	700	6.32
1 527		1730	.660	1142	7351	6420	2769	8484	683	6.48
1 528		1506	.685	1032	6400	5745	2669	8390	667	6.67
1 529		1281	.723	926	5443	5040	2566	8290	649	6.88
1 530		1072	.773	829	4558	4373	2469	8186	631	7.11
1 531		886	.834	738	3764	3767	2380	8076	614	7.35
1 532		713	.915	653	3029	3197	2295	7954	597	7.65
1 533		546	1.041	568	2319	2633	2204	7807	579	8.05
1 534		391	1.252	490	1662	2095	2106	7652	561	8.56

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

FLIGHT MACH NO. .6

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 489	MAX CO	6.64	1.82	20.98	2.67	1.67	1.18	1.42	2.90	.97	.34
2 490	MAX CL	6.64	1.82	20.98	2.67	1.67	1.18	1.42	2.90	.97	.34
2 491	MAX CR	6.63	1.82	20.89	2.66	1.66	1.18	1.42	2.89	.97	.35
2 492		6.10	1.80	19.74	2.60	1.62	1.17	1.35	2.77	1.06	.37
2 493		5.78	1.77	19.01	2.56	1.59	1.16	1.31	2.70	1.12	.39
2 494		5.49	1.74	18.28	2.52	1.56	1.16	1.28	2.64	1.20	.41
2 495		5.27	1.71	17.58	2.48	1.53	1.15	1.24	2.58	1.28	.44
2 496		5.05	1.71	16.77	2.45	1.50	1.14	1.20	2.52	1.37	.46
2 497		4.83	1.68	15.92	2.41	1.47	1.13	1.16	2.46	1.50	.49
2 498		4.62	1.65	15.09	2.37	1.43	1.12	1.13	2.40	1.64	.53
2 499		4.42	1.62	14.25	2.33	1.40	1.11	1.09	2.35	1.81	.57
2 500		4.21	1.59	13.39	2.29	1.36	1.11	1.06	2.29	2.03	.62
2 501		4.02	1.59	12.57	2.25	1.33	1.10	1.03	2.24	2.28	.67
2 502		3.85	1.56	11.80	2.21	1.30	1.09	1.00	2.20	2.57	.73
2 503		3.68	1.53	11.07	2.17	1.27	1.08	.98	2.15	2.91	.80
2 504		3.51	1.51	10.29	2.13	1.24	1.07	.95	2.10	3.34	.88
2 505		3.35	1.51	9.58	2.08	1.21	1.06	.93	2.06	3.90	.97
2 506		3.19	1.48	8.89	2.04	1.18	1.06	.91	2.02	4.60	1.08
2 507		3.04	1.46	8.21	1.99	1.16	1.05	.89	1.97	5.50	1.21
2 508		2.88	1.44	7.46	1.95	1.14	1.04	.88	1.94	6.84	1.38
2 509		2.71	1.41	6.69	1.90	1.11	1.03	.86	1.90	9.04	1.64

FLIGHT MACH NO. .7

2 514	MAX CO	6.64	1.82	20.90	2.66	1.67	1.18	1.41	2.88	.94	.34
2 515	MAX CL	6.64	1.82	20.90	2.66	1.67	1.18	1.41	2.88	.94	.34
2 516	MAX CR	6.42	1.80	20.33	2.62	1.65	1.18	1.37	2.82	.99	.35
2 517		5.81	1.77	19.12	2.56	1.60	1.16	1.30	2.70	1.08	.38
2 518		5.54	1.74	18.42	2.52	1.58	1.16	1.26	2.63	1.15	.41
2 519		5.31	1.74	17.72	2.49	1.55	1.15	1.22	2.57	1.23	.43
2 520		5.10	1.71	16.97	2.45	1.52	1.14	1.18	2.51	1.33	.46
2 521		4.89	1.68	16.14	2.41	1.49	1.14	1.14	2.45	1.44	.49
2 522		4.68	1.65	15.30	2.38	1.45	1.13	1.10	2.39	1.58	.53
2 523		4.48	1.65	14.50	2.34	1.42	1.12	1.06	2.33	1.75	.57
2 524		4.29	1.62	13.69	2.30	1.38	1.11	1.03	2.28	1.94	.62
2 525		4.10	1.59	12.87	2.26	1.35	1.10	.99	2.23	2.19	.68
2 526		3.93	1.56	12.10	2.22	1.32	1.09	.97	2.18	2.47	.74
2 527		3.77	1.56	11.39	2.18	1.29	1.09	.94	2.13	2.79	.81
2 528		3.61	1.53	10.68	2.14	1.26	1.08	.91	2.08	3.20	.89
2 529		3.44	1.51	9.94	2.10	1.23	1.07	.89	2.04	3.75	1.00
2 530		3.29	1.48	9.26	2.06	1.20	1.06	.87	1.99	4.46	1.12
2 531		3.14	1.48	8.60	2.02	1.18	1.05	.85	1.95	5.36	1.28
2 532		3.00	1.46	7.93	1.98	1.15	1.05	.83	1.91	6.62	1.47
2 533		2.84	1.44	7.21	1.93	1.13	1.04	.81	1.87	8.57	1.74
2 534		2.69	1.41	6.50	1.88	1.10	1.03	.80	1.84	11.85	2.16

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

FLIGHT CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. .8										
1 539	MAX CO	5199	.624	3238	22056	15491	3780	9535	876	5.26
1 539	MAX CL	5199	.624	3238	22056	15491	3780	9535	876	5.26
1 541	MAX CR	4906	.620	3033	20806	14828	3709	9406	863	5.32
1 542		4417	.616	2720	18770	13713	3591	9241	842	5.43
1 543		4138	.616	2551	17584	13025	3527	9164	828	5.48
1 544		3852	.617	2378	16372	12307	3456	9089	813	5.56
1 545		3556	.620	2203	15113	11595	3380	9014	798	5.68
1 546		3249	.625	2032	13809	10807	3295	8936	782	5.80
1 547		2948	.635	1871	12529	9987	3210	8854	764	5.91
1 548		2652	.647	1716	11271	9171	3118	8766	747	6.04
1 549		2366	.663	1568	10056	8376	3020	8680	730	6.19
1 550		2097	.682	1430	8912	7594	2923	8597	712	6.33
1 551		1848	.705	1303	7856	6865	2830	8513	696	6.49
1 552		1626	.728	1184	6911	6216	2739	8425	681	6.66
1 553		1402	.762	1068	5957	5547	2643	8331	666	6.87
1 554		1178	.813	958	5006	4856	2547	8234	650	7.10
1 555		978	.876	857	4157	4227	2457	8133	633	7.33
1 556		793	.963	764	3369	3627	2376	8025	618	7.60
1 557		611	1.098	671	2597	3029	2294	7894	603	7.99
1 558		448	1.306	585	1902	2472	2214	7757	587	8.42
1 559		302	1.675	506	1284	1961	2130	7617	572	8.93
FLIGHT MACH NO. .82										
1 564	MAX CO	5200	.631	3276	22062	15464	3770	9507	874	5.27
1 564	MAX CL	5200	.631	3276	22062	15464	3770	9507	874	5.27
1 566	MAX CR	4900	.627	3064	20781	14780	3695	9383	861	5.33
1 567		4404	.624	2747	18716	13652	3579	9223	839	5.44
1 568		4124	.624	2575	17527	12968	3515	9148	825	5.50
1 569		3834	.625	2398	16294	12243	3443	9074	810	5.59
1 570		3533	.628	2220	15016	11528	3367	8999	796	5.70
1 571		3224	.635	2047	13702	10735	3282	8921	779	5.82
1 572		2922	.645	1884	12420	9917	3198	8838	761	5.93
1 573		2627	.658	1727	11163	9113	3106	8750	744	6.07
1 574		2345	.673	1579	9966	8325	3010	8667	728	6.21
1 575		2076	.694	1440	8824	7555	2914	8584	710	6.36
1 576		1832	.717	1313	7784	6839	2823	8500	695	6.52
1 577		1607	.742	1192	6827	6180	2732	8412	681	6.70
1 578		1383	.777	1075	5879	5521	2637	8319	665	6.91
1 579		1160	.831	965	4932	4834	2543	8222	649	7.14
1 580		958	.901	863	4073	4195	2456	8121	634	7.39
1 581		775	.991	769	3295	3606	2374	8014	618	7.65
1 582		595	1.133	675	2530	3014	2292	7882	603	8.04
1 583		430	1.366	588	1829	2451	2214	7745	588	8.49
1 584		285	1.786	509	1212	1944	2134	7609	574	9.00

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

FLIGHT MACH NO. 0.8

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 539	MAX CO	6.45	1.82	20.42	2.62	1.65	1.18	1.36	2.81	.94	.34
2 540	MAX CL	6.45	1.82	20.42	2.62	1.65	1.18	1.36	2.81	.94	.34
2 541	MAX CR	6.04	1.80	19.68	2.58	1.63	1.17	1.31	2.74	1.00	.36
2 542		5.54	1.74	18.45	2.52	1.58	1.16	1.24	2.62	1.10	.40
2 543		5.32	1.74	17.77	2.48	1.56	1.15	1.20	2.56	1.18	.42
2 544		5.12	1.71	17.03	2.45	1.53	1.15	1.16	2.50	1.26	.45
2 545		4.91	1.68	16.23	2.41	1.50	1.14	1.11	2.43	1.37	.48
2 546		4.71	1.68	15.42	2.38	1.47	1.13	1.07	2.37	1.50	.52
2 547		4.52	1.65	14.63	2.34	1.43	1.12	1.03	2.32	1.65	.56
2 548		4.33	1.62	13.84	2.30	1.40	1.11	.99	2.26	1.84	.61
2 549		4.15	1.59	13.06	2.27	1.37	1.11	.96	2.21	2.06	.67
2 550		3.98	1.59	12.31	2.23	1.33	1.10	.93	2.16	2.32	.74
2 551		3.83	1.56	11.61	2.19	1.30	1.09	.90	2.11	2.63	.81
2 552		3.68	1.53	10.94	2.16	1.28	1.08	.87	2.06	2.99	.89
2 553		3.52	1.53	10.25	2.12	1.25	1.08	.85	2.01	3.47	.99
2 554		3.37	1.51	9.56	2.08	1.22	1.07	.83	1.97	4.12	1.13
2 555		3.22	1.48	8.91	2.04	1.19	1.06	.80	1.92	4.94	1.29
2 556		3.09	1.48	8.28	2.00	1.17	1.05	.79	1.88	6.09	1.50
2 557		2.94	1.46	7.61	1.96	1.14	1.05	.77	1.84	7.89	1.80
2 558		2.80	1.44	6.94	1.91	1.12	1.04	.75	1.80	10.73	2.24
2 559		2.67	1.41	6.30	1.87	1.10	1.03	.74	1.77	15.84	3.00

FLIGHT MACH NO. .82

2 564	MAX CO	6.36	1.80	20.29	2.61	1.65	1.18	1.35	2.80	.94	.34
2 565	MAX CL	6.36	1.80	20.29	2.61	1.65	1.18	1.35	2.80	.94	.34
2 566	MAX CR	5.97	1.77	19.53	2.57	1.62	1.17	1.30	2.72	1.00	.36
2 567		5.49	1.74	18.31	2.51	1.58	1.16	1.23	2.61	1.11	.40
2 568		5.28	1.74	17.63	2.48	1.55	1.15	1.19	2.54	1.18	.42
2 569		5.08	1.71	16.87	2.44	1.52	1.14	1.15	2.48	1.27	.45
2 570		4.87	1.68	16.07	2.41	1.49	1.14	1.10	2.42	1.38	.48
2 571		4.67	1.68	15.27	2.37	1.46	1.13	1.05	2.36	1.51	.52
2 572		4.48	1.65	14.48	2.33	1.43	1.12	1.02	2.30	1.67	.57
2 573		4.30	1.62	13.69	2.30	1.39	1.11	.98	2.25	1.85	.62
2 574		4.12	1.59	12.94	2.26	1.36	1.11	.95	2.19	2.08	.68
2 575		3.96	1.59	12.20	2.22	1.33	1.10	.91	2.14	2.34	.75
2 576		3.81	1.56	11.51	2.19	1.30	1.09	.89	2.09	2.66	.82
2 577		3.66	1.53	10.85	2.15	1.27	1.08	.86	2.04	3.03	.91
2 578		3.50	1.53	10.15	2.11	1.25	1.07	.84	2.00	3.51	1.01
2 579		3.35	1.51	9.47	2.07	1.22	1.07	.81	1.95	4.19	1.15
2 580		3.21	1.48	8.84	2.03	1.19	1.06	.79	1.91	5.07	1.33
2 581		3.07	1.48	8.22	1.99	1.17	1.05	.77	1.86	6.23	1.54
2 582		2.92	1.46	7.54	1.95	1.14	1.05	.75	1.83	8.11	1.86
2 583		2.79	1.44	6.88	1.91	1.12	1.04	.74	1.79	11.20	2.36
2 584		2.67	1.41	6.26	1.87	1.10	1.03	.72	1.75	16.86	3.22

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

FLIGHT MACH NO. .9

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 589	MAX CO	5208	.659	3426	22090	15363	3719	9402	865	5.32
1 589	MAX CL	5208	.659	3426	22090	15363	3719	9402	865	5.32
1 591	MAX CR	4882	.655	3193	20707	14648	3642	9292	852	5.40
1 592		4364	.655	2860	18545	13448	3531	9154	828	5.50
1 593		4064	.657	2670	17272	12741	3464	9082	814	5.58
1 594		3758	.659	2477	15970	12038	3392	9010	800	5.69
1 595		3443	.664	2288	14631	11247	3309	8935	784	5.81
1 596		3129	.674	2109	13299	10471	3231	8855	768	5.93
1 597		2827	.686	1939	12016	9682	3147	8771	751	6.05
1 598		2537	.701	1778	10780	8906	3058	8688	735	6.20
1 599		2264	.718	1626	9622	8155	2966	8609	720	6.34
1 600		2003	.742	1486	8512	7424	2878	8530	704	6.49
1 601		1766	.767	1354	7507	6754	2793	8446	690	6.65
1 602		1540	.797	1228	6545	6102	2704	8357	676	6.85
1 603		1316	.841	1107	5593	5438	2612	8266	661	7.07
1 604		1097	.905	993	4663	4774	2524	8171	646	7.30
1 605		896	.992	888	3807	4144	2442	8072	632	7.56
1 606		706	1.115	787	3001	3538	2363	7958	617	7.88
1 607		526	1.312	691	2236	2948	2286	7829	603	8.29
1 608		366	1.645	603	1557	2401	2213	7702	590	8.73
1 609		226	2.315	523	961	1908	2141	7577	577	9.23
1 610		109	4.154	454	465	1485	2061	7463	565	9.73

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 35000 FT. TAM -65.82
STANDARD DAY TAM

FLIGHT MACH NO. .9

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 589	MAX CO	6.03	1.80	19.69	2.58	1.63	1.17	1.30	2.73	.94	.34
2 590	MAX CL	6.03	1.80	19.69	2.58	1.63	1.17	1.30	2.73	.94	.34
2 591	MAX CR	5.69	1.77	18.89	2.54	1.60	1.16	1.25	2.65	1.00	.36
2 592		5.30	1.74	17.72	2.48	1.56	1.15	1.18	2.54	1.12	.40
2 593		5.11	1.71	16.99	2.44	1.53	1.15	1.13	2.48	1.20	.43
2 594		4.91	1.68	16.21	2.41	1.50	1.14	1.09	2.42	1.30	.46
2 595		4.71	1.68	15.41	2.37	1.47	1.13	1.05	2.36	1.42	.50
2 596		4.52	1.65	14.64	2.34	1.44	1.12	1.00	2.30	1.56	.55
2 597		4.34	1.62	13.88	2.30	1.41	1.12	.96	2.24	1.72	.60
2 598		4.17	1.62	13.14	2.27	1.38	1.11	.92	2.19	1.92	.65
2 599		4.02	1.59	12.43	2.23	1.35	1.10	.89	2.13	2.15	.72
2 600		3.87	1.56	11.75	2.20	1.32	1.09	.86	2.08	2.43	.79
2 601		3.72	1.56	11.10	2.16	1.29	1.09	.84	2.03	2.76	.87
2 602		3.58	1.53	10.44	2.12	1.27	1.08	.81	1.98	3.17	.97
2 603		3.43	1.51	9.78	2.09	1.24	1.07	.79	1.94	3.70	1.10
2 604		3.29	1.51	9.14	2.05	1.21	1.07	.76	1.89	4.43	1.26
2 605		3.15	1.48	8.53	2.01	1.19	1.06	.74	1.85	5.43	1.47
2 606		3.01	1.46	7.91	1.97	1.16	1.05	.72	1.81	6.89	1.76
2 607		2.87	1.46	7.26	1.93	1.14	1.05	.70	1.77	9.24	2.20
2 608		2.75	1.44	6.66	1.89	1.12	1.04	.69	1.73	13.26	2.91
2 609		2.64	1.41	6.09	1.85	1.10	1.03	.67	1.69	21.49	4.31
2 610		2.54	1.41	5.58	1.81	1.08	1.03	.66	1.66	44.32	8.10

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT CASE		RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
FLIGHT MACH NO. .3											
1	1	MAX CO	4253	.431	1835	22981	17250	3817	9596	879	5.18
1	2	MAX CL	4253	.431	1835	22981	17250	3817	9596	879	5.18
1	3	MAX CR	4255	.431	1835	22987	17253	3817	9596	879	5.18
1	4		4148	.429	1778	22413	16882	3779	9585	872	5.20
1	5		3955	.423	1675	21367	16213	3705	9562	858	5.24
1	6		3764	.418	1574	20334	15548	3627	9424	843	5.28
1	7		3550	.415	1475	19181	14768	3550	9311	826	5.31
1	8		3334	.413	1377	18014	13962	3471	9211	807	5.34
1	9		3120	.410	1280	16856	13169	3387	9120	787	5.39
1	10		2891	.409	1182	15619	12304	3293	9035	766	5.45
1	11		2659	.409	1088	14367	11406	3197	8948	742	5.51
1	12		2417	.411	994	13061	10465	3096	8852	717	5.57
1	13		2167	.416	901	11709	9480	2980	8745	689	5.66
1	14		1930	.421	813	10428	8527	2860	8637	661	5.76
1	15		1715	.428	733	9265	7645	2745	8536	633	5.84
1	16		1509	.437	659	8152	6790	2624	8430	605	5.92
1	17		1308	.450	589	7069	5944	2490	8316	577	6.01
1	18		1122	.468	525	6064	5143	2352	8197	549	6.10
1	19		952	.488	465	5144	4412	2227	8065	521	6.22
1	20		784	.517	405	4238	3687	2098	7912	492	6.39
FLIGHT MACH NO. .45											
1	25	MAX CO	4007	.491	1967	21652	15976	3818	9598	880	5.21
1	26	MAX CL	4007	.491	1967	21652	15976	3818	9598	880	5.21
1	27	MAX CR	4004	.491	1965	21632	15969	3818	9598	880	5.21
1	28		3823	.486	1859	20656	15376	3752	9578	869	5.25
1	29		3642	.481	1753	19679	14789	3682	9458	857	5.30
1	30		3441	.478	1643	18589	14105	3603	9339	841	5.35
1	31		3225	.476	1537	17425	13331	3525	9237	823	5.39
1	32		3022	.474	1434	16329	12612	3450	9150	808	5.45
1	33		2804	.474	1328	15149	11828	3362	9070	790	5.53
1	34		2573	.475	1223	13902	10969	3264	8985	769	5.61
1	35		2342	.479	1122	12653	10096	3168	8893	747	5.70
1	36		2107	.486	1024	11382	9183	3057	8796	723	5.80
1	37		1875	.494	927	10131	8289	2941	8693	697	5.91
1	38		1660	.505	839	8969	7444	2827	8593	674	6.04
1	39		1466	.517	758	7921	6666	2718	8497	651	6.16
1	40		1277	.533	681	6900	5895	2600	8391	626	6.29
1	41		1096	.556	609	5920	5136	2476	8281	601	6.42
1	42		929	.584	543	5021	4433	2358	8164	577	6.57
1	43		780	.616	480	4212	3799	2248	8037	553	6.76

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT MACH NO. .3

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	1	MAX CO	6.62	1.82	21.29	2.71	1.67	1.18	1.51	3.02	.89	.31
2	2	MAX CL	6.62	1.82	21.29	2.71	1.67	1.18	1.51	3.02	.89	.31
2	3	MAX CR	6.62	1.82	21.30	2.71	1.67	1.18	1.51	3.02	.89	.31
2	4		6.59	1.82	20.92	2.69	1.66	1.18	1.49	2.98	.91	.32
2	5		6.50	1.80	20.22	2.65	1.63	1.17	1.45	2.91	.96	.33
2	6		6.05	1.77	19.48	2.61	1.60	1.17	1.42	2.84	1.00	.34
2	7		5.70	1.74	18.74	2.57	1.57	1.16	1.38	2.77	1.06	.35
2	8		5.42	1.74	17.98	2.53	1.54	1.15	1.35	2.71	1.12	.37
2	9		5.16	1.71	17.18	2.49	1.51	1.14	1.32	2.65	1.19	.39
2	10		4.93	1.68	16.33	2.45	1.48	1.13	1.28	2.59	1.27	.41
2	11		4.71	1.65	15.48	2.40	1.44	1.12	1.25	2.53	1.37	.43
2	12		4.49	1.62	14.58	2.36	1.41	1.12	1.22	2.48	1.49	.45
2	13		4.25	1.59	13.62	2.32	1.37	1.11	1.18	2.43	1.63	.48
2	14		4.03	1.59	12.68	2.27	1.33	1.10	1.15	2.38	1.79	.52
2	15		3.84	1.56	11.83	2.23	1.30	1.09	1.13	2.33	1.97	.55
2	16		3.64	1.53	10.99	2.18	1.27	1.08	1.10	2.29	2.18	.58
2	17		3.45	1.51	10.18	2.13	1.24	1.07	1.08	2.24	2.44	.63
2	18		3.28	1.48	9.41	2.08	1.21	1.06	1.06	2.20	2.75	.67
2	19		3.11	1.46	8.64	2.03	1.18	1.06	1.05	2.16	3.11	.72
2	20		2.92	1.44	7.81	1.98	1.15	1.05	1.03	2.12	3.60	.78

FLIGHT MACH NO. .45

2	25	MAX CO	6.64	1.82	21.12	2.69	1.67	1.18	1.47	2.97	.95	.33
2	26	MAX CL	6.64	1.82	21.12	2.69	1.67	1.18	1.47	2.97	.95	.33
2	27	MAX CR	6.64	1.82	21.11	2.69	1.67	1.18	1.47	2.97	.95	.33
2	28		6.58	1.82	20.48	2.66	1.64	1.18	1.43	2.90	1.00	.35
2	29		6.17	1.80	19.79	2.62	1.62	1.17	1.39	2.83	1.05	.36
2	30		5.80	1.77	19.02	2.58	1.59	1.16	1.36	2.77	1.11	.38
2	31		5.50	1.74	18.26	2.54	1.56	1.15	1.32	2.70	1.18	.40
2	32		5.26	1.71	17.52	2.50	1.53	1.15	1.29	2.64	1.25	.42
2	33		5.03	1.68	16.69	2.46	1.49	1.14	1.25	2.58	1.35	.44
2	34		4.81	1.68	15.83	2.42	1.46	1.13	1.22	2.52	1.46	.47
2	35		4.59	1.65	14.96	2.38	1.42	1.12	1.18	2.46	1.60	.50
2	36		4.37	1.62	14.07	2.33	1.39	1.11	1.15	2.41	1.76	.53
2	37		4.14	1.59	13.15	2.29	1.35	1.10	1.12	2.36	1.95	.57
2	38		3.95	1.56	12.29	2.25	1.32	1.09	1.09	2.31	2.18	.62
2	39		3.77	1.53	11.50	2.20	1.28	1.08	1.06	2.26	2.43	.67
2	40		3.58	1.53	10.69	2.16	1.25	1.08	1.04	2.22	2.75	.72
2	41		3.41	1.51	9.91	2.11	1.22	1.07	1.02	2.18	3.13	.78
2	42		3.24	1.48	9.17	2.07	1.20	1.06	1.00	2.13	3.61	.86
2	43		3.08	1.46	8.44	2.02	1.17	1.05	.98	2.09	4.20	.93

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT CASE		MACH NO. .6 RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	50	MAX CO	3964	.550	2180	21419	15502	3818	9598	881	5.24
1	51	MAX CL	3964	.550	2180	21419	15502	3818	9598	881	5.24
1	52	MAX CR	3963	.550	2180	21410	15482	3818	9597	881	5.23
1	53		3640	.542	1975	19666	14479	3704	9443	862	5.31
1	54		3440	.539	1853	18584	13856	3629	9337	848	5.38
1	55		3224	.538	1736	17421	13138	3559	9240	834	5.43
1	56		3017	.538	1622	16300	12429	3487	9157	818	5.49
1	57		2799	.538	1505	15123	11686	3405	9077	802	5.58
1	58		2567	.540	1387	13869	10880	3313	8994	784	5.70
1	59		2334	.547	1277	12613	10025	3220	8911	765	5.79
1	60		2102	.556	1168	11357	9167	3118	8816	743	5.90
1	61		1872	.568	1062	10112	8295	3006	8719	723	6.05
1	62		1655	.583	964	8942	7460	2895	8625	701	6.19
1	63		1459	.599	875	7883	6710	2793	8534	682	6.34
1	64		1281	.618	791	6921	6015	2689	8438	664	6.50
1	65		1100	.645	710	5943	5288	2577	8334	642	6.69
1	66		931	.682	635	5028	4591	2470	8227	622	6.88
1	67		778	.728	566	4202	3952	2371	8114	601	7.08
1	68		639	.784	501	3450	3371	2277	7990	583	7.35
1	69		499	.871	435	2698	2774	2172	7834	561	7.74
FLIGHT		MACH NO. .7									
1	75	MAX CO	4053	.588	2385	21901	15559	3818	9597	881	5.24
1	76	MAX CL	4053	.588	2385	21901	15559	3818	9597	881	5.24
1	77	MAX CR	3906	.586	2287	21104	15122	3773	9548	873	5.27
1	78		3563	.579	2062	19252	14088	3655	9349	853	5.37
1	79		3348	.578	1934	18087	13404	3585	9253	839	5.43
1	80		3133	.578	1811	16927	12723	3519	9170	825	5.49
1	81		2915	.578	1686	15752	12015	3446	9093	810	5.58
1	82		2683	.581	1559	14498	11242	3361	9016	794	5.68
1	83		2441	.588	1435	13189	10389	3268	8934	776	5.80
1	84		2208	.597	1317	11927	9570	3177	8845	757	5.92
1	85		1976	.609	1204	10675	8717	3074	8754	738	6.05
1	86		1753	.625	1096	9472	7884	2967	8663	719	6.21
1	87		1545	.645	996	8348	7096	2864	8574	700	6.35
1	88		1362	.664	905	7361	6405	2768	8484	683	6.51
1	89		1184	.690	817	6398	5724	2667	8389	666	6.71
1	90		1005	.730	733	5428	5011	2563	8288	648	6.93
1	91		839	.781	656	4536	4338	2465	8182	630	7.16
1	92		691	.845	584	3733	3725	2376	8070	613	7.41
1	93		552	.932	515	2985	3145	2287	7942	595	7.72

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT MACH NO. .6

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	50	MAX CO	6.64	1.82	20.94	2.67	1.67	1.18	1.42	2.92	.97	.34
2	51	MAX CL	6.64	1.82	20.94	2.67	1.67	1.18	1.42	2.92	.97	.34
2	52	MAX CR	6.64	1.82	20.96	2.68	1.66	1.18	1.43	2.92	.97	.34
2	53		6.14	1.80	19.82	2.61	1.62	1.17	1.36	2.80	1.05	.37
2	54		5.81	1.77	19.07	2.57	1.60	1.16	1.32	2.74	1.11	.39
2	55		5.52	1.74	18.35	2.53	1.57	1.16	1.28	2.67	1.19	.41
2	56		5.29	1.71	17.62	2.49	1.54	1.15	1.24	2.61	1.27	.43
2	57		5.06	1.71	16.81	2.46	1.51	1.14	1.21	2.55	1.36	.46
2	58		4.84	1.68	15.94	2.42	1.47	1.13	1.16	2.49	1.49	.49
2	59		4.63	1.65	15.12	2.38	1.44	1.12	1.13	2.43	1.63	.53
2	60		4.42	1.62	14.26	2.34	1.40	1.11	1.09	2.37	1.81	.57
2	61		4.21	1.62	13.38	2.30	1.36	1.11	1.06	2.32	2.02	.62
2	62		4.02	1.59	12.54	2.26	1.33	1.10	1.03	2.27	2.28	.67
2	63		3.85	1.56	11.77	2.22	1.30	1.09	1.00	2.22	2.57	.73
2	64		3.68	1.53	11.03	2.17	1.27	1.08	.98	2.18	2.91	.80
2	65		3.50	1.51	10.25	2.13	1.24	1.07	.95	2.13	3.36	.88
2	66		3.34	1.51	9.53	2.09	1.21	1.06	.93	2.09	3.92	.98
2	67		3.18	1.48	8.83	2.04	1.18	1.06	.91	2.04	4.64	1.09
2	68		3.03	1.46	8.13	2.00	1.16	1.05	.89	2.00	5.59	1.22
2	69		2.86	1.44	7.35	1.95	1.13	1.04	.88	1.97	7.03	1.40

FLIGHT MACH NO. .7

2	75	MAX CO	6.64	1.82	20.88	2.66	1.67	1.18	1.41	2.90	.94	.34
2	76	MAX CL	6.64	1.82	20.88	2.66	1.67	1.18	1.41	2.90	.94	.34
2	77	MAX CR	6.48	1.82	20.42	2.64	1.65	1.18	1.37	2.85	.98	.35
2	78		5.85	1.77	19.21	2.57	1.61	1.17	1.31	2.73	1.08	.38
2	79		5.57	1.74	18.49	2.53	1.58	1.16	1.26	2.67	1.14	.40
2	80		5.33	1.74	17.79	2.50	1.55	1.15	1.22	2.60	1.22	.43
2	81		5.12	1.71	17.02	2.46	1.52	1.14	1.18	2.54	1.31	.46
2	82		4.91	1.68	16.19	2.42	1.49	1.14	1.14	2.48	1.43	.49
2	83		4.69	1.68	15.35	2.39	1.45	1.13	1.10	2.42	1.57	.53
2	84		4.49	1.65	14.52	2.35	1.42	1.12	1.06	2.36	1.73	.57
2	85		4.29	1.62	13.69	2.31	1.38	1.11	1.03	2.31	1.93	.62
2	86		4.10	1.59	12.87	2.27	1.35	1.10	1.00	2.26	2.18	.68
2	87		3.93	1.56	12.09	2.23	1.31	1.09	.97	2.21	2.46	.74
2	88		3.77	1.56	11.38	2.19	1.29	1.09	.94	2.16	2.79	.81
2	89		3.60	1.53	10.65	2.15	1.26	1.08	.91	2.11	3.20	.89
2	90		3.44	1.51	9.91	2.11	1.23	1.07	.89	2.06	3.76	1.00
2	91		3.28	1.48	9.22	2.07	1.20	1.06	.87	2.02	4.48	1.13
2	92		3.13	1.48	8.55	2.03	1.17	1.05	.85	1.98	5.40	1.28
2	93		2.98	1.46	7.86	1.98	1.15	1.05	.83	1.94	6.70	1.48

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT MACH NO. .8

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 97	MAX CO	4115	.625	2571	22235	15573	3791	9557	877	5.27
1 98	MAX CL	4115	.625	2571	22235	15573	3791	9557	877	5.27
1 99	MAX CR	3885	.620	2409	20991	14899	3719	9422	864	5.32
1 100		3509	.616	2162	18960	13802	3602	9254	843	5.44
1 101		3288	.617	2028	17767	13116	3537	9175	829	5.49
1 102		3062	.618	1891	16546	12383	3465	9100	814	5.57
1 103		2828	.620	1753	15280	11662	3389	9026	799	5.68
1 104		2584	.625	1616	13961	10876	3303	8947	782	5.80
1 105		2342	.635	1488	12655	10044	3218	8865	765	5.91
1 106		2105	.648	1363	11371	9217	3125	8775	747	6.05
1 107		1878	.664	1246	10144	8401	3025	8688	730	6.20
1 108		1658	.684	1134	8959	7614	2926	8599	712	6.36
1 109		1463	.706	1033	7904	6881	2832	8516	696	6.51
1 110		1284	.731	938	6935	6210	2739	8426	681	6.70
1 111		1104	.766	846	5965	5535	2642	8330	665	6.92
1 112		927	.819	759	5007	4837	2546	8234	649	7.15
1 113		768	.885	679	4148	4200	2455	8131	632	7.38
1 114		620	.975	604	3350	3593	2373	8021	616	7.66
1 115		475	1.115	530	2569	2987	2289	7887	601	8.06
1 116		344	1.341	461	1859	2417	2207	7745	585	8.52
1 117		227	1.752	398	1228	1895	2121	7602	570	9.07

FLIGHT MACH NO. .82

1 122	MAX CO	4120	.631	2601	22258	15562	3781	9525	875	5.28
1 123	MAX CL	4120	.631	2601	22258	15562	3781	9525	875	5.28
1 124	MAX CR	3882	.627	2435	20976	14862	3707	9399	862	5.34
1 125		3501	.624	2184	18913	13745	3590	9236	841	5.45
1 126		3278	.625	2047	17710	13051	3525	9160	826	5.51
1 127		3049	.626	1908	16475	12326	3454	9085	812	5.59
1 128		2811	.628	1766	15190	11607	3377	9010	797	5.71
1 129		2563	.635	1627	13849	10808	3292	8930	780	5.83
1 130		2321	.645	1498	12541	9977	3205	8847	762	5.95
1 131		2087	.658	1373	11276	9153	3112	8760	745	6.07
1 132		1859	.675	1254	10044	8356	3015	8672	728	6.23
1 133		1642	.696	1143	8872	7561	2916	8587	711	6.39
1 134		1449	.719	1042	7828	6846	2825	8505	695	6.54
1 135		1270	.744	945	6864	6188	2733	8414	680	6.73
1 136		1091	.781	853	5896	5513	2637	8320	664	6.95
1 137		914	.837	765	4936	4817	2542	8222	648	7.18
1 138		753	.909	684	4068	4170	2454	8120	633	7.44
1 139		606	1.003	608	3274	3574	2371	8007	617	7.72
1 140		462	1.154	533	2498	2970	2288	7874	601	8.12

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT MACH NO. .8

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 97	MAX CO	6.52	1.82	20.51	2.64	1.66	1.18	1.36	2.85	.93	.34
2 98	MAX CL	6.52	1.82	20.51	2.64	1.66	1.18	1.36	2.85	.93	.34
2 99	MAX CR	6.08	1.80	19.77	2.59	1.63	1.17	1.32	2.77	.99	.36
2 100		5.58	1.74	18.54	2.53	1.59	1.16	1.24	2.65	1.09	.39
2 101		5.36	1.74	17.86	2.50	1.56	1.15	1.20	2.59	1.17	.42
2 102		5.15	1.71	17.11	2.46	1.53	1.15	1.16	2.52	1.25	.44
2 103		4.94	1.68	16.32	2.42	1.50	1.14	1.12	2.46	1.35	.48
2 104		4.73	1.68	15.49	2.39	1.47	1.13	1.07	2.40	1.48	.51
2 105		4.54	1.65	14.69	2.35	1.43	1.12	1.03	2.34	1.64	.56
2 106		4.34	1.62	13.89	2.31	1.40	1.12	1.00	2.29	1.82	.61
2 107		4.16	1.59	13.10	2.28	1.37	1.11	.96	2.24	2.04	.67
2 108		3.98	1.59	12.31	2.24	1.33	1.10	.93	2.18	2.31	.73
2 109		3.83	1.56	11.62	2.20	1.30	1.09	.90	2.13	2.62	.81
2 110		3.68	1.53	10.93	2.16	1.28	1.08	.88	2.08	2.98	.89
2 111		3.52	1.53	10.22	2.12	1.25	1.08	.85	2.04	3.46	.99
2 112		3.36	1.51	9.54	2.08	1.22	1.07	.83	1.99	4.12	1.13
2 113		3.22	1.48	8.88	2.04	1.19	1.06	.80	1.95	4.95	1.29
2 114		3.08	1.48	8.25	2.00	1.17	1.05	.79	1.90	6.12	1.50
2 115		2.93	1.46	7.56	1.96	1.14	1.05	.77	1.87	7.97	1.81
2 116		2.79	1.44	6.87	1.92	1.12	1.04	.75	1.83	10.98	2.28
2 117		2.66	1.41	6.22	1.87	1.10	1.03	.73	1.80	16.55	3.10

FLIGHT MACH NO. .82

2 122	MAX CO	6.41	1.82	20.38	2.63	1.65	1.18	1.35	2.83	.93	.34
2 123	MAX CL	6.41	1.82	20.38	2.63	1.65	1.18	1.35	2.83	.93	.34
2 124	MAX CR	6.01	1.80	19.62	2.58	1.63	1.17	1.31	2.75	.99	.36
2 125		5.53	1.74	18.40	2.52	1.58	1.16	1.23	2.64	1.10	.39
2 126		5.31	1.74	17.72	2.49	1.55	1.15	1.19	2.57	1.17	.42
2 127		5.11	1.71	16.96	2.45	1.52	1.15	1.15	2.51	1.26	.45
2 128		4.90	1.68	16.16	2.42	1.50	1.14	1.10	2.45	1.36	.48
2 129		4.69	1.68	15.33	2.38	1.46	1.13	1.06	2.39	1.50	.52
2 130		4.50	1.65	14.53	2.34	1.43	1.12	1.02	2.33	1.65	.56
2 131		4.31	1.62	13.75	2.31	1.40	1.11	.98	2.27	1.84	.62
2 132		4.13	1.59	12.96	2.27	1.36	1.11	.95	2.22	2.06	.68
2 133		3.96	1.59	12.21	2.23	1.33	1.10	.92	2.17	2.34	.74
2 134		3.81	1.56	11.52	2.20	1.30	1.09	.89	2.12	2.64	.82
2 135		3.66	1.53	10.84	2.16	1.27	1.08	.86	2.07	3.01	.90
2 136		3.50	1.53	10.14	2.12	1.25	1.08	.84	2.02	3.50	1.01
2 137		3.35	1.51	9.46	2.08	1.22	1.07	.81	1.98	4.18	1.15
2 138		3.21	1.48	8.82	2.04	1.19	1.06	.79	1.93	5.07	1.33
2 139		3.06	1.48	8.17	2.00	1.17	1.05	.77	1.89	6.27	1.55
2 140		2.92	1.46	7.49	1.96	1.14	1.05	.75	1.85	8.21	1.88

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT MACH NO. .9

CASE	RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1 147	MAX CO	4131	.659	2723	22319	15466	3731	9421	866	5.32
1 148	MAX CL	4131	.659	2723	22319	15466	3731	9421	866	5.32
1 149	MAX CR	3875	.655	2539	20935	14744	3653	9308	854	5.41
1 150		3473	.655	2275	18765	13551	3542	9167	830	5.50
1 151		3237	.657	2125	17487	12845	3476	9095	816	5.58
1 152		2994	.659	1972	16178	12125	3402	9022	801	5.69
1 153		2743	.664	1821	14822	11325	3319	8946	785	5.81
1 154		2491	.674	1678	13460	10542	3240	8866	769	5.94
1 155		2249	.686	1542	12152	9741	3155	8781	752	6.07
1 156		2020	.701	1415	10911	8959	3065	8699	736	6.20
1 157		1798	.719	1293	9714	8195	2972	8616	720	6.36
1 158		1591	.742	1181	8597	7454	2883	8537	703	6.50
1 159		1399	.768	1075	7561	6768	2796	8450	689	6.68
1 160		1219	.800	974	6584	6107	2705	8361	675	6.88
1 161		1040	.845	878	5617	5434	2613	8268	660	7.10
1 162		866	.910	788	4677	4767	2524	8172	645	7.35
1 163		707	.996	705	3822	4136	2441	8071	631	7.61
1 164		554	1.127	624	2993	3512	2361	7955	616	7.94
1 165		411	1.331	547	2220	2912	2283	7826	602	8.35
1 166		283	1.686	476	1526	2355	2209	7694	588	8.83
1 167		172	2.403	414	930	1862	2134	7568	575	9.33

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 40000 FT. TAM -69.70F
STANDARD DAY TAM

FLIGHT MACH NO. .9

CASE	RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2 147	MAX CO	6.09	1.80	19.80	2.59	1.63	1.17	1.31	2.76	.93	.34
2 148	MAX CL	6.09	1.80	19.80	2.59	1.63	1.17	1.31	2.76	.93	.34
2 149	MAX CR	5.74	1.77	19.00	2.55	1.61	1.17	1.26	2.68	.99	.36
2 150		5.34	1.74	17.82	2.49	1.56	1.16	1.18	2.57	1.10	.40
2 151		5.14	1.71	17.10	2.45	1.53	1.15	1.14	2.51	1.18	.43
2 152		4.94	1.71	16.32	2.42	1.51	1.14	1.10	2.44	1.28	.46
2 153		4.74	1.68	15.50	2.38	1.47	1.13	1.05	2.39	1.40	.49
2 154		4.54	1.65	14.71	2.35	1.44	1.13	1.01	2.32	1.54	.54
2 155		4.36	1.62	13.94	2.31	1.41	1.12	.97	2.27	1.70	.59
2 156		4.19	1.62	13.20	2.28	1.38	1.11	.93	2.21	1.90	.65
2 157		4.03	1.59	12.46	2.24	1.35	1.10	.89	2.16	2.13	.71
2 158		3.88	1.56	11.78	2.21	1.32	1.10	.87	2.11	2.41	.78
2 159		3.73	1.56	11.11	2.17	1.29	1.09	.84	2.06	2.74	.87
2 160		3.58	1.53	10.45	2.13	1.27	1.08	.81	2.01	3.15	.97
2 161		3.43	1.51	9.78	2.09	1.24	1.07	.79	1.96	3.68	1.09
2 162		3.28	1.51	9.13	2.06	1.21	1.07	.76	1.92	4.42	1.26
2 163		3.15	1.48	8.52	2.02	1.19	1.06	.74	1.87	5.41	1.46
2 164		3.01	1.46	7.88	1.98	1.16	1.05	.72	1.83	6.91	1.76
2 165		2.87	1.46	7.23	1.94	1.14	1.04	.70	1.79	9.31	2.21
2 166		2.75	1.44	6.60	1.90	1.11	1.04	.68	1.76	13.53	2.95
2 167		2.63	1.41	6.03	1.85	1.09	1.03	.67	1.72	22.18	4.42

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT CASE		MACH NO. 0.3 RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	1	MAX CO	3342	.435	1454	22961	17218	3818	9600	877	5.20
1	2	MAX CL	3342	.435	1454	22961	17218	3818	9600	877	5.20
1	3	MAX CR	3341	.435	1453	22952	17215	3817	9600	877	5.20
1	4		3210	.431	1383	22054	16630	3755	9582	866	5.23
1	5		3059	.426	1302	21018	15972	3680	9507	852	5.27
1	6		2904	.421	1222	19949	15277	3600	9382	836	5.32
1	7		2730	.419	1144	18756	14461	3522	9274	818	5.35
1	8		2565	.416	1067	17620	13684	3444	9180	800	5.39
1	9		2392	.414	990	16437	12869	3356	9094	779	5.45
1	10		2209	.413	913	15180	11976	3259	9009	757	5.50
1	11		2024	.414	839	13906	11069	3163	8916	733	5.56
1	12		1830	.418	764	12575	10103	3055	8816	706	5.64
1	13		1633	.423	691	11222	9110	2935	8707	677	5.73
1	14		1453	.429	624	9986	8185	2816	8602	650	5.83
1	15		1285	.437	562	8832	7307	2699	8500	622	5.91
1	16		1122	.449	503	7706	6436	2571	8389	593	6.01
1	17		965	.465	449	6632	5589	2430	8271	564	6.10
1	18		823	.485	399	5652	4807	2296	8145	536	6.20
FLIGHT		MACH NO. .45									
1	24	MAX CO	3143	.495	1556	21595	15927	3817	9600	879	5.23
1	25	MAX CL	3143	.495	1556	21595	15927	3817	9600	879	5.23
1	26	MAX CR	3145	.495	1557	21605	15928	3817	9600	879	5.24
1	27		2961	.489	1447	20341	15173	3731	9534	864	5.29
1	28		2814	.484	1361	19330	14558	3655	9413	851	5.35
1	29		2647	.482	1275	18185	13818	3576	9306	834	5.39
1	30		2482	.480	1192	17053	13069	3501	9209	817	5.44
1	31		2322	.478	1111	15950	12353	3423	9124	801	5.51
1	32		2144	.479	1026	14732	11530	3329	9044	782	5.59
1	33		1961	.482	944	13475	10658	3232	8956	760	5.67
1	34		1779	.487	866	12224	9772	3131	8863	738	5.76
1	35		1592	.494	787	10935	8853	3016	8761	713	5.87
1	36		1413	.504	712	9706	7968	2898	8659	688	6.00
1	37		1249	.516	645	8580	7139	2787	8562	664	6.11
1	38		1097	.530	581	7540	6370	2674	8460	641	6.25
1	39		947	.550	520	6506	5580	2551	8351	615	6.40
1	40		808	.576	465	5549	4835	2427	8238	590	6.54
1	41		680	.608	413	4675	4153	2311	8116	566	6.70

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT MACH NO. 0.3

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	1	MAX CO	6.64	1.82	21.27	2.72	1.67	1.19	1.51	3.05	.89	.31
2	2	MAX CL	6.64	1.82	21.27	2.72	1.67	1.19	1.51	3.05	.89	.31
2	3	MAX CR	6.64	1.82	21.26	2.72	1.67	1.19	1.51	3.04	.89	.31
2	4		6.58	1.82	20.66	2.68	1.65	1.18	1.48	2.99	.93	.32
2	5		6.32	1.80	19.95	2.64	1.62	1.17	1.44	2.92	.97	.33
2	6		5.92	1.77	19.19	2.60	1.59	1.16	1.41	2.85	1.02	.34
2	7		5.59	1.74	18.44	2.56	1.56	1.16	1.37	2.78	1.08	.36
2	8		5.32	1.71	17.68	2.52	1.53	1.15	1.34	2.72	1.15	.38
2	9		5.08	1.71	16.86	2.48	1.50	1.14	1.31	2.66	1.22	.39
2	10		4.86	1.68	16.01	2.44	1.46	1.13	1.27	2.60	1.31	.41
2	11		4.63	1.65	15.13	2.40	1.43	1.12	1.24	2.54	1.41	.44
2	12		4.40	1.62	14.21	2.36	1.39	1.11	1.21	2.49	1.54	.46
2	13		4.17	1.59	13.24	2.31	1.36	1.10	1.17	2.44	1.69	.50
2	14		3.96	1.56	12.34	2.27	1.32	1.09	1.14	2.40	1.86	.53
2	15		3.77	1.53	11.49	2.22	1.29	1.08	1.12	2.35	2.05	.56
2	16		3.57	1.53	10.64	2.17	1.26	1.08	1.10	2.31	2.28	.60
2	17		3.38	1.51	9.83	2.13	1.22	1.07	1.07	2.27	2.56	.65
2	18		3.21	1.48	9.05	2.08	1.19	1.06	1.06	2.22	2.90	.69

FLIGHT MACH NO. .45

2	24	MAX CO	6.64	1.82	21.07	2.70	1.66	1.18	1.46	3.00	.96	.34
2	25	MAX CL	6.64	1.82	21.07	2.70	1.66	1.18	1.46	3.00	.96	.34
2	26	MAX CR	6.64	1.82	21.06	2.70	1.66	1.18	1.47	3.00	.96	.33
2	27		6.43	1.80	20.23	2.65	1.63	1.17	1.42	2.91	1.01	.35
2	28		6.03	1.77	19.50	2.61	1.61	1.17	1.38	2.84	1.07	.37
2	29		5.70	1.77	18.74	2.57	1.58	1.16	1.35	2.77	1.13	.38
2	30		5.42	1.74	17.99	2.53	1.54	1.15	1.31	2.71	1.20	.40
2	31		5.18	1.71	17.22	2.49	1.51	1.14	1.28	2.65	1.28	.42
2	32		4.96	1.68	16.37	2.45	1.48	1.13	1.24	2.59	1.38	.45
2	33		4.73	1.65	15.51	2.41	1.45	1.13	1.20	2.53	1.51	.48
2	34		4.52	1.65	14.64	2.37	1.41	1.12	1.17	2.48	1.65	.51
2	35		4.29	1.62	13.72	2.33	1.37	1.11	1.14	2.42	1.82	.55
2	36		4.07	1.59	12.81	2.29	1.34	1.10	1.10	2.38	2.03	.59
2	37		3.89	1.56	11.98	2.24	1.30	1.09	1.08	2.33	2.27	.64
2	38		3.70	1.53	11.17	2.20	1.27	1.08	1.05	2.28	2.54	.68
2	39		3.51	1.51	10.34	2.15	1.24	1.07	1.03	2.24	2.89	.74
2	40		3.34	1.48	9.59	2.11	1.21	1.06	1.01	2.20	3.32	.81
2	41		3.18	1.48	8.84	2.06	1.18	1.06	.99	2.15	3.84	.89

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT MACH NO. .6

CASE		RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	49	MAX CO	3116	.554	1727	21406	15470	3818	9600	880	5.26
1	50	MAX CL	3116	.554	1727	21406	15470	3818	9600	880	5.26
1	51	MAX CR	3066	.553	1696	21068	15255	3796	9593	876	5.27
1	52		2813	.546	1534	19324	14265	3681	9405	856	5.36
1	53		2649	.543	1439	18197	13599	3606	9300	843	5.43
1	54		2482	.543	1348	17050	12878	3536	9211	827	5.48
1	55		2320	.542	1258	15941	12182	3463	9133	812	5.54
1	56		2143	.543	1164	14724	11412	3376	9053	796	5.65
1	57		1957	.548	1072	13447	10578	3282	8970	777	5.76
1	58		1776	.555	986	12203	9728	3187	8882	756	5.85
1	59		1592	.566	900	10939	8855	3080	8786	736	5.98
1	60		1414	.579	818	9712	8000	2967	8687	715	6.13
1	61		1246	.595	742	8564	7182	2860	8594	694	6.28
1	62		1100	.613	674	7555	6457	2757	8504	675	6.43
1	63		957	.634	608	6579	5749	2649	8405	655	6.60
1	64		815	.667	543	5597	5016	2536	8297	633	6.81
1	65		685	.709	486	4708	4329	2431	8188	613	7.00
1	66		568	.761	432	3901	3705	2333	8070	593	7.24

FLIGHT MACH NO. .7

1	74	MAX CO	3186	.593	1889	21887	15534	3818	9599	880	5.26
1	75	MAX CL	3186	.593	1889	21887	15534	3818	9599	880	5.26
1	76	MAX CR	3026	.589	1781	20793	14923	3754	9499	869	5.31
1	77		2750	.582	1601	18891	13853	3630	9315	848	5.42
1	78		2580	.583	1503	17723	13170	3564	9226	834	5.47
1	79		2412	.583	1406	16575	12487	3497	9148	819	5.54
1	80		2237	.584	1306	15368	11759	3420	9072	804	5.64
1	81		2050	.588	1205	14086	10955	3330	8992	787	5.76
1	82		1861	.596	1109	12784	10108	3239	8908	768	5.86
1	83		1678	.606	1017	11528	9271	3144	8818	750	5.99
1	84		1496	.621	928	10281	8430	3039	8725	731	6.13
1	85		1323	.639	845	9089	7597	2932	8634	712	6.29
1	86		1167	.658	768	8018	6849	2832	8547	692	6.44
1	87		1027	.679	698	7056	6176	2735	8457	677	6.61
1	88		883	.711	628	6070	5469	2631	8357	659	6.83
1	89		743	.757	562	5106	4753	2527	8253	640	7.06
1	90		617	.814	503	4242	4096	2431	8145	623	7.30
1	91		503	.888	447	3454	3492	2344	8029	606	7.58
1	92		392	.997	391	2692	2896	2250	7887	586	7.96

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT MACH NO. .6

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	49	MAX CO	6.65	1.82	20.90	2.68	1.66	1.18	1.42	2.95	.97	.34
2	50	MAX CL	6.65	1.82	20.90	2.68	1.66	1.18	1.42	2.95	.97	.34
2	51	MAX CR	6.63	1.82	20.71	2.67	1.65	1.18	1.41	2.93	.98	.35
2	52		6.02	1.80	19.54	2.60	1.61	1.17	1.35	2.81	1.07	.38
2	53		5.70	1.77	18.79	2.57	1.59	1.16	1.31	2.74	1.14	.40
2	54		5.44	1.74	18.08	2.53	1.56	1.15	1.27	2.68	1.21	.42
2	55		5.22	1.71	17.34	2.49	1.53	1.15	1.23	2.62	1.30	.44
2	56		4.99	1.71	16.50	2.45	1.49	1.14	1.19	2.55	1.40	.47
2	57		4.77	1.68	15.64	2.41	1.46	1.13	1.15	2.50	1.53	.50
2	58		4.57	1.65	14.81	2.37	1.42	1.12	1.12	2.44	1.68	.54
2	59		4.35	1.62	13.94	2.33	1.39	1.11	1.08	2.39	1.88	.59
2	60		4.14	1.59	13.06	2.29	1.35	1.10	1.05	2.34	2.10	.64
2	61		3.96	1.56	12.24	2.25	1.32	1.09	1.02	2.29	2.37	.70
2	62		3.79	1.56	11.50	2.21	1.29	1.09	.99	2.24	2.68	.76
2	63		3.62	1.53	10.73	2.17	1.26	1.08	.97	2.19	3.05	.82
2	64		3.44	1.51	9.94	2.13	1.23	1.07	.94	2.15	3.55	.91
2	65		3.28	1.48	9.24	2.08	1.20	1.06	.92	2.10	4.17	1.02
2	66		3.13	1.48	8.53	2.04	1.17	1.05	.90	2.06	4.97	1.14

FLIGHT MACH NO. .7

2	74	MAX CO	6.65	1.82	20.84	2.67	1.67	1.18	1.40	2.93	.95	.34
2	75	MAX CL	6.65	1.82	20.84	2.67	1.67	1.18	1.40	2.93	.95	.34
2	76	MAX CR	6.32	1.80	20.17	2.63	1.64	1.18	1.36	2.86	1.00	.36
2	77		5.75	1.77	18.94	2.57	1.60	1.16	1.29	2.74	1.10	.39
2	78		5.49	1.74	18.24	2.53	1.57	1.16	1.25	2.67	1.17	.41
2	79		5.27	1.74	17.53	2.49	1.54	1.15	1.21	2.61	1.25	.44
2	80		5.06	1.71	16.74	2.46	1.51	1.14	1.17	2.54	1.35	.47
2	81		4.84	1.68	15.88	2.42	1.48	1.13	1.13	2.49	1.47	.50
2	82		4.63	1.65	15.05	2.38	1.44	1.13	1.09	2.43	1.62	.54
2	83		4.43	1.65	14.24	2.34	1.41	1.12	1.05	2.37	1.79	.58
2	84		4.23	1.62	13.40	2.31	1.37	1.11	1.02	2.32	2.01	.64
2	85		4.04	1.59	12.58	2.27	1.34	1.10	.99	2.27	2.27	.70
2	86		3.88	1.56	11.82	2.23	1.30	1.09	.96	2.22	2.56	.76
2	87		3.72	1.53	11.12	2.19	1.28	1.08	.93	2.17	2.90	.84
2	88		3.55	1.53	10.37	2.15	1.25	1.07	.90	2.12	3.37	.93
2	89		3.38	1.51	9.64	2.10	1.22	1.07	.88	2.08	3.99	1.04
2	90		3.23	1.48	8.96	2.06	1.19	1.06	.86	2.03	4.77	1.18
2	91		3.08	1.46	8.28	2.02	1.16	1.05	.84	1.99	5.83	1.35
2	92		2.92	1.46	7.55	1.97	1.14	1.04	.82	1.96	7.41	1.58

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT MACH NO. .8

CASE		RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	98	MAX CO	3193	.628	2004	21938	15384	3773	9513	872	5.30
1	2	MAX CL	3193	.628	2004	21935	15381	3774	9512	872	5.30
1	3	MAX CR	3006	.624	1874	20655	14704	3699	9388	859	5.36
1	4		2707	.621	1681	18601	13567	3581	9229	837	5.48
1	5		2533	.622	1575	17405	12879	3516	9151	823	5.54
1	6		2354	.623	1466	16172	12147	3443	9078	809	5.63
1	7		2165	.626	1356	14876	11414	3363	9002	793	5.75
1	8		1969	.634	1249	13530	10587	3275	8921	776	5.87
1	9		1782	.645	1149	12240	9762	3188	8836	758	5.99
1	10		1598	.659	1053	10982	8942	3093	8747	741	6.13
1	11		1421	.676	961	9765	8137	2992	8659	723	6.29
1	12		1254	.698	876	8615	7347	2894	8575	705	6.44
1	13		1106	.721	798	7598	6647	2802	8490	690	6.61
1	14		965	.749	723	6632	5981	2707	8398	675	6.80
1	15		823	.791	651	5655	5291	2609	8302	659	7.03
1	16		686	.850	584	4714	4601	2514	8201	642	7.27

FLIGHT MACH NO. .82

CASE		RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	100	MAX CO	3194	.635	2027	21945	15357	3762	9487	870	5.31
1	101	MAX CL	3194	.635	2027	21945	15357	3762	9487	870	5.31
1	17	MAX CR	3004	.631	1894	20638	14668	3687	9366	858	5.38
1	18		2701	.629	1698	18558	13511	3570	9212	835	5.49
1	19		2525	.630	1590	17349	12822	3505	9138	821	5.55
1	20		2342	.631	1478	16093	12090	3430	9063	806	5.65
1	21		2151	.635	1366	14781	11341	3350	8987	790	5.77
1	22		1955	.644	1258	13433	10521	3263	8906	773	5.90
1	23		1767	.655	1157	12141	9703	3177	8820	756	6.02
1	24		1584	.669	1060	10883	8886	3081	8732	739	6.16
1	25		1409	.687	968	9680	8093	2982	8646	721	6.32
1	26		1242	.710	883	8536	7309	2886	8563	704	6.48
1	27		1096	.734	804	7530	6623	2796	8477	689	6.64
1	28		955	.763	729	6562	5958	2701	8385	674	6.84
1	29		813	.807	656	5586	5270	2605	8290	658	7.06
1	30		676	.870	588	4643	4579	2511	8190	642	7.32

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT MACH NO. .8

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	1	MAX CO	6.37	1.82	20.29	2.63	1.65	1.18	1.35	2.85	.94	.34
2	2	MAX CL	6.37	1.82	20.29	2.63	1.65	1.18	1.35	2.85	.94	.34
2	3	MAX CR	5.98	1.80	19.52	2.59	1.62	1.17	1.31	2.77	1.00	.36
2	4		5.50	1.74	18.30	2.53	1.58	1.16	1.23	2.66	1.11	.40
2	5		5.29	1.74	17.60	2.49	1.55	1.15	1.19	2.59	1.19	.42
2	6		5.09	1.71	16.84	2.46	1.52	1.14	1.15	2.53	1.28	.45
2	7		4.87	1.68	16.02	2.42	1.49	1.14	1.10	2.47	1.39	.49
2	8		4.66	1.68	15.19	2.38	1.46	1.13	1.06	2.41	1.53	.53
2	9		4.47	1.65	14.40	2.35	1.42	1.12	1.02	2.35	1.69	.57
2	10		4.28	1.62	13.61	2.31	1.39	1.11	.98	2.30	1.88	.63
2	11		4.10	1.59	12.81	2.27	1.36	1.10	.95	2.25	2.12	.69
2	12		3.94	1.59	12.06	2.23	1.32	1.10	.92	2.19	2.40	.76
2	13		3.78	1.56	11.38	2.20	1.29	1.09	.89	2.14	2.72	.83
2	14		3.63	1.53	10.69	2.16	1.27	1.08	.87	2.09	3.12	.92
2	15		3.47	1.51	9.98	2.12	1.24	1.07	.84	2.05	3.65	1.03
2	16		3.32	1.51	9.29	2.08	1.21	1.07	.82	2.00	4.37	1.18

FLIGHT MACH NO. .82

2	100	MAX CO	6.29	1.80	20.16	2.62	1.64	1.18	1.34	2.83	.94	.34
2	101	MAX CL	6.29	1.80	20.16	2.62	1.64	1.18	1.34	2.83	.94	.34
2	17	MAX CR	5.91	1.77	19.38	2.58	1.62	1.17	1.29	2.76	1.00	.36
2	18		5.46	1.74	18.16	2.52	1.57	1.16	1.22	2.64	1.12	.40
2	19		5.25	1.74	17.46	2.48	1.54	1.15	1.18	2.58	1.19	.43
2	20		5.04	1.71	16.69	2.45	1.52	1.14	1.14	2.52	1.29	.45
2	21		4.83	1.68	15.87	2.41	1.49	1.14	1.09	2.45	1.40	.49
2	22		4.63	1.65	15.04	2.38	1.45	1.13	1.05	2.39	1.54	.53
2	23		4.44	1.65	14.26	2.34	1.42	1.12	1.01	2.34	1.71	.58
2	24		4.25	1.62	13.47	2.30	1.38	1.11	.97	2.28	1.90	.63
2	25		4.08	1.59	12.69	2.27	1.35	1.10	.94	2.23	2.14	.70
2	26		3.92	1.56	11.96	2.23	1.32	1.10	.91	2.18	2.43	.77
2	27		3.76	1.56	11.28	2.19	1.29	1.09	.88	2.13	2.75	.84
2	28		3.61	1.53	10.59	2.15	1.26	1.08	.85	2.08	3.15	.93
2	29		3.45	1.51	9.89	2.11	1.24	1.07	.83	2.03	3.70	1.05
2	30		3.30	1.51	9.22	2.07	1.21	1.06	.81	1.99	4.45	1.21

QE-3 ESTIMATED PERFORMANCE
ICAO MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT CASE		MACH NO. .9 RATING	FNT	TSFC	WF	FNTAM	FNDAM	N1C2	N2C2	WAT2	BPR
1	31	MAX CO	3200	.663	2120	21984	15268	3712	9386	862	5.37
1	31	MAX CL	3200	.663	2120	21984	15268	3712	9386	862	5.37
1	32	MAX CR	2996	.659	1974	20587	14542	3633	9278	848	5.45
1	33		2679	.660	1769	18408	13324	3522	9147	825	5.55
1	34		2491	.662	1648	17113	12617	3454	9072	810	5.64
1	35		2296	.665	1527	15775	11884	3379	8999	796	5.76
1	36		2097	.672	1409	14409	11075	3294	8923	779	5.88
1	37		1902	.683	1298	13065	10279	3214	8842	763	6.00
1	38		1714	.696	1193	11773	9485	3127	8756	746	6.14
1	39		1535	.712	1093	10547	8698	3035	8674	730	6.28
1	40		1364	.733	999	9373	7942	2943	8594	714	6.44
1	41		1204	.757	912	8275	7222	2856	8511	698	6.60
1	42		1057	.785	830	7265	6548	2767	8423	684	6.78
1	43		916	.821	751	6290	5885	2676	8333	670	6.99
1	44		774	.873	676	5320	5200	2584	8239	654	7.22
1	45		640	.948	606	4396	4535	2496	8142	640	7.48

QE-3 ESTIMATED PERFORMANCE
ICAC MODEL ATMOSPHERE 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION
ALTITUDE 45000 FT. TAM -69.7F
STANDARD DAY TAM

FLIGHT MACH NO. .9

CASE		RATING	P34P2	T34T2	P4P2	T4T2	PDP2	TDT2	PEP2	TET2	CDD	CDP
2	31	MAX CO	5.98	1.80	19.56	2.58	1.63	1.17	1.29	2.76	.94	.34
2	31	MAX CL	5.98	1.80	19.56	2.58	1.63	1.17	1.29	2.76	.94	.34
2	32	MAX CR	5.65	1.77	18.75	2.54	1.60	1.16	1.24	2.69	1.01	.37
2	33		5.28	1.74	17.58	2.48	1.55	1.15	1.17	2.58	1.12	.41
2	34		5.08	1.71	16.83	2.45	1.53	1.15	1.13	2.51	1.21	.43
2	35		4.87	1.68	16.03	2.41	1.50	1.14	1.08	2.45	1.31	.47
2	36		4.67	1.68	15.22	2.38	1.46	1.13	1.04	2.39	1.44	.51
2	37		4.49	1.65	14.45	2.35	1.43	1.12	.99	2.33	1.58	.55
2	38		4.31	1.62	13.68	2.31	1.40	1.12	.95	2.28	1.76	.61
2	39		4.14	1.62	12.94	2.27	1.37	1.11	.92	2.22	1.96	.66
2	40		3.98	1.59	12.22	2.24	1.34	1.10	.89	2.17	2.21	.73
2	41		3.83	1.56	11.54	2.20	1.31	1.09	.86	2.12	2.50	.81
2	42		3.68	1.53	10.88	2.16	1.28	1.09	.83	2.07	2.85	.90
2	43		3.53	1.53	10.21	2.13	1.26	1.08	.80	2.02	3.29	1.00
2	44		3.39	1.51	9.55	2.09	1.23	1.07	.78	1.97	3.89	1.14
2	45		3.24	1.48	8.91	2.05	1.20	1.06	.75	1.93	4.71	1.32

TDM 2157
Revision II

QE-3 TURBOFAN ENGINE PERFORMANCE
EFFECT OF AMBIENT TEMPERATURE
ON TAKE-OFF PERFORMANCE

TABLE 2

QE-3 ESTIMATED PERFORMANCE
ICAO STANDARD ATMOSPHERE - 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION

ESTIMATED TAKE-OFF PERFORMANCE

ALTITUDE	MN	STD -125F THRUST	STD DAY THRUST	STD -25F THRUST	STD +61F THRUST
0.	.00	21888.	21888.	21888.	18738.
0.	.15	18495.	18495.	18495.	15578.
0.	.30	16081.	16081.	16081.	13302.
0.	.45	14316.	14316.	14316.	11590.
2000.	.00	20892.	20892.	20892.	17936.
2000.	.15	17707.	17707.	17707.	14973.
2000.	.30	15448.	15448.	15448.	12824.
2000.	.45	13809.	13809.	13809.	11226.
4000.	.00	19908.	19908.	19908.	17150.
4000.	.15	16920.	16920.	16920.	14351.
4000.	.30	14824.	14824.	14824.	12340.
4000.	.45	13287.	13287.	13287.	10842.
6000.	.00	18951.	18951.	18951.	16361.
6000.	.15	16143.	16143.	16143.	13728.
6000.	.30	14175.	14175.	14175.	11844.
6000.	.45	12766.	12766.	12766.	10444.
8000.	.00	18033.	18033.	18033.	15586.
8000.	.15	15396.	15396.	15396.	13114.
8000.	.30	13530.	13530.	13530.	11352.
8000.	.45	12240.	12240.	12240.	10049.
10000.	.00	17137.	17137.	17137.	14837.
10000.	.15	14667.	14667.	14667.	12523.
10000.	.30	12913.	12913.	12913.	10869.
10000.	.45	11690.	11690.	11690.	9655.
12000.	.00	16247.	16247.	16247.	14095.
12000.	.15	13936.	13936.	13936.	11930.
12000.	.30	12308.	12308.	12308.	10394.
12000.	.45	11156.	11156.	11156.	9266.
14000.	.00	15360.	15360.	15360.	13360.
14000.	.15	13209.	13209.	13209.	11342.
14000.	.30	11712.	11712.	11712.	9916.
14000.	.45	10647.	10647.	10647.	8875.

QE-3 TURBOFAN ENGINE PERFORMANCE
EFFECT OF AMBIENT TEMPERATURE
ON MAXIMUM CONTINUOUS PERFORMANCE
AND ON MAXIMUM CLIMB PERFORMANCE

TABLE 3

QE-3 ESTIMATED PERFORMANCE
ICAO STANDARD ATMOSPHERE - 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION

MAXIMUM CONTINUOUS AND CLIMB POWER SETTINGS

ALTITUDE	MN	STD -125F THRUST	STD DAY THRUST	STD +15C THRUST	STD +40F THRUST
0.	.00	20263.	20263.	20263.	19088.
0.	.15	16986.	16986.	16986.	15914.
0.	.30	14638.	14638.	14638.	13608.
0.	.45	12883.	12883.	12883.	11880.
0.	.60	11549.	11549.	11549.	10566.
0.	.70	10833.	10833.	10833.	9878.
5000.	.00	18176.	18176.	18176.	17157.
5000.	.15	15356.	15356.	15356.	14417.
5000.	.30	13348.	13348.	13348.	12448.
5000.	.45	11867.	11867.	11867.	11000.
5000.	.60	10761.	10761.	10761.	9898.
5000.	.70	10176.	10176.	10176.	9308.
10000.	.00	16111.	16111.	16111.	15284.
10000.	.15	13709.	13709.	13709.	12939.
10000.	.30	12035.	12035.	12035.	11275.
10000.	.45	10827.	10827.	10827.	10055.
10000.	.60	9923.	9923.	9923.	9137.
10000.	.70	9459.	9459.	9459.	8667.
10000.	.80	9055.	9055.	9055.	8268.
10000.	.82	8977.	8977.	8977.	8189.
10000.	.90	8693.	8693.	8693.	7921.
15000.	.00	14188.	14188.	14188.	13450.
15000.	.15	12148.	12148.	12148.	11464.
15000.	.30	10708.	10708.	10708.	10075.
15000.	.45	9697.	9697.	9697.	9092.
15000.	.60	9022.	9022.	9022.	8360.
15000.	.70	8681.	8681.	8681.	7986.
15000.	.80	8379.	8379.	8379.	7658.
15000.	.82	8319.	8319.	8319.	7597.
15000.	.90	8094.	8094.	8094.	7367.

QE-3 ESTIMATED PERFORMANCE
ICAO STANDARD ATMOSPHERE - 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION

MAXIMUM CONTINUOUS AND CLIMB POWER SETTINGS

ALTITUDE	MN	STD -125F THRUST	STD DAY THRUST	STD +15C THRUST	STD +40F THRUST
20000.	.30	9431.	9431.	9431.	8904.
20000.	.45	8622.	8622.	8622.	8073.
20000.	.60	8062.	8062.	8062.	7529.
20000.	.70	7818.	7818.	7818.	7259.
20000.	.80	7616.	7616.	7616.	7024.
20000.	.82	7584.	7584.	7584.	6978.
20000.	.90	7435.	7435.	7435.	6796.
25000.	.30	8163.	8163.	8163.	7761.
25000.	.45	7522.	7522.	7522.	7115.
25000.	.60	7129.	7129.	7129.	6669.
25000.	.70	6948.	6948.	6948.	6473.
25000.	.80	6814.	6814.	6814.	6320.
25000.	.82	6792.	6792.	6792.	6295.
25000.	.90	6714.	6714.	6714.	6184.
30000.	.30	6801.	6847.	6853.	6650.
30000.	.45	6374.	6437.	6457.	6133.
30000.	.60	6169.	6169.	6169.	5829.
30000.	.70	6074.	6074.	6074.	5697.
30000.	.80	6009.	6009.	6009.	5595.
30000.	.82	5999.	5999.	5999.	5580.
30000.	.90	5962.	5962.	5962.	5525.

QE-3 ESTIMATED PERFORMANCE
ICAO STANDARD ATMOSPHERE - 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION

MAXIMUM CONTINUOUS AND CLIMB POWER SETTINGS

ALTITUDE	MN	STD -125F	STD DAY	STD +15C	STD +40F
		THRUST	THRUST	THRUST	THRUST
35000.	.30	5383.	5416.	5416.	5416.
35000.	.45	5051.	5091.	5100.	5104.
35000.	.60	4992.	5042.	5053.	4980.
35000.	.70	5079.	5158.	5166.	4910.
35000.	.80	5199.	5199.	5199.	4869.
35000.	.82	5200.	5200.	5200.	4863.
35000.	.90	5208.	5208.	5208.	4844.
40000.	.30	4236.	4253.	4257.	4260.
40000.	.45	3976.	4007.	4011.	4014.
40000.	.60	3931.	3964.	3976.	3931.
40000.	.70	3998.	4053.	4061.	3881.
40000.	.80	4115.	4115.	4115.	3854.
40000.	.82	4120.	4120.	4120.	3851.
40000.	.90	4131.	4131.	4131.	3841.
45000.	.30	3328.	3342.	3343.	3348.
45000.	.45	3125.	3143.	3150.	3153.
45000.	.60	3093.	3116.	3122.	3039.
45000.	.70	3150.	3186.	3190.	2998.
45000.	.80	3193.	3193.	3193.	2974.
45000.	.82	3194.	3194.	3194.	2971.
45000.	.90	3200.	3200.	3200.	2963.

QE-3 TURBOFAN ENGINE PERFORMANCE
EFFECT OF AMBIENT TEMPERATURE
ON MAXIMUM CRUISE PERFORMANCE

TABLE 4

QE-3 ESTIMATED PERFORMANCE
ICAO STANDARD ATMOSPHERE - 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION

MAXIMUM CRUISE POWER SETTING

ALTITUDE	MN	STD -125F THRUST	STD DAY THRUST	STD +15C THRUST	STD +40F THRUST
0.	.00	18923.	18923.	18923.	17702.
0.	.15	15744.	15744.	15744.	14640.
0.	.30	13451.	13451.	13451.	12413.
0.	.45	11729.	11729.	11729.	10739.
0.	.60	10413.	10413.	10413.	9494.
0.	.70	9730.	9730.	9730.	8836.
5000.	.00	17060.	17060.	17060.	16047.
5000.	.15	14320.	14320.	14320.	13385.
5000.	.30	12351.	12351.	12351.	11467.
5000.	.45	10895.	10895.	10895.	10029.
5000.	.60	9782.	9782.	9782.	8924.
5000.	.70	9188.	9188.	9188.	8352.
10000.	.00	15220.	15220.	15220.	14350.
10000.	.15	12875.	12875.	12875.	12068.
10000.	.30	11214.	11214.	11214.	10430.
10000.	.45	9999.	9999.	9999.	9235.
10000.	.60	9073.	9073.	9073.	8317.
10000.	.70	8589.	8589.	8589.	7833.
10000.	.80	8194.	8194.	8194.	7439.
10000.	.82	8109.	8109.	8109.	7365.
10000.	.90	7837.	7837.	7837.	7119.
15000.	.00	13408.	13408.	13408.	12699.
15000.	.15	11429.	11429.	11429.	10769.
15000.	.30	10037.	10037.	10037.	9401.
15000.	.45	9056.	9056.	9056.	8407.
15000.	.60	8330.	8330.	8330.	7655.
15000.	.70	7950.	7950.	7950.	7260.
15000.	.80	7618.	7618.	7618.	6934.
15000.	.82	7558.	7558.	7558.	6872.
15000.	.90	7322.	7322.	7322.	6649.

QE-3 ESTIMATED PERFORMANCE
ICAO STANDARD ATMOSPHERE - 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION

MAXIMUM CRUISE POWER SETTING.

ALTITUDE	MN	STD -125F THRUST	STD DAY THRUST	STD +15C THRUST	STD +40F THRUST
20000.	.30	8885.	8885.	8885.	8338.
20000.	.45	8056.	8056.	8056.	7546.
20000.	.60	7513.	7513.	7513.	6959.
20000.	.70	7243.	7243.	7243.	6658.
20000.	.80	7008.	7008.	7008.	6395.
20000.	.82	6963.	6963.	6963.	6349.
20000.	.90	6780.	6780.	6780.	6163.
25000.	.30	7753.	7753.	7753.	7322.
25000.	.45	7114.	7114.	7114.	6651.
25000.	.60	6671.	6671.	6671.	6213.
25000.	.70	6472.	6472.	6472.	6003.
25000.	.80	6326.	6326.	6326.	5823.
25000.	.82	6301.	6301.	6301.	5789.
25000.	.90	6192.	6192.	6192.	5649.
30000.	.30	6666.	6666.	6666.	6311.
30000.	.45	6141.	6141.	6141.	5803.
30000.	.60	5839.	5839.	5839.	5464.
30000.	.70	5710.	5710.	5710.	5306.
30000.	.80	5610.	5610.	5610.	5198.
30000.	.82	5596.	5596.	5596.	5176.
30000.	.90	5544.	5544.	5544.	5098.

QE-3 ESTIMATED PERFORMANCE
ICAO STANDARD ATMOSPHERE - 100 PERCENT RAM RECOVERY
NO BLEED OR POWER EXTRACTION

MAXIMUM CRUISE POWER SETTING

ALTITUDE	MN	STD -125F THRUST	STD DAY THRUST	STD +15C THRUST	STD +40F THRUST
35000.	.30	5383.	5414.	5416.	5368.
35000.	.45	5048.	5089.	5097.	4950.
35000.	.60	4993.	5008.	5008.	4717.
35000.	.70	4931.	4931.	4931.	4622.
35000.	.80	4906.	4906.	4906.	4556.
35000.	.82	4900.	4900.	4900.	4545.
35000.	.90	4882.	4882.	4882.	4508.
40000.	.30	4239.	4255.	4258.	4230.
40000.	.45	3977.	4004.	4011.	3901.
40000.	.60	3928.	3963.	3963.	3722.
40000.	.70	3906.	3906.	3906.	3653.
40000.	.80	3885.	3885.	3885.	3607.
40000.	.82	3882.	3882.	3882.	3600.
40000.	.90	3875.	3875.	3875.	3576.
45000.	.30	3327.	3341.	3344.	3267.
45000.	.45	3125.	3145.	3147.	3015.
45000.	.60	3066.	3066.	3066.	2873.
45000.	.70	3026.	3026.	3026.	2816.
45000.	.80	3006.	3006.	3006.	2778.
45000.	.82	3004.	3004.	3004.	2772.
45000.	.90	2997.	2997.	2997.	2755.

TDM 2157
Revision II

QE-3 TURBOFAN ENGINE
ESTIMATED THRUST AND FUEL FLOW CORRECTION FACTORS
DUE TO AIRBLEED AND SHAFT POWER EXTRACTION

TABLE 5

QE-3 ESTIMATED PERFORMANCE

ESTIMATED THRUST AND FUEL FLOW CORRECTION FACTORS
DUE TO AIRBLEED AND SHAFT POWER EXTRACTION

FLIGHT MACH NUMBER 0 HPREF = 880.

		LP BLEED		HI BLEED		POWER EXTRACTION		FAN BLEED		
FNTAM	MN	CBL	CBL′	CBL	CBL′	CPX $\delta_{am}\sqrt{\theta_{am}}$	CPX′ $\delta_{am}\sqrt{\theta_{am}}$	CBL	CBL′	
30134.1	.00	1.5119	1.2516	3.2792	2.4193	.1301	.0968	.1000	.1000	
21544.1	.00	1.1674	.7821	4.5425	3.0185	.1546	.0967	.1000	.1000	
21045.7	.00	1.1691	.7709	4.6765	3.0920	.1614	.1007	.1000	.1000	
18483.7	.00	1.4247	.9109	5.0753	3.2667	.2064	.1250	.1000	.1000	
17095.5	.00	1.4671	.9174	5.0922	3.2174	.2172	.1304	.1000	.1000	
15687.4	.00	1.3672	.8407	5.1533	3.1753	.2164	.1267	.1000	.1000	
14391.1	.00	1.3047	.7648	5.3706	3.1799	.2300	.1290	.1000	.1000	
13175.9	.00	1.3976	.7805	5.6537	3.1714	.2581	.1381	.1000	.1000	
11980.1	.00	1.5271	.8214	5.9244	3.2231	.2878	.1444	.1000	.1000	
10793.3	.00	1.6129	.8102	6.2036	3.3446	.3141	.1541	.1000	.1000	
9643.1	.00	1.6247	.8352	6.6398	3.6622	.3474	.1749	.1000	.1000	1
8577.4	.00	1.7169	.8932	7.5138	4.2043	.4399	.2329	.1000	.1000	1

QE-3 ESTIMATED PERFORMANCE

ESTIMATED THRUST AND FUEL FLOW CORRECTION FACTORS
DUE TO AIRBLEED AND SHAFT POWER EXTRACTION

FLIGHT MACH NUMBER .2 HPREF = 880.

		LP BLEED		HI BLEED		POWER EXTRACTION		FAN BLEED		
NTAM	MN	CBL	CBL′	CBL	CBL′	CPX$\delta_{am}\sqrt{\theta_{am}}$	CPX′$\delta_{am}\sqrt{\theta_{am}}$	CBL	CBL′	
3082.3	.20	1.4872	1.0659	3.8677	2.4346	.1465	.0956	.1000	.1000	2
1201.1	.20	1.5430	.9766	4.1407	2.5206	.1598	.0926	.1000	.1000	3
0121.1	.20	1.4666	.9152	4.2741	2.5911	.1595	.0927	.1000	.1000	4
9029.0	.20	1.3895	.8664	4.5198	2.7315	.1592	.0916	.1000	.1000	5
7968.4	.20	1.3686	.8134	4.9677	2.9609	.1679	.0927	.1000	.1000	6
6827.7	.20	1.3655	.7758	5.3038	3.0960	.1849	.1012	.1000	.1000	7
5681.3	.20	1.5024	.8418	5.5685	3.1989	.2093	.1124	.1000	.1000	8
4499.7	.20	1.6521	.9029	5.7161	3.2272	.2331	.1247	.1000	.1000	9
3268.8	.20	1.6839	.9068	5.7828	3.1903	.2433	.1275	.1000	.1000	10
2038.8	.20	1.5759	.8168	5.9110	3.1518	.2442	.1229	.1000	.1000	11
0911.9	.20	1.5397	.7437	6.1473	3.1324	.2629	.1254	.1000	.1000	12
9868.5	.20	1.6940	.8023	6.4769	3.1616	.2953	.1367	.1000	.1000	13
8827.1	.20	1.7954	.8040	6.7284	3.1702	.3233	.1400	.1000	.1000	14
7833.4	.20	1.8899	.7995	7.1046	3.3273	.3529	.1503	.1000	.1000	15
6885.5	.20	1.9285	.8189	7.6687	3.6151	.3923	.1689	.1000	.1000	16
6017.7	.20	2.0873	.9048	8.7263	4.1368	.4987	.2241	.1000	.1000	17
5166.4	.20	2.4085	1.0483	9.7531	4.5199	.6607	.3015	.1000	.1000	18

QE-3 ESTIMATED PERFORMANCE

ESTIMATED THRUST AND FUEL FLOW CORRECTION FACTORS
DUE TO AIRBLEED AND SHAFT POWER EXTRACTION

FLIGHT MACH NUMBER .4 HPREF = 880.

		LP BLEED		HI BLEED		POWER EXTRACTION		FAN BLEED	
FNTAM	MN	CBL	CBL′	CBL	CBL′	CPX $\delta_{am}\sqrt{\theta_{am}}$	CPX′ $\delta_{am}\sqrt{\theta_{am}}$	CBL	CBL′
20254.9	.40	1.6707	1.0648	4.2960	2.4904	.1630	.0954	.1000	.1000
18313.8	.40	1.6048	.9111	4.5995	2.5888	.1675	.0894	.1000	.1000
17289.1	.40	1.5389	.8731	4.8758	2.7084	.1683	.0896	.1000	.1000
16290.5	.40	1.5331	.8380	5.3111	2.8956	.1778	.0920	.1000	.1000
15209.2	.40	1.5360	.7795	5.6975	3.0441	.1945	.0965	.1000	.1000
14112.3	.40	1.6500	.8115	5.9603	3.1199	.2151	.1046	.1000	.1000
13007.6	.40	1.8111	.8892	6.1577	3.1673	.2375	.1155	.1000	.1000
11878.6	.40	1.8679	.8972	6.2746	3.1430	.2511	.1191	.1000	.1000
10750.7	.40	1.8486	.8549	6.3648	3.0837	.2564	.1161	.1000	.1000
9688.5	.40	1.8014	.7860	6.5881	3.0973	.2666	.1163	.1000	.1000
8694.0	.40	1.8272	.7571	6.8397	3.0729	.2881	.1216	.1000	.1000
7779.3	.40	1.9943	.8124	7.1913	3.0925	.3208	.1294	.1000	.1000
6886.4	.40	2.1382	.8217	7.5446	3.1520	.3509	.1343	.1000	.1000
6024.5	.40	2.2138	.8103	7.9069	3.2756	.3773	.1409	.1000	.1000
5222.5	.40	2.2645	.8241	8.5474	3.5219	.4200	.1590	.1000	.1000
4496.9	.40	2.4717	.9000	9.6710	3.9036	.5253	.2023	.1000	.1000
3786.6	.40	2.8926	1.0307	10.7667	4.0796	.6757	.2539	.1000	.1000
3041.2	.40	3.2223	1.0371	11.3875	3.9303	.8045	.2804	.1000	.1000
2314.8	.40	3.3131	.8833	11.5099	3.5456	.9359	.3033	.1000	.1000

QE-3 ESTIMATED PERFORMANCE

ESTIMATED THRUST AND FUEL FLOW CORRECTION FACTORS
DUE TO AIRBLEED AND SHAFT POWER EXTRACTION

FLIGHT MACH NUMBER .6 HPREF = 880.

		LP BLEED		HI BLEED		POWER EXTRACTION		FAN BLEED		
VTAM	MN	CBL	CBL′	CBL	CBL′	CPX$\delta_{am}\sqrt{\theta_{am}}$	CPX′$\delta_{am}\sqrt{\theta_{am}}$	CBL	CBL′	
3655.0	.60	1.7867	.9429	4.7912	2.5313	.1766	.0889	.1000	.1000	19
5590.7	.60	1.6603	.8555	5.3884	2.8081	.1760	.0873	.1000	.1000	20
5556.3	.60	1.6429	.8115	5.7745	2.9439	.1880	.0908	.1000	.1000	21
4462.9	.60	1.7392	.7955	6.0944	2.9946	.2071	.0945	.1000	.1000	22
3347.6	.60	1.8342	.8200	6.3303	3.0444	.2225	.0999	.1000	.1000	23
2246.5	.60	1.9499	.8448	6.5670	3.0603	.2414	.1061	.1000	.1000	24
1149.5	.60	2.0415	.8695	6.7047	3.0192	.2537	.1082	.1000	.1000	25
0054.8	.60	2.0416	.8158	6.7610	2.9415	.2626	.1054	.1000	.1000	26
9025.9	.60	2.0242	.7557	6.9779	2.9504	.2696	.1038	.1000	.1000	27
8080.7	.60	2.0459	.7511	7.3500	3.0222	.2860	.1088	.1000	.1000	28
7226.2	.60	2.2656	.8226	7.8355	3.0709	.3220	.1193	.1000	.1000	29
6372.9	.60	2.4564	.8483	8.2440	3.0721	.3536	.1229	.1000	.1000	30

QE-3 ESTIMATED PERFORMANCE

ESTIMATED THRUST AND FUEL FLOW CORRECTION FACTORS
DUE TO AIRBLEED AND SHAFT POWER EXTRACTION

FLIGHT MACH NUMBER .8 HPREF = 880.

		LP BLEED		HI BLEED		POWER EXTRACTION		FAN BLEED	
FNTAM	MN	CBL	CBL′	CBL	CBL′	CPX$\delta_{am}\sqrt{\theta_{am}}$	CPX′$\delta_{am}\sqrt{\theta_{am}}$	CBL	CBL′
17749.7	.80	1.7508	.8422	5.5243	2.7983	.1755	.0825	.1000	.1000
15518.7	.80	1.7909	.8001	6.1591	2.9414	.2001	.0900	.1000	.1000
14368.8	.80	1.9402	.8187	6.3853	2.9315	.2181	.0938	.1000	.1000
13197.8	.80	2.0012	.8135	6.5619	2.9182	.2279	.0943	.1000	.1000
12061.5	.80	2.0699	.8075	6.7976	2.9040	.2391	.0952	.1000	.1000
10956.3	.80	2.1209	.7980	6.9996	2.8740	.2496	.0962	.1000	.1000
9877.5	.80	2.1658	.7496	7.1290	2.8098	.2621	.0937	.1000	.1000
8863.1	.80	2.2313	.7291	7.3680	2.8159	.2729	.0935	.1000	.1000
7927.4	.80	2.3125	.7496	7.8695	2.9032	.2864	.0974	.1000	.1000
7071.2	.80	2.5124	.8027	8.5517	3.0160	.3216	.1066	.1000	.1000
6219.3	.80	2.7975	.8325	9.1146	3.0333	.3638	.1119	.1000	.1000
5375.3	.80	3.0487	.8401	9.6907	3.0260	.3964	.1142	.1000	.1000
4568.2	.80	3.2024	.8347	10.3792	3.0697	.4338	.1181	.1000	.1000
3845.4	.80	3.5853	.8642	11.2747	3.1099	.4971	.1277	.1000	.1000
3156.3	.80	4.0217	.9043	12.2711	3.1098	.5792	.1420	.1000	.1000
2481.8	.80	4.4149	.8710	13.4236	2.9534	.6699	.1465	.1000	.1000
1877.5	.80	4.9306	.7829	15.2446	2.7745	.8019	.1465	.1000	.1000
1328.7	.80	5.8008	.6632	18.4891	2.5710	1.0030	.1409	.1000	.1000
851.8	.80	7.7006	.5790	25.5764	2.4397	1.4419	.1388	.1000	.1000
443.9	.80	13.5265	.5580	52.9188	2.4812	3.0238	.1507	.1000	.1000
56.9	.80	111.9248	.5699	624.7877	2.5416	31.7639	.1701	.1000	.1000
-419.5	.80	-19.7724	.6192	-98.9305	2.6224	-6.9844	.1876	.1000	.1000
-992.2	.80	-17.4863	.6110	-35.5435	2.5896	-2.7394	.2550	.1000	.1000

QE-3 ESTIMATED PERFORMANCE

ESTIMATED THRUST AND FUEL FLOW CORRECTION FACTORS
DUE TO AIRBLEED AND SHAFT POWER EXTRACTION

FLIGHT MACH NUMBER 0.9 HPREF = 880.

		LP BLEED		HI BLEED		POWER EXTRACTION		FAN BLEED		
ITAM	MN	CBL	CBL′	CBL	CBL′	CPX$\delta_{am}\sqrt{\theta_{am}}$	CPX′$\delta_{am}\sqrt{\theta_{am}}$	CBL	CBL	
7422.7	.90	1.7646	.8051	5.9641	2.9191	.1848	.0846	.1000	.1000	20
6046.6	.90	1.9720	.8159	6.3527	2.8682	.2153	.0914	.1000	.1000	21
3833.8	.90	2.0107	.7932	6.4994	2.8318	.2207	.0886	.1000	.1000	22
2675.5	.90	2.0693	.7791	6.7145	2.8218	.2317	.0898	.1000	.1000	23
1545.3	.90	2.1082	.7617	6.9419	2.8016	.2398	.0898	.1000	.1000	24
0466.9	.90	2.1661	.7399	7.1659	2.7834	.2511	.0882	.1000	.1000	25
9435.6	.90	2.2767	.7258	7.3472	2.7517	.2665	.0891	.1000	.1000	26
8462.5	.90	2.3767	.7481	7.7427	2.8249	.2799	.0924	.1000	.1000	27
7562.9	.90	2.5035	.7819	8.3894	2.9386	.3010	.0978	.1000	.1000	28
6707.2	.90	2.7500	.8151	9.1204	2.9975	.3377	.1034	.1000	.1000	29
5856.4	.90	3.0648	.8369	9.8182	3.0167	.3814	.1085	.1000	.1000	30
5015.9	.90	3.3543	.8379	10.5689	3.0224	.4226	.1103	.1000	.1000	31
4221.2	.90	3.6740	.8553	11.3675	3.0206	.4735	.1159	.1000	.1000	32
3492.1	.90	4.1706	.8977	12.4562	3.0104	.5496	.1273	.1000	.1000	33
2765.5	.90	4.5632	.8556	13.5641	2.8498	.6297	.1290	.1000	.1000	34
2115.8	.90	5.2087	.8021	15.4292	2.6818	.7420	.1275	.1000	.1000	35
1516.0	.90	6.0310	.6774	18.3139	2.4714	.9213	.1221	.1000	.1000	36
992.7	.90	7.8559	.5904	24.3427	2.3375	1.2344	.1172	.1000	.1000	37
541.6	.90	12.3952	.5384	42.3501	2.2773	2.0924	.1164	.1000	.1000	38

FIGURE 1

PRATT & WHITNEY AIRCRAFT
QE-3 TURBOFAN ENGINE

ESTIMATED ENGINE OPERATING ENVELOPE

PRELIMINARY

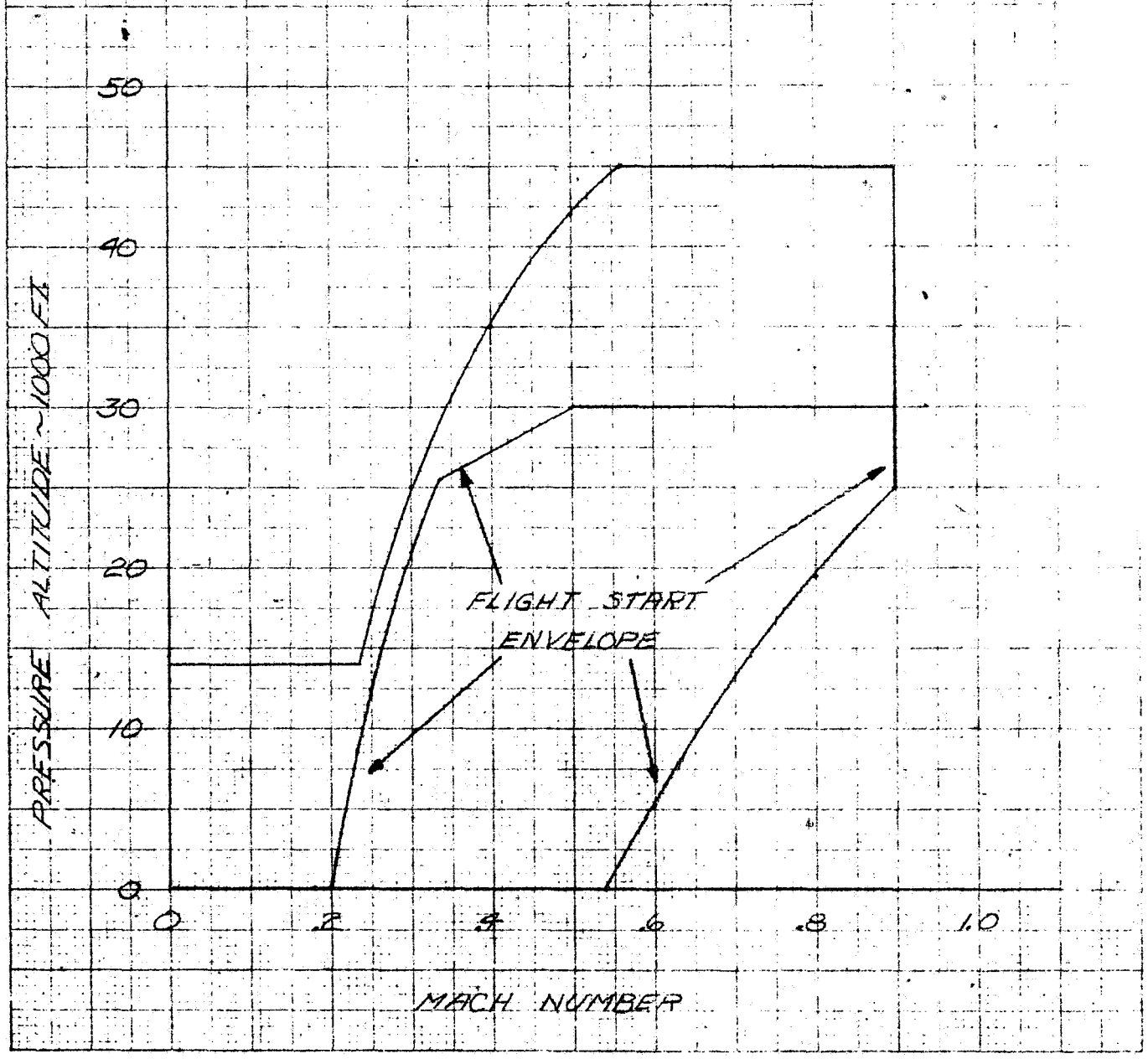


FIGURE 2

PRATT & WHITNEY AIRCRAFT

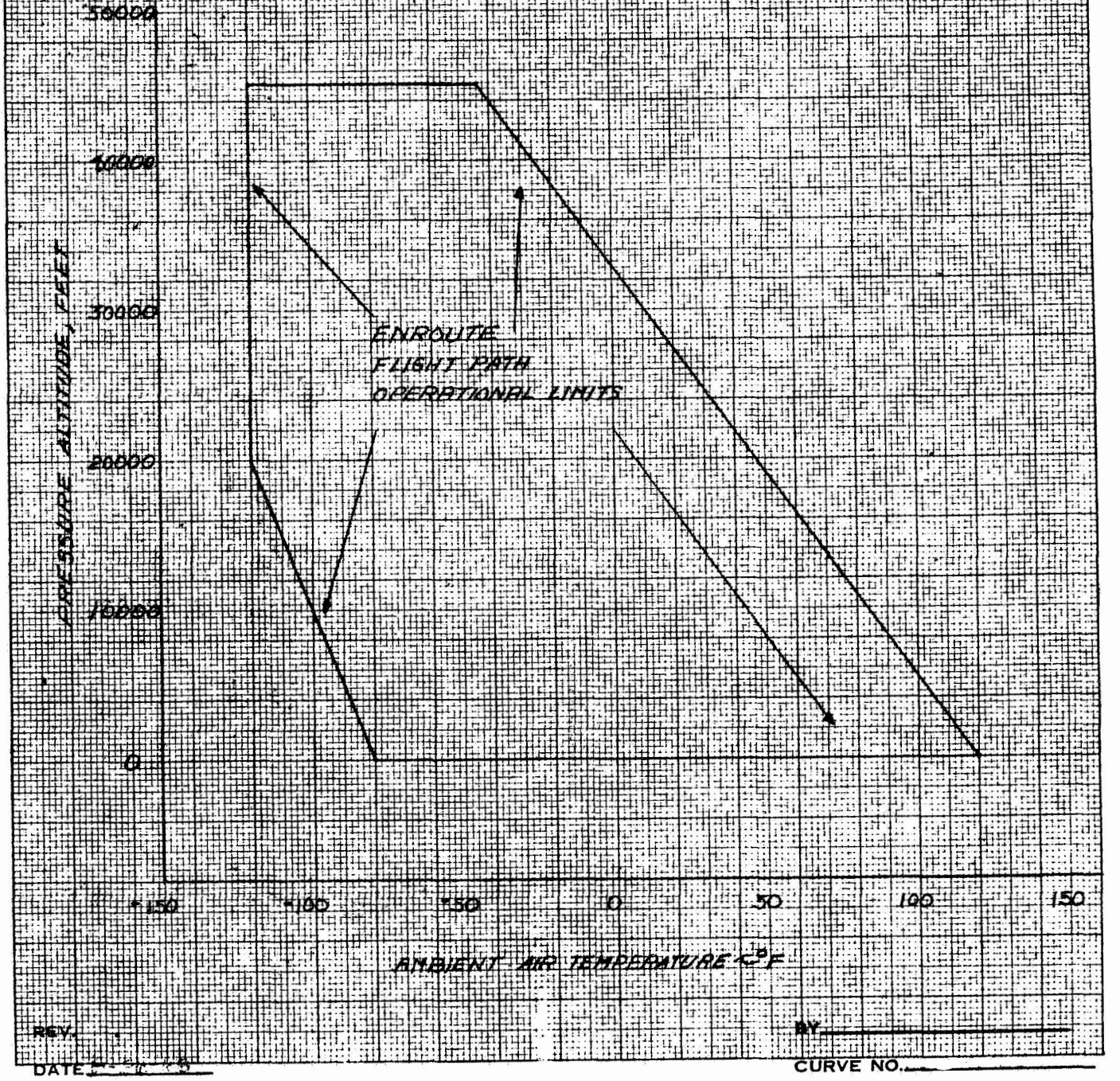
QE-3 TURBOFAN ENGINE

OPERATING ENVELOPE

PRESSURE ALTITUDE VS. AMBIENT AIR TEMPERATURE

100% RAM RECOVERY

PRELIMINARY



REV.

DATE

BY

CURVE NO.

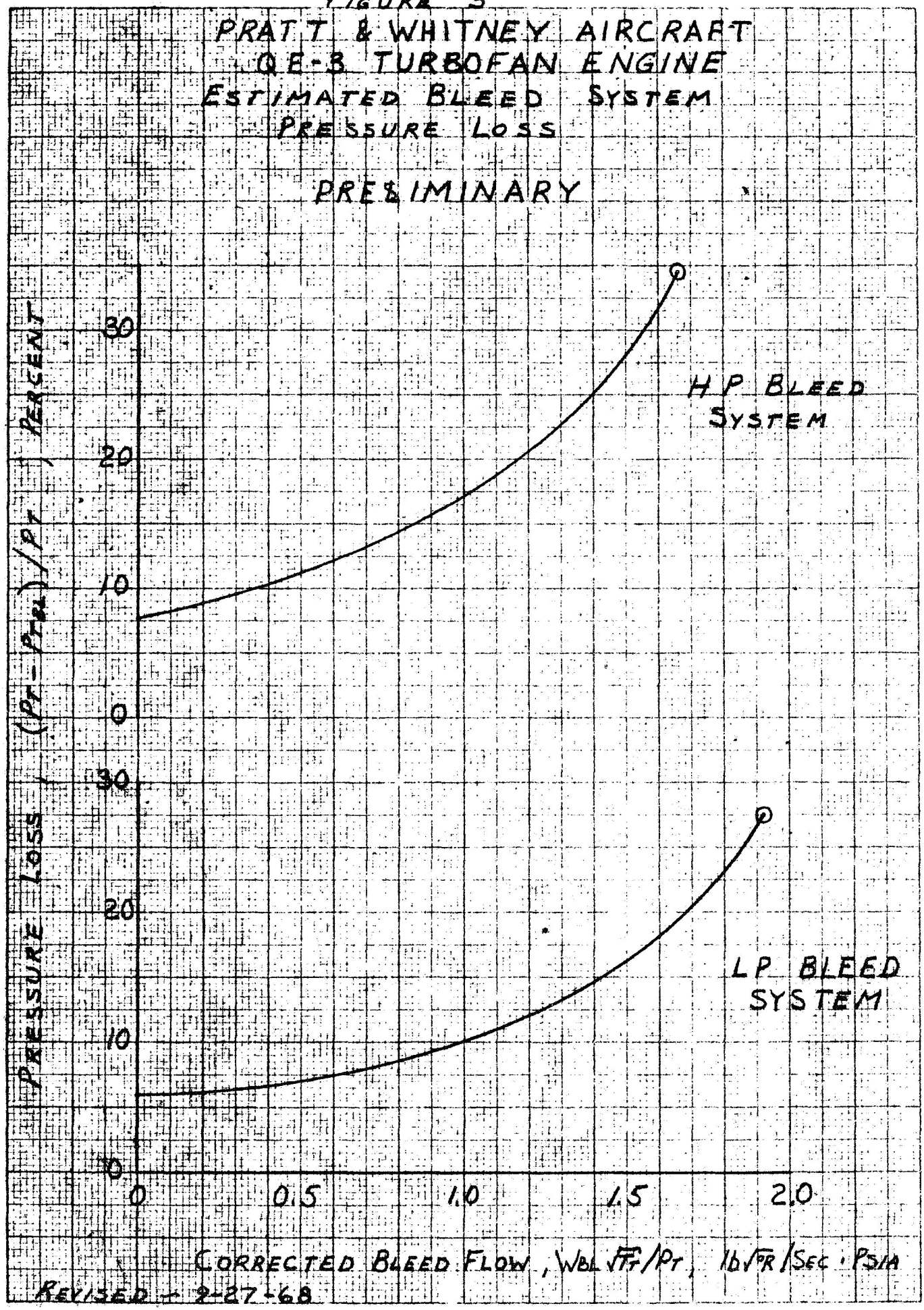
PWA FORM-3407 10-59

PRATT & WHITNEY AIRCRAFT

FIGURE 3

PRATT & WHITNEY AIRCRAFT
QE-3 TURBOFAN ENGINE
ESTIMATED BLEED SYSTEM
PRESSURE LOSS

PRELIMINARY



REVISED - 2-27-68

FIGURE 4

PRATT & WHITNEY AIRCRAFT
QF-3 TURBOFAN ENGINE
PRELIMINARY

ESTIMATED STARTING TORQUE CHARACTERISTICS
SEA LEVEL - STANDARD DAY
ZERO POWER EXTRACTION

HIGH ROTOR MOMENT OF INERTIA 12.65 SLUG FT^2
MAXIMUM STARTER TORQUE EXCLUDING IMPACT 3000 LB-FT
STARTER DRIVE SHEAR SECTION STRENGTH 600-700 LB-FT

MINIMUM ALLOWABLE STARTER TORQUE
FOR SUCCESSFUL STARTS IS 40 LB-FT
ABOVE THE INDICATED ENGINE
TORQUE REQUIREMENTS

IDLE SPEED

MINIMUM STARTER CUT OUT
SPEED IS 8300 RPM ABOVE
THE INDICATED ENGINE
SELF-SUSTAINING SPEED

MINIMUM FIRING SPEED

HIGH ROTOR TORQUE - LB-FT

400
300
200
100
0
-100
-200
-300

0 1000 2000 3000 4000 5000

HIGH ROTOR SPEED - RPM

APPENDIX I

Performance Calculation Procedure (Accounts for engine rematch with inlet duct losses)

NOTE: Ambient temperature corrections to total net thrust and SFC should be made prior to all other corrections.

1. Ambient Temperature Correction to Total Net Thrust and SFC. (Same as Step 1 in simplified procedure presented on page 3.

2. Total Net Thrust and Fuel Flow Corrections Due to Duct Pressure Loss, Engine Airbleed, High Rotor Power Extraction, and Inlet Duct Loss.

   a. Obtain corrected total airflow, WAT2, and bypass ratio, BPR, from table (1) as functions of FNT(am). Compute WAT, WAP, and WAD (for no external losses).

$$WAT = WAT2 \times \frac{\delta t2}{\sqrt{\theta t2}}$$

$$WAP = \frac{WAT2}{1 + BPR} \times \frac{\delta t2}{\sqrt{\theta t2}}$$

$$WAD = WAT - WAP$$

   b. Compute FNT(am) = FNT as obtained in Step 1 above

$$FRT = (V/g) \times WAT$$

$$FGT(am) = FNT(am) + FRT$$

   c. Read CDD and CDP from table (1) as a function of altitude, Mach number and FNT(am).

   d. Compute:

$$CDL = (CDD + CDP) \times (FNT(am)/FGT)$$

   e. Read CDM/CDL from figure A-1, Appendix I as a function of CDL.

   f. Compute:

$$CDMN = (FGT/FNT(am)) \times CDL \times (CDM/CDL) = (CDD + CDP) \times (CDM/CDL)$$

   g. Read CBL, CBL', CBLD, CBLD', CPX, and CPX' from the appropriate tables (Table 5 pages 1 through 6) as functions of FNT(am)/δ am and Mach number.

   h. Compute the fractional <u>decrease</u> (an increase is indicated by a minus sign) in net thrust and fuel flow from the following equations:

$$\frac{\Delta FNT}{FNT} = (1 + CDMN)\frac{\Delta Pt2}{Pt2} + CDD\frac{\Delta Ptf3}{Ptf3} + CDP\frac{\Delta Pt7.5}{Pt7.5} + CBL\left(\frac{WBL}{WAP}\right)_1$$

$$+ CBL\left(\frac{WBL}{WAP}\right)_2 + CPX\left(\frac{HPX}{HPX\ ref}\right) + CBLD\left(\frac{WBLD}{WAD}\right)$$

$$\frac{\Delta WF}{WF} = \frac{\Delta Pt2}{Pt2} + CBL'\left(\frac{WBL}{WAP}\right)_1 + CBL'\left(\frac{WBL}{WAP}\right)_2 + CPX'\left(\frac{HPX}{HPX\ ref}\right) + CBLD'\left(\frac{W}{W}\right.$$

i. Compute the total net thrust and fuel flow, corrected for ambient temperature, duct loss, airbleed, high rotor power extraction and inlet duct loss from the following equations:

$$FNT = FNT(am)\left(1 - \frac{\Delta FNT}{FNT}\right)$$

$$WF = WF(am)\left(1 - \frac{\Delta WF}{WF}\right)$$

3. Corrected Duct Net Thrust, Corrected Airflow, Bypass Ratio, Rotor Speeds, and Exhaust Pressure and Temperature Ratios. (Except for corrected airflow, steps 3a, 3b, and 3c are the same as those presented heretorfore in the simplified procedure).

Obtain corrected airflow as follows:

d. Compute:

$$\frac{\Delta FNT(loss)_2}{FNT} = CBL\left(\frac{WBL}{WAP}\right)_1 + CBL\left(\frac{WBL}{WAP}\right)_2 + CPX\left(\frac{HPX}{HPX\ ref}\right)$$

$$+ (CDMN-CDD-CDP)\frac{\Delta Pt2}{Pt2}$$

$$\frac{FNT(loss)_2}{\delta\ am} = \frac{FNT(am)}{\delta\ am}\left(1 - \frac{\Delta FNT\ (loss)_2}{FNT}\right)$$

e. The corrected total airflow adjusted for non-standard ambient temperature, airbleed, high rotor power extraction and inlet duct pressure loss may be obtained as a function of altitude, Mach number, and $\frac{FNT(loss)_2}{\delta\ am}$ from table (1).

4. Airbleed Pressure and Temperature Ratio (Same as Step 4. in simplified procedure).

5. Airbleed and Exhaust Temperature Calculations (Same as Step 5. in simplified procedure).

LIST OF SYMBOLS AND DIMENSIONS (USED ONLY IN APPENDIX)

CDL	Total gross thrust loss coefficient
CDM/CDL	Rematch factor
CDMN	Ram recovery loss coefficient
$FNT(loss)_2$	Total net thrust adjusted for non-standarad ambient temperature, airbleed, power extraction and engine rematch due to inlet duct loss, lb.
FRT	Total ram drag, lb.
g	Gravitational Constant, 32.174 ft-lbm/lbf-sec^2
V	Free stream velocity, fps
WAT	Total (fan inlet) airflow, lb/sec

PRATT & WHITNEY AIRCRAFT

QE-3 TURBOFAN ENGINE

THRUST LOSS REMATCH FACTOR DUE TO CHANGE IN INLET DUCT LOSS

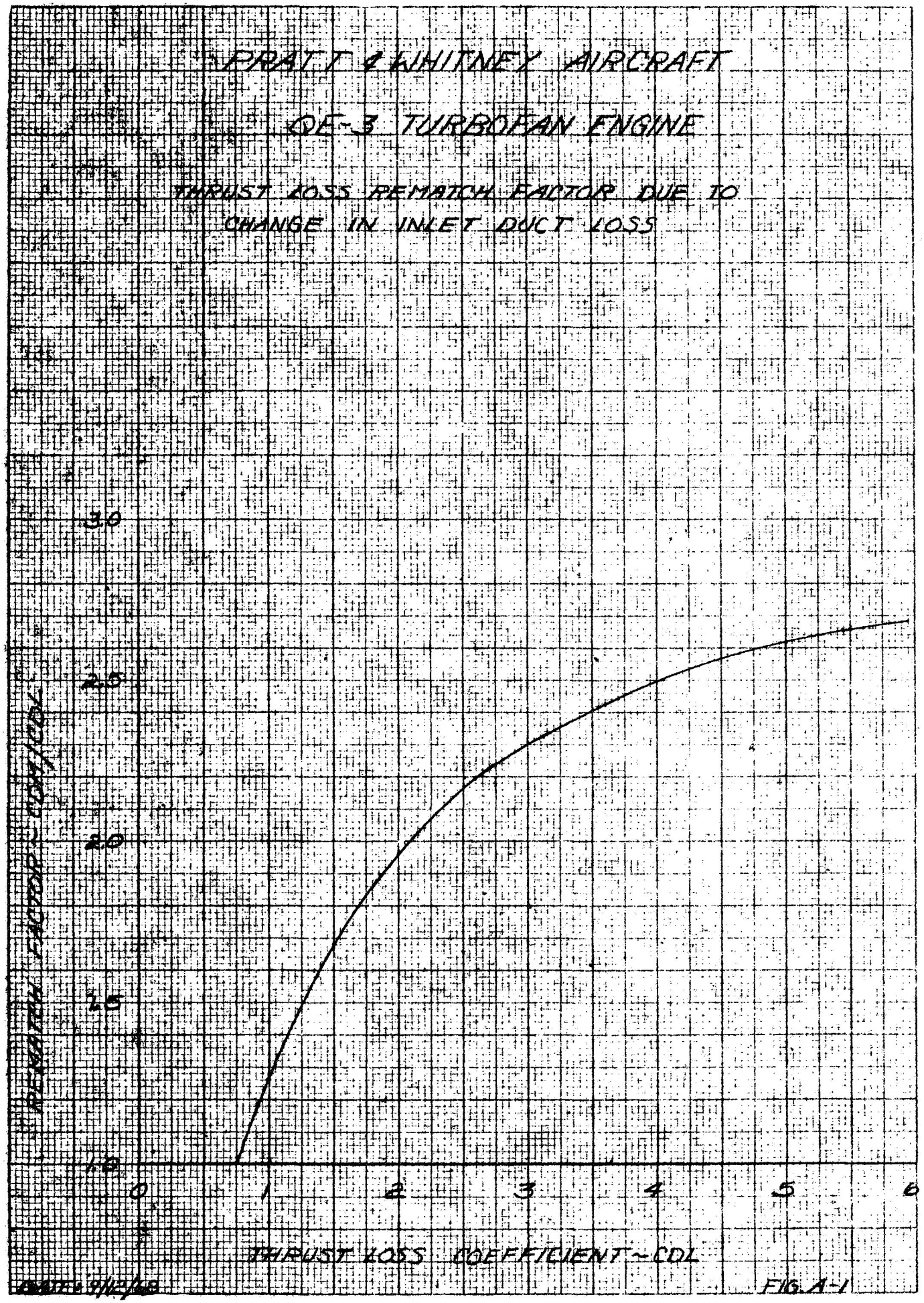
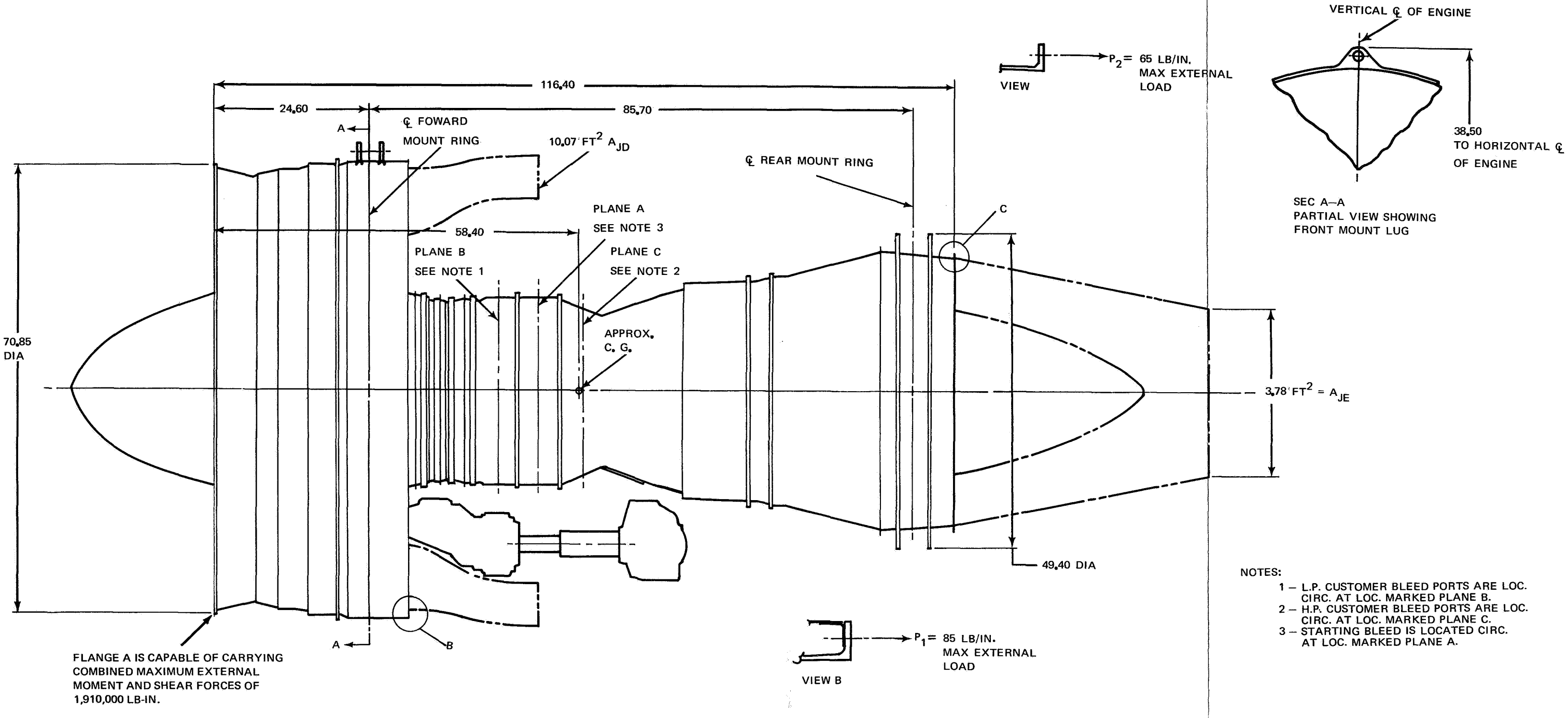


FIG. A-1



SEC A–A
PARTIAL VIEW SHOWING FRONT MOUNT LUG

NOTES:

1 – L.P. CUSTOMER BLEED PORTS ARE LOC. CIRC. AT LOC. MARKED PLANE B.
2 – H.P. CUSTOMER BLEED PORTS ARE LOC. CIRC. AT LOC. MARKED PLANE C.
3 – STARTING BLEED IS LOCATED CIRC. AT LOC. MARKED PLANE A.

Installation Drawing (LR-80216) of the QE-3 Engine