DOT/FAA/AR-04/25

Office of Aviation Research
Washington, D.C. 20591

Full-Scale Engine Knock Tests of 30 Unleaded, High-Octane Blends

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September 2004

Final Report

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT/FAA/AR-04/25		

4. Title and Subtitle	5. Report Date
FULL-SCALE ENGINE KNOCK TESTS OF 30 UNLEADED, HIGH-OCTANE BLENDS	September 2004
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
Dave Atwood and Julian Canizales	
9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Federal Aviation Administration William J. Hughes Technical Center Airport and Aircraft Safety Research and Development Division Propulsion Systems Branch Atlantic City International Airport, NJ 08405	11. Contract or Grant No.
12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
U.S. Department of Transportation Federal Aviation Administration Office of Aviation Research Washington, DC 20591	Final Report
	14. Sponsoring Agency Code
	ANE-110

15. Supplementary Notes

16. Abstract

Effective January 1, 1996, one of the 1990 Federal Clean Air Act Amendments banned the sale of leaded fuels for on-road vehicles but exempted the sale of leaded fuels for off-road use, including aircraft, racing cars, farm equipment, and marine engines. However, the general aviation community is now one of the largest domestic consumers of leaded fuels. The need for a safe, alternative, high-octane unleaded fuel is becoming more apparent.

The Coordinating Research Council (CRC) Unleaded Aviation Gasoline working group supplied the Federal Aviation Administration (FAA) William J. Hughes Technical Center with 30 separate blends of unleaded fuel containing various amounts of toluene, ethyl tertiary butyl ether, ethanol, m-toluidine, and super alkylate in a base of either aviation or motor alkylate. These blends ranged in motor octane numbers (MON) from 96.2 to 105.6, and some of the blends also contained the manganese-based additive methylcyclopentadienyl manganese tricarbonyl. These 30 blends, along with a specially blended 100 low-lead (100LL) piston aviation gasoline, unleaded reference fuels, and leaded reference fuels were knock-tested in a Lycoming IO540 K engine at the FAA William J. Hughes Technical Center. The goal was to address both the individual and synergistic effects of unleaded components on full-scale engine knock performance. The MON and performance number (PN) of the blends did trend with the knock performance in the IO540 K. However, many exceptions were found where the MON and PN of the blends did not adequately explain the blend's knock performance. Many of the blends performed better than the specially blended 100LL. Further advanced statistical analyses on the engine test results will be performed by the CRC working group.

17. Key Words	18. Distribution Statement
Aviation, Avgas, High-octane, Unleaded fuels, Piston engine, Aircraft, Knock test, Alternative fuels, Lycoming IO540 K Engine, EPA, Clean Air Act, 100LL, ETBE, Ethanol, M-toluidine, Super alkylate	This document is available to the public through the National Technical Information Service (NTIS) Springfield, Virginia 22161.

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	304	

Form DOT F1700.7 (8-72) Reproduction of completed page authorized

ACKNOWLEDGEMENTS

The authors would like to extend their appreciation to the active members of the Coordinating Research Council working group, including AirBP, AvPower, Cessna, ChevronTexaco, ConocoPhillips, Dixie Services, Ethyl Corporation, ExxonMobil, and Lyondell, whose efforts and support have been invaluable.

The authors would like to acknowledge the efforts of the in-house support contractor, Syport Systems Incorporated, for their test support, test preparation, maintenance, and testing of the various engines and fuels.

The authors would also like to thank the efforts of a cooperative education student, Kevin Costa, who is currently attending Rowan College, for his invaluable support in data reduction.

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LIST OF ACRONYMS AND SYMBOLS

A/F	Calculated air-to-fuel ratio
AFL	Air-to-fuel ratio sensor for left bank of engine cylinders
AFR	Air-to-fuel ratio sensor for right bank of engine cylinders
AN	Amine Number
ASTM	American Society for Testing and Materials
BHP	Brake horsepower
BMEP	Brake mean effective pressure
BSFC	Brake-specific fuel consumption
CHT	Cylinder head temperature
Cowl T	Cooling air temperature in engine plenum
Cowl P	Cooling air pressure in engine plenum
CRC	Coordinating Research Council
EGT	Exhaust gas temperature
ETBE	Ethyl Tertiary Butyl Ether
FAA	Federal Aviation Administration
FF	Fuel mass flow rate in pounds per hour
FFG	Fuel volume flow rate in gallons per hour
Fuel Dens	Fuel mass density in pounds per gallon
Fuel T	Fuel temperature
Ga	General aviation
Hk	Heavy knock condition
Hum ratio	Induction air humidity ratio in grains of moisture per pound of dry air
Hum T	Induction air humidity temperature
IAP	Intake air pressure
IAT	Intake air temperature
ISO	Isooctane
in. Hg	Inches of Mercury
K airflow	Air mass flow rate into engine
Knk	Knock condition
LCBHP	Temperature-, pressure-, and humidity-corrected brake horsepower
LCBSFC	Temperature-, pressure-, and humidity-corrected BSFC
Lim.	Limited
Lk	Light knock condition
MAP	Manifold absolute pressure in inches of Mercury
M-Toluidine	3-Methylphenylamine ($CH_3C_6H_4NH_2$)
Mk	Moderate knock condition
MMT	Methylcyclopentadienyl manganese tricarbonyl
Mn	Manganese
MON	Motor octane number
MTDP	Fuel-metering unit outlet pressure in psig
Oil T	Oil temperature
Oil P	Oil pressure
PN	Performance number
psig	Pounds per square inch gauge

Pump P	Fuel pump outlet pressure in psig
rpm	Engine crankshaft revolutions per minute
TEL	Tetra-ethyl lead
TBSFC	Temperature-corrected BSFC
TCBHP	Temperature-corrected brake horsepower
TO	Takeoff
TORK	Engine shaft output torque
W.O.T.	Wide open throttle
100LL	100 low-lead aviation gasoline
% Relative FF	Percentage difference in fuel mass flow rate from the full-rich fuel mass flow rate

EXECUTIVE SUMMARY

Effective January 1, 1996, a 1990 Federal Clean Air Act Amendment banned the sale of leaded fuels for on-road vehicles but exempted the sale of leaded fuels for off-road use, such as aircraft, racing cars, farm equipment, and marine engines. This has resulted in the general aviation community becoming one of the largest domestic consumers of leaded fuels. With environmental pressures increasing worldwide against the use of leaded fuels and lead scavenging agents, the future status of the Environmental Protection Agency exemption for general aviation is uncertain and is increasingly a subject of debate. For more than a decade, the Federal Aviation Administration (FAA) William J. Hughes Technical Center has worked closely with aircraft manufacturers, engine manufacturers, petroleum producers, chemical companies, universities, regulatory agencies, and the Aircraft Owner and Pilot Association through both the Coordinating Research Council (CRC) and the American Society for Testing of Materials (ASTM) to facilitate the development of a safe, high-octane, unleaded aviation gasoline for spark ignition, piston aircraft engines.

The CRC Unleaded Aviation Gasoline working group developed a potential unleaded future fuel component matrix consisting of varying ranges of super alkylate, toluene, ethyl tertiary butyl ethyl, m-toluidine, ethanol, and methylcyclopentadienyl manganese tricarbonyl blended in a base of either aviation or motor alkylate. The working group selected 202 component blends and developed a highly accurate statistical model for motor octane number (MON) only. Thirty of these blends ranging in MONs from 96.2 to 105.6 were blended in 40-50 gallon batches and knock-tested in a Lycoming IO540 K engine at the FAA William J. Hughes Technical Center. The goal of this research was to determine the correlation of knock performance of the 30 unleaded blends in a full-scale aircraft engine, to the respective MON, as determined by ASTM D 2700.

The knock performance of the 30 unleaded matrix blends were also compared against the knock performance of a baseline 100 low-lead (100LL) aviation gasoline, blended for minimum-allowable MON and performance number (PN) with the maximum amount of allowable lead. Their performance was also compared against the performance of unleaded and leaded ASTM reference fuels.

The results suggest that the knock performance of the unleaded blends in the full-scale engine tests trend with the blend's MON. However, the supercharge PN of the blends, as determined by ASTM D 909, correlated slightly better than the MON to the full-scale engine knock performance. There were many blends whose performance deviated from that suggested by either their MON or PN. Many of the blends performed better than the specially blended, minimum performance 100LL.

The data will be further subjected to advanced statistical analyses by the CRC working group in an effort to develop a full-scale engine knock performance model for these specific unleaded fuel components. This model will incorporate both individual component and cross-product contributions to the blend's full-scale engine knock performance.

1. INTRODUCTION.

1.1 PURPOSE.

This research addressed the relationship between the motor octane number (MON) of 30 unleaded blends, determined by American Society for Testing and Materials (ASTM) D 2700, and their knock performance in a high-output, spark ignition, piston aircraft engine.

1.2 BACKGROUND.

Effective January 1, 1996, a 1990 Federal Clean Air Act Amendment banned the sale of leaded fuels for on-road vehicles but exempted the sale of leaded fuels for off-road use, such as aircraft, racing cars, farm equipment, and marine engines. This has resulted in the general aviation (GA) community becoming one of the largest domestic consumers of leaded fuels. With environmental pressures increasing worldwide against the use of leaded fuels and lead scavenging agents, the future status of the Environmental Protection Agency exemption for GA is uncertain and is increasingly a subject of debate.

For more than a decade the Coordinating Research Council (CRC) Unleaded Aviation Gasoline working group, composed of representatives from the petroleum industry, airframe and engine manufacturers, regulatory agencies, aircraft user and owners associations, universities, and chemical companies, has met to facilitate the development of an unleaded, high-octane alternative to the current 100 low-lead (100LL) aviation gasoline. The working group consists of the members that were actively researching the development of a high-octane unleaded fuel. Consensus has held that the issue of most importance to be addressed first, with the removal of lead additives, is octane quality.

Traditionally, most GA spark ignition, reciprocating engines and airframes have been certified on leaded fuels that meet ASTM D 910. For obvious safety reasons, any alternative unleaded fuel will have to meet the octane requirements of the majority of the aviation fleet that was certified on high-octane leaded fuels. It is also widely understood that the knock performance of leaded fuels can vary significantly from the performance of unleaded fuels with the same MON, as determined by ASTM D 2700, in a full-scale engine.

The Federal Aviation Administration (FAA) William J. Hughes Technical Center Small-Engine Test Facility has been the primary engine test facility for the CRC working group and has been instrumental in the recent and significant progress in the area of unleaded fuels. Recently, the FAA William J. Hughes Technical Center developed two new ASTM standard practices, D 6424 and D 6812, including combustion analyses methods devised by project personnel for the determination of engine motor octane requirement using unleaded reference fuels. Past work at the FAA William J. Hughes Technical Center, in coordination with the CRC working group, sought to determine the unleaded fuel motor octane requirement of worst-case engines. These engines were chosen by consensus and octane-rated using unleaded reference fuels with the understanding that future unleaded fuels that met the octane requirements of these high-demand engines would, therefore, satisfy the octane requirement of the majority of the current GA fleet. This research was detailed in the FAA report DOT/FAA/AR-99/70, "Evaluation of Reciprocating Aircraft Engines with Unleaded Fuels."

Continuing the effort, the CRC working group devised a matrix of potential future fuel high-octane components, such as super alkylate, toluene, ethyl tertiary butyl ether (ETBE), m-toluidine (3-methylphenylamine), ethanol, and methylcyclopentadienyl manganese tricarbonyl (MMT). Using these components and a base of either aviation or motor alkylate, the CRC working group statistically modeled, for MON only, 202 blends. Thirty of these blends were shipped in 40+ gallon batches to the FAA William J. Hughes Technical Center Small-Engine Test Facility for full-scale, knock performance evaluation in a Lycoming IO540 K engine. This engine was one of the worst-case engines previously used in the fleet octane requirement research.

The objective of this research was to determine if the MON of the unleaded blends, as determined by ASTM D 2700, adequately addressed their actual knock performance in a full-scale piston aircraft engine. A baseline leaded reference fuel specially blended to meet all the specifications of the current ASTM D 910 for 100LL aviation gasoline with the minimum MON and minimum performance number (PN), per ASTM D 909, and containing the maximum amount of allowable lead was tested. The knock performances of the 30 unleaded blends were compared against one another, against the performance of the baseline 100LL, and against the performance of ASTM unleaded and leaded reference fuels.

1.3 RELATED DOCUMENTS.

- ASTM D 909, "Standard Test Method for Knock Characteristics of Motor and Aviation Fuels by the Supercharge Method."
- ASTM D 910, "Standard Specification for Aviation Gasoline."
- ASTM D 2386, "Standard Test Method for Freezing Point of Aviation Fuels."
- ASTM D 2700, "Standard Test Method for Knock Characteristics of Motor and Aviation Fuels by the Motor Method."
- ASTM D 3831 "Standard Test Method for Manganese In Gasoline By Atomic Absorption Spectroscopy."
- ASTM D 6424, "Standard Practice for Octane Rating Naturally Aspirated Spark Ignition Aircraft Engines."
- FAA Advisory Circular 20-24B, "Qualification of Fuels, Lubricants, and Additives for Aircraft Engines."
- FAA Advisory Circular 33-47, "Detonation Testing in Reciprocating Aircraft Engines."
- FAA Report DOT/FAA/AR-99/70, "Evaluation of Reciprocating Aircraft Engines With Unleaded Fuels."

2. TEST PROCEDURES.

2.1 FUEL BLENDS.

Thirty blends, ranging in MONs from 96.2 to 105.6, were shipped to the FAA William J. Hughes Technical Center in 40+ gallon batches. The exact formulation of each of the test blends was withheld until the full-scale engine tests were completed. Each drum of test blend was labeled AV1 through AV8, AM1 through AM7, MO1 through MO8, and MM1 through MM7. The AV blends contained an aviation alkylate base without MMT, the AM blends contained an aviation alkylate base with MMT, the MO blends contained a motor alkylate base without MMT, and the MM blends contained a motor alkylate base with MMT. Basically, if the first letter of the blend tag was an A then the blend had a base of aviation alkylate, and if it was an M then the blend had a base of motor alkylate. If the second letter was an M then the blend contained the manganese-based additive MMT. Each of the blends contained varying amounts of super alkylate (0 to 50 vol %), toluene (0 to 25 vol %), ETBE (0 to 30 vol %), m-toluidine (0 to 10 mass %), ethanol (0 to 5 vol %), and MMT (0 to 0.1 g/gal manganese (Mn)). The blends containing MMT were tested after the blends that did not contain MMT to eliminate any effect of manganese deposits on octane requirement.

Thirty blends were shipped to the FAA William J. Hughes Technical Center, 40 gallons each, as follows:

- 8 aviation alkylate base without MMT, AV1-8
- 7 aviation alkylate base with MMT, AM1-7
- 8 motor alkylate base without MMT, MO1-8
- 7 motor alkylate base with MMT, MM1-7

The blend and individual component and property data were supplied to the FAA William J. Hughes Technical Center after the engine tests were completed. Tables 2-1 through 2-4 show the composition of the 30 blends. The physical property data for the 30 blends, per the specifications listed in ASTM D 910, is listed in tables 2-5 through 2-8. The property data for the individual components can be found in appendix D.

In tables 2-1 through 2-4, the first set, or top, of the fractional component data was calculated on a volumetric basis, and the fractional data at the bottom of the tables were calculated on a mass basis. For example, blend AV1 in table 2-1 contained 7.30% aviation alkylate by volume and 6.64% aviation alkylate by mass.

TABLE 2-1. COMPONENT FRACTIONS OF AV BLENDS WITHOUT MMT

Blend	AV1	AV2	AV3	AV4	AV5	AV6	AV7	AV8
Volume Fraction								
Aviation Alkylate	0.0730	0.0402	0.0000	0.4002	0.0000	0.0000	0.0000	0.2916
Motor Alkylate								
Super Alkylate	0.3272	0.3998	0.5000	0.4997	0.4698	0.3500	0.4997	0.4997
Toluene	0.2500	0.2500	0.2502	0.0000	0.2501	0.2501	0.2501	0.0000
ETBE	0.2997	0.2997	0.1898	0.0000	0.2499	0.2999	0.1502	0.0985
m-Toluidine	0.0000	0.0103	0.0600	0.1000	0.0302	0.1001	0.1000	0.0784
Ethanol	0.0501	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0318
Mass Fraction								
Aviation Alkylate	0.0664	0.0366	0.0000	0.3815	0.0000	0.0000	0.0000	0.2772
Motor Alkylate								
Super Alkylate	0.3009	0.3685	0.4549	0.4817	0.4307	0.3115	0.4489	0.4803
Toluene	0.2863	0.2868	0.2834	0.0000	0.2855	0.2772	0.2797	0.0000
ETBE	0.2942	0.2946	0.1843	0.0000	0.2445	0.2849	0.1440	0.1010
m-Toluidine	0.0000	0.0135	0.0774	0.1368	0.0393	0.1264	0.1275	0.1069
Ethanol	0.0523	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0346

TABLE 2-2. COMPONENT FRACTIONS OF MO BLENDS WITHOUT MMT

Blend	MO1	MO2	MO3	MO4	MO5	MO6	MO7	MO8
Volume Fraction								
Aviation Alkylate								
Motor Alkylate	0.2501	0.0613	0.1926	0.0000	0.0780	0.9400	0.0000	0.0000
Super Alkylate	0.4501	0.5001	0.1358	0.4251	0.4718	0.0000	0.4342	0.4997
Toluene	0.0000	0.2014	0.2501	0.2501	0.0000	0.0147	0.2114	0.2496
ETBE	0.2998	0.1742	0.2999	0.2998	0.2999	0.0000	0.2393	0.1507
m-Toluidine	0.0000	0.0129	0.1001	0.0250	0.1001	0.0453	0.0650	0.1000
Ethanol	0.0000	0.0501	0.0216	0.0000	0.0501	0.0000	0.0501	0.0000
Mass Fraction								
Aviation Alkylate								
Motor Alkylate	0.2429	0.0564	0.1693	0.0000	0.0722	0.9183	0.0000	0.0000
Super Alkylate	0.4426	0.4664	0.1208	0.3894	0.4418	0.0000	0.3941	0.4489
Toluene	0.0000	0.2338	0.2771	0.2852	0.0000	0.0181	0.2389	0.2791
ETBE	0.3145	0.1733	0.2847	0.2930	0.2997	0.0000	0.2317	0.1445
m-Toluidine	0.0000	0.0171	0.1263	0.0325	0.1330	0.0635	0.0837	0.1275
Ethanol	0.0000	0.0530	0.0218	0.0000	0.0533	0.0000	0.0516	0.0000

TABLE 2-3. COMPONENT FRACTIONS OF AM BLENDS CONTAINING MMT

Blend	AM1	AM2	AM3	AM4	AM5	AM6	AM7
Volume Fraction							
Aviation Alkylate	0.3324	0.8602	0.8695	0.6001	0.8000	0.3549	0.2500
Motor Alkylate							
Super Alkylate	0.2876	0.0000	0.0000	0.0000	0.0000	0.4995	0.4998
Toluene	0.1376	0.0000	0.0000	0.0000	0.1248	0.1404	0.0000
ETBE	0.1675	0.0000	0.0705	0.2998	0.0000	0.0000	0.2001
m-Toluidine	0.0500	0.0897	0.0250	0.1000	0.0552	0.0052	0.0000
Ethanol	0.0248	0.0501	0.0350	0.0000	0.0199	0.0000	0.0501
Manganese, g/gal	0.050	0.100	0.100	0.050	0.050	0.050	0.100
Mass Fraction							
Aviation Alkylate	0.3084	0.8221	0.8511	0.5623	0.7553	0.3398	0.2429
Motor Alkylate							
Super Alkylate	0.2700	0.0000	0.0000	0.0000	0.0000	0.4837	0.4913
Toluene	0.1608	0.0000	0.0000	0.0000	0.1484	0.1693	0.0000
ETBE	0.1677	0.0000	0.0745	0.3032	0.0000	0.0000	0.2099
m-Toluidine	0.0666	0.1229	0.0351	0.1345	0.0748	0.0071	0.0000
Ethanol	0.0264	0.0550	0.0393	0.0000	0.0216	0.0000	0.0559
Manganese, g/gal	0.050	0.100	0.100	0.050	0.050	0.050	0.100

TABLE 2-4. COMPONENT FRACTIONS OF MM BLENDS CONTAINING MMT

Blend	MM1	MM2	MM3	MM4	MM5	MM6	MM7
Volume Fraction							
Aviation Alkylate							
Motor Alkylate	0.4001	0.6999	0.1108	0.3327	0.2260	0.5000	0.8602
Super Alkylate	0.4999	0.0000	0.4575	0.2877	0.4998	0.0997	0.0000
Toluene	0.0000	0.2401	0.0776	0.1377	0.2511	0.1002	0.0000
ETBE	0.0000	0.0000	0.2379	0.1675	0.0000	0.2349	0.0000
m-Toluidine	0.1001	0.0599	0.1000	0.0501	0.0000	0.0151	0.0896
Ethanol	0.0000	0.0000	0.0162	0.0243	0.0232	0.0501	0.0501
Manganese, g/gal	0.092	0.100	0.100	0.050	0.100	0.052	0.100
Mass Fraction							
Aviation Alkylate							
Motor Alkylate	0.3811	0.6430	0.1016	0.3086	0.2103	0.4717	0.8220
Super Alkylate	0.4820	0.0000	0.4245	0.2701	0.4706	0.0952	0.0000
Toluene	0.0000	0.2780	0.0897	0.1609	0.2944	0.1191	0.0000
ETBE	0.0000	0.0000	0.2355	0.1678	0.0000	0.2393	0.0000
m-Toluidine	0.1369	0.0790	0.1317	0.0667	0.0000	0.0204	0.1230
Ethanol	0.0000	0.0000	0.0170	0.0259	0.0248	0.0543	0.0550
Manganese, g/gal	0.092	0.100	0.100	0.050	0.100	0.052	0.100

TABLE 2-5. PROPERTY DATA OF AV BLENDS WITHOUT MMT

Property	AV1	AV2	AV3	AV4	AV5	AV6	AV7	AV8	ASTM D 910 100LL Spec.
MON	97.0	99.8	103.4	104.4	101.2	105.2	105.6	103.4	99.5 min
Supercharge Rating, mL TEL	1.83	2.94	>6.00	>6.00	4.00	>6.00	>6.00	>6.00	
PN	136.6	146.1	>161.0	>161.0	152.5	>161.0	>161.0	>161.0	130 min
Density, 15° kg/m3	762.1	760.2	770.3	726.2	764.0	789.5	780.7	729.5	
Vapor pressure, 38° kPa	24.8	18.7	14.6	22.1	16.6	15.4	13.3	27.0	38.0-49.0
Freezing Point, ºC	<-70	-41 nh*	<-70	+19 nh*	-47	<-70	<-70	-33 nh*	-58 max
Net heat of combustion, MJ/kg	40.184	40.783	41.080	43.162	40.960	39.962	40.982	42.032	43.5 min
Copper corrosion	1b	1a	1a	1b	1a	1a	1a	1a	1 max
Potential residue, 5 h, 100°C									
Precipitate, mg/100 mL	0.6	0.3	0.4	0.3	<0.1	<0.1	<0.1	<0.1	3 max
Potential gum, mg/100 mL	4	3	6	5	4	6	7	5	6 max
Water reaction, interface rating	1b	1b	1b	1b	1b	1b	1b	1b	
Separation rating	2	2	2	2	2	2	2	2	
Volume change, mL	3	0	0	0	0	0	0	2	±2 max
Distillation, % evaporated, °C IBP	67.5	79.5	86.5	53.5	82.5	81.5	87.5	62.5	
5	72.5	85.0	91.5	64.5	87.5	87.5	92.5	70.0	
10	75.0	88.5	92.5	73.0	90.0	89.5	94.5	76.0	75 max
15	77.5	88.5	93.5	76.5	91	90.5	95.5	81.5	
20	80.0	90.0	94.5	79.5	91.5	91.5	96.5	87.0	
30	87.0	91.5	95.5	84.0	93.5	92.5	97.5	93.5	
40	91.0	93.0	97.5	87.5	94.5	94.5	99.5	96.5	75 min
50	93.5	94.5	100.0	91.0	96.5	97.5	101.5	98.5	105 max
60	96.0	97.0	101.5	85.5	98.5	100.5	104.5	100.5	
70	98.5	99.5	104.5	101.0	101	104.5	107.5	104.5	
80	101.5	103.0	109.5	109.0	104.5	112.5	114.5	109.5	
85	103.5	105.5	115.0	119.0	107.5	121.0	124.0	116.0	
90	106.0	109.5	127.0	163.0	113.5	161.0	169.0	155.0	135 max
95	111.0	122.0	187.0	192.0	150.0	195.0	195.5	195.0	
End	156.5	178.0	197.5	199.5	189.5	198.0	198.0	197.5	170 max
Sum of 10% + 50%	168.5	183.0	192.5	164.0	186.5	187.0	195.5	174.5	135 min
Recovery	98.6	98.9	99.1	97.9	98.5	99.0	99.1	99.0	97 min
Residue	1.3	1.0	0.8	0.7	0.8	0.8	0.8	0.8	1.5 max
Loss	0.1	0.1	0.1	1.4	0.7	0.2	0.1	0.2	

nh* = nonhomogenous
TEL = tetra-ethyl lead

TABLE 2-6. PROPERTY DATA OF MO BLENDS WITHOUT MMT

Property	MO1	MO2	MO3	MO4	MO5	MO6	MO7	MO8	ASTM D 910 100LL Spec.
MON	98.1	99.2	103.6	101.0	104.6	96.7	102.3	105.0	99.5 min
Supercharge Rating, mL TEL	0.43	0.85	4.00	1.37	4.86	0.78	3.44	>6.0	
PN	114.1	123.1	152.5	131.2	156.6	121.8	149.4	>161	130 min
Density, 15° kg/m3	711.2	750.9	790.9	765.1	750.3	711.2	773.3	780.6	
Vapor pressure, 38° kPa	30.7	24.9	26.4	17.4	25.5	48.9	21.2	14.5	38.0-49.0
Freezing Point, ºC	<-70	<-70	<-70	<-70	<-70	+4 nh*	<-70	<-70	-58 max
Net heat of combustion, MJ/kg	41.835	40.909	39.376	40.607	39.706	43.849	39.864	40.899	43.5 min
Copper corrosion	1a	1b	1a	1a	1a	1b	1a	1a	1 max
Potential residue, 5 h, 100°C									
Precipitate, mg/100 mL	0.2	0.3	0.1	<0.1	1.2	0.3	0.3	<0.1	3 max
Potential gum, mg/100 mL	2	<1	9	2	6	9	5	8	6 max
Water reaction, interface rating	1b	2	2	1b	1b	1b	2	1b	
Separation rating	2	2	2	2	2	1	2	1	
Volume change, mL	3	0	1	0	3	0	3	0	± max
Distillation, % evaporated, °C IBP	59.0	67.5	58.0	81.0	66.0	38.0	70.0	86.5	
5	73.5	72.0	70.5	88.0	70.5	55.5	76.5	92.0	
10	79.0	75.0	77.5	89.5	73.0	65.5	78.0	93.5	75 max
15	81.0	79.0	81.5	90.0	75.0	73.5	80.0	94.5	
20	83.0	84.0	84.5	91.0	77.5	80.0	83.0	95.5	
30	86.0	91.0	89.0	92.0	82.0	90.5	89.0	97.5	
40	89.0	94.5	93.0	93.5	88.5	97.5	93.0	99.5	75 min
50	90.5	96.5	97.0	95.0	91.5	102.0	96.0	100.5	105 max
60	93.0	98.5	100.5	97.5	96.0	106.0	99.0	103.5	
70	96.5	100.0	104.5	100.0	100.0	110.5	102.5	112.0	
80	100.5	103.0	113.5	104.0	106.5	120.5	108.5	115.5	
85	103.5	105.0	123.0	107.0	116.0	129.5	113.0	125.5	
90	109.0	110.0	163.5	112.5	175.0	152.5	126.5	174.5	135 max
95	132.5	135.5	193.5	127.5	195.5	182.5	188.5	196.0	
End	181.0	184.5	204.0	191.5	198.0	199.5	198.0	198.0	170 max
Sum of 10% + 50%	169.5	171.5	174.5	184.5	164.5	167.5	174.0	194.0	135 min
Recovery	98.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	97 min
Residue	1.3	0.3	0.4	0.9	0.7	0.4	0.6	0.8	1.5 max
Loss	0.7	0.7	0.6	0.1	0.3	0.6	0.4	0.2	

nh* = nonhomogenous
TEL = tetra-ethyl lead

TABLE 2-7. PROPERTY DATA OF AM BLENDS CONTAINING MMT

Property	AM1	AM2	AM3	AM4	AM5	AM6	AM7	ASTM D 910 100LL Spec.
MON	101.0	101.6	96.4	102.9	99.6	96.6	99.6	99.5 min
Supercharge Rating, mL TEL	3.00	5.80	1.13	4.62	2.18	0.81	1.25	
PN	146.6	160.3	127.8	155.6	140.1	122.4	129.6	130 min
Density, 15° kg/m3	747.0	725.8	707.4	741.5	733.6	723.1	712.0	
Vapor pressure, 38° kPa	28.6	41.7	44.2	33.7	38.4	21.3	31.7	38.0-49.0
Freezing Point, ºC*	<-70	-9 nh*	-64 nh*	<-70	-37.5 nh*	<-70	<-70	-58 max
Net heat of combustion, MJ/kg	41.392	42.509	42.916	40.699	42.790	43.440	41.552	43.5 min
Copper corrosion	1a	1a	1a	1a	1a	1a	1b	1 max
Manganese, g/gal	0.054	0.108	0.108	0.054	0.052	0.056	0.109	
Potential residue, 5 h, 100°C								
Precipitate, mg/100 mL	<0.1	<0.1	<0.1	0.1	0.7	0.8	0.2	3 max
Potential gum, mg/100 mL	10	4	2	10	3	<1	3	6 max
Water reaction, interface rating	1b	2	1b	1b	1b	1b	1b	
Separation rating	2	2	2	2	2	1	2	
Volume change, mL	2	4	2	1	2	1	4	± max
Distillation, % evaporated, °C IBP	58.0	48.0	48.0	50.0	45.0	70.0	64.5	
5	71.5	58.5	59.0	68.0	60.5	89.0	68.0	
10	78.0	64.0	64.0	74.0	71.0	93.0	71.0	75 max
15	82.5	68.5	68.0	78.0	79.0	95.0	74.5	
20	86.5	74.0	74.0	80.0	86.5	96.5	79.0	
30	92.0	87.0	87.0	84.5	94.0	98.0	87.0	
40	95.0	97.0	93.0	87.5	98.5	99.0	91	75 min
50	97.0	100.5	97.0	91.0	101.0	100.0	93.0	105 max
60	100.0	103.5	100.0	95.0	103.5	101.0	95.5	
70	103.0	108.0	103.0	100.0	106.5	102.0	97.5	
80	107.0	115.0	112.5	108.5	111.0	104.0	101.5	
85	112.0	123.0	116.0	117.5	115.0	106.0	103.5	
90	124.0	148.5	117.5	166.5	123.0	110.0	107.5	135 max
95	177.5	195.0	135.0	195.0	176.0	130.0	130.5	
End	197.5	198.0	190.5	198.5	196.5	174.5	181.5	170 max
Sum of 10% + 50%	175.0	164.5	161.0	165.0	172.0	193.0	164.0	135 min
Recovery	99.0	99.0	99.0	99.0	99.0	99.0	99.0	97 min
Residue	0.8	0.8	0.9	0.8	0.9	0.9	0.4	1.5 max
Loss	0.2	0.2	0.1	0.2	0.1	0.1	0.6	

nh* =nonhomogenous
TEL = tetra-ethyl lead

TABLE 2-8. PROPERTY DATA OF MM BLENDS CONTAINING MMT

Property	MM1	MM2	MM3	MM4	MM5	MM6	MM7	ASTM D 910 100LL Spec.
MON	103.8	99.4	104.0	100.7	96.8	96.2	100.9	99.5 min
Supercharge Rating, mL TEL	>6.0	3.73	>6.0	2.67	1.47	0.78	4.91	
PN	>161	151.1	>161	144.2	132.5	121.8	156.8	130 min
Density, 15° kg/m3	713.7	757.6	757.0	747.1	742.8	734.3	727.0	
Vapor pressure, 38° kPa	28.9	37.8	23.3	33.4	28.7	43.3	52.9	38.0-49.0
Freezing Point, ºC	8.5 nh*	-57 nh*	<-70	<-70	<-70	<-70	-9 nh*	-58 max
Net heat of combustion, MJ/kg	42.779	42.630	40.704	41.338	42.846	40.894	42.303	43.5 min
Copper corrosion	1a	1a	1a	1a	1a	1a	1b	1 max
Manganese, g/gal	0.107	0.107	0.107	0.053	0.094	0.057	0.110	
Potential residue, 5 h, 100°C								
Precipitate, mg/100 mL	0.3	0.9	0.2	1.6	1.2	0.6	0.7	3 max
Potential gum, mg/100 mL	10	6	18	9	5	6	1	6 max
Water reaction, interface rating	1b	1b	1b	1b	1b	2	2	
Separation rating	2	2	2	2	2	2	2	
Volume change, mL	1	1	2	1	1	4	4	± max
Distillation, % evaporated, °C IBP	47.0	42.0	65.0	54.0	62.0	47.0	38.0	
5	75.0	64.0	76.5	67.0	70.0	58.5	49.5	
10	86.0	77.0	81.0	74.0	83.0	64.0	56.0	75 max
15	91.0	86.0	84.5	79.5	91.5	67.0	61.0	
20	94.0	91.5	87.0	84.0	96.0	70.5	66.0	
30	97.5	98.5	90.5	90.5	98.5	78.5	79.5	
40	100.0	102.0	93.5	94.5	100.0	86.0	94.0	75 min
50	100.5	105.5	96.0	97.0	101.0	91.0	102.5	105 max
60	104.0	108.0	99.0	100.0	102.0	95.0	103.5	
70	108.0	113.0	103.0	104.0	103.0	99.0	114.0	
80	114.0	119.5	111.0	110.0	105.0	104.5	127.0	
85	123.0	127.5	125.5	116.0	106.5	109.0	144.5	
90	153.0	151.5	180.5	131.0	110.0	118.5	177.5	135 max
95	183.5	190.5	196.0	182.5	132.0	153.5	194.5	
End	199.5	201.0	199.0	196.0	179.5	186.5	198.5	170 max
Sum of 10% + 50%	186.5	182.5	177.0	171.0	184.0	155.0	158.5	135 min
Recovery	99.0	99.0	99.0	99.0	98.0	98.5	98.5	97 min
Residue	0.5	0.6	0.7	0.9	1.0	0.7	0.6	1.5 max
Loss	0.5	0.4	0.3	0.1	1.0	0.8	0.9	

nh* = nonhomogenous
TEL = tetra-ethyl lead

In row 4 of tables 2-5 through 2-8, the PN is greater than 161 (>161) for some blends. These blends did not exhibit the traditional breaking of the curve, as required by ASTM D 909, to bracket the fuels with known leaded reference fuels. The test was aborted after reaching the 161 PN level. In row 7 (freezing point), some of the blends have nh*, which means that blend became nonhomogenous at the specified temperature. All the blends that became nonhomogenous contained m-toluidine, which is known to separate under cold temperatures. The converse is not necessarily true however, as many of the blends that had a high fraction of m-toluidine, such as AV6 and AV7, did not exhibit this nonhomogeneity at cold temperatures. Prior to testing any of the blends, the drums were thoroughly agitated and rolled along the ground to ensure thorough mixing.

The column furthest to the right in tables 2-5 through 2-8 lists the ASTM D 910 specification values for the current 100LL aviation gasoline. This standard specification provides more information on the test methods, limits, and specifications for the current spark ignition piston aviation gasolines. Many of the blends did not meet the specifications for the current 100LL aviation gasoline. For example, only blend MO6, out of all 30 blends, met the current ASTM specification minimum for net heat of combustion (minimum requirement of 43.5 MJ/kg). The initial goal of the CRC working group, and of this research, was to address the relationship between the MON of unleaded fuels and their full-scale engine knock performance. Obviously, any future fuel would have to either meet all the current specifications for 100LL or meet an altogether new specification for an unleaded aviation gasoline.

2.2 TEST ENGINE.

A Lycoming IO540 K model engine, with 17.7 hours of previous engine operation, coupled to an eddy-current dynamometer, was used as the test engine. The IO540 K engine was previously used as one of the worst-case engines in the unleaded fuels octane requirement tests for the CRC working group. Prior to this, the engine was broken-in using Phillips Type M nondispersant, 20W-50 mineral oil and operated only on unleaded, nonmetallic fuels. Appendix C contains a detailed engine history for the Lycoming IO540 K engine.

An eddy-current dynamometer was used for power absorption, and only the components required to operate the engine were installed. All engine testing and operation after the break-in period used an Aeroshell type W, 15W-50 ashless dispersant oil.

Table 2-9 lists the rated power and compression ratio of the Lycoming IO540 K model engine. The IO in the engine model description refers to fuel injection and opposed cylinder, and the numerical value of the model description refers to the cubic inch cylinder displacement.

TABLE 2-9. LYCOMING IO540 K ENGINE MODEL SPECIFICATIONS

Engine Make and Model	Compression Ratio	Normal-Rated Power (BHP)	rpm	Cylinders	Bore (inches)	Stroke (inches)
Lycoming IO540 K	8.7	300	2700	6	5.125	4.375

BHP = brake horsepower

As part of the earlier tests, the cylinder assemblies had been removed, drilled, and tapped in the fin area for the installation of a high-temperature, water-cooled piezoelectric pressure transducer (see figure 2-1). One transducer was installed in the cylinder head of each cylinder with the transducer face as flush with the cylinder cavity as possible. The transducers were connected to charge-to-voltage amplifiers, and the amplifiers were connected to a data acquisition system.

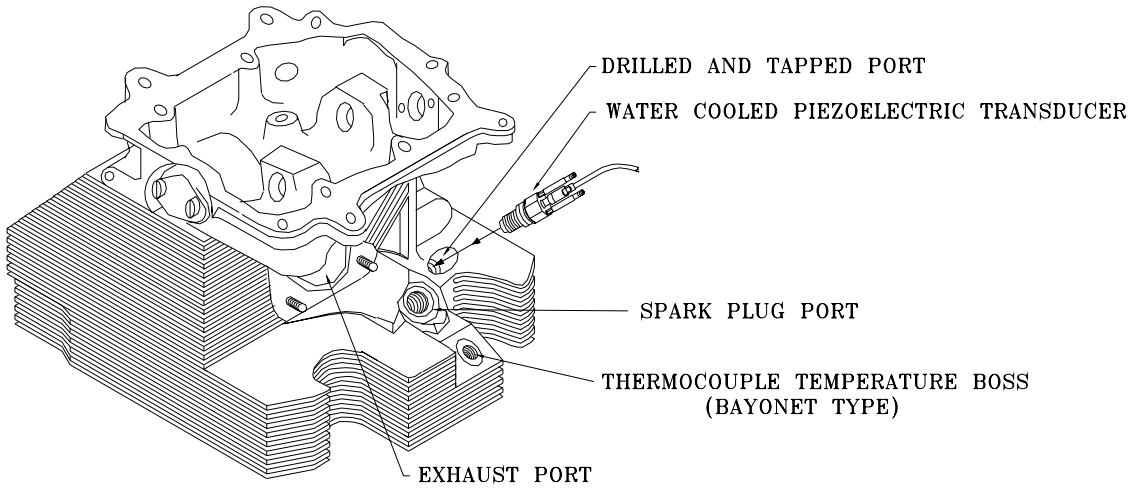

FIGURE 2-1. CYLINDER HEAD SHOWING THE FLUSH-MOUNTED PIEZOELECTRIC PRESSURE TRANSDUCER INSTALLATION

Analog pressure signals were digitized at the rate of one data point for every 0.1 degree of crankshaft rotation for each cylinder. The pressure data was fed to a numerical knock quantification analyses routine, as detailed in ASTM D 6424.

The engine was also instrumented as listed in table 2-10, and engine parameter data were recorded at a rate of one scan of all channels every 5 seconds. Sensors used to measure these parameters were installed at the manufacturer's recommended locations whenever possible and were calibrated prior to any engine test. After the engine was installed and the instrumentation calibrated, a series of maintenance runs were performed to verify engine systems integrity and instrumentation accuracy. Prior to any engine operation, the mixture cutoff and full-rich settings and the throttle stop and throw positions were checked.

The fuel delivery system connects multiple fuel sources with one source containing the house fuel, and the other sources containing the test blends. The integrity of the fuel system was checked prior to each run to ensure that cross- contamination did not occur.

The blends were tested at power settings ranging from takeoff (TO), 85%, 75%, and 65% power, as shown in table 2-11. TO is the condition of wide open throttle (W.O.T) and maximum rated revolutions per minute (rpm). The horsepower and rpm combinations were chosen from the engine manufacturer's specifications. Tests were performed with the dynamometer controller operating in the speed mode so that the dynamometer would vary the engine load to maintain the desired rpm.

TABLE 2-10. SENSORS AND INSTALLATION LOCATIONS

Parameter	Sensor Type	Sensor Location
Cylinder head temperatures 1-6	Bayonnet, J-type thermocouple	Manufacturer's specified location
Exhaust gas temperatures 1-6	Band clamp, K-type thermocouple	Exhaust pipe within 2 inches of exhaust flange
Intake air temperature	T-type thermocouple	Intake duct just prior to throttle throat
Intake air pressure	Absolute pressure transducer	Intake duct just prior to throttle throat
Mass air flow rate	Kurz mass flow meter	Straight, smooth section of intake air duct 6 diameters downstream
Air-to-fuel ratio	Calculation	N/A
Manifold absolute pressure	Absolute pressure transducer	Intake manifold plenum after the fuel metering unit
Engine speed (rpm)	Magnetic pickup	Dynamometer shaft
Engine shaft torque	Load cell	Dynamometer
Brake horsepower	Calculation	N/A
Fuel mass flow rate	Corliolis mass flow meter	After fuel metering unit and prior to fuel manifold
Engine cowling air temperature	T-type thermocouple	Engine cowling plenum
Engine cowling air pressure	Gauge pressure transducer	Engine cowling plenum
Fuel temperature	Corliolis mass flow meter	After fuel metering unit and prior to fuel manifold
Fuel mass density	Corliolis mass flow meter	After fuel metering unit and prior to fuel manifold
Metered fuel pressure	Gauge pressure transducer	Output of fuel metering unit
Fuel pump pressure	Gauge pressure transducer	Output of engine-driven fuel pump
Oil temperature	J-type thermocouple	Return from oil cooler
Oil pressure	Gauge pressure transducer	Manufacturer's location in accessory case

TABLE 2-11. POWER SETTINGS FOR KNOCK TESTS

Power	Manifold Absolute Pressure (in. Hg)	Engine Speed (rpm)
TO - Normal-rated power	W.O.T.	2700
85% of TO	Adjusted to attain power	2600
75% of TO	Adjusted to attain power	2450
65% of TO	Adjusted to attain power	2350

The fuel blend components were kept anonymous to prevent fuel flow adjustments for differences in energy density or for differences in the oxygen or nitrogen content of each blend. Thus, all the tests followed the same procedures for adjusting the manifold absolute pressure (MAP), part throttle power, and mixture. Typically, the full-rich fuel mass flow rate, obtained from the engine manufacturer's detailed specifications for 100LL, was adjusted at TO. The resulting power was used to calculate the 85%, 75%, and 65% power. When adjusting the part throttle power settings, the engine rpm was set, and the MAP and mixture were adjusted until the desired power was attained at the full-rich fuel mass flow rate. The resulting MAP was then recorded, and any mixture leaning or enrichening from this condition at the same rpm was performed while maintaining constant MAP. Mixture adjustments were performed in 5% increments of the respective full-rich fuel mass flow rate. All analyses and figures presented in this report were determined using fuel mass flow rates and not volume flow rates. Comparing the blends at constant fuel volume flow rates, while the fuel temperature and the fuel mass density varied, would result in unwanted fuel mixture variations. As mass is an intrinsic property, comparing the blends at constant fuel mass flow rates resulted in steady energy flow rates, irrespective of the fuel temperature or density.

Some of the blends did not provide sufficient knock performance for knock-free, full-rich operation, even at sharply reduced engine operating temperatures. For these fuels, isooctane (ISO) was substituted to determine a TO power with the engine operating at sharply reduced temperatures, and the MAP was determined by following the procedures above. The MAP determined for each of the power settings was then used for that particular blend during any mixture adjustments.

Prior to testing the blends that contained the manganese additive, MMT, the engine was octane-rated with unleaded reference fuels using procedures outlined in ASTM D 6424. For rating fuels below 100 MON, the MON of the primary reference fuel was determined as the volume percent of ASTM primary reference-grade ISO (2,2,4 trimethylpentane) in a blend with normal heptane. Any references throughout this report to ISO refers to 2,2,4 trimethylpentane. For rating fuels above 100 MON, a blend of ASTM reference-grade ISO and reagent-grade m-toluidine were used. MON was not used to describe the octane quality of these fuels but rather Amine number (AN) was used. The AN of the reference fuel was equal to the weight percent of m-toluidine in ISO. For example, 105 AN refers to reference-grade ISO containing 5 weight percent reagent-grade m-toluidine.

The FAA William J. Hughes Technical Center completed the full-scale engine tests in an effort to correlate the MON of leaded reference fuels to the AN of unleaded reference fuels.

No correlation has yet been quantified between the unleaded reference fuel full-scale engine knock performance and that of the knock performance of leaded reference fuels, nor should any be implied. The following unleaded reference fuels were tested: 96 MON, 97 MON, 98 MON, 99 MON, ISO, 101 AN, 102 AN, 103 AN, 104 AN, 105 AN, 106 AN, 107 AN, 108 AN, and 109 AN. After the completion of the full-scale engine tests with the 30 CRC blends and prior to testing the 100LL baseline fuel, the engine was again octane-rated using unleaded reference fuels. The unleaded reference fuel octane ratings performed before and after testing the blends containing the MMT were compared in an effort to determine the effect of manganese deposits on octane requirement.

Also, after completing the tests with the baseline 100LL fuel, the engine was octane-rated using leaded reference fuels. The knock performance for each of the 30 matrix fuel blends was compared to both the unleaded and leaded reference fuels to compare the blend's equivalent unleaded and leaded octane performance. Prior to testing the leaded reference fuels, the engine was operated for 45 minutes at a cruise configuration using the baseline 100LL fuel to stabilize lead deposits. After the leaded octane rating and prior to the unleaded octane rating, the engine was again operated for 45 minutes at a cruise configuration on ISO without lead, again in an effort to stabilize the lead deposits. Appendix E lists the lead composition of the leaded reference fuels.

The engine tests began with warming up the engine, ensuring that all instrumentation indications were within proper range, and performing an ignition systems check. At this time, the engine and environmental parameters, described in table 2-12, were set and maintained throughout the knock tests. After selecting or changing a test blend or changing the engine power setting, conditions were allowed to stabilize. Enough time was given for the selected blend to reach the engine and for cylinder head temperatures to stabilize.

TABLE 2-12. PARAMETER SETTINGS FOR OCTANE RATINGS

Parameter	Limit
Maximum cylinder head temperature	475° ±3°F (maximum per engine manufacturer's detailed specifications)
All other cylinder head temperatures	Within 50°F of maximum cylinder head temperature
Induction air temperature	103° ±3°F
Induction air relative humidity	Less than 5%
Oil inlet temperature	245° -10°F (maximum per engine manufacturer's detailed specifications)

When conditions stabilized, knock data was collected, and the presence and the severity of the knock (no, light, moderate, or heavy) was determined. For a given power setting, if moderate or heavy knock was detected, the mixture was not leaned past this point. The test engine was not operated under heavy knock for extended periods of time. The fuel mixture was leaned from a richer, nonknocking setting, and adjustments were made in fuel mass flow increments of 5% of the full-rich fuel mass flow.

At the conclusion of the test, the power was gradually reduced to allow the engine to cool at an acceptable rate. After shutdown, the fuel selector valve was checked for leakage to ensure that cross contamination did not occur.

The knock level was quantified at each individual engine cycle for each power setting tested. The results were used to determine the knock performance mixture lean-out curves for a given power setting and test blend.

A dynamic engine power baseline test was performed with the mixture at the full-rich fuel flow position. The MAP was varied in increments of 1 inch of mercury (in. Hg), while the engine speed (rpm) was varied in increments of 100. These tests were performed at the full-rich fuel flow mixture position. These baselines encompass a combination of MAP settings and engine rpm settings over a practical operating envelope. The results from the baselines verify the health of the engine.

Scheduled engine maintenance was performed every 50 engine hours.

The spark plugs were removed, and a cylinder borescope was employed to ensure that rings, valves, valve surfaces, and piston crown were in visibly healthy condition. A run-up was performed, and the compression check was completed with the engine warm. The compression test used a differential pressure tester with a master orifice device, and the procedures followed those outlined in Textron Lycoming Service Instruction Number 1191A. The pressure across the orifice device was measured and recorded while 80 psi of air pressure was applied to the engine cylinders while the respective piston was at top dead center of the compression stroke.

The fuel inlet screen (finger screen) was removed, cleaned, reinstalled, and safety wired. The system was then pressure-checked for evidence of leaks at the sealing gasket.

The engine cylinder assembly was inspected for evidence of overheating, leakage between exhaust ports and pipes, and warped exhaust port flanges. The baffling was inspected for condition and security.

The oil system was drained and the spin-on oil filter was changed. The oil pump scavenge screen was also removed and inspected for metal particles and contamination. The screen was then thoroughly cleaned, reinstalled, and safety wired. New gaskets were installed. The system was serviced to the proper level with Aeroshell 15W-50 multiviscosity oil. The unleaded avgas program used Aeroshell 15W-50 multiviscosity oil during the tests and any servicing of the engine with oil was recorded.

All fluid-carrying lines were inspected for possible leaks or chafing. Electrical wiring was inspected for proper connections, security, and evidence of chafing as well.

Upon completion of the inspection, the engine cowling was reinstalled and a performance engine run-up test was completed. At this time, the engine was inspected for evidence of oil leaks and proper operation.

3. RESULTS AND DISCUSSION.

3.1 DYNAMIC VERIFICATION OF ENGINE HEALTH.

Prior to conducting any the engine knock testing on the 30 matrix fuel blends, an engine power baseline test was performed. The data are shown in figure 3-1. Note that this data was collected using an inlet air temperature of 60ºF, and maximum cylinder head temperatures (CHT) nearing 400ºF, with ISO fuel. It was found that increasing the maximum CHT to 475ºF, as was done throughout the knock tests, resulted in a 5 to 7 brake horsepower (BHP) reduction at the maximum power condition. Furthermore, operating the engine with intake air temperatures of 103ºF during the knock tests resulted in more than a 4.3% reduction in maximum power output.

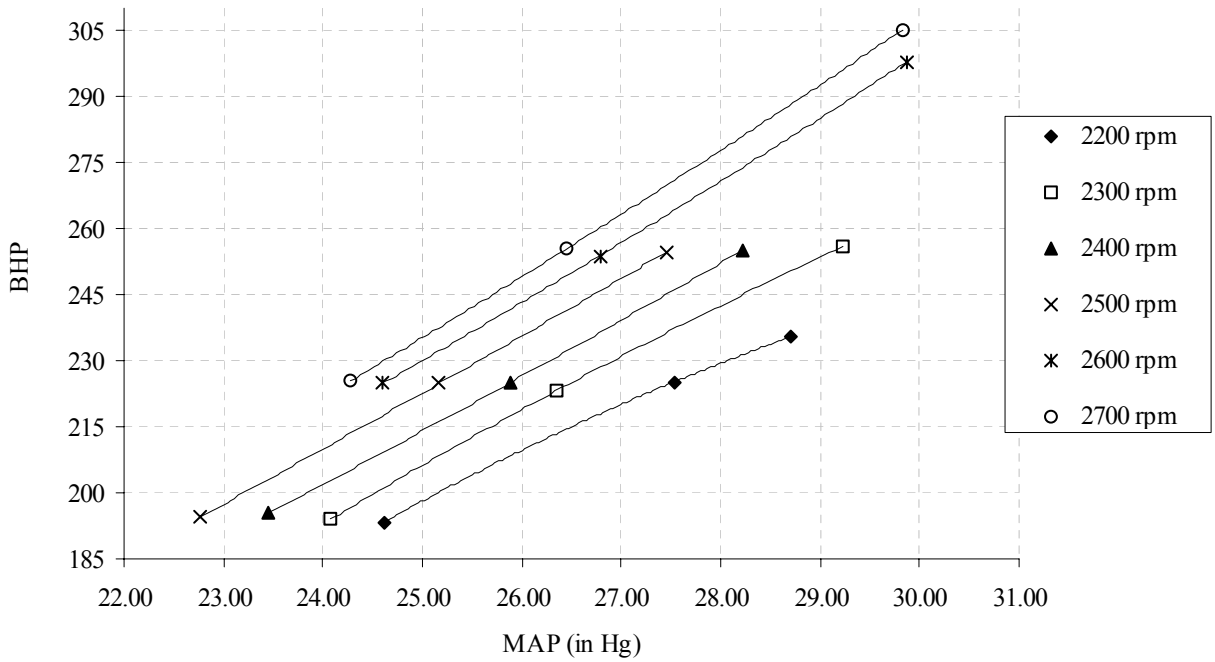

FIGURE 3-1. POWER BASELINE DATA FOR THE IO540 K ENGINE

Appendix A contains the averaged data values for engine parameters collected during the testing of the 30 matrix fuels, the unleaded reference fuels, and the baseline 100LL. Many of the octane ratings required more than one test to fully map the engine; however, all the engine parameter data that corresponds with the knock results presented in this section can be found in appendix A. Appendix B contains the knock data summaries.

The relative performance of the blends versus one another, versus a baseline 100LL aviation gasoline, and versus leaded and unleaded reference fuels was determined. Due to the anonymity of the test blends, no adjustment could be made to the fuel mixture to compare equivalence ratios (the ratio of the air-to-fuel ratio to the stoichiometric air-to-fuel ratio). The methods used to rank the knock performance of the blends compared the richest fuel mass flow rates at the onset of knock, compared the brake-specific fuel consumption (BSFC) values at the onset of knock, and compared the calculated air-to-fuel ratios using mass airflow and mass fuel flow rates at the onset of knock. As discussed in section 2.1, each blend was leaned in 5% increments from a

richer nonknocking fuel mass flow rate for a given power setting. The richest mixture where knock occurred, referred to as the onset knock condition, was used as the comparator for rating the blend's knock performance.

3.2 BLEND PERFORMANCE COMPARISON TO 100LL BASED ON KNOCK-LIMITED FUEL MASS FLOW.

Figures 3-2 through 3-11 illustrate the power versus fuel mass flow rates for each power setting. The top group of curves shows the 2700 rpm and maximum power setting, the second set of curves from the top shows the 85% power and 2600 rpm, the third set shows the 75% power and 2450 rpm, and the bottom set of curves shows the 65% power and 2350 rpm condition.

For each fuel, a line is drawn through the onset knock fuel flow rate at the maximum power condition and at the 65% power condition. Thus, fuel mass flow rates to the left (lower flow rates) of the knock line for a given blend and power setting, dotted lines in figures 3-2 through 3-11, represent leaner mixtures (lower fuel mass flow rates) and heavier knock conditions. Fuel flow rates to the right of the dotted lines would represent nonknocking conditions. Thus, the further to the left that a line is drawn, the lower the fuel flow rate before the onset of knock and, hence, the better the performance of the blend. Each figure also contains a comparison to the baseline 100LL. For example, figure 3-2 shows that the AV3 and AV4 blends performed better than the 100LL blend, while blends AV1 and AV2 performed much worse than 100LL.

For blends that did not develop limiting knock at a specific power setting, the engine conditions at the point of minimum BSFC were used as the limiting knock condition.

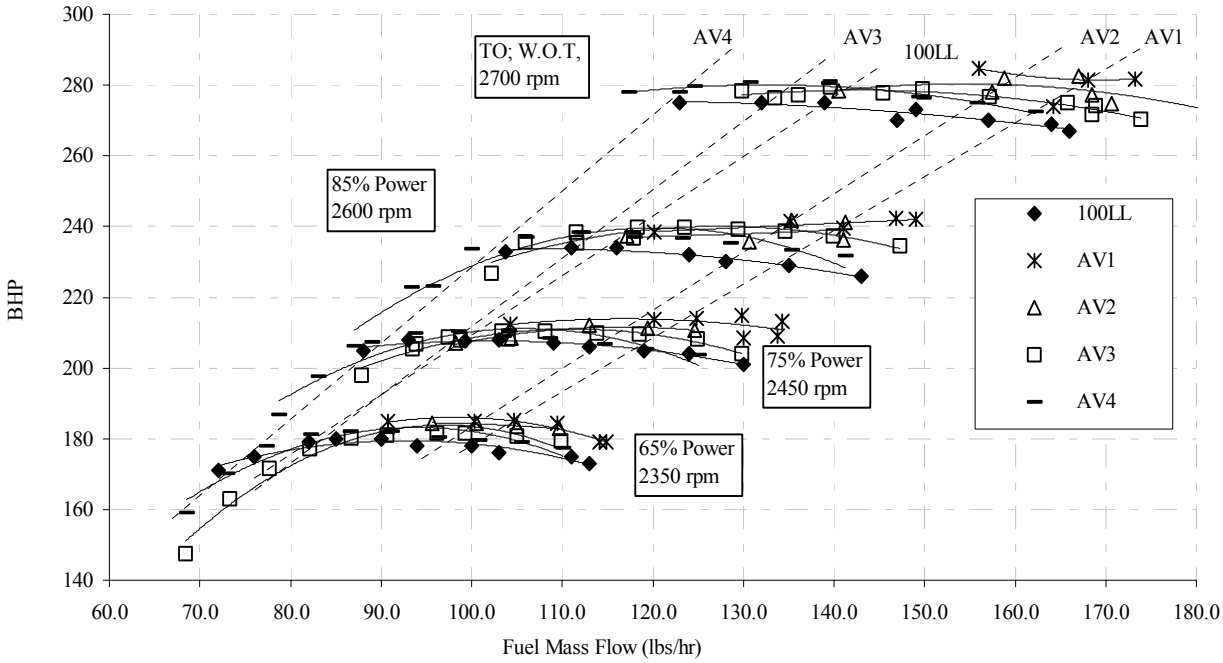

FIGURE 3-2. POWER CURVES FOR THE AV1 THROUGH AV4 BLENDS AND 100LL

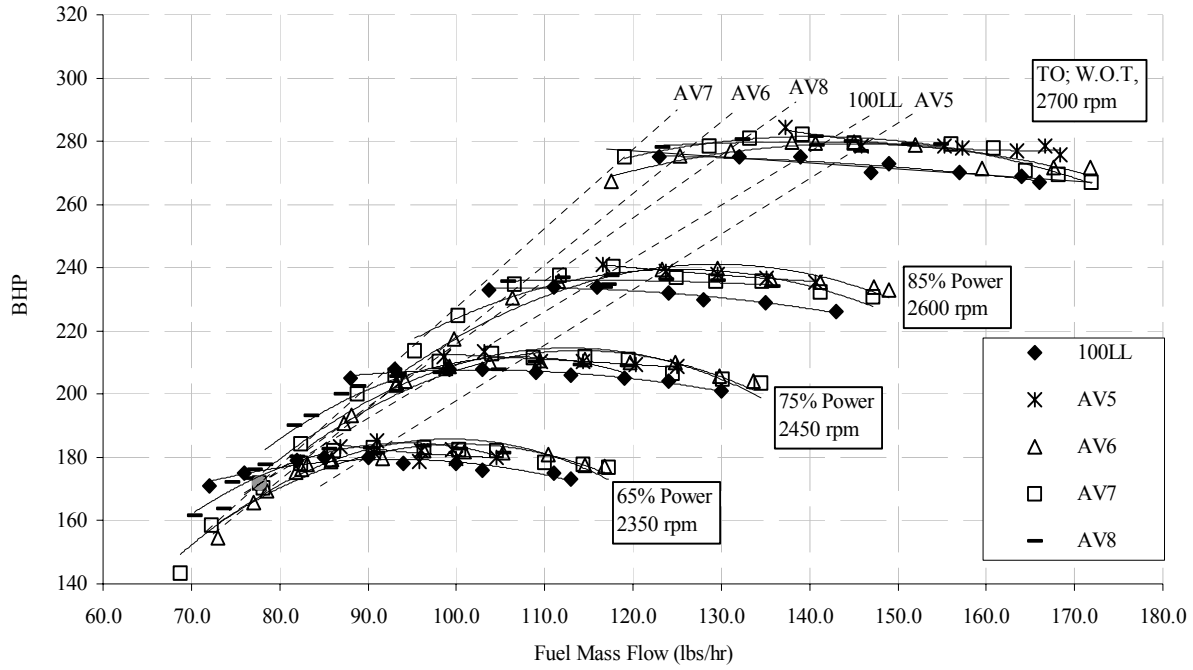

FIGURE 3-3. POWER CURVES FOR THE AV5 THROUGH AV8 BLENDS AND 100LL

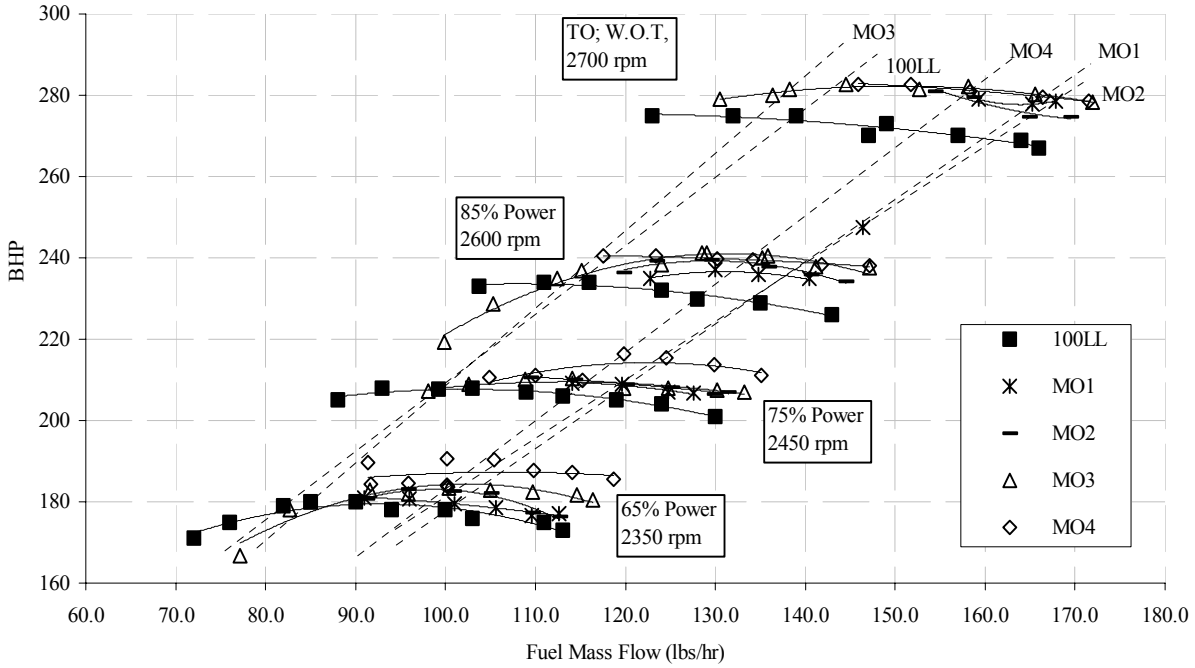

FIGURE 3-4. POWER CURVES FOR THE MO1 THROUGH MO4 BLENDS AND 100LL

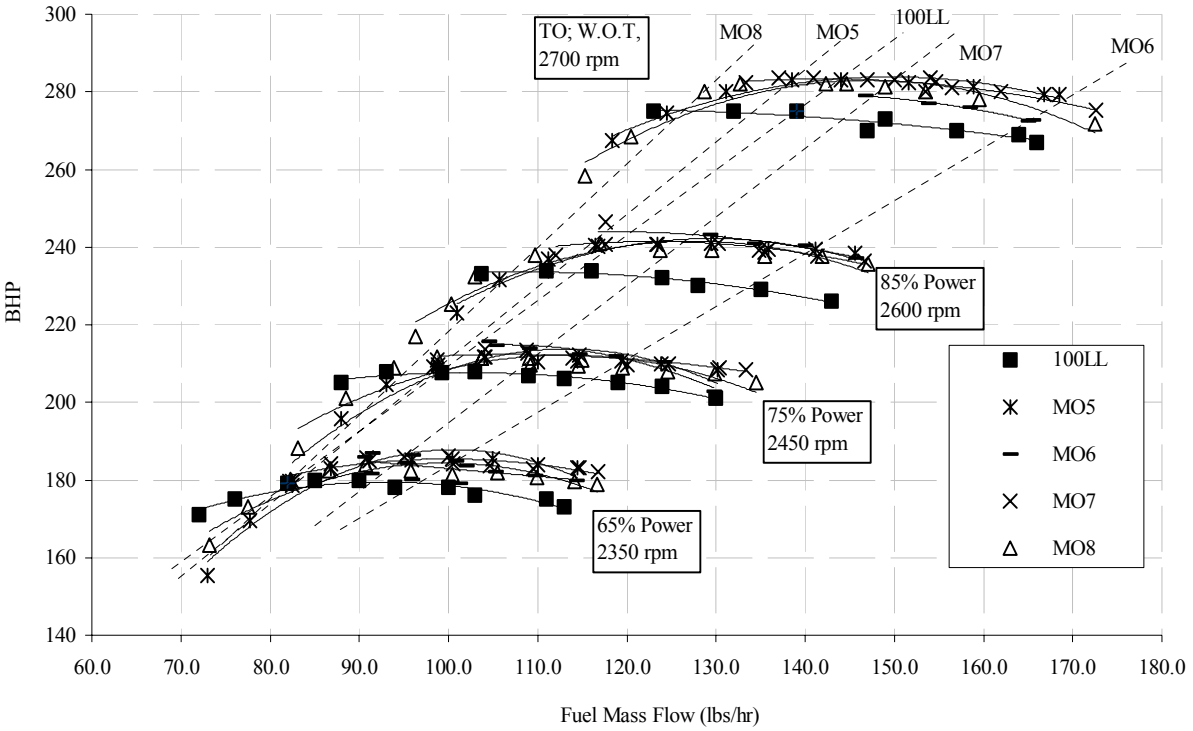

FIGURE 3-5. POWER CURVES FOR THE MO5 THROUGH MO8 BLENDS AND 100LL

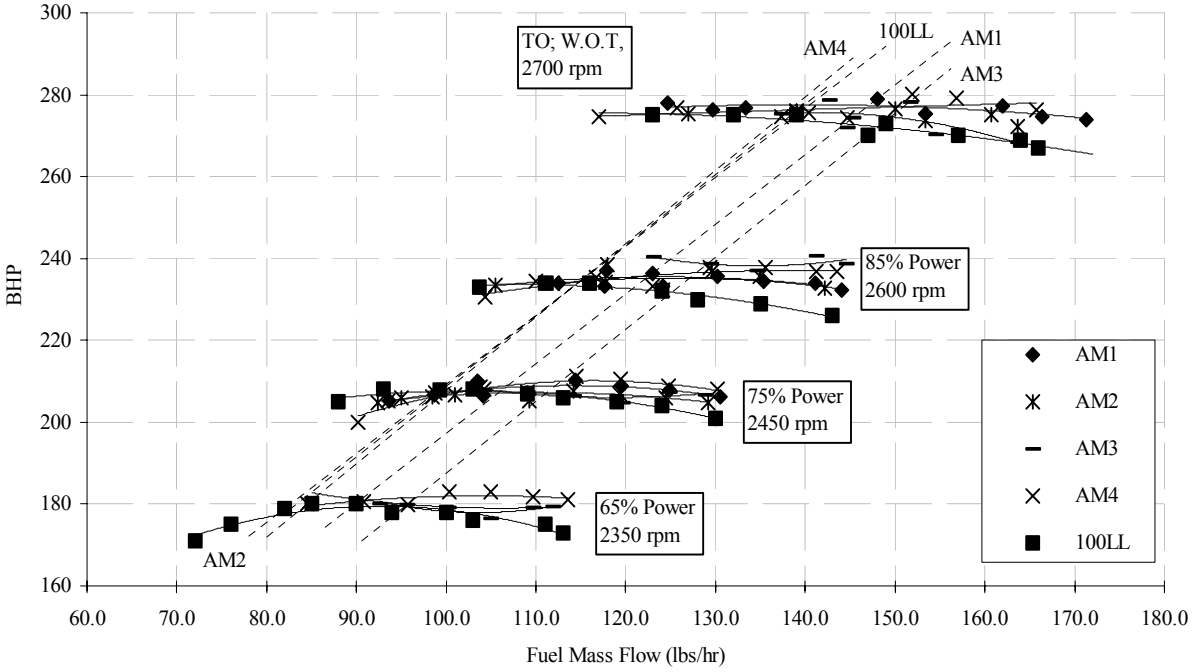

FIGURE 3-6. POWER CURVES FOR THE AM1 THROUGH AM4 BLENDS AND 100LL

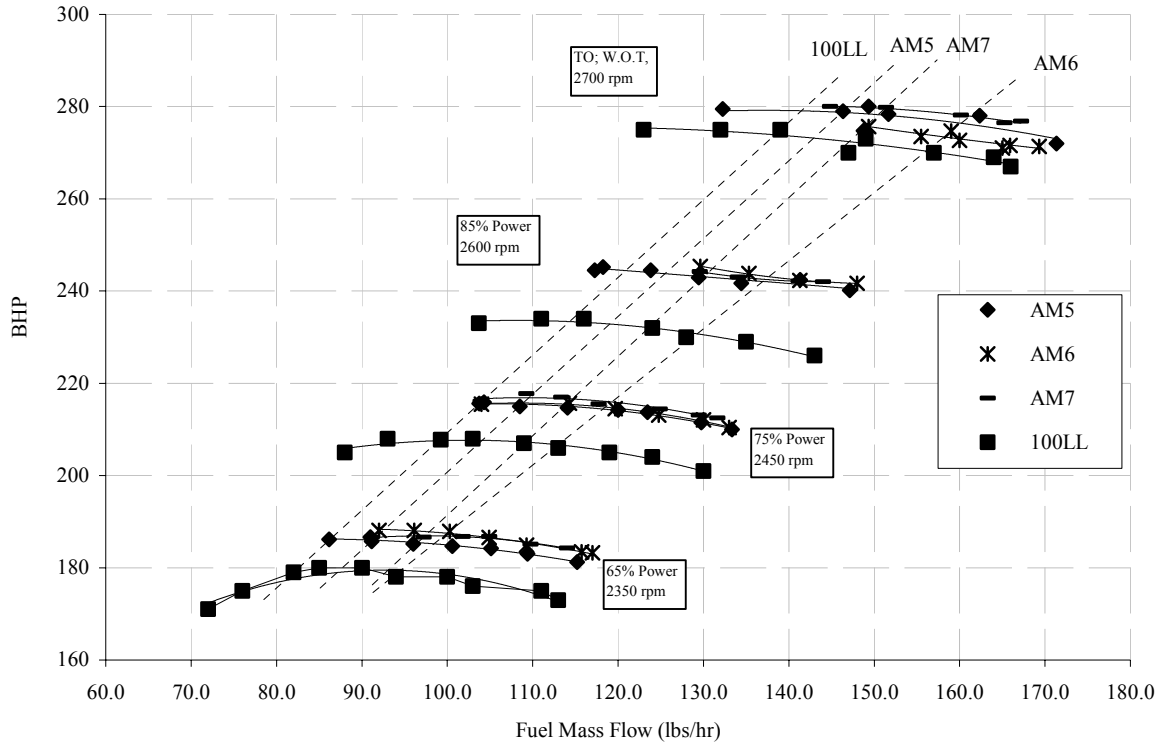

FIGURE 3-7. POWER CURVES FOR THE AM5 THROUGH AM7 BLENDS AND 100LL

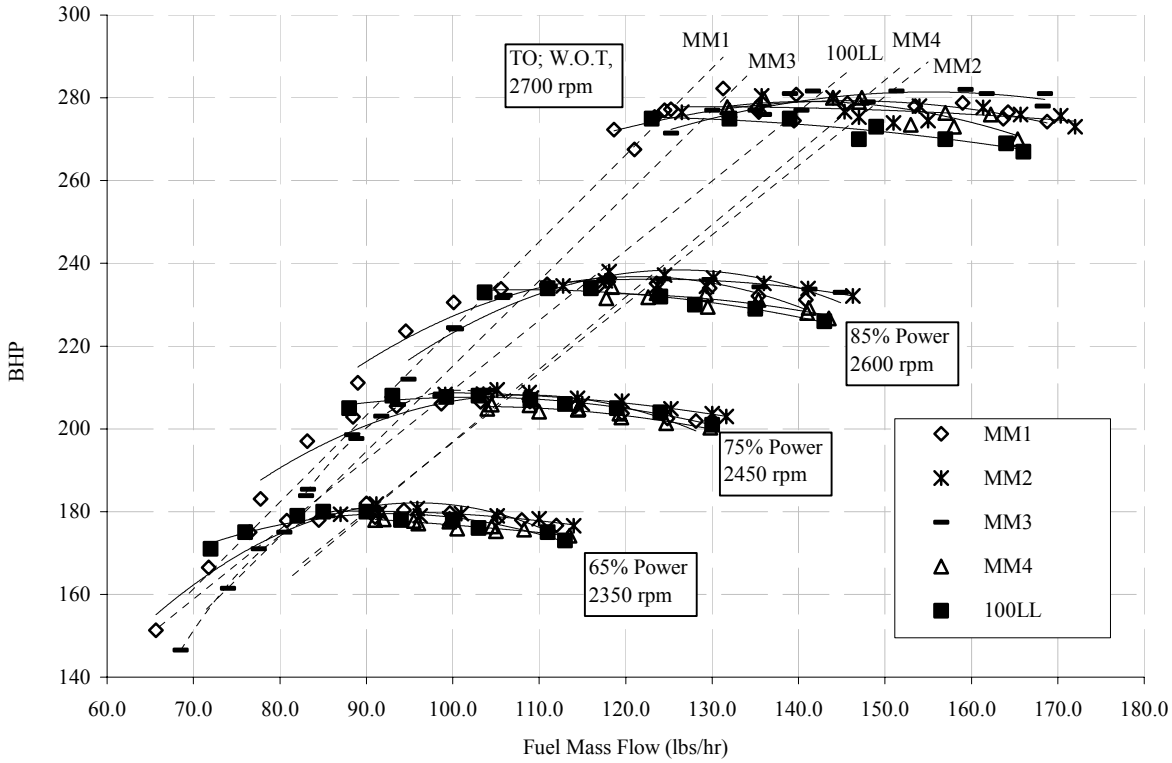

FIGURE 3-8. POWER CURVES FOR THE MM1 THROUGH MM4 BLENDS AND 100LL

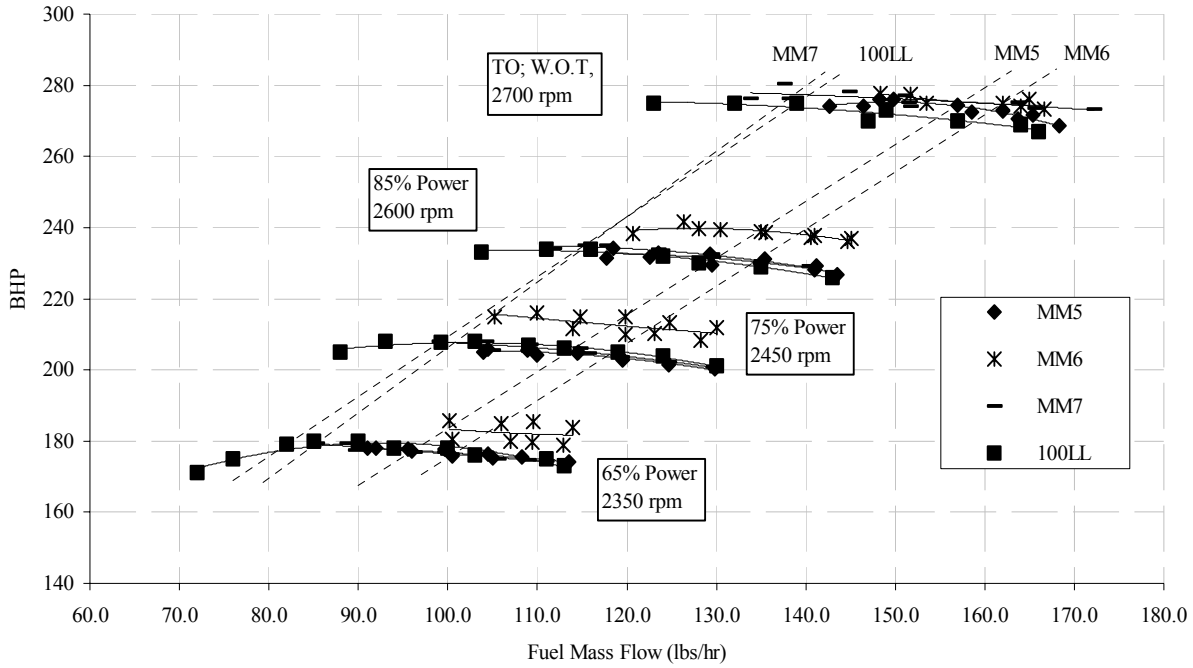

FIGURE 3-9. POWER CURVES FOR THE MM5 THROUGH MM7 BLENDS AND 100LL

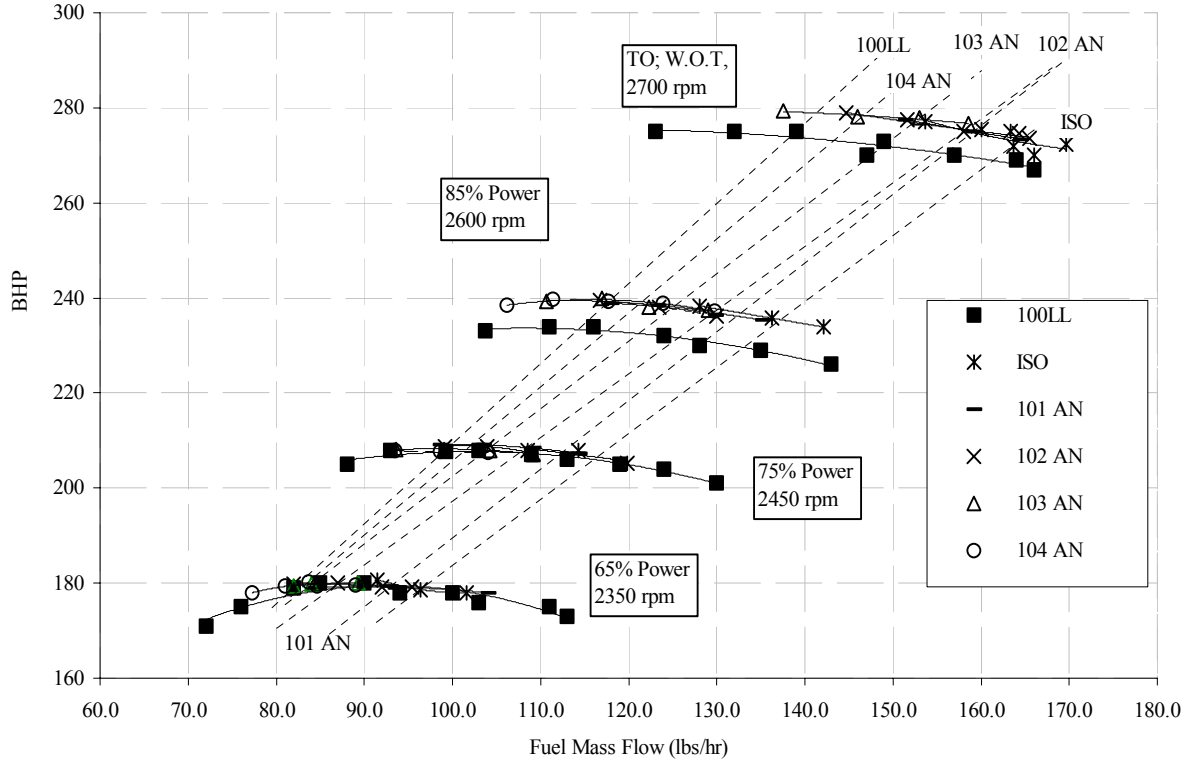

FIGURE 3-10. POWER CURVES FOR THE ISO THROUGH 104 AN BLENDS AND 100LL

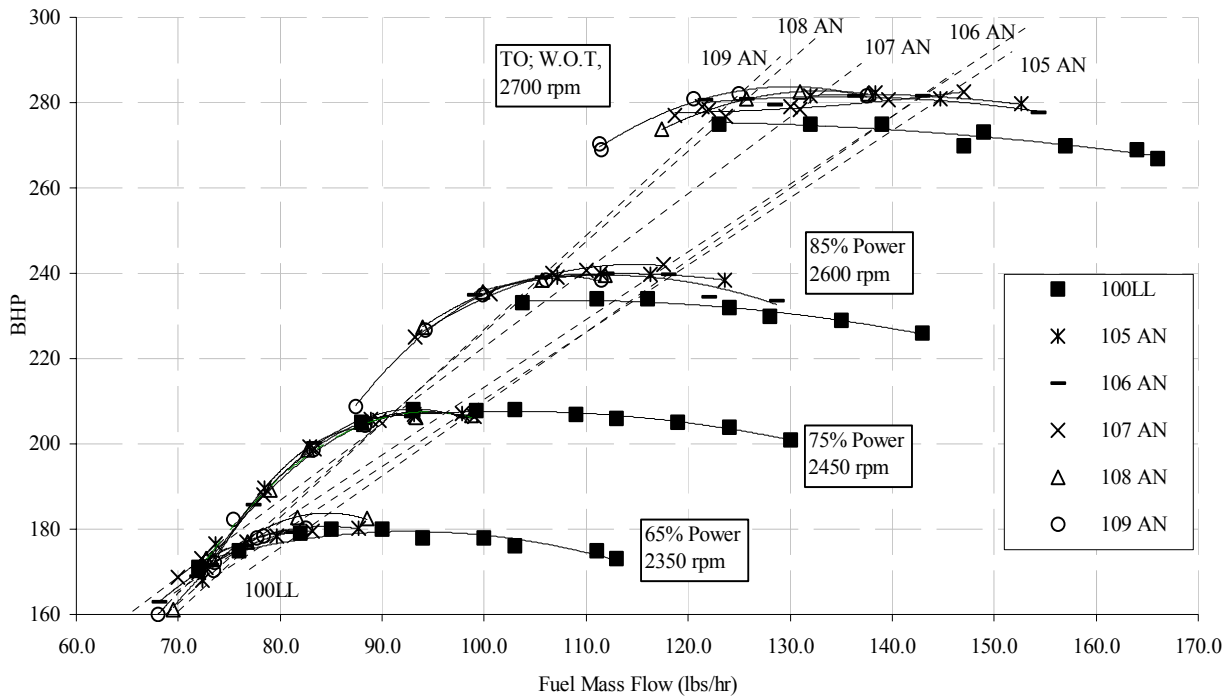

FIGURE 3-11. POWER CURVES FOR THE 105 AN THROUGH 109 AN BLENDS AND 100LL

3.3 BLEND PERFORMANCE COMPARISON TO 100LL BASED ON KNOCK-LIMITED BSFC.

Using the knock-limited fuel flow rate to rank the blends resulted in comparing the blends at a equivalent flow rates but at a slightly different horsepower. Both the knock-limited fuel flow rate and the horsepower output were taken into account by using the BSFC data. The BSFC was determined from the following equation:

$$BSFC = \textit{fuel mass flow rate (lbs/hr)} / BHP \qquad \text{[lbs/BHP hr]}$$

Thus, the higher the fuel mass flow rate for a given horsepower output, the higher the BSFC. For two blends that developed onset knock conditions at the same fuel mass flow rate, the blend with the higher horsepower at this flow rate would be considered the better performer.

Figures 3-12 through 3-21 illustrate the relative performance of the blends to 100LL using the knock-limited BSFC data. Again, lines were drawn on the curves through the onset knock points at the maximum power condition and the 65% power condition. The further down the curve of the onset knock line, the better the performance of the blend. The lower the onset knock line, the lower the fuel mass flow rate that could be achieved at the onset knock condition for an equivalent horsepower.

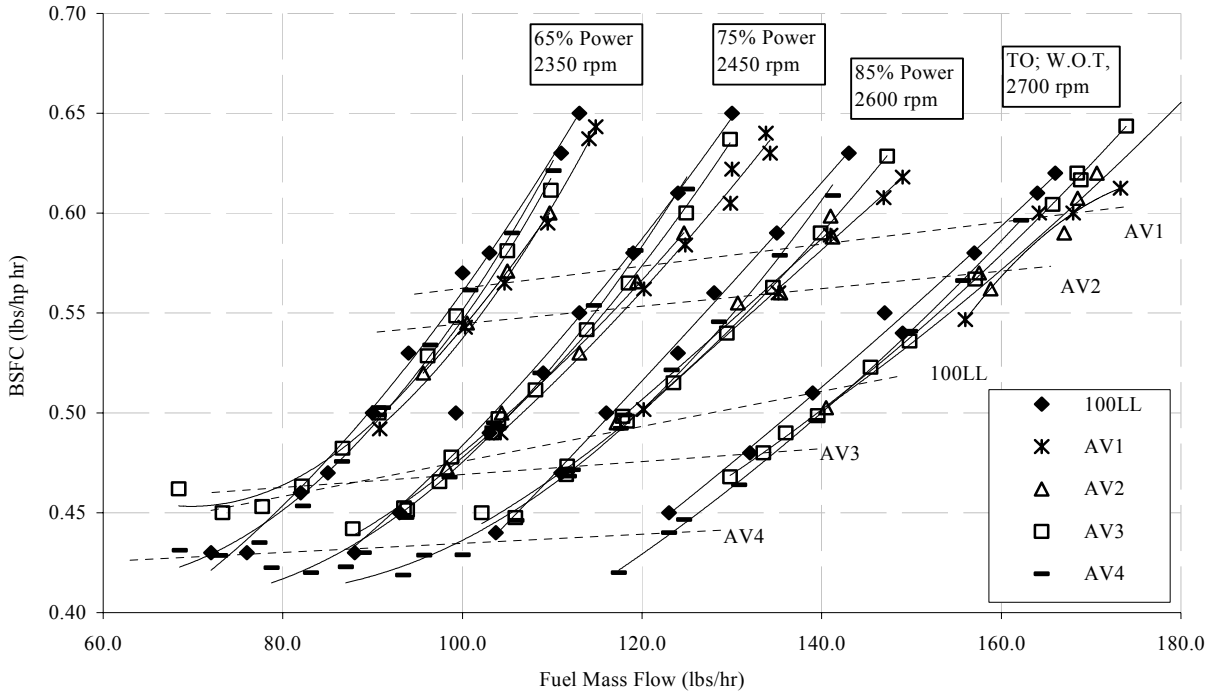

FIGURE 3-12. THE BSFC DATA FOR THE AV1 THROUGH AV4 BLENDS AND 100LL

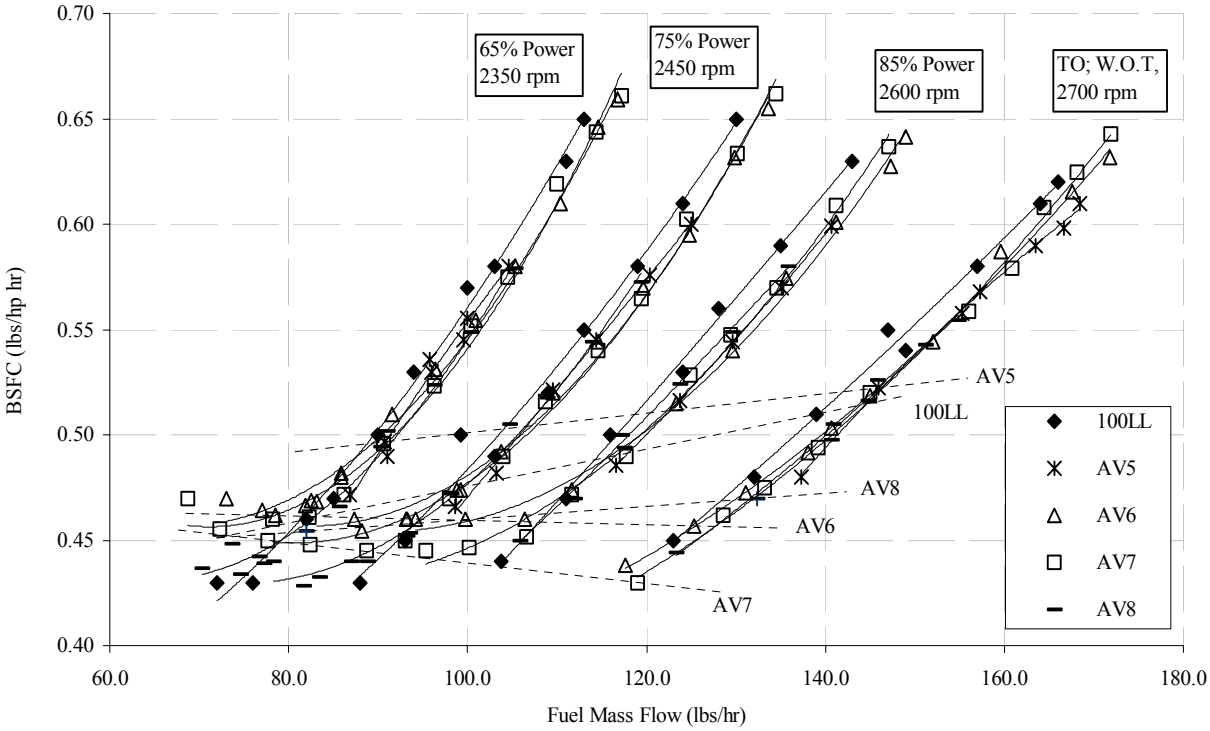

FIGURE 3-13. THE BSFC DATA FOR THE AV5 THROUGH AV8 BLENDS AND 100LL

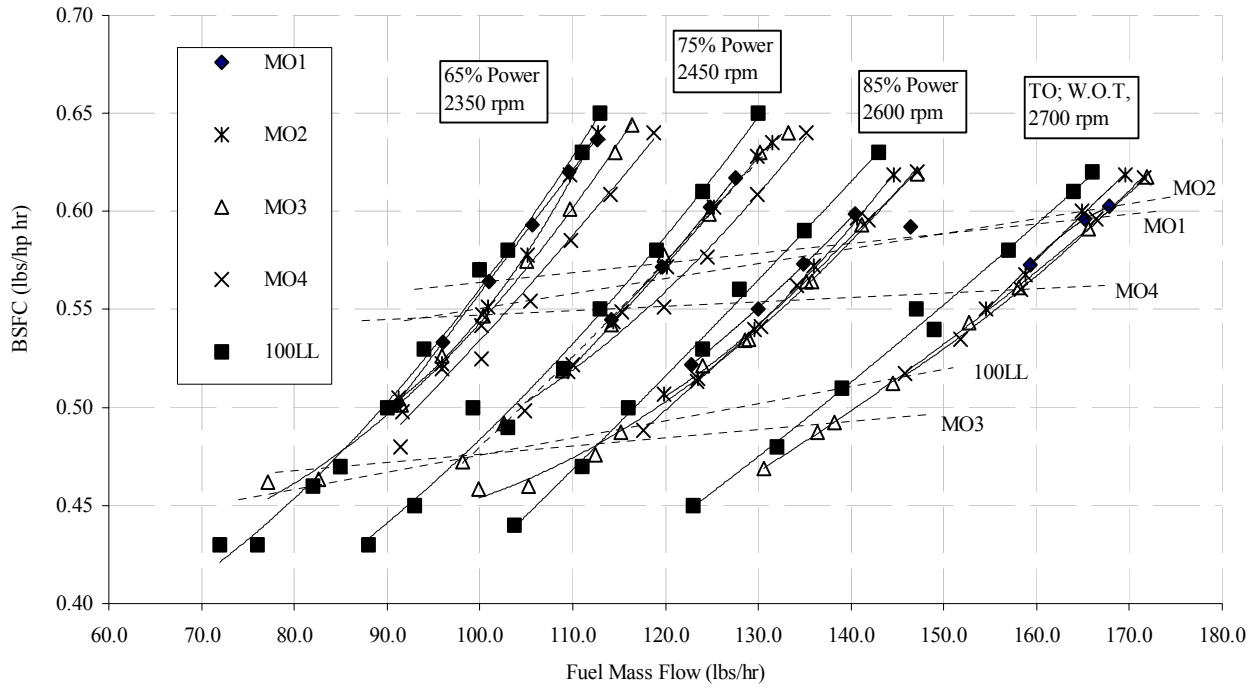

FIGURE 3-14. THE BSFC DATA FOR THE MO1 THROUGH MO4 BLENDS AND 100LL

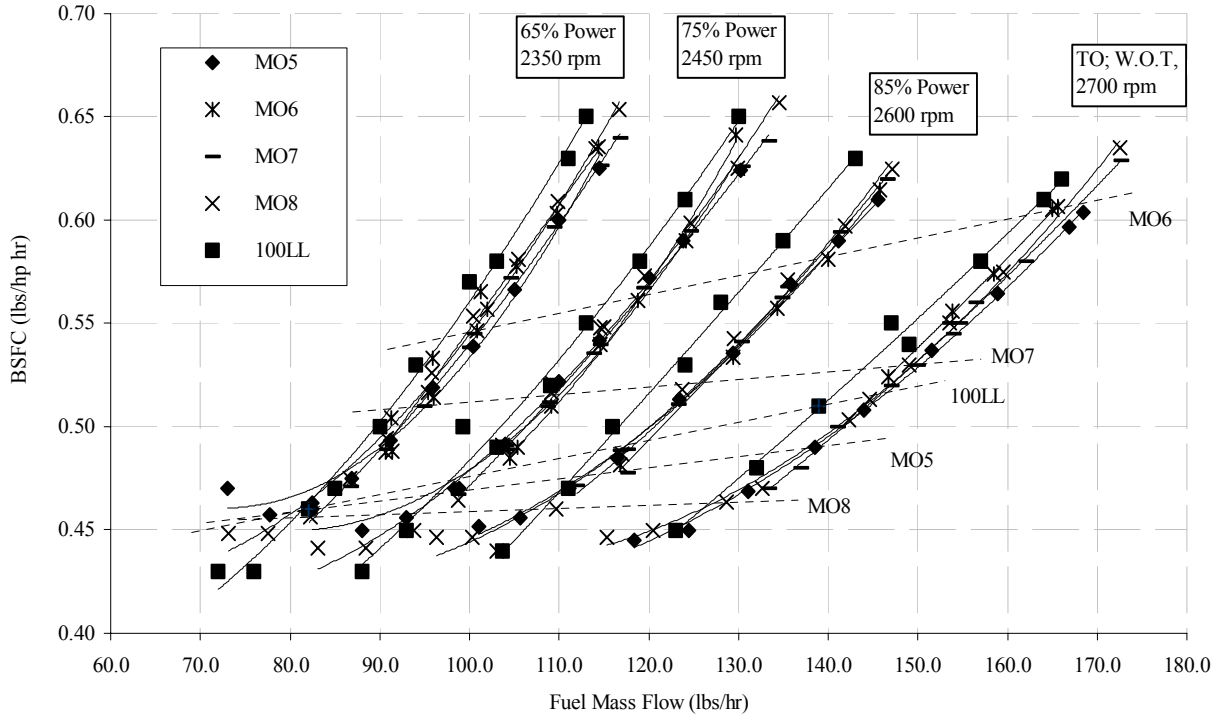

FIGURE 3-15. THE BSFC DATA FOR THE MO5 THROUGH MO8 BLENDS AND 100LL

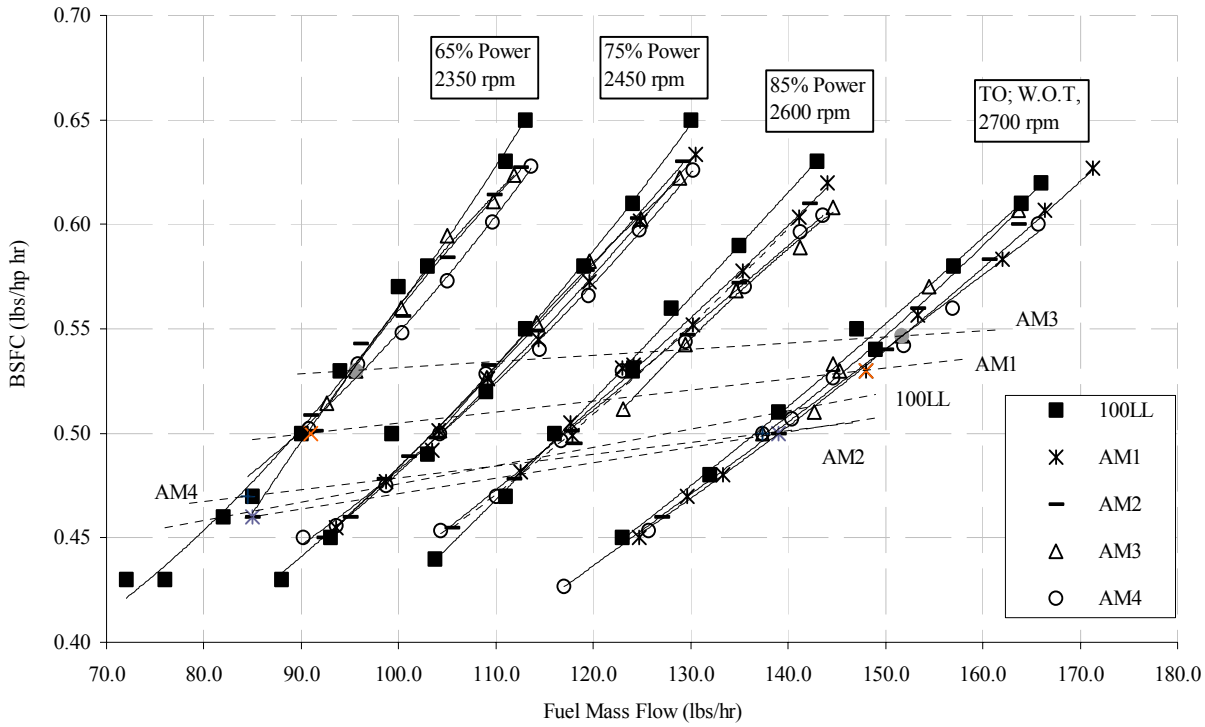

FIGURE 3-16. THE BSFC DATA FOR THE AM1 THROUGH AM4 BLENDS AND 100LL

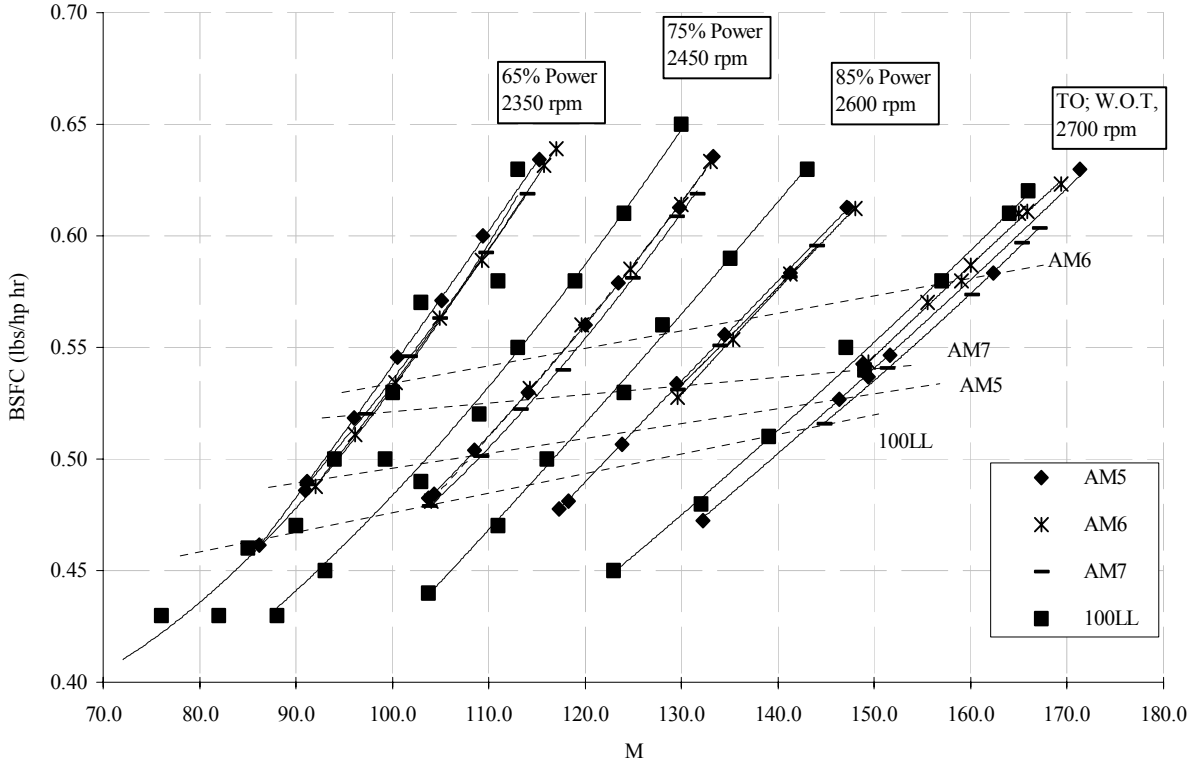

FIGURE 3-17. THE BSFC DATA FOR THE AM5 THROUGH AM7 BLENDS AND 100LL

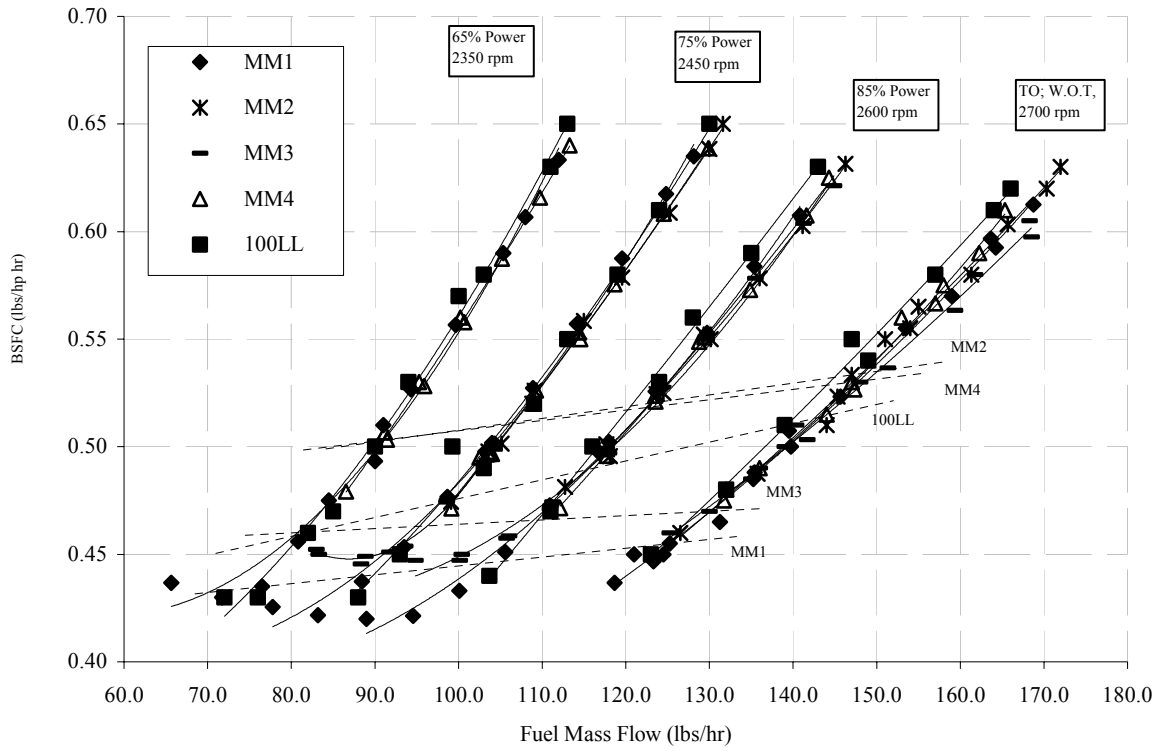

FIGURE 3-18. THE BSFC DATA FOR THE MM1 THROUGH MM4 BLENDS AND 100LL

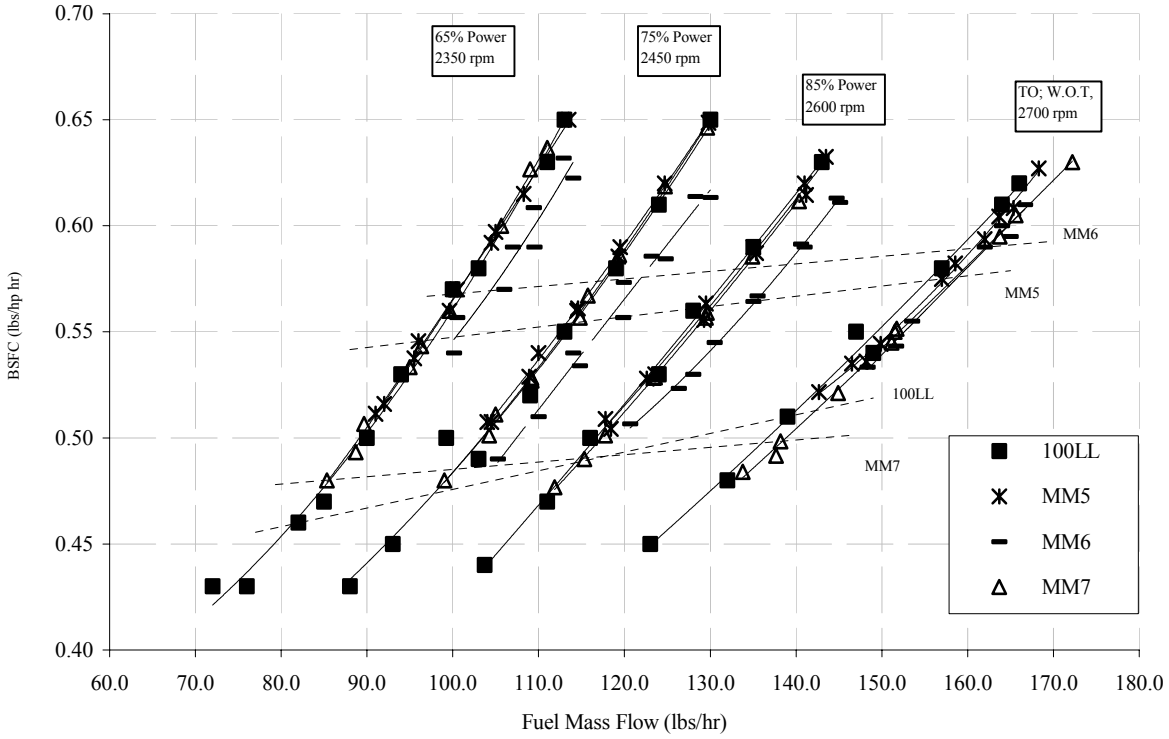

FIGURE 3-19. THE BSFC DATA FOR THE MM5 THROUGH MM7 BLENDS AND 100LL

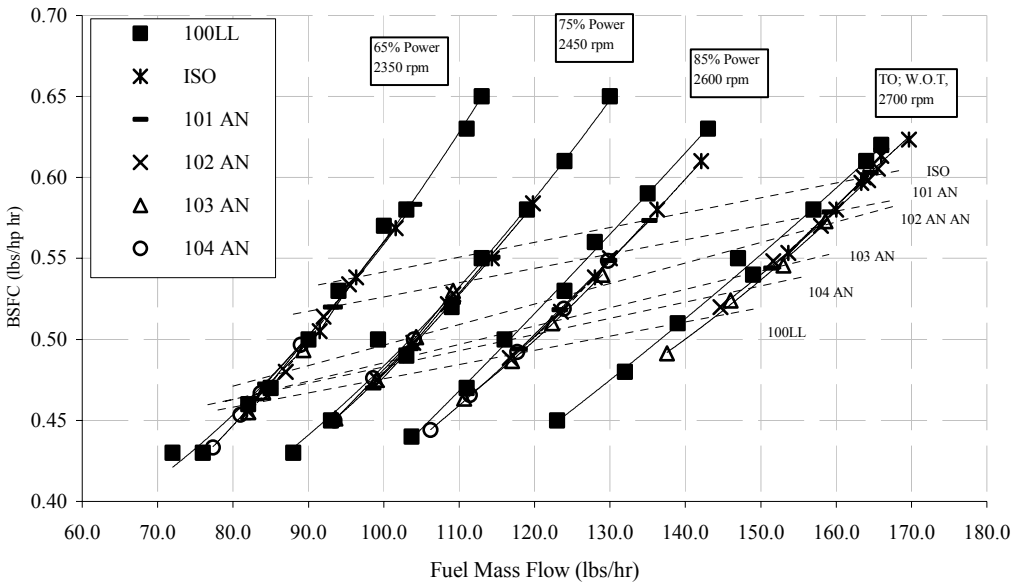

FIGURE 3-20. THE BSFC DATA FOR THE 101 AN THROUGH 104 AN BLENDS, 100LL, AND ISO

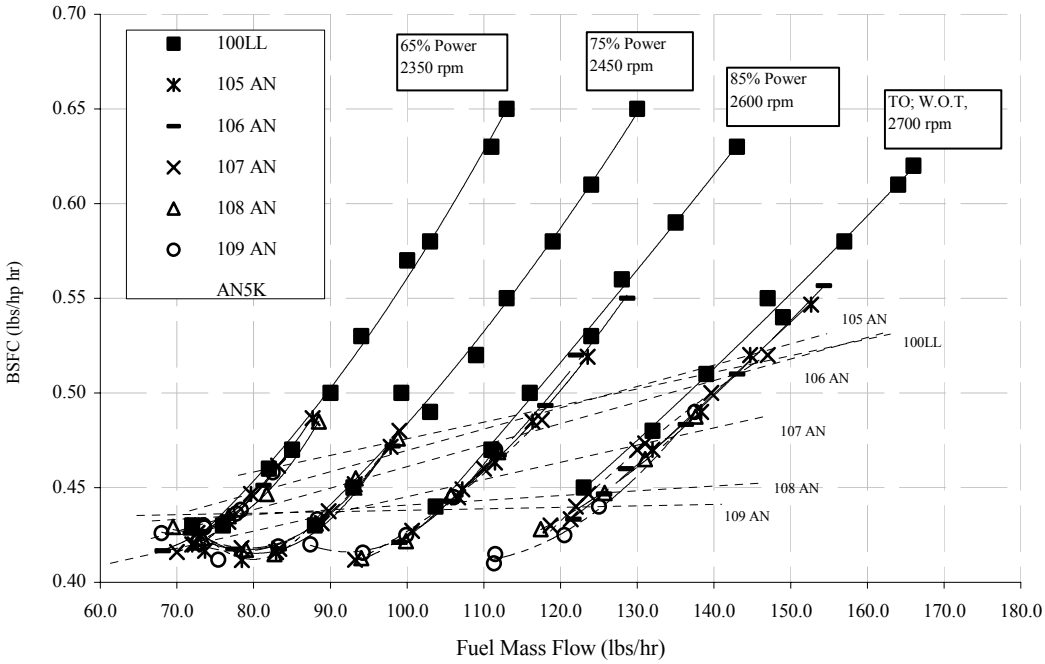

FIGURE 3-21. THE BSFC DATA FOR THE 105 AN THROUGH 109 AN BLENDS AND 100LL

3.4 CORRELATION OF FUEL PERFORMANCE TO MON AND PN.

Figures 3-22 through 3-25 show the correlation of the knock-limited performance, based on both the BSFC and fuel mass flow rates, to the blend's MON and PN. There are four columns for each blend, with one column for each respective power setting. The linear correlation coefficient

is also included on the figures for each power setting versus either MON or PN. In all the graphs, the blends were sorted from highest PN or MON on the left and decreasing in value as one moves toward the right. The AN blends were omitted from these graphs because there is no MON or PN data available for those blends. Also, each blend has the tag name listed at the top of its respective column along with either the MON or PN for the blend.

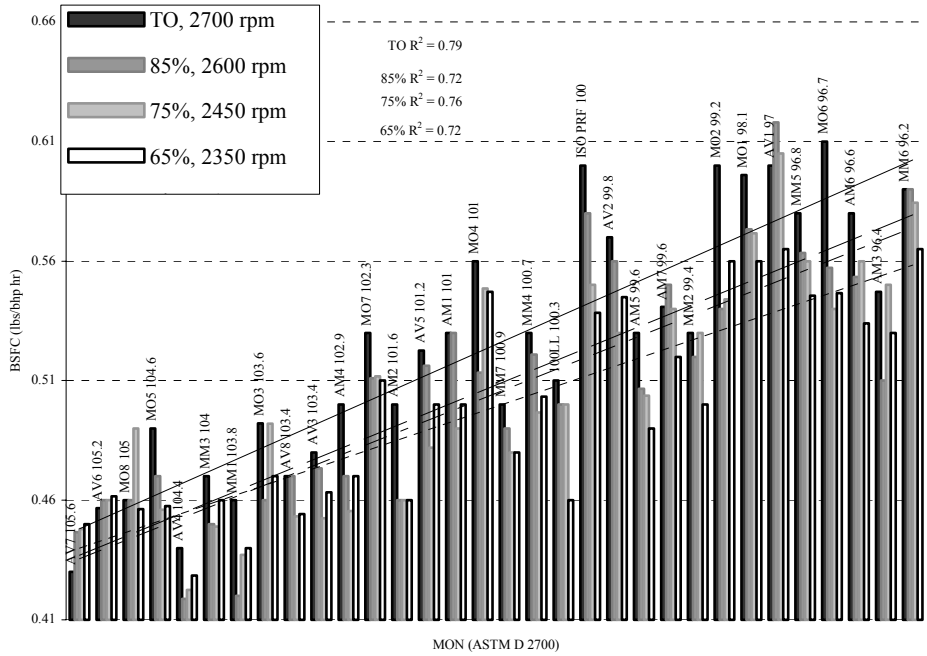

FIGURE 3-22. CORRELATION OF KNOCK-LIMITED BSFC VERSUS BLEND MON

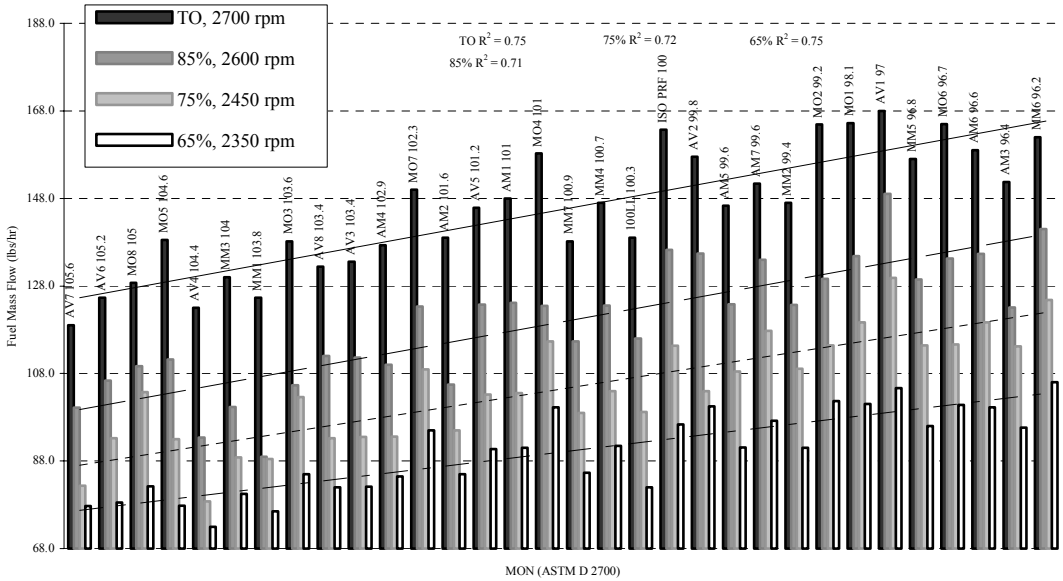

FIGURE 3-23. CORRELATION OF KNOCK-LIMITED FUEL MASS FLOW VERSUS BLEND MON

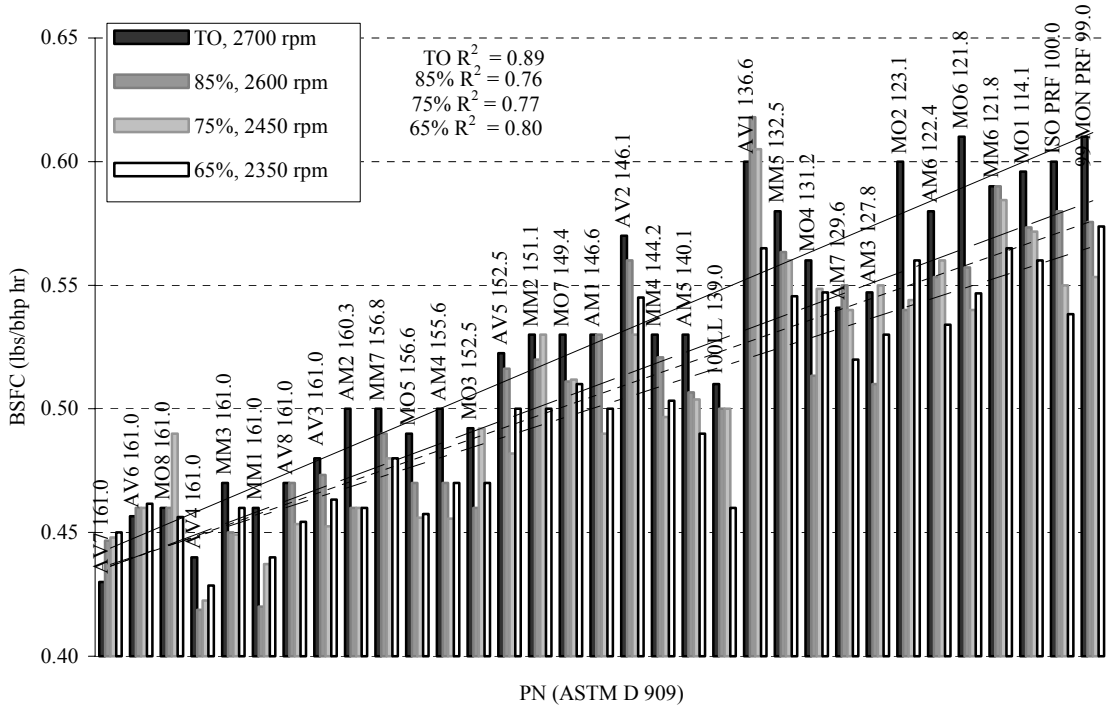

FIGURE 3-24. CORRELATION OF KNOCK-LIMITED BSFC VERSUS BLEND PN

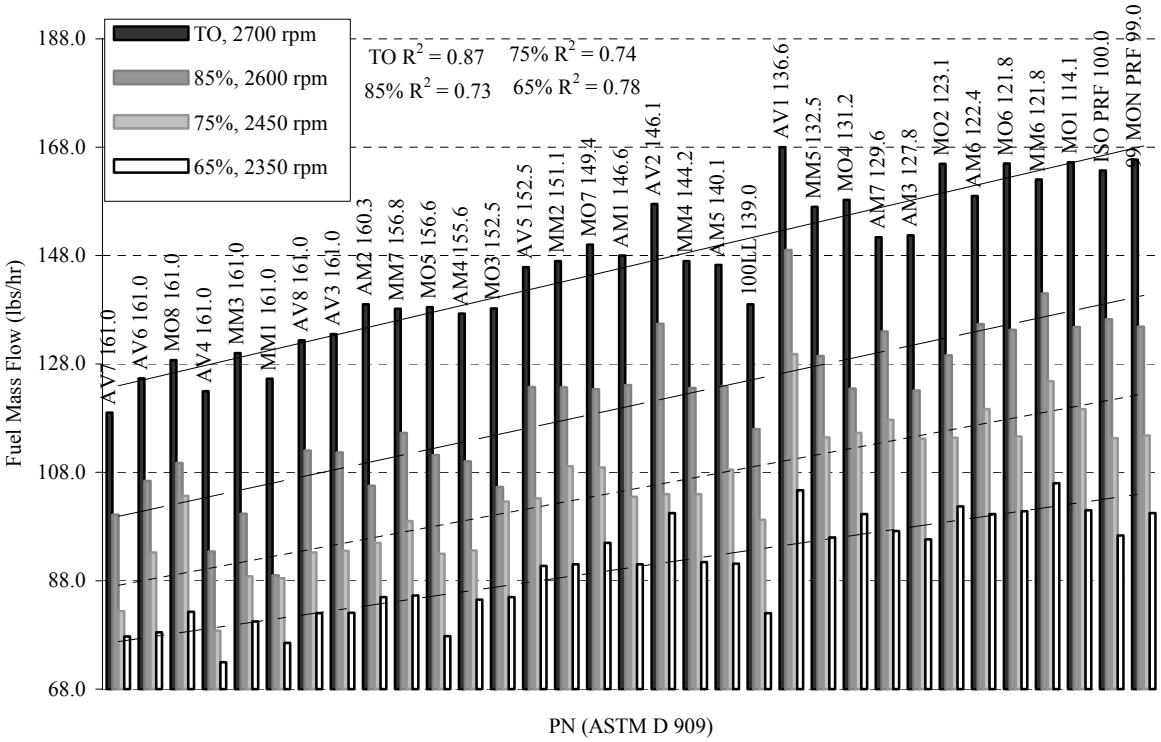

FIGURE 3-25. CORRELATION OF KNOCK-LIMITED FUEL MASS FLOW VERSUS BLEND PN

Overall, there was good correlation between the ASTM laboratory tests and the full-scale engine knock performance of the blends. The PN of the blends correlated slightly better with the knock-limited values than did the MON.

Blends AV1 and AV2 performed significantly worse at all power settings, based on both BSFC and fuel mass flow, than either their respective MONs or PNs would suggest. As shown in table 2-1, both blends contained at least 29% combined mass of the oxygenates ETBE and ethanol. However, blends MO1, MO3, MO4, MO5, MO7, AV6, AM4, AM7, and MM6 also contained a combined mass of at least 29% oxygenates and exhibited different behavior. Blends AV6, MO1, MO3, MO4, MO5, and MO7 all performed worse than their respective MONs would suggest but performed as expected, based on their respective PNs. Blends AM4, AM7, and MM6 all performed slightly better than their respective MONs or PNs would suggest. Blend AM3, which contained more than 11% combined mass of the oxygenates ETBE and ethanol, performed significantly better than the MON or PN would suggest.

Even though blends MM1 and MM3 had similar MONs and PNs, MM1 performed better at all power settings. Blend MM3 contained 25.4% oxygenates by mass, while blend MM1 contained no oxygenates. Blends AV6 and MO8 had similar MONs and PNs, yet blend AV6 performed better at all power settings. Blend AV6 contained 28.5% ETBE, and blend MO8 contained 14.5% ETBE. While both blends AV8 and AV3 had the same MONs and PNs and exhibited the same performance, blend MO3 had a lower PN, a higher MON, and performed slightly worse than both AV8 and AV3. This indicates the importance of both the MON and PN.

This is further illustrated with more examples. Blend AV4, with a slightly lower MON than blend MO5 and a noticeably higher PN, significantly outperformed blend MO5 at all power settings.

Blend AM2 was composed of 82.2% by mass aviation alkylate, 12.3% by mass m-toluidine, and 5.5% by mass ethanol. Blend MM7 was composed of the same components and mass concentrations, except the 82.2% alkylate was motor alkylate and not aviation alkylate. Blend AM2 had slightly higher MON and PN values, 101.6 and 160.3, than did blend MM7 with values of 100.9 and 156.8 respectively. Blend AM2 performed slightly better than blend MM7 at the 85%, 75%, and 65% power settings and similarly at the TO power setting. Blends AM2, AV5, AM1, MO4, and MM7 had similar MON values ranging from 101.6 to 100.9, but the PN ranged from 131.2 for blend MO4 to 160.3 for blend AM2. The performance of these fuels trended with the PN. Those with the higher PN performed better than those with lower PN, with blend AM2 performing the best and blend MO4 performing the worst. This is further evidence that the MON does not tell the full story. It should also be mentioned that the composition of these fuels varied wildly.

Comparing blends MM7 and MM4, with similar MON values and different PN values, illustrated the same trends.

Blends AV2, AM5, AM7, and MM2 had similar MON values ranging from 99.8 to 99.4 with PN values ranging from 151.1 to 129.6. Their performance also was linear related to the PN of the blend, with the exception of AV2. AV2 performed worse than all of these blends even though it had the highest MON and second highest PN. While these blends also varied wildly in composition, AV2 contained 29.5% by mass ETBE and 28.7% by mass toluene.

Comparing the reference-grade ISO to the 100LL blend, with MON values of 100.0 and 100.3, respectively, and PNs of 100.0 and 131.5, respectively, also showed similar trends. Despite having nearly identical MON values, the 100LL performed significantly better than the ISO. Initial reaction would be to attribute this solely to the higher PN. However, the lead additive also played a role as can be seen by comparing the 100LL performance against blend MM4, which had a higher MON value of 100.7 and a higher PN value of 144.2. The 100LL performed significantly better than the MM4 blend at all power settings. The comparison of 100LL to MM4 is of further interest in that MM4 contained 0.053 g Mn/gal, suggesting that the manganese additive effect on engine knock performance was slight. Blend AV2, with a MON of 99.8 and a PN of 146.1, did not perform as well as either AM5, with a MON of 99.6 and a PN of 140.1 and containing 0.052 g Mn/gal, or AM7, with a MON of 99.6 and a PN of 129.6 and containing 0.100 g Mn/gal. This comparison further illustrated the slight positive effect of the manganese additive on knock performance.

Comparing MO2, with a MON of 99.9 and PN of 123.1, against 99 MON primary reference fuel, with a MON and PN of 99.0, also illustrated the importance of PN on full-scale engine knock performance. MO2 slightly outperformed the 99.0 primary reference fuel. The same was seen by comparing the 98.1 MON and 114.1 PN blend MO1 versus the 98.0 primary reference fuel with a MON and PN of 98.0.

This was not seen with blend AV1, with a MON of 97.0 and a PN of 136.6, compared to the 97.0 primary reference fuel, with a 97.0 MON and PN. Blend AV1 was the worst performing fuel of all the blends and reference fuels. It should be noted that this blend contained 28.6% by mass toluene, 29.4% by mass ETBE, and 5.2% by mass ethanol.

This discussion illustrates the futility of correlating the full-scale engine knock behavior to the concentration of any single component with typical linear correlation coefficients falling below 0.20. Also, the knock performance impact of individual components may vary substantially from their impact on either the MON or PN of the blend. This effect was noticed with many of the unleaded blends, and the 100LL blend, where the performance in a full-scale engine was better or worse than the single-cylinder ASTM MON and PN tests would suggest.

3.5 BLEND RANKINGS.

Tables 3-1 and 3-2 show the performance of the 30 blends with their respective MON and PN for both the BSFC and knock-limited fuel mass flow rates at the various power settings. The tables are sorted from best performers to worst, based on the TO knock-limited BSFC with a secondary sort using the blends MON. Some of the blends did not reach limiting knock at some of the power settings and are indicated with an asterisk. The BSFC and fuel flow rate chosen for these blends were taken at the point of minimum BSFC. No MON or PN values have been determined as of yet for the AN blends. Thirteen of the thirty blends performed better than 100LL at the TO

power condition (as listed in table 3-1), while seventeen performed worse (as listed in table 3-2). The tables also show the data for 96-99 MON reference fuels. All blends that performed better than 100LL had higher MON and PN values than the 100LL. However, five of the blends that performed worse than 100LL at the TO power setting had higher MON values and nine of the blends had higher PN values than the 100LL.

Blends AV4 and AV7 were consistently the best performers and reached limiting knock only at the TO and 85% power conditions, respectively. Blends AV6, AM4, and MO5 did not develop limiting knock at the 65% power condition. For all other blends, limiting knock did occur at each power setting. It should be noted that many of the fuel mixture settings tested were outside the range of normal operations for the IO540 K engine.

TABLE 3-1. COMPARISON OF BLEND PERFORMANCE BASED ON KNOCK-LIMITED BSFC AND FUEL MASS FLOW RATES FOR A GIVEN POWER SETTING FOR BLENDS THAT PERFORMED EQUAL TO OR BETTER THAN 100LL

Fuel	ASTM D 2700 MON	ASTM D 909 Supercharge PN	Minimum BSFC at Limiting Knock (lbs/hp hr)				Fuel Mass Flow Rate at Limiting Knock (lbs/hr)			
			TO	85%	75%	65%	TO	85%	75%	65%
AV7	105.6	161.0	0.43*	0.45	0.45*	0.45*	119.0*	100.2	82.4*	77.7*
AV4	104.4	161.0	0.44	0.42*	0.42*	0.43*	123.0	93.4*	78.8*	73.0*
109 AN			0.44	0.45	0.41	0.44	125.0	106.1	75.4	77.8
108 AN			0.45	0.47	0.42	0.44	125.7	111.9	82.7	76.8
AV6	105.2	161.0	0.46	0.46	0.46	0.46*	125.3	106.4	93.2	78.5*
MO8	105.0	161.0	0.46	0.46	0.49	0.46	128.7	109.7	103.7	82.3
MM1	103.8	161.0	0.46	0.42	0.44	0.44	125.3	89.0	88.5	76.5
MM3	104.0	161.0	0.47	0.45	0.45	0.46	130.0	100.4	88.8	80.5
107 AN			0.47	0.46	0.44	0.42	131.0	110.0	89.8	72.3
AV8	103.4	161.0	0.47	0.47	0.45	0.45	132.4	112.0	93.2	82.0
AV3	103.4	161.0	0.48	0.47	0.45	0.46	133.5	111.7	93.5	82.1
MO5	104.6	156.6	0.49	0.47	0.46	0.46*	138.5	111.2	93.0	77.8*
MO3	103.6	152.5	0.49	0.46	0.49	0.47	138.2	105.3	102.6	85.0
AM4	102.9	155.6	0.50	0.47	0.46	0.47*	137.3	110.0	93.6	84.5*
AM2	101.6	160.3	0.50	0.46	0.46	0.46	139.0	105.5	95.0	85.0
MM7	100.9	156.8	0.50	0.49	0.48	0.48	138.2	115.3	99.0	85.3
100LL	100.3	131.5	0.51	0.50	0.50	0.46	139.0	116.0	99.3	82.0

*Limiting knock not reached, minimum BSFC point chosen.

TABLE 3-2. COMPARISON OF BLEND PERFORMANCE BASED ON KNOCK-LIMITED BSFC AND FUEL MASS FLOW RATES FOR A GIVEN POWER SETTING FOR THE BLENDS THAT PERFORMED WORSE THAN 100LL

Fuel	ASTM D 2700 MON	ASTM D 909 Supercharge PN	Minimum BSFC at Limiting Knock (lbs/hp hr)				Fuel Mass Flow Rate at Limiting Knock (lbs/hr)			
			TO	85%	75%	65%	TO	85%	75%	65%
106 AN			0.51	0.49	0.45	0.43	143.0	118.0	92.9	76.6
105 AN			0.52	0.49	0.45	0.45	144.7	116.3	93.1	79.7
AV5	101.2	152.5	0.52	0.52	0.48	0.50	145.9	123.8	103.2	90.7
MO7	102.3	149.4	0.53	0.51	0.51	0.51	150.0	123.3	108.9	95.0
AM1	101.0	146.6	0.53	0.53	0.49	0.50	148.0	124.1	103.5	91.0
MM4	100.7	144.2	0.53	0.52	0.50	0.50	147.0	123.5	104.0	91.4
AM5	99.6	140.1	0.53	0.51	0.50	0.49	146.3	123.8	108.5	91.1
104 AN			0.53	0.49	0.50	0.47	147.0	117.7	104.0	83.7
MM2	99.4	151.1	0.53	0.52	0.53	0.50	147.0	123.7	109.1	91.0
AM7	99.6	129.6	0.54	0.55	0.54	0.52	151.4	134.0	117.7	97.2
103 AN			0.55	0.51	0.48	0.47	153.0	122.3	99.0	84.0
AM3	96.4	127.8	0.55	0.51	0.55	0.53	151.7	123.1	114.2	95.6
MO4	101.0	131.2	0.56	0.51	0.55	0.55	158.3	123.4	115.3	100.3
102 AN			0.57	0.52	0.50	0.48	158.0	123.5	103.9	87.0
AV2	99.8	146.1	0.57	0.56	0.53	0.55	157.5	135.4	113.0	100.5
101 AN			0.58	0.55	0.52	0.52	159.1	129.9	109.0	93.0
MM5	96.8	132.5	0.58	0.56	0.56	0.55	157.0	129.5	114.5	96.0
AM6	96.6	122.4	0.58	0.55	0.56	0.53	159.0	135.3	119.7	100.3
MM6	96.2	121.8	0.59	0.59	0.58	0.57	162.0	141.0	124.8	106.0
ISO PRF	100.0	100.0	0.60	0.58	0.55	0.54	163.7	136.3	114.3	96.3
MO2	99.2	123.1	0.60	0.54	0.54	0.56	164.9	129.6	114.4	101.7
MO1	98.1	114.1	0.60	0.57	0.57	0.56	165.2	134.8	119.7	101.0
AV1	97.0	136.6	0.60	0.62	0.61	0.57	168.0	149.0	129.8	104.7
99 MON PRF	99.0	99.0	0.61	0.58	0.55	0.57	165.7	134.9	114.8	100.5
MO6	96.7	121.8	0.61	0.56	0.54	0.55	165.0	134.3	114.6	100.8
98 MON PRF	98.0		0.62	0.58	0.58	0.57	169.0	135.0	119.4	100.3
97 MON PRF	97.0		0.62	0.61	0.58	0.57	168.3	141.2	119.3	100.4
96 MON PRF	96.0			0.62	0.61	0.57		143.8	124.9	100.4

PRF = Primary reference fuel.

Tables 3-3 and 3-4 contain a sorted ranking of the blends from best performance (top) to worst performance (bottom). Each column was ranked based on the header at the top of the column. For example, in column one the blends were ranked from highest ASTM D 2700 MON value to the lowest value, with AV7 having the highest MON. Column five was ranked from the best performance using the knock-limited BSFC at a 75% power setting (lowest BSFC value is best) to the worst performance, with 109 AN having the lowest knock-limited BSFC (best performance). The tables were secondarily sorted in descending order by blend MON. Thus, if two blends had equivalent BSFC performances, the blend with the higher MON would be listed first.

TABLE 3-3. RANKING OF BLENDS FROM BEST TO WORST BASED ON KNOCK-LIMITED VALUES FOR THE BLENDS THAT PERFORMED EQUAL TO OR BETTER THAN 100LL

ASTM D 2700 MON	ASTM D 909 Supercharge PN	Knock-Limited BSFC at Max. Power	Knock-Limited BSFC at 85% Power	Knock-Limited BSFC at 75% Power	Knock-Limited BSFC at 65% Power	Knock-Limited FF at Max. Power	Knock-Limited FF at 85% Power	Knock-Limited FF at 75% Power	Knock-Limited FF at 65% Power
AV7	AV7	AV7	AV4	109 AN	107 AN	AV7	MM1	109 AN	107 AN
AV6	AV6	AV4	MM1	108 AN	AV4	AV4	AV4	AV4	AV4
MO8	MO8	109 AN	109 AN	AV4	106 AN	109 AN	AV7	AV7	MM1
MO5	AV4	108 AN	AV7	MM1	109 AN	MM1	MM3	108 AN	106 AN
AV4	MM3	AV6	MM3	107 AN	MM1	AV6	MO3	MM1	108 AN
MM3	MM1	MM1	MO3	AV7	108 AN	108 AN	AM2	MM3	AV7
MM1	AV8	MO8	AM2	MM3	AV7	MO8	109 AN	107 AN	109 AN
MO3	AV3	MM3	AV6	105 AN	105 AN	MM3	AV6	106 AN	MO5
AV8	AM2	107 AN	MO8	106 AN	AV8	107 AN	MO8	MO5	AV6
AV3	MM7	AV8	107 AN	AV3	MO8	AV8	107 AN	105 AN	105 AN
AM4	MO5	AV3	108 AN	AV8	MO5	AV3	AM4	AV8	MM3
MO7	AM4	MO5	AM4	AM4	MM3	AM4	MO5	AV6	AV8
AM2	MO3	MO3	MO5	MO5	100LL	MM7	AV3	AV3	100LL
AV5	AV5	AM4	AV8	AV6	AM2	MO3	108 AN	AM4	AV3
AM1	MM2	MM7	AV3	AM2	AV6	MO5	AV8	AM2	MO8
MO4	MO7	AM2	MM7	MM7	AV3	AM2	MM7	MM7	104 AN
MM7	AM1	100LL	105 AN	103 AN	104 AN	100LL	100LL	103 AN	103 AN
MM4	AV2	106 AN	104 AN	AV5	103 AN	106 AN	105 AN	100LL	AM4
100LL	MM4	105 AN	106 AN	AM1	AM4	105 AN	104 AN	MO3	AM2
ISO PRF	AM5	AV5	100LL	MO8	MO3	AV5	106 AN	AV5	MO3
AV2	100LL	AM5	AM5	MO3	102 AN	AM5	103 AN	AM1	MM7
AM7	MM5	MM4	AM3	102 AN	AM5	MM4	MO7	102 AN	AV5
MM2	MO4	MM2	MO7	100LL	AV5	MM2	MO4	MM4	AM1

FF = Fuel mass flow rate

TABLE 3-4. RANKING OF BLENDS FROM BEST TO WORST BASED ON KNOCK-LIMITED VALUES FOR THE BLENDS THAT PERFORMED WORSE THAN 100LL

ASTM D 2700 MON	ASTM D 909 Supercharge PN	Knock-Limited BSFC at Max. Power	Knock-Limited BSFC at 85% Power	Knock-Limited BSFC at 75% Power	Knock-Limited BSFC at 65% Power	Knock-Limited FF at Max. Power	Knock-Limited FF at 85% Power	Knock-Limited FF at 75% Power	Knock-Limited FF at 65% Power
AM5	AV1	104 AN	103 AN	MM4	MM7	104 AN	AM3	MO8	102 AN
MO2	AM7	AM1	MO4	104 AN	AM1	AM1	102 AN	104 AN	MM2
MO1	AM3	MO7	AV5	AM5	MM2	MO7	MM4	AM5	AM5
AV1	MO2	AM7	102 AN	MO7	MM4	AM7	MM2	MO7	MM4
MM5	AM6	103 AN	MM4	101 AN	MO7	AM3	AV5	101 AN	101 AN
MO6	MO6	AM3	MM2	MM2	101 AN	103 AN	AM5	MM2	MO7
AM6	MM6	MO4	AM1	AV2	AM7	MM5	AM1	AV2	AM3
AM3	MO1	AV2	MO2	MO6	AM3	AV2	MM5	AM3	MM5
MM6	ISO PRF	102 AN	101 AN	AM7	AM6	102 AN	MO2	ISO PRF	ISO PRF
99 MON PRF	99 MON PRF	101 AN	AM7	MO2	ISO PRF	MO4	101 AN	MO2	AM7
98 MON PRF	98 MON PRF	MM5	AM6	MO4	AV2	AM6	AM7	MM5	98 MON PRF
97 MON PRF	97 MON PRF	AM6	MO6	AM3	MM5	101 AN	MO6	MO6	MO4
96 MON PRF	96 MON PRF	MM6	AV2	ISO PRF	MO6	MM6	MO1	99 MON PRF	AM6
109 AN*	109 AN*	MO1	MM5	99 MON PRF	MO4	ISO PRF	99 MON PRF	MO4	96 MON PRF
108 AN*	108 AN*	ISO PRF	MO1	MM5	MO1	MO2	98 MON PRF	AM7	97 MON PRF
107 AN*	107 AN*	MO2	99 MON PRF	AM6	MO2	MO6	AM6	97 MON PRF	AV2
106 AN*	106 AN*	AV1	98 MON PRF	MO1	AV1	MO1	AV2	98 MON PRF	99 MON PRF
105 AN*	105 AN*	MO6	ISO PRF	98 MON PRF	MM6	99 MON PRF	ISO PRF	AM6	MO6
104 AN*	104 AN*	99 MON PRF	MM6	97 MON PRF	98 MON PRF	AV1	MM6	MO1	MO1
103 AN*	103 AN*	97 MON PRF	97 MON PRF	MM6	96 MON PRF	97 MON PRF	97 MON PRF	MM6	MO2
102 AN*	102 AN*	98 MON PRF	AV1	AV1	97 MON PRF	98 MON PRF	96 MON PRF	96 MON PRF	AV1
101 AN*	101 AN*	96 MON PRF	96 MON PRF	96 MON PRF	99 MON PRF	96 MON PRF	AV1	AV1	MM6

* MON and PN data for the AN blends is not yet available.
FF = Fuel mass flow rate.
PRF = Primary reference fuel.

Table 3-3 contains the rankings of the blends that performed equal to or better than the baseline 100LL fuel. Table 3-4 contains the rankings of the blends that performed worse than 100LL. The AN unleaded reference fuel blends were placed at the bottom of table 3-4 in columns one and two for the rankings involving MON and PN, since the data were not yet available for those blends.

Figure 3-26 shows a plot at each power setting of the knock-limited BSFC versus the knock-limited fuel mass flow rate. While the figure shows linear correlation, with R^2 values of 0.95 and higher, there are some points where the blends relative performance changes, depending on whether knock-limited fuel mass flow rate or knock-limited BSFC were used as the comparator. For the most part, the data show that there will be only slight changes in the relative performance of the blends by using either the fuel mass flow rate or the BSFC at the onset knock condition.

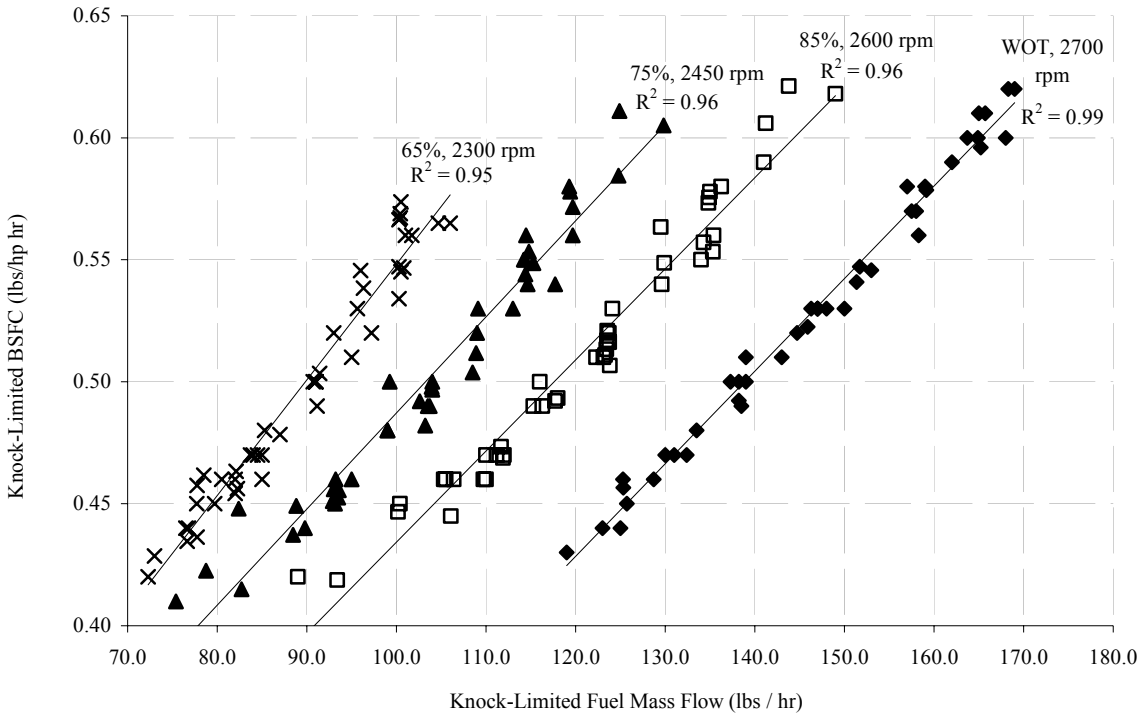

FIGURE 3-26. CORRELATION OF THE KNOCK-LIMITED BSFC VERSUS THE KNOCK-LIMITED FUEL MASS FLOW RATE

3.6 BLEND PERFORMANCE COMPARED TO UNLEADED REFERENCE FUELS PERFORMANCE.

Tables 3-5 and 3-6 compare the performance of each of the 30 component blends to the performance of the unleaded reference AN fuels. The performance of the blends is compared to the performance of the reference fuel that performed slightly better and slightly worse than the blend. Therefore, the blend performance falls between these two reference fuels. The better than rows in the table represent the reference fuel that performed nearest but slightly better than the blend, and the worse than rows are the reference fuels that performed nearest but slightly worse than the blend. The asterisk in the better than row indicates that the blend had no reference fuels

that performed better than the blend. The asterisk in the worse than row indicates that the blend had no reference fuel that performed worse than the blend. The MON and PN for all 30 blends, as per ASTM D 2700 and D 909 respectively, are listed in tables 2-5 through 2-8.

TABLE 3-5. KNOCK PERFORMANCE COMPARISON OF AV AND AM BLENDS TO THE UNLEADED REFERENCE FUELS PERFORMANCE

Blend	Reference Fuel Relative Performance to Blend	Based on Knock-Limited BSFC (lbs/bhp hr)				Based on Knock-Limited Fuel Mass Flow (lbs/hr)			
		TO Power	85% Power	75% Power	65% Power	TO Power	85% Power	75% Power	65% Power
AV1	Better than	ISO PRF	97 MON	97 MON	ISO PRF	99 MON	96 MON	96 MON	96 MON
	Worse than	99 MON	96 MON	96 MON	99 MON	98 MON	*	*	*
AV2	Better than	103 AN	101 AN	101 AN	ISO PRF	103 AN	101 AN	101 AN	ISO PRF
	Worse than	102 AN	ISO PRF	ISO PRF	99 MON	102 AN	ISO PRF	ISO PRF	99 MON
AV3	Better than	107 AN	107 AN	105 AN	105 AN	107 AN	107 AN	107 AN	105 AN
	Worse than	106 AN	106 AN	104 AN	104 AN	106 AN	106 AN	106 AN	104 AN
AV4	Better than	*	*	108 AN	107 AN	*	*	109 AN	107AN
	Worse than	109 AN	109 AN	107 AN	106 AN	109 AN	109 AN	108 AN	106 AN
AV5	Better than	105 AN	103 AN	103 AN	102 AN	105 AN	102 AN	103 AN	102 AN
	Worse than	104 AN	102 AN	102 AN	101 AN	104 AN	101 AN	102 AN	101 AN
AV6	Better than	108 AN	109 AN	105 AN	105 AN	109 AN	109 AN	105 AN	106 AN
	Worse than	107 AN	108 AN	104 AN	104 AN	108 AN	108 AN	104 AN	105 AN
AV7	Better than	*	109 AN	107 AN	106 AN	*	*	109 AN	106 AN
	Worse than	109 AN	108 AN	106 AN	105 AN	109 AN	109 AN	108 AN	105 AN
AV8	Better than	107 AN	107 AN	105 AN	105 AN	107 AN	107 AN	105 AN	105 AN
	Worse than	106 AN	106 AN	104 AN	104 AN	106 AN	106 AN	104 AN	104 AN
AM1	Better than	103 AN	102 AN	103 AN	102 AN	104 AN	102 AN	103 AN	102 AN
	Worse than	102 AN	101 AN	102 AN	101 AN	103 AN	101 AN	102 AN	101 AN
AM2	Better than	107 AN	109 AN	105 AN	105 AN	107 AN	*	105 AN	103 AN
	Worse than	106 AN	108 AN	104 AN	104 AN	106 AN	109 AN	104 AN	102 AN
AM3	Better than	103 AN	103 AN	101 AN	101 AN	104 AN	103 AN	101 AN	101 AN
	Worse than	102 AN	102 AN	ISO PRF	ISO PRF	103 AN	102 AN	ISO PRF	ISO PRF
AM4	Better than	107 AN	107 AN	105 AN	103 AN	107 AN	107 AN	105 AN	103 AN
	Worse than	106 AN	106 AN	104 AN	102 AN	106 AN	106 AN	104 AN	102 AN
AM5	Better than	105 AN	104 AN	102 AN	102 AN	105 AN	102 AN	102 AN	102 AN
	Worse than	104 AN	103 AN	101 AN	101 AN	104 AN	101 AN	101 AN	101 AN
AM6	Better than	101 AN	101 AN	99 MON	101 AN	102 AN	101 AN	97 MON	98 MON
	Worse than	ISO PRF	ISO PRF	98 MON	ISO PRF	101 AN	ISO PRF	96 MON	97 MON
AM7	Better than	104 AN	101 AN	101 AN	101 AN	104 AN	101 AN	99 MON	ISO PRF
	Worse than	103 AN	ISO PRF	ISO PRF	ISO PRF	103 AN	ISO PRF	98 MON	99 MON

As discussed earlier, some of the blends, such as AM4 at the 65% power condition, did not reach limiting knock. However, table 3-5 lists the performance for AM4 at the 65% power condition between 103 and 102 AN using the BSFC as the comparator. For the blends that did not experience limiting knock at a power setting, the minimum BSFC and the corresponding fuel flow rate were chosen as the knock-limiting points for comparison purposes. It is not clear if a blend survived the mixture leaning process at a given power setting without reaching limiting

knock is a better blend than another which did not. This is especially so if the former blend produced less power for the same fuel mass flow rate.

TABLE 3-6. KNOCK PERFORMANCE COMPARISON OF MO AND MM BLENDS TO THE UNLEADED REFERENCE FUELS PERFORMANCE

Blend	Reference Fuel Relative Performance to Blend	Based on Knock-Limited BSFC (lbs/hp hr)				Based on Knock-Limited Fuel Mass Flow (lbs/hr)			
		TO Power	85% Power	75% Power	65% Power	TO Power	85% Power	75% Power	65% Power
MO1	Better than	101 AN	101 AN	99 MON	ISO PRF	ISO PRF	101 AN	97 MON	96 MON
	Worse than	ISO PRF	ISO PRF	98 MON	99 MON	99 MON	ISO PRF	96 MON	*
MO2	Better than	ISO PRF	102 AN	101 AN	ISO PRF	ISO PRF	102 AN	ISO PRF	96 MON
	Worse than	99 MON	101 AN	ISO PRF	99 MON	99 MON	101 AN	99 MON	*
MO3	Better than	107 AN	109 AN	103 AN	103 AN	107 AN	*	103 AN	103 AN
	Worse than	106 AN	108 AN	102 AN	102 AN	106 AN	109 AN	102 AN	102 AN
MO4	Better than	103 AN	103 AN	101 AN	ISO PRF	102 AN	103 AN	99 MON	98 MON
	Worse than	102 AN	102 AN	ISO PRF	99 MON	101 AN	102 AN	98 MON	97 MON
MO5	Better than	107 AN	107 AN	105 AN	105 AN	107 AN	107 AN	106 AN	106 MON
	Worse than	106 AN	106 AN	104 AN	104 AN	106 AN	106 AN	105 AN	105 MON
MO6	Better than	ISO PRF	101 AN	101 AN	ISO PRF	ISO PRF	101 AN	ISO PRF	96 MON
	Worse than	99 MON	ISO PRF	ISO PRF	99 MON	99 MON	ISO PRF	99 MON	*
MO7	Better than	104 AN	103 AN	102 AN	102 AN	104 AN	103 AN	102 AN	101 AN
	Worse than	103 AN	102 AN	101 AN	101 AN	103 AN	102 AN	101 AN	ISO PRF
MO8	Better than	108 AN	109 AN	103 AN	105 AN	108 AN	109 AN	103 AN	105 AN
	Worse than	107 AN	108 AN	102 AN	104 AN	107 AN	108 AN	102 AN	104 AN
MM1	Better than	108 AN	*	108 AN	106 AN	109 AN	*	108 AN	107 AN
	Worse than	107 AN	109 AN	107 AN	105 AN	108 AN	109 AN	107 AN	106 AN
MM2	Better than	104 AN	102 AN	101 AN	102 AN	104 AN	102 AN	101 AN	102 AN
	Worse than	103 AN	101 AN	ISO PRF	101 AN	103 AN	101 AN	ISO PRF	101 AN
MM3	Better than	108 AN	109 AN	107 AN	105 AN	108 AN	*	108 AN	105 AN
	Worse than	107 AN	108 AN	106 AN	104 AN	107 AN	109 AN	107 AN	104 AN
MM4	Better than	104 AN	102 AN	103 AN	102 AN	104 AN	102 AN	102 AN	102 AN
	Worse than	103 AN	101 AN	102 AN	101 AN	103 AN	101 AN	101 AN	101 AN
MM5	Better than	101 AN	101 AN	99 MON	ISO PRF	103 AN	102 AN	ISO PRF	101 AN
	Worse than	ISO PRF	ISO PRF	98 MON	99 MON	102 AN	101 AN	99 MON	ISO PRF
MM6	Better than	101 AN	98 MON	97 MON	ISO PRF	101 AN	98 MON	97 MON	96 MON
	Worse than	ISO PRF	97 MON	96 MON	99 MON	ISO PRF	97 MON	96 MON	*
MM7	Better than	107 AN	107 AN	105 AN	102 AN	107 AN	107 AN	105 AN	103 AN
	Worse than	106 AN	106 AN	104 AN	101 AN	106 AN	106 AN	104 AN	102 AN

* No reference fuel met this criteria.

3.7 BLEND PERFORMANCE COMPARED TO LEADED REFERENCE FUELS PERFORMANCE.

Tables 3-7 and 3-8 show the knock performance comparison of each of the 30 blends to the performance of the leaded reference fuels. Throughout the tables the MON refers to leaded reference fuel. Thus, 104 MON refers to reference-grade ISO with the proper amount of tetra-

ethyl lead (TEL) added to arrive at 104 MON. Throughout the tests, blend AV4 was one of the best performers with the engine operating knock-free at all power setting and mixture combinations. As shown in table 3-7, AV4 displayed a knock performance within the equivalent range of 104 to 110 MON for a leaded reference fuel, depending on the power setting.

TABLE 3-7. KNOCK PERFORMANCE COMPARISON OF AM AND AV BLENDS TO THE LEADED REFERENCE FUELS PERFORMANCE

Blend	Reference Fuel Relative Performance to Blend	Based on Knock-Limited BSFC (lbs/hp hr)				Based on Knock-Limited Fuel Mass Flow (lbs/hr)			
		TO Power	85% Power	75% Power	65% Power	TO Power	85% Power	75% Power	65% Power
AV1	Better than	ISO	ISO	ISO	ISO	ISO	ISO	ISO	ISO
	Worse than	*	*	*	*	*	*	*	*
AV2	Better than	101L	101L	101L	101L	101L	101L	102L	101L
	Worse than	ISO	ISO	ISO	ISO	ISO	ISO	101L	ISO
AV3	Better than	104L	104L	105L	103L	104L	105L	107L	105L
	Worse than	103L	103L	104L	102L	103L	104L	102L	104L
AV4	Better than	108L	108L	106L	105L	108L	*	110L	108L
	Worse than	107L	107L	105L	104L	107L	110L	109L	107L
AV5	Better than	102L	102L	104L	101L	102L	103L	105L	102L
	Worse than	101L	101L	103L	ISO	101L	102L	104L	101L
AV6	Better than	105L	105L	105L	103L	106L	105L	106L	106L
	Worse than	104L	104L	104L	102L	105L	104L	105L	105L
AV7	Better than	108L	105L	105L	104L	108L	108L	110L	106L
	Worse than	107L	104L	104L	103L	107L	107L	109L	105L
AV8	Better than	104L	105L	105L	104L	104L	105L	106L	105L
	Worse than	103L	104L	104L	103L	103L	104L	105L	104L
AM1	Better than	102L	102L	103L	101L	102L	102L	105L	102L
	Worse than	101L	101L	102L	ISO	101L	101L	104L	101L
AM2	Better than	103L	105L	105L	103L	103L	107L	106L	104L
	Worse than	102L	104L	104L	102L	102L	106L	105L	103L
AM3	Better than	101L	102L	101L	101L	101L	103L	102L	101L
	Worse than	ISO	101L	ISO	ISO	ISO	102L	101L	ISO
AM4	Better than	103L	104L	105L	103L	103L	105L	106L	104L
	Worse than	102L	103L	104L	102L	102L	104L	105L	103L
AM5	Better than	102L	102L	102L	102L	102L	103L	104L	102L
	Worse than	101L	101L	101L	101L	101L	102L	103L	101L
AM6	Better than	101L	101L	ISO	101L	101L	101L	101L	101L
	Worse than	ISO	ISO	*	ISO	ISO	ISO	ISO	ISO
AM7	Better than	101L	101L	101L	101L	101L	102L	101L	101L
	Worse than	ISO	ISO	ISO	ISO	ISO	101L	ISO	ISO

*No reference fuel met this criteria.

TABLE 3-8. KNOCK PERFORMANCE COMPARISON OF MM AND MO BLENDS TO THE LEADED REFERENCE FUELS PERFORMANCE

Blend	Reference Fuel Relative Performance to Blend	Based on Knock-Limited BSFC (lbs/hp hr)				Based on Knock-Limited Fuel Mass Flow (lbs/hr)			
		TO Power	85% Power	75% Power	65% Power	TO Power	85% Power	75% Power	65% Power
MO1	Better than	ISO	ISO	ISO	ISO	ISO	102L	101L	101L
	Worse than	*	*	*	*	*	101L	ISO	ISO
MO2	Better than	ISO	101L	101L	ISO	ISO	102L	102L	101L
	Worse than	*	ISO	ISO	*	*	101L	101L	ISO
MO3	Better than	104L	105L	103L	103L	103L	103L	105L	104L
	Worse than	103L	104L	102L	102L	102L	102L	104L	103L
MO4	Better than	101L	102L	101L	101L	101L	103L	101L	101L
	Worse than	ISO	101L	ISO	ISO	ISO	102L	ISO	ISO
MO5	Better than	104L	104L	105L	103L	103L	105L	106L	106L
	Worse than	103L	103L	104L	102L	102L	104L	105L	105L
MO6	Better than	ISO	101L	101L	ISO	ISO	102L	102L	101L
	Worse than	*	ISO	ISO	*	*	101L	101L	ISO
MO7	Better than	102L	102L	102L	101L	101L	103L	104L	101L
	Worse than	101L	101L	101L	ISO	ISO	102L	103L	ISO
MO8	Better than	105L	105L	104L	103L	105L	105L	105L	105L
	Worse than	104L	104L	103L	102L	104L	104L	104L	104L
MM1	Better than	105L	105L	105L	105L	106L	*	108L	106L
	Worse than	104L	104L	104L	104L	105L	110L	107L	105L
MM2	Better than	102L	102L	101L	101L	102L	103L	103L	102L
	Worse than	101L	101L	ISO	ISO	101L	102L	102L	101L
MM3	Better than	105L	105L	105L	103L	104L	108L	108L	105L
	Worse than	104L	104L	104L	102L	103L	107L	107L	104L
MM4	Better than	102L	102L	102L	101L	102L	103L	104L	102L
	Worse than	101L	101L	101L	ISO	101L	102L	103L	101L
MM5	Better than	101L	101L	ISO	101L	101L	102L	102L	101L
	Worse than	ISO	ISO	*	*	ISO	101L	101L	ISO
MM6	Better than	ISO	ISO	ISO	ISO	ISO	ISO	ISO	ISO
	Worse than	*	*	*	*	*	*	*	*
MM7	Better than	103L	103L	104L	102L	103L	105L	105L	104L
	Worse than	102L	102L	103L	101L	102L	104L	104L	103L

* No reference fuel met this criteria

3.8 100LL PERFORMANCE COMPARED TO BOTH THE LEADED AND UNLEADED REFERENCE FUELS PERFORMANCE.

A comparison of the leaded baseline 100LL aviation gasoline to both the unleaded reference AN fuels and the leaded reference MON fuels is shown in table 3-9. The 100LL minimum MON and PN blend, with the maximum-allowable lead, performed within the equivalent range of 102 to

105 MON for leaded reference fuels and in the range of 101 to 107 AN for unleaded reference fuels, depending on the respective power settings.

TABLE 3-9. KNOCK PERFORMANCE COMPARISON OF THE 100LL BASELINE BLEND TO BOTH THE LEADED AND UNLEADED REFERENCE FUELS PERFORMANCE

Blend	Reference Fuel Relative Performance to Blend	Based on Knock-Limited BSFC (lbs/bhp hr)				Based on Knock-Limited Fuel Mass Flow (lbs/hr)			
		TO	85%	75%	65%	TO	85%	75%	65%
100LL	MON leaded better than	103L	103L	103L	103L	103L	105L	105L	105L
	MON leaded worse than	102L	102L	102L	102L	102L	104L	104L	104L
100LL	AN unleaded better than	107 AN	104 AN	102 AN	105 AN	107 AN	107 AN	103 AN	105 AN
	AN unleaded worse than	106 AN	103 AN	101 AN	104 AN	106 AN	106 AN	102 AN	104 AN

3.9 BLEND PERFORMANCE BASED ON CALCULATED AIR-TO-FUEL RATIO.

The air-to-fuel ratio was calculated by measuring the mass air flow rate (lbs/hr) into the engine and the mass fuel flow rate (lbs/hr) into the fuel manifold valve, and then calculating a simple ratio. Traditionally, the FAA William J. Hughes Technical Center Small-Engine Test Facility measured the air-to-fuel ratio via a lambda exhaust gas sensor in each cylinder's common exhaust bank. However, this requires an accurate input into the signal receiver of the proper ratio of carbon, hydrogen, oxygen, and nitrogen atoms of the liquid fuel. Due to the anonymity of the 30 fuel blends, this method could not be used. Also, the mass air flow measuring sensor was not installed when the AV blends were tested; therefore, the air-to-fuel ratio data were not available for these blends. Dividing the air mass flow rate by the fuel mass flow rate does not take into account any chemical leaning of the mixture due to the presence of oxygenates in the fuel. Thus, fuels containing ETBE or ethanol had actual air-to-fuel ratios that were leaner than those shown in figures 3-27 through 3-34.

Figures 3-27 through 3-34 are raw horsepower curves generated by varying the fuel mixture while maintaining constant manifold pressure and engine rpm. Each figure includes curves grouped by power settings, starting with the TO power condition, followed by the 85%, 75%, and the 65% power condition.

In figures 3-27 through 3-34 lines were drawn through the onset knock conditions at the TO and 65% power conditions to indicate the onset knock. Therefore, the further to the right the onset knock line, the leaner the mixture when knock first occurred and, hence, the better the performance of the blend. Thus, figure 3-27 shows that blend AM4 performed slightly better than 100LL at the TO power setting but not as well at the 65% power setting. Blends AM1 and AM3 performed much worse than 100LL. The slope of the onset knock line for the 100LL blend indicates that the engine was able to be leaned, without developing knock, to a much greater extent at the 65% power setting. To the right of the onset knock line along a blend's power

curve are leaner mixtures and increasing knock levels and to the left of the line (richer mixture) are the knock-free conditions.

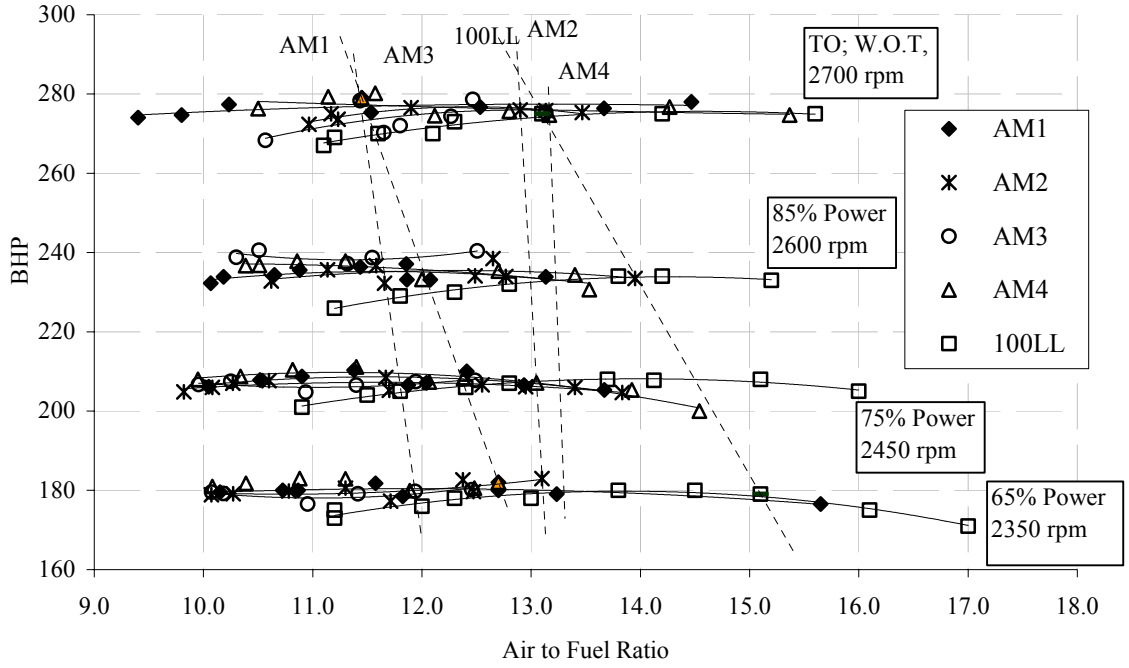

FIGURE 3-27. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR BLENDS AM1 THROUGH AM4 AND 100LL

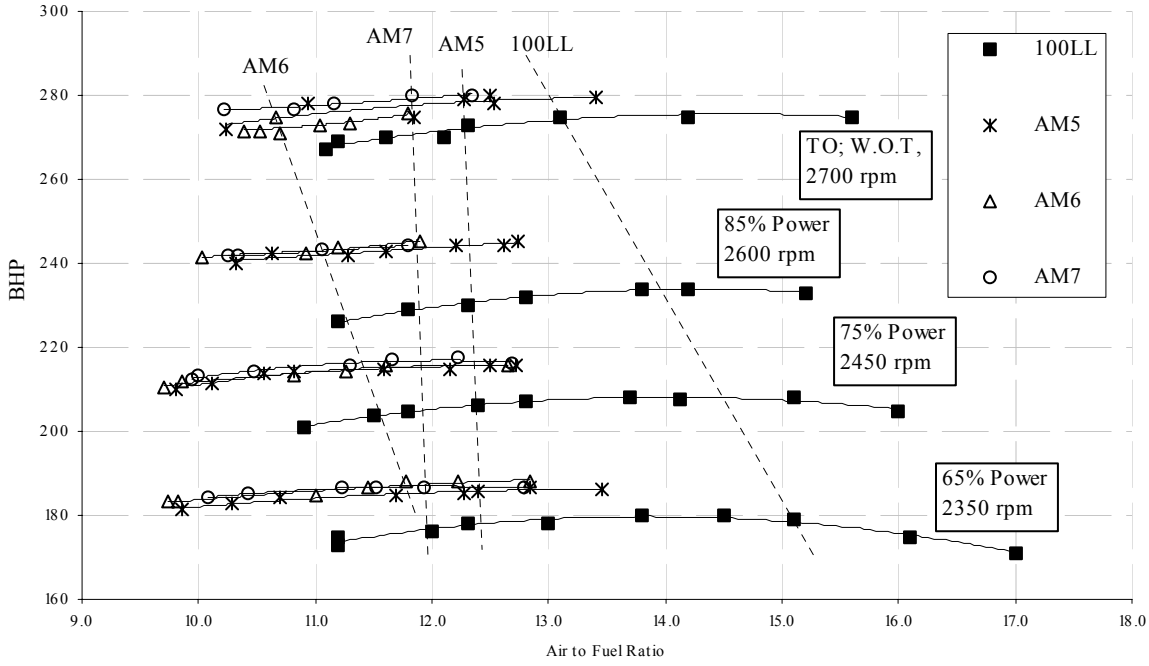

FIGURE 3-28. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR BLENDS AM5 THROUGH AM7 AND 100LL

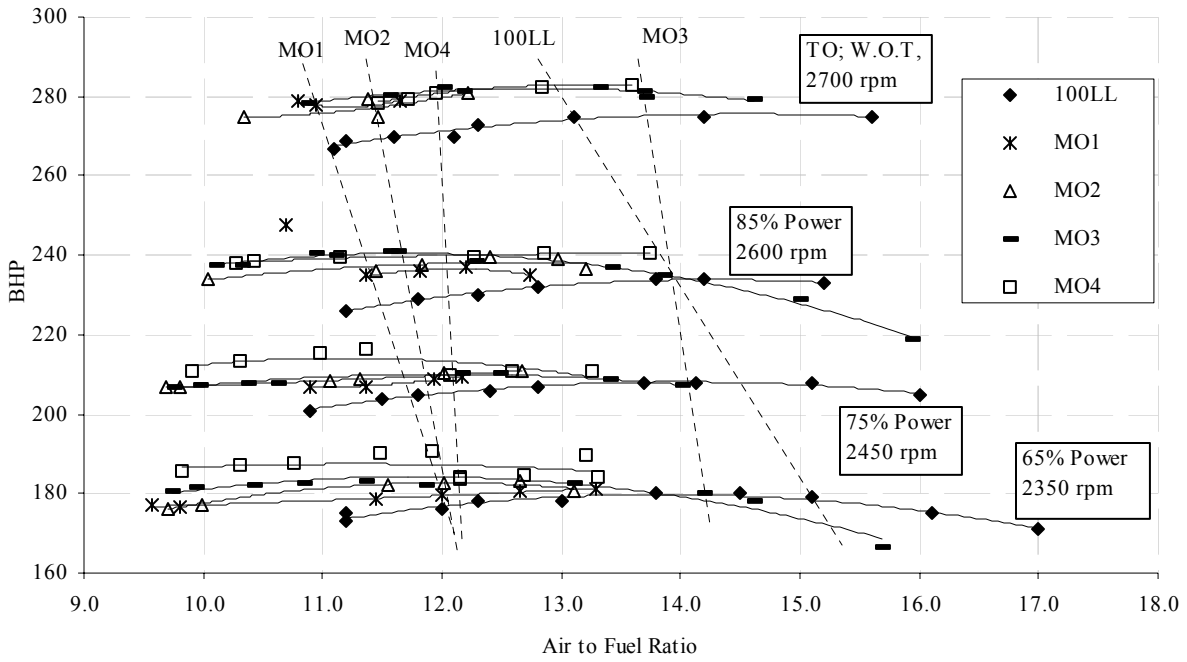

FIGURE 3-29. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR BLENDS MO1 THROUGH MO4 AND 100LL

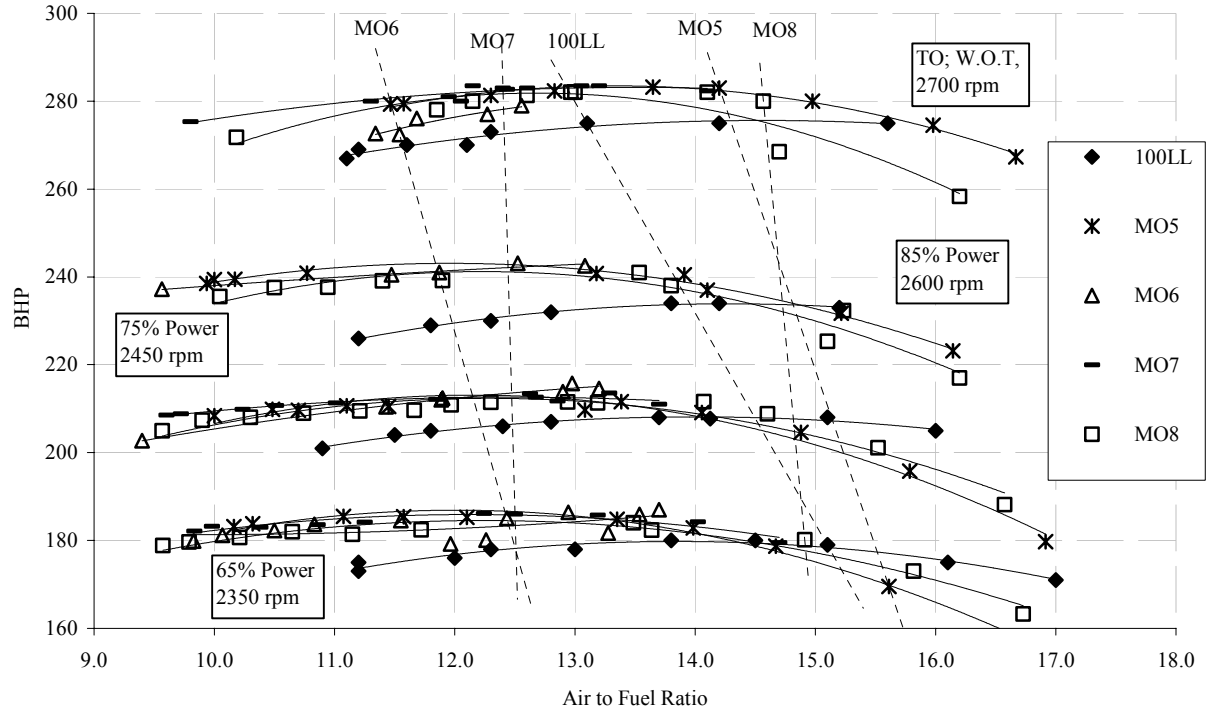

FIGURE 3-30. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR BLENDS MO5 THROUGH MO8 AND 100LL

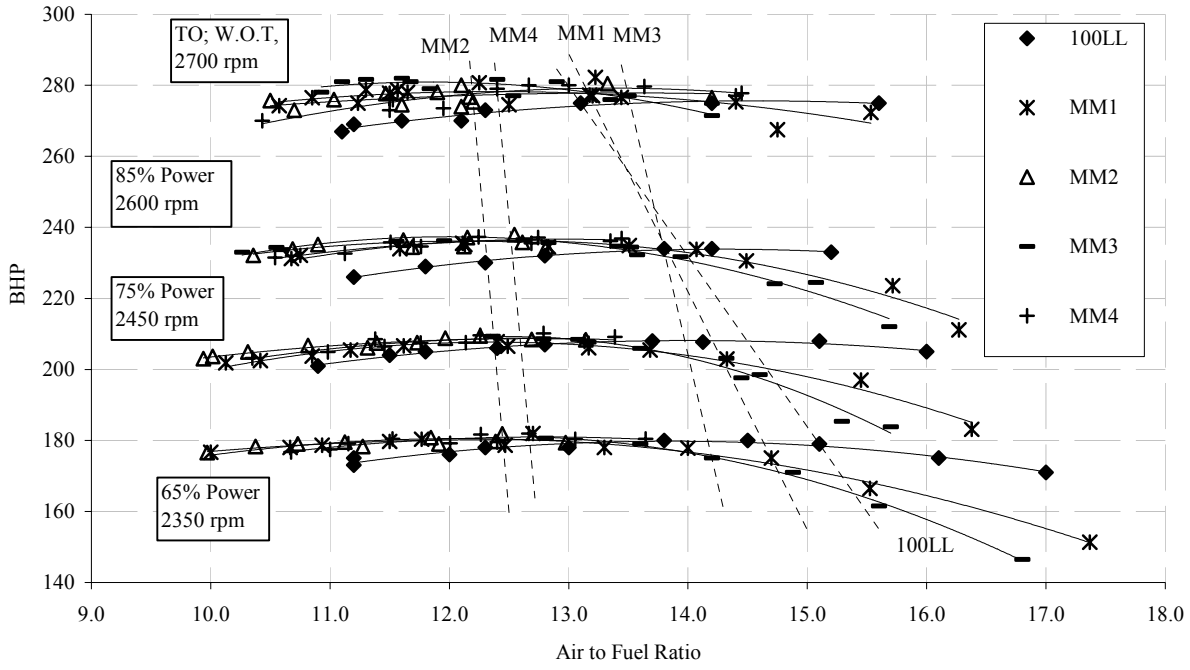

FIGURE 3-31. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR BLENDS MM1 THROUGH MM4 AND 100LL

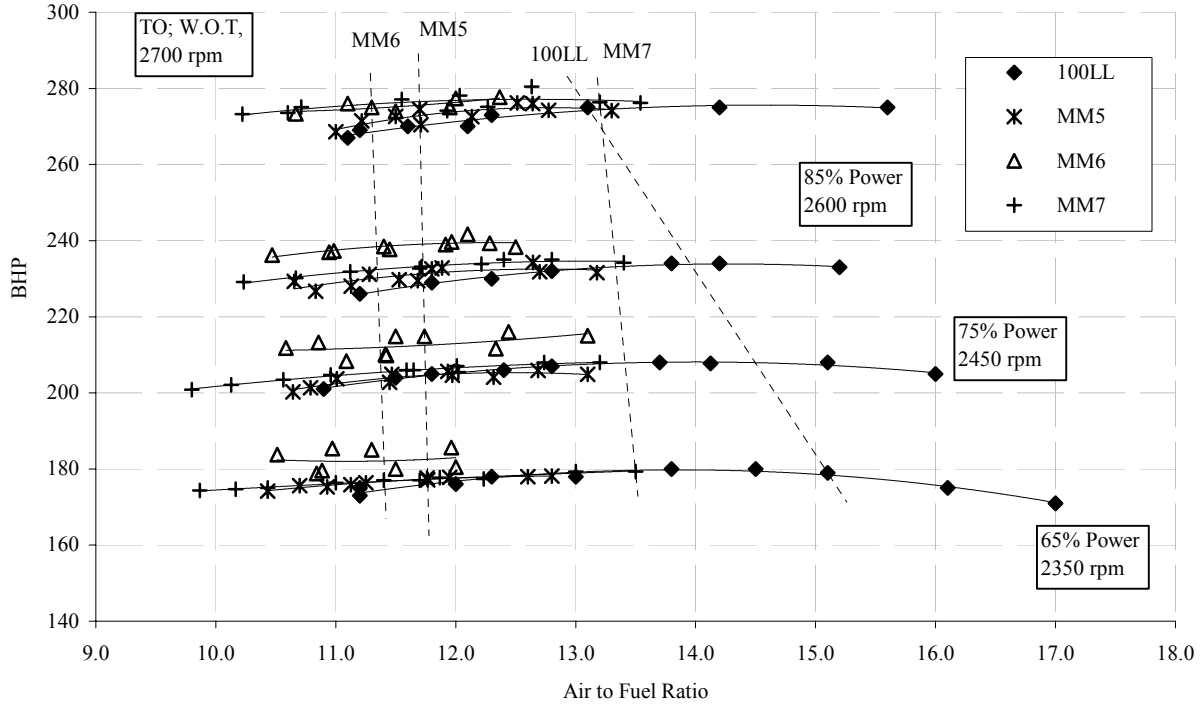

FIGURE 3-32. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR BLENDS MM5 THROUGH MM7 AND 100LL

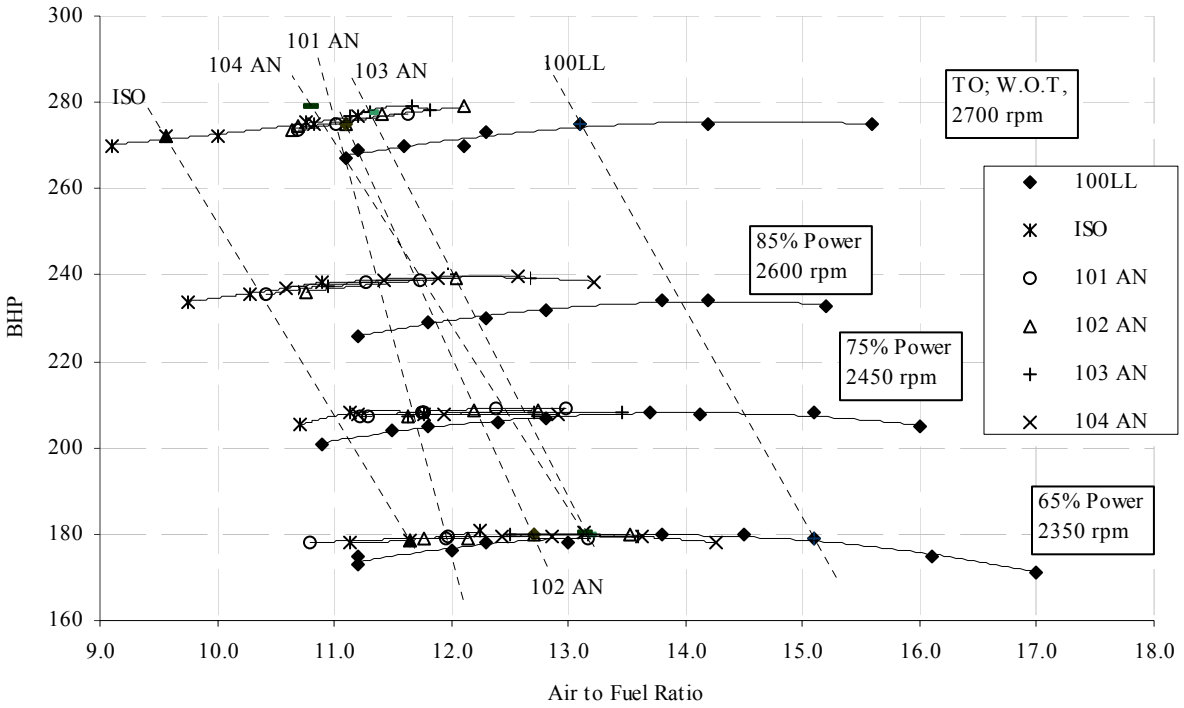

FIGURE 3-33. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR THE UNLEADED REFERENCE BLENDS 101 AN THROUGH 104 AN, ISO, AND 100LL

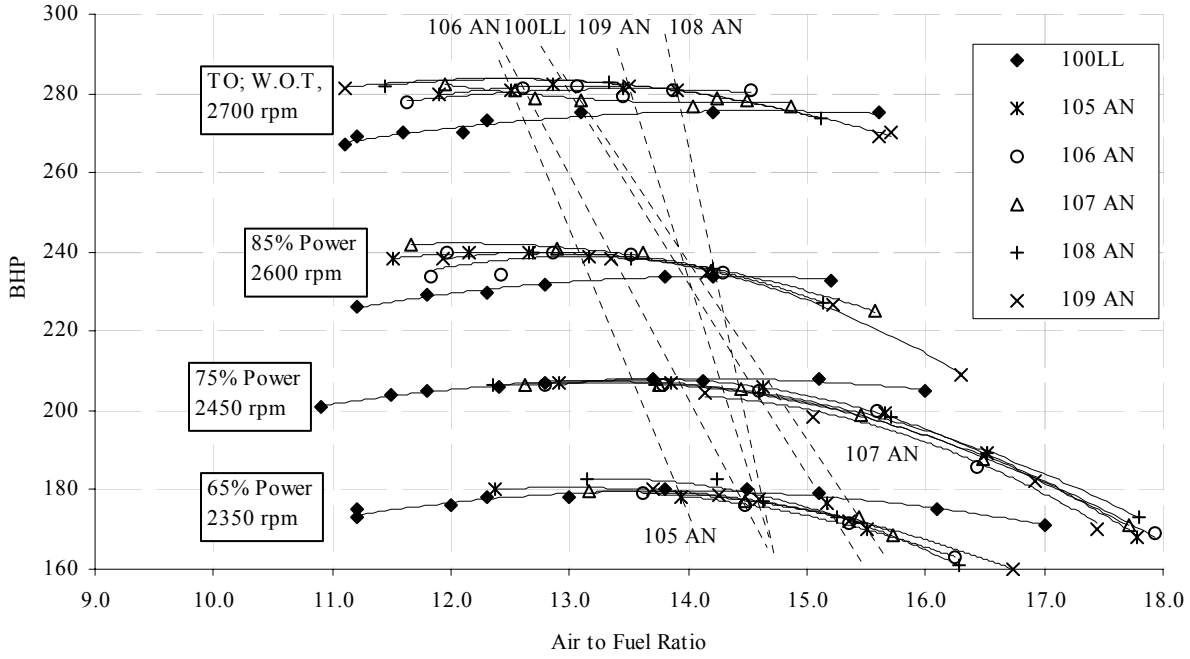

FIGURE 3-34. POWER VERSUS AIR-TO-FUEL RATIO CURVES FOR THE UNLEADED REFERENCE BLENDS 105 AN THROUGH 109 AN AND 100LL

The analysis of the air-to-fuel ratio curves provide the same relative comparison and ranking as shown earlier for the BSFC or knock-limited fuel flow. The leaded 100LL baseline fuel performed significantly better at the lower-power, leaner mixture conditions than at the maximum power setting. This performance was not noticed at the maximum power lean mixture conditions. It is also interesting to note that for blends AM2, AM4, AM5, AM7, MM5, MM6, MO4, and MO7 the knock-limited air-to-fuel ratios for the maximum power setting were only slightly richer than for the 65% power setting. A cursory review of these blends shows their components to vary widely from one another, providing no simple explanation. A review of the MON and PN data of tables 2-5 through 2-8 also does not provide a simple explanation. For example, some of these blends have a relatively high PN and low MON, some have a relatively low PN and high MON, some have low MON and low PN, and some have relatively high MON and high PN. More than likely, this behavior was the result of synergistic component effects on the multicylinder engine behavior that was not necessarily seen in the single-cylinder engine MON and PN ASTM tests.

The unleaded reference fuel AN blends, which contained varying levels of m-toluidine, performed in much the same manner as the baseline 100LL. Using air-to-fuel ratio performance as a measure, the baseline 100LL performed better than 106 AN and slightly worse than 107 AN at both maximum power and 65% power conditions.

3.10 BLEND EXHAUST GAS TEMPERATURE AND POWER OUTPUT DATA.

The average exhaust gas temperature (EGT) for all six cylinders and BHP were plotted versus the fuel mass flow rate for the blends that performed better than 100LL, as shown in figures 3-35 through 3-49.

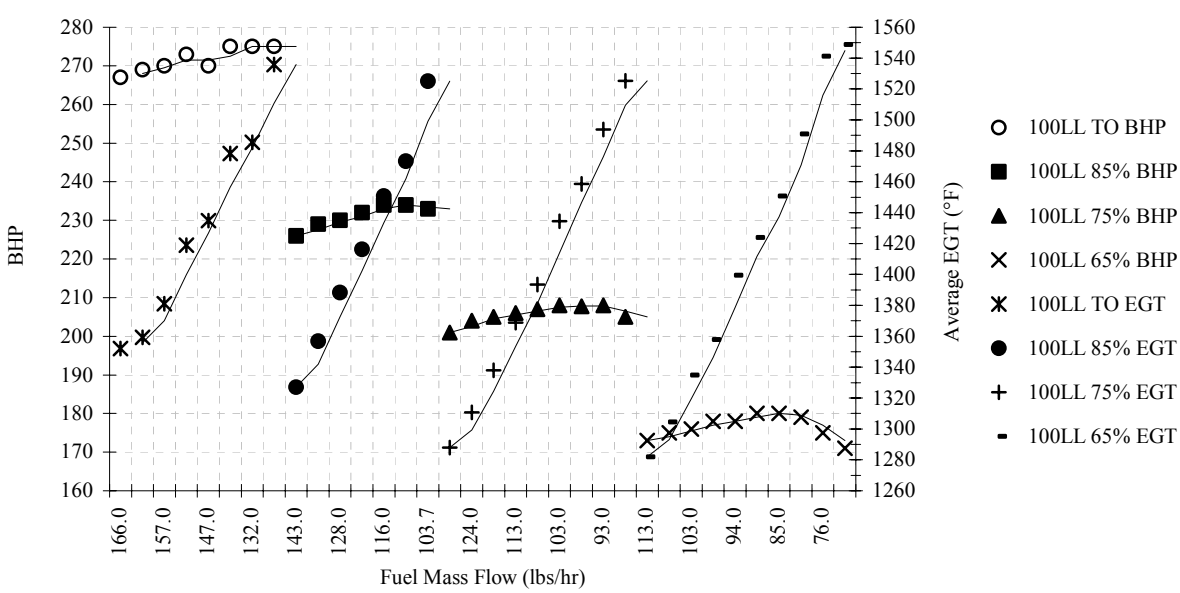

FIGURE 3-35. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR 100LL

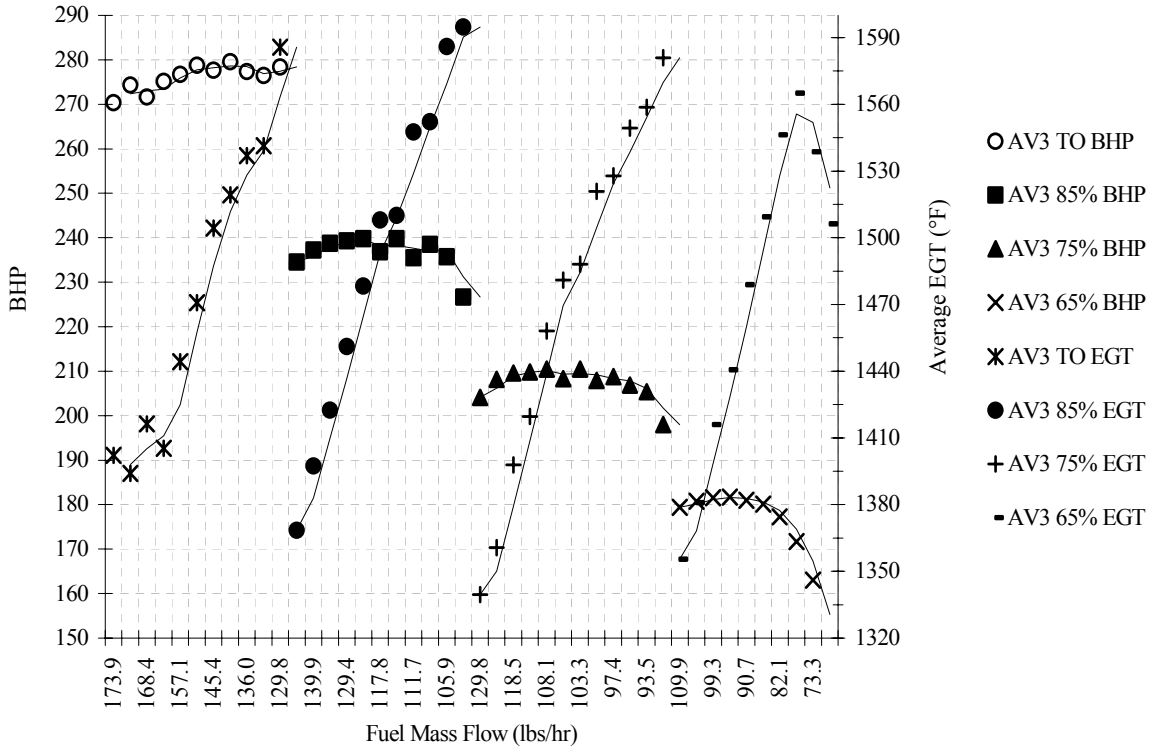

FIGURE 3-36. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AV3 BLEND

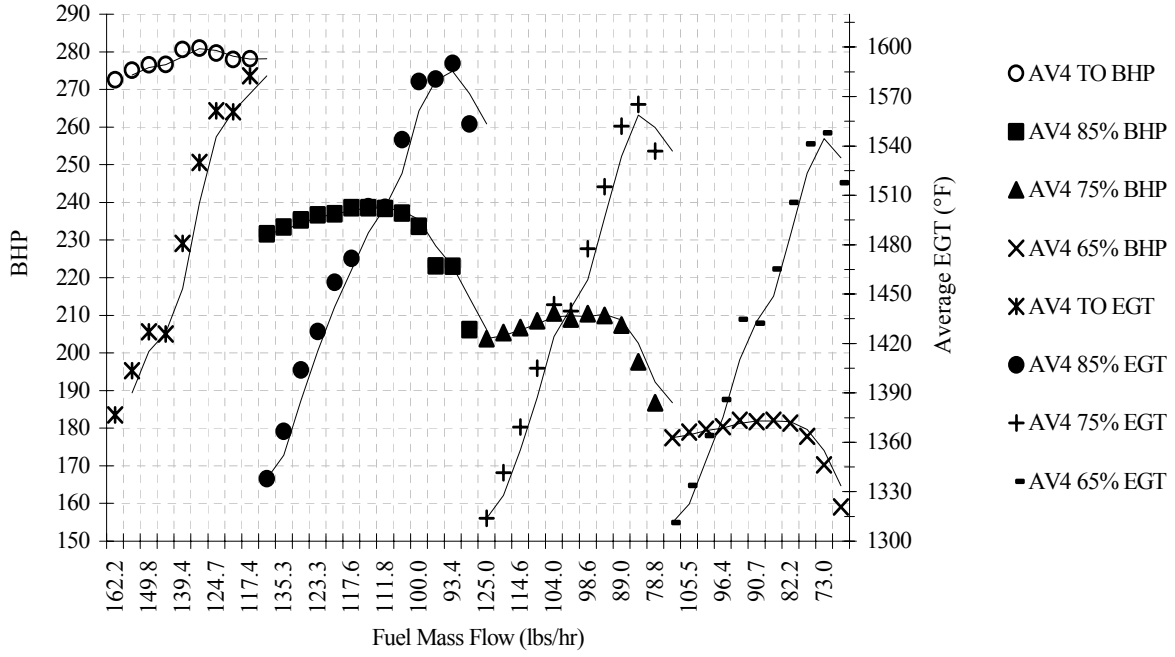

FIGURE 3-37. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AV4 BLEND

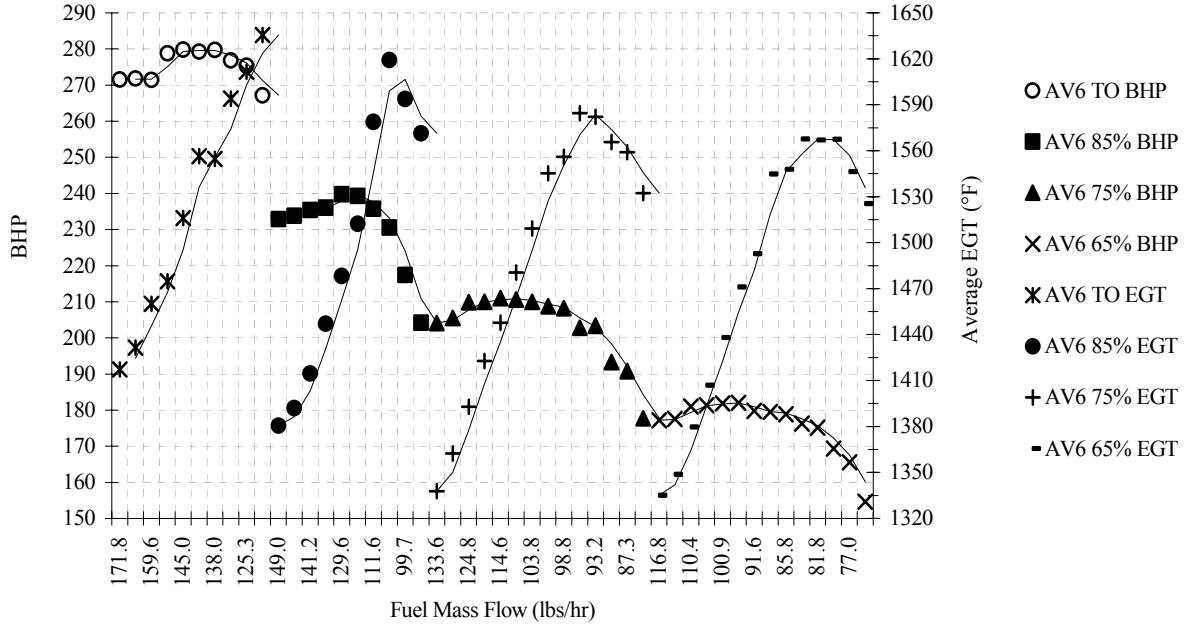

FIGURE 3-38. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AV6 BLEND

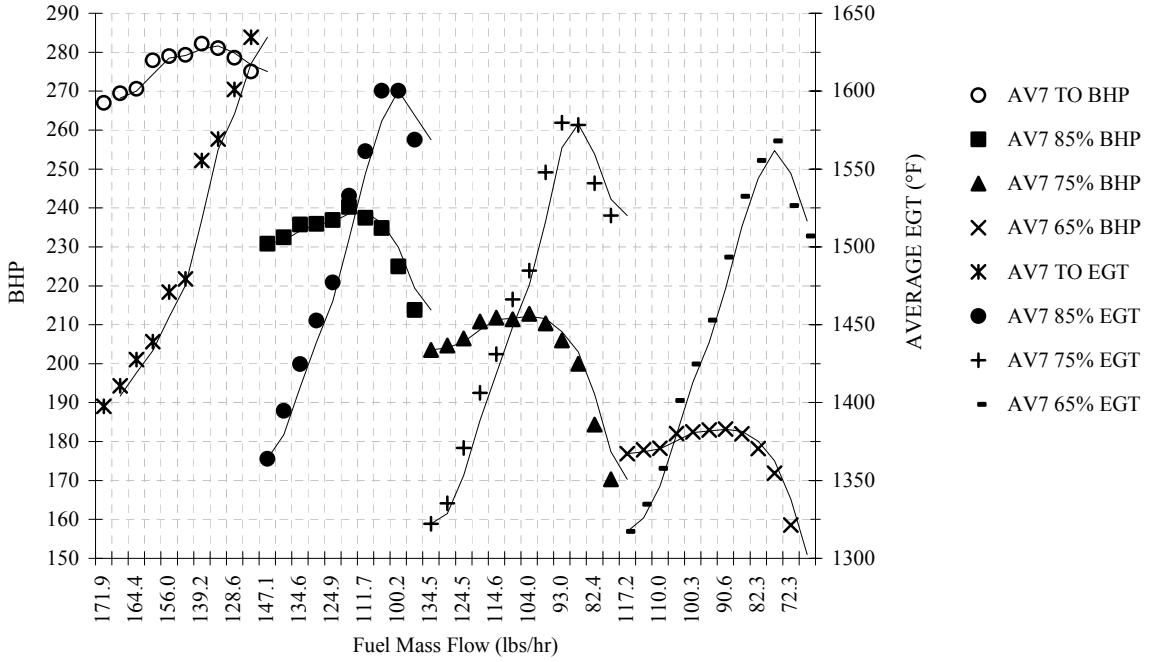

FIGURE 3-39. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AV7 BLEND

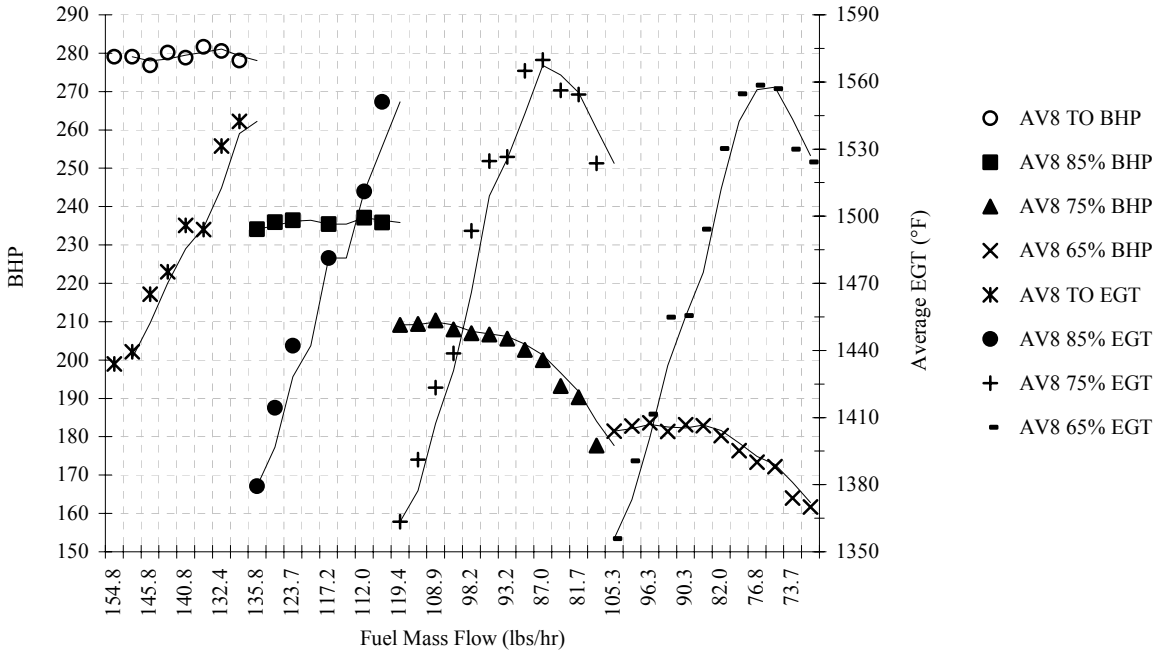

FIGURE 3-40. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AV8 BLEND

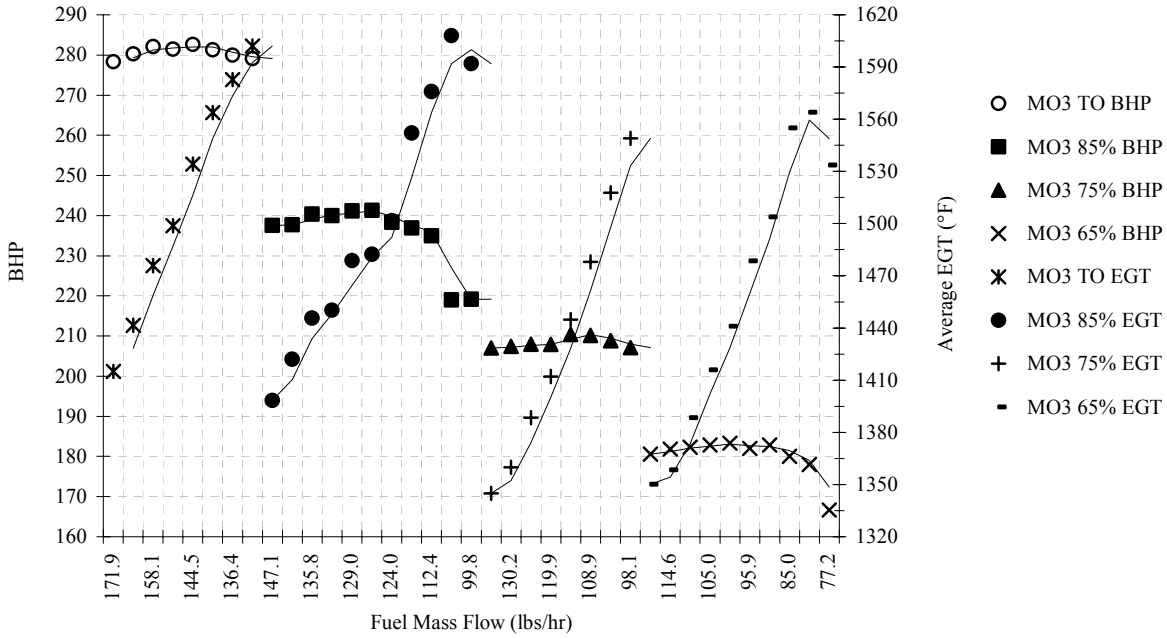

FIGURE 3-41. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE MO3 BLEND

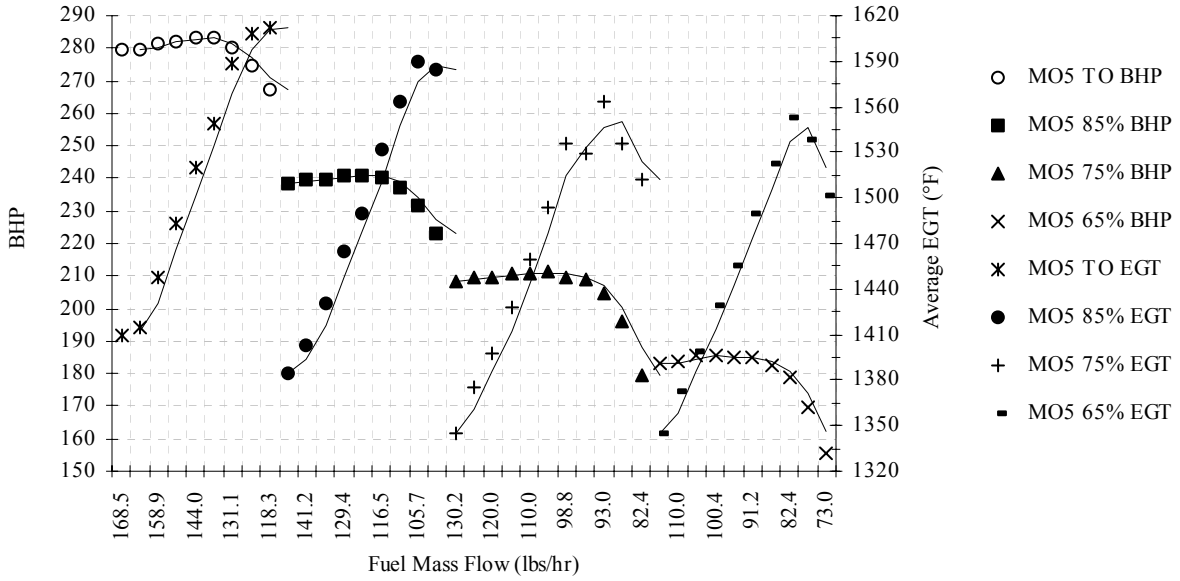

FIGURE 3-42. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE MO5 BLEND

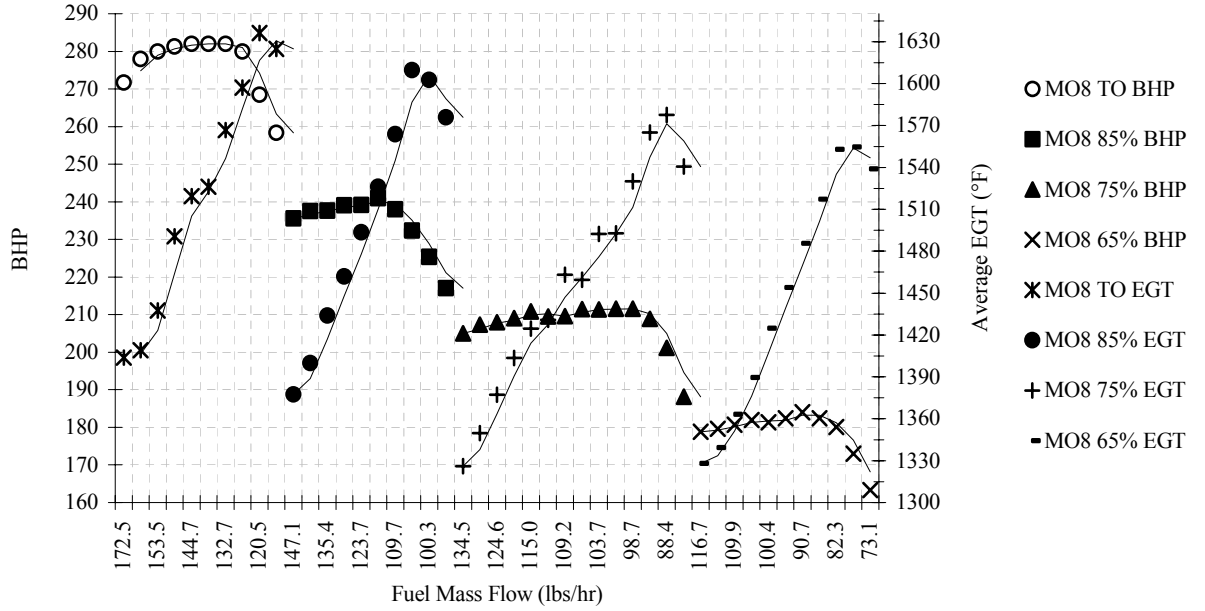

FIGURE 3-43. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE MO8 BLEND

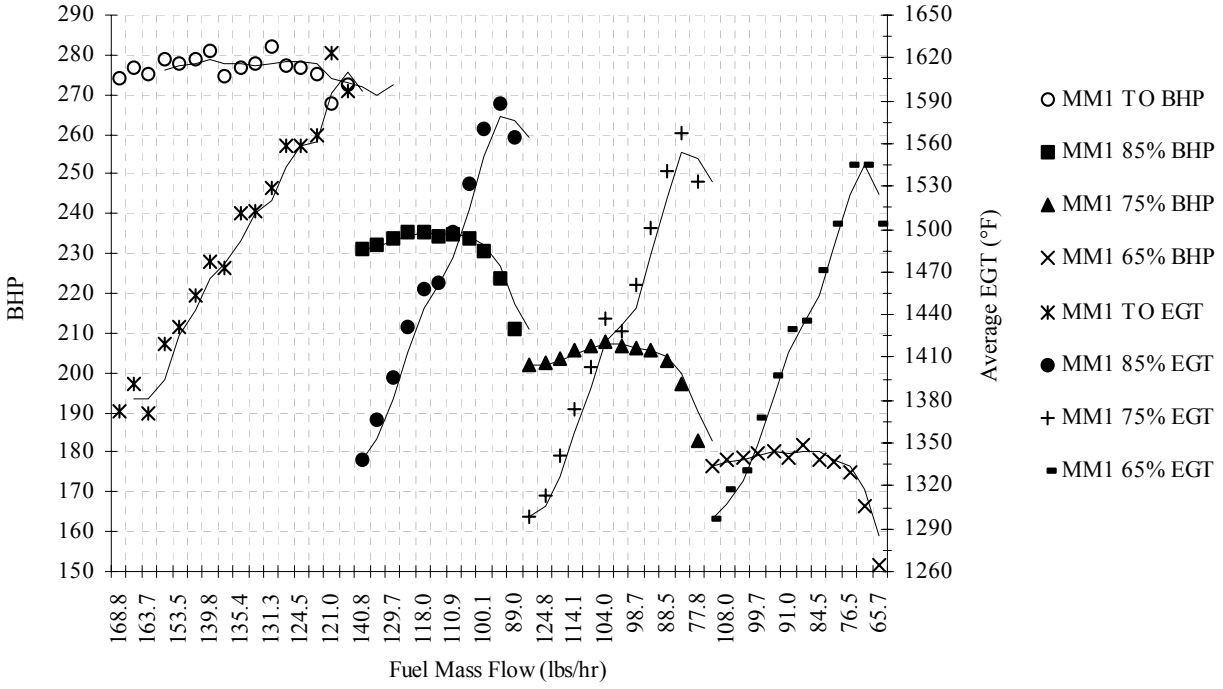

FIGURE 3-44. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE MM1 BLEND

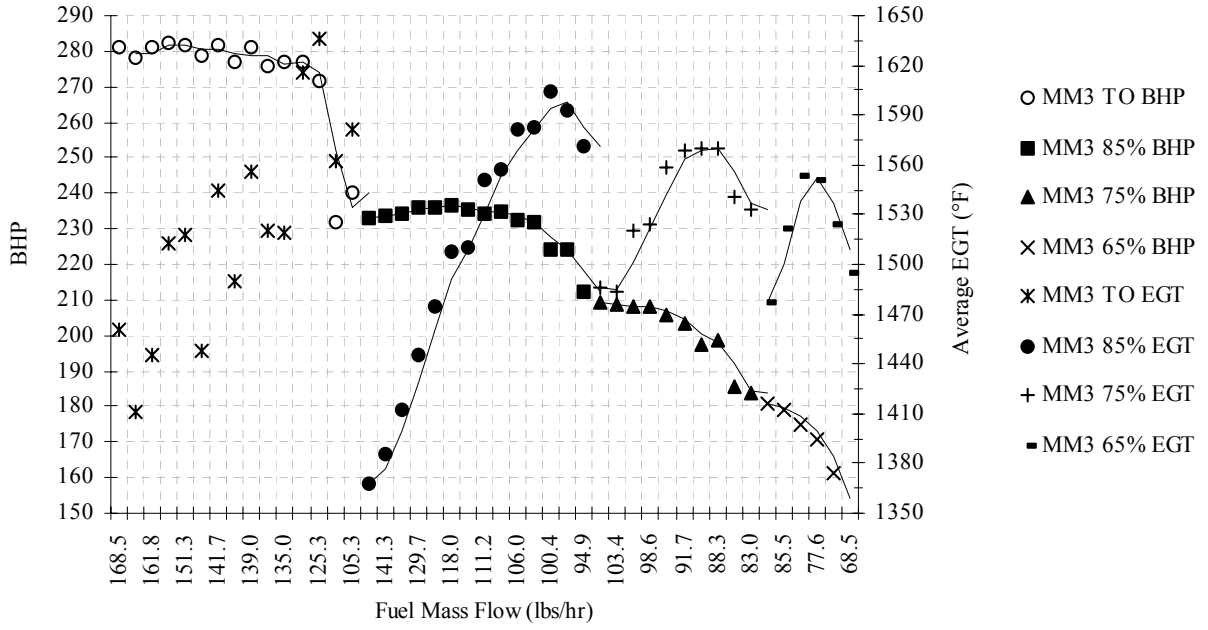

FIGURE 3-45. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE MM3 BLEND

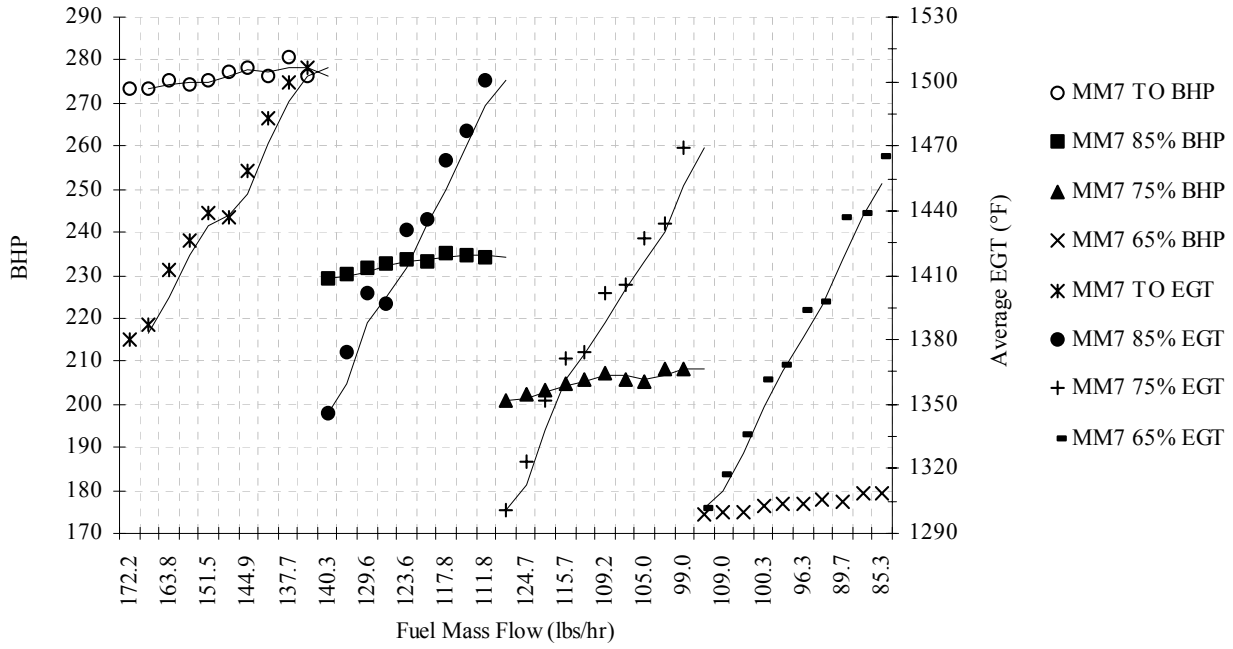

FIGURE 3-46. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE MM7 BLEND

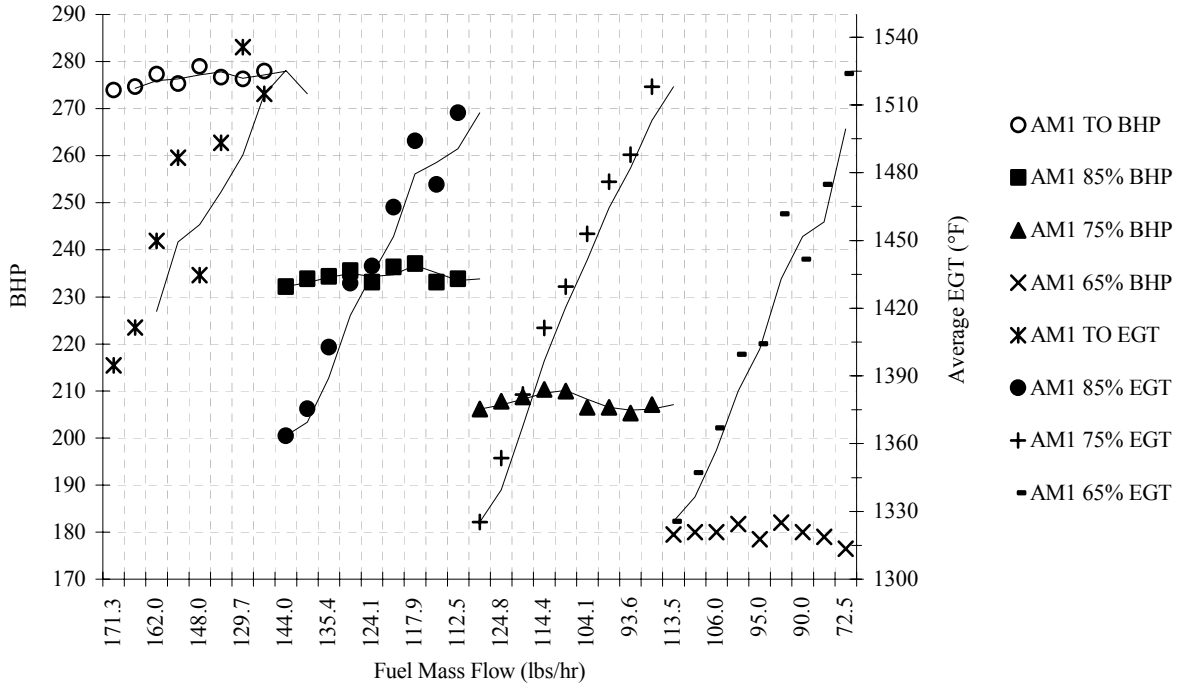

FIGURE 3-47. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AM1 BLEND

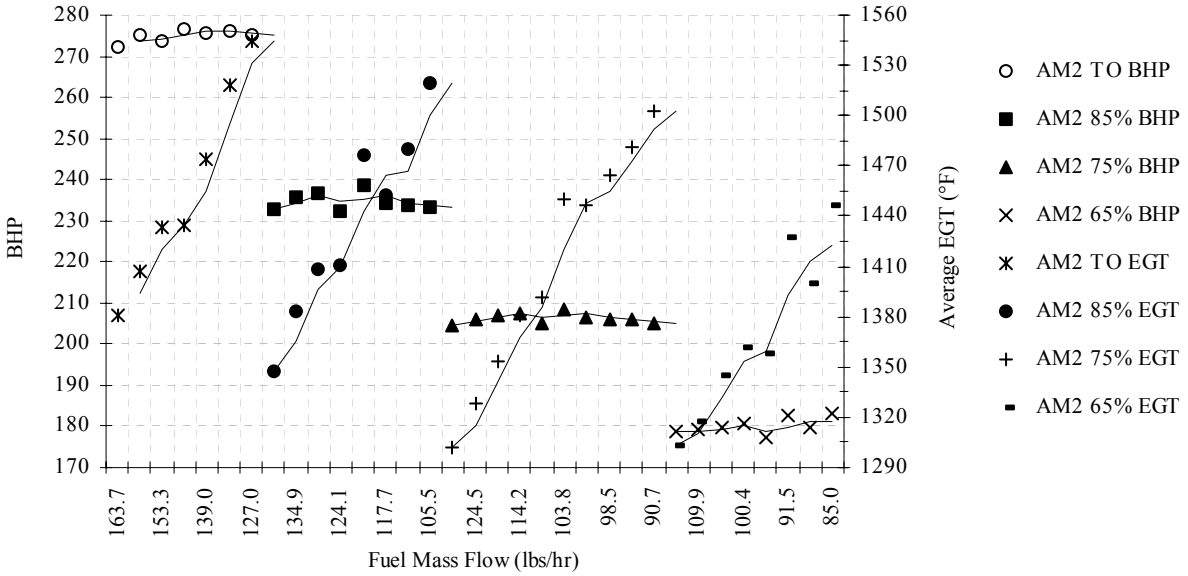

FIGURE 3-48. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AM2 BLEND

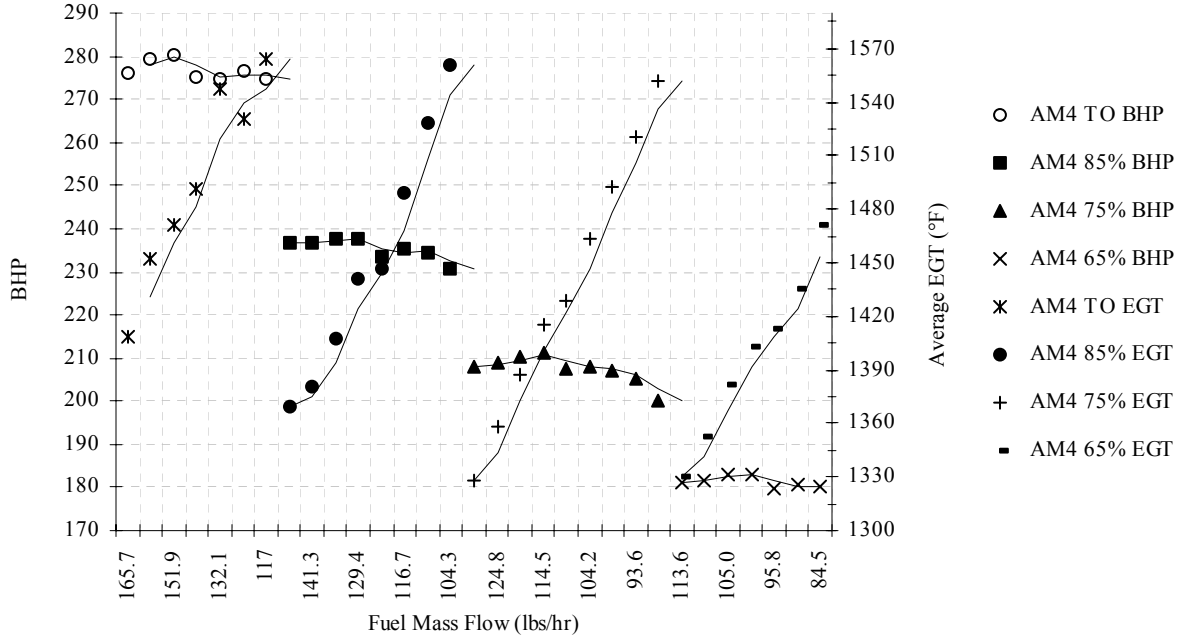

FIGURE 3-49. AVERAGE EGT AND BHP VERSUS FUEL MASS FLOW FOR THE AM4 BLEND

The EGT values shown in these figures were averaged over all six cylinders for a given fuel mass flow rate. The curves are grouped by power setting, where the leftmost pair of curves are for the maximum power, followed by the 85% power, 75% power, and 65% power settings. Note that the average EGT is greater than would normally be expected due to the test constraint of operating at maximum cylinder head temperature.

The EGT and BHP data are curve fit using a two-period moving average. These curves illustrate the location of the average peak EGT in relation to the peak power.

Many of the blends did not display a peak in EGT before either moderate to heavy knock occurred or the power dropped significantly. Tables 3-10 and 3-11 show the location of the average peak EGT in relation to both the EGT at the onset knock condition and the EGT at the location of peak power. The tables have four rows for each blend that performed better than the baseline 100LL. The first row of each blend shows the maximum power setting, followed by the 85% power, the 75% power, and the 65% power conditions. Some blends did not reach a peak EGT before the onset of moderate to heavy knock or before the power was reduced significantly to the point that mixture leaning was not continued. These points are shaded in gray.

TABLE 3-10. AVERAGE EGT DATA FOR THE BASELINE 100LL AND MOTOR AND AVIATION ALKYLATE BLENDS THAT DID NOT CONTAIN MANGANESE

Fuel	Max. EGT (°F)	FF at Max. BHP (lbs/hr)	Max. BHP	EGT at Max. BHP (°F)	Knk Lim. FF (lbs/hr)	BHP at Knk Lim. FF	EGT at Knk Lim. FF (°F)	Max. EGT-EGT at Max. BHP (°F)	EGT Knk Lim.-EGT Max. BHP (°F)	Max. EGT-EGT Knk Lim. (°F)
100LL	1536	139	275	1478	139	275	1478	58	0	58
100LL	1525	116	234	1451	116	234	1451	74	0	74
100LL	1525	103	208	1435	99	208	1459	90	24	66
100LL	1549	90	180	1424	82	179	1491	125	67	58
AV3	1586	140	280	1519	134	277	1541	67	22	45
AV3	1595	118	240	1510	112	236	1548	85	38	47
AV3	1581	103	211	1488	94	205	1559	93	71	22
AV3	1564	99	182	1416	82	177	1546	148	130	18
AV4	1583	139	281	1481	123	278	1561	102	80	22
AV4	1590	118	239	1472	93	223	1590	118	*	*
AV4	1565	104	311	1443	79	187	1537	122	*	*
AV4	1548	91	182	1435	73	170	1548	113	*	*
AV6	1636	138	280	1555	125	275	1612	81	57	24
AV6	1620	130	240	1478	106	231	1620	142	142	0
AV6	1585	115	211	1448	93	203	1582	137	134	3
AV6	1568	101	182	1438	79	169	1567	130	*	*
AV7	1635	139	282	1556	119	275	1635	79	*	*
AV7	1600	118	240	1533	100	225	1600	67	67	0
AV7	1580	104	213	1485	82	184	1541	95	*	*
AV7	1568	100	183	1425	78	172	1568	143	*	*
AV8	1542	141	282	1494	132	281	1531	48	37	11
AV8	1551	118	237	1483	113	237	1507	68	24	44

TABLE 3-10. AVERAGE EGT DATA FOR THE BASELINE 100LL AND MOTOR AND AVIATION ALKYLATE BLENDS THAT DID NOT CONTAIN MANGANESE (Continued)

Fuel	Max. EGT (°F)	FF at Max. BHP (lbs/hr)	Max. BHP	EGT at Max. BHP (°F)	Knk Lim. FF (lbs/hr)	BHP at Knk Lim. FF	EGT at Knk Lim. FF (°F)	Max. EGT-EGT at Max. BHP (°F)	EGT Knk Lim.-EGT Max. BHP (°F)	Max. EGT-EGT Knk Lim. (°F)
AV8	1570	109	210	1423	93	206	1526	147	103	44
AV8	1559	96	184	1412	82	180	1530	147	118	29
MO3	1602	145	283	1534	138	281	1564	68	30	38
MO3	1608	129	241	1482	105	219	1608	126	126	0
MO3	1549	114	210	1445	103	209	1518	104	73	31
MO3	1564	105	183	1416	85	180	1555	148	139	9
MO5	1613	144	283	1520	139	283	1549	93	29	64
MO5	1590	129	241	1465	111	237	1564	125	99	26
MO5	1563	104	212	1493	93	205	1563	70	70	0
MO5	1553	105	186	1399	78	170	1539	154	*	*
MO8	1636	142	282	1526	129	280	1597	110	71	39
MO8	1610	117	241	1526	110	238	1564	83	38	46
MO8	1578	104	212	1493	94	209	1565	85	72	13
MO8	1555	91	184	1486	82	180	1553	69	67	2

*Blend did not reach limiting knock.
FF = Fuel mass flow rate (lbs/hr).

TABLE 3-11. AVERAGE EGT DATA FOR THE MM, AM, AND AN BLENDS THAT PERFORMED BETTER THAN THE BASELINE 100LL

Fuel	Max. EGT (°F)	FF at Max. BHP (lbs/hr)	Max. BHP	EGT at Max BHP (°F)	Knk Lim. FF (lbs/hr)	BHP at Knk Lim. FF	EGT at Knk Lim. FF (°F)	Max. EGT-EGT at Max. BHP (°F)	EGT Knk Lim.-EGT Max. BHP (°F)	Max. EGT-EGT Knk Lim. (°F)
MM1	1624	131	282	1529	125	277	1558	95	29	66
MM1	1589	118	236	1457	89	211	1564	132	107	25
MM1	1567	104	208	1438	89	203	1541	129	103	26
MM1	1540	90	182	1436	78	176	1536	104	100	4
MM3	1637	151	282	1518	130	277	1616	119	98	21
MM3	1605	118	237	1507	100	224	1605	98	98	0
MM3	1570	104	209	1486	89	198	1570	84	84	0
MM3	1551	91	181	1477	86	180	1507	74	30	44
MM7	1506	145	278	1459	138	276	1483	47	24	23
MM7	1501	115	235	1477	115	235	1477	24	0	24
MM7	1469	104	208	1434	99	208	1469	35	35	0
MM7	1466	89	179	1439	85	179	1466	27	27	0
AM2	1545	150	277	1435	139	276	1518	110	83	27
AM2	1520	118	239	1476	106	234	1520	44	44	0
AM2	1512	104	209	1450	95	206	1475	62	25	37
AM2	1446	92	183	1427	85	183	1446	19	19	0

TABLE 3-11. AVERAGE EGT DATA FOR THE MM, AM, AND AN BLENDS THAT PERFORMED BETTER THAN THE BASELINE 100LL (Continued)

Fuel	Max. EGT (°F)	FF at Max. BHP (lbs/hr)	Max. BHP	EGT at Max. BHP (°F)	Knk Lim. FF (lbs/hr)	BHP at Knk Lim. FF	EGT at Knk Lim. FF (°F)	Max. EGT-EGT at Max. BHP (°F)	EGT Knk Lim.-EGT Max. BHP (°F)	Max. EGT-EGT Knk Lim. (°F)
AM4	1580	152	280	1471	137	275	1580	109	109	0
AM4	1561	136	238	1407	110	234	1528	154	121	33
AM4	1552	115	211	1415	94	205	1520	137	105	32
AM4	1472	105	183	1381	85	180	1472	91	*	*
109 AN	1631	125	282	1506	125	282	1554	125	48	77
109 AN	1590	112	239	1500	106	239	1537	90	37	53
109 AN	1562	88	204	1524	75	182	1534	38	10	28
109 AN	1544	83	180	1479	78	178	1520	65	41	24
108 AN	1626	131	283	1536	126	281	1567	90	31	59
108 AN	1584	112	240	1496	112	240	1496	88	0	88
108 AN	1568	99	207	1448	83	199	1568	120	120	0
108 AN	1550	89	183	1438	73	173	1550	112	112	0
107 AN	1613	147	283	1450	131	278	1516	163	66	97
107 AN	1593	118	242	1463	110	241	1511	130	48	82
107 AN	1568	99	207	1445	90	206	1523	123	78	45
107 AN	1552	83	180	1471	72	173	1552	81	81	0

*Blend did not reach limiting knock.
FF = Fuel mass flow rate (lbs/hr).

Tables 3-10 and 3-11 show that for blends where mixture leaning was able to be performed until a peak EGT was achieved, the peak EGT occurred, on average, 110°F lean of the maximum BHP, and the knock-limited EGT occurred, on average, 23°F rich of the peak EGT. For all the blends, the knock-limited EGT occurred, on average, 69°F lean of the maximum BHP.

3.11 EFFECT OF MANGANESE-BASED DEPOSITS ON ENGINE OCTANE REQUIREMENT.

As part of this research effort, the FAA William J. Hughes Technical Center was asked to evaluate the effect of manganese deposits on octane requirement. For this reason, the blends that contained MMT were tested after the blends that did not contain MMT. Just prior to, and immediately after, testing the MMT blends, the engine was octane-rated using unleaded AN reference fuels. The two octane ratings were compared to determine whether or not there was a change in octane requirement with manganese deposits and to quantify any such change.

Table 3-12 details the engine hours and amount of MMT consumed for all the blends tested. The first column details the fuel testing chronology. The second column lists the number of engine test hours for each blend grouping, while the third column shows the cumulative engine hours for the tests. The fourth column lists the amount of MMT consumed for the particular blend tested, and the last column shows the cumulative MMT consumed. The blends were tested in the order listed in the table.

TABLE 3-12. ENGINE HOURS AND MMT CONSUMPTION

Testing	Engine Test Hours on Blends	Cumulative Engine Hours	MMT Consumed per Blends (ml)	Cumulative MMT Consumed (ml)
Octane Rating—AN Blends	8.6	8.6	0	0
AV Blends	25.1	33.7	0	0
MO Blends	13	46.7	0	0
AM Blends	8.2	54.9	138.9	138.9
MM Blends	14.8	69.7	275.4	414.3
AM Blends	5.5	75.2	93.1	507.4
MO Blends	4.3	79.5	0	0
AV Blends	2.1	81.6	0	0
Octane Rating—AN Blends, Unleaded MON Blends	20.7	102.3	0	0

The table shows that after the AM and MM blends were tested, 6.4 engine hours of testing were performed on the MO and AV blends. It was discovered during simultaneous engine tests and data analyses, and after the blends containing MMT were tested, that there were missing or incomplete data for some of the AV and MO blends that did not contain MMT. These missed data points were then revisited prior to the post-MMT octane rating.

Table 3-13 contains the octane requirement at various power settings for both octane ratings. The table suggests that there was a 1-AN octane requirement increase for some of the lean 75% cruise settings and a 1-AN octane requirement decrease for some of the 65% power conditions. Table 3-12 shows that there were 28.5 engine hours of operation testing on both the AM and MM blends, consuming a total of 507.4 ml of MMT. After the MMT operation, the engine cylinders were borescoped and photographed. The photographs showed a rust-colored powder deposit, believed to be manganese oxides, on the piston face, valve faces, spark plugs, and cylinder barrel walls. This coating was also noted in the exhaust manifold. Table 3-12 also shows that testing of the MMT containing blends was followed by 6.4 hours of testing of the AV and MO blends. After this testing and prior to the octane rating, the cylinder chambers were again borescoped. There was only faint evidence of manganese deposits in the cylinder assemblies and the exhaust manifold. Most of the manganese deposits appeared to have been cleared by the 6.4 hours of testing of the AV and MO blends.

The last column in table 3-13 lists comments concerning the octane test and shows that the post-MMT octane test found only transitional knock, or very light knock, at the knock-free AN levels of the pre-MMT octane test. For instance, at the 75% power setting and 10% lean mixture, the data show that the engine did not knock pre-MMT at 106 AN; however, after the MMT blends, the engine displayed very light knock at 106 AN and knock-free at 107 AN at the same mixture setting. At the 65% full-rich and 5% lean mixture settings, the data show a 1 AN reduction in octane requirement. There was no change in octane requirement at the maximum power or 85% power conditions.

TABLE 3-13. OCTANE REQUIREMENT BEFORE AND AFTER TESTING THE AM AND MM BLENDS CONTAINING MMT

Power Setting	Mixture	Pre-MMT Octane Requirement	Post-MMT Octane Requirement	Octane Requirement Change (Post – Pre)	Comments
TO	F/R	107 AN	107 AN		
85%	F/R	105 AN	105 AN		
75%	F/R	104 AN	105 AN	1 AN	transitional knock
75%	5% lean	105 AN	105 AN		
75%	10% lean	106 AN	107 AN	1 AN	transitional knock
75%	15% lean	107 AN	108 AN	1 AN	transitional knock
75%	20% lean	108 AN	109 AN	1 AN	transitional knock
65%	F/R	104 AN	103 AN	-1 AN	
65%	5% lean	104 AN	103 AN	-1 AN	
65%	10% lean	105 AN	105 AN		
65%	15% lean	106 AN	106 AN		
65%	20% lean	107 AN	107 AN		

F/R = full rich.

It is not clear that manganese deposits are the reason for this increase in octane requirement at the lean cruise conditions. Slight variations of fuel flow from the mixture targets, different environmental conditions, and inherent combustion variability could account for such a slight change in knock levels. It is thought that these results indicate more about the repeatability of full-scale engine knock tests than about manganese cylinder deposits on engine octane requirement.

4. CONCLUSIONS.

The Federal Aviation Administration (FAA) William J. Hughes Technical Center Small-Engine Test Facility evaluated 30 unleaded fuel blends in a full-scale IO540 K engine. The blends consisted of an aviation alkylate base without manganese (AV1-8), an aviation alkylate base with manganese (AM1-7), a motor alkylate base without manganese (MO1-8), and a motor alkylate base with manganese (MM1-7). The engine knock performance of these blends was compared against their individual motor octane number (MON) and performance number (PN), and against the engine knock performances of specially blended 100 low-lead aviation gasoline (100LL), unleaded reference fuels, and leaded reference fuels.

The blends' knock performance were ranked using either the knock-limited brake-specific fuel consumption or knock-limited fuel mass flow rate as the comparator with only slight changes to the relative rankings of the blends noticed with each comparator. Further blend comparison was performed using the knock-limited air-to-fuel ratio.

The engine knock performance trended with the MON of the blend with typical linear correlation coefficients ranging from 0.84 to 0.89 (r-values), depending on power setting and comparator. The engine knock performance trended better with the PN of the blend than with the MON with typical correlation coefficients ranging from 0.85 to 0.94 (r-values), depending on power setting and comparator.

Thirteen of the thirty unleaded blends performed better than the 100LL minimum performance aviation gasoline at the takeoff (TO) power setting. All the blends that performed better than the 100LL had higher MON and PN values than the 100LL. Five of the unleaded blends that had higher MON values than the 100LL performed worse than the 100LL. Nine of the blends that had higher PNs than the 100LL performed worse than the 100LL.

Blends AV1, AV2, AV6, MO1, MO3, MO4, MO5, and MO7 performed worse in the IO540 K engine than their MON or PN would suggest, while blends AM3, AM4, AM7, and MM6 performed better in the IO540 K engine than their MON or PN would suggest.

Blends AV4 and AV7 were the best performers. Blend AV4 did not reach limiting knock at the 85%, 75%, or 65% power settings, and blend AV7 did not reach limiting knock at the TO, 75%, and 65% power settings. Blends AV6, MO5, and AM4 did not reach limiting knock at the 65% power setting.

For all the blends, the maximum power occurred, on average, 98ºF rich of the maximum exhaust gas temperature (EGT). For the blends that reached a peak EGT, the maximum power occurred, on average, 110ºF rich of the maximum EGT. For the blends that developed limiting knock and reached a peak EGT, the knock-limited fuel flow rate occurred, on average, 65ºF lean of the maximum power and 23ºF rich of the peak EGT.

While these tests addressed MON only, eventually the full spectrum of aviation gasoline specifications for 100LL, as listed in ASTM D 910, will have to be addressed. Only blend MO6 met the minimum specification for net heat of combustion for the current 100LL aviation gasoline.

The following conclusions have been drawn from the results of this study:

- The performance of unleaded fuel blends tested can differ significantly from the performance of leaded aviation gasoline components currently used in general aviation. This is seen when comparing the knock performance of a leaded fuel to an unleaded blend having the same MON and PN.

- Using the MON of unleaded fuels, solely, to predict full-scale engine knock performance is inadequate. The PN, when used in conjunction with the MON, is a good predictor of engine knock performance. However, the full-scale engine knock performance of the unleaded fuel blend can deviate significantly from the performance suggested by their MON and PN. This is seen when comparing the performance of two unleaded fuels with the same MON and PN but with widely different components.

- For an unleaded fuel to provide full-scale engine knock performance equal to a leaded aviation gasoline, the unleaded fuel will need a higher MON and PN than the leaded aviation gasoline.

- The addition of MMT, at levels of 0.100 g Mn/gal and less, had a minimal effect on the blend's knock performance.

- This study was inconclusive regarding the effect of manganese-based cylinder chamber deposits, from using of the additive MMT, on the engine octane requirement.

Simple correlations of engine knock performance against individual components proved futile, and advanced statistical analyses will be used by the Coordinating Research Council (CRC) working group in an effort to develop a full-scale engine knock model for these unleaded fuel components. This model can be used to develop more blends for further testing. Also, some of the poor knock-performing blends, such as MM5, MM6, AV1, AM6, MO1, MO2, and MO6, should be eliminated and substituted with different blends that can be tested in the IO540 K engine. Further full-scale knock tests should only be performed with unleaded fuels that have a MON of at least 101 with a PN of at least 153.

As a continuation of the CRC working group effort, the FAA William J. Hughes Technical Center's engine data was supplied to the working group for advanced statistical analyses. The goal was to develop an actual full-scale engine knock performance model based not only on the individual components evaluated in this study but also on the combinatorial and synergistic effects of those same components.

APPENDIX A—LYCOMING IO540 K ENGINE TEST DATA

This appendix contains all the test data from the engine instrumentation listed in table 2-11. The table lists the test number, the barometer at the start of that test, the particular fuel that was tested, the test point, and the engine parameters. For example, table A-1 contains all the data for the isooctane tests at the takeoff (TO) power condition. The remaining tables, A-2 through A-168, contain the data for the other blends at the different power settings tested.

Different test numbers in row 1 indicate that some of the test fuels required more than one test to fully characterize the particular blend's performance.

In each table there will be a test point with a **, or a *** next to the test point letter. The ** indicates the richest mixture test point that exhibited at least light knock. Some of the fuels did not reach limiting or light knock at a particular power setting during mixture leaning. As detailed in section 2, the lowest brake-specific fuel consumption data point was chosen as the comparator, and these points are indicated by *** in the following tables. All the figures and tables in this report were derived from this data.

The knock data corresponding to the engine data can be found in appendix B. Please refer to the List of Acronyms and symbols for an explanation of table symbols.

Note that the cylinder heat temperature (CHTs) and exhaust gas temperature (EGTs) are followed by a number that indicates the cylinder number. For example, CHT1 and EGT1 refer to the CHT and EGT of cylinder number 1.

TABLE A-1. ISOOCTANE ENGINE DATA, TO POWER

Test	T2-45	T2-46	T2-46	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.37	30.37	30.57	30.57	30.57
Fuel	ISO	ISO	ISO	ISO	ISO	ISO
Test Points	P	A	B**	Q	R	S
MAP (in. Hg)	29.98	29.80	29.80	29.99	29.99	29.98
rpm	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	530	525	529	534	535	538
BHP	272	270	272	275	275	277
TCBHP	286	282	284	286	288	289
LCBHP	280	278	280	281	282	283
BMEP (psig)	121.3	119.9	120.6	121.9	122.5	123.1
FF (lbs/hr)	169.7	166.0	163.7	163.3	160.0	153.7
FFG (gal/hr)	29.6	28.9	28.5	28.5	27.9	26.8
% Relative FF	23.1	20.5	18.8	18.5	16.1	11.5
BSFC (lbs/hp hr)	0.62	0.61	0.60	0.60	0.58	0.55
TCBSFC (lbs/hp hr)	0.59	0.59	0.58	0.57	0.56	0.53
LCBSFC (lbs/hp hr)	0.61	0.60	0.59	0.58	0.57	0.54
IAT (°F)	108	104	105	101	103	102
IAP (in. Hg)	30.53	30.35	30.36	30.53	30.54	30.53
Cowl T (°F)	103	105	105	104	104	102
Cowl P (in H_2O)	1.8	2.2	3.4	3.0	4.5	3.4
Fuel T (°F)	75	73	74	77	78	78
Fuel Dens (lbs/gal)	5.74	5.74	5.74	5.73	5.73	5.73
MTDP (psig)	10.3	10.3	9.9	10.0	9.4	8.7
Pump P (psig)	20.3	20.1	20.2	20.4	20.4	20.4
CHT1 (°F)	455	458	461	456	462	452
CHT2 (°F)	440	436	441	437	443	429
CHT3 (°F)	451	449	452	450	455	444
CHT4 (°F)	434	431	435	432	438	426
CHT5 (°F)	474	473	479	473	478	471
CHT6 (°F)	461	458	465	463	468	458
EGT1 (°F)	1348	1338	1359	1359	1385	1402
EGT2 (°F)	1335	1324	1340	1345	1364	1380
EGT3 (°F)	1363	1354	1371	1372	1397	1410
EGT4 (°F)	1340	1333	1349	1351	1375	1388
EGT5 (°F)	1379	1369	1387	1388	1412	1421
EGT6 (°F)	1354	1348	1365	1365	1390	1402
Oil T (°F)	228	240	242	240	241	236
Oil P (psig)	68	65	65	66	65	65
Hum T (°F)	110	105	107	106	105	104
Hum ratio (gr/lb)	1	1	1	1	1	1
AFR	10.1	10.0	10.2	10.3	10.6	11.0
AFL	9.9	9.9	10.1	10.2	10.6	10.9
K airflow (lbs/hr)	1694	1507	1566	1772	1715	1722
A/F	10.0	9.1	9.6	10.8	10.8	11.2

TABLE A-2 ISOOCTANE ENGINE DATA, 85% POWER

Test	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57
Fuel	ISO	ISO	ISO
Test Points	AL	AK**	AJ
MAP (in. Hg)	27.54	27.54	27.52
rpm	2600	2600	2600
TORK (ft-lbs)	472	476	481
BHP	234	236	238
TCBHP	245	246	249
LCBHP	240	242	244
BMEP (psig)	107.9	108.6	109.9
FF (lbs/hr)	142.1	136.3	128.0
FFG (gal/hr)	24.8	23.8	22.3
% Relative FF	20.8	15.8	8.8
BSFC (lbs/hp hr)	0.61	0.58	0.54
TCBSFC (lbs/hp hr)	0.58	0.55	0.51
LCBSFC (lbs/hp hr)	0.59	0.56	0.53
IAT (°F)	104	103	103
IAP (in. Hg)	30.51	30.51	30.53
Cowl T (°F)	105	108	107
Cowl P (in H_2O)	2.1	2.1	2.9
Fuel T (°F)	75	75	74
Fuel Dens (lbs/gal)	5.73	5.73	5.73
MTDP (psig)	7.5	6.9	6.2
Pump P (psig)	20.3	20.5	20.5
CHT1 (°F)	449	449	447
CHT2 (°F)	439	439	437
CHT3 (°F)	444	444	443
CHT4 (°F)	435	434	431
CHT5 (°F)	474	474	473
CHT6 (°F)	456	456	453
EGT1 (°F)	1320	1343	1377
EGT2 (°F)	1309	1329	1362
EGT3 (°F)	1343	1365	1400
EGT4 (°F)	1313	1333	1366
EGT5 (°F)	1342	1364	1396
EGT6 (°F)	1338	1360	1393
Oil T (°F)	239	241	240
Oil P (psig)	64	64	64
Hum T (°F)	105	105	105
Hum ratio (gr/lb)	1	1	1
AFR	10.2	10.6	11.3
AFL	10.1	10.6	11.3
K airflow (lbs/hr)	1388	1399	1396
A/F	9.8	10.3	10.9

TABLE A-3. ISOOCTANE ENGINE DATA, 75% POWER

Test	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05
Fuel	ISO	ISO	ISO
Test Points	S	R**	Q
MAP (in. Hg)	25.90	25.92	25.90
rpm	2450	2450	2450
TORK (ft-lbs)	440	445	445
BHP	205	208	208
TCBHP	214	217	217
LCBHP	213	215	216
BMEP (psig)	100.6	101.8	102.1
FF (lbs/hr)	119.8	114.3	108.5
FFG (gal/hr)	20.9	20.0	19.0
% Relative FF	15.3	10.0	4.4
BSFC (lbs/hp hr)	0.58	0.55	0.52
TCBSFC (lbs/hp hr)	0.56	0.53	0.50
LCBSFC (lbs/hp hr)	0.56	0.53	0.50
IAT (°F)	102	103	102
IAP (in. Hg)	30.07	30.06	30.08
Cowl T (°F)	101	98	99
Cowl P (in H_2O)	1.6	3.4	2.2
Fuel T (°F)	80	81	80
Fuel Dens (lbs/gal)	5.71	5.71	5.72
MTDP (psig)	5.4	4.9	4.5
Pump P (psig)	20.0	20.1	20.1
CHT1 (°F)	445	445	445
CHT2 (°F)	437	436	436
CHT3 (°F)	441	442	441
CHT4 (°F)	438	436	436
CHT5 (°F)	473	475	475
CHT6 (°F)	451	450	449
EGT1 (°F)	1314	1341	1371
EGT2 (°F)	1307	1333	1365
EGT3 (°F)	1331	1360	1390
EGT4 (°F)	1312	1341	1370
EGT5 (°F)	1332	1359	1384
EGT6 (°F)	1339	1367	1394
Oil T (°F)	241	241	242
Oil P (psig)	62	62	62
Hum T (°F)	103	103	103
Hum ratio (gr/lb)	0	1	1
AFR	10.6	11.2	11.7
AFL	10.5	11.1	11.6
K airflow (lbs/hr)	1280	1273	1275
A/F	10.7	11.1	11.8

TABLE A-4. ISOOCTANE ENGINE DATA, 65% POWER

Test	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05
Fuel	ISO	ISO	ISO
Test Points	AK	AJ**	AI
MAP (in. Hg)	24.06	24.04	24.05
rpm	2350	2350	2350
TORK (ft-lbs)	398	399	403
BHP	178	179	181
TCBHP	186	186	188
LCBHP	185	185	187
BMEP (psig)	90.8	91.2	92.1
FF (lbs/hr)	101.6	96.3	91.5
FFG (gal/hr)	17.8	16.9	16.1
% Relative FF	11.3	5.5	0.2
BSFC (lbs/hp hr)	0.57	0.54	0.51
TCBSFC (lbs/hp hr)	0.55	0.52	0.49
LCBSFC (lbs/hp hr)	0.55	0.52	0.49
IAT (°F)	102	102	102
IAP (in. Hg)	30.09	30.08	30.08
Cowl T (°F)	106	106	105
Cowl P (in H_2O)	1.4	2.8	1.6
Fuel T (°F)	85	85	84
Fuel Dens (lbs/gal)	5.70	5.70	5.70
MTDP (psig)	3.9	3.7	3.3
Pump P (psig)	20.1	20.1	20.0
CHT1 (°F)	444	445	439
CHT2 (°F)	440	440	436
CHT3 (°F)	444	444	439
CHT4 (°F)	434	435	430
CHT5 (°F)	474	474	469
CHT6 (°F)	452	452	447
EGT1 (°F)	1313	1354	1375
EGT2 (°F)	1318	1356	1379
EGT3 (°F)	1336	1373	1397
EGT4 (°F)	1320	1357	1382
EGT5 (°F)	1332	1370	1394
EGT6 (°F)	1345	1380	1403
Oil T (°F)	242	242	242
Oil P (psig)	61	61	61
Hum T (°F)	103	103	103
Hum ratio (gr/lb)	0	0	0
AFR	11.0	11.4	12.0
AFL	10.8	11.3	11.9
K airflow (lbs/hr)	1128	1121	1121
A/F	11.1	11.7	12.3

TABLE A-5. 101 AN ENGINE DATA, TO POWER

Test	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57
Fuel	101 AN	101 AN	101 AN
Test Points	O	M**	N
MAP (in. Hg)	29.99	29.98	29.98
rpm	2700	2700	2700
TORK (ft-lbs)	531	535	539
BHP	273	275	278
TCBHP	286	288	290
LCBHP	280	282	284
BMEP (psig)	121.4	122.0	123.4
FF (lbs/hr)	164.6	159.1	151.4
FFG (gal/hr)	28.6	27.7	26.4
% Relative FF	19.4	15.5	9.9
BSFC (lbs/hp hr)	0.60	0.58	0.54
TCBSFC (lbs/hp hr)	0.58	0.55	0.52
LCBSFC (lbs/hp hr)	0.59	0.56	0.53
IAT (°F)	103	105	103
IAP (in. Hg)	30.54	30.54	30.53
Cowl T (°F)	104	101	100
Cowl P (in H_2O)	2.6	2.7	3.8
Fuel T (°F)	78	78	77
Fuel Dens (lbs/gal)	5.74	5.75	5.75
MTDP (psig)	9.9	9.4	8.5
Pump P (psig)	20.3	20.4	20.4
CHT1 (°F)	457	457	458
CHT2 (°F)	438	437	436
CHT3 (°F)	450	449	450
CHT4 (°F)	434	434	434
CHT5 (°F)	473	473	474
CHT6 (°F)	461	461	461
EGT1 (°F)	1364	1386	1421
EGT2 (°F)	1347	1366	1397
EGT3 (°F)	1378	1398	1431
EGT4 (°F)	1354	1373	1404
EGT5 (°F)	1392	1412	1440
EGT6 (°F)	1368	1391	1421
Oil T (°F)	238	239	239
Oil P (psig)	65	65	65
Hum T (°F)	105	108	106
Hum ratio (gr/lb)	1	1	1
AFR	10.3	10.6	11.1
AFL	10.2	10.5	11.1
K airflow (lbs/hr)	1760	1752	1762
A/F	10.7	11.0	11.6

TABLE A-6. 101 AN ENGINE DATA, 85% POWER

Test	T2-45	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57	30.57
Fuel	101 AN	101 AN	101 AN	101 AN
Test Points	AI	AH**	AG	AF
MAP (in. Hg)	27.52	27.50	27.53	27.51
rpm	2600	2600	2600	2600
TORK (ft-lbs)	475	477	481	482
BHP	235	237	239	239
TCBHP	246	247	249	249
LCBHP	241	242	244	244
BMEP (psig)	108.6	109.1	110.0	110.1
FF (lbs/hr)	135.2	129.9	123.3	118.0
FFG (gal/hr)	23.6	22.6	21.5	20.6
% Relative FF	14.9	10.3	4.8	0.3
BSFC (lbs/hp hr)	0.57	0.55	0.52	0.49
TCBSFC (lbs/hp hr)	0.55	0.53	0.50	0.47
LCBSFC (lbs/hp hr)	0.56	0.54	0.51	0.48
IAT (°F)	102	104	103	104
IAP (in. Hg)	30.53	30.50	30.51	30.51
Cowl T (°F)	105	104	103	103
Cowl P (in H_2O)	2.3	2.7	3.0	3.2
Fuel T (°F)	78	77	78	77
Fuel Dens (lbs/gal)	5.74	5.74	5.74	5.74
MTDP (psig)	6.8	6.3	5.8	5.3
Pump P (psig)	20.5	20.5	20.6	20.6
CHT1 (°F)	450	449	451	449
CHT2 (°F)	441	439	440	440
CHT3 (°F)	446	444	445	445
CHT4 (°F)	435	433	434	433
CHT5 (°F)	474	473	476	476
CHT6 (°F)	457	455	458	455
EGT1 (°F)	1349	1375	1406	1431
EGT2 (°F)	1335	1361	1393	1416
EGT3 (°F)	1372	1398	1430	1454
EGT4 (°F)	1339	1362	1396	1422
EGT5 (°F)	1371	1397	1424	1444
EGT6 (°F)	1363	1390	1421	1447
Oil T (°F)	240	240	240	240
Oil P (psig)	64	64	64	64
Hum T (°F)	105	105	105	106
Hum ratio (gr/lb)	1	1	1	1
AFR	10.7	11.2	11.6	12.1
AFL	10.7	11.1	11.6	12.1
K airflow (lbs/hr)	1407	1384	1390	1385
A/F	10.4	10.7	11.3	11.7

TABLE A-7. 101 AN ENGINE DATA, 75% POWER

Test	T2-48	T2-48	T2-48	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05	30.05	30.05	30.05
Fuel	101 AN	101 AN	101 AN	101 AN	101 AN	101 AN
Test Points	O	P	M	N**	L	K
MAP (in. Hg)	25.91	25.91	25.92	25.93	25.91	25.90
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	444	444	447	446	448	448
BHP	207	207	208	208	209	209
TCBHP	216	216	217	217	218	218
LCBHP	215	215	216	216	217	217
BMEP (psig)	101.4	101.5	102.1	101.8	102.4	102.6
FF (lbs/hr)	114.4	114.2	109.1	109.0	103.6	98.6
FFG (gal/hr)	20.0	20.0	19.1	19.0	18.1	17.2
% Relative FF	10.1	9.9	5.0	4.9	-0.3	-5.1
BSFC (lbs/hp hr)	0.55	0.55	0.52	0.52	0.49	0.47
TCBSFC (lbs/hp hr)	0.53	0.53	0.50	0.50	0.47	0.45
LCBSFC (lbs/hp hr)	0.53	0.53	0.50	0.50	0.48	0.45
IAT (°F)	103	103	103	102	103	103
IAP (in. Hg)	30.06	30.05	30.05	30.06	30.06	30.07
Cowl T (°F)	104	109	105	105	106	105
Cowl P (in H_2O)	1.8	2.1	2.4	3.0	3.3	3.1
Fuel T (°F)	83	83	83	83	83	81
Fuel Dens (lbs/gal)	5.73	5.72	5.72	5.73	5.73	5.73
MTDP (psig)	5.0	4.9	4.5	4.6	4.2	3.8
Pump P (psig)	20.1	20.1	20.1	20.1	20.1	20.2
CHT1 (°F)	442	441	443	448	444	443
CHT2 (°F)	433	433	434	438	433	436
CHT3 (°F)	438	438	441	443	440	440
CHT4 (°F)	434	433	435	440	434	433
CHT5 (°F)	468	469	471	475	475	474
CHT6 (°F)	448	447	449	454	450	449
EGT1 (°F)	1338	1339	1371	1371	1398	1432
EGT2 (°F)	1329	1330	1361	1362	1391	1423
EGT3 (°F)	1355	1357	1389	1389	1417	1448
EGT4 (°F)	1335	1334	1367	1366	1395	1430
EGT5 (°F)	1355	1356	1387	1387	1411	1435
EGT6 (°F)	1361	1361	1393	1392	1418	1449
Oil T (°F)	242	242	242	242	242	242
Oil P (psig)	62	62	62	62	62	62
Hum T (°F)	103	103	103	103	103	104
Hum ratio (gr/lb)	0	0	0	0	0	0
AFR	11.1	11.2	11.6	11.5	12.0	12.7
AFL	11.0	11.1	11.6	11.5	12.0	12.6
K airflow (lbs/hr)	1290	1281	1281	1284	1284	1281
A/F	11.3	11.2	11.8	11.8	12.4	13.0

TABLE A-8. 101 AN ENGINE DATA, 65% POWER

Test	T2-48	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05	30.05
Fuel	101 AN	101 AN	101 AN	101 AN
Test Points	AG	AF	AE**	AH
MAP (in. Hg)	24.05	24.03	24.02	24.00
rpm	235O	2350	2350	2350
TORK (ft-lbs)	397	399	401	400
BHP	178	179	179	179
TCBHP	185	187	187	187
LCBHP	184	185	186	186
BMEP (psig)	90.7	91.3	91.3	91.7
FF (lbs/hr)	104.0	93.5	93.0	84.3
FFG (gal/hr)	18.2	16.4	16.3	14.8
% Relative FF	13.9	2.4	1.9	-7.7
BSFC (lbs/hp hr)	0.6	0.5	0.5	0.5
TCBSFC (lbs/hp hr)	0.56	0.50	0.50	0.45
LCBSFC (lbs/hp hr)	0.56	0.51	0.50	0.45
IAT (°F)	102.00	102.00	102.00	102.00
IAP (in. Hg)	30	30	30	30
Cowl T (°F)	104.67	109.50	103.00	100.75
Cowl P (in H_2O)	2.0	1.0	2.0	3.0
Fuel T (°F)	87.0	88.0	89.0	87.0
Fuel Dens (lbs/gal)	6	6	6	6
MTDP (psig)	4.00	3.40	3.13	2.93
Pump P (psig)	20.0	20.0	20.0	20.0
CHT1 (°F)	442.0	443.0	441.3	445.0
CHT2 (°F)	439	440	439	442
CHT3 (°F)	442	443	442	445
CHT4 (°F)	433	434	433	435
CHT5 (°F)	472	474	473	476
CHT6 (°F)	450	451	450	453
EGT1 (°F)	1314	1360	1392	1419
EGT2 (°F)	1317	1359	1392	1416
EGT3 (°F)	1336	1380	1411	1437
EGT4 (°F)	1318	1363	1394	1419
EGT5 (°F)	1335	1379	1411	1434
EGT6 (°F)	1343	1387	1420	1442
Oil T (°F)	241	241	240	242
Oil P (psig)	61	61	61	61
Hum T (°F)	103	103	103	103
Hum ratio (gr/lb)	0	0	0	0
AFR	11	12	12	13
AFL	10.8	11.6	12.1	12.7
K airflow (lbs/hr)	1122.3	1116.5	1114.0	1108.8
A/F	11	12	12	13

TABLE A-9. 102 AN ENGINE DATA, TO POWER

Test	T2-45	T2-45	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57	30.57	30.57
Fuel	102 AN	102 AN	102 AN	102 AN	102 AN
Test Points	J	K	I**	H	L
MAP (in. Hg)	29.98	29.98	29.98	29.98	29.98
rpm	2700	2700	2700	2700	2700
TORK (ft-lbs)	532	533	535	540	542
BHP	274	275	275	277	279
TCBHP	286	287	288	290	291
LCBHP	280	281	282	284	285
BMEP (psig)	121.4	121.8	122.6	123.5	123.8
FF (lbs/hr)	165.5	164.3	158.0	151.7	144.7
FFG (gal/hr)	28.7	28.5	27.4	26.3	25.2
% Relative FF	20.1	19.2	14.7	10.1	5.0
BSFC (lbs/hp hr)	0.61	0.60	0.57	0.55	0.52
TCBSFC (lbs/hp hr)	0.58	0.57	0.55	0.52	0.50
LCBSFC (lbs/hp hr)	0.59	0.59	0.56	0.53	0.51
IAT (°F)	103	103	103	103	103
IAP (in. Hg)	30.53	30.54	30.55	30.54	30.53
Cowl T (°F)	106	107	107	105	105
Cowl P (in H_2O)	2.6	2.7	4.3	3.0	4.2
Fuel T (°F)	77	77	76	76	79
Fuel Dens (lbs/gal)	5.77	5.77	5.76	5.77	5.75
MTDP (psig)	10.1	9.8	9.4	8.7	7.9
Pump P (psig)	20.4	20.4	20.4	20.5	20.5
CHT1 (°F)	455	456	459	458	457
CHT2 (°F)	434	436	440	438	436
CHT3 (°F)	446	448	452	450	450
CHT4 (°F)	431	433	438	435	434
CHT5 (°F)	470	472	476	474	476
CHT6 (°F)	458	459	463	461	461
EGT1 (°F)	1359	1367	1389	1413	1453
EGT2 (°F)	1340	1347	1365	1391	1424
EGT3 (°F)	1370	1378	1402	1426	1459
EGT4 (°F)	1346	1354	1374	1399	1432
EGT5 (°F)	1384	1389	1411	1438	1465
EGT6 (°F)	1363	1370	1394	1418	1452
Oil T (°F)	238	238	235	241	239
Oil P (psig)	65	65	65	65	65
Hum T (°F)	105	105	106	104	105
Hum ratio (gr/lb)	1	1	1	1	1
AFR	10.2	10.3	10.6	11.0	11.6
AFL	10.1	10.2	10.5	11.0	11.5
K airflow (lbs/hr)	1759	1755	1749	1727	1747
A/F	10.6	10.7	11.1	11.4	12.1

TABLE A-10. 102 AN ENGINE DATA, 85% POWER

Test	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57
Fuel	102 AN	102 AN	102 AN
Test Points	AE	AD**	AC
MAP (in. Hg)	27.53	27.56	27.55
rpm	2600	2600	2600
TORK (ft-lbs)	477	480	483
BHP	236	238	239
TCBHP	247	249	250
LCBHP	242	244	245
BMEP (psig)	108.9	109.8	110.4
FF (lbs/hr)	130.0	123.5	116.7
FFG (gal/hr)	22.6	21.5	20.2
% Relative FF	10.5	4.9	-0.8
BSFC (lbs/hp hr)	0.55	0.52	0.49
TCBSFC (lbs/hp hr)	0.53	0.50	0.47
LCBSFC (lbs/hp hr)	0.54	0.51	0.48
IAT (°F)	104	103	102
IAP (in. Hg)	30.52	30.53	30.51
Cowl T (°F)	109	108	110
Cowl P (in H_2O)	2.1	2.9	3.2
Fuel T (°F)	77	78	77
Fuel Dens (lbs/gal)	5.76	5.76	5.76
MTDP (psig)	6.3	5.8	5.2
Pump P (psig)	20.5	20.6	20.6
CHT1 (°F)	451	454	453
CHT2 (°F)	443	442	441
CHT3 (°F)	446	446	447
CHT4 (°F)	437	436	435
CHT5 (°F)	474	474	476
CHT6 (°F)	459	459	458
EGT1 (°F)	1379	1412	1446
EGT2 (°F)	1363	1396	1433
EGT3 (°F)	1401	1434	1470
EGT4 (°F)	1368	1400	1438
EGT5 (°F)	1400	1433	1466
EGT6 (°F)	1395	1429	1464
Oil T (°F)	240	240	240
Oil P (psig)	64	64	64
Hum T (°F)	105	105	105
Hum ratio (gr/lb)	1	1	1
AFR	11.1	11.7	12.3
AFL	11.1	11.6	12.3
K airflow (lbs/hr)	1399	1413	1405
A/F	10.8	11.4	12.0

TABLE A-11. 102 AN ENGINE DATA, 75% POWER

Test	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05
Fuel	102 AN	102 AN	102 AN
Test Points	J	H**	I
MAP (in. Hg)	25.88	25.89	25.90
rpm	2450	2450	2450
TORK (ft-lbs)	444	447	447
BHP	207	209	209
TCBHP	216	218	218
LCBHP	215	216	216
BMEP (psig)	101.5	102.1	102.3
FF (lbs/hr)	109.2	103.9	99.1
FFG (gal/hr)	19.0	18.1	17.3
% Relative FF	5.1	0.0	-4.6
BSFC (lbs/hp hr)	0.53	0.50	0.48
TCBSFC (lbs/hp hr)	0.51	0.48	0.46
LCBSFC (lbs/hp hr)	0.51	0.48	0.46
IAT (°F)	102	102	102
IAP (in. Hg)	30.05	30.05	30.05
Cowl T (°F)	104	106	106
Cowl P (in H_2O)	2.1	2.1	2.9
Fuel T (°F)	84	81	84
Fuel Dens (lbs/gal)	5.74	5.75	5.75
MTDP (psig)	4.5	4.2	3.8
Pump P (psig)	20.1	20.2	20.2
CHT1 (°F)	443	445	445
CHT2 (°F)	436	439	437
CHT3 (°F)	441	444	442
CHT4 (°F)	434	436	435
CHT5 (°F)	474	476	475
CHT6 (°F)	449	451	450
EGT1 (°F)	1371	1397	1428
EGT2 (°F)	1360	1388	1415
EGT3 (°F)	1388	1413	1443
EGT4 (°F)	1366	1392	1422
EGT5 (°F)	1389	1414	1439
EGT6 (°F)	1392	1418	1447
Oil T (°F)	242	241	242
Oil P (psig)	62	62	62
Hum T (°F)	103	103	103
Hum ratio (gr/lb)	0	1	0
AFR	11.5	12.0	12.6
AFL	11.5	12.0	12.6
K airflow (lbs/hr)	1269	1267	1264
A/F	11.6	12.2	12.7

TABLE A-12. 102 AN ENGINE DATA, 65% POWER

Test	T2-48	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05	30.05
Fuel	102 AN	102 AN	102 AN	102 AN
Test Points	AL	AB	AC**	AD
MAP (in. Hg)	24.05	24.00	24.06	24.04
rpm	2350	2350	2350	2350
TORK (ft-lbs)	400	400	402	401
BHP	179	179	180	180
TCBHP	187	187	188	188
LCBHP	186	185	187	186
BMEP (psig)	91.3	91.4	92.2	91.8
FF (lbs/hr)	95.4	92.0	87.0	82.0
FFG (gal/hr)	16.7	16.0	15.2	14.3
% Relative FF	4.5	0.8	-4.7	-10.2
BSFC (lbs/hp hr)	0.53	0.51	0.48	0.46
TCBSFC (lbs/hp hr)	0.51	0.49	0.46	0.44
LCBSFC (lbs/hp hr)	0.52	0.50	0.47	0.44
IAT (°F)	102	102	102	102
IAP (in. Hg)	30.08	30.07	30.08	30.08
Cowl T (°F)	105	101	103	103
Cowl P (in H_2O)	2.0	2.0	3.0	2.1
Fuel T (°F)	86	86	88	89
Fuel Dens (lbs/gal)	5.73	5.73	5.72	5.72
MTDP (psig)	3.5	3.3	2.9	2.6
Pump P (psig)	20.1	20.0	20.1	20.1
CHT1 (°F)	443	444	445	443
CHT2 (°F)	441	441	443	441
CHT3 (°F)	444	443	445	443
CHT4 (°F)	437	434	438	435
CHT5 (°F)	474	473	476	474
CHT6 (°F)	453	451	452	450
EGT1 (°F)	1361	1374	1429	1451
EGT2 (°F)	1360	1377	1430	1452
EGT3 (°F)	1378	1397	1452	1472
EGT4 (°F)	1363	1378	1432	1455
EGT5 (°F)	1377	1396	1447	1468
EGT6 (°F)	1391	1405	1456	1478
Oil T (°F)	242	242	242	241
Oil P (psig)	61	61	61	61
Hum T (°F)	103	102	102	102
Hum ratio (gr/lb)	0	0	1	0
AFR	11.5	11.9	12.9	13.4
AFL	11.4	11.8	12.8	13.3
K airflow (lbs/hr)	1122	1117	1103	1108
A/F	11.8	12.1	12.7	13.5

TABLE A-13. 103 AN ENGINE DATA, TO POWER

Test	T2-45	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57	30.57
Fuel	AN3	AN3	AN3	AN3
Test Points	G	F**	E	D
MAP (in. Hg)	29.97	29.98	30.00	29.97
rpm	2700	2700	2700	2700
TORK (ft-lbs)	538	540	541	542
BHP	277	278	278	279
TCBHP	289	290	292	293
LCBHP	283	284	285	287
BMEP (psig)	122.9	123.4	124.1	123.7
FF (lbs/hr)	159.3	153.0	147.0	136.3
FFG (gal/hr)	27.6	26.4	25.5	23.6
% Relative FF	15.6	11.0	6.7	-1.1
BSFC (lbs/hp hr)	0.58	0.55	0.53	0.49
TCBSFC (lbs/hp hr)	0.55	0.53	0.51	0.46
LCBSFC (lbs/hp hr)	0.56	0.54	0.52	0.47
IAT (°F)	103	104	107	108
IAP (in. Hg)	30.53	30.53	30.55	30.53
Cowl T (°F)	104	102	104	104
Cowl P (in H_2O)	2.8	3.2	3.6	5.1
Fuel T (°F)	77	78	78	79
Fuel Dens (lbs/gal)	5.79	5.78	5.78	5.78
MTDP (psig)	9.0	8.6	7.8	7.1
Pump P (psig)	20.4	20.5	20.5	20.5
CHT1 (°F)	456	454	458	457
CHT2 (°F)	436	432	437	439
CHT3 (°F)	447	445	449	451
CHT4 (°F)	432	430	435	434
CHT5 (°F)	472	470	474	479
CHT6 (°F)	460	456	460	460
EGT1 (°F)	1400	1417	1446	1479
EGT2 (°F)	1378	1394	1426	1454
EGT3 (°F)	1411	1426	1463	1491
EGT4 (°F)	1386	1401	1433	1463
EGT5 (°F)	1423	1437	1471	1496
EGT6 (°F)	1405	1420	1453	1483
Oil T (°F)	238	241	238	241
Oil P (psig)	65	65	65	65
Hum T (°F)	107	108	111	108
Hum ratio (gr/lb)	1	1	1	1
AFR	10.8	11.1	11.6	12.1
AFL	10.7	11.0	11.6	12.1
K airflow (lbs/hr)	1765	1723	1727	1579
A/F	11.1	11.3	11.7	11.6

TABLE A-14. 103 AN ENGINE DATA, 85% POWER

Test	T2-45	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57	30.57
Fuel	AN3	AN3	AN3	AN3
Test Points	AB	AA**	Y	Z
MAP (in. Hg)	27.55	27.57	27.54	27.54
rpm	2600	2600	2600	2600
TORK (ft-lbs)	480	480	485	483
BHP	238	238	240	239
TCBHP	249	249	251	250
LCBHP	244	243	246	245
BMEP (psig)	109.6	109.8	110.5	110.6
FF (lbs/hr)	129.0	122.3	117.0	110.7
FFG (gal/hr)	22.3	21.2	20.2	19.1
% Relative FF	9.6	3.9	-0.6	-6.0
BSFC (lbs/hp hr)	0.54	0.51	0.49	0.46
TCBSFC (lbs/hp hr)	0.52	0.49	0.47	0.44
LCBSFC (lbs/hp hr)	0.53	0.50	0.48	0.45
IAT (°F)	103	104	103	103
IAP (in. Hg)	30.53	30.54	30.54	30.52
Cowl T (°F)	109	108	105	106
Cowl P (in H_2O)	3.5	3.6	3.2	2.5
Fuel T (°F)	78	78	77	78
Fuel Dens (lbs/gal)	5.78	5.78	5.78	5.78
MTDP (psig)	6.3	5.6	5.2	4.7
Pump P (psig)	20.5	20.6	20.5	20.6
CHT1 (°F)	449	453	451	452
CHT2 (°F)	439	445	438	441
CHT3 (°F)	445	449	444	446
CHT4 (°F)	436	440	430	436
CHT5 (°F)	471	477	470	475
CHT6 (°F)	456	462	453	456
EGT1 (°F)	1384	1421	1448	1486
EGT2 (°F)	1368	1406	1432	1470
EGT3 (°F)	1405	1444	1471	1507
EGT4 (°F)	1372	1408	1434	1473
EGT5 (°F)	1404	1442	1468	1502
EGT6 (°F)	1398	1436	1466	1500
Oil T (°F)	240	240	240	240
Oil P (psig)	64	64	64	64
Hum T (°F)	105	106	105	106
Hum ratio (gr/lb)	1	1	1	1
AFR	11.3	11.8	12.3	13.0
AFL	11.2	11.8	12.3	13.0
K airflow (lbs/hr)	1413	1400	1399	1403
A/F	11.0	11.5	12.0	12.7

TABLE A-15. 103 AN ENGINE DATA, 75% POWER

Test	T2-48	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05	30.05
Fuel	103 AN	103 AN	103 AN	103 AN
Test Points	G	D	E**	F
MAP (in. Hg)	25.92	25.91	25.91	25.90
rpm	2450	2450	2450	2450
TORK (ft-lbs)	444	446	446	446
BHP	207	208	208	208
TCBHP	217	217	218	217
LCBHP	215	216	216	216
BMEP (psig)	101.6	101.8	102.1	102.0
FF (lbs/hr)	109.2	104.3	99.0	93.6
FFG (gal/hr)	18.9	18.1	17.2	16.2
% Relative FF	5.1	0.4	-4.7	-10.0
BSFC (lbs/hp hr)	0.53	0.50	0.48	0.45
TCBSFC (lbs/hp hr)	0.50	0.48	0.46	0.43
LCBSFC (lbs/hp hr)	0.51	0.48	0.46	0.43
IAT (°F)	104	104	103	102
IAP (in. Hg)	30.07	30.04	30.05	30.05
Cowl T (°F)	105	103	100	101
Cowl P (in H_2O)	1.7	2.6	2.9	3.2
Fuel T (°F)	83	82	83	84
Fuel Dens (lbs/gal)	5.76	5.76	5.76	5.76
MTDP (psig)	4.5	4.1	3.8	3.4
Pump P (psig)	20.1	20.1	20.1	20.2
CHT1 (°F)	445	445	446	447
CHT2 (°F)	439	437	436	440
CHT3 (°F)	444	444	444	447
CHT4 (°F)	437	435	436	439
CHT5 (°F)	473	475	476	476
CHT6 (°F)	452	452	451	453
EGT1 (°F)	1377	1403	1438	1483
EGT2 (°F)	1365	1392	1426	1468
EGT3 (°F)	1393	1418	1453	1498
EGT4 (°F)	1371	1397	1430	1476
EGT5 (°F)	1394	1425	1457	1500
EGT6 (°F)	1399	1423	1458	1503
Oil T (°F)	243	240	242	242
Oil P (psig)	62	62	62	62
Hum T (°F)	104	106	105	103
Hum ratio (gr/lb)	0	0	0	1
AFR	11.5	12.0	12.6	13.4
AFL	11.5	12.0	12.6	13.3
K airflow (lbs/hr)	1268	1228	1258	1259
A/F	11.6	11.8	12.7	13.5

TABLE A-16. 103 AN ENGINE DATA, 65% POWER

Test	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05
Fuel	103 AN	103 AN	103 AN
Test Points	Y	Z**	AA
MAP (in. Hg)	24.09	24.04	24.02
rpm	2350	2350	2350
TORK (ft-lbs)	402	401	401
BHP	180	180	180
TCBHP	188	187	187
LCBHP	187	186	186
BMEP (psig)	91.9	91.6	91.6
FF (lbs/hr)	89.3	84.0	82.0
FFG (gal/hr)	15.5	14.6	14.3
% Relative FF	-2.2	-8.0	-10.2
BSFC (lbs/hp hr)	0.49	0.47	0.46
TCBSFC (lbs/hp hr)	0.47	0.45	0.44
LCBSFC (lbs/hp hr)	0.48	0.45	0.44
IAT (°F)	102.00	102.00	102.00
IAP (in. Hg)	30	30	30
Cowl T (°F)	104.00	107.50	105.50
Cowl P (in H_2O)	2	2	3
Fuel T (°F)	86.0	86.0	86.0
Fuel Dens (lbs/gal)	6	6	6
MTDP (psig)	3.07	2.78	2.65
Pump P (psig)	20.0	20.1	20.1
CHT1 (°F)	446.0	446.3	446.5
CHT2 (°F)	441	443	445
CHT3 (°F)	443	445	446
CHT4 (°F)	435	437	438
CHT5 (°F)	472	475	477
CHT6 (°F)	451	452	452
EGT1 (°F)	1407	1434	1468
EGT2 (°F)	1408	1436	1467
EGT3 (°F)	1427	1457	1487
EGT4 (°F)	1410	1438	1469
EGT5 (°F)	1427	1454	1485
EGT6 (°F)	1437	1465	1493
Oil T (°F)	239	242	242
Oil P (psig)	61	61	61
Hum T (°F)	103	103	103
Hum ratio (gr/lb)	0	1	0
AFR	12	13	14
AFL	12.3	12.9	13.4
K airflow (lbs/hr)	1114.3	1106.5	1112.8
A/F	13	13	14

TABLE A-17. 104 AN ENGINE DATA, TO POWER

Test	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57
Fuel	104 AN	104 AN	104 AN
Test Points	A	B**	C
MAP (in. Hg)	29.99	29.99	30.01
rpm	2700	2700	2700
TORK (ft-lbs)	537	543	547
BHP	276	279	282
TCBHP	289	292	294
LCBHP	283	286	288
BMEP (psig)	122.5	124.4	125.0
FF (lbs/hr)	152.3	147.0	135.0
FFG (gal/hr)	26.3	25.4	23.3
% Relative FF	10.5	6.7	-2.0
BSFC (lbs/hp hr)	0.55	0.53	0.48
TCBSFC (lbs/hp hr)	0.53	0.50	0.46
LCBSFC (lbs/hp hr)	0.54	0.51	0.47
IAT (°F)	106	104	102
IAP (in. Hg)	30.54	30.54	30.56
Cowl T (°F)	106	106	104
Cowl P (in H_2O)	2.0	4.5	4.0
Fuel T (°F)	81	80	78
Fuel Dens (lbs/gal)	5.78	5.79	5.80
MTDP (psig)	8.6	7.8	6.9
Pump P (psig)	20.4	20.5	20.5
CHT1 (°F)	458	461	458
CHT2 (°F)	437	441	437
CHT3 (°F)	449	455	450
CHT4 (°F)	435	440	434
CHT5 (°F)	472	477	476
CHT6 (°F)	459	463	459
EGT1 (°F)	1408	1457	1501
EGT2 (°F)	1390	1432	1478
EGT3 (°F)	1425	1472	1516
EGT4 (°F)	1399	1441	1486
EGT5 (°F)	1436	1479	1523
EGT6 (°F)	1418	1462	1506
Oil T (°F)	240	242	238
Oil P (psig)	65	65	67
Hum T (°F)	108	106	104
Hum ratio (gr/lb)	0	1	1
AFR	11.0	11.6	12.4
AFL	10.9	11.6	12.4
K airflow (lbs/hr)	1633	1592	1592
A/F	10.7	10.8	11.8

TABLE A-18. 104 AN ENGINE DATA, 85% POWER

Test	T2-45	T2-45	T2-45	T2-45	T2-45
Barometer (in. Hg)	30.57	30.57	30.57	30.57	30.57
Fuel	104 AN	104 AN	104 AN	104 AN	104 AN
Test Points	X	W	T**	U	V
MAP (in. Hg)	27.58	27.60	27.57	27.60	27.55
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	478	482	483	484	481
BHP	237	239	239	240	238
TCBHP	248	249	250	250	249
LCBHP	243	244	245	245	244
BMEP (psig)	109.3	110.2	110.4	110.6	110.2
FF (lbs/hr)	129.7	123.9	117.7	111.4	106.2
FFG (gal/hr)	22.4	21.4	20.3	19.2	18.3
% Relative FF	10.2	5.3	0.0	-5.3	-9.8
BSFC (lbs/hp hr)	0.55	0.52	0.49	0.47	0.44
TCBSFC (lbs/hp hr)	0.52	0.50	0.47	0.45	0.43
LCBSFC (lbs/hp hr)	0.53	0.51	0.48	0.46	0.43
IAT (°F)	106	103	104	103	104
IAP (in. Hg)	30.53	30.53	30.53	30.53	30.54
Cowl T (°F)	103	100	102	103	104
Cowl P (in H_2O)	2.6	2.6	2.7	3.2	3.4
Fuel T (°F)	77	80	78	80	81
Fuel Dens (lbs/gal)	5.79	5.78	5.80	5.79	5.78
MTDP (psig)	6.2	5.7	5.2	4.7	4.3
Pump P (psig)	20.5	20.5	20.5	20.5	20.6
CHT1 (°F)	449	454	451	454	451
CHT2 (°F)	441	443	442	441	440
CHT3 (°F)	446	449	448	448	445
CHT4 (°F)	434	437	434	434	431
CHT5 (°F)	473	475	474	474	472
CHT6 (°F)	456	458	458	455	450
EGT1 (°F)	1384	1424	1451	1494	1524
EGT2 (°F)	1367	1407	1433	1476	1504
EGT3 (°F)	1405	1447	1473	1515	1543
EGT4 (°F)	1370	1410	1437	1480	1506
EGT5 (°F)	1405	1444	1470	1512	1535
EGT6 (°F)	1397	1438	1466	1510	1536
Oil T (°F)	240	239	239	240	240
Oil P (psig)	64	64	64	64	64
Hum T (°F)	106	105	105	104	106
Hum ratio (gr/lb)	1	1	1	1	1
AFR	11.2	11.7	12.2	12.9	13.5
AFL	11.2	11.7	12.2	13.0	13.6
K airflow (lbs/hr)	1372	1416	1398	1399	1404
A/F	10.6	11.4	11.9	12.6	13.2

TABLE A-19. 104 AN ENGINE DATA, 75% POWER

Test	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05
Fuel	104 AN	104 AN	104 AN
Test Points	A**	B	C
MAP (in. Hg)	25.90	25.90	25.89
rpm	2450	2450	2450
TORK (ft-lbs)	445	445	445
BHP	208	208	208
TCBHP	217	217	217
LCBHP	216	216	216
BMEP (psig)	101.6	101.6	101.7
FF (lbs/hr)	104.0	98.6	93.5
FFG (gal/hr)	18.0	17.1	16.2
% Relative FF	0.1	-5.1	-10.0
BSFC (lbs/hp hr)	0.50	0.48	0.45
TCBSFC (lbs/hp hr)	0.48	0.45	0.43
LCBSFC (lbs/hp hr)	0.48	0.46	0.43
IAT (°F)	105	106	105
IAP (in. Hg)	30.05	30.05	30.05
Cowl T (°F)	107	109	110
Cowl P (in H_2O)	2.6	2.3	3.0
Fuel T (°F)	80	84	81
Fuel Dens (lbs/gal)	5.79	5.78	5.79
MTDP (psig)	4.1	3.7	3.4
Pump P (psig)	20.1	20.1	20.2
CHT1 (°F)	446	450	443
CHT2 (°F)	437	439	439
CHT3 (°F)	445	446	444
CHT4 (°F)	435	437	436
CHT5 (°F)	475	477	476
CHT6 (°F)	451	452	450
EGT1 (°F)	1410	1443	1474
EGT2 (°F)	1399	1431	1460
EGT3 (°F)	1424	1459	1491
EGT4 (°F)	1402	1436	1468
EGT5 (°F)	1426	1459	1493
EGT6 (°F)	1428	1464	1493
Oil T (°F)	241	239	240
Oil P (psig)	62	62	62
Hum T (°F)	107	108	108
Hum ratio (gr/lb)	1	0	1
AFR	12.1	12.7	13.4
AFL	12.1	12.6	13.4
K airflow (lbs/hr)	1167	1178	1208
A/F	11.2	11.9	12.9

TABLE A-20. 104 AN ENGINE DATA, 65% POWER

Test	T2-48	T2-48	T2-48	T2-48	T2-48
Barometer (in. Hg)	30.05	30.05	30.05	30.05	30.05
Fuel	104 AN	104 AN	104 AN	104 AN	104 AN
Test Points	T	U	V**	W	X
MAP (in. Hg)	24.04	23.99	24.05	24.00	24.03
rpm	2350	2350	2350	2350	2350
TORK (ft-lbs)	401	401	402	400	398
BHP	180	179	180	179	178
TCBHP	187	187	188	187	186
LCBHP	186	186	187	186	185
BMEP (psig)	91.6	91.5	91.9	91.4	90.9
FF (lbs/hr)	89.0	84.7	83.7	81.0	77.3
FFG (gal/hr)	15.4	14.7	14.5	14.1	13.4
% Relative FF	-2.5	-7.3	-8.4	-11.3	-15.3
BSFC (lbs/hp hr)	0.5	0.5	0.5	0.5	0.4
TCBSFC (lbs/hp hr)	0.48	0.45	0.45	0.43	0.42
LCBSFC (lbs/hp hr)	0.48	0.46	0.45	0.44	0.42
IAT (°F)	102.00	102.00	102.00	102.00	102.00
IAP (in. Hg)	30	30	30	30	30
Cowl T (°F)	99.00	103.67	105.67	108.00	102.00
Cowl P (in H_2O)	2	2	3	3	2
Fuel T (°F)	83.0	86.0	88.3	91.0	87.3
Fuel Dens (lbs/gal)	6	6	6	6	6
MTDP (psig)	3.13	2.73	2.67	2.70	2.33
Pump P (psig)	20.1	20.1	20.1	20.0	20.1
CHT1 (°F)	448.3	448.3	449.3	447.0	449.0
CHT2 (°F)	439	441	440	433	446
CHT3 (°F)	443	445	445	442	448
CHT4 (°F)	436	437	439	436	441
CHT5 (°F)	473	476	475	474	477
CHT6 (°F)	452	451	452	448	453
EGT1 (°F)	1399	1441	1461	1455	1507
EGT2 (°F)	1398	1439	1456	1451	1504
EGT3 (°F)	1422	1463	1479	1475	1530
EGT4 (°F)	1402	1441	1458	1453	1510
EGT5 (°F)	1422	1460	1477	1467	1519
EGT6 (°F)	1430	1467	1486	1478	1532
Oil T (°F)	238	240	241	241	240
Oil P (psig)	62	61	61	61	61
Hum T (°F)	103	103	103	103	103
Hum ratio (gr/lb)	0	0	0	0	0
AFR	12	13	13	13	14
AFL	12.1	12.9	13.2	13.2	14.2
K airflow (lbs/hr)	1106.7	1089.7	1098.7	1106.7	1102.3
A/F	12	13	13	14	14

TABLE A-21. 105 AN ENGINE DATA, TO POWER

Test	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57
Fuel	AN5	AN5	AN5	AN5
Test Points	X	W**	U	V
MAP (in. Hg)	30.05	30.06	30.06	30.05
rpm	2700	2700	2700	2700
TORK (ft-lbs)	543	546	548	548
BHP	280	281	282	282
TCBHP	292	294	295	295
LCBHP	285	287	288	288
BMEP (psig)	124.1	124.8	124.9	125.2
FF (lbs/hr)	152.7	144.7	138.3	132.0
FFG (gal/hr)	26.4	25.0	23.9	22.9
% Relative FF	10.8	5.0	0.4	-4.2
BSFC (lbs/hp hr)	0.55	0.52	0.49	0.47
TCBSFC (lbs/hp hr)	0.53	0.49	0.47	0.45
LCBSFC (lbs/hp hr)	0.54	0.50	0.48	0.46
IAT (°F)	103	103	103	103
IAP (in. Hg)	30.60	30.61	30.61	30.59
Cowl T (°F)	106	108	104	107
Cowl P (in H_2O)	3.0	3.8	5.0	4.1
Fuel T (°F)	85	85	85	85
Fuel Dens (lbs/gal)	5.78	5.79	5.79	5.78
MTDP (psig)	8.6	7.7	7.2	6.3
Pump P (psig)	20.5	20.5	20.6	20.6
CHT1 (°F)	455	455	453	456
CHT2 (°F)	430	429	430	431
CHT3 (°F)	448	448	447	449
CHT4 (°F)	431	431	431	433
CHT5 (°F)	474	474	475	475
CHT6 (°F)	454	454	453	454
EGT1 (°F)	1425	1466	1495	1535
EGT2 (°F)	1405	1441	1469	1512
EGT3 (°F)	1434	1476	1507	1551
EGT4 (°F)	1408	1447	1478	1522
EGT5 (°F)	1442	1483	1515	1555
EGT6 (°F)	1427	1469	1499	1543
Oil T (°F)	240	242	241	245
Oil P (psig)	65	65	65	65
Hum T (°F)	105	105	105	104
Hum ratio (gr/lb)	1	0	1	0
AFR	11.1	11.7	12.2	13.1
AFL	11.1	11.7	12.2	13.2
K airflow (lbs/hr)	1814	1800	1777	1775
A/F	11.9	12.5	12.9	13.5

TABLE A-22. 105 AN ENGINE DATA, 85% POWER

Test	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57
Fuel	105 AN	105 AN	105 AN	105 AN
Test Points	AB	Y**	Z	AA
MAP (in. Hg)	27.60	27.55	27.61	27.61
rpm	2600	2600	2600	2600
TORK (ft-lbs)	481	483	485	482
BHP	238	240	240	239
TCBHP	249	250	251	249
LCBHP	243	244	245	244
BMEP (psig)	110.2	110.5	110.6	110.4
FF (lbs/hr)	123.5	116.3	111.4	107.2
FFG (gal/hr)	21.4	20.1	19.3	18.5
% Relative FF	5.0	-1.2	-5.3	-8.9
BSFC (lbs/hp hr)	0.52	0.49	0.46	0.45
TCBSFC (lbs/hp hr)	0.50	0.47	0.44	0.43
LCBSFC (lbs/hp hr)	0.51	0.48	0.45	0.44
IAT (°F)	103	102	103	103
IAP (in. Hg)	30.62	30.62	30.61	30.60
Cowl T (°F)	113	103	105	108
Cowl P (in H_2O)	2.9	2.8	3.6	3.7
Fuel T (°F)	86	83	86	87
Fuel Dens (lbs/gal)	5.78	5.80	5.79	5.78
MTDP (psig)	5.7	5.1	4.7	4.4
Pump P (psig)	20.5	20.5	20.5	20.5
CHT1 (°F)	451	453	454	456
CHT2 (°F)	433	437	435	436
CHT3 (°F)	445	449	448	450
CHT4 (°F)	430	432	433	436
CHT5 (°F)	471	477	476	477
CHT6 (°F)	451	451	452	453
EGT1 (°F)	1421	1463	1492	1521
EGT2 (°F)	1406	1447	1478	1505
EGT3 (°F)	1444	1487	1514	1542
EGT4 (°F)	1406	1449	1477	1505
EGT5 (°F)	1442	1484	1512	1540
EGT6 (°F)	1435	1478	1504	1533
Oil T (°F)	241	242	242	242
Oil P (psig)	64	64	64	64
Hum T (°F)	104	104	104	104
Hum ratio (gr/lb)	0	1	0	0
AFR	11.7	12.4	13.0	13.4
AFL	11.7	12.4	13.0	13.5
K airflow (lbs/hr)	1422	1413	1408	1409
A/F	11.5	12.2	12.7	13.2

TABLE A-23. 105 AN ENGINE DATA, 75% POWER

Test	T2-47	T2-47	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05	30.05	30.05
Fuel	105 AN	105 AN	105 AN	105 AN	105 AN	105 AN
Test Points	D	H**	L	P	T	X
MAP (in. Hg)	25.81	25.80	25.80	25.80	25.81	25.79
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	443	443	441	427	406	360
BHP	207	207	206	199	190	168
TCBHP	217	216	215	208	198	175
LCBHP	216	215	214	207	197	175
BMEP (psig)	101	101	101	97	93	82
FF (lbs/hr)	97.8	93.1	88.9	82.9	78.5	72.3
FFG (gal/hr)	17.0	16.1	15.4	14.4	13.6	12.6
% Relative FF	-5.8	-10.4	-14.5	-20.2	-24.5	-30.4
BSFC (lbs/hp hr)	0.47	0.45	0.43	0.42	0.41	0.43
TCBSFC (lbs/hp hr)	0.45	0.43	0.41	0.40	0.40	0.41
LCBSFC (lbs/hp hr)	0.45	0.43	0.42	0.40	0.40	0.41
IAT (°F)	105	103	102	103	103	102
IAP (in. Hg)	30.00	30.00	29.99	29.99	30.00	30.00
Cowl T (°F)	101	105	103	105	107	99
Cowl P (in H_2O)	2.8	2.7	2.9	3.2	2.4	1.8
Fuel T (°F)	88	89	90	91	92	93
Fuel Dens (lbs/gal)	5.77	5.77	5.77	5.77	5.76	5.76
MTDP (psig)	3.7	3.3	3.1	2.7	2.4	2.0
Pump P (psig)	20.1	20.1	20.1	20.1	20.1	20.2
CHT1 (°F)	444	443	442	445	444	446
CHT2 (°F)	435	435	435	438	445	449
CHT3 (°F)	443	443	442	444	446	443
CHT4 (°F)	436	437	436	438	445	443
CHT5 (°F)	475	475	475	476	476	474
CHT6 (°F)	449	448	445	442	437	433
EGT1 (°F)	1444	1485	1522	1560	1537	1509
EGT2 (°F)	1434	1474	1507	1548	1535	1500
EGT3 (°F)	1461	1501	1537	1585	1566	1526
EGT4 (°F)	1437	1479	1513	1562	1556	1506
EGT5 (°F)	1461	1500	1532	1565	1542	1502
EGT6 (°F)	1466	1507	1539	1557	1531	1503
Oil T (°F)	242	241	242	242	242	241
Oil P (psig)	62	62	62	62	62	63
Hum T (°F)	106	104	103	103	104	103
Hum ratio (gr/lb)	0	0	0	0	1	1
AFR	12.8	13.5	14.1	15.0	16.0	17.6
AFL	12.7	13.5	14.1	15.1	16.1	17.8
K airflow (lbs/hr)	1263	1292	1300	1298	1295	1287
A/F	12.9	13.9	14.6	15.7	16.5	17.8

TABLE A-24. 105 AN ENGINE DATA, 65% POWER

Test	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05
Fuel	AN5	AN5	AN5	AN5
Test Points	AL	AE	AH	AK
MAP (in. Hg)	24.00	24.05	24.07	24.09
rpm	2350	2350	2350	2350
TORK (ft-lbs)	402	398	395	380
BHP	180	178	177	170
TCBHP	188	186	184	178
LCBHP	189	185	184	177
BMEP (psig)	92	91	90	87
FF (lbs/hr)	87.7	79.7	73.7	72.0
FFG (gal/hr)	15.1	13.8	12.8	12.5
% Relative FF	-4.0	-12.7	-19.3	-21.1
BSFC (lbs/hp hr)	0.49	0.45	0.42	0.42
TCBSFC (lbs/hp hr)	0.47	0.43	0.40	0.41
LCBSFC (lbs/hp hr)	0.46	0.43	0.40	0.41
IAT (°F)	103	102	103	104
IAP (in. Hg)	29.74	29.98	29.97	29.98
Cowl T (°F)	106	101	105	104
Cowl P (in H_2O)	1.9	2.2	2.7	2.2
Fuel T (°F)	86	88	91	91
Fuel Dens (lbs/gal)	5.78	5.77	5.76	5.76
MTDP (psig)	2.8	2.4	2.3	2.0
Pump P (psig)	19.9	20.1	20.0	20.1
CHT1 (°F)	445	449	446	444
CHT2 (°F)	440	442	439	441
CHT3 (°F)	444	448	445	444
CHT4 (°F)	433	439	435	435
CHT5 (°F)	475	477	476	476
CHT6 (°F)	449	452	442	438
EGT1 (°F)	1430	1489	1520	1546
EGT2 (°F)	1424	1482	1516	1548
EGT3 (°F)	1448	1506	1548	1565
EGT4 (°F)	1426	1487	1524	1554
EGT5 (°F)	1444	1500	1535	1553
EGT6 (°F)	1452	1510	1542	1527
Oil T (°F)	237	241	241	242
Oil P (psig)	62	62	61	62
Hum T (°F)	106	103	103	103
Hum ratio (gr/lb)	0	0	0	1
AFR	12.8	14.1	14.5	15.5
AFL	12.7	14.0	14.4	15.5
K airflow (lbs/hr)	1083	1108	1119	1114
A/F	12.4	13.9	15.2	15.5

TABLE A-25. 106 AN ENGINE DATA, TO POWER

Test	T2-44	T2-44	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57	30.57	30.57
Fuel	AN6	AN6	AN6	AN6	AN6	AN6
Test Points	T	S	O	Q	P	R
MAP (in. Hg)	30.03	30.05	30.03	30.01	30.05	30.06
rpm	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	540	547	548	543	546	546
BHP	278	282	282	280	281	281
TCBHP	290	294	294	292	293	293
LCBHP	284	288	288	286	287	286
BMEP (psig)	123.4	125.0	125.0	123.9	125.2	124.1
FF (lbs/hr)	154.3	143.0	136.3	128.5	125.7	121.7
FFG (gal/hr)	26.6	24.7	23.5	22.2	21.7	21.0
% Relative FF	12.0	3.8	-1.1	-6.7	-8.8	-11.7
BSFC (lbs/hp hr)	0.56	0.51	0.48	0.46	0.45	0.43
TCBSFC (lbs/hp hr)	0.53	0.49	0.46	0.44	0.43	0.42
LCBSFC (lbs/hp hr)	0.54	0.50	0.47	0.45	0.44	0.43
IAT (°F)	104	103	102	104	103	103
IAP (in. Hg)	30.59	30.59	30.57	30.56	30.59	30.60
Cowl T (°F)	103	107	109	104	108	107
Cowl P (in H_2O)	2.7	3.0	3.7	4.3	5.1	5.1
Fuel T (°F)	86	87	85	88	87	88
Fuel Dens (lbs/gal)	5.80	5.80	5.80	5.79	5.79	5.79
MTDP (psig)	8.6	7.4	6.8	5.9	6.3	5.7
Pump P (psig)	20.5	20.6	20.6	20.6	20.6	20.6
CHT1 (°F)	454	455	453	454	455	455
CHT2 (°F)	430	430	435	432	435	432
CHT3 (°F)	447	448	448	448	449	448
CHT4 (°F)	430	433	433	432	433	434
CHT5 (°F)	472	473	474	475	475	476
CHT6 (°F)	454	454	454	453	455	452
EGT1 (°F)	1427	1485	1513	1567	1542	1578
EGT2 (°F)	1403	1459	1484	1537	1518	1547
EGT3 (°F)	1437	1495	1520	1580	1555	1592
EGT4 (°F)	1408	1464	1491	1548	1524	1557
EGT5 (°F)	1444	1500	1533	1588	1559	1598
EGT6 (°F)	1426	1486	1515	1571	1545	1583
Oil T (°F)	241	239	242	240	242	241
Oil P (psig)	65	65	65	65	65	65
Hum T (°F)	105	105	105	105	105	105
Hum ratio (gr/lb)	1	0	1	0	0	0
AFR	11.1	12.0	12.4	13.6	13.1	13.8
AFL	11.0	12.0	12.4	13.6	13.1	14.0
K airflow (lbs/hr)	1793	1796	1778	1732	1739	1770
A/F	11.6	12.6	13.1	13.5	13.9	14.5

TABLE A-26. 106 AN ENGINE DATA, 85% POWER

Test	T2-50	T2-50	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.38	30.38	30.57	30.57	30.57	30.57
Fuel	106 AN	106 AN	106 AN	106 AN	106 AN	106 AN
Test Points	F	E	AC**	AD	AE	AF
MAP (in. Hg)	27.36	27.31	27.61	27.61	27.60	27.61
rpm	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	471	473	484	485	482	474
BHP	234	235	240	240	239	235
TCBHP	244	245	251	251	249	245
LCBHP	240	241	245	245	244	240
BMEP (psig)	107.8	108.4	110.5	110.7	110.2	108.5
FF (lbs/hr)	128.7	122.0	118.0	111.9	105.7	99.0
FFG (gal/hr)	22.3	21.2	20.3	19.3	18.2	17.1
% Relative FF	9.3	3.7	0.3	-4.9	-10.2	-15.9
BSFC (lbs/hp hr)	0.55	0.52	0.49	0.47	0.44	0.42
TCBSFC (lbs/hp hr)	0.53	0.50	0.47	0.45	0.42	0.40
LCBSFC (lbs/hp hr)	0.54	0.51	0.48	0.46	0.43	0.41
IAT (°F)	104	104	104	102	103	103
IAP (in. Hg)	30.41	30.40	30.61	30.61	30.60	30.62
Cowl T (°F)	103	101	108	111	105	99
Cowl P (in H_2O)	2.7	2.9	2.7	3.2	2.9	3.4
Fuel T (°F)	93	93	85	87	87	86
Fuel Dens (lbs/gal)	5.76	5.76	5.81	5.80	5.80	5.80
MTDP (psig)	6.2	5.6	5.3	4.8	4.3	3.8
Pump P (psig)	20.1	20.1	20.5	20.5	20.5	20.6
CHT1 (°F)	452	457	453	453	454	451
CHT2 (°F)	440	446	436	435	437	434
CHT3 (°F)	450	454	447	447	448	444
CHT4 (°F)	439	445	432	434	435	432
CHT5 (°F)	471	475	473	473	474	472
CHT6 (°F)	449	452	452	454	454	450
EGT1 (°F)	1383	1418	1459	1494	1530	1579
EGT2 (°F)	1363	1402	1446	1479	1510	1557
EGT3 (°F)	1406	1444	1482	1515	1549	1600
EGT4 (°F)	1366	1405	1443	1478	1513	1563
EGT5 (°F)	1406	1443	1481	1514	1549	1593
EGT6 (°F)	1398	1440	1473	1507	1542	1589
Oil T (°F)	237	239	242	241	242	241
Oil P (psig)	65	65	64	64	64	64
Hum T (°F)	105	106	105	105	104	104
Hum ratio (gr/lb)	0	0	0	0	0	0
AFR	11.2	11.8	12.2	12.9	13.6	14.6
AFL	11.3	11.8	12.3	13.0	13.7	14.7
K airflow (lbs/hr)	1521	1514	1411	1437	1426	1414
A/F	11.8	12.4	12.0	12.9	13.5	14.3

TABLE A-27. 106 AN ENGINE DATA, 75% POWER

Test	T2-47	T2-47	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05	30.05	30.05
Fuel	106 AN	106 AN	106 AN	106 AN	106 AN	106 AN
Test Points	C	G**	K	O	S	W
MAP (in. Hg)	25.79	25.79	25.81	25.82	25.79	25.81
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	442	442	439	429	398	362
BHP	206	206	205	200	186	169
TCBHP	216	216	214	209	194	177
LCBHP	215	215	213	208	193	176
BMEP (psig)	101	101	100	98	91	82
FF (lbs/hr)	98.1	92.9	88.3	83.3	77.3	71.8
FFG (gal/hr)	16.9	16.1	15.2	14.4	13.4	12.5
% Relative FF	-5.6	-10.6	-15.1	-19.9	-25.6	-30.9
BSFC (lbs/hp hr)	0.47	0.45	0.43	0.42	0.42	0.43
TCBSFC (lbs/hp hr)	0.45	0.43	0.41	0.40	0.40	0.41
LCBSFC (lbs/hp hr)	0.46	0.43	0.41	0.40	0.40	0.41
IAT (°F)	104	103	104	103	104	103
IAP (in. Hg)	29.98	29.98	30.00	30.00	29.99	30.01
Cowl T (°F)	103	103	101	107	106	101
Cowl P (in H_2O)	2.5	2.7	2.9	2.8	2.3	1.7
Fuel T (°F)	88	89	90	91	92	93
Fuel Dens (lbs/gal)	5.79	5.79	5.79	5.78	5.78	5.77
MTDP (psig)	3.7	3.3	3.0	2.7	2.4	2.1
Pump P (psig)	20.1	20.1	20.2	20.2	20.2	20.2
CHT1 (°F)	443	443	442	444	442	446
CHT2 (°F)	434	435	435	437	443	449
CHT3 (°F)	442	443	443	444	444	443
CHT4 (°F)	434	435	436	438	443	444
CHT5 (°F)	475	475	475	475	473	474
CHT6 (°F)	448	447	445	441	435	434
EGT1 (°F)	1445	1484	1531	1560	1534	1511
EGT2 (°F)	1434	1472	1515	1545	1528	1503
EGT3 (°F)	1462	1500	1545	1582	1558	1528
EGT4 (°F)	1438	1477	1521	1558	1545	1512
EGT5 (°F)	1462	1499	1540	1567	1534	1505
EGT6 (°F)	1465	1506	1548	1560	1525	1506
Oil T (°F)	238	241	241	242	242	242
Oil P (psig)	63	62	62	62	62	63
Hum T (°F)	106	104	103	103	103	103
Hum ratio (gr/lb)	0	0	0	0	1	1
AFR	12.8	13.5	14.2	15.0	16.2	17.5
AFL	12.7	13.4	14.2	15.0	16.3	17.7
K airflow (lbs/hr)	1254	1281	1287	1297	1269	1288
A/F	12.8	13.8	14.6	15.6	16.4	17.9

TABLE A-28. 106 AN ENGINE DATA, 65% POWER

Test	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05
Fuel	106 AN	106 AN	106 AN	106 AN
Test Points	AD	AG**	AJ	AM
MAP (in. Hg)	24.06	24.04	24.06	24.02
rpm	2350	2350	2350	2350
TORK (ft-lbs)	401	393	383	364
BHP	179	176	171	163
TCBHP	187	184	179	170
LCBHP	186	183	178	171
BMEP (psig)	91	90	88	83
FF (lbs/hr)	81.3	76.6	73.1	68.1
FFG (gal/hr)	14.0	13.2	12.6	11.7
% Relative FF	-11.0	-16.1	-20.0	-25.4
BSFC (lbs/hp hr)	0.45	0.43	0.43	0.42
TCBSFC (lbs/hp hr)	0.43	0.41	0.41	0.40
LCBSFC (lbs/hp hr)	0.44	0.42	0.41	0.40
IAT (°F)	102	103	103	102
IAP (in. Hg)	30.00	29.98	29.97	29.75
Cowl T (°F)	97	104	101	107
Cowl P (in H_2O)	2.3	2.5	2.2	1.7
Fuel T (°F)	88	91	89	85
Fuel Dens (lbs/gal)	5.79	5.78	5.79	5.81
MTDP (psig)	2.6	2.3	2.1	1.9
Pump P (psig)	20.1	20.1	20.1	20.0
CHT1 (°F)	447	448	443	440
CHT2 (°F)	442	442	440	443
CHT3 (°F)	447	448	443	443
CHT4 (°F)	438	438	433	436
CHT5 (°F)	477	477	474	474
CHT6 (°F)	450	447	437	442
EGT1 (°F)	1478	1522	1544	1518
EGT2 (°F)	1472	1517	1543	1525
EGT3 (°F)	1497	1549	1567	1543
EGT4 (°F)	1475	1529	1551	1528
EGT5 (°F)	1491	1539	1554	1526
EGT6 (°F)	1502	1545	1530	1508
Oil T (°F)	241	242	242	238
Oil P (psig)	61	61	61	62
Hum T (°F)	103	103	103	105
Hum ratio (gr/lb)	0	0	0	0
AFR	13.6	14.5	15.2	16.1
AFL	13.5	14.5	15.2	16.2
K airflow (lbs/hr)	1107	1108	1118	1107
A/F	13.6	14.5	15.4	16.2

TABLE A-29. 107 AN ENGINE DATA, TO POWER

Test	T2-44	T2-44	T2-50	T2-44	T2-50	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.38	30.57	30.38	30.57	30.57	30.57
Fuel	AN7	AN7	AN7	AN7	AN7	AN7	AN7	AN7
Test Points	AS	J	C**	K	D	M	L	N
MAP (in. Hg)	30.07	30.02	29.84	30.02	29.83	30.04	30.02	30.01
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	549	546	541	543	538	541	542	538
BHP	283	281	278	279	277	279	279	277
TCBHP	295	293	291	293	289	291	291	289
LCBHP	288	286	286	286	285	284	285	283
BMEP (psig)	125.0	124.7	123.5	124.5	123.1	123.5	123.1	123.2
FF (lbs/hr)	147.0	139.7	131.0	130.0	123.7	122.0	121.3	118.7
FFG (gal/hr)	25.2	24.0	22.6	22.3	21.4	21.0	20.9	20.4
% Relative FF	6.8	1.4	-4.9	-5.7	-10.3	-11.5	-11.9	-13.9
BSFC (lbs/hp hr)	0.52	0.50	0.47	0.5	0.45	0.44	0.43	0.43
TCBSFC (lbs/hp hr)	0.50	0.48	0.45	0.44	0.43	0.42	0.42	0.41
LCBSFC (lbs/hp hr)	0.51	0.49	0.46	0.45	0.44	0.43	0.42	0.42
IAT (°F)	103	102	104	107.00	105	103	103	102
IAP (in. Hg)	30.64	30.58	30.40	31	30.39	30.58	30.56	30.56
Cowl T (°F)	100	102	105	103.00	106	107	101	109
Cowl P (in H_2O)	5.3	3.1	3.9	3	4.5	5.2	3.9	5.7
Fuel T (°F)	78	85	88	85.0	92	85	85	86
Fuel Dens (lbs/gal)	5.85	5.82	5.80	6	5.79	5.82	5.82	5.82
MTDP (psig)	8.2	7.1	6.6	6.40	5.9	5.5	5.5	5.4
Pump P (psig)	20.6	20.6	20.3	20.5	20.3	20.7	20.6	20.6
CHT1 (°F)	455	456	467	452.0	458	457	455	457
CHT2 (°F)	439	433	448	429	435	437	431	443
CHT3 (°F)	450	447	461	443	452	449	444	451
CHT4 (°F)	436	434	447	430	440	436	431	442
CHT5 (°F)	477	473	481	470	476	476	472	478
CHT6 (°F)	459	455	461	452	452	454	448	454
EGT1 (°F)	1456	1496	1517	1532	1548	1594	1590	1614
EGT2 (°F)	1425	1470	1488	1504	1524	1561	1557	1580
EGT3 (°F)	1460	1508	1531	1546	1568	1608	1603	1629
EGT4 (°F)	1432	1476	1497	1514	1533	1572	1567	1595
EGT5 (°F)	1473	1516	1539	1549	1571	1608	1607	1631
EGT6 (°F)	1456	1502	1523	1537	1561	1605	1597	1629
Oil T (°F)	242	241	240	237	238	244	240	241
Oil P (psig)	65	65	66	65	66	65	66	65
Hum T (°F)	105	104	105	106	106	105	105	104
Hum ratio (gr/lb)	0	1	0	0	0	0	0	0
AFR	11.5	12.1	12.6	13	13.5	14.1	14.0	14.3
AFL	11.5	12.1	12.7	12.8	13.5	14.2	14.1	14.4
K airflow (lbs/hr)	1758	1748	1713	1653.0	1731	1769	1726	1762
A/F	12.0	12.5	13.1	13	14.0	14.5	14.2	14.9

TABLE A-30. 107 AN ENGINE DATA, 85% POWER

Test	T2-44	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57	30.57
Fuel	107 AN	107 AN	107 AN	107 AN	107 AN
Test Points	AT	AG**	AH	AI	AJ
MAP (in. Hg)	27.59	27.61	27.60	27.61	27.64
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	489	485	485	474	454
BHP	242	240	240	235	225
TCBHP	253	251	251	246	235
LCBHP	247	245	245	240	230
BMEP (psig)	111.5	110.9	110.9	108.5	103.9
FF (lbs/hr)	117.6	111.7	106.7	100.6	93.2
FFG (gal/hr)	20.1	19.2	18.3	17.2	16.0
% Relative FF	-0.1	-5.1	-9.4	-14.5	-20.8
BSFC (lbs/hp hr)	0.49	0.47	0.45	0.43	0.41
TCBSFC (lbs/hp hr)	0.47	0.45	0.43	0.41	0.40
LCBSFC (lbs/hp hr)	0.48	0.46	0.44	0.42	0.40
IAT (°F)	103	104	102	104	103
IAP (in. Hg)	30.56	30.60	30.62	30.62	30.63
Cowl T (°F)	102	106	108	108	107
Cowl P (in H_2O)	3.2	3.2	2.9	2.6	3.2
Fuel T (°F)	80	83	82	82	84
Fuel Dens (lbs/gal)	5.84	5.83	5.83	5.84	5.83
MTDP (psig)	5.2	4.8	4.4	3.9	3.4
Pump P (psig)	20.6	20.5	20.6	20.6	20.6
CHT1 (°F)	452	454	449	455	452
CHT2 (°F)	439	443	434	445	446
CHT3 (°F)	447	449	442	450	449
CHT4 (°F)	432	436	430	440	444
CHT5 (°F)	475	475	468	476	472
CHT6 (°F)	456	454	447	455	449
EGT1 (°F)	1457	1496	1527	1573	1586
EGT2 (°F)	1441	1479	1507	1554	1576
EGT3 (°F)	1480	1522	1551	1597	1612
EGT4 (°F)	1447	1486	1514	1561	1604
EGT5 (°F)	1480	1520	1548	1591	1588
EGT6 (°F)	1475	1514	1543	1586	1589
Oil T (°F)	227	242	241	241	242
Oil P (psig)	66	64	64	64	64
Hum T (°F)	102	105	104	105	105
Hum ratio (gr/lb)	0	0	0	0	0
AFR	12.4	12.9	13.6	14.3	15.6
AFL	12.3	13.0	13.7	14.5	15.8
K airflow (lbs/hr)	1369	1424	1451	1425	1451
A/F	11.7	12.8	13.6	14.2	15.6

TABLE A-31. 107 AN ENGINE DATA, 75% POWER

Test	T2-47	T2-47	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05	30.05	30.05
Fuel	107 AN	107 AN	107 AN	107 AN	107 AN	107 AN
Test Points	B	F	I**	N	R	V
MAP (in. Hg)	25.79	25.79	25.80	25.82	25.80	25.80
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	443	442	440	426	402	366
BHP	207	206	206	199	188	171
TCBHP	216	216	214	208	196	178
LCBHP	215	215	214	207	195	178
BMEP (psig)	101	101	101	97	92	84
FF (lbs/hr)	99.0	93.2	89.8	83.3	78.4	72.7
FFG (gal/hr)	17.0	16.0	15.5	14.4	13.5	12.5
% Relative FF	-4.7	-10.3	-13.6	-19.8	-24.5	-30.0
BSFC (lbs/hp hr)	0.48	0.45	0.44	0.42	0.42	0.43
TCBSFC (lbs/hp hr)	0.46	0.43	0.42	0.40	0.40	0.41
LCBSFC (lbs/hp hr)	0.46	0.43	0.42	0.40	0.40	0.41
IAT (°F)	105	103	102	103	103	102
IAP (in. Hg)	29.99	29.99	29.99	29.99	29.99	30.00
Cowl T (°F)	105	102	103	105	104	105
Cowl P (in H_2O)	2.8	2.4	2.8	2.8	2.3	1.8
Fuel T (°F)	87	89	90	91	91	92
Fuel Dens (lbs/gal)	5.81	5.81	5.80	5.80	5.80	5.79
MTDP (psig)	3.8	3.3	3.1	2.7	2.4	2.1
Pump P (psig)	20.1	20.1	20.1	20.1	20.1	20.2
CHT1 (°F)	443	443	442	443	446	445
CHT2 (°F)	435	435	435	438	445	446
CHT3 (°F)	443	443	442	445	448	444
CHT4 (°F)	435	436	435	439	446	444
CHT5 (°F)	476	476	473	475	478	474
CHT6 (°F)	449	448	445	440	441	436
EGT1 (°F)	1439	1487	1519	1566	1537	1514
EGT2 (°F)	1429	1472	1505	1553	1532	1505
EGT3 (°F)	1456	1501	1535	1590	1563	1534
EGT4 (°F)	1433	1478	1511	1570	1549	1516
EGT5 (°F)	1454	1501	1531	1571	1538	1511
EGT6 (°F)	1462	1506	1540	1559	1529	1509
Oil T (°F)	238	242	242	241	242	242
Oil P (psig)	62	62	62	62	62	62
Hum T (°F)	107	104	103	103	103	103
Hum ratio (gr/lb)	0	0	0	0	1	1
AFR	12.6	13.5	14.0	15.0	16.1	17.3
AFL	12.6	13.5	14.1	15.0	16.2	17.5
K airflow (lbs/hr)	1248	1282	1300	1287	1291	1287
A/F	12.6	13.8	14.5	15.5	16.5	17.7

TABLE A-32. 107 AN ENGINE DATA, 65% POWER

Test	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05
Fuel	107 AN	107 AN	107 AN	107 AN
Test Points	AC	AF	AI**	AN
MAP (in. Hg)	24.08	24.07	24.07	24.03
rpm	2350	2350	2350	2350
TORK (ft-lbs)	401	395	386	376
BHP	180	177	173	169
TCBHP	187	185	181	176
LCBHP	187	184	180	176
BMEP (psig)	92	90	88	86
FF (lbs/hr)	83.2	76.7	72.3	70.0
FFG (gal/hr)	14.3	13.2	12.4	12.1
% Relative FF	-8.9	-16.0	-20.8	-23.3
BSFC (lbs/hp hr)	0.46	0.43	0.42	0.42
TCBSFC (lbs/hp hr)	0.44	0.41	0.40	0.40
LCBSFC (lbs/hp hr)	0.45	0.42	0.40	0.40
IAT (°F)	102	103	103	103
IAP (in. Hg)	29.98	29.99	29.98	29.76
Cowl T (°F)	100	102	106	107
Cowl P (in H_2O)	2.0	2.2	2.2	1.8
Fuel T (°F)	87	89	87	90
Fuel Dens (lbs/gal)	5.81	5.80	5.81	5.80
MTDP (psig)	2.7	2.3	2.1	2.0
Pump P (psig)	20.0	20.1	20.1	20.0
CHT1 (°F)	447	447	445	444
CHT2 (°F)	442	441	443	444
CHT3 (°F)	447	447	445	445
CHT4 (°F)	438	437	437	437
CHT5 (°F)	476	477	476	475
CHT6 (°F)	453	449	443	439
EGT1 (°F)	1462	1516	1547	1541
EGT2 (°F)	1458	1509	1544	1544
EGT3 (°F)	1482	1539	1570	1563
EGT4 (°F)	1460	1519	1555	1550
EGT5 (°F)	1479	1530	1558	1551
EGT6 (°F)	1487	1539	1538	1523
Oil T (°F)	242	242	242	239
Oil P (psig)	61	61	61	62
Hum T (°F)	102	103	103	104
Hum ratio (gr/lb)	1	0	0	0
AFR	13.3	14.4	15.0	15.6
AFL	13.3	14.3	15.0	15.6
K airflow (lbs/hr)	1094	1108	1115	1100
A/F	13.2	14.5	15.4	15.7

TABLE A-33. 108 AN ENGINE DATA, TO POWER

Test	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57
Fuel	108 AN	108 AN	108 AN	108 AN
Test Points	B	G	H**	I
MAP (in. Hg)	30.03	30.03	30.03	30.03
rpm	2700	2700	2700	2700
TORK (ft-lbs)	548	549	546	532
BHP	282	283	281	274
TCBHP	295	295	292	285
LCBHP	289	288	286	279
BMEP (psig)	124.6	125.3	124.8	122.0
FF (lbs/hr)	137.6	131.0	125.7	117.4
FFG (gal/hr)	23.4	22.3	21.5	20.0
% Relative FF	-0.1	-4.9	-8.8	-14.8
BSFC (lbs/hp hr)	0.49	0.47	0.45	0.43
TCBSFC (lbs/hp hr)	0.47	0.45	0.43	0.41
LCBSFC (lbs/hp hr)	0.48	0.46	0.44	0.42
IAT (°F)	105	102	98	99
IAP (in. Hg)	30.57	30.58	30.57	30.57
Cowl T (°F)	109	108	107	107
Cowl P (in H_2O)	3.9	4.2	4.4	3.9
Fuel T (°F)	83	82	85	84
Fuel Dens (lbs/gal)	5.88	5.88	5.86	5.86
MTDP (psig)	7.1	6.4	6.0	5.3
Pump P (psig)	20.5	20.7	20.7	20.7
CHT1 (°F)	451	453	457	454
CHT2 (°F)	433	434	435	438
CHT3 (°F)	446	443	446	446
CHT4 (°F)	430	431	435	436
CHT5 (°F)	474	471	474	472
CHT6 (°F)	449	451	455	449
EGT1 (°F)	1506	1537	1568	1628
EGT2 (°F)	1476	1510	1538	1602
EGT3 (°F)	1518	1551	1581	1645
EGT4 (°F)	1484	1518	1548	1614
EGT5 (°F)	1520	1558	1587	1634
EGT6 (°F)	1506	1543	1578	1634
Oil T (°F)	241	241	241	242
Oil P (psig)	66	65	65	65
Hum T (°F)	107	103	102	100
Hum ratio (gr/lb)	1	1	0	1
AFR	12.3	13.0	13.6	14.5
AFL	12.3	13.1	13.7	14.7
K airflow (lbs/hr)	1572	1743	1753	1769
A/F	11.4	13.3	13.9	15.1

TABLE A-34. 108 AN ENGINE DATA, 85% POWER

Test	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57
Fuel	108 AN	108 AN	108 AN	108 AN
Test Points	AL**	AK	AM	AN
MAP (in. Hg)	27.50	27.51	27.50	27.49
rpm	2600	2600	2600	2600
TORK (ft-lbs)	484	481	476	459
BHP	240	239	236	227
TCBHP	250	249	246	237
LCBHP	245	243	241	232
BMEP (psig)	110.6	110.1	108.6	105.2
FF (lbs/hr)	111.9	105.7	99.8	94.0
FFG (gal/hr)	19.2	18.1	17.2	16.1
% Relative FF	-4.9	-10.2	-15.2	-20.1
BSFC (lbs/hp hr)	0.47	0.45	0.42	0.41
TCBSFC (lbs/hp hr)	0.45	0.43	0.41	0.40
LCBSFC (lbs/hp hr)	0.46	0.44	0.42	0.41
IAT (°F)	103	103	104	103
IAP (in. Hg)	30.62	30.62	30.62	30.62
Cowl T (°F)	105	105	100	103
Cowl P (in H_2O)	3.7	3.2	2.9	3.0
Fuel T (°F)	85	84	85	85
Fuel Dens (lbs/gal)	5.84	5.84	5.83	5.82
MTDP (psig)	4.8	4.3	3.9	3.4
Pump P (psig)	20.5	20.6	20.6	20.7
CHT1 (°F)	453	453	452	448
CHT2 (°F)	440	441	442	438
CHT3 (°F)	447	447	448	445
CHT4 (°F)	436	436	438	435
CHT5 (°F)	475	475	475	471
CHT6 (°F)	455	455	455	451
EGT1 (°F)	1492	1543	1576	1578
EGT2 (°F)	1473	1522	1554	1565
EGT3 (°F)	1514	1565	1597	1603
EGT4 (°F)	1478	1527	1560	1587
EGT5 (°F)	1512	1562	1593	1585
EGT6 (°F)	1510	1559	1589	1583
Oil T (°F)	242	242	241	242
Oil P (psig)	64	64	64	64
Hum T (°F)	104	104	104	104
Hum ratio (gr/lb)	0	0	0	0
AFR	12.9	13.7	14.4	15.3
AFL	12.9	13.8	14.6	15.6
K airflow (lbs/hr)	1418	1427	1419	1424
A/F	12.7	13.5	14.2	15.1

TABLE A-35. 108 AN ENGINE DATA, 75% POWER

Test	T2-47	T2-47	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.57	30.57	30.57	30.57	30.57	30.57
Fuel	108 AN	108 AN	108 AN	108 AN	108 AN	108 AN
Test Points	A	E	J	M**	Q	U
MAP (in. Hg)	25.83	25.79	25.80	25.80	25.80	25.79
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	443	442	438	425	405	370
BHP	207	206	205	199	189	173
TCBHP	216	216	214	207	197	180
LCBHP	215	215	213	206	196	179
BMEP (psig)	101	101	100	97	92	85
FF (lbs/hr)	98.8	93.3	88.1	82.7	79.0	72.8
FFG (gal/hr)	16.9	16.1	15.2	14.2	13.6	12.6
% Relative FF	-4.9	-10.2	-15.2	-20.4	-24.0	-30.0
BSFC (lbs/hp hr)	0.48	0.46	0.43	0.42	0.42	0.42
TCBSFC (lbs/hp hr)	0.46	0.44	0.41	0.40	0.40	0.40
LCBSFC (lbs/hp hr)	0.46	0.44	0.41	0.40	0.40	0.41
IAT (°F)	105	103	103	102	103	102
IAP (in. Hg)	29.99	29.99	29.99	29.99	30.00	29.99
Cowl T (°F)	107	101	101	105	101	108
Cowl P (in H_2O)	2.7	2.9	2.8	2.6	1.9	1.6
Fuel T (°F)	86	89	89	90	92	92
Fuel Dens (lbs/gal)	5.83	5.81	5.81	5.81	5.80	5.80
MTDP (psig)	3.7	3.3	3.0	2.7	2.5	2.1
Pump P (psig)	20.2	20.2	20.2	20.2	20.2	20.2
CHT1 (°F)	442	444	443	442	442	441
CHT2 (°F)	435	436	436	437	441	441
CHT3 (°F)	443	444	444	443	444	441
CHT4 (°F)	435	437	437	436	442	440
CHT5 (°F)	475	476	475	475	474	472
CHT6 (°F)	451	449	448	443	436	436
EGT1 (°F)	1441	1487	1529	1564	1535	1513
EGT2 (°F)	1431	1473	1512	1551	1530	1505
EGT3 (°F)	1459	1502	1543	1589	1560	1531
EGT4 (°F)	1435	1479	1518	1570	1549	1516
EGT5 (°F)	1457	1501	1540	1571	1536	1512
EGT6 (°F)	1465	1507	1546	1561	1530	1507
Oil T (°F)	239	242	241	241	241	242
Oil P (psig)	62	62	62	62	63	62
Hum T (°F)	107	105	103	103	103	103
Hum ratio (gr/lb)	0	0	0	0	1	1
AFR	12.7	13.5	14.3	15.2	15.9	17.2
AFL	12.7	13.4	14.3	15.2	16.0	17.4
K airflow (lbs/hr)	1221	1280	1286	1298	1302	1295
A/F	12.4	13.7	14.6	15.7	16.5	17.8

TABLE A-36. 108 AN ENGINE DATA, 65% POWER

Test	T2-50	T2-50	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.38	30.38	30.05	30.05	30.05
Fuel	108 AN	108 AN	108 AN	108 AN	108 AN
Test Points	K	J	AP**	AO	AQ
MAP (in. Hg)	24.51	24.55	24.00	24.02	24.01
rpm	2350	2350	2350	2350	2350
TORK (ft-lbs)	408	408	395	386	360
BHP	183	183	177	173	161
TCBHP	191	191	185	181	168
LCBHP	187	188	185	181	169
BMEP (psig)	92.9	93.1	90	88	82
FF (lbs/hr)	88.5	81.7	76.8	73.3	69.5
FFG (gal/hr)	15.3	14.1	13.2	12.6	11.9
% Relative FF	-3.1	-10.6	-15.9	-19.7	-23.9
BSFC (lbs/hp hr)	0.49	0.45	0.44	0.42	0.43
TCBSFC (lbs/hp hr)	0.47	0.43	0.42	0.41	0.41
LCBSFC (lbs/hp hr)	0.47	0.44	0.42	0.41	0.41
IAT (°F)	103	103	103	103	103
IAP (in. Hg)	30.39	30.37	29.75	29.75	29.76
Cowl T (°F)	106	104	108	104	108
Cowl P (in H_2O)	2.1	2.1	2.1	2.4	1.5
Fuel T (°F)	97	97	90	89	87
Fuel Dens (lbs/gal)	5.78	5.78	5.82	5.82	5.83
MTDP (psig)	3.1	2.7	2.4	2.1	1.9
Pump P (psig)	20.0	20.0	20.0	20.0	20.0
CHT1 (°F)	449	449	444	446	437
CHT2 (°F)	442	440	441	444	441
CHT3 (°F)	448	448	445	446	441
CHT4 (°F)	435	437	437	439	434
CHT5 (°F)	475	475	474	476	472
CHT6 (°F)	450	449	446	446	441
EGT1 (°F)	1428	1479	1527	1544	1512
EGT2 (°F)	1424	1475	1519	1540	1517
EGT3 (°F)	1450	1501	1553	1570	1534
EGT4 (°F)	1425	1477	1532	1550	1520
EGT5 (°F)	1442	1491	1540	1556	1522
EGT6 (°F)	1457	1508	1548	1541	1503
Oil T (°F)	239	239	239	240	240
Oil P (psig)	62	62	62	62	62
Hum T (°F)	104	104	104	104	104
Hum ratio (gr/lb)	0	0	0	0	0
AFR	12.7	13.7	14.2	15.0	16.2
AFL	12.6	13.6	14.2	14.9	16.2
K airflow (lbs/hr)	1166	1161	1121	1118	1123
A/F	13.2	14.2	14.6	15.3	16.3

TABLE A-37. 109 AN ENGINE DATA, TO POWER

Test	T2-44	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57	30.57
Fuel	AN9	AN9	AN9	AN9	AN9
Test Points	A	D**	C	F	E
MAP (in. Hg)	30.01	30.01	30.03	30.05	30.02
rpm	2700	2700	2700	2700	2700
TORK (ft-lbs)	548	548	547	523	525
BHP	282	282	281	269	270
TCBHP	295	294	294	281	282
LCBHP	289	288	288	275	276
BMEP (psig)	125.3	124.9	124.7	119.2	120.1
FF (lbs/hr)	137.5	125.0	120.5	111.5	111.3
FFG (gal/hr)	23.5	21.3	20.6	19.1	19.0
% Relative FF	-0.2	-9.3	-12.6	-19.1	-19.2
BSFC (lbs/hp hr)	0.49	0.44	0.43	0.42	0.41
TCBSFC (lbs/hp hr)	0.47	0.43	0.41	0.40	0.40
LCBSFC (lbs/hp hr)	0.48	0.43	0.42	0.41	0.40
IAT (°F)	105.00	102.00	103.00	102.00	101.00
IAP (in. Hg)	31	31	31	31	31
Cowl T (°F)	104.00	105.00	103.00	106.00	106.33
Cowl P (in H_2O)	6	3	5	4	5
Fuel T (°F)	82.0	84.0	84.0	85.0	85.0
Fuel Dens (lbs/gal)	6	6	6	6	6
MTDP (psig)	7.00	6.00	5.75	4.80	4.93
Pump P (psig)	20.5	20.6	20.7	20.8	20.7
CHT1 (°F)	451.0	451.0	457.5	450.5	453.3
CHT2 (°F)	433	428	439	432	433
CHT3 (°F)	446	443	450	443	446
CHT4 (°F)	431	428	436	433	434
CHT5 (°F)	479	470	478	467	472
CHT6 (°F)	450	449	454	448	446
EGT1 (°F)	1509	1557	1578	1634	1631
EGT2 (°F)	1480	1525	1552	1615	1609
EGT3 (°F)	1522	1569	1593	1651	1651
EGT4 (°F)	1490	1535	1561	1629	1622
EGT5 (°F)	1523	1576	1599	1630	1631
EGT6 (°F)	1513	1561	1589	1631	1633
Oil T (°F)	242	244	242	239	242
Oil P (psig)	66	66	66	66	66
Hum T (°F)	106	105	106	104	104
Hum ratio (gr/lb)	1	1	1	0	0
AFR	12	13	14	15	15
AFL	12.4	13.5	13.8	15.5	15.1
K airflow (lbs/hr)	1523.0	1694.0	1674.5	1739.0	1747.0
A/F	11	14	14	16	16

TABLE A-38. 109 AN ENGINE DATA, 85% POWER

Test	T2-44	T2-44	T2-44	T2-44	T2-44
Barometer (in. Hg)	30.57	30.57	30.57	30.57	30.57
Fuel	109 AN	109 AN	109 AN	109 AN	109 AN
Test Points	AU	AO**	AP	AQ	AR
MAP (in. Hg)	27.41	27.42	27.43	27.39	27.41
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	481	481	474	457	421
BHP	239	239	235	227	209
TCBHP	250	249	245	236	218
LCBHP	244	243	240	231	213
BMEP (psig)	110.0	110.1	108.4	104.6	94.5
FF (lbs/hr)	111.5	106.1	99.9	94.2	87.4
FFG (gal/hr)	19.0	18.1	17.0	16.0	14.9
% Relative FF	-5.3	-9.9	-15.1	-19.9	-25.7
BSFC (lbs/hp hr)	0.47	0.45	0.43	0.42	0.42
TCBSFC (lbs/hp hr)	0.45	0.43	0.41	0.40	0.40
LCBSFC (lbs/hp hr)	0.46	0.44	0.42	0.41	0.41
IAT (°F)	107	103	103	102	103
IAP (in. Hg)	30.56	30.62	30.63	30.61	30.62
Cowl T (°F)	105	108	110	112	108
Cowl P (in H_2O)	3.5	3.3	3.2	3.0	4.7
Fuel T (°F)	80	82	80	79	82
Fuel Dens (lbs/gal)	5.87	5.87	5.88	5.88	5.86
MTDP (psig)	4.7	4.3	3.9	3.4	3.2
Pump P (psig)	20.6	20.6	20.7	20.7	20.7
CHT1 (°F)	452	450	448	447	451
CHT2 (°F)	442	439	438	440	452
CHT3 (°F)	448	446	445	445	453
CHT4 (°F)	435	434	433	436	453
CHT5 (°F)	475	472	470	469	474
CHT6 (°F)	457	452	451	448	450
EGT1 (°F)	1497	1532	1573	1584	1544
EGT2 (°F)	1477	1514	1552	1571	1537
EGT3 (°F)	1518	1555	1595	1610	1569
EGT4 (°F)	1481	1519	1558	1594	1562
EGT5 (°F)	1518	1553	1591	1592	1547
EGT6 (°F)	1510	1550	1587	1591	1553
Oil T (°F)	235	240	241	242	239
Oil P (psig)	65	64	64	64	64
Hum T (°F)	106	104	104	104	105
Hum ratio (gr/lb)	0	0	0	0	0
AFR	12.9	13.6	14.4	15.3	16.2
AFL	12.9	13.7	14.5	15.5	16.6
K airflow (lbs/hr)	1331	1415	1415	1432	1425
A/F	11.9	13.3	14.2	15.2	16.3

TABLE A-39. 109 AN ENGINE DATA, 75% POWER

Test	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05
Fuel	109 AN	109 AN	109 AN	109 AN
Test Points	Y	Z	AA**	AB
MAP (in. Hg)	25.81	25.82	25.80	25.80
rpm	2450	2450	2450	2450
TORK (ft-lbs)	438	425	391	365
BHP	204	199	182	170
TCBHP	213	207	190	178
LCBHP	213	206	190	177
BMEP (psig)	100	97	89	83
FF (lbs/hr)	88.3	83.2	75.4	73.5
FFG (gal/hr)	15.1	14.2	12.9	12.7
% Relative FF	-15.0	-19.9	-27.4	-29.3
BSFC (lbs/hp hr)	0.43	0.42	0.41	0.43
TCBSFC (lbs/hp hr)	0.41	0.40	0.39	0.41
LCBSFC (lbs/hp hr)	0.42	0.40	0.40	0.42
IAT (°F)	103	104	102	103
IAP (in. Hg)	29.99	30.00	29.99	30.01
Cowl T (°F)	104	105	108	107
Cowl P (in H_2O)	1.9	2.6	2.2	1.9
Fuel T (°F)	86	86	89	90
Fuel Dens (lbs/gal)	5.85	5.85	5.84	5.82
MTDP (psig)	3.0	2.7	2.3	2.1
Pump P (psig)	20.1	20.1	20.2	20.2
CHT1 (°F)	440	443	446	444
CHT2 (°F)	430	437	445	446
CHT3 (°F)	437	443	446	443
CHT4 (°F)	431	438	445	444
CHT5 (°F)	474	476	474	471
CHT6 (°F)	447	446	442	436
EGT1 (°F)	1519	1559	1531	1519
EGT2 (°F)	1506	1546	1522	1505
EGT3 (°F)	1538	1582	1555	1532
EGT4 (°F)	1513	1560	1543	1516
EGT5 (°F)	1533	1568	1532	1513
EGT6 (°F)	1537	1560	1523	1510
Oil T (°F)	242	242	242	242
Oil P (psig)	62	62	62	63
Hum T (°F)	103	103	103	103
Hum ratio (gr/lb)	1	0	0	0
AFR	14.4	15.0	16.6	17.5
AFL	14.3	15.1	16.6	17.5
K airflow (lbs/hr)	1247	1253	1275	1283
A/F	14.1	15.1	16.9	17.5

TABLE A-40. 109 AN ENGINE DATA, 65% POWER

Test	T2-47	T2-47	T2-47	T2-47	T2-47
Barometer (in. Hg)	30.05	30.05	30.05	30.05	30.05
Fuel	109 AN	109 AN	109 AN	109 AN	109 AN
Test Points	AU	AV	AT**	AR	AS
MAP (in. Hg)	24.01	24.02	24.00	24.01	24.01
rpm	2350	2350	2350	2350	2350
TORK (ft-lbs)	402	399	397	384	357
BHP	180	179	178	172	160
TCBHP	188	187	186	180	167
LCBHP	189	187	186	180	167
BMEP (psig)	92	91	91	88	81
FF (lbs/hr)	82.5	78.3	77.8	73.6	68.0
FFG (gal/hr)	14.1	13.4	13.3	12.6	11.7
% Relative FF	-9.6	-14.2	-14.8	-19.4	-25.5
BSFC (lbs/hp hr)	0.46	0.44	0.44	0.43	0.43
TCBSFC (lbs/hp hr)	0.44	0.42	0.42	0.41	0.41
LCBSFC (lbs/hp hr)	0.44	0.42	0.42	0.41	0.41
IAT (°F)	102	104	103	102	103
IAP (in. Hg)	29.75	29.77	29.75	29.75	29.77
Cowl T (°F)	101	101	104	102	101
Cowl P (in H_2O)	2.2	1.8	2.6	2.1	2.2
Fuel T (°F)	85	88	89	89	89
Fuel Dens (lbs/gal)	5.84	5.84	5.83	5.83	5.83
MTDP (psig)	2.6	2.4	2.4	2.2	1.8
Pump P (psig)	19.9	19.9	19.9	20.0	20.0
CHT1 (°F)	444	442	442	441	440
CHT2 (°F)	439	437	439	441	442
CHT3 (°F)	445	442	443	441	442
CHT4 (°F)	438	436	436	435	436
CHT5 (°F)	475	471	472	473	474
CHT6 (°F)	453	448	447	438	439
EGT1 (°F)	1474	1513	1512	1538	1517
EGT2 (°F)	1466	1508	1509	1540	1527
EGT3 (°F)	1489	1533	1533	1561	1545
EGT4 (°F)	1470	1512	1511	1547	1531
EGT5 (°F)	1484	1522	1522	1549	1533
EGT6 (°F)	1494	1535	1532	1531	1511
Oil T (°F)	235	235	236	238	237
Oil P (psig)	62	62	62	62	62
Hum T (°F)	103	104	103	103	104
Hum ratio (gr/lb)	1	0	0	0	0
AFR	13.5	14.2	14.3	15.0	16.4
AFL	13.4	14.2	14.2	15.0	16.4
K airflow (lbs/hr)	1130	1116	1136	1126	1139
A/F	13.7	14.3	14.6	15.4	16.7

TABLE A-41. AV1 ENGINE DATA, TO POWER

Test	T2-17	T2-17	T2-43	T2-10
Barometer (in. Hg)	30.41	30.41	29.85	30.29
Fuel	AV1	AV1	AV1	AV1
Test Points	J	K**	A	A
MAP (in. Hg)	29.79	29.81	29.30	29.79
rpm	2700	2700	2700	2700
TORK (ft-lbs)	548	548	532	553
BHP	282	282	274	285
TCBHP	295	295	286	297
LCBHP	290	290	286	292
BMEP (psig)	125.3	125.2	121.6	126.6
FF (lbs/hr)	173.3	168.0	164.2	156.0
FFG (gal/hr)	27.8	26.9	26.2	24.9
% Relative FF	25.7	21.9	19.2	13.2
BSFC (lbs/hp hr)	0.61	0.60	0.60	0.55
TCBSFC (lbs/hp hr)	0.59	0.57	0.58	0.53
LCBSFC (lbs/hp hr)	0.60	0.58	0.58	0.53
IAT (°F)	104	104	103	102
IAP (in. Hg)	30.43	30.44	29.85	30.38
Cowl T (°F)	102	103	105	106
Cowl P (in H_2O)	3.6	3.1	2.9	4.6
Fuel T (°F)	82	82	77	80
Fuel Dens (lbs/gal)	6.25	6.25	6.27	6.26
MTDP (psig)	9.8	9.7	9.1	8.2
Pump P (psig)	20.4	20.5	19.6	20.5
CHT1 (°F)	466	471	476	450
CHT2 (°F)	448	451	439	418
CHT3 (°F)	462	467	454	439
CHT4 (°F)	442	449	441	425
CHT5 (°F)	475	481	475	474
CHT6 (°F)	464	469	460	446
EGT1 (°F)	1414	1420	1426	1475
EGT2 (°F)	1392	1396	1403	1451
EGT3 (°F)	1435	1438	1443	1490
EGT4 (°F)	1404	1406	1412	1468
EGT5 (°F)	1431	1438	1448	1477
EGT6 (°F)	1422	1426	1438	1478
Oil T (°F)	231	243	236	230
Oil P (psig)	65	64	64	62
Hum T (°F)	101	101	106	101
Hum ratio (gr/lb)	0	0	0	0
AFR	11.2	11.2	11.2	12.1
AFL	11.2	11.2	11.1	12.1
K airflow (lbs/hr)			1740	
A/F	11.2	11.2	10.7	12.1

TABLE A-42. AV1 ENGINE DATA, 85% POWER

Test	T2-17	T2-17	T2-43	T2-43	T2-10
Barometer (in. Hg)	30.41	30.41	29.85	29.85	30.29
Fuel	AV1	AV1	AV1	AV1	AV1
Test Points	I**	H	B	C	B
MAP (in. Hg)	27.62	27.63	27.37	27.36	27.24
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	489	489	484	487	482
BHP	242	242	240	241	239
TCBHP	253	253	250	252	250
LCBHP	249	249	250	252	245
BMEP (psig)	111.5	111.9	110.5	111.2	110.2
FF (lbs/hr)	149.0	146.9	141.0	135.2	120.2
FFG (gal/hr)	23.9	23.5	22.5	21.5	19.2
% Relative FF	26.6	24.8	19.8	14.9	2.1
BSFC (lbs/hp hr)	0.62	0.61	0.59	0.56	0.50
TCBSFC (lbs/hp hr)	0.59	0.58	0.56	0.54	0.48
LCBSFC (lbs/hp hr)	0.60	0.59	0.56	0.54	0.49
IAT (°F)	104	104	102	102	103
IAP (in. Hg)	30.41	30.42	29.84	29.85	30.36
Cowl T (°F)	103	105	101	99	101
Cowl P (in H_2O)	2.6	2.2	2.8	3.0	2.8
Fuel T (°F)	83	83	77	77	82
Fuel Dens (lbs/gal)	6.24	6.24	6.27	6.27	6.25
MTDP (psig)	7.3	7.0	6.6	6.1	4.8
Pump P (psig)	20.4	20.5	19.6	19.6	20.6
CHT1 (°F)	462	464	476	476	449
CHT2 (°F)	450	452	441	439	428
CHT3 (°F)	462	461	449	448	443
CHT4 (°F)	440	442	436	434	424
CHT5 (°F)	475	475	474	473	470
CHT6 (°F)	460	462	456	454	441
EGT1 (°F)	1381	1393	1405	1425	1516
EGT2 (°F)	1364	1374	1390	1411	1493
EGT3 (°F)	1402	1415	1434	1456	1538
EGT4 (°F)	1373	1383	1399	1419	1504
EGT5 (°F)	1402	1413	1431	1449	1513
EGT6 (°F)	1394	1407	1421	1441	1525
Oil T (°F)	230	231	236	236	234
Oil P (psig)	63	63	63	63	62
Hum T (°F)	101	101	105	104	102
Hum ratio (gr/lb)	0	0	0	0	1
AFR	11.3	11.4	11.5	12.0	13.4
AFL	11.2	11.4	11.5	12.0	13.4
K airflow (lbs/hr)			1506	1498	
A/F	11.25	11.40	10.7	11.1	13.38

TABLE A-43. AV1 ENGINE DATA, 75% POWER

Test	T2-17	T2-43	T2-43	T2-17	T2-17	T2-17	T2-10
Barometer (in. Hg)	30.41	29.85	29.85	30.41	30.41	30.41	30.29
Fuel	AV1	AV1	AV1	AV1	AV1	AV1	AV1
Test Points	G	E	D	F**	E	D	C
MAP (in. Hg)	26.34	25.95	25.95	26.36	26.22	26.20	26.17
rpm	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	457	448	447	460	458	458	454
BHP	213	209	208	215	214	214	212
TCBHP	223	218	217	224	223	223	222
LCBHP	219	218	217	220	220	220	218
BMEP (psig)	104.4	102.3	102.3	105.2	104.6	104.8	103.8
FF (lbs/hr)	134.3	133.8	130.0	129.8	124.8	120.2	104.3
FFG (gal/hr)	21.5	21.4	20.7	20.8	20.0	19.2	16.7
% Relative FF	29.2	28.8	25.1	25.0	20.1	15.7	0.3
BSFC (lbs/hp hr)	0.63	0.64	0.62	0.61	0.58	0.56	0.49
TCBSFC (lbs/hp hr)	0.60	0.61	0.60	0.58	0.56	0.54	0.47
LCBSFC (lbs/hp hr)	0.61	0.61	0.60	0.59	0.57	0.55	0.48
IAT (°F)	104	102	102	104	104	104	103
IAP (in. Hg)	30.42	29.85	29.85	30.42	30.40	30.41	30.36
Cowl T (°F)	105	103	103	101	104	105	106
Cowl P (in H_2O)	1.7	2.2	2.4	1.7	2.4	2.7	3.6
Fuel T (°F)	83	78	78	83	84	83	84
Fuel Dens (lbs/gal)	6.24	6.27	6.27	6.24	6.24	6.24	6.25
MTDP (psig)	5.9	5.8	5.6	5.6	5.2	4.8	3.7
Pump P (psig)	20.4	19.5	19.4	20.4	20.4	20.4	20.6
CHT1 (°F)	457	454	457	458	458	459	449
CHT2 (°F)	450	438	442	450	448	451	435
CHT3 (°F)	455	444	448	456	455	459	445
CHT4 (°F)	448	434	440	448	446	449	437
CHT5 (°F)	475	474	476	475	475	475	474
CHT6 (°F)	461	453	457	463	460	463	449
EGT1 (°F)	1336	1329	1344	1359	1382	1403	1492
EGT2 (°F)	1328	1321	1339	1349	1373	1393	1488
EGT3 (°F)	1360	1351	1370	1383	1407	1428	1500
EGT4 (°F)	1336	1327	1345	1360	1383	1406	1502
EGT5 (°F)	1358	1349	1367	1381	1398	1419	1489
EGT6 (°F)	1365	1351	1371	1389	1407	1430	1511
Oil T (°F)	232	238	237	230	234	234	235
Oil P (psig)	61	61	61	61	61	61	60
Hum T (°F)	101	103	104	101	101	101	102
Hum ratio (gr/lb)	0	0	0	0	0	0	1
AFR	11.1	10.9	11.1	11.4	11.7	12.1	13.7
AFL	11.1	10.8	11.0	11.4	11.7	12.0	13.7
K airflow (lbs/hr)		1326	1328				
A/F	11.09	9.9	10.2	11.41	11.73	12.06	13.69

TABLE A-44. AV1 ENGINE DATA, 65% POWER

Test	T2-43	T2-43	T2-17	T2-17	T2-17	T2-10
Barometer (in. Hg)	29.85	29.85	30.41	30.41	30.41	30.29
Fuel	AV1	AV1	AV1	AV1	AV1	AV1
Test Points	G	F	A	B**	C	D
MAP (in. Hg)	24.00	24.00	24.44	24.43	24.36	24.55
rpm	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	399	400	412	413	412	413
BHP	179	179	184	185	185	185
TCBHP	186	187	193	193	193	193
LCBHP	186	187	189	190	190	190
BMEP (psig)	91.2	91.4	94.0	94.5	94.2	94.4
FF (lbs/hr)	114.8	114.1	109.5	104.7	100.3	90.8
FFG (gal/hr)	18.3	18.2	17.5	16.8	16.1	14.6
% Relative FF	25.8	25.0	19.9	14.6	9.8	-0.5
BSFC (lbs/hp hr)	0.64	0.64	0.60	0.57	0.54	0.49
TCBSFC (lbs/hp hr)	0.62	0.61	0.57	0.54	0.52	0.47
LCBSFC (lbs/hp hr)	0.62	0.61	0.58	0.55	0.53	0.48
IAT (°F)	101	103	104	103	104	103
IAP (in. Hg)	29.85	29.86	30.42	30.43	30.41	30.37
Cowl T (°F)	104	104	101	101	104	108
Cowl P (in H_2O)	1.5	1.7	2.4	1.7	1.9	3.6
Fuel T (°F)	77	78	83	84	85	89
Fuel Dens (lbs/gal)	6.27	6.27	6.25	6.24	6.24	6.23
MTDP (psig)	4.3	4.3	4.0	3.7	3.4	2.8
Pump P (psig)	19.4	19.4	20.3	20.3	20.4	20.6
CHT1 (°F)	448	448	463	463	462	451
CHT2 (°F)	443	442	456	456	453	437
CHT3 (°F)	446	446	462	461	460	447
CHT4 (°F)	435	434	452	452	451	438
CHT5 (°F)	474	474	475	475	475	474
CHT6 (°F)	456	456	465	466	466	453
EGT1 (°F)	1322	1328	1369	1401	1423	1484
EGT2 (°F)	1321	1325	1367	1395	1418	1497
EGT3 (°F)	1350	1355	1396	1427	1449	1421
EGT4 (°F)	1324	1329	1376	1408	1432	1501
EGT5 (°F)	1341	1345	1385	1414	1438	1494
EGT6 (°F)	1352	1357	1400	1431	1453	1510
Oil T (°F)	237	237	229	227	229	233
Oil P (psig)	60	60	60	60	60	58
Hum T (°F)	103	103	103	102	101	101
Hum ratio (gr/lb)	0	0	0	0	0	1
AFR	11.0	11.1	11.7	12.2	12.6	14.0
AFL	10.9	10.9	11.7	12.1	12.5	13.9
K airflow (lbs/hr)	1163	1152				
A/F	10.1	10.1	11.7	12.1	12.6	13.9

TABLE A-45. AV2 ENGINE DATA, TO POWER

Test	T2-16	T2-22	T2-22	T2-18	T2-18	T2-16	T2-16
Barometer (in. Hg)	29.8	29.82	29.82	30.39	30.39	29.8	29.8
Fuel	AV2	AV2	AV2	AV2	AV2	AV2	AV2
Test Points	C	A	B	A	B	B**	A
MAP (in. Hg)	29.31	29.36	29.35	29.79	29.77	29.30	29.29
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	532	534	539	549	549	540	542
BHP	274	275	277	283	282	278	279
TCBHP	286	287	289	296	296	291	291
LCBHP	286	285	288	291	291	290	290
BMEP (psig)	121.3	122.1	123.5	125.6	125.4	123.6	123.8
FF (lbs/hr)	180.3	170.6	168.5	167.0	158.8	157.5	140.5
FFG (gal/hr)	28.9	27.6	27.3	26.8	25.5	25.3	22.5
% Relative FF	30.9	23.8	22.3	21.1	15.2	14.3	2.0
BSFC (lbs/hp hr)	0.66	0.62	0.61	0.59	0.56	0.57	0.50
TCBSFC (lbs/hp hr)	0.63	0.60	0.58	0.56	0.53	0.54	0.48
LCBSFC (lbs/hp hr)	0.63	0.60	0.59	0.57	0.54	0.54	0.48
IAT (°F)	105	103	100	106	107	105	103
IAP (in. Hg)	29.91	29.98	29.97	30.42	30.41	29.9	29.9
Cowl T (°F)	110	106	106	105	107	104	103
Cowl P (in H_2O)	2.5	2.5	2.9	3.0	4.0	5.2	5.3
Fuel T (°F)	83	97	99	82	84	83	80
Fuel Dens (lbs/gal)	6.23	6.17	6.17	6.23	6.23	6.23	6.24
MTDP (psig)	9.6	9.6	9.1	8.6	8.6	7.9	6.7
Pump P (psig)	20.0	20.0	19.2	20.4	20.4	20.0	20.2
CHT1 (°F)	463	472	469	462	462	460	463
CHT2 (°F)	438	449	448	439	439	434	440
CHT3 (°F)	454	466	465	455	454	450	455
CHT4 (°F)	442	445	444	436	437	432	438
CHT5 (°F)	474	477	476	475	476	475	475
CHT6 (°F)	460	469	467	459	460	457	457
EGT1 (°F)	1398	1390	1432	1444	1448	1472	1524
EGT2 (°F)	1367	1368	1408	1418	1421	1435	1494
EGT3 (°F)	1411	1411	1447	1458	1464	1482	1539
EGT4 (°F)	1382	1376	1416	1428	1433	1448	1517
EGT5 (°F)	1410	1412	1450	1460	1469	1473	1527
EGT6 (°F)	1402	1395	1436	1446	1450	1467	1531
Oil T (°F)	229	221	226	228	228	222	229
Oil P (psig)	65	66	66	64	64	66	65
Hum T (°F)	104	104	100	103	103	103	102
Hum ratio (gr/lb)	0	1	1	0	0	0	0
AFR	10.9	10.7	11.1	11.6	11.7	12.0	12.9
AFL	10.9	10.8	11.2	11.6	11.6	11.9	12.9
K airflow (lbs/hr)		11.3	11.8				
A/F		1934	1984				

TABLE A-46. AV2 ENGINE DATA, 85% POWER

Test	T2-18	T2-16	T2-18	T2-16	T2-16
Barometer (in. Hg)	30.39	29.8	30.39	29.80	29.80
Fuel	AV2	AV2	AV2	AV2	AV2
Test Points	C	F	D**	E	D
MAP (in. Hg)	27.49	26.96	27.50	26.89	27.04
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	487	477	489	476	479
BHP	241	236	242	236	237
TCBHP	252	246	254	246	248
LCBHP	248	245	249	245	248
BMEP (psig)	111.0	109.1	111.8	108.7	109.4
FF (lbs/hr)	141.2	141.0	135.4	130.7	117.2
FFG (gal/hr)	22.7	22.7	21.8	21.0	18.8
% Relative FF	20.0	19.8	15.0	11.0	-0.5
BSFC (lbs/hp hr)	0.59	0.60	0.56	0.56	0.50
TCBSFC (lbs/hp hr)	0.56	0.57	0.53	0.53	0.47
LCBSFC (lbs/hp hr)	0.57	0.58	0.54	0.53	0.47
IAT (°F)	107	98	106	102	106
IAP (in. Hg)	30.40	29.89	30.4	29.90	29.90
Cowl T (°F)	103	107	103	107	104
Cowl P (in H_2O)	2.4	2.6	2.6	3.4	4.1
Fuel T (°F)	84	85	84	86	86
Fuel Dens (lbs/gal)	6.22	6.22	6.22	6.22	6.22
MTDP (psig)	6.6	6.6	6.0	5.7	4.6
Pump P (psig)	20.4	20.2	20.4	20.2	20.3
CHT1 (°F)	458	457	458	456	457
CHT2 (°F)	443	441	443	439	440
CHT3 (°F)	454	452	455	450	450
CHT4 (°F)	435	438	437	434	434
CHT5 (°F)	475	475	475	474	473
CHT6 (°F)	456	455	455	453	452
EGT1 (°F)	1401	1393	1429	1443	1510
EGT2 (°F)	1377	1367	1403	1414	1485
EGT3 (°F)	1422	1414	1450	1462	1531
EGT4 (°F)	1387	1378	1414	1426	1497
EGT5 (°F)	1422	1405	1449	1450	1513
EGT6 (°F)	1409	1404	1436	1454	1523
Oil T (°F)	229	229	229	232	230
Oil P (psig)	63	64	63	64	64
Hum T (°F)	104	97	104	101	103
Hum ratio (gr/lb)	0	1	0	0	0
AFR	11.5	11.4	11.9	12.1	13.3
AFL	11.5	11.4	11.9	12.1	13.4

TABLE A-47. AV2 ENGINE DATA, 75% POWER

Test	T2-18	T2-18	T2-18	T2-16	T2-16
Barometer (in. Hg)	30.39	30.39	30.39	29.80	29.80
Fuel	AV2	AV2	AV2	AV2	AV2
Test Points	G	F	E**	G	H
MAP (in. Hg)	25.98	25.96	25.99	25.65	25.64
rpm	2450	2450	2450	2450	2450
TORK (ft-lbs)	451	453	455	447	443
BHP	211	211	212	209	207
TCBHP	220	221	222	218	216
LCBHP	217	217	219	217	216
BMEP (psig)	103.1	103.5	104.0	102.2	101.3
FF (lbs/hr)	124.7	119.4	113.0	104.4	98.3
FFG (gal/hr)	20.0	19.2	18.2	16.8	15.8
% Relative FF	20.0	15.0	8.8	0.5	-5.4
BSFC (lbs/hp hr)	0.59	0.57	0.53	0.50	0.47
TCBSFC (lbs/hp hr)	0.57	0.54	0.51	0.48	0.45
LCBSFC (lbs/hp hr)	0.58	0.55	0.52	0.48	0.46
IAT (°F)	105	105	106	102	104
IAP (in. Hg)	30.40	30.40	30.40	29.89	29.90
Cowl T (°F)	97	98	98	108	105
Cowl P (in H_2O)	1.9	1.8	2.7	2.5	3.2
Fuel T (°F)	85	86	86	86	88
Fuel Dens (lbs/gal)	6.22	6.22	6.22	6.22	6.21
MTDP (psig)	5.1	4.7	4.2	3.6	3.3
Pump P (psig)	20.4	20.4	20.4	20.1	20.2
CHT1 (°F)	452	452	452	454	454
CHT2 (°F)	444	442	442	442	440
CHT3 (°F)	449	449	448	448	447
CHT4 (°F)	442	441	441	443	442
CHT5 (°F)	475	475	475	475	475
CHT6 (°F)	456	455	454	454	450
EGT1 (°F)	1364	1392	1430	1473	1512
EGT2 (°F)	1352	1380	1417	1459	1499
EGT3 (°F)	1387	1414	1451	1496	1537
EGT4 (°F)	1363	1391	1429	1471	1515
EGT5 (°F)	1383	1407	1440	1483	1520
EGT6 (°F)	1388	1415	1451	1498	1540
Oil T (°F)	227	231	225	229	227
Oil P (psig)	62	61	61	62	62
Hum T (°F)	102	102	103	96	98
Hum ratio (gr/lb)	0	0	0	1	0
AFR	11.5	11.8	12.5	13.3	14.0
AFL	11.4	11.8	12.4	13.2	14.0

TABLE A-48. AV2 ENGINE DATA, 65% POWER

Test	T2-18	T2-18	T2-18	T2-18
Barometer (in. Hg)	30.39	30.39	30.39	30.39
Fuel	AV2	AV2	AV2	AV2
Test Points	K	J	I**	H
MAP (in. Hg)	24.25	24.24	24.26	24.24
rpm	2350	2350	2350	2350
TORK (ft-lbs)	409	411	412	412
BHP	183	184	184	185
TCBHP	191	192	192	193
LCBHP	188	189	189	190
BMEP (psig)	93.5	93.8	94.2	94.1
FF (lbs/hr)	109.7	105.0	100.5	95.6
FFG (gal/hr)	17.6	16.9	16.2	15.4
% Relative FF	20.2	15.0	10.1	4.7
BSFC (lbs/hp hr)	0.60	0.57	0.55	0.52
TCBSFC (lbs/hp hr)	0.58	0.55	0.52	0.50
LCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.51
IAT (°F)	102	103	103	103
IAP (in. Hg)	30.4	30.4	30.4	30.4
Cowl T (°F)	107	102	100	98
Cowl P (in H_2O)	1.8	1.6	1.7	2.3
Fuel T (°F)	86	87	87	87
Fuel Dens (lbs/gal)	6.22	6.21	6.21	6.21
MTDP (psig)	4.0	3.6	3.3	3.1
Pump P (psig)	20.3	20.3	20.4	20.4
CHT1 (°F)	452	454	454	453
CHT2 (°F)	446	447	446	446
CHT3 (°F)	451	452	452	452
CHT4 (°F)	443	444	444	444
CHT5 (°F)	475	476	475	475
CHT6 (°F)	459	460	459	458
EGT1 (°F)	1352	1386	1411	1445
EGT2 (°F)	1345	1380	1404	1436
EGT3 (°F)	1375	1409	1433	1466
EGT4 (°F)	1356	1391	1416	1450
EGT5 (°F)	1366	1400	1425	1457
EGT6 (°F)	1379	1417	1441	1471
Oil T (°F)	229	226	226	230
Oil P (psig)	60	60	60	60
Hum T (°F)	99	99	100	100
Hum ratio (gr/lb)	0	0	0	0
AFR	11.5	11.9	12.4	12.9
AFL	11.4	11.8	12.3	12.8

TABLE A-49. AV3 ENGINE DATA, TO POWER

Test	T2-43	T2-19	T2-43	T2-19	T2-19	T2-19	T2-16	T2-19	T2-16	T2-43	T2-19
Barometer (in. Hg)	29.85	30.01	29.85	30.01	30.01	30.01	29.80	30.01	29.80	29.85	30.01
Fuel	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3
Test Points	H	A	I	B	C	D	M	E	N	J**	F
MAP (in. Hg)	29.00	29.45	29.00	29.46	29.49	29.52	29.33	29.53	29.33	29.00	29.51
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	525	533	528	534	537	541	540	543	539	538	540
BHP	270	274	272	275	277	279	278	280	277	277	278
TCBHP	282	287	283	288	290	291	290	293	291	288	292
LCBHP	282	285	283	286	288	289	290	291	290	288	290
BMEP (psig)	120.1	121.9	120.4	122.0	123.0	123.7	123.3	124.4	123.4	122.7	123.3
FF (lbs/hr)	173.9	168.8	168.4	165.7	157.1	149.8	145.4	139.6	136.0	133.5	129.8
FFG (gal/hr)	27.4	26.9	26.5	26.4	25.0	23.9	23.1	22.2	21.6	21.0	20.7
% Relative FF	26.2	22.5	22.2	20.3	14.0	8.7	5.5	1.3	-1.3	-3.1	-5.8
BSFC (lbs/hp hr)	0.64	0.62	0.62	0.60	0.57	0.54	0.52	0.50	0.49	0.48	0.47
TCBSFC (lbs/hp hr)	0.62	0.59	0.60	0.58	0.54	0.51	0.50	0.48	0.47	0.46	0.45
LCBSFC (lbs/hp hr)	0.62	0.59	0.60	0.58	0.55	0.52	0.50	0.48	0.47	0.47	0.45
IAT (°F)	103	104	101	105	108	105	105	105	105	101	107
IAP (in. Hg)	29.87	30.06	29.87	30.05	30.06	30.07	29.90	30.06	29.89	29.88	30.05
Cowl T (°F)	102	105	105	104	106	106	109	105	107	107	103
Cowl P (in H_2O)	2.8	3.1	3.1	2.5	3.4	3.5	5.1	4.2	5.6	4.1	5.0
Fuel T (°F)	75	90	75	90	91	91	87	93	89	76	94
Fuel Dens (lbs/gal)	6.35	6.29	6.35	6.29	6.29	6.28	6.30	6.28	6.29	6.35	6.27
MTDP (psig)	9.3	9.5	8.9	9.2	8.2	7.7	7.0	6.7	6.4	6.2	5.7
Pump P (psig)	19.5	20.2	19.5	20.1	20.2	20.2	20.4	20.3	20.4	19.6	20.4
CHT1 (°F)	456	456	455	457	457	456	461	452	459	461	453
CHT2 (°F)	436	435	432	437	437	435	439	431	436	438	432
CHT3 (°F)	447	449	444	452	450	450	454	445	452	448	448
CHT4 (°F)	435	434	433	436	436	436	440	432	438	439	434
CHT5 (°F)	475	475	471	476	477	477	476	474	476	475	476
CHT6 (°F)	455	455	452	457	457	457	459	451	455	456	451
EGT1 (°F)	1407	1394	1420	1406	1447	1473	1509	1523	1541	1546	1588
EGT2 (°F)	1379	1368	1394	1380	1417	1441	1475	1488	1508	1515	1552
EGT3 (°F)	1417	1411	1432	1420	1461	1488	1523	1536	1556	1558	1604
EGT4 (°F)	1387	1378	1402	1390	1427	1454	1489	1506	1521	1523	1575
EGT5 (°F)	1418	1412	1430	1422	1463	1489	1521	1538	1552	1559	1600
EGT6 (°F)	1406	1401	1422	1414	1452	1479	1509	1525	1543	1548	1596
Oil T (°F)	237	242	235	241	241	241	232	237	227	237	228
Oil P (psig)	63	63	64	63	63	63	65	63	65	64	64
Hum T (°F)	105	100	104	99	100	100	101	99	102	103	100
Hum ratio (gr/lb)	0	1	0	1	1	1	0	1	0	0	1
AFR	10.8	11.0	11.0	11.1	11.7	12.0	12.5	12.8	13.1	13.1	13.8
AFL	10.7	11.0	11.0	11.1	11.6	12.0	12.4	12.8	13.1	13.1	13.9
K airflow (lbs/hr)	1785		1807							1803	
A/F	10.3		10.8							13.6	

TABLE A-50. AV3 ENGINE DATA, 85% POWER

Test	T2-43	T2-19	T2-19	T2-19	T2-19	T2-19	T2-16	T2-16	T2-19	T2-19	T2-43
Barometer (in. Hg)	29.85	30.01	30.01	30.01	30.01	30.01	29.80	29.80	30.01	30.01	29.85
Fuel	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3
Test Points	K	G	H	I	J	K	O	P**	L	M	L
MAP (in. Hg)	27.00	27.23	27.24	27.23	27.22	27.23	27.02	27.04	27.24	27.24	27.00
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	473	478	481	482	484	484	478	475	481	475	458
BHP	235	237	239	239	240	240	237	236	239	236	227
TCBHP	244	248	249	250	251	251	247	246	250	246	236
LCBHP	244	246	248	248	249	249	247	246	248	245	236
BMEP (psig)	108.1	109.3	110.1	110.3	110.5	110.5	109.1	108.5	110.0	108.4	104.4
FF (lbs/hr)	147.3	139.9	134.6	129.4	123.5	118.3	117.8	111.7	111.5	105.9	102.2
FFG (gal/hr)	23.2	22.3	21.5	20.6	19.7	18.9	18.8	17.8	17.8	16.9	16.1
% Relative FF	25.1	18.9	14.3	10.0	4.9	0.5	0.1	-5.1	-5.2	-10.0	-13.2
BSFC (lbs/hp hr)	0.63	0.59	0.56	0.54	0.52	0.50	0.50	0.47	0.47	0.45	0.45
TCBSFC (lbs/hp hr)	0.60	0.56	0.54	0.52	0.50	0.47	0.48	0.45	0.45	0.43	0.43
LCBSFC (lbs/hp hr)	0.60	0.57	0.54	0.52	0.50	0.48	0.48	0.45	0.45	0.44	0.44
IAT (°F)	101	104	104	104	105	105	105	105	105	105	101
IAP (in. Hg)	29.87	30.05	30.06	30.05	30.05	30.05	29.88	29.88	30.04	30.05	29.87
Cowl T (°F)	103	104	104	104	104	105	106	106	104	104	102
Cowl P (in H_2O)	2.0	2.2	2.6	2.5	3.1	3.3	3.1	3.7	3.4	3.2	2.8
Fuel T (°F)	76	93	93	94	95	96	89	91	97	97	77
Fuel Dens (lbs/gal)	6.35	6.27	6.27	6.27	6.27	6.26	6.29	6.28	6.26	6.26	6.35
MTDP (psig)	7.1	6.4	6.0	5.5	5.0	4.6	4.7	4.2	4.2	3.8	3.6
Pump P (psig)	19.5	20.2	20.3	20.3	20.4	20.4	20.5	20.4	20.4	20.4	19.6
CHT1 (°F)	461	455	457	458	457	458	457	459	457	454	455
CHT2 (°F)	439	445	444	442	439	440	441	442	439	437	444
CHT3 (°F)	448	452	453	452	450	451	452	454	450	448	450
CHT4 (°F)	434	434	435	434	432	434	435	442	440	438	439
CHT5 (°F)	473	475	476	476	476	477	475	475	477	475	475
CHT6 (°F)	453	455	456	455	452	453	453	452	451	450	451
EGT1 (°F)	1364	1396	1423	1452	1480	1511	1509	1548	1552	1587	1593
EGT2 (°F)	1348	1371	1394	1424	1449	1482	1480	1520	1524	1560	1571
EGT3 (°F)	1387	1417	1443	1471	1499	1531	1529	1569	1573	1607	1617
EGT4 (°F)	1351	1378	1403	1432	1460	1494	1493	1531	1537	1571	1590
EGT5 (°F)	1385	1413	1438	1465	1491	1523	1518	1558	1563	1596	1602
EGT6 (°F)	1377	1409	1434	1464	1490	1521	1520	1560	1564	1596	1596
Oil T (°F)	235	233	231	230	231	229	229	229	231	230	235
Oil P (psig)	63	63	63	63	64	63	64	64	63	64	63
Hum T (°F)	103	98	98	97	97	97	101	101	97	97	103
Hum ratio (gr/lb)	1	1	1	1	1	1	0	0	1	1	0
AFR	10.8	11.4	11.8	12.2	12.8	13.2	13.1	13.8	13.9	14.6	15.1
AFL	10.8	11.4	11.8	12.2	12.7	13.2	13.1	13.9	14.0	14.7	15.3
K airflow (lbs/hr)	1533				1509						
A/F	10.4				14.8						

TABLE A-51. AV3 ENGINE DATA, 75% POWER

Test	T2-43	T2-19	T2-19	T2-19	T2-19	T2-16	T2-19	T2-16	T2-19	T2-19	T2-16	T2-16
Barometer (in. Hg)	29.85	30.01	30.01	30.01	30.01	29.80	30.01	29.80	30.01	30.01	29.80	29.80
Fuel	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3
Test Points	M	X	N	O	P	Q	Q	R	R	S	S**	T
MAP (in. Hg)	26.00	25.85	25.84	25.84	25.85	25.78	25.84	25.77	25.83	25.84	25.76	25.77
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	437	446	449	449	451	447	451	445	447	443	440	424
BHP	204	208	210	210	210	208	211	208	209	207	205	198
TCBHP	213	217	219	219	220	218	220	217	218	216	215	207
LCBHP	212	216	218	218	219	217	219	217	217	215	214	207
BMEP (psig)	99.7	101.9	102.6	102.4	103.0	101.9	102.9	101.8	102.0	101.1	100.5	96.9
FF (lbs/hr)	129.8	124.9	118.5	113.8	108.1	104.0	103.3	98.8	97.4	93.9	93.5	87.8
FFG (gal/hr)	20.5	20.0	18.9	18.2	17.3	16.5	16.5	15.8	15.6	15.0	14.9	14.0
% Relative FF	24.9	20.2	14.1	9.6	4.1	0.1	-0.5	-4.9	-6.2	-9.7	-10.0	-15.5
BSFC (lbs/hp hr)	0.64	0.60	0.57	0.54	0.51	0.50	0.49	0.48	0.47	0.45	0.45	0.44
TCBSFC (lbs/hp hr)	0.61	0.58	0.54	0.52	0.49	0.48	0.47	0.45	0.44	0.43	0.44	0.42
LCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.52	0.49	0.48	0.47	0.46	0.45	0.44	0.44	0.42
IAT (°F)	102	102	104	104	104	105	104	104	105	104	105	105
IAP (in. Hg)	29.85	30.05	30.04	30.05	30.04	29.90	30.04	29.89	30.05	30.05	29.88	29.89
Cowl T (°F)	101	101	101	98	96	108	95	103	104	107	102	104
Cowl P (in H_2O)	1.7	1.7	1.9	2.2	1.9	2.5	2.3	3.2	2.6	3.1	2.9	2.8
Fuel T (°F)	77	96	95	96	96	91	97	92	98	98	93	94
Fuel Dens (lbs/gal)	6.35	6.26	6.26	6.26	6.26	6.29	6.26	6.28	6.25	6.25	6.28	6.27
MTDP (psig)	5.5	5.1	4.6	4.2	3.8	3.6	3.5	3.3	3.2	2.9	2.9	2.6
Pump P (psig)	19.4	20.3	20.3	20.3	20.3	20.4	20.3	20.4	20.3	20.4	20.5	20.4
CHT1 (°F)	461	453	454	453	455	456	454	454	451	453	454	453
CHT2 (°F)	442	444	445	442	441	445	440	441	438	439	442	443
CHT3 (°F)	448	450	450	449	449	452	448	449	446	447	449	450
CHT4 (°F)	437	441	444	441	442	447	441	442	441	440	442	444
CHT5 (°F)	475	476	476	475	475	476	475	475	475	475	475	475
CHT6 (°F)	455	456	458	456	455	457	454	450	452	452	449	445
EGT1 (°F)	1327	1354	1391	1415	1453	1475	1481	1514	1520	1543	1552	1576
EGT2 (°F)	1324	1341	1376	1397	1435	1457	1464	1496	1505	1526	1534	1563
EGT3 (°F)	1353	1372	1410	1431	1471	1496	1501	1537	1542	1564	1575	1606
EGT4 (°F)	1328	1350	1387	1410	1450	1471	1480	1513	1521	1542	1550	1587
EGT5 (°F)	1351	1370	1406	1427	1464	1487	1493	1525	1533	1555	1564	1581
EGT6 (°F)	1355	1379	1417	1438	1477	1500	1509	1539	1547	1566	1578	1572
Oil T (°F)	239	231	227	231	230	230	228	227	232	230	228	231
Oil P (psig)	61	61	61	61	61	62	62	62	61	61	62	62
Hum T (°F)	103	94	96	96	96	102	96	101	96	96	101	101
Hum ratio (gr/lb)	1	1	1	1	1	0	1	0	1	1	0	0
AFR	10.8	11.4	11.9	12.2	12.8	13.1	13.3	13.8	14.1	14.5	14.5	15.4
AFL	10.6	11.3	11.8	12.1	12.7	13.1	13.3	13.8	14.0	14.5	14.5	15.4
K airflow (lbs/hr)	1323											
A/F	10.2											

TABLE A-52. AV3 ENGINE DATA, 65% POWER

Test	T2-19	T2-19	T2-19	T2-19	T2-16	T2-16	T2-16	T2-16	T2-16	T2-16
Barometer (in. Hg)	30.01	30.01	30.01	30.01	29.80	29.80	29.80	29.80	29.80	29.80
Fuel	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3	AV3
Test Points	W	T	U	V	U	V	W**	X	Y	Z
MAP (in. Hg)	24.07	24.04	24.06	24.06	24.02	24.00	24.01	23.98	24.02	24.04
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	400	404	405	406	404	402	396	384	364	329
BHP	179	181	182	182	181	180	177	172	163	148
TCBHP	187	189	189	190	189	188	185	180	170	154
LCBHP	186	188	188	189	189	188	185	179	170	154
BMEP (psig)	91.6	92.2	92.7	92.7	92.3	91.8	90.5	87.6	82.9	75.3
FF (lbs/hr)	109.9	105.0	99.3	96.1	90.7	86.7	82.1	77.7	73.3	68.4
FFG (gal/hr)	17.6	16.8	15.9	15.4	14.4	13.8	13.1	12.4	11.7	10.9
% Relative FF	20.3	15.0	8.7	5.3	-0.7	-5.1	-10.1	-14.9	-19.7	-25.1
BSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.50	0.48	0.46	0.45	0.45	0.46
TCBSFC (lbs/hp hr)	0.59	0.56	0.52	0.51	0.48	0.46	0.44	0.43	0.43	0.44
LCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.51	0.48	0.46	0.44	0.43	0.43	0.44
IAT (°F)	102	103	103	103	105	105	104	105	104	104
IAP (in. Hg)	30.04	30.04	30.05	30.05	29.90	29.89	29.88	29.88	29.89	29.89
Cowl T (°F)	102	105	103	103	103	100	101	103	109	109
Cowl P (in H_2O)	1.2	1.7	1.7	1.9	2.2	2.0	2.2	1.9	1.8	1.5
Fuel T (°F)	98	97	97	98	93	93	93	95	96	97
Fuel Dens (lbs/gal)	6.25	6.25	6.25	6.25	6.28	6.28	6.27	6.27	6.27	6.26
MTDP (psig)	3.9	3.6	3.2	3.0	2.8	2.5	2.3	2.0	1.8	1.6
Pump P (psig)	20.2	20.3	20.3	20.3	20.4	20.4	20.4	20.4	20.4	20.4
CHT1 (°F)	453	450	453	452	453	454	453	452	451	446
CHT2 (°F)	445	442	446	443	443	443	442	443	445	447
CHT3 (°F)	450	447	449	448	451	451	450	448	448	444
CHT4 (°F)	443	441	444	442	443	443	441	440	441	440
CHT5 (°F)	475	473	475	475	475	475	475	475	475	475
CHT6 (°F)	458	456	457	453	456	455	451	441	437	431
EGT1 (°F)	1345	1372	1407	1432	1470	1500	1539	1559	1532	1503
EGT2 (°F)	1339	1364	1399	1423	1465	1494	1531	1557	1536	1498
EGT3 (°F)	1367	1393	1428	1451	1492	1522	1561	1583	1555	1517
EGT4 (°F)	1347	1374	1408	1434	1472	1503	1545	1568	1540	1506
EGT5 (°F)	1360	1385	1419	1445	1479	1510	1545	1573	1546	1516
EGT6 (°F)	1375	1398	1434	1459	1495	1528	1557	1551	1523	1496
Oil T (°F)	229	229	231	230	228	233	229	229	230	227
Oil P (psig)	60	60	60	60	60	60	60	61	60	60
Hum T (°F)	94	95	95	95	100	100	100	100	100	100
Hum ratio (gr/lb)	1	1	1	1	1	1	1	1	1	1
AFR	11.4	11.8	12.3	12.7	13.4	13.9	14.6	15.4	16.1	17.5
AFL	11.3	11.7	12.2	12.6	13.2	13.8	14.5	15.2	16.1	17.5

TABLE A-53. AV4 ENGINE DATA, TO POWER

Test	T2-19	T2-19	T2-19	T2-19	T2-15	T2-15	T2-15	T2-19	T2-15
Barometer (in. Hg)	30.01	30.01	30.01	30.01	30.12	30.12	30.12	30.01	30.12
Fuel	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4
Test Points	AC	AB	AA	Z	A	P	Q	Y**	V
MAP (in. Hg)	29.39	29.46	29.49	29.50	29.60	29.64	29.62	29.52	29.63
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	529	535	537	537	546	547	544	541	541
BHP	273	275	277	277	281	281	280	278	278
TCBHP	285	288	289	289	292	294	292	291	291
LCBHP	283	286	287	287	290	291	289	289	288
BMEP (psig)	121.0	122.0	122.7	122.7	124.5	124.7	124.2	123.4	123.5
FF (lbs/hr)	162.2	155.8	149.8	149.4	139.4	130.8	124.7	123.0	117.4
FFG (gal/hr)	27.5	26.4	25.4	25.3	23.3	21.9	21.0	20.9	19.7
% Relative FF	17.6	12.9	8.6	8.3	1.1	-5.1	-9.5	-10.7	-14.8
BSFC (lbs/hp hr)	0.60	0.57	0.54	0.54	0.50	0.46	0.45	0.44	0.42
TCBSFC (lbs/hp hr)	0.57	0.54	0.52	0.52	0.48	0.45	0.45	0.42	0.42
LCBSFC (lbs/hp hr)	0.57	0.55	0.52	0.52	0.48	0.45	0.43	0.43	0.41
IAT (°F)	105	105	105	105	102	105	104	105	105
IAP (in. Hg)	30.05	30.05	30.05	30.05	30.20	30.21	30.19	30.06	30.20
Cowl T (°F)	103	104	104	104	98	112	107	103	109
Cowl P (in H_2O)	2.5	3.7	3.0	3.3	5.2	4.9	6.1	2.6	4.6
Fuel T (°F)	94	95	95	95	77	81	83	96	84
Fuel Dens (lbs/gal)	5.90	5.90	5.90	5.90	5.98	5.96	5.95	5.90	5.95
MTDP (psig)	9.1	8.4	7.9	7.9	7.0	6.2	5.8	5.6	5.4
Pump P (psig)	20.3	20.3	20.3	20.4	20.5	20.8	20.8	20.4	20.9
CHT1 (°F)	456	454	456	456	447	447	446	458	448
CHT2 (°F)	436	433	435	434	422	426	421	439	426
CHT3 (°F)	450	447	449	449	440	441	438	450	441
CHT4 (°F)	439	437	439	438	423	431	429	443	432
CHT5 (°F)	475	474	476	475	475	475	474	478	474
CHT6 (°F)	457	453	455	455	447	448	444	457	444
EGT1 (°F)	1380	1407	1431	1429	1485	1534	1564	1561	1586
EGT2 (°F)	1351	1377	1400	1399	1452	1498	1532	1528	1550
EGT3 (°F)	1391	1419	1443	1441	1501	1551	1583	1580	1607
EGT4 (°F)	1362	1389	1413	1413	1468	1521	1548	1550	1569
EGT5 (°F)	1391	1419	1442	1441	1493	1542	1575	1576	1596
EGT6 (°F)	1384	1410	1434	1432	1486	1533	1565	1569	1587
Oil T (°F)	228	229	229	229	234	234	234	221	232
Oil P (psig)	64	64	64	64	62	62	62	64	62
Hum T (°F)	98	98	98	98	100	102	102	98	102
Hum ratio (gr/lb)	1	1	1	1	0	0	0	1	0
AFR	10.9	11.3	11.6	11.6	12.2	13.1	13.7	13.6	14.0
AFL	10.8	11.2	11.5	11.5	12.3	13.1	13.7	13.7	14.0

TABLE A-54. AV4 ENGINE DATA, 85% POWER

Test	T2-19	T2-19	T2-19	T2-19	T2-19	T2-15	T2-15	T2-15	T2-15	T2-15	T2-15	T2-22	T2-22
Barometer (in. Hg)	30.01	30.01	30.01	30.01	30.01	30.12	30.12	30.12	30.12	30.12	30.12	29.82	29.82
Fuel	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4
Test Points	AH	AG	AF	AE	AD	B	C	R	S	T	U	D***	E
MAP (in. Hg)	27.12	27.10	27.11	27.12	27.10	27.30	27.35	27.21	27.32	27.33	27.32	27.11	27.15
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	468	471	475	478	478	481	482	481	479	472	450	451	416
BHP	232	233	235	237	237	239	239	238	237	234	223	223	206
TCBHP	242	244	246	247	248	250	250	249	248	244	234	233	215
LCBHP	241	242	244	246	246	247	247	246	245	242	231	231	214
BMEP (psig)	106.9	107.8	108.6	109.3	109.3	110.1	110.0	109.9	109.5	107.8	103.0	102.9	95.4
FF (lbs/hr)	141.2	135.3	128.6	123.3	118.0	117.6	112.3	111.8	106.0	100.0	95.8	93.4	87.0
FFG (gal/hr)	23.9	23.0	21.8	20.9	20.0	19.7	18.8	18.8	17.9	16.8	16.2	15.8	14.8
% Relative FF	20.0	15.0	9.2	4.7	0.3	-0.1	-4.6	-5.0	-9.9	-15.0	-18.6	-20.7	-26.1
BSFC (lbs/hp hr)	0.61	0.58	0.55	0.52	0.50	0.49	0.47	0.47	0.45	0.43	0.43	0.42	0.42
TCBSFC (lbs/hp hr)	0.58	0.56	0.52	0.50	0.48	0.47	0.45	0.45	0.43	0.41	0.41	0.40	0.41
LCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.50	0.48	0.48	0.45	0.45	0.43	0.41	0.41	0.41	0.41
IAT (°F)	103	104	105	104	105	105	106	104	104	105	105	101	101
IAP (in. Hg)	30.05	30.05	30.06	30.06	30.05	30.19	30.20	30.19	30.20	30.20	30.21	30.00	30.00
Cowl T (°F)	101	102	102	102	103	102	106	110	116	115	115	105	104
Cowl P (in H_2O)	1.7	1.8	2.2	2.8	2.6	3.2	3.2	4.0	4.2	4.1	3.4	3.0	2.1
Fuel T (°F)	96	96	97	97	97	80	81	82	85	85	86	100	102
Fuel Dens (lbs/gal)	5.90	5.89	5.89	5.89	5.89	5.97	5.96	5.95	5.95	5.94	5.94	5.89	5.89
MTDP (psig)	6.9	6.4	5.7	5.3	4.9	4.9	4.5	4.5	4.1	3.7	3.4	3.2	2.8
Pump P (psig)	20.3	20.4	20.4	20.4	20.5	20.5	20.5	20.7	20.8	20.8	20.9	20.0	20.0
CHT1 (°F)	456	456	456	456	458	451	451	448	449	447	447	462	458
CHT2 (°F)	441	441	442	441	443	435	434	432	431	429	435	454	452
CHT3 (°F)	451	451	452	451	452	447	447	445	446	445	445	462	460
CHT4 (°F)	438	439	440	440	442	437	434	432	437	436	441	449	448
CHT5 (°F)	475	475	475	475	475	475	477	474	475	474	474	477	474
CHT6 (°F)	452	453	453	453	455	448	447	446	445	443	441	454	450
EGT1 (°F)	1334	1365	1405	1429	1458	1474	1505	1505	1546	1580	1577	1590	1551
EGT2 (°F)	1313	1341	1377	1400	1430	1446	1478	1477	1517	1552	1558	1571	1534
EGT3 (°F)	1354	1384	1422	1446	1476	1492	1523	1523	1566	1603	1603	1620	1578
EGT4 (°F)	1324	1352	1389	1412	1442	1454	1485	1484	1525	1562	1587	1597	1560
EGT5 (°F)	1352	1381	1417	1440	1469	1485	1516	1514	1556	1590	1582	1585	1552
EGT6 (°F)	1349	1378	1414	1437	1468	1480	1511	1513	1553	1587	1577	1577	1544
Oil T (°F)	231	230	232	230	231	232	231	227	230	230	231	225	224
Oil P (psig)	63	63	63	63	63	61	61	61	62	61	62	64	64
Hum T (°F)	97	97	97	97	98	101	103	101	101	101	101	100	100
Hum ratio (gr/lb)	1	1	1	1	1	0	0	0	0	0	0	2	2
AFR	10.8	11.2	11.6	12.0	12.4	12.6	13.1	13.1	13.8	14.6	15.3	15.5	16.8
AFL	10.7	11.1	11.6	12.0	12.4	12.6	13.1	13.1	13.9	14.7	15.4	15.6	16.9
K airflow (lbs/hr)												17.0	18.4
A/F												1591	1596

TABLE A-55. AV4 ENGINE DATA, 75% POWER

Test	T2-19	T2-19	T2-19	T2-19	T2-15	T2-19	T2-15	T2-15	T2-15	T2-15	T2-15
Barometer (in. Hg)	30.01	30.01	30.01	30.01	30.12	30.01	30.12	30.12	30.12	30.12	30.12
Fuel	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4
Test Points	AM	AL	AK	AJ	D	AI	E	F	G	H	I***
MAP (in. Hg)	25.83	25.82	25.82	25.81	26.07	25.80	26.08	26.08	26.07	26.07	26.06
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	436	440	443	447	451	447	451	450	444	423	400
BHP	204	205	207	209	211	209	210	210	207	198	187
TCBHP	213	215	216	218	220	218	220	220	217	207	196
LCBHP	212	213	215	217	218	217	218	217	214	205	194
BMEP (psig)	99.8	100.6	101.4	102.0	103.1	102.2	103.1	102.8	101.4	96.9	91.6
FF (lbs/hr)	125.0	119.3	114.6	108.7	104.0	103.5	98.6	93.8	89.0	83.1	78.8
FFG (gal/hr)	21.2	20.2	19.5	18.4	17.5	17.6	16.5	15.8	15.0	14.0	13.3
% Relative FF	20.3	14.8	10.3	4.6	0.1	-0.4	-5.1	-9.8	-14.3	-20.0	-24.2
BSFC (lbs/hp hr)	0.61	0.58	0.55	0.52	0.49	0.50	0.47	0.45	0.43	0.42	0.42
TCBSFC (lbs/hp hr)	0.59	0.55	0.53	0.50	0.47	0.48	0.45	0.43	0.41	0.40	0.40
LCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.50	0.48	0.48	0.45	0.43	0.42	0.41	0.41
IAT (°F)	104	104	104	104	104	104	105	105	104	106	107
IAP (in. Hg)	30.05	30.05	30.05	30.05	30.21	30.04	30.20	30.20	30.19	30.20	30.21
Cowl T (°F)	108	105	101	101	104	101	102	102	102	106	109
Cowl P (in H_2O)	1.0	1.5	1.9	1.9	2.4	1.6	2.3	2.5	2.9	2.3	3.4
Fuel T (°F)	97	97	98	98	81	97	82	83	84	85	87
Fuel Dens (lbs/gal)	5.90	5.89	5.89	5.89	5.96	5.89	5.96	5.95	5.95	5.95	5.94
MTDP (psig)	5.4	4.9	4.6	4.1	3.9	3.7	3.5	3.2	2.9	2.5	2.3
Pump P (psig)	20.3	20.4	20.4	20.4	20.6	20.4	20.6	20.6	20.6	20.7	20.7
CHT1 (°F)	452	453	454	454	447	457	447	446	443	441	442
CHT2 (°F)	445	443	444	443	435	447	433	432	430	431	436
CHT3 (°F)	449	449	449	449	443	452	443	442	440	440	443
CHT4 (°F)	443	442	442	443	436	446	436	435	432	436	440
CHT5 (°F)	475	475	475	475	476	476	476	476	475	475	476
CHT6 (°F)	457	456	456	456	447	458	447	445	440	436	433
EGT1 (°F)	1306	1335	1365	1401	1439	1435	1472	1508	1546	1556	1530
EGT2 (°F)	1295	1322	1350	1386	1422	1420	1457	1496	1534	1548	1520
EGT3 (°F)	1323	1351	1378	1416	1458	1451	1492	1531	1569	1592	1560
EGT4 (°F)	1306	1334	1360	1396	1432	1431	1467	1507	1544	1575	1547
EGT5 (°F)	1322	1349	1376	1410	1450	1446	1484	1520	1557	1571	1540
EGT6 (°F)	1332	1360	1386	1422	1458	1455	1493	1529	1563	1550	1525
Oil T (°F)	230	228	228	228	231	232	233	232	230	230	230
Oil P (psig)	61	61	61	61	60	61	60	60	60	60	60
Hum T (°F)	96	96	96	96	102	96	102	102	102	102	103
Hum ratio (gr/lb)	1	1	1	1	0	1	0	0	0	0	0
AFR	10.8	11.2	11.6	12.1	12.6	12.6	13.3	13.9	14.5	15.4	16.4
AFL	10.6	11.1	11.5	12.0	12.5	12.5	13.3	13.9	14.5	15.5	16.4

TABLE A-56. AV4 ENGINE DATA, 65% POWER

Test	T2-19	T2-19	T2-19	T2-19	T2-15	T2-19	T2-15	T2-15	T2-15	T2-15	T2-15
Barometer (in. Hg)	30.01	30.01	30.01	30.01	30.12	30.01	30.12	30.12	30.12	30.12	30.12
Fuel	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4	AV4
Test Points	AR	AQ	AP	AO	J	AN	K	L	M	N***	O
MAP (in. Hg)	24.16	24.17	24.18	24.17	24.22	24.16	24.22	24.22	24.23	24.23	24.27
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	397	400	401	402	407	406	407	405	397	380	356
BHP	178	179	180	180	182	182	182	181	178	170	159
TCBHP	185	187	188	188	190	190	190	190	186	179	166
LCBHP	184	186	187	187	188	189	188	187	184	176	164
BMEP (psig)	90.6	91.4	91.6	91.8	93.0	92.5	93.0	92.7	90.8	87.4	81.2
FF (lbs/hr)	110.1	105.5	100.9	96.4	91.1	90.7	86.6	82.2	77.4	73.0	68.5
FFG (gal/hr)	18.7	17.9	17.2	16.4	15.3	15.4	14.6	13.8	13.0	12.3	11.6
% Relative FF	20.6	15.6	10.5	5.6	-0.2	-0.7	-5.2	-9.9	-15.3	-20.0	-25.0
BSFC (lbs/hp hr)	0.62	0.59	0.56	0.53	0.50	0.50	0.48	0.45	0.44	0.43	0.43
TCBSFC (lbs/hp hr)	0.59	0.56	0.54	0.51	0.48	0.48	0.45	0.43	0.42	0.41	0.42
LCBSFC (lbs/hp hr)	0.60	0.57	0.54	0.51	0.48	0.48	0.46	0.44	0.42	0.41	0.42
IAT (°F)	103	104	104	105	103	105	103	103	104	104	103
IAP (in. Hg)	30.05	30.05	30.04	30.05	30.18	30.03	30.18	30.20	30.17	30.19	30.18
Cowl T (°F)	107	105	106	107	103	109	101	100	100	101	105
Cowl P (in H_2O)	0.9	1.5	1.0	1.6	2.1	1.5	2.1	2.2	2.3	2.3	1.3
Fuel T (°F)	99	99	99	100	83	99	84	84	85	86	87
Fuel Dens (lbs/gal)	5.89	5.89	5.89	5.89	5.95	5.89	5.95	5.95	5.95	5.94	5.94
MTDP (psig)	4.2	3.9	3.5	3.2	3.0	2.9	2.7	2.4	2.2	2.0	1.7
Pump P (psig)	20.3	20.3	20.4	20.3	20.6	20.4	20.6	20.6	20.6	20.6	20.6
CHT1 (°F)	455	454	455	455	446	455	445	445	443	440	437
CHT2 (°F)	450	448	448	446	436	449	434	433	432	430	434
CHT3 (°F)	453	451	453	452	444	453	443	443	441	439	437
CHT4 (°F)	445	443	446	445	437	447	434	433	432	430	431
CHT5 (°F)	475	474	475	475	476	475	475	476	475	474	475
CHT6 (°F)	460	458	460	460	450	460	448	446	443	437	427
EGT1 (°F)	1301	1323	1354	1379	1428	1424	1457	1500	1534	1539	1507
EGT2 (°F)	1296	1317	1348	1367	1420	1415	1449	1487	1524	1540	1513
EGT3 (°F)	1322	1344	1374	1394	1448	1441	1478	1520	1558	1566	1532
EGT4 (°F)	1303	1328	1357	1380	1424	1426	1456	1499	1541	1554	1522
EGT5 (°F)	1315	1338	1368	1390	1440	1436	1469	1508	1545	1559	1530
EGT6 (°F)	1330	1353	1383	1405	1450	1451	1481	1521	1547	1528	1502
Oil T (°F)	229	228	229	230	233	230	231	230	228	230	231
Oil P (psig)	60	60	60	60	59	60	59	59	59	59	59
Hum T (°F)	96	96	96	96	101	96	101	100	101	101	100
Hum ratio (gr/lb)	1	1	1	1	0	1	0	0	0	0	0
AFR	10.8	11.2	11.6	12.0	12.7	12.6	13.3	14.0	14.8	15.6	16.7
AFL	10.7	11.1	11.5	11.9	12.6	12.5	13.2	13.9	14.7	15.5	16.7

TABLE A-57. AV5 ENGINE DATA, TO POWER

Test	T2-20	T2-20	T2-20	T2-20	T2-50	T2-20	T2-14
Barometer (in. Hg)	30.10	30.10	30.10	30.10	30.10	30.10	30.18
Fuel	AV5	AV5	AV5	AV5	AV5	AV5	AV5
Test Points	A	B	C	D	B	E**	P
MAP (in. Hg)	29.52	29.56	29.54	29.55	29.84	29.56	29.70
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	536	541	539	540	541	542	552
BHP	276	279	277	278	279	279	284
TCBHP	288	289	289	291	290	292	298
LCBHP	285	287	287	288	286	290	293
BMEP (psig)	122.4	123.7	123.1	123.4	123.6	123.7	126.5
FF (lbs/hr)	168.4	166.7	163.5	157.3	155.3	145.9	137.3
FFG (gal/hr)	27.0	26.7	26.2	25.3	24.8	23.5	22.0
% Relative FF	22.2	20.9	18.7	14.2	12.7	5.9	-0.5
BSFC (lbs/hp hr)	0.61	0.60	0.59	0.57	0.56	0.52	0.48
TCBSFC (lbs/hp hr)	0.59	0.58	0.57	0.54	0.54	0.50	0.47
LCBSFC (lbs/hp hr)	0.59	0.58	0.57	0.55	0.55	0.50	0.47
IAT (°F)	102	96	102	105	102	108	104
IAP (in. Hg)	30.12	30.12	30.12	30.12	30.38	30.12	30.27
Cowl T (°F)	103	101	103	104	103	105	105
Cowl P (in H_2O)	2.2	2.5	2.6	2.9	3.2	3.8	6.0
Fuel T (°F)	89	89	90	90	85	92	88
Fuel Dens (lbs/gal)	6.23	6.23	6.23	6.23	6.25	6.23	6.25
MTDP (psig)	9.5	9.2	9.0	8.4	8.7	7.3	6.5
Pump P (psig)	20.3	20.4	20.4	20.4	20.4	20.5	20.6
CHT1 (°F)	467	467	465	468	459	465	449
CHT2 (°F)	449	447	445	448	439	447	420
CHT3 (°F)	462	460	459	462	456	463	440
CHT4 (°F)	443	442	440	443	440	441	426
CHT5 (°F)	476	475	474	476	474	480	477
CHT6 (°F)	469	467	465	468	455	468	447
EGT1 (°F)	1400	1409	1417	1447	1457	1495	1544
EGT2 (°F)	1376	1388	1392	1419	1433	1463	1510
EGT3 (°F)	1418	1431	1434	1461	1468	1508	1559
EGT4 (°F)	1387	1402	1404	1431	1440	1482	1533
EGT5 (°F)	1421	1434	1438	1463	1473	1505	1549
EGT6 (°F)	1408	1423	1426	1451	1463	1499	1543
Oil T (°F)	231	228	230	230	241	226	230
Oil P (psig)	65	65	65	65	66	65	62
Hum T (°F)	100	95	94	96	102	100	103
Hum ratio (gr/lb)	1	1	1	1	0	1	0
AFR	11.1	11.3	11.4	11.7	11.6	12.4	13.23
AFL	11.1	11.2	11.3	11.7	11.6	12.4	13.25
K airflow (lbs/hr)					1710		
A/F					11.0		

TABLE A-58. AV5 ENGINE DATA, 85% POWER

Test	T2-20	T2-20	T2-20	T2-20	T2-14
Barometer (in. Hg)	30.10	30.10	30.10	30.10	30.18
Fuel	AV5	AV5	AV5	AV5	AV5
Test Points	F	G	H	I**	Q
MAP (in. Hg)	27.24	27.26	27.27	27.30	27.35
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	475	478	479	482	486
BHP	236	237	238	239	241
TCBHP	246	248	249	250	252
LCBHP	244	246	247	248	249
BMEP (psig)	108.7	109.3	109.7	110.2	111.2
FF (lbs/hr)	140.7	135.1	129.6	123.8	116.6
FFG (gal/hr)	22.6	21.8	20.9	19.9	18.7
% Relative FF	19.5	14.8	10.1	5.1	-1.0
BSFC (lbs/hp hr)	0.60	0.57	0.54	0.52	0.49
TCBSFC (lbs/hp hr)	0.57	0.55	0.52	0.49	0.46
LCBSFC (lbs/hp hr)	0.58	0.55	0.52	0.50	0.47
IAT (°F)	105	105	106	105	106
IAP (in. Hg)	30.12	30.11	30.10	30.13	30.25
Cowl T (°F)	101	104	105	103	102
Cowl P (in H_2O)	1.7	2.1	2.3	2.4	4.2
Fuel T (°F)	92	93	93	94	90
Fuel Dens (lbs/gal)	6.22	6.22	6.21	6.21	6.24
MTDP (psig)	6.5	6.0	5.5	5.1	4.6
Pump P (psig)	20.5	20.5	20.5	20.6	20.6
CHT1 (°F)	464	464	464	463	450
CHT2 (°F)	452	451	452	449	431
CHT3 (°F)	462	461	462	460	445
CHT4 (°F)	441	441	441	440	433
CHT5 (°F)	476	476	477	476	475
CHT6 (°F)	465	464	462	462	445
EGT1 (°F)	1392	1418	1448	1476	1533
EGT2 (°F)	1369	1394	1422	1449	1504
EGT3 (°F)	1414	1440	1469	1496	1526
EGT4 (°F)	1378	1406	1434	1461	1515
EGT5 (°F)	1412	1437	1463	1489	1539
EGT6 (°F)	1403	1430	1458	1487	1542
Oil T (°F)	231	226	228	230	232
Oil P (psig)	63	64	64	64	62
Hum T (°F)	99	99	99	99	102
Hum ratio (gr/lb)	1	1	1	1	0
AFR	11.5	11.9	12.2	12.7	13.53
AFL	11.4	11.8	12.2	12.7	13.57

TABLE A-59. AV5 ENGINE DATA, 75% POWER

Test	T2-20	T2-20	T2-20	T2-20	T2-14	T2-14
Barometer (in. Hg)	30.10	30.10	30.10	30.10	30.18	30.18
Fuel	AV5	AV5	AV5	AV5	AV5	AV5
Test Points	J	K	L	M	T**	U
MAP (in. Hg)	25.97	25.98	26.01	26.00	26.10	26.11
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	447	448	451	451	456	454
BHP	209	209	210	210	213	212
TCBHP	218	219	220	220	223	221
LCBHP	216	217	218	219	220	219
BMEP (psig)	102.1	102.3	103.2	103.2	104.5	103.6
FF (lbs/hr)	125.0	120.3	114.4	109.6	103.2	98.6
FFG (gal/hr)	20.1	19.4	18.4	17.7	16.5	15.8
% Relative FF	20.3	15.8	10.1	5.5	-0.7	-5.1
BSFC (lbs/hp hr)	0.60	0.58	0.55	0.52	0.48	0.47
TCBSFC (lbs/hp hr)	0.57	0.55	0.52	0.50	0.46	0.44
LCBSFC (lbs/hp hr)	0.58	0.56	0.53	0.50	0.47	0.45
IAT (°F)	103	105	104	105	104	104
IAP (in. Hg)	30.10	30.10	30.10	30.10	30.25	30.25
Cowl T (°F)	103	103	102	103	103	105
Cowl P (in H_2O)	1.5	1.8	1.9	2.5	3.8	3.8
Fuel T (°F)	94	94	95	96	92	93
Fuel Dens (lbs/gal)	6.21	6.21	6.21	6.21	6.23	6.22
MTDP (psig)	5.1	4.8	4.3	4.0	3.6	3.3
Pump P (psig)	20.5	20.5	20.5	20.5	20.6	20.6
CHT1 (°F)	459	460	460	460	447	445
CHT2 (°F)	451	451	450	449	430	429
CHT3 (°F)	456	457	457	457	440	439
CHT4 (°F)	444	444	442	442	433	431
CHT5 (°F)	475	478	476	476	475	475
CHT6 (°F)	464	465	463	462	445	442
EGT1 (°F)	1358	1381	1418	1444	1493	1525
EGT2 (°F)	1348	1369	1404	1431	1483	1512
EGT3 (°F)	1379	1401	1439	1463	1505	1548
EGT4 (°F)	1358	1379	1417	1444	1492	1525
EGT5 (°F)	1378	1398	1432	1456	1503	1534
EGT6 (°F)	1385	1404	1440	1465	1513	1543
Oil T (°F)	230	228	230	229	234	235
Oil P (psig)	61	62	61	61	60	60
Hum T (°F)	99	98	97	97	101	100
Hum ratio (gr/lb)	1	1	1	1	0	0
AFR	11.5	11.8	12.3	12.8	13.5	14.1
AFL	11.4	11.7	12.2	12.7	13.5	14.1

TABLE A-60. AV5 ENGINE DATA, 65% POWER

Test	T2-20	T2-20	T2-50	T2-50	T2-20	T2-14	T2-50	T2-14
Barometer (in. Hg)	30.10	30.10	30.38	30.38	30.10	30.18	30.38	30.18
Fuel	AV5	AV5	AV5	AV5	AV5	AV5	AV5	AV5
Test Points	N	O	G	H	P	AC	I**	AD
MAP (in. Hg)	23.98	24.00	24.30	24.35	23.97	24.29	24.33	24.28
rpm	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	401	401	407	407	399	413	406	410
BHP	180	180	183	182	179	185	182	184
TCBHP	188	188	191	190	187	194	190	192
LCBHP	186	186	187	187	185	191	187	189
BMEP (psig)	91.7	91.8	92.5	92.9	91.2	94.6	92.8	93.7
FF (lbs/hr)	104.6	100.0	99.5	96.0	95.8	91.0	90.7	86.8
FFG (gal/hr)	16.8	16.1	16.1	15.5	15.4	14.6	14.6	14.0
% Relative FF	14.5	9.5	9.0	5.1	4.9	-0.3	-0.7	-4.9
BSFC (lbs/hp hr)	0.58	0.56	0.55	0.53	0.54	0.49	0.50	0.47
TCBSFC (lbs/hp hr)	0.56	0.53	0.53	0.50	0.51	0.47	0.48	0.45
LCBSFC (lbs/hp hr)	0.56	0.54	0.54	0.51	0.52	0.48	0.49	0.46
IAT (°F)	104	103	103	104	104	103	103	104
IAP (in. Hg)	30.09	30.11	30.41	30.41	30.10	30.24	30.38	30.24
Cowl T (°F)	104	103	102	103	103	98	104	99
Cowl P (in H_2O)	1.2	1.4	2.2	1.7	1.3	2.9	2.0	2.2
Fuel T (°F)	95	96	94	94	98	93	95	94
Fuel Dens (lbs/gal)	6.21	6.21	6.21	6.20	6.20	6.22	6.19	6.22
MTDP (psig)	3.6	3.3	3.5	3.2	3.0	2.8	2.9	2.5
Pump P (psig)	20.4	20.5	20.1	20.1	20.4	20.6	20.1	20.5
CHT1 (°F)	458	460	443	447	464	449	448	447
CHT2 (°F)	455	453	436	441	454	431	443	429
CHT3 (°F)	457	458	442	447	461	442	448	441
CHT4 (°F)	447	451	429	435	461	429	436	428
CHT5 (°F)	475	476	473	478	477	475	480	474
CHT6 (°F)	465	466	448	454	467	445	453	445
EGT1 (°F)	1377	1403	1399	1424	1427	1478	1459	1511
EGT2 (°F)	1370	1396	1398	1425	1419	1471	1457	1505
EGT3 (°F)	1398	1424	1419	1449	1448	1501	1481	1536
EGT4 (°F)	1380	1404	1397	1425	1427	1483	1458	1518
EGT5 (°F)	1393	1417	1413	1441	1441	1492	1474	1522
EGT6 (°F)	1405	1430	1419	1455	1454	1503	1487	1534
Oil T (°F)	230	232	241	238	232	232	239	230
Oil P (psig)	60	60	62	62	60	59	62	59
Hum T (°F)	96	96	104	104	96	100	104	100
Hum ratio (gr/lb)	1	1	0	0	1	0	0	0
AFR	11.9	12.3	12.3	12.7	12.7	13.6	13.3	14.2
AFL	11.7	12.2	12.2	12.6	12.5	13.5	13.3	14.1
K airflow (lbs/hr)			1155	1145			1143	
A/F			11.6	11.9			12.6	

TABLE A-61. AV6 ENGINE DATA, TO POWER

Test	T2-43	T2-43	T2-43	T2-20	T2-20	T2-13	T2-20	T2-20	T2-20	T2-20
Barometer (in. Hg)	29.85	29.85	29.85	30.10	30.10	29.95	30.10	30.10	30.10	30.10
Fuel	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6
Test Points	O	P	Q	V	U	H	Q	R	S**	T
MAP (in. Hg)	29.00	29.00	29.00	29.54	29.55	29.48	29.55	29.51	29.49	29.37
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	528	528	528	542	544	543	544	538	535	519
BHP	272	272	271	279	280	279	280	277	275	267
TCBHP	283	284	283	292	293	293	293	290	289	280
LCBHP	283	283	283	290	291	290	290	287	286	278
BMEP (psig)	120.4	121.2	120.1	123.9	124.2	124.3	124.3	123.1	122.3	118.7
FF (lbs/hr)	171.8	167.6	159.6	152.0	145.0	140.7	138.0	131.1	125.3	117.6
FFG (gal/hr)	26.4	25.7	24.5	23.7	22.6	21.8	21.5	20.4	19.6	18.4
% Relative FF	24.7	21.7	15.8	10.3	5.2	2.1	0.1	-4.9	-9.0	-14.7
BSFC (lbs/hp hr)	0.63	0.62	0.59	0.54	0.52	0.50	0.49	0.47	0.46	0.44
TCBSFC (lbs/hp hr)	0.61	0.59	0.56	0.52	0.49	0.48	0.47	0.45	0.44	0.42
LCBSFC (lbs/hp hr)	0.61	0.59	0.56	0.52	0.50	0.48	0.48	0.46	0.44	0.43
IAT (°F)	101	102	102	107	108	105	105	106	108	107
IAP (in. Hg)	29.88	29.86	29.85	30.13	30.14	30.04	30.13	30.13	30.13	30.13
Cowl T (°F)	112	110	108	107	108	114	105	105	107	106
Cowl P (in H_2O)	3.3	2.6	3.0	2.8	3.9	4.2	3.1	4.0	3.9	3.5
Fuel T (°F)	74	75	75	96	97	88	94	96	97	96
Fuel Dens (lbs/gal)	6.51	6.51	6.51	6.41	6.41	6.45	6.42	6.42	6.41	6.41
MTDP (psig)	9.4	9.1	8.3	8.0	7.1	6.4	6.4	5.8	5.5	4.8
Pump P (psig)	19.4	19.4	19.4	20.6	20.6	20.6	20.6	20.7	20.7	20.8
CHT1 (°F)	452	453	453	462	462	455	460	463	462	460
CHT2 (°F)	434	434	434	439	441	436	444	447	445	442
CHT3 (°F)	446	448	450	456	457	453	458	461	460	456
CHT4 (°F)	435	436	436	438	440	436	441	444	444	440
CHT5 (°F)	474	475	474	476	476	475	475	477	475	471
CHT6 (°F)	452	454	454	462	461	455	462	464	459	456
EGT1 (°F)	1421	1434	1465	1477	1518	1561	1555	1594	1614	1637
EGT2 (°F)	1392	1406	1435	1446	1484	1525	1521	1558	1575	1612
EGT3 (°F)	1432	1447	1475	1493	1536	1579	1573	1615	1633	1662
EGT4 (°F)	1402	1416	1444	1461	1505	1544	1546	1583	1602	1637
EGT5 (°F)	1433	1448	1477	1490	1531	1572	1572	1611	1626	1636
EGT6 (°F)	1424	1438	1464	1482	1523	1559	1561	1603	1620	1629
Oil T (°F)	236	237	238	230	229	230	229	227	231	224
Oil P (psig)	64	63	64	64	64	62	64	64	64	65
Hum T (°F)	103	103	104	100	101	102	98	99	100	100
Hum ratio (gr/lb)	0	0	0	1	1	0	1	1	1	1
AFR	11.0	11.2	11.6	12.4	13.0	13.2	13.3	14.1	14.4	15.1
AFL	10.9	11.1	11.6	12.1	12.8	13.4	13.3	14.1	14.3	15.2
K airflow (lbs/hr)	1792	1789	1785							
A/F	10.4	10.7	11.2							

TABLE A-62. AV6 ENGINE DATA, 85% POWER

Test	T2-43	T2-43	T2-43	T2-43	T2-20	T2-20	T2-20	T2-20	T2-20	T2-20
Barometer (in. Hg)	29.85	29.85	29.85	29.85	30.10	30.10	30.10	30.10	30.10	30.10
Fuel	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6
Test Points	U	T	S	R	AB	AA	W	X	Y**	Z
MAP (in. Hg)	27.17	27.18	27.16	27.19	27.30	27.27	27.26	27.22	27.23	27.24
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	470	472	474	477	484	483	476	466	439	412
BHP	233	234	235	236	240	239	236	231	217	204
TCBHP	243	245	246	247	250	250	247	241	227	213
LCBHP	243	244	246	246	248	248	245	239	225	211
BMEP (psig)	107.1	108.0	108.2	108.4	110.4	110.4	108.8	106.2	100.4	94.8
FF (lbs/hr)	149.0	147.3	141.2	135.7	129.6	123.3	111.6	106.4	99.7	94.2
FFG (gal/hr)	22.9	22.7	21.7	20.8	20.3	19.3	17.4	16.6	15.6	14.7
% Relative FF	26.6	25.1	20.0	15.3	10.1	4.8	-5.2	-9.6	-15.3	-20.0
BSFC (lbs/hp hr)	0.64	0.63	0.60	0.57	0.54	0.52	0.47	0.46	0.46	0.46
TCBSFC (lbs/hp hr)	0.61	0.60	0.57	0.55	0.52	0.49	0.45	0.44	0.44	0.44
LCBSFC (lbs/hp hr)	0.61	0.60	0.57	0.55	0.52	0.50	0.46	0.44	0.44	0.45
IAT (°F)	102	103	104	102	103	102	106	104	103	103
IAP (in. Hg)	29.85	29.86	29.84	29.85	30.15	30.13	30.15	30.13	30.13	30.13
Cowl T (°F)	301	281	136	102	106	107	105	105	106	108
Cowl P (in H_2O)	2.1	2.0	3.2	2.8	2.2	2.8	3.4	2.6	2.3	2.2
Fuel T (°F)	76	77	77	77	99	100	99	100	101	101
Fuel Dens (lbs/gal)	6.51	6.50	6.50	6.51	6.40	6.39	6.40	6.39	6.39	6.39
MTDP (psig)	7.1	6.9	6.5	5.9	5.4	4.9	4.1	3.6	3.2	2.9
Pump P (psig)	19.4	19.4	19.4	19.5	20.6	20.7	20.6	20.7	20.7	20.8
CHT1 (°F)	455	452	454	452	467	468	465	466	464	467
CHT2 (°F)	439	437	440	440	453	455	450	455	459	462
CHT3 (°F)	448	445	449	448	464	466	461	465	466	468
CHT4 (°F)	435	433	436	437	446	450	444	453	461	463
CHT5 (°F)	475	470	474	474	476	475	475	475	474	476
CHT6 (°F)	452	452	454	453	466	464	461	461	456	458
EGT1 (°F)	1380	1391	1413	1444	1479	1514	1577	1618	1590	1567
EGT2 (°F)	1357	1367	1389	1422	1449	1482	1549	1595	1577	1551
EGT3 (°F)	1400	1412	1436	1470	1496	1531	1599	1645	1617	1593
EGT4 (°F)	1361	1373	1396	1428	1464	1497	1564	1611	1608	1584
EGT5 (°F)	1397	1408	1431	1464	1492	1526	1591	1627	1587	1566
EGT6 (°F)	1389	1400	1424	1456	1490	1524	1593	1619	1584	1568
Oil T (°F)	240	240	239	236	233	232	234	225	229	233
Oil P (psig)	62	62	62	63	63	63	63	63	63	63
Hum T (°F)	104	104	104	103	93	93	100	97	95	94
Hum ratio (gr/lb)	1	1	1	0	1	1	1	1	1	1
AFR	11.0	11.1	11.4	11.9	13.2	13.6	14.4	14.9	15.6	16.1
AFL	10.9	11.0	11.4	11.9	12.7	13.3	14.4	15.0	16.0	16.8
K airflow (lbs/hr)	1509	1507	1471	1500						
A/F	10.1	10.2	10.4	11.1						

TABLE A-63. AV6 ENGINE DATA, 75% POWER

Test	T2-43	T2-43	T2-20	T2-20	T2-20	T2-20	T2-13	T2-20	T2-13	T2-13	T2-20	T2-20	T2-13	T2-13
Barometer (in. Hg)	29.85	29.85	30.10	30.10	30.10	30.10	29.95	30.1	29.95	29.95	30.10	30.10	29.95	29.95
Fuel	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6
Test Points	W	V	AI	AH	AG	AF	J	AE	K	L	AC**	AD	M	N
MAP (in. Hg)	25.61	25.61	25.97	25.99	25.99	25.97	26.02	25.96	26.02	26.01	25.96	26.00	25.97	26.02
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	437	440	450	450	452	451	450	447	446	435	435	414	408	381
BHP	204	206	210	210	211	211	210	209	208	203	203	193	191	178
TCBHP	212	214	219	219	220	220	220	218	218	213	212	202	199	186
LCBHP	212	214	217	217	218	218	218	216	216	211	210	200	198	185
BMEP (psig)	99.5	100.5	102.7	102.8	103.3	103.1	102.8	102.3	101.9	99.5	99.7	94.8	93.2	87.1
FF (lbs/hr)	133.6	129.8	124.8	119.7	114.6	109.5	103.8	99.3	98.8	93.2	93.2	88.1	87.3	83.1
FFG (gal/hr)	20.5	19.9	19.5	18.7	17.9	17.2	16.2	15.5	15.4	14.5	14.6	13.8	13.6	13.0
% Relative FF	28.6	24.9	20.1	15.2	10.3	5.4	-0.1	-4.5	-4.9	-10.3	-10.3	-15.2	-15.9	-20.0
BSFC (lbs/hp hr)	0.66	0.63	0.60	0.57	0.54	0.52	0.49	0.47	0.47	0.46	0.46	0.45	0.46	0.47
TCBSFC lbs/hp hr)	0.63	0.61	0.57	0.55	0.52	0.50	0.47	0.45	0.45	0.44	0.44	0.44	0.44	0.44
LCBSFC lbs/hp hr)	0.63	0.61	0.58	0.55	0.53	0.50	0.48	0.46	0.46	0.44	0.44	0.44	0.44	0.45
IAT (°F)	100	100	103	103	103	103	106	103	106	106	103	103	105	104
IAP (in. Hg)	29.85	29.85	30.14	30.14	30.14	30.15	30.04	30.14	30.06	30.05	30.14	30.14	30.05	30.05
Cowl T (°F)	102	102	108	109	108	108	115	107	116	115	106	106	109	110
Cowl P (in H_2O)	1.3	1.7	1.8	1.8	2.1	2.3	2.7	2.2	4.0	3.8	2.0	2.3	3.0	1.8
Fuel T (°F)	75	75	100	100	101	102	93	102	95	96	101	102	98	99
Fuel Dens (lbs/gal)	6.51	6.51	6.39	6.39	6.39	6.39	6.43	6.39	6.43	6.42	6.39	6.39	6.41	6.41
MTDP (psig)	5.7	5.4	5.0	4.6	4.2	3.9	3.5	3.2	3.2	2.9	2.8	2.5	2.5	2.3
Pump P (psig)	19.3	19.3	20.5	20.5	20.5	20.5	20.4	20.6	20.5	20.6	20.6	20.6	20.6	20.6
CHT1 (°F)	445	446	459	462	460	461	452	462	450	450	461	459	448	447
CHT2 (°F)	436	439	449	451	449	450	444	453	442	442	451	455	450	452
CHT3 (°F)	442	445	457	460	458	459	453	461	451	450	460	460	454	454
CHT4 (°F)	432	433	446	448	447	449	444	452	442	442	447	454	451	452
CHT5 (°F)	474	474	475	477	474	475	475	476	475	474	476	475	474	475
CHT6 (°F)	449	451	463	466	463	463	457	459	453	449	461	450	444	443
EGT1 (°F)	1330	1355	1386	1416	1444	1475	1513	1538	1553	1579	1580	1558	1546	1524
EGT2 (°F)	1324	1348	1373	1403	1427	1461	1497	1524	1534	1566	1565	1551	1547	1520
EGT3 (°F)	1350	1375	1404	1434	1459	1492	1477	1560	1567	1610	1602	1592	1584	1553
EGT4 (°F)	1327	1350	1383	1413	1437	1471	1512	1535	1550	1585	1580	1578	1576	1542
EGT5 (°F)	1345	1370	1401	1430	1454	1487	1523	1550	1563	1588	1586	1563	1558	1532
EGT6 (°F)	1352	1375	1411	1440	1466	1498	1533	1565	1568	1579	1581	1551	1544	1522
Oil T (°F)	219	208	230	227	230	227	228	231	232	228	233	229	227	231
Oil P (psig)	64	66	61	61	61	61	59	61	59	60	61	61	60	60
Hum T (°F)	102	102	93	93	93	93	102	93	102	101	93	93	101	100
Hum ratio (gr/lb)	1	1	1	1	1	1	0	1	0	0	1	1	0	0
AFR	10.8	11.1	12.8	13.1	13.4	13.8	13.6	14.5	14.3	15.0	15.0	15.5	16.1	17.1
AFL	10.7	11.0	11.8	12.2	12.6	13.1	13.6	14.3	14.3	15.0	15.0	15.9	16.1	17.2
K airflow (lbs/hr)	1273	1281												
A/F	9.5	9.9												

TABLE A-64. AV6 ENGINE DATA, 65% POWER

Test	T2-43	T2-43	T2-20	T2-20	T2-20	T2-20	T2-13	T2-20	T2-13	T2-20	T2-13	T2-20	T2-13	T2-13
Barometer (in. Hg)	29.85	29.85	30.10	30.10	30.10	30.10	29.95	30.10	29.95	30.10	29.95	30.10	29.95	29.95
Fuel	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6	AV6
Test Points	Y	X	AP	AO	AN	AM	O	AJ	P	AK	Q	AL***	R	S
MAP (in. Hg)	24.00	24.00	24.18	24.15	24.14	24.16	24.03	24.15	24.13	24.16	24.13	24.17	24.11	24.15
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	396	396	404	405	406	407	402	401	399	393	391	378	370	346
BHP	177	178	181	181	182	182	180	180	179	176	175	169	166	155
TCBHP	185	185	189	189	190	190	188	188	187	184	183	177	172	162
LCBHP	185	185	187	188	188	189	187	186	186	182	182	175	172	161
BMEP (psig)	90.5	90.7	92.7	92.6	92.9	92.9	91.9	91.7	91.1	89.7	89.2	86.7	84.1	79.3
FF (lbs/hr)	116.8	114.6	110.4	105.3	100.9	96.4	91.6	85.9	85.8	82.5	81.8	78.5	77.0	73.0
FFG (gal/hr)	18.0	17.6	17.3	16.5	15.8	15.1	14.3	13.5	13.4	12.9	12.8	12.3	12.0	11.4
% Relative FF	27.9	25.5	20.9	15.3	10.5	5.6	0.3	-5.9	-6.0	-9.6	-10.4	-14.0	-15.7	-20.0
BSFC (lbs/hp hr)	0.66	0.65	0.61	0.58	0.55	0.53	0.51	0.48	0.48	0.47	0.47	0.46	0.46	0.47
TCBSFC (lbs/hp hr)	0.63	0.62	0.58	0.56	0.53	0.50	0.49	0.46	0.46	0.45	0.45	0.44	0.45	0.45
LCBSFC (lbs/hp hr)	0.63	0.62	0.59	0.56	0.54	0.51	0.49	0.46	0.46	0.45	0.45	0.45	0.45	0.45
IAT (°F)	102	102	102	103	103	104	104	103	105	103	106	104	104	104
IAP (in. Hg)	29.84	29.85	30.14	30.13	30.14	30.14	30.03	30.14	30.03	30.15	30.04	30.14	30.03	30.04
Cowl T (°F)	99	101	105	106	106	107	111	107	109	107	108	107	105	104
Cowl P (in H_2O)	1.5	1.7	1.5	1.4	1.7	1.8	2.0	1.9	2.1	1.8	1.8	1.5	2.1	1.0
Fuel T (°F)	76	76	101	102	103	104	97	103	98	103	99	104	100	102
Fuel Dens (lbs/gal)	6.51	6.51	6.39	6.39	6.38	6.38	6.41	6.39	6.41	6.38	6.41	6.38	6.40	6.40
MTDP (psig)	4.4	4.2	3.9	3.5	3.2	2.9	2.7	2.3	2.4	2.2	2.2	1.9	1.9	1.7
Pump P (psig)	19.3	19.4	20.4	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
CHT1 (°F)	447	448	457	459	461	461	451	461	452	461	451	460	447	446
CHT2 (°F)	441	442	450	451	452	453	444	452	445	452	443	451	442	449
CHT3 (°F)	445	445	457	459	460	460	453	460	454	461	452	459	449	448
CHT4 (°F)	434	437	444	445	446	447	440	448	442	448	439	447	437	441
CHT5 (°F)	474	474	474	476	476	476	475	476	476	477	475	476	475	475
CHT6 (°F)	453	454	463	462	460	456	458	462	456	458	453	453	443	440
EGT1 (°F)	1325	1336	1370	1398	1430	1463	1483	1538	1539	1562	1558	1562	1540	1518
EGT2 (°F)	1323	1339	1364	1391	1422	1456	1475	1530	1531	1554	1554	1561	1543	1522
EGT3 (°F)	1346	1360	1391	1418	1451	1484	1508	1555	1562	1583	1584	1586	1563	1538
EGT4 (°F)	1324	1337	1371	1399	1429	1463	1487	1538	1544	1567	1570	1570	1553	1528
EGT5 (°F)	1339	1353	1385	1410	1442	1475	1498	1546	1553	1571	1574	1573	1555	1535
EGT6 (°F)	1354	1368	1397	1425	1455	1487	1506	1563	1560	1568	1563	1552	1523	1511
Oil T (°F)	232	232	231	230	230	229	232	231	233	229	228	231	230	229
Oil P (psig)	60	61	60	60	60	60	58	60	58	60	59	60	58	59
Hum T (°F)	103	103	93	93	93	93	100	93	100	93	100	93	100	100
Hum ratio (gr/lb)	1	1	1	1	1	1	0	1	0	1	0	1	0	0
AFR	10.9	11.1	12.8	13.1	13.5	13.9	13.5	14.7	14.4	14.9	15.1	15.3	16.0	17.0
AFL	10.7	10.9	11.7	12.1	12.6	13.2	13.5	14.4	14.4	14.9	15.0	15.5	15.9	17.1
K airflow (lbs/hr)	1129	1127												
A/F	9.7	9.8												

TABLE A-65. AV7 ENGINE DATA, TO POWER

Test	T2-43	T2-43	T2-43	T2-21	T2-21	T2-21	T2-14	T2-15	T2-15	T2-15
Barometer (in. Hg)	29.85	29.85	29.85	30.1	30.1	30.1	30.18	30.12	30.12	30.12
Fuel	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7
Test Points	Z	AA	AB	D	C	B	A	X	Y	Z***
MAP (in. Hg)	29.00	29.00	29.00	29.54	29.56	29.56	29.67	29.64	29.64	29.64
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	519	524	526	540	542	543	548	546	542	534
BHP	267	269	271	278	279	279	282	281	279	275
TCBHP	279	281	282	290	292	292	294	294	292	287
LCBHP	279	281	282	288	289	289	290	291	288	284
BMEP (psig)	119.2	119.8	119.7	123.4	123.7	124.3	125.4	124.9	123.9	122.1
FF (lbs/hr)	171.9	168.2	164.4	160.8	156.0	145.0	139.2	133.3	128.6	119.0
FFG (gal/hr)	26.7	26.1	25.5	25.4	24.6	22.9	21.7	20.8	20.1	18.6
% Relative FF	24.7	22.0	19.3	16.7	13.2	5.2	0.9	-3.2	-6.6	-13.6
BSFC (lbs/hp hr)	0.64	0.62	0.61	0.58	0.56	0.52	0.49	0.48	0.46	0.43
TCBSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.53	0.50	0.48	0.46	0.44	0.45
LCBSFC (lbs/hp hr)	0.62	0.60	0.58	0.56	0.54	0.50	0.48	0.46	0.45	0.42
IAT (°F)	104	102	102	103	103	103	101	105	105	104
IAP (in. Hg)	29.87	29.85	29.84	30.12	30.13	30.13	30.26	30.20	30.19	30.19
Cowl T (°F)	103	105	106	105	105	104	103	105	107	111
Cowl P (in H_2O)	2.8	2.8	2.9	2.9	3.3	3.2	5.0	5.6	6.3	4.6
Fuel T (°F)	73	73	73	97	97	97	83	84	86	84
Fuel Dens (lbs/gal)	6.45	6.45	6.45	6.34	6.34	6.34	6.41	6.40	6.39	6.40
MTDP (psig)	9.5	9.1	8.7	8.6	7.9	7.6	6.4	6.0	5.6	5.1
Pump P (psig)	19.5	19.5	19.5	20.6	20.6	20.6	20.5	21.0	21.1	21.1
CHT1 (°F)	451	451	451	463	465	467	453	449	448	445
CHT2 (°F)	433	432	433	441	444	448	427	426	424	425
CHT3 (°F)	445	445	446	457	461	464	443	441	440	437
CHT4 (°F)	433	433	434	440	443	445	434	427	431	423
CHT5 (°F)	474	475	474	473	475	476	475	476	476	469
CHT6 (°F)	451	451	452	463	467	468	451	446	442	442
EGT1 (°F)	1407	1418	1434	1438	1470	1480	1557	1573	1603	1637
EGT2 (°F)	1375	1389	1406	1410	1442	1449	1522	1538	1568	1603
EGT3 (°F)	1411	1424	1442	1454	1486	1494	1576	1591	1625	1664
EGT4 (°F)	1380	1394	1411	1425	1458	1465	1546	1559	1589	1621
EGT5 (°F)	1412	1425	1442	1461	1492	1500	1569	1585	1617	1646
EGT6 (°F)	1401	1415	1431	1446	1479	1488	1563	1571	1605	1638
Oil T (°F)	240	240	240	232	231	229	233	227	230	244
Oil P (psig)	64	64	63	64	64	64	63	62	62	62
Hum T (°F)	104	105	104	95	95	95	97	101	101	101
Hum ratio (gr/lb)	0	0	0	1	1	1	0	0	0	0
AFR	10.7	10.9	11.1	12.7	13.0	13.2	13.18	13.5	14.1	14.7
AFL	10.5	10.8	11.0	11.7	12.1	12.2	13.18	13.6	14.2	14.9
K airflow (lbs/hr)	1708	1767	1746							
A/F	10.0	10.5	10.6							

TABLE A-66. AV7 ENGINE DATA, 85% POWER

Test	T2-43	T2-43	T2-21	T2-21	T2-21	T2-14	T2-15	T2-15	T2-22	T2-22
Barometer (in. Hg)	29.85	29.85	30.01	30.10	30.10	30.18	30.12	30.12	29.82	29.82
Fuel	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7
Test Points	AD	AC	G	F	E	B	AA	AB	G***	F
MAP (in. Hg)	27.00	27.00	27.08	27.07	27.06	27.41	27.26	27.29	27.04	27.02
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	466	469	476	476	477	485	480	474	455	432
BHP	231	232	236	236	237	240	238	235	225	214
TCBHP	241	242	247	247	247	252	249	245	235	223
LCBHP	241	242	245	245	245	248	246	243	233	222
BMEP (psig)	106.2	107.4	108.5	108.9	109.2	110.9	109.8	108.2	104.2	98.2
FF (lbs/hr)	147.1	141.2	134.6	129.4	124.9	117.8	111.7	106.6	100.2	95.3
FFG (gal/hr)	22.9	21.9	21.3	20.4	19.7	18.4	17.5	16.7	15.8	15.1
% Relative FF	25.0	20.0	14.3	9.9	6.1	0.0	-5.1	-9.5	-14.9	-19.0
BSFC (lbs/hp hr)	0.64	0.61	0.57	0.55	0.53	0.49	0.47	0.45	0.45	0.45
TCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.51	0.47	0.45	0.43	0.43	0.43
LCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.51	0.47	0.45	0.44	0.43	0.43
IAT (°F)	103	102	105	104	104	105	105	105	101	102
IAP (in. Hg)	29.85	29.85	30.12	30.13	30.12	30.25	30.18	30.19	30.02	30.02
Cowl T (°F)	104	106	104	104	104	109	107	109	105	105
Cowl P (in H_2O)	2.5	1.7	2.2	2.3	2.3	4.9	4.5	4.6	2.1	2.2
Fuel T (°F)	75	75	99	99	99	85	86	87	102	101
Fuel Dens (lbs/gal)	6.44	6.44	6.33	6.33	6.33	6.40	6.39	6.39	6.33	6.33
MTDP (psig)	7.0	6.5	5.9	5.4	5.1	4.6	4.2	3.8	3.4	3.1
Pump P (psig)	19.5	19.5	20.5	20.6	20.6	20.6	21.0	21.0	20.0	20.0
CHT1 (°F)	451	454	461	462	462	454	450	448	462	458
CHT2 (°F)	439	440	450	451	450	437	433	433	454	450
CHT3 (°F)	448	449	460	462	460	449	445	445	462	459
CHT4 (°F)	435	437	441	443	443	441	432	433	448	445
CHT5 (°F)	474	475	475	476	475	475	474	476	476	475
CHT6 (°F)	451	453	462	464	462	450	446	444	453	454
EGT1 (°F)	1362	1391	1424	1453	1477	1536	1562	1601	1598	1567
EGT2 (°F)	1343	1373	1396	1423	1448	1505	1535	1573	1576	1549
EGT3 (°F)	1382	1415	1443	1472	1495	1554	1584	1624	1627	1593
EGT4 (°F)	1345	1375	1408	1436	1460	1514	1543	1584	1594	1574
EGT5 (°F)	1380	1410	1441	1466	1492	1544	1573	1612	1606	1567
EGT6 (°F)	1372	1405	1436	1467	1490	1545	1571	1607	1601	1562
Oil T (°F)	241	241	231	232	231	231	229	230	229	227
Oil P (psig)	62	62	63	63	63	61	62	62	64	64
Hum T (°F)	103	104	96	95	95	101	100	100	101	101
Hum ratio (gr/lb)	1	1	1	1	1	0	0	0	2	2
AFR	10.7	11.1	13.0	13.3	13.5	13.35	14.0	14.6	15.2	16.0
AFL	10.6	11.1	11.9	12.3	12.7	13.40	14.0	14.7	15.3	16.1
K airflow (lbs/hr)	1453	1480							1574	1575
A/F	9.9	10.5							15.7	16.6

TABLE A-67. AV7 ENGINE DATA, 75% POWER

Test	T2-43	T2-43	T2-43	T2-21	T2-21	T2-21	T2-14	T2-14	T2-14	T2-14	T2-14	T2-14
Barometer (in. Hg)	29.85	29.85	29.85	30.10	30.10	30.10	30.18	30.18	30.18	30.18	30.18	30.18
Fuel	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7
Test Points	AG	AF	AE	J	I	H	C	D	E	F	G***	H
MAP (in. Hg)	25.86	25.84	25.87	26.04	26.05	26.05	26.15	26.14	26.13	26.17	26.14	26.17
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	436	439	442	452	453	453	456	451	441	428	395	365
BHP	204	205	207	211	212	211	213	210	206	200	184	170
TCBHP	213	214	215	220	221	221	222	220	216	210	193	178
LCBHP	212	214	215	218	219	219	220	217	213	207	190	176
BMEP (psig)	99.5	100.2	101.0	103.3	103.6	103.5	104.0	102.9	101.0	98.0	90.5	83.2
FF (lbs/hr)	134.5	130.2	124.5	119.5	114.6	108.7	104.0	98.0	93.0	88.8	82.4	78.1
FFG (gal/hr)	20.9	20.2	19.4	18.9	18.1	17.2	16.3	15.3	14.6	13.9	12.9	12.2
% Relative FF	29.5	25.3	19.8	15.0	10.3	4.6	0.1	-5.7	-10.5	-14.6	-20.7	-24.8
BSFC (lbs/hp hr)	0.66	0.63	0.60	0.56	0.54	0.52	0.49	0.47	0.45	0.45	0.45	0.46
TCBSFC (lbs/hp hr)	0.63	0.61	0.58	0.54	0.52	0.49	0.47	0.45	0.43	0.42	0.43	0.44
LCBSFC (lbs/hp hr)	0.64	0.61	0.58	0.55	0.52	0.50	0.47	0.45	0.48	0.47	0.47	0.45
IAT (°F)	104	103	102	103	104	103	105	105	106	107	104	104
IAP (in. Hg)	29.86	29.84	29.85	30.13	30.13	30.12	30.24	30.26	30.25	30.27	30.25	30.25
Cowl T (°F)	98	99	99	103	102	102	102	103	102	107	111	107
Cowl P (in H_2O)	1.2	1.9	1.7	1.8	2.0	2.2	2.9	2.9	2.7	3.3	2.0	1.7
Fuel T (°F)	75	75	75	101	101	101	85	87	88	89	90	90
Fuel Dens (lbs/gal)	6.44	6.44	6.44	6.33	6.33	6.33	6.40	6.39	6.39	6.38	6.38	6.38
MTDP (psig)	5.8	5.6	5.0	4.6	4.3	3.8	3.5	3.2	2.9	2.7	2.3	2.1
Pump P (psig)	19.4	19.4	19.5	20.5	20.5	20.5	20.5	20.6	20.6	20.6	20.7	20.7
CHT1 (°F)	447	448	450	459	459	460	450	448	446	445	444	447
CHT2 (°F)	440	439	441	448	448	450	436	434	433	433	438	448
CHT3 (°F)	445	444	446	457	457	458	445	444	443	443	445	445
CHT4 (°F)	434	433	436	445	445	446	435	434	434	435	440	442
CHT5 (°F)	476	476	476	475	476	475	475	475	475	475	475	475
CHT6 (°F)	452	450	454	462	462	463	449	444	441	435	434	435
EGT1 (°F)	1315	1328	1364	1399	1425	1461	1498	1542	1574	1573	1533	1518
EGT2 (°F)	1303	1317	1353	1385	1410	1444	1479	1525	1558	1563	1523	1502
EGT3 (°F)	1334	1347	1382	1417	1443	1478	1411	1564	1598	1605	1563	1537
EGT4 (°F)	1309	1323	1357	1396	1421	1457	1496	1541	1574	1588	1548	1518
EGT5 (°F)	1332	1346	1383	1414	1437	1471	1508	1551	1584	1582	1543	1522
EGT6 (°F)	1339	1351	1387	1428	1451	1487	1517	1565	1590	1560	1536	1524
Oil T (°F)	240	241	241	229	231	232	227	228	231	228	226	232
Oil P (psig)	60	60	60	61	61	61	60	60	60	60	61	60
Hum T (°F)	104	103	103	94	95	95	103	103	102	103	103	102
Hum ratio (gr/lb)	1	1	1	1	1	1	0	0	0	0	0	0
AFR	10.5	10.8	11.2	13.1	13.4	13.7	13.4	14.2	14.7	15.4	16.7	17.7
AFL	10.3	10.6	11.1	12.0	12.3	12.9	13.4	14.2	14.8	15.4	16.8	17.8
K airflow (lbs/hr)	1281	1268	1290									
A/F	9.5	9.8	10.4									

TABLE A-68. AV7 ENGINE DATA, 65% POWER

Test	T2-43	T2-43	T2-43	T2-21	T2-21	T2-21	T2-14	T2-14	T2-14	T2-14	T2-14	T2-14
Barometer (in. Hg)	29.85	29.85	29.85	30.10	30.10	30.10	30.18	30.18	30.18	30.18	30.18	30.18
Fuel	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7	AV7
Test Points	AJ	AI	AH	M	L	K	I	J	O	L***	M	N
MAP (in. Hg)	24.00	24.00	24.00	24.26	24.28	24.27	24.27	24.28	24.25	24.26	24.24	24.24
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	395	397	398	406	407	409	409	406	398	384	354	321
BHP	177	178	178	182	183	183	183	182	178	172	159	144
TCBHP	185	186	186	190	191	191	191	190	186	180	166	151
LCBHP	185	186	186	188	189	190	189	188	184	177	164	148
BMEP (psig)	90.3	90.6	91.0	92.8	92.9	93.3	93.6	92.7	90.9	87.6	80.8	73.5
FF (lbs/hr)	117.2	114.4	110.0	104.5	100.3	96.3	90.6	86.1	82.3	77.7	72.3	68.8
FFG (gal/hr)	18.2	17.8	17.1	16.5	15.9	15.2	14.2	13.5	12.9	12.2	11.3	10.6
% Relative FF	28.4	25.3	20.5	14.5	9.9	5.5	-0.8	-5.6	-9.8	-14.9	-20.8	-24.7
BSFC (lbs/hp hr)	0.66	0.64	0.62	0.58	0.55	0.52	0.50	0.47	0.46	0.45	0.46	0.47
TCBSFC (lbs/hp hr)	0.63	0.62	0.59	0.55	0.53	0.50	0.47	0.45	0.44	0.43	0.44	0.45
LCBSFC (lbs/hp hr)	0.63	0.62	0.59	0.56	0.53	0.51	0.48	0.46	0.45	0.44	0.44	0.46
IAT (°F)	104	102	102	103	103	104	103	104	105	104	105	104
IAP (in. Hg)	29.84	29.84	29.84	30.13	30.12	30.12	30.24	30.25	30.26	30.24	30.24	30.26
Cowl T (°F)	97	95	96	106	102	102	101	99	106	104	105	106
Cowl P (in H_2O)	1.2	1.3	1.3	1.4	1.7	1.6	2.7	1.8	2.3	1.9	1.5	1.2
Fuel T (°F)	76	76	76	102	103	103	87	88	90	90	91	91
Fuel Dens (lbs/gal)	6.44	6.44	6.44	6.32	6.32	6.32	6.39	6.39	6.38	6.38	6.38	6.38
MTDP (psig)	4.4	4.3	4.0	3.5	3.2	3.0	2.8	2.5	2.3	2.0	1.8	1.6
Pump P (psig)	19.3	19.4	19.4	20.4	20.5	20.5	20.6	20.6	20.6	20.6	20.6	20.6
CHT1 (°F)	445	449	449	457	459	458	448	447	447	446	442	441
CHT2 (°F)	438	442	442	452	452	450	436	435	433	435	436	438
CHT3 (°F)	443	446	446	457	459	458	444	444	443	441	439	438
CHT4 (°F)	432	435	435	446	447	447	434	433	431	433	431	432
CHT5 (°F)	474	475	475	475	477	475	475	475	475	475	475	475
CHT6 (°F)	451	453	453	464	464	463	448	448	439	436	429	429
EGT1 (°F)	1309	1326	1349	1390	1416	1445	1483	1522	1548	1563	1520	1502
EGT2 (°F)	1306	1324	1345	1389	1409	1435	1476	1515	1538	1560	1518	1495
EGT3 (°F)	1328	1346	1369	1410	1435	1464	1508	1546	1571	1587	1543	1519
EGT4 (°F)	1304	1323	1344	1392	1415	1443	1489	1529	1556	1574	1527	1505
EGT5 (°F)	1320	1339	1363	1404	1428	1456	1495	1534	1557	1577	1538	1520
EGT6 (°F)	1335	1351	1376	1423	1446	1474	1508	1549	1563	1547	1511	1501
Oil T (°F)	240	241	240	231	229	228	232	230	229	231	230	234
Oil P (psig)	59	59	59	60	60	60	59	59	59	59	59	59
Hum T (°F)	103	103	103	94	94	94	101	101	102	101	101	102
Hum ratio (gr/lb)	1	1	1	1	1	1	0	0	0	0	0	0
AFR	10.6	10.9	11.2	13.1	13.4	13.7	13.5	14.2	14.7	15.5	16.7	17.8
AFL	10.4	10.7	11.0	12.0	12.4	12.8	13.4	14.1	14.6	15.4	16.7	17.8
K airflow (lbs/hr)	1107	1128	1135									
A/F	9.4	9.9	10.3									

TABLE A-69. AV8 ENGINE DATA, TO POWER

Test	T2-21	T2-21	T2-12	T2-21	T2-13	T2-21	T2-21	T2-22
Barometer (in. Hg)	30.10	30.10	29.96	30.10	29.95	30.10	30.10	29.82
Fuel	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8
Test Points	R	Q	A	P	A	N	O**	C
MAP (in. Hg)	29.56	29.56	29.44	29.57	29.47	29.59	29.58	29.38
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	542	542	538	544	542	547	545	541
BHP	279	279	277	280	279	282	281	278
TCBHP	292	292	290	293	292	294	293	291
LCBHP	289	289	288	290	290	291	291	289
BMEP (psig)	123.8	123.9	123.0	124.3	123.8	125.1	124.4	123.7
FF (lbs/hr)	154.8	151.2	145.8	144.7	140.8	140.6	132.4	123.3
FFG (gal/hr)	26.2	25.6	24.4	24.5	23.6	23.8	22.4	20.8
% Relative FF	12.3	9.7	5.8	5.0	2.2	2.1	-3.9	-10.5
BSFC (lbs/hp hr)	0.55	0.54	0.53	0.52	0.51	0.50	0.47	0.44
TCBSFC (lbs/hp hr)	0.53	0.52	0.51	0.49	0.48	0.48	0.45	0.43
LCBSFC (lbs/hp hr)	0.54	0.52	0.51	0.50	0.49	0.48	0.46	0.43
IAT (°F)	104	105	105	104	105	102	104	103
IAP (in. Hg)	30.13	30.14	30.03	30.14	30.05	30.13	30.13	29.98
Cowl T (°F)	107	108	105	108	107	101	101	105
Cowl P (in H_2O)	3.2	3.2	4.1	3.4	5.1	3.6	3.3	4.2
Fuel T (°F)	99	99	87	99	86	98	99	98
Fuel Dens (lbs/gal)	5.90	5.90	5.96	5.90	5.97	5.91	5.90	5.92
MTDP (psig)	8.2	8.1	7.6	7.4	7.0	7.1	6.4	5.9
Pump P (psig)	20.4	20.4	20.2	20.5	20.3	20.5	20.5	20.0
CHT1 (°F)	463	464	455	465	455	465	461	468
CHT2 (°F)	439	441	432	441	434	446	443	446
CHT3 (°F)	458	459	451	460	452	463	458	461
CHT4 (°F)	439	441	436	442	434	444	440	442
CHT5 (°F)	476	478	474	477	475	477	477	477
CHT6 (°F)	461	463	456	464	457	467	461	463
EGT1 (°F)	1437	1442	1469	1478	1502	1493	1532	1543
EGT2 (°F)	1404	1409	1441	1443	1467	1463	1498	1515
EGT3 (°F)	1451	1455	1484	1492	1517	1511	1551	1566
EGT4 (°F)	1419	1426	1452	1462	1482	1482	1520	1529
EGT5 (°F)	1452	1458	1477	1495	1507	1514	1547	1556
EGT6 (°F)	1441	1446	1468	1481	1499	1502	1541	1546
Oil T (°F)	231	230	228	232	235	228	225	229
Oil P (psig)	64	64	62	64	61	64	65	64
Hum T (°F)	95	95	104	96	101	93	94	103
Hum ratio (gr/lb)	1	1	0	1	0	1	1	2
AFR	12.9	13.0	11.9	13.3	12.5	13.5	13.9	13.5
AFL	11.8	11.9	11.9	12.3	12.5	12.6	13.2	13.6

TABLE A-70. AV8 ENGINE DATA, 85% POWER

Test	T2-21	T2-21	T2-21	T2-21	T2-12	T2-13	T2-21	T2-21
Barometer (in. Hg)	30.10	30.10	30.10	30.10	29.96	29.95	30.1	30.10
Fuel	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8
Test Points	X	W	V	S	B	B	T**	U
MAP (in. Hg)	27.06	27.05	27.04	27.05	27.03	27.02	27.06	27.04
rpm	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	473	476	477	479	473	472	477	476
BHP	234	236	236	238	235	234	237	236
TCBHP	245	247	248	248	246	245	247	246
LCBHP	243	245	245	246	244	243	245	244
BMEP (psig)	107.9	108.7	109.1	109.5	108.3	108.0	109.3	108.8
FF (lbs/hr)	135.8	129.6	123.7	117.5	117.2	116.8	112.0	105.8
FFG (gal/hr)	23.1	22.0	21.0	19.9	19.7	19.6	19.0	18.0
% Relative FF	15.4	10.1	5.1	-0.2	-0.4	-0.7	-4.8	-10.1
BSFC (lbs/hp hr)	0.58	0.55	0.52	0.49	0.50	0.50	0.47	0.45
TCBSFC (lbs/hp hr)	0.55	0.53	0.50	0.47	0.48	0.47	0.45	0.43
LCBSFC (lbs/hp hr)	0.56	0.53	0.50	0.48	0.48	0.48	0.46	0.43
IAT (°F)	104	105	106	104	105	107	104	104
IAP (in. Hg)	30.14	30.14	30.14	30.14	30.05	30.05	30.13	30.13
Cowl T (°F)	105	105	106	104	107	109	105	105
Cowl P (in H_2O)	2.0	2.2	2.5	2.5	3.7	3.3	2.3	3.1
Fuel T (°F)	101	101	102	101	89	89	101	101
Fuel Dens (lbs/gal)	5.90	5.90	5.89	5.90	5.95	5.96	5.90	5.89
MTDP (psig)	6.4	5.9	5.3	4.9	4.9	4.8	4.5	4.0
Pump P (psig)	20.4	20.4	20.5	20.5	20.2	20.3	20.5	20.5
CHT1 (°F)	462	465	464	465	457	458	468	464
CHT2 (°F)	446	449	449	452	444	444	455	450
CHT3 (°F)	459	462	461	463	456	455	465	461
CHT4 (°F)	438	443	442	444	443	438	448	443
CHT5 (°F)	475	478	477	477	476	475	480	477
CHT6 (°F)	460	463	460	464	457	456	463	458
EGT1 (°F)	1377	1414	1440	1482	1481	1480	1511	1551
EGT2 (°F)	1352	1386	1413	1454	1453	1451	1480	1520
EGT3 (°F)	1398	1433	1462	1503	1504	1503	1532	1573
EGT4 (°F)	1363	1399	1426	1466	1467	1461	1495	1536
EGT5 (°F)	1393	1430	1457	1498	1493	1490	1521	1561
EGT6 (°F)	1393	1425	1455	1497	1491	1489	1525	1567
Oil T (°F)	231	230	230	232	231	230	213	227
Oil P (psig)	63	63	63	63	61	61	64	63
Hum T (°F)	95	95	95	95	104	102	95	95
Hum ratio (gr/lb)	1	1	1	1	0	0	1	1
AFR	12.7	13.0	13.3	13.8	12.7	12.7	14.0	14.5
AFL	11.5	11.9	12.3	13.0	12.8	12.8	13.5	14.2

TABLE A-71. AV8 ENGINE DATA, 75% POWER

Test	T2-21	T2-21	T2-21	T2-12	T2-12	T2-12	T2-13	T2-12	T2-13	T2-12	T2-13	T2-12
Barometer (in. Hg)	30.10	30.10	30.10	29.96	29.96	29.96	29.95	29.96	29.95	29.96	29.95	29.96
Fuel	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8
Test Points	AA	Z	Y	C	D	E	E**	F	C	G	D	H
MAP (in. Hg)	25.94	25.93	25.92	25.79	25.83	25.85	25.71	25.84	25.68	25.83	25.72	25.85
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	447	448	450	445	444	442	441	435	428	413	408	380
BHP	209	209	210	208	207	207	206	203	200	193	190	178
TCBHP	218	219	220	217	217	216	215	212	209	202	199	186
LCBHP	217	217	218	216	215	214	214	210	208	201	198	184
BMEP (psig)	102.3	102.4	102.9	101.7	101.7	101.3	100.7	99.2	97.7	94.5	93.1	87.2
FF (lbs/hr)	119.4	114.0	108.9	104.8	98.2	93.5	93.2	88.8	87.0	83.5	81.7	78.3
FFG (gal/hr)	20.3	19.3	18.5	17.7	16.5	15.8	15.7	15.0	14.6	14.1	13.8	13.3
% Relative FF	14.9	9.7	4.8	0.8	-5.5	-10.0	-10.3	-14.5	-16.3	-19.6	-21.4	-25.3
BSFC (lbs/hp hr)	0.57	0.54	0.52	0.51	0.47	0.45	0.45	0.44	0.44	0.43	0.43	0.44
TCBSFC (lbs/hp hr)	0.55	0.52	0.50	0.48	0.46	0.43	0.43	0.42	0.42	0.41	0.42	0.42
LCBSFC (lbs/hp hr)	0.55	0.53	0.50	0.48	0.46	0.44	0.44	0.42	0.42	0.42	0.41	0.42
IAT (°F)	104	104	104	104	104	103	104	103	105	104	106	103
IAP (in. Hg)	30.13	30.13	30.13	30.04	30.03	30.06	30.04	30.04	30.05	30.04	30.04	30.05
Cowl T (°F)	103	105	106	106	102	102	106	105	109	107	111	107
Cowl P (in H_2O)	1.8	1.5	2.1	2.5	2.9	2.9	3.2	2.3	3.3	2.8	2.7	2.7
Fuel T (°F)	101	102	102	92	94	95	93	96	93	98	96	100
Fuel Dens (lbs/gal)	5.89	5.89	5.89	5.94	5.93	5.93	5.94	5.92	5.94	5.92	5.92	5.90
MTDP (psig)	4.9	4.5	4.1	3.9	3.4	3.1	3.1	2.7	2.7	2.5	2.5	2.3
Pump P (psig)	20.3	20.4	20.4	20.1	20.2	20.3	20.3	20.3	20.3	20.4	20.4	20.4
CHT1 (°F)	456	460	462	453	451	448	451	448	451	448	449	449
CHT2 (°F)	445	447	451	446	441	438	445	441	444	442	446	451
CHT3 (°F)	454	456	459	451	449	447	451	449	450	448	452	449
CHT4 (°F)	439	442	445	446	442	439	445	443	445	444	449	452
CHT5 (°F)	475	476	478	475	475	473	475	475	476	475	475	475
CHT6 (°F)	459	463	465	459	454	449	456	446	450	444	444	441
EGT1 (°F)	1356	1384	1416	1442	1487	1518	1517	1559	1566	1546	1546	1516
EGT2 (°F)	1342	1369	1402	1431	1471	1501	1506	1545	1550	1541	1536	1507
EGT3 (°F)	1373	1402	1435	1405	1510	1542	1544	1586	1592	1583	1580	1540
EGT4 (°F)	1354	1382	1414	1442	1488	1520	1520	1566	1570	1571	1571	1538
EGT5 (°F)	1372	1399	1430	1451	1496	1529	1528	1570	1572	1557	1556	1523
EGT6 (°F)	1384	1412	1444	1462	1509	1539	1543	1565	1569	1541	1538	1518
Oil T (°F)	227	225	229	228	233	231	229	228	237	229	229	231
Oil P (psig)	61	62	61	60	60	60	60	60	59	60	60	60
Hum T (°F)	95	95	96	102	101	101	101	101	102	100	102	100
Hum ratio (gr/lb)	1	1	1	0	0	0	0	0	0	0	0	0
AFR	12.8	13.1	13.5	12.6	13.4	14.2	14.1	14.8	14.9	15.8	15.9	16.8
AFL	11.6	12.0	12.4	12.6	13.4	14.2	14.0	14.8	14.9	15.8	15.9	17.0

TABLE A-72. AV8 ENGINE DATA, 65% POWER

Test	T2-21	T2-21	T2-21	T2-12	T2-21	T2-21	T2-21	T2-21	T2-12	T2-12	T2-13	T2-12
Barometer (in. Hg)	30.10	30.10	30.10	30.10	30.10	30.10	30.10	30.10	29.96	29.96	29.95	29.96
Fuel	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8	AV8
Test Points	AG	AF	AE	I	AB	AC	AD**	AH	J	K	G	L
MAP (in. Hg)	24.25	24.26	24.24	24.16	24.25	24.23	24.23	24.25	24.19	24.20	24.12	24.17
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	405	408	410	405	409	409	402	394	387	384	367	361
BHP	181	183	184	181	183	183	180	176	173	172	164	162
TCBHP	189	191	192	190	192	191	189	185	182	180	172	170
LCBHP	188	189	190	188	190	190	187	183	180	179	170	168
BMEP (psig)	92.5	93.3	93.6	92.6	93.6	93.4	91.9	90.2	88.6	87.7	83.9	83.1
FF (lbs/hr)	105.3	100.4	96.3	91.0	90.3	85.6	82.0	77.2	76.8	74.6	73.7	70.3
FFG (gal/hr)	17.9	17.1	16.3	15.4	15.3	14.5	13.9	13.1	13.0	12.7	12.8	12.1
% Relative FF	15.4	9.9	5.4	-0.3	-1.1	-6.2	-10.2	-15.4	-15.9	-18.3	-19.3	-23.0
BSFC (lbs/hp hr)	0.58	0.55	0.52	0.50	0.49	0.47	0.45	0.44	0.44	0.43	0.45	0.44
TCBSFC (lbs/hp hr)	0.56	0.53	0.50	0.47	0.47	0.45	0.43	0.42	0.42	0.43	0.50	0.42
LCBSFC (lbs/hp hr)	0.56	0.53	0.51	0.48	0.47	0.45	0.44	0.42	0.43	0.42	0.43	0.42
IAT (°F)	103	104	104	103	104	104	104	105	104	105	104	105
IAP (in. Hg)	30.13	30.13	30.14	30.04	30.14	30.13	30.13	30.13	30.05	30.04	30.03	30.05
Cowl T (°F)	104	104	104	106	104	103	104	103	109	110	102	107
Cowl P (in H_2O)	1.3	1.5	1.6	1.6	1.7	2.1	2.2	1.8	1.8	2.3	1.6	1.8
Fuel T (°F)	103	103	104	96	102	104	104	103	99	102	99	103
Fuel Dens (lbs/gal)	5.89	5.89	5.89	5.92	5.89	5.89	5.88	5.89	5.91	5.86	5.78	5.80
MTDP (psig)	3.8	3.5	3.2	2.8	2.8	2.6	2.3	2.1	2.1	2.2	2.0	2.0
Pump P (psig)	20.2	20.3	20.3	20.2	20.3	20.4	20.4	20.4	20.3	20.3	20.3	20.3
CHT1 (°F)	458	458	457	452	460	460	460	456	452	453	449	446
CHT2 (°F)	449	449	447	445	451	450	449	449	445	447	445	440
CHT3 (°F)	457	457	456	452	458	459	459	456	451	448	438	438
CHT4 (°F)	445	445	443	441	446	447	447	444	441	446	440	438
CHT5 (°F)	476	477	475	475	478	477	477	476	476	479	475	472
CHT6 (°F)	463	463	460	457	463	462	459	456	449	444	439	436
EGT1 (°F)	1346	1381	1402	1445	1448	1486	1525	1548	1552	1552	1526	1523
EGT2 (°F)	1338	1372	1393	1435	1437	1475	1511	1542	1545	1548	1533	1523
EGT3 (°F)	1367	1401	1422	1470	1466	1504	1541	1571	1580	1567	1523	1522
EGT4 (°F)	1347	1383	1404	1449	1448	1489	1526	1559	1565	1568	1543	1536
EGT5 (°F)	1360	1395	1416	1459	1457	1495	1530	1559	1566	1566	1541	1536
EGT6 (°F)	1377	1413	1433	1471	1478	1516	1548	1549	1543	1540	1514	1505
Oil T (°F)	233	229	231	226	230	227	230	229	228	226	229	232
Oil P (psig)	60	60	60	58	60	60	60	60	59	59	59	59
Hum T (°F)	94	94	95	100	95	95	95	94	100	100	100	101
Hum ratio (gr/lb)	1	1	1	0	1	1	1	1	0	0	0	0
AFR	12.9	13.2	13.5	12.9	13.9	14.3	14.6	15.0	15.1	15.3	16.0	16.2
AFL	11.6	12.0	12.4	12.9	13.1	13.8	14.3	15.0	15.0	15.3	16.2	16.3

TABLE A-73. AM1 ENGINE DATA, TO POWER

Test	T2-39	T2-39	T2-39	T2-29	T2-39	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.11	30.11	30.11	29.42	30.11	29.42	29.42	29.42
Fuel	AM1	AM1	AM1	AM1	AM1	AM1	AM1	AM1
Test Points	A	B	C	A	D**	B	C	D
MAP (in. Hg)	29.55	29.56	29.56	28.94	29.55	28.94	28.94	28.94
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	532	534	538	535	542	537	536	539
BHP	274	275	277	275	279	277	276	278
TCBHP	286	287	290	287	292	289	288	289
LCBHP	284	285	287	290	290	292	291	292
BMEP (psig)	121.4	121.8	123.0	122.3	123.8	122.8	122.5	123.2
FF (lbs/hr)	171.3	166.3	162.0	153.3	148.0	133.3	129.7	124.7
FFG (gal/hr)	27.9	27.1	26.4	25.2	24.1	21.9	21.3	20.5
% Relative FF	24.3	20.7	17.6	11.3	7.4	-3.2	-5.9	-9.5
BSFC (lbs/hp hr)	0.63	0.61	0.58	0.56	0.53	0.48	0.47	0.45
TCBSFC (lbs/hp hr)	0.60	0.58	0.56	0.54	0.51	0.46	0.45	0.43
LCBSFC (lbs/hp hr)	0.60	0.59	0.56	0.53	0.51	0.46	0.44	0.43
IAT (°F)	104	104	106	102	105	103	103	100
IAP (in. Hg)	30.11	30.11	30.11	29.50	30.12	29.50	29.49	29.49
Cowl T (°F)	104	101	103	107	104	105	104	104
Cowl P (in H_2O)	2.6	3.1	3.1	2.9	4.8	3.6	5.7	3.7
Fuel T (°F)	78	78	79	89	80	90	91	92
Fuel Dens (lbs/gal)	6.15	6.15	6.14	6.09	6.14	6.09	6.09	6.08
MTDP (psig)	9.6	9.1	8.2	8.1	7.4	6.9	6.1	6.3
Pump P (psig)	19.9	19.9	19.9	19.6	19.9	19.6	19.7	19.7
CHT1 (°F)	457	457	458	465	461	467	467	470
CHT2 (°F)	437	436	437	447	438	447	443	443
CHT3 (°F)	451	450	451	461	454	462	459	460
CHT4 (°F)	440	436	439	448	443	448	445	447
CHT5 (°F)	475	474	475	475	478	476	478	474
CHT6 (°F)	459	457	459	469	463	476	474	476
EGT1 (°F)	1397	1415	1454	1439	1491	1496	1541	1516
EGT2 (°F)	1374	1390	1426	1413	1462	1470	1511	1491
EGT3 (°F)	1405	1422	1461	1449	1500	1507	1552	1530
EGT4 (°F)	1385	1399	1436	1421	1476	1477	1523	1502
EGT5 (°F)	1411	1429	1466	1452	1501	1513	1550	1535
EGT6 (°F)	1396	1414	1455	1435	1491	1495	1536	1516
Oil T (°F)	244	243	239	231	241	238	235	235
Oil P (psig)	63	63	63	65	63	63	63	62
Hum T (°F)	106	107	108	104	108	104	105	103
Hum ratio (gr/lb)	0	0	0	1	0	1	2	1
AFR	10.7	11.0	11.5	11.3	12.1	12.2	13.1	12.8
AFL	10.6	10.9	11.4	12.6	12.0	13.3	13.9	13.7
K airflow (lbs/hr)	1598	1628	1641	1764	1690	1671	1766	1800
A/F	9.4	9.8	10.2	11.5	11.5	12.5	13.7	14.5

TABLE A-74. AM1 ENGINE DATA, 85% POWER

Test	T2-39	T2-39	T2-39	T2-39	T2-29	T2-39	T2-39	T2-29	T2-29
Barometer (in. Hg)	30.11	30.11	30.11	30.11	29.42	30.11	30.11	29.42	29.42
Fuel	AM1	AM1	AM1	AM1	AM1	AM1	AM1	AM1	AM1
Test Points	J	I	H	G	U**	F	E	S	T
MAP (in. Hg)	27.08	27.07	27.08	27.09	26.45	27.09	27.11	26.43	26.47
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	468	471	473	475	470	477	478	470	471
BHP	232	234	234	236	233	236	237	233	234
TCBHP	243	244	245	247	243	247	248	243	244
LCBHP	241	242	243	244	246	245	246	246	246
BMEP (psig)	107.2	107.6	108.1	108.6	107.5	109.0	109.1	107.4	107.5
FF (lbs/hr)	144.0	141.2	135.4	130.2	124.1	123.0	117.9	117.6	112.5
FFG (gal/hr)	23.5	23.0	22.1	21.2	20.4	20.1	19.2	19.4	18.6
% Relative FF	22.3	19.9	15.0	10.6	5.5	4.5	0.2	-0.1	-4.4
BSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.53	0.52	0.50	0.51	0.48
TCBSFC (lbs/hp hr)	0.59	0.58	0.55	0.53	0.51	0.50	0.48	0.48	0.46
LCBSFC (lbs/hp hr)	0.60	0.58	0.56	0.53	0.50	0.50	0.48	0.48	0.46
IAT (°F)	105	105	105	105	101	104	104	103	102
IAP (in. Hg)	30.13	30.13	30.12	30.12	29.47	30.11	30.10	29.46	29.48
Cowl T (°F)	106	107	106	107	101	107	106	102	102
Cowl P (in H_2O)	1.8	2.3	2.2	2.8	2.2	2.3	2.7	2.4	3.4
Fuel T (°F)	82	82	82	83	95	83	81	94	95
Fuel Dens (lbs/gal)	6.13	6.13	6.13	6.13	6.07	6.13	6.13	6.07	6.07
MTDP (psig)	6.9	6.7	6.2	5.7	5.3	5.2	4.7	4.8	4.4
Pump P (psig)	19.7	19.7	19.7	19.8	18.9	19.9	19.9	19.0	19.0
CHT1 (°F)	455	455	456	456	462	457	458	459	464
CHT2 (°F)	442	442	443	442	449	441	443	450	451
CHT3 (°F)	453	453	455	454	458	452	455	459	460
CHT4 (°F)	439	439	442	441	446	443	442	447	447
CHT5 (°F)	475	474	475	474	476	474	475	476	478
CHT6 (°F)	458	458	461	461	471	459	459	471	472
EGT1 (°F)	1362	1373	1399	1429	1435	1462	1492	1473	1506
EGT2 (°F)	1342	1354	1380	1407	1415	1440	1470	1450	1483
EGT3 (°F)	1377	1391	1417	1446	1456	1480	1511	1492	1524
EGT4 (°F)	1348	1360	1387	1415	1423	1449	1479	1458	1490
EGT5 (°F)	1381	1393	1422	1449	1457	1483	1511	1493	1522
EGT6 (°F)	1371	1383	1412	1439	1447	1475	1503	1484	1515
Oil T (°F)	239	240	239	239	237	239	239	240	235
Oil P (psig)	62	62	62	62	61	62	62	61	61
Hum T (°F)	106	106	106	106	102	106	107	102	103
Hum ratio (gr/lb)	0	0	0	0	1	0	0	2	1
AFR	10.8	11.0	11.4	11.8	11.9	12.3	12.9	12.6	13.1
AFL	10.7	10.9	11.3	11.7	13.1	12.3	12.9	13.5	13.9
K airflow (lbs/hr)	1450	1440	1441	1417	1473	1408	1398	1421	1476
A/F	10.1	10.2	10.7	10.9	11.9	11.4	11.9	12.1	13.1

TABLE A-75. AM1 ENGINE DATA, 75% POWER

Test	T2-39	T2-39	T2-39	T2-39	T2-29	T2-29	T2-39	T2-29	T2-29
Barometer (in. Hg)	30.11	30.11	30.11	30.11	29.42	29.42	30.11	29.42	29.42
Fuel	AM1	AM1	AM1	AM1	AM1	AM1	AM1	AM1	AM1
Test Points	O	N	M	L	AX	AG	K	AH**	AI
MAP (in. Hg)	25.90	25.94	25.92	25.93	25.49	25.44	25.94	25.47	25.47
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	441	445	447	450	443	442	450	442	439
BHP	206	208	209	210	207	207	210	207	205
TCBHP	215	217	218	220	216	216	219	215	214
LCBHP	213	215	217	218	218	218	218	217	216
BMEP (psig)	100.8	101.7	102.3	102.6	101.4	100.9	102.7	101.2	100.3
FF (lbs/hr)	130.5	124.8	119.5	114.4	109.1	104.1	103.5	98.7	93.6
FFG (gal/hr)	21.3	20.4	19.5	18.7	18.0	17.1	16.9	16.2	15.4
% Relative FF	25.6	20.1	15.1	10.1	5.0	0.2	-0.4	-5.0	-9.9
BSFC (lbs/hp hr)	0.60	0.60	0.57	0.55	0.53	0.50	0.49	0.48	0.46
TCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.52	0.51	0.48	0.47	0.46	0.44
LCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.50	0.48	0.48	0.45	0.43
IAT (°F)	104	104	104	104	102	104	104	102	101
IAP (in. Hg)	30.11	30.12	30.12	30.13	29.57	29.53	30.13	29.54	29.53
Cowl T (°F)	105	105	103	101	105	101	99	100	99
Cowl P (in H_2O)	1.6	1.7	2.1	2.1	1.9	2.1	2.3	2.1	2.5
Fuel T (°F)	82	82	83	83	98	94	83	95	96
Fuel Dens (lbs/gal)	6.13	6.13	6.12	6.12	6.06	6.08	6.12	6.07	6.07
MTDP (psig)	5.7	5.3	4.8	4.5	4.1	3.7	3.7	3.4	3.2
Pump P (psig)	19.5	19.5	19.5	19.6	19.1	19.5	19.6	19.5	19.5
CHT1 (°F)	448	450	451	450	456	455	454	459	457
CHT2 (°F)	438	440	440	438	451	449	443	451	450
CHT3 (°F)	446	448	447	446	452	452	450	455	455
CHT4 (°F)	437	438	438	436	445	443	440	445	444
CHT5 (°F)	474	474	474	475	475	473	476	477	476
CHT6 (°F)	457	458	459	457	468	467	459	468	466
EGT1 (°F)	1317	1347	1374	1405	1424	1448	1471	1483	1514
EGT2 (°F)	1310	1337	1365	1393	1409	1434	1458	1467	1499
EGT3 (°F)	1332	1361	1390	1421	1439	1463	1484	1498	1528
EGT4 (°F)	1316	1344	1372	1402	1423	1446	1468	1481	1511
EGT5 (°F)	1336	1365	1393	1421	1440	1461	1485	1495	1524
EGT6 (°F)	1342	1368	1396	1426	1443	1466	1490	1503	1533
Oil T (°F)	241	239	239	239	240	231	239	230	238
Oil P (psig)	60	60	60	60	60	61	60	61	61
Hum T (°F)	105	105	105	105	101	103	106	103	103
Hum ratio (gr/lb)	0	0	0	0	1	1	0	1	1
AFR	10.6	11.0	11.5	11.9	12.2	12.7	13.1	13.4	14.0
AFL	10.5	10.9	11.4	11.9	13.2	13.6	13.0	14.0	14.4
K airflow (lbs/hr)	1310	1313	1304	1301	1312	1237	1285	1276	1278
A/F	10.1	10.5	10.9	11.4	12.0	11.9	12.4	12.9	13.7

TABLE A-76. AM1 ENGINE DATA, 65% POWER

Test	T2-39	T2-39	T2-39	T2-39	T2-29	T2-39	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.11	30.11	30.11	30.11	29.42	30.11	29.42	29.42	29.42
Fuel	AM1	AM1	AM1	AM1	AM1	AM1	AM1	AM1	AM1
Test Points	T	S	R	Q	BB	P**	AY	AZ	BA
MAP (in. Hg)	24.16	24.15	24.13	24.17	23.71	24.14	23.74	23.76	23.76
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	401	402	401	405	398	406	401	399	393
BHP	180	180	180	182	179	182	180	179	177
TCBHP	187	188	188	190	187	190	187	187	184
LCBHP	186	186	186	188	188	189	189	188	186
BMEP (psig)	91.6	91.8	92.0	92.7	91.0	92.8	91.7	91.4	90.2
FF (lbs/hr)	113.5	109.0	106.0	100.8	95.0	91.0	90.0	85.3	72.5
FFG (gal/hr)	18.6	17.8	17.3	16.5	15.7	14.9	14.9	14.2	12.2
% Relative FF	24.3	19.4	16.1	10.4	4.1	-0.3	-1.4	-6.5	-20.6
BSFC (lbs/hp hr)	0.64	0.6	0.59	0.56	0.53	0.50	0.50	0.48	0.41
TCBSFC (lbs/hp hr)	0.61	0.58	0.56	0.53	0.51	0.48	0.48	0.46	0.40
LCBSFC (lbs/hp hr)	0.61	0.59	0.57	0.54	0.50	0.48	0.48	0.46	0.39
IAT (°F)	103	103	103	103	102	103	101	101	101
IAP (in. Hg)	30.12	30.13	30.13	30.12	29.57	30.11	29.58	29.56	29.56
Cowl T (°F)	100	101	102	103	107	104	100	101	103
Cowl P (in H_2O)	1.5	1.4	1.0	2.0	1.4	1.7	1.8	1.8	0.8
Fuel T (°F)	83	83	83	84	100	83	99	99	100
Fuel Dens (lbs/gal)	6.12	6.12	6.12	6.12	6.05	6.12	6.04	6.00	5.97
MTDP (psig)	4.4	4.1	3.8	3.5	3.2	2.9	3.0	2.8	2.4
Pump P (psig)	19.4	19.4	19.4	19.5	19.0	19.5	19.0	19.1	19.1
CHT1 (°F)	450	450	450	454	455	454	456	459	458
CHT2 (°F)	442	443	442	445	447	445	451	452	449
CHT3 (°F)	447	448	448	450	454	450	456	459	457
CHT4 (°F)	437	437	437	441	441	441	442	444	443
CHT5 (°F)	475	475	473	476	474	477	477	479	476
CHT6 (°F)	458	459	459	461	465	461	467	468	466
EGT1 (°F)	1318	1339	1358	1390	1396	1454	1437	1466	1516
EGT2 (°F)	1314	1334	1355	1384	1390	1445	1423	1455	1504
EGT3 (°F)	1335	1357	1376	1410	1417	1472	1462	1498	1546
EGT4 (°F)	1316	1340	1360	1393	1396	1456	1432	1468	1522
EGT5 (°F)	1331	1352	1370	1405	1407	1467	1442	1475	1523
EGT6 (°F)	1340	1362	1382	1415	1420	1477	1454	1487	1535
Oil T (°F)	242	241	241	241	239	241	240	240	240
Oil P (psig)	59	59	59	59	59	59	59	59	59
Hum T (°F)	103	103	104	104	101	104	101	101	101
Hum ratio (gr/lb)	0	0	0	0	1	0	1	1	1
AFR	10.8	11.1	11.4	11.9	12.1	13.0	12.6	13.3	14.5
AFL	10.6	11.0	11.3	11.8	13.1	12.9	13.6	14.0	14.7
K airflow (lbs/hr)	1152	1167	1149	1163	1122	1156	1139	1129	1130
A/F	10.2	10.7	10.9	11.6	11.8	12.7	12.7	13.2	15.7

TABLE A-77. AM2 ENGINE DATA, TO POWER

Test	T2-39	T2-39	T2-29	T2-39	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.11	30.11	29.42	30.11	29.42	29.42	29.42
Fuel	AM2	AM2	AM2	AM2	AM2	AM2	AM2
Test Points	U	V	E	W	F	G**	H
MAP (in. Hg)	29.52	29.52	28.95	29.53	28.94	28.94	28.94
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	528	534	531	537	535	536	534
BHP	272	275	274	277	276	276	275
TCBHP	284	287	286	289	287	288	288
LCBHP	282	284	289	287	291	291	291
BMEP (psig)	121.1	122.1	121.4	122.7	122.3	122.7	122.1
FF (lbs/hr)	163.7	160.7	153.3	150.0	139.0	139.0	127.0
FFG (gal/hr)	27.5	27.0	25.9	25.2	23.2	23.5	21.5
% Relative FF	18.8	16.6	11.3	8.9	0.87	0.9	-7.8
BSFC (lbs/hp hr)	0.60	0.58	0.56	0.54	0.51	0.50	0.46
TCBSFC (lbs/hp hr)	0.58	0.56	0.54	0.52	0.48	0.48	0.44
LCBSFC (lbs/hp hr)	0.58	0.56	0.53	0.52	0.48	0.48	0.44
IAT (°F)	103	103	103	103	102	102	105
IAP (in. Hg)	30.12	30.11	29.52	30.12	29.51	29.53	29.53
Cowl T (°F)	102	100	104	101	103.8	102	102
Cowl P (in H_2O)	3.5	3.8	3.0	4.2	3.0	3.9	4.3
Fuel T (°F)	79	79	91	80	92	92	92
Fuel Dens (lbs/gal)	5.96	5.96	5.91	5.96	6.00	5.91	5.91
MTDP (psig)	9.5	8.8	7.8	8.2	7.1	6.2	5.6
Pump P (psig)	19.5	19.5	19.4	19.6	20	19.4	19.4
CHT1 (°F)	456	457	463	458	466	467	465
CHT2 (°F)	438	436	446	436	445	448	446
CHT3 (°F)	450	451	460	451	460	462	461
CHT4 (°F)	439	438	448	441	447	450	449
CHT5 (°F)	475	476	476	476	475	477	476
CHT6 (°F)	458	457	474	459	475	477	476
EGT1 (°F)	1382	1411	1436	1439	1476	1520	1547
EGT2 (°F)	1359	1383	1407	1412	1449	1492	1519
EGT3 (°F)	1390	1417	1449	1447	1489	1535	1562
EGT4 (°F)	1372	1395	1417	1423	1460	1502	1530
EGT5 (°F)	1397	1425	1454	1453	1495	1539	1566
EGT6 (°F)	1384	1408	1435	1437	1475	1520	1546
Oil T (°F)	239	240	237	242	236	241	234
Oil P (psig)	63	63	62	63	62	62	62
Hum T (°F)	104	104	103	104	103	104	104
Hum ratio (gr/lb)	0	0	1	0	1	2	1
AFR	10.5	11.0	11.3	11.4	12.1	12.7	13.5
AFL	10.5	10.9	12.6	11.3		13.7	14.1
K airflow (lbs/hr)	1792	1795	1719	1786	1760	1784	1706
A/F	11.0	11.2	11.2	11.9	13.1	12.9	13.5

TABLE A-78. AM2 ENGINE DATA, 85% POWER

Test	T2-39	T2-39	T2-39	T2-29	T2-39	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.11	30.11	30.11	29.42	30.11	29.42	29.42	29.42
Fuel	AM2	AM2	AM2	AM2	AM2	AM2	AM2	AM2
Test Points	AA	Z	Y	Y	X**	V	W	X
MAP (in. Hg)	27.22	27.24	27.23	26.53	27.23	26.52	26.54	26.55
rpm	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	470	476	477	468	481	472	472	470
BHP	233	236	237	232	239	234	234	234
TCBHP	243	246	247	242	249	244	244	243
LCBHP	241	244	245	245	247	247	247	246
BMEP (psig)	107.5	108.6	109.0	107.0	109.7	108.0	107.9	107.5
FF (lbs/hr)	142.2	134.9	129.6	124.1	118.0	117.7	111.8	105.5
FFG (gal/hr)	23.9	22.7	21.8	21.0	19.8	20.0	19.0	17.9
% Relative FF	20.8	14.6	10.1	5.5	0.3	0.0	-5.0	-10.4
BSFC (lbs/hp hr)	0.61	0.57	0.55	0.53	0.50	0.50	0.48	0.46
TCBSFC (lbs/hp hr)	0.58	0.55	0.53	0.51	0.47	0.48	0.46	0.44
LCBSFC (lbs/hp hr)	0.59	0.55	0.53	0.51	0.48	0.48	0.45	0.43
IAT (°F)	103	103	103	102	103	101	102	101
IAP (in. Hg)	30.12	30.12	30.12	29.47	30.12	29.47	29.47	29.48
Cowl T (°F)	99	99	94	104	94	101	101	102
Cowl P (in H_2O)	2.7	2.4	2.5	2.2	2.5	2.7	2.9	4.7
Fuel T (°F)	81	81	81	94	81	93	93	94
Fuel Dens (lbs/gal)	5.95	5.95	5.95	5.90	5.95	5.90	5.90	5.90
MTDP (psig)	7.0	6.3	5.9	5.5	4.9	4.9	4.5	4.2
Pump P (psig)	19.4	19.5	19.5	18.9	19.6	18.9	18.9	18.9
CHT1 (°F)	451	454	456	457	457	460	458	458
CHT2 (°F)	439	440	441	445	441	447	447	450
CHT3 (°F)	449	450	451	455	451	455	454	457
CHT4 (°F)	437	437	439	442	441	445	444	446
CHT5 (°F)	475	474	476	472	476	474	476	475
CHT6 (°F)	461	462	463	467	463	467	466	468
EGT1 (°F)	1344	1381	1404	1407	1472	1451	1478	1521
EGT2 (°F)	1329	1361	1386	1388	1450	1428	1455	1496
EGT3 (°F)	1360	1399	1425	1427	1493	1472	1498	1537
EGT4 (°F)	1333	1367	1393	1395	1458	1437	1464	1504
EGT5 (°F)	1364	1401	1426	1429	1493	1468	1495	1536
EGT6 (°F)	1354	1391	1419	1419	1489	1462	1487	1527
Oil T (°F)	241	240	239	235	240	236	237	234
Oil P (psig)	62	62	62	61	62	61	61	62
Hum T (°F)	104	104	104	101	104	101	101	102
Hum ratio (gr/lb)	0	0	0	1	0	1	1	1
AFR	10.6	11.1	11.5	11.6	12.6	12.2	12.8	13.6
AFL	10.5	11.1	11.5	12.8	12.6	13.3	13.7	14.2
K airflow (lbs/hr)	1504	1502	1500	1447	1492	1470	1429	1471
A/F	10.6	11.1	11.6	11.7	12.7	12.5	12.8	14.0

TABLE A-79. AM2 ENGINE DATA, 75% POWER

Test	T2-40	T2-40	T2-40	T2-40	T2-29	T2-40	T2-29	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.15	30.15	30.15	30.15	29.42	30.15	29.42	29.42	29.42	29.42
Fuel	AM2	AM2	AM2	AM2	AM2	AM2	AM2	AM2	AM2	AM2
Test Points	E	D	C	B	AN	A	AJ	AK	AL**	AM
MAP (in. Hg)	25.88	25.90	25.89	25.94	25.43	25.88	25.44	25.45	25.44	25.45
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	438	441	443	445	439	446	442	441	441	438
BHP	205	206	207	208	205	209	207	206	206	205
TCBHP	214	215	217	217	214	218	215	215	215	214
LCBHP	212	213	214	215	216	216	217	217	217	216
BMEP (psig)	99.8	100.7	101.2	101.7	100.3	102.1	101.0	100.8	100.8	100.2
FF (lbs/hr)	129.2	124.5	119.3	114.2	109.3	103.8	101.0	98.5	95.0	92.3
FFG (gal/hr)	21.7	20.9	20.0	19.2	18.6	17.4	17.1	16.7	16.1	15.9
% Relative FF	24.4	19.8	14.8	9.9	5.1	-0.1	-2.8	-5.2	-8.6	-11.1
BSFC (lbs/hp hr)	0.63	0.60	0.58	0.55	0.53	0.50	0.49	0.48	0.46	0.45
TCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.51	0.48	0.47	0.46	0.44	0.43
LCBSFC (lbs/hp hr)	0.61	0.58	0.56	0.53	0.51	0.48	0.47	0.46	0.44	0.43
IAT (°F)	103	104	105	105	103	104	102	101	101	101
IAP (in. Hg)	30.16	30.17	30.16	30.14	29.56	30.14	29.54	29.53	29.53	29.54
Cowl T (°F)	100	101	101	102	103	104	100	103	103	104
Cowl P (in H_2O)	1.8	1.7	1.8	2.5	1.9	2.3	1.8	1.8	1.7	3.3
Fuel T (°F)	79	79	80	81	96	81	95	96	96	98
Fuel Dens (lbs/gal)	5.97	5.96	5.96	5.96	5.89	5.96	5.90	5.89	5.89	5.81
MTDP (psig)	5.8	5.4	5.0	4.6	4.3	3.8	3.7	3.6	3.5	3.4
Pump P (psig)	19.7	19.7	19.8	19.8	19.3	19.8	19.4	19.4	19.3	19.4
CHT1 (°F)	442	444	445	452	454	453	457	459	457	460
CHT2 (°F)	432	434	434	439	449	441	452	452	450	453
CHT3 (°F)	441	442	443	448	451	449	453	457	455	455
CHT4 (°F)	429	431	432	435	442	438	443	444	443	447
CHT5 (°F)	474	475	474	476	474	475	474	476	475	476
CHT6 (°F)	448	450	450	454	466	454	467	467	464	466
EGT1 (°F)	1295	1321	1345	1375	1385	1444	1441	1459	1467	1500
EGT2 (°F)	1288	1313	1338	1365	1372	1433	1425	1449	1458	1488
EGT3 (°F)	1309	1337	1363	1391	1401	1461	1455	1480	1492	1540
EGT4 (°F)	1293	1318	1343	1371	1383	1441	1439	1453	1463	1499
EGT5 (°F)	1310	1338	1364	1392	1401	1459	1455	1473	1485	1522
EGT6 (°F)	1315	1342	1366	1393	1406	1462	1461	1476	1484	1520
Oil T (°F)	243	244	243	244	239	241	240	239	242	238
Oil P (psig)	60	60	60	60	60	60	60	60	60	60
Hum T (°F)	106	106	107	106	102	107	101	101	101	101
Hum ratio (gr/lb)	0	0	0	0	1	0	1	1	1	1
AFR	10.3	10.7	11.1	11.6	11.7	12.6	12.6	12.9	13.3	14.0
AFL	10.1	10.5	11.0	11.5	12.9	12.5	13.5	13.8	13.9	14.5
K airflow (lbs/hr)	1268	1255	1227	1212	1277	1210	1268	1273	1272	1278
A/F	9.8	10.1	10.3	10.6	11.7	11.7	12.6	13.0	13.4	13.8

TABLE A-80. AM2 ENGINE DATA, 65% POWER

Test	T2-40	T2-40	T2-40	T2-40	T2-29	T2-40	T2-29	T2-40	T2-40
Barometer (in. Hg)	30.15	30.15	30.15	30.15	29.42	30.15	29.42	30.15	30.15
Fuel	AM2	AM2	AM2	AM2	AM2	AM2	AM2	AM2	AM2
Test Points	L	K**	J	I	BE	F	BC	G	L
MAP (in. Hg)	24.16	24.15	24.16	24.16	23.78	24.17	23.82	24.12	24.16
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	399	400	401	403	395	408	400	409	399
BHP	179	179	180	181	177	183	180	183	179
TCBHP	187	187	188	188	185	191	187	191	187
LCBHP	185	185	186	187	186	189	189	189	185
BMEP (psig)	91.1	91.4	91.8	92.2	90.4	93.1	91.4	93.1	91.1
FF (lbs/hr)	112.6	109.9	105.0	100.4	96.1	91.5	91.0	85.0	112.6
FFG (gal/hr)	18.9	18.4	17.6	16.9	16.4	15.4	15.5	14.4	18.9
% Relative FF	23.3	20.3	15.0	10.0	5.3	0.2	-0.3	-6.9	23.3
BSFC (lbs/hp hr)	0.63	0.61	0.58	0.56	0.54	0.50	0.51	0.46	0.63
TCBSFC (lbs/hp hr)	0.60	0.59	0.56	0.53	0.52	0.48	0.49	0.44	0.60
LCBSFC (lbs/hp hr)	0.61	0.59	0.57	0.54	0.52	0.49	0.48	0.45	0.61
IAT (°F)	102	102	102	102	102	102	101	102	102
IAP (in. Hg)	30.16	30.16	30.17	30.18	29.55	30.15	29.55	30.16	30.16
Cowl T (°F)	104	105	106	106	103	102	105	102	104
Cowl P (in H_2O)	1.5	1.7	1.5	1.5	1.4	1.9	1.6	2.7	1.5
Fuel T (°F)	79	79	80	81	100	79	98	80	79
Fuel Dens (lbs/gal)	5.97	5.97	5.96	5.95	5.85	5.95	5.86	5.90	5.97
MTDP (psig)	4.4	4.2	3.9	3.7	3.6	3.3	3.4	3.1	4.4
Pump P (psig)	19.6	19.6	19.6	19.7	19.0	19.7	19.0	19.7	19.6
CHT1 (°F)	445	446	448	448	452	447	452	449	445
CHT2 (°F)	437	437	440	440	448	439	447	441	437
CHT3 (°F)	443	444	445	442	447	446	452	448	443
CHT4 (°F)	430	432	435	436	440	435	440	436	430
CHT5 (°F)	474	474	475	474	474	476	474	476	474
CHT6 (°F)	452	452	453	450	462	452	464	454	452
EGT1 (°F)	1296	1312	1338	1354	1350	1417	1388	1434	1296
EGT2 (°F)	1290	1305	1331	1346	1342	1410	1382	1427	1290
EGT3 (°F)	1313	1327	1357	1372	1375	1448	1422	1472	1313
EGT4 (°F)	1295	1308	1334	1352	1348	1416	1389	1435	1295
EGT5 (°F)	1309	1322	1352	1369	1363	1434	1406	1453	1309
EGT6 (°F)	1317	1331	1362	1377	1370	1438	1410	1457	1317
Oil T (°F)	243	242	243	242	240	243	239	244	243
Oil P (psig)	58	58	58	58	59	58	59	58	58
Hum T (°F)	103	103	103	103	101	104	101	103	103
Hum ratio (gr/lb)	0	0	0	0	1	0	1	1	0
AFR	10.5	10.7	11.1	11.4	11.4	12.4	12.0	12.8	10.5
AFL	10.3	10.5	11.0	11.3	12.6	12.3	13.1	12.7	10.3
K airflow (lbs/hr)	1135	1128	1130	1134	1124	1126	1135	1112	1135
A/F	10.1	10.3	10.8	11.3	11.7	12.4	12.5	13.1	10.1

TABLE A-81. AM3 ENGINE DATA, TO POWER

Test	T2-29	T2-29	T2-40	T2-29	T2-29	T2-40	T2-29
Barometer (in. Hg)	29.42	29.42	30.15	29.42	29.42	30.15	29.42
Fuel	AM3	AM3	AM3	AM3	AM3	AM3	AM3
Test Points	I	J	M**	K	L	N	M
MAP (in. Hg)	28.89	28.86	29.59	28.85	28.84	29.58	28.87
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	521	525	540	532	527	541	534
BHP	268	270	278	274	272	279	275
TCBHP	281	282	290	286	285	291	287
LCBHP	284	286	287	290	288	288	290
BMEP (psig)	118.9	120.0	123.2	121.7	120.6	123.6	122.0
FF (lbs/hr)	163.7	154.5	151.7	145.3	144.7	142.7	137.3
FFG (gal/hr)	28.4	26.8	26.1	25.2	25.1	24.5	23.9
% Relative FF	18.8	12.1	10.1	5.5	5.0	3.5	-0.3
BSFC (lbs/hp hr)	0.61	0.57	0.55	0.53	0.53	0.51	0.50
TCBSFC (lbs/hp hr)	0.58	0.55	0.52	0.51	0.51	0.49	0.48
LCBSFC (lbs/hp hr)	0.58	0.54	0.53	0.50	0.50	0.50	0.47
IAT (°F)	106	103	103	103	106	102	102
IAP (in. Hg)	29.49	29.46	30.15	29.45	29.45	30.15	29.47
Cowl T (°F)	105	105	104	106	105	108	105
Cowl P (in H_2O)	4.0	3.8	3.5	2.6	2.6	4.2	3.2
Fuel T (°F)	91	91	78	91	91	78	92
Fuel Dens (lbs/gal)	5.76	5.76	5.82	5.76	5.76	5.81	5.76
MTDP (psig)	9.4	8.8	8.2	7.2	8.0	7.2	6.3
Pump P (psig)	19.1	19.1	19.7	19.2	19.2	19.7	19.2
CHT1 (°F)	464	466	476	468	464	476	467
CHT2 (°F)	447	447	432	447	444	433	448
CHT3 (°F)	459	460	448	461	458	451	465
CHT4 (°F)	449	449	434	449	445	438	447
CHT5 (°F)	474	475	469	476	473	476	476
CHT6 (°F)	475	476	456	477	474	458	476
EGT1 (°F)	1352	1377	1426	1448	1407	1471	1484
EGT2 (°F)	1333	1358	1405	1420	1383	1447	1461
EGT3 (°F)	1370	1396	1438	1456	1421	1482	1500
EGT4 (°F)	1341	1367	1414	1432	1394	1457	1476
EGT5 (°F)	1379	1403	1442	1463	1429	1483	1500
EGT6 (°F)	1359	1385	1431	1445	1409	1475	1486
Oil T (°F)	233	236	240	236	236	240	240
Oil P (psig)	62	62	63	62	62	63	62
Hum T (°F)	104	104	104	104	104	104	104
Hum ratio (gr/lb)	1	1	0	1	1	0	1
AFR	10.2	10.6	11.4	11.6	11.1	12.0	12.5
AFL	11.8	12.0	11.3	12.8	12.4	12.0	13.5
K airflow (lbs/hr)	1725	1796	1736	1782	1706	1779	1802
A/F	10.6	11.7	11.4	12.3	11.8	12.5	13.1

TABLE A-82. AM3 ENGINE DATA, 85% POWER

Test	T2-40	T2-40	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.15	30.15	29.42	29.42	29.42
Fuel	AM3	AM3	AM3	AM3	AM3
Test Points	O	P	AA	Z**	AB
MAP (in. Hg)	27.68	27.72	27.05	27.06	27.07
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	482	485	478	481	484
BHP	239	241	237	239	240
TCBHP	249	251	247	249	250
LCBHP	247	249	250	252	253
BMEP (psig)	110.1	110.9	109.3	109.8	110.7
FF (lbs/hr)	144.6	141.2	134.7	129.5	123.1
FFG (gal/hr)	24.8	24.3	23.4	22.5	21.4
% Relative FF	22.9	20.0	14.4	10.0	4.6
BSFC (lbs/hp hr)	0.61	0.59	0.57	0.54	0.51
TCBSFC (lbs/hp hr)	0.58	0.56	0.55	0.52	0.49
LCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.51	0.49
IAT (°F)	103	104	103	102	101
IAP (in. Hg)	30.14	30.15	29.49	29.49	29.49
Cowl T (°F)	102	102	103	103	103
Cowl P (in H_2O)	2.9	2.2	2.3	2.2	2.4
Fuel T (°F)	77	77	93	93	93
Fuel Dens (lbs/gal)	5.82	5.82	5.75	5.75	5.75
MTDP (psig)	7.3	7.0	6.5	6.0	5.5
Pump P (psig)	19.6	19.5	18.8	18.7	18.8
CHT1 (°F)	475	474	459	460	459
CHT2 (°F)	437	435	446	448	446
CHT3 (°F)	452	450	457	459	457
CHT4 (°F)	434	432	441	443	442
CHT5 (°F)	474	472	473	475	474
CHT6 (°F)	454	452	469	470	469
EGT1 (°F)	1326	1343	1358	1382	1415
EGT2 (°F)	1318	1333	1341	1366	1396
EGT3 (°F)	1353	1368	1379	1405	1437
EGT4 (°F)	1326	1341	1350	1375	1406
EGT5 (°F)	1357	1374	1384	1409	1436
EGT6 (°F)	1343	1357	1369	1395	1424
Oil T (°F)	241	242	241	242	233
Oil P (psig)	62	62	61	61	61
Hum T (°F)	104	104	102	101	101
Hum ratio (gr/lb)	0	0	1	1	1
AFR	10.5	10.8	10.9	11.3	11.8
AFL	10.4	10.7	12.2	12.5	13.0
K airflow (lbs/hr)	1490	1485	1525	1495	1538
A/F	10.3	10.5	11.3	11.5	12.5

TABLE A-83. AM3 ENGINE DATA, 75% POWER

Test	T2-40	T2-40	T2-29	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.15	30.15	29.42	29.42	29.42	29.42
Fuel	AM3	AM3	AM3	AM3	AM3	AM3
Test Points	R	Q	AR	AQ	AP**	AO
MAP (in. Hg)	26.03	26.03	25.52	25.55	25.56	25.55
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	442	444	438	442	444	445
BHP	207	208	205	207	207	208
TCBHP	216	217	214	216	216	217
LCBHP	214	215	216	217	218	218
BMEP (psig)	101.1	101.5	100.2	100.8	101.5	101.6
FF (lbs/hr)	128.9	124.9	119.6	114.2	109.1	104.3
FFG (gal/hr)	22.2	21.5	20.8	19.9	19.0	18.2
% Relative FF	24.1	20.2	15.1	9.9	5.0	0.3
BSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.53	0.50
TCBSFC (lbs/hp hr)	0.60	0.58	0.56	0.53	0.50	0.48
LCBSFC (lbs/hp hr)	0.60	0.58	0.56	0.53	0.50	0.48
IAT (°F)	103	103	101	102	101	102
IAP (in. Hg)	30.15	30.14	29.56	29.57	29.55	29.56
Cowl T (°F)	103	105	104	104	102	102
Cowl P (in H_2O)	1.7	1.5	1.6	1.8	1.8	1.9
Fuel T (°F)	78	78	95	95	96	96
Fuel Dens (lbs/gal)	5.82	5.82	5.74	5.74	5.74	5.74
MTDP (psig)	5.8	5.4	5.1	4.7	4.3	4.0
Pump P (psig)	19.4	19.4	19.1	19.1	19.2	19.2
CHT1 (°F)	462	464	454	454	454	453
CHT2 (°F)	438	438	450	450	448	450
CHT3 (°F)	447	447	456	455	455	453
CHT4 (°F)	434	434	443	443	441	442
CHT5 (°F)	475	474	475	474	474	474
CHT6 (°F)	454	453	468	468	467	466
EGT1 (°F)	1286	1307	1319	1347	1378	1410
EGT2 (°F)	1283	1304	1308	1338	1368	1404
EGT3 (°F)	1309	1329	1338	1366	1397	1428
EGT4 (°F)	1289	1311	1320	1350	1381	1410
EGT5 (°F)	1308	1330	1338	1367	1395	1425
EGT6 (°F)	1312	1333	1344	1373	1402	1432
Oil T (°F)	241	241	239	239	239	240
Oil P (psig)	60	60	60	60	60	60
Hum T (°F)	104	104	102	102	102	102
Hum ratio (gr/lb)	0	0	1	1	1	1
AFR	10.3	10.6	10.7	11.2	11.7	12.2
AFL	10.2	10.5	12.1	12.5	12.8	13.2
K airflow (lbs/hr)	1282	1281	1307	1301	1304	1298
A/F	10.0	10.3	10.9	11.4	11.9	12.5

TABLE A-84. AM3 ENGINE DATA, 65% POWER

Test	T2-40	T2-40	T2-29	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.15	30.15	29.42	29.42	29.42	29.42
Fuel	AM3	AM3	AM3	AM3	AM3	AM3
Test Points	T	S	BI	BH	BG**	BF
MAP (in. Hg)	24.29	24.25	23.86	23.89	23.92	23.85
rpm	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	401	400	394	400	401	402
BHP	180	179	177	179	180	180
TCBHP	188	187	184	187	188	188
LCBHP	186	186	186	189	189	190
BMEP (psig)	91.6	91.5	90.1	91.4	91.7	91.9
FF (lbs/hr)	111.9	109.7	105.0	100.3	95.6	92.6
FFG (gal/hr)	19.3	18.9	18.4	17.6	16.8	16.4
% Relative FF	22.5	20.2	15.0	9.8	4.7	1.4
BSFC (lbs/hp hr)	0.62	0.61	0.59	0.56	0.53	0.51
TCBSFC (lbs/hp hr)	0.60	0.59	0.57	0.54	0.51	0.49
LCBSFC (lbs/hp hr)	0.60	0.59	0.57	0.53	0.51	0.49
IAT (°F)	103	103	101	101	102	102
IAP (in. Hg)	30.16	30.16	29.55	29.55	29.55	29.55
Cowl T (°F)	102	102	104	105	105	103
Cowl P (in H_2O)	1.3	1.3	1.2	1.5	1.3	1.6
Fuel T (°F)	79	79	98	98	98	98
Fuel Dens (lbs/gal)	5.81	5.81	5.71	5.70	5.69	5.64
MTDP (psig)	4.4	4.2	4.1	3.7	3.5	3.0
Pump P (psig)	19.3	19.3	18.9	19.0	18.9	19.0
CHT1 (°F)	462	466	455	456	455	453
CHT2 (°F)	439	441	450	451	451	451
CHT3 (°F)	447	449	461	457	457	454
CHT4 (°F)	433	436	442	442	442	440
CHT5 (°F)	473	475	475	475	475	476
CHT6 (°F)	454	456	468	468	468	465
EGT1 (°F)	1283	1299	1307	1347	1360	1410
EGT2 (°F)	1283	1296	1303	1345	1357	1406
EGT3 (°F)	1309	1321	1329	1378	1392	1448
EGT4 (°F)	1288	1300	1307	1349	1363	1419
EGT5 (°F)	1304	1316	1321	1361	1373	1421
EGT6 (°F)	1313	1326	1333	1375	1387	1438
Oil T (°F)	242	243	239	239	240	239
Oil P (psig)	58	58	59	59	59	59
Hum T (°F)	104	104	101	101	101	101
Hum ratio (gr/lb)	0	0	1	1	1	1
AFR	10.5	10.7	10.7	11.4	11.7	12.7
AFL	10.3	10.4	12.0	12.6	12.8	13.5
K airflow (lbs/hr)	1126	1117	1145	1143	1138	1140
A/F	10.1	10.2	11.0	11.4	11.9	12.5

TABLE A-85. AM4 ENGINE DATA, TO POWER

Test	T2-40	T2-40	T2-40	T2-29	T2-29	T2-29	T2-29	t2-29
Barometer (in. Hg)	30.15	30.15	30.15	29.42	29.42	29.42	29.42	29.42
Fuel	AM4	AM4	AM4	AM4	AM4	AM4	AM4	AM4
Test Points	U	V	W	N	O	P**	Q	R
MAP (in. Hg)	29.60	29.60	29.58	28.86	28.86	28.88	28.87	28.88
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	537	542	544	533	534	533	536	534
BHP	276	279	280	275	276	275	277	275
TCBHP	288	292	292	287	288	286	288	287
LCBHP	286	289	289	290	291	289	291	290
BMEP (psig)	122.9	124.1	124.0	121.8	122.2	121.5	122.6	122.0
FF (lbs/hr)	165.7	156.9	151.9	144.7	140.3	137.3	125.7	117.0
FFG (gal/hr)	27.2	25.7	24.9	24.0	23.3	22.8	20.9	19.4
% Relative FF	20.3	13.8	10.2	5.0	1.8	-0.3	-8.8	-15.1
BSFC (lbs/hp hr)	0.60	0.56	0.54	0.53	0.51	0.50	0.45	0.43
TCBSFC (lbs/hp hr)	0.57	0.54	0.52	0.51	0.49	0.48	0.43	0.41
LCBSFC (lbs/hp hr)	0.58	0.54	0.52	0.50	0.48	0.48	0.43	0.40
IAT (°F)	103	103	103	103	105	102	102	103
IAP (in. Hg)	30.17	30.17	30.16	29.48	29.47	29.49	29.48	29.50
Cowl T (°F)	107	106	106	104	104	103	103	103
Cowl P (in H_2O)	2.8	3.5	3.8	2.3	3.0	3.6	5.3	4.0
Fuel T (°F)	76	77	78	92	93	94	93	93
Fuel Dens (lbs/gal)	6.10	6.10	6.09	6.03	6.03	6.02	6.02	6.03
MTDP (psig)	9.3	8.3	7.9	7.8	6.9	5.7	6.3	5.7
Pump P (psig)	19.5	19.6	19.6	19.1	19.0	19.1	19.2	19.1
CHT1 (°F)	475	476	477	465	465	468	466	466
CHT2 (°F)	436	436	435	446	446	442	445	446
CHT3 (°F)	452	452	452	460	464	456	459	461
CHT4 (°F)	438	439	440	448	446	447	450	451
CHT5 (°F)	475	475	474	476	476	477	476	477
CHT6 (°F)	460	462	463	474	475	473	475	476
EGT1 (°F)	1406	1448	1466	1448	1495	1581	1532	1565
EGT2 (°F)	1389	1430	1449	1422	1467	1552	1504	1538
EGT3 (°F)	1422	1466	1486	1462	1508	1595	1546	1581
EGT4 (°F)	1398	1439	1458	1432	1479	1566	1519	1550
EGT5 (°F)	1428	1473	1494	1468	1517	1599	1554	1586
EGT6 (°F)	1412	1457	1474	1448	1493	1586	1532	1566
Oil T (°F)	242	241	241	238	236	235	235	237
Oil P (psig)	63	63	63	62	62	62	62	62
Hum T (°F)	104	105	105	102	103	103	102	103
Hum ratio (gr/lb)	0	0	0	1	1	1	1	1
AFR	11.0	11.6	11.9	11.6	12.3	13.7	13.0	13.8
AFL	10.9	11.5	11.9	12.8	13.3	14.2	13.8	14.3
K airflow (lbs/hr)	1743	1748	1757	1749	1786	1807	1795	1798
A/F	10.5	11.1	11.6	12.1	12.8	13.2	14.3	15.4

TABLE A-86. AM4 ENGINE DATA, 85% POWER

Test	T2-40	T2-40	T2-40	T2-40	T2-29	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.15	30.15	30.15	30.15	29.42	29.42	29.42	29.42
Fuel	AM4	AM4	AM4	AM4	AM4	AM4	AM4	AM4
Test Points	AA	Z	Y	X	AF	AC	AD**	AE
MAP (in. Hg)	27.25	27.25	27.24	27.25	26.50	26.47	26.50	26.51
rpm	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	477	477	479	480	470	474	472	465
BHP	237	237	238	238	233	235	234	231
TCBHP	247	247	248	248	243	245	244	241
LCBHP	245	245	246	246	246	247	247	244
BMEP (psig)	108.5	108.9	109.5	109.2	107.7	108.3	108.1	106.2
FF (lbs/hr)	143.6	141.3	135.6	129.4	123.0	116.7	110.0	104.3
FFG (gal/hr)	23.6	23.2	22.3	21.3	20.4	19.4	18.3	17.3
% Relative FF	22.0	20.0	15.2	9.9	4.5	-0.9	-6.5	-11.4
BSFC (lbs/hp hr)	0.60	0.60	0.57	0.54	0.53	0.50	0.47	0.45
TCBSFC (lbs/hp hr)	0.58	0.57	0.55	0.52	0.51	0.48	0.45	0.43
LCBSFC (lbs/hp hr)	0.58	0.58	0.55	0.52	0.50	0.47	0.45	0.43
IAT (°F)	103	104	103	103	101	101	101	103
IAP (in. Hg)	30.16	30.15	30.15	30.14	29.49	29.48	29.48	29.48
Cowl T (°F)	103	102	101	100	103	102	102	102
Cowl P (in H_2O)	2.4	2.3	2.2	2.9	3.4	3.8	2.0	3.0
Fuel T (°F)	78	79	79	79	95	94	94	95
Fuel Dens (lbs/gal)	6.09	6.09	6.09	6.09	6.02	6.02	6.02	6.02
MTDP (psig)	7.0	6.7	6.2	5.7	5.3	4.8	4.2	3.9
Pump P (psig)	19.5	19.5	19.6	19.6	18.8	18.9	18.9	18.8
CHT1 (°F)	474	475	474	475	460	456	457	461
CHT2 (°F)	438	439	438	440	448	446	444	450
CHT3 (°F)	451	451	450	451	458	454	453	457
CHT4 (°F)	435	436	436	439	447	443	443	448
CHT5 (°F)	474	473	471	472	475	478	474	476
CHT6 (°F)	456	457	458	459	468	467	466	468
EGT1 (°F)	1361	1372	1399	1433	1445	1489	1530	1563
EGT2 (°F)	1350	1359	1385	1417	1422	1463	1503	1535
EGT3 (°F)	1386	1398	1426	1460	1466	1505	1545	1580
EGT4 (°F)	1355	1366	1392	1425	1429	1472	1509	1540
EGT5 (°F)	1387	1400	1427	1461	1467	1505	1543	1574
EGT6 (°F)	1379	1388	1416	1451	1454	1498	1539	1572
Oil T (°F)	238	237	237	238	241	237	238	236
Oil P (psig)	62	62	62	62	61	61	61	61
Hum T (°F)	104	105	104	104	102	101	101	101
Hum ratio (gr/lb)	0	0	0	0	1	1	1	1
AFR	11.0	11.1	11.5	11.9	12.1	12.9	13.6	14.3
AFL	10.9	11.1	11.4	12.0	13.2	13.8	14.3	14.7
K airflow (lbs/hr)	1492	1485	1473	1461	1475	1481	1470	1414
A/F	10.4	10.5	10.9	11.3	12.0	12.7	13.4	13.5

TABLE A-87. AM4 ENGINE DATA, 75% POWER

Test	T2-40	T2-40	T2-40	T2-40	T2-29	T2-29	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.15	30.15	30.15	30.15	29.42	29.42	29.42	29.42	29.42
Fuel	AM4	AM4	AM4	AM4	AM4	AM4	AM4	AM4	AM4
Test Points	AE	AD	AC	AB	AW	AS	AT	AU**	AV
MAP (in. Hg)	26.05	26.03	26.05	26.05	25.49	25.51	25.54	25.54	25.52
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	446	447	450	452	444	446	443	439	428
BHP	208	209	210	211	207	208	207	205	200
TCBHP	218	218	220	220	216	217	216	214	209
LCBHP	216	216	218	219	218	219	218	216	211
BMEP (psig)	101.8	102.3	102.9	103.3	101.6	101.8	101.3	100.5	97.7
FF (lbs/hr)	130.2	124.8	119.5	114.5	109.0	104.2	98.8	93.6	90.2
FFG (gal/hr)	21.4	20.5	19.6	18.8	18.2	17.3	16.5	15.6	15.2
% Relative FF	25.3	20.1	15.0	10.2	4.9	0.3	-5.0	-10.0	-13.2
BSFC (lbs/hp hr)	0.63	0.60	0.57	0.54	0.53	0.50	0.48	0.46	0.45
TCBSFC (lbs/hp hr)	0.60	0.57	0.54	0.52	0.51	0.48	0.46	0.44	0.43
LCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53	0.50	0.48	0.45	0.43	0.43
IAT (°F)	104	104	103	103	101	101	102	101	102
IAP (in. Hg)	30.15	30.16	30.14	30.14	29.56	29.56	29.58	29.57	29.56
Cowl T (°F)	103	104	106	107	101	102	103	102	102
Cowl P (in H_2O)	1.6	2.0	2.2	2.2	2.0	1.8	2.4	2.2	1.9
Fuel T (°F)	78	79	79	79	99	97	98	99	99
Fuel Dens (lbs/gal)	6.09	6.09	6.09	6.09	6.00	6.01	6.00	5.99	5.95
MTDP (psig)	5.8	5.3	4.9	4.5	4.1	3.8	3.5	3.3	3.0
Pump P (psig)	19.5	19.4	19.5	19.5	19.1	19.2	19.2	19.2	19.2
CHT1 (°F)	464	469	470	472	461	460	459	460	457
CHT2 (°F)	439	440	441	441	451	451	452	452	450
CHT3 (°F)	446	448	449	448	453	455	456	456	454
CHT4 (°F)	434	437	438	438	446	445	446	446	446
CHT5 (°F)	473	474	474	474	475	476	476	476	474
CHT6 (°F)	453	455	456	456	467	467	467	465	464
EGT1 (°F)	1315	1347	1375	1403	1423	1457	1490	1513	1548
EGT2 (°F)	1313	1344	1371	1398	1409	1444	1472	1502	1534
EGT3 (°F)	1337	1368	1398	1426	1440	1474	1503	1535	1568
EGT4 (°F)	1319	1349	1378	1406	1422	1455	1483	1510	1550
EGT5 (°F)	1339	1370	1399	1427	1439	1472	1500	1529	1556
EGT6 (°F)	1343	1373	1401	1431	1443	1477	1508	1533	1554
Oil T (°F)	244	244	244	243	240	240	239	239	240
Oil P (psig)	59	59	60	60	60	60	60	60	60
Hum T (°F)	104	104	104	104	101	101	102	101	102
Hum ratio (gr/lb)	0	0	0	0	1	1	0	1	1
AFR	10.7	11.2	11.6	12.0	12.2	12.9	13.6	14.1	14.9
AFL	10.6	11.1	11.5	12.0	13.3	13.7	14.1	14.5	15.0
K airflow (lbs/hr)	1295	1288	1293	1304	1315	1291	1287	1301	1307
A/F	10.0	10.3	10.8	11.4	12.1	12.4	13.1	13.9	14.5

TABLE A-88. AM4 ENGINE DATA, 65% POWER

Test	T2-40	T2-40	T2-40	T2-40	T2-29	T2-29	T2-29
Barometer (in. Hg)	30.15	30.15	30.15	30.15	29.42	29.42	29.42
Fuel	AM4	AM4	AM4	AM4	AM4	AM4	AM4
Test Points	AI	AH	AG	AF	BM	BJ	BK**
MAP (in. Hg)	24.26	24.26	24.31	24.23	23.81	23.80	23.80
rpm	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	404	406	408	408	401	402	401
BHP	181	182	183	183	180	181	180
TCBHP	189	190	191	191	187	188	187
LCBHP	187	188	189	189	189	190	189
BMEP (psig)	91.8	92.4	93.1	93.2	91.6	92.0	91.5
FF (lbs/hr)	113.6	109.6	105.0	100.3	95.8	90.8	84.5
FFG (gal/hr)	18.6	18.0	17.2	16.5	16.0	15.1	14.2
% Relative FF	24.4	20.1	15.0	9.9	4.9	-0.5	-7.4
BSFC (lbs/hp hr)	0.63	0.60	0.57	0.55	0.53	0.50	0.47
TCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53	0.51	0.48	0.45
LCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.51	0.48	0.45
IAT (°F)	103	103	103	103	101	102	101.00
IAP (in. Hg)	30.15	30.15	30.16	30.16	29.55	29.55	30
Cowl T (°F)	103	102	102	99	101	102	100.50
Cowl P (in H_2O)	1.5	1.2	1.6	2.0	1.5	1.1	2.0
Fuel T (°F)	78	79	79	80	101	98	99.0
Fuel Dens (lbs/gal)	6.09	6.09	6.09	6.09	5.99	5.99	6.00
MTDP (psig)	4.3	4.1	3.8	3.5	3.4	3.0	2.90
Pump P (psig)	19.4	19.4	19.4	19.4	19.1	19.0	19.1
CHT1 (°F)	467	468	468	466	454	456	457.5
CHT2 (°F)	442	443	443	441	450	452	452
CHT3 (°F)	448	449	449	448	450	458	457
CHT4 (°F)	437	437	437	436	443	443	444
CHT5 (°F)	475	475	475	473	476	478	477
CHT6 (°F)	456	456	456	455	461	467	467
EGT1 (°F)	1320	1341	1369	1388	1404	1428	1463
EGT2 (°F)	1316	1339	1365	1387	1397	1419	1455
EGT3 (°F)	1341	1364	1393	1417	1430	1449	1495
EGT4 (°F)	1321	1343	1372	1393	1402	1428	1463
EGT5 (°F)	1337	1359	1389	1413	1419	1439	1475
EGT6 (°F)	1348	1368	1400	1422	1427	1453	1481
Oil T (°F)	244	243	243	244	240	240	239
Oil P (psig)	58	58	58	58	59	58	59
Hum T (°F)	104	104	104	104	101	101	101
Hum ratio (gr/lb)	0	0	0	0	1	1	1
AFR	10.9	11.2	11.7	12.1	12.1	12.7	13
AFL	10.7	11.1	11.5	11.9	13.2	13.6	14.0
K airflow (lbs/hr)	1142	1139	1142	1134	1137	1133	1123.5
A/F	10.1	10.4	10.9	11.3	11.9	12.5	13.3

TABLE A-89. AM5 ENGINE DATA, TO POWER

Test	T2-30	T2-30	T2-30	T2-30	T2-30	T2-30	T2-38
Barometer (in. Hg)	30.02	30.02	30.02	30.02	30.02	30.02	30.1
Fuel	AM5	AM5	AM5	AM5	AM5	AM5	AM5
Test Points	A	C	D	E	B	F**	E
MAP (in. Hg)	29.49	29.47	29.47	29.49	29.48	29.49	29.54
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	530	541	541	544	534	542	543
BHP	272	278	278	280	275	279	280
TCBHP	284	290	289	291	287	291	291
LCBHP	283	288	287	289	285	289	289
BMEP (psig)	121	124	124	124	122	124	124.0
FF (lbs/hr)	171.3	162.3	151.7	149.3	148.8	146.3	132.3
FFG (gal/hr)	28.6	27.1	25.3	24.9	24.8	24.5	22.0
% Relative FF	24.3	17.8	10.1	8.4	7.9	6.2	-4.0
BSFC (lbs/hp hr)	0.63	0.58	0.5	0.54	0.54	0.53	0.47
TCBSFC (lbs/hp hr)	0.60	0.56	0.53	0.52	0.52	0.51	0.46
LCBSFC (lbs/hp hr)	0.61	0.56	0.53	0.52	0.52	0.51	0.46
IAT (°F)	103.00	102.00	98.00	97.00	103.75	101.00	101.00
IAP (in. Hg)	30	30	30.06	30	30	30.08	30
Cowl T (°F)	100	98	103	102	101	104	101
Cowl P (in H_2O)	2.0	4.0	4.1	4.0	2.0	5.0	4.0
Fuel T (°F)	86.0	87.0	88	88.0	86.3	89	81.0
Fuel Dens (lbs/gal)	6.00	6.00	6.00	6.00	6.00	5.99	6.00
MTDP (psig)	9.6	7.7	8.0	7.4	8.8	7.0	6.5
Pump P (psig)	19.8	19.7	19.67	19.7	19.8	19.6	19.8
CHT1 (°F)	462.7	470.7	469.3	467.7	465.5	471	455.5
CHT2 (°F)	449	448	446.7	444	446	448.00	434
CHT3 (°F)	456	460	460	457	457	461.0	450
CHT4 (°F)	445	448	447	444	444	449.7	438
CHT5 (°F)	474	478	478	475	475	478	477
CHT6 (°F)	471	474	474	471	471	476	462
EGT1 (°F)	1363	1440	1450	1459	1388	1460	1507
EGT2 (°F)	1339	1415	1423	1434	1365	1436	1475
EGT3 (°F)	1376	1453	1462	1471	1403	1475	1513
EGT4 (°F)	1353	1428	1437	1445	1377	1450	1491
EGT5 (°F)	1384	1459	1469	1478	1411	1482	1515
EGT6 (°F)	1371	1445	1454	1458	1394	1464	1508
Oil T (°F)	240	241	238	238	240	240	243
Oil P (psig)	62	62	62	62	62	62	63
Hum T (°F)	104	104	103	100	105	100	104
Hum ratio (gr/lb)	1	1	1	1	1	1	0
AFR	10.2	11.4	11.5	11.7	10.6	11.6	12.4
AFL	11.8	12.6	12.7	12.9	12.1	12.8	12.4
K airflow (lbs/hr)	1757	1777	1900	1871	1763	1791	1771
A/F	10.2	10.9	12.5	12.5	11.9	12.3	13.4

TABLE A-90. AM5 ENGINE DATA, 85% POWER

Test	T2-38	T2-38	T2-30	T2-30	T2-30	T2-38	T2-30
Barometer (in. Hg)	30.10	30.10	30.02	30.02	30.02	30.10	30.02
Fuel	AM5	AM5	AM5	AM5	AM5	AM5	AM5
Test Points	G	H	V	W	X**	F	U
MAP (in. Hg)	27.79	27.79	27.64	27.63	27.64	27.76	27.63
rpm	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	484	489	488	490	493	494	493
BHP	240	242	242	243	245	245	245
TCBHP	250	253	253	253	255	256	255
LCBHP	248	251	251	252	253	254	254
BMEP (psig)	110.6	111.9	112	112	113	113.0	113
FF (lbs/hr)	147.1	141.3	134.4	129.5	123.8	118.3	117.3
FFG (gal/hr)	24.4	23.5	22.5	21.6	20.7	19.7	19.6
% Relative FF	25.0	20.1	14.2	10.0	5.2	0.5	-0.4
BSFC (lbs/hp hr)	0.61	0.58	0.56	0.53	0.51	0.48	0.48
TCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.51	0.49	0.46	0.46
LCBSFC (lbs/hp hr)	0.59	0.56	0.54	0.52	0.49	0.47	0.46
IAT (°F)	102	103	102	102	103	102	103
IAP (in. Hg)	30.11	30.11	30.08	30.07	30.08	30.11	30.06
Cowl T (°F)	99	98	104	102	102	108	104
Cowl P (in H_2O)	1.7	2.0	2.7	2.5	3.0	3.3	2.7
Fuel T (°F)	81	81	89	89	90	83	89
Fuel Dens (lbs/gal)	6.02	6.02	5.98	5.98	5.98	6.02	5.98
MTDP (psig)	7.4	6.8	6.2	5.8	5.3	4.9	4.7
Pump P (psig)	19.6	19.6	19.1	19.1	19.1	19.8	19.2
CHT1 (°F)	453	455	460	465	462	458	464
CHT2 (°F)	440	443	451	453	452	441	452
CHT3 (°F)	452	454	458	460	459	452	460
CHT4 (°F)	437	439	445	446	446	441	446
CHT5 (°F)	474	476	474	476	476	474	476
CHT6 (°F)	460	461	469	470	470	461	469
EGT1 (°F)	1341	1368	1389	1413	1444	1482	1480
EGT2 (°F)	1321	1348	1368	1393	1421	1459	1458
EGT3 (°F)	1356	1383	1409	1434	1466	1499	1502
EGT4 (°F)	1330	1355	1377	1404	1435	1470	1472
EGT5 (°F)	1360	1387	1411	1436	1466	1500	1501
EGT6 (°F)	1348	1374	1397	1421	1453	1486	1488
Oil T (°F)	241	242	239	240	240	241	239
Oil P (psig)	62	62	61	61	61	62	61
Hum T (°F)	104	104	103	102	103	104	103
Hum ratio (gr/lb)	0	0	1	1	1	0	1
AFR	10.4	10.9	11	12	12	12.7	13
AFL	10.4	10.8	12.5	12.8	13.2	12.7	13.7
K airflow (lbs/hr)	1516	1503	1515	1501	1509	1504	1478
A/F	10.3	10.6	11.3	11.6	12.2	12.7	12.6

TABLE A-91. AM5 ENGINE DATA, 75% POWER

Test	T2-38	T2-38	T2-38	T2-38	T2-30	T2-30	T2-38	T2-30
Barometer (in. Hg)	30.10	30.10	30.10	30.10	30.02	30.02	30.1	30.02
Fuel	AM5	AM5	AM5	AM5	AM5	AM5	AM5	AM5
Test Points	J	L	M	N	Z	AA**	I	Y
MAP (in. Hg)	26.44	26.48	26.46	26.45	26.34	26.37	26.45	26.32
rpm	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	450	453	457	459	460	461	462	462
BHP	210	212	214	214	215	215	216	216
TCBHP	219	221	223	224	224	225	225	226
LCBHP	218	219	221	222	222	223	224	224
BMEP (psig)	102.7	103.8	104.5	104.7	105	105	105.8	106.0
FF (lbs/hr)	133.3	129.8	123.5	120.0	114.1	108.5	104.3	103.8
FFG (gal/hr)	22.2	21.6	20.5	19.9	19.1	18.2	17.4	17.3
% Relative FF	28.3	24.9	18.8	15.5	9.8	4.4	0.4	-0.1
BSFC (lbs/hp hr)	0.64	0.61	0.58	0.56	0.53	0.50	0.48	0.48
TCBSFC (lbs/hp hr)	0.61	0.59	0.55	0.54	0.51	0.48	0.46	0.46
LCBSFC (lbs/hp hr)	0.61	0.59	0.56	0.54	0.51	0.49	0.47	0.46
IAT (°F)	103	103	102	102	102	103	103	103
IAP (in. Hg)	30.11	30.12	30.12	30.12	30.07	30.07	30.11	30.06
Cowl T (°F)	102	103	106	105	98	98	99	98
Cowl P (in H_2O)	1.6	1.4	1.8	2.0	1.9	2.3	2.5	2.4
Fuel T (°F)	82	81	81	81	90	90	82	89
Fuel Dens (lbs/gal)	6.02	6.02	6.02	6.02	5.98	5.98	6.02	5.98
MTDP (psig)	6.0	5.7	5.2	5.0	4.5	4.1	3.8	3.8
Pump P (psig)	19.5	19.5	19.5	19.5	19.0	19.0	19.6	19.0
CHT1 (°F)	446	450	453	453	456	457	452	454
CHT2 (°F)	436	442	443	443	449	448	442	452
CHT3 (°F)	444	450	453	454	456	456	449	456
CHT4 (°F)	432	437	440	440	443	443	439	443
CHT5 (°F)	474	475	476	476	476	476	475	477
CHT6 (°F)	455	459	462	462	469	468	460	467
EGT1 (°F)	1293	1313	1343	1363	1382	1416	1456	1449
EGT2 (°F)	1279	1298	1327	1350	1371	1403	1442	1436
EGT3 (°F)	1305	1326	1357	1377	1401	1434	1471	1467
EGT4 (°F)	1288	1308	1337	1358	1383	1417	1452	1450
EGT5 (°F)	1313	1334	1363	1383	1405	1437	1475	1469
EGT6 (°F)	1310	1329	1360	1379	1405	1436	1471	1469
Oil T (°F)	241	241	242	241	239	239	241	239
Oil P (psig)	60	60	60	60	59	59	60	60
Hum T (°F)	104	104	104	104	102	102	104	103
Hum ratio (gr/lb)	0	0	0	0	1	1	0	1
AFR	10.2	10.5	11.0	11.3	12	12	12.8	13
AFL	10.1	10.4	10.9	11.2	12.8	13.2	12.8	13.7
K airflow (lbs/hr)	1308	1313	1304	1299	1322	1319	1301	1318
A/F	9.8	10.1	10.6	10.8	11.6	12.2	12.5	12.7

TABLE A-92. AM5 ENGINE DATA, 65% POWER

Test	T2-38	T2-38	T2-38	T2-30	T2-30	T2-38	T2-30	T2-30
Barometer (in. Hg)	30.10	30.10	30.10	30.02	30.02	30.10	30.02	30.02
Fuel	AM5	AM5	AM5	AM5	AM5	AM5	AM5	AM5
Test Points	P	Q	R	AW	AV	O**	AT	AU
MAP (in. Hg)	24.51	24.49	24.49	24.45	24.47	24.50	24.47	24.48
rpm	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	404	408	411	412	414	414	416	416
BHP	181	183	184	185	185	186	187	186
TCBHP	189	191	192	193	193	194	195	194
LCBHP	187	189	191	192	192	192	193	193
BMEP (psig)	92.6	93.3	93.9	94.0	94.0	94.8	95.0	95.0
FF (lbs/hr)	115.2	109.4	105.1	100.6	96.0	91.1	91.0	86.1
FFG (gal/hr)	19.1	18.2	17.4	16.8	16.1	15.2	15.2	14.4
% Relative FF	26.2	19.8	15.1	10.2	5.1	-0.2	-0.3	-5.6
BSFC (lbs/hp hr)	0.63	0.60	0.57	0.55	0.52	0.49	0.49	0.46
TCBSFC (lbs/hp hr)	0.61	0.57	0.55	0.52	0.50	0.47	0.47	0.44
LCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.50	0.47	0.47	0.45
IAT (°F)	102	102	102	103	103	102	102	103
IAP (in. Hg)	30.11	30.10	30.10	30.06	30.07	30.11	30.07	30.05
Cowl T (°F)	100	100	101	104	104	101	104	104
Cowl P (in H_2O)	1.5	1.1	1.4	1.5	2.4	1.9	2.7	2.2
Fuel T (°F)	82	81	81	92	92	82	91	92
Fuel Dens (lbs/gal)	6.02	6.02	6.02	5.97	5.97	6.02	5.98	5.97
MTDP (psig)	4.6	4.1	3.8	3.5	3.2	3.0	2.9	2.6
Pump P (psig)	19.4	19.4	19.4	19.0	19.0	19.5	19.0	19.0
CHT1 (°F)	448	449	450	451	453	452	452	451
CHT2 (°F)	440	442	444	446	448	444	447	445
CHT3 (°F)	448	447	449	451	453	451	451	450
CHT4 (°F)	434	436	437	437	440	438	439	438
CHT5 (°F)	474	474	475	474	475	476	476	474
CHT6 (°F)	458	459	459	464	466	461	464	462
EGT1 (°F)	1289	1322	1353	1370	1403	1440	1441	1476
EGT2 (°F)	1280	1311	1340	1359	1393	1431	1429	1462
EGT3 (°F)	1306	1337	1368	1388	1421	1456	1456	1491
EGT4 (°F)	1288	1317	1346	1371	1405	1435	1440	1476
EGT5 (°F)	1302	1334	1365	1381	1414	1452	1447	1484
EGT6 (°F)	1310	1341	1369	1392	1425	1457	1457	1491
Oil T (°F)	242	242	241	235	234	241	233	234
Oil P (psig)	59	59	59	59	59	59	59	60
Hum T (°F)	103	103	103	102	102	103	102	102
Hum ratio (gr/lb)	0	0	0	1	1	0	1	1
AFR	10.3	10.8	11.3	12	12	12.7	13	13
AFL	10.1	10.7	11.1	12.7	13.1	12.5	13.7	14.1
K airflow (lbs/hr)	1135	1126	1122	1176	1176	1130	1170	1160
A/F	9.9	10.3	10.7	11.7	12.3	12.4	12.8	13.5

TABLE A-93. AM6 ENGINE DATA, TO POWER

Test	T2-30	T2-38	T2-30	T2-30	T2-51	T2-30	T2-30
Barometer (in. Hg)	30.02	30.1	30.02	30.02	30.36	30.02	30.02
Fuel	AM6	AM6	AM6	AM6	AM6	AM6	AM6
Test Points	G	S	H	I	AC**	J	K
MAP (in. Hg)	29.42	29.50	29.43	29.44	29.80	29.41	29.42
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	527	527	528	530	532	535	534
BHP	271	272	271	273	274	275	275
TCBHP	283	284	284	285	286	288	287
LCBHP	281	281	282	283	281	286	286
BMEP (psig)	120.1	120.7	121.1	121.1	121	122.0	122.0
FF (lbs/hr)	168.6	165.9	165.2	165.2	155.5	151.7	146.7
FFG (gal/hr)	28.5	27.9	28.0	28.0	26.3	25.7	24.8
% Relative FF	22.3	20.4	19.9	19.9	12.8	10.1	6.4
BSFC (lbs/hp hr)	0.62	0.61	0.61	0.61	0.57	0.55	0.53
TCBSFC (lbs/hp hr)	0.60	0.59	0.58	0.58	0.55	0.53	0.51
LCBSFC (lbs/hp hr)	0.60	0.59	0.59	0.58	0.56	0.53	0.51
IAT (°F)	104	103	103	103	104	105	104
IAP (in. Hg)	30.03	30.10	30.05	30.06	30.38	30.03	30.04
Cowl T (°F)	102	106	102	101	104	103	103
Cowl P (in H_2O)	2.0	2.4	2.4	2.1	2.6	2.9	4.3
Fuel T (°F)	88	79	88	88	87	88	89
Fuel Dens (lbs/gal)	5.91	5.95	5.91	5.91	5.91	5.91	5.90
MTDP (psig)	9.6	9.5	9.5	9.3	9.0	8.1	7.7
Pump P (psig)	19.4	19.5	19.4	19.4	20.1	19.4	19.4
CHT1 (°F)	465	457	463	468	457	468	474
CHT2 (°F)	448	438	446	449	436	448	450
CHT3 (°F)	458	454	456	458	455	458	461
CHT4 (°F)	445	439	442	446	437	445	447
CHT5 (°F)	475	475	473	476	478	475	478
CHT6 (°F)	471	460	470	472	453	472	473
EGT1 (°F)	1353	1370	1355	1364	1396	1407	1432
EGT2 (°F)	1331	1343	1334	1344	1374	1386	1408
EGT3 (°F)	1365	1375	1369	1377	1408	1421	1444
EGT4 (°F)	1344	1353	1347	1356	1382	1399	1421
EGT5 (°F)	1379	1386	1382	1391	1413	1434	1456
EGT6 (°F)	1360	1376	1363	1373	1400	1414	1430
Oil T (°F)	240	243	236	234	238	236	234
Oil P (psig)	62	63	62	62	65	62	62
Hum T (°F)	103	104	104	104	105	105	106
Hum ratio (gr/lb)	1	0	1	1	0	1	1
AFR	10.0	10.3	10.0	10.0	11	11.0	11.0
AFL	11.7	10.2	11.7	11.8	10.9	12.3	12.5
K airflow (lbs/hr)	1770	1722	1780	1767	1761	1708	1769
A/F	10.5	10.4	10.8	10.7	11.3	11.3	12.1

TABLE A-94. AM6 ENGINE DATA, 85% POWER

Test	T2-38	T2-30	T2-30	T2-30
Barometer (in. Hg)	30.10	30.02	30.02	30.02
Fuel	AM6	AM6	AM6	AM6
Test Points	T	T	R**	S
MAP (in. Hg)	27.94	27.85	27.87	27.85
rpm	2600	2600	2600	2600
TORK (ft-lbs)	487	489	492	495
BHP	242	242	244	245
TCBHP	252	253	255	256
LCBHP	250	251	253	254
BMEP (psig)	111.4	112.0	113.0	113.0
FF (lbs/hr)	148.0	141.3	135.3	129.6
FFG (gal/hr)	24.9	24.0	23.0	22.0
% Relative FF	25.7	20.0	15.0	10.1
BSFC (lbs/hp hr)	0.61	0.58	0.55	0.53
TCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.51
LCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.51
IAT (°F)	102	102	103	103
IAP (in. Hg)	30.11	30.06	30.06	30.08
Cowl T (°F)	98	106	103	104
Cowl P (in H_2O)	1.7	2.0	2.4	2.7
Fuel T (°F)	80	90	90	90
Fuel Dens (lbs/gal)	5.94	5.90	5.90	5.90
MTDP (psig)	7.5	6.9	6.4	5.9
Pump P (psig)	19.4	19.1	19.1	19.1
CHT1 (°F)	451	460	460	462
CHT2 (°F)	438	451	451	452
CHT3 (°F)	452	459	463	460
CHT4 (°F)	436	444	445	445
CHT5 (°F)	475	475	475	475
CHT6 (°F)	456	469	469	470
EGT1 (°F)	1325	1350	1379	1401
EGT2 (°F)	1313	1331	1358	1380
EGT3 (°F)	1343	1371	1399	1422
EGT4 (°F)	1319	1342	1372	1393
EGT5 (°F)	1349	1376	1402	1424
EGT6 (°F)	1337	1356	1386	1406
Oil T (°F)	240	239	242	236
Oil P (psig)	62	61	61	61
Hum T (°F)	104	103	102	103
Hum ratio (gr/lb)	0	1	1	1
AFR	10.3	11.0	11.0	11.0
AFL	10.2	12.0	12.4	12.7
K airflow (lbs/hr)	1485	1540	1517	1542
A/F	10.0	10.9	11.2	11.9

TABLE A-95. AM6 ENGINE DATA, 75% POWER

Test	T2-38	T2-38	T2-30	T2-30	T2-30	T2-30
Barometer (in. Hg)	30.10	30.10	30.02	30.02	30.02	30.02
Fuel	AM6	AM6	AM6	AM6	AM6	AM6
Test Points	U	V	AE	AC**	AD	AB
MAP (in. Hg)	26.49	26.49	26.46	26.45	26.46	26.41
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	451	454	457	460	462	462
BHP	210	212	213	215	216	216
TCBHP	220	221	222	224	225	225
LCBHP	218	220	221	222	223	224
BMEP (psig)	102.9	103.7	104.0	105.0	106.0	105.0
FF (lbs/hr)	133.0	130.0	124.8	119.7	114.3	104.0
FFG (gal/hr)	22.4	21.9	21.2	20.3	19.4	17.6
% Relative FF	28.0	25.1	20.1	15.2	10.0	0.1
BSFC (lbs/hp hr)	0.63	0.61	0.59	0.56	0.53	0.48
TCBSFC (lbs/hp hr)	0.60	0.59	0.56	0.54	0.51	0.46
LCBSFC (lbs/hp hr)	0.61	0.59	0.57	0.54	0.51	0.46
IAT (°F)	103	103	102	102	102	104
IAP (in. Hg)	30.09	30.09	30.08	30.07	30.06	30.07
Cowl T (°F)	102	104	102	102	102	101
Cowl P (in H_2O)	1.3	1.5	2.0	1.9	2.3	3.2
Fuel T (°F)	80	80	91	91	91	90
Fuel Dens (lbs/gal)	5.94	5.94	5.90	5.90	5.90	5.90
MTDP (psig)	6.1	5.8	5.5	5.0	4.6	3.9
Pump P (psig)	19.4	19.4	19.0	19.0	19.0	19.0
CHT1 (°F)	446	446	453	451	456	447
CHT2 (°F)	439	438	446	442	445	438
CHT3 (°F)	447	446	453	450	453	447
CHT4 (°F)	435	434	440	437	440	432
CHT5 (°F)	474	474	475	475	475	474
CHT6 (°F)	456	456	465	463	465	458
EGT1 (°F)	1278	1295	1318	1343	1371	1423
EGT2 (°F)	1271	1288	1307	1332	1360	1412
EGT3 (°F)	1293	1311	1336	1362	1389	1436
EGT4 (°F)	1276	1293	1317	1344	1372	1424
EGT5 (°F)	1298	1316	1334	1359	1384	1413
EGT6 (°F)	1303	1318	1340	1364	1390	1434
Oil T (°F)	241	240	239	240	239	239
Oil P (psig)	60	60	59	60	59	60
Hum T (°F)	104	104	103	103	102	103
Hum ratio (gr/lb)	0	0	1	1	1	1
AFR	10.0	10.3	11.0	11.0	11.0	12.0
AFL	9.9	10.2	12.0	12.3	12.6	13.4
K airflow (lbs/hr)	1292	1282	1350	1346	1327	1314
A/F	9.7	9.9	10.8	11.3	11.6	12.7

TABLE A-96. AM6 ENGINE DATA, 65% POWER

Test	T2-38	T2-38	T2-30	T2-30	T2-30	T2-30	T2-30
Barometer (in. Hg)	30.10	30.10	30.02	30.02	30.02	30.02	30.02
Fuel	AM6	AM6	AM6	AM6	AM6	AM6	AM6
Test Points	W	X	AS	AR	AQ**	AP	AO
MAP (in. Hg)	24.71	24.71	24.66	24.68	24.70	24.72	24.64
rpm	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	409	409	414	417	419	420	420
BHP	183	183	185	187	188	188	188
TCBHP	191	191	193	195	196	196	196
LCBHP	190	190	192	193	195	195	195
BMEP (psig)	93.4	93.5	95	95	96	96	96
FF (lbs/hr)	117.0	115.7	109.3	104.9	100.3	96.1	92.0
FFG (gal/hr)	19.7	19.5	18.5	17.8	17.0	16.3	15.6
% Relative FF	28.1	26.7	19.7	14.9	9.9	5.3	0.8
BSFC (lbs/hp hr)	0.64	0.63	0.59	0.56	0.53	0.51	0.49
TCBSFC (lbs/hp hr)	0.61	0.60	0.57	0.54	0.51	0.49	0.47
LCBSFC (lbs/hp hr)	0.62	0.61	0.57	0.54	0.51	0.49	0.47
IAT (°F)	103	103	102	103	104	103	103
IAP (in. Hg)	30.10	30.11	30.06	30.06	30.08	30.06	30.05
Cowl T (°F)	105	103	102	102	102	104	103
Cowl P (in H_2O)	1.0	1.1	1.5	2.0	1.7	2.3	2.4
Fuel T (°F)	81	81	92	93	93	93	92
Fuel Dens (lbs/gal)	5.94	5.93	5.89	5.89	5.89	5.89	5.89
MTDP (psig)	4.7	4.6	4.2	3.9	3.6	3.3	3.1
Pump P (psig)	19.3	19.3	18.9	18.9	19.0	19.0	19.0
CHT1 (°F)	445	448	449	450	449	451	447
CHT2 (°F)	441	443	446	446	444	446	442
CHT3 (°F)	446	448	449	449	448	450	447
CHT4 (°F)	437	438	437	436	435	438	434
CHT5 (°F)	474	475	473	473	472	475	471
CHT6 (°F)	457	459	464	464	464	466	462
EGT1 (°F)	1275	1283	1313	1338	1365	1396	1416
EGT2 (°F)	1272	1275	1304	1326	1354	1383	1403
EGT3 (°F)	1294	1298	1332	1356	1383	1413	1431
EGT4 (°F)	1275	1281	1311	1336	1365	1396	1415
EGT5 (°F)	1288	1293	1324	1348	1374	1404	1420
EGT6 (°F)	1301	1308	1336	1358	1387	1415	1430
Oil T (°F)	241	241	234	234	234	235	233
Oil P (psig)	59	59	59	59	59	59	60
Hum T (°F)	104	104	102	103	103	103	103
Hum ratio (gr/lb)	0	0	1	1	1	1	1
AFR	10.2	10.2	11.0	11.0	12.0	12.0	12.0
AFL	9.9	10.0	12.0	12.3	12.7	13.0	13.4
K airflow (lbs/hr)	1139	1136	1201	1199	1182	1174	1181
A/F	9.7	9.8	11.0	11.4	11.8	12.2	12.8

TABLE A-97. AM7 ENGINE DATA, TO POWER

Test	T2-38	T2-30	T2-30	T2-30	T2-30
Barometer (in. Hg)	30.10	30.02	30.02	30.02	30.02
Fuel	AM7	AM7	AM7	AM7	AM7
Test Points	Y	L	M	N**	O
MAP (in. Hg)	29.50	29.41	29.43	29.43	29.42
rpm	2700	2700	2700	2700	2700
TORK (ft-lbs)	537	538	541	544	544
BHP	277	276	278	280	280
TCBHP	289	289	290	292	293
LCBHP	287	287	289	290	291
BMEP (psig)	122.8	123.0	124.0	124.0	125.0
FF (lbs/hr)	167.2	165.2	160.1	151.4	144.8
FFG (gal/hr)	28.6	28.5	27.6	26.1	25.0
% Relative FF	21.3	19.9	16.2	9.8	5.1
BSFC (lbs/hp hr)	0.60	0.60	0.57	0.54	0.52
TCBSFC (lbs/hp hr)	0.58	0.57	0.55	0.52	0.50
LCBSFC (lbs/hp hr)	0.58	0.57	0.55	0.52	0.50
IAT (°F)	103	103	102	103	103
IAP (in. Hg)	30.10	30.04	30.06	30.06	30.06
Cowl T (°F)	102	104	103	103	103
Cowl P (in H_2O)	2.6	2.7	3.0	3.2	3.5
Fuel T (°F)	79	89	89	90	90
Fuel Dens (lbs/gal)	5.85	5.81	5.80	5.80	5.80
MTDP (psig)	9.5	9.5	9.1	8.1	7.5
Pump P (psig)	19.5	19.2	19.3	19.3	19.3
CHT1 (°F)	458	469	467	469	470
CHT2 (°F)	437	448	447	448	447
CHT3 (°F)	454	459	458	459	458
CHT4 (°F)	441	446	446	446	444
CHT5 (°F)	475	476	476	476	477
CHT6 (°F)	465	474	474	473	474
EGT1 (°F)	1400	1379	1401	1441	1466
EGT2 (°F)	1371	1361	1378	1417	1441
EGT3 (°F)	1407	1398	1416	1456	1479
EGT4 (°F)	1382	1374	1392	1433	1457
EGT5 (°F)	1414	1407	1426	1465	1485
EGT6 (°F)	1403	1389	1407	1443	1467
Oil T (°F)	241	238	237	238	238
Oil P (psig)	63	62	62	62	62
Hum T (°F)	104	104	103	103	104
Hum ratio (gr/lb)	0	1	1	1	1
AFR	10.8	11.0	11.0	12.0	12.0
AFL	10.7	12.0	12.3	12.8	13.1
K airflow (lbs/hr)	1711	1790	1787	1790	1783
A/F	10.2	10.8	11.2	11.8	12.3

TABLE A-98. AM7 ENGINE DATA, 85% POWER

Test	T2-38	T2-38	T2-30	T2-30
Barometer (in. Hg)	30.10	30.10	30.02	30.02
Fuel	AM7	AM7	AM7	AM7
Test Points	Z	AA	P	Q**
MAP (in. Hg)	27.61	27.55	27.52	27.52
rpm	2600	2600	2600	2600
TORK (ft-lbs)	488	488	491	493
BHP	242	242	243	244
TCBHP	253	253	254	255
LCBHP	251	251	253	253
BMEP (psig)	111.5	111.6	112.0	113.0
FF (lbs/hr)	144.0	141.1	134.0	129.6
FFG (gal/hr)	24.6	24.1	23.1	22.4
% Relative FF	22.3	19.9	13.8	10.1
BSFC (lbs/hp hr)	0.60	0.58	0.55	0.53
TCBSFC (lbs/hp hr)	0.57	0.56	0.53	0.51
LCBSFC (lbs/hp hr)	0.58	0.56	0.53	0.51
IAT (°F)	103	103	104	103
IAP (in. Hg)	30.09	30.11	30.06	30.07
Cowl T (°F)	109	107	106	104
Cowl P (in H_2O)	2.7	2.3	2.9	2.7
Fuel T (°F)	80	80	91	92
Fuel Dens (lbs/gal)	5.84	5.84	5.80	5.79
MTDP (psig)	7.3	7.0	6.4	5.9
Pump P (psig)	19.4	19.4	19.2	19.2
CHT1 (°F)	452	450	461	462
CHT2 (°F)	438	435	447	447
CHT3 (°F)	454	448	455	455
CHT4 (°F)	438	433	441	441
CHT5 (°F)	474	474	475	475
CHT6 (°F)	459	456	467	467
EGT1 (°F)	1355	1367	1394	1414
EGT2 (°F)	1338	1349	1374	1396
EGT3 (°F)	1372	1385	1416	1438
EGT4 (°F)	1345	1355	1386	1408
EGT5 (°F)	1377	1388	1414	1436
EGT6 (°F)	1365	1377	1402	1423
Oil T (°F)	240	241	237	240
Oil P (psig)	62	62	61	61
Hum T (°F)	104	104	103	104
Hum ratio (gr/lb)	0	0	1	1
AFR	10.8	11.0	11.0	12.0
AFL	10.8	11.0	12.6	13.0
K airflow (lbs/hr)	1473	1461	1482	1529
A/F	10.2	10.3	11.1	11.8

TABLE A-99. AM7 ENGINE DATA, 75% POWER

Test	T2-38	T2-38	T2-38	T2-30	T2-30	T2-30	T2-30
Barometer (in. Hg)	30.1	30.1	30.1	30.02	30.02	30.02	30.02
Fuel	AM7	AM7	AM7	AM7	AM7	AM7	AM7
Test Points	AB	AC	AD	AG**	AI	AJ	AF
MAP (in. Hg)	26.33	26.31	26.33	26.34	26.34	26.36	26.26
rpm	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	455	456	459	463	464	466	463
BHP	213	213	214	216	217	218	216
TCBHP	222	223	224	225	226	227	226
LCBHP	220	221	222	224	225	225	224
BMEP (psig)	104.0	104.2	104.8	106	106	107	106
FF (lbs/hr)	131.6	129.4	124.9	117.7	113.3	109.3	103.9
FFG (gal/hr)	22.5	22.2	21.4	20.3	19.6	18.9	17.9
% Relative FF	26.7	24.6	20.2	13.2	9.1	5.1	0.0
BSFC (lbs/hp hr)	0.62	0.61	0.58	0.54	0.52	0.50	0.48
TCBSFC (lbs/hp hr)	0.59	0.58	0.56	0.52	0.50	0.48	0.46
LCBSFC (lbs/hp hr)	0.60	0.59	0.56	0.52	0.50	0.49	0.47
IAT (°F)	103	103	103	103	103	103	102
IAP (in. Hg)	30.10	30.08	30.09	30.08	30.06	30.08	30.05
Cowl T (°F)	99	99	99	104	103	103	102
Cowl P (in H_2O)	1.5	1.7	1.9	2.6	2.5	2.3	2.7
Fuel T (°F)	81	81	81	92	93	93	91
Fuel Dens (lbs/gal)	5.84	5.84	5.84	5.79	5.79	5.79	5.80
MTDP (psig)	6.1	5.9	5.5	5.0	4.7	4.3	4.0
Pump P (psig)	19.3	19.3	19.3	19.0	19.0	19.0	19.0
CHT1 (°F)	447	447	449	453	455	451	451
CHT2 (°F)	437	438	439	447	444	442	445
CHT3 (°F)	447	447	448	454	452	449	454
CHT4 (°F)	435	436	437	441	439	436	438
CHT5 (°F)	474	474	475	478	476	475	475
CHT6 (°F)	458	458	461	465	465	462	462
EGT1 (°F)	1304	1315	1338	1369	1392	1416	1445
EGT2 (°F)	1293	1302	1324	1360	1381	1402	1434
EGT3 (°F)	1321	1331	1353	1392	1412	1434	1462
EGT4 (°F)	1302	1312	1335	1373	1395	1417	1449
EGT5 (°F)	1325	1335	1357	1390	1408	1425	1451
EGT6 (°F)	1326	1336	1360	1394	1413	1435	1464
Oil T (°F)	241	241	241	239	239	239	238
Oil P (psig)	60	60	60	60	60	60	60
Hum T (°F)	104	104	104	103	103	103	102
Hum ratio (gr/lb)	0	0	0	1	1	1	1
AFR	10.5	10.7	11.1	12	12	12	13
AFL	10.4	10.6	10.9	12.7	13.0	13.4	13.8
K airflow (lbs/hr)	1309	1296	1305	1325	1320	1335	1316
A/F	9.9	10.0	10.5	11.3	11.7	12.2	12.7

TABLE A-100. AM7 ENGINE DATA, 65% POWER

Test	T2-38	T2-38	T2-30	T2-30	T2-30	T2-30
Barometer (in. Hg)	30.10	30.10	30.02	30.02	30.02	30.02
Fuel	AM7	AM7	AM7	AM7	AM7	AM7
Test Points	AE	AF	AN	AM	AL**	AK
MAP (in. Hg)	24.48	24.49	24.47	24.48	24.40	24.41
rpm	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	411	413	417	417	417	417
BHP	184	185	187	187	187	187
TCBHP	192	193	195	195	195	195
LCBHP	191	192	194	194	194	194
BMEP (psig)	94.0	94.5	95.0	95.0	95.0	95.0
FF (lbs/hr)	114.0	109.7	104.9	101.8	97.2	91.1
FFG (gal/hr)	19.5	18.8	18.1	17.6	16.8	15.7
% Relative FF	24.9	20.2	14.9	11.5	6.5	-0.2
BSFC (lbs/hp hr)	0.62	0.59	0.56	0.55	0.52	0.49
TCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.52	0.50	0.47
LCBSFC (lbs/hp hr)	0.60	0.57	0.54	0.53	0.50	0.47
IAT (°F)	103	103	103	103	103	102
IAP (in. Hg)	30.08	30.09	30.06	30.07	30.07	30.05
Cowl T (°F)	99	102	103	103	101	102
Cowl P (in H_2O)	1.4	1.6	1.6	1.9	2.5	2.4
Fuel T (°F)	81	82	94	94	94	93
Fuel Dens (lbs/gal)	5.84	5.84	5.79	5.79	5.79	5.79
MTDP (psig)	4.6	4.3	4.0	3.8	3.5	3.0
Pump P (psig)	19.3	19.3	18.9	18.9	19.0	19.0
CHT1 (°F)	446	448	450	451	452	451
CHT2 (°F)	441	442	448	447	448	447
CHT3 (°F)	448	448	452	451	452	449
CHT4 (°F)	437	437	438	438	439	438
CHT5 (°F)	474	475	475	474	476	476
CHT6 (°F)	460	460	465	466	466	465
EGT1 (°F)	1304	1330	1354	1367	1395	1435
EGT2 (°F)	1294	1319	1341	1356	1386	1423
EGT3 (°F)	1320	1346	1372	1388	1418	1455
EGT4 (°F)	1301	1328	1351	1367	1399	1438
EGT5 (°F)	1316	1340	1363	1379	1407	1443
EGT6 (°F)	1329	1352	1375	1392	1422	1457
Oil T (°F)	240	240	234	235	234	237
Oil P (psig)	59	59	59	59	59	59
Hum T (°F)	104	103	103	103	102	103
Hum ratio (gr/lb)	0	0	1	1	1	1
AFR	10.7	11.1	11.0	12.0	12.0	13.0
AFL	10.5	10.9	12.6	12.8	13.2	13.8
K airflow (lbs/hr)	1149	1143	1179	1172	1161	1164
A/F	10.1	10.4	11.2	11.5	11.9	12.8

TABLE A-101. MO1 ENGINE DATA, TO POWER

Test	T2-27	T2-23	T2-23
Barometer (in. Hg)	30.15	29.92	29.92
Fuel	MO1	MO1	MO1
Test Points	A	A**	B
MAP (in. Hg)	29.59	29.45	29.45
rpm	2700	2700	2700
TORK (ft-lbs)	542	540	543
BHP	279	278	279
TCBHP	291	290	291
LCBHP	288	288	289
BMEP (psig)	123.7	123.2	124.0
FF (lbs/hr)	167.9	165.2	159.3
FFG (gal/hr)	29.0	28.6	27.6
% Relative FF	21.8	19.9	15.6
BSFC (lbs/hp hr)	0.60	0.60	0.57
TCBSFC (lbs/hp hr)	0.58	0.57	0.55
LCBSFC (lbs/hp hr)	0.58	0.57	0.55
IAT (°F)	103	101	101
IAP (in. Hg)	30.20	30.08	30.09
Cowl T (°F)	103	103	102
Cowl P (in H_2O)	3.0	2.9	3.4
Fuel T (°F)	89	93	94
Fuel Dens (lbs/gal)	5.80	5.78	5.78
MTDP (psig)	9.8	9.6	9.0
Pump P (psig)	19.5	19.7	19.7
CHT1 (°F)	469	460	460
CHT2 (°F)	447	437	435
CHT3 (°F)	461	456	455
CHT4 (°F)	443	433	432
CHT5 (°F)	474	475	476
CHT6 (°F)	472	456	456
EGT1 (°F)	1372	1372	1396
EGT2 (°F)	1349	1352	1374
EGT3 (°F)	1391	1396	1415
EGT4 (°F)	1357	1362	1383
EGT5 (°F)	1393	1386	1399
EGT6 (°F)	1372	1374	1396
Oil T (°F)	230	215	224
Oil P (psig)	64	66	65
Hum T (°F)	102	102	102
Hum ratio (gr/lb)	1	1	1
AFR	10.5	10.6	11.0
AFL	11.8	10.8	11.2
K airflow (lbs/hr)	1810	1808	1854
A/F	10.8	10.9	11.6

TABLE A-102. MO1 ENGINE DATA, 85% POWER

Test	T2-27	T2-23	T2-23	T2-23	T2-23
Barometer (in. Hg)	30.15	29.92	29.92	29.92	29.92
Fuel	MO1	MO1	MO1	MO1	MO1
Test Points	B	AD	AC**	AB	AA
MAP (in. Hg)	28.02	26.94	26.89	26.90	26.71
rpm	2600	2600	2600	2600	2600
TORK (ft-lbs)	499	474	476	478	475
BHP	247	235	236	237	235
TCBHP	258	245	246	247	245
LCBHP	256	242	244	245	243
BMEP (psig)	114.1	108.5	109.0	109.2	108.7
FF (lbs/hr)	146.4	140.4	134.8	130.0	122.8
FFG (gal/hr)	25.3	24.4	23.5	22.6	21.3
% Relative FF	24.4	19.3	14.6	10.5	4.3
BSFC (lbs/hp hr)	0.59	0.60	0.57	0.55	0.52
TCBSFC (lbs/hp hr)	0.57	0.57	0.55	0.53	0.50
LCBSFC (lbs/hp hr)	0.57	0.58	0.55	0.53	0.51
IAT (°F)	104	102	102	102	102
IAP (in. Hg)	30.20	30.19	30.19	30.18	30.18
Cowl T (°F)	104	104	104	105	104
Cowl P (in H_2O)	3.2	2.5	2.8	3.1	3.8
Fuel T (°F)	90	99	99	99	99
Fuel Dens (lbs/gal)	5.79	5.76	5.76	5.76	5.76
MTDP (psig)	7.6	7.0	6.5	6.1	5.5
Pump P (psig)	19.4	19.2	19.2	19.3	19.3
CHT1 (°F)	461	453	452	449	449
CHT2 (°F)	449	441	437	435	433
CHT3 (°F)	461	454	450	447	448
CHT4 (°F)	446	433	428	425	424
CHT5 (°F)	474	475	471	472	475
CHT6 (°F)	469	459	453	453	449
EGT1 (°F)	1350	1341	1369	1389	1420
EGT2 (°F)	1340	1321	1350	1368	1402
EGT3 (°F)	1371	1367	1396	1415	1445
EGT4 (°F)	1341	1331	1358	1378	1413
EGT5 (°F)	1375	1357	1383	1397	1414
EGT6 (°F)	1358	1351	1380	1397	1430
Oil T (°F)	239	219	217	215	224
Oil P (psig)	62	65	65	65	65
Hum T (°F)	103	101	101	101	101
Hum ratio (gr/lb)	1	2	2	2	2
AFR	10.6	10.6	11.1	11.4	11.9
AFL	11.9	11.1	11.5	11.8	12.3
K airflow (lbs/hr)	1565	1598	1595	1585	1563
A/F	10.7	11.4	11.8	12.2	12.7

TABLE A-103. MO1 ENGINE DATA, 75% POWER

Test	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	29.92	29.92	29.92	29.92
Fuel	MO1	MO1	MO1	MO1
Test Points	R	Q	P**	O
MAP (in. Hg)	25.86	25.84	25.87	25.83
rpm	2450	2450	2450	2450
TORK (ft-lbs)	443	443	448	448
BHP	207	207	209	209
TCBHP	216	216	218	218
LCBHP	214	214	216	216
BMEP (psig)	101.3	101.4	102.4	102.5
FF (lbs/hr)	127.6	124.8	119.7	114.1
FFG (gal/hr)	22.2	21.7	20.8	19.9
% Relative FF	22.8	20.1	15.2	9.8
BSFC (lbs/hp hr)	0.62	0.60	0.57	0.55
TCBSFC (lbs/hp hr)	0.59	0.58	0.55	0.52
LCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53
IAT (°F)	103	102	102	103
IAP (in. Hg)	30.12	30.13	30.14	30.11
Cowl T (°F)	106	107	107	106
Cowl P (in H_2O)	1.5	1.6	1.6	1.8
Fuel T (°F)	102	102	103	103
Fuel Dens (lbs/gal)	5.74	5.74	5.74	5.74
MTDP (psig)	5.8	5.6	5.1	4.7
Pump P (psig)	19.2	19.3	19.3	19.3
CHT1 (°F)	452	454	453	454
CHT2 (°F)	448	448	447	447
CHT3 (°F)	451	452	451	451
CHT4 (°F)	440	441	440	441
CHT5 (°F)	474	475	474	475
CHT6 (°F)	461	461	460	462
EGT1 (°F)	1301	1313	1345	1375
EGT2 (°F)	1287	1299	1330	1364
EGT3 (°F)	1323	1335	1367	1397
EGT4 (°F)	1298	1310	1343	1376
EGT5 (°F)	1317	1328	1359	1384
EGT6 (°F)	1323	1335	1367	1397
Oil T (°F)	226	229	228	232
Oil P (psig)	62	61	62	62
Hum T (°F)	101	101	101	101
Hum ratio (gr/lb)	2	2	2	2
AFR	10.4	10.6	11.1	11.6
AFL	11.2	11.4	11.8	12.2
K airflow (lbs/hr)	1392	1417	1426	1387
A/F	10.9	11.4	11.9	12.2

TABLE A-104. MO1 ENGINE DATA, 65% POWER

Test	T2-41	T2-41	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	29.92	29.92	29.92	29.92
Fuel	MO1	MO1	MO1	MO1	MO1	MO1
Test Points	A	B	AL	AK**	AJ	AI
MAP (in. Hg)	23.93	23.92	23.97	23.95	23.98	23.97
rpm	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	395	395	400	401	404	404
BHP	177	177	179	179	181	181
TCBHP	185	185	187	187	189	189
LCBHP	183	183	185	185	187	187
BMEP (psig)	89.9	90.3	91.5	91.6	92.2	92.5
FF (lbs/hr)	112.7	109.6	105.7	101.0	96.0	91.0
FFG (gal/hr)	19.2	18.7	18.4	17.6	16.7	15.9
% Relative FF	23.4	20.0	15.7	10.6	5.1	-0.3
BSFC (lbs/hp hr)	0.64	0.62	0.59	0.56	0.53	0.50
TCBSFC (lbs/hp hr)	0.61	0.59	0.57	0.54	0.51	0.48
LCBSFC (lbs/hp hr)	0.61	0.60	0.57	0.54	0.51	0.49
IAT (°F)	103	103	103	102	102	103
IAP (in. Hg)	30.08	30.08	30.15	30.15	30.16	30.16
Cowl T (°F)	100	100	106	106	107	107
Cowl P (in H_2O)	1.4	1.5	1.6	1.5	2.0	2.2
Fuel T (°F)	74	74	105	105	105	104
Fuel Dens (lbs/gal)	5.86	5.87	5.73	5.73	5.73	5.73
MTDP (psig)	4.4	4.2	4.1	3.7	3.4	3.1
Pump P (psig)	19.5	19.6	19.2	19.2	19.2	19.2
CHT1 (°F)	449	451	453	455	456	457
CHT2 (°F)	439	441	452	454	453	454
CHT3 (°F)	446	447	452	455	455	456
CHT4 (°F)	434	436	437	438	439	446
CHT5 (°F)	474	476	473	475	474	475
CHT6 (°F)	451	453	461	462	461	465
EGT1 (°F)	1297	1314	1327	1355	1382	1417
EGT2 (°F)	1294	1309	1316	1347	1375	1410
EGT3 (°F)	1318	1335	1350	1377	1405	1440
EGT4 (°F)	1296	1312	1327	1356	1385	1423
EGT5 (°F)	1313	1329	1338	1366	1392	1427
EGT6 (°F)	1320	1336	1348	1378	1402	1438
Oil T (°F)	240	240	226	230	230	229
Oil P (psig)	59	59	60	60	60	60
Hum T (°F)	105	104	101	101	101	101
Hum ratio (gr/lb)	0	0	2	2	2	2
AFR	10.7	10.8	11.0	11.4	12.0	12.5
AFL	10.5	10.7	11.7	12.1	12.5	13.0

TABLE A-105. MO2 ENGINE DATA, TO POWER

Test	T2-41	T2-23	T2-23	T2-23
Barometer (in. Hg)	30.09	29.92	29.92	29.92
Fuel	MO2	MO2	MO2	MO2
Test Points	C	C**	D	E
MAP (in. Hg)	29.55	29.45	29.46	29.46
rpm	2700	2700	2700	2700
TORK (ft-lbs)	533	534	544	547
BHP	275	275	280	281
TCBHP	286	286	292	293
LCBHP	284	284	290	291
BMEP (psig)	122.0	122.0	124.4	125.0
FF (lbs/hr)	169.5	164.9	158.8	154.5
FFG (gal/hr)	27.3	28.5	26.0	25.3
% Relative FF	23.0	19.7	15.2	12.1
BSFC (lbs/hp hr)	0.62	0.60	0.57	0.55
TCBSFC (lbs/hp hr)	0.59	0.58	0.54	0.53
LCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53
IAT (°F)	101	101	104	102
IAP (in. Hg)	30.11	30.09	30.10	30.11
Cowl T (°F)	104	105	105	105
Cowl P (in H_2O)	3.0	2.7	3.4	3.4
Fuel T (°F)	72	94	94	94
Fuel Dens (lbs/gal)	6.20	5.79	6.11	6.11
MTDP (psig)	9.5	9.6	8.5	8.1
Pump P (psig)	19.6	19.7	19.7	19.7
CHT1 (°F)	476	459	461	459
CHT2 (°F)	433	437	437	435
CHT3 (°F)	448	456	457	455
CHT4 (°F)	436	434	435	432
CHT5 (°F)	472	476	478	476
CHT6 (°F)	457	456	457	455
EGT1 (°F)	1400	1349	1431	1456
EGT2 (°F)	1383	1334	1408	1424
EGT3 (°F)	1416	1372	1449	1468
EGT4 (°F)	1391	1345	1419	1436
EGT5 (°F)	1430	1367	1440	1457
EGT6 (°F)	1408	1360	1431	1450
Oil T (°F)	240	222	224	229
Oil P (psig)	63	66	66	65
Hum T (°F)	103	102	102	102
Hum ratio (gr/lb)	0	1	1	1
AFR	10.9	10.3	11.4	11.7
AFL	10.8	10.6	11.6	11.8
K airflow (lbs/hr)	1746	1890	1808	1886
A/F	10.3	11.5	11.4	12.2

TABLE A-106. MO2 ENGINE DATA, 85% POWER

Test	T2-41	T2-23	T2-23	T2-23	T2-23	T2-23
Barometer (in. Hg)	30.09	29.92	29.92	29.92	29.92	29.92
Fuel	MO2	MO2	MO2	MO2	MO2	MO2
Test Points	D	AI	AH	AG**	AF	AE
MAP (in. Hg)	27.07	27.02	27.04	27.03	27.04	26.75
rpm	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	472	476	480	484	483	477
BHP	234	236	238	239	239	237
TCBHP	244	246	248	250	250	247
LCBHP	242	243	245	247	247	244
BMEP (psig)	108.1	108.9	109.7	110.4	110.3	109.0
FF (lbs/hr)	144.6	140.7	136.0	129.6	123.5	119.8
FFG (gal/hr)	23.3	23.3	22.3	21.3	20.3	19.7
% Relative FF	22.8	19.5	15.5	10.1	4.9	1.8
BSFC (lbs/hp hr)	0.62	0.60	0.57	0.54	0.52	0.51
TCBSFC (lbs/hp hr)	0.59	0.57	0.55	0.52	0.49	0.49
LCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53	0.50	0.49
IAT (°F)	101	102	102	102	102	102
IAP (in. Hg)	30.11	30.20	30.19	30.20	30.19	30.20
Cowl T (°F)	104	105	105	104	104	104
Cowl P (in H_2O)	2.4	2.4	2.8	3.8	3.5	3.0
Fuel T (°F)	72	98	99	99	99	99
Fuel Dens (lbs/gal)	6.20	6.04	6.09	6.09	6.09	6.09
MTDP (psig)	7.0	6.9	6.3	5.7	5.3	4.9
Pump P (psig)	19.6	19.3	19.3	19.3	19.3	19.4
CHT1 (°F)	470	454	453	455	454	452
CHT2 (°F)	439	442	440	442	440	441
CHT3 (°F)	450	455	453	455	456	454
CHT4 (°F)	436	433	430	433	433	431
CHT5 (°F)	474	474	473	476	476	473
CHT6 (°F)	454	462	459	461	459	458
EGT1 (°F)	1358	1371	1398	1434	1460	1487
EGT2 (°F)	1349	1348	1373	1411	1435	1460
EGT3 (°F)	1386	1396	1423	1460	1484	1506
EGT4 (°F)	1352	1357	1383	1420	1446	1471
EGT5 (°F)	1389	1388	1414	1444	1465	1488
EGT6 (°F)	1375	1380	1406	1443	1468	1493
Oil T (°F)	240	217	218	217	218	218
Oil P (psig)	62	64	65	64	65	65
Hum T (°F)	103	101	101	101	101	101
Hum ratio (gr/lb)	0	2	2	2	2	2
AFR	10.9	10.8	11.3	11.9	12.3	12.7
AFL	10.9	11.3	11.7	12.2	12.7	13.0
K airflow (lbs/hr)	1452	1613	1612	1607	1601	1579
A/F	10.0	11.5	11.8	12.4	13.0	13.2

TABLE A-107. MO2 ENGINE DATA, 75% POWER

Test	T2-41	T2-41	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	29.92	29.92	29.92	29.92
Fuel	MO2	MO2	MO2	MO2	MO2	MO2
Test Points	F	E	V	U	T**	S
MAP (in. Hg)	25.88	25.86	25.85	25.85	25.85	25.87
rpm	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	443	443	446	448	450	452
BHP	207	207	208	209	210	211
TCBHP	216	216	217	218	219	220
LCBHP	214	214	215	216	217	218
BMEP (psig)	101.4	101.3	101.8	102.2	103.1	103.2
FF (lbs/hr)	131.5	129.9	125.2	120.2	114.4	109.5
FFG (gal/hr)	21.2	21.0	20.6	19.8	18.8	18.0
% Relative FF	26.6	25.0	20.5	15.7	10.1	5.4
BSFC (lbs/hp hr)	0.64	0.63	0.60	0.57	0.54	0.52
TCBSFC (lbs/hp hr)	0.61	0.60	0.58	0.55	0.52	0.50
LCBSFC (lbs/hp hr)	0.62	0.61	0.58	0.56	0.53	0.51
IAT (°F)	102	102	103	103	102	103
IAP (in. Hg)	30.10	30.10	30.14	30.15	30.14	30.14
Cowl T (°F)	105	103	106	106	105	105
Cowl P (in H_2O)	2.0	1.5	1.8	2.6	2.8	2.6
Fuel T (°F)	73	73	103	103	103	103
Fuel Dens (lbs/gal)	6.20	6.20	6.07	6.07	6.07	6.07
MTDP (psig)	5.8	5.6	5.4	5.0	4.6	4.2
Pump P (psig)	19.5	19.5	19.3	19.3	19.4	19.4
CHT1 (°F)	462	462	452	452	452	453
CHT2 (°F)	435	436	445	446	445	446
CHT3 (°F)	444	445	450	450	450	450
CHT4 (°F)	432	434	438	438	438	438
CHT5 (°F)	473	473	474	474	474	475
CHT6 (°F)	450	451	463	463	463	463
EGT1 (°F)	1313	1322	1343	1370	1402	1435
EGT2 (°F)	1314	1322	1330	1356	1385	1420
EGT3 (°F)	1338	1345	1365	1391	1423	1455
EGT4 (°F)	1315	1325	1340	1365	1398	1433
EGT5 (°F)	1338	1348	1361	1384	1413	1440
EGT6 (°F)	1339	1349	1365	1388	1420	1452
Oil T (°F)	240	240	227	232	226	228
Oil P (psig)	60	60	61	61	62	62
Hum T (°F)	103	103	102	101	101	101
Hum ratio (gr/lb)	0	0	2	2	2	2
AFR	10.7	10.8	11.0	11.4	11.9	12.4
AFL	10.6	10.7	11.7	12.0	12.4	12.9
K airflow (lbs/hr)	1275	1276	1387	1361	1375	1387
A/F	9.7	9.8	11.1	11.3	12.0	12.7

TABLE A-108. MO2 ENGINE DATA, 65% POWER

Test	T2-41	T2-41	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	29.92	29.92	29.92	29.92
Fuel	MO2	MO2	MO2	MO2	MO2	MO2
Test Points	H	G	AP	AN**	AM	AO
MAP (in. Hg)	23.84	23.82	24.21	24.20	24.02	24.21
rpm	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	393	396	407	408	405	411
BHP	176	177	182	183	181	184
TCBHP	184	185	190	191	189	192
LCBHP	183	184	188	189	187	190
BMEP (psig)	89.7	90.3	93.0	93.2	92.4	93.6
FF (lbs/hr)	112.7	109.7	105.1	101.7	96.8	94.0
FFG (gal/hr)	18.2	17.7	17.3	16.8	16.0	15.5
% Relative FF	23.5	20.1	15.1	11.4	6.0	3.0
BSFC (lbs/hp hr)	0.64	0.62	0.58	0.56	0.53	0.51
TCBSFC (lbs/hp hr)	0.61	0.59	0.55	0.53	0.51	0.49
LCBSFC (lbs/hp hr)	0.62	0.60	0.56	0.54	0.52	0.50
IAT (°F)	103	102	103	103	103	102
IAP (in. Hg)	30.09	30.10	30.15	30.15	30.16	30.15
Cowl T (°F)	105	108	106	105	105	106
Cowl P (in H_2O)	1.4	1.7	1.7	1.4	2.6	2.5
Fuel T (°F)	74	74	105	105	104	105
Fuel Dens (lbs/gal)	6.19	6.19	6.06	6.06	6.06	6.06
MTDP (psig)	4.2	4.1	3.9	3.5	3.2	3.1
Pump P (psig)	19.5	19.4	19.3	19.3	19.3	19.3
CHT1 (°F)	451	448	454	456	456	457
CHT2 (°F)	438	439	452	454	455	455
CHT3 (°F)	444	445	453	453	454	455
CHT4 (°F)	432	434	439	441	442	442
CHT5 (°F)	473	473	473	474	475	475
CHT6 (°F)	451	452	460	462	462	463
EGT1 (°F)	1319	1335	1364	1394	1425	1434
EGT2 (°F)	1315	1330	1355	1383	1415	1422
EGT3 (°F)	1338	1354	1388	1415	1445	1453
EGT4 (°F)	1316	1332	1364	1394	1426	1434
EGT5 (°F)	1333	1350	1376	1405	1435	1444
EGT6 (°F)	1342	1357	1386	1415	1444	1456
Oil T (°F)	239	239	226	231	233	227
Oil P (psig)	59	59	60	60	60	60
Hum T (°F)	103	103	101	101	101	101
Hum ratio (gr/lb)	0	0	2	2	2	1
AFR	10.8	11.1	11.5	11.9	12.3	12.7
AFL	10.7	10.9	12.1	12.5	12.9	13.2
K airflow (lbs/hr)	1093	1094	1214	1215	1204	1215
A/F	9.7	10.0	11.6	11.9	12.4	12.9

TABLE A-109. MO3 ENGINE DATA, TO POWER

Test	T2-23	T2-23	T2-23	T2-23	T2-23	T2-23	T2-24	T2-23
Barometer (in. Hg)	29.92	29.92	29.92	29.92	29.92	29.92	29.92	29.92
Fuel	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3
Test Points	F	G	H	I	J	K**	A	L
MAP (in. Hg)	29.48	29.47	29.48	29.48	29.48	29.48	29.48	29.49
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	542	545	549	548	550	547	545	543
BHP	278	280	282	281	283	281	280	279
TCBHP	291	292	294	294	295	294	292	291
LCBHP	288	290	291	292	292	291	290	289
BMEP (psig)	123.9	124.7	125.5	125.0	125.6	125.1	124.6	123.9
FF (lbs/hr)	171.9	165.6	158.1	152.7	144.5	138.2	136.4	130.6
FFG (gal/hr)	26.7	25.8	24.6	23.8	22.5	21.5	21.3	20.3
% Relative FF	24.8	20.2	14.7	10.8	4.9	0.3	-1.0	-5.3
BSFC (lbs/hp hr)	0.62	0.59	0.56	0.54	0.51	0.49	0.49	0.47
TCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.52	0.49	0.47	0.47	0.45
LCBSFC (lbs/hp hr)	0.60	0.57	0.54	0.52	0.49	0.47	0.47	0.45
IAT (°F)	103	102	101	104	102	103	102	103
IAP (in. Hg)	30.12	30.12	30.12	30.12	30.12	30.13	30.07	30.13
Cowl T (°F)	105	105	105	104	104	106	103	101
Cowl P (in H_2O)	2.8	3.0	3.6	3.8	3.9	3.7	4.0	3.9
Fuel T (°F)	95	95	95	96	96	96	99	97
Fuel Dens (lbs/gal)	6.43	6.43	6.43	6.43	6.43	6.42	6.41	6.42
MTDP (psig)	9.4	8.8	8.0	7.6	6.8	6.3	6.1	5.7
Pump P (psig)	19.8	19.8	19.8	19.8	19.8	19.8	20.2	19.8
CHT1 (°F)	459	459	459	460	459	460	464	456
CHT2 (°F)	438	436	437	438	438	439	449	438
CHT3 (°F)	455	454	454	455	454	456	461	453
CHT4 (°F)	435	434	435	435	435	437	447	435
CHT5 (°F)	476	475	475	476	476	477	477	475
CHT6 (°F)	457	458	457	461	460	460	463	455
EGT1 (°F)	1414	1440	1479	1500	1535	1564	1582	1601
EGT2 (°F)	1393	1419	1451	1474	1507	1535	1554	1573
EGT3 (°F)	1435	1462	1496	1520	1555	1586	1605	1625
EGT4 (°F)	1403	1430	1463	1487	1524	1555	1573	1593
EGT5 (°F)	1429	1454	1489	1511	1547	1576	1601	1614
EGT6 (°F)	1417	1444	1477	1501	1537	1568	1583	1608
Oil T (°F)	221	221	221	222	223	225	230	227
Oil P (psig)	66	66	66	65	65	65	65	65
Hum T (°F)	102	102	101	102	102	102	102	102
Hum ratio (gr/lb)	2	2	1	1	1	1	1	1
AFR	11.0	11.4	11.9	12.2	12.9	13.5	13.6	14.2
AFL	11.2	11.6	12.1	12.4	13.1	13.6	13.9	14.3
K airflow (lbs/hr)	1871	1913	1900	1859	1928	1892	1869	1909
A/F	10.9	11.6	12.0	12.2	13.3	13.7	13.7	14.6

TABLE A-110. MO3 ENGINE DATA, 85% POWER

Test	T2-41	T2-41	T2-27	T2-27	T2-27	T2-27	T2-24	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	30.15	30.15	30.15	30.15	29.92	29.92	29.92	29.92	29.92
Fuel	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3
Test Points	J	I	C	L	D	K	D	B	C	E**	F
MAP (in. Hg)	27.36	27.35	27.25	27.20	27.22	27.20	27.07	27.08	27.09	27.09	27.08
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	480	480	485	484	487	487	481	479	475	462	442
BHP	238	238	240	240	241	241	238	237	235	229	219
TCBHP	248	248	251	250	252	252	249	247	245	239	229
LCBHP	246	246	248	248	249	250	247	245	244	237	227
BMEP (psig)	109.5	109.7	111.0	110.9	111.2	111.3	110.0	109.4	108.4	105.9	101.4
FF (lbs/hr)	147.1	141.2	135.8	135.2	129.0	128.6	124.0	115.2	112.4	105.3	99.8
FFG (gal/hr)	22.5	21.6	21.1	21.0	20.1	20.0	19.4	18.0	17.5	16.5	15.6
% Relative FF	25.0	19.9	15.4	14.9	9.6	9.2	5.4	-2.1	-4.5	-10.6	-15.2
BSFC (lbs/hp hr)	0.62	0.59	0.56	0.56	0.54	0.53	0.52	0.49	0.48	0.46	0.46
TCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.54	0.51	0.51	0.50	0.47	0.46	0.44	0.44
LCBSFC (lbs/hp hr)	0.60	0.57	0.55	0.54	0.52	0.52	0.50	0.47	0.46	0.44	0.44
IAT (°F)	103	103	103	102	104	103	105	103	103	102	103
IAP (in. Hg)	30.10	30.09	30.22	30.10	30.22	30.10	30.07	30.08	30.06	30.09	30.06
Cowl T (°F)	102	106	102	102	101	102	105	104	104	106	106
Cowl P (in H_2O)	2.4	2.6	2.7	2.5	2.7	3.0	2.5	2.9	3.1	3.1	2.5
Fuel T (°F)	73	74	93	95	94	95	102	100	101	103	103
Fuel Dens (lbs/gal)	6.53	6.52	6.44	6.43	6.43	6.43	6.40	6.41	6.40	6.40	6.39
MTDP (psig)	6.9	6.4	6.0	5.9	5.4	5.4	5.0	4.4	4.2	3.7	3.4
Pump P (psig)	19.6	19.6	19.6	19.8	19.6	19.8	20.0	20.1	20.1	20.0	20.0
CHT1 (°F)	469	471	460	464	460	458	458	463	459	458	458
CHT2 (°F)	436	438	452	452	450	445	445	450	448	451	454
CHT3 (°F)	447	449	461	462	458	457	456	459	456	456	458
CHT4 (°F)	434	436	443	444	441	439	437	441	440	443	448
CHT5 (°F)	474	474	475	475	474	474	474	476	474	473	474
CHT6 (°F)	452	455	469	470	468	464	461	462	458	453	453
EGT1 (°F)	1392	1416	1446	1449	1477	1483	1501	1550	1575	1609	1589
EGT2 (°F)	1379	1402	1421	1425	1454	1457	1474	1523	1548	1587	1575
EGT3 (°F)	1416	1440	1464	1469	1498	1501	1524	1575	1599	1636	1618
EGT4 (°F)	1382	1405	1429	1432	1462	1464	1487	1538	1561	1607	1604
EGT5 (°F)	1417	1441	1462	1468	1496	1499	1515	1565	1588	1611	1589
EGT6 (°F)	1405	1429	1453	1458	1486	1489	1511	1561	1585	1601	1576
Oil T (°F)	239	239	238	240	239	240	224	228	226	224	228
Oil P (psig)	62	62	62	61	62	61	64	63	64	64	64
Hum T (°F)	104	104	104	102	104	103	103	102	102	102	103
Hum ratio (gr/lb)	0	0	1	1	1	1	2	2	2	2	2
AFR	11.2	11.6	11.8	11.9	12.4	12.5	12.8	13.8	14.1	15.0	15.9
AFL	11.2	11.6	12.9	12.9	13.3	13.4	13.2	14.0	14.3	15.1	15.8
K airflow (lbs/hr)	1486	1458	1487	1502	1500	1487	1522	1547	1556	1580	1590
A/F	10.1	10.3	11.0	11.1	11.6	11.6	12.3	13.4	13.9	15.0	15.9

TABLE A-111. MO3 ENGINE DATA, 75% POWER

Test	T2-41	T2-41	T2-41	T2-41	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	30.09	30.09	29.92	29.92	29.92	29.92
Fuel	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3
Test Points	N	M	L	K	Z	Y	W**	X
MAP (in. Hg)	25.89	25.89	25.88	25.88	25.86	25.87	25.76	25.84
rpm	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	443	443	445	445	451	450	447	444
BHP	207	207	208	208	210	210	209	207
TCBHP	216	216	217	217	220	219	218	216
LCBHP	215	214	215	215	217	217	216	214
BMEP (psig)	101.1	101.3	101.9	101.7	103.0	102.8	102.1	101.6
FF (lbs/hr)	133.3	130.2	124.7	119.9	114.1	108.9	102.6	98.1
FFG (gal/hr)	20.4	19.9	19.1	18.4	17.9	17.1	16.1	15.3
% Relative FF	28.2	25.3	20.0	15.4	9.8	4.8	-1.3	-5.6
BSFC (lbs/hp hr)	0.64	0.63	0.60	0.58	0.54	0.52	0.49	0.47
TCBSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.52	0.50	0.47	0.45
LCBSFC (lbs/hp hr)	0.62	0.61	0.58	0.56	0.53	0.50	0.47	0.46
IAT (°F)	103	103	103	103	102	103	103	102
IAP (in. Hg)	30.09	30.10	30.10	30.10	30.16	30.14	30.14	30.16
Cowl T (°F)	103	104	104	101	104	104	104	105
Cowl P (in H_2O)	2.4	1.8	2.1	2.8	2.8	2.5	3.5	2.6
Fuel T (°F)	73	74	75	76	103	104	103	104
Fuel Dens (lbs/gal)	6.53	6.52	6.52	6.51	6.39	6.39	6.39	6.39
MTDP (psig)	5.7	5.4	5.0	4.7	4.3	4.0	3.6	3.3
Pump P (psig)	19.5	19.5	19.5	19.6	19.4	19.5	19.5	19.5
CHT1 (°F)	459	461	458	462	457	457	454	458
CHT2 (°F)	435	436	436	437	449	447	452	451
CHT3 (°F)	443	444	444	445	455	454	456	456
CHT4 (°F)	431	433	433	434	442	441	446	444
CHT5 (°F)	474	475	474	475	475	475	474	475
CHT6 (°F)	449	450	450	451	467	465	462	463
EGT1 (°F)	1332	1347	1376	1401	1441	1473	1511	1541
EGT2 (°F)	1330	1344	1373	1398	1423	1458	1496	1527
EGT3 (°F)	1356	1372	1400	1425	1459	1493	1534	1566
EGT4 (°F)	1335	1349	1377	1400	1435	1468	1509	1541
EGT5 (°F)	1358	1373	1402	1425	1453	1485	1524	1556
EGT6 (°F)	1359	1374	1402	1424	1457	1490	1531	1563
Oil T (°F)	239	240	239	239	231	229	227	231
Oil P (psig)	60	60	60	60	61	61	62	61
Hum T (°F)	104	104	104	104	101	101	102	101
Hum ratio (gr/lb)	0	0	0	0	2	2	2	2
AFR	11.0	11.1	11.6	11.9	12.4	12.9	13.6	14.3
AFL	10.8	11.0	11.4	11.8	12.9	13.4	14.0	14.5
K airflow (lbs/hr)	1302	1299	1292	1273	1391	1359	1377	1376
A/F	9.8	10.0	10.4	10.6	12.2	12.5	13.4	14.0

TABLE A-112. MO3 ENGINE DATA, 65% POWER

Test	T2-41	T2-41	T2-41	T2-41	T2-41	T2-41	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	30.09	30.09	30.09	30.09	29.92	29.92	29.92	29.92
Fuel	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3	MO3
Test Points	T	S	R	Q	P	O	AQ	AR**	AS	AT
MAP (in. Hg)	24.27	24.27	24.26	24.27	24.25	24.27	24.23	24.26	24.28	24.26
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	403	406	406	408	409	406	409	402	398	372
BHP	181	182	182	183	183	182	183	180	178	167
TCBHP	188	190	190	191	191	190	191	188	186	174
LCBHP	187	188	188	189	190	189	189	186	184	172
BMEP (psig)	91.9	92.7	92.9	93.2	92.8	93.2	93.5	91.8	90.6	85.4
FF (lbs/hr)	116.4	114.6	109.7	105.0	100.3	95.9	91.6	85.0	82.7	77.2
FFG (gal/hr)	17.9	17.6	16.8	16.1	15.4	14.8	14.3	13.3	13.0	12.1
% Relative FF	27.5	25.5	20.2	15.0	9.9	5.0	0.3	-6.9	-9.5	-15.5
BSFC (lbs/hp hr)	0.64	0.63	0.60	0.57	0.55	0.53	0.50	0.47	0.46	0.46
TCBSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.53	0.50	0.48	0.45	0.45	0.44
LCBSFC (lbs/hp hr)	0.62	0.61	0.58	0.55	0.53	0.51	0.49	0.46	0.45	0.45
IAT (°F)	103	103	102	103	103	103	102	103	103	103
IAP (in. Hg)	30.11	30.10	30.10	30.11	30.09	30.10	30.14	30.15	30.15	30.15
Cowl T (°F)	104	104	103	102	100	100	107	107	107	107
Cowl P (in H_2O)	1.3	1.6	1.5	2.3	1.9	2.1	2.3	2.7	2.2	1.9
Fuel T (°F)	75	76	77	78	78	78	104	105	106	106
Fuel Dens (lbs/gal)	6.52	6.51	6.51	6.51	6.50	6.51	6.39	6.39	6.38	6.38
MTDP (psig)	4.4	4.3	3.9	3.6	3.3	3.0	2.8	2.5	2.3	2.0
Pump P (psig)	19.5	19.5	19.5	19.6	19.6	19.6	19.4	19.5	19.5	19.6
CHT1 (°F)	464	459	460	459	463	462	458	458	457	456
CHT2 (°F)	442	442	441	439	441	439	453	452	452	454
CHT3 (°F)	447	447	446	445	447	446	457	457	457	456
CHT4 (°F)	437	437	436	434	436	437	446	447	447	445
CHT5 (°F)	476	475	474	475	475	474	476	476	476	475
CHT6 (°F)	454	454	453	451	452	451	463	458	457	455
EGT1 (°F)	1336	1346	1373	1403	1426	1465	1498	1551	1562	1531
EGT2 (°F)	1338	1346	1376	1402	1428	1465	1488	1540	1553	1526
EGT3 (°F)	1362	1370	1399	1428	1453	1491	1518	1571	1584	1554
EGT4 (°F)	1341	1348	1379	1407	1432	1469	1495	1550	1563	1535
EGT5 (°F)	1358	1366	1397	1424	1450	1488	1506	1558	1567	1537
EGT6 (°F)	1367	1375	1407	1432	1457	1494	1520	1562	1555	1520
Oil T (°F)	238	237	239	239	238	238	227	226	230	227
Oil P (psig)	59	59	59	59	59	59	60	60	60	61
Hum T (°F)	103	103	103	104	104	104	101	101	101	101
Hum ratio (gr/lb)	0	0	0	0	0	0	2	2	1	1
AFR	11.1	11.2	11.7	12.1	12.6	13.1	13.6	14.8	15.0	16.2
AFL	11.0	11.1	11.5	12.0	12.4	13.1	13.9	14.8	14.9	15.8
K airflow (lbs/hr)	1133	1138	1144	1140	1140	1138	1202	1205	1207	1207
A/F	9.7	9.9	10.4	10.8	11.4	11.9	13.1	14.2	14.6	15.7

TABLE A-113. MO4 ENGINE DATA, TO POWER

Test	T2-23	T2-23	T2-23	T2-23
Barometer (in. Hg)	29.92	29.92	29.92	29.92
Fuel	MO4	MO4	MO4	MO4
Test Points	N	O**	P	Q
MAP (in. Hg)	29.47	29.47	29.48	29.48
rpm	2700	2700	2700	2700
TORK (ft-lbs)	544	547	550	550
BHP	280	281	283	283
TCBHP	292	294	295	295
LCBHP	289	291	292	292
BMEP (psig)	124.3	125.1	125.7	125.7
FF (lbs/hr)	166.4	158.3	151.8	145.9
FFG (gal/hr)	26.8	25.5	24.4	23.5
% Relative FF	20.8	14.9	10.2	5.8
BSFC (lbs/hp hr)	0.60	0.56	0.54	0.52
TCBSFC (lbs/hp hr)	0.57	0.54	0.51	0.50
LCBSFC (lbs/hp hr)	0.58	0.55	0.52	0.50
IAT (°F)	102	103	102	102
IAP (in. Hg)	30.14	30.15	30.15	30.15
Cowl T (°F)	105	105	105	104
Cowl P (in H_2O)	3.1	3.3	3.9	3.9
Fuel T (°F)	96	96	97	97
Fuel Dens (lbs/gal)	6.22	6.22	6.21	6.21
MTDP (psig)	9.1	8.4	7.7	7.1
Pump P (psig)	19.6	19.6	19.6	19.6
CHT1 (°F)	461	459	459	459
CHT2 (°F)	438	436	436	436
CHT3 (°F)	458	455	455	456
CHT4 (°F)	436	432	435	435
CHT5 (°F)	475	474	476	475
CHT6 (°F)	459	457	457	460
EGT1 (°F)	1415	1451	1484	1512
EGT2 (°F)	1391	1423	1452	1485
EGT3 (°F)	1433	1464	1497	1527
EGT4 (°F)	1401	1432	1466	1500
EGT5 (°F)	1428	1459	1488	1518
EGT6 (°F)	1417	1448	1481	1512
Oil T (°F)	227	226	227	227
Oil P (psig)	65	65	65	65
Hum T (°F)	101	101	102	102
Hum ratio (gr/lb)	2	2	1	2
AFR	11.0	11.5	12.0	12.5
AFL	11.3	11.7	12.2	12.8
K airflow (lbs/hr)	1948	1899	1947	1974
A/F	11.7	12.0	12.8	13.6

TABLE A-114. MO4 ENGINE DATA, 85% POWER

Test	T2-41	T2-41	T2-41	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	30.09	29.92	29.92	29.92
Fuel	MO4	MO4	MO4	MO4	MO4	MO4
Test Points	W	V	U	I	H**	G
MAP (in. Hg)	27.41	27.40	27.41	27.21	27.22	27.22
rpm	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	480	481	483	484	486	486
BHP	238	238	240	240	240	240
TCBHP	249	249	250	251	251	251
LCBHP	247	247	248	249	249	249
BMEP (psig)	109.3	110.0	110.7	110.6	111.0	111.2
FF (lbs/hr)	147.1	141.9	134.2	130.3	123.4	117.6
FFG (gal/hr)	23.3	22.5	21.3	21.1	20.0	19.0
% Relative FF	25.0	20.5	14.0	10.7	4.9	-0.1
BSFC (lbs/hp hr)	0.62	0.60	0.56	0.54	0.51	0.49
TCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.52	0.49	0.47
LCBSFC (lbs/hp hr)	0.60	0.57	0.54	0.52	0.49	0.47
IAT (°F)	104	104	103	105	103	102
IAP (in. Hg)	30.09	30.10	30.10	30.08	30.08	30.08
Cowl T (°F)	105	104	106	105	105	105
Cowl P (in H_2O)	2.7	3.0	3.3	2.9	3.1	3.5
Fuel T (°F)	74	75	76	103	103	102
Fuel Dens (lbs/gal)	6.31	6.30	6.30	6.19	6.19	6.19
MTDP (psig)	7.1	6.6	6.0	5.7	5.2	4.7
Pump P (psig)	19.5	19.5	19.6	19.8	19.8	19.8
CHT1 (°F)	461	465	472	460	460	459
CHT2 (°F)	431	435	435	448	447	448
CHT3 (°F)	445	449	447	457	457	457
CHT4 (°F)	430	435	433	437	436	439
CHT5 (°F)	474	475	474	475	475	474
CHT6 (°F)	452	456	454	465	462	457
EGT1 (°F)	1369	1394	1431	1447	1483	1523
EGT2 (°F)	1352	1377	1415	1421	1457	1496
EGT3 (°F)	1391	1416	1456	1470	1505	1545
EGT4 (°F)	1356	1380	1419	1432	1468	1508
EGT5 (°F)	1393	1419	1457	1463	1498	1534
EGT6 (°F)	1379	1404	1444	1454	1490	1528
Oil T (°F)	240	240	239	227	231	230
Oil P (psig)	62	62	62	63	63	64
Hum T (°F)	105	104	104	103	101	102
Hum ratio (gr/lb)	0	0	0	2	1	2
AFR	11.0	11.3	11.9	12.0	12.6	13.3
AFL	10.9	11.2	11.9	12.5	13.1	13.7
K airflow (lbs/hr)	1511	1480	1495	1598	1587	1615
A/F	10.3	10.4	11.1	12.3	12.9	13.7

TABLE A-115. MO4 ENGINE DATA, 75% POWER

Test	T2-41	T2-41	T2-27	T2-27	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.09	30.09	30.15	30.15	29.92	29.92	29.92
Fuel	MO4	MO4	MO4	MO4	MO4	MO4	MO4
Test Points	Y	X	E	G	AC**	AB	AA
MAP (in. Hg)	26.34	26.41	26.32	26.33	25.89	25.88	25.86
rpm	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	451	457	462	463	450	452	452
BHP	211	214	216	216	210	211	211
TCBHP	220	223	225	226	219	220	220
LCBHP	219	221	222	223	217	218	218
BMEP (psig)	103.4	104.6	105.6	105.9	103.0	103.3	103.4
FF (lbs/hr)	135.2	129.9	124.5	119.9	115.3	110.0	104.9
FFG (gal/hr)	21.5	20.6	20.0	19.3	18.7	17.8	17.0
% Relative FF	30.1	25.0	19.8	15.4	11.0	5.9	0.9
BSFC (lbs/hp hr)	0.64	0.61	0.58	0.55	0.55	0.52	0.50
TCBSFC (lbs/hp hr)	0.61	0.58	0.56	0.53	0.53	0.50	0.48
LCBSFC (lbs/hp hr)	0.62	0.59	0.56	0.54	0.53	0.51	0.48
IAT (°F)	104	103	102	103	102	102	102
IAP (in. Hg)	30.10	30.09	30.26	30.26	30.15	30.15	30.16
Cowl T (°F)	101	101	105	105	105	105	105
Cowl P (in H_2O)	1.7	2.1	2.7	2.1	2.3	2.5	3.2
Fuel T (°F)	75	75	92	93	104	104	104
Fuel Dens (lbs/gal)	6.31	6.31	6.23	6.23	6.18	6.18	6.18
MTDP (psig)	6.0	5.5	5.1	4.8	4.5	4.1	3.8
Pump P (psig)	19.4	19.4	19.2	19.2	19.4	19.4	19.4
CHT1 (°F)	459	458	455	455	457	456	457
CHT2 (°F)	433	433	448	448	447	447	451
CHT3 (°F)	442	442	454	454	454	454	455
CHT4 (°F)	430	430	442	441	440	440	443
CHT5 (°F)	473	472	474	475	475	475	476
CHT6 (°F)	450	451	467	467	466	465	463
EGT1 (°F)	1312	1344	1380	1399	1411	1446	1476
EGT2 (°F)	1311	1340	1366	1388	1398	1429	1460
EGT3 (°F)	1334	1364	1396	1418	1432	1465	1496
EGT4 (°F)	1315	1345	1375	1396	1409	1442	1473
EGT5 (°F)	1339	1369	1397	1417	1426	1456	1484
EGT6 (°F)	1339	1368	1399	1420	1430	1459	1493
Oil T (°F)	242	240	241	239	227	229	228
Oil P (psig)	60	60	60	60	61	61	62
Hum T (°F)	104	103	102	103	101	101	101
Hum ratio (gr/lb)	0	0	1	1	2	2	2
AFR	10.7	11.1	11.4	11.8	12.0	12.5	13.1
AFL	10.6	11.0	12.5	12.7	12.5	13.0	13.5
K airflow (lbs/hr)	1336	1337	1369	1361	1391	1385	1391
A/F	9.9	10.3	11.0	11.4	12.1	12.6	13.3

TABLE A-116. MO4 ENGINE DATA, 65% POWER

Test	T2-41	T2-41	T2-41	T2-27	T2-24	T2-24	T2-27	T2-24	T2-24	T2-27
Barometer (in. Hg)	30.09	30.09	30.09	30.15	29.92	29.92	30.15	29.92	29.92	30.15
Fuel	MO4	MO4	MO4	MO4	MO4	MO4	MO4	MO4	MO4	MO4
Test Points	AB	AA	Z	I	AW**	AX	J	AV	AU	H
MAP (in. Hg)	24.77	24.77	24.75	24.82	24.28	24.27	24.82	24.29	24.32	24.80
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	414	418	419	425	411	411	426	412	412	424
BHP	186	187	188	190	184	184	191	185	184	190
TCBHP	194	196	196	199	192	192	199	193	192	199
LCBHP	193	194	195	196	190	190	197	191	190	196
BMEP (psig)	94.8	95.5	95.6	97.2	93.7	93.9	97.2	94.2	94.1	96.9
FF (lbs/hr)	118.7	114.1	109.8	105.4	100.3	100.2	100.1	95.9	91.7	91.4
FFG (gal/hr)	18.8	18.1	17.5	16.9	16.2	16.2	16.1	15.5	14.8	14.7
% Relative FF	30.0	25.0	20.3	15.5	9.8	9.7	9.7	5.0	0.4	0.1
BSFC (lbs/hp hr)	0.64	0.61	0.59	0.55	0.55	0.54	0.53	0.52	0.50	0.48
TCBSFC (lbs/hp hr)	0.61	0.58	0.56	0.53	0.52	0.52	0.50	0.50	0.48	0.46
LCBSFC (lbs/hp hr)	0.62	0.59	0.56	0.54	0.53	0.53	0.51	0.50	0.48	0.47
IAT (°F)	105	103	103	103	103	103	105	103	102	104
IAP (in. Hg)	30.08	30.09	30.08	30.26	30.14	30.15	30.26	30.14	30.15	30.26
Cowl T (°F)	101	102	101	106	106	106	106	106	106	104
Cowl P (in H_2O)	1.4	1.7	1.5	2.2	2.0	1.8	1.8	2.1	2.4	2.9
Fuel T (°F)	75	76	76	95	105	105	95	105	105	94
Fuel Dens (lbs/gal)	6.31	6.30	6.30	6.22	6.18	6.18	6.22	6.18	6.18	6.22
MTDP (psig)	4.6	4.3	4.0	3.7	3.4	3.4	3.4	3.1	2.9	2.9
Pump P (psig)	19.4	19.4	19.5	19.1	19.4	19.4	19.2	19.4	19.4	19.2
CHT1 (°F)	451	459	463	455	459	458	455	459	459	454
CHT2 (°F)	437	438	439	449	451	450	450	451	454	449
CHT3 (°F)	444	446	447	455	457	456	455	457	458	455
CHT4 (°F)	432	434	435	441	444	442	441	444	446	442
CHT5 (°F)	474	475	476	475	476	475	476	475	476	475
CHT6 (°F)	453	454	455	468	467	466	469	467	466	466
EGT1 (°F)	1314	1342	1362	1400	1413	1412	1431	1443	1474	1491
EGT2 (°F)	1314	1339	1361	1391	1402	1402	1422	1435	1464	1480
EGT3 (°F)	1337	1363	1386	1420	1436	1435	1450	1463	1494	1507
EGT4 (°F)	1316	1341	1365	1398	1413	1412	1430	1443	1474	1490
EGT5 (°F)	1333	1360	1380	1412	1425	1424	1442	1455	1485	1500
EGT6 (°F)	1339	1366	1388	1423	1437	1436	1455	1468	1497	1513
Oil T (°F)	239	239	239	240	229	226	239	228	228	239
Oil P (psig)	59	59	59	59	60	60	59	60	60	59
Hum T (°F)	104	103	103	103	101	101	103	101	101	103
Hum ratio (gr/lb)	0	0	0	1	2	2	1	2	2	1
AFR	10.8	11.3	11.6	11.9	12.1	12.2	12.5	12.8	13.3	13.7
AFL	10.7	11.1	11.4	12.9	12.7	12.8	13.3	13.2	13.7	14.1
K airflow (lbs/hr)	1166	1176	1185	1209	1219	1217	1193	1215	1218	1207
A/F	9.8	10.3	10.8	11.5	12.1	12.2	11.9	12.7	13.3	13.2

TABLE A-117. MO5 ENGINE DATA, TO POWER

Test	T2-23	T2-23	T2-23	T2-23	T2-23	T2-23	T2-23	T2-23	T2-23
Barometer (in. Hg)	29.92	29.92	29.92	29.92	29.92	29.92	29.92	29.92	29.92
Fuel	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5
Test Points	R	S	T	U	V	W**	X	Y	Z
MAP (in. Hg)	29.48	29.48	29.48	29.49	29.48	29.49	29.49	29.49	29.50
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	544	544	547	549	551	550	545	534	520
BHP	279	279	281	282	283	283	280	275	267
TCBHP	292	292	294	295	295	295	293	286	279
LCBHP	289	289	291	292	293	293	290	283	276
BMEP (psig)	124.2	124.1	125.2	125.5	125.8	125.6	124.6	121.9	118.9
FF (lbs/hr)	168.5	166.8	158.9	151.6	144.0	138.5	131.1	124.4	118.3
FFG (gal/hr)	27.7	27.4	26.1	24.9	23.7	22.7	21.5	20.4	19.5
% Relative FF	22.3	21.1	15.3	10.0	4.5	0.5	-4.8	-9.7	-14.1
BSFC (lbs/hp hr)	0.60	0.60	0.56	0.54	0.51	0.49	0.47	0.45	0.45
TCBSFC (lbs/hp hr)	0.58	0.57	0.54	0.51	0.49	0.47	0.45	0.43	0.43
LCBSFC (lbs/hp hr)	0.58	0.58	0.55	0.52	0.49	0.47	0.45	0.44	0.43
IAT (°F)	102	104	102	103	102	103	102	102	101
IAP (in. Hg)	30.16	30.16	30.16	30.17	30.16	30.17	30.17	30.18	30.19
Cowl T (°F)	108	107	107	107	107	107	105	105	107
Cowl P (in H_2O)	3.1	3.4	3.4	3.6	4.0	3.8	4.0	4.0	3.7
Fuel T (°F)	96	95	95	96	96	96	96	97	97
Fuel Dens (lbs/gal)	6.09	6.09	6.09	6.09	6.09	6.09	6.09	6.09	6.09
MTDP (psig)	9.6	9.4	8.7	7.9	7.2	6.7	6.1	5.5	5.0
Pump P (psig)	19.5	19.5	19.5	19.5	19.6	19.6	19.6	19.6	19.5
CHT1 (°F)	460	460	462	462	461	459	458	456	455
CHT2 (°F)	438	439	439	438	439	438	438	437	439
CHT3 (°F)	457	458	459	457	458	457	453	452	455
CHT4 (°F)	436	436	438	437	438	437	436	436	436
CHT5 (°F)	474	475	475	475	475	475	473	472	471
CHT6 (°F)	460	459	459	461	463	461	461	459	454
EGT1 (°F)	1410	1415	1448	1485	1523	1551	1589	1608	1613
EGT2 (°F)	1386	1391	1424	1458	1493	1520	1557	1584	1594
EGT3 (°F)	1428	1434	1466	1503	1538	1568	1610	1635	1642
EGT4 (°F)	1397	1402	1435	1471	1508	1537	1576	1604	1615
EGT5 (°F)	1424	1429	1463	1497	1531	1564	1603	1613	1611
EGT6 (°F)	1413	1416	1451	1487	1524	1554	1595	1604	1600
Oil T (°F)	230	224	227	228	229	229	226	229	233
Oil P (psig)	65	65	65	65	65	65	65	64	64
Hum T (°F)	102	102	102	102	101	102	101	102	100
Hum ratio (gr/lb)	2	2	2	2	2	2	2	2	2
AFR	11.0	11.1	11.6	12.1	12.7	13.2	14.0	14.8	15.6
AFL	11.3	11.3	11.8	12.3	13.0	13.4	14.1	14.9	15.5
K airflow (lbs/hr)	1951	1913	1955	1944	1964	1968	1959	1985	1973
A/F	11.6	11.5	12.3	12.8	13.7	14.2	15.0	16.0	16.7

TABLE A-118. MO5 ENGINE DATA, 85% POWER

Test	T2-42	T2-42	T2-42	T2-42	T2-24	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.14	30.14	30.14	30.14	29.92	29.92	29.92	29.92	29.92
Fuel	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5
Test Points	D	C	B	A	L	J	K**	M	N
MAP (in. Hg)	27.53	27.50	27.50	27.54	27.26	27.30	27.24	27.28	27.25
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	481	482	483	486	486	486	479	468	451
BHP	239	239	239	241	241	241	237	232	223
TCBHP	249	250	250	252	251	251	248	242	233
LCBHP	247	248	248	249	249	249	246	240	231
BMEP (psig)	109.9	109.6	110.4	111.1	111.2	111.2	109.4	106.9	102.9
FF (lbs/hr)	145.5	141.2	135.9	129.4	123.4	116.5	111.2	105.7	101.0
FFG (gal/hr)	23.5	22.8	22.0	21.0	20.3	19.2	18.3	17.4	16.7
% Relative FF	23.7	20.0	15.4	10.0	4.9	-1.0	-5.6	-10.2	-14.2
BSFC (lbs/hp hr)	0.61	0.59	0.57	0.54	0.51	0.49	0.47	0.46	0.45
TCBSFC (lbs/hp hr)	0.58	0.56	0.54	0.51	0.49	0.47	0.45	0.44	0.43
LCBSFC (lbs/hp hr)	0.59	0.57	0.55	0.52	0.50	0.47	0.45	0.44	0.44
IAT (°F)	105	106	105	104	103	102	104	103	103
IAP (in. Hg)	30.15	30.15	30.13	30.14	30.11	30.10	30.10	30.11	30.12
Cowl T (°F)	103	101	100	98	104	105	105	105	105
Cowl P (in H_2O)	2.3	2.6	2.1	2.8	2.9	2.8	3.0	2.8	2.9
Fuel T (°F)	76	77	77	77	102	101	102	102	104
Fuel Dens (lbs/gal)	6.18	6.18	6.18	6.18	6.07	6.07	6.07	6.07	6.06
MTDP (psig)	7.2	6.8	6.3	5.8	5.3	4.7	4.4	4.0	3.7
Pump P (psig)	19.9	19.9	20.0	20.0	19.7	19.7	19.7	19.7	19.7
CHT1 (°F)	476	474	474	474	460	462	460	459	458
CHT2 (°F)	442	442	442	442	449	453	452	453	453
CHT3 (°F)	452	452	452	452	458	459	458	458	457
CHT4 (°F)	439	439	440	441	439	443	442	445	446
CHT5 (°F)	474	475	474	472	475	475	475	476	474
CHT6 (°F)	458	459	458	457	463	463	460	453	451
EGT1 (°F)	1376	1397	1419	1453	1491	1530	1562	1588	1585
EGT2 (°F)	1365	1380	1410	1444	1461	1503	1536	1566	1565
EGT3 (°F)	1403	1422	1450	1484	1513	1555	1587	1619	1613
EGT4 (°F)	1369	1385	1415	1448	1472	1516	1546	1585	1593
EGT5 (°F)	1406	1423	1452	1486	1505	1547	1578	1595	1582
EGT6 (°F)	1389	1408	1436	1474	1499	1540	1574	1584	1569
Oil T (°F)	240	238	240	240	224	230	227	229	228
Oil P (psig)	62	62	62	62	64	63	63	63	63
Hum T (°F)	108	108	107	106	102	102	102	102	102
Hum ratio (gr/lb)	0	0	0	0	2	2	1	2	2
AFR	11.1	11.4	11.8	12.3	12.7	13.6	14.1	14.9	15.7
AFL	11.1	11.4	11.8	12.3	13.3	13.9	14.4	15.0	15.6
K airflow (lbs/hr)	1444	1411	1382	1396	1627	1622	1569	1606	1630
A/F	9.9	10.0	10.2	10.8	13.2	13.9	14.1	15.2	16.1

TABLE A-119. MO5 ENGINE DATA, 75% POWER

Test	T2-42	T2-42	T2-42	T2-42	T2-42	T2-24	T2-27	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.14	29.92	30.15	29.92	29.92	29.92	29.92
Fuel	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5
Test Points	I	H	G	F	E	AD	M	AE	AF**	AG	AH
MAP (in. Hg)	26.02	26.02	26.01	26.06	26.02	26.00	25.91	25.94	25.96	25.95	25.95
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	446	449	449	451	450	453	449	449	438	420	385
BHP	208	210	210	211	211	212	210	209	205	196	180
TCBHP	217	219	219	220	220	221	219	218	213	204	188
LCBHP	215	217	217	218	218	218	218	216	211	202	186
BMEP (psig)	101.7	102.5	102.5	103.0	103.0	103.6	102.9	102.3	99.8	96.2	87.5
FF (lbs/hr)	130.2	123.8	120.0	114.5	110.0	104.0	98.8	98.3	93.0	88.0	82.4
FFG (gal/hr)	21.1	20.1	19.4	18.6	17.8	17.2	16.3	16.2	15.4	14.6	13.6
% Relative FF	25.3	19.2	15.5	10.2	5.9	0.1	-4.9	-5.4	-10.5	-15.3	-20.7
BSFC (lbs/hp hr)	0.62	0.59	0.57	0.54	0.52	0.49	0.47	0.47	0.46	0.45	0.46
TCBSFC (lbs/hp hr)	0.60	0.57	0.55	0.52	0.50	0.47	0.45	0.45	0.44	0.43	0.44
LCBSFC (lbs/hp hr)	0.60	0.57	0.55	0.53	0.50	0.48	0.45	0.45	0.44	0.44	0.44
IAT (°F)	101	102	103	104	103	102	105	102	103	102	102
IAP (in. Hg)	30.14	30.14	30.15	30.15	30.13	30.16	30.12	30.16	30.16	30.15	30.16
Cowl T (°F)	102	104	105	108	110	107	105	107	107	108	109
Cowl P (in H_2O)	1.6	2.1	2.6	2.6	2.2	2.6	2.7	2.6	3.1	2.4	1.6
Fuel T (°F)	77	78	78	78	78	103	98	103	105	104	104
Fuel Dens (lbs/gal)	6.18	6.17	6.17	6.17	6.17	6.06	6.09	6.06	6.06	6.06	6.06
MTDP (psig)	5.8	5.3	5.0	4.6	4.2	3.8	3.5	3.4	3.2	2.8	2.4
Pump P (psig)	19.8	19.8	19.8	19.9	19.9	19.4	19.5	19.4	19.5	19.5	19.5
CHT1 (°F)	454	466	467	468	460	457	455	457	453	454	445
CHT2 (°F)	438	442	443	446	446	451	448	449	448	447	447
CHT3 (°F)	444	447	449	451	452	456	457	455	454	455	448
CHT4 (°F)	434	438	440	442	443	444	443	444	442	442	439
CHT5 (°F)	471	473	474	474	474	474	475	475	474	474	467
CHT6 (°F)	452	456	459	461	459	460	463	459	449	456	445
EGT1 (°F)	1336	1365	1388	1417	1453	1488	1532	1523	1561	1533	1510
EGT2 (°F)	1327	1360	1382	1411	1442	1471	1516	1507	1546	1520	1499
EGT3 (°F)	1357	1387	1409	1440	1470	1507	1549	1545	1589	1560	1534
EGT4 (°F)	1333	1364	1387	1416	1447	1484	1528	1521	1567	1541	1517
EGT5 (°F)	1358	1389	1410	1442	1474	1501	1540	1537	1566	1538	1512
EGT6 (°F)	1358	1389	1410	1441	1471	1507	1553	1545	1551	1526	1501
Oil T (°F)	238	240	240	240	241	229	239	227	224	228	227
Oil P (psig)	60	60	60	60	60	61	60	61	61	62	61
Hum T (°F)	103	104	105	105	105	101	103	101	101	101	101
Hum ratio (gr/lb)	0	0	0	0	0	2	1	2	2	2	1
AFR	11.0	11.4	11.8	12.2	12.7	13.4	14.1	14.2	15.0	15.9	17.2
AFL	10.9	11.4	11.7	12.1	12.7	13.8	14.4	14.4	14.9	15.6	16.6
K airflow (lbs/hr)	1301	1298	1284	1269	1259	1392	1294	1381	1382	1386	1394
A/F	10.0	10.5	10.7	11.1	11.5	13.4	13.1	14.1	14.9	15.8	16.9

TABLE A-120. MO5 ENGINE DATA, 65% POWER

Test	T2-42	T2-42	T2-42	T2-42	T2-42	T2-24	T2-24	T2-24	T2-24	T2-24
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.14	29.92	29.92	29.92	29.92	29.92
Fuel	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5	MO5
Test Points	N	M	L	K	J	AY	AZ	BA	BB**	BC
MAP (in. Hg)	24.47	24.47	24.49	24.47	24.49	24.35	24.34	24.32	24.31	24.41
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	409	410	414	414	413	413	409	399	379	347
BHP	183	184	186	185	185	185	183	179	170	156
TCBHP	191	192	193	193	193	193	191	187	177	162
LCBHP	189	190	192	191	192	191	189	185	175	161
BMEP (psig)	93.4	93.8	94.7	94.6	94.4	94.4	93.4	91.0	86.7	78.1
FF (lbs/hr)	114.5	110.0	105.0	100.4	95.9	91.2	86.8	82.4	77.8	73.0
FFG (gal/hr)	18.6	17.8	17.0	16.3	15.5	15.1	14.4	13.6	12.8	12.1
% Relative FF	25.4	20.5	15.0	9.9	5.0	-0.1	-4.9	-9.7	-14.8	-20.0
BSFC (lbs/hp hr)	0.63	0.60	0.57	0.54	0.52	0.49	0.48	0.46	0.46	0.47
TCBSFC (lbs/hp hr)	0.60	0.57	0.54	0.52	0.50	0.47	0.46	0.44	0.44	0.45
LCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53	0.50	0.48	0.46	0.45	0.45	0.46
IAT (°F)	102	102	101	101	102	103	102	103	102	103
IAP (in. Hg)	30.16	30.15	30.14	30.14	30.15	30.15	30.14	30.14	30.15	30.15
Cowl T (°F)	104	103	103	102	100	106	105	105	105	106
Cowl P (in H_2O)	1.7	2.0	1.6	1.6	2.1	1.8	2.1	1.9	1.9	1.6
Fuel T (°F)	78	78	78	78	78	104	105	105	106	106
Fuel Dens (lbs/gal)	6.18	6.17	6.17	6.17	6.18	6.06	6.06	6.06	6.05	6.05
MTDP (psig)	4.5	4.1	3.8	3.5	3.2	2.9	2.7	2.4	2.2	1.9
Pump P (psig)	19.7	19.7	19.7	19.8	19.8	19.4	19.4	19.5	19.5	19.5
CHT1 (°F)	458	460	458	459	460	456	456	456	455	450
CHT2 (°F)	444	445	442	444	444	451	450	451	450	455
CHT3 (°F)	447	448	446	448	448	455	455	455	454	450
CHT4 (°F)	437	439	437	440	440	443	443	444	443	441
CHT5 (°F)	474	475	473	474	474	475	475	475	474	475
CHT6 (°F)	457	460	457	459	458	460	457	454	449	438
EGT1 (°F)	1332	1361	1386	1417	1444	1483	1519	1551	1540	1507
EGT2 (°F)	1330	1358	1384	1413	1439	1470	1504	1538	1530	1495
EGT3 (°F)	1356	1385	1411	1442	1469	1502	1537	1573	1561	1519
EGT4 (°F)	1335	1362	1389	1418	1444	1480	1514	1552	1546	1501
EGT5 (°F)	1353	1381	1408	1437	1465	1493	1527	1556	1543	1508
EGT6 (°F)	1360	1389	1416	1446	1471	1507	1536	1546	1515	1482
Oil T (°F)	240	240	240	240	239	232	228	226	227	227
Oil P (psig)	59	59	59	59	59	60	60	61	61	61
Hum T (°F)	103	102	102	103	103	101	101	101	101	101
Hum ratio (gr/lb)	0	0	0	0	0	2	2	2	2	2
AFR	11.1	11.5	12.0	12.5	13.0	13.6	14.2	15.0	16.0	17.3
AFL	11.0	11.4	11.9	12.3	12.9	13.9	14.4	15.0	15.6	16.6
K airflow (lbs/hr)	1164	1137	1164	1161	1161	1217	1215	1210	1213	1229
A/F	10.2	10.3	11.1	11.6	12.1	13.4	14.0	14.7	15.6	16.9

TABLE A-121. MO6 ENGINE DATA, TO POWER

Test	T2-27	T2-27	T2-25	T2-25	T2-25
Barometer (in. Hg)	30.15	30.15	30.1	30.1	30.1
Fuel	MO6	MO6	MO6	MO6	MO6
Test Points	N	O**	A	B	C
MAP (in. Hg)	29.53	29.54	29.65	29.65	29.65
rpm	2700	2700	2700	2700	2700
TORK (ft-lbs)	530	529	536	538	542
BHP	273	272	276	277	279
TCBHP	285	284	288	289	291
LCBHP	282	281	284	285	287
BMEP (psig)	121.2	120.8	122.5	123.0	123.8
FF (lbs/hr)	165.6	165.0	158.5	153.9	146.7
FFG (gal/hr)	28.7	28.5	27.5	26.7	25.5
% Relative FF	20.2	19.7	15.0	11.7	6.5
BSFC (lbs/hp hr)	0.61	0.61	0.57	0.56	0.52
TCBSFC (lbs/hp hr)	0.58	0.58	0.55	0.53	0.50
LCBSFC (lbs/hp hr)	0.59	0.59	0.56	0.54	0.51
IAT (°F)	105	103	103	102	103
IAP (in. Hg)	30.19	30.19	30.28	30.27	30.28
Cowl T (°F)	103	107	108	101	96
Cowl P (in H_2O)	2.6	2.1	2.4	2.4	2.6
Fuel T (°F)	92	92	95	95	95
Fuel Dens (lbs/gal)	5.78	5.78	5.77	5.77	5.76
MTDP (psig)	9.7	9.5	8.8	8.3	7.6
Pump P (psig)	19.1	19.2	19.7	19.7	19.7
CHT1 (°F)	463	470	464	465	461
CHT2 (°F)	443	452	445	446	440
CHT3 (°F)	456	466	458	458	455
CHT4 (°F)	440	449	442	443	439
CHT5 (°F)	469	477	469	471	470
CHT6 (°F)	468	476	471	472	468
EGT1 (°F)	1341	1348	1378	1399	1429
EGT2 (°F)	1320	1327	1354	1371	1397
EGT3 (°F)	1358	1366	1393	1413	1437
EGT4 (°F)	1329	1338	1363	1384	1410
EGT5 (°F)	1367	1375	1398	1416	1431
EGT6 (°F)	1343	1356	1381	1398	1421
Oil T (°F)	241	240	236	238	236
Oil P (psig)	62	62	63	62	63
Hum T (°F)	103	103	101	102	102
Hum ratio (gr/lb)	1	1	3	2	3
AFR	10.0	10.0	10.5	10.8	11.4
AFL	11.5	11.5	11.5	11.7	12.1
K airflow (lbs/hr)	1876	1904	1850	1887	1842
A/F	11.3	11.5	11.7	12.3	12.6

TABLE A-122. MO6 ENGINE DATA, 85% POWER

Test	T2-42	T2-25	T2-25	T2-25
Barometer (in. Hg)	30.14	30.10	30.10	30.10
Fuel	MO6	MO6	MO6	MO6
Test Points	P	T	U**	V
MAP (in. Hg)	27.85	27.80	27.81	27.81
rpm	2600	2600	2600	2600
TORK (ft-lbs)	479	485	486	490
BHP	237	240	241	243
TCBHP	248	251	252	254
LCBHP	246	247	249	250
BMEP (psig)	109.4	110.7	111.1	112.0
FF (lbs/hr)	145.7	140.0	134.3	129.4
FFG (gal/hr)	24.8	24.3	23.3	22.5
% Relative FF	23.8	18.9	14.1	9.9
BSFC (lbs/hp hr)	0.61	0.58	0.56	0.53
TCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.51
LCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.52
IAT (°F)	102	103	106	103
IAP (in. Hg)	30.11	30.32	30.32	30.33
Cowl T (°F)	97	109	108	108
Cowl P (in H_2O)	2.0	2.1	2.7	2.6
Fuel T (°F)	73	98	98	99
Fuel Dens (lbs/gal)	5.86	5.75	5.75	5.75
MTDP (psig)	7.4	6.9	6.4	6.0
Pump P (psig)	19.8	19.4	19.5	19.5
CHT1 (°F)	467	454	458	458
CHT2 (°F)	438	446	448	449
CHT3 (°F)	449	457	457	459
CHT4 (°F)	435	435	436	437
CHT5 (°F)	475	473	476	475
CHT6 (°F)	455	464	463	464
EGT1 (°F)	1312	1337	1361	1387
EGT2 (°F)	1305	1319	1343	1367
EGT3 (°F)	1339	1361	1386	1411
EGT4 (°F)	1310	1327	1352	1377
EGT5 (°F)	1346	1358	1382	1405
EGT6 (°F)	1329	1348	1371	1395
Oil T (°F)	241	237	237	237
Oil P (psig)	62	62	62	62
Hum T (°F)	105	103	105	104
Hum ratio (gr/lb)	0	2	2	2
AFR	10.3	10.4	10.9	11.3
AFL	10.1	11.6	11.9	12.3
K airflow (lbs/hr)	1393	1607	1593	1620
A/F	9.6	11.5	11.9	12.5

TABLE A-123. MO6 ENGINE DATA, 75% POWER

Test	T2-42	T2-25	T2-25	T2-25	T2-25	T2-25	T2-27
Barometer (in. Hg)	30.14	30.10	30.10	30.10	30.10	30.10	30.15
Fuel	MO6	MO6	MO6	MO6	MO6	MO6	MO6
Test Points	Q	AF	AG	AH**	AI	AE	P
MAP (in. Hg)	26.05	26.43	26.41	26.39	26.41	26.40	26.45
rpm	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	434	450	454	454	457	460	463
BHP	203	210	212	212	214	215	216
TCBHP	212	220	222	223	224	224	226
LCBHP	210	217	218	219	220	221	224
BMEP (psig)	99.5	102.9	103.9	103.9	104.6	105.2	105.6
FF (lbs/hr)	129.7	124.1	118.8	114.6	109.1	105.4	104.5
FFG (gal/hr)	22.2	21.6	20.7	19.9	19.0	18.4	18.1
% Relative FF	24.8	19.5	14.3	10.3	5.0	1.4	0.6
BSFC (lbs/hp hr)	0.64	0.59	0.56	0.54	0.51	0.49	0.49
TCBSFC (lbs/hp hr)	0.61	0.56	0.54	0.52	0.49	0.47	0.46
LCBSFC (lbs/hp hr)	0.62	0.57	0.54	0.52	0.49	0.48	0.47
IAT (°F)	103	106	104	107	105	104	106
IAP (in. Hg)	30.12	30.33	30.34	30.32	30.32	30.32	30.19
Cowl T (°F)	101	109	109	110	110	108	107
Cowl P (in H_2O)	1.6	1.6	1.7	2.2	2.9	1.6	2.7
Fuel T (°F)	73	100	100	100	101	101	95
Fuel Dens (lbs/gal)	5.86	5.74	5.74	5.74	5.74	5.74	5.77
MTDP (psig)	5.8	5.4	5.0	4.7	4.3	4.0	4.0
Pump P (psig)	19.8	19.3	19.3	19.3	19.4	19.4	19.1
CHT1 (°F)	457	447	448	449	449	447	449
CHT2 (°F)	435	442	442	442	441	440	442
CHT3 (°F)	443	448	449	448	449	447	451
CHT4 (°F)	431	433	433	432	433	433	437
CHT5 (°F)	473	471	473	473	477	469	476
CHT6 (°F)	450	459	460	457	458	454	464
EGT1 (°F)	1270	1301	1331	1352	1382	1414	1410
EGT2 (°F)	1264	1289	1317	1336	1367	1402	1398
EGT3 (°F)	1291	1320	1350	1370	1398	1431	1422
EGT4 (°F)	1271	1298	1327	1347	1377	1414	1408
EGT5 (°F)	1292	1318	1347	1361	1384	1417	1408
EGT6 (°F)	1295	1324	1351	1367	1394	1430	1424
Oil T (°F)	242	238	238	237	238	235	241
Oil P (psig)	60	60	60	60	60	60	60
Hum T (°F)	104	105	104	105	105	104	104
Hum ratio (gr/lb)	0	2	2	2	2	2	1
AFR	10.0	10.4	10.9	11.2	11.7	12.1	12.3
AFL	9.8	11.6	12.0	12.2	12.6	13.0	13.2
K airflow (lbs/hr)	1218	1417	1415	1363	1407	1394	1357
A/F	9.4	11.4	11.9	11.9	12.9	13.2	13.0

TABLE A-124. MO6 ENGINE DATA, 65% POWER

Test	T2-42	T2-42	T2-42	T2-42	T2-25	T2-27	T2-25	T2-25	T2-42	T2-25	T2-25	T2-27
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.10	30.15	30.10	30.10	30.14	30.10	30.10	30.15
Fuel	MO6	MO6	MO6	MO6	MO6	MO6	MO6	MO6	MO6	MO6	MO6	MO6
Test Points	V	U	T	S	AV	R**	AS	AU	R	AR	AT	Q
MAP (in. Hg)	24.63	24.63	24.61	24.64	24.17	24.53	24.68	24.19	24.67	24.68	24.19	24.57
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	401	404	407	410	400	413	416	402	412	417	405	415
BHP	180	181	182	184	179	185	186	180	185	187	182	186
TCBHP	188	189	190	192	187	193	195	189	193	195	190	195
LCBHP	186	188	189	190	184	191	192	186	191	192	187	192
BMEP (psig)	91.8	92.4	93.1	93.6	91.4	94.2	95.2	91.9	94.2	95.2	92.5	95.0
FF (lbs/hr)	114.3	109.8	105.3	102.0	101.2	100.8	96.0	95.9	95.3	91.4	91.3	90.6
FFG (gal/hr)	19.5	18.8	18.0	17.4	17.7	17.5	16.7	16.7	16.3	15.9	15.9	15.7
% Relative FF	25.2	20.2	15.3	11.7	10.9	10.4	5.1	5.0	4.4	0.1	0.0	-0.7
BSFC (lbs/hp hr)	0.64	0.60	0.58	0.56	0.57	0.55	0.51	0.53	0.52	0.49	0.50	0.49
TCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.54	0.53	0.49	0.51	0.50	0.47	0.48	0.47
LCBSFC (lbs/hp hr)	0.61	0.58	0.56	0.54	0.55	0.53	0.50	0.52	0.50	0.48	0.49	0.47
IAT (°F)	102	103	102	102	105	102	104	106	103	105	105	104
IAP (in. Hg)	30.10	30.11	30.09	30.11	30.35	30.19	30.34	30.32	30.10	30.32	30.34	30.19
Cowl T (°F)	100	104	106	105	111	100	110	110	104	110	110	103
Cowl P (in H_2O)	1.1	1.5	1.4	1.4	1.5	2.4	1.9	2.0	2.2	2.2	2.0	2.4
Fuel T (°F)	74	75	75	76	103	97	104	104	75	104	104	97
Fuel Dens (lbs/gal)	5.85	5.85	5.85	5.85	5.73	5.76	5.73	5.73	5.84	5.73	5.73	5.76
MTDP (psig)	4.6	4.2	3.9	3.7	3.7	3.7	3.3	3.3	3.4	3.1	3.1	3.1
Pump P (psig)	19.8	19.8	19.8	19.8	19.3	19.0	19.4	19.3	19.8	19.3	19.3	19.1
CHT1 (°F)	453	451	452	461	445	452	450	450	465	452	450	454
CHT2 (°F)	440	441	440	444	440	446	444	445	443	446	444	447
CHT3 (°F)	445	445	445	449	447	453	453	452	449	455	452	454
CHT4 (°F)	434	434	434	437	430	437	434	434	436	436	433	438
CHT5 (°F)	473	473	472	476	468	473	474	473	476	476	473	475
CHT6 (°F)	455	456	457	460	459	466	465	463	456	463	463	469
EGT1 (°F)	1264	1289	1312	1341	1328	1347	1379	1361	1366	1401	1395	1412
EGT2 (°F)	1262	1288	1310	1337	1320	1338	1369	1355	1364	1391	1386	1403
EGT3 (°F)	1290	1316	1339	1368	1347	1366	1398	1381	1399	1419	1411	1428
EGT4 (°F)	1268	1292	1314	1344	1325	1346	1379	1361	1370	1399	1392	1413
EGT5 (°F)	1286	1311	1334	1360	1340	1359	1388	1374	1388	1404	1403	1414
EGT6 (°F)	1294	1317	1339	1369	1350	1368	1398	1384	1394	1415	1411	1427
Oil T (°F)	242	242	242	243	238	240	238	237	243	240	239	240
Oil P (psig)	59	59	59	58	59	59	59	59	59	59	59	59
Hum T (°F)	104	104	104	104	105	102	104	104	105	105	104	103
Hum ratio (gr/lb)	1	1	1	0	2	1	2	2	0	2	2	1
AFR	10.1	10.5	11.0	11.3	10.9	11.2	11.8	11.5	11.8	12.2	12.0	12.3
AFL	9.9	10.4	10.8	11.2	12.0	12.3	12.7	12.4	11.6	13.0	12.9	13.3
K airflow (lbs/hr)	1122	1104	1104	1103	1210	1255	1241	1176	1101	1250	1214	1226
A/F	9.8	10.1	10.5	10.8	12.0	12.4	12.9	12.3	11.6	13.7	13.3	13.5

TABLE A-125. MO7 ENGINE DATA, TO POWER

Test	T2-42	T2-25	T2-25	T2-27	T2-25	T2-27	T2-25	T2-27	T2-25	T2-27	T2-25
Barometer (in. Hg)	30.14	30.1	30.1	30.11	30.1	30.11	30.1	30.11	30.1	30.11	30.1
Fuel	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7
Test Points	W	D	E	U	H	V	F**	T	G	S	I
MAP (in. Hg)	29.59	29.65	29.65	29.55	29.65	29.55	29.65	29.55	29.65	29.55	29.65
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	535	544	546	549	551	545	550	550	551	550	548
BHP	275	280	281	283	284	280	283	283	284	284	282
TCBHP	287	293	293	295	296	293	296	296	297	296	295
LCBHP	285	289	289	292	292	290	291	293	292	293	291
BMEP (psig)	122.2	124.2	124.8	125.8	125.9	124.1	125.7	125.8	125.8	126.0	125.5
FF (lbs/hr)	172.6	162.0	156.5	154.7	154.0	153.5	150.0	147.0	141.0	137.0	133.3
FFG (gal/hr)	27.0	25.8	24.9	24.7	24.6	24.5	23.9	23.4	22.5	21.8	21.2
% Relative FF	25.3	17.6	13.6	12.2	11.8	11.4	8.9	6.7	2.3	-0.6	-3.2
BSFC (lbs/hp hr)	0.63	0.58	0.56	0.55	0.55	0.55	0.53	0.52	0.50	0.48	0.47
TCBSFC (lbs/hp hr)	0.60	0.56	0.54	0.52	0.52	0.53	0.51	0.50	0.48	0.46	0.45
LCBSFC (lbs/hp hr)	0.61	0.56	0.54	0.53	0.53	0.53	0.51	0.51	0.48	0.47	0.46
IAT (°F)	103	104	104	103	103	105	103	105	104	104	103
IAP (in. Hg)	30.13	30.29	30.29	30.23	30.30	30.23	30.30	30.23	30.30	30.23	30.29
Cowl T (°F)	104	107	106	106	106	107	105	105	106	102	106
Cowl P (in H_2O)	2.9	2.9	3.0	3.6	2.1	2.8	5.1	4.0	3.8	3.1	5.0
Fuel T (°F)	72	96	96	99	98	99	96	98	97	97	98
Fuel Dens (lbs/gal)	6.39	6.28	6.28	6.27	6.28	6.27	6.28	6.28	6.28	6.28	6.27
MTDP (psig)	9.5	9.5	9.1	7.8	7.1	9.2	8.1	7.6	7.2	7.0	6.1
Pump P (psig)	20.0	19.7	19.7	19.2	19.8	19.1	19.7	19.2	19.8	19.3	19.8
CHT1 (°F)	474	465	467	469	462	468	465	469	470	468	462
CHT2 (°F)	436	447	447	447	440	447	445	450	445	451	440
CHT3 (°F)	450	460	463	462	456	461	461	463	461	462	455
CHT4 (°F)	438	442	445	446	442	446	441	447	447	447	442
CHT5 (°F)	476	473	475	473	473	474	479	474	479	478	475
CHT6 (°F)	462	467	470	476	468	475	468	476	471	476	466
EGT1 (°F)	1420	1415	1440	1494	1526	1430	1482	1502	1514	1535	1584
EGT2 (°F)	1400	1392	1412	1466	1490	1403	1450	1475	1487	1504	1551
EGT3 (°F)	1435	1434	1454	1506	1539	1443	1492	1515	1533	1546	1599
EGT4 (°F)	1409	1402	1423	1474	1511	1412	1462	1486	1501	1516	1568
EGT5 (°F)	1441	1438	1454	1513	1537	1447	1491	1522	1528	1553	1590
EGT6 (°F)	1432	1418	1438	1492	1523	1431	1478	1505	1514	1532	1581
Oil T (°F)	240	245	239	240	232	237	248	245	238	241	239
Oil P (psig)	63	62	62	61	63	62	62	62	63	61	63
Hum T (°F)	106	103	104	105	104	103	103	104	104	101	103
Hum ratio (gr/lb)	1	2	2	1	2	1	2	1	2	1	2
AFR	11.1	11.0	11.2	12.0	12.6	11.1	11.9	12.2	12.5	12.7	13.8
AFL	11.0	11.8	12.0	13.0	13.2	12.3	12.6	13.2	13.2	13.6	14.2
K airflow (lbs/hr)	1682	1829	1864	1918	1865	1846	1863	1847	1834	1807	1873
A/F	9.8	11.3	12.0	12.4	12.2	12.1	12.4	12.6	13.1	13.2	14.1

TABLE A-126. MO7 ENGINE DATA, 85% POWER

Test	T2-42	T2-42	T2-42	T2-27	T2-27	T2-27	T2-25	T2-25	T2-27	T2-25
Barometer (in. Hg)	30.14	30.14	30.14	30.15	30.15	30.15	30.10	30.10	30.15	30.10
Fuel	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7
Test Points	Z	Y	X	Z	Y	X**	W	X	W	Y
MAP (in. Hg)	27.30	27.30	27.32	27.17	27.18	27.21	27.83	27.32	27.18	27.28
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	477	479	482	483	486	486	497	486	484	480
BHP	237	238	239	239	241	241	246	241	240	238
TCBHP	247	248	249	250	251	252	258	252	251	249
LCBHP	245	246	247	247	248	249	254	248	248	245
BMEP (psig)	109.0	109.6	110.0	110.4	111.0	111.0	113.6	111.0	110.6	109.8
FF (lbs/hr)	146.6	141.3	135.4	134.8	130.3	123.3	117.6	117.6	116.8	112.0
FFG (gal/hr)	23.0	22.2	21.3	21.51	20.82	19.67	18.8	18.8	18.66	17.9
% Relative FF	24.6	20.1	15.1	14.5	10.7	4.8	-0.1	-0.1	-0.8	-4.8
BSFC (lbs/hp hr)	0.62	0.59	0.57	0.56	0.54	0.51	0.48	0.49	0.49	0.47
TCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.54	0.52	0.49	0.46	0.47	0.47	0.45
LCBSFC (lbs/hp hr)	0.60	0.57	0.55	0.55	0.52	0.50	0.46	0.48	0.47	0.46
IAT (°F)	103	103	102	104	102	103	105	104	103	104
IAP (in. Hg)	30.11	30.10	30.11	30.22	30.24	30.22	30.33	30.32	30.22	30.32
Cowl T (°F)	102	101	102	105	108	108	107	108	108	107
Cowl P (in H_2O)	2.3	2.4	2.7	2.7	2.7	3.4	3.1	3.3	3.7	3.6
Fuel T (°F)	74	74	74	101	101	102	100	101	101	101
Fuel Dens (lbs/gal)	6.38	6.38	6.38	6.26	6.26	6.26	6.27	6.26	6.27	6.26
MTDP (psig)	7.0	6.5	6.0	6.0	5.7	5.1	4.7	4.7	4.7	4.3
Pump P (psig)	20.0	20.0	20.1	19.1	19.1	19.2	19.7	19.6	19.2	19.7
CHT1 (°F)	468	471	473	460	463	461	461	460	463	460
CHT2 (°F)	436	438	441	449	451	448	450	448	450	449
CHT3 (°F)	447	448	451	461	463	461	459	458	463	458
CHT4 (°F)	434	437	439	445	448	445	441	441	447	441
CHT5 (°F)	473	474	475	473	475	476	477	476	475	476
CHT6 (°F)	454	457	460	472	472	469	467	466	469	464
EGT1 (°F)	1379	1403	1429	1439	1463	1501	1549	1535	1537	1564
EGT2 (°F)	1366	1393	1418	1412	1437	1475	1522	1508	1510	1538
EGT3 (°F)	1405	1432	1458	1458	1483	1523	1569	1558	1556	1588
EGT4 (°F)	1370	1396	1422	1422	1447	1486	1532	1518	1519	1547
EGT5 (°F)	1407	1432	1458	1458	1483	1518	1563	1548	1550	1575
EGT6 (°F)	1395	1421	1449	1448	1473	1511	1554	1543	1545	1572
Oil T (°F)	239	238	239	239	240	240	237	237	238	238
Oil P (psig)	62	62	62	61	61	61	62	62	61	62
Hum T (°F)	105	105	104	101	102	102	103	104	102	103
Hum ratio (gr/lb)	1	0	0	1	1	1	2	2	1	2
AFR	11.1	11.5	11.9	11.7	12.1	12.8	13.7	13.5	13.5	14.1
AFL	11.1	11.4	11.8	12.8	13.2	13.7	14.2	14.0	14.1	14.5
K airflow (lbs/hr)	1438	1422	1423	1538	1597	1583	1561	1573	1539	1532
A/F	9.8	10.1	10.5	11.4	12.3	12.8	13.3	13.4	13.2	13.7

TABLE A-127. MO7 ENGINE DATA, 75% POWER

Test	T2-42	T2-42	T2-42	T2-42	T2-27	T2-42	T2-27	T2-25	T2-25	T2-27	T2-25
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.15	30.14	30.15	30.10	30.10	30.15	30.10
Fuel	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7
Test Points	AE	AD	AC	AB	AC	AA	AB**	AL	AJ	AA	AK
MAP (in. Hg)	26.09	26.06	26.09	26.08	25.91	26.10	25.93	26.17	26.18	25.96	26.18
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	447	447	449	451	454	453	455	456	457	454	451
BHP	209	209	210	211	212	211	213	213	214	212	211
TCBHP	218	218	219	220	221	221	222	223	224	221	221
LCBHP	216	216	217	218	218	219	219	220	220	219	217
BMEP (psig)	102.0	102.1	102.7	103.0	103.8	103.6	104.1	104.2	104.6	103.7	103.3
FF (lbs/hr)	133.3	130.4	124.7	119.4	114.6	113.9	108.9	108.8	104.2	104.1	98.7
FFG (gal/hr)	20.9	20.4	19.6	18.7	18.3	17.8	17.4	17.4	16.6	16.6	15.8
% Relative FF	28.3	25.5	20.0	14.9	10.3	9.6	4.8	4.7	0.3	0.2	-5.0
BSFC (lbs/hp hr)	0.64	0.63	0.60	0.57	0.54	0.54	0.51	0.51	0.49	0.49	0.47
TCBSFC (lbs/hp hr)	0.61	0.60	0.57	0.54	0.52	0.52	0.49	0.49	0.47	0.47	0.45
LCBSFC (lbs/hp hr)	0.62	0.61	0.58	0.55	0.53	0.52	0.50	0.50	0.47	0.48	0.45
IAT (°F)	104	103	103	103	102	103	102	106	105	104	105
IAP (in. Hg)	30.12	30.11	30.11	30.10	30.22	30.12	30.23	30.33	30.33	30.21	30.32
Cowl T (°F)	100	100	100	105	108	106	108	108	109	108	109
Cowl P (in H_2O)	1.6	2.9	2.1	2.3	2.2	2.6	2.6	2.9	2.8	2.4	2.9
Fuel T (°F)	73	75	76	76	102	76	102	103	102	102	103
Fuel Dens (lbs/gal)	6.38	6.37	6.37	6.37	6.26	6.37	6.26	6.25	6.26	6.26	6.26
MTDP (psig)	5.8	5.6	5.1	4.7	4.5	4.4	4.0	4.0	3.7	3.7	3.4
Pump P (psig)	19.9	19.9	19.9	19.9	19.1	19.9	19.1	19.5	19.5	19.1	19.6
CHT1 (°F)	457	459	460	461	457	458	457	453	454	457	455
CHT2 (°F)	440	442	443	442	449	443	449	444	446	448	447
CHT3 (°F)	447	449	449	449	456	449	455	453	454	456	455
CHT4 (°F)	438	440	440	440	444	441	445	438	439	445	440
CHT5 (°F)	476	476	475	475	475	475	474	476	476	474	478
CHT6 (°F)	455	457	458	458	473	459	472	462	464	470	464
EGT1 (°F)	1332	1348	1376	1405	1434	1440	1469	1475	1503	1501	1529
EGT2 (°F)	1328	1343	1371	1399	1419	1429	1452	1459	1486	1481	1514
EGT3 (°F)	1355	1368	1398	1426	1451	1457	1485	1492	1520	1515	1550
EGT4 (°F)	1332	1346	1374	1401	1429	1434	1464	1469	1497	1495	1525
EGT5 (°F)	1356	1369	1400	1427	1451	1460	1483	1484	1511	1512	1538
EGT6 (°F)	1357	1372	1400	1428	1452	1458	1486	1490	1519	1518	1545
Oil T (°F)	242	243	243	243	239	243	240	238	236	240	237
Oil P (psig)	60	60	60	60	60	60	60	60	60	60	60
Hum T (°F)	105	105	105	105	101	105	102	105	105	102	104
Hum ratio (gr/lb)	0	1	1	1	1	1	1	2	2	1	2
AFR	10.9	11.1	11.5	11.9	12.2	12.4	12.8	12.9	13.5	13.4	14.2
AFL	10.8	11.0	11.4	11.9	13.1	12.3	13.6	13.6	14.0	14.0	14.4
K airflow (lbs/hr)	1278	1266	1276	1254	1358	1255	1379	1372	1383	1339	1351
A/F	9.6	9.7	10.2	10.5	11.8	11.0	12.7	12.6	13.3	12.9	13.7

TABLE A-128. MO7 ENGINE DATA, 65% POWER

Test	T2-42	T2-42	T2-42	T2-42	T2-42	T2-25	T2-25	T2-25	T2-25	T2-25
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.14	30.1	30.1	30.1	30.1	30.1
Fuel	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7	MO7
Test Points	AJ	AI	AH	AG	AF	BA	AZ**	AW	AX	AY
MAP (in. Hg)	24.41	24.46	24.41	24.42	24.42	24.42	24.42	24.48	24.45	24.45
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	406	409	408	410	412	415	414	415	411	400
BHP	182	183	183	184	184	186	186	186	184	180
TCBHP	190	191	191	192	193	194	195	195	193	188
LCBHP	188	189	190	190	191	191	192	192	190	185
BMEP (psig)	93.1	93.3	93.3	93.7	94.1	95.1	94.6	94.8	93.9	91.4
FF (lbs/hr)	116.8	114.7	109.5	104.6	100.5	100.0	95.0	90.8	86.8	82.2
FFG (gal/hr)	18.4	18.0	17.2	16.4	15.8	16.0	15.2	14.5	13.9	13.1
% Relative FF	27.9	25.6	19.9	14.6	10.1	9.5	4.1	-0.6	-4.9	-10.0
BSFC (lbs/hp hr)	0.64	0.63	0.60	0.57	0.55	0.54	0.51	0.49	0.47	0.46
TCBSFC (lbs/hp hr)	0.62	0.60	0.57	0.54	0.52	0.51	0.49	0.47	0.45	0.44
LCBSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.53	0.52	0.50	0.47	0.46	0.45
IAT (°F)	103	103	103	103	103	105	107	107	105	105
IAP (in. Hg)	30.12	30.12	30.12	30.12	30.10	30.35	30.32	30.33	30.34	30.34
Cowl T (°F)	104	106	108	106	105	111	112	112	111	112
Cowl P (in H_2O)	1.5	1.4	1.5	2.2	2.8	1.6	2.6	2.4	2.6	2.2
Fuel T (°F)	75	76	77	77	77	105	105	103	104	105
Fuel Dens (lbs/gal)	6.37	6.37	6.37	6.37	6.37	6.25	6.25	6.25	6.25	6.25
MTDP (psig)	4.4	4.3	4.0	3.7	3.4	3.4	3.1	2.8	2.6	2.3
Pump P (psig)	19.8	19.8	19.8	19.8	19.9	19.5	19.5	19.5	19.5	19.5
CHT1 (°F)	458	461	456	459	462	450	452	452	455	452
CHT2 (°F)	442	441	443	443	443	442	444	447	448	444
CHT3 (°F)	447	447	448	448	449	451	454	453	456	454
CHT4 (°F)	439	439	439	439	442	434	438	438	440	438
CHT5 (°F)	475	474	474	474	475	471	475	475	477	475
CHT6 (°F)	457	456	458	459	459	462	456	462	463	458
EGT1 (°F)	1330	1340	1367	1395	1422	1432	1464	1495	1529	1556
EGT2 (°F)	1327	1339	1361	1391	1419	1422	1456	1485	1518	1547
EGT3 (°F)	1354	1366	1392	1421	1448	1453	1485	1514	1547	1576
EGT4 (°F)	1334	1346	1369	1397	1426	1430	1463	1493	1528	1561
EGT5 (°F)	1349	1361	1385	1414	1443	1445	1475	1505	1537	1564
EGT6 (°F)	1361	1373	1397	1429	1452	1456	1481	1516	1547	1551
Oil T (°F)	241	241	241	241	239	238	238	237	237	237
Oil P (psig)	58	58	59	59	59	59	60	59	59	59
Hum T (°F)	104	104	104	104	104	104	104	105	104	104
Hum ratio (gr/lb)	0	0	0	0	0	2	2	2	2	2
AFR	11.0	11.2	11.6	12.0	12.5	12.4	13.0	13.7	14.3	15.2
AFL	10.9	11.0	11.4	11.9	12.4	13.2	13.6	14.1	14.5	15.0
K airflow (lbs/hr)	1149	1144	1137	1135	1129	1225	1187	1198	1218	1208
A/F	9.8	10.0	10.4	10.9	11.3	12.2	12.5	13.2	14.0	14.7

TABLE A-129. MO8 ENGINE DATA, TO POWER

Test	T2-42	T2-25	T2-25	T2-25	T2-25	T2-25	T2-25	T2-25	T2-25	T2-25
Barometer (in. Hg)	30.14	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1
Fuel	MO8	MO8	MO8	MO8	MO8	MO8	MO8	MO8	MO8	MO8
Test Points	AK	J	K	L	M	N	O	P**	Q	R
MAP (in. Hg)	29.57	29.65	29.65	29.67	29.66	29.67	29.67	29.65	29.66	29.67
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	528	540	544	546	548	548	547	544	522	502
BHP	272	278	280	281	282	282	282	280	269	258
TCBHP	283	290	293	294	295	295	295	292	281	270
LCBHP	281	286	289	290	290	290	290	288	277	266
BMEP (psig)	120.6	123.5	124.4	124.8	125.1	125.3	124.8	124.2	119.3	114.8
FF (lbs/hr)	172.5	159.5	153.5	149.0	144.7	142.3	132.7	128.7	120.5	115.3
FFG (gal/hr)	26.7	25.2	24.2	23.5	22.8	22.5	20.9	20.3	19.1	18.2
% Relative FF	25.2	15.7	11.4	8.1	5.0	3.3	-3.7	-6.6	-12.6	-16.3
BSFC (lbs/hp hr)	0.64	0.58	0.55	0.53	0.51	0.50	0.47	0.46	0.45	0.45
TCBSFC (lbs/hp hr)	0.61	0.55	0.53	0.51	0.49	0.48	0.45	0.44	0.43	0.43
LCBSFC (lbs/hp hr)	0.61	0.56	0.53	0.52	0.50	0.49	0.46	0.45	0.44	0.44
IAT (°F)	103	103	104	104	103	103	104	103	106	103
IAP (in. Hg)	30.12	30.30	30.31	30.31	30.31	30.31	30.30	30.31	30.31	30.32
Cowl T (°F)	104	107	106	105	106	105	105	105	104	106
Cowl P (in H_2O)	2.6	2.0	3.9	2.0	4.5	3.2	4.0	3.5	5.1	2.3
Fuel T (°F)	72	97	97	97	98	98	99	99	100	99
Fuel Dens (lbs/gal)	6.45	6.35	6.34	6.35	6.34	6.34	6.34	6.34	6.33	6.34
MTDP (psig)	9.4	9.2	8.6	7.4	6.9	6.7	6.0	5.6	4.8	4.3
Pump P (psig)	19.9	19.7	19.8	19.8	19.8	19.8	19.8	19.8	19.9	19.8
CHT1 (°F)	472	460	463	464	465	464	468	464	463	462
CHT2 (°F)	435	442	445	446	449	444	449	444	446	449
CHT3 (°F)	448	455	459	458	461	457	460	457	456	458
CHT4 (°F)	438	440	443	443	447	445	450	446	444	448
CHT5 (°F)	476	473	475	474	478	475	478	475	475	474
CHT6 (°F)	457	467	469	469	470	466	471	470	463	466
EGT1 (°F)	1403	1413	1442	1494	1525	1532	1573	1601	1639	1621
EGT2 (°F)	1381	1387	1414	1462	1491	1498	1536	1565	1618	1611
EGT3 (°F)	1416	1425	1455	1509	1538	1545	1586	1620	1664	1654
EGT4 (°F)	1390	1395	1424	1478	1507	1513	1553	1584	1635	1629
EGT5 (°F)	1421	1423	1453	1510	1537	1543	1584	1614	1634	1621
EGT6 (°F)	1412	1413	1439	1492	1518	1525	1569	1600	1630	1614
Oil T (°F)	238	237	244	237	239	235	239	237	244	237
Oil P (psig)	63	63	63	62	62	62	62	62	62	63
Hum T (°F)	105	103	103	104	103	103	105	104	103	103
Hum ratio (gr/lb)	0	2	2	2	2	2	2	2	2	2
AFR	10.8	10.8	11.2	11.9	12.4	12.5	13.4	13.9	15.3	16.0
AFL	10.7	11.7	12.1	12.7	13.2	13.3	13.9	14.3	15.2	15.8
K airflow (lbs/hr)	1752	1890	1864	1877	1867	1848	1866	1871	1767	1864
A/F	10.2	11.9	12.2	12.6	13.0	13.0	14.1	14.6	14.7	16.2

TABLE A-130. MO8 ENGINE DATA, 85% POWER

Test	T2-42	T2-42	T2-42	T2-42	T2-42	T2-25	T2-25	T2-25	T2-25	T2-25
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.14	30.1	30.1	30.1	30.1	30.1
Fuel	MO8	MO8	MO8	MO8	MO8	MO8	MO8	MO8	MO8	MO8
Test Points	AP	AO	AN	AM	AL	Z	AA**	AB	AC	AD
MAP (in. Hg)	27.44	27.46	27.46	27.46	27.46	27.36	27.38	27.37	27.37	27.39
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	475	479	479	482	483	485	479	468	454	437
BHP	236	238	238	239	239	241	238	232	225	217
TCBHP	246	248	248	250	250	251	249	242	236	227
LCBHP	244	246	246	248	248	248	245	239	232	223
BMEP (psig)	108.3	109.3	109.2	109.9	110.3	111.0	109.7	107.2	103.4	99.5
FF (lbs/hr)	147.1	141.9	135.4	129.5	123.7	117.0	109.7	103.0	100.3	96.3
FFG (gal/hr)	22.9	22.1	21.1	20.1	19.2	18.5	17.3	16.3	15.9	15.2
% Relative FF	25.0	20.5	15.1	10.1	5.1	-0.6	-6.8	-12.5	-14.8	-18.2
BSFC (lbs/hp hr)	0.62	0.60	0.57	0.54	0.52	0.49	0.46	0.44	0.45	0.45
TCBSFC (lbs/hp hr)	0.60	0.57	0.55	0.52	0.50	0.47	0.44	0.42	0.43	0.43
LCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.52	0.50	0.47	0.45	0.43	0.43	0.43
IAT (°F)	104.00	104	104	104	103	104.00	106	103	105	104
IAP (in. Hg)	30.10	30.11	30.12	30.11	30.11	30.33	30.33	30.32	30.32	30.33
Cowl T (°F)	100.09	100	100	101	107	106.00	106	107	107	108
Cowl P (in H_2O)	2.0	2.8	2.1	2.6	3.0	3.2	4.2	2.8	2.9	1.6
Fuel T (°F)	73	75	76	77	77	100	102	102	103	102
Fuel Dens (lbs/gal)	6.44	6.44	6.43	6.43	6.43	6.33	6.33	6.32	6.32	6.32
MTDP (psig)	7.0	6.6	5.9	5.5	5.0	4.6	4.1	3.6	3.4	3.1
Pump P (psig)	20.0	20.0	20.0	20.0	20.0	19.7	19.7	19.7	19.8	19.8
CHT1 (°F)	462	464	467	461	466	459	461	462	459	454
CHT2 (°F)	438	439	442	441	444	448	450	453	451	449
CHT3 (°F)	448	448	449	449	451	458	459	462	459	455
CHT4 (°F)	436	438	440	440	444	440	441	447	446	446
CHT5 (°F)	473	474	474	474	474	476	478	479	476	471
CHT6 (°F)	455	455	459	459	459	462	463	466	460	455
EGT1 (°F)	1374	1396	1428	1459	1489	1527	1567	1609	1599	1573
EGT2 (°F)	1357	1378	1411	1438	1470	1501	1537	1584	1581	1557
EGT3 (°F)	1395	1419	1455	1483	1514	1549	1586	1635	1628	1600
EGT4 (°F)	1360	1382	1415	1442	1473	1508	1547	1599	1609	1589
EGT5 (°F)	1395	1418	1453	1480	1512	1540	1575	1618	1602	1571
EGT6 (°F)	1384	1408	1441	1469	1504	1532	1570	1614	1597	1565
Oil T (°F)	238	238	238	237	239	236	236	235	241	236
Oil P (psig)	62	62	62	62	62	62	61	62	62	62
Hum T (°F)	105	105	105	105	105	105	104	103	103	103
Hum ratio (gr/lb)	1	0	0	0	0	2	2	2	2	2
AFR	10.9	11.2	11.7	12.1	12.6	13.2	14.0	14.8	15.4	16.2
AFL	10.8	11.2	11.7	12.1	12.6	13.8	14.4	14.9	15.4	15.8
K airflow (lbs/hr)	1477	1487	1482	1476	1472	1583	1514	1569	1515	1560
A/F	10.0	10.5	10.9	11.4	11.9	13.5	13.8	15.2	15.1	16.2

TABLE A-131. MO8 ENGINE DATA, 75% POWER (1 of 2)

Test	T2-42	T2-42	T2-42	T2-42	T2-27	T2-42	T2-42
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.15	30.14	30.14
Fuel	MO8	MO8	MO8	MO8	MO8	MO8	MO8
Test Points	AV	AU	AT	AS	AF	AR	AQ
MAP (in. Hg)	26.08	26.09	26.10	26.09	25.93	26.09	26.10
rpm	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	438	444	445	447	451	449	449
BHP	205	207	208	209	211	210	210
TCBHP	214	217	217	218	220	219	219
LCBHP	212	215	215	216	218	217	217
BMEP (psig)	100.6	101.5	101.9	101.9	103.2	102.5	102.7
FF (lbs/hr)	134.5	129.9	124.6	119.6	115.0	114.6	109.2
FFG (gal/hr)	20.9	20.1	19.4	18.6	18.11	17.8	17.0
% Relative FF	29.5	25.0	19.9	15.1	10.7	10.3	5.1
BSFC (lbs/hp hr)	0.66	0.63	0.60	0.57	0.55	0.55	0.52
TCBSFC (lbs/hp hr)	0.63	0.60	0.58	0.55	0.52	0.52	0.50
LCBSFC (lbs/hp hr)	0.63	0.61	0.58	0.55	0.53	0.53	0.50
IAT (°F)	104	104	103	103	102	104	104
IAP (in. Hg)	30.12	30.12	30.11	30.10	30.15	30.11	30.11
Cowl T (°F)	103	101	100	98	102	101	104
Cowl P (in H_2O)	1.6	1.7	2.3	1.8	2.2	2.2	2.6
Fuel T (°F)	73	74	75	76	99	77	77
Fuel Dens (lbs/gal)	6.45	6.44	6.44	6.44	6.34	6.43	6.43
MTDP (psig)	5.8	5.5	5.1	4.7	4.5	4.3	4.0
Pump P (psig)	19.9	19.9	19.9	19.9	19.0	19.9	19.9
CHT1 (°F)	465	467	472	472	456	470	458
CHT2 (°F)	440	437	442	442	449	442	444
CHT3 (°F)	444	442	447	447	455	446	449
CHT4 (°F)	436	435	440	440	445	440	442
CHT5 (°F)	474	474	476	474	474	475	475
CHT6 (°F)	452	452	457	458	471	458	461
EGT1 (°F)	1316	1339	1366	1393	1419	1422	1458
EGT2 (°F)	1312	1336	1364	1390	1404	1415	1445
EGT3 (°F)	1337	1361	1389	1416	1435	1444	1476
EGT4 (°F)	1317	1339	1366	1391	1413	1418	1450
EGT5 (°F)	1336	1360	1388	1416	1434	1443	1475
EGT6 (°F)	1340	1363	1390	1416	1442	1442	1475
Oil T (°F)	242	241	241	241	239	240	241
Oil P (psig)	60	60	60	60	59	60	60
Hum T (°F)	105	105	105	105	102	105	105
Hum ratio (gr/lb)	1	1	1	1	1	1	1
AFR	10.6	10.9	11.3	11.7	11.9	12.1	12.6
AFL	10.4	10.8	11.2	11.6	12.9	12.0	12.6
K airflow (lbs/hr)	1285	1283	1284	1285	1375	1282	1275
A/F	9.6	9.9	10.3	10.7	12.0	11.2	11.7

TABLE A-132. MO8 ENGINE DATA, 75% POWER (2 of 2)

Test	T2-27	T2-27	T2-25	T2-25	T2-25	T2-25	T2-25
Barometer (in. Hg)	30.15	30.15	30.1	30.10	30.10	30.10	30.10
Fuel	MO8	MO8	MO8	MO8	MO8	MO8	MO8
Test Points	AE	AD	AM**	AN	AO	AP	AQ
MAP (in. Hg)	25.95	25.95	26.09	26.18	26.17	26.15	26.18
rpm	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	453	452	453	453	447	430	403
BHP	211	211	212	212	209	201	188
TCBHP	221	221	222	221	219	210	197
LCBHP	219	219	218	218	215	207	194
BMEP (psig)	103.5	103.4	103.4	103.5	102.1	98.6	91.7
FF (lbs/hr)	109.1	103.7	103.7	98.7	93.8	88.4	83.1
FFG (gal/hr)	17.2	16.3	16.4	15.6	14.9	14.0	13.2
% Relative FF	5.0	-0.2	-0.2	-5.0	-9.7	-14.9	-20.0
BSFC (lbs/hp hr)	0.52	0.49	0.49	0.46	0.45	0.44	0.44
TCBSFC (lbs/hp hr)	0.49	0.47	0.47	0.44	0.43	0.42	0.42
LCBSFC (lbs/hp hr)	0.50	0.48	0.47	0.45	0.44	0.43	0.43
IAT (°F)	104	103	107	104	107	104	106
IAP (in. Hg)	30.14	30.15	30.32	30.34	30.32	30.34	30.33
Cowl T (°F)	107	109	108	107	109	110	111
Cowl P (in H_2O)	2.5	2.9	2.6	3.2	2.9	2.8	2.4
Fuel T (°F)	99	99	103	104	105	105	106
Fuel Dens (lbs/gal)	6.34	6.34	6.32	6.32	6.32	6.31	6.31
MTDP (psig)	4.1	3.6	3.6	3.3	3.0	2.7	2.4
Pump P (psig)	19.1	19.1	19.6	19.6	19.6	19.6	19.6
CHT1 (°F)	458	457	453	455	456	452	451
CHT2 (°F)	450	450	448	447	448	448	452
CHT3 (°F)	456	457	454	455	457	456	457
CHT4 (°F)	446	446	440	440	442	443	448
CHT5 (°F)	474	475	475	475	477	474	475
CHT6 (°F)	472	469	463	463	461	455	451
EGT1 (°F)	1456	1490	1490	1526	1559	1572	1535
EGT2 (°F)	1438	1471	1473	1509	1544	1562	1528
EGT3 (°F)	1470	1504	1505	1544	1582	1605	1567
EGT4 (°F)	1449	1481	1482	1519	1556	1585	1549
EGT5 (°F)	1469	1500	1501	1537	1572	1577	1539
EGT6 (°F)	1475	1506	1506	1544	1577	1564	1526
Oil T (°F)	240	240	239	237	240	239	237
Oil P (psig)	59	59	60	60	60	60	61
Hum T (°F)	102	103	105	104	105	104	105
Hum ratio (gr/lb)	1	1	2	2	2	2	2
AFR	12.5	13.2	13.1	13.9	14.5	15.5	16.7
AFL	13.4	13.8	13.7	14.3	14.7	15.2	16.0
K airflow (lbs/hr)	1341	1367	1341	1389	1370	1374	1377
A/F	12.3	13.2	12.9	14.1	14.6	15.5	16.6

TABLE A-133. MO8 ENGINE DATA, 65% POWER (1 of 2)

Test	T2-42	T2-42	T2-42	T2-42	T2-42	T2-42
Barometer (in. Hg)	30.14	30.14	30.14	30.14	30.14	30.14
Fuel	MO8	MO8	MO8	MO8	MO8	MO8
Test Points	BB	BA	AZ	AY	AX	AW
MAP (in. Hg)	24.34	24.35	24.37	24.36	24.36	24.36
rpm	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	400	401	404	406	405	407
BHP	179	180	181	182	181	182
TCBHP	187	188	189	190	189	190
LCBHP	186	186	187	188	188	189
BMEP (psig)	91.3	91.6	92.2	92.7	93.0	93.0
FF (lbs/hr)	116.7	114.1	109.9	105.5	100.4	95.8
FFG (gal/hr)	18.1	17.7	17.1	16.4	15.6	14.9
% Relative FF	27.9	25.0	20.4	15.6	9.9	4.9
BSFC (lbs/hp hr)	0.65	0.63	0.61	0.58	0.55	0.53
TCBSFC (lbs/hp hr)	0.63	0.61	0.58	0.55	0.53	0.50
LCBSFC (lbs/hp hr)	0.63	0.61	0.59	0.56	0.53	0.51
IAT (°F)	103	104	103	103	103	103
IAP (in. Hg)	30.12	30.12	30.11	30.11	30.12	30.11
Cowl T (°F)	99	102	104	105	106	108
Cowl P (in H_2O)	1.7	1.2	1.6	1.9	2.0	2.2
Fuel T (°F)	75	75	76	76	77	77
Fuel Dens (lbs/gal)	6.44	6.44	6.44	6.44	6.43	6.43
MTDP (psig)	4.4	4.3	4.0	3.7	3.3	3.0
Pump P (psig)	19.8	19.8	19.8	19.9	19.9	19.9
CHT1 (°F)	460	457	461	462	465	464
CHT2 (°F)	443	439	441	441	444	443
CHT3 (°F)	446	443	445	446	448	447
CHT4 (°F)	437	433	436	437	441	440
CHT5 (°F)	475	470	472	472	474	474
CHT6 (°F)	455	452	456	456	459	458
EGT1 (°F)	1317	1328	1354	1378	1414	1442
EGT2 (°F)	1315	1326	1350	1375	1410	1441
EGT3 (°F)	1339	1350	1376	1403	1440	1467
EGT4 (°F)	1317	1329	1351	1377	1411	1440
EGT5 (°F)	1334	1344	1369	1397	1434	1463
EGT6 (°F)	1347	1358	1380	1407	1440	1470
Oil T (°F)	242	241	242	242	242	242
Oil P (psig)	58	59	58	59	58	59
Hum T (°F)	104	104	104	104	104	104
Hum ratio (gr/lb)	1	1	1	1	1	1
AFR	10.8	10.9	11.3	11.7	12.2	12.8
AFL	10.6	10.8	11.1	11.6	12.1	12.6
K airflow (lbs/hr)	1119	1117	1122	1123	1121	1124
A/F	9.6	9.8	10.2	10.7	11.2	11.7

TABLE A-134. MO8 ENGINE DATA, 65% POWER (2 of 2)

Test	T2-25	T2-25	T2-25	T2-25	T2-25
Barometer (in. Hg)	30.10	30.10	30.10	30.10	30.10
Fuel	MO8	MO8	MO8	MO8	MO8
Test Points	BB	BC	BD**	BE	BF
MAP (in. Hg)	24.27	24.27	24.28	24.27	24.22
rpm	2350	2350	2350	2350	2350
TORK (ft-lbs)	410	407	402	387	364
BHP	184	182	180	173	163
TCBHP	192	191	188	181	171
LCBHP	189	188	185	178	168
BMEP (psig)	93.6	93.0	91.9	88.4	83.4
FF (lbs/hr)	90.7	86.6	82.3	77.5	73.1
FFG (gal/hr)	14.4	13.7	13.0	12.3	11.6
% Relative FF	-0.6	-5.1	-9.9	-15.1	-19.9
BSFC (lbs/hp hr)	0.49	0.48	0.46	0.45	0.45
TCBSFC (lbs/hp hr)	0.47	0.46	0.44	0.43	0.43
LCBSFC (lbs/hp hr)	0.48	0.46	0.44	0.43	0.43
IAT (°F)	104	106	103	103	104
IAP (in. Hg)	30.34	30.33	30.35	30.35	30.33
Cowl T (°F)	111	112	112	112	114
Cowl P (in H_2O)	2.2	2.4	2.6	2.4	2.1
Fuel T (°F)	104	105	106	106	107
Fuel Dens (lbs/gal)	6.32	6.31	6.31	6.31	6.31
MTDP (psig)	2.8	2.6	2.3	2.1	1.8
Pump P (psig)	19.6	19.6	19.6	19.6	19.6
CHT1 (°F)	452	454	454	452	449
CHT2 (°F)	445	447	446	445	448
CHT3 (°F)	453	455	456	455	454
CHT4 (°F)	437	440	440	439	440
CHT5 (°F)	474	475	475	474	474
CHT6 (°F)	463	463	459	457	449
EGT1 (°F)	1480	1511	1550	1550	1533
EGT2 (°F)	1470	1502	1538	1546	1537
EGT3 (°F)	1497	1529	1567	1574	1560
EGT4 (°F)	1475	1509	1546	1554	1542
EGT5 (°F)	1490	1521	1556	1558	1546
EGT6 (°F)	1500	1532	1561	1547	1516
Oil T (°F)	237	237	238	236	236
Oil P (psig)	59	59	60	60	59
Hum T (°F)	104	104	103	103	103
Hum ratio (gr/lb)	2	2	2	2	2
AFR	13.2	13.8	14.6	15.5	16.5
AFL	13.8	14.2	14.7	15.3	15.9
K airflow (lbs/hr)	1223	1183	1227	1223	1222
A/F	13.5	13.6	14.9	15.8	16.7

TABLE A-135. MM1 ENGINE DATA, TO POWER (1 of 2)

Test	T2-37	T2-37	T2-37	T2-37	T2-37	T2-37	T2-37	T2-31
Barometer (in. Hg)	30.30	30.30	30.30	30.30	30.30	30.30	30.30	29.99
Fuel	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1
Test Points	G	F	H	E	D	C	A	A
MAP (in. Hg)	29.75	29.75	29.75	29.75	29.76	29.75	29.77	29.43
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	532	537	534	541	540	541	546	533
BHP	274	277	275	279	278	279	281	275
TCBHP	287	288	287	290	290	292	293	287
LCBHP	282	284	283	286	286	288	289	286
BMEP (psig)	121.7	122.7	121.8	123.8	123.5	123.6	124.7	121.9
FF (lbs/hr)	168.8	164.3	163.7	159.0	153.5	145.7	139.8	139.5
FFG (gal/hr)	28.3	27.5	27.4	26.6	25.7	24.4	23.4	23.5
% Relative FF	22.5	19.2	18.8	15.4	11.4	5.7	1.4	1.2
BSFC (lbs/hp hr)	0.61	0.59	0.60	0.57	0.56	0.52	0.50	0.51
TCBSFC (lbs/hp hr)	0.59	0.57	0.57	0.55	0.53	0.50	0.48	0.49
LCBSFC (lbs/hp hr)	0.60	0.58	0.58	0.56	0.54	0.51	0.48	0.49
IAT (°F)	104	102	102	101	102	105	102	106
IAP (in. Hg)	30.31	30.31	30.32	30.31	30.31	30.30	30.31	30.00
Cowl T (°F)	103	101	104	99	101	101	103	103
Cowl P (in H_2O)	2.4	2.8	1.6	3.2	4.5	3.6	4.0	2.4
Fuel T (°F)	83	83	83	83	84	84	82	89
Fuel Dens (lbs/gal)	5.97	5.97	5.97	5.97	5.97	5.97	5.98	5.95
MTDP (psig)	9.5	9.1	9.6	8.5	8.2	7.6	7.2	6.9
Pump P (psig)	20.0	20.0	19.9	20.0	20.1	20.1	20.1	19.7
CHT1 (°F)	456	458	458	460	463	465	460	465
CHT2 (°F)	436	436	436	439	438	440	440	446
CHT3 (°F)	450	451	450	453	454	455	453	457
CHT4 (°F)	438	440	438	443	444	444	442	445
CHT5 (°F)	474	475	474	477	477	478	477	476
CHT6 (°F)	464	465	463	467	468	469	466	471
EGT1 (°F)	1372	1393	1369	1420	1433	1454	1479	1472
EGT2 (°F)	1351	1370	1351	1396	1409	1429	1452	1449
EGT3 (°F)	1383	1402	1380	1430	1442	1467	1490	1488
EGT4 (°F)	1362	1382	1361	1409	1421	1443	1465	1464
EGT5 (°F)	1388	1408	1388	1435	1448	1469	1496	1488
EGT6 (°F)	1376	1396	1375	1424	1438	1460	1483	1477
Oil T (°F)	241	241	241	241	238	241	244	240
Oil P (psig)	63	63	63	63	63	63	63	63
Hum T (°F)	104	103	104	104	105	105	105	106
Hum ratio (gr/lb)	0	1	0	0	0	0	0	2
AFR	10.4	10.7	10.3	11.1	11.2	11.6	11.9	12.0
AFL	10.3	10.6	10.2	11.0	11.2	11.5	11.9	12.0
K airflow (lbs/hr)	1781	1776	1836	1792	1786	1677	1705	1740
A/F	10.6	10.9	11.2	11.3	11.7	11.6	12.3	12.5

TABLE A-136. MM1 ENGINE DATA, TO POWER (2 of 2)

Test	T2-31	T2-38	T2-37	T2-38	T2-38	T2-31	T2-31	T2-31
Barometer (in. Hg)	29.99	30.1	30.3	30.1	30.1	29.99	29.99	29.99
Fuel	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1
Test Points	B	A	B	B**	C	C	E	D
MAP (in. Hg)	29.44	29.56	29.77	29.55	29.55	29.44	29.45	29.44
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	537	540	549	538	538	535	520	529
BHP	277	278	282	277	277	275	268	272
TCBHP	289	291	295	289	290	287	279	284
LCBHP	287	288	290	287	287	286	278	282
BMEP (psig)	122.7	123.3	125.2	123.1	123.2	122.1	118.5	121.0
FF (lbs/hr)	135.4	135.3	131.3	125.3	124.5	123.3	121.0	118.7
FFG (gal/hr)	22.8	22.6	22.0	20.9	20.8	20.8	20.4	20.0
% Relative FF	-1.7	-1.9	-4.8	-9.1	-9.7	-10.5	-12.2	-13.9
BSFC (lbs/hp hr)	0.49	0.49	0.47	0.46	0.45	0.45	0.45	0.44
TCBSFC (lbs/hp hr)	0.47	0.47	0.45	0.44	0.43	0.43	0.44	0.42
LCBSFC (lbs/hp hr)	0.47	0.47	0.45	0.44	0.44	0.43	0.44	0.42
IAT (°F)	102	104	102	104	104	102	102	102
IAP (in. Hg)	30.00	30.10	30.31	30.10	30.09	30.01	30.02	30.01
Cowl T (°F)	104	99	103	104	102	106	105	107
Cowl P (in H_2O)	4.3	4.0	4.4	3.4	2.7	5.2	5.6	4.7
Fuel T (°F)	90	79	83	82	82	91	92	92
Fuel Dens (lbs/gal)	5.95	5.99	5.98	5.98	5.98	5.94	5.94	5.94
MTDP (psig)	6.3	6.4	6.3	5.7	5.6	5.4	4.8	5.0
Pump P (psig)	19.7	20.0	20.1	20.0	20.1	19.7	19.7	19.7
CHT1 (°F)	465	456	461	455	456	465	464	465
CHT2 (°F)	448	436	439	434	434	448	447	448
CHT3 (°F)	458	451	453	450	450	457	456	457
CHT4 (°F)	447	440	444	440	439	447	450	448
CHT5 (°F)	477	476	477	474	475	477	476	477
CHT6 (°F)	472	459	467	459	460	471	465	469
EGT1 (°F)	1511	1512	1530	1560	1560	1564	1624	1595
EGT2 (°F)	1486	1485	1501	1528	1528	1538	1597	1568
EGT3 (°F)	1528	1526	1543	1572	1572	1583	1648	1615
EGT4 (°F)	1502	1501	1516	1546	1543	1553	1620	1584
EGT5 (°F)	1526	1530	1546	1578	1579	1582	1630	1614
EGT6 (°F)	1515	1521	1536	1567	1566	1571	1626	1605
Oil T (°F)	241	239	243	240	243	240	236	240
Oil P (psig)	63	65	63	64	64	62	63	62
Hum T (°F)	105	107	105	108	107	103	101	104
Hum ratio (gr/lb)	2	0	0	0	0	1	2	1
AFR	12.6	12.5	12.8	13.4	13.3	13.7	14.9	14.3
AFL	12.6	12.5	12.8	13.4	13.5	13.7	14.9	14.4
K airflow (lbs/hr)	1817	1548	1728	1641	1640	1773	1788	1836
A/F	13.4	11.5	13.2	13.2	13.2	14.4	14.8	15.5

TABLE A-137. MM1 ENGINE DATA, 85% POWER

Test	T2-37	T2-37	T2-37	T2-37	T2-37	T2-31	T2-31	T2-31	T2-31	T2-31	T2-31
Barometer (in. Hg)	30.30	30.30	30.30	30.30	30.30	29.99	29.99	29.99	29.99	29.99	29.99
Fuel	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1
Test Points	M	L	K	J	I	F	G	H	I	J	K**
MAP (in. Hg)	27.06	27.05	27.03	27.06	27.05	26.97	27.02	27.03	27.03	27.02	27.01
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	466	469	472	474	475	473	473	472	465	451	426
BHP	231	232	234	235	236	235	235	234	231	224	211
TCBHP	241	243	244	245	246	244	245	244	241	233	221
LCBHP	238	239	241	241	243	243	243	243	239	232	220
BMEP (psig)	106.5	107.1	108.0	108.5	108.6	108.0	108.2	107.8	106.4	102.8	97.0
FF (lbs/hr)	140.8	135.4	129.7	123.6	118.0	116.9	110.9	105.6	100.1	94.6	89.0
FFG (gal/hr)	23.6	22.7	21.7	20.7	19.8	19.7	18.7	17.8	16.9	16.0	15.0
% Relative FF	19.7	15.0	10.2	5.0	0.3	-0.7	-5.8	-10.3	-15.0	-19.7	-24.4
BSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.50	0.50	0.47	0.45	0.43	0.42	0.42
TCBSFC (lbs/hp hr)	0.59	0.56	0.53	0.51	0.48	0.48	0.45	0.43	0.42	0.41	0.40
LCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.51	0.49	0.48	0.45	0.44	0.42	0.41	0.41
IAT (°F)	102	104	101	102	104	100	102	101	103	103	104
IAP (in. Hg)	30.32	30.30	30.29	30.31	30.28	29.99	30.01	30.00	30.01	30.02	30.01
Cowl T (°F)	104	105	104	104	105	100	99	104	104	106	105
Cowl P (in H_2O)	1.8	2.0	2.8	2.7	2.7	2.7	2.6	3.1	2.9	3.2	2.4
Fuel T (°F)	85	85	85	85	84	91	92	93	94	94	94
Fuel Dens (lbs/gal)	6.00	6.00	6.00	6.00	6.00	5.94	5.94	5.93	5.93	5.93	5.93
MTDP (psig)	6.9	6.4	5.9	5.4	4.9	4.8	4.4	4.0	3.6	3.3	2.9
Pump P (psig)	19.8	19.8	19.9	19.9	19.9	19.6	19.5	19.5	19.5	19.5	19.5
CHT1 (°F)	450	452	456	455	456	459	461	459	459	455	453
CHT2 (°F)	439	442	442	442	442	449	448	447	448	446	448
CHT3 (°F)	449	450	452	451	454	456	455	455	455	452	452
CHT4 (°F)	435	437	440	440	440	444	442	443	444	442	445
CHT5 (°F)	473	474	475	475	476	476	477	474	474	477	476
CHT6 (°F)	458	459	463	462	462	464	462	462	461	459	456
EGT1 (°F)	1336	1362	1394	1428	1456	1462	1497	1532	1571	1587	1559
EGT2 (°F)	1317	1343	1372	1406	1432	1437	1471	1504	1543	1566	1543
EGT3 (°F)	1354	1382	1412	1448	1473	1483	1518	1550	1589	1611	1583
EGT4 (°F)	1325	1349	1379	1413	1439	1448	1483	1516	1557	1591	1576
EGT5 (°F)	1354	1382	1413	1448	1474	1476	1511	1544	1584	1590	1564
EGT6 (°F)	1348	1376	1406	1442	1470	1473	1508	1540	1581	1586	1562
Oil T (°F)	241	241	241	241	239	239	240	240	239	239	239
Oil P (psig)	62	62	62	62	62	61	61	62	62	62	62
Hum T (°F)	104	103	103	103	103	101	101	101	102	103	103
Hum ratio (gr/lb)	1	1	1	1	1	2	2	1	1	1	2
AFR	10.4	10.8	11.3	11.7	12.2	12.3	13.0	13.7	14.4	15.1	16.1
AFL	10.4	10.8	11.2	11.7	12.1	12.3	13.0	13.7	14.4	15.4	16.3
K airflow (lbs/hr)	1502	1454	1503	1496	1429	1497	1497	1486	1451	1487	1447
A/F	10.7	10.8	11.6	12.1	12.1	12.8	13.5	14.1	14.5	15.7	16.3

TABLE A-138. MM1 ENGINE DATA, 75% POWER

Test	T2-37	T2-37	T2-37	T2-37	T2-37	T2-37	T2-31	T2-31	T2-31	T2-31	T2-31	T2-31
Barometer (in. Hg)	30.30	30.30	30.30	30.30	30.30	30.30	29.99	29.99	29.99	29.99	29.99	29.99
Fuel	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1
Test Points	S	R	Q	P	O	N	L	M	N	O**	P	Q
MAP (in. Hg)	25.76	25.76	25.73	25.75	25.74	25.74	25.71	25.71	25.71	25.70	25.71	25.69
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	432	433	436	440	442	444	442	442	440	434	421	392
BHP	202	203	204	205	207	208	207	206	206	203	197	183
TCBHP	211	211	213	215	216	217	216	215	215	212	205	191
LCBHP	208	208	210	212	213	214	214	214	214	211	204	190
BMEP (psig)	98.7	99.2	99.9	100.5	101.0	101.6	101.2	101.0	100.5	99.3	96.3	89.8
FF (lbs/hr)	128.1	124.8	119.6	114.1	108.9	104.0	103.2	98.7	93.5	88.5	83.2	77.8
FFG (gal/hr)	21.5	20.9	20.1	19.2	18.3	17.5	17.4	16.7	15.8	14.9	14.0	13.1
% Relative FF	23.3	20.1	15.1	9.9	4.8	0.1	-0.7	-5.0	-10.0	-14.9	-20.0	-25.1
BSFC (lbs/hp hr)	0.64	0.62	0.59	0.56	0.53	0.50	0.50	0.48	0.45	0.44	0.42	0.43
TCBSFC (lbs/hp hr)	0.61	0.59	0.56	0.53	0.51	0.48	0.48	0.46	0.44	0.42	0.40	0.41
LCBSFC (lbs/hp hr)	0.62	0.60	0.57	0.54	0.51	0.49	0.48	0.46	0.44	0.42	0.41	0.41
IAT (°F)	102	103	103	104	103	102	103	103	103	104	103	103
IAP (in. Hg)	30.30	30.30	30.31	30.31	30.29	30.32	30.00	30.01	30.00	30.00	30.01	30.01
Cowl T (°F)	103	104	104	104	103	102	104	103	100	101	102	105
Cowl P (in H_2O)	1.4	1.6	1.8	2.2	2.1	2.3	2.5	2.4	2.2	2.4	2.5	1.9
Fuel T (°F)	86	86	86	87	87	87	92	94	94	95	96	96
Fuel Dens (lbs/gal)	6.0	6.0	6.0	6.0	6.0	6.0	5.93	5.93	5.93	5.93	5.92	5.92
MTDP (psig)	5.7	5.5	5.1	4.6	4.3	3.9	3.8	3.5	3.2	2.9	2.6	2.2
Pump P (psig)	19.6	19.6	19.6	19.6	19.7	19.7	19.3	19.3	19.3	19.3	19.3	19.3
CHT1 (°F)	446	447	449	451	452	453	447	456	455	454	453	453
CHT2 (°F)	437	439	441	443	443	445	443	452	450	450	451	450
CHT3 (°F)	444	446	448	450	450	451	445	453	452	453	454	451
CHT4 (°F)	434	436	438	440	441	442	434	442	441	442	446	446
CHT5 (°F)	473	474	475	476	476	477	476	476	475	475	476	473
CHT6 (°F)	457	460	462	464	465	466	457	465	463	462	458	454
EGT1 (°F)	1292	1308	1336	1370	1400	1434	1423	1456	1497	1539	1563	1526
EGT2 (°F)	1281	1296	1322	1355	1384	1418	1410	1441	1479	1520	1551	1521
EGT3 (°F)	1307	1323	1351	1383	1413	1448	1439	1473	1511	1552	1590	1555
EGT4 (°F)	1290	1305	1331	1364	1393	1427	1422	1455	1493	1535	1574	1546
EGT5 (°F)	1305	1321	1349	1383	1412	1447	1438	1470	1509	1550	1567	1529
EGT6 (°F)	1313	1328	1354	1388	1417	1451	1442	1474	1513	1552	1557	1524
Oil T (°F)	241	241	241	241	240	241	239	241	240	239	240	241
Oil P (psig)	60	60	60	60	60	60	60	60	60	60	60	60
Hum T (°F)	103	103	103	103	103	103	103	103	103	103	103	103
Hum ratio (gr/lb)	1	1	1	1	1	1	1	2	1	2	1	1
AFR	10.2	10.4	10.8	11.3	11.8	12.3	12.4	12.9	13.6	14.3	15.1	16.4
AFL	10.0	10.2	10.7	11.2	11.7	12.2	12.3	12.8	13.6	14.3	15.2	16.5
K airflow (lbs/hr)	1299	1298	1297	1274	1264	1289	1288	1297	1279	1266	1286	1275
A/F	10.1	10.4	10.9	11.2	11.6	12.4	12.5	13.2	13.7	14.3	15.5	16.4

TABLE A-139. MM1 ENGINE DATA, 65% POWER

Test	T2-37	T2-37	T2-37	T2-37	T2-37	T2-31	T2-37	T2-31	T2-31	T2-31	T2-31	T2-31
Barometer (in. Hg)	30.3	30.3	30.3	30.3	30.3	29.99	30.3	29.99	29.99	29.99	29.99	29.99
Fuel	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1	MM1
Test Points	Y	X	W	V	U	R	T	S	T	U**	V	W
MAP (in. Hg)	24.14	24.11	24.11	24.13	24.12	24.00	24.15	24.02	24.04	24.03	24.00	24.01
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	395	397	398	400	403	399	406	398	398	392	374	351
BHP	177	178	178	180	181	179	182	179	178	176	168	158
TCBHP	185	186	186	187	189	187	190	187	186	184	176	165
LCBHP	182	183	184	185	186	186	187	186	185	183	175	164
BMEP (psig)	90.1	90.6	91.0	91.4	91.9	91.2	92.6	90.9	90.8	89.6	85.6	80.5
FF (lbs/hr)	112.1	108.9	105.6	100.6	95.7	90.3	89.9	86.7	82.3	77.5	73.1	68.8
FFG (gal/hr)	18.8	18.3	17.7	16.9	16.1	15.2	15.1	14.6	13.9	13.1	12.4	11.6
% Relative FF	22.8	19.3	15.7	10.2	4.8	-1.1	-1.5	-5.0	-9.9	-15.1	-20.0	-24.6
BSFC (lbs/hp hr)	0.63	0.61	0.59	0.56	0.53	0.51	0.50	0.49	0.46	0.44	0.43	0.44
TCBSFC (lbs/hp hr)	0.61	0.59	0.57	0.54	0.51	0.49	0.48	0.47	0.44	0.42	0.42	0.42
LCBSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.51	0.49	0.48	0.47	0.45	0.43	0.42	0.42
IAT (°F)	103	102	102	104	103	103	102	103	103	103	104	103
IAP (in. Hg)	30.30	30.30	30.33	30.33	30.30	30.00	30.32	30.00	30.01	30.01	30.01	30.01
Cowl T (°F)	102	102	101	100	100	104	101	104	103	102	102	103
Cowl P (in H_2O)	1.2	1.2	1.6	1.8	1.7	1.9	1.9	1.9	2.0	1.9	2.3	1.7
Fuel T (°F)	86	87	87	88	88	94	88	94	95	96	97	96
Fuel Dens (lbs/gal)	6.00	6.00	6.00	6.00	6.00	5.93	6.00	5.93	5.93	5.92	5.92	5.92
MTDP (psig)	4.4	4.2	4.0	3.6	3.3	2.9	2.9	2.7	2.5	2.2	2.0	1.7
Pump P (psig)	19.5	19.5	19.5	19.5	19.5	19.2	19.5	19.2	19.2	19.2	19.2	19.2
CHT1 (°F)	446	446	449	452	453	454	451	456	452	453	451	448
CHT2 (°F)	440	440	443	444	444	450	444	450	446	448	448	446
CHT3 (°F)	446	445	448	450	450	453	449	454	451	452	450	448
CHT4 (°F)	434	434	436	438	439	441	440	441	439	441	442	439
CHT5 (°F)	474	473	475	476	476	477	476	478	474	476	475	474
CHT6 (°F)	460	459	462	463	464	463	463	464	460	459	454	453
EGT1 (°F)	1290	1309	1326	1359	1393	1428	1429	1448	1488	1532	1534	1494
EGT2 (°F)	1284	1301	1319	1351	1384	1415	1420	1437	1474	1518	1536	1496
EGT3 (°F)	1305	1323	1343	1375	1409	1441	1446	1462	1498	1550	1555	1513
EGT4 (°F)	1290	1306	1323	1356	1389	1424	1427	1444	1485	1536	1549	1506
EGT5 (°F)	1300	1316	1334	1370	1404	1434	1442	1454	1489	1536	1543	1504
EGT6 (°F)	1314	1328	1348	1381	1413	1447	1451	1468	1501	1542	1523	1487
Oil T (°F)	241	241	241	241	241	241	241	241	241	240	240	240
Oil P (psig)	59	59	59	59	59	59	59	59	59	59	59	59
Hum T (°F)	102	102	103	103	102	103	103	103	103	103	103	103
Hum ratio (gr/lb)	1	1	1	1	1	2	1	2	1	1	1	1
AFR	10.3	10.6	10.9	11.4	11.8	12.5	12.6	12.9	13.7	14.5	15.3	16.5
AFL	10.1	10.4	10.7	11.2	11.7	12.3	12.4	12.8	13.6	14.5	15.4	16.5
K airflow (lbs/hr)	1120	1150	1146	1140	1114	1137	1146	1125	1132	1131	1111	1139
A/F	10.0	10.6	10.9	11.4	11.7	12.6	12.8	13.0	13.8	14.6	15.3	16.7

TABLE A-140. MM2 ENGINE DATA, TO POWER

Test	T2-36	T2-36	T2-36	T2-36	T2-31	T2-36	T2-31	T2-31	T2-36	T2-38	T2-36	T2-31
Barometer (in. Hg)	30.28	30.28	30.28	30.28	29.99	30.28	29.99	29.99	30.28	30.1	30.28	29.99
Fuel	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2
Test Points	AB	AC	AD	AE	Z	AF	AA	X**	AA	D	Z	Y
MAP (in. Hg)	29.63	29.62	29.62	29.62	29.35	29.64	29.36	29.36	29.63	29.54	29.64	29.35
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	531	535	536	540	533	540	532	535	537	544	544	537
BHP	273	276	276	278	275	278	274	275	277	280	281	277
TCBHP	285	288	288	290	287	291	286	287	289	292	293	289
LCBHP	281	284	284	286	285	287	285	286	285	290	289	287
BMEP (psig)	121.3	122.2	122.7	123.3	122.0	123.5	121.6	122.3	122.8	123.7	124.3	122.9
FF (lbs/hr)	172.0	170.3	165.7	161.3	155.0	154.0	151.0	147.0	145.3	144.0	135.8	126.5
FFG (gal/hr)	27.7	27.5	26.7	26.0	25.2	24.8	24.5	23.8	23.5	23.1	21.9	20.5
% Relative FF	24.8	23.6	20.2	17.1	12.5	11.8	9.6	6.7	5.5	4.5	-1.5	-8.2
BSFC (lbs/hp hr)	0.63	0.62	0.60	0.58	0.57	0.56	0.55	0.53	0.52	0.51	0.49	0.46
TCBSFC (lbs/hp hr)	0.60	0.59	0.57	0.56	0.54	0.53	0.53	0.51	0.50	0.49	0.47	0.44
LCBSFC (lbs/hp hr)	0.61	0.60	0.58	0.56	0.55	0.54	0.53	0.51	0.51	0.50	0.47	0.44
IAT (°F)	103	104	102	102	103	103	103	103	104	102	102	103
IAP (in. Hg)	30.29	30.28	30.27	30.28	30.00	30.29	30.02	30.01	30.28	30.09	30.28	30.01
Cowl T (°F)	104	104	103	103	100	104	102	103	106	103	105	101
Cowl P (in H_2O)	2.5	4.2	3.2	3.7	3.6	3.5	2.3	3.1	2.6	2.8	6.2	5.8
Fuel T (°F)	85	86	86	86	93	86	92	93	86	81	86	93
Fuel Dens (lbs/gal)	6.20	6.20	6.20	6.20	6.17	6.20	6.17	6.17	6.19	6.22	6.20	6.17
MTDP (psig)	9.3	8.5	8.1	7.9	7.5	7.8	7.9	6.7	8.1	6.7	6.1	6.0
Pump P (psig)	19.1	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.9	19.3	19.3
CHT1 (°F)	458	461	460	461	463	459	463	462	458	451	460	458
CHT2 (°F)	436	441	437	441	440	437	438	440	439	429	437	435
CHT3 (°F)	450	453	451	451	454	451	453	455	451	445	453	448
CHT4 (°F)	439	442	441	442	442	441	441	441	442	433	441	436
CHT5 (°F)	474	476	475	475	476	475	473	475	474	474	481	478
CHT6 (°F)	466	469	468	467	468	466	466	466	466	457	467	464
EGT1 (°F)	1376	1410	1428	1435	1449	1441	1428	1483	1428	1497	1531	1524
EGT2 (°F)	1360	1391	1404	1416	1427	1421	1405	1462	1406	1468	1506	1498
EGT3 (°F)	1392	1424	1441	1452	1464	1454	1442	1501	1443	1503	1545	1540
EGT4 (°F)	1372	1403	1418	1430	1443	1435	1418	1478	1420	1481	1522	1515
EGT5 (°F)	1393	1428	1443	1454	1465	1458	1443	1503	1446	1506	1535	1538
EGT6 (°F)	1383	1418	1433	1445	1457	1451	1431	1489	1437	1496	1537	1527
Oil T (°F)	241	238	239	239	239	239	240	241	240	245	241	237
Oil P (psig)	63	63	63	63	62	64	62	62	63	63	63	62
Hum T (°F)	103	103	103	103	103	104	103	103	103	105	103	103
Hum ratio (gr/lb)	1	1	1	1	1	1	1	1	1	0	0	1
AFR	10.5	11.0	11.2	11.4	11.6	11.5	11.3	12.1	11.2	12.2	12.9	12.9
AFL	10.4	10.9	11.1	11.3	11.4	11.4	11.2	12.1	11.1	12.2	12.9	12.9
K airflow (lbs/hr)	1837	1788	1831	1849	1793	1832	1816	1793	1766	1737	1807	1792
A/F	10.7	10.5	11.0	11.5	11.6	11.9	12.1	12.2	12.2	12.1	13.3	14.2

TABLE A-141. MM2 ENGINE DATA, 85% POWER

Test	T2-36	T2-36	T2-36	T2-36	T2-31	T2-36	T2-31	T2-31	T2-36	T2-31
Barometer (in. Hg)	30.28	30.28	30.28	30.28	29.99	30.28	29.99	29.99	30.28	29.99
Fuel	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2
Test Points	AL	AK	AJ	AI	AE	AH	AD**	AB	AG	AC
MAP (in. Hg)	27.24	27.26	27.26	27.23	27.07	27.24	27.05	27.06	27.24	27.06
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	468	472	474	477	473	479	473	476	480	473
BHP	232	234	235	236	234	237	235	236	238	235
TCBHP	242	245	246	247	245	248	245	246	249	245
LCBHP	239	241	243	244	243	244	244	245	246	244
BMEP (psig)	107	108	108	109	107.9	109	108.3	108.7	110	108.1
FF (lbs/hr)	146.0	141.0	136.0	130.0	129.3	125.0	123.7	117.7	118.0	112.8
FFG (gal/hr)	23.6	22.8	22.0	21.0	21.0	20.1	20.0	19.1	19.1	18.3
% Relative FF	24.3	19.9	15.5	10.6	9.9	5.8	5.1	0.0	0.3	-4.2
BSFC (lbs/hp hr)	0.63	0.60	0.58	0.55	0.55	0.53	0.52	0.50	0.50	0.48
TCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53	0.53	0.50	0.50	0.48	0.48	0.46
LCBSFC (lbs/hp hr)	0.61	0.59	0.56	0.53	0.53	0.51	0.51	0.48	0.48	0.46
IAT (°F)	103	104	104	103	103	103	104	103	104	105
IAP (in. Hg)	30.28	30.30	30.27	30.27	30.01	30.28	30.01	30.00	30.28	30.01
Cowl T (°F)	101	102	102	103	100	103	99	99	104	99
Cowl P (in H_2O)	1.9	2.3	2.2	2.4	2.9	2.5	2.8	2.8	3.3	3.5
Fuel T (°F)	87	87	88	88	94	88	94	93	87	94
Fuel Dens (lbs/gal)	6.20	6.19	6.19	6.19	6.17	6.19	6.17	6.17	6.20	6.17
MTDP (psig)	7.0	7.0	6.0	6.0	5.6	5.0	5.1	4.6	5.0	4.3
Pump P (psig)	19.1	19.1	19.1	19.1	19.1	19.2	19.2	19.2	19.2	19.2
CHT1 (°F)	452	454	455	457	454	459	459	459	460	459
CHT2 (°F)	439	441	442	443	443	443	443	445	443	446
CHT3 (°F)	450	454	452	453	452	453	452	455	453	456
CHT4 (°F)	437	439	440	441	437	442	438	441	442	442
CHT5 (°F)	473	474	473	475	476	475	476	475	477	477
CHT6 (°F)	463	465	466	467	461	467	461	465	466	465
EGT1 (°F)	1337	1355	1380	1407	1409	1439	1443	1473	1475	1503
EGT2 (°F)	1320	1341	1364	1389	1387	1420	1422	1451	1456	1483
EGT3 (°F)	1354	1375	1402	1431	1427	1460	1462	1492	1497	1524
EGT4 (°F)	1329	1350	1375	1401	1398	1432	1434	1464	1470	1497
EGT5 (°F)	1355	1379	1406	1432	1423	1461	1458	1489	1495	1517
EGT6 (°F)	1350	1370	1396	1424	1417	1454	1452	1481	1491	1512
Oil T (°F)	239	240	239	238	240	240	239	240	239	239
Oil P (psig)	62	62	62	62	61	62	61	61	62	61
Hum T (°F)	103	104	103	103	103	103	104	103	103	103
Hum ratio (gr/lb)	1	1	1	1	1	1	1	1	1	1
AFR	10.4	10.7	11.1	11.5	11.5	12.0	12.0	12.5	12.5	13.0
AFL	10.3	10.6	11.1	11.5	11.5	11.9	12.0	12.6	12.5	13.1
K airflow (lbs/hr)	1518	1508	1484	1513	1511	1512	1500	1482	1482	1442
A/F	10.4	10.7	10.9	11.6	11.7	12.2	12.1	12.6	12.5	12.8

TABLE A-142. MM2 ENGINE DATA, 75% POWER

Test	T2-36	T2-36	T2-36	T2-36	T2-31	T2-36	T2-31	T2-36	T2-36	T2-31	T2-31
Barometer (in. Hg)	30.28	30.28	30.28	30.28	29.99	30.28	29.99	30.28	30.28	29.99	29.99
Fuel	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2
Test Points	AS	AR	AQ	AP	AI	AO	AH**	AN	AM	AF	AG
MAP (in. Hg)	25.82	25.84	25.86	25.85	25.85	25.86	25.85	25.88	25.86	25.85	25.88
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	434	436	439	442	441	444	444	447	448	446	446
BHP	203	204	205	207	206	207	208	209	209	208	208
TCBHP	212	213	215	216	215	216	217	218	219	218	217
LCBHP	209	210	212	213	214	214	216	215	216	216	216
BMEP (psig)	99	100	100	101	100.8	102	101.4	102	102	102.0	101.9
FF (lbs/hr)	132.0	130.0	125.0	120.0	115.0	114.0	109.1	109.0	105.0	103.6	99.1
FFG (gal/hr)	21.2	21.0	20.2	19.3	18.7	18.5	17.7	17.6	17.0	16.8	16.1
% Relative FF	26.7	25.1	20.5	15.1	10.7	10.1	5.0	4.7	1.2	-0.3	-4.6
BSFC (lbs/hp hr)	0.65	0.64	0.61	0.58	0.56	0.55	0.53	0.52	0.50	0.50	0.47
TCBSFC (lbs/hp hr)	0.62	0.61	0.59	0.55	0.54	0.53	0.50	0.50	0.48	0.48	0.45
LCBSFC (lbs/hp hr)	0.63	0.62	0.59	0.56	0.54	0.53	0.51	0.51	0.49	0.48	0.46
IAT (°F)	102	102	104	103	103	102	104	103	104	103	102
IAP (in. Hg)	30.28	30.29	30.29	30.28	30.02	30.27	30.01	30.30	30.27	30.00	30.01
Cowl T (°F)	102	102	103	104	103	104	103	104	103	100	101
Cowl P (in H_2O)	1.5	1.4	1.4	2.3	1.9	2.1	2.2	2.5	2.5	2.6	2.8
Fuel T (°F)	86	87	88	88	95	88	95	88	87	94	95
Fuel Dens (lbs/gal)	6.20	6.19	6.19	6.19	6.16	6.19	6.16	6.19	6.19	6.17	6.17
MTDP (psig)	6.0	6.0	5.0	5.0	4.4	4.0	4.0	4.0	4.0	3.6	3.3
Pump P (psig)	19.0	19.0	19.0	19.0	19.0	19.1	19.1	19.1	19.1	19.1	19.1
CHT1 (°F)	444	446	447	450	456	453	454	453	452	456	459
CHT2 (°F)	437	437	437	440	446	443	443	442	441	447	447
CHT3 (°F)	444	444	444	447	452	449	451	449	448	454	455
CHT4 (°F)	434	435	435	438	440	440	438	440	439	441	442
CHT5 (°F)	474	474	471	473	476	475	475	475	475	477	478
CHT6 (°F)	459	460	460	464	466	465	465	465	464	467	467
EGT1 (°F)	1297	1308	1327	1356	1385	1383	1416	1412	1437	1453	1481
EGT2 (°F)	1286	1295	1315	1344	1374	1373	1404	1403	1426	1438	1468
EGT3 (°F)	1310	1321	1343	1374	1401	1402	1431	1434	1457	1467	1497
EGT4 (°F)	1296	1307	1326	1357	1386	1386	1417	1417	1441	1453	1484
EGT5 (°F)	1309	1321	1342	1374	1398	1403	1426	1434	1458	1466	1494
EGT6 (°F)	1317	1331	1349	1379	1403	1407	1431	1437	1459	1468	1497
Oil T (°F)	242	242	242	242	240	242	240	242	242	240	241
Oil P (psig)	60	60	60	60	59	60	60	60	60	60	60
Hum T (°F)	103	103	103	102	103	103	103	103	103	103	103
Hum ratio (gr/lb)	1	1	1	1	2	1	1	1	1	2	1
AFR	10.2	10.3	10.7	11.1	11.5	11.6	12.1	12.1	12.4	12.7	13.2
AFL	10.0	10.2	10.6	11.1	11.4	11.5	12.0	12.0	12.4	12.6	13.2
K airflow (lbs/hr)	1308	1302	1292	1292	1299	1302	1280	1302	1288	1311	1300
A/F	9.9	10.0	10.3	10.8	11.3	11.4	11.7	12.0	12.3	12.7	13.1

TABLE A-143. MM2 ENGINE DATA, 65% POWER

Test	T2-36	T2-36	T2-36	T2-36	T2-31	T2-31	T2-36	T2-31	T2-36	T2-31
Barometer (in. Hg)	30.28	30.28	30.28	30.28	29.99	29.99	30.28	29.99	30.28	29.99
Fuel	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2	MM2
Test Points	AY	AX	AW	AV	AM	AL	AU	AJ	AT**	AK
MAP (in. Hg)	24.09	24.11	24.11	24.06	24.00	24.03	24.10	24.03	24.11	24.07
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	394	398	400	401	398	400	404	401	405	400
BHP	177	178	179	180	178	179	181	180	182	179
TCBHP	184	186	187	188	186	187	189	188	190	187
LCBHP	182	183	184	185	185	186	186	187	187	186
BMEP (psig)	90	91	91	92	90.9	91.0	92	91.6	93	91.5
FF (lbs/hr)	114.0	110.0	105.0	101.0	99.6	96.2	96.0	91.5	91.0	87.0
FFG (gal/hr)	18.4	17.8	17.0	16.3	16.2	15.6	15.5	14.9	14.7	14.1
% Relative FF	24.9	20.5	15.2	10.6	9.1	5.4	5.0	0.2	-0.2	-4.7
BSFC (lbs/hp hr)	0.65	0.62	0.59	0.56	0.56	0.54	0.53	0.51	0.50	0.49
TCBSFC (lbs/hp hr)	0.62	0.59	0.56	0.54	0.54	0.52	0.51	0.49	0.48	0.46
LCBSFC (lbs/hp hr)	0.63	0.60	0.57	0.55	0.54	0.52	0.51	0.49	0.49	0.47
IAT (°F)	102	102	103	103	104	103	102	103	103	104
IAP (in. Hg)	30.28	30.31	30.29	30.27	30.01	30.01	30.29	30.00	30.30	30.02
Cowl T (°F)	104	105	104	103	105	104	101	102	100	103
Cowl P (in H_2O)	1.2	1.1	1.7	1.6	1.8	1.8	1.9	2.1	2.2	2.1
Fuel T (°F)	87	88	88	89	96	96	88	95	88	96
Fuel Dens (lbs/gal)	6.19	6.19	6.19	6.19	6.16	6.16	6.19	6.16	6.19	6.16
MTDP (psig)	4.0	4.0	4.0	3.0	3.3	3.1	3.0	2.8	3.0	2.6
Pump P (psig)	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1
CHT1 (°F)	447	449	450	451	447	450	451	449	450	452
CHT2 (°F)	440	442	443	445	443	444	444	444	443	446
CHT3 (°F)	446	448	449	451	448	450	450	450	449	451
CHT4 (°F)	435	437	438	440	435	437	440	437	440	439
CHT5 (°F)	473	474	474	476	472	474	475	473	476	476
CHT6 (°F)	462	464	465	467	463	464	467	463	466	466
EGT1 (°F)	1299	1322	1349	1373	1377	1401	1405	1432	1440	1465
EGT2 (°F)	1290	1312	1341	1366	1369	1392	1397	1423	1430	1455
EGT3 (°F)	1313	1338	1368	1393	1393	1416	1423	1446	1458	1479
EGT4 (°F)	1297	1322	1349	1374	1378	1402	1407	1432	1441	1467
EGT5 (°F)	1309	1332	1362	1389	1387	1410	1421	1440	1455	1470
EGT6 (°F)	1319	1344	1372	1398	1399	1423	1429	1450	1461	1484
Oil T (°F)	242	242	242	242	240	240	241	240	242	240
Oil P (psig)	59	59	59	59	59	59	59	59	59	59
Hum T (°F)	102	102	102	102	103	103	102	103	102	103
Hum ratio (gr/lb)	1	1	1	1	1	1	1	1	1	1
AFR	10.3	10.7	11.2	11.5	11.7	12.0	12.1	12.6	12.7	13.2
AFL	10.2	10.6	11.0	11.4	11.5	11.9	11.9	12.4	12.6	13.1
K airflow (lbs/hr)	1135	1142	1128	1125	1123	1146	1135	1134	1135	1129
A/F	10.0	10.4	10.7	11.1	11.3	11.9	11.8	12.4	12.4	13.0

TABLE A-144. MM3 ENGINE DATA, TO POWER (1 of 2)

Test	T2-36	T2-36	T2-36	T2-36	T2-36	T2-36	T2-36	T2-31
Barometer (in. Hg)	30.28	30.28	30.28	30.28	30.28	30.28	30.28	29.99
Fuel	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3
Test Points	I	K	J	G	A	H	B	AN
MAP (in. Hg)	29.70	29.70	29.70	29.70	29.72	29.70	29.72	29.37
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	546	541	545	547	547	543	547	538
BHP	281	278	281	282	282	279	282	277
TCBHP	294	290	293	294	294	292	294	290
LCBHP	290	286	289	290	291	288	290	288
BMEP (psig)	124.8	123.5	124.6	125.3	125.0	124.1	125.0	122.9
FF (lbs/hr)	168.5	168.3	161.8	159.3	151.3	148.0	141.7	140.3
FFG (gal/hr)	27.2	27.1	26.1	25.7	24.3	23.9	22.8	22.8
% Relative FF	22.3	22.1	17.4	15.6	9.8	7.4	2.8	1.8
BSFC (lbs/hp hr)	0.60	0.61	0.58	0.56	0.54	0.53	0.50	0.51
TCBSFC (lbs/hp hr)	0.58	0.58	0.56	0.54	0.52	0.51	0.48	0.48
LCBSFC (lbs/hp hr)	0.58	0.59	0.56	0.55	0.52	0.51	0.49	0.49
IAT (°F)	103	102	102	102	103	105	103	104
IAP (in. Hg)	30.30	30.30	30.30	30.28	30.28	30.29	30.28	30.03
Cowl T (°F)	102	103	102	101	101	101	101	100
Cowl P (in H_2O)	2.2	2.6	2.3	3.0	2.8	2.3	5.5	5.0
Fuel T (°F)	85	84	84	87	82	86	84	92
Fuel Dens (lbs/gal)	6.20	6.20	6.20	6.19	6.21	6.19	6.21	6.17
MTDP (psig)	8.4	9.6	8.8	7.2	7.1	8.6	6.7	7.4
Pump P (psig)	19.7	19.6	19.6	19.8	20.1	19.7	20.1	19.2
CHT1 (°F)	460	462	463	463	464	464	467	462
CHT2 (°F)	439	442	442	441	446	442	442	441
CHT3 (°F)	451	454	455	461	456	456	456	455
CHT4 (°F)	443	446	446	447	445	447	446	443
CHT5 (°F)	472	475	476	475	474	475	478	474
CHT6 (°F)	467	470	471	469	469	470	468	463
EGT1 (°F)	1462	1413	1447	1514	1513	1451	1543	1490
EGT2 (°F)	1436	1389	1422	1485	1495	1425	1517	1465
EGT3 (°F)	1473	1424	1459	1527	1535	1460	1562	1504
EGT4 (°F)	1451	1401	1436	1500	1508	1438	1535	1482
EGT5 (°F)	1475	1426	1461	1529	1535	1463	1560	1504
EGT6 (°F)	1466	1416	1450	1518	1522	1453	1550	1493
Oil T (°F)	240	239	238	241	242	240	241	237
Oil P (psig)	64	64	64	64	65	64	64	62
Hum T (°F)	105	103	104	105	105	104	106	103
Hum ratio (gr/lb)	1	1	1	0	1	1	0	1
AFR	11.6	10.9	11.4	12.4	12.6	11.4	13.1	12.1
AFL	11.6	10.8	11.3	12.4	12.5	11.4	13.1	12.1
K airflow (lbs/hr)	1867	1825	1870	1849	1702	1752	1750	1757
A/F	11.1	10.9	11.7	11.6	11.3	11.8	12.4	12.5

TABLE A-145. MM3 ENGINE DATA, TO POWER (2 of 2)

Test	T2-36	T2-31	T2-31	Y2-36	T2-36	T2-36	T2-31
Barometer (in. Hg)	30.28	29.99	29.99	30.28	30.28	30.28	29.99
Fuel	MM3	MM3	MM3	MM3	MM3	MM3	MM3
Test Points	F	AP	AO	C**	D	E	AQ
MAP (in. Hg)	29.70	29.35	29.40	29.74	29.73	29.73	29.35
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	545	536	539	539	528	451	466
BHP	281	276	277	277	272	232	240
TCBHP	294	289	290	289	284	242	251
LCBHP	290	287	288	286	280	239	249
BMEP (psig)	124.8	122.9	123.5	123.3	120.8	102.6	106.7
FF (lbs/hr)	139.0	136.0	135.0	130.0	125.3	114.0	105.3
FFG (gal/hr)	22.4	22.1	21.9	21.0	20.3	18.4	17.1
% Relative FF	0.9	-1.3	-2.0	-5.7	-9.1	-17.3	-23.6
BSFC (lbs/hp hr)	0.50	0.49	0.49	0.47	0.46	0.49	0.44
TCBSFC (lbs/hp hr)	0.47	0.47	0.47	0.45	0.44	0.47	0.42
LCBSFC (lbs/hp hr)	0.48	0.47	0.47	0.46	0.45	0.48	0.42
IAT (°F)	106	104	103	102	105	102	103
IAP (in. Hg)	30.28	30.02	30.05	30.29	30.29	30.29	30.01
Cowl T (°F)	102	101	101	103	105	104	105
Cowl P (in H_2O)	2.4	5.9	4.8	2.8	3.4	2.8	2.6
Fuel T (°F)	87	92	92	85	87	87	92
Fuel Dens (lbs/gal)	6.19	6.17	6.17	6.19	6.19	6.19	6.17
MTDP (psig)	6.3	6.8	6.9	5.5	5.1	3.9	4.0
Pump P (psig)	19.8	19.3	19.2	20.0	20.0	20.1	19.3
CHT1 (°F)	464	464	463	465	462	450	454
CHT2 (°F)	447	446	444	444	449	436	441
CHT3 (°F)	459	460	457	459	457	450	452
CHT4 (°F)	450	446	446	450	454	441	444
CHT5 (°F)	475	477	478	475	475	460	474
CHT6 (°F)	469	464	467	468	463	453	454
EGT1 (°F)	1555	1521	1519	1612	1634	1558	1580
EGT2 (°F)	1526	1496	1493	1582	1614	1544	1566
EGT3 (°F)	1573	1533	1532	1635	1659	1583	1605
EGT4 (°F)	1544	1511	1509	1605	1630	1567	1586
EGT5 (°F)	1574	1537	1536	1635	1645	1563	1576
EGT6 (°F)	1560	1522	1525	1625	1638	1562	1578
Oil T (°F)	244	242	241	241	240	243	237
Oil P (psig)	64	62	62	64	65	64	62
Hum T (°F)	106	104	104	105	107	105	103
Hum ratio (gr/lb)	0	1	1	0	1	0	1
AFR	13.3	12.7	12.6	14.4	14.9	17.5	16.7
AFL	13.4	12.7	12.6	14.4	15.1	17.9	17.1
K airflow (lbs/hr)	1793	1815	1819	1750	1782	1808	1813
A/F	12.9	13.4	13.5	13.5	14.2	15.9	17.3

TABLE A-146. MM3 ENGINE DATA, 85% POWER

Test	T2-36	T2-36	T2-36	T2-36	T2-36	T2-36	T2-31	T2-31	T2-36	T2-36	T2-31	T2-36	T2-31	T2-31
Barometer (in. Hg)	30.28	30.28	30.28	30.28	30.28	30.28	29.99	29.99	30.28	30.28	29.99	30.28	29.99	29.99
Fuel	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3
Test Points	T	S	R	Q	P	L	AR	AS	M	N	AT	O**	AU	AV
MAP (in. Hg)	26.99	27.00	26.97	27.01	27.02	27.00	26.99	27.07	27.02	27.04	27.06	27.00	27.06	27.04
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	470	472	473	476	477	477	475	473	474	468	467	452	452	427
BHP	233	234	234	236	236	237	236	234	235	232	232	224	224	212
TCBHP	243	244	245	246	246	247	246	245	245	243	242	234	235	222
LCBHP	240	241	242	243	243	244	245	243	242	239	241	231	233	220
BMEP (psig)	107.4	107.6	108.0	108.8	109.0	109.2	108.7	108.1	108.2	107.2	106.8	103.4	103.5	97.8
FF (lbs/hr)	144.9	141.3	135.5	129.7	124.3	118.0	117.7	111.2	110.9	106.0	105.8	100.4	100.1	94.9
FFG (gal/hr)	23.4	22.8	21.9	21.0	20.1	19.1	19.1	18.0	17.9	17.1	17.2	16.2	16.3	15.4
% Relative FF	23.1	20.0	15.1	10.2	5.6	0.3	0.0	-5.5	-5.8	-9.9	-10.2	-14.7	-14.9	-19.4
BSFC (lbs/hp hr)	0.62	0.60	0.58	0.55	0.53	0.50	0.50	0.47	0.47	0.46	0.46	0.45	0.45	0.45
TCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.53	0.50	0.48	0.48	0.46	0.45	0.44	0.44	0.43	0.43	0.43
LCBSFC (lbs/hp hr)	0.60	0.58	0.56	0.53	0.51	0.49	0.48	0.46	0.46	0.44	0.44	0.43	0.43	0.43
IAT (°F)	102	104	105	102	102	102	103	103	102	104	104	103	104	105
IAP (in. Hg)	30.30	30.31	30.28	30.28	30.27	30.30	30.01	30.01	30.29	30.30	30.01	30.30	30.02	30.02
Cowl T (°F)	105	105	104	103	102	101	104	104	101	100	104	101	103	103
Cowl P (in H_2O)	2.0	2.2	2.5	2.6	2.5	3.0	2.8	3.3	3.2	2.6	3.1	3.0	3.1	2.3
Fuel T (°F)	85	86	87	88	88	87	91	92	87	87	93	88	94	95
Fuel Dens (lbs/gal)	6.19	6.19	6.19	6.18	6.18	6.19	6.17	6.17	6.19	6.19	6.16	6.18	6.16	6.16
MTDP (psig)	7.0	6.7	6.3	5.8	5.3	4.8	4.7	4.2	4.3	3.9	3.9	3.5	3.5	3.2
Pump P (psig)	19.4	19.4	19.4	19.4	19.5	19.6	19.2	19.2	19.6	19.6	19.3	19.6	19.3	19.3
CHT1 (°F)	456	458	460	462	463	462	461	461	462	458	463	461	460	458
CHT2 (°F)	444	446	448	449	451	448	449	451	449	447	450	454	451	455
CHT3 (°F)	454	458	458	458	459	457	458	462	457	455	461	459	460	459
CHT4 (°F)	441	443	445	448	452	447	447	447	449	447	447	455	449	455
CHT5 (°F)	474	474	475	475	475	476	476	478	476	475	477	476	477	475
CHT6 (°F)	463	465	467	468	467	468	463	464	467	464	463	466	463	458
EGT1 (°F)	1365	1382	1408	1441	1472	1501	1510	1551	1552	1579	1581	1598	1590	1565
EGT2 (°F)	1345	1361	1386	1417	1447	1478	1485	1525	1528	1550	1557	1581	1569	1551
EGT3 (°F)	1384	1400	1429	1462	1493	1525	1528	1567	1575	1600	1601	1630	1616	1592
EGT4 (°F)	1354	1371	1398	1430	1459	1492	1497	1537	1541	1564	1569	1606	1596	1587
EGT5 (°F)	1385	1403	1430	1465	1494	1527	1523	1566	1576	1602	1596	1609	1593	1568
EGT6 (°F)	1378	1397	1424	1457	1486	1520	1520	1559	1570	1593	1592	1606	1590	1567
Oil T (°F)	239	238	240	238	240	238	240	240	239	239	239	238	239	239
Oil P (psig)	63	63	63	63	63	63	61	61	63	63	61	63	61	61
Hum T (°F)	104	104	103	103	103	103	103	103	103	103	103	104	104	104
Hum ratio (gr/lb)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AFR	10.8	11.1	11.4	11.9	12.3	13.0	13.0	13.8	13.9	14.4	14.5	15.2	15.2	16.1
AFL	10.8	11.0	11.4	11.9	12.4	13.1	13.1	13.9	14.0	14.6	14.5	15.4	15.4	16.4
K airflow (lbs/hr)	1487	1494	1428	1499	1488	1489	1510	1504	1488	1438	1476	1479	1508	1488
A/F	10.3	10.6	10.6	11.6	12.0	12.6	12.8	13.5	13.4	13.6	13.9	14.7	15.1	15.7

TABLE A-147. MM3 ENGINE DATA, 75% POWER

Test	T2-36	T2-31	T2-31	T2-36	T2-36	T2-31	T2-31	T2-36	T2-36	T2-31
Barometer (in. Hg)	30.28	29.99	29.99	30.28	30.28	29.99	29.99	30.28	30.28	29.99
Fuel	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3	MM3
Test Points	U	AW	AX	V	W	AY	AZ**	X	Y	BA
MAP (in. Hg)	25.85	25.80	25.82	25.84	25.86	25.83	25.83	25.87	25.84	25.80
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	448	447	445	446	441	435	423	425	397	394
BHP	209	209	208	208	206	203	198	199	185	184
TCBHP	219	218	217	217	215	212	207	207	194	192
LCBHP	216	217	216	214	212	211	206	204	191	191
BMEP (psig)	102.5	102.2	101.6	101.8	100.7	99.3	96.7	97.0	90.9	89.9
FF (lbs/hr)	104.1	103.4	98.6	98.6	93.6	91.7	88.8	88.3	83.3	83.0
FFG (gal/hr)	16.8	16.8	16.0	16.0	15.1	14.9	14.5	14.3	13.5	13.5
% Relative FF	0.2	-0.5	-5.1	-5.1	-9.9	-11.7	-14.5	-15.0	-19.9	-20.1
BSFC (lbs/hp hr)	0.50	0.49	0.47	0.48	0.45	0.45	0.45	0.45	0.45	0.45
TCBSFC (lbs/hp hr)	0.48	0.47	0.45	0.46	0.44	0.43	0.43	0.43	0.43	0.43
LCBSFC (lbs/hp hr)	0.48	0.48	0.46	0.46	0.44	0.44	0.43	0.43	0.44	0.43
IAT (°F)	102	103	104	102	104	103	105	102	104	104
IAP (in. Hg)	30.29	30.01	30.02	30.29	30.31	30.01	30.02	30.28	30.30	30.02
Cowl T (°F)	104	103	104	103	101	105	106	101	101	104
Cowl P (in H_2O)	2.5	2.8	3.1	2.7	2.9	2.6	2.7	2.4	1.7	1.7
Fuel T (°F)	88	93	94	88	89	95	96	89	90	97
Fuel Dens (lbs/gal)	6.19	6.16	6.16	6.18	6.18	6.15	6.15	6.18	6.18	6.15
MTDP (psig)	3.8	3.7	3.3	3.4	3.1	3.0	2.8	2.7	2.4	2.4
Pump P (psig)	19.3	19.1	19.1	19.3	19.3	19.1	19.2	19.3	19.3	19.2
CHT1 (°F)	457	453	453	457	458	453	453	454	452	447
CHT2 (°F)	447	449	446	448	449	447	450	450	449	448
CHT3 (°F)	453	454	453	452	454	453	456	454	453	452
CHT4 (°F)	446	444	442	446	447	444	449	450	450	448
CHT5 (°F)	476	475	476	476	477	475	476	476	473	472
CHT6 (°F)	468	462	461	466	464	460	455	459	456	451
EGT1 (°F)	1480	1481	1518	1518	1554	1567	1565	1561	1532	1524
EGT2 (°F)	1463	1465	1500	1500	1535	1549	1554	1552	1525	1518
EGT3 (°F)	1498	1494	1530	1536	1573	1583	1594	1594	1564	1556
EGT4 (°F)	1477	1477	1515	1515	1552	1566	1583	1579	1554	1548
EGT5 (°F)	1498	1491	1524	1536	1569	1573	1565	1570	1538	1528
EGT6 (°F)	1500	1497	1531	1539	1569	1571	1556	1562	1533	1522
Oil T (°F)	239	239	239	239	240	239	239	239	239	240
Oil P (psig)	61	60	60	61	61	60	60	61	61	60
Hum T (°F)	103	103	103	102	103	103	103	102	103	103
Hum ratio (gr/lb)	1	2	1	1	1	1	1	1	1	1
AFR	13.1	13.2	13.9	13.8	14.5	14.8	15.3	15.4	16.4	16.4
AFL	13.1	13.2	13.8	13.8	14.5	14.8	15.4	15.5	16.6	16.6
K airflow (lbs/hr)	1288	1321	1297	1287	1270	1314	1283	1290	1272	1304
A/F	12.4	12.8	13.2	13.1	13.6	14.3	14.4	14.6	15.3	15.7

TABLE A-148. MM3 ENGINE DATA, 65% POWER

Test	T2-31	T2-31	T2-31	T2-31	T2-31	T2-31
Barometer (in. Hg)	29.99	29.99	29.99	29.99	29.99	29.99
Fuel	MM3	MM3	MM3	MM3	MM3	MM3
Test Points	BB	BC	BD**	BE	BF	BG
MAP (in. Hg)	24.08	24.09	24.11	24.06	24.08	24.04
rpm	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	404	400	391	382	360	327
BHP	181	179	175	171	162	147
TCBHP	189	187	183	179	169	153
LCBHP	188	186	182	178	168	152
BMEP (psig)	92.2	91.6	89.4	87.2	82.0	74.9
FF (lbs/hr)	91.0	85.5	80.5	77.6	74.0	68.5
FFG (gal/hr)	14.8	13.9	13.1	12.6	12.0	11.2
% Relative FF	-0.3	-6.4	-11.8	-15.1	-18.9	-25.0
BSFC (lbs/hp hr)	0.50	0.48	0.46	0.45	0.46	0.47
TCBSFC (lbs/hp hr)	0.48	0.46	0.44	0.43	0.44	0.45
LCBSFC (lbs/hp hr)	0.48	0.46	0.44	0.44	0.44	0.45
IAT (°F)	103	103	105	104	104	103
IAP (in. Hg)	30.02	30.02	30.02	30.02	30.03	30.02
Cowl T (°F)	102	102	102	103	102	103
Cowl P (in H_2O)	2.1	1.6	3.1	2.3	1.3	1.4
Fuel T (°F)	94	95	95	96	96	96
Fuel Dens (lbs/gal)	6.15	6.15	6.15	6.15	6.15	6.15
MTDP (psig)	2.9	2.5	2.3	2.1	1.9	1.6
Pump P (psig)	19.1	19.1	19.1	19.1	19.1	19.2
CHT1 (°F)	452	454	455	453	447	447
CHT2 (°F)	449	449	450	449	446	448
CHT3 (°F)	451	455	457	454	448	448
CHT4 (°F)	442	442	444	444	440	442
CHT5 (°F)	475	476	477	476	473	474
CHT6 (°F)	462	464	462	458	452	451
EGT1 (°F)	1472	1520	1551	1547	1518	1488
EGT2 (°F)	1460	1504	1539	1542	1522	1490
EGT3 (°F)	1489	1534	1572	1569	1538	1510
EGT4 (°F)	1471	1516	1556	1558	1532	1499
EGT5 (°F)	1480	1523	1555	1552	1525	1498
EGT6 (°F)	1491	1537	1551	1536	1509	1483
Oil T (°F)	238	240	240	239	238	239
Oil P (psig)	59	59	59	59	59	59
Hum T (°F)	103	103	103	103	103	103
Hum ratio (gr/lb)	1	1	1	1	1	1
AFR	13.2	14.2	14.9	15.4	16.1	17.6
AFL	13.1	14.1	14.8	15.4	16.4	17.8
K airflow (lbs/hr)	1164	1157	1137	1153	1154	1151
A/F	12.8	13.6	14.2	14.9	15.6	16.8

TABLE A-149. MM4 ENGINE DATA, TO POWER

Test	T2-33	T2-33	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32	T2-32	T2-33	T2-33
Barometer (in. Hg)	30.05	30.05	30.05	30.07	30.05	30.07	30.05	30.07	30.07	30.05	30.05
Fuel	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4
Test Points	A	D	C	D	B	C	E**	A	B	G	F
MAP (in. Hg)	29.46	29.47	29.46	29.50	29.46	29.51	29.49	29.52	29.51	29.45	29.47
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	525	536	531	536	532	543	541	544	543	539	540
BHP	270	276	273	276	274	280	279	280	280	277	278
TCBHP	283	288	286	289	286	292	291	292	291	290	290
LCBHP	281	286	284	286	284	290	289	290	289	288	288
BMEP (psig)	120.0	122.7	121.6	122.6	121.5	124.0	123.5	124.2	124.1	123.3	123.4
FF (lbs/hr)	165.3	162.3	158.0	157.0	153.0	147.3	147.0	144.0	136.0	132.0	131.8
FFG (gal/hr)	27.1	26.6	26.0	25.8	25.1	24.2	24.1	23.6	22.3	21.7	21.7
% Relative FF	20.0	17.7	14.7	13.9	11.0	6.9	6.7	4.5	-1.3	-4.2	-4.4
BSFC (lbs/hp hr)	0.61	0.59	0.58	0.57	0.56	0.53	0.53	0.52	0.49	0.48	0.48
TCBSFC (lbs/hp hr)	0.59	0.56	0.56	0.55	0.54	0.51	0.51	0.50	0.47	0.46	0.46
LCBSFC (lbs/hp hr)	0.59	0.57	0.56	0.55	0.54	0.51	0.51	0.50	0.47	0.46	0.46
IAT (°F)	107	102	104	103	103	102	103	103	102	104	102
IAP (in. Hg)	30.04	30.07	30.06	30.09	30.06	30.09	30.08	30.09	30.09	30.07	30.06
Cowl T (°F)	105	105	105	103	104	103	105	105	105	105	106
Cowl P (in H_2O)	2.9	2.6	2.7	2.9	4.2	3.7	2.8	3.7	3.5	2.8	3.2
Fuel T (°F)	88	90	89	90	89	91	90	89	90	92	92
Fuel Dens (lbs/gal)	6.1	6.1	6.1	6.10	6.1	6.09	6.1	6.10	6.1	6.08	6.09
MTDP (psig)	9.7	8.4	9.2	8.6	9.3	7.7	7.2	7.3	6.5	7.0	6.9
Pump P (psig)	19.4	19.3	19.4	19.8	19.4	19.9	19.4	19.9	20.0	19.3	19.4
CHT1 (°F)	467	467	467	469	464	463	468	463	465	465	467
CHT2 (°F)	449	448	449	446	444	435	447	449	445	445	450
CHT3 (°F)	462	460	462	459	460	451	463	458	460	460	463
CHT4 (°F)	450	445	444	445	443	437	446	445	446	446	447
CHT5 (°F)	476	477	476	475	476	473	477	476	475	474	475
CHT6 (°F)	469	469	470	472	467	465	470	466	470	468	470
EGT1 (°F)	1384	1437	1404	1431	1400	1465	1483	1491	1528	1499	1502
EGT2 (°F)	1365	1415	1384	1408	1376	1440	1464	1470	1506	1476	1480
EGT3 (°F)	1402	1456	1423	1446	1416	1479	1502	1504	1544	1521	1523
EGT4 (°F)	1376	1430	1399	1423	1392	1455	1480	1484	1523	1497	1499
EGT5 (°F)	1403	1461	1425	1448	1421	1477	1505	1511	1544	1527	1525
EGT6 (°F)	1392	1447	1415	1439	1406	1468	1497	1500	1538	1512	1514
Oil T (°F)	231	229	232	239	235	238	224	234	242	223	230
Oil P (psig)	65	64	64	62	64	62	64	64	63	64	64
Hum T (°F)	106	103	104	103	106	104	103	104	103	103	103
Hum ratio (gr/lb)	1	1	1	1	2	1	1	1	1	1	1
AFR	10.6	11.4	10.9	11.2	10.9	11.9	12.2	12.2	12.9	12.4	12.5
AFL	10.5	11.4	10.9	11.2	10.8	11.8	12.1	12.1	12.8	12.4	12.4
K airflow (lbs/hr)	1722	1866	1809	1793	1827	1852	1818	1857	1831	1900	1900
A/F	10.4	11.5	11.5	11.5	12.0	12.7	12.4	13.0	13.6	14.4	14.5

TABLE A-150. MM4 ENGINE DATA, 85% POWER

Test	T2-33	T2-33	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32
Barometer (in. Hg)	30.05	30.05	30.05	30.07	30.05	30.07	30.05	30.07	30.05	30.07
Fuel	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4
Test Points	I	J	K	H	L	G	M**	E	H	F
MAP (in. Hg)	27.02	27.04	27.02	27.09	27.03	27.10	26.99	27.10	27.04	27.11
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	467	469	474	476	473	479	475	479	476	478
BHP	232	233	235	236	235	237	236	237	236	237
TCBHP	242	243	245	247	245	248	246	248	246	247
LCBHP	240	241	243	245	243	246	244	246	245	245
BMEP (psig)	106.6	107.5	108.1	108.8	108.2	109.5	108.6	109.4	108.8	109.2
FF (lbs/hr)	144.3	141.6	134.9	129.4	128.8	123.5	123.5	117.7	117.8	112.1
FFG (gal/hr)	23.7	23.3	22.2	21.3	21.2	20.3	20.3	19.3	19.4	18.4
% Relative FF	22.6	20.3	14.6	9.9	9.4	5.0	4.9	0.0	0.0	-4.7
BSFC (lbs/hp hr)	0.63	0.61	0.57	0.55	0.55	0.52	0.52	0.50	0.50	0.47
TCBSFC (lbs/hp hr)	0.60	0.59	0.55	0.52	0.53	0.50	0.50	0.48	0.48	0.45
LCBSFC (lbs/hp hr)	0.60	0.59	0.56	0.53	0.53	0.50	0.51	0.48	0.48	0.46
IAT (°F)	104	103	102	104	105	103	103	102	102	103
IAP (in. Hg)	30.08	30.10	30.09	30.08	30.08	30.08	30.07	30.06	30.08	30.09
Cowl T (°F)	105	105	104	106	104	105	104	104	106	105
Cowl P (in H_2O)	2.2	2.2	1.8	2.7	2.5	2.4	2.5	2.8	3.0	3.4
Fuel T (°F)	92	92	92	92	93	93	93	91	93	92
Fuel Dens (lbs/gal)	6.10	6.10	6.10	6.08	6.10	6.08	6.10	6.09	6.10	6.09
MTDP (psig)	7.1	6.8	6.2	5.7	5.7	5.2	5.2	4.7	4.8	4.4
Pump P (psig)	19.0	19.0	19.0	19.7	19.0	19.7	19.0	19.8	19.2	19.7
CHT1 (°F)	458	457	456	464	461	458	459	465	461	465
CHT2 (°F)	448	446	445	447	449	441	447	449	449	448
CHT3 (°F)	458	457	455	457	460	451	457	459	459	456
CHT4 (°F)	443	440	437	445	443	438	442	445	445	444
CHT5 (°F)	475	475	477	474	477	474	476	476	475	477
CHT6 (°F)	463	461	459	466	463	459	461	467	464	464
EGT1 (°F)	1352	1368	1396	1430	1429	1459	1455	1493	1487	1523
EGT2 (°F)	1333	1348	1375	1408	1408	1435	1432	1469	1465	1497
EGT3 (°F)	1374	1389	1420	1452	1450	1481	1477	1515	1510	1544
EGT4 (°F)	1344	1358	1387	1421	1420	1450	1446	1485	1479	1514
EGT5 (°F)	1371	1384	1415	1448	1446	1475	1471	1509	1506	1535
EGT6 (°F)	1365	1378	1408	1442	1440	1470	1467	1507	1504	1535
Oil T (°F)	229	229	229	240	229	238	229	238	229	237
Oil P (psig)	63	63	63	61	63	62	63	61	63	61
Hum T (°F)	102	103	102	103	102	103	103	103	102	103
Hum ratio (gr/lb)	1	1	2	1	2	1	2	1	1	1
AFR	10.7	10.9	11.4	11.8	11.8	12.3	12.3	12.9	12.8	13.5
AFL	10.6	10.9	11.3	11.8	11.8	12.3	12.2	13.0	12.8	13.5
K airflow (lbs/hr)	1522	1577	1579	1489	1513	1513	1567	1498	1571	1506
A/F	10.5	11.1	11.7	11.5	11.8	12.2	12.7	12.7	13.4	13.4

TABLE A-151. MM4 ENGINE DATA, 75% POWER

Test	T2-33	T2-33	T2-33	T2-32	T2-33	T2-33	T2-32	T2-32	T2-33	T2-33	T2-32
Barometer (in. Hg)	30.05	30.05	30.05	30.07	30.05	30.05	30.07	30.07	30.05	30.05	30.07
Fuel	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4
Test Points	P	Q	R	L	S	T	K	I**	O	N	J
MAP (in. Hg)	25.78	25.75	25.77	25.92	25.78	25.79	25.93	25.93	25.76	25.77	25.97
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	435	439	442	447	444	445	448	450	445	444	448
BHP	203	205	206	209	207	208	210	210	208	207	209
TCBHP	213	214	215	218	217	217	219	219	217	217	218
LCBHP	211	213	214	216	215	216	217	217	216	215	217
BMEP (psig)	99.4	100.4	101.0	102.3	101.4	101.6	102.5	102.7	101.5	101.6	102.2
FF (lbs/hr)	129.9	124.5	118.7	114.6	114.4	109.3	109.0	104.0	103.7	102.5	99.1
FFG (gal/hr)	21.4	20.5	19.5	18.9	18.8	18.0	17.9	17.1	17.1	16.9	16.3
% Relative FF	25.0	19.9	14.2	10.3	10.1	5.1	4.9	0.1	-0.2	-1.3	-4.6
BSFC (lbs/hp hr)	0.64	0.61	0.58	0.55	0.55	0.53	0.52	0.50	0.50	0.50	0.47
TCBSFC (lbs/hp hr)	0.61	0.58	0.55	0.53	0.53	0.50	0.50	0.47	0.48	0.47	0.45
LCBSFC (lbs/hp hr)	0.62	0.59	0.56	0.53	0.53	0.51	0.50	0.48	0.48	0.48	0.46
IAT (°F)	104	103	103	105	103	105	103	103	103	104	103
IAP (in. Hg)	30.07	30.07	30.08	30.09	30.07	30.07	30.10	30.09	30.07	30.07	30.11
Cowl T (°F)	103	103	104	101	104	103	102	103	103	104	102
Cowl P (in H_2O)	1.7	1.6	2.0	2.1	2.0	2.0	2.2	2.3	2.1	2.2	2.6
Fuel T (°F)	94	94	94	94	94	94	94	92	95	94	94
Fuel Dens (lbs/gal)	6.10	6.10	6.10	6.08	6.10	6.10	6.08	6.08	6.10	6.10	6.08
MTDP (psig)	5.8	5.3	4.8	4.5	4.5	4.1	4.1	3.7	3.8	3.6	3.4
Pump P (psig)	18.8	18.8	18.8	19.4	18.8	18.8	19.5	19.6	18.9	18.9	19.5
CHT1 (°F)	451	452	454	456	455	455	456	457	456	457	460
CHT2 (°F)	445	446	448	445	448	449	447	450	449	449	450
CHT3 (°F)	451	451	453	454	454	454	456	455	456	456	458
CHT4 (°F)	437	437	439	441	440	440	443	444	442	442	446
CHT5 (°F)	474	475	476	475	476	476	477	477	477	477	479
CHT6 (°F)	460	460	461	466	462	462	468	466	465	464	470
EGT1 (°F)	1309	1340	1369	1408	1394	1425	1435	1468	1450	1465	1498
EGT2 (°F)	1298	1329	1357	1395	1381	1412	1422	1455	1435	1453	1481
EGT3 (°F)	1329	1361	1390	1424	1412	1444	1452	1486	1468	1485	1513
EGT4 (°F)	1310	1343	1371	1409	1395	1425	1437	1471	1451	1467	1498
EGT5 (°F)	1327	1360	1389	1428	1412	1442	1450	1484	1465	1484	1513
EGT6 (°F)	1333	1366	1394	1428	1416	1446	1453	1488	1470	1486	1517
Oil T (°F)	228	229	229	239	229	229	238	239	229	229	239
Oil P (psig)	62	62	61	60	61	61	60	60	61	61	60
Hum T (°F)	103	103	102	103	102	103	103	103	102	103	104
Hum ratio (gr/lb)	2	2	2	1	2	2	1	1	1	2	1
AFR	10.5	11.0	11.5	11.9	11.8	12.3	12.4	13.0	12.9	13.1	13.6
AFL	10.4	10.9	11.4	11.8	11.7	12.2	12.3	12.9	12.8	13.0	13.5
K airflow (lbs/hr)	1346	1369	1360	1303	1345	1326	1335	1332	1360	1351	1325
A/F	10.4	11.0	11.5	11.4	11.8	12.1	12.3	12.8	13.1	13.2	13.4

TABLE A-152. MM4 ENGINE DATA, 65% POWER

Test	T2-33	T2-33	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32
Barometer (in. Hg)	30.05	30.05	30.05	30.07	30.05	30.07	30.05	30.07	30.05	30.07
Fuel	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4	MM4
Test Points	V	W	X	P	Y	O	Z	M**	U	N
MAP (in. Hg)	24.00	24.00	24.04	24.15	24.02	24.15	24.01	24.16	24.04	24.15
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	395	396	400	403	400	405	401	406	402	403
BHP	177	177	179	180	179	182	180	182	180	180
TCBHP	185	185	187	189	187	190	188	190	188	188
LCBHP	183	184	186	187	186	188	186	188	187	187
BMEP (psig)	90.1	90.5	91.3	92.0	91.5	92.5	91.6	92.7	91.9	92.1
FF (lbs/hr)	113.3	109.7	105.2	100.7	100.2	95.9	95.3	91.4	91.2	86.5
FFG (gal/hr)	18.7	18.1	17.3	16.6	16.5	15.8	15.7	15.0	15.0	14.3
% Relative FF	24.1	20.2	15.2	10.3	9.8	5.0	4.4	0.2	-0.1	-5.2
BSFC (lbs/hp hr)	0.64	0.62	0.59	0.56	0.56	0.53	0.53	0.50	0.51	0.48
TCBSFC (lbs/hp hr)	0.61	0.59	0.56	0.53	0.54	0.51	0.51	0.48	0.48	0.46
LCBSFC (lbs/hp hr)	0.62	0.60	0.56	0.54	0.54	0.51	0.51	0.48	0.49	0.46
IAT (°F)	103	103	104	105	103	103	104	103	103	104
IAP (in. Hg)	30.07	30.06	30.05	30.08	30.07	30.09	30.05	30.09	30.06	30.10
Cowl T (°F)	103	104	104	106	104	105	104	107	102	105
Cowl P (in H_2O)	1.3	1.5	1.6	2.0	1.8	1.8	1.8	1.7	1.8	2.4
Fuel T (°F)	95	95	95	94	95	94	96	94	96	95
Fuel Dens (lbs/gal)	6.1	6.1	6.1	6.08	6.1	6.08	6.1	6.07	6.1	6.05
MTDP (psig)	4.4	4.2	3.8	3.5	3.5	3.2	3.2	3.0	2.9	2.9
Pump P (psig)	18.7	18.7	18.7	19.3	18.7	19.4	18.7	19.4	18.8	19.4
CHT1 (°F)	451	450	451	454	453	454	456	453	455	457
CHT2 (°F)	446	446	446	448	447	447	449	447	449	450
CHT3 (°F)	451	451	451	455	452	453	455	452	455	456
CHT4 (°F)	437	437	436	440	438	440	440	441	441	443
CHT5 (°F)	475	475	475	476	476	474	477	474	477	477
CHT6 (°F)	461	460	460	466	461	466	463	466	463	467
EGT1 (°F)	1311	1327	1358	1392	1385	1417	1422	1446	1446	1478
EGT2 (°F)	1305	1322	1352	1385	1378	1410	1416	1438	1439	1471
EGT3 (°F)	1332	1347	1378	1411	1404	1436	1440	1467	1463	1506
EGT4 (°F)	1313	1329	1360	1395	1387	1421	1424	1450	1448	1483
EGT5 (°F)	1323	1338	1368	1403	1396	1429	1433	1456	1456	1489
EGT6 (°F)	1338	1352	1385	1416	1410	1442	1445	1472	1470	1502
Oil T (°F)	229	229	229	238	228	237	230	238	229	239
Oil P (psig)	60	60	60	59	60	59	60	59	60	59
Hum T (°F)	103	102	102	103	103	103	102	103	102	103
Hum ratio (gr/lb)	2	1	2	1	1	1	1	1	1	1
AFR	10.7	11.0	11.4	11.8	11.9	12.4	12.4	12.9	12.9	13.4
AFL	10.5	10.8	11.3	11.7	11.7	12.3	12.3	12.8	12.8	13.4
K airflow (lbs/hr)	1210	1206	1174	1159	1202	1176	1180	1157	1191	1177
A/F	10.7	11.0	11.2	11.5	12.0	12.3	12.4	12.7	13.1	13.6

TABLE A-153. MM5 ENGINE DATA, TO POWER

Test	T2-33	T2-32	T2-33	T2-32	T2-33	T2-33	T2-32	T2-32	T2-32	T2-33
Barometer (in. Hg)	30.05	30.07	30.05	30.07	30.05	30.05	30.07	30.07	30.07	30.05
Fuel	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5
Test Points	AB	U	AC	T	AD	AE	S**	R	Q	AA
MAP (in. Hg)	29.36	29.44	29.36	29.44	29.37	29.36	29.44	29.45	29.48	29.38
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	521	527	525	530	530	533	532	536	537	533
BHP	269	272	270	273	273	274	275	276	276	274
TCBHP	281	283	282	285	284	287	287	288	289	286
LCBHP	279	281	280	283	282	285	285	286	286	284
BMEP (psig)	119.2	120.4	120.1	121.1	121.0	121.7	121.7	122.7	122.7	121.6
FF (lbs/hr)	168.3	165.3	163.7	162.0	158.6	146.5	157.0	149.9	148.2	142.7
FFG (gal/hr)	27.8	27.3	27.1	26.8	26.2	24.3	26.0	24.8	24.5	23.6
% Relative FF	22.1	20.0	18.8	17.6	15.1	6.3	13.9	8.7	7.5	3.5
BSFC (lbs/hp hr)	0.63	0.61	0.60	0.59	0.58	0.54	0.58	0.54	0.54	0.52
TCBSFC (lbs/hp hr)	0.60	0.59	0.58	0.57	0.56	0.51	0.55	0.52	0.51	0.50
LCBSFC (lbs/hp hr)	0.60	0.59	0.58	0.58	0.56	0.52	0.56	0.52	0.52	0.50
IAT (°F)	105	102	102	102	102	104	103.00	102	104	102
IAP (in. Hg)	30.05	30.08	30.06	30.08	30.06	30.05	30	30.08	30.12	30.06
Cowl T (°F)	106	108	105	107	103	104	105.50	106	106	106
Cowl P (in H_2O)	2.8	2.4	2.6	2.5	2.7	3.5	2	2.9	3.1	3.9
Fuel T (°F)	94	91	94	92	94	95	92.0	92	92	95
Fuel Dens (lbs/gal)	6.0	6.06	6.0	6.05	6.0	6.0	6	6.05	6.05	6.0
MTDP (psig)	9.4	9.5	9.0	9.0	8.4	7.4	8.20	7.8	7.7	7.0
Pump P (psig)	18.8	19.3	18.8	19.3	18.8	18.8	19.4	19.4	19.4	18.9
CHT1 (°F)	461	464	462	467	462	460	467.0	465	466	463
CHT2 (°F)	446	445	445	448	445	442	445	445	448	445
CHT3 (°F)	458	458	458	460	457	454	460	460	460	464
CHT4 (°F)	443	445	442	446	442	440	445	442	446	442
CHT5 (°F)	474	474	474	476	475	476	474	473	476	475
CHT6 (°F)	467	470	466	472	466	464	471	469	470	463
EGT1 (°F)	1369	1373	1386	1396	1409	1457	1424	1445	1451	1471
EGT2 (°F)	1349	1354	1364	1374	1387	1430	1404	1422	1426	1444
EGT3 (°F)	1386	1390	1401	1410	1425	1469	1441	1457	1462	1484
EGT4 (°F)	1364	1368	1381	1388	1404	1447	1421	1439	1444	1465
EGT5 (°F)	1396	1396	1412	1416	1436	1469	1445	1465	1470	1491
EGT6 (°F)	1378	1385	1396	1405	1419	1461	1433	1451	1454	1477
Oil T (°F)	237	237	238	240	238	239	240	239	240	236
Oil P (psig)	62	62	62	62	62	62	62	62	62	63
Hum T (°F)	102	102	103	103	102	102	102	103	103	103
Hum ratio (gr/lb)	1	1	1	1	1	1	1	1	1	1
AFR	10.4	10.5	10.7	10.8	11.0	11.7	11	11.5	11.6	12.0
AFL	10.3	10.4	10.6	10.6	10.9	11.7	11.1	11.4	11.5	11.9
K airflow (lbs/hr)	1845	1845	1913	1854	1918	1863	1825.5	1857	1854	1892
A/F	11.0	11.2	11.7	11.5	12.1	12.8	12	12.5	12.6	13.3

TABLE A-154. MM5 ENGINE DATA, 85% POWER

Test	T2-33	T2-32	T2-33	T2-32	T2-33	T2-33	T2-32	T2-32	T2-33	T2-32	T2-33
Barometer (in. Hg)	30.05	30.07	30.05	30.07	30.05	30.05	30.07	30.07	30.05	30.07	30.05
Fuel	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5
Test Points	AG	Z	AH	Y	AI	AJ**	X	W	AK	V	AF
MAP (in. Hg)	26.83	26.91	26.83	26.89	26.84	26.86	26.91	26.89	26.85	26.91	26.82
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	457	462	460	466	463	463	469	470	468	472	467
BHP	227	229	228	231	230	230	233	233	232	234	232
TCBHP	237	240	238	241	240	240	243	244	242	244	242
LCBHP	235	238	236	239	238	239	241	242	241	243	240
BMEP (psig)	104.5	105.8	105.1	106.6	106.0	105.9	107.1	107.3	106.9	107.8	106.6
FF (lbs/hr)	143.5	141.2	141.0	135.4	135.0	129.5	129.3	123.6	122.6	118.4	117.8
FFG (gal/hr)	23.8	23.3	23.4	22.4	22.4	21.5	21.4	20.4	20.3	19.6	19.5
% Relative FF	21.9	20.0	19.8	15.0	14.7	10.0	9.8	5.0	4.2	0.6	0.1
BSFC (lbs/hp hr)	0.63	0.61	0.62	0.59	0.59	0.56	0.56	0.53	0.53	0.50	0.51
TCBSFC (lbs/hp hr)	0.61	0.59	0.59	0.56	0.56	0.54	0.53	0.51	0.51	0.48	0.49
LCBSFC (lbs/hp hr)	0.61	0.59	0.60	0.56	0.57	0.54	0.54	0.51	0.51	0.49	0.49
IAT (°F)	104	103	103	103	103	104	103	105	103	103	103
IAP (in. Hg)	30.06	30.08	30.05	30.09	30.04	30.04	30.09	30.07	30.06	30.08	30.03
Cowl T (°F)	106	104	106	104	105	105	104	104	106	104	104
Cowl P (in H_2O)	1.9	1.9	1.8	2.0	2.5	2.7	2.2	2.5	2.9	3.5	3.4
Fuel T (°F)	96	93	95	94	95	96	94	94	96	93	96
Fuel Dens (lbs/gal)	6.0	6.05	6.0	6.05	6.0	6.0	6.05	6.05	6.0	6.05	6.0
MTDP (psig)	6.9	6.7	6.7	6.2	6.2	5.8	5.7	5.2	5.2	4.9	4.8
Pump P (psig)	18.7	19.2	18.7	19.3	18.7	18.7	19.3	19.3	18.7	19.4	18.8
CHT1 (°F)	454	460	453	459	455	457	461	460	457	462	459
CHT2 (°F)	442	448	443	448	445	445	447	444	444	444	445
CHT3 (°F)	452	455	452	455	454	458	454	453	459	452	455
CHT4 (°F)	437	441	437	441	438	439	440	440	439	440	440
CHT5 (°F)	474	475	474	474	475	476	474	474	477	477	476
CHT6 (°F)	457	464	456	464	457	458	463	462	458	462	459
EGT1 (°F)	1330	1344	1344	1369	1370	1392	1401	1426	1425	1447	1449
EGT2 (°F)	1312	1329	1324	1354	1350	1372	1385	1412	1408	1434	1434
EGT3 (°F)	1351	1369	1365	1395	1394	1408	1425	1450	1450	1473	1474
EGT4 (°F)	1321	1337	1334	1363	1361	1384	1395	1423	1420	1446	1448
EGT5 (°F)	1348	1363	1361	1388	1388	1409	1420	1441	1443	1465	1467
EGT6 (°F)	1342	1358	1356	1385	1383	1406	1418	1443	1440	1465	1468
Oil T (°F)	241	239	239	239	240	240	239	238	241	238	240
Oil P (psig)	61	61	61	61	61	61	61	61	61	61	61
Hum T (°F)	103	103	103	103	102	102	104	103	103	103	102
Hum ratio (gr/lb)	2	1	2	1	1	2	1	1	1	1	1
AFR	10.4	10.6	10.6	11.0	11.0	11.3	11.4	11.8	11.9	12.3	12.3
AFL	10.3	10.5	10.5	10.9	11.0	11.3	11.4	11.8	11.8	12.3	12.3
K airflow (lbs/hr)	1555	1504	1568	1525	1556	1513	1524	1467	1555	1499	1552
A/F	10.8	10.7	11.1	11.3	11.5	11.7	11.8	11.9	12.7	12.6	13.2

TABLE A-155. MM5 ENGINE DATA, 75% POWER

Test	T2-33	T2-33	T2-33	T2-32	T2-32	T2-33	T2-33	T2-32	T2-32	T2-33
Barometer (in. Hg)	30.05	30.05	30.05	30.07	30.07	30.05	30.05	30.07	30.07	30.05
Fuel	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5
Test Points	AM	AN	AO	AD	AC	AP**	AQ	AB	AA	AL
MAP (in. Hg)	25.67	25.63	25.63	25.64	25.66	25.66	25.62	25.62	25.65	25.63
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	429	431	434	436	438	438	437	440	441	439
BHP	200	201	203	204	205	205	204	206	206	205
TCBHP	209	210	211	213	214	213	213	215	215	214
LCBHP	208	209	210	211	212	212	212	213	213	213
BMEP (psig)	98.0	98.5	99.3	99.9	100.2	100.0	100.0	100.7	100.6	100.3
FF (lbs/hr)	129.8	124.7	119.5	119.3	114.6	114.5	110.0	108.9	104.5	104.0
FFG (gal/hr)	21.5	20.6	19.8	19.7	19.0	19.0	18.2	18.0	17.3	17.2
% Relative FF	24.9	20.0	15.0	14.8	10.3	10.2	5.9	4.8	0.6	0.1
BSFC (lbs/hp hr)	0.65	0.62	0.59	0.59	0.56	0.56	0.54	0.53	0.51	0.51
TCBSFC (lbs/hp hr)	0.62	0.59	0.56	0.56	0.53	0.54	0.52	0.51	0.49	0.49
LCBSFC (lbs/hp hr)	0.63	0.60	0.57	0.57	0.54	0.54	0.52	0.51	0.49	0.49
IAT (°F)	102	104	102	103	104	102	103	103	103	102
IAP (in. Hg)	30.04	30.05	30.06	30.09	30.09	30.05	30.07	30.08	30.08	30.04
Cowl T (°F)	105	105	103	104	105	104	104	106	104	105
Cowl P (in H_2O)	1.7	1.7	1.7	1.9	2.3	1.8	2.3	1.9	2.4	2.3
Fuel T (°F)	96	96	96	94	95	97	97	95	95	97
Fuel Dens (lbs/gal)	6.0	6.0	6.0	6.04	6.04	6.0	6.0	6.04	6.05	6.0
MTDP (psig)	5.8	5.3	4.9	4.8	4.5	4.5	4.3	4.1	3.8	3.8
Pump P (psig)	18.6	18.6	18.6	19.1	19.2	18.6	18.6	19.2	19.2	18.7
CHT1 (°F)	449	449	450	451	453	451	452	452	453	452
CHT2 (°F)	442	443	443	445	446	443	444	444	445	442
CHT3 (°F)	448	449	449	451	454	449	450	452	453	449
CHT4 (°F)	435	436	437	440	440	436	437	439	440	436
CHT5 (°F)	475	475	476	474	477	475	476	476	478	475
CHT6 (°F)	457	457	458	465	466	459	461	464	465	457
EGT1 (°F)	1291	1315	1344	1346	1373	1373	1394	1407	1427	1426
EGT2 (°F)	1282	1303	1330	1337	1364	1360	1381	1398	1420	1415
EGT3 (°F)	1311	1334	1362	1365	1390	1392	1413	1423	1442	1445
EGT4 (°F)	1291	1315	1341	1348	1375	1372	1395	1409	1431	1429
EGT5 (°F)	1309	1329	1357	1363	1386	1387	1406	1416	1429	1435
EGT6 (°F)	1314	1338	1367	1369	1394	1393	1415	1425	1443	1445
Oil T (°F)	240	240	239	239	239	238	239	239	238	240
Oil P (psig)	60	60	60	60	60	60	60	60	60	60
Hum T (°F)	102	102	102	103	103	101	102	103	103	102
Hum ratio (gr/lb)	2	2	2	1	1	2	1	1	1	2
AFR	10.2	10.6	11.0	11.1	11.4	11.5	11.8	12.0	12.3	12.4
AFL	10.1	10.4	10.9	10.9	11.3	11.3	11.7	11.9	12.3	12.3
K airflow (lbs/hr)	1385	1347	1370	1315	1313	1368	1356	1299	1325	1361
A/F	10.6	10.8	11.5	11.0	11.5	12.0	12.3	11.9	12.7	13.1

TABLE A-156. MM5 ENGINE DATA, 65% POWER

Test	T2-33	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32	T2-33	T2-33	T2-32
Barometer (in. Hg)	30.05	30.05	30.07	30.05	30.07	30.05	30.07	30.05	30.05	30.07
Fuel	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5	MM5
Test Points	AS	AT	AH	AU	AG	AV	AF**	AW	AR	AE
MAP (in. Hg)	23.95	23.95	23.83	23.92	23.84	23.95	23.84	23.94	23.91	23.85
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	389	392	391	394	393	397	395	397	397	397
BHP	174	176	175	176	176	178	177	178	178	178
TCBHP	182	184	183	184	184	186	185	186	186	186
LCBHP	181	183	182	183	182	185	184	185	184	184
BMEP (psig)	88.9	89.6	89.4	90.0	89.8	90.5	90.4	90.6	90.8	90.8
FF (lbs/hr)	113.5	108.3	105.0	104.5	100.5	99.6	96.0	95.5	92.0	91.0
FFG (gal/hr)	18.8	18.0	17.4	17.3	16.7	16.5	15.9	15.9	15.3	15.1
% Relative FF	24.3	18.6	15.0	14.5	10.1	9.1	5.1	4.6	0.8	-0.3
BSFC (lbs/hp hr)	0.65	0.62	0.60	0.59	0.57	0.56	0.55	0.54	0.52	0.51
TCBSFC (lbs/hp hr)	0.63	0.59	0.57	0.57	0.55	0.54	0.52	0.52	0.50	0.49
LCBSFC (lbs/hp hr)	0.63	0.59	0.58	0.57	0.55	0.54	0.53	0.52	0.50	0.49
IAT (°F)	102	104	103	103	104	103	103	104	103	103
IAP (in. Hg)	30.04	30.05	30.09	30.05	30.09	30.05	30.08	30.04	30.06	30.09
Cowl T (°F)	104	104	102	104	102	103	101	103	104	102
Cowl P (in H_2O)	1.4	1.5	1.5	1.4	1.6	1.7	1.6	1.8	2.0	1.8
Fuel T (°F)	97	97	95	97	95	98	95	98	97	95
Fuel Dens (lbs/gal)	6.0	6.0	6.04	6.0	6.04	6.0	6.04	6.0	6.0	6.04
MTDP (psig)	4.4	4.1	3.8	3.7	3.5	3.4	3.2	3.2	3.0	2.9
Pump P (psig)	18.5	18.5	19.1	18.6	19.1	18.6	19.1	18.6	18.6	19.2
CHT1 (°F)	447	447	455	448	456	450	457	450	451	457
CHT2 (°F)	443	444	449	444	450	446	451	447	445	452
CHT3 (°F)	448	447	455	448	456	451	457	450	450	457
CHT4 (°F)	434	435	440	435	440	436	441	437	436	443
CHT5 (°F)	475	475	476	475	477	476	477	476	476	478
CHT6 (°F)	457	458	465	458	466	461	468	460	459	469
EGT1 (°F)	1294	1317	1334	1345	1361	1372	1393	1396	1423	1426
EGT2 (°F)	1289	1310	1331	1338	1359	1366	1391	1389	1416	1423
EGT3 (°F)	1311	1333	1353	1361	1380	1388	1411	1411	1438	1445
EGT4 (°F)	1291	1314	1339	1344	1367	1373	1399	1398	1425	1432
EGT5 (°F)	1303	1325	1345	1352	1373	1381	1403	1404	1429	1436
EGT6 (°F)	1321	1342	1359	1370	1386	1397	1418	1418	1443	1447
Oil T (°F)	229	229	238	229	238	229	238	229	231	239
Oil P (psig)	60	60	59	60	59	60	59	60	60	59
Hum T (°F)	102	102	103	102	102	102	102	102	102	103
Hum ratio (gr/lb)	2	2	1	2	1	1	1	1	2	1
AFR	10.4	10.8	11.0	11.2	11.4	11.6	11.9	12.0	12.4	12.5
AFL	10.2	10.6	10.8	11.0	11.3	11.5	11.8	11.9	12.3	12.4
K airflow (lbs/hr)	1186	1157	1147	1176	1118	1172	1129	1143	1171	1145
A/F	10.4	10.7	10.9	11.3	11.1	11.8	11.8	12.0	12.8	12.6

TABLE A-157. MM6 ENGINE DATA, TO POWER

Test	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32	T2-32
Barometer (in. Hg)	30.05	30.07	30.05	30.07	30.05	30.07	30.07
Fuel	MM6	MM6	MM6	MM6	MM6	MM6	MM6
Test Points	AX	AL	AY	AK**	AZ	AJ	AI
MAP (in. Hg)	29.36	29.43	29.37	29.43	29.35	29.42	29.44
rpm	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	531	536	533	535	535	539	539
BHP	273	276	274	275	275	277	278
TCBHP	286	289	286	287	288	289	290
LCBHP	284	286	284	285	286	287	287
BMEP (psig)	120.9	122.5	122.5	122.2	122.1	123.2	123.2
FF (lbs/hr)	166.7	165.0	164.0	162.0	153.5	151.7	148.3
FFG (gal/hr)	28.0	27.6	27.5	27.1	25.8	25.4	24.8
% Relative FF	20.9	19.7	19.0	17.6	11.4	10.1	7.6
BSFC (lbs/hp hr)	0.61	0.60	0.60	0.59	0.56	0.54	0.53
TCBSFC (lbs/hp hr)	0.58	0.58	0.6	0.56	0.54	0.5	0.51
LCBSFC (lbs/hp hr)	0.59	0.58	0.58	0.57	0.54	0.53	0.52
IAT (°F)	105	103	102	103	104	102	102
IAP (in. Hg)	30	30	30.06	30	30	30.08	30
Cowl T (°F)	106	102	106	104	106	104	105
Cowl P (in H_2O)	3.0	2.0	3.4	2.0	5.0	2.7	4.0
Fuel T (°F)	94	90	92	90	92	90	90
Fuel Dens (lbs/gal)	6	6	6.0	6	6	6.0	6
MTDP (psig)	9.4	9.4	9.0	9.2	8.7	9.0	8.1
Pump P (psig)	18.7	19.2	18.70	19.1	18.7	19.20	19.3
CHT1 (°F)	456.0	466.5	458.0	468.0	459.0	464.3	468.7
CHT2 (°F)	442	450	440.0	450	440	444.0	451
CHT3 (°F)	456	465	453	462	452	457	461
CHT4 (°F)	439	447	441	448	441	442	445
CHT5 (°F)	474	477	475	473	476	472	477
CHT6 (°F)	460	472	462	473	462	468	471
EGT1 (°F)	1392	1396	1414	1404	1422	1433	1449
EGT2 (°F)	1369	1379	1395	1386	1401	1411	1430
EGT3 (°F)	1409	1416	1430	1425	1439	1448	1471
EGT4 (°F)	1383	1392	1406	1402	1414	1427	1448
EGT5 (°F)	1407	1420	1429	1429	1433	1454	1476
EGT6 (°F)	1405	1411	1428	1418	1436	1441	1463
Oil T (°F)	235	242	230	244	238	239	239
Oil P (psig)	63	61	63	61	62	61	62
Hum T (°F)	103	103	103	102	102	102	102
Hum ratio (gr/lb)	1	1	1	1	1	1	1
AFR	10.9	11	11	11.1	11	11	11.8
AFL	10.7	10.9	11	10.9	11.2	11	11.7
K airflow (lbs/hr)	1775.3	1830.0	1886.0	1835.0	1838.0	1819.7	1832.7
A/F	10.7	11.1	11.5	11.3	12.0	12.0	12.4

TABLE A-158. MM6 ENGINE DATA, 85% POWER

Test	T2-33	T2-32	T2-33	T2-32	T2-32	T2-33	T2-33	T2-32	T2-32	T2-32
Barometer (in. Hg)	30.05	30.07	30.05	30.07	30.07	30.05	30.05	30.07	30.07	30.07
Fuel	MM6	MM6	MM6	MM6	MM6	MM6	MM6	MM6	MM6	MM6
Test Points	BA	AR	BB**	AQ	AP	BC	BD	AO	AN	AM
MAP (in. Hg)	27.33	27.28	27.33	27.28	27.29	27.32	27.33	27.30	27.49	27.25
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	478	477	480	479	481	482	483	484	487	482
BHP	237	236	238	237	239	239	239	240	242	238
TCBHP	248	247	249	248	249	249	250	250	252	249
LCBHP	246	245	247	246	247	248	249	249	250	247
BMEP (psig)	109.1	108.8	109.7	109.5	110.0	110.1	110.5	110.5	111.5	109.9
FF (lbs/hr)	145.1	144.7	141.0	140.6	135.5	135.0	130.5	128.0	126.3	120.7
FFG (gal/hr)	24.3	24.2	23.6	23.5	22.7	22.6	21.9	21.4	21.1	20.2
% Relative FF	23.3	22.9	19.8	19.4	15.1	14.7	10.9	8.8	7.3	2.5
BSFC (lbs/hp hr)	0.61	0.61	0.59	0.59	0.57	0.56	0.55	0.53	0.52	0.51
TCBSFC (lbs/hp hr)	0.58	0.59	0.57	0.57	0.54	0.54	0.52	0.51	0.50	0.49
LCBSFC (lbs/hp hr)	0.59	0.59	0.57	0.57	0.55	0.54	0.53	0.51	0.50	0.49
IAT (°F)	105	105	103	103	103	103	105	103	103	103
IAP (in. Hg)	30.05	30.07	30.05	30.09	30.09	30.04	30.06	30.08	30.09	30.08
Cowl T (°F)	106	104	106	104	104	105	105	103	100	102
Cowl P (in H_2O)	2.5	1.7	2.6	2.8	2.9	2.9	2.9	4.5	3.4	2.0
Fuel T (°F)	93	91	93	91	91	93	93	91	91	90
Fuel Dens (lbs/gal)	6.0	5.98	6.0	5.98	5.98	6.0	6.0	5.98	6.0	6.0
MTDP (psig)	7.2	7.1	6.8	6.8	6.4	6.3	5.8	5.7	5.6	5.0
Pump P (psig)	18.6	19.1	18.6	19.2	19.2	18.6	18.6	19.2	19.2	19.2
CHT1 (°F)	454	461	455	460	464	456	456	460	465	465
CHT2 (°F)	443	447	444	448	449	444	443	449	450	450
CHT3 (°F)	453	467	453	460	459	453	451	455	462	459
CHT4 (°F)	438	444	439	443	444	438	438	441	444	445
CHT5 (°F)	475	474	475	474	475	476	475	477	480	476
CHT6 (°F)	458	466	460	466	467	460	458	463	468	467
EGT1 (°F)	1360	1363	1379	1380	1400	1403	1427	1434	1450	1464
EGT2 (°F)	1340	1345	1357	1363	1383	1381	1405	1413	1428	1448
EGT3 (°F)	1379	1382	1399	1403	1423	1424	1450	1458	1471	1495
EGT4 (°F)	1352	1356	1370	1375	1396	1394	1422	1431	1451	1467
EGT5 (°F)	1377	1383	1396	1401	1419	1418	1443	1446	1457	1486
EGT6 (°F)	1372	1374	1390	1395	1414	1416	1442	1445	1466	1486
Oil T (°F)	239	240	239	240	240	242	244	240	239	241
Oil P (psig)	61	61	61	61	61	61	61	61	61	61
Hum T (°F)	103	103	103	103	104	103	103	103	103	102
Hum ratio (gr/lb)	2	1	2	1	1	1	2	1	1	1
AFR	10.9	10.9	11.2	11.1	11.5	11.5	11.9	12.0	12.3	12.8
AFL	10.8	10.8	11.1	11.1	11.5	11.5	11.9	12.0	12.3	12.8
K airflow (lbs/hr)	1590	1517	1615	1545	1544	1607	1604	1532	1528	1508
A/F	10.9	10.5	11.5	11.0	11.4	11.9	12.3	12.0	12.1	12.5

TABLE A-159. MM6 ENGINE DATA, 75% POWER

Test	T2-32	T2-33	T2-32	T2-33	T2-33	T2-32	T2-32	T2-33	T2-32	T2-32
Barometer (in. Hg)	30.07	30.05	30.07	30.05	30.05	30.07	30.07	30.05	30.07	30.07
Fuel	MM6	MM6	MM6	MM6	MM6	MM6	MM6	MM6	MM6	MM6
Test Points	AX	BE	AW**	BF	BG	AV	AU	BH	AT	AS
MAP (in. Hg)	26.31	25.98	26.32	26.00	26.01	26.33	26.34	26.04	26.38	26.40
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	454	446	456	450	449	460	459	453	462	461
BHP	212	208	213	210	210	215	215	212	216	215
TCBHP	221	218	223	219	219	224	224	221	226	225
LCBHP	220	216	221	218	218	223	223	220	224	223
BMEP (psig)	103.8	102.1	104.4	102.7	102.7	104.8	104.9	103.4	105.5	105.3
FF (lbs/hr)	130.0	128.3	124.8	123.1	119.9	119.8	114.8	114.0	110.0	105.3
FFG (gal/hr)	21.8	21.5	20.9	20.7	20.1	20.1	19.2	19.1	18.4	17.6
% Relative FF	25.1	23.4	20.1	18.5	15.4	15.3	10.5	9.7	5.9	1.3
BSFC (lbs/hp hr)	0.61	0.61	0.58	0.59	0.57	0.56	0.53	0.54	0.51	0.49
TCBSFC (lbs/hp hr)	0.59	0.59	0.56	0.56	0.55	0.53	0.51	0.52	0.49	0.47
LCBSFC (lbs/hp hr)	0.59	0.59	0.56	0.57	0.55	0.54	0.52	0.52	0.49	0.47
IAT (°F)	103	103	104	103	105	103	105	103	105	103
IAP (in. Hg)	30.09	30.04	30.08	30.04	30.04	30.08	30.08	30.04	30.08	30.08
Cowl T (°F)	107	103	106	103	103	105	103	104	100	102
Cowl P (in H_2O)	2.0	2.0	2.0	2.1	2.4	2.0	2.7	2.6	2.9	3.5
Fuel T (°F)	91	93	91	94	94	91	92	94	93	92
Fuel Dens (lbs/gal)	5.98	6.00	5.97	6.00	6.00	5.97	5.97	6.00	5.97	5.97
MTDP (psig)	5.8	5.6	5.4	5.2	4.9	4.9	4.6	4.5	4.2	3.9
Pump P (psig)	19.0	18.5	19.1	18.5	18.5	19.1	19.1	18.6	19.1	19.1
CHT1 (°F)	454	448	454	449	449	457	456	451	442	441
CHT2 (°F)	449	442	449	442	442	452	449	445	431	422
CHT3 (°F)	450	446	451	447	447	454	452	448	438	433
CHT4 (°F)	438	435	439	436	435	441	439	437	425	418
CHT5 (°F)	474	475	473	475	475	474	474	477	474	477
CHT6 (°F)	464	457	465	458	458	468	466	460	450	445
EGT1 (°F)	1324	1329	1353	1352	1369	1378	1405	1403	1430	1445
EGT2 (°F)	1318	1315	1345	1338	1358	1371	1398	1389	1428	1445
EGT3 (°F)	1345	1345	1372	1367	1387	1398	1423	1419	1448	1464
EGT4 (°F)	1329	1329	1357	1353	1373	1385	1412	1405	1442	1456
EGT5 (°F)	1346	1346	1373	1368	1386	1396	1417	1414	1426	1400
EGT6 (°F)	1351	1353	1378	1376	1392	1405	1428	1424	1450	1459
Oil T (°F)	242	237	241	236	237	241	242	236	238	239
Oil P (psig)	60	60	60	60	60	60	60	60	60	60
Hum T (°F)	103	103	103	103	103	103	103	103	103	103
Hum ratio (gr/lb)	1	2	1	2	2	1	1	2	1	1
AFR	10.9	10.9	11.3	11.3	11.6	11.7	12.1	12.1	12.7	13.3
AFL	10.8	10.8	11.2	11.2	11.4	11.6	12.0	12.0	12.6	13.2
K airflow (lbs/hr)	1376	1421	1352	1407	1369	1379	1347	1406	1369	1378
A/F	10.6	11.1	10.9	11.4	11.4	11.5	11.7	12.3	12.4	13.1

TABLE A-160. MM6 ENGINE DATA, 65% POWER

Test	T2-32	T2-33	T2-33	T2-32	T2-33	T2-32	T2-33	T2-32
Barometer (in. Hg)	30.07	30.05	30.05	30.07	30.05	30.07	30.05	30.07
Fuel	MM6	MM6	MM6	MM6	MM6	MM6	MM6	MM6
Test Points	BB	BI	BJ	BA	BK	AZ**	BL	AY
MAP (in. Hg)	24.47	24.03	24.03	24.50	24.08	24.52	24.00	24.53
rpm	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	410	399	401	414	401	414	403	414
BHP	184	179	180	185	180	185	181	186
TCBHP	192	187	188	194	188	194	188	194
LCBHP	190	186	187	192	187	192	187	192
BMEP (psig)	93.6	91.2	91.6	94.6	92.1	94.5	92.1	94.8
FF (lbs/hr)	114.0	112.9	109.4	109.5	107.0	106.0	100.5	100.1
FFG (gal/hr)	19.1	18.9	18.4	18.4	18.0	17.7	16.9	16.8
% Relative FF	24.9	23.7	19.9	19.9	17.2	16.1	10.1	9.7
BSFC (lbs/hp hr)	0.62	0.63	0.61	0.59	0.59	0.57	0.56	0.54
TCBSFC (lbs/hp hr)	0.59	0.61	0.58	0.57	0.57	0.55	0.53	0.52
LCBSFC (lbs/hp hr)	0.60	0.61	0.59	0.57	0.57	0.55	0.54	0.52
IAT (°F)	103	102	104	103	102	103	102	103
IAP (in. Hg)	30.08	30.03	30.04	30.09	30.04	30.08	30.04	30.07
Cowl T (°F)	101	105	104	101	105	102	104	104
Cowl P (in H_2O)	1.1	1.6	1.6	1.3	2.3	1.1	2.0	1.8
Fuel T (°F)	92	95	95	92	95	92	95	92
Fuel Dens (lbs/gal)	5.97	6.0	6.0	5.97	6.0	5.97	6.0	5.97
MTDP (psig)	4.4	4.4	4.2	4.1	3.9	3.8	3.5	3.5
Pump P (psig)	19.0	18.5	18.4	19.0	18.5	18.9	18.5	19.0
CHT1 (°F)	453	448	448	453	450	451	451	457
CHT2 (°F)	451	444	444	450	445	446	446	453
CHT3 (°F)	454	449	450	453	449	449	451	456
CHT4 (°F)	439	437	436	437	437	434	438	440
CHT5 (°F)	474	475	475	474	476	475	476	476
CHT6 (°F)	465	460	460	464	461	461	460	467
EGT1 (°F)	1318	1317	1337	1343	1359	1368	1386	1404
EGT2 (°F)	1314	1308	1328	1338	1349	1362	1376	1399
EGT3 (°F)	1342	1336	1354	1364	1372	1388	1401	1426
EGT4 (°F)	1325	1319	1337	1349	1360	1374	1388	1413
EGT5 (°F)	1332	1328	1346	1353	1366	1377	1394	1417
EGT6 (°F)	1349	1344	1361	1371	1386	1394	1409	1431
Oil T (°F)	238	230	230	239	232	239	230	240
Oil P (psig)	59	60	60	59	60	59	60	59
Hum T (°F)	102	102	102	103	102	102	101	103
Hum ratio (gr/lb)	1	2	2	1	2	1	2	1
AFR	11.0	10.9	11.2	11.3	11.5	11.7	12.0	12.3
AFL	10.8	10.7	11.0	11.2	11.3	11.6	11.9	12.2
K airflow (lbs/hr)	1199	1222	1190	1203	1225	1200	1204	1196
A/F	10.5	10.8	10.9	11.0	11.5	11.3	12.0	12.0

TABLE A-161. MM7 ENGINE DATA, TO POWER

Test	T2-34	T2-34	T2-34	T2-32	T2-32	T2-34	T2-34	T2-32	T2-34	T2-32
Barometer (in. Hg)	30.24	30.24	30.24	30.07	30.07	30.24	30.24	30.07	30.24	30.07
Fuel	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7
Test Points	F	E	D	BF	BE	C	B	BC**	A	BD
MAP (in. Hg)	29.69	29.70	29.70	29.40	29.42	29.71	29.70	29.42	29.71	29.42
rpm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	531	531	535	532	535	538	541	537	545	537
BHP	273	274	275	274	275	277	278	276	281	276
TCBHP	285	286	287	286	287	289	290	288	293	288
LCBHP	281	282	284	284	285	285	286	286	289	286
BMEP (psig)	121.3	121.6	122.3	121.7	122.2	123.0	123.6	122.7	124.6	122.8
FF (lbs/hr)	172.2	165.6	163.8	151.7	151.5	151.1	144.9	138.2	137.7	133.8
FFG (gal/hr)	29.0	27.8	27.6	25.7	25.6	25.4	24.4	23.3	23.1	22.6
% Relative FF	25.0	20.2	18.8	10.1	9.9	9.7	5.1	0.3	-0.1	-2.9
BSFC (lbs/hp hr)	0.63	0.61	0.60	0.55	0.55	0.55	0.52	0.50	0.49	0.48
TCBSFC (lbs/hp hr)	0.60	0.58	0.57	0.53	0.53	0.52	0.50	0.48	0.47	0.46
LCBSFC (lbs/hp hr)	0.61	0.59	0.58	0.53	0.53	0.53	0.51	0.49	0.48	0.47
IAT (°F)	103	103	103	104	103	102	102	102	101	103
IAP (in. Hg)	30.27	30.28	30.28	30.07	30.09	30.29	30.27	30.08	30.27	30.07
Cowl T (°F)	104	103	104	104	105	105	104	105	104	107
Cowl P (in H_2O)	2.2	2.3	2.5	2.5	3.3	2.8	3.3	3.2	4.1	3.2
Fuel T (°F)	84	84	84	90	90	84	84	90	83	91
Fuel Dens (lbs/gal)	5.94	5.94	5.94	5.92	5.91	5.95	5.95	5.92	5.95	5.91
MTDP (psig)	9.5	9.3	8.7	8.1	7.9	8.2	7.6	6.9	6.8	6.5
Pump P (psig)	19.8	19.9	19.9	19.2	19.2	19.9	19.9	19.2	20.0	19.2
CHT1 (°F)	461	463	465	468	467	463	464	468	462	468
CHT2 (°F)	446	446	449	452	453	447	445	450	441	451
CHT3 (°F)	454	454	456	459	459	456	454	457	452	457
CHT4 (°F)	445	445	448	444	443	446	444	443	440	444
CHT5 (°F)	476	475	476	475	474	474	473	475	474	474
CHT6 (°F)	464	465	467	468	467	465	463	467	459	467
EGT1 (°F)	1377	1385	1411	1423	1435	1437	1459	1478	1497	1504
EGT2 (°F)	1358	1363	1390	1403	1415	1412	1434	1458	1473	1480
EGT3 (°F)	1391	1399	1423	1442	1454	1450	1472	1499	1512	1522
EGT4 (°F)	1372	1379	1404	1418	1432	1428	1451	1476	1491	1500
EGT5 (°F)	1394	1402	1426	1439	1451	1451	1472	1498	1514	1519
EGT6 (°F)	1386	1393	1419	1434	1448	1446	1466	1491	1507	1513
Oil T (°F)	201	200	201	239	239	203	203	241	206	240
Oil P (psig)	68	68	67	62	62	68	67	62	68	62
Hum T (°F)	105	105	105	103	103	104	104	103	103	103
Hum ratio (gr/lb)	1	0	0	1	1	0	0	1	0	1
AFR	10.6	10.7	11.0	11.3	11.5	11.4	11.8	12.2	12.4	12.5
AFL	10.4	10.6	10.9	11.2	11.4	11.3	11.7	12.1	12.3	12.5
K airflow (lbs/hr)	1761	1755	1753	1805	1858	1745	1743	1820	1737	1806
A/F	10.2	10.6	10.7	11.9	12.3	11.6	12.0	13.2	12.6	13.5

TABLE A-162. MM7 ENGINE DATA, 85% POWER

Test	T2-34	T2-34	T2-34	T2-32	T2-32	T2-34	T2-32	T2-34	T2-32
Barometer (in. Hg)	30.24	30.24	30.24	30.07	30.07	30.24	30.07	30.24	30.07
Fuel	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7
Test Points	K	J	I	BJ	BI	H	BG	G**	BH
MAP (in. Hg)	26.99	26.99	27.00	26.96	26.97	27.01	27.00	27.03	26.98
rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	462	464	467	470	471	470	474	473	473
BHP	229	230	232	233	234	233	235	235	234
TCBHP	239	240	242	243	244	244	245	245	245
LCBHP	237	237	239	241	242	241	244	242	243
BMEP (psig)	105.6	106.1	106.7	107.3	107.7	107.4	108.5	108.1	108.1
FF (lbs/hr)	140.3	134.9	129.6	129.5	123.6	123.4	117.8	115.3	111.8
FFG (gal/hr)	23.7	22.7	21.8	21.9	20.9	20.8	19.9	19.4	18.9
% Relative FF	19.2	14.6	10.1	10.0	5.0	4.9	0.0	-2.0	-5.0
BSFC (lbs/hp hr)	0.61	0.59	0.56	0.56	0.53	0.53	0.50	0.49	0.48
TCBSFC (lbs/hp hr)	0.59	0.56	0.54	0.53	0.51	0.51	0.48	0.47	0.46
LCBSFC (lbs/hp hr)	0.59	0.57	0.54	0.54	0.51	0.51	0.48	0.48	0.46
IAT (°F)	103	104	103	103	104	103	103	103	103
IAP (in. Hg)	30.24	30.26	30.26	30.08	30.09	30.26	30.08	30.25	30.07
Cowl T (°F)	102	100	101	107	105	102	103	102	105
Cowl P (in H_2O)	2.2	1.9	2.1	2.6	2.6	2.6	3.2	1.7	2.7
Fuel T (°F)	86	86	87	92	92	87	91	86	93
Fuel Dens (lbs/gal)	5.94	5.93	5.93	5.91	5.91	5.93	5.91	5.94	5.91
MTDP (psig)	6.8	6.3	5.9	5.9	5.3	5.3	4.8	4.6	4.5
Pump P (psig)	19.5	19.6	19.6	19.2	19.2	19.6	19.2	19.7	19.2
CHT1 (°F)	453	458	461	459	461	458	460	454	462
CHT2 (°F)	442	447	450	454	456	446	453	442	457
CHT3 (°F)	453	455	457	460	458	452	457	447	459
CHT4 (°F)	436	440	443	443	445	440	442	436	446
CHT5 (°F)	473	474	476	473	474	474	474	474	474
CHT6 (°F)	453	457	460	463	464	457	462	454	464
EGT1 (°F)	1342	1371	1399	1393	1427	1433	1460	1473	1496
EGT2 (°F)	1323	1349	1376	1374	1408	1410	1439	1451	1476
EGT3 (°F)	1360	1389	1419	1414	1449	1454	1482	1496	1519
EGT4 (°F)	1332	1360	1389	1385	1419	1423	1451	1465	1491
EGT5 (°F)	1360	1389	1416	1408	1442	1449	1474	1490	1512
EGT6 (°F)	1356	1385	1414	1406	1442	1449	1474	1489	1512
Oil T (°F)	240	236	230	242	242	230	240	231	241
Oil P (psig)	62	62	63	61	61	63	61	63	61
Hum T (°F)	104	104	104	103	104	104	103	104	103
Hum ratio (gr/lb)	0	0	0	1	1	0	1	0	1
AFR	10.6	11.0	11.4	11.4	11.9	11.9	12.4	12.7	13.0
AFL	10.5	11.0	11.4	11.4	11.8	11.9	12.4	12.7	13.0
K airflow (lbs/hr)	1437	1440	1443	1514	1506	1446	1507	1431	1499
A/F	10.2	10.7	11.1	11.7	12.2	11.7	12.8	12.4	13.4

TABLE A-163. MM7 ENGINE DATA, 75% POWER

Test	T2-34	T2-34	T2-34	T2-34	T2-32	T2-32	T2-34	T2-34	T2-32	T2-32
Barometer (in. Hg)	30.24	30.24	30.24	30.24	30.07	30.07	30.24	30.24	30.07	30.07
Fuel	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7
Test Points	Q	P	O	N	BN	BM	M	L	BK	BL**
MAP (in. Hg)	25.79	25.82	25.80	25.81	25.79	25.79	25.82	25.82	25.79	25.81
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	430	433	436	438	441	443	441	440	446	445
BHP	201	202	204	205	206	207	206	205	208	208
TCBHP	210	211	213	214	215	216	215	215	217	217
LCBHP	207	209	210	211	214	215	212	212	216	215
BMEP (psig)	98.2	99.0	99.7	100.2	100.9	101.4	100.8	100.6	101.7	101.7
FF (lbs/hr)	129.6	124.7	119.4	115.7	114.8	109.2	109.2	105.0	104.3	99.0
FFG (gal/hr)	21.9	21.0	20.1	19.5	19.4	18.5	18.4	17.7	17.6	16.8
% Relative FF	24.8	20.0	14.9	11.4	10.5	5.1	5.1	1.1	0.3	-4.7
BSFC (lbs/hp hr)	0.65	0.62	0.59	0.57	0.56	0.53	0.53	0.51	0.50	0.48
TCBSFC (lbs/hp hr)	0.62	0.59	0.56	0.54	0.53	0.50	0.51	0.49	0.48	0.46
LCBSFC (lbs/hp hr)	0.63	0.60	0.57	0.55	0.54	0.51	0.52	0.50	0.48	0.46
IAT (°F)	104	104	104	103	103	105	103	104	103	103.00
IAP (in. Hg)	30.26	30.26	30.27	30.27	30.08	30.09	30.25	30.25	30.07	30
Cowl T (°F)	102	102	102	102	102	102	102	103	104	103.00
Cowl P (in H_2O)	1.4	1.5	1.7	2.0	1.8	2.1	2.2	2.2	2.5	3
Fuel T (°F)	87	88	88	88	92	92	89	89	92	92.0
Fuel Dens (lbs/gal)	5.93	5.93	5.93	5.93	5.91	5.91	5.92	5.92	5.91	6
MTDP (psig)	5.8	5.5	5.0	4.7	4.6	4.2	4.3	4.0	3.8	3.50
Pump P (psig)	19.4	19.4	19.4	19.5	19.1	19.1	19.5	19.5	19.2	19.2
CHT1 (°F)	447	450	453	453	453	454	455	455	454	457.0
CHT2 (°F)	441	442	445	444	449	449	447	445	453	453
CHT3 (°F)	446	447	449	448	450	451	451	450	452	454
CHT4 (°F)	434	436	438	437	439	439	439	439	441	443
CHT5 (°F)	474	474	475	473	474	476	475	474	476	477
CHT6 (°F)	454	456	458	457	462	463	459	458	464	465
EGT1 (°F)	1297	1319	1347	1367	1367	1394	1402	1423	1428	1464
EGT2 (°F)	1282	1304	1333	1352	1356	1383	1385	1406	1416	1451
EGT3 (°F)	1309	1333	1363	1383	1386	1414	1417	1440	1446	1481
EGT4 (°F)	1293	1315	1343	1363	1369	1396	1398	1419	1428	1464
EGT5 (°F)	1308	1331	1359	1379	1379	1406	1414	1434	1437	1471
EGT6 (°F)	1318	1340	1368	1387	1390	1417	1419	1440	1448	1481
Oil T (°F)	240	240	240	241	239	240	240	240	240	240
Oil P (psig)	60	60	60	60	60	60	60	60	60	60
Hum T (°F)	104	104	104	104	103	103	104	104	103	103
Hum ratio (gr/lb)	0	0	0	0	1	1	0	0	1	1
AFR	10.2	10.6	11.0	11.4	11.4	11.9	11.9	12.3	12.4	13
AFL	10.1	10.4	10.9	11.3	11.3	11.8	11.8	12.2	12.4	13.0
K airflow (lbs/hr)	1270	1264	1262	1265	1329	1310	1272	1261	1328	1305.7
A/F	9.8	10.1	10.6	11.0	11.6	12.0	11.7	12.0	12.7	13

TABLE A-164. MM7 ENGINE DATA, 65% POWER

Test	T2-34	T2-34	T2-34	T2-34	T2-32	T2-34	T2-32	T2-34	T2-32	T2-32
Barometer (in. Hg)	30.24	30.24	30.24	30.24	30.07	30.24	30.07	30.24	30.07	30.07
Fuel	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7	MM7
Test Points	W	V	U	T	BR	S	BQ	R	BO	BP**
MAP (in. Hg)	23.94	23.94	23.92	23.92	23.88	23.94	23.89	23.92	23.91	23.90
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	389	390	391	393	396	395	397	396	400	400
BHP	174	175	175	176	177	177	178	177	179	179
TCBHP	182	182	183	184	185	185	186	185	187	187
LCBHP	180	180	181	182	184	183	185	183	186	186
BMEP (psig)	88.8	89.2	89.4	89.9	90.4	90.3	90.9	90.6	91.3	91.6
FF (lbs/hr)	111.0	109.0	105.7	100.3	99.7	96.3	95.0	89.7	88.7	85.3
FFG (gal/hr)	18.7	18.4	17.9	16.9	16.9	16.3	16.1	15.1	15.0	14.4
% Relative FF	21.6	19.4	15.7	9.9	9.2	5.5	4.1	-1.8	-2.9	-6.5
BSFC (lbs/hp hr)	0.64	0.63	0.60	0.57	0.56	0.54	0.53	0.51	0.49	0.48
TCBSFC (lbs/hp hr)	0.61	0.60	0.58	0.55	0.54	0.52	0.51	0.49	0.47	0.46
LCBSFC (lbs/hp hr)	0.62	0.61	0.58	0.55	0.54	0.53	0.51	0.49	0.48	0.46
IAT (°F)	103	103	103	103	103	103	104	103	104	103
IAP (in. Hg)	30.26	30.25	30.26	30.25	30.08	30.25	30.06	30.24	30.08	30.07
Cowl T (°F)	102	102	102	102	105	102	104	103	103	103
Cowl P (in H_2O)	1.3	1.0	2.2	1.7	1.6	2.0	1.9	1.5	2.6	2.5
Fuel T (°F)	88	89	89	90	92	90	93	90	92	93
Fuel Dens (lbs/gal)	5.92	5.92	5.92	5.92	5.91	5.92	5.91	5.91	5.91	5.91
MTDP (psig)	4.3	4.2	3.9	3.6	3.5	3.4	3.2	3.1	2.9	2.6
Pump P (psig)	19.4	19.3	19.4	19.4	19.1	19.4	19.1	19.4	19.1	19.1
CHT1 (°F)	448	449	450	450	452	453	452	452	453	453
CHT2 (°F)	443	443	444	445	450	446	450	445	453	453
CHT3 (°F)	448	448	449	450	453	453	453	452	452	455
CHT4 (°F)	434	434	434	435	438	437	438	437	440	441
CHT5 (°F)	475	474	475	474	475	476	475	475	476	477
CHT6 (°F)	457	457	458	458	465	460	464	458	465	467
EGT1 (°F)	1294	1310	1328	1354	1359	1385	1390	1427	1435	1461
EGT2 (°F)	1286	1302	1322	1348	1353	1379	1383	1420	1423	1450
EGT3 (°F)	1313	1329	1347	1373	1380	1406	1409	1456	1450	1476
EGT4 (°F)	1296	1311	1328	1356	1363	1385	1393	1426	1433	1461
EGT5 (°F)	1303	1320	1339	1365	1370	1397	1399	1444	1441	1468
EGT6 (°F)	1317	1333	1352	1376	1387	1408	1412	1448	1455	1480
Oil T (°F)	233	233	233	234	233	235	234	235	236	235
Oil P (psig)	60	60	60	60	60	60	60	60	59	60
Hum T (°F)	103	103	103	103	103	103	103	103	103	103
Hum ratio (gr/lb)	0	0	0	0	1	0	1	1	1	1
AFR	10.4	10.7	11.0	11.4	11.5	11.8	12.0	12.6	12.7	13.3
AFL	10.2	10.5	10.8	11.2	11.4	11.7	11.9	12.4	12.6	13.2
K airflow (lbs/hr)	1095	1106	1100	1100	1166	1100	1129	1094	1154	1153
A/F	9.9	10.2	10.4	11.0	11.7	11.4	11.9	12.2	13.0	13.5

TABLE A-165. 100LL ENGINE DATA, TO POWER

Test	T2-52	T2-52	T2-52	T2-52	T2-52	T2-59	T2-52	T2-52
Barometer (in. Hg)	30.20	30.20	30.20	30.20	30.20	29.97	30.20	30.20
Fuel	100LL	100LL	100LL	100LL	100LL	100/130L	100LL	100LL
Test Points	A	B	C	D	E	AC**	F	G
MAP (in. Hg)	29.59	29.59	29.60	29.59	29.59	29.44	29.59	29.58
rpm	2700	2700	2700	2700	2700	2700	2700	2700
TORK (ft-lbs)	518	522	526	530	526	535	534	534
BHP	267	269	270	273	270	275	275	275
TCBHP	279	281	283	285	284	287	288	286
LCBHP	276	278	279	283	280	286	284	284
BMEP (psig)	118.6	119.2	120.0	121.0	119.8	122.3	122.3	122.0
FF (lbs/hr)	166.0	164.0	157.0	149.0	147.0	139.0	132.0	123.0
FFG (gal/hr)	28.2	27.9	26.8	25.4	25.1	23.7	22.5	21.1
% Relative FF	20.5	19.0	13.9	8.1	6.7	0.9	-4.2	-10.7
BSFC (lbs/hp hr)	0.62	0.61	0.58	0.54	0.55	0.51	0.48	0.45
TCBSFC (lbs/hp hr)	0.60	0.58	0.55	0.52	0.52	0.49	0.46	0.43
LCBSFC (lbs/hp hr)	0.60	0.59	0.56	0.53	0.53	0.49	0.46	0.43
IAT (°F)	103	104	105	106	108	103	104	102
IAP (in. Hg)	30.12	30.12	30.13	30.13	30.14	30.00	30.13	30.13
Cowl T (°F)	103	106	107	105	105	103	101	101
Cowl P (in H_2O)	1.5	2.2	2.0	3.0	1.9	4.6	3.2	3.6
Fuel T (°F)	90	90	91	93	94	95	94	95
Fuel Dens (lbs/gal)	5.87	5.87	5.87	5.87	5.86	5.88	5.86	5.85
MTDP (psig)	9.8	9.4	8.8	8.0	7.8	7.5	6.6	5.7
Pump P (psig)	19.6	19.7	19.7	19.7	19.6	23.9	19.6	19.7
CHT1 (°F)	465	458	455	461	463	458	462	463
CHT2 (°F)	442	436	433	436	441	431	441	443
CHT3 (°F)	460	453	448	450	459	449	457	455
CHT4 (°F)	443	436	433	437	445	433	442	445
CHT5 (°F)	474	471	475	478	477	477	479	481
CHT6 (°F)	459	453	452	454	460	456	457	458
EGT1 (°F)	1339	1350	1375	1414	1431	1479	1474	1514
EGT2 (°F)	1335	1342	1360	1396	1409	1453	1468	1525
EGT3 (°F)	1360	1369	1392	1432	1449	1495	1488	1538
EGT4 (°F)	1344	1351	1373	1408	1422	1464	1486	1538
EGT5 (°F)	1367	1370	1394	1430	1454	1496	1492	1538
EGT6 (°F)	1368	1374	1392	1433	1444	1483	1505	1562
Oil T (°F)	220	220	221	223	226	233	212	231
Oil P (psig)	70	70	70	70	70	64	70	69
Hum T (°F)	103	103	104	105	106	104	105	103
Hum ratio (gr/lb)	1	1	0	0	1	1	1	0
AFR								
AFL								
K airflow (lbs/hr)	1841	1831	1822	1822	1776	1826	1871	1925
A/F	11.1	11.2	11.6	12.3	12.1	13.1	14.2	15.6

TABLE A-166. 100LL ENGINE DATA, 85% POWER

Test	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52
Barometer (in. Hg)	30.2	30.2	30.2	30.2	30.2	30.2	30.2
Fuel	100LL	100LL	100LL	100LL	100LL	100LL	100LL
Test Points	I	J	K	L	H	M	N
MAP (in. Hg)	27.05	27.07	27.07	27.09	27.09	27.05	27.09
rpm	2600	2600	2600	2600	2600	2600	2600
TORK (ft-lbs)	457	462	465	469	473	472	470
BHP	226	229	230	232	234	234	233
TCBHP	236	239	240	242	244	244	243
LCBHP	233	236	237	239	241	241	240
BMEP (psig)	104.4	105.8	106.6	107.1	108.2	107.8	107.7
FF (lbs/hr)	143.0	135.0	128.0	124.0	116.0	111.0	103.7
FFG (gal/hr)	24.5	23.1	22	21.2	19.9	19	17.8
% Relative FF	21.5	14.7	8.8	5.4	-1.4	-5.7	-11.9
BSFC (lbs/hp hr)	0.63	0.59	0.56	0.53	0.50	0.47	0.44
TCBSFC (lbs/hp hr)	0.61	0.57	0.53	0.51	0.48	0.46	0.43
LCBSFC (lbs/hp hr)	0.61	0.57	0.54	0.52	0.48	0.46	0.43
IAT (°F)	101	101	101	102	101	102	102
IAP (in. Hg)	30.13	30.13	30.13	30.14	30.13	30.14	30.25
Cowl T (°F)	104	101	99	99	107	99	102
Cowl P (in H_2O)	1.3	2.1	2.1	2.1	3.5	4	3.6
Fuel T (°F)	97	96	97	98	97	100	100
Fuel Dens (lbs/gal)	5.85	5.85	5.84	5.84	5.85	5.83	5.83
MTDP (psig)	7.3	6.5	6	5.6	5.1	4.6	4.0
Pump P (psig)	19.4	19.4	19.4	19.4	19.5	19.5	19.4
CHT1 (°F)	457	458	459	462	450	452	451
CHT2 (°F)	445	446	445	448	439	435	438
CHT3 (°F)	453	454	454	458	451	445	447
CHT4 (°F)	440	440	439	442	437	431	433
CHT5 (°F)	475	476	476	478	473	474	474
CHT6 (°F)	458	457	456	459	451	449	448
EGT1 (°F)	1315	1347	1380	1408	1436	1459	1510
EGT2 (°F)	1309	1335	1366	1394	1432	1454	1507
EGT3 (°F)	1342	1375	1408	1436	1466	1491	1542
EGT4 (°F)	1314	1342	1372	1399	1439	1462	1518
EGT5 (°F)	1343	1372	1405	1431	1463	1482	1530
EGT6 (°F)	1339	1370	1399	1429	1468	1492	1544
Oil T (°F)	231	231	227	229	233	228	229
Oil P (psig)	67	67	67	67	67	67	67
Hum T (°F)	101	101	101	101	101	101	101
Hum ratio (gr/lb)	0	1	1	1	0	0	0
AFR	5.0	5.0	5.0	5.0	5.0	5.0	5.0
AFL	5.0	5.0	5.0	5.0	5.0	5.0	5.0
K airflow (lbs/hr)	1601	1599	1575	1576	1603	1572	1575
A/F	11.2	11.8	12.3	12.8	13.8	14.2	15.2

TABLE A-167. 100LL ENGINE DATA, 75% POWER

Test	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52
Barometer (in. Hg)	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20
Fuel	100LL	100LL	100LL	100LL	100LL	100LL	100LL	100LL	100LL
Test Points	P	Q	R	S	T	O	U**	V	W
MAP (in. Hg)	25.95	25.99	25.96	25.95	25.97	25.97	25.95	25.96	25.95
rpm	2450	2450	2450	2450	2450	2450	2450	2450	2450
TORK (ft-lbs)	430	436	440	442	444	445	445	445	439
BHP	201	204	205	206	207	208	208	208	205
TCBHP	209	212	214	215	216	217	216.5	216	214
LCBHP	207	211	212	213	214	215	214	215	212
BMEP (psig)	98.4	99.8	100.6	100.7	101.4	101.9	101.7	101.8	100.2
FF (lbs/hr)	130.0	124.0	119.0	113.0	109.0	103.0	99.3	93.0	88.0
FFG (gal/hr)	22.2	21.2	20.4	19.4	18.6	17.6	17.0	16.0	15.1
% Relative FF	25.1	19.3	14.5	8.8	4.9	-0.9	-4.8	-10.5	-15.3
BSFC (lbs/hp hr)	0.65	0.61	0.58	0.55	0.52	0.49	0.50	0.45	0.43
TCBSFC (lbs/hp hr)	0.62	0.58	0.56	0.52	0.50	0.47	0.46	0.43	0.41
LCBSFC (lbs/hp hr)	0.63	0.59	0.56	0.53	0.51	0.48	0.46	0.43	0.42
IAT (°F)	102	102	102	102	102	102	102	102	102
IAP (in. Hg)	30.16	30.15	30.17	30.15	30.16	30.14	30.27	30.15	30.15
Cowl T (°F)	100	98	100	105	106	100	108	108	107
Cowl P (in H_2O)	1.4	1.0	1.4	2.4	2.5	2.0	2.5	2.5	3.7
Fuel T (°F)	100	100	100	100	101	102	102	103	106
Fuel Dens (lbs/gal)	5.83	5.83	5.83	5.83	5.83	5.82	5.82	5.82	5.81
MTDP (psig)	6.1	5.5	5.1	4.7	4.4	3.9	3.7	3.3	3.0
Pump P (psig)	19.1	19.1	19.2	19.2	19.2	19.2	19.2	19.2	19.1
CHT1 (°F)	446	442	447	449	449	447	451	453	446
CHT2 (°F)	438	433	439	439	441	439	442	443	433
CHT3 (°F)	447	439	444	445	444	441	448	448	438
CHT4 (°F)	433	428	433	434	434	433	438	440	428
CHT5 (°F)	476	471	476	478	476	474	478	480	475
CHT6 (°F)	452	448	451	452	451	449	453	454	441
EGT1 (°F)	1280	1303	1329	1359	1384	1423	1447	1483	1516
EGT2 (°F)	1270	1291	1319	1351	1378	1419	1441	1475	1507
EGT3 (°F)	1299	1321	1349	1380	1404	1445	1471	1507	1539
EGT4 (°F)	1278	1303	1330	1361	1385	1426	1451	1486	1522
EGT5 (°F)	1299	1321	1347	1379	1402	1442	1468	1500	1519
EGT6 (°F)	1302	1325	1354	1383	1408	1452	1475	1512	1548
Oil T (°F)	228	229	227	230	229	229	230	228	229
Oil P (psig)	65	65	65	65	65	65	65	65	65
Hum T (°F)	101	101	101	101	101	101	101	101	101
Hum ratio (gr/lb)	1	1	1	0	0	1	0	0	0
AFR									
AFL									
K airflow (lbs/hr)	1414	1417	1406	1398	1394	1401	1403	1396	1401
A/F	10.9	11.5	11.8	12.4	12.8	13.7	14.1	15.1	16.0

TABLE A-168. 100LL ENGINE DATA, 65% POWER

Test	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52	T2-52
Barometer (in. Hg)	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20
Fuel	100LL	100LL	100LL	100LL	100LL	100LL	100LL	100LL	100LL	100LL
Test Points	Y	Z	AA	AB	AC	X	AD	AE**	AF	AG
MAP (in. Hg)	24.13	24.2	24.12	24.19	24.12	24.2	24.17	24.2	24.17	24.19
rpm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
TORK (ft-lbs)	386	390	393	397	398	402	400	400	392	380
BHP	173	175	176	178	178	180	180	179	175	171
TCBHP	180	182	184	185	186	188	187	187	183	178
LCBHP	179	181	182	184	184	186	186	185	181	176
BMEP (psig)	88.4	89.1	89.6	90.7	91	91.7	91.6	91.3	89.4	87.4
FF (lbs/hr)	113.0	111.0	103.0	100.0	94.0	90.0	85.0	82.0	76.0	72.0
FFG (gal/hr)	19.4	19.0	17.7	17.2	16.2	15.5	14.6	14.0	13.0	12.5
% Relative FF	23.8	21.6	12.8	9.5	3.0	-1.4	-6.9	-10.2	-16.8	-21.1
BSFC (lbs/hp hr)	0.65	0.63	0.58	0.57	0.53	0.50	0.47	0.46	0.43	0.43
TCBSFC (lbs/hp hr)	0.63	0.61	0.56	0.54	0.51	0.48	0.45	0.44	0.42	0.41
LCBSFC (lbs/hp hr)	0.63	0.62	0.57	0.55	0.51	0.49	0.46	0.44	0.42	0.41
IAT (°F)	102	102	102	102	102	102	101	102	102	102
IAP (in. Hg)	30.17	30.16	30.18	30.17	30.17	30.17	30.16	30.18	30.16	30.17
Cowl T (°F)	106	107	108	109	109	105	109	107	105	107
Cowl P (in H_2O)	1.3	1.0	1.1	1.6	1.8	1.8	2.0	1.9	1.8	2.3
Fuel T (°F)	103	101	100	100	101	104	102	103	104	106
Fuel Dens (lbs/gal)	5.82	5.83	5.83	5.83	5.83	5.82	5.83	5.82	5.82	5.81
MTDP (psig)	4.6	4.4	4.0	3.7	3.2	3.1	2.8	2.6	2.3	2.2
Pump P (psig)	19.0	19.0	19.1	19.1	19.1	19.1	19.1	19.1	19.0	19.1
CHT1 (°F)	450	456	456	455	457	454	456	451	454	455
CHT2 (°F)	442	450	449	448	450	452	446	442	446	451
CHT3 (°F)	448	453	452	450	453	452	450	448	454	452
CHT4 (°F)	434	441	440	438	442	444	440	437	440	444
CHT5 (°F)	470	478	477	475	476	477	474	471	473	476
CHT6 (°F)	456	463	462	460	462	461	459	454	452	449
EGT1 (°F)	1272	1294	1324	1345	1388	1410	1442	1486	1531	1542
EGT2 (°F)	1273	1292	1322	1344	1384	1410	1432	1473	1522	1542
EGT3 (°F)	1292	1313	1346	1370	1410	1435	1464	1503	1554	1562
EGT4 (°F)	1271	1297	1326	1349	1390	1413	1440	1482	1542	1555
EGT5 (°F)	1287	1311	1341	1365	1408	1433	1458	1496	1545	1553
EGT6 (°F)	1296	1320	1350	1374	1417	1442	1468	1505	1553	1539
Oil T (°F)	228	229	228	229	229	228	228	228	227	227
Oil P (psig)	64	63	64	63	63	64	64	63	64	64
Hum T (°F)	101	101	101	101	101	101	101	101	101	101
Hum ratio (gr/lb)	1	1	1	1	1	1	1	1	1	1
AFR										
AFL										
K airflow (lbs/hr)	1263	1243	1234	1233	1226	1253	1232	1230	1222	1227
A/F	11.2	11.2	12.0	12.3	13.0	13.8	14.5	15.1	16.1	17.0

APPENDIX B—LYCOMING IO540 K KNOCK DATA

B.1 MAXIMUM AND AVERAGE KNOCK DATA.

This appendix contains the knock data for all 30 matrix blends tests and the unleaded AN fuels tests. This data corresponds by test number and data point to the engine parameter data found in appendix A. The first column in table B-1 indicates the test number with the particular test point given in the second column.

Each test point encompassed 100 four-stroke engine cycles for all six cylinders. The subheadings 1, 2…, etc., indicate the particular cylinder numbers, while the subheading All 6 gives the parameter for all six cylinders.

The columns titled Maximum Knock Numbers indicate the maximum knock number for the particular cylinder, out of 100 engine cycles for each cylinder. For all the data in appendix B, a knock cycle is one where the knock number was at least 10. For example, in row 3 of page B-2, test T2-6, point A shows the maximum knock number out of 100 cycles for cylinder 1 as 17.7. The maximum knock number for all cylinders (All 6) for 100 engine cycles is 36.2.

The columns titled Average Knock Numbers indicates the average knock number for the particular cylinder, out of 100 engine cycles for each cylinder. This average includes only engine cycles that exhibited at least light knock (i.e. cycles with a knock number of at least 10). Thus, if an engine cycle had a knock value of 6 it was not included in this average. For example, test T2-6, point A, shows the average knock number out of 100 cycles for cylinder 1 as 12.7. The average knock number over all cylinders (all 6) for 100 engine cycles is 13.7.

B.2 KNOCK INTENSITY AND COUNT DATA.

Table B-2 contains different analyses for the same test numbers and test points.

The columns titled Knock Count Numbers indicate the number of engine cycles, out of 100 for each cylinder, that exhibited a knock number of at least 10. The columns titled Knock Intensity indicate the sum of the knock numbers, out of 100 for each cylinder, that exhibited a knock number of at least 10. For example, in row 3 of page B-34, for test T2-6 and point A, cylinder 3 had 23 out of 100 engine cycles with at least a light knock condition, and cylinder 4 had a knock intensity of 221. Thus, the sum of the knock numbers of all the cycles that exhibited at least light knock for cylinder 4 during that test point was 221.

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-6	A	17.7	16.3	18.5	19.1	36.2	26.6	36.2	12.7	12	13.2	13	15.5	14.1	13.7
T2-6	B	18.9	16.4	26.1	19.9	18.1	22.8	26.1	12.6	11.7	14.1	14.2	13.9	13.3	13.4
T2-6	C	23.7	23.2	20.5	23	40.3	31.4	40.3	12.7	13.1	14.4	14.2	15.3	16.7	14.4
T2-6	D	32.4	28.2	54.4	13.9	45.7	38.2	54.4	15.5	15.6	18.0	12.0	19.3	15.7	16.8
T2-6	E	26.7	21.0	17.2	15.8	28.2	18.8	28.2	14.3	16.9	11.9	13	14.3	13.4	13.5
T2-6	F	19.1	11.1	30.1	13.4	34	20.7	34	13.7	10.6	13.2	11.2	15	14.5	13.6
T2-6	G	24.4	10.4	38.4	19.5	49.5	20.2	49.5	16.4	10.4	16.1	12.7	16.2	13	15.1
T2-6	H	19	15.8	21.2	14.8	25.7	34.9	34.9	12.9	12.3	12.9	11.7	13.5	14.2	13.1
T2-6	I	17.1	17.6	21.7	15.9	39.7	18.3	39.7	12.8	13.7	13.8	11.9	15.6	12.3	13.7
T2-7	A	-1.3	5.9	0.3	-2.2	3.2	-1.1	5.9	-----	-----	-----	-----	-----	-----	-----
T2-7	B	-0.5	-2.4	-0.2	-1.9	-0.2	-0.4	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-7	C	0	-3	-0.5	-2.7	11.2	12.3	12.3	-----	-----	-----	-----	11.2	12.3	11.8
T2-7	D	-1.4	-2	1.4	-2	14.9	7.6	14.9	-----	-----	-----	-----	12.6	-----	12.6
T2-7	E	13.5	5.9	16.1	-1.7	27.4	68.5	68.5	13.5	-----	15.6	-----	17.8	68.5	22.5
T2-7	F	0.8	-1.3	3.5	1.6	15.2	2.3	15.2	-----	-----	-----	-----	13.2	-----	13.2
T2-7	G	7.5	-0.7	17.8	-1.9	29.2	21.5	29.2	-----	-----	17.8	-----	20.9	16.2	18.8
T2-7	H	-1.4	-2.6	-1.3	-2.4	10.3	4.5	10.3	-----	-----	-----	-----	10.3	-----	10.3
T2-7	I	-0.3	-1.9	4.9	-0.9	5.7	10.8	10.8	-----	-----	-----	-----	-----	10.8	10.8
T2-7	J	0.2	-1.3	-0.9	-1	-0.9	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-7	K	2.7	-0.8	28.9	-1.8	5.2	3	28.9	-----	-----	28.9	-----	-----	-----	28.9
T2-7	L	14	0.6	5.6	-0.8	3.4	3.4	14	14	-----	-----	-----	-----	-----	14
T2-7	M	4.7	1.1	9.7	0.3	5.8	3.7	9.7	-----	-----	-----	-----	-----	-----	-----
T2-7	N	4.4	2.2	6.6	3.4	4.9	7	7	-----	-----	-----	-----	-----	-----	-----
T2-7	O	1.6	0.5	13.9	-0.8	18	17.8	18	-----	-----	13.9	-----	18	17.8	16.6
T2-7	P	2.7	0.5	1.9	0.7	32.3	4.4	32.3	-----	-----	-----	-----	25.8	-----	25.8
T2-7	Q	6.4	2.7	3.8	1.5	2.1	5.9	6.4	-----	-----	-----	-----	-----	-----	-----
T2-7	R	2.5	0	0	0	6.5	30.6	30.6	-----	-----	-----	-----	-----	30.6	30.6
T2-7	S	0	4.4	0	0	7.3	0.1	7.3	-----	-----	-----	-----	-----	-----	-----
T2-8	A	0	-1.4	13.7	-1.6	15.1	57.6	57.6	-----	-----	13.7	-----	13.4	57.6	24.5
T2-8	B	36.8	31.3	12	4.1	38.8	67.6	67.6	36.8	31.3	12	-----	18.7	42.2	23.9
T2-8	C	18.4	6.8	52.9	6.2	50.7	38.7	52.9	18.4	-----	29.4	-----	21.8	25.7	23.6
T2-8	D	0.1	0	0	5.6	5.2	0	5.6	-----	-----	-----	-----	-----	-----	-----
T2-8	E	5.4	0	0	0	5.7	7.9	7.9	-----	-----	-----	-----	-----	-----	-----
T2-8	F	9.6	28.3	4.3	0	10.5	8.6	28.3	-----	28.3	-----	-----	10.5	-----	19.4
T2-8	G	0.5	2.3	7	0	4.4	14.2	14.2	-----	-----	-----	-----	-----	14.1	14.1
T2-8	H	8.5	3.7	12.1	0	33	16.2	33	-----	-----	12.1	-----	23.9	16.2	19
T2-8	I	0.1	0	0.4	0	0	0	0.4	-----	-----	-----	-----	-----	-----	-----
T2-8	J	7.6	21.2	37.7	0	18.2	19	37.7	-----	21.2	21.6	-----	15.3	19	19.7
T2-8	K	7.8	0	20.1	0	18.6	7.5	20.1	-----	-----	15.1	-----	18.6	-----	16.3
T2-8	L	16.6	6.8	12.9	7.8	5	21.8	21.8	12.9	-----	12.9	-----	-----	19.6	14.8
T2-8	M	43.5	3.7	15.5	7.1	8.2	19.7	43.5	37.5	-----	12.9	-----	-----	19.7	19.9

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-8	N	32.7	17.6	20.8	3.7	51.8	17.8	51.8	29.4	17.6	16.7	-----	31.5	13.3	20.8
T2-8	O	13.7	0.2	2.7	6.8	8.1	1.2	13.7	13.7	-----	-----	-----	-----	-----	13.7
T2-8	P	10.1	14.3	24.8	3.9	5.4	2.4	24.8	10.1	14.2	21.4	-----	-----	-----	16.2
T2-8	Q	59.2	14.5	62.4	22	31	38.7	62.4	56.3	14.5	36.3	22	27	38.7	34.9
T2-8	R	7.4	1.4	4.9	2	2.3	25.8	25.8	-----	-----	-----	-----	-----	25.8	25.8
T2-8	S	4.5	26.8	5.4	2.8	2.9	5.5	26.8	-----	26.8	-----	-----	-----	-----	26.8
T2-8	T	4	1.8	22.5	2.9	1.9	5.6	22.5	-----	-----	18.4	-----	-----	-----	18.4
T2-9	A	-0.6	-0.9	0.9	-1.6	-2.3	0.4	0.9	-----	-----	-----	-----	-----	-----	-----
T2-9	AA	1.5	3.6	2.9	5.3	3.2	5.4	3.9	-----	-----	-----	-----	-----	-----	-----
T2-9	AB	1.3	2.7	1.4	3.3	6.4	3	1.7	-----	-----	-----	-----	-----	-----	-----
T2-9	B	0	-2.2	1.3	-1	-2.7	-0.7	1.3	-----	-----	-----	-----	-----	-----	-----
T2-9	C	0.3	-1.6	-0.2	-0.8	-2.5	0.2	0.3	-----	-----	-----	-----	-----	-----	-----
T2-9	D	1.2	-0.2	1.2	0.3	-1.6	-0.1	1.2	-----	-----	-----	-----	-----	-----	-----
T2-9	E	-0.6	-0.3	0	-1.8	-0.7	-0.1	0	-----	-----	-----	-----	-----	-----	-----
T2-9	F	0.6	-1.8	-1	-1.1	-0.7	0	0.6	-----	-----	-----	-----	-----	-----	-----
T2-9	G	-0.9	-1.9	-0.1	-1.6	2.5	-0.5	2.5	-----	-----	-----	-----	-----	-----	-----
T2-9	H	0.2	-2.3	-0.2	-1.5	-2.1	-0.8	0.2	-----	-----	-----	-----	-----	-----	-----
T2-9	I	1.9	-0.2	11	-1.2	5.9	1.4	11	-----	-----	11	-----	-----	-----	11
T2-9	J	2.6	0	1	-1.6	-1.3	1.1	2.6	-----	-----	-----	-----	-----	-----	-----
T2-9	K	0.1	-0.1	9.5	-0.7	8.1	2.8	9.5	-----	-----	-----	-----	-----	-----	-----
T2-9	L	26	0.8	51.3	0.2	0.6	6.7	51.3	26	-----	28.3	-----	-----	-----	27.7
T2-9	M	7.5	0.1	8.7	0.2	5	14.1	14.1	-----	-----	-----	-----	-----	14.1	14.1
T2-9	N	3	0.9	2.4	0.6	-0.3	3.6	3.6	-----	-----	-----	-----	-----	-----	-----
T2-9	O	3.9	2.4	4.1	2.7	2.1	7.4	7.4	-----	-----	-----	-----	-----	-----	-----
T2-9	P	8.9	7.6	18.5	1.7	3.4	4.8	18.5	-----	-----	15.6	-----	-----	-----	15.6
T2-9	Q	4.9	0	0	0	0.1	2.6	4.9	-----	-----	-----	-----	-----	-----	-----
T2-9	R	3.3	0	1	0	0	29.7	29.7	-----	-----	-----	-----	-----	29.7	29.7
T2-9	S	0.9	0	0.2	36.6	4.6	0.7	36.6	-----	-----	-----	36.6	-----	-----	36.6
T2-9	T	0.8	0	19.9	0	1.7	19.9	19.9	-----	-----	19.9	-----	-----	16.7	17.8
T2-9	U	1.5	2.5	0.7	0	12.3	0	12.3	-----	-----	-----	-----	12.3	-----	12.3
T2-9	V	0	0	0	0	0	16.6	16.6	-----	-----	-----	-----	-----	16.6	16.6
T2-9	W	8.7	0	1.7	0	1.1	21.7	21.7	-----	-----	-----	-----	-----	21.7	21.7
T2-9	X	14.4	0.7	4.8	1.1	0.2	5.2	14.4	14.4	-----	-----	-----	-----	-----	14.4
T2-9	Y	40.9	1.3	3.9	2.3	1.8	4.4	40.9	25.8	-----	-----	-----	-----	-----	25.8
T2-9	Z	3.7	3.6	4.5	2.2	10.4	4.1	10.4	-----	-----	-----	-----	10.4	-----	10.4
T2-10	A	7.5	49	108.9	14.8	87.5	39.5	108.9	-----	32.3	66.5	14.8	32.2	39.5	33.9
T2-10	B	15.6	45.9	28.4	15.3	98.7	27.9	98.7	14.5	25	16.6	15.3	31.5	18.9	26.6
T2-10	C	185.8	23	34.3	25.1	156.4	63.1	185.8	44.1	16.8	20	19.7	36.8	23.8	31.7
T2-10	D	40.3	31.7	66.5	80.2	51.7	65.7	80.2	18.3	17.9	27.8	31.1	22.6	23.6	23.1
T2-10	E	2.2	30.6	34.7	14.2	215.6	50.9	215.6	-----	23.5	22.9	14.2	39.5	44	33.8
T2-10	F	6.6	-1.1	3.3	-2.1	13.1	-0.2	13.1	-----	-----	-----	-----	11.7	-----	11.7
T2-10	G	3.1	-0.5	13.5	-1.8	37	28.1	37	-----	-----	13.5	-----	23	28.1	22.6
T2-10	H	1	0	3.5	29.9	3.4	4.8	29.9	-----	-----	-----	29.9	-----	-----	29.9
T2-10	I	0	39.2	19.8	0	8.4	17.5	39.2	-----	39.2	19.8	-----	-----	17.5	25.5

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-10	J	6	0	23	0	24.8	24.7	24.8	-----	-----	17.6	-----	24.8	18.2	19.3
T2-12	A	0.7	-2.2	0.7	-2.4	8	-0.4	8	-----	-----	-----	-----	-----	-----	-----
T2-12	B	-0.2	-1	0.6	-1.9	-1.9	0.1	0.6	-----	-----	-----	-----	-----	-----	-----
T2-12	C	0.2	-1.3	0.8	-1.9	1.6	-0.1	1.6	-----	-----	-----	-----	-----	-----	-----
T2-12	D	1.3	-1.6	-1.1	-1	-2.5	0.7	1.3	-----	-----	-----	-----	-----	-----	-----
T2-12	E	1.4	-1.4	9.3	-1.2	5.6	2.9	9.3	-----	-----	-----	-----	-----	-----	-----
T2-12	F	4.5	-0.3	5.3	-0.7	24	3.4	24	-----	-----	-----	-----	24	-----	24
T2-12	G	3.3	-0.1	22.1	-0.2	4.4	3.2	22.1	-----	-----	22.1	-----	-----	-----	22.1
T2-12	H	5.3	1.9	5.3	2.6	2.5	6.4	6.4	-----	-----	-----	-----	-----	-----	-----
T2-12	I	-0.3	-2.1	-0.5	-1.1	-2.3	1.3	1.3	-----	-----	-----	-----	-----	-----	-----
T2-12	J	7.9	3	9.2	0.7	2.4	5.3	9.2	-----	-----	-----	-----	-----	-----	-----
T2-12	K	3.7	-0.3	2.2	2.7	2	4	4	-----	-----	-----	-----	-----	-----	-----
T2-12	L	5.4	2	4.7	2.1	2	5.5	5.5	-----	-----	-----	-----	-----	-----	-----
T2-13	A	-0.8	-3	-0.9	-1.9	-1.6	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-13	B	0	-2.4	2.4	-1.7	-1.6	0.3	2.4	-----	-----	-----	-----	-----	-----	-----
T2-13	C	1.8	-0.8	21.6	-0.1	10.2	2.8	21.6	-----	-----	16.2	-----	10.2	-----	14.2
T2-13	D	4.2	0.4	5.3	0.7	2	4.7	5.3	-----	-----	-----	-----	-----	-----	-----
T2-13	E	0.5	-2.5	5.8	-1.2	41.4	4.3	41.4	-----	-----	-----	-----	26.2	-----	26.2
T2-13	F	9.9	0.7	4.1	0.6	0	6.9	9.9	-----	-----	-----	-----	-----	-----	-----
T2-13	G	3.9	1.9	4.7	2.4	2.1	5.3	5.3	-----	-----	-----	-----	-----	-----	-----
T2-13	H	-0.9	-2.3	1	-1.5	-2.3	1.6	1.6	-----	-----	-----	-----	-----	-----	-----
T2-13	I	-0.3	-1.9	2.2	-0.8	-1.5	0.7	2.2	-----	-----	-----	-----	-----	-----	-----
T2-13	J	0.5	-0.5	1.1	-1.1	-1.4	0.6	1.1	-----	-----	-----	-----	-----	-----	-----
T2-13	K	0.2	-0.6	0.3	-1.8	-1.4	1.3	1.3	-----	-----	-----	-----	-----	-----	-----
T2-13	L	1.4	-0.1	2.1	-1.1	6.3	2	6.3	-----	-----	-----	-----	-----	-----	-----
T2-13	M	4.6	1.4	4.3	1.7	1.9	5.9	5.9	-----	-----	-----	-----	-----	-----	-----
T2-13	N	8.1	2.4	5.3	3.8	4.9	7.6	8.1	-----	-----	-----	-----	-----	-----	-----
T2-13	O	0.3	-1.4	-0.3	-1.1	-2	3.2	3.2	-----	-----	-----	-----	-----	-----	-----
T2-13	P	1.5	-1.2	-0.1	-0.6	-0.3	0.7	1.5	-----	-----	-----	-----	-----	-----	-----
T2-13	Q	1.5	0.3	2.2	-0.2	1.2	7.3	7.3	-----	-----	-----	-----	-----	-----	-----
T2-13	R	3.5	0.8	2.1	2	2.1	4	4	-----	-----	-----	-----	-----	-----	-----
T2-13	S	6.5	2.7	5	4	3.9	5.7	6.5	-----	-----	-----	-----	-----	-----	-----
T2-14	A	-1	-2	-1	-2	-3	-1	-1	-----	-----	-----	-----	-----	-----	-----
T2-14	AA	3	0	3	0	5	4	-----	-----	-----	-----	-----	-----	-----	-----
T2-14	AB	5	4	6	3	3	7	-----	-----	-----	-----	-----	----	-----	-----
T2-14	AC	0	0	0	0	0	0	-----	-----	-----	-----	-----	-----	-----	-----
T2-14	AD	16	-2	14	-1	9	3	-----	16.2	-----	14.3	-----	-----	-----	15.2
T2-14	AE	14	-1	10	-1	3	1	-----	14.2	-----	10.2	-----	-----	-----	12.2
T2-14	AF	0	-1	3	-1	4	2	-----	-----	-----	-----	-----	-----	-----	-----
T2-14	B	0	-2	0	-1	4	1	4	-----	-----	-----	-----	-----	-----	-----
T2-14	C	1	-2	1	-2	1	2	2	-----	-----	-----	-----	-----	-----	-----
T2-14	D	0	-1	0	-2	1	3	3	-----	-----	-----	-----	-----	-----	-----
T2-14	E	2	0	1	0	-1	3	3	-----	-----	-----	-----	-----	-----	-----
T2-14	F	3	2	2	0	3	3	3	-----	-----	-----	-----	-----	-----	-----
T2-14	G	6	2	4	2	3	6	6	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-14	H	7	5	7	5	6	7	7	-----	-----	-----	-----	-----	-----	-----
T2-14	I	0	-2	-1	-2	-1	0	0	-----	-----	-----	-----	-----	-----	-----
T2-14	J	0	-2	0	-1	-1	1	1	-----	-----	-----	-----	-----	-----	-----
T2-14	L	2.3	0.6	1.5	0.5	1	3	2.3	-----	-----	-----	-----	-----	-----	-----
T2-14	M	4.7	3.2	5.7	3.1	2.8	5.9	5.9	-----	-----	-----	-----	-----	-----	-----
T2-14	N	6.9	4.4	6.1	5.5	5.5	6.2	6.9	-----	-----	-----	-----	-----	-----	-----
T2-14	O	1.3	0.1	1.4	1.4	0.6	2.1	-----	-----	-----	-----	-----	-----	-----	-----
T2-14	P	10	6.1	12.9	7.2	42.1	1.8	-----	10.0	-----	12.9	-----	28.1	-----	22.5
T2-14	Q	-0.4	-1.4	10.5	-1.8	55.6	0.5	-----	-----	-----	10.5	-----	28.8	-----	24.3
T2-14	R	24.9	0.2	4.8	-2.6	37.8	-1.1	-----	20.1	-----	-----	-----	24.8	-----	22.5
T2-14	S	-0.9	-2.2	21.2	-1.5	22.7	0.5	-----	-----	-----	21.2	-----	22.7	-----	22.7
T2-14	T	0.5	-2.2	7.7	-1.4	14.3	4.4	-----	-----	-----	-----	-----	14.3	-----	14.3
T2-14	U	3.9	-0.8	22.2	-1.1	64.1	0.4	-----	-----	-----	18.2	-----	26.8	-----	23.9
T2-14	V	-1	-2	5	-1	18	3	-----	-----	-----	-----	-----	14.2	-----	14.2
T2-14	W	0	-2	14	-2	42	24	-----	-----	-----	13.7	-----	22.9	20.0	22.9
T2-14	X	0	-2	-1	-1	2	0	-----	-----	-----	-----	-----	-----	-----	-----
T2-14	Y	0	-2	2	-1	10	0	-----	-----	-----	-----	-----	-----	-----	-----
T2-14	Z	2	0	30	0	15	3	-----	-----	-----	30.2	-----	15.2	-----	22.7
T2-15	A	-0.5	-2.3	0.4	-1.1	-3.6	0.2	0.4	-----	-----	-----	-----	-----	-----	-----
T2-14	AA	3	0	3	0	5	4	-----	-----	-----	-----	-----	-----	-----	-----
T2-15	AB	0.5	-0.9	1.9	-0.1	-0.5	1.8	1.9	-----	-----	-----	-----	-----	-----	-----
T2-15	AC	4.5	-2.6	0.3	-1.3	-2.6	1.2	4.5	-----	-----	-----	-----	-----	-----	-----
T2-15	B	0.1	-2.6	1	-0.4	-2.5	-0.4	1	-----	-----	-----	-----	-----	-----	-----
T2-15	C	0.4	-2.5	-0.2	-0.8	-1.6	0.6	0.6	-----	-----	-----	-----	-----	-----	-----
T2-15	D	-0.6	-1.9	-0.5	-1.4	-1.4	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-15	E	-0.5	-1.7	0.1	-0.7	-2.7	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-15	F	0.2	-0.8	0.6	-2.1	-0.9	0.4	0.6	-----	-----	-----	-----	-----	-----	-----
T2-15	G	2.2	-1.3	0.5	-1	2.3	1	2.3	-----	-----	-----	-----	-----	-----	-----
T2-15	H	2.4	0.8	4.2	1.8	0.7	4.7	4.7	-----	-----	-----	-----	-----	-----	-----
T2-15	I	5.9	2	4.1	2.8	3.2	6.6	6.6	-----	-----	-----	-----	-----	-----	-----
T2-15	J	0.6	-1.7	-0.6	-2.1	-1.8	0.5	0.6	-----	-----	-----	-----	-----	-----	-----
T2-15	K	0.6	-1.8	-0.3	-0.9	-0.5	-0.7	0.6	-----	-----	-----	-----	-----	-----	-----
T2-15	L	0.3	-1	0.1	-0.7	-1.4	2.1	2.1	-----	-----	-----	-----	-----	-----	-----
T2-15	M	1	-0.4	4	-0.1	0.4	2.1	4	-----	-----	-----	-----	-----	-----	-----
T2-15	N	4.2	0.4	7.3	1.7	2.8	4.4	7.3	-----	-----	-----	-----	-----	-----	-----
T2-15	O	5.5	2.3	5.2	4.4	2.7	7.2	7.2	-----	-----	-----	-----	-----	-----	-----
T2-15	P	0.4	-1.9	1.6	-1.8	-3.2	1.4	1.6	-----	-----	-----	-----	-----	-----	-----
T2-15	Q	-1.3	0	-0.7	-1.2	0.2	1.4	1.4	-----	-----	-----	-----	-----	-----	-----
T2-15	R	0.1	-1.8	0.6	-1.6	-1.5	2.2	2.2	-----	-----	-----	-----	-----	-----	-----
T2-15	S	-0.2	-1.8	2.8	-0.4	-0.9	2.3	2.8	-----	-----	-----	-----	-----	-----	-----
T2-15	T	2.2	0.2	1.5	-0.1	0.8	1.8	2.2	-----	-----	-----	-----	-----	-----	-----
T2-15	U	3.7	3.2	7.7	2.1	1.8	4.2	7.7	-----	-----	-----	-----	-----	-----	-----
T2-15	V	-1.3	-1.5	0.7	0.7	2.5	3.3	3.3	-----	-----	-----	-----	-----	-----	-----
T2-15	W	3.9	-2.6	3.9	-1.3	-1.9	1	3.9	-----	-----	-----	-----	-----	-----	-----
T2-15	X	-1.4	-2.6	-1.5	-0.3	-2.9	-0.5	-0.3	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-15	Y	0.8	-1.6	1.9	-2.1	-1.1	2	2	-----	-----	-----	-----	-----	-----	-----
T2-15	Z	-0.7	-1.7	1	-0.2	7.2	0.5	7.2	-----	-----	-----	-----	-----	-----	-----
T2-16	A	86.4	22.6	41	6.1	112.2	15.3	112.2	31.4	17.6	21.7	-----	31.8	14.2	28.8
T2-16	B	12	-3.2	16.5	14	5.1	6.9	16.5	12	-----	16.5	14	-----	-----	14.2
T2-16	C	-0.5	-1.4	0.2	-2	-2	1.2	1.2	-----	-----	-----	-----	-----	-----	-----
T2-16	D	36.4	2.4	25	0	44.4	6.5	44.4	23.1	-----	15.4	-----	27	-----	23.3
T2-16	E	2.8	18.6	18.4	-1.8	3.3	-0.1	18.6	-----	18.6	18.4	-----	-----	-----	18.5
T2-16	F	-1.4	-2.6	-0.2	-1.3	-0.5	-0.1	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-16	G	1.6	-2.1	41.6	0.4	18.3	2.6	41.6	-----	-----	26.3	-----	14.8	-----	21.7
T2-16	H	53.1	15.4	38.9	0.6	81.5	32	81.5	24.1	15.4	23.7	-----	30.1	28.8	27.6
T2-16	I	0.7	-2.7	5.7	-1.8	22	0.9	22	-----	-----	-----	-----	21.6	-----	21.6
T2-16	J	20.2	-0.9	19.1	15.7	21	7.7	21	20.2	-----	15.7	13.4	15.8	-----	15.7
T2-16	K	57.1	10.6	27.1	7.4	40	40.6	57.1	30.1	10.6	17.2	-----	26.6	23.5	23.2
T2-16	L	-1.4	-1	2.9	-1.4	12.8	14.7	14.7	-----	-----	-----	-----	12.8	14.4	13.9
T2-16	M	-0.6	-3.5	-0.8	-2.1	-2.4	-0.3	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-16	N	3.9	-1	-0.2	-2.1	-1	0	3.9	-----	-----	-----	-----	-----	-----	-----
T2-16	O	-1.6	-2	1.4	-2.5	5.3	1.8	5.3	-----	-----	-----	-----	-----	-----	-----
T2-16	P	1.1	-1.4	13.2	-0.4	10.3	1.2	13.2	-----	-----	13.2	-----	10.3	-----	11.8
T2-16	Q	-1.1	-2.1	-0.2	-1.7	-2.4	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-16	R	0	-2.8	1.7	-1	0.5	0.5	1.7	-----	-----	-----	-----	-----	-----	-----
T2-16	S	2.5	-1.1	0.7	-1.3	23.7	1.6	23.7	-----	-----	-----	-----	23.7	-----	23.7
T2-16	T	1.3	0.1	18	0.4	5.9	3	18	-----	-----	18	-----	-----	-----	18
T2-16	U	0.7	-1.1	0.2	-1.8	-2	0.5	0.7	-----	-----	-----	-----	-----	-----	-----
T2-16	V	2.6	-1.1	-0.1	-1.1	4.7	5.4	5.4	-----	-----	-----	-----	-----	-----	-----
T2-16	W	8.2	-0.9	1	-0.1	2.9	13.1	13.1	-----	-----	-----	-----	-----	13.1	13.1
T2-16	X	3.1	1	2.6	0.8	3.9	2.9	3.9	-----	-----	-----	-----	-----	-----	-----
T2-16	Y	3.2	1.9	2.9	2.4	2	5.1	5.1	-----	-----	-----	-----	-----	-----	-----
T2-16	Z	5.6	2.9	4.9	4.7	5	6	6	-----	-----	-----	-----	-----	-----	-----
T2-17	A	1.9	-2.6	-0.3	-1.9	0	-0.4	1.9	-----	-----	-----	-----	-----	-----	-----
T2-17	B	3.9	-1.3	10.1	-2.7	14.3	44.9	44.9	-----	-----	10.1	-----	12.6	31.9	19.8
T2-17	C	35.7	10.9	64.6	15.2	31.7	21.7	64.6	26	10.9	37.1	15.2	17.2	18.7	21.2
T2-17	D	17.1	-3.4	6.7	-2	37.3	10.7	37.3	17.1	-----	-----	-----	18.5	10.3	16.7
T2-17	E	0.7	-3	7.6	-2.4	22.9	13.2	22.9	-----	-----	-----	-----	17.1	13.2	16.1
T2-17	F	-0.6	-2.4	0	-2.1	12.9	0.6	12.9	-----	-----	-----	-----	12.9	-----	12.9
T2-17	G	0.8	-2	-0.7	-1.7	-2.5	-0.6	0.8	-----	-----	-----	-----	-----	-----	-----
T2-17	H	7.9	-3	-0.6	-2	-1.4	18.5	18.5	-----	-----	-----	-----	-----	18.5	18.5
T2-17	I	-0.6	-2.6	-0.3	-0.2	11.1	-0.1	11.1	-----	-----	-----	-----	11.1	-----	11.1
T2-17	J	-0.9	-3.3	-1.4	-1.8	5	-0.4	5	-----	-----	-----	-----	-----	-----	-----
T2-17	K	-0.3	-3.6	13.6	2.8	29.1	1.1	29.1	-----	-----	13.6	-----	27.2	-----	22.7
T2-18	A	5.9	-3.3	29.1	-2.5	21.4	26.7	29.1	-----	-----	21.1	-----	21.4	25.7	23
T2-18	B	-2.4	-2.8	0.6	1.3	2	0.7	2	-----	-----	-----	-----	-----	-----	-----
T2-18	C	0.3	-3.5	2.1	-2.7	-1.4	1.4	2.1	-----	-----	-----	-----	-----	-----	-----
T2-18	D	3	5.7	56.1	-2.3	18	6.3	56.1	-----	-----	33.5	-----	18	-----	28.3
T2-18	E	9.1	-3.1	30.8	-2.1	26.9	21.8	30.8	-----	-----	30.8	-----	18.2	21.8	21.4
T2-18	F	0.4	-2.6	1.5	-2.5	-2.6	-0.5	1.5	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-18	G	-0.5	-2.4	1	-2.6	-1.9	0.6	1	-----	-----	-----	-----	-----	-----	-----
T2-18	H	29.2	17.1	22.8	-2.2	14.1	19.9	29.2	29.2	17.1	17.1	-----	13.3	18.9	18.1
T2-18	I	14.8	-2.3	18	-1.8	10.2	4.8	18	14.8	-----	18	-----	10.2	-----	14.3
T2-18	J	-0.9	-1.7	-1	-1.4	1.2	-1.6	1.2	-----	-----	-----	-----	-----	-----	-----
T2-18	K	-1.6	-1.8	-0.5	-2	-2.4	-0.1	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-19	A	0.7	-2.3	-0.3	-2.3	-0.5	-0.8	0.7	-----	-----	-----	-----	-----	-----	-----
T2-19	AA	-1.4	-2.5	0.2	-0.7	-3.2	1.9	1.9	-----	-----	-----	-----	-----	-----	-----
T2-19	AB	-0.4	-2.5	0.1	-2.9	-2.0	0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-19	AC	-1.5	-1.1	-0.3	-2.1	-2.7	0.0	0.0	-----	-----	-----	-----	-----	-----	-----
T2-19	AD	0.1	-3.0	-0.4	-2.3	-3.3	0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-19	AE	-1.6	-3.0	0.5	-1.6	-2.4	0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-19	AF	-0.7	-2.5	0.8	-1.9	-2.6	-0.2	0.8	-----	-----	-----	-----	-----	-----	-----
T2-19	AG	-1.6	-1.5	-0.4	-1.9	-1.7	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-19	AH	-0.8	-1.8	0.3	0.1	-2.1	-0.4	0.3	-----	-----	-----	-----	-----	-----	-----
T2-19	AI	-1.0	-2.7	-0.2	-1.2	-2.0	-0.4	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-19	AJ	0.0	-3.0	-0.2	-1.7	-1.7	-1.4	0.0	-----	-----	-----	-----	-----	-----	-----
T2-19	AK	-1.1	-2.5	0.1	-1.4	-2.0	-0.7	0.1	-----	-----	-----	-----	-----	-----	-----
T2-19	AL	-0.6	-2.4	0.8	-1.6	-2.5	-1.0	0.8	-----	-----	-----	-----	-----	-----	-----
T2-19	AM	1.4	-1.7	1.1	-1.0	-0.6	0.3	1.4	-----	-----	-----	-----	-----	-----	-----
T2-19	AN	-1.5	-1.9	-0.4	-0.4	-2.0	-0.3	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-19	AO	-0.8	-2.2	0.2	-1.2	-0.7	-0.9	0.2	-----	-----	-----	-----	-----	-----	-----
T2-19	AP	-0.8	-2.3	0.0	-1.1	-1.5	1.1	1.1	-----	-----	-----	-----	-----	-----	-----
T2-19	AQ	-0.6	-1.9	0.8	-0.1	-1.3	0.2	0.8	-----	-----	-----	-----	-----	-----	-----
T2-19	AR	0.3	-1.0	-0.4	-0.7	-1.4	1.6	1.6	-----	-----	-----	-----	-----	-----	-----
T2-19	B	-1	-2.2	0.2	-1.4	-2.1	-0.5	0.2	-----	-----	-----	-----	-----	-----	-----
T2-19	C	0	-3.1	1.4	-1.7	-2.2	2.2	2.2	-----	-----	-----	-----	-----	-----	-----
T2-19	D	-1.2	-2.2	-0.3	-1.6	5.1	-0.8	5.1	-----	-----	-----	-----	-----	-----	-----
T2-19	E	0.2	-3.3	4.1	-2.3	6.8	0.2	6.8	-----	-----	-----	-----	-----	-----	-----
T2-19	F	-0.9	6.7	6.3	-2.2	29	1.3	29	-----	-----	-----	-----	21.8	-----	21.8
T2-19	G	0.2	-2.1	0.1	-2.2	-1.1	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-19	H	-0.5	-2.5	1.9	-1.7	-3.2	0	1.9	-----	-----	-----	-----	-----	-----	-----
T2-19	I	-1.3	-2.8	-0.6	-1.6	-1.8	8.9	8.9	-----	-----	-----	-----	-----	-----	-----
T2-19	J	1.4	-2.5	0.4	-1	-2.7	-0.2	1.4	-----	-----	-----	-----	-----	-----	-----
T2-19	K	-0.9	-2.7	3.9	-0.9	-1.6	-0.9	3.9	-----	-----	-----	-----	-----	-----	-----
T2-19	L	-0.2	-2.9	6.5	-1.1	10.7	1	10.7	-----	-----	-----	-----	10.7	-----	10.7
T2-19	M	10.6	-2.1	8.3	0.3	13.1	1.2	13.1	10.6	-----	-----	-----	13.1	-----	11.8
T2-19	N	-1.4	-2.8	-1.1	-2.6	-2.4	-1.5	-1.1	-----	-----	-----	-----	-----	-----	-----
T2-19	O	-0.6	-1.9	-1.3	-1.5	-2.2	-1.1	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-19	P	-0.9	-2.9	-0.9	-2	-2.8	0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-19	Q	-1.8	-0.8	0.1	-1.5	-2.8	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-19	R	-0.1	-1.2	2.7	-1.5	3.8	0.8	3.8	-----	-----	-----	-----	-----	-----	-----
T2-19	S	3.4	-1.9	0.7	-1.6	13.5	12.2	13.5	-----	-----	-----	-----	12.3	12.2	12.2
T2-19	T	-0.3	-2.4	-0.3	-1.8	-2	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-19	U	-0.9	-2.6	-0.4	-1.7	-1.9	-0.7	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-19	V	-0.8	-2.5	-0.1	-0.2	-1.3	-0.9	-0.1	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-19	W	-0.3	-2.1	-0.1	-1.5	-0.9	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-19	X	-0.7	-2.4	-0.5	-2.6	-2.8	0.9	0.9	-----	-----	-----	-----	-----	-----	-----
T2-19	Y	-1.3	-1.8	12.3	-1.6	-0.7	0.6	12.3	-----	-----	12.3	-----	-----	-----	12.3
T2-19	Z	1	-2.8	-0.5	-2.4	-2.8	0.6	1	-----	-----	-----	-----	-----	-----	-----
T2-20	A	-1.2	-3.3	0.1	-1.6	-3.4	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-20	AA	-1	-2	0	-3	-2	1	1	-----	-----	-----	-----	-----	-----	-----
T2-20	AB	1	-2	0	-2	-2	-1	1	-----	-----	-----	-----	-----	-----	-----
T2-20	AC	2	-1	42	-1	1	2	42	-----	-----	42	-----	-----	-----	42
T2-20	AD	3	2	8	1	1	6	8	-----	-----	-----	-----	-----	-----	-----
T2-20	AE	1	0	0	0	-2	1	1	-----	-----	-----	-----	-----	-----	-----
T2-20	AF	-1	-2	-1	-2	-2	-1	-1	-----	-----	-----	-----	-----	-----	-----
T2-20	AG	-2	-3	0	-2	-3	0	0	-----	-----	-----	-----	-----	-----	-----
T2-20	AH	-2	-2	-1	-3	-1	-2	-1	-----	-----	-----	-----	-----	-----	-----
T2-20	AI	-1	-3	0	-2	-3	-1	0	-----	-----	-----	-----	-----	-----	-----
T2-20	AJ	1	-1	1	-1	-1	2	2	-----	-----	-----	-----	-----	-----	-----
T2-20	AK	1	0	2	-1	1	3	3	-----	-----	-----	-----	-----	-----	-----
T2-20	AL	2	1	4	1	2	3	4	-----	-----	-----	-----	-----	-----	-----
T2-20	AM	-1	-3	0	-2	-2	-1	0	-----	-----	-----	-----	-----	-----	-----
T2-20	AN	-1	-2	-1	-2	-1	-1	-1	-----	-----	-----	-----	-----	-----	-----
T2-20	AO	0	-3	0	-1	-2	-1	0	-----	-----	-----	-----	-----	-----	-----
T2-20	AP	-1	-2	0	-1	-1	0	0	-----	-----	-----	-----	-----	-----	-----
T2-20	B	-1	-2.3	1.1	-1.9	-2.3	-0.3	1.1	-----	-----	-----	-----	-----	-----	-----
T2-20	C	-0.8	-3.6	-1.3	-1.7	-3.2	-0.7	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-20	D	-1.9	-2	0.1	-1.9	-3.1	-1.6	0.1	-----	-----	-----	-----	-----	-----	-----
T2-20	E	-2	-3.3	12	-2.1	155.6	1.6	155.6	-----	-----	12	-----	47.2	-----	41.3
T2-20	F	-0.4	-2.5	0.7	-1.6	-2	-0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-20	G	-0.4	-2.9	-0.3	-2.6	-2.6	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-20	H	-0.3	-3.2	1.9	-2.4	1.6	0.9	1.9	-----	-----	-----	-----	-----	-----	-----
T2-20	I	-1.8	-3.1	1.2	-1.9	24.6	-0.6	24.6	-----	-----	-----	-----	20.1	-----	20.1
T2-20	J	-1.6	-2.5	-0.2	-1.9	-3.4	0	0	-----	-----	-----	-----	-----	-----	-----
T2-20	K	-2	-2.4	-1	-1.7	-2.9	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-20	L	-0.8	-2.5	-0.1	-1.2	-0.1	-0.7	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-20	M	-1.8	-3	5.1	-2.8	8.2	2.2	8.2	-----	-----	-----	-----	-----	-----	-----
T2-20	N	-1.3	-2.1	-0.8	0.6	-1.1	-1.2	0.6	-----	-----	-----	-----	-----	-----	-----
T2-20	O	-0.8	-2.5	-0.7	-1.4	-2.4	-0.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-20	P	0	-1.9	2.5	-0.3	7.4	36.6	36.6	-----	-----	-----	-----	-----	36.6	36.6
T2-20	Q	-1.2	-2.6	0.6	-2.1	-0.2	-0.1	0.6	-----	-----	-----	-----	-----	-----	-----
T2-20	R	-1.6	-1.8	0.1	0	7.7	0.1	7.7	-----	-----	-----	-----	-----	-----	-----
T2-20	S	43	-2.3	40.5	-0.4	0.6	3.1	43	43	-----	40.5	-----	-----	-----	41.8
T2-20	T	9.6	-1.3	7.1	5.8	34.8	5.7	34.8	-----	-----	-----	-----	25.6	-----	25.6
T2-20	U	-1.9	-3.3	-0.8	-1	-2.1	-0.5	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-20	V	-0.9	-2.7	-0.3	-1.6	-2.5	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-20	W	2	-1.2	3.7	-0.8	4.7	0.8	4.7	-----	-----	-----	-----	-----	-----	-----
T2-20	X	10	6.8	1.4	-1.1	0.9	2.8	10	10	-----	-----	-----	-----	-----	10
T2-20	Y	3.4	0.7	3.1	1.9	2.2	5	5	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-20	Z	5.7	2.4	4.5	2	4.4	5.8	5.8	-----	-----	-----	-----	-----	-----	-----
T2-21	A	0.3	0.2	0.3	-0.4	-0.1	1	1	-----	-----	-----	-----	-----	-----	-----
T2-21	AA	-1.3	-2.8	0.5	-2.5	-2.6	-0.6	0.5	-----	-----	-----	-----	-----	-----	-----
T2-21	AB	-0.9	-1.2	-1.1	0	-1.9	-0.2	0	-----	-----	-----	-----	-----	-----	-----
T2-21	AC	0.1	-0.9	2.3	-0.3	-0.3	2.9	2.9	-----	-----	-----	-----	-----	-----	-----
T2-21	AD	9.5	-0.8	7.7	-1	0.5	6.1	9.5	-----	-----	-----	-----	-----	-----	-----
T2-21	AE	-0.2	-2.6	-1.1	-0.9	-0.9	-0.7	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-21	AF	-0.7	-1.6	-0.3	-1.4	-1.9	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-21	AG	-1.2	-2	-0.2	-0.6	-1.8	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-21	AH	1.7	0.1	4.6	0.6	18.8	3.5	18.8	-----	-----	-----	-----	19	-----	18.8
T2-21	B	0.1	-3	-1.2	-2.4	-2	-0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-21	C	-1.2	-2.6	0.8	-1.9	-1.4	0	0.8	-----	-----	-----	-----	-----	-----	-----
T2-21	D	-1.9	-3	-0.1	-1.1	-3	-0.5	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-21	E	-0.6	-2.6	0.4	-1.3	-0.7	-0.7	0.4	-----	-----	-----	-----	-----	-----	-----
T2-21	F	0.9	-2	-0.7	-1.7	-2.1	-0.1	0.9	-----	-----	-----	-----	-----	-----	-----
T2-21	H	0.3	-1.4	0	-1.6	-2.3	-0.5	0.3	-----	-----	-----	-----	-----	-----	-----
T2-21	I	0.5	-2.4	0.9	-1.2	-3	-0.5	0.9	-----	-----	-----	-----	-----	-----	-----
T2-21	J	-1.1	-1.8	-1	-0.4	-2.2	1.1	1.1	-----	-----	-----	-----	-----	-----	-----
T2-21	K	-0.9	-1.9	-1.3	-1.8	-1.4	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-21	L	-0.2	-1.2	-0.9	-2	-1.6	1.2	1.2	-----	-----	-----	-----	-----	-----	-----
T2-21	M	-0.1	0	0.4	-2.1	-1.4	0.6	0.6	-----	-----	-----	-----	-----	-----	-----
T2-21	N	-1.2	-2.4	0.2	-2.6	-0.7	-0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-21	O	18.2	-1.4	1	-1.2	1.7	0	18.2	18	-----	-----	-----	-----	-----	18.2
T2-21	P	-0.8	-2.9	0	-2.1	-3	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-21	Q	-1.4	-1.7	-0.4	-2.4	-2	0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-21	R	1.3	-2.9	0.1	-2.4	-1.9	-0.3	1.3	-----	-----	-----	-----	-----	-----	-----
T2-21	S	-1	-1.1	0.5	-1.6	-1.9	0.6	0.6	-----	-----	-----	-----	-----	-----	-----
T2-21	T	-0.1	-1.8	2	-1.4	16.4	2.9	16.4	-----	-----	-----	-----	16	-----	16.4
T2-21	U	0.5	-1.2	39.6	-0.4	3.3	2.7	39.6	-----	-----	40	-----	-----	-----	39.6
T2-21	V	-1.7	-2.1	0.8	-1.5	-2.1	0.6	0.8	-----	-----	-----	-----	-----	-----	-----
T2-21	W	-1.2	-2.8	-0.5	-2.2	-1.4	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-21	X	-0.7	-1.6	-0.6	-1.6	-2.1	-0.7	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-21	Y	-1.1	-1.4	-0.2	-2.7	-1.3	-1	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-21	Z	-1.4	-2	0.2	-2.4	-2.8	-0.7	0.2	-----	-----	-----	-----	-----	-----	-----
T2-22	A	-1.1	-3.9	-0.5	-2.9	1.2	0.3	1.2	-----	-----	-----	-----	-----	-----	-----
T2-22	B	0.8	-2.1	0.4	-0.8	-2.2	0.3	0.8	-----	-----	-----	-----	-----	-----	-----
T2-22	C	8.4	11.9	7.9	-1.2	18.3	12.9	18.3	-----	11.9	-----	-----	18	12.9	15.7
T2-22	D	3.6	0.1	2.6	0.1	0.2	2	3.6	-----	-----	-----	-----	-----	-----	-----
T2-22	E	6.5	2.9	6	4.3	4.7	5.5	6.5	-----	-----	-----	-----	-----	-----	-----
T2-22	F	3.5	2.6	2.7	4.4	1.9	6.2	6.2	-----	-----	-----	-----	-----	-----	-----
T2-22	G	2.3	-1.9	2	-1.6	16.6	2.7	16.6	-----	-----	-----	-----	16.6	-----	16.6
T2-23	A	-1.6	-2.7	3.2	-2.8	24.3	25.1	25.1	-----	-----	-----	-----	15.8	25.1	18.1
T2-23	AA	42.6	7.2	59.7	16.7	229.4	64.2	229.4	24.1	-----	26.3	16.7	42.4	30.2	38.1
T2-23	AB	22	3.7	10.8	10.4	44.8	55.9	55.9	22	-----	10.8	10.4	23.3	28.5	23
T2-23	AC	13.6	-3	-0.5	-2.2	15.9	8.7	15.9	13.6	-----	-----	-----	15.9	-----	14.8

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-23	AD	6.4	-3.1	-0.3	-2.3	7.8	-1.1	7.8	-----	-----	-----	-----	-----	-----	-----
T2-23	AE	58.1	0.8	22.4	2	109.9	16.9	109.9	32.2	-----	15.2	-----	32.9	13.1	29.1
T2-23	AF	18	-0.5	20	21.2	57.2	62.2	62.2	18	-----	14.6	21.2	26.3	62.2	24.9
T2-23	AG	42.8	-3.9	3.8	-2.4	42	-1.7	42.8	42.8	-----	-----	-----	25.1	-----	27.3
T2-23	AH	7.5	-3	-0.3	-0.8	-0.9	-1.7	7.5	-----	-----	-----	-----	-----	-----	-----
T2-23	AI	0	-3	1	-2	-3	8	8	-----	-----	-----	-----	-----	-----	-----
T2-23	B	58.9	-3.3	13.5	13.1	112	63.7	112	58.9	-----	13.5	13.1	32.5	42.2	33.2
T2-23	C	-1.1	-2.6	-0.8	-1.9	-3.1	10.3	10.3	-----	-----	-----	-----	-----	10.3	10.3
T2-23	D	6	-3.2	6.5	1.3	46.6	6.4	46.6	-----	-----	-----	-----	33.1	-----	33.1
T2-23	E	-1	1.8	4.8	40.8	58.5	12.8	58.5	-----	-----	-----	40.8	35.6	12.8	33.1
T2-23	F	-1.1	-3.6	0.2	-2.3	-3.4	-0.9	0.2	-----	-----	-----	-----	-----	-----	-----
T2-23	G	1	-4.2	0.3	-2.2	-3.1	-1.8	1	-----	-----	-----	-----	-----	-----	-----
T2-23	H	-1.9	-3.8	-1.5	-3.1	-4.5	-1.6	-1.5	-----	-----	-----	-----	-----	-----	-----
T2-23	I	-0.3	-2.8	-0.8	-2.2	-1	-1.4	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-23	J	-1.7	-3.2	2.2	-3.1	-2.1	-2.2	2.2	-----	-----	-----	-----	-----	-----	-----
T2-23	K	-1.8	-2.1	8.4	-1.2	25.6	-0.2	25.6	-----	-----	-----	-----	19.4	-----	19.4
T2-23	L	1.9	12.9	9.9	-1.5	30.9	2.7	30.9	-----	12.9	-----	-----	19	-----	18
T2-23	M	-1.4	-2.2	0.4	-3.2	-2.3	-1.5	0.4	-----	-----	-----	-----	-----	-----	-----
T2-23	N	-0.9	-2.2	0.1	-2	-2.5	-0.9	0.1	-----	-----	-----	-----	-----	-----	-----
T2-23	O	-1.2	-2.2	0.1	-2.2	18.9	4.4	18.9	-----	-----	-----	-----	18.9	-----	18.9
T2-23	P	-0.9	-4.5	14	-2.4	25	0.9	25	-----	-----	12.6	-----	19.1	-----	17.5
T2-23	Q	34.2	-1.6	29.6	39.7	200.2	34	200.2	34.2	-----	29.6	28.2	38.2	20.4	34.1
T2-23	R	-0.6	-3.3	-0.1	-1.9	-3.3	1.3	1.3	-----	-----	-----	-----	-----	-----	-----
T2-23	S	-0.8	-2.1	0.3	-2.2	-2.9	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-23	T	-1.2	-2.8	-0.9	-2.8	-3.3	-0.9	-0.9	-----	-----	-----	-----	-----	-----	-----
T2-23	U	-1.1	-3.2	-0.9	1.4	-2.6	2.2	2.2	-----	-----	-----	-----	-----	-----	-----
T2-23	V	-1.9	-3.5	-1.4	-2.6	-3.5	0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-23	W	-2	-3.1	45.4	-1.3	17.6	0.7	45.4	-----	-----	45.4	-----	17.6	-----	31.5
T2-23	X	20	0.1	1.1	-1.3	8.5	6.1	20	20	-----	-----	-----	-----	-----	20
T2-23	Y	1.9	2.8	28.8	0	22.3	5.3	28.8	-----	-----	28.8	-----	20.6	-----	23.4
T2-23	Z	3.4	0	3.6	1.9	2	5	5	-----	-----	-----	-----	-----	-----	-----
T2-24	A	-0.6	-1.9	-0.7	-1.8	-2.1	7.4	7.4	-----	-----	-----	-----	-----	-----	-----
T2-24	AA	11.6	2.7	13.9	-1.9	32.7	24.4	32.7	11.6	-----	13.9	-----	20.1	24.4	19
T2-24	AB	-1.4	-0.7	6.1	-3.1	11.5	10.9	11.5	-----	-----	-----	-----	10.9	10.9	10.9
T2-24	AC	-0.6	-2.7	-0.2	-2.1	10	-1.5	10	-----	-----	-----	-----	10	-----	10
T2-24	AD	-1.2	-2.4	-0.4	-1.8	-2.7	-1.8	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-24	AE	0.1	-0.5	0.1	-1.7	-0.1	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-24	AF	0.8	-0.3	1.9	-0.1	37.3	9.6	37.3	-----	-----	-----	-----	23.8	-----	23.8
T2-24	AG	2.6	-0.1	2.1	0.7	0.8	3.6	3.6	-----	-----	-----	-----	-----	-----	-----
T2-24	AH	6.3	4.6	4.4	2.8	4.7	5	6.3	-----	-----	-----	-----	-----	-----	-----
T2-24	AI	53.1	49.8	83.7	42.5	48.8	45.2	83.7	26.1	23.7	36.2	22.3	24.4	24.6	26.8
T2-24	AJ	13.4	8.7	17	-1.3	16.9	62.8	62.8	13.2	-----	14.9	-----	15.8	32.5	22.2
T2-24	AK	9.8	-1.6	1.6	-1.4	1.4	11.5	11.5	-----	-----	-----	-----	-----	11.5	11.5
T2-24	AL	-0.4	-2.8	-0.4	-2	-1.9	-1.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-24	AM	-1.1	-1.9	6.9	-1.5	6.4	24.7	24.7	-----	-----	-----	-----	-----	24.7	24.7

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-24	AN	11.5	-2.2	0.2	-2	3.3	36.5	36.5	11.5	-----	-----	-----	-----	36.5	24
T2-24	AO	36.8	15.1	44.5	2.9	44.2	18.7	44.5	25.5	15.1	25.9	-----	22.9	18.7	23.3
T2-24	AP	-0.9	-3.3	-0.8	-1.5	-2.7	-0.6	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-24	AQ	-0.3	-2.3	-0.4	-1.3	1	1.8	1.8	-----	-----	-----	-----	-----	-----	-----
T2-24	AR	1.6	-0.5	37.2	0.6	0.1	7.2	37.2	-----	-----	37.2	-----	-----	-----	37.2
T2-24	AS	4.5	-0.8	9.5	-0.7	7.4	5.6	9.5	-----	-----	-----	-----	-----	-----	-----
T2-24	AT	2.7	2.3	11.7	2.3	5.2	5.9	11.7	-----	-----	11.7	-----	-----	-----	11.7
T2-24	AU	25.5	11	19.8	-1.9	16	12	25.5	19.1	11	16.7	-----	16	12	15.9
T2-24	AV	-1.6	-3.1	11.5	-2	2.2	0.4	11.5	-----	-----	11	-----	-----	-----	11
T2-24	AW	-1.6	-3.1	11.5	-2	2.2	0.4	11.5	-----	-----	11	-----	-----	-----	11
T2-24	AX	-1.5	-2.4	2.4	-1.5	3	0.3	3	-----	-----	-----	-----	-----	-----	-----
T2-24	AY	-0.5	-1.9	-0.4	-1.3	-1.8	2	2	-----	-----	-----	-----	-----	-----	-----
T2-24	AZ	2.3	-0.6	1.5	-0.4	-0.4	1.2	2.3	-----	-----	-----	-----	-----	-----	-----
T2-24	B	0.7	-1.7	3.6	-1.6	0.6	0	3.6	-----	-----	-----	-----	-----	-----	-----
T2-24	BA	0.8	-0.4	6.5	-0.2	0.5	2.1	6.5	-----	-----	-----	-----	-----	-----	-----
T2-24	BB	4	1.6	2.9	1.3	2	3.4	4	-----	-----	-----	-----	-----	-----	-----
T2-24	BC	5.6	4.2	5.2	3.8	5.6	5.2	5.6	-----	-----	-----	-----	-----	-----	-----
T2-24	C	2.8	-1.5	0.4	-1.8	5.9	0	5.9	-----	-----	-----	-----	-----	-----	-----
T2-24	D	1.6	-2.3	3.4	-2	-1.5	-0.8	3.4	-----	-----	-----	-----	-----	-----	-----
T2-24	E	5.3	-0.4	8.5	-0.6	42	1.9	42	-----	-----	-----	-----	26.4	-----	26.4
T2-24	F	3.1	0.6	5.6	0.1	3.1	28.1	28.1	-----	-----	-----	-----	-----	28.1	28.1
T2-24	G	18.5	7.2	21.8	13.2	60.8	42.9	60.8	13.9	-----	17.9	13.2	25.5	29.5	21.3
T2-24	H	8.4	3.1	6.8	-1.3	14.9	26.2	26.2	-----	-----	-----	-----	12.9	26.2	17.4
T2-24	I	-1	-2.7	-0.4	-2	0.1	-2.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-24	J	-0.7	-2.4	0	-2.2	0.1	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-24	K	0.6	-1.3	2.9	-1.1	10.9	0.3	10.9	-----	-----	-----	-----	10.9	-----	10.9
T2-24	L	0	-2.3	-0.1	-1.4	-1.1	-0.9	0	-----	-----	-----	-----	-----	-----	-----
T2-24	M	1.9	0.8	2.8	-0.2	-0.1	4.3	4.3	-----	-----	-----	-----	-----	-----	-----
T2-24	N	4.4	0.6	9.1	1	2.7	2.6	9.1	-----	-----	-----	-----	-----	-----	-----
T2-24	O	15.4	35.4	16	-1.4	116	20.6	116	15	35.4	14.4	-----	33.4	18	28.5
T2-24	P	-1.2	-2.6	17	-2.4	15.6	5.3	17	-----	-----	17	-----	14.2	-----	14.9
T2-24	Q	-1	-1.6	-0.1	-1.8	-2	-1.4	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-24	R	0.7	-2.6	-0.4	-0.9	-0.3	-0.2	0.7	-----	-----	-----	-----	-----	-----	-----
T2-24	S	17.6	-3	9.4	1.3	27.5	14.7	27.5	14.9	-----	-----	-----	20.9	12.9	18.3
T2-24	T	-0.9	-1.8	3.7	-1.7	21.1	11.8	21.1	-----	-----	-----	-----	16.1	11.8	14.7
T2-24	U	-0.9	-2.8	-0.8	-2.8	8.8	-1.5	8.8	-----	-----	-----	-----	-----	-----	-----
T2-24	V	-2.1	-2.8	0.1	-2.1	-2.5	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-24	W	-0.4	-2.1	11.6	-1.4	1.4	0.1	11.6	-----	-----	11.6	-----	-----	-----	11.6
T2-24	X	-0.1	-1.7	17.3	-0.9	12.1	0.6	17.3	-----	-----	17.3	-----	12.1	-----	14.7
T2-24	Y	-1.1	-2.6	-1.1	-2.4	-2.4	-1.4	-1.1	-----	-----	-----	-----	-----	-----	-----
T2-24	Z	-1	-3.4	-0.8	-2.9	-3.4	-1.3	-0.8	-----	-----	-----	-----	-----	-----	-----
T2-25	A	-1.9	-1.7	5.5	-2.1	1	14.9	14.9	-----	-----	-----	-----	-----	14.9	14.9
T2-25	AA	1	-2	11	-2	3	0	11	-----	-----	-----	-----	-----	-----	-----
T2-25	AB	36	0	15	10	15	2	36	-----	-----	-----	-----	-----	-----	-----
T2-25	AC	22	2	16	-2	6	10	22	-----	-----	-----	-----	-----	3.37	3.37

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-25	AD	5	5	5	1	4	3	5	-----	-----	-----	-----	-----	-----	-----
T2-25	AE	3	-3	1	-2	1	4	4	-----	-----	-----	-----	-----	-----	-----
T2-25	AF	-1	-2	1	-1	-3	-1	1	-----	-----	-----	-----	-----	-----	-----
T2-25	AG	3	-3	1	-2	1	4	4	-----	-----	-----	-----	-----	-----	-----
T2-25	AH	-1	-2	26	-2	19	26	26	-----	-----	-----	-----	19.4	8.8	14.1
T2-25	AI	20	-2	16	-1	40	25	40	-----	-----	-----	-----	39.6	6.3	22.9
T2-25	AJ	20	13	3	6	0	8	20	20.3	-----	-----	-----	-----	-----	20.3
T2-25	AK	35	3	20	4	49	16	49	-----	-----	-----	-----	48.7	3.98	26.3
T2-25	AL	13	2	3	3	0	4	13	-----	-----	-----	-----	-----	-----	-----
T2-25	AM	18	19	5	3	0	4	19	17.7	-----	-----	-----	-----	-----	17.7
T2-25	AN	19	17	12	4	0	7	19	19.3	16.6	-----	-----	-----	-----	17.9
T2-25	AO	1	-1	6	15	34	1	34	-----	-----	-----	14.7	-----	-----	14.7
T2-25	AP	5	2	10	1	1	3	10	-----	-----	-----	-----	-----	-----	-----
T2-25	AQ	6	2	3	2	2	4	6	-----	-----	-----	-----	-----	-----	-----
T2-25	AR	21	18	50	5	95	74	95	-----	18.2	-----	-----	94.7	148	42.5
T2-25	AS	8	9	17	-1	41	36	41	-----	-----	-----	-----	40.5	12.1	26.3
T2-25	AT	19	2	9	3	0	7	19	-----	-----	-----	-----	-----	-----	-----
T2-25	AU	11	-3	29	-1	19	27	29	-----	-----	-----	-----	18.7	6.6	12.6
T2-25	AV	-1	-2	-1	0	0	0	0	-----	-----	-----	-----	-----	-----	-----
T2-25	AW	1	-2	14	-2	10	17	17	-----	-----	-----	-----	-----	8.5	8.5
T2-25	AX	12	8	25	1	28	20	28	-----	-----	-----	-----	28.3	4.9	16.6
T2-25	AY	13	3	16	18	38	21	38	-----	-----	16	17.5	38	4.1	18.9
T2-25	AZ	11	-2	6	-2	-1	3	11	------	------	------	------	------	------	------
T2-25	B	15.9	-1.8	4	5.2	18	26.1	26.1	15.9	-----	-----	-----	15.8	20.2	17.6
T2-25	BA	-1	-1	-1	-2	-2	-1	-1	------	------	------	------	------	------	------
T2-25	BB	-1	-2	-1	-2	-1	-2	-1	------	------	------	------	------	------	------
T2-25	BC	0	-1	0	0	0	0	0	------	------	------	------	------	------	------
T2-25	BD	2	3	12	0	0	2	12	------	------	------	------	------	------	------
T2-25	BE	3	1	3	1	4	3	4	------	------	------	------	------	------	------
T2-25	BF	5	3	4	3	3	5	5	------	------	------	------	------	------	------
T2-25	C	22.6	11.2	24.6	10.4	55	109.1	109.1	17.2	11.2	18.9	10.4	33.4	37.4	31.9
T2-25	D	-1	-3.5	-0.9	-2	-1.7	-0.8	-0.8	-----	-----	-----	-----	-----	-----	-----
T2-25	E	-1.5	-3.6	-0.2	-1.8	-3.9	-1.3	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-25	F	0.6	-2.8	5.2	-1.5	14.9	-1	14.9	-----	-----	-----	-----	14.9	-----	14.9
T2-25	G	-0.9	-2.5	-1.9	-2.9	12.2	10.8	12.2	-----	-----	-----	-----	12.2	10.8	11.5
T2-25	H	-0.9	-2.4	5.3	-2.9	7.7	2.5	7.7	-----	-----	-----	-----	-----	-----	-----
T2-25	I	3.7	6.3	9.2	1.1	67.3	21.8	67.3	-----	-----	-----	-----	37.6	21.8	35
T2-25	J	0	-2.9	0	-1.6	-2.9	-0.9	0	-----	-----	-----	-----	-----	-----	-----
T2-25	K	-1.7	-3.3	0.1	-1.7	-2.9	-0.2	0.1	-----	-----	-----	-----	-----	-----	-----
T2-25	L	-0.6	-2.6	-0.1	-2.3	-2.2	-0.5	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-25	M	-1.5	-2.3	-0.9	-1.6	-2.5	-1.4	-0.9	-----	-----	-----	-----	-----	-----	-----
T2-25	N	-1.2	-2.4	-0.5	-2.8	-3.6	1.6	1.6	-----	-----	-----	-----	-----	-----	-----
T2-25	O	-1.4	-3.3	-0.7	-2.2	-2.7	-1.2	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-25	P	-1.3	-3.3	13.9	-2.3	43.1	1.5	43.1	-----	-----	13.9	-----	43.1	-----	28.5
T2-25	Q	2.5	9.8	7.7	35.1	4.5	30	35.1	-----	-----	-----	25.8	-----	30	26.6

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-25	R	3.3	3.4	5.9	-0.1	4.8	6.5	6.5	-----	-----	-----	-----	-----	-----	-----
T2-25	S	189.3	57.8	86.3	21.2	219.2	22.8	219.2	38.2	22.5	37.1	18	46.4	15	37.5
T2-25	T	-0.4	-3.1	-0.5	-2.4	-1.9	-1	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-25	U	-1.2	-3	3.4	-2.1	13.2	3.1	13.2	-----	-----	-----	-----	13.2	-----	13.2
T2-25	V	18.7	10.9	31.9	-1.5	84.4	27	84.4	15.7	10.6	20.1	-----	31.6	18.1	22.8
T2-25	W	43.7	2.3	16.8	3.8	11.6	2.7	43.7	43.7	-----	16.8	-----	11.1	-----	20.7
T2-25	X	27	7.1	22.7	-1.9	33.4	7.1	33.4	22.6	-----	22.7	-----	27.8	-----	24.7
T2-25	Y	18.3	1.1	59.1	6.7	33.8	10.5	59.1	15.3	-----	25.8	-----	16.3	10.5	18.3
T2-25	Z	0.1	-1.3	0.5	-2	-1.6	-0.4	0.5	-----	-----	-----	-----	-----	-----	-----
T2-27	A	7.7	-4.1	2.9	7.6	7.1	8.1	8.1	-----	-----	-----	-----	-----	-----	-----
T2-27	AA	-0.8	-2.4	0.5	-1.9	5	7.9	7.9	-----	-----	-----	-----	-----	-----	-----
T2-27	AB	2.7	-2.8	12	-1.3	13.8	7.2	13.8	-----	-----	12	-----	13.8	-----	12.9
T2-27	AC	-1.2	-2.5	-0.9	-2.2	-3.1	-1.2	-0.9	-----	-----	-----	-----	-----	-----	-----
T2-27	AD	0.4	-2.4	0.2	-2.4	-1.3	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-27	AE	-0.7	-3	-1.5	-2.6	-2.7	-2.4	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-27	AF	-0.9	-2.2	0.5	-1.9	-2.4	-2.6	0.5	-----	-----	-----	-----	-----	-----	-----
T2-27	B	9	-2	5.2	-3.4	15.6	-1.4	15.6	-----	-----	-----	-----	15.6	-----	15.6
T2-27	C	0.8	-1.7	0.1	-2	-2.8	-1.6	0.8	-----	-----	-----	-----	-----	-----	-----
T2-27	D	-1.1	-2.1	0.3	-2.9	-2	-0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-27	E	-0.7	-1.8	-1.4	-2.1	-4.1	5.2	5.2	-----	-----	-----	-----	-----	-----	-----
T2-27	F	-0.7	-1.8	-1.4	-2.1	-4.1	5.2	5.2	-----	-----	-----	-----	-----	-----	-----
T2-27	G	-0.6	-2.4	-0.3	-2.6	2.7	6.4	6.4	-----	-----	-----	-----	-----	-----	-----
T2-27	H	10.3	3	25.9	12.6	74.5	52.2	74.5	10.3	-----	19.2	12.6	29.5	27.8	24.4
T2-27	I	-0.6	-2.7	2.4	-2.1	-3.4	15.8	15.8	-----	-----	-----	-----	-----	15.8	15.8
T2-27	J	10.2	-2	22	-2.1	7.3	36.7	36.7	10.2	-----	15.9	-----	-----	26.6	19.7
T2-27	K	-1.4	-2.7	0.4	-2.2	-2.8	-1.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-27	L	-0.6	-1.6	-0.4	-2	-3	-0.8	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-27	M	0.2	-0.7	0.4	-1.6	0.4	0	0.4	-----	-----	-----	-----	-----	-----	-----
T2-27	N	0.8	-2.2	0.6	-2.1	-2.8	-0.5	0.8	-----	-----	-----	-----	-----	-----	-----
T2-27	O	-1.8	-2.8	1.9	-1.6	-2	16.4	16.4	-----	-----	-----	-----	-----	16.4	16.4
T2-27	P	40.3	16.3	40.8	30.4	88.7	162.2	162.2	25.4	14.7	20.8	17.5	34.9	56.5	33.9
T2-27	Q	65.2	66.3	41.7	36.5	79.7	96.6	96.6	27.2	25.1	23.7	26	30.1	27.5	27.7
T2-27	R	-0.8	-2.7	11.1	-1.3	-0.9	16.8	16.8	-----	-----	11.1	-----	-----	14.9	13.6
T2-27	S	13.4	3.8	16	21.3	10.8	22.7	22.7	13.4	-----	16	21.3	10.8	22.7	16.8
T2-27	T	0.5	-2.7	-1.7	-3.1	27	7.7	27	-----	-----	-----	-----	27	-----	27
T2-27	U	-0.5	-2.5	0.1	-2.3	-1.3	31	31	-----	-----	-----	-----	-----	22.9	22.9
T2-27	V	-1.5	-3.9	1.6	-1.7	-2.1	0.2	1.6	-----	-----	-----	-----	-----	-----	-----
T2-27	W	16	-2.7	12.8	9	45.6	35.4	45.6	16	-----	11.7	-----	22.4	35.4	20.3
T2-27	X	5.7	-2.6	11.8	-1.8	17.3	7.9	17.3	-----	-----	11.8	-----	13.4	-----	13
T2-27	Y	0.1	-2.5	-0.1	-2.4	-2.8	-1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-27	Z	1.3	-3.3	0.5	-1.1	-1.5	-2.2	1.3	-----	-----	-----	-----	-----	-----	-----
T2-29	A	1	-3.3	-0.7	-2.8	-3.2	-1.8	1	-----	-----	-----	-----	-----	-----	-----
T2-29	AA	0.7	-1.5	-0.1	-2.4	-0.1	0.9	0.9	-----	-----	-----	-----	-----	-----	-----
T2-29	AB	36.2	-1.8	28.8	2.3	75.1	5.8	75.1	25.6	-----	23.4	-----	35.1	-----	28.3
T2-29	AC	3.5	-2.8	0.4	-0.8	-1.9	-0.3	3.5	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-29	AD	4.4	20.1	0	-1.6	32	-0.1	32	-----	20.1	-----	-----	30.4	-----	26.9
T2-29	AE	7.2	-1.2	1	-1.6	15.2	23.6	23.6	-----	-----	-----	-----	15.2	23.6	19.4
T2-29	AF	-1.5	-2.3	0	-2.3	-1	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-29	AG	0.9	-1.7	-0.6	-1.4	2.9	7.8	7.8	-----	-----	-----	-----	-----	-----	-----
T2-29	AH	-1.3	-2.3	25.4	-1.1	14.9	-0.6	25.4	-----	-----	25.4	-----	13.6	-----	16.5
T2-29	AI	7.7	12.1	60.5	27.6	38.4	15.6	60.5	-----	12.1	44.1	27.6	22.3	15.6	26.5
T2-29	AJ	1	-2.5	0.8	-1.7	-0.9	-1.5	1	-----	-----	-----	-----	-----	-----	-----
T2-29	AK	-0.6	9.2	-0.4	-1.6	2.9	-0.2	9.2	-----	-----	-----	-----	-----	-----	-----
T2-29	AL	-0.5	-2	-0.7	-1.5	10.2	-0.4	10.2	-----	-----	-----	-----	10.2	-----	10.2
T2-29	AM	5.5	3	18.7	0.5	17.2	37.9	37.9	-----	-----	17.9	-----	17.2	21.3	19.5
T2-29	AN	-0.8	-2.6	1	-1.2	-2.9	-1.7	1	-----	-----	-----	-----	-----	-----	-----
T2-29	AO	33.8	-0.5	13.3	2	47.6	18.5	47.6	33.8	-----	12.2	-----	23.8	13.9	19.8
T2-29	AP	8.8	-1.6	3.8	5	2.4	39.8	39.8	-----	-----	-----	-----	-----	26	26
T2-29	AQ	-1.1	-3	-0.7	-2.5	11	1.1	11	-----	-----	-----	-----	11	-----	11
T2-29	AR	0.2	-2.3	-0.2	-1.9	-0.9	0.1	0.2	-----	-----	-----	-----	-----	-----	-----
T2-29	AS	-1.2	-2.5	0.3	-1.2	-2.2	0.2	0.3	-----	-----	-----	-----	-----	-----	-----
T2-29	AT	7	1.5	0	-1.7	5.2	4.8	7	-----	-----	-----	-----	-----	-----	-----
T2-29	AU	2	-1.7	12.3	0.1	12.8	2.5	12.8	-----	-----	12.3	-----	12.8	-----	12.6
T2-29	AV	3.6	2	14.7	2.1	43.7	2.3	43.7	-----	-----	14.7	-----	21.6	-----	19.9
T2-29	AW	-0.2	-2.2	-0.9	-1.8	-2.2	-1.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-29	AX	-0.1	-2.4	0.9	-2.1	-2.8	-0.3	0.9	-----	-----	-----	-----	-----	-----	-----
T2-29	AY	-1.1	-2.4	10.4	-1.8	-1.5	7.7	10.4	-----	-----	10.4	-----	-----	-----	10.4
T2-29	AZ	6.7	-2.2	4.6	-0.9	5.5	11	11	-----	-----	-----	-----	-----	11	11
T2-29	B	-1	-2.2	15.7	3.7	18.5	11.3	18.5	-----	-----	15.7	-----	18.5	11.3	15.2
T2-29	BA	11.7	39.6	22.8	5.9	23.6	13	39.6	11.7	20.1	17.9	-----	23.6	13	18
T2-29	BB	-0.4	-1.7	0	-0.9	-1.9	-0.9	0	-----	-----	-----	-----	-----	-----	-----
T2-29	BC	-1.7	-1.7	-0.3	-2.3	-1.8	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-29	BD	3.4	19.6	11.9	15.4	18.8	38	38	-----	19.6	11.9	15.4	16	38	19.5
T2-29	BE	-0.4	-2.5	-0.8	-1.7	-1.2	-0.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-29	BF	33	23.2	73.9	15.8	120.8	26.5	120.8	18.3	17.5	31.5	15.8	41.7	17.3	26.8
T2-29	BG	4.3	-2.9	38.6	-1.9	-2.2	5.5	38.6	-----	-----	24.8	-----	-----	-----	24.8
T2-29	BH	0.3	0.9	-0.4	-1.9	-2.1	1.4	1.4	-----	-----	-----	-----	-----	-----	-----
T2-29	BI	0.4	-2.4	-0.6	-0.7	-0.4	-1.3	0.4	-----	-----	-----	-----	-----	-----	-----
T2-29	BJ	-0.1	-2.9	0.1	-1.2	-1.2	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-29	BK	7.8	-1.4	3.4	-1.4	-1.7	2.3	7.8	-----	-----	-----	-----	-----	-----	-----
T2-29	BL	3.2	1.6	4.5	5.4	2	4.1	5.4	-----	-----	-----	-----	-----	-----	-----
T2-29	BM	-1.1	-1.9	0.5	-1	-2.1	0.2	0.5	-----	-----	-----	-----	-----	-----	-----
T2-29	C	4.6	2.4	37.5	12.3	48.6	24.2	48.6	-----	-----	32.9	12.3	24.5	24.2	25.1
T2-29	D	14	-3.5	23.5	9.9	39.3	14.1	39.3	14	-----	23.5	-----	19.5	13.4	18.1
T2-29	E	0.2	-3.5	-0.8	-2	-2.8	1.6	1.6	-----	-----	-----	-----	-----	-----	-----
T2-29	F	-0.5	-2.9	-0.3	0	8.5	-2	8.5	-----	-----	-----	-----	-----	-----	-----
T2-29	G	6.1	-3.4	11.9	-1	3.6	52.3	52.3	-----	-----	11.9	-----	-----	52.3	32.1
T2-29	H	28.6	16.8	15.2	94.3	36.4	69.6	94.3	20.2	16.8	15.2	94.3	32.4	69.6	37.1
T2-29	I	-0.3	-2.6	0.5	-0.7	-3.1	-1.8	0.5	-----	-----	-----	-----	-----	-----	-----
T2-29	J	0.2	-2.2	-0.7	-2.4	-2.7	-0.7	0.2	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-29	K	39.6	1.2	45.1	5.4	88.6	64	88.6	24.8	-----	31.5	-----	36.3	33.8	32.9
T2-29	L	-0.3	-3.4	1.8	-1.9	-1.2	17.4	17.4	-----	-----	-----	-----	-----	17.4	17.4
T2-29	M	56.9	122.4	90.2	131.3	287.9	202.5	287.9	29.5	33.4	34.4	41.6	40.3	41.4	37.1
T2-29	N	-1.3	-3.5	-1	-2.5	-3.4	-1.3	-1	-----	-----	-----	-----	-----	-----	-----
T2-29	O	-1.4	-3.1	0.3	-3.1	-1.8	-1.6	0.3	-----	-----	-----	-----	-----	-----	-----
T2-29	P	7.6	1.4	3.2	7.6	5.9	19.8	19.8	-----	-----	-----	-----	-----	19.8	19.8
T2-29	Q	1.9	-2.5	-1.2	-2.1	1	32.2	32.2	-----	-----	-----	-----	-----	23	23
T2-29	R	8.2	5	28.9	6.3	13.1	1.9	28.9	-----	-----	21.6	-----	13.1	-----	19.4
T2-29	S	-1	-2	1.4	-2.1	3.1	-0.9	3.1	-----	-----	-----	-----	-----	-----	-----
T2-29	T	51.7	4.5	25.6	3.6	38.5	15.1	51.7	31	-----	24.4	-----	19.6	15.1	22.7
T2-29	U	0.5	-3.4	-0.3	-1.7	0.1	18.5	18.5	-----	-----	-----	-----	-----	18.5	18.5
T2-29	V	-0.2	-2.6	0.4	-1.3	-0.9	-1.5	0.4	-----	-----	-----	-----	-----	-----	-----
T2-29	W	7	-0.3	0.4	-1.2	7.8	1	7.8	-----	-----	-----	-----	-----	-----	-----
T2-29	X	14.8	-2.4	54.8	-1.8	4.2	4.9	54.8	12.4	-----	35	-----	-----	-----	26
T2-29	Y	0.6	-3	-1.5	-2.2	-0.9	-1.4	0.6	-----	-----	-----	-----	-----	-----	-----
T2-29	Z	3.9	-3.5	8.7	-1.9	4	-0.1	8.7	-----	-----	-----	-----	-----	-----	-----
T2-30	A	0.2	-1.1	-0.4	-1.4	-1.7	-0.4	0.2	-----	-----	-----	-----	-----	-----	-----
T2-30	AA	26.6	-2.6	0.1	-2.7	-0.7	10.3	26.6	26.6	-----	-----	-----	-----	10.3	18.5
T2-30	AB	57	15.4	51.1	34.8	125.9	57.4	125.9	40.5	12.4	21.1	31.8	39.6	26.3	35.2
T2-30	AC	-1.4	-2.7	8.5	-1.8	0.3	15.2	15.2	-----	-----	-----	-----	-----	15.2	15.2
T2-30	AD	-1.3	-1.9	1	-1.9	21.8	5.6	21.8	-----	-----	-----	-----	19.9	-----	19.9
T2-30	AE	0	-1.8	-1.1	-1.9	-2	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-30	AF	49.5	10.3	36.7	24.1	153.6	59	153.6	21.5	10.3	19.9	18.8	35.3	28.2	31
T2-30	AG	-1	-2.9	-0.5	-1.2	13.3	15	15	-----	-----	-----	-----	13.3	15	14.2
T2-30	AH	0.2	-1	-0.5	-1.4	-1.6	-0.4	0.2	-----	-----	-----	-----	-----	-----	-----
T2-30	AI	36.5	0.9	45.8	-2.3	53.3	86.2	86.2	36.5	-----	28	-----	23.1	48.3	28.3
T2-30	AJ	31.8	4.1	49	7.4	70.7	43.7	70.7	31.8	-----	31.8	-----	24.7	33.6	27.2
T2-30	AK	24	14.3	40.1	4.2	45.6	30	45.6	15.9	14.3	21.2	-----	26.1	17.7	19.6
T2-30	AL	18.6	-3.2	28.5	0.8	6.3	-0.6	28.5	18.6	-----	28.5	-----	-----	-----	23.6
T2-30	AM	0.1	1.1	-0.9	-1.2	-2	-2.1	1.1	-----	-----	-----	-----	-----	-----	-----
T2-30	AN	-1	-2.7	-0.7	-2	-1.8	-0.9	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-30	AO	40.6	6.4	24.7	-0.3	38.8	46.7	46.7	25.3	-----	18.6	-----	25.7	25.1	24.5
T2-30	AP	14.4	-2.8	36.1	-1.2	11.1	96.1	96.1	14.4	-----	32	-----	10.6	96.1	30
T2-30	AQ	2	1.8	-0.8	-1.9	5.1	25.5	25.5	-----	-----	-----	-----	-----	25.5	25.5
T2-30	AR	-0.7	-2.7	-0.7	-1.8	-0.5	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-30	AS	0.4	-2.6	-0.7	-1.2	-2.3	-0.7	0.4	-----	-----	-----	-----	-----	-----	-----
T2-30	AT	-0.2	-3	1.1	-1.2	0.2	12.9	12.9	-----	-----	-----	-----	-----	12.9	12.9
T2-30	AU	24.5	11.5	79.9	-1.2	40.8	21.7	79.9	17.6	11.5	45.6	-----	33.4	21.7	30.7
T2-30	AV	2.5	-3.2	0.5	-1.4	-1.4	8.9	8.9	-----	-----	-----	-----	-----	-----	-----
T2-30	AW	-1.2	-2.8	-0.5	-0.3	-1.9	3	3	-----	-----	-----	-----	-----	-----	-----
T2-30	B	-1.5	-1	-0.9	-1.7	-2.3	-1	-0.9	-----	-----	-----	-----	-----	-----	-----
T2-30	C	-1.3	-4.2	0	-2.9	-1.2	-2	0	-----	-----	-----	-----	-----	-----	-----
T2-30	D	-1.5	-2.5	-1.5	-1.2	-2.2	0.9	0.9	-----	-----	-----	-----	-----	-----	-----
T2-30	E	3.2	-1.8	1.8	-0.9	-3.1	-1.2	3.2	-----	-----	-----	-----	-----	-----	-----
T2-30	F	11.3	-3.3	18.2	-1.4	29.4	11.2	29.4	11.3	-----	18.2	-----	29.4	11.2	17.5

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-30	G	-0.1	-1.2	-0.8	-1.3	-2.7	0.6	0.6	-----	-----	-----	-----	-----	-----	-----
T2-30	H	-0.5	-1.8	-0.9	-1.5	-2.2	-0.6	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-30	I	0.8	-3	-0.4	-2.6	-1	0.2	0.8	-----	-----	-----	-----	-----	-----	-----
T2-30	J	-1.3	1.9	2.1	-1	4.7	44.1	44.1	-----	-----	-----	-----	-----	35.4	35.4
T2-30	K	30.9	9	30.8	14.4	19	77.7	77.7	22.3	-----	22.6	14.4	13.7	24.7	21.2
T2-30	L	-1.3	-2.9	0.3	-0.2	0.1	-1.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-30	M	1.6	-4	-1.3	-1.8	4.2	-0.3	4.2	-----	-----	-----	-----	-----	-----	-----
T2-30	N	48.8	7.1	41.2	1.4	15.2	61.2	61.2	32.1	-----	41.2	-----	15.2	37.8	33.8
T2-30	O	31.6	24.9	56.1	40.8	74	38.1	74	21.1	19.4	28.6	28.2	33.4	29.9	29.6
T2-30	P	2.5	-2.3	-0.8	-1.6	24.9	-1.4	24.9	-----	-----	-----	-----	24.9	-----	24.9
T2-30	Q	32.1	4.2	6.7	-0.5	37.7	14.7	37.7	22.1	-----	-----	-----	21.9	14.7	21.1
T2-30	R	0.5	-3.1	9.2	-2.2	3.5	35.3	35.3	-----	-----	-----	-----	-----	35.3	35.3
T2-30	S	48.5	13.7	21.2	-1.3	11.3	37.5	48.5	45.1	13.7	21.1	-----	11.3	37.5	27.9
T2-30	T	0.8	-3.1	-0.2	-2.2	-2.6	-1.1	0.8	-----	-----	-----	-----	-----	-----	-----
T2-30	U	44.8	3.5	3.9	-2.1	17.7	14.2	44.8	32.3	-----	-----	-----	17.7	12.3	23.2
T2-30	V	-1	-3.2	-1.2	-1.5	-1.8	-0.3	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-30	W	-0.8	-2.5	-0.1	-1.8	-0.4	1.4	1.4	-----	-----	-----	-----	-----	-----	-----
T2-30	X	19.6	-2.3	17.2	-1.7	14.4	-0.6	19.6	19.6	-----	13.7	-----	12.9	-----	14.6
T2-30	Y	1.7	-2.5	29.6	-2.7	67.1	52.5	67.1	-----	-----	17.3	-----	23	31.1	24
T2-30	Z	-0.1	-3	0.2	-2.6	-2.3	-2.3	0.2	-----	-----	-----	-----	-----	-----	-----
T2-31	A	-1.4	-2.5	-1.4	-1.6	-1.3	0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-31	AA	-0.8	-2.9	-0.5	-2.3	-3.2	-0.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-31	AB	37.6	3.3	46.2	-2.5	39.4	2.3	46.2	37.6	-----	46.2	-----	23.2	-----	29.5
T2-31	AC	37.3	24.2	9.3	32.5	57.5	14.4	57.5	21.6	19.1	-----	32.5	28.1	12.4	23.6
T2-31	AD	16.5	-2.7	1	-2.3	18.8	-0.2	18.8	16.5	-----	-----	-----	15.2	-----	15.7
T2-31	AE	-0.5	-3.2	-0.4	-1.4	-2.9	-0.6	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-31	AF	10.2	-1.9	6.3	-0.3	9.4	6.9	10.2	10.2	-----	-----	-----	-----	-----	10.2
T2-31	AG	32.1	21.4	37.8	15.2	91.3	66.5	91.3	18	15.8	23	15.2	30.9	25.8	24.2
T2-31	AH	-0.8	-2.2	-1.1	-1.2	-3.6	11	11	-----	-----	-----	-----	-----	11	11
T2-31	AI	1.4	-0.9	-0.7	-2.2	-1.4	-1.3	1.4	-----	-----	-----	-----	-----	-----	-----
T2-31	AJ	-0.3	-2.5	1.2	-2	-1.5	-2.1	1.2	-----	-----	-----	-----	-----	-----	-----
T2-31	AK	59.5	-1.2	12.6	-0.9	5.9	65.5	65.5	59.5	-----	11.7	-----	-----	26.8	25.2
T2-31	AL	-0.6	-2.4	-1.3	-1.5	-3	-1.9	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-31	AM	-0.9	-2.6	-1.8	-1.7	-2.3	-1.7	-0.9	-----	-----	-----	-----	-----	-----	-----
T2-31	AN	-0.6	-3	-0.6	-0.4	-1.8	-2	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-31	AO	-1	-2.5	-0.3	-1.8	-0.2	-0.1	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-31	AP	-0.3	-1.9	-0.2	-1.4	-0.9	1.2	1.2	-----	-----	-----	-----	-----	-----	-----
T2-31	AQ	5.3	3	6.6	1.7	3.9	6.8	6.8	-----	-----	-----	-----	-----	-----	-----
T2-31	AR	2	-1	0.1	-2.2	-1.8	-0.4	2	-----	-----	-----	-----	-----	-----	-----
T2-31	AS	4.7	-1.6	1.4	-1.5	7.3	1.7	7.3	-----	-----	-----	-----	-----	-----	-----
T2-31	AT	8.9	5.3	6.3	1.7	0.4	1.9	8.9	-----	-----	-----	-----	-----	-----	-----
T2-31	AU	14.2	1.9	71.7	9.3	2.4	4.1	71.7	14.2	-----	71.7	-----	-----	-----	43
T2-31	AV	15.8	1.1	5.1	1.1	2.5	5.7	15.8	15.8	-----	-----	-----	-----	-----	15.8
T2-31	AW	0.2	-1.2	0.6	-0.8	2.1	-0.4	2.1	-----	-----	-----	-----	-----	-----	-----
T2-31	AX	0.5	-1.6	9.6	-1.5	5.4	0.7	9.6	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-31	AY	3.1	2.5	1	-0.1	3.3	1.8	3.3	-----	-----	-----	-----	-----	-----	-----
T2-31	AZ	2.8	0.5	7.6	0.2	30.5	3	30.5	-----	-----	-----	-----	30.5	-----	30.5
T2-31	B	15	-0.9	1.6	-1.5	-1.5	9	15	15	-----	-----	-----	-----	-----	15
T2-31	BA	5.7	2.2	3.2	1.6	4	4.4	5.7	-----	-----	-----	-----	-----	-----	-----
T2-31	BB	0.5	-1.3	-0.5	-1.2	-1.7	-0.1	0.5	-----	-----	-----	-----	-----	-----	-----
T2-31	BC	11.3	-1.2	0.4	-0.3	-0.9	1.9	11.3	11.3	-----	-----	-----	-----	-----	11.3
T2-31	BD	2.7	0.7	15.5	1.1	27.3	1.5	27.3	-----	-----	15.5	-----	27.3	-----	21.4
T2-31	BE	8.6	1.4	1.4	1.4	1.9	2.9	8.6	-----	-----	-----	-----	-----	-----	-----
T2-31	BF	4.5	2.6	4	1.8	5.1	3.3	5.1	-----	-----	-----	-----	-----	-----	-----
T2-31	BG	6.2	4.3	5.7	3.5	4.3	7.2	7.2	-----	-----	-----	-----	-----	-----	-----
T2-31	C	7.1	-1.4	1.2	-0.7	1	1.6	7.1	-----	-----	-----	-----	-----	-----	-----
T2-31	D	20.5	7.1	2.1	-1.1	11.8	28.4	28.4	20.5	-----	-----	-----	11.8	28.4	20.2
T2-31	E	16.8	59.5	9.2	8.2	14	18.7	59.5	16.8	59.5	-----	-----	12.2	18.7	23.9
T2-31	F	-0.3	-2.3	0.9	-0.3	-2.2	-0.3	0.9	-----	-----	-----	-----	-----	-----	-----
T2-31	G	0.8	-2.3	0.1	-0.8	-2.3	-0.7	0.8	-----	-----	-----	-----	-----	-----	-----
T2-31	H	1	-0.4	7.4	-0.9	-0.2	0.5	7.4	-----	-----	-----	-----	-----	-----	-----
T2-31	I	3.2	0.7	0.8	-1.4	4.2	2.5	4.2	-----	-----	-----	-----	-----	-----	-----
T2-31	J	2.3	0	4.6	-0.1	0.3	2.9	4.6	-----	-----	-----	-----	-----	-----	-----
T2-31	K	8.2	0.9	3.3	1.8	11.4	4.3	11.4	-----	-----	-----	-----	11.4	-----	11.4
T2-31	L	0	-1.4	-0.5	-1.3	-3.1	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-31	M	-0.7	-1	0.8	-1.1	-2.8	-1.1	0.8	-----	-----	-----	-----	-----	-----	-----
T2-31	N	0.1	-2	0.4	-1.5	-2.2	0.2	0.4	-----	-----	-----	-----	-----	-----	-----
T2-31	O	7.6	-0.5	14.7	-0.6	3.3	32	32	-----	-----	14.7	-----	-----	32	23.4
T2-31	P	2.2	0.5	12.1	24.5	4.6	2.3	24.5	-----	-----	12.1	24.5	-----	-----	18.3
T2-31	Q	4.6	1.9	4.1	4.1	1.8	5.2	5.2	-----	-----	-----	-----	-----	-----	-----
T2-31	R	-0.1	-1.6	-0.1	-1.7	-2	-0.8	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-31	S	0.7	-1.2	-0.4	-0.3	-2.6	3.4	3.4	-----	-----	-----	-----	-----	-----	-----
T2-31	T	0.1	-0.3	1	0	-0.7	-0.4	1	-----	-----	-----	-----	-----	-----	-----
T2-31	U	5.3	-0.7	15.5	0.9	0.3	2.1	15.5	-----	-----	13.6	-----	-----	-----	13.6
T2-31	V	4.7	1	21.4	0.6	0.9	3.9	21.4	-----	-----	17.2	-----	-----	-----	17.2
T2-31	W	5.6	3.4	5	3.7	4.4	6.2	6.2	-----	-----	-----	-----	-----	-----	-----
T2-31	X	14.5	-2	0.4	-1.8	8.9	16.1	16.1	14.5	-----	-----	-----	-----	16.1	15.3
T2-31	Y	40.6	17.7	41.5	40.3	55.5	33.5	55.5	20.2	17.7	27.9	27.3	27.7	23.5	24.5
T2-31	Z	-0.8	-2.3	0.7	-2.2	6.5	0.7	6.5	-----	-----	-----	-----	-----	-----	-----
T2-32	A	4.4	-2.9	10.5	-1.9	-0.2	6.2	10.5	-----	-----	10.5	-----	-----	-----	10.5
T2-32	AA	20.2	-0.7	32.1	16.5	55.2	51.5	55.2	16.4	-----	23.4	16.5	27.3	24.3	24.9
T2-32	AB	15.3	0.9	16.5	-2.2	8.1	68.9	68.9	15.3	-----	16.5	-----	-----	40	30.4
T2-32	AC	-0.7	-2.6	-0.8	-1.4	-2.9	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-32	AD	0.5	-2.6	-0.7	-1.7	-2	-0.8	0.5	-----	-----	-----	-----	-----	-----	-----
T2-32	AE	37.8	18.6	64	2.8	41.6	27.8	64	26.1	14.5	23.8	-----	25.4	18.8	22.6
T2-32	AF	27.6	0.8	5.8	-0.6	1.3	18	27.6	27.6	-----	-----	-----	-----	18	22.8
T2-32	AG	3	-2	-1	-0.6	3.9	-0.6	3.9	-----	-----	-----	-----	-----	-----	-----
T2-32	AH	-0.5	-1.1	-1.3	0	-2.3	-1.4	0	-----	-----	-----	-----	-----	-----	-----
T2-32	AI	23.1	58.8	9.2	12.5	127.4	20	127.4	19.6	25.2	-----	11.6	61.8	16.1	30.3
T2-32	AJ	4.1	-2	16.4	19.1	19.7	12.7	19.7	-----	-----	16.4	19.1	15.6	12.3	15.2

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-32	AK	8.1	-3	8.7	-2.2	-2	15	15	-----	-----	-----	-----	-----	15	15
T2-32	AL	-1.9	-3.4	0	-2.3	5.1	-0.2	5.1	-----	-----	-----	-----	-----	-----	-----
T2-32	AM	129.6	84.5	219.8	50.2	79.9	39.1	219.8	31.7	31.8	47.2	26.9	31.2	21.2	32.2
T2-32	AN	203.1	123.8	123.3	32.7	153.2	107.2	203.1	45.1	46.4	50.7	27.7	39.6	28.8	40.4
T2-32	AO	24	35.1	32.1	11.3	81.7	49.7	81.7	18.5	21.1	18.4	11.3	33.3	36.6	25.7
T2-32	AP	15	11.2	5.7	-0.8	19.5	2.1	19.5	15	11.2	-----	-----	13.4	-----	13.3
T2-32	AQ	0.3	10.4	-0.5	-1.4	-1.9	-0.5	10.4	-----	10.4	-----	-----	-----	-----	10.4
T2-32	AR	-0.5	-2.2	1.8	-1.9	-0.7	-0.9	1.8	-----	-----	-----	-----	-----	-----	-----
T2-32	AS	64.2	59.4	78.3	126.4	261.8	75.9	261.8	29.1	25.5	30.1	29.7	86.9	28.4	59.9
T2-32	AT	70	5.1	43.9	29.3	124.1	53.6	124.1	31.3	-----	23.6	24.8	36.8	22.4	31.9
T2-32	AU	9	8.3	20.4	13	44.2	17.2	44.2	-----	-----	16.3	12.7	20.6	17.2	17.6
T2-32	AV	4.8	3.4	96.6	-3	10.5	0.7	96.6	-----	-----	96.6	-----	10.3	-----	39.1
T2-32	AW	0.7	-2.9	-1.4	-2.5	9.3	26	26	-----	-----	-----	-----	-----	26	26
T2-32	AX	-0.8	-2.1	15	-2.6	-3.1	-1.8	15	-----	-----	15	-----	-----	-----	15
T2-32	AY	90.3	26.4	76.4	17.5	35.2	38.8	90.3	31.9	21.1	27	17.5	18.5	21.3	23.6
T2-32	AZ	2.6	-2.7	-1.1	-1.4	0	16.2	16.2	-----	-----	-----	-----	-----	13.8	13.8
T2-32	B	15.2	-3	48	7.5	79.5	36.1	79.5	13.2	-----	24.8	-----	34.2	36.1	26.9
T2-32	BA	-0.5	-2.1	0.1	-0.8	-3	-1.2	0.1	-----	-----	-----	-----	-----	-----	-----
T2-32	BB	-1.2	-2.3	-0.1	-1.5	-2.2	16.3	16.3	-----	-----	-----	-----	-----	16.3	16.3
T2-32	BC	7.4	8.6	-1.5	5	16.8	-0.4	16.8	-----	-----	-----	-----	16.8	-----	16.8
T2-32	BD	0.2	15.1	7	7.9	27.6	6.4	27.6	-----	15.1	-----	-----	27.6	-----	21.4
T2-32	BE	3	-3.6	-1.1	-3.2	5.9	0.2	5.9	-----	-----	-----	-----	-----	-----	-----
T2-32	BF	-1.1	-2.9	1.1	-1.9	1.3	-1.4	1.3	-----	-----	-----	-----	-----	-----	-----
T2-32	BG	-1.3	-3.2	5	-0.1	-1.2	-0.5	5	-----	-----	-----	-----	-----	-----	-----
T2-32	BH	25.5	8.4	20	18.2	22.2	29.5	29.5	16.8	-----	20	18.2	16.8	29.5	18.7
T2-32	BI	-1.1	-1.2	1.3	-1.8	-0.2	0	1.3	-----	-----	-----	-----	-----	-----	-----
T2-32	BJ	-0.2	-2.3	0.5	-1.6	-2.6	0.4	0.5	-----	-----	-----	-----	-----	-----	-----
T2-32	BK	-0.1	-2.9	5	-2.5	1.6	-0.9	5	-----	-----	-----	-----	-----	-----	-----
T2-32	BL	0.3	0.1	22.3	-1.7	21.7	16.9	22.3	-----	-----	22.3	-----	18.6	16.9	19.1
T2-32	BM	0.1	-2.6	-0.2	-1.4	4.3	-0.4	4.3	-----	-----	-----	-----	-----	-----	-----
T2-32	BN	-0.1	-2.3	-0.7	-2.4	-2.2	-1.5	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-32	BO	5	-1.8	2.1	-0.5	-1.7	2.1	5	-----	-----	-----	-----	-----	-----	-----
T2-32	BP	3.8	3.5	5.7	2.7	5.5	22.4	22.4	-----	-----	-----	-----	-----	17.8	17.8
T2-32	BQ	-0.5	-2.6	-1.6	0	-2.1	-0.1	0	-----	-----	-----	-----	-----	-----	-----
T2-32	BR	-0.7	-1.7	-0.2	-0.6	-2.2	-0.4	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-32	C	-1.2	-1.9	-1.2	8	1.2	-1	8	-----	-----	-----	-----	-----	-----	-----
T2-32	D	-1.3	-3.5	-0.1	-1.9	-0.5	0.9	0.9	-----	-----	-----	-----	-----	-----	-----
T2-32	E	7.9	5.4	37.3	0.1	56.1	7	56.1	-----	-----	24.3	-----	38.3	-----	32.7
T2-32	F	117.9	23.1	37	-0.1	36.6	13.7	117.9	42.1	21	21.6	-----	21.6	13.7	26.5
T2-32	G	6.6	-2.3	0.7	-1	0.8	2.3	6.6	-----	-----	-----	-----	-----	-----	-----
T2-32	H	-0.9	-3.2	1.2	-1.3	-1.9	-0.8	1.2	-----	-----	-----	-----	-----	-----	-----
T2-32	I	20.5	-1.9	24.1	-1	54.4	12.9	54.4	20.5	-----	17.9	-----	54.4	11.6	21.7
T2-32	J	11.2	7	20.5	0.4	66.6	25.2	66.6	11.2	-----	16.2	-----	41.9	19.7	21.9
T2-32	K	-0.6	-3	6.8	-1.5	6.3	-0.4	6.8	-----	-----	-----	-----	-----	-----	-----
T2-32	L	-0.1	-2.9	1.4	-1.9	-2.8	1.6	1.6	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-32	M	4.4	1.6	-0.6	9.1	6.7	26	26	-----	-----	-----	-----	-----	26	26
T2-32	N	25.8	53.3	65.6	2.6	9.2	37	65.6	18.2	53.3	30.6	-----	-----	20.7	28.3
T2-32	O	-0.8	-2.3	3.3	-1.4	-1.7	7.2	7.2	-----	-----	-----	-----	-----	-----	-----
T2-32	P	1.5	-2.3	0	-0.6	-1.6	-1.2	1.5	-----	-----	-----	-----	-----	-----	-----
T2-32	Q	35.9	23.3	76.9	16.8	72.5	74.7	76.9	23.3	23.3	34	15.2	27.8	38.9	29
T2-32	R	11.2	4.3	30.1	0.7	27.9	51.1	51.1	11.2	-----	19.6	-----	20.8	26.6	21.7
T2-32	S	14.9	4.2	4.8	-1.5	6.8	7.4	14.9	14.9	-----	-----	-----	-----	-----	14.9
T2-32	T	-1.1	-3	0.2	-2	-2.9	-1.9	0.2	-----	-----	-----	-----	-----	-----	-----
T2-32	U	-0.5	-1.8	-0.5	-1.1	-0.2	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-32	V	146.2	48.5	24.5	-0.4	46.3	8.3	146.2	44.3	30.5	17.8	-----	22.6	-----	31.6
T2-32	W	25	2.8	64.8	-0.8	45.7	66.7	66.7	19.4	-----	64.8	-----	21.3	37	28
T2-32	X	-0.7	-1	8.6	-0.6	21.2	-0.1	21.2	-----	-----	-----	-----	18.1	-----	18.1
T2-32	Y	-0.5	-2.1	-0.3	-1.5	3.4	0.7	3.4	-----	-----	-----	-----	-----	-----	-----
T2-32	Z	1	-2.1	1.6	-1.7	-2.3	-1.2	1.6	-----	-----	-----	-----	-----	-----	-----
T2-33	A	-0.7	-1.7	3.8	-1.8	-1.8	-1.8	3.8	-----	-----	-----	-----	-----	-----	-----
T2-33	AA	132.7	46.3	81.7	44	89.5	80.8	132.7	50.2	22.5	28	27.3	35.3	47.3	34.9
T2-33	AB	-1.2	-1.2	-0.1	-2.2	-0.4	-0.7	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-33	AC	0.2	-2.7	-0.6	-1.2	-1.1	-0.6	0.2	-----	-----	-----	-----	-----	-----	-----
T2-33	AD	0.8	-1.1	4.4	-2.5	-2.9	-1.3	4.4	-----	-----	-----	-----	-----	-----	-----
T2-33	AE	23.9	35.5	22.9	19	84.8	92.9	92.9	20	29.4	18.9	19	40	32.2	31.8
T2-33	AF	40.1	56.2	27.2	13.9	48.7	10.3	56.2	20.1	28.4	18.6	12.4	25.8	10.3	23.2
T2-33	AG	1.9	-2.7	0	-1.3	-1.5	-0.1	1.9	-----	-----	-----	-----	-----	-----	-----
T2-33	AH	0.5	-1.1	0.6	-1.5	-2.4	-0.4	0.6	-----	-----	-----	-----	-----	-----	-----
T2-33	AI	-0.2	-2.6	0.5	-1.5	-2.9	-1.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-33	AJ	-1.6	-2.8	4	-1.5	11.8	1.4	11.8	-----	-----	-----	-----	11.8	-----	11.8
T2-33	AK	13.7	1.1	46.3	-1.6	43.2	25.6	46.3	11.9	-----	34.2	-----	25.2	25.6	24.4
T2-33	AL	13.3	1	19.9	-0.3	60.3	43.2	60.3	13.3	-----	19.9	-----	29.2	27.5	27.7
T2-33	AM	-0.1	-2	-0.2	-1.6	-1.7	-0.3	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-33	AN	0.1	-1.5	1.7	-1.3	-2.6	1.4	1.7	-----	-----	-----	-----	-----	-----	-----
T2-33	AO	0.1	-1.6	-0.7	-1.9	5.8	-1.4	5.8	-----	-----	-----	-----	-----	-----	-----
T2-33	AP	-1.3	-2.5	0.2	-1.7	16.5	1.4	16.5	-----	-----	-----	-----	16.5	-----	16.5
T2-33	AQ	7	-2.6	-0.2	-1.3	36.9	25.8	36.9	-----	-----	-----	-----	26.4	25.8	26.2
T2-33	AR	30.1	9	19.3	6.8	58.7	14.5	58.7	30.1	-----	16.7	-----	25.2	13.2	20.4
T2-33	AS	0.8	-0.9	0.8	-0.9	-0.9	0.3	0.8	-----	-----	-----	-----	-----	-----	-----
T2-33	AT	0.7	-0.2	-0.2	-0.8	-0.9	0.2	0.7	-----	-----	-----	-----	-----	-----	-----
T2-33	AU	-0.2	-1.6	-0.8	-1.4	-2.5	-2.5	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-33	AV	4.8	-1.9	-0.9	-1.2	-1.7	0.9	4.8	-----	-----	-----	-----	-----	-----	-----
T2-33	AW	4.4	-0.9	4.7	3.6	6.4	24.3	24.3	-----	-----	-----	-----	-----	24.3	24.3
T2-33	AX	-0.4	-3.5	0.6	-3.2	-2	-0.9	0.6	-----	-----	-----	-----	-----	-----	-----
T2-33	AY	-1	-2.7	0.7	-2.6	4.9	0	4.9	-----	-----	-----	-----	-----	-----	-----
T2-33	AZ	-0.1	-3	15.2	-2.4	136.9	-0.9	136.9	-----	-----	15.2	-----	48.2	-----	41.6
T2-33	B	-0.7	-2.8	-0.9	-2.3	-2	-1.5	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-33	BA	-0.2	-2.7	-0.2	-1.4	-2.7	-1.8	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-33	BB	-0.3	3.7	-0.8	-1.6	13.1	-1.1	13.1	-----	-----	-----	-----	12.4	-----	12.4
T2-33	BC	41.9	-3	10.5	-2.1	26.3	4.8	41.9	41.9	-----	10.3	-----	18.7	-----	19.5

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-33	BD	26.2	17.6	10.9	23.6	87.8	26.7	87.8	18.6	14.3	10.9	23.6	30.4	26.7	25.4
T2-33	BE	0.1	-2.7	-1	-1.8	-2.1	-0.8	0.1	-----	-----	-----	-----	-----	-----	-----
T2-33	BF	1.4	-2.2	-0.9	-2.6	14.3	-0.9	14.3	-----	-----	-----	-----	14.3	-----	14.3
T2-33	BG	3.8	-0.5	3.3	-1.7	11	29	29	-----	-----	-----	-----	11	29	20
T2-33	BH	4.4	5.1	38.9	6.3	40.7	68.3	68.3	-----	-----	20.4	-----	22.8	29.9	24.2
T2-33	BI	-0.6	-1.6	-0.3	-1.4	-2.2	-0.3	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-33	BJ	0.2	-2	-0.1	-2	-2.3	0	0.2	-----	-----	-----	-----	-----	-----	-----
T2-33	BK	1	-2.6	-0.4	-1.8	-2.2	0	1	-----	-----	-----	-----	-----	-----	-----
T2-33	BL	7	9.3	23.7	-1.4	50.5	19	50.5	-----	-----	20.9	-----	33.3	17.8	24
T2-33	C	1.3	-2.3	0.5	-1.4	-3.2	-1.9	1.3	-----	-----	-----	-----	-----	-----	-----
T2-33	D	0.4	-1.8	-1.2	-2.4	-2.9	7	7	-----	-----	-----	-----	-----	-----	-----
T2-33	E	-0.9	-1.4	17.8	0.3	53.6	18.4	53.6	-----	-----	17.8	-----	53.6	18.4	29.9
T2-33	F	10.1	11.8	40.8	-2.1	-2.4	9	40.8	10.1	11.8	40.8	-----	-----	-----	20.9
T2-33	G	2.7	3.7	29.3	-0.7	33.1	17.2	33.1	-----	-----	29.3	-----	23.1	17.2	23.2
T2-33	H	20.2	53.4	5.1	23.6	27.9	0	53.4	18	53.4	-----	23.6	21	-----	25.8
T2-33	I	0.8	-2.5	-1	-1.5	-2.3	-1.5	0.8	-----	-----	-----	-----	-----	-----	-----
T2-33	J	0.2	-2.1	-0.3	-1.2	-2.8	-0.4	0.2	-----	-----	-----	-----	-----	-----	-----
T2-33	K	-0.1	-2	-0.4	-1.8	-2.6	-0.4	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-33	L	-1.1	-2.1	0.5	-2	-2.3	-1.3	0.5	-----	-----	-----	-----	-----	-----	-----
T2-33	M	-0.4	-2.8	14.6	-1	5.9	0.7	14.6	-----	-----	14.6	-----	-----	-----	14.6
T2-33	N	23.2	-2.5	20.7	-0.9	16.8	109.5	109.5	23.2	-----	15.8	-----	16.8	52.4	32.7
T2-33	O	2.3	3.1	19.5	-1.6	19.8	48.2	48.2	-----	-----	19.5	-----	19.8	48.2	29.2
T2-33	P	0.6	-0.6	0.8	0.7	-2.3	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-33	Q	-1	-2.1	-0.1	-0.5	-2	-0.9	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-33	R	-0.3	-2.1	0.5	-1.5	-2.5	-0.7	0.5	-----	-----	-----	-----	-----	-----	-----
T2-33	S	0.4	-1.6	0.3	-1.7	-2.5	-1.3	0.4	-----	-----	-----	-----	-----	-----	-----
T2-33	T	1.1	-2.4	-1.6	-2.3	5.2	3.2	5.2	-----	-----	-----	-----	-----	-----	-----
T2-33	U	36.4	2.3	13.5	-0.8	6.2	1.3	36.4	28.8	-----	13.5	-----	-----	-----	23.7
T2-33	V	0.4	-0.9	1.3	-1.1	-2.9	-0.3	1.3	-----	-----	-----	-----	-----	-----	-----
T2-33	W	0.5	-2	0	1	-1.7	-1.2	1	-----	-----	-----	-----	-----	-----	-----
T2-33	X	1.1	-1.7	-0.2	-1.8	-1.5	-1.6	1.1	-----	-----	-----	-----	-----	-----	-----
T2-33	Y	-0.3	-2.6	-0.7	-1.7	-2.5	-0.6	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-33	Z	1.1	-1.2	2.5	-1.8	-1.5	0.7	2.5	-----	-----	-----	-----	-----	-----	-----
T2-34	A	2.1	-3	29.6	-1	6	-1.3	29.6	-----	-----	29.6	-----	-----	-----	29.6
T2-34	B	0.6	-0.8	-0.4	-1.9	2.5	-2.3	2.5	-----	-----	-----	-----	-----	-----	-----
T2-34	C	-0.7	-2.4	-0.7	-1.9	-2.8	1.3	1.3	-----	-----	-----	-----	-----	-----	-----
T2-34	D	-0.5	-2.2	-0.4	-1.6	-3.2	-0.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-34	E	-0.5	-1.1	1	-1.6	-2.7	-1.2	1	-----	-----	-----	-----	-----	-----	-----
T2-34	F	0.1	-2.6	-0.2	-0.5	-2.6	-0.2	0.1	-----	-----	-----	-----	-----	-----	-----
T2-34	G	1.3	1.5	6.1	-1.5	11.5	0	11.5	-----	-----	-----	-----	11.5	-----	11.5
T2-34	H	-0.2	2.4	-0.8	-1.2	6	-0.5	6	-----	-----	-----	-----	-----	-----	-----
T2-34	I	1.4	-2.1	-0.7	-0.7	-2.7	0.2	1.4	-----	-----	-----	-----	-----	-----	-----
T2-34	J	0.4	-1.4	-1	-0.5	-2.5	1.1	1.1	-----	-----	-----	-----	-----	-----	-----
T2-34	K	0.5	-2	-0.9	-1.9	-3	-1.1	0.5	-----	-----	-----	-----	-----	-----	-----
T2-34	L	0.8	-2.6	0	-1	2	3	3	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-34	M	-0.4	-2.6	-0.4	-0.9	-3.1	-0.5	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-34	N	0	-1	-0.6	-1.8	-1.3	-0.7	0	-----	-----	-----	-----	-----	-----	-----
T2-34	O	0.6	-0.9	0.5	-1.8	-2.1	0.2	0.6	-----	-----	-----	-----	-----	-----	-----
T2-34	P	-0.5	-1.6	0.2	-1.6	-1.8	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-34	Q	1.9	-0.8	0.1	-1.4	-3	0.9	1.9	-----	-----	-----	-----	-----	-----	-----
T2-34	R	8.3	-2.2	-0.5	-1.3	9.7	8.3	9.7	-----	-----	-----	-----	-----	-----	-----
T2-34	S	-1	-1.7	-1	-1.2	-3	-1	-1	-----	-----	-----	-----	-----	-----	-----
T2-34	T	-0.6	-1.6	-1.3	-0.8	-2.8	-1.2	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-34	U	-0.9	-0.7	-0.4	-1.1	-1.5	-0.6	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-34	V	0.2	-1.9	1	-0.7	-1.8	-0.7	1	-----	-----	-----	-----	-----	-----	-----
T2-34	W	0.5	-0.8	0.1	0.5	-1.8	-0.9	0.5	-----	-----	-----	-----	-----	-----	-----
T2-34	X	11.4	5.2	56.5	27.2	17.2	1.9	56.5	11.4	-----	44.9	24.5	17.2	-----	27.9
T2-36	A	0.6	-1.7	-0.6	0	-2.6	-1.4	0.6	-----	-----	-----	-----	-----	-----	-----
T2-36	AA	0.5	-2.7	-0.8	-2.3	4.1	-1.5	4.1	-----	-----	-----	-----	-----	-----	-----
T2-36	AB	1.3	-3.2	-0.8	-1.8	4.4	21.4	21.4	-----	-----	-----	-----	-----	21.4	21.4
T2-36	AC	2	-2.6	0.4	-1.2	-1.9	0.3	2	-----	-----	-----	-----	-----	-----	-----
T2-36	AD	1.6	-2.5	1	-2	-1.8	-1.8	1.6	-----	-----	-----	-----	-----	-----	-----
T2-36	AE	0.4	-2.7	-0.6	-1.2	-1.5	-0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-36	AF	1.8	-0.8	-0.3	-1	-3.2	-0.7	1.8	-----	-----	-----	-----	-----	-----	-----
T2-36	AG	24.2	-2.5	14.1	2	32	22.7	32	22.3	-----	11.9	-----	17.4	22.7	17.3
T2-36	AH	0.8	-2.9	0.2	-2.4	8.3	-2	8.3	-----	-----	-----	-----	-----	-----	-----
T2-36	AI	-1.5	-1.6	-0.7	-1.8	1	-0.9	1	-----	-----	-----	-----	-----	-----	-----
T2-36	AJ	-0.4	-2.1	-0.7	-2	-2.5	-2.1	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-36	AK	0.2	-0.9	-0.3	-1.9	-2.1	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-36	AL	-0.9	-0.4	0.4	-0.4	-2.3	-0.5	0.4	-----	-----	-----	-----	-----	-----	-----
T2-36	AM	-0.8	-2.8	20.5	-1.6	11.6	21.8	21.8	-----	-----	20.5	-----	11.6	21.8	18
T2-36	AN	-0.9	-2.2	-1.2	1.1	6.6	12.6	12.6	-----	-----	-----	-----	-----	12.6	12.6
T2-36	AO	-0.1	-2.5	-1.1	-0.4	-2.5	-0.4	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-36	AP	-1.1	-2.8	-0.2	-1.5	-2.3	-1.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-36	AQ	0.3	-1.3	0.1	-0.6	-2.8	0.2	0.3	-----	-----	-----	-----	-----	-----	-----
T2-36	AR	0.1	-2	-0.8	-0.7	-1.6	2.2	2.2	-----	-----	-----	-----	-----	-----	-----
T2-36	AS	1.5	-1.5	-0.8	-0.6	-2.4	-0.2	1.5	-----	-----	-----	-----	-----	-----	-----
T2-36	AT	10.3	-1	7.3	-1.2	9.2	74.1	74.1	10.3	-----	-----	-----	-----	74.1	42.2
T2-36	AU	-0.6	-2.4	3	-1.1	-0.7	0.7	3	-----	-----	-----	-----	-----	-----	-----
T2-36	AV	-0.5	-2.4	-0.7	-1.6	-2.2	9.4	9.4	-----	-----	-----	-----	-----	-----	-----
T2-36	AW	0.3	-0.9	-0.9	-1.1	-2.6	-1.8	0.3	-----	-----	-----	-----	-----	-----	-----
T2-36	AX	1.2	-1.5	-0.5	-1.4	-2.6	-0.7	1.2	-----	-----	-----	-----	-----	-----	-----
T2-36	AY	0.3	-0.8	-0.3	-1.3	-1	-0.5	0.3	-----	-----	-----	-----	-----	-----	-----
T2-36	B	-0.4	-2.7	-0.3	-1.7	4.1	-1.2	4.1	-----	-----	-----	-----	-----	-----	-----
T2-36	C	11.6	-0.4	3.7	-1.2	10.9	58.1	58.1	11.6	-----	-----	-----	10.9	58.1	26.9
T2-36	D	17.6	-0.4	32.5	7.3	16.4	3.5	32.5	14	-----	23.8	-----	16.4	-----	19.3
T2-36	E	8.1	5.5	6.7	4.4	7.3	7.3	8.1	-----	-----	-----	-----	-----	-----	-----
T2-36	F	0	-1.5	6.1	-1	0.9	2	6.1	-----	-----	-----	-----	-----	-----	-----
T2-36	G	0.7	-2.4	-1.7	-2.7	-3.3	0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-36	H	-0.6	-3.2	2.7	-1.7	-2.8	-0.4	2.7	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-36	I	2.3	-1.3	-1	-2.5	-1.8	-0.6	2.3	-----	-----	-----	-----	-----	-----	-----
T2-36	J	-1	-2.2	-0.1	-1.7	-3.3	-1.8	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-36	K	-1.2	-1.6	2.2	-2.2	-2.7	-0.6	2.2	-----	-----	-----	-----	-----	-----	-----
T2-36	L	-0.8	-1.9	8.7	-2.2	-2.4	0	8.7	-----	-----	-----	-----	-----	-----	-----
T2-36	M	0.1	-0.1	3.3	-0.6	0.3	2.2	3.3	-----	-----	-----	-----	-----	-----	-----
T2-36	N	1.8	-0.4	4.2	1.1	10.5	1	10.5	-----	-----	-----	-----	10.5	-----	10.5
T2-36	O	11.3	0.8	25.2	3.4	6.6	12.2	25.2	11.3	-----	18.1	-----	-----	12.2	14.9
T2-36	P	0.9	-2.2	-0.5	-1.6	-1.5	-1.4	0.9	-----	-----	-----	-----	-----	-----	-----
T2-36	Q	-0.4	-2.1	1.6	-0.9	-2.1	-0.9	1.6	-----	-----	-----	-----	-----	-----	-----
T2-36	R	-0.2	-1.5	-0.1	-1.6	-1.9	-0.6	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-36	S	0.3	-2.3	-0.6	0.7	-3.1	0.1	0.7	-----	-----	-----	-----	-----	-----	-----
T2-36	T	0.4	-2.7	-0.9	-1.1	0.2	-0.1	0.4	-----	-----	-----	-----	-----	-----	-----
T2-36	U	0.3	-2.1	0.5	-2.1	-1	2.2	2.2	-----	-----	-----	-----	-----	-----	-----
T2-36	V	1	0.2	0	-0.8	10.2	-0.2	10.2	-----	-----	-----	-----	10.2	-----	10.2
T2-36	W	1.3	-0.5	0.9	-0.5	0.7	1.8	1.8	-----	-----	-----	-----	-----	-----	-----
T2-36	X	4.8	2	31.8	6.5	11	5.8	31.8	-----	-----	31.8	-----	11	-----	21.4
T2-36	Y	5.2	3.8	5	1.8	1	5.3	5.3	-----	-----	-----	-----	-----	-----	-----
T2-36	Z	47.8	40.5	53.5	25.6	132.2	77.5	132.2	40	21.5	29	17	42.1	27.1	36.3
T2-37	A	0.8	-1.2	-0.8	-1	-2.3	-1.9	0.8	-----	-----	-----	-----	-----	-----	-----
T2-37	B	0.5	-2.1	0	-0.6	-3.6	-0.6	0.5	-----	-----	-----	-----	-----	-----	-----
T2-37	C	-0.4	-2.8	1	-1.5	-2.5	0.7	1	-----	-----	-----	-----	-----	-----	-----
T2-37	D	-0.7	-1.2	-1.2	-3.3	-2.2	-0.3	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-37	E	-1.3	-3.2	-0.4	-1.5	-3.1	-0.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-37	F	0.1	-2.4	0.6	-1.2	-0.8	0.6	0.6	-----	-----	-----	-----	-----	-----	-----
T2-37	G	-0.1	-0.2	-0.3	-1.6	-0.3	-0.8	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-37	H	1.1	-1.7	-0.5	-1.3	-2	-0.2	1.1	-----	-----	-----	-----	-----	-----	-----
T2-37	I	0.2	-1.8	1	-0.7	-1.5	-0.4	1	-----	-----	-----	-----	-----	-----	-----
T2-37	J	-0.1	-2	1.7	-1.8	-2.1	-1.6	1.7	-----	-----	-----	-----	-----	-----	-----
T2-37	K	-0.1	-2	-0.5	0.4	-3.5	-0.7	0.4	-----	-----	-----	-----	-----	-----	-----
T2-37	L	1.1	0.1	0.5	-1.7	-2.6	-1	1.1	-----	-----	-----	-----	-----	-----	-----
T2-37	M	0.9	-2.1	1.2	-0.7	-2.3	-0.5	1.2	-----	-----	-----	-----	-----	-----	-----
T2-37	N	0.1	-1.1	-0.4	-2.4	-2.4	-1.6	0.1	-----	-----	-----	-----	-----	-----	-----
T2-37	O	0.5	-1	0.4	-1.6	-3.2	-0.1	0.5	-----	-----	-----	-----	-----	-----	-----
T2-37	P	0.1	-1.2	-0.9	-1	-1.9	-0.4	0.1	-----	-----	-----	-----	-----	-----	-----
T2-37	Q	0.3	-1.2	-0.5	-1.2	-2.1	-0.9	0.3	-----	-----	-----	-----	-----	-----	-----
T2-37	R	0.1	-1.4	0.1	-0.2	-2.1	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-37	S	0.3	-1.2	0.1	-1.6	-1.8	-1.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-37	T	0.3	-1.5	-1.7	-1.3	-1.8	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-37	U	0.2	-1.4	-1.3	-0.4	-1.8	-1.1	0.2	-----	-----	-----	-----	-----	-----	-----
T2-37	V	0.6	-1.9	1.1	-1.4	-2	-1.8	1.1	-----	-----	-----	-----	-----	-----	-----
T2-37	W	0.1	-0.7	2.5	-0.3	-1.7	-0.9	2.5	-----	-----	-----	-----	-----	-----	-----
T2-37	X	0	-1.1	0.6	-1	-2.2	0	0.6	-----	-----	-----	-----	-----	-----	-----
T2-37	Y	1.7	-0.4	0	-0.3	-1.2	1	1.7	-----	-----	-----	-----	-----	-----	-----
T2-38	A	0.1	-2.5	0.3	-1.3	5.1	-0.2	5.1	-----	-----	-----	-----	-----	-----	-----
T2-38	AA	-0.5	-3.4	1.2	1.5	8.2	4.7	8.2	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-38	AB	0.6	-1.9	-0.6	-1.1	-3.1	-1.7	0.6	-----	-----	-----	-----	-----	-----	-----
T2-38	AC	-0.7	-2.2	0	-1.6	-2.6	-2	0	-----	-----	-----	-----	-----	-----	-----
T2-38	AD	-1.4	-1.6	-0.1	-1.8	1.5	-1.8	1.5	-----	-----	-----	-----	-----	-----	-----
T2-38	AE	0.1	-2.3	-1.1	-1.2	-1.6	-1.8	0.1	-----	-----	-----	-----	-----	-----	-----
T2-38	AF	0.5	-2.2	-1.1	-2.3	-2.2	-1.2	0.5	-----	-----	-----	-----	-----	-----	-----
T2-38	B	1.3	3	16.3	-0.9	7.5	1.5	16.3	-----	-----	16.3	-----	-----	-----	16.3
T2-38	C	14.1	9.5	4.9	-0.3	1.6	0.3	14.1	14.1	-----	-----	-----	-----	-----	14.1
T2-38	D	27.9	10.4	10.8	-0.8	20.8	-0.9	27.9	27.9	10.4	10.8	-----	15.6	-----	15.9
T2-38	E	3.8	1.5	12.6	0.9	59.7	7.3	59.7	-----	-----	12.6	-----	32.1	-----	30.1
T2-38	F	53.8	27	28.2	4	57.8	54.7	57.8	30.6	23.3	19.1	-----	29.9	45	29.6
T2-38	G	0	-3	-0.6	-0.5	-2.2	-0.9	0	-----	-----	-----	-----	-----	-----	-----
T2-38	H	-1.4	-2.4	4.4	-1.3	-2.7	-2.6	4.4	-----	-----	-----	-----	-----	-----	-----
T2-38	I	13.5	-2.2	16.2	16.8	23.8	66.2	66.2	13.5	-----	14.1	16.8	19.9	39.1	24.5
T2-38	J	-0.1	-0.9	-0.1	-1	-2.4	-0.6	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-38	L	-0.3	-1.9	-1	-0.8	-2	-1.1	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-38	M	-1.2	-2.4	-1.4	-2.1	-3.4	-2.3	-1.2	-----	-----	-----	-----	-----	-----	-----
T2-38	N	-1	-1.9	-0.8	-2.3	-2.4	-0.8	-0.8	-----	-----	-----	-----	-----	-----	-----
T2-38	O	14.2	-2.4	29.9	-0.4	10.8	40.6	40.6	14.2	-----	20.8	-----	10.8	22	20
T2-38	P	-0.5	-1.1	0	-0.8	-2	0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-38	Q	-0.4	-1.7	0.5	-1.4	-1.9	-1.1	0.5	-----	-----	-----	-----	-----	-----	-----
T2-38	R	-1	-2.4	-0.7	-1	-3	-0.8	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-38	S	-0.4	-1.5	1.5	-1.6	2.1	0.7	2.1	-----	-----	-----	-----	-----	-----	-----
T2-38	T	0	-0.6	0.1	-0.9	-1.6	2.6	2.6	-----	-----	-----	-----	-----	-----	-----
T2-38	U	-1	-1.8	-1.3	-1.2	-2.2	-1.2	-1	-----	-----	-----	-----	-----	-----	-----
T2-38	V	0.1	-1.5	-0.4	-0.8	-2.7	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-38	W	1.3	-1.5	-0.7	-0.5	-2.5	-1.4	1.3	-----	-----	-----	-----	-----	-----	-----
T2-38	X	0.4	-1.9	0.3	-0.3	-1.7	-0.7	0.4	-----	-----	-----	-----	-----	-----	-----
T2-38	Y	0	-2.2	-1.2	-1.1	2.7	-0.8	2.7	-----	-----	-----	-----	-----	-----	-----
T2-38	Z	-1	-2.1	-0.8	-1.4	5.6	19.7	19.7	-----	-----	-----	-----	-----	19.7	19.7
T2-39	A	1.1	-2	-0.1	-1.4	-2.5	-0.5	1.1	-----	-----	-----	-----	-----	-----	-----
T2-39	AA	-0.1	-1	-0.3	-1.1	-1.9	0	0	-----	-----	-----	-----	-----	-----	-----
T2-39	B	-0.4	-0.6	0.8	-2.1	-1.4	-0.1	0.8	-----	-----	-----	-----	-----	-----	-----
T2-39	C	-1	-3.4	-1.2	-1.9	-2.2	-1.1	-1	-----	-----	-----	-----	-----	-----	-----
T2-39	D	-0.8	-1.5	-0.9	-0.1	58	0.9	58	-----	-----	-----	-----	30.9	-----	30.9
T2-39	E	17.1	18.3	52.7	-0.4	12.1	0.4	52.7	17.1	18.3	30	-----	12.1	-----	24.7
T2-39	F	11.1	1	4.2	-0.7	2.7	-1.6	11.1	11.1	-----	-----	-----	-----	-----	11.1
T2-39	G	-0.4	-2	-1.1	-0.7	-3.1	-0.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-39	H	-0.7	-2.1	-0.7	-2	-2.6	-0.8	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-39	I	-0.3	-2	1	-1.3	-2.9	-0.3	1	-----	-----	-----	-----	-----	-----	-----
T2-39	J	0.4	-2.7	-0.2	-1.7	-3	-0.8	0.4	-----	-----	-----	-----	-----	-----	-----
T2-39	K	15.9	-1.7	55.7	-1.2	12.7	8	55.7	15.9	-----	40.7	-----	11.6	-----	24.1
T2-39	L	0.3	-2.1	-1	-2.2	-0.1	-1.7	0.3	-----	-----	-----	-----	-----	-----	-----
T2-39	M	-0.4	-0.5	-0.7	-1.8	-3	-0.6	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-39	N	-1.1	-0.7	1	-2.1	-3.2	-0.2	1	-----	-----	-----	-----	-----	-----	-----
T2-39	O	0.5	-1.4	-0.5	-1.5	-2.7	1.4	1.4	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-39	P	5.2	-1.1	61.4	1.1	8.8	6	61.4	-----	-----	61.4	-----	-----	-----	61.4
T2-39	Q	-0.8	-1.7	-0.8	-1.8	-2.1	-0.1	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-39	R	-0.5	-1.7	-0.7	-1	-3.1	-1	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-39	S	-0.2	-1.7	0.3	-1.4	-2.8	0.1	0.3	-----	-----	-----	-----	-----	-----	-----
T2-39	T	-0.2	-0.6	0	-1.2	-1.5	-1	0	-----	-----	-----	-----	-----	-----	-----
T2-39	U	-0.8	-2	-0.1	-1.1	-4.4	0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-39	V	-0.5	-2.7	-0.7	-1.6	-3.6	-1.4	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-39	W	0	-2.5	-1.2	-1.8	-3.7	-0.5	0	-----	-----	-----	-----	-----	-----	-----
T2-39	X	5.1	-2.6	4.4	-2.4	2.6	-1.2	5.1	-----	-----	-----	-----	-----	-----	-----
T2-39	Y	-0.1	-2	0.2	-0.1	-2.8	-1.9	0.2	-----	-----	-----	-----	-----	-----	-----
T2-39	Z	-0.6	-2	-0.6	-1.4	-3.3	-0.6	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-40	A	-1.1	-1.8	2.4	-2.6	-1.7	2.8	2.8	-----	-----	-----	-----	-----	-----	-----
T2-40	AA	1	-1.7	1.3	-1.4	-3.2	-0.4	1.3	-----	-----	-----	-----	-----	-----	-----
T2-40	AB	0.1	-3	-1.4	-2	7.6	0.1	7.6	-----	-----	-----	-----	-----	-----	-----
T2-40	AC	-0.4	-2	-1.3	-2.3	-1.1	2.3	2.3	-----	-----	-----	-----	-----	-----	-----
T2-40	AD	-0.1	-2.3	-0.8	-2.3	-3.1	-0.1	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	AE	0	-2.1	-0.7	-1.9	-2.8	-0.9	0	-----	-----	-----	-----	-----	-----	-----
T2-40	AF	0.2	-1.5	-0.8	-2	-2.3	-0.8	0.2	-----	-----	-----	-----	-----	-----	-----
T2-40	AG	-1.4	-1.7	0.1	-1.3	-2.8	-0.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	AH	0.6	-2.5	-0.8	-2	-2	-0.2	0.6	-----	-----	-----	-----	-----	-----	-----
T2-40	AI	-0.1	-1.4	-0.8	-0.9	-0.8	-1.3	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	B	-1.2	-2	0.5	-1.8	-2.8	0.2	0.5	-----	-----	-----	-----	-----	-----	-----
T2-40	C	0.1	-1.7	-0.7	-1.6	-3.2	-0.6	0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	D	0	-0.8	-0.1	-1	-3	-1.8	0	-----	-----	-----	-----	-----	-----	-----
T2-40	E	0.6	-1.4	-0.3	-0.3	-3.1	-1.3	0.6	-----	-----	-----	-----	-----	-----	-----
T2-40	F	-0.6	-1.3	-1	-1.6	-1.1	-0.6	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-40	G	2.5	-1.3	-1.1	-1.9	-2.6	-0.7	2.5	-----	-----	-----	-----	-----	-----	-----
T2-40	H	28.3	19.7	5.5	11.9	42.5	14.2	42.5	23.3	15.9	-----	11.9	42.5	14.2	19.2
T2-40	I	-1.1	0.1	-1	-1.5	-2.7	-1.9	0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	J	-0.4	-2.2	0.1	-0.8	-2.3	-1.3	0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	K	0.7	0.2	-0.7	-0.4	-1.5	1.5	1.5	-----	-----	-----	-----	-----	-----	-----
T2-40	L	1.2	-1.5	-0.3	-1.7	-2.6	-1.5	1.2	-----	-----	-----	-----	-----	-----	-----
T2-40	M	0.3	-3.2	12.2	-2.1	24.5	0.1	24.5	-----	-----	12.2	-----	17.8	-----	16.4
T2-40	N	23.9	26.4	204	47.6	56.6	11.6	204	23.9	21.7	44.1	28.8	24.5	11.6	28.8
T2-40	O	-0.1	-2.1	-0.1	-1.5	-1.2	-0.9	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	P	0.1	-1.9	-1.1	-2.4	-2.4	-1.7	0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	Q	0	-1.7	-0.3	-1.4	-2.4	-1.8	0	-----	-----	-----	-----	-----	-----	-----
T2-40	R	0.3	-1.2	0.2	-0.4	-2.3	-0.1	0.3	-----	-----	-----	-----	-----	-----	-----
T2-40	S	0.7	-2.2	0.9	-1.8	-2.6	-0.7	0.9	-----	-----	-----	-----	-----	-----	-----
T2-40	T	0.1	-2.1	-0.6	-1	-2	-0.6	0.1	-----	-----	-----	-----	-----	-----	-----
T2-40	U	-0.8	-2.6	-0.9	-2	-3.9	-0.9	-0.8	-----	-----	-----	-----	-----	-----	-----
T2-40	V	-0.3	-1.7	-0.5	-0.9	-3.1	2.8	2.8	-----	-----	-----	-----	-----	-----	-----
T2-40	W	-0.9	-1.4	-0.7	-2.2	-2.9	-1.7	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-40	X	0.6	-2.3	0.9	-2	-3.2	-1.7	0.9	-----	-----	-----	-----	-----	-----	-----
T2-40	Y	0	-2.6	-0.3	-1	-2.9	-0.4	0	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-40	Z	-0.6	-2	0.5	-1.8	-1.9	-1	0.5	-----	-----	-----	-----	-----	-----	-----
T2-41	A	-0.6	-1.7	-0.6	-1.4	-2	-0.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-41	AA	-0.7	-1.8	-0.1	-1.4	-0.6	-0.8	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-41	AB	0.3	-1.7	-0.2	-1.4	-1.3	-0.7	0.3	-----	-----	-----	-----	-----	-----	-----
T2-41	B	-0.3	-2.1	-0.5	-1.9	5	0.4	5	-----	-----	-----	-----	-----	-----	-----
T2-41	C	-0.1	-1.9	-0.4	-2.4	-2.1	0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-41	D	-0.1	-1.3	-0.4	-2.3	-2.7	-0.6	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-41	E	0	-1.5	0.4	-1.2	-2.5	-0.8	0.4	-----	-----	-----	-----	-----	-----	-----
T2-41	F	0	-1.3	-0.1	-1.9	-3.4	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-41	G	0.1	-1.4	-0.2	-0.9	-3.1	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-41	H	0.5	-1.1	-0.5	-1.3	-2.1	-0.7	0.5	-----	-----	-----	-----	-----	-----	-----
T2-41	I	-0.6	-1.3	0.4	0.4	-3.1	-0.1	0.4	-----	-----	-----	-----	-----	-----	-----
T2-41	J	1.6	-2.5	-1.5	0.5	-2.2	-1.7	1.6	-----	-----	-----	-----	-----	-----	-----
T2-41	K	-0.2	-1.3	0	-1.9	-3	2.9	2.9	-----	-----	-----	-----	-----	-----	-----
T2-41	L	-0.8	-0.4	-1	-2.3	-3	1.9	1.9	-----	-----	-----	-----	-----	-----	-----
T2-41	M	-0.8	-2.1	-0.1	-1.6	-1.7	-1.4	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-41	N	0.3	-0.6	-0.8	-1	-2.2	-0.1	0.3	-----	-----	-----	-----	-----	-----	-----
T2-41	O	-0.5	-1.6	-0.6	-1.7	-1.4	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-41	P	-0.9	-2.1	-0.8	-2	-1.8	-1.7	-0.8	-----	-----	-----	-----	-----	-----	-----
T2-41	Q	-0.8	-2.1	-1.2	-1.9	-1.6	-0.7	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-41	R	-1	-0.6	-1.2	-1.8	-2.4	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-41	S	-1	-1.7	-1.2	-1.6	-2.1	-0.5	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-41	T	-0.1	-1.4	-0.6	-1.3	0.8	-0.1	0.8	-----	-----	-----	-----	-----	-----	-----
T2-41	U	0	-1.9	-0.6	-2.5	3.4	7.9	7.9	-----	-----	-----	-----	-----	-----	-----
T2-41	V	4.5	-2.3	-0.6	-1.9	-2.3	0.1	4.5	-----	-----	-----	-----	-----	-----	-----
T2-41	W	0.7	-2.1	-0.3	-1	-2.7	1.2	1.2	-----	-----	-----	-----	-----	-----	-----
T2-41	X	-1.5	-2.5	-1.1	-2.9	-2.6	-1.2	-1.1	-----	-----	-----	-----	-----	-----	-----
T2-41	Y	0.6	-1.9	-1.1	-1.7	-0.7	-1.3	0.6	-----	-----	-----	-----	-----	-----	-----
T2-41	Z	-0.8	-0.6	-1.2	-1.8	-3.3	-1	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-42	A	-0.5	-2.6	-0.6	-2.2	-2.3	-1.4	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-42	AA	-0.3	-2.3	-1.6	-2	-3.1	-0.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-42	AB	0.1	-1.8	-1.7	-2.1	-2.9	-1.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-42	AC	-1	-1	-1.3	-1.6	-3.5	-0.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-42	AD	2.2	-1.5	-0.3	-1.9	-3.2	-0.6	2.2	-----	-----	-----	-----	-----	-----	-----
T2-42	AE	-0.4	-1.4	-0.7	-0.8	-2.3	-1.7	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-42	AF	0.8	-2.2	-1.3	-1.6	-0.9	-0.6	0.8	-----	-----	-----	-----	-----	-----	-----
T2-42	AG	1.5	-2	-0.8	-2.2	-2.7	-1.5	1.5	-----	-----	-----	-----	-----	-----	-----
T2-42	AH	-0.5	-1.4	0.2	0.5	-2.7	-1	0.5	-----	-----	-----	-----	-----	-----	-----
T2-42	AI	-0.6	-1.8	-1	-1.1	-2.9	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-42	AJ	1	-1.2	-0.8	-1.7	-1.8	-1.3	1	-----	-----	-----	-----	-----	-----	-----
T2-42	AK	1.3	-2	0.8	-1.2	-2	1.5	1.5	-----	-----	-----	-----	-----	-----	-----
T2-42	AL	0.9	-0.9	-0.4	-1.3	-3	-1.3	0.9	-----	-----	-----	-----	-----	-----	-----
T2-42	AM	-0.9	-2.5	0.1	-2.3	-2.8	-0.7	0.1	-----	-----	-----	-----	-----	-----	-----
T2-42	AN	0.9	-1.3	0.2	-1.5	-2.2	-0.9	0.9	-----	-----	-----	-----	-----	-----	-----
T2-42	AO	0.2	-2	0.6	0	-1.8	0.6	0.6	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-42	AP	1.6	-0.7	-0.6	-1.5	-2.4	4.1	4.1	-----	-----	-----	-----	-----	-----	-----
T2-42	AQ	-0.9	-1.2	0.2	-1.7	-2.5	0.1	0.2	-----	-----	-----	-----	-----	-----	-----
T2-42	AR	0.1	-1.9	0.3	-1.3	-3.3	-1.8	0.3	-----	-----	-----	-----	-----	-----	-----
T2-42	AS	-0.5	-1.7	0.9	-2.1	-2.4	-0.8	0.9	-----	-----	-----	-----	-----	-----	-----
T2-42	AT	0.7	-0.7	-1.2	-1.8	-2.4	-0.4	0.7	-----	-----	-----	-----	-----	-----	-----
T2-42	AU	0.3	-1.8	-0.5	-1.7	-2.4	0.9	0.9	-----	-----	-----	-----	-----	-----	-----
T2-42	AV	0.1	-0.9	-0.2	-0.5	-2.2	-1.1	0.1	-----	-----	-----	-----	-----	-----	-----
T2-42	AW	-0.5	-1.6	-0.8	-1.6	-2.8	-0.8	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-42	AX	-0.2	-0.8	0.2	-1.4	-2.5	-0.6	0.2	-----	-----	-----	-----	-----	-----	-----
T2-42	AY	-0.1	-2	-0.3	-1.6	-2.6	-0.9	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-42	AZ	-0.8	-2	-0.2	-0.7	-1.9	-0.5	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-42	B	-1	-2.5	0	-1.9	-2.7	-1	0	-----	-----	-----	-----	-----	-----	-----
T2-42	BA	-0.1	-0.9	-1.1	-0.2	-2.3	1	1	-----	-----	-----	-----	-----	-----	-----
T2-42	BB	2.3	-0.7	0.8	-0.7	-2	0.3	2.3	-----	-----	-----	-----	-----	-----	-----
T2-42	C	-0.1	-2.2	0	-1	-1.5	-0.6	0	-----	-----	-----	-----	-----	-----	-----
T2-42	D	1.1	-0.7	-1.3	-1.7	-2	-1.4	1.1	-----	-----	-----	-----	-----	-----	-----
T2-42	E	0.4	-1.5	-0.4	-0.9	-1.5	-0.5	0.4	-----	-----	-----	-----	-----	-----	-----
T2-42	F	-0.6	-1.9	-0.6	-1.4	-1	-1.8	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-42	G	-0.1	-1.4	-0.9	-2.1	-3.1	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-42	H	-0.1	-2	0.8	-1.2	-2.7	-1.7	0.8	-----	-----	-----	-----	-----	-----	-----
T2-42	I	-0.4	-1.6	-1	-2.2	-0.5	-0.8	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-42	J	1.1	-1.4	0.1	-0.5	-1.3	-1.6	1.1	-----	-----	-----	-----	-----	-----	-----
T2-42	K	0.6	-1.5	-0.8	-1.9	-1.3	-1.4	0.6	-----	-----	-----	-----	-----	-----	-----
T2-42	L	-1	-1.6	-0.1	-2.1	-1.7	-1	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-42	M	1.4	-2	-0.7	-1.5	-2.6	-0.8	1.4	-----	-----	-----	-----	-----	-----	-----
T2-42	N	0.4	-1.2	-0.3	-0.9	-1.7	0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-42	O	-0.2	-1.6	-0.8	-1.2	-2.6	0	0	-----	-----	-----	-----	-----	-----	-----
T2-42	P	0.1	-1.4	-0.8	-1.1	-2.1	-2.2	0.1	-----	-----	-----	-----	-----	-----	-----
T2-42	Q	0.6	-0.5	-0.3	0	-2.2	-0.3	0.6	-----	-----	-----	-----	-----	-----	-----
T2-42	R	34	-1.1	41	-2.2	34	33.7	41	23.4	-----	28.9	-----	26.8	26.3	26.4
T2-42	S	7.3	-1.3	9.9	-1.9	6.6	8.9	9.9	-----	-----	-----	-----	-----	-----	-----
T2-42	T	0.3	-2.2	-1.1	-1.8	-1	-1.9	0.3	-----	-----	-----	-----	-----	-----	-----
T2-42	U	0.7	-1.4	-0.8	-1.7	-1.9	-2	0.7	-----	-----	-----	-----	-----	-----	-----
T2-42	V	0.9	-1.2	0.1	-0.8	-1.3	0.2	0.9	-----	-----	-----	-----	-----	-----	-----
T2-42	W	0.8	-2	-1	-2.2	-1.9	-0.9	0.8	-----	-----	-----	-----	-----	-----	-----
T2-42	X	0.6	0.2	-0.6	-0.5	-3.5	-0.7	0.6	-----	-----	-----	-----	-----	-----	-----
T2-42	Y	-1.2	-2.1	-1	-1.4	-3.1	-0.1	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-42	Z	-0.5	-1.4	-0.8	-1.4	-2.5	-1.3	-0.5	-----	-----	-----	-----	-----	-----	-----
T2-43	A	0	-1.7	20.1	-1	34.7	-1.6	34.7	-----	-----	20.1	-----	25.9	-----	23.9
T2-43	AA	1.5	-1.7	1	-1.3	-2.2	3.7	3.7	-----	-----	-----	-----	-----	-----	-----
T2-43	AB	0.2	-2.2	-0.7	-2	-3.5	0.6	0.6	-----	-----	-----	-----	-----	-----	-----
T2-43	AC	1.4	-2.1	-0.1	-1.4	-2.4	1.5	1.5	-----	-----	-----	-----	-----	-----	-----
T2-43	AD	0.6	-1.2	0.4	-0.4	-1.1	-1.1	0.6	-----	-----	-----	-----	-----	-----	-----
T2-43	AE	-0.3	-1.5	0.4	-1.6	-1.7	-1.1	0.4	-----	-----	-----	-----	-----	-----	-----
T2-43	AF	-0.5	-2.1	-0.2	-0.7	-2.3	-0.1	-0.1	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-43	AG	0.1	-0.4	1.1	-0.1	-1.9	0.9	1.1	-----	-----	-----	-----	-----	-----	-----
T2-43	AH	0.8	-1.5	-0.5	-1.6	-0.9	-0.9	0.8	-----	-----	-----	-----	-----	-----	-----
T2-43	AI	0.8	0.2	0.8	0.9	-1	-1.3	0.9	-----	-----	-----	-----	-----	-----	-----
T2-43	AJ	1.2	-0.9	0.7	-0.5	-2.3	0.7	1.2	-----	-----	-----	-----	-----	-----	-----
T2-43	B	-0.4	1.3	7	-2.4	10.8	28.5	28.5	-----	-----	-----	-----	10.8	19.4	16.5
T2-43	C	21.2	2.4	21.1	3.1	70.1	22.1	70.1	20.1	-----	21.1	-----	27.3	15.9	24.1
T2-43	D	-0.4	-2.1	-0.9	-1.5	3.7	-1.7	3.7	-----	-----	-----	-----	-----	-----	-----
T2-43	E	-0.6	-2.9	-1.8	-1.9	2.7	-1.4	2.7	-----	-----	-----	-----	-----	-----	-----
T2-43	F	0.3	-2.2	-0.9	-2.2	-2.3	0.4	0.4	-----	-----	-----	-----	-----	-----	-----
T2-43	G	-0.2	-1.3	0.8	-1.1	-2.9	-0.2	0.8	-----	-----	-----	-----	-----	-----	-----
T2-43	H	0.2	-1.8	1.1	-2.1	-2.5	-0.1	1.1	-----	-----	-----	-----	-----	-----	-----
T2-43	I	-0.5	-1.8	-0.2	-1.9	-2	1	1	-----	-----	-----	-----	-----	-----	-----
T2-43	J	0.2	-2.4	10	-2	0.8	0.1	10	-----	-----	10	-----	-----	-----	10
T2-43	K	-0.6	-2.3	1	-1.7	-0.4	0.3	1	-----	-----	-----	-----	-----	-----	-----
T2-43	L	4.9	2.3	5.3	8.1	13.9	4.9	13.9	-----	-----	-----	-----	13.9	-----	13.9
T2-43	M	-0.6	-1.7	-1	-0.7	-2.9	0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-43	N	4.5	5.1	5	5.1	2.5	3.3	5.1	-----	-----	-----	-----	-----	-----	-----
T2-43	O	-0.4	-1.6	-0.6	-1.2	-4.3	-0.8	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-43	P	1.6	-1.8	-0.7	-1.6	-3.3	-0.3	1.6	-----	-----	-----	-----	-----	-----	-----
T2-43	Q	0	-2.5	0.4	0.5	-1.1	2.5	2.5	-----	-----	-----	-----	-----	-----	-----
T2-43	R	0	-2.5	0	-2.4	-2.5	1	1	-----	-----	-----	-----	-----	-----	-----
T2-43	S	0.8	-3.1	0.2	-1.6	0.3	-0.3	0.8	-----	-----	-----	-----	-----	-----	-----
T2-43	T	0.4	-1.6	0.1	-0.9	-2.8	0.2	0.4	-----	-----	-----	-----	-----	-----	-----
T2-43	U	1.4	-1.2	0.1	-1.3	-2.5	0.9	1.4	-----	-----	-----	-----	-----	-----	-----
T2-43	V	-0.9	-0.3	0.1	-1.3	-3	-0.7	0.1	-----	-----	-----	-----	-----	-----	-----
T2-43	W	1.8	-1.1	0.8	-1.5	-1.4	1.4	1.8	-----	-----	-----	-----	-----	-----	-----
T2-43	X	-0.2	-0.1	0.2	-1.5	-0.9	0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-43	Y	-0.4	-1.6	0.4	-1.8	-2	1	1	-----	-----	-----	-----	-----	-----	-----
T2-43	Z	1.3	-1.7	-0.1	-1	-3.4	0.7	1.3	-----	-----	-----	-----	-----	-----	-----
T2-44	A	0.7	-4.2	-0.3	-0.8	-0.4	0.2	0.7	-----	-----	-----	-----	-----	-----	-----
T2-44	AA	28.9	16.1	64.9	5.2	56.4	23	64.9	20.6	16.1	34.4	-----	23.7	23	25.3
T2-44	AB	-1	-2.9	0	-2.5	-3.1	-1.7	0	-----	-----	-----	-----	-----	-----	-----
T2-44	AC	-0.8	-1.9	12.8	-1	5.3	2.9	12.8	-----	-----	11.8	-----	-----	-----	11.8
T2-44	AD	1.6	5.7	18.7	-0.5	56.8	5.2	56.8	-----	-----	18.5	-----	35	-----	26.8
T2-44	AE	10.1	-2.2	15.7	5	19.6	18.7	19.6	10.1	-----	13.1	-----	15.9	18.7	14.7
T2-44	AF	42.6	2.5	53.6	14.6	47.4	30.4	53.6	33.1	-----	27	14.6	24.7	30.4	26.6
T2-44	AG	0.1	-2.5	19.4	-2.4	18.1	-0.1	19.4	-----	-----	19.4	-----	18.1	-----	18.8
T2-44	AH	1.5	25.1	36.9	-0.6	66.4	4.2	66.4	-----	25.1	36.9	-----	48.9	-----	40
T2-44	AI	53.2	8.8	19.7	19.3	49.8	15.6	53.2	40.8	-----	19.7	19.3	49.8	12.9	28
T2-44	AJ	4.9	31	32.1	33.4	12	3.1	33.4	-----	25.1	21.3	33.4	12	-----	23.1
T2-44	AK	7.9	-0.6	4.3	25.8	17.6	2.7	25.8	-----	-----	-----	25.8	17.6	-----	21.7
T2-44	AL	11	-2.7	-0.3	-1.5	25.9	1.1	25.9	11	-----	-----	-----	25.9	-----	18.4
T2-44	AM	7.5	-0.2	67.5	-0.5	36.7	18	67.5	-----	-----	36.6	-----	19.3	17.4	24.1
T2-44	AN	3.5	1.7	26.1	8.6	15.7	3.6	26.1	-----	-----	20	-----	14.5	-----	17.2
T2-44	AO	11.7	-2.3	29.4	-2.5	5.3	1.6	29.4	11.7	-----	29.4	-----	-----	-----	20.5

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-44	AP	0.6	2.8	17.5	-1.1	32.6	1.6	32.6	-----	-----	17.5	-----	23.5	-----	21.5
T2-44	AQ	8.4	5.7	3.3	-0.3	6.7	3.5	8.4	-----	-----	-----	-----	-----	-----	-----
T2-44	AR	5.8	4.3	4.8	3.8	4.8	6.9	6.9	-----	-----	-----	-----	-----	-----	-----
T2-44	AS	-0.7	-3.6	0.5	-2.6	-3.2	2	2	-----	-----	-----	-----	-----	-----	-----
T2-44	AT	0	-3	0.2	-0.8	1.4	-1.4	1.4	-----	-----	-----	-----	-----	-----	-----
T2-44	AU	-0.6	-2.8	2.7	-1.6	-0.2	0.4	2.7	-----	-----	-----	-----	-----	-----	-----
T2-44	B	-0.6	-3.1	-1.4	-1.5	-2	-1.1	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-44	C	6.8	-1.4	15.9	0.1	0.9	0.5	15.9	-----	-----	13.1	-----	-----	-----	13.1
T2-44	D	4.2	-1.8	8.4	-1.7	29.3	2.3	29.3	-----	-----	-----	-----	24.1	-----	24.1
T2-44	E	2.9	36.3	65.9	14.6	4.6	5.7	65.9	-----	23.4	42.8	13.4	-----	-----	23.2
T2-44	F	3.3	8.5	23.6	40.9	2.6	5.7	40.9	-----	-----	21.6	26.2	-----	-----	23.9
T2-44	G	-0.3	-3	0.4	-0.8	6.6	-0.6	6.6	-----	-----	-----	-----	-----	-----	-----
T2-44	H	0.8	-2	15.3	6.6	-0.3	15.3	15.3	-----	-----	15.3	-----	-----	15.3	15.3
T2-44	I	1.3	12.8	9.4	-0.3	21.2	3.8	21.2	-----	12.8	-----	-----	21.2	-----	17
T2-44	J	-0.9	-3.4	-1.1	-2	-2.8	1	1	-----	-----	-----	-----	-----	-----	-----
T2-44	K	0.3	-2.4	7.4	10.5	98.5	8.7	98.5	-----	-----	-----	10.5	98.5	-----	54.5
T2-44	L	28.6	23.9	32.5	15.4	30.8	1.4	32.5	22.5	20.3	23.1	15.4	19.2	-----	21.2
T2-44	M	4.8	2	108.9	64.1	44.2	5.1	108.9	-----	-----	78.8	64.1	21	-----	38.6
T2-44	N	26.4	22	75.3	39	23.7	29.2	75.3	26.4	17.6	63.2	21.2	18.2	29.2	30.2
T2-44	O	14.3	-0.3	30.5	20.2	0.7	5.4	30.5	14.3	-----	30.5	20.2	-----	-----	21.7
T2-44	P	5.2	5.8	13.5	24	93.5	61	93.5	-----	-----	12.1	24	27.7	30.4	25.5
T2-44	Q	81.6	8.7	133.5	70.8	86.6	29.6	133.5	81.6	-----	48.5	65.7	29.6	21.2	41.5
T2-44	R	29.6	13.1	42.6	31.4	48.7	31.9	48.7	19.3	13.1	24.3	17.5	25.4	19.4	22.4
T2-44	S	19.3	-2.1	13	-1.7	-3	-1.5	19.3	19.3	-----	13	-----	-----	-----	16.1
T2-44	T	-1	-3.2	0.6	-1.3	-2.3	-1	0.6	-----	-----	-----	-----	-----	-----	-----
T2-44	U	6.3	-2.4	117	-0.3	25.9	0	117	-----	-----	63.5	-----	25.9	-----	51
T2-44	V	9.8	37.7	31.6	102.7	30.1	37	102.7	-----	24.6	24.1	33.2	16.3	25.8	24.5
T2-44	W	0.6	-2.5	8.2	7.8	24.2	-0.9	24.2	-----	-----	-----	-----	24.2	-----	24.2
T2-44	X	0.3	-1.2	0.1	-1.9	-1.9	-0.3	0.3	-----	-----	-----	-----	-----	-----	-----
T2-44	Y	11	-2.2	0	-1.8	1.7	7.8	11	11	-----	-----	-----	-----	-----	11
T2-44	Z	102.7	-2.5	51.1	2.5	18.7	15.4	102.7	102.7	-----	51.1	-----	15.5	15.4	30.9
T2-45	A	14.6	10.7	67.9	10.1	57.8	0.3	67.9	12.6	10.4	28	10.1	30.5	-----	22.4
T2-45	AA	14.6	-2.5	6.5	-2	5.9	-0.6	14.6	14.6	-----	-----	-----	-----	-----	14.6
T2-45	AB	-1.2	-3	-0.8	-1.9	0.6	-0.4	0.6	-----	-----	-----	-----	-----	-----	-----
T2-45	AC	146	9.4	43	-0.7	75.6	38.5	146	61	-----	29	-----	31.5	28.8	35.4
T2-45	AD	8.4	3	11.4	-1.5	12.6	8.7	12.6	-----	-----	10.8	-----	12.6	-----	11.3
T2-45	AE	0.7	-1	-0.8	-0.4	-1.4	0.5	0.7	-----	-----	-----	-----	-----	-----	-----
T2-45	AF	173.8	25.2	75.1	2.3	262.7	40.8	262.7	42.3	16.2	40.1	-----	47.9	21.2	40
T2-45	AG	6.1	9.3	22.9	0.9	46	5.8	46	-----	-----	22.9	-----	18.7	-----	19.3
T2-45	AH	17.7	-3.6	0.2	-2.3	7.3	11.3	17.7	17.7	-----	-----	-----	-----	11.3	14.5
T2-45	AI	-1	-3.7	-1.3	-1.6	-1.8	-2.1	-1	-----	-----	-----	-----	-----	-----	-----
T2-45	AJ	11.5	11.1	44	-2.8	64	12.4	64	11.5	11.1	27.2	-----	30.1	12.4	26
T2-45	AK	-0.1	-3	-1.4	-2.3	11.5	5.4	11.5	-----	-----	-----	-----	11.5	-----	11.5
T2-45	AL	0.4	-1.4	0.8	-0.9	-2.8	-0.2	0.8	-----	-----	-----	-----	-----	-----	-----
T2-45	B	4.5	-1.7	-0.2	6.2	17.6	0	17.6	-----	-----	-----	-----	17.6	-----	17.6

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-45	C	-1	-3.5	4.1	-0.7	-2.3	0.5	4.1	-----	-----	-----	-----	-----	-----	-----
T2-45	D	138.1	51.8	49.9	10.3	96.8	42.2	138.1	63.8	32.7	27.2	10.3	25.8	28.2	29.5
T2-45	E	0.1	6.5	13.5	25.9	25.4	7.1	25.9	-----	-----	12.4	25.5	18.4	-----	17.9
T2-45	F	-0.2	-3.6	-1.6	-2.4	-2.5	15.8	15.8	-----	-----	-----	-----	-----	15.8	15.8
T2-45	G	-1.1	-3.5	-1.5	-0.8	-1.9	1.1	1.1	-----	-----	-----	-----	-----	-----	-----
T2-45	H	0.3	-3.8	84.2	-2.7	35.5	-0.3	84.2	-----	-----	48.5	-----	35.5	-----	44.2
T2-45	I	0.2	-2	-0.2	-1.6	12.7	1.5	12.7	-----	-----	-----	-----	12.7	-----	12.7
T2-45	J	-0.7	0	1.1	-2.5	-0.7	2.1	2.1	-----	-----	-----	-----	-----	-----	-----
T2-45	K	-0.8	-3	-0.4	-1	-2	-0.9	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-45	L	9.2	1.6	69.9	26.8	82.2	43	82.2	-----	-----	31.7	19.4	37.4	23	29.4
T2-45	M	-0.1	-3.2	1.7	-1.7	15.5	19.4	19.4	-----	-----	-----	-----	15.5	19.4	17.4
T2-45	N	9.3	12.6	39.1	5.1	31.5	136.4	136.4	-----	12.1	28	-----	22	81.8	29.8
T2-45	O	-0.6	-1.7	-0.5	-1.9	-2	-0.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-45	P	-0.1	-1.6	7.9	-2.2	-1.5	1.1	7.9	-----	-----	-----	-----	-----	-----	-----
T2-45	Q	3.6	-2.3	0.8	-1.6	10.2	-0.7	10.2	-----	-----	-----	-----	10.2	-----	10.2
T2-45	R	5.5	25.6	24.1	17.5	36.8	29.6	36.8	-----	25.6	17.3	15.4	24.6	22	20.6
T2-45	S	72.4	29.9	76.3	40.3	106.4	101.8	106.4	45.5	22.4	47.1	31.9	37	39.8	37.4
T2-45	T	-1.1	2.6	13.8	-1.3	6.7	-1.3	13.8	-----	-----	13.8	-----	-----	-----	13.8
T2-45	U	6	16.7	11.4	9.9	34	22.2	34	-----	16.7	11.4	-----	25.1	22.2	21.5
T2-45	V	70.5	32.3	40.6	18.8	41.7	15.5	70.5	28.3	19.6	22.5	18.8	22.2	15.5	22.7
T2-45	W	-1	-2.9	0.2	-2.9	2.2	0.1	2.2	-----	-----	-----	-----	-----	-----	-----
T2-45	X	-0.5	-3.5	-0.3	-2	-2.3	-0.6	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-45	Y	14.6	15.6	14.4	-3.3	14.7	3.3	15.6	13.9	15.6	14.4	-----	14.4	-----	14.4
T2-45	Z	10.1	17.3	26.5	-1.3	42.4	20.5	42.4	10.1	13.4	20.2	-----	25.2	16.1	21.5
T2-46	A	0.6	-1.3	-0.6	-1.2	-2.5	1.5	1.5	-----	-----	-----	-----	-----	-----	-----
T2-46	B	3.3	2.5	3.8	-1.8	0.4	12.9	12.9	-----	-----	-----	-----	-----	12.9	12.9
T2-46	C	-0.6	-1	1	0.4	22.5	10.1	22.5	-----	-----	-----	-----	22.5	10.1	16.3
T2-46	D	34.4	-2.5	27	-2.1	35.3	78.1	78.1	34.4	-----	27	-----	24.9	48	32.2
T2-46	E	2.5	-2.1	12.9	-1.4	32.6	30.2	32.6	-----	-----	12.9	-----	22	30.2	21.8
T2-46	F	12.4	-1.6	15.6	-1	13.6	-0.3	15.6	12.4	-----	15.6	-----	12.6	-----	13.3
T2-46	G	16	2.4	51.7	-1.2	12.9	-1	51.7	16	-----	51.7	-----	12.8	-----	23.3
T2-46	H	0.5	-0.9	0.8	-1.4	-1.2	0	0.8	-----	-----	-----	-----	-----	-----	-----
T2-46	I	-0.3	-2.8	-0.6	-1.4	-2.5	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-46	J	33.6	-2.7	28.9	10.2	43	60.9	60.9	33.6	-----	18.1	10.2	26.5	29.8	26.3
T2-46	K	0.2	-2.2	0.3	-0.9	29.7	8.8	29.7	-----	-----	-----	-----	23.4	-----	23.4
T2-46	L	16.3	2	11.6	2.1	52.1	32.6	52.1	16.3	-----	11.6	-----	22.7	22.2	21.7
T2-46	M	-0.1	-1.3	0.9	-1.4	-2.5	-0.5	0.9	-----	-----	-----	-----	-----	-----	-----
T2-46	N	8.7	-1.9	23.3	-1.7	27.1	10.2	27.1	-----	-----	23.3	-----	24.7	10.2	20.7
T2-46	O	0.6	-1.9	0.4	-0.7	1.2	-0.7	1.2	-----	-----	-----	-----	-----	-----	-----
T2-46	P	-0.4	-1.5	-0.2	-0.5	1.4	4.8	4.8	-----	-----	-----	-----	-----	-----	-----
T2-46	Q	-1	-2.4	0.6	-1.6	29.2	6.1	29.2	-----	-----	-----	-----	29.2	-----	29.2
T2-46	R	25.8	3.6	29.8	2.9	55.8	58.4	58.4	17.1	-----	29.8	-----	21.9	34.2	23.7
T2-47	A	0.2	-2.6	0.3	-1.2	-2.7	0.8	0.8	-----	-----	-----	-----	-----	-----	-----
T2-47	AA	5.9	3.6	5.2	2.9	4.6	6.5	6.5	-----	-----	-----	-----	-----	-----	-----
T2-47	AB	6.6	2.6	7.2	4.6	5.3	6.6	7.2	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-47	AC	0	-0.6	-0.2	-0.9	-1.2	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-47	AD	2.2	-1.5	-0.1	-1.4	-2.4	0.5	2.2	-----	-----	-----	-----	-----	-----	-----
T2-47	AE	20.6	-0.6	24.4	-0.2	22.5	12	24.4	19	-----	18.5	-----	17.2	12	17.5
T2-47	AF	0.6	-0.3	4.7	-0.3	0.2	1.3	4.7	-----	-----	-----	-----	-----	-----	-----
T2-47	AG	4.9	0.4	29.6	-0.3	3.2	0.9	29.6	-----	-----	23.4	-----	-----	-----	23.4
T2-47	AH	5.9	1.4	12.6	2.6	6.8	1.7	12.6	-----	-----	12.6	-----	-----	-----	12.6
T2-47	AI	27.8	1.6	5.3	0.9	17.6	2.2	27.8	23.1	-----	-----	-----	17.6	-----	21.2
T2-47	AJ	4.2	0.7	17.6	1.8	1.6	3.5	17.6	-----	-----	17.6	-----	-----	-----	17.6
T2-47	AK	3.2	3.3	81.4	3.7	13.7	7.3	81.4	-----	-----	54.5	-----	13.7	-----	40.9
T2-47	AL	0.3	-0.7	-0.4	-1.2	-1.3	0.1	0.3	-----	-----	-----	-----	-----	-----	-----
T2-47	AM	3.7	1.7	4.7	2.1	1.7	5.1	5.1	-----	-----	-----	-----	-----	-----	-----
T2-47	AN	3.7	0.6	2.8	9.4	1.4	5.1	9.4	-----	-----	-----	-----	-----	-----	-----
T2-47	AO	1.4	0.5	4	0.1	8.9	3.6	8.9	-----	-----	-----	-----	-----	-----	-----
T2-47	AP	1.4	-1	2.6	10.1	7	1.4	10.1	-----	-----	-----	10.1	-----	-----	10.1
T2-47	AQ	5.5	2.2	5.6	2.2	3	5.6	5.6	-----	-----	-----	-----	-----	-----	-----
T2-47	AR	2.5	2.4	15.7	0.5	1.6	3	15.7	-----	-----	15.7	-----	-----	-----	15.7
T2-47	AS	3.5	1.7	4.9	2.7	2.3	5.5	5.5	-----	-----	-----	-----	-----	-----	-----
T2-47	AT	0.9	-0.9	15.3	-1	2.7	1.1	15.3	-----	-----	12.8	-----	-----	-----	12.8
T2-47	AU	0.8	-1.4	-0.7	-0.9	-0.8	0.1	0.8	-----	-----	-----	-----	-----	-----	-----
T2-47	AV	1.9	-0.5	1.6	1	-0.5	1.7	1.9	-----	-----	-----	-----	-----	-----	-----
T2-47	B	0	-1.4	0.7	-2.4	1.6	-0.4	1.6	-----	-----	-----	-----	-----	-----	-----
T2-47	C	-0.5	-2.2	-0.4	-1.3	-1.7	-0.5	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-47	D	-0.9	-2.4	-0.5	-1.3	2.7	-0.2	2.7	-----	-----	-----	-----	-----	-----	-----
T2-47	E	0.2	0.4	0	-1.6	-1.4	0.3	0.4	-----	-----	-----	-----	-----	-----	-----
T2-47	F	-0.3	-2.4	4.6	-2.4	7.5	-0.1	7.5	-----	-----	-----	-----	-----	-----	-----
T2-47	G	2	-1.7	24.8	-0.2	18.2	1.1	24.8	-----	-----	24.8	-----	12.3	-----	14.8
T2-47	H	3	-0.9	7.9	-1.8	18.8	0	18.8	-----	-----	-----	-----	17.1	-----	17.1
T2-47	I	1.1	-0.8	1.2	-1.2	38.6	8.1	38.6	-----	-----	-----	-----	38.6	-----	38.6
T2-47	J	1.9	-1.4	2.7	-0.8	3.5	0.6	3.5	-----	-----	-----	-----	-----	-----	-----
T2-47	K	0.9	-0.1	9.5	-0.5	4.9	1.3	9.5	-----	-----	-----	-----	-----	-----	-----
T2-47	L	16.8	0.1	7.3	-0.1	24.2	6.1	24.2	16.8	-----	-----	-----	18.2	-----	17.8
T2-47	M	1.1	1.1	2.7	0	13.7	2.7	13.7	-----	-----	-----	-----	11.9	-----	11.9
T2-47	N	2	1.7	1.7	23.6	17.7	3.1	23.6	-----	-----	-----	23.6	14.1	-----	17.3
T2-47	O	1.9	-0.5	14	-0.3	15.8	2.6	15.8	-----	-----	14	-----	14.2	-----	14.1
T2-47	P	10.5	6.2	56.9	17.3	38.4	3.5	56.9	10.5	-----	38.3	17.3	22.2	-----	24.8
T2-47	Q	6.1	2.1	3.7	1.5	1.9	5.3	6.1	-----	-----	-----	-----	-----	-----	-----
T2-47	R	3.5	0.5	11.7	0.2	2	3	11.7	-----	-----	11.7	-----	-----	-----	11.7
T2-47	S	4.5	2.4	4.1	1.7	2.5	5.4	5.4	-----	-----	-----	-----	-----	-----	-----
T2-47	T	3.4	3.5	3.4	18	49.3	4.1	49.3	-----	-----	-----	18	34.7	-----	30.6
T2-47	U	5.3	4.5	6.1	2.7	4.9	6.3	6.3	-----	-----	-----	-----	-----	-----	-----
T2-47	V	6.1	4.5	5.7	4.8	4	6.9	6.9	-----	-----	-----	-----	-----	-----	-----
T2-47	W	6.2	3.2	5.6	4.5	5.2	7.2	7.2	-----	-----	-----	-----	-----	-----	-----
T2-47	X	5.7	3.3	6.6	4.3	5.4	7.2	7.2	-----	-----	-----	-----	-----	-----	-----
T2-47	Y	1.3	-0.7	4.2	-1.5	6	1.3	6	-----	-----	-----	-----	-----	-----	-----
T2-47	Z	3.5	0.6	1.7	0.6	0.7	4	4	-----	-----	-----	-----	-----	-----	-----

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-48	A	0.4	-2.9	0.2	-2.6	10.2	-1	10.2	-----	-----	-----	-----	10.2	-----	10.2
T2-48	AA	34.6	0.8	33.6	-1.6	22.2	20.6	34.6	17.3	-----	19.3	-----	22.2	16.6	18.2
T2-48	AB	-0.7	-2.3	0.4	-1	-2.5	0.1	0.4	-----	-----	-----	-----	-----	-----	-----
T2-48	AC	58.8	0.9	5.4	-1.5	30.9	22.1	58.8	43.7	-----	-----	-----	30.9	22.1	35.1
T2-48	AD	47.2	9.2	33.5	7.5	11	28.9	47.2	17.3	-----	22.3	-----	10.5	24	19.3
T2-48	AE	11.4	-2.7	11.1	-1.7	11.5	8	11.5	11.4	-----	11.1	-----	11.5	-----	11.3
T2-48	AF	-0.4	-2.6	6.1	-1.5	-0.5	8.8	8.8	-----	-----	-----	-----	-----	-----	-----
T2-48	AG	0.1	-0.7	0.5	-0.1	-2.4	0.1	0.5	-----	-----	-----	-----	-----	-----	-----
T2-48	AH	21.8	3	34.4	10.2	22	127	127	16.6	-----	22.1	10.2	17.8	47.5	27.5
T2-48	AI	27.5	14.3	12	-1.4	25.7	96.2	96.2	20	14.3	11.7	-----	18	58.9	22.8
T2-48	AJ	-0.7	-2.2	0.4	-0.6	7.7	10.5	10.5	-----	-----	-----	-----	-----	10.5	10.5
T2-48	AK	-0.5	-1.5	4.7	-1.1	-2.6	-0.7	4.7	-----	-----	-----	-----	-----	-----	-----
T2-48	AL	0.8	-2.5	0	-0.9	-2.2	-0.6	0.8	-----	-----	-----	-----	-----	-----	-----
T2-48	AM	-0.6	-2.3	-1.3	-1.9	-2.9	-1.2	-0.6	-----	-----	-----	-----	-----	-----	-----
T2-48	AN	-0.2	-2.6	1.6	-1.5	44	20.5	44	-----	-----	-----	-----	20.7	20.1	20.5
T2-48	AO	8.5	4.5	58.6	18.3	101.6	14.7	101.6	-----	-----	24.3	14.2	35.2	12.9	30.3
T2-48	AP	7.3	40.2	7.3	-2.4	25.4	20.8	40.2	-----	40.2	-----	-----	16.4	18.3	19.8
T2-48	AQ	-1	-3	0.2	-1.3	9.4	0.4	9.4	-----	-----	-----	-----	-----	-----	-----
T2-48	AR	1	-1.9	-0.5	-1.7	-0.8	0.7	1	-----	-----	-----	-----	-----	-----	-----
T2-48	AS	0	-1.5	0.3	-1.2	-1	-0.9	0.3	-----	-----	-----	-----	-----	-----	-----
T2-48	AT	1.5	-1.9	-0.3	-1	6.2	33.9	33.9	-----	-----	-----	-----	-----	33.9	33.9
T2-48	AU	1.8	-1.1	-0.2	-0.6	-2.1	-1.1	1.8	-----	-----	-----	-----	-----	-----	-----
T2-48	AV	22.3	1.9	11.1	-0.7	58.2	38.1	58.2	22.3	-----	11.1	-----	21.3	20.1	20.6
T2-48	AW	0.6	-1.8	0.1	-1.8	-2.2	-0.5	0.6	-----	-----	-----	-----	-----	-----	-----
T2-48	AX	10	-2.5	20.3	-2.3	33.5	12.3	33.5	10	-----	16.3	-----	19.7	11.4	16.9
T2-48	AY	1.5	-2.9	1.4	-1.5	-2	-1	1.5	-----	-----	-----	-----	-----	-----	-----
T2-48	AZ	0.5	-1.5	-1.2	-1.6	-1.4	2	2	-----	-----	-----	-----	-----	-----	-----
T2-48	B	2	-0.1	13.5	-1.3	8.8	18.6	18.6	-----	-----	13.5	-----	-----	18.6	16.1
T2-48	BA	4.8	15.8	46.4	-1.2	108.5	21.2	108.5	-----	15.8	30.9	-----	26	15.6	24.8
T2-48	BB	1.4	-1.4	0.9	-1	-1.2	0.1	1.4	-----	-----	-----	-----	-----	-----	-----
T2-48	C	19.8	2.8	13.5	0.8	29.6	7.4	29.6	16.2	-----	12.8	-----	19	-----	16.4
T2-48	D	3	-2	8.2	-1.6	5.5	5.6	8.2	-----	-----	-----	-----	-----	-----	-----
T2-48	E	12.2	-1.7	3.1	-2.5	20.3	13.8	20.3	12.2	-----	-----	-----	15.4	13.8	14.2
T2-48	F	12.9	17.2	41.6	2.8	57.4	18.9	57.4	12.9	17.2	23.5	-----	24.9	14.8	21.6
T2-48	G	-0.5	-2.4	-1.2	-1.6	3	-2.2	3	-----	-----	-----	-----	-----	-----	-----
T2-48	H	11.5	-1.8	0.2	-2.9	13.2	9.3	13.2	11.2	-----	-----	-----	12.2	-----	11.7
T2-48	I	57.2	5.8	18.4	0.9	71.4	34.7	71.4	41.3	-----	15.5	-----	29.1	24.2	28.1
T2-48	J	-1.6	-1.7	-1	-2.8	1.8	0.6	1.8	-----	-----	-----	-----	-----	-----	-----
T2-48	K	30.7	14.7	111.3	21	125.9	86.5	125.9	25	12.3	39.9	21	39.7	34.2	37
T2-48	L	6.3	9.3	72.1	-1.5	60.9	45.4	72.1	-----	-----	46.4	-----	25.5	30	30.1
T2-48	M	2.3	-2.5	0.2	-2	8	9.8	9.8	-----	-----	-----	-----	-----	-----	-----
T2-48	N	41.8	-2.2	5.4	-2.6	20.1	2.3	41.8	41.8	-----	-----	-----	16.1	-----	24.7
T2-48	O	1.2	-1.1	-1	-1.5	-0.7	-1.1	1.2	-----	-----	-----	-----	-----	-----	-----
T2-48	P	0.3	-2.2	7.8	-2.5	3.5	-2	7.8	-----	-----	-----	-----	-----	-----	-----
T2-48	Q	12.4	-1	26.1	2.4	66	78.3	78.3	12.3	-----	24.9	-----	22.4	34.2	23.7

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-48	R	0.4	-2.3	-0.6	-2.7	10.6	17.3	17.3	-----	-----	-----	-----	10.6	17.3	13.9
T2-48	S	0.7	-1	-1.2	-0.4	-2.8	1.3	1.3	-----	-----	-----	-----	-----	-----	-----
T2-48	T	-1.4	-2.2	0	-1.6	-2.5	-0.8	0	-----	-----	-----	-----	-----	-----	-----
T2-48	U	0.7	-2.3	0.5	-1.9	2.8	1.8	2.8	-----	-----	-----	-----	-----	-----	-----
T2-48	V	1.9	-1.6	16.4	-1.8	11.8	10	16.4	-----	-----	16.4	-----	11.8	10	12.7
T2-48	W	8.4	-2.3	0.8	0.6	2	0.6	8.4	-----	-----	-----	-----	-----	-----	-----
T2-48	X	39.7	-0.4	62.4	-0.7	23.7	20.2	62.4	22.5	-----	60.1	-----	15.3	18.3	25.3
T2-48	Y	2.7	-2.3	-0.7	-1.9	0.3	-1.2	2.7	-----	-----	-----	-----	-----	-----	-----
T2-48	Z	39.5	-1.4	17.9	-1.2	10.2	19.7	39.5	25.1	-----	17.9	-----	10.2	19.7	19.8
T2-49	A	0.2	-1.8	9.6	-1.5	18	-0.7	18	-----	-----	-----	-----	18	-----	18
T2-49	B	-0.6	-1.2	1.1	0	15.4	2.6	15.4	-----	-----	-----	-----	15.4	-----	15.4
T2-49	C	0.5	-0.7	-0.3	-0.5	-1	0.7	0.7	-----	-----	-----	-----	-----	-----	-----
T2-49	D	5.3	0.4	13.3	-1.7	90.5	8.8	90.5	-----	-----	13.3	-----	33.5	-----	30.2
T2-49	E	0	-2.7	3.1	-2.2	5.9	16.7	16.7	-----	-----	-----	-----	-----	16.7	16.7
T2-49	F	57.4	8.1	49.2	0.6	50.2	30.9	57.4	34.5	-----	27.5	-----	25.7	23.1	26.7
T2-49	G	1.3	-1.4	-0.1	-1.4	-1.9	4.3	4.3	-----	-----	-----	-----	-----	-----	-----
T2-49	H	0.6	-1.4	-0.5	-2	13.6	-0.5	13.6	-----	-----	-----	-----	13.6	-----	13.6
T2-49	I	4.5	13.3	16.5	-1.9	12.5	41.4	41.4	-----	13.3	16.5	-----	11.5	22.8	17.3
T2-49	J	3.3	-2.7	0.5	-1.9	0.3	11	11	-----	-----	-----	-----	-----	11	11
T2-49	K	0.2	-0.4	-0.5	-0.2	-2	0.2	0.2	-----	-----	-----	-----	-----	-----	-----
T2-49	L	0.6	-0.4	-1.2	-0.1	-1.6	-0.2	0.6	-----	-----	-----	-----	-----	-----	-----
T2-49	M	-0.2	-1.3	-0.5	-0.9	2.5	-0.1	2.5	-----	-----	-----	-----	-----	-----	-----
T2-49	N	4.2	13.2	44.7	-2.4	41.1	45.9	45.9	-----	13.2	29	-----	26.7	22.1	25
T2-49	O	20.6	-2.7	14.8	-2	55.5	18.7	55.5	20.6	-----	14.8	-----	55.5	13.5	21.9
T2-49	P	1.5	-1.6	-0.7	-2	-2.4	-0.8	1.5	-----	-----	-----	-----	-----	-----	-----
T2-49	Q	-0.3	-1.8	-0.3	-2	3.8	2.9	3.8	-----	-----	-----	-----	-----	-----	-----
T2-50	A	-1.5	-2.2	-0.6	-2.3	-2.1	0.5	0.5	-----	-----	-----	-----	-----	-----	-----
T2-50	B	-1.2	-3.2	5.9	-2.7	-2.1	-1.1	5.9	-----	-----	-----	-----	-----	-----	-----
T2-50	C	-0.8	-3.3	22.6	-2.5	11	16.9	22.6	-----	-----	22.6	-----	11	16.9	16.8
T2-50	D	15.3	2.9	3	8.2	43.9	-1.4	43.9	14.7	-----	-----	-----	26.9	-----	23.4
T2-50	E	-0.5	-1.8	-0.3	-1.8	-2.7	-1.1	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-50	F	-1.6	-3.5	-0.1	-2.4	-2.6	3.4	3.4	-----	-----	-----	-----	-----	-----	-----
T2-50	G	-0.7	-1.8	-0.2	-1.2	-2.5	-1.5	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-50	H	18.8	-2.6	4.4	2.6	8.5	2.2	18.8	18.8	-----	-----	-----	-----	-----	18.8
T2-50	I	15	-2.1	17.1	-1.9	26.3	12.9	26.3	14	-----	14.9	-----	23.9	12.9	17.8
T2-50	J	0.8	-2.3	0.1	-2.2	-1.7	-0.1	0.8	-----	-----	-----	-----	-----	-----	-----
T2-50	K	-0.5	-2.6	0.5	-1	-2.7	-0.2	0.5	-----	-----	-----	-----	-----	-----	-----
T2-51	AC	-1.1	-3.3	1.8	-0.8	32.2	-0.6	32.2	-----	-----	-----	-----	27.3	-----	27.3
T2-52	A	-1.9	-3.2	-0.5	-1.6	-3.9	1	1	-----	-----	-----	-----	-----	-----	-----
T2-52	AA	0	-1.7	-0.4	-1.7	-3	-1.6	0	-----	-----	-----	-----	-----	-----	-----
T2-52	AB	-1.7	-2.9	-1.5	-2.2	-3	-1.6	-1.5	-----	-----	-----	-----	-----	-----	-----
T2-52	AC	-0.7	-2.5	-1.7	-1.1	-3.8	-0.7	-0.7	-----	-----	-----	-----	-----	-----	-----
T2-52	AD	-2.6	-2.5	-0.8	-1.7	-2.3	-1	-0.8	-----	-----	-----	-----	-----	-----	-----
T2-52	AE	24.1	5.4	15.6	-1.1	-2.3	16.1	24.1	20.1	-----	15.6	-----	-----	12.3	15.4
T2-52	AF	44.6	58.2	142.1	22	123.6	60.2	142.1	24	31.2	39.4	15.6	34.8	24.4	31

TABLE B-1. MAXIMUM AND AVERAGE KNOCK DATA (Continued)

		Maximum Knock Numbers							Average Knock Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-52	AG	61	37.5	151.1	108.2	59.6	26.5	151.1	31.5	19.8	36.6	39.2	31.1	18.4	31.1
T2-52	AH	-1.8	-4.7	-0.9	-2.1	-0.9	-0.4	-0.4	-----	-----	-----	-----	-----	-----	-----
T2-52	AI	6.4	-4.5	-1.6	-2.3	-0.4	0.6	6.4	-----	-----	-----	-----	-----	-----	-----
T2-52	AJ	83.6	4.4	20.2	1.6	32.8	39.3	83.6	38.5	-----	18.3	-----	19.2	26.8	26
T2-52	AK	85	88	44.3	42.8	117.4	31.9	117.4	34.1	25.1	21.9	20.8	36.9	20.2	29.4
T2-52	AL	6.8	-2.3	1.6	-3.1	13.9	-0.2	13.9	-----	-----	-----	-----	12.2	-----	12.2
T2-52	AM	33.8	-2.5	3.7	-1.9	16.1	50.4	50.4	22.7	-----	-----	-----	16.1	50.4	28
T2-52	AN	65.1	20.3	42.8	16.3	55.3	61.7	65.1	21.6	17.1	23	16.3	25	24.7	23.4
T2-52	B	-0.4	-2.6	1.6	-2.1	-3.1	0.6	1.6	-----	-----	-----	-----	-----	-----	-----
T2-52	C	0.2	-3.3	-0.5	-3.7	-2.2	-1.3	0.2	-----	-----	-----	-----	-----	-----	-----
T2-52	D	-0.7	-3.3	-0.2	-1.7	-1.4	-1.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-52	E	-1.5	-3	4	-3.6	-2.5	-1	4	-----	-----	-----	-----	-----	-----	-----
T2-52	F	19.8	-3.7	17	10.6	19.9	-2	19.9	19.8	-----	17	10.6	19.9	-----	16.8
T2-52	G	174.5	43.8	67.5	21	169.4	37.9	174.5	49.1	22.8	22.7	16.6	35.2	21.5	34.2
T2-52	H	0.6	-3.6	-1.5	-3.3	36.1	-1.7	36.1	-----	-----	-----	-----	36.1	-----	36.1
T2-52	I	-0.4	-1.7	0	-1.1	-2.9	-0.6	0	-----	-----	-----	-----	-----	-----	-----
T2-52	J	-1.6	-1.3	0.9	-1.2	-2.5	-1	0.9	-----	-----	-----	-----	-----	-----	-----
T2-52	K	-1.6	-3	0.7	-1.8	-3.5	-0.1	0.7	-----	-----	-----	-----	-----	-----	-----
T2-52	L	-1.4	-3.5	-0.1	-2.5	-2.4	-2.3	-0.1	-----	-----	-----	-----	-----	-----	-----
T2-52	M	9.1	-3.6	6.2	-3	28.5	0.8	28.5	-----	-----	-----	-----	23.6	-----	23.6
T2-52	N	202.1	53.4	117.2	-1.9	155.3	45.2	202.1	46.9	37.2	46.4	-----	54	25.4	44.7
T2-52	O	1.1	-2.1	-1.1	-2.8	-3	-2.2	1.1	-----	-----	-----	-----	-----	-----	-----
T2-52	P	-0.5	-1.8	3.7	-1.7	-2.4	0.5	3.7	-----	-----	-----	-----	-----	-----	-----
T2-52	Q	-0.5	-2.4	0	-1.7	-2.8	-1	0	-----	-----	-----	-----	-----	-----	-----
T2-52	R	1.9	-3.1	-0.1	-1.3	-1.8	-0.8	1.9	-----	-----	-----	-----	-----	-----	-----
T2-52	S	-0.3	-3.4	-1.6	-1.6	-2.4	-2.8	-0.3	-----	-----	-----	-----	-----	-----	-----
T2-52	T	0.9	-2	-0.8	-3.1	-3.2	-0.9	0.9	-----	-----	-----	-----	-----	-----	-----
T2-52	U	-2.4	-3.7	-0.6	-1.6	4.7	26.5	26.5	-----	-----	-----	-----	-----	26.5	26.5
T2-52	V	29.4	6.1	22.8	-2.4	82.5	11.5	82.5	22.3	-----	22.8	-----	38.1	11.5	30.7
T2-52	W	100.6	65.7	61.9	10.6	244.1	26.1	244.1	27.8	39.5	24.6	10.6	48.4	19.2	39.3
T2-52	X	-2.4	-2.8	-1.7	-2.7	-2.9	-0.2	-0.2	-----	-----	-----	-----	-----	-----	-----
T2-52	Y	-0.7	-2.1	0	-0.9	-1.4	0	0	-----	-----	-----	-----	-----	-----	-----
T2-52	Z	-0.5	-1.2	1.2	-1.3	-2.4	-0.6	1.2	-----	-----	-----	-----	-----	-----	-----

TABLE B-2. COUNT AND INTENSITY KNOCK DATA

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-6	A	26	11	23	17	27	36	140	330.7	131.7	304	221	418.8	505.8	1912
T2-6	B	22	12	27	14	21	23	119	277.2	140.8	380.2	198.2	291.9	305.6	1594
T2-6	C	29	14	22	14	29	22	130	367.4	183.8	316.3	199.5	444	366.4	1877
T2-6	D	27	14	27	13	44	31	156	419.3	218	486.4	156.1	850.1	487.5	2617
T2-6	E	16	2	15	7	14	16	70	229.3	33.9	178.1	91.3	199.6	214.3	946.5
T2-6	F	17	2	25	7	16	9	76	232.1	21.3	330.3	78.2	240.1	130.3	1032
T2-6	G	18	2	25	8	30	24	107	295.9	20.8	403.2	101.2	486.1	311.3	1619
T2-6	H	12	3	16	11	10	19	71	155	36.8	206.4	129.1	135.3	270.3	932.9
T2-6	I	11	6	11	7	18	11	64	140.9	82.3	152.3	83.5	280.8	135.3	875.1
T2-7	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-7	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-7	C	0	0	0	0	1	1	2	0	0	0	0	11.2	12.3	23.5
T2-7	D	0	0	0	0	4	0	4	0	0	0	0	50.2	0	50.2
T2-7	E	1	0	2	0	5	1	9	13.5	0	31.1	0	89	68.5	202.1
T2-7	F	0	0	0	0	2	0	2	0	0	0	0	26.4	0	26.4
T2-7	G	0	0	1	0	3	2	6	0	0	17.8	0	62.6	32.5	112.9
T2-7	H	0	0	0	0	1	0	1	0	0	0	0	10.3	0	10.3
T2-7	I	0	0	0	0	0	1	1	0	0	0	0	0	10.8	10.8
T2-7	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-7	K	0	0	1	0	0	0	1	0	0	28.9	0	0	0	28.9
T2-7	L	1	0	0	0	0	0	1	14	0	0	0	0	0	14
T2-7	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-7	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-7	O	0	0	1	0	1	1	3	0	0	13.9	0	18	17.8	49.7
T2-7	P	0	0	0	0	2	0	2	0	0	0	0	51.7	0	51.7
T2-7	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-7	R	0	0	0	0	0	1	1	0	0	0	0	0	30.6	30.6
T2-7	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-8	A	0	0	1	0	2	1	4	0	0	13.7	0	26.8	57.6	98.1
T2-8	B	1	1	1	0	12	3	18	36.8	31.3	12	0	224.3	126.7	431.1
T2-8	C	1	0	3	0	10	3	17	18.4	0	88.2	0	217.5	77	401.1
T2-8	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-8	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-8	F	0	1	0	0	1	0	2	0	28.3	0	0	10.5	0	38.8
T2-8	G	0	0	0	0	0	2	2	0	0	0	0	0	28.2	28.2
T2-8	H	0	0	1	0	2	1	4	0	0	12.1	0	47.7	16.2	76
T2-8	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-8	J	0	1	4	0	2	1	8	0	21.2	86.4	0	30.6	19	157.2
T2-8	K	0	0	2	0	1	0	3	0	0	30.2	0	18.6	0	48.8
T2-8	L	4	0	1	0	0	2	7	51.7	0	12.9	0	0	39.2	103.8
T2-8	M	2	0	5	0	0	1	8	74.9	0	64.3	0	0	19.7	158.9
T2-8	N	2	1	3	0	2	3	11	58.7	17.6	50	0	63.1	39.9	229.3
T2-8	O	1	0	0	0	0	0	1	13.7	0	0	0	0	0	13.7
T2-8	P	1	2	2	0	0	0	5	10.1	28.3	42.7	0	0	0	81.1
T2-8	Q	2	1	2	1	2	1	9	112.6	14.5	72.6	22	54	38.7	314.4

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-8	R	0	0	0	0	0	1	1	0	0	0	0	0	25.8	25.8
T2-8	S	0	1	0	0	0	0	1	0	26.8	0	0	0	0	26.8
T2-8	T	0	0	3	0	0	0	3	0	0	55.3	0	0	0	55.3
T2-9	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	I	0	0	1	0	0	0	1	0	0	11	0	0	0	11
T2-9	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	L	1	0	3	0	0	0	4	26	0	84.9	0	0	0	110.9
T2-9	M	0	0	0	0	0	1	1	0	0	0	0	0	14.1	14.1
T2-9	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	P	0	0	3	0	0	0	3	0	0	46.7	0	0	0	46.7
T2-9	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-9	R	0	0	0	0	0	1	1	0	0	0	0	0	29.7	29.7
T2-9	S	0	0	0	1	0	0	1	0	0	0	36.6	0	0	36.6
T2-9	T	0	0	1	0	0	2	3	0	0	19.9	0	0	33.4	53.3
T2-9	U	0	0	0	0	1	0	1	0	0	0	0	12.3	0	12.3
T2-9	V	0	0	0	0	0	1	1	0	0	0	0	0	16.6	16.6
T2-9	W	0	0	0	0	0	1	1	0	0	0	0	0	21.7	21.7
T2-9	X	1	0	0	0	0	0	1	14.4	0	0	0	0	0	14.4
T2-9	Y	3	0	0	0	0	0	3	77.5	0	0	0	0	0	77.5
T2-9	Z	0	0	0	0	1	0	1	0	0	0	0	10.4	0	10.4
T2-10	A	0	3	2	1	27	1	34	0	96.9	132.9	14.8	870.1	39.5	1154
T2-10	B	3	5	7	1	37	7	60	43.5	125.2	115.9	15.3	1164	132	1596
T2-10	C	10	7	14	3	49	9	92	441	117.8	279.7	59.1	1805	214	2917
T2-10	D	11	6	12	4	24	14	71	201.1	107.2	333.2	124.4	542.8	330	1639
T2-10	E	0	3	3	1	11	2	20	0	70.5	68.7	14.2	434.2	87.9	675.5
T2-10	F	0	0	0	0	3	0	3	0	0	0	0	35.2	0	35.2
T2-10	G	0	0	1	0	8	1	10	0	0	13.5	0	184.3	28.1	225.9
T2-10	H	0	0	0	1	0	0	1	0	0	0	29.9	0	0	29.9
T2-10	I	0	1	1	0	0	1	3	0	39.2	19.8	0	0	17.5	76.5
T2-10	J	0	0	2	0	1	2	5	0	0	35.2	0	24.8	36.5	96.5
T2-12	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-12	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	F	0	0	0	0	1	0	1	0	0	0	0	24	0	24
T2-12	G	0	0	1	0	0	0	1	0	0	22.1	0	0	0	22.1
T2-12	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-12	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	C	0	0	2	0	1	0	3	0	0	32.5	0	10.2	0	42.7
T2-13	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	E	0	0	0	0	2	0	2	0	0	0	0	52.4	0	52.4
T2-13	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-13	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	AD	1	0	1	0	0	0	2	16	0	14	0	0	0	30.5
T2-14	AE	1	0	1	0	0	0	2	14	0	10	0	0	0	24.4
T2-14	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-14	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	P	1	0	1	0	4	0	6	10	0	12.9	0	112.3	0	135.2
T2-14	Q	0	0	1	0	3	0	4	0	0	10.5	0	86.4	0	96.9
T2-14	R	2	0	0	0	2	0	4	40.2	0	0	0	49.6	0	89.8
T2-14	S	0	0	1	0	1	0	2	0	0	21.2	0	22.7	0	43.9
T2-14	T	0	0	0	0	1	0	1	0	0	0	0	14.3	0	14.3
T2-14	U	0	0	3	0	6	0	9	0	0	54.7	0	160.7	0	215.4
T2-14	V	0	0	0	0	2	0	2	0	0	0	0	28	0	28.4
T2-14	W	0	0	1	0	3	2	6	0	0	14	0	69	40	122.5
T2-14	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-14	Z	0	0	1	0	1	0	2	0	0	30	0	15	0	45.4
T2-15	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-15	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	A	5	2	3	0	20	2	32	157	35.2	65.2	0	636.7	28.4	922.5
T2-16	B	1	0	1	1	0	0	3	12	0	16.5	14	0	0	42.5
T2-16	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-16	D	5	0	5	0	11	0	21	115.5	0	76.9	0	296.8	0	489.2
T2-16	E	0	1	1	0	0	0	2	0	18.6	18.4	0	0	0	37
T2-16	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	G	0	0	3	0	2	0	5	0	0	79	0	29.5	0	108.5
T2-16	H	5	1	3	0	15	2	26	120.7	15.4	71.2	0	452	57.5	716.8
T2-16	I	0	0	0	0	2	0	2	0	0	0	0	43.2	0	43.2
T2-16	J	1	0	3	2	4	0	10	20.2	0	47.1	26.8	63.2	0	157.3
T2-16	K	4	1	6	0	6	5	22	120.6	10.6	102.9	0	159.3	117.6	511
T2-16	L	0	0	0	0	1	2	3	0	0	0	0	12.8	28.9	41.7
T2-16	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	P	0	0	1	0	1	0	2	0	0	13.2	0	10.3	0	23.5
T2-16	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	S	0	0	0	0	1	0	1	0	0	0	0	23.7	0	23.7
T2-16	T	0	0	1	0	0	0	1	0	0	18	0	0	0	18
T2-16	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	W	0	0	0	0	0	1	1	0	0	0	0	0	13.1	13.1
T2-16	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-16	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-17	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-17	B	0	0	1	0	2	2	5	0	0	10.1	0	25.1	63.8	99
T2-17	C	3	1	3	1	9	4	21	77.9	10.9	111.4	15.2	155	74.8	445.2
T2-17	D	1	0	0	0	7	2	10	17.1	0	0	0	129.5	20.7	167.3
T2-17	E	0	0	0	0	3	1	4	0	0	0	0	51.2	13.2	64.4
T2-17	F	0	0	0	0	1	0	1	0	0	0	0	12.9	0	12.9
T2-17	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-17	H	0	0	0	0	0	1	1	0	0	0	0	0	18.5	18.5
T2-17	I	0	0	0	0	1	0	1	0	0	0	0	11.1	0	11.1
T2-17	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-17	K	0	0	1	0	2	0	3	0	0	13.6	0	54.5	0	68.1
T2-18	A	0	0	2	0	1	2	5	0	0	42.2	0	21.4	51.4	115
T2-18	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-18	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-18	D	0	0	2	0	1	0	3	0	0	67	0	18	0	85
T2-18	E	0	0	1	0	3	1	5	0	0	30.8	0	54.5	21.8	107.1
T2-18	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-18	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-18	H	1	1	2	0	2	2	8	29.2	17.1	34.3	0	26.6	37.8	145
T2-18	I	1	0	1	0	1	0	3	14.8	0	18	0	10.2	0	43
T2-18	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-18	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-19	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	F	0	0	0	0	2	0	2	0	0	0	0	43.6	0	43.6
T2-19	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	L	0	0	0	0	1	0	1	0	0	0	0	10.7	0	10.7
T2-19	M	1	0	0	0	1	0	2	10.6	0	0	0	13.1	0	23.7
T2-19	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	S	0	0	0	0	3	1	4	0	0	0	0	36.8	12.2	49
T2-19	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-19	Y	0	0	1	0	0	0	1	0	0	12.3	0	0	0	12.3
T2-19	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-20	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AC	0	0	1	0	0	0	1	0	0	42	0	0	0	42
T2-20	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	AP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	E	0	0	1	0	5	0	6	0	0	12	0	236	0	248
T2-20	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	I	0	0	0	0	5	0	5	0	0	0	0	100.7	0	100.7
T2-20	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	P	0	0	0	0	0	1	1	0	0	0	0	0	36.6	36.6
T2-20	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	S	1	0	1	0	0	0	2	43	0	40.5	0	0	0	83.5
T2-20	T	0	0	0	0	2	0	2	0	0	0	0	51.3	0	51.3
T2-20	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	X	1	0	0	0	0	0	1	10	0	0	0	0	0	10
T2-20	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-20	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-21	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	AH	0	0	0	0	1	0	1	0	0	0	0	19	0	18.8
T2-21	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	O	1	0	0	0	0	0	1	18	0	0	0	0	0	18.2
T2-21	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	T	0	0	0	0	1	0	1	0	0	0	0	16	0	16.4
T2-21	U	0	0	1	0	0	0	1	0	0	40	0	0	0	39.6
T2-21	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-21	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-22	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-22	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-22	C	0	1	0	0	3	1	5	0	11.9	0	0	53.9	12.9	78.7
T2-22	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-22	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-22	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-22	G	0	0	0	0	1	0	1	0	0	0	0	16.6	0	16.6
T2-23	A	0	0	0	0	3	1	4	0	0	0	0	47.4	25.1	72.5
T2-23	AA	7	0	5	1	55	8	76	169	0	131.7	16.7	2333	241.8	2892
T2-23	AB	1	0	1	1	14	4	21	22	0	10.8	10.4	325.7	113.9	482.8
T2-23	AC	1	0	0	0	1	0	2	13.6	0	0	0	15.9	0	29.5
T2-23	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	AE	4	0	4	0	24	3	35	129	0	60.7	0	788.8	39.2	1018
T2-23	AF	1	0	5	1	18	1	26	18	0	73	21.2	474	62.2	648.4
T2-23	AG	1	0	0	0	7	0	8	42.8	0	0	0	175.5	0	218.3
T2-23	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-23	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	B	1	0	1	1	18	3	24	58.9	0	13.5	13.1	585.1	126.6	797.2
T2-23	C	0	0	0	0	0	1	1	0	0	0	0	0	10.3	10.3
T2-23	D	0	0	0	0	2	0	2	0	0	0	0	66.3	0	66.3
T2-23	E	0	0	0	1	5	1	7	0	0	0	40.8	178.1	12.8	231.7
T2-23	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	K	0	0	0	0	3	0	3	0	0	0	0	58.3	0	58.3
T2-23	L	0	1	0	0	5	0	6	0	12.9	0	0	94.9	0	107.8
T2-23	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	O	0	0	0	0	1	0	1	0	0	0	0	18.9	0	18.9
T2-23	P	0	0	2	0	6	0	8	0	0	25.1	0	114.6	0	139.7
T2-23	Q	1	0	1	2	14	3	21	34.2	0	29.6	56.5	534.8	61.1	716.2
T2-23	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-23	W	0	0	1	0	1	0	2	0	0	45.4	0	17.6	0	63
T2-23	X	1	0	0	0	0	0	1	20	0	0	0	0	0	20
T2-23	Y	0	0	1	0	2	0	3	0	0	28.8	0	41.3	0	70.1
T2-23	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AA	1	0	1	0	6	1	9	11.6	0	13.9	0	121	24.4	171
T2-24	AB	0	0	0	0	2	1	3	0	0	0	0	21.9	10.9	32.8
T2-24	AC	0	0	0	0	1	0	1	0	0	0	0	10	0	10
T2-24	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AF	0	0	0	0	2	0	2	0	0	0	0	47.5	0	47.5
T2-24	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AI	6	6	10	3	9	16	50	157	143	362	66.8	219	394	1341
T2-24	AJ	2	0	2	0	3	5	12	26.5	0	29.8	0	47.3	163	266
T2-24	AK	0	0	0	0	0	1	1	0	0	0	0	0	11.5	11.5
T2-24	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AM	0	0	0	0	0	1	1	0	0	0	0	0	24.7	24.7
T2-24	AN	1	0	0	0	0	1	2	11.5	0	0	0	0	36.5	48
T2-24	AO	3	1	3	0	4	1	12	76.5	15.1	77.8	0	91.4	18.7	280
T2-24	AP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AR	0	0	1	0	0	0	1	0	0	37.2	0	0	0	37.2

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-24	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AT	0	0	1	0	0	0	1	0	0	11.7	0	0	0	11.7
T2-24	AU	2	1	3	0	1	1	8	38.1	11	50	0	16	12	127
T2-24	AV	0	0	2	0	0	0	2	0	0	22	0	0	0	22
T2-24	AW	0	0	2	0	0	0	2	0	0	22	0	0	0	22
T2-24	AX	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	AZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	BA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	BB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	BC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	E	0	0	0	0	2	0	2	0	0	0	0	52.7	0	52.7
T2-24	F	0	0	0	0	0	1	1	0	0	0	0	0	28.1	28.1
T2-24	G	3	0	2	1	5	2	13	41.7	0	35.9	13.2	128	59	277
T2-24	H	0	0	0	0	2	1	3	0	0	0	0	25.9	26.2	52.1
T2-24	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	K	0	0	0	0	1	0	1	0	0	0	0	10.9	0	10.9
T2-24	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	O	2	1	2	0	14	2	21	30	35.4	28.9	0	468	36	598
T2-24	P	0	0	1	0	3	0	4	0	0	17	0	42.5	0	59.5
T2-24	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	S	3	0	0	0	8	2	13	44.7	0	0	0	167	25.8	238
T2-24	T	0	0	0	0	2	1	3	0	0	0	0	32.2	11.8	44
T2-24	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	W	0	0	1	0	0	0	1	0	0	11.6	0	0	0	11.6
T2-24	X	0	0	1	0	1	0	2	0	0	17.3	0	12.1	0	29.4
T2-24	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-24	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	A	0	0	0	0	0	1	1	0	0	0	0	0	14.9	14.9
T2-25	AA	0	0	1	0	0	0	1	0	0	10.5	0	0	0	10.5
T2-25	AB	1	0	1	0	1	0	3	35.6	0	14.7	0	14.6	0	64.9
T2-25	AC	1	0	1	0	0	1	3	21.7	0	16.4	0	0	10.1	48.2
T2-25	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	AH	0	0	1	0	1	1	3	0	0	26.3	0	19.4	26.3	72

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-25	AI	1	0	1	0	1	1	4	19.7	0	15.6	0	39.6	25.1	100
T2-25	AJ	1	1	0	0	0	0	2	20.3	13.4	0	0	0	0	33.7
T2-25	AK	1	0	1	0	1	1	4	34.8	0	20.1	0	48.7	15.9	119.5
T2-25	AL	1	0	0	0	0	0	1	13.4	0	0	0	0	0	13.4
T2-25	AM	1	1	0	0	0	0	2	17.7	19.2	0	0	0	0	36.9
T2-25	AN	1	1	1	0	0	0	3	19.3	16.6	11.6	0	0	0	47.5
T2-25	AO	0	0	0	1	1	0	2	0	0	0	14.7	33.8	0	48.5
T2-25	AP	0	0	1	0	0	0	1	0	0	10.1	0	0	0	10.1
T2-25	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	AR	1	1	1	0	1	1	5	20.8	18.2	49.8	0	94.7	73.9	257.4
T2-25	AS	0	0	1	0	1	1	3	0	0	17.3	0	40.5	36.4	94.2
T2-25	AT	1	0	0	0	0	0	1	18.7	0	0	0	0	0	18.7
T2-25	AU	1	0	1	0	1	1	4	11.3	0	29.4	0	18.7	26.5	85.9
T2-25	AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	AW	0	0	1	0	0	1	2	0	0	14.4	0	0	17.1	31.5
T2-25	AX	1	0	1	0	1	1	4	11.7	0	25.1	0	28.3	19.6	84.7
T2-25	AY	1	0	1	1	1	1	5	12.6	0	16	17.5	38	20.5	104.6
T2-25	AZ	1	0	0	0	0	0	1	0	0	10.5	0	0	0	10.5
T2-25	B	1	0	0	0	2	2	5	15.9	0	0	0	31.7	40.5	88.1
T2-25	BA	1	0	0	0	0	0	1	10.6	0	0	0	0	0	10.6
T2-25	BB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	BC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	BD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	BE	0	0	1	0	0	0	1	0	0	12.2	0	0	0	12.2
T2-25	BF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	C	2	1	2	1	17	13	36	34.5	11.2	37.8	10.4	567.4	485.6	1147
T2-25	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	F	0	0	0	0	1	0	1	0	0	0	0	14.9	0	14.9
T2-25	G	0	0	0	0	1	1	2	0	0	0	0	12.2	10.8	23
T2-25	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	I	0	0	0	0	5	1	6	0	0	0	0	188	21.8	209.8
T2-25	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	P	0	0	1	0	1	0	2	0	0	13.9	0	43.1	0	57
T2-25	Q	0	0	0	4	0	1	5	0	0	0	103.2	0	30	133.2
T2-25	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	S	17	12	19	3	42	6	99	649.6	270.2	704.4	54	1948	89.8	3716
T2-25	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-25	U	0	0	0	0	1	0	1	0	0	0	0	13.2	0	13.2
T2-25	V	2	2	5	0	8	4	21	31.4	21.1	100.5	0	252.9	72.6	478.5

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-25	W	1	0	1	0	2	0	4	43.7	0	16.8	0	22.2	0	82.7
T2-25	X	2	0	1	0	2	0	5	45.2	0	22.7	0	55.6	0	123.5
T2-25	Y	3	0	4	0	7	1	15	46	0	103.4	0	114.1	10.5	274
T2-25	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	AB	0	0	1	0	1	0	2	0	0	12	0	13.8	0	25.8
T2-27	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	B	0	0	0	0	1	0	1	0	0	0	0	15.6	0	15.6
T2-27	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	H	1	0	5	1	7	5	19	10.3	0	95.9	12.6	206.2	138.8	463.8
T2-27	I	0	0	0	0	0	1	1	0	0	0	0	0	15.8	15.8
T2-27	J	1	0	3	0	0	3	7	10.2	0	47.8	0	0	79.7	137.7
T2-27	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	O	0	0	0	0	0	1	1	0	0	0	0	0	16.4	16.4
T2-27	P	7	2	15	8	45	17	94	177.7	29.3	311.3	140.3	1569	960.6	3189
T2-27	Q	8	4	11	4	29	20	76	217.7	100.3	260.2	104	872	550.9	2105
T2-27	R	0	0	1	0	0	2	3	0	0	11.1	0	0	29.7	40.8
T2-27	S	1	0	1	1	1	1	5	13.4	0	16	21.3	10.8	22.7	84.2
T2-27	T	0	0	0	0	1	0	1	0	0	0	0	27	0	27
T2-27	U	0	0	0	0	0	2	2	0	0	0	0	0	45.7	45.7
T2-27	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	W	1	0	2	0	3	1	7	16	0	23.3	0	67.3	35.4	142
T2-27	X	0	0	1	0	3	0	4	0	0	11.8	0	40.2	0	52
T2-27	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-27	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AB	2	0	3	0	3	0	8	51.2	0	70.1	0	105.3	0	226.6
T2-29	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AD	0	1	0	0	2	0	3	0	20.1	0	0	60.7	0	80.8
T2-29	AE	0	0	0	0	1	1	2	0	0	0	0	15.2	23.6	38.8
T2-29	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AH	0	0	1	0	3	0	4	0	0	25.4	0	40.8	0	66.2

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-29	AI	0	1	3	1	7	1	13	0	12.1	132.3	27.6	156.4	15.6	344
T2-29	AJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AL	0	0	0	0	1	0	1	0	0	0	0	10.2	0	10.2
T2-29	AM	0	0	2	0	1	3	6	0	0	35.7	0	17.2	64	116.9
T2-29	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AO	1	0	3	0	8	4	16	33.8	0	36.6	0	190.7	55.7	316.8
T2-29	AP	0	0	0	0	0	3	3	0	0	0	0	0	78.1	78.1
T2-29	AQ	0	0	0	0	1	0	1	0	0	0	0	11	0	11
T2-29	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AU	0	0	1	0	1	0	2	0	0	12.3	0	12.8	0	25.1
T2-29	AV	0	0	1	0	3	0	4	0	0	14.7	0	64.9	0	79.6
T2-29	AW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AX	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	AY	0	0	1	0	0	0	1	0	0	10.4	0	0	0	10.4
T2-29	AZ	0	0	0	0	0	1	1	0	0	0	0	0	11	11
T2-29	B	0	0	1	0	1	1	3	0	0	15.7	0	18.5	11.3	45.5
T2-29	BA	1	3	6	0	1	1	12	11.7	60.4	107.2	0	23.6	13	215.9
T2-29	BB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BD	0	1	1	1	2	1	6	0	19.6	11.9	15.4	32	38	116.9
T2-29	BE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BF	6	4	9	1	9	8	37	109.7	70.1	283.8	15.8	375	138.1	992.5
T2-29	BG	0	0	2	0	0	0	2	0	0	49.5	0	0	0	49.5
T2-29	BH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	BM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	C	0	0	2	1	3	1	7	0	0	65.7	12.3	73.6	24.2	175.8
T2-29	D	1	0	1	0	6	2	10	14	0	23.5	0	116.9	26.9	181.3
T2-29	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	G	0	0	1	0	0	1	2	0	0	11.9	0	0	52.3	64.2
T2-29	H	2	1	1	1	3	1	9	40.4	16.8	15.2	94.3	97.3	69.6	333.6
T2-29	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	K	2	0	4	0	4	10	20	49.6	0	126.1	0	145.1	337.5	658.3
T2-29	L	0	0	0	0	0	1	1	0	0	0	0	0	17.4	17.4
T2-29	M	20	15	15	10	32	24	116	590.2	501.5	515.6	416.3	1289	994.6	4308
T2-29	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-29	P	0	0	0	0	0	1	1	0	0	0	0	0	19.8	19.8
T2-29	Q	0	0	0	0	0	2	2	0	0	0	0	0	46	46
T2-29	R	0	0	3	0	1	0	4	0	0	64.7	0	13.1	0	77.8
T2-29	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	T	2	0	2	0	4	1	9	61.9	0	48.8	0	78.4	15.1	204.2
T2-29	U	0	0	0	0	0	1	1	0	0	0	0	0	18.5	18.5
T2-29	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	X	2	0	3	0	0	0	5	24.8	0	105	0	0	0	129.8
T2-29	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-29	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AA	1	0	0	0	0	1	2	26.6	0	0	0	0	10.3	36.9
T2-30	AB	5	3	7	2	52	9	78	202.7	37.3	147.6	63.7	2059	236.9	2747
T2-30	AC	0	0	0	0	0	1	1	0	0	0	0	0	15.2	15.2
T2-30	AD	0	0	0	0	2	0	2	0	0	0	0	39.8	0	39.8
T2-30	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AF	4	1	6	3	42	8	64	85.9	10.3	119.6	56.3	1484	225.3	1981
T2-30	AG	0	0	0	0	1	1	2	0	0	0	0	13.3	15	28.3
T2-30	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AI	1	0	2	0	9	2	14	36.5	0	56	0	207.7	96.6	396.8
T2-30	AJ	1	0	3	0	18	4	26	31.8	0	95.5	0	444.3	134.4	706
T2-30	AK	3	1	5	0	3	6	18	47.6	14.3	106	0	78.3	106.2	352.4
T2-30	AL	1	0	1	0	0	0	2	18.6	0	28.5	0	0	0	47.1
T2-30	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AO	4	0	3	0	9	5	21	101.1	0	55.7	0	231.1	125.6	513.5
T2-30	AP	1	0	4	0	3	1	9	14.4	0	128	0	31.9	96.1	270.4
T2-30	AQ	0	0	0	0	0	1	1	0	0	0	0	0	25.5	25.5
T2-30	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AT	0	0	0	0	0	1	1	0	0	0	0	0	12.9	12.9
T2-30	AU	3	1	4	0	3	1	12	52.7	11.5	182.2	0	100.3	21.7	368.4
T2-30	AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	AW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	F	1	0	1	0	1	1	4	11.3	0	18.2	0	29.4	11.2	70.1
T2-30	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	J	0	0	0	0	0	2	2	0	0	0	0	0	70.7	70.7
T2-30	K	3	0	2	1	5	11	22	67	0	45.2	14.4	68.6	271.3	466.5

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-30	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	N	3	0	1	0	1	4	9	96.3	0	41.2	0	15.2	151.3	304
T2-30	O	6	2	5	2	21	4	40	126.6	38.7	143.2	56.4	701.6	119.5	1186
T2-30	P	0	0	0	0	1	0	1	0	0	0	0	24.9	0	24.9
T2-30	Q	2	0	0	0	5	1	8	44.3	0	0	0	109.5	14.7	168.5
T2-30	R	0	0	0	0	0	1	1	0	0	0	0	0	35.3	35.3
T2-30	S	2	1	2	0	1	1	7	90.3	13.7	42.3	0	11.3	37.5	195.1
T2-30	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	U	3	0	0	0	1	2	6	96.9	0	0	0	17.7	24.6	139.2
T2-30	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-30	X	1	0	2	0	2	0	5	19.6	0	27.4	0	25.8	0	72.8
T2-30	Y	0	0	4	0	9	5	18	0	0	69.2	0	206.9	155.7	431.8
T2-30	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AB	1	0	1	0	4	0	6	37.6	0	46.2	0	93	0	176.8
T2-31	AC	9	3	0	1	10	2	25	194.6	57.3	0	32.5	281.4	24.7	590.5
T2-31	AD	1	0	0	0	2	0	3	16.5	0	0	0	30.5	0	47
T2-31	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AF	1	0	0	0	0	0	1	10.2	0	0	0	0	0	10.2
T2-31	AG	6	2	8	1	8	12	37	108	31.5	183.8	15.2	247.4	309.2	895.1
T2-31	AH	0	0	0	0	0	1	1	0	0	0	0	0	11	11
T2-31	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AK	1	0	3	0	0	4	8	59.5	0	35	0	0	107.2	201.7
T2-31	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AU	1	0	1	0	0	0	2	14.2	0	71.7	0	0	0	85.9
T2-31	AV	1	0	0	0	0	0	1	15.8	0	0	0	0	0	15.8
T2-31	AW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AX	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	AZ	0	0	0	0	1	0	1	0	0	0	0	30.5	0	30.5
T2-31	B	1	0	0	0	0	0	1	15	0	0	0	0	0	15
T2-31	BA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	BB	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-31	BC	1	0	0	0	0	0	1	11.3	0	0	0	0	0	11.3
T2-31	BD	0	0	1	0	1	0	2	0	0	15.5	0	27.3	0	42.8
T2-31	BE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	BF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	BG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	D	1	0	0	0	1	1	3	20.5	0	0	0	11.8	28.4	60.7
T2-31	E	1	1	0	0	2	1	5	16.8	59.5	0	0	24.4	18.7	119.4
T2-31	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	K	0	0	0	0	1	0	1	0	0	0	0	11.4	0	11.4
T2-31	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	O	0	0	1	0	0	1	2	0	0	14.7	0	0	32	46.7
T2-31	P	0	0	1	1	0	0	2	0	0	12.1	24.5	0	0	36.6
T2-31	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	U	0	0	3	0	0	0	3	0	0	40.8	0	0	0	40.8
T2-31	V	0	0	2	0	0	0	2	0	0	34.5	0	0	0	34.5
T2-31	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-31	X	1	0	0	0	0	1	2	14.5	0	0	0	0	16.1	30.6
T2-31	Y	7	1	2	2	9	5	26	141.6	17.7	55.7	54.7	249	117.6	636.3
T2-31	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	A	0	0	1	0	0	0	1	0	0	10.5	0	0	0	10.5
T2-32	AA	3	0	4	1	18	5	31	49.1	0	93.6	16.5	491.6	121.5	772.3
T2-32	AB	1	0	1	0	0	3	5	15.3	0	16.5	0	0	120	151.8
T2-32	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	AE	4	2	5	0	3	3	17	104.3	29	119.2	0	76.2	56.3	385
T2-32	AF	1	0	0	0	0	1	2	27.6	0	0	0	0	18	45.6
T2-32	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	AI	4	4	0	2	5	4	19	78.2	100.9	0	23.2	309	64.4	575.7
T2-32	AJ	0	0	1	1	2	2	6	0	0	16.4	19.1	31.1	24.7	91.3
T2-32	AK	0	0	0	0	0	1	1	0	0	0	0	0	15	15
T2-32	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	AM	28	16	12	7	27	9	99	887.7	509.3	567	188.3	841.6	191.2	3185
T2-32	AN	11	17	5	4	23	12	72	496.4	789.1	253.7	110.7	910.4	346	2906
T2-32	AO	7	5	10	1	17	3	43	129.6	105.4	184.3	11.3	565.3	109.7	1106

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-32	AP	1	1	0	0	5	0	7	15	11.2	0	0	66.8	0	93
T2-32	AQ	0	1	0	0	0	0	1	0	10.4	0	0	0	0	10.4
T2-32	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	AS	14	15	23	16	97	16	181	407.4	382.9	692.1	474.6	8426	454.1	10837
T2-32	AT	10	0	12	2	38	7	69	312.6	0	283.2	49.5	1399	157.1	2201
T2-32	AU	0	0	4	2	5	1	12	0	0	65.1	25.4	103.1	17.2	210.8
T2-32	AV	0	0	1	0	2	0	3	0	0	96.6	0	20.6	0	117.2
T2-32	AW	0	0	0	0	0	1	1	0	0	0	0	0	26	26
T2-32	AX	0	0	1	0	0	0	1	0	0	15	0	0	0	15
T2-32	AY	10	5	7	1	12	13	48	319.2	105.7	189	17.5	221.6	277.4	1130
T2-32	AZ	0	0	0	0	0	2	2	0	0	0	0	0	27.5	27.5
T2-32	B	2	0	5	0	4	1	12	26.4	0	123.9	0	136.7	36.1	323.1
T2-32	BA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BB	0	0	0	0	0	1	1	0	0	0	0	0	16.3	16.3
T2-32	BC	0	0	0	0	1	0	1	0	0	0	0	16.8	0	16.8
T2-32	BD	0	1	0	0	1	0	2	0	15.1	0	0	27.6	0	42.7
T2-32	BE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BH	4	0	1	1	2	1	9	67.4	0	20	18.2	33.5	29.5	168.6
T2-32	BI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BL	0	0	1	0	2	1	4	0	0	22.3	0	37.3	16.9	76.5
T2-32	BM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BP	0	0	0	0	0	2	2	0	0	0	0	0	35.5	35.5
T2-32	BQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	BR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	E	0	0	2	0	3	0	5	0	0	48.7	0	114.8	0	163.5
T2-32	F	5	2	5	0	6	1	19	210.7	42	107.9	0	129.5	13.7	503.8
T2-32	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	I	1	0	3	0	1	2	7	20.5	0	53.7	0	54.4	23.1	151.7
T2-32	J	1	0	4	0	2	3	10	11.2	0	65	0	83.9	59.2	219.3
T2-32	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	M	0	0	0	0	0	1	1	0	0	0	0	0	26	26
T2-32	N	2	1	8	0	0	3	14	36.5	53.3	244.5	0	0	62	396.3
T2-32	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	Q	3	1	4	3	5	5	21	69.9	23.3	136	45.5	138.8	194.6	608.1

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-32	R	1	0	3	0	3	4	11	11.2	0	58.7	0	62.4	106.2	238.5
T2-32	S	1	0	0	0	0	0	1	14.9	0	0	0	0	0	14.9
T2-32	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	V	8	2	2	0	8	0	20	354.2	61	35.5	0	181.2	0	631.9
T2-32	W	3	0	1	0	7	4	15	58.3	0	64.8	0	149.1	148.2	420.4
T2-32	X	0	0	0	0	2	0	2	0	0	0	0	36.2	0	36.2
T2-32	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-32	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AA	5	7	7	6	15	8	48	250.8	157.4	196.2	163.7	529.7	378.3	1676
T2-33	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AE	2	2	4	1	11	5	25	40.1	58.9	75.6	19	439.6	160.9	794.1
T2-33	AF	10	7	5	2	20	1	45	200.6	198.8	93.2	24.9	516.1	10.3	1044
T2-33	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AJ	0	0	0	0	1	0	1	0	0	0	0	11.8	0	11.8
T2-33	AK	2	0	2	0	5	1	10	23.9	0	68.4	0	125.9	25.6	243.8
T2-33	AL	1	0	1	0	15	5	22	13.3	0	19.9	0	438.3	137.5	609
T2-33	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AP	0	0	0	0	1	0	1	0	0	0	0	16.5	0	16.5
T2-33	AQ	0	0	0	0	2	1	3	0	0	0	0	52.7	25.8	78.5
T2-33	AR	1	0	4	0	4	2	11	30.1	0	66.9	0	101	26.5	224.5
T2-33	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AW	0	0	0	0	0	1	1	0	0	0	0	0	24.3	24.3
T2-33	AX	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	AZ	0	0	1	0	4	0	5	0	0	15.2	0	192.9	0	208.1
T2-33	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	BA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	BB	0	0	0	0	2	0	2	0	0	0	0	24.8	0	24.8
T2-33	BC	1	0	2	0	5	0	8	41.9	0	20.7	0	93.4	0	156
T2-33	BD	2	5	1	1	17	1	27	37.3	71.5	10.9	23.6	517	26.7	687
T2-33	BE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	BF	0	0	0	0	1	0	1	0	0	0	0	14.3	0	14.3
T2-33	BG	0	0	0	0	1	1	2	0	0	0	0	11	29	40
T2-33	BH	0	0	5	0	10	6	21	0	0	101.8	0	227.5	179.2	508.5

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-33	BI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	BJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	BK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	BL	0	0	2	0	2	2	6	0	0	41.7	0	66.6	35.6	143.9
T2-33	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	E	0	0	1	0	1	1	3	0	0	17.8	0	53.6	18.4	89.8
T2-33	F	1	1	1	0	0	0	3	10.1	11.8	40.8	0	0	0	62.7
T2-33	G	0	0	1	0	2	1	4	0	0	29.3	0	46.3	17.2	92.8
T2-33	H	2	1	0	1	2	0	6	36	53.4	0	23.6	42	0	155
T2-33	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	M	0	0	1	0	0	0	1	0	0	14.6	0	0	0	14.6
T2-33	N	1	0	2	0	1	3	7	23.2	0	31.7	0	16.8	157.3	229
T2-33	O	0	0	1	0	1	1	3	0	0	19.5	0	19.8	48.2	87.5
T2-33	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	U	2	0	1	0	0	0	3	57.5	0	13.5	0	0	0	71
T2-33	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-33	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	A	0	0	1	0	0	0	1	0	0	29.6	0	0	0	29.6
T2-34	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	G	0	0	0	0	1	0	1	0	0	0	0	11.5	0	11.5
T2-34	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-34	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-34	X	1	0	2	2	1	0	6	11.4	0	89.8	49	17.2	0	167.4
T2-36	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AB	0	0	0	0	0	1	1	0	0	0	0	0	21.4	21.4
T2-36	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AG	2	0	3	0	7	1	13	44.6	0	35.6	0	121.7	22.7	224.6
T2-36	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AM	0	0	1	0	1	1	3	0	0	20.5	0	11.6	21.8	53.9
T2-36	AN	0	0	0	0	0	1	1	0	0	0	0	0	12.6	12.6
T2-36	AO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AT	1	0	0	0	0	1	2	10.3	0	0	0	0	74.1	84.4
T2-36	AU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AX	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	AY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	C	1	0	0	0	1	1	3	11.6	0	0	0	10.9	58.1	80.6
T2-36	D	2	0	3	0	1	0	6	28	0	71.4	0	16.4	0	115.8
T2-36	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-36	N	0	0	0	0	1	0	1	0	0	0	0	10.5	0	10.5
T2-36	O	1	0	2	0	0	1	4	11.3	0	36.2	0	0	12.2	59.7
T2-36	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	V	0	0	0	0	1	0	1	0	0	0	0	10.2	0	10.2
T2-36	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	X	0	0	1	0	1	0	2	0	0	31.8	0	11	0	42.8
T2-36	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-36	Z	2	6	3	3	37	6	57	79.9	128.9	87	50.9	1557	162.8	2067
T2-37	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-37	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-38	B	0	0	1	0	0	0	1	0	0	16.3	0	0	0	16.3
T2-38	C	1	0	0	0	0	0	1	14.1	0	0	0	0	0	14.1
T2-38	D	1	1	1	0	5	0	8	27.9	10.4	10.8	0	78.2	0	127.3
T2-38	E	0	0	1	0	9	0	10	0	0	12.6	0	288.6	0	301.2
T2-38	F	6	3	2	0	11	2	24	183.3	69.8	38.2	0	328.5	90	709.8
T2-38	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	I	1	0	2	1	4	4	12	13.5	0	28.1	16.8	79.6	156.6	294.6
T2-38	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	O	1	0	6	0	1	5	13	14.2	0	124.6	0	10.8	109.9	259.5
T2-38	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-38	Z	0	0	0	0	0	1	1	0	0	0	0	0	19.7	19.7
T2-39	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	D	0	0	0	0	3	0	3	0	0	0	0	92.8	0	92.8
T2-39	E	1	1	5	0	1	0	8	17.1	18.3	150.2	0	12.1	0	197.7
T2-39	F	1	0	0	0	0	0	1	11.1	0	0	0	0	0	11.1
T2-39	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	K	1	0	2	0	2	0	5	15.9	0	81.3	0	23.1	0	120.3
T2-39	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	P	0	0	1	0	0	0	1	0	0	61.4	0	0	0	61.4
T2-39	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-39	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-39	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	H	3	7	0	1	1	1	13	70	111.2	0	11.9	42.5	14.2	249.8
T2-40	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	M	0	0	1	0	3	0	4	0	0	12.2	0	53.3	0	65.5
T2-40	N	1	3	8	5	19	1	37	23.9	65.2	353.2	144.1	465.9	11.6	1064
T2-40	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-40	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-41	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-41	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AT	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-42	AU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AX	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	AZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	BA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	BB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	R	2	0	2	0	3	2	9	46.9	0	57.7	0	80.3	52.6	237.5
T2-42	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-42	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	A	0	0	1	0	2	0	3	0	0	20.1	0	51.7	0	71.8
T2-43	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	AJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	B	0	0	0	0	1	2	3	0	0	0	0	10.8	38.8	49.6

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-43	C	2	0	1	0	11	3	17	40.2	0	21.1	0	300.4	47.8	409.5
T2-43	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	J	0	0	1	0	0	0	1	0	0	10	0	0	0	10
T2-43	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	L	0	0	0	0	1	0	1	0	0	0	0	13.9	0	13.9
T2-43	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-43	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	AA	4	1	4	0	4	1	14	82.3	16.1	137.6	0	94.7	23	353.7
T2-44	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	AC	0	0	2	0	0	0	2	0	0	23.6	0	0	0	23.6
T2-44	AD	0	0	2	0	2	0	4	0	0	37	0	70.1	0	107.1
T2-44	AE	1	0	2	0	3	1	7	10.1	0	26.2	0	47.8	18.7	102.8
T2-44	AF	2	0	10	1	5	1	19	66.2	0	270	14.6	123.5	30.4	504.7
T2-44	AG	0	0	1	0	1	0	2	0	0	19.4	0	18.1	0	37.5
T2-44	AH	0	1	1	0	2	0	4	0	25.1	36.9	0	97.8	0	159.8
T2-44	AI	2	0	1	1	1	2	7	81.5	0	19.7	19.3	49.8	25.8	196.1
T2-44	AJ	0	3	3	1	1	0	8	0	75.2	63.8	33.4	12	0	184.4
T2-44	AK	0	0	0	1	1	0	2	0	0	0	25.8	17.6	0	43.4
T2-44	AL	1	0	0	0	1	0	2	11	0	0	0	25.9	0	36.9
T2-44	AM	0	0	3	0	5	2	10	0	0	109.9	0	96.4	34.7	241
T2-44	AN	0	0	2	0	2	0	4	0	0	39.9	0	29	0	68.9
T2-44	AO	1	0	1	0	0	0	2	11.7	0	29.4	0	0	0	41.1
T2-44	AP	0	0	1	0	2	0	3	0	0	17.5	0	47	0	64.5
T2-44	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	AT	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-44	AU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	C	0	0	2	0	0	0	2	0	0	26.1	0	0	0	26.1
T2-44	D	0	0	0	0	2	0	2	0	0	0	0	48.1	0	48.1
T2-44	E	0	2	2	4	0	0	8	0	46.9	85.6	53.4	0	0	185.9
T2-44	F	0	0	2	2	0	0	4	0	0	43.2	52.5	0	0	95.7
T2-44	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	H	0	0	1	0	0	1	2	0	0	15.3	0	0	15.3	30.6
T2-44	I	0	1	0	0	1	0	2	0	12.8	0	0	21.2	0	34
T2-44	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	K	0	0	0	1	1	0	2	0	0	0	10.5	98.5	0	109
T2-44	L	2	2	7	1	4	0	16	45	40.6	161.4	15.4	76.8	0	339.2
T2-44	M	0	0	2	1	6	0	9	0	0	157.5	64.1	126	0	347.6
T2-44	N	1	3	4	6	3	1	18	26.4	52.7	252.7	127.3	54.6	29.2	542.9
T2-44	O	1	0	1	1	0	0	3	14.3	0	30.5	20.2	0	0	65
T2-44	P	0	0	2	1	6	3	12	0	0	24.2	24	166.4	91.1	305.7
T2-44	Q	1	0	5	2	7	2	17	81.6	0	242.4	131.3	207.1	42.5	704.9
T2-44	R	3	1	8	4	11	3	30	57.8	13.1	194.6	70	279.8	58.1	673.4
T2-44	S	1	0	1	0	0	0	2	19.3	0	13	0	0	0	32.3
T2-44	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	U	0	0	2	0	1	0	3	0	0	127	0	25.9	0	152.9
T2-44	V	0	2	5	6	7	5	25	0	49.2	120.7	199.2	114.4	129.2	612.7
T2-44	W	0	0	0	0	1	0	1	0	0	0	0	24.2	0	24.2
T2-44	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-44	Y	1	0	0	0	0	0	1	11	0	0	0	0	0	11
T2-44	Z	1	0	1	0	5	1	8	102.7	0	51.1	0	77.7	15.4	246.9
T2-45	A	3	2	6	1	4	0	16	37.8	20.8	168.1	10.1	121.9	0	358.7
T2-45	AA	1	0	0	0	0	0	1	14.6	0	0	0	0	0	14.6
T2-45	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	AC	4	0	2	0	16	4	26	243.8	0	58	0	503.6	115.3	920.7
T2-45	AD	0	0	3	0	1	0	4	0	0	32.5	0	12.6	0	45.1
T2-45	AE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	AF	11	5	6	0	33	9	64	465.5	81.2	240.7	0	1582	190.4	2559
T2-45	AG	0	0	1	0	6	0	7	0	0	22.9	0	112.2	0	135.1
T2-45	AH	1	0	0	0	0	1	2	17.7	0	0	0	0	11.3	29
T2-45	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	AJ	1	2	3	0	13	1	20	11.5	22.2	81.5	0	391.6	12.4	519.2
T2-45	AK	0	0	0	0	1	0	1	0	0	0	0	11.5	0	11.5
T2-45	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	B	0	0	0	0	1	0	1	0	0	0	0	17.6	0	17.6
T2-45	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	D	3	2	8	1	18	2	34	191.4	65.4	217.5	10.3	463.8	56.3	1005
T2-45	E	0	0	3	2	3	0	8	0	0	37.1	51	55.1	0	143.2
T2-45	F	0	0	0	0	0	1	1	0	0	0	0	0	15.8	15.8
T2-45	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-45	H	0	0	2	0	1	0	3	0	0	97	0	35.5	0	132.5
T2-45	I	0	0	0	0	1	0	1	0	0	0	0	12.7	0	12.7
T2-45	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	L	0	0	9	5	10	8	32	0	0	285.2	97.2	373.8	183.8	940
T2-45	M	0	0	0	0	1	1	2	0	0	0	0	15.5	19.4	34.9
T2-45	N	0	2	3	0	8	2	15	0	24.1	84.1	0	175.8	163.6	447.6
T2-45	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	Q	0	0	0	0	1	0	1	0	0	0	0	10.2	0	10.2
T2-45	R	0	1	3	2	3	2	11	0	25.6	52	30.9	73.7	43.9	226.1
T2-45	S	5	3	2	5	17	8	40	227.4	67.3	94.3	159.4	628.6	318.3	1495
T2-45	T	0	0	1	0	0	0	1	0	0	13.8	0	0	0	13.8
T2-45	U	0	1	1	0	4	1	7	0	16.7	11.4	0	100.3	22.2	150.6
T2-45	V	6	5	3	1	17	1	33	169.7	97.9	67.6	18.8	378.2	15.5	747.7
T2-45	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-45	Y	2	1	1	0	2	0	6	27.8	15.6	14.4	0	28.8	0	86.6
T2-45	Z	1	3	3	0	15	3	25	10.1	40.3	60.5	0	377.3	48.2	536.4
T2-46	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-46	B	0	0	0	0	0	1	1	0	0	0	0	0	12.9	12.9
T2-46	C	0	0	0	0	1	1	2	0	0	0	0	22.5	10.1	32.6
T2-46	D	1	0	1	0	4	2	8	34.4	0	27	0	99.8	96.1	257.3
T2-46	E	0	0	1	0	2	1	4	0	0	12.9	0	44	30.2	87.1
T2-46	F	1	0	1	0	2	0	4	12.4	0	15.6	0	25.3	0	53.3
T2-46	G	1	0	1	0	2	0	4	16	0	51.7	0	25.6	0	93.3
T2-46	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-46	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-46	J	1	0	4	1	18	11	35	33.6	0	72.4	10.2	477	327.9	921.1
T2-46	K	0	0	0	0	2	0	2	0	0	0	0	46.9	0	46.9
T2-46	L	1	0	1	0	13	5	20	16.3	0	11.6	0	295.6	111	434.5
T2-46	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-46	N	0	0	1	0	2	1	4	0	0	23.3	0	49.4	10.2	82.9
T2-46	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-46	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-46	Q	0	0	0	0	1	0	1	0	0	0	0	29.2	0	29.2
T2-46	R	4	0	1	0	24	6	35	68.3	0	29.8	0	526.4	205	829.5
T2-47	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AE	3	0	2	0	2	1	8	56.9	0	37	0	34.4	12	140.3
T2-47	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AG	0	0	2	0	0	0	2	0	0	46.7	0	0	0	46.7

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-47	AH	0	0	1	0	0	0	1	0	0	12.6	0	0	0	12.6
T2-47	AI	2	0	0	0	1	0	3	46.1	0	0	0	17.6	0	63.7
T2-47	AJ	0	0	1	0	0	0	1	0	0	17.6	0	0	0	17.6
T2-47	AK	0	0	2	0	1	0	3	0	0	109	0	13.7	0	122.7
T2-47	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AP	0	0	0	1	0	0	1	0	0	0	10.1	0	0	10.1
T2-47	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AR	0	0	1	0	0	0	1	0	0	15.7	0	0	0	15.7
T2-47	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AT	0	0	2	0	0	0	2	0	0	25.6	0	0	0	25.6
T2-47	AU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	G	0	0	1	0	4	0	5	0	0	24.8	0	49.2	0	74
T2-47	H	0	0	0	0	2	0	2	0	0	0	0	34.1	0	34.1
T2-47	I	0	0	0	0	1	0	1	0	0	0	0	38.6	0	38.6
T2-47	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	L	1	0	0	0	2	0	3	16.8	0	0	0	36.5	0	53.3
T2-47	M	0	0	0	0	2	0	2	0	0	0	0	23.9	0	23.9
T2-47	N	0	0	0	1	2	0	3	0	0	0	23.6	28.2	0	51.8
T2-47	O	0	0	1	0	2	0	3	0	0	14	0	28.4	0	42.4
T2-47	P	1	0	3	1	7	0	12	10.5	0	115	17.3	155.1	0	297.9
T2-47	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	R	0	0	1	0	0	0	1	0	0	11.7	0	0	0	11.7
T2-47	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	T	0	0	0	1	3	0	4	0	0	0	18	104.2	0	122.2
T2-47	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-47	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	A	0	0	0	0	1	0	1	0	0	0	0	10.2	0	10.2
T2-48	AA	6	0	4	0	1	2	13	103.7	0	77.4	0	22.2	33.2	236.5
T2-48	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AC	2	0	0	0	1	1	4	87.4	0	0	0	30.9	22.1	140.4
T2-48	AD	7	0	6	0	2	3	18	121	0	134	0	21	72	348

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-48	AE	1	0	1	0	1	0	3	11.4	0	11.1	0	11.5	0	34
T2-48	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AH	2	0	4	1	2	4	13	33.1	0	88.2	10.2	35.6	190	357.1
T2-48	AI	2	1	3	0	5	2	13	40	14.3	35	0	89.8	117.8	296.9
T2-48	AJ	0	0	0	0	0	1	1	0	0	0	0	0	10.5	10.5
T2-48	AK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AN	0	0	0	0	5	2	7	0	0	0	0	103.4	40.2	143.6
T2-48	AO	0	0	6	2	25	3	36	0	0	145.9	28.3	879.2	38.8	1092
T2-48	AP	0	1	0	0	5	2	8	0	40.2	0	0	81.9	36.6	158.7
T2-48	AQ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AT	0	0	0	0	0	1	1	0	0	0	0	0	33.9	33.9
T2-48	AU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AV	1	0	1	0	13	3	18	22.3	0	11.1	0	277.5	60.3	371.2
T2-48	AW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AX	1	0	2	0	9	3	15	10	0	32.6	0	177	34.1	253.7
T2-48	AY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	AZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	B	0	0	1	0	0	1	2	0	0	13.5	0	0	18.6	32.1
T2-48	BA	0	1	2	0	21	3	27	0	15.8	61.9	0	546.4	46.8	670.9
T2-48	BB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	C	2	0	2	0	3	0	7	32.4	0	25.7	0	57	0	115.1
T2-48	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	E	1	0	0	0	2	1	4	12.2	0	0	0	30.9	13.8	56.9
T2-48	F	1	1	4	0	8	3	17	12.9	17.2	93.9	0	198.8	44.5	367.3
T2-48	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	H	2	0	0	0	2	0	4	22.4	0	0	0	24.4	0	46.8
T2-48	I	2	0	2	0	11	3	18	82.6	0	31	0	320.3	72.6	506.5
T2-48	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	K	2	2	4	1	37	8	54	50.1	24.7	159.4	21	1469	273.9	1998
T2-48	L	0	0	2	0	7	2	11	0	0	92.9	0	178.4	60	331.3
T2-48	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	N	1	0	0	0	2	0	3	41.8	0	0	0	32.3	0	74.1
T2-48	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	Q	2	0	2	0	17	4	25	24.6	0	49.7	0	380.4	136.7	591.4
T2-48	R	0	0	0	0	1	1	2	0	0	0	0	10.6	17.3	27.9
T2-48	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	V	0	0	1	0	1	1	3	0	0	16.4	0	11.8	10	38.2

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-48	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	X	3	0	2	0	4	3	12	67.5	0	120.2	0	61.1	54.8	303.6
T2-48	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-48	Z	4	0	1	0	2	1	8	100.6	0	17.9	0	20.4	19.7	158.6
T2-49	A	0	0	0	0	1	0	1	0	0	0	0	18	0	18
T2-49	B	0	0	0	0	1	0	1	0	0	0	0	15.4	0	15.4
T2-49	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-49	D	0	0	1	0	5	0	6	0	0	13.3	0	167.6	0	180.9
T2-49	E	0	0	0	0	0	1	1	0	0	0	0	0	16.7	16.7
T2-49	F	3	0	7	0	15	4	29	103.6	0	192.7	0	386.1	92.6	775
T2-49	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-49	H	0	0	0	0	1	0	1	0	0	0	0	13.6	0	13.6
T2-49	I	0	1	1	0	3	4	9	0	13.3	16.5	0	34.4	91.3	155.5
T2-49	J	0	0	0	0	0	1	1	0	0	0	0	0	11	11
T2-49	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-49	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-49	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-49	N	0	1	3	0	5	3	12	0	13.2	86.9	0	133.5	66.4	300
T2-49	O	1	0	1	0	1	3	6	20.6	0	14.8	0	55.5	40.6	131.5
T2-49	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-49	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-50	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-50	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-50	C	0	0	1	0	1	1	3	0	0	22.6	0	11	16.9	50.5
T2-50	D	2	0	0	0	5	0	7	29.4	0	0	0	134.7	0	164.1
T2-50	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-50	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-50	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-50	H	1	0	0	0	0	0	1	18.8	0	0	0	0	0	18.8
T2-50	I	2	0	2	0	3	1	8	28	0	29.7	0	71.8	12.9	142.4
T2-50	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-50	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-51	AC	0	0	0	0	2	0	2	0	0	0	0	54.6	0	54.6
T2-52	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	AB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	AE	2	0	1	0	0	3	6	40.2	0	15.6	0	0	36.8	92.6
T2-52	AF	8	3	14	3	11	9	48	192.2	93.6	552	46.9	382.9	220	1488
T2-52	AG	14	11	12	13	10	4	64	440.8	217.9	439.4	509.6	311.4	73.5	1993
T2-52	AH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	AJ	6	0	2	0	9	2	19	231.2	0	36.6	0	172.8	53.7	494.3
T2-52	AK	19	7	12	4	18	8	68	648.6	175.9	262.8	83.3	664.9	161.5	1997

TABLE B-2. COUNT AND INTENSITY KNOCK DATA (Continued)

		Knock Count Numbers							Knock Intensity Numbers						
Test	Point	1	2	3	4	5	6	All 6	1	2	3	4	5	6	All 6
T2-52	AL	0	0	0	0	2	0	2	0	0	0	0	24.3	0	24.3
T2-52	AM	2	0	0	0	1	1	4	45.4	0	0	0	16.1	50.4	111.9
T2-52	AN	7	2	7	1	17	7	41	150.9	34.2	160.7	16.3	425.6	173.1	960.8
T2-52	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	F	1	0	1	1	1	0	4	19.8	0	17	10.6	19.9	0	67.3
T2-52	G	16	8	8	2	19	3	56	785.5	182	181.9	33.1	668	64.5	1915
T2-52	H	0	0	0	0	1	0	1	0	0	0	0	36.1	0	36.1
T2-52	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	M	0	0	0	0	2	0	2	0	0	0	0	47.1	0	47.1
T2-52	N	8	2	5	0	7	4	26	374.9	74.5	232.2	0	377.7	101.6	1161
T2-52	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	U	0	0	0	0	0	1	1	0	0	0	0	0	26.5	26.5
T2-52	V	2	0	1	0	6	1	10	44.6	0	22.8	0	228.5	11.5	307.4
T2-52	W	9	5	6	1	35	5	61	250.5	197.4	147.8	10.6	1694	95.8	2396
T2-52	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2-52	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX C—TEST HISTORY FOR THE LYCOMING IO540 K ENGINE

TABLE C-1. TEST DESCRIPTION, TEST ENGINE OPERATION HOURS, AND CUMULATIVE TEST TIMES

Date	Test No.	Description	Cumulative Engine Time (hrs)	Test Time (hrs)	Comments
1/27/1999	T0-1... 5	Maintenance	0	5.6	
2/11/1999	T1-1	Power baseline	5.6	0.8	
2/11/1999	T1-2	Power baseline	6.4	0.7	
2/11/1999	T1-3	Power baseline	7.1	1.1	
2/23/1999	T0-6	Maintenance	8.2	1.5	
2/23/1999	T1-4	Power baseline after cylinders drilled (aborted)	9.7	0.0	
2/23/1999	T2-1	Octane rating of AN blends	9.7	1.7	
3/23/1999	T0-7	Maintenance	13.4	0.5	
3/24/1999	T0-8	Maintenance	13.9	1.7	
3/25/1999	T2-2	Octane rating of AN blends	15.6	1.0	
3/30/1999	T2-3	Octane rating of AN blends	17.7	1.3	
2/19/2002	T0-0	Maintenance	19	1.1	
2/21/2002	T0-1	Maintenance	20.1	0.1	
2/25/2002	T0-3	Maintenance	20.2	1.1	
2/25/2002	T0-4	Maintenance	21.3	0.6	
2/26/2002	T0-5	Maintenance	21.9	0.4	CAS check run
2/26/2002	T0-6	Maintenance	22.3	0.5	CAS check run
2/26/2002	T0-7	Maintenance	22.8	0.1	CAS check run
2/26/2002	T0-8	Maintenance	22.9	0.1	CAS check run
2/26/2002	T0-9	Maintenance	23	0.3	CAS check run
2/28/2002	T0-10	Maintenance	23.3	0.7	CAS check run
2/28/2002	T0-11	Maintenance	24	0.7	CAS check run.
2/28/2002	T0-12	Maintenance	24.7	0.3	CAS check run. Posttest—cylinder differential pressure check 1 71/80, 2 73/80, 3 70/80, 4 72/80, 5 68/80, and 6 73/80
3/5/2002	T1-1	Power Baseline	25	2.0	
3/12/2002	T2-4	Octane rating of AN blends	27	0.6	CHT 2 low. 90° diff. CHT 5 and CHT 2 shutdown to T/S
3/12/2002	T2-4B	Octane rating of AN blends	27.6	0.4	Checked calibration of CHT on cylinders 2, 4, 5. Replaced 5 with new thermocouple.
3/12/2002	T0-13	Maintenance	28	0.4	Repair crack in cowling.
3/13/2002	T0-14	Maintenance	28.4	0.5	Posttest—replaced oil out hose due to leak.
3/18/2002	T2-5	Octane rating of AN blends	28.9	0.7	

TABLE C-1. TEST DESCRIPTION, TEST ENGINE OPERATION HOURS, AND CUMULATIVE TEST TIMES (Continued)

Date	Test No.	Description	Cumulative Engine Time (hrs)	Test Time (hrs)	Comments
3/18/2002	T2-6	Octane rating of AN blends	29.6	1.5	
3/19/2002	T2-7	Octane rating of AN blends	32.1	1.9	
3/19/2002	T2-8	Octane rating of AN blends	34	2.4	
3/25/2002	T2-9	Octane rating of AN blends	36.4	2.8	
3/25/2002	T2-10	CRC AV1 blends knock test	39.2	1.5	
3/27/2002	T2-11	CRC AV2 blends knock test	40.7	0.4	
3/27/2002	T0-15	Maintenance	41.1	0.4	
3/27/2002	T2-12	CRC AV8 blends knock test	41.5	1.2	
3/27/2002	T2-13	CRC AV8 and AV6 blends knock test	42.7	1.6	
3/28/2002	T2-14	CRC AV7 and AV5 blends knock test	44.3	3.9	
3/28/2002	T2-15	CRC AV4 and AV7 blends knock test	48.2	1.9	Posttest—right AFR sensor boss detached from pipe. Exhaust removed, boss rewelded. Oil and filter changed.
4/1/2002	T2-16	CRC AV2 and AV3 blends knock test	50.1	2.0	
4/8/2002	T2-17	CRC AV1 blends knock test	52.1	1.2	
4/8/2002	T2-18	CRC AV2 blends knock test	53.3	2.1	
4/15/2002	T2-19	CRC AV3 and AV4 blends knock test	55.4	2.6	
4/16/2002	T2-20	CRC AV5 and AV6 blends knock test	58	2.8	
4/16/2002	T2-21	CRC AV7 and AV8 blends knock test	60.8	1.9	
5/1/2002	T0-17	Maintenance	62.7	0.5	Posttest—cylinder differential pressure check cylinders 1 70/80, 2 73/80, 3 79/80, 4 76/80, 5 66/80, and 6 75/80. Cylinders borescoped, checked Mag to engine timing, spark plugs cleaned and regapped.
7/25/2002	T0-18	Maintenance	63.2	0.8	
7/30/2002	T2-22	CRC AV2, 4, 7, and 8 blends knock test	64	1.1	
8/1/2002	T2-23	CRC MO1-MO5 blends knock test	65.1	2.9	
8/1/2002	T2-24	CRC MO1-MO5 blends knock test	68	3.1	

TABLE C-1. TEST DESCRIPTION, TEST ENGINE OPERATION HOURS, AND CUMULATIVE TEST TIMES (Continued)

Date	Test No.	Description	Cumulative Engine Time (hrs)	Test Time (hrs)	Comments
8/5/2002	T0-19	Maintenance	71.1	0.8	
8/14/2002	T2-25	CRC MO6, 7, and 8 blends knock test	71.9	3.3	
9/5/2002	T2-26	CRC MO1-MO8 blends knock test	75.2	0.8	
9/9/2002	T2-27A	CRC MO1, 3, 4, 5, and 6 blends knock test	76	1.4	
9/9/2002	T2-27B	CRC MO1, 3, 4, 5, and 6 blends knock test	77.4	2.3	
9/10/2002	T0-20	Maintenance	79.7	0.3	Posttest—differential press check cylinders 1 72/80, 2 75/80, 3 74/80, 4 76/80, 5 71/80, and 6 73/80, spark plugs clean, gap check good.
9/10/2002	T2-28	CRC AM1-AM4 blends knock test	80	2.9	
9/11/2002	T2-29	CRC AM1-AM4 blends knock test	82.9	4.2	Posttest—light orange color on spark plugs, borescope of cylinders okay
9/17/2002	T2-30	CRC AM5, 6, and 7 blends knock test	87.1	3.0	
9/23/2002	T2-31	CRC MM1, 2, and 3 blends knock test	90.1	3.0	Posttest—replaced right AFR sensor
9/23/2002	T2-32	CRC MM4-MM7 blends knock test	93.1	3.3	
10/2/2002	T2-33	CRC MM4-MM6 blends knock test	96.4	3.3	Posttest—removed and inspected bottom plugs, borescope of cylinders okay
10/8/2002	T2-34	CRC MM3 and MM7 blends knock test	99.7	1.9	
10/8/2002	T2-35	CRC MM1 and MM3 blends knock test	101.6	0.5	Shutdown due to software glitch. Oil and filter changed.
10/10/2002	T2-36	CRC MM2 and MM3 blends knock test	102.1	2.2	
10/10/2002	T2-37	CRC MM1 blends knock test	104.3	1.1	
10/21/2002	T2-38	CRC MM1 and MM2; AM5-AM7 blends knock test	105.4	2.1	
10/21/2002	T2-39	CRC AM1 and AM2 blends knock test	107.5	1.4	Shutdown 15:33:30. Boiler not working.
10/28/2002	T2-40	CRC AM2-AM4 blends knock test	108.9	2.0	
10/28/2002	T2-41	CRC MO1-MO4 blends knock test	110.9	2.1	
	T0-21A	Maintenance	113	0.5	

TABLE C-1. TEST DESCRIPTION, TEST ENGINE OPERATION HOURS, AND CUMULATIVE TEST TIMES (Continued)

Date	Test No.	Description	Cumulative Engine Time (hrs)	Test Time (hrs)	Comments
10/29/2002	T2-42A	CRC MO5-MO8 blends knock test	113.5	2.2	
10/30/2002	T2-43	CRC AV1, 3, 6, and 7 blends knock test	115.7	2.1	Posttest—borescoped cylinders, no defects noted, spark plugs checked for deposits and regapped as necessary.
11/20/2002	T0-21	Maintenance	117.8	0.3	Posttest—performed differential pressure test Cylinders 1 74/80, 2 76/80, 3 74/80, 4 75/80, 5 66/80, and 6 75/80
12/9/2002	T2-44	CRC AN5-AN9 blends knock test	118.1	3.6	
12/9/2002	T2-45	CRC AN1-AN4, PRF blends knock test	121.7	2.7	
12/10/2002	T2-46	CRC MON 96, 97, 98, 99, and 100 octane rating	124.4	2.4	
12/10/2002	T2-46A	CRC MON 96 octane rating	126.8	1.3	
12/11/2002	T2-47	CRC 105 to 109 AN octane rating	128.1	2.4	
12/11/2002	T2-47A	CRC 105 to 109 AN octane rating	130.5	1.3	
12/12/2002	T2-48	CRC 101 to 104 AN, ISO PRF octane rating	131.8	2.9	
12/12/2002	T2-48A	CRC MON 96, 97, 98, and 99 octane rating	134.7	1.9	
12/16/2002	T2-49	CRC MON 96, 97, 98, and 99 octane rating	136.6	2.2	
12/18/2002	T0-22	Maintenance	138.8	0.6	Posttest—borescope inspection and differential pressure check cylinders 1 70/80, 2 77/80, 3 74/80, 4 73/80, 5 74/80, and 6 72/80
4/14/2003	T2-50	CRC AV5, and AV7 blends knock test; 106 to 108 AN octane rating	139.4	1.9	
4/14/2003	T2-51		141.3	1.3	
4/14/2003	T5-1	100LL 30 min at cruise lead memory	142.6	1.4	
4/15/2003	T2-52	100LL knock test	144	2.6	

TABLE C-1. TEST DESCRIPTION, TEST ENGINE OPERATION HOURS, AND CUMULATIVE TEST TIMES (Continued)

Date	Test No.	Description	Cumulative Engine Time (hrs)	Test Time (hrs)	Comments
7/14/2003	T0-23	Maintenance	146.6	1.6	Posttest—oil and filter changed. Plugs cleaned, gapped, and rotated. Borescope performed. Differential pressure check cylinders 1 64/80, 2 67/80, 3 69/80, 4 70/80, 5 65/80, and 6 70/80

APPENDIX D—PROPERTY DATA

TABLE D-1. INDIVIDUAL MATRIX BLEND COMPONENT PROPERTY DATA

ASTM Test	Property	Aviation Alkylate	Motor Alkylate	Super Alkylate	Toluene	ETBE	Ethanol	m-Toluidine
D 4052	Density, 15.56, kg/L	0.6917	0.6912	0.6997	0.8710	0.7465	0.7939	0.9925
	API gravity (degree)	72.9	73.0	70.5	30.8	57.9	46.6	10.9
D 5191	Vapor pressure, DVPE, kPa	39.3	53.5	12.5	6.23	30.4	15.2	< 1
	psi (= kPa/6.894757)	5.70	7.76	1.81	0.90	4.41	2.20	< 0.1
D 2700	Motor octane number	91.1	89.7	99.7	108.3	98.2	88.6	
D 2622	Sulfur, mass (%)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	
E 1064	Water content, mass (%)					0.0486	0.332	
D 2360	Toluene content, mass (%)				99.88			
D 5441*	ETBE content, mass (%)					96.64		
D 5501	Ethanol content, mass (%)						99.61	
D 850	Distillation range, °C				0.5			
D 86	Distillation, percent evaporated, °C							
	IBP	40.0	43.0	97.0		68.0		
	5	61.0	51.0	98.0		70.0		
	10	75.0	60.0	98.0		71.0		
	20	84.5	75.0	98.5		72.0		
	30	91.5	87.0	99.0		73.0		
	40	95.5	95.0	99.5		73.0		
	50	98.0	99.0	100.0	110.6	73.5	78.0 (lit.)	203-4 (lit.)
	60	100.5	103.0	100.5		73.5		
	70	103.0	107.0	102.0		74.0		
	80	106.0	113.5	103.5		74.5		
	90	113.0	128.0	111.5		76.0		
	95	125.0	157.5	161.5		78.5		
	End	151.5	193.5	187.0		101.5		
	Recovered (%)	97.9	98.0	99.0		99.0		
	Residue (%)	0.9	1.0	0.2		0.5		
	Loss (%)	1.2	1.0	0.8		0.5		
D 850	IBP				110.2			
	5				110.4			
	10				110.4			
	20				110.4			
	30				110.4			
	40				110.5			
	50				110.6			
	60				110.6			
	70				110.6			
	80				110.6			
	90				110.6			
	95				110.6			
	Dry				110.7			

lit. = liter

APPENDIX E—TERA-ETHYL LEAD COMPOSITION OF LEADED REFERENCE FUELS

TABLE E-1. TETRA-ETHYL LEAD ADDITION PER GALLON FOR EACH MON BLEND

Drum No.	TEL Added per Gallon (ml)	Motor Octane Number
1	0.076	101.02
2	0.161	102.04
3	0.247	102.97
4	0.353	104.01
5	0.469	105.02
6	0.595	106.00
7	0.737	106.99
8	0.902	108.02
9	1.088	109.05
10	1.285	110.01