Appendix A

Improved Measurement of Chase Car Speed

IMPROVED MEASUREMENT OF CHASE CAR SPEED

Initial efforts to measure chase car speed relied on a hybrid digital/analog/digital system. This approach and the difficulties encountered when using it at low speeds (less than about 10 mph) under very low accelerations are described below. Also described are the independent measurements of vehicle acceleration that have been used as a quality assurance check on the chase car's speed data and, where necessary, to provide substitute estimates of speed over brief intervals (ten consecutive seconds or less).

In order to minimize the potential for errors, a revised approach has been developed for speed measurement. Unlike the original hybrid approach, the revised approach is digital in nature, relying upon counting measurements of drive shaft revolution. Based on testing and on-road measurement experience, the revised system is more accurate and reliable for characterizing low-speed chase car operation. At moderate and high speeds, i.e., above about 10 mph, both methods have yielded comparable speed measurements. The revised speed measurement method appears to obviate the need for significant substitution of accelerometer-based speed estimates, and provides more reliable measurements at low speeds.

Original Digital/Analog/Digital Hybrid Approach

Description - The original speed measurement system used for the chase car involved measuring the output from the OEM speed sensor that is located on the transmission housing of the chase vehicle. The speed sensor operates on the principle of a variable reluctance pickup coil. A toothed gear rotating inside the transmission moves past a stationary pickup coil, creating a series of variable reluctance pulses. While this is a common type of commercial speed sensor for vehicles, the pulse frequency may vary substantially between makes and models. For the chase car used in this study, a 1991 Chevrolet Caprice sedan, the sensor generates 4,000 pulses per mile[1*]. Another 1991 General Motors vehicle, the Lumina, uses a sensor that generates about 40,000 pulses per mile, about ten times the number generated by the sensor in the Caprice[2].

A custom circuit, based on the use of a frequency-to-voltage converter, has been used to convert the stream of pulses to a digital voltage of between 0 and 5 volts that is proportional to the frequency of pulses. Following conversion, the DC voltage is sampled and measured by an analog-to-digital converter at a rate of 1 hertz, and the resulting data are stored in a laptop computer. This digital-to-analog conversion

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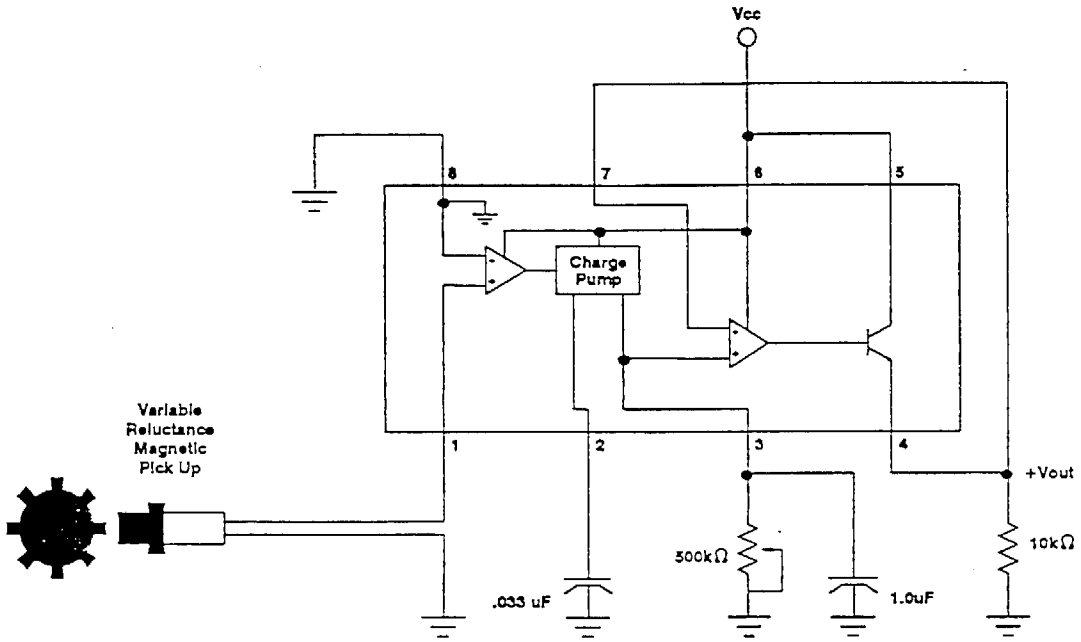
* Superscripts denote references listed at end of text.

circuit, shown in Figure 1, centers around the use of a frequency-to-voltage converter integrated circuit, number LM2907. External components have been selected in consideration of design limitations, primarily to minimize "ripple" voltage without causing excessive voltage "lag" at the output[3]. A similar circuit has been used successfully in a 1991 Chevrolet Lumina. However, because the speed sensor in the Lumina produces more pulses per mile than that in the Caprice, the interface circuit used to measure speed in the Lumina has a different selection of external components.

Figure 1

Hybrid Digital-to-Analog Conversion Circuit



Calibration and Testing - The test circuit for measuring the chase car's speed was calibrated by driving over a known distance and recording the digitized DC voltages generated by the circuit. In the calibration work and in actual field studies conducted in Sacramento, Los Angeles and Baltimore, the analog-to-digital conversion was performed using a Keithley Metrabyte analog-to-digital (A/D) conversion board, model DAS-8, which supports 8 channels of analog input and 3 channels of digital input, with an on-board counter/timer IC. The A/D board was installed in a Packintell laptop computer which served as the data logger. This laptop PC, which is designed around a 286 microprocessor chip, was chosen in part because it offers two slots for plug-in boards. One slot is used for the A/D conversion board and the other for a battery-backed static RAM board (Curtis ROMdisk, Curtis Manufacturing, Inc.) to provide data storage on a nonvolatile medium without the need for moving parts, i.e., a nonvolatile RAM-disk. The software used for

control of the A/D convertor board and for data acquisition is Labtech Notebook.

Calibration was performed at a nominal speed of 60 mph by driving over a highway route of known length, approximately 7.5 miles. Calibration was checked using the same test course before and after deploying the chase car in the field and was found to be unchanged. Testing at lower speeds (25 mph and 45 mph) showed that DC output voltages varied linearly with speed within the precision of the A/D board.

A minor problem of voltage drift was found to occur at idle, resulting in indicated speeds that varied typically within plus or minus 0.2 mph when the vehicle was stopped. This variation, corresponding to electrical noise at a level of about 0.01 volts, did not affect the project goal of being able to measure vehicle speed within 1 mph. However, to minimize the effect of this drift, two measures were taken. First, a procedure was adopted to routinely check indicated speed at idle and to recalibrate the A/D voltage offset for speed if the absolute value of the indicated speed exceeded 0.5 mph. Secondly, the software used to analyze chase car speed data was coded to interpret all speeds less than 0.5 mph as zero speed.

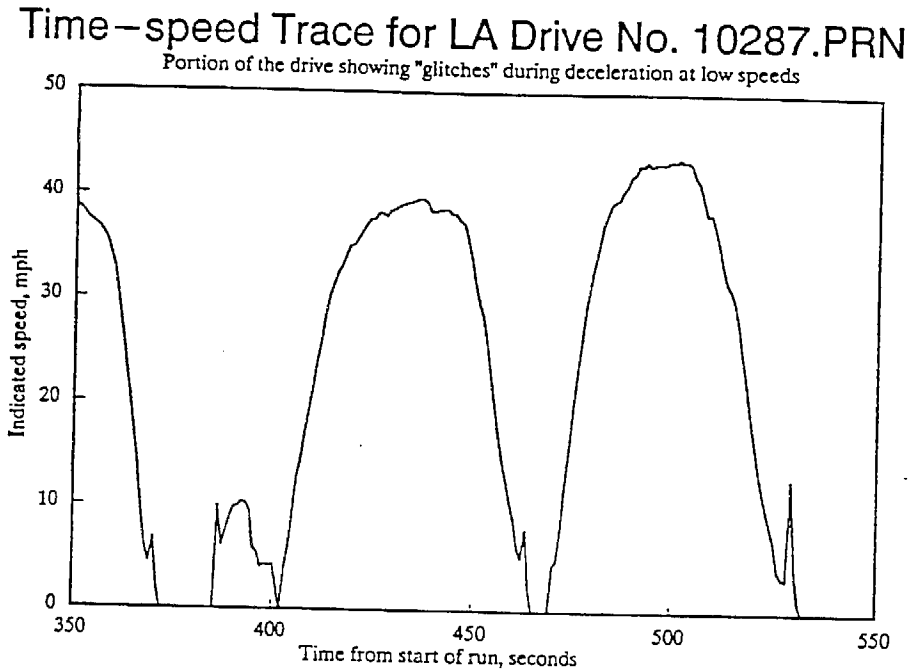
Results and Quality Assurance - The hybrid speed measurement approach was found, in both test driving and field measurement activities, to provide accurate and reliable speed measurements under most, but not all, conditions. This section describes the problems encountered with the hybrid speed measurement approach and the solutions that were developed.

The first indication of a problem occurred in pilot field testing in Los Angeles where it was found that time-speed traces occasionally showed unexpected minor "glitches," or deviations from smooth traces. This type of anomaly is illustrated in the sample trace shown in Figure 2. Although the cause of such variations is unknown, the variations are not believed to be a serious problem for three reasons.

First, the anomalies observed were, while noticeable, consistently small in magnitude, and did not appear to jeopardize the desired speed measurement accuracy of 1 mph. Second, the anomalies were relatively infrequent, typically being seen in less than 1 percent of the observations and only when the chase car was at relatively low speeds (under about 20 mph) and was decelerating or accelerating. Finally, the availability of accelerometer measurements on board the test vehicle offered the potential for substitute estimates of vehicle speed over short intervals, if that were found to be necessary.

Based on the substantially successful pilot testing in Los Angeles, the chase car was deployed in Baltimore, Maryland, to collect data on driving in a northeastern city under a separate contract with EPA.

Figure 2



Approximately 240 routes were driven in Baltimore. Examination of data from these routes confirmed the presence of a similar type of minor anomaly as had been seen in data from Los Angeles. Accordingly, an approach was adopted, as described below, to screen data and to provide substitute speed estimates, based on accelerometer measurements, when the measurements from the speed circuitry were suspect.

Chase car speed data from Baltimore driving routes were screened by four test procedures. The first three data screens were objective, being performed through software. The fourth check was subjective, by a human reviewer. The four checks provided a means to identify suspect data through two basic approaches. First, considering the time series of speed measurements, potentially unrealistic accelerations were identified, i.e., accelerations or decelerations in the indicated speed range that were beyond the capability of even high-performance vehicles. Runs with one or more excessive accelerations were flagged as questionable.

Next, speed measurements were smoothed using a digital filter and the raw data were compared with the smoothed data. Raw data that appeared from this comparison as one- or two-second long anomalies at low speed, i.e., suspected "glitches", were replaced by the smoothed data values and the process was repeated to ensure ample opportunity for identifying and correcting short duration anomalies of the type previously described. A third iteration was then performed to test for, but not replace, any remaining anomalies. Runs that failed this third test were also flagged as "questionable." Finally, all speed data were plotted in

hard copy and each time-speed trace was reviewed manually to determine if significant anomalies existed in the data.

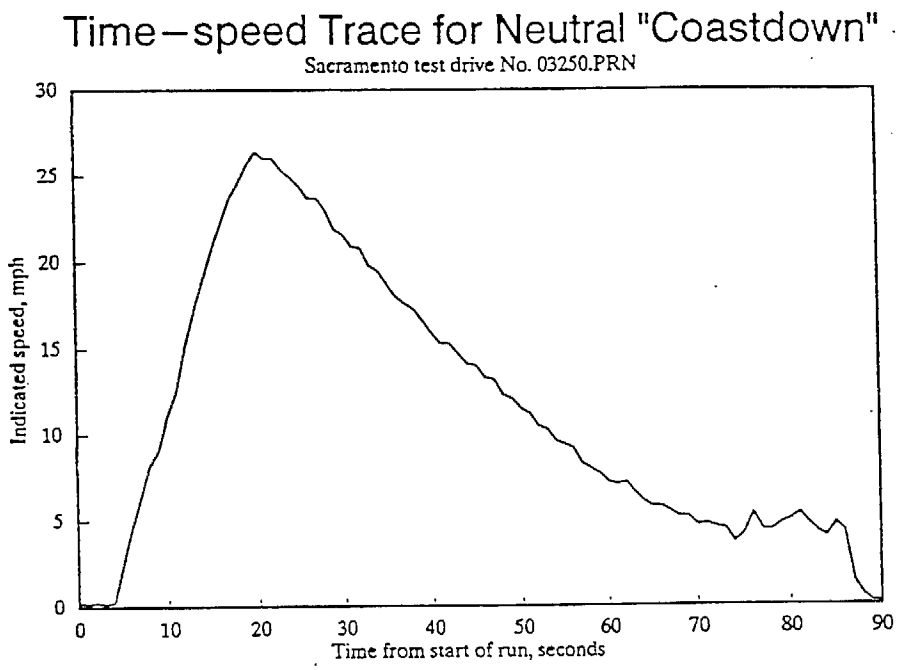
Where anomalies were found in time-speed traces during accelerations from zero speed or deceleration to zero speed, alternative accelerometer-based estimates of chase car speed were substituted for speed measurements. The approach used to estimate speed based on accelerometer measurements is as follows.

Substitute speed measurements were used where an anomaly was observed and for all speed measurements up to ten seconds before and after, but only up to indicated speeds of 10 mph. Substitute speed measurements were calculated using the measured average acceleration over each second, corrected by the acceleration component due to gravity that is determined when the vehicle is at rest. The calculations were performed both forward and backward in time, from the occurrence of the anomaly to the point where the indicated speed is above 10 mph (where the speed measurements are assumed to be correct) and where the indicated speed is less than 0.5 mph (which is indistinguishable from zero speed). A weighted average of the two measurements was computed for each second, with the weighting proportional to how near the calculated speed was to the starting point. This weighting technique was used because accelerometer-based speed measurements are subject to cumulative errors as the estimates are made increasingly further from the initial point where the speed is known, in this case, either the point above 10 mph or when the vehicle is at rest. Typically, at about 5 mph, the two estimates were equally weighted.

All questionable runs were then again examined manually, this time referring as necessary to videotapes of the run to confirm vehicle movements qualitatively. Minor edits (up to 5 consecutive seconds) were performed on the speed data, using accelerometer data as a guide, to correct any further anomalies that were identified. Where corrections could not be made unambiguously, e.g., where grade changes apparently occurred around questionable speed data or where the duration of consecutive questionable speed measurements exceeded 5 seconds, the run was set aside as still questionable and no further use was made of the data. About 10 percent of the runs from Baltimore were set aside due to questionable speed data, lack of targets, laser range finder malfunction, or other reasons (e.g., loose connection, loss of the route by the drive team, etc.).

In the process of testing the capability of using accelerometer measurements to provide substitute speed estimates, a second speed measurement problem was discovered. Under the artificial condition of a slow "coastdown" from modest speed (25-30 mph) on a nearly level road, with the transmission in neutral, the indicated speeds were seen to decline smoothly down to the range of 5-10 mph, and then to increase abruptly to as much as 20 mph. This was followed by a sharp drop to zero when the chase car stopped. This behavior is illustrated in Figure 3, which shows indicated speeds during about 1½ minutes of neutral coastdown from a nominal speed of 25 mph.

Figure 3



Although this type of driving on-road would be highly unusual, and such a serious anomaly has not been observed in field testing with the transmission in "drive" and under normal driving patterns, the possibility that significant speed measurement artifacts might occur at low speeds combined with low accelerations cannot be dismissed. Accordingly, it was decided to pursue a more reliable approach to chase car speed measurement. That approach and the results from it are described in the next section.

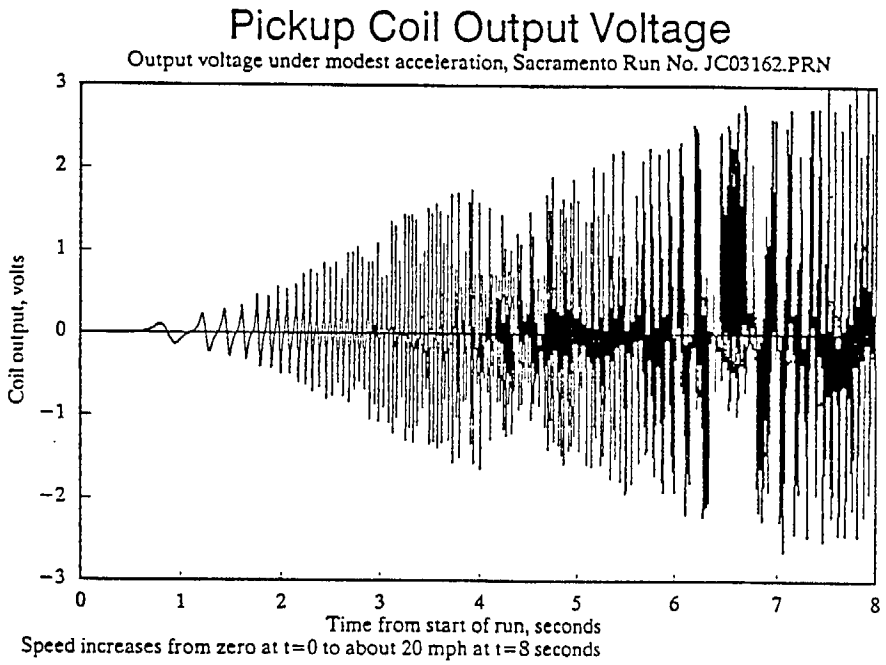
Revised Digital/Counting Approach for Speed Measurement

Design - An approach was sought that would meet the original goal of measuring chase car speed to within 1 mph, but would also alleviate the problems observed with the hybrid speed measurement approach, namely, intermittent data anomalies and "glitches" that occurred under conditions of low speed and low acceleration/deceleration. In addition, it was desirable to avoid the need to check for correct zero speed and speed calibration as a result of converting a digital signal to analog and then back to digital. In short, a direct digital measurement approach was sought.

To avoid potential interference problems of using the OEM speed sensor and to provide the greatest flexibility, an aftermarket speed sensor was purchased and installed in the chase car. The aftermarket sensor relies upon a set of 2 to 8 magnets installed on the drive shaft of the vehicle to provide voltage pulses in a pickup coil installed nearby.

The output from the pickup coil was sampled at a frequency of 100 hertz, using the existing A/D board and data acquisition system as a digital oscilloscope. A sample trace of pickup coil output voltage versus time (8 seconds) over a modest acceleration up to about 20 mph, is shown in Figure 4. The trace reflects the fact that a pulse is generated each time a magnet on the drive shaft passes the pickup coil and that both voltage and frequency of the output signal vary with speed. In order to minimize potential measurement and calibration errors, it was decided to use the counter/timer chip on the A/D card to count pulses. However, it was first necessary to convert all pulses to the appropriate voltage levels which, for the counter chip used, means TTL (transistor-transistor logic) levels of about 0 to 5 volts. To do this, a custom interface circuit was devised. The schematic for this circuit is shown in Figure 5.

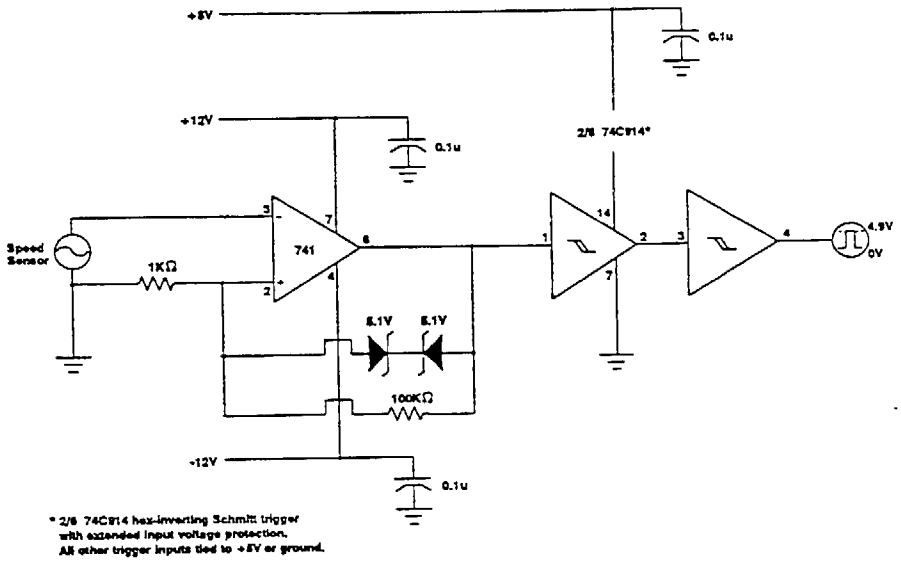
Figure 4



The circuit consists of two stages, each supported by one integrated circuit chip and ancillary components. The first stage is a non-inverting amplifier having a gain of about 100. This stage of the circuit relies on a general purpose, dual power supply op-amp contained in the integrated circuit (type 741). Two zener diodes in a feedback loop clip the output voltage, limiting voltage swings to plus or minus 5.1 volts. At the design level of amplification, about 100, pulses as low as about 0.024 volts generated by passage of a magnet past the pickup coil would be amplified to 2.4 volts and counted as logic "one"

Figure 5

Sierra Research Speed Sensor Conditioning Circuit



signals, thus counting each passage of a magnet by the coil. The tire circumference and gear ratio could then be used, in principle without any further calibration, to infer average speed each second from the number of counts observed. Unfortunately, this simple one-stage circuit was found not to work.

In initial testing, only this part of the circuit was used, but it was found that at low speed and when revving the engine at idle, electrical noise that apparently exceeded the TTL threshold (about 2.4 volts) resulted in spurious measurements below about 20 mph. Reducing the gain resulted in reduction in noise, but it also limited the sensitivity of the circuit to detect low speeds as the signal level was also reduced below the TTL threshold. Two steps were taken to reduce the susceptibility of the system to electrical noise. First, a shielded cable was installed between the coil and the interface circuitry (which, like the laptop computer, was located inside the passenger compartment of the vehicle). This eliminated some of the noise, primarily that associated with the secondary ignition circuit, as evidenced by the fact that revving the engine no longer generated spurious counts. The next step required providing greater noise immunity. This was accomplished by using a Schmitt trigger.

A second stage, consisting of a CMOS Schmitt trigger with extended input voltage range, IC type MM74C914, was added to the circuit. Two gates of the hex Schmitt trigger integrated circuit were used with a single-ended 5-volt power supply, as shown in Figure 5. The Schmitt trigger circuit provides additional noise immunity by triggering "on" at a preset threshold voltage, set here by the choice of power supply voltage to be

in the range between 3–5 volts, and not resetting "off" until a lower voltage is first reached, in this case about 1–2 volts. Thus, noise signals of less than about 0.01–0.02 volts, which would be amplified to about 1–2 volts in the first stage, would be effectively screened by the Schmitt trigger. As subsequent testing has shown, this circuit provided the additional electrical noise immunity needed to ensure reliable TTL pulse counting down to the lowest speeds measurable.

Calibration and Testing – In principle, the digital/counting approach to speed measurement is not a speed measurement at all, but rather a distance measurement. As configured, the data logging program polls the counter on the A/D board once per second to determine the number of pulses observed in the previous second, i.e., the number of times that a magnet has passed the pickup coil. The number of magnet passages past the coil is four times the number of revolutions of the drive shaft which, based on the rear axle ratio, is 3.08[4] times the number of revolutions of the rear axle. Assuming no tire slip (none has been observed to date with the chase car even under the hardest accelerations; anti-lock brakes are standard equipment for this vehicle, ensuring negligible tire slip with even the most severe braking) and using a measured tire circumference of about 83 inches, the nominal pulse rate at 60 mph for this system is as follows:

$$\text{frequency} = 60 \text{ mph} \times \frac{88 \text{ ft/sec}}{60 \text{ miles/hr}} \times \frac{12 \text{ inches}}{\text{foot}} \times \frac{\text{wheel revol.}}{83 \text{ inches}} \times \frac{3.08 \text{ dr.shft.revs.}}{\text{wheel revolution}} \times \frac{4 \text{ pulses}}{\text{dr.shft.rev.}}$$

$$= 157/\text{sec}$$

Measurements at a nominal speed of 60 mph over a fixed-length highway drive, the same drive used to calibrate the original hybrid speed sensor, confirm an actual pulse count of approximately this number, with slight deviation due to an effective tire circumference slightly different from the 83 inches measured. This frequency-to-speed relationship implies a minimum measurable speed (corresponding to one pulse per second) of:

$$\text{min. speed (mph)} = 1 \frac{\text{pulse}}{\text{sec}} \times \frac{60 \text{ mph}}{157 \text{ pulses/sec}}$$

$$= 0.38 \text{ mph}$$

which is also the precision of speed measurements.

It should be noted that speeds measured in this manner represent average speeds over the second rather than instantaneous speeds. However, the focus of the current project is to accurately represent major speed

deviations, for which it is not necessary to characterize speed deviations that occur over a time interval of less than one second.

Measurement Results – The digital/counting approach to speed measurement has been subjected to calibration measurements at highway speed; a series of light to hard accelerations and decelerations, including a neutral coastdown; and to three days of field data collection in Los Angeles driving. To date, all of the data analyzed from this test driving have provided positive results, devoid, as best can be determined, of any significant artifactual speed influences or significant biases.

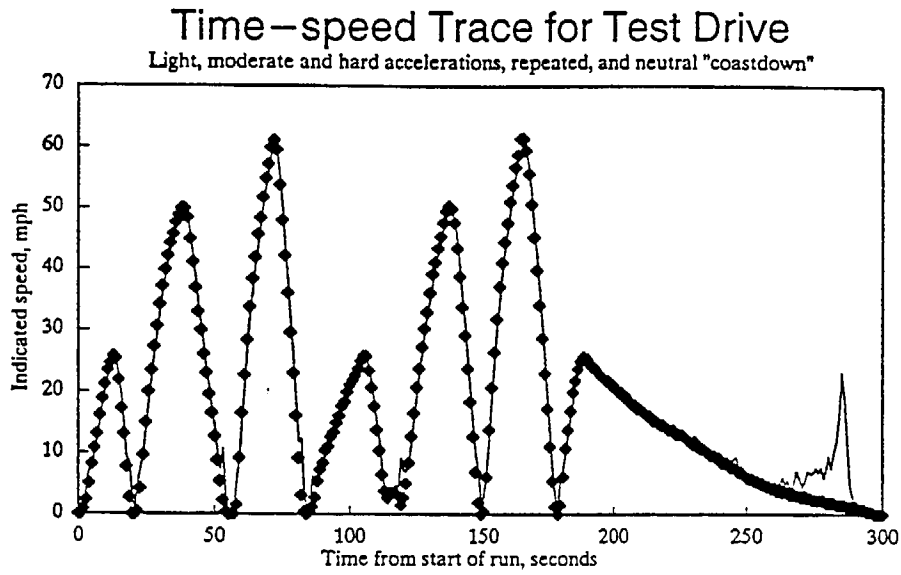
Figure 6 shows the time-speed trace from a series of six acceleration/deceleration cycles, followed by a neutral coastdown from a nominal speed of 25 mph. For comparison, this figure also shows the speed measurements from the original hybrid speed sensor. At all moderate to high speeds, the two sensors provide virtually identical readings. However, toward the end of the neutral coastdown, only the digital/counter-based speed measurements are consistent with a smooth coastdown to zero, whereas the hybrid speed sensor shows spurious results under this test condition. Review of the actual speed measurements, shown in Table 1, confirms that unlike the original hybrid speed sensor, the digital/counter approach provides, within the stated limit of precision of 0.38 mph, a smooth monotonic speed decrease to zero mph.

Figure 7 shows the time-speed trace from both sensors for a selected drive route, LA Run No. 040710.PRN. For brevity, only the first 200 seconds of the run are shown in the figure. As in the previous example, the two time speed traces match overall for virtually all measurements at moderate and high speeds. However, at low speed under low acceleration or deceleration, the signal from the original speed sensor deviates from that of the digital/counter type speed sensor.

Figure 8 and Table 2 show additional data for a selected time slot of 20 seconds duration within this same trip. The figure and table each show the results from a set of four simultaneous speed measurements. These are: the original/hybrid speed sensor, the digital/counter speed sensor, speeds estimated from accelerometer data (using the stop point near the middle of the run as an anchor for measurements of change in speed), and laser-based speeds. The latter rely upon the use of a stationary target that was being approached by the chase car throughout the period of deceleration. Also shown in the figure is a horizontal line denoting where the brake was applied during deceleration, and where braking was terminated just before acceleration.

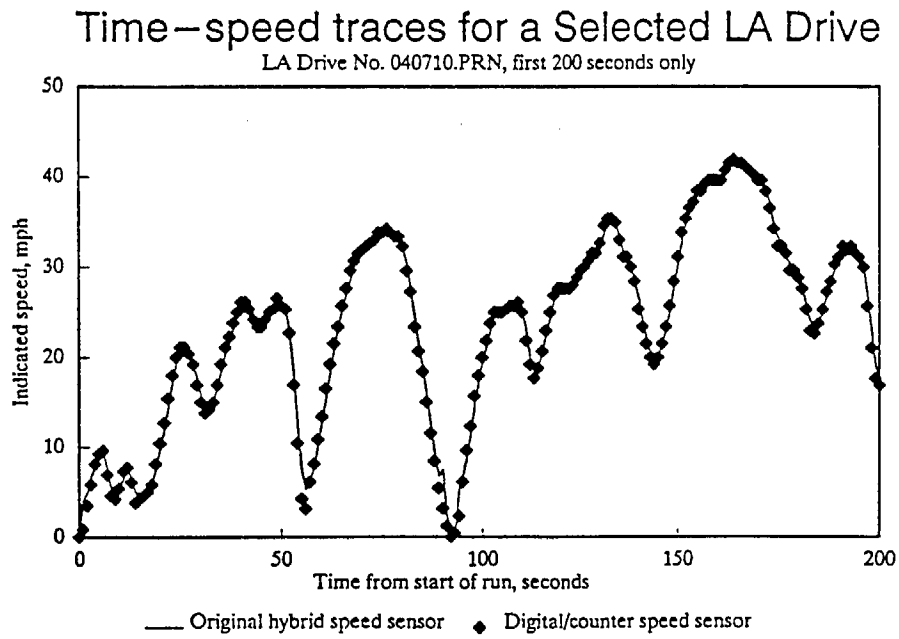
Examination of these data shows that at medium and high speeds (above about 10 mph), all four methods yielded values for speed that were within 1.2 mph of each other. Typically, the agreement was within 1 mph. Below 10 mph, the original speed sensor shows a deviation ("glitch") at about 90 seconds, suggesting a brief increase in speed during the otherwise smooth deceleration. A similar, though less severe, "glitch" is seen at second 94 when the chase car accelerates.

Figure 6



Davis test run No. 04029.PRN
Number of Observations=301

Figure 7

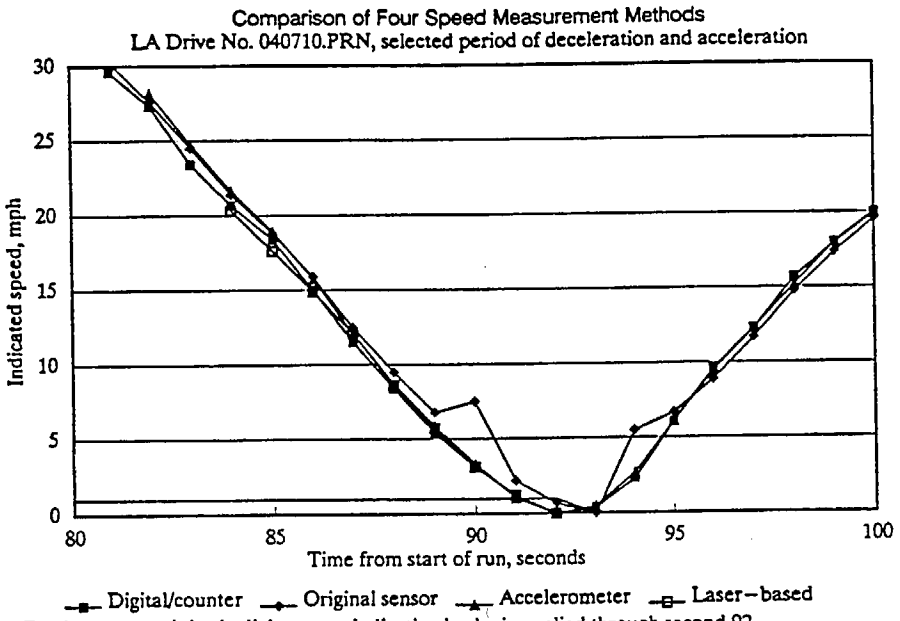


Note small "glitch" in data from original sensor at t=90 seconds.

TABLE 1 - END PORTION OF NEUTRAL COASTDOWN, DAVIS RUN NO. 04029.PRN

Time from start of Run (seconds)	Indicated speeds, in mph, from: Original Hybrid Speed sensor	Digital/counter Speed sensor
252	5.9	5.8
253	6.1	5.4
254	5.7	5.4
255	6.1	5.0
256	5.0	5.0
257	5.0	4.6
258	4.9	4.6
259	4.3	4.2
260	5.5	4.2
261	4.9	3.8
262	5.2	4.2
263	6.1	3.5
264	5.0	3.8
265	5.6	3.5
266	4.2	3.1
267	4.7	3.5
268	7.2	3.1
269	6.2	3.1
270	4.5	2.7
271	5.4	3.1
272	7.1	2.7
273	6.8	2.7
274	6.8	2.3
275	7.7	2.3
276	6.9	2.3
277	7.7	2.3
278	6.0	2.3
279	7.4	1.9
280	9.6	1.9
281	7.5	1.9
282	10.2	1.9
283	12.1	1.5
284	16.0	1.5
285	23.2	1.5
286	19.0	1.5
287	11.1	1.2
288	4.7	1.2
289	2.5	1.2
290	0.9	1.2
291	0.2	0.8
292	0.1	0.8
293	0.1	0.8
294	0.2	0.4
295	0.2	0.4
296	0.1	0.4
297	0.1	0.0
298	0.2	0.0
299	0.2	0.0

Figure 8



Flat lower curve is brake light sensor indicating brake is applied through second 92.
Laser-based data are for deceleration only (readings taken from stationary target ahead).

Review of the videotape from this trip segment confirms that the chase car was decelerating smoothly up to second 92, as represented by the signals from the digital/counter sensor, the accelerometer and by the laser. The chase car did not appear to experience an acceleration at second 90. That deviation in the signal from the original speed sensor, as well as the deviation that is seen at second 94 during the acceleration, are, it is concluded, measurement artifacts. Similar artifacts can be found in chase car data speed measurements at low speed (under 10 mph) in the field data collected in both Los Angeles and Baltimore driving.

The agreement of the three other independent speed measurements under deceleration and (for two methods) the agreement during acceleration, along with the qualitative confirmation from the videotape of smooth deceleration and acceleration, tend to confirm the validity of speed measurements from the digital/counter speed sensor.

Conclusions

A hybrid digital/analog/digital approach for measuring chase car speed was used successfully at moderate and high speeds, but was found to exhibit unreliable behavior under certain conditions of low speed and low acceleration/deceleration. A revised method for speed measurement has been developed that relies upon a digital/counter approach. Accuracy of the digital/counter approach has been confirmed by comparing results from two independent approaches to speed measurement, using accelerometer data and using laser range data. At moderate and high

Table 2

Comparison of Speed Measurements from Four Independent Devices

Seconds after start of run	Original Hybrid Sensor in mph	Digital Counter Sensor in mph	Accelerometer-based speeds in mph	Laser-based speeds in mph
80	32.1	32.3	NA	0
81	30.3	29.6	NA	0
82	27.6	27.3	28.2	0
83	24.5	23.4	24.8	0
84	21.4	20.7	21.7	20.3
85	18.8	18.4	18.9	17.6
86	15.9	15	15.7	14.9
87	12.5	11.5	12.1	12.1
88	9.5	8.4	8.7	8.6
89	6.8	5.4	5.9	5.7
90	7.5	3.1	3.3	3.1
91	2.2	1.2	1.1	1.2
92	0.7	0	0 (see Note 2)	NA
93	0	0.4	0.5	NA
94	5.5	2.3	2.7	NA
95	6.7	6.1	6.1	NA
96	8.9	9.6	9.5	NA
97	11.7	12.3	12.3	NA
98	14.8	15.7	15.2	NA
99	17.4	18	18.0	NA
100	19.6	20	20.1	NA

NOTES:
1. "NA" means not applicable.
2. Accelerometer-based estimates assume speed is zero from time t=91 to t=92 seconds.
3. Laser-based speed estimates are for deceleration only, as they rely on having a stationary target.

speeds, i.e., above about 10 mph, the original hybrid approach and the digital/counter approach yield comparable speed measurements.

The digital/counter approach to speed measurement provides more reliable speed data at low speeds than the hybrid measurement approach. It also obviates the need to test for incorrect speed measurement data and substitute accelerometer-based speed estimates, as was necessary using the hybrid approach.

References

1. 1991 Chevrolet Caprice Service Manual, ST 329-91, General Motors Corp.

2. Personal communication with Paul Van Valkenburgh, September 1991.

3. Ibid. Paul Van Valkenburgh.

4. 1991 Chevrolet Caprice, GM sales brochure No. 5045, July 1990.

Appendix B

Detailed Summaries of Trip Ends Data

07/28/92

Sacramento trip-ends data : AREA 1 - Arden/Arcade

START-UP

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
12	4.46%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
18	6.69%	On Street Res.	20	84.24	5.64	20	73.70	4.93	4	6.97	0.09	19	9.62	0.61	0	0.00	0.00
34	12.64%	Res Garage	9	92.35	11.67	9	59.80	7.56	9	25.76	3.26	9	6.79	0.86	0	0.00	0.00
36	13.38%	Res Driveway	39	57.98	7.76	39	39.26	5.25	35	13.60	1.63	37	6.72	0.85	1	5.39	0.02
15	5.58%	Res Parking Space	68	62.14	3.47	68	22.29	1.24	65	9.57	0.51	68	23.52	1.31	37	13.21	0.40
14	5.20%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
2	0.74%	Drive-Thru Window	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
7	2.60%	Gas Station Pump	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
17	6.32%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
3	1.12%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
109	40.52%	Shopping	60	113.87	46.14	60	20.80	8.43	45	10.51	3.19	59	64.81	25.82	35	36.80	8.70
2	0.74%	Other	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
269		TOTALS =	196	410.58	74.67	196	215.85	0.00	158	66.41	8.69	192	111.46	29.46	73	55.40	9.12

EXIT ROADWAY

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
13	4.83%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
21	7.81%	On Street Res.	11	16.08	1.26	11	7.46	0.58	3	9.97	0.21	11	5.90	0.46	0	0.00	0.00
31	11.52%	Res Garage	9	15.36	1.77	9	4.23	0.49	0	0.00	0.00	9	11.14	1.28	0	0.00	0.00
37	13.75%	Res Driveway	20	14.77	2.03	20	5.61	0.77	1	28.72	0.20	19	7.52	0.98	1	11.67	0.08
12	4.46%	Res Parking Space	46	26.98	1.20	46	4.72	0.00	6	7.07	0.04	46	21.20	0.95	1	6.62	0.01
14	5.20%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
2	0.74%	Drive-Thru Window	11	251.34	1.87	0	0.00	0.00	0	0.00	0.00	11	32.52	0.24	11	218.81	1.63
7	2.60%	Gas Station Pump	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
17	6.32%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
3	1.12%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
111	41.26%	Shopping	59	81.35	33.57	52	4.94	1.80	6	8.71	0.37	59	71.47	29.49	18	15.18	1.91
1	0.37%	Other	9	29.51	0.11	9	4.83	0.02	9	8.71	0.03	9	13.41	0.05	9	5.71	0.02
269		TOTALS =	165	435.39	41.81	147	31.79	3.66	25	63.18	0.85	164	163.16	33.46	40	257.99	3.65

07/28/92

Sacramento trip-ends data : AREA 2 - Sacramento City, Downtown, Citrus Heights

START-UP

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
12	4.46%	On Street	54	18.18	0.81	54	9.91	0.44	20	5.35	0.09	19	4.84	0.08	27	9.18	0.20
18	6.69%	On Street Res.	50	80.11	5.36	50	63.19	4.23	23	10.25	0.32	47	12.84	0.81	1	7.00	0.01
34	12.64%	Res Garage	17	76.01	9.61	17	43.80	5.54	15	20.71	2.31	17	13.93	1.76	0	0.00	0.00
36	13.38%	Res Driveway	59	85.39	11.43	59	65.16	8.72	48	16.27	1.77	56	7.36	0.93	0	0.00	0.00
15	5.58%	Res Parking Space	32	66.17	3.69	32	27.42	1.53	30	10.40	0.54	32	24.31	1.36	3	50.03	0.26
14	5.20%	Employee Parking	343	51.83	2.70	343	18.79	0.98	261	10.06	0.40	342	21.13	1.10	104	14.24	0.22
2	0.74%	Drive-Thru Window	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
7	2.60%	Gas Station Pump	7	32.79	0.85	7	6.07	0.16	1	11.84	0.04	7	17.17	0.45	4	13.76	0.20
17	6.32%	Commercial Lot	343	51.83	3.28	343	18.79	1.19	221	10.06	0.41	342	21.13	1.33	104	14.24	0.27
3	1.12%	Parking Garage	221	110.05	1.23	221	14.32	0.16	203	10.33	0.11	221	56.67	0.63	196	33.34	0.33
109	40.52%	Shopping	119	65.28	26.45	119	13.72	5.56	99	11.40	3.84	118	32.84	13.20	65	17.42	3.86
2	0.74%	Other	48	75.45	0.56	48	28.88	0.21	34	10.79	0.06	48	31.82	0.24	19	17.97	0.05
269	1	TOTALS =	950	713.09	65.96	950	310.05	0.00	734	127.46	9.89	907	244.04	21.87	419	177.18	5.42

EXIT ROADWAY

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
13	4.83%	On Street	47	23.74	1.15	33	6.09	0.21	30	15.51	0.48	44	9.91	0.45	2	6.61	0.01
21	7.81%	On Street Res.	27	10.85	0.85	25	2.86	0.21	3	5.98	0.05	27	5.84	0.46	3	15.32	0.13
31	11.52%	Res Garage	2	21.58	2.49	2	5.51	0.63	0	0.00	0.00	2	16.07	1.85	0	0.00	0.00
37	13.75%	Res Driveway	28	31.91	4.39	27	19.65	2.61	4	20.20	0.40	26	10.16	1.30	1	18.05	0.09
12	4.46%	Res Parking Space	45	40.66	1.81	42	8.60	0.36	7	29.15	0.20	45	25.94	1.16	5	19.44	0.10
14	5.20%	Employee Parking	383	37.68	1.96	341	4.65	0.22	51	10.93	0.08	383	23.10	1.20	135	25.75	0.47
2	0.74%	Drive-Thru Window	4	230.13	1.71	0	0.00	0.00	0	0.00	0.00	4	60.32	0.45	4	169.81	1.26
7	2.60%	Gas Station Pump	6	25.78	0.67	5	2.25	0.05	1	17.71	0.08	6	19.36	0.50	1	9.56	0.04
17	6.32%	Commercial Lot	383	37.68	2.38	341	4.65	0.26	51	10.93	0.09	383	23.10	1.46	135	25.75	0.57
3	1.12%	Parking Garage	227	84.36	0.94	222	8.20	0.09	40	9.31	0.02	227	68.98	0.77	206	6.31	0.06
111	41.26%	Shopping	123	45.07	18.60	108	7.71	2.79	17	9.30	0.53	123	34.60	14.28	12	24.76	1.00
1	0.37%	Other	24	27.34	0.10	22	4.42	0.02	1	11.53	0.00	24	22.48	0.08	1	7.66	0.00
269	1	TOTALS =	916	616.78	37.05	827	74.59	7.44	154	140.55	1.92	911	319.86	23.96	370	329.02	3.74

07/28/92

Sacramento trip-ends data : AREA 3 - Orangevale/Folsom

START-UP

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
12	4.46%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
18	6.69%	On Street Res.	11	39.29	2.63	11	30.31	2.03	2	7.94	0.10	11	7.54	0.50	0	0.00	0.00
34	12.64%	Res Garage	13	93.38	11.80	13	68.28	8.63	13	22.37	2.83	12	8.37	0.98	0	0.00	0.00
36	13.38%	Res Driveway	54	44.14	5.91	54	26.67	3.57	40	12.50	1.24	52	8.20	1.06	2	8.67	0.04
15	5.58%	Res Parking Space	40	76.43	4.26	40	50.82	2.83	32	11.42	0.51	40	16.46	0.92	0	0.00	0.00
14	5.20%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
2	0.74%	Drive-Thru Window	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
7	2.60%	Gas Station Pump	13	25.35	0.66	13	8.99	0.23	2	15.56	0.06	13	11.18	0.29	2	18.14	0.07
17	6.32%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
3	1.12%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
109	40.52%	Shopping	144	50.74	20.56	144	14.56	5.90	121	9.97	3.39	144	24.22	9.81	74	6.97	1.45
2	0.74%	Other	33	52.10	0.39	33	25.93	0.19	33	9.34	0.07	33	11.60	0.09	17	10.15	0.04
269	1	TOTALS =	308	381.43	46.21	308	225.56	0.00	243	89.10	8.20	305	87.57	13.65	95	43.93	1.61

EXIT ROADWAY

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
13	4.83%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
21	7.81%	On Street Res.	10	34.53	2.70	10	21.69	1.69	5	1.53	0.06	10	12.08	0.94	0	0.00	0.00
31	11.52%	Res Garage	5	35.66	4.11	5	9.46	1.09	0	0.00	0.00	5	26.60	3.07	0	0.00	0.00
37	13.75%	Res Driveway	59	25.95	3.57	58	9.72	1.31	31	4.45	0.32	59	14.06	1.93	0	0.00	0.00
12	4.46%	Res Parking Space	33	24.52	1.09	33	9.53	0.43	8	3.85	0.04	33	14.06	0.63	0	0.00	0.00
14	5.20%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
2	0.74%	Drive-Thru Window	15	222.47	1.65	3	2.10	0.00	0	0.00	0.00	15	42.59	0.32	14	192.29	1.33
7	2.60%	Gas Station Pump	11	13.59	0.35	9	3.17	0.07	0	0.00	0.00	11	11.00	0.29	0	0.00	0.00
17	6.32%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
3	1.12%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
111	41.26%	Shopping	141	43.34	17.88	132	11.94	4.61	19	18.21	1.01	141	24.63	10.16	18	39.82	2.10
1	0.37%	Other	30	29.52	0.11	25	3.89	0.01	5	4.79	0.00	30	17.25	0.06	7	35.27	0.03
269	1	TOTALS =	304	429.58	31.47	275	71.50	9.22	68	32.83	1.44	304	162.27	17.40	39	267.38	3.46

07/28/92

Sacramento trip-ends data : (60 to 100 degree temperature range)

START-UP

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
12	4.46%	On Street	54	18.18	0.81	54	9.91	0.44	20	5.35	0.09	19	4.84	0.08	27	9.18	0.20
18	6.69%	On Street Res.	68	49.32	3.30	68	39.30	2.63	21	7.97	0.16	65	7.92	0.51	0	0.00	0.00
34	12.64%	Res Garage	34	72.59	9.17	34	41.41	5.23	33	22.20	2.72	33	9.92	1.22	0	0.00	0.00
36	13.38%	Res Driveway	135	60.22	8.06	135	41.79	5.59	106	14.03	1.47	128	7.68	0.97	2	8.67	0.02
15	5.58%	Res Parking Space	139	67.45	3.76	139	31.76	1.77	126	10.26	0.52	139	21.79	1.22	40	15.97	0.26
14	5.20%	Employee Parking	343	51.83	2.70	343	18.79	0.98	261	10.06	0.40	342	21.13	1.10	104	14.24	0.22
2	0.74%	Drive-Thru Window															
7	2.60%	Gas Station Pump	20	27.96	0.73	20	7.96	0.21	3	14.32	0.06	20	13.28	0.35	6	15.22	0.12
17	6.32%	Commercial Lot	343	51.83	3.28	343	18.79	1.19	261	10.06	0.48	342	21.13	1.33	104	14.24	0.27
3	1.12%	Parking Garage	221	110.05	1.23	221	14.32	0.16	203	10.33	0.11	221	56.67	0.63	196	33.34	0.33
109	40.52%	Shopping	301	69.17	28.03	301	15.28	6.19	245	10.72	3.54	299	35.99	14.49	163	17.39	3.82
2	0.74%	Other	81	65.94	0.49	81	27.67	0.21	67	10.08	0.06	81	23.58	0.18	36	14.28	0.05
269		TOTALS =	1396	644.54	61.55	1396	266.98	24.60	1085	125.38	9.61	1347	223.93	22.06	574	142.53	5.29

EXIT ROADWAY

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
13	4.83%	On Street	47	23.74	1.15	33	6.09	0.21	30	15.51	0.48	44	9.91	0.45	2	6.61	0.01
21	7.81%	On Street Res.	46	16.86	1.32	44	8.32	0.62	10	4.84	0.08	46	6.85	0.53	3	15.32	0.08
31	11.52%	Res Garage	13	24.34	2.80	13	6.52	0.75	0	0.00	0.00	13	7.82	0.90	0	0.00	0.00
37	13.75%	Res Driveway	106	25.47	3.50	105	11.49	1.57	36	6.88	0.32	103	11.92	1.59	2	14.86	0.04
12	4.46%	Res Parking Space	74	25.55	1.14	74	6.70	0.30	13	5.21	0.04	74	17.85	0.80	1	6.62	0.00
14	5.20%	Employee Parking	383	37.68	1.96	341	4.65	0.22	51	10.93	0.08	383	23.10	1.20	135	25.75	0.47
2	0.74%	Drive-Thru Window	30	233.94	1.74	14	0.45	0.00	0	0.00	0.00	30	41.26	0.31	29	199.25	1.43
7	2.60%	Gas Station Pump	17	17.89	0.47	14	2.84	0.06	7	17.71	0.19	7	13.95	0.15	1	9.56	0.01
17	6.32%	Commercial Lot	383	37.68	2.38	341	4.65	0.26	51	10.93	0.09	383	23.10	1.46	135	25.75	0.57
3	1.12%	Parking Garage	227	84.36	0.94	222	8.20	0.09	40	9.31	0.02	227	68.98	0.77	206	6.31	0.06
111	41.26%	Shopping	295	49.40	20.38	268	7.15	2.68	36	14.38	0.72	295	36.99	15.26	43	28.53	1.72
1	0.37%	Other	63	28.69	0.11	56	4.25	0.01	15	5.70	0.01	63	18.70	0.07	17	18.00	0.02
269		TOTALS =	1301	605.60	37.89	1184	71.31	6.77	238	101.40	2.03	1285	280.43	23.49	439	356.56	4.42

07/28/92

Los Angeles trip-ends data : (over 50 degree temperature range)

START-UP

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
12	4.49%	On Street	85	23.28	1.05	85	10.93	0.49	63	9.25	0.31	85	5.30	0.24	2	8.42	0.01
18	6.74%	On Street Res.	160	31.98	2.16	160	22.81	1.54	56	8.27	0.20	156	6.27	0.41	1	25.76	0.01
34	12.73%	Res Garage	37	73.08	9.31	37	48.55	6.18	37	15.02	1.91	37	9.52	1.21	0	0.00	0.00
36	13.48%	Res Driveway	69	41.52	5.60	69	24.11	3.25	62	13.06	1.58	68	5.43	0.72	2	11.15	0.04
15	5.62%	Res Parking Space	25	61.58	3.46	25	34.99	1.97	24	14.71	0.79	25	10.99	0.62	2	18.58	0.08
14	5.24%	Employee Parking	84	63.60	3.33	84	18.38	0.96	76	9.54	0.45	84	21.59	1.13	59	21.36	0.79
2	0.75%	Drive-Thru Window															
7	2.62%	Gas Station Pump	60	27.96	0.73	60	9.79	0.26	18	9.03	0.07	59	11.32	0.29	18	14.40	0.11
17	6.37%	Commercial Lot	84	63.60	4.05	84	18.38	1.17	76	9.54	0.55	84	21.59	1.37	59	21.36	0.96
3	1.12%	Parking Garage	138	108.74	1.22	138	15.35	0.17	118	13.30	0.13	138	42.43	0.48	131	41.70	0.44
109	40.82%	Shopping	438	57.35	23.41	438	14.02	5.72	379	10.45	3.69	434	29.95	12.12	152	24.69	3.50
2	0.00%	Other *	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
267		TOTALS =	1096	552.69	54.32	1096	217.31	21.71	833	112.17	9.68	1086	164.39	18.59	367	187.42	5.94

EXIT ROADWAY

SACRAMENTO FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
13	4.85%	On Street	68	15.90	0.77	68	6.26	0.30	18	11.82	0.15	68	6.51	0.32	0	0.00	0.00
21	7.84%	On Street Res.	69	22.23	1.74	67	6.55	0.50	27	14.77	0.45	69	10.02	0.79	1	4.92	0.01
31	11.57%	Res Garage	26	20.61	2.38	26	9.24	1.07	5	3.84	0.09	26	10.31	1.19	1	8.35	0.04
37	13.81%	Res Driveway	47	20.16	2.78	44	4.43	0.57	5	10.02	0.15	47	7.55	1.04	4	86.93	1.02
12	4.48%	Res Parking Space	26	26.55	1.19	25	6.29	0.27	8	10.48	0.14	26	17.28	0.77	0	0.00	0.00
14	5.22%	Employee Parking	87	46.25	2.42	79	11.00	0.52	17	12.70	0.13	87	23.29	1.22	51	17.89	0.55
2	0.75%	Drive-Thru Window	32	238.80	1.78	1	20.06	0.00	2	4.86	0.00	32	27.26	0.20	31	217.39	1.57
7	2.61%	Gas Station Pump	61	18.31	0.48	58	2.95	0.07	5	9.73	0.02	61	11.65	0.30	3	61.97	0.08
17	6.34%	Commercial Lot	87	46.25	2.93	79	11.00	0.63	17	12.70	0.16	87	23.29	1.48	51	17.89	0.67
3	1.12%	Parking Garage	144	82.33	0.92	142	9.01	0.10	57	17.29	0.08	144	50.55	0.57	141	16.38	0.18
111	41.42%	Shopping	387	43.98	18.22	353	4.52	1.71	59	9.54	0.60	387	34.93	14.47	50	26.90	1.44
1	0.00%	Other *	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
268		TOTALS =	947	581.37	35.62	863	91.31	5.75	203	117.75	1.97	947	222.64	22.34	282	458.62	5.55

* "Other" was omitted from the frequency calculations for Los Angeles because there were no observations in this category.

07/29/92

SACRAMENTO FREQUENCY DISTRIBUTION

Sacramento trip-ends data : (60 to 100 degree temperature range)
START-UP

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	12	4.46%	54	18.18	0.81	11.93	2.67	0.12	3.18	0.14
On Street Residential	18	6.69%	68	49.32	3.30	109.69	21.88	1.46	26.07	1.74
Res Garage	34	12.64%	34	72.59	9.17	54.73	15.44	1.95	18.40	2.33
Res Driveway	36	13.38%	135	60.22	8.06	77.95	11.04	1.48	13.15	1.76
Res Parking Space	15	5.58%	139	67.45	3.76	56.80	7.93	0.44	9.44	0.53
Employee Parking	14	5.20%	343	51.83	2.70	31.42	2.79	0.15	3.33	0.17
Drive-Thru Window	2	0.74%								
Gas Station Pump	7	2.60%	20	27.96	0.73	18.31	6.74	0.18	8.02	0.21
Commercial Lot	17	6.32%	343	51.83	3.28	31.42	2.79	0.18	3.33	0.21
Parking Garage	3	1.12%	221	110.05	1.23	55.51	6.14	0.07	7.32	0.08
SHOPPING	109	40.52%	301	69.17	28.03	55.96	5.31	2.15	6.32	2.56
Other	2	0.74%	81	65.94	0.49	70.61	12.91	0.10	15.38	0.11
TOTAL =	269		1396	644.54	61.55			8.27		9.85

SACRAMENTO FREQUENCY DISTRIBUTION

EXIT ROADWAY

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	13	4.83%	47	23.74	1.15	15.40	3.70	0.18	4.40	0.21
On Street Residential	21	7.81%	46	16.86	1.32	33.72	8.18	0.64	9.74	0.76
Res Garage	31	11.52%	13	24.34	2.80	16.77	7.65	0.88	9.12	1.05
Res Driveway	37	13.75%	106	25.47	3.50	42.74	6.83	0.94	8.14	1.12
Res Parking Space	12	4.46%	74	25.55	1.14	19.72	3.77	0.17	4.49	0.20
Employee Parking	14	5.20%	383	37.68	1.96	31.31	2.63	0.14	3.14	0.16
Drive-Thru Window	2	0.74%	30	233.94	1.74	104.72	31.45	0.23	37.47	0.28
Gas Station Pump	7	2.60%	17	17.89	0.47	11.51	4.59	0.12	5.47	0.14
Commercial Lot	17	6.32%	383	37.68	2.38	31.31	2.63	0.17	3.14	0.20
Parking Garage	3	1.12%	227	84.36	0.94	44.55	4.86	0.05	5.80	0.06
SHOPPING	111	41.26%	295	49.40	20.38	61.40	5.88	2.43	7.01	2.89
Other	1	0.37%	63	28.69	0.11	31.00	6.42	0.02	7.66	0.03
TOTAL =	269		1301	605.60	37.89			5.97		7.11

07/29/92

SACRAMENTO FREQUENCY DISTRIBUTION

Los Angeles trip-ends data
START-UP

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	12	4.49%	85	23.28	1.05	12.10	2.16	0.10	2.57	0.12
On Street Residential	18	6.74%	168	34.93	2.35	58.27	7.40	0.50	8.81	0.59
Res Garage	34	12.73%	38	73.25	9.33	89.90	23.99	3.05	28.58	3.64
Res Driveway	36	13.48%	70	41.27	5.56	42.25	8.31	1.12	9.90	1.33
Res Parking Space	15	5.62%	26	60.47	3.40	34.88	11.25	0.63	13.41	0.75
Employee Parking	14	5.24%	84	63.60	3.33	50.50	9.06	0.48	10.80	0.57
Drive-Thru Window	2	0.75%								
Gas Station Pump	7	2.62%	60	27.96	0.73	17.99	3.82	0.10	4.55	0.12
Commercial Lot	17	6.37%	84	63.60	4.05	50.50	9.06	0.58	10.80	0.69
Parking Garage	3	1.12%	138	108.74	1.22	87.81	12.30	0.14	14.65	0.16
SHOPPING	109	40.82%	438	57.35	23.41	53.00	4.17	1.70	4.96	2.03
Other *	2	0.00%	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL =	267		1107	554.45	54.44			8.39		10.00

SACRAMENTO FREQUENCY DISTRIBUTION

Los Angeles trip-ends data
EXIT ROADWAY

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	13	4.85%	68	15.90	0.77	9.96	1.99	0.10	2.37	0.11
On Street Residential	21	7.84%	70	22.44	1.76	21.74	4.27	0.33	5.09	0.40
Res Garage	31	11.57%	28	25.51	2.95	29.38	9.13	1.06	10.88	1.26
Res Driveway	37	13.81%	48	20.04	2.77	32.47	7.71	1.06	9.19	1.27
Res Parking Space	12	4.48%	26	26.55	1.19	13.89	4.48	0.20	5.34	0.24
Employee Parking	14	5.22%	87	46.25	2.42	35.96	6.34	0.33	7.56	0.39
Drive-Thru Window	2	0.75%	32	238.80	1.78	93.50	27.19	0.20	32.40	0.24
Gas Station Pump	7	2.61%	61	18.31	0.48	20.65	4.35	0.11	5.18	0.14
Commercial Lot	17	6.34%	87	46.25	2.93	35.96	6.34	0.40	7.56	0.48
Parking Garage	3	1.12%	144	82.33	0.92	52.94	7.26	0.08	8.65	0.10
SHOPPING	111	41.42%	387	43.98	18.22	42.96	3.59	1.49	4.28	1.77
Other *	1	0.00%	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL =	268		951	586.36	36.18			5.37		6.40

* "Other" was omitted from the frequency calculations for Los Angeles because there were no observations in this category.

07/28/92

Los Angeles trip-ends data

START-UP

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
178	16.89%	On Street	85	23.28	3.93	85	10.93	1.85	63	9.25	1.16	85	5.30	0.90	2	8.42	0.03
126	11.95%	On Street Res.	168	34.93	4.18	168	25.53	3.05	61	8.28	0.36	164	6.40	0.75	1	25.76	0.02
93	8.82%	Res Garage	38	73.25	6.46	38	48.72	4.30	38	15.20	1.34	38	9.33	0.82	0	0.00	0.00
114	10.82%	Res Driveway	70	41.27	4.46	70	23.95	2.59	63	12.97	1.26	69	5.40	0.58	2	11.15	0.03
76	7.21%	Res Parking Space	26	60.47	4.36	26	34.27	2.47	25	14.30	0.99	26	11.02	0.79	2	18.58	0.10
11	1.04%	Employee Parking	84	63.60	0.66	84	18.38	0.19	76	9.54	0.09	84	21.59	0.23	59	21.36	0.16
9	0.85%	Drive-Thru Window															
27	2.56%	Gas Station Pump	60	27.96	0.72	60	9.79	0.25	18	9.03	0.07	59	11.32	0.29	18	14.40	0.11
23	2.18%	Commercial Lot	84	63.60	1.39	84	18.38	0.40	76	9.54	0.19	84	21.59	0.47	59	21.36	0.33
5	0.47%	Parking Garage	138	108.74	0.52	138	15.35	0.07	118	13.30	0.05	138	42.43	0.20	131	41.70	0.19
392	37.19%	Shopping	438	57.35	21.33	438	14.02	5.21	379	10.45	3.36	434	29.95	11.04	152	24.69	3.19
20	0.00%	Other *	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
1054		TOTALS =	1107	554.45	48.01	1107	219.32	20.39	841	111.86	8.88	1097	164.33	16.06	367	187.42	4.16

EXIT ROADWAY

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
179	16.97%	On Street	68	15.90	2.70	68	6.26	1.06	18	11.82	0.53	68	6.51	1.10	0	0.00	0.00
127	12.04%	On Street Res.	70	22.44	2.70	68	6.94	0.81	27	14.77	0.69	70	9.93	1.20	2	2.46	0.01
91	8.63%	Res Garage	28	25.51	2.20	28	9.21	0.79	6	5.45	0.10	28	14.84	1.28	1	8.35	0.03
110	10.43%	Res Driveway	48	20.04	2.09	45	4.49	0.44	5	11.02	0.12	48	7.54	0.79	4	86.93	0.76
78	7.39%	Res Parking Space	26	26.55	1.96	25	6.29	0.45	8	10.48	0.24	26	17.28	1.28	0	0.00	0.00
12	1.14%	Employee Parking	87	46.25	0.53	79	11.00	0.11	17	12.70	0.03	87	23.29	0.26	51	17.89	0.12
9	0.85%	Drive-Thru Window	32	238.80	2.04	1	20.06	0.00	2	4.86	0.00	32	27.26	0.23	31	217.39	1.80
27	2.56%	Gas Station Pump	61	18.31	0.47	58	2.95	0.07	5	9.73	0.02	61	11.65	0.30	3	61.97	0.08
23	2.18%	Commercial Lot	87	46.25	1.01	79	11.00	0.22	17	12.70	0.05	87	23.29	0.51	51	17.89	0.23
5	0.47%	Parking Garage	144	82.33	0.39	142	9.01	0.04	57	17.29	0.03	144	50.55	0.24	141	16.38	0.08
394	37.35%	Shopping	387	43.98	16.42	353	4.52	1.54	59	9.54	0.54	387	34.93	13.04	50	26.90	1.30
19	0.00%	Other *	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
1055		TOTALS =	951	586.36	32.51	867	91.73	5.54	204	120.36	2.36	951	227.07	20.23	283	456.16	4.39

* "Other" was omitted from the frequency calculations for Los Angeles because there were no observations in this category.

07/28/92

Sacramento trip-ends data : AREA 1 - Arden/Arcade

START-UP

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
178	16.57%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
126	11.73%	On Street Res.	20	84.24	9.88	20	73.70	8.65	4	6.97	0.16	19	9.62	1.07	0	0.00	0.00
93	8.66%	Res Garage	9	92.35	8.00	9	59.80	5.18	9	25.76	2.23	9	6.79	0.59	0	0.00	0.00
114	10.61%	Res Driveway	39	57.98	6.15	39	39.26	4.17	35	13.60	1.30	37	6.72	0.68	1	5.39	0.01
76	7.08%	Res Parking Space	68	62.14	4.40	68	22.29	1.58	65	9.57	0.65	68	23.52	1.66	37	13.21	0.51
11	1.02%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
9	0.84%	Drive-Thru Window	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
27	2.51%	Gas Station Pump	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
23	2.14%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
5	0.47%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
392	36.50%	Shopping	60	113.87	41.56	60	20.80	7.59	45	10.51	2.88	59	64.81	23.26	35	36.80	7.84
20	1.86%	Other	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
1074		TOTALS =	196	410.58	69.99	196	215.85	0.00	158	66.41	7.21	192	111.46	27.26	73	55.40	8.36

EXIT ROADWAY

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
179	16.67%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
127	11.82%	On Street Res.	11	16.08	1.90	11	7.46	0.88	3	9.97	0.32	11	5.90	0.70	0	0.00	0.00
91	8.47%	Res Garage	9	15.36	1.30	9	4.23	0.36	0	0.00	0.00	9	11.14	0.94	0	0.00	0.00
110	10.24%	Res Driveway	20	14.77	1.51	20	5.61	0.57	1	28.72	0.15	19	7.52	0.73	1	11.67	0.06
78	7.26%	Res Parking Space	46	26.98	1.96	46	4.72	0.34	6	7.07	0.07	46	21.20	1.54	1	6.62	0.01
12	1.12%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
9	0.84%	Drive-Thru Window	11	251.34	2.11	0	0.00	0.00	0	0.00	0.00	11	32.52	0.27	11	218.81	1.83
27	2.51%	Gas Station Pump	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
23	2.14%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
5	0.47%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
394	36.69%	Shopping	59	81.35	29.84	52	4.94	1.60	6	8.71	0.32	59	71.47	26.22	18	15.18	1.70
19	1.77%	Other	9	29.51	0.52	9	4.83	0.09	9	5.56	0.10	9	13.41	0.24	9	5.71	0.10
1074		TOTALS =	165	435.39	39.15	147	31.79	3.84	25	60.03	0.96	164	163.16	30.64	40	257.99	3.70

07/28/92

Sacramento trip-ends data : AREA 2 - Sacramento City, Downtown, Citrus Heights

START-UP

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
178	16.57%	On Street	54	18.18	3.01	54	9.91	1.64	20	5.35	0.33	19	4.84	0.28	27	9.18	0.76
126	11.73%	On Street Res.	50	80.11	9.40	50	63.19	7.41	23	10.25	0.55	47	12.84	1.42	1	7.00	0.02
93	8.66%	Res Garage	17	76.01	6.58	17	43.80	3.79	15	20.71	1.58	17	13.93	1.21	0	0.00	0.00
114	10.61%	Res Driveway	59	85.39	9.06	59	65.16	6.92	48	16.27	1.41	56	7.36	0.74	0	0.00	0.00
76	7.08%	Res Parking Space	32	66.17	4.68	32	27.42	1.94	30	10.40	0.69	32	24.31	1.72	3	50.03	0.33
11	1.02%	Employee Parking	343	51.83	0.53	343	18.79	0.19	261	10.06	0.08	342	21.13	0.22	104	14.24	0.04
9	0.84%	Drive-Thru Window	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
27	2.51%	Gas Station Pump	7	32.79	0.82	7	6.07	0.15	1	11.84	0.04	7	17.17	0.43	4	13.76	0.20
23	2.14%	Commercial Lot	343	51.83	1.11	343	18.79	0.40	221	10.06	0.14	342	21.13	0.45	104	14.24	0.09
5	0.47%	Parking Garage	221	110.05	0.51	221	14.32	0.07	203	10.33	0.04	221	56.67	0.26	196	33.34	0.14
392	36.50%	Shopping	119	65.28	23.83	119	13.72	5.01	99	11.40	3.46	118	32.84	11.89	65	17.42	3.47
20	1.86%	Other	48	75.45	1.41	48	28.88	0.54	34	10.79	0.14	48	31.82	0.59	19	17.97	0.13
1074		TOTALS =	950	713.09	60.95	950	310.05	28.06	734	127.46	8.47	907	244.04	19.21	419	177.18	5.19

EXIT ROADWAY

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
179	16.67%	On Street	47	23.74	3.96	33	6.09	0.71	30	15.51	1.65	44	9.91	1.55	2	6.61	0.05
127	11.82%	On Street Res.	27	10.85	1.28	25	2.86	0.31	3	5.98	0.08	27	5.84	0.69	3	15.32	0.20
91	8.47%	Res Garage	2	21.58	1.83	2	5.51	0.47	0	0.00	0.00	2	16.07	1.36	0	0.00	0.00
110	10.24%	Res Driveway	28	31.91	3.27	27	19.65	1.94	4	20.20	0.30	26	10.16	0.97	1	18.05	0.07
78	7.26%	Res Parking Space	45	40.66	2.95	42	8.60	0.58	7	29.15	0.33	45	25.94	1.88	5	19.44	0.16
12	1.12%	Employee Parking	383	37.68	0.42	341	4.65	0.05	51	10.93	0.02	383	23.10	0.26	135	25.75	0.10
9	0.84%	Drive-Thru Window	4	230.13	1.93	0	0.00	0.00	0	0.00	0.00	4	60.32	0.51	4	169.81	1.42
27	2.51%	Gas Station Pump	6	25.78	0.65	5	2.25	0.05	1	17.71	0.07	6	19.36	0.49	1	9.56	0.04
23	2.14%	Commercial Lot	383	37.68	0.81	341	4.65	0.09	51	10.93	0.03	383	23.10	0.49	135	25.75	0.19
5	0.47%	Parking Garage	227	84.36	0.39	222	8.20	0.04	40	9.31	0.01	227	68.98	0.32	206	6.31	0.03
394	36.69%	Shopping	123	45.07	16.53	108	7.71	2.48	17	9.30	0.47	123	34.60	12.69	12	24.76	0.89
19	1.77%	Other	24	27.34	0.48	22	4.42	0.07	1	11.53	0.01	24	22.48	0.40	1	7.66	0.01
1074		TOTALS =	916	616.78	34.50	827	74.59	6.79	154	140.55	2.96	911	319.86	21.61	370	329.02	3.15

07/28/92

START-UP

Sacramento trip-ends data : AREA 3 - Orangevale/Folsom

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
178	16.57%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
126	11.73%	On Street Res.	11	39.29	4.61	11	30.31	3.56	2	7.94	0.17	11	7.54	0.88	0	0.00	0.00
93	8.66%	Res Garage	13	93.38	8.09	13	68.28	5.91	13	22.37	1.94	12	8.37	0.67	0	0.00	0.00
114	10.61%	Res Driveway	54	44.14	4.69	54	26.67	2.83	40	12.50	0.98	52	8.20	0.84	2	8.67	0.03
76	7.08%	Res Parking Space	40	76.43	5.41	40	50.82	3.60	32	11.42	0.65	40	16.46	1.16	0	0.00	0.00
11	1.02%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
9	0.84%	Drive-Thru Window	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
27	2.51%	Gas Station Pump	13	25.35	0.64	13	8.99	0.23	2	15.56	0.06	13	11.18	0.28	2	18.14	0.07
23	2.14%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
5	0.47%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
392	36.50%	Shopping	144	50.74	18.52	144	14.56	5.31	121	9.97	3.06	144	24.22	8.84	74	6.97	1.31
20	1.86%	Other	33	52.10	0.97	33	25.93	0.48	33	9.34	0.17	33	11.60	0.22	17	10.15	0.10
1074		TOTALS =	308	381.43	42.92	308	225.56	0.00	243	89.10	7.03	305	87.57	12.89	95	43.93	1.51

EXIT ROADWAY

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
179	16.67%	On Street	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
127	11.82%	On Street Res.	10	34.53	4.08	10	21.69	2.56	5	1.53	0.09	10	12.08	1.43	0	0.00	0.00
91	8.47%	Res Garage	5	35.66	3.02	5	9.46	0.80	0	0.00	0.00	5	26.60	2.25	0	0.00	0.00
110	10.24%	Res Driveway	59	25.95	2.66	58	9.72	0.98	31	4.45	0.24	59	14.06	1.44	0	0.00	0.00
78	7.26%	Res Parking Space	33	24.52	1.78	33	9.53	0.69	8	3.85	0.07	33	14.06	1.02	0	0.00	0.00
12	1.12%	Employee Parking	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
9	0.84%	Drive-Thru Window	15	222.47	1.86	3	2.10	0.00	0	0.00	0.00	15	42.59	0.36	14	192.29	1.50
27	2.51%	Gas Station Pump	11	13.59	0.34	9	3.17	0.07	0	0.00	0.00	11	11.00	0.28	0	0.00	0.00
23	2.14%	Commercial Lot	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
5	0.47%	Parking Garage	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
394	36.69%	Shopping	141	43.34	15.90	132	11.94	4.10	19	18.21	0.90	141	24.63	9.04	18	39.82	1.86
19	1.77%	Other	30	29.52	0.52	25	3.89	0.06	5	4.79	0.01	30	17.25	0.31	7	35.27	0.15
1074		TOTALS =	304	429.58	30.17	275	71.50	9.26	68	32.83	1.31	304	162.27	16.12	39	267.38	3.51

07/28/92

Sacramento trip-ends data : (60 to 100 degree temperature range)

START-UP

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
178	16.57%	On Street	54	18.18	3.01	54	9.91	1.64	20	5.35	0.33	19	4.84	0.28	27	9.18	0.76
126	11.73%	On Street Res.	68	49.32	5.79	68	39.30	4.61	21	7.97	0.29	65	7.92	0.89	0	0.00	0.00
93	8.66%	Res Garage	34	72.59	6.29	34	41.41	3.59	33	22.20	1.87	33	9.92	0.83	0	0.00	0.00
114	10.61%	Res Driveway	135	60.22	6.39	135	41.79	4.44	106	14.03	1.17	128	7.68	0.77	2	8.67	0.01
76	7.08%	Res Parking Space	139	67.45	4.77	139	31.76	2.25	126	10.26	0.66	139	21.79	1.54	40	15.97	0.33
11	1.02%	Employee Parking	343	51.83	0.53	343	18.79	0.19	261	10.06	0.08	342	21.13	0.22	104	14.24	0.04
9	0.84%	Drive-Thru Window															
27	2.51%	Gas Station Pump	20	27.96	0.70	20	7.96	0.20	3	14.32	0.05	20	13.28	0.33	6	15.22	0.11
23	2.14%	Commercial Lot	343	51.83	1.11	343	18.79	0.40	261	10.06	0.16	342	21.13	0.45	104	14.24	0.09
5	0.47%	Parking Garage	221	110.05	0.51	221	14.32	0.07	203	10.33	0.04	221	56.67	0.26	196	33.34	0.14
392	36.50%	Shopping	301	69.17	25.25	301	15.28	5.58	245	10.72	3.18	299	35.99	13.05	163	17.39	3.44
20	1.86%	Other	81	65.94	1.23	81	27.67	0.52	67	10.08	0.16	81	23.58	0.44	36	14.28	0.12
1074		TOTALS =	1396	644.54	55.58	1396	266.98	23.48	1085	125.38	7.99	1347	223.93	19.07	574	142.53	5.04

EXIT ROADWAY

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
179	16.67%	On Street	47	23.74	3.96	33	6.09	0.71	30	15.51	1.65	44	9.91	1.55	2	6.61	0.05
127	11.82%	On Street Res.	46	16.86	1.99	44	8.32	0.94	10	4.84	0.12	46	6.85	0.81	3	15.32	0.12
91	8.47%	Res Garage	13	24.34	2.06	13	6.52	0.55	0	0.00	0.00	13	7.82	0.66	0	0.00	0.00
110	10.24%	Res Driveway	106	25.47	2.61	105	11.49	1.17	36	6.88	0.24	103	11.92	1.19	2	14.86	0.03
78	7.26%	Res Parking Space	74	25.55	1.86	74	6.70	0.49	13	5.21	0.07	74	17.85	1.30	1	6.62	0.01
12	1.12%	Employee Parking	383	37.68	0.42	341	4.65	0.05	51	10.93	0.02	383	23.10	0.26	135	25.75	0.10
9	0.84%	Drive-Thru Window	30	233.94	1.96	14	0.45	0.00	0	0.00	0.00	30	41.26	0.35	29	199.25	1.61
27	2.51%	Gas Station Pump	17	17.89	0.45	14	2.84	0.06	7	17.71	0.18	17	13.95	0.35	1	9.56	0.01
23	2.14%	Commercial Lot	383	37.68	0.81	341	4.65	0.09	51	10.93	0.03	383	23.10	0.49	135	25.75	0.19
5	0.47%	Parking Garage	227	84.36	0.39	222	8.20	0.04	40	9.31	0.01	227	68.98	0.32	206	6.31	0.03
394	36.69%	Shopping	295	49.40	18.12	268	7.15	2.38	36	14.38	0.64	295	36.99	13.57	43	28.53	1.53
19	1.77%	Other	63	28.69	0.51	56	4.25	0.07	15	5.70	0.02	63	18.70	0.33	17	18.00	0.09
1074		TOTALS =	1301	605.60	35.14	1184	71.31	6.54	238	101.40	2.99	1295	280.43	21.17	439	356.56	3.76

07/28/92

Los Angeles trip-ends data : (over 50 degree temperature range)

START-UP

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
178	16.89%	On Street	85	23.28	3.93	85	10.93	1.85	63	9.25	1.16	85	5.30	0.90	2	8.42	0.03
126	11.95%	On Street Res.	160	31.98	3.82	160	22.81	2.73	56	8.27	0.35	156	6.27	0.73	1	25.76	0.02
93	8.82%	Res Garage	37	73.08	6.45	37	48.55	4.28	37	15.02	1.33	37	9.52	0.84	0	0.00	0.00
114	10.82%	Res Driveway	69	41.52	4.49	69	24.11	2.61	62	13.06	1.27	68	5.43	0.58	2	11.15	0.03
76	7.21%	Res Parking Space	25	61.58	4.44	25	34.99	2.52	24	14.71	1.02	25	10.99	0.79	2	18.58	0.11
11	1.04%	Employee Parking	84	63.60	0.66	84	18.38	0.19	76	9.54	0.09	84	21.59	0.23	59	21.36	0.16
9	0.85%	Drive-Thru Window															
27	2.56%	Gas Station Pump	60	27.96	0.72	60	9.79	0.25	18	9.03	0.07	59	11.32	0.29	18	14.40	0.11
23	2.18%	Commercial Lot	84	63.60	1.39	84	18.38	0.40	76	9.54	0.19	84	21.59	0.47	59	21.36	0.33
5	0.47%	Parking Garage	138	108.74	0.52	138	15.35	0.07	118	13.30	0.05	138	42.43	0.20	131	41.70	0.19
392	37.19%	Shopping	438	57.35	21.33	438	14.02	5.21	379	10.45	3.36	434	29.95	11.04	152	24.69	3.19
20	0.00%	Other *	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
1054		TOTALS =	1096	552.69	47.75	1096	217.31	20.12	833	112.17	8.88	1086	164.39	16.06	367	187.42	4.16

EXIT ROADWAY

BAY AREA FREQUENCY DATA		CATEGORY	TOTAL			IDLE MODE			REVERSE MODE			CRUISE MODE			QUEING MODE		
#TRIPS/ CATEGORY	FREQUENCY		# OBS	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN	# OBS/ MODE	MEAN	WEIGHTED MEAN
179	16.97%	On Street	68	15.90	2.70	68	6.26	1.06	18	11.82	0.53	68	6.51	1.10	0	0.00	0.00
127	12.04%	On Street Res.	69	22.23	2.68	67	6.55	0.77	27	14.77	0.70	69	10.02	1.21	1	4.92	0.01
91	8.63%	Res Garage	26	20.61	1.78	26	9.24	0.80	5	3.84	0.06	26	10.31	0.89	1	8.35	0.03
110	10.43%	Res Driveway	47	20.16	2.10	44	4.43	0.43	5	10.02	0.11	47	7.55	0.79	4	86.93	0.77
78	7.39%	Res Parking Space	26	26.55	1.96	25	6.29	0.45	8	10.48	0.24	26	17.28	1.28	0	0.00	0.00
12	1.14%	Employee Parking	87	46.25	0.53	79	11.00	0.11	17	12.70	0.03	87	23.29	0.26	51	17.89	0.12
9	0.85%	Drive-Thru Window	32	238.80	2.04	1	20.06	0.00	2	4.86	0.00	32	27.26	0.23	31	217.39	1.80
27	2.56%	Gas Station Pump	61	18.31	0.47	58	2.95	0.07	5	9.73	0.02	61	11.65	0.30	3	61.97	0.08
23	2.18%	Commercial Lot	87	46.25	1.01	79	11.00	0.22	17	12.70	0.05	87	23.29	0.51	51	17.89	0.23
5	0.47%	Parking Garage	144	82.33	0.39	142	9.01	0.04	57	17.29	0.03	144	50.55	0.24	141	16.38	0.08
394	37.35%	Shopping	387	43.98	16.42	353	4.52	1.54	59	9.54	0.54	387	34.93	13.04	50	26.90	1.30
19	0.00%	Other *	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
1055		TOTALS =	947	581.37	32.07	863	91.31	5.49	203	117.75	2.32	947	222.64	19.85	282	458.62	4.40

* "Other" was omitted from the frequency calculations for Los Angeles because there were no observations in this category.

07/29/92

BAY AREA FREQUENCY DISTRIBUTION

Sacramento trip-ends data
START-UP

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	178	16.57%	54	18.18	3.01	11.93	2.67	0.44	3.18	0.53
On Street Residential	126	11.73%	81	75.58	8.87	141.66	25.89	3.04	30.85	3.62
Res Garage	93	8.66%	39	87.24	7.55	86.69	22.84	1.98	27.21	2.36
Res Driveway	114	10.61%	152	63.70	6.76	78.68	10.50	1.11	12.51	1.33
Res Parking Space	76	7.08%	140	67.14	4.75	56.71	7.88	0.56	9.39	0.66
Employee Parking	11	1.02%	343	51.83	0.53	31.42	2.79	0.03	3.33	0.03
Drive-Thru Window	9	0.84%								
Gas Station Pump	27	2.51%	20	27.96	0.70	18.31	6.74	0.17	8.02	0.20
Commercial Lot	23	2.14%	343	51.83	1.11	31.42	2.79	0.06	3.33	0.07
Parking Garage	5	0.47%	221	110.05	0.51	55.51	6.14	0.03	7.32	0.03
SHOPPING	392	36.50%	323	67.83	24.76	54.94	5.03	1.84	5.99	2.19
Other	20	1.86%	81	65.94	1.23	70.61	12.91	0.24	15.38	0.29
TOTAL =	1074		1454	687.28	59.79			9.49		11.31

BAY AREA FREQUENCY DISTRIBUTION

Sacramento trip-ends data
EXIT ROADWAY

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	#.OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	179	16.67%	47	23.74	3.96	15.40	3.70	0.62	4.40	0.73
On Street Residential	127	11.82%	48	16.99	2.01	33.05	7.85	0.93	9.35	1.11
Res Garage	91	8.47%	16	22.48	1.90	15.63	6.43	0.54	7.66	0.65
Res Driveway	110	10.24%	107	25.42	2.60	45.54	7.24	0.74	8.63	0.88
Res Parking Space	78	7.26%	124	31.29	2.27	25.84	3.82	0.28	4.55	0.33
Employee Parking	12	1.12%	383	37.68	0.42	31.31	2.63	0.03	3.14	0.04
Drive-Thru Window	9	0.84%	30	233.94	1.96	104.72	31.45	0.26	37.47	0.31
Gas Station Pump	27	2.51%	17	17.89	0.45	11.51	4.59	0.12	5.47	0.14
Commercial Lot	23	2.14%	383	37.68	0.81	31.31	2.63	0.06	3.14	0.07
Parking Garage	5	0.47%	227	84.36	0.39	44.55	4.86	0.02	5.80	0.03
SHOPPING	394	36.69%	323	50.94	18.69	62.64	5.73	2.10	6.83	2.51
Other	19	1.77%	63	28.69	0.51	31.00	6.42	0.11	7.66	0.14
TOTAL =	1074		1385	611.10	35.97			5.81		6.92

07/29/92

BAY AREA FREQUENCY DISTRIBUTION

Los Angeles trip-ends data
START-UP

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	178	16.89%	85	23.28	3.93	12.10	2.16	0.36	2.57	0.43
On Street Residential	126	11.95%	168	34.93	4.18	58.27	7.40	0.88	8.81	1.05
Res Garage	93	8.82%	38	73.25	6.46	89.90	23.99	2.12	28.58	2.52
Res Driveway	114	10.82%	70	41.27	4.46	42.25	8.31	0.90	9.90	1.07
Res Parking Space	76	7.21%	26	60.47	4.36	34.88	11.25	0.81	13.41	0.97
Employee Parking	11	1.04%	84	63.60	0.66	50.50	9.06	0.09	10.80	0.11
Drive-Thru Window	9	0.85%								
Gas Station Pump	27	2.56%	60	27.96	0.72	17.99	3.82	0.10	4.55	0.12
Commercial Lot	23	2.18%	84	63.60	1.39	50.50	9.06	0.20	10.80	0.24
Parking Garage	5	0.47%	138	108.74	0.52	87.81	12.30	0.06	14.65	0.07
SHOPPING	392	37.19%	438	57.35	21.33	53.00	4.17	1.55	4.96	1.85
Other *	20	0.00%	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL =	1054		1107	554.45	48.01			7.07		8.43

BAY AREA FREQUENCY DISTRIBUTION

Los Angeles trip-ends data
EXIT ROADWAY

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	179	16.97%	68	15.90	2.70	9.96	1.99	0.34	2.37	0.40
On Street Residential	127	12.04%	70	22.44	2.70	21.74	4.27	0.51	5.09	0.61
Res Garage	91	8.63%	28	25.51	2.20	29.38	9.13	0.79	10.88	0.94
Res Driveway	110	10.43%	48	20.04	2.09	32.47	7.71	0.80	9.19	0.96
Res Parking Space	78	7.39%	26	26.55	1.96	13.89	4.48	0.33	5.34	0.39
Employee Parking	12	1.14%	87	46.25	0.53	35.96	6.34	0.07	7.56	0.09
Drive-Thru Window	9	0.85%	32	238.80	2.04	93.50	27.19	0.23	32.40	0.28
Gas Station Pump	27	2.56%	61	18.31	0.47	20.65	4.35	0.11	5.18	0.13
Commercial Lot	23	2.18%	87	46.25	1.01	35.96	6.34	0.14	7.56	0.16
Parking Garage	5	0.47%	144	82.33	0.39	52.94	7.26	0.03	8.65	0.04
SHOPPING	394	37.35%	387	43.98	16.42	42.96	3.59	1.34	4.28	1.60
Other *	19	0.00%	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL =	1055		951	586.36	32.51			4.70		5.61

* "Other" was omitted from the frequency calculations for Los Angeles because there were no observations in this category.

07/29/92

BAY AREA FREQUENCY DISTRIBUTION

Sacramento trip-ends data : (60 to 100 degree temperature range)
START-UP

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	178	16.57%	54	18.18	3.01	11.93	2.67	0.44	3.18	0.53
On Street Residential	126	11.73%	68	49.32	5.79	109.69	21.88	2.57	26.07	3.06
Res Garage	93	8.66%	34	72.59	6.29	54.73	15.44	1.34	18.40	1.59
Res Driveway	114	10.61%	135	60.22	6.39	77.95	11.04	1.17	13.15	1.40
Res Parking Space	76	7.08%	139	67.45	4.77	56.80	7.93	0.56	9.44	0.67
Employee Parking	11	1.02%	343	51.83	0.53	31.42	2.79	0.03	3.33	0.03
Drive-Thru Window	9	0.84%								
Gas Station Pump	27	2.51%	20	27.96	0.70	18.31	6.74	0.17	8.02	0.20
Commercial Lot	23	2.14%	343	51.83	1.11	31.42	2.79	0.06	3.33	0.07
Parking Garage	5	0.47%	221	110.05	0.51	55.51	6.14	0.03	7.32	0.03
SHOPPING	392	36.50%	301	69.17	25.25	55.96	5.31	1.94	6.32	2.31
Other	20	1.86%	81	65.94	1.23	70.61	12.91	0.24	15.38	0.29
TOTAL =	1074		1396	644.54	55.58			8.54		10.18

BAY AREA FREQUENCY DISTRIBUTION

EXIT ROADWAY

CATEGORY	# TRIPS/ CATEGORY	FREQUENCY	# OBS	MEANS	WEIGHTED MEANS	STANDARD DEVIATION	ERROR OF THE MEAN @90% CONFIDENCE	WEIGHTED ERROR OF THE MEAN	ERROR OF THE MEAN @95% CONFIDENCE	WEIGHTED ERROR OF THE MEAN
On Street	179	16.67%	47	23.74	3.96	15.40	3.70	0.62	4.40	0.73
On Street Residential	127	11.82%	46	16.86	1.99	33.72	8.18	0.97	9.74	1.15
Res Garage	91	8.47%	13	24.34	2.06	16.77	7.65	0.65	9.12	0.77
Res Driveway	110	10.24%	106	25.47	2.61	42.74	6.83	0.70	8.14	0.83
Res Parking Space	78	7.26%	74	25.55	1.86	19.72	3.77	0.27	4.49	0.33
Employee Parking	12	1.12%	383	37.68	0.42	31.31	2.63	0.03	3.14	0.04
Drive-Thru Window	9	0.84%	30	233.94	1.96	104.72	31.45	0.26	37.47	0.31
Gas Station Pump	27	2.51%	17	17.89	0.45	11.51	4.59	0.12	5.47	0.14
Commercial Lot	23	2.14%	383	37.68	0.81	31.31	2.63	0.06	3.14	0.07
Parking Garage	5	0.47%	227	84.36	0.39	44.55	4.86	0.02	5.80	0.03
SHOPPING	394	36.69%	295	49.40	18.12	61.40	5.88	2.16	7.01	2.57
Other	19	1.77%	63	28.69	0.51	31.00	6.42	0.11	7.66	0.14
TOTAL =	1074		1301	605.60	35.14			5.96		7.10

Appendix C

PC-VEHSIM
Vehicle Emissions Simulation Model
User's Guide and Reference Manual

PC-VEHSIM
VEHICLE EMISSIONS SIMULATION MODEL
USER'S GUIDE AND REFERENCE MANUAL

Prepared Under Contract No. A932-185

prepared for:

California Air Resources Board

November 12, 1993

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PC-VEHSIM
VEHICLE EMISSIONS SIMULATION MODEL
USER'S GUIDE AND REFERENCE MANUAL

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1. INTRODUCTION

This user's manual describes the operation and use of the microcomputer version of the Vehicle Emissions Simulation Model, VEHSIME©, developed for the Air Resources Board (ARB) by Sierra Research.

The basic computer model used in this study, originally called VEHSIM, was developed by the Department of Transportation to model vehicle operation using any specified speed time profile.[1*] The U. S. Environmental Protection Agency (EPA) modified VEHSIM and created a new program, called VSIME, which used the output from VEHSIM to compute engine emissions. Sierra obtained a copy of VEHSIM from EPA in 1987, but the original version of VSIME was lost. Sierra used the written documentation for VSIME to recreate the code for the emissions prediction model and make it VAX/VMS compatible; this program was called VEHSIME to distinguish it from the previous program.[2] Under a recent EPA-funded effort, a cold start routine was added to the model. Under the current contract, a personal computer (MSDOS) version of the model was created.

The manual is organized as follows.

Section 2 provides a list of system requirements necessary to operate the VEHSIME package on a microcomputer, as well as instructions for installing the software.

Section 3 contains a conceptual overview of the program package. A description of the purpose and structure of each of the programs is presented. Brief discussions of each of the input and output files are given. New users should start here.

Section 4 lists detailed, step-by-step instructions for running the two programs in the package and provides detailed descriptions of the commands employed by the first program, VEHSIM. New users should read this section thoroughly.

Section 5 presents technical reference information explaining the theory employed by the model to estimate segment-by-segment emissions.

###

* Superscripts refer to references provided in Section 6.

2. SOFTWARE INSTALLATION

2.1 System Requirements

The VEHSIME package was developed to run on a personal computer (PC) running *MS-DOS®* Version 3.3 or greater. For efficient operation, an 80386 CPU and a math co-processor or a 80486 CPU is recommended. The files on the distribution diskette require approximately 3.2 MB of hard disk space. Each of the two program images, VEHSIM and VEHSIME, require approximately 570 kB of free RAM. The source code for both programs was written to be compatible with *Microsoft®* FORTRAN (Version 5.1).

2.2 Installation

All program and sample input and output data files are contained on a single $3^1/_2$ inch distribution diskette. The files are compressed in a self-extracting archive file. To upload the PC-VEHSIM package onto a hard disk, copy the archive file "PCVEHSIM.EXE" to a destination directory on the hard disk (e.g., *COPY B:PCVEHSIM.EXE C:\PCVEHSIM*) and "run" the self-extracting archive.

Table 1 lists the files which are contained in the archive. To confirm that the files were uploaded successfully, type:

VEHSIM

If a "PC-VEHSIM" startup screen appears, press *<Ctrl-C>* (hold down "Ctrl" key, strike "C"). The programs are ready to run. A good way to validate the proper operation of the program files on your computer is to run the sample input files contained on the distribution diskette and compare the resulting outputs to the corresponding sample output files. See Section 4 for details.

###

Table 1

Contents of the PC-VEHSIM Self-Extracting Archive File

DUMMY2	TMP	2	09-02-93	8:06a
DUMMY5	TMP	1564	09-02-93	8:06a
MAPS	ZIP	80779	09-02-93	7:08a
NEWYRKR	DAT	640	09-02-93	7:10a
NEWYRKR	MAP	5714	07-29-93	8:01a
PARTS	BIN	364170	08-29-93	8:59p
VEHSIM	EXE	416272	09-02-93	7:58a
VEHSIM	FOR	414622	09-02-93	7:56a
VEHSIME	EXE	144708	07-28-93	8:02p
VEHSIME	FOR	18135	07-28-93	8:02p
METRO	MAP	7359	07-27-93	8:12p
RANGER	MAP	7623	08-04-93	5:50a
MR2	MAP	8552	07-27-93	11:10p
CARAVAN	MAP	5510	07-28-93	11:37p
CROWNVIC	MAP	6045	07-29-93	9:18a
CAVALIER	MAP	6361	07-29-93	5:50p
ESCORT	MAP	5847	07-29-93	6:04p
PROBE	MAP	6053	07-29-93	6:41p
JETTA	MAP	6342	07-29-93	6:57p
GRANPRIX	MAP	6533	07-30-93	12:51p
SAAB9000	MAP	7216	07-30-93	12:56p
LESABRE	MAP	6155	07-30-93	1:48p
PONT6000	MAP	6637	07-30-93	1:54p
F150	MAP	4901	07-30-93	2:45p
SONOMA28	MAP	7422	08-04-93	7:16a
SONOMA43	MAP	6257	08-04-93	7:33a
SIERRA	MAP	6936	08-04-93	7:40a
VOLVO740	MAP	6634	08-04-93	8:14a
MERC300E	MAP	6832	08-04-93	8:29a
SENTRA	MAP	6929	08-04-93	8:43a
NISNPKUP	MAP	8097	08-04-93	8:48a
SL2	MAP	6538	08-04-93	11:44p
DAKOTA	MAP	6430	08-05-93	12:03a
SHADOW	MAP	6734	08-05-93	12:16a
ACCORD	MAP	6540	08-05-93	6:16a
4RUNNER	MAP	5839	08-05-93	7:27a
CAMARO	MAP	5566	08-05-93	8:08a
F250	MAP	4991	08-05-93	8:18a
75_CHEV	MAP	10588	08-06-93	5:31p
MONTCARL	MAP	10588	08-06-93	5:05p
77LESAB	MAP	10588	08-27-93	6:35p
41 file(s)		1661249 bytes		

3. PROGRAM OVERVIEW

Summary descriptions of the PC-VEHSIM programs and an overview of their organization and use are presented in this section. Detailed step-by-step operation procedures are discussed in Section 4. Reference information is given in Section 5.

3.1 Program Summary

The PC-VEHSIM package consists of two separately-executed programs, VEHSIM and VEHSIME. These programs have been written and compiled using *Microsoft® FORTRAN (Version 5.1)* and can be executed on personal computers running the *MS-DOS®* operating system (see Section 2.1 for further details on system requirements).

VEHSIM and VEHSIME each perform specific functions related to vehicle emissions simulation. Both programs require input on various vehicle, engine and drive-train parameters. VEHSIM (VEHicle SIMulation) uses a specified input driving schedule giving the speed vs. time trace that the vehicle is to maintain over time. This driving schedule is coupled with vehicle and engine data, and vehicle force calculations are performed to compute segment-by-segment estimates of engine rotational speed (RPM) and engine load (torque) required to "drive" the speed vs. time trace. (The segment intervals are defined based on the driving trace, typically one second.)

The engine speed and load define a specific operating state of the engine. All other engine variables (fuel consumption, intake manifold vacuum, throttle position and emissions) are determined from input data tables called engine "maps" which describe (or map) these other engine variables as a function of engine speed and load.

The computed second-by-second engine speed and load estimates and some of the other computed variables including the fuel rate, manifold vacuum and throttle are then written by VEHSIM to two output files. One is a formatted text file to be printed (suffixed ".OUT"); the other is a binary file (suffixed ".BIN") which is prepared for subsequent input into to the companion program VEHSIME (VEhicle SIMulation Emissions). VEHSIME then reads the input engine speed and load for each second and, using a separate engine emissions map, performs a similar interpolation to compute second-by-second emissions.

Although the user supplies the driving schedule and the VEHSIM program produces output at the end of each segment on the driving schedule, the model may internally divide a particular segment on the driving schedule into several smaller steps to maintain accuracy in the force balance

calculations. This is especially important during accelerations and decelerations when the road load and the rotational inertia terms change with changing vehicle speed. The subdivision of each segment on the driving cycle is done in terms of a time step, Δt, which may be set by the user. The allowable range for the user-specified time step is 0.01-0.5 seconds. The default (if no entry is given at the interactive prompt) is 0.05 seconds. Thus, by default, a typical one-second segment consists of 20 individual time steps.

3.2 Program and Data Flow

The current version of the PC-VEHSIM programs has been designed with simple, interactive interfaces that prompt the user for information about the model run(s) to be executed. Typically, the two programs are executed in series. First, VEHSIM is executed to produce the second-by-second engine state estimates (engine speed and load) over an input driving schedule. These estimates are then fed into VEHSIME to produce second-by-second emissions. However, the design of the PC-VEHSIM package also allows the user to execute a series of VEHSIM runs before feeding them through VEHSIME to generate emissions.

The amount of input data required by VEHSIM and VEHSIME is fairly substantial. To avoid requiring the user to interactively key in volumes of input data during each execution, some of which is utilized in every run, the programs have been designed to read much of their input data from external ASCII "text" files. These input text files must be prepared prior to running them through the models. They can be created and edited with any editor (such as DOS EDIT) or word processor capable of reading and saving files as ASCII text.

In addition to the editable text files, both programs access uneditable binary input files from which specific information is retrieved during each run. Brief descriptions of all of these files and their use are explained below. For further discussion of their purpose and contents, refer to Sections 4.1 through 4.4.

Figure 1 shows the organization of the basic data files and interactive user input required by each of the programs, as well as their outputs. Summary descriptions of the inputs to and outputs from each program are presented below.

"Subroutine maps" illustrating the calling "tree" of subprograms called within the VEHSIM and VEHSIME programs are shown in Figures 2 and 3, respectively.

VEHSIM

As shown in Figure 1, VEHSIM prompts the user for four basic inputs:

1. Run Commands File - The name of the ASCII text file containing the specific VEHSIM commands to be executed in the current run;

Figure 1

PC-VEHSIM Program Flow and Data Requirements

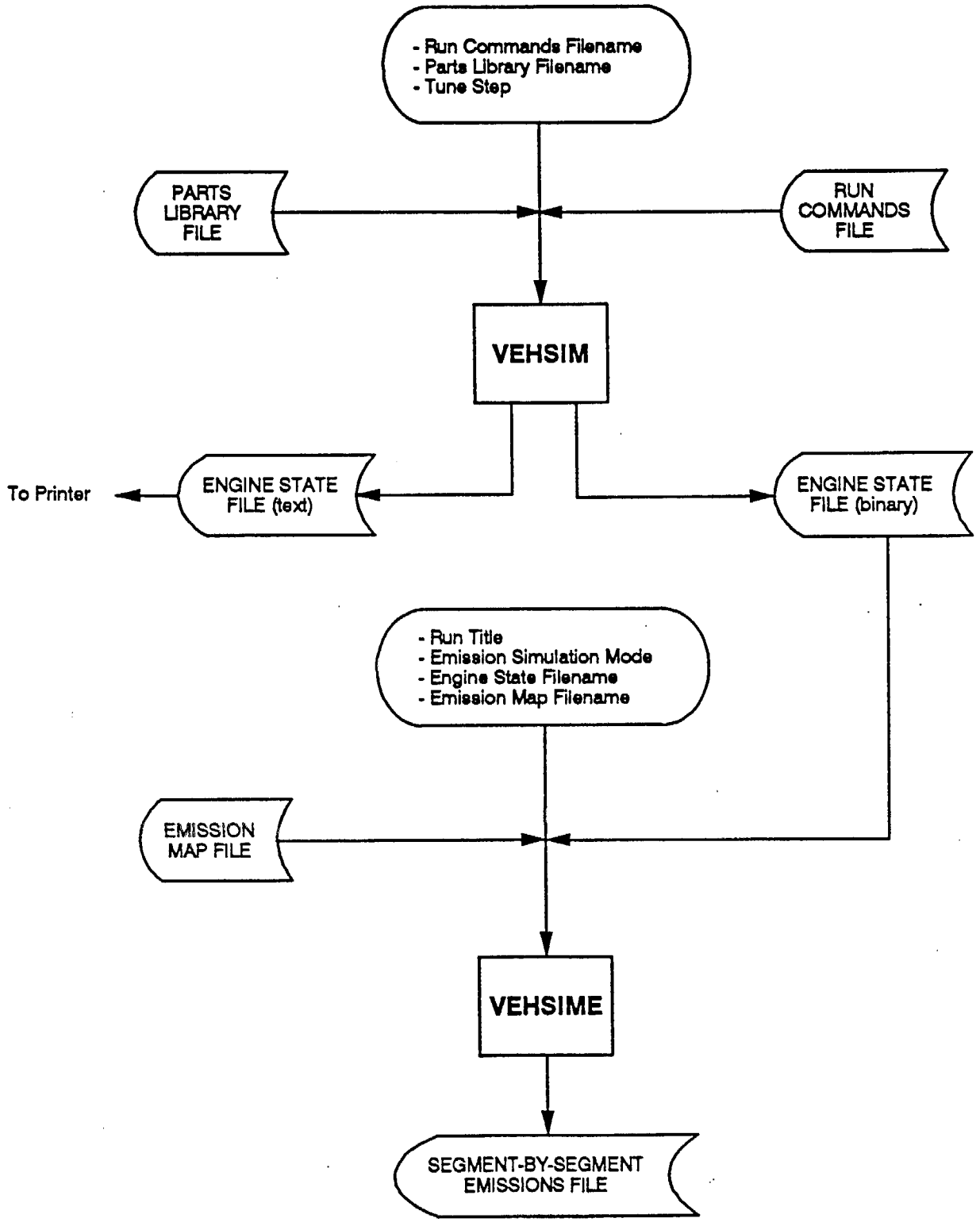


Figure 2

Subroutine Map – VEHSIM

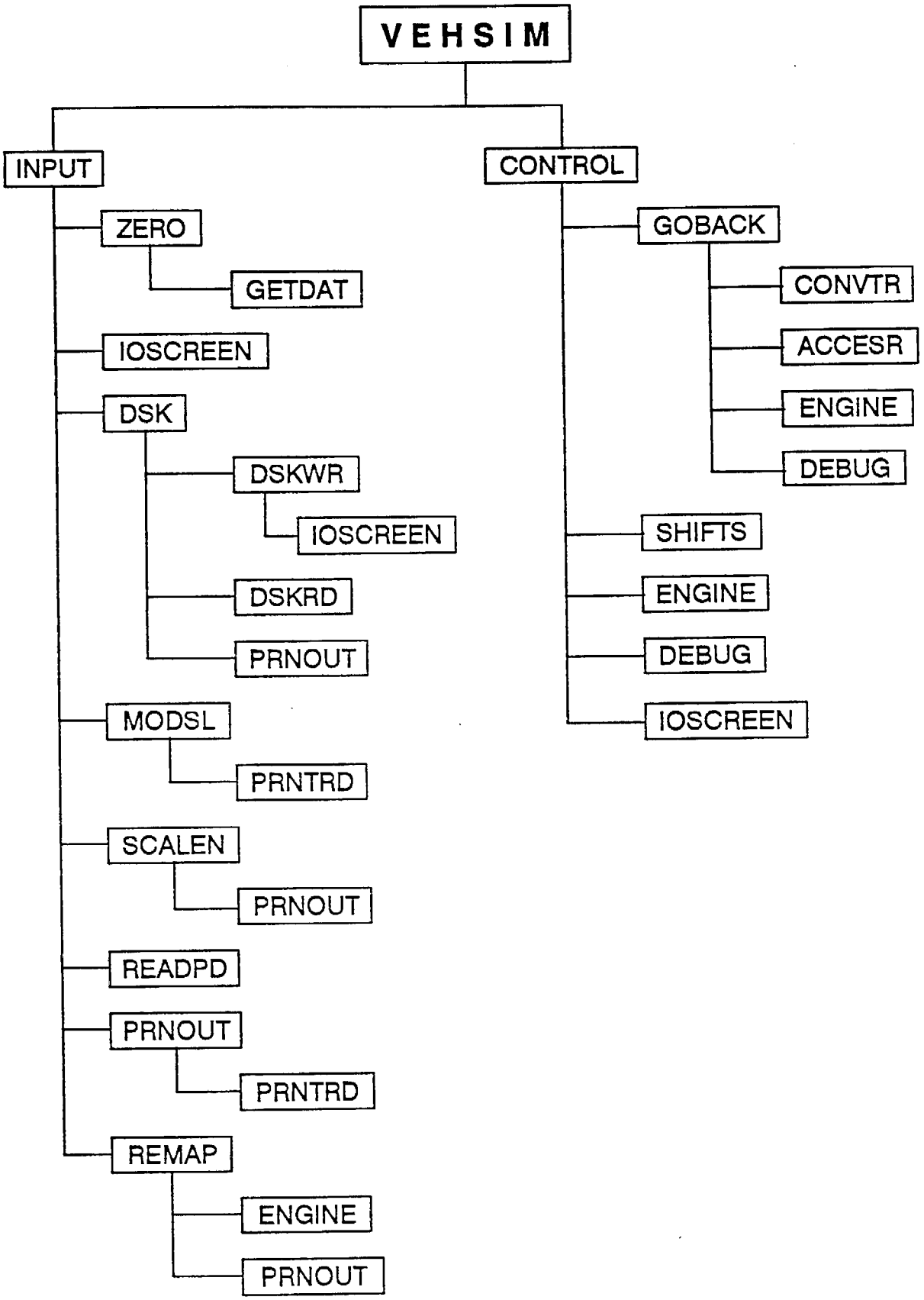
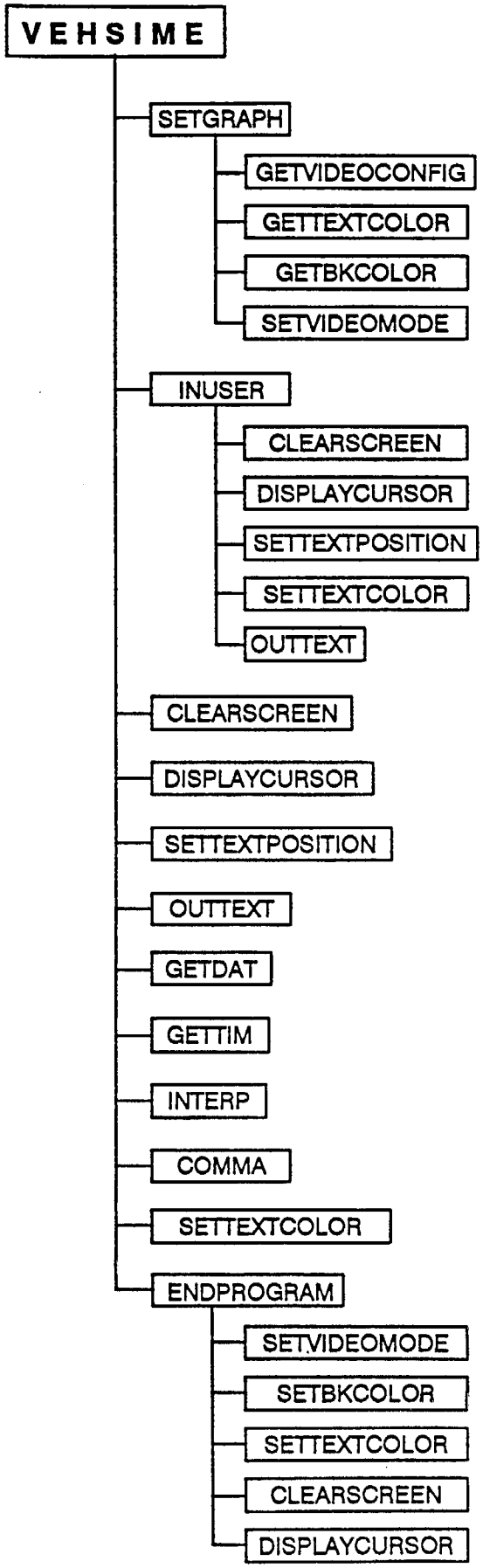


Figure 3

Subroutine Map – VEHSIME



2. Parts Library File - The name of the binary file containing detailed "parts" data from which a vehicle/engine traveling over a driving schedule can be simulated;

3. Engine State Output Files - The names of the two output files created by VEHSIM containing the calculated second-by-second engine state; and

4. Time Step - A value (between 0.01 and 0.5 seconds) that controls the simulation accuracy and program execution speed.

The Run Commands file is a short text file containing the vehicle configuration to be simulated. This configuration is specified as a list of VEHSIM commands that directs the model to load various vehicle "parts" data including engine, vehicle chassis, gearing and converter information. Also defined in the configuration are the driving schedule and the shift logic. VEHSIM retrieves detailed data for each part referenced in the Run Commands file from the Parts Library file.

A complete description of VEHSIM commands is presented in Section 4.1, "VEHSIM Run Commands".

Output from VEHSIM consists of two files which contain essentially the same information. One, suffixed ".OUT", is a printable ASCII file. The second, suffixed ".BIN" is a non-printable binary file which is, in turn, input to VEHSIME. Both files contain calculated engine speed and load (as well as distance, speed, gear, horsepower, throttle, vacuum and fuel consumption) for each segment in the modeled driving schedule.

VEHSIME

As illustrated in Figure 1, VEHSIME requires the following inputs:

1. Run Title - Descriptive text which will be printed as a title in the emissions output file;

2. Emission Simulation Mode - A value of "H" or "C" specified by the user directing VEHSIME to produce either hot or cold start emission estimates, respectively;

3. Engine State File - The name of the binary file (suffixed ".BIN") output from VEHSIM containing modeled engine state estimates; and

4. Emissions Map File - The name of an ASCII text file containing emission rates as a function of engine speed and load (both catalyst upstream and downstream rates are required).

Modes of Execution

VEHSIM can be executed in either of three modes:

1. Simulation;
2. Parts File Edit; or
3. Parts File Inquiry.

Usually the Simulation mode is executed. This is the mode summarized above in which travel of a vehicle over a driving schedule is simulated. In this mode of execution, the input Run Commands file contains a list of "USE" commands specifying particular parts to be used. The Run Commands file is terminated by a "SIMULATE" command. This setup directs VEHSIM to retrieve the specified parts from the Parts Library file and perform a model simulation, calculating and outputting second-by-second estimates of the engine state over the input driving schedule.

At times, the contents of a Parts Library file will need to be changed. Either new parts (e.g., different driving schedules being evaluated) will need to be added or, to enable more efficient parts data retrieval, infrequently used parts will need to be removed. Under the Parts File Edit mode, no simulations are performed. Instead, either "part-storing" commands or the part drop command ("DROP") are issued through the Run Commands file which directs VEHSIM to edit, and either add or remove, part data from the Parts Library file.

The third VEHSIM execution mode, Parts File Inquiry, is used to direct VEHSIM to output a listing of the contents of the specified Parts Library file. As in "Edit" mode, no simulation is performed. In this mode, the Run commands file contains a "DUMP" command. Either brief or detailed dumps of part libraries can be specified.

VEHSIME is executed strictly as a simulation model, but can be run under two distinct emission simulation modes:

1. Hot Start; and
2. Cold Start.

The Hot Start mode simulates fully warmed-up, stabilized operation over the modeled driving schedule. The Cold Start mode simulates operation of an <u>initially</u> cold engine and catalyst which warms up over the course of the driving schedule. Additional discussion of the two start modes is presented in Section 5.2, "VEHSIME Cold Start Adjustments".

No editing or inquiry modes are necessary with VEHSIME because the only "parts" data needed to compute emissions for the second-by-second engine state estimates passed to it from VEHSIM are the engine emission map files (suffixed ".MAP") themselves. These emission map files (like VEHSIM Run Commands files) are editable, ASCII text files which can be printed or viewed and edited directly using a text editor or word processor as described earlier in this section.

###

4. PROGRAM OPERATION

4.1 Developing VEHSIM Run Commands Files

Due to fairly intensive input data requirements, VEHSIM was designed to minimize the amount of keyboard input entered by the user during program execution, especially input repeated across a series of runs. As a result, nearly all input data required by VEHSIM are stored in a data "library" called the Parts Library file which must be prepared prior to execution. When a VEHSIM simulation is performed, very detailed data describing the specific vehicle/engine/driving schedule combination being analyzed are retrieved from the Parts Library. An individual part may contain hundreds of data elements. However, each part is referenced in the library by a part type (5 characters) and a part name (6 characters). The combination of part type and name uniquely identifies what may be a large "region" of data within a Parts Library file.

Once a Parts Library file has been created and a series of parts are stored within it, a series of simple VEHSIM "run commands" are issued to retrieve the necessary parts data for the vehicle configuration being simulated. Repetitive input for a series of VEHSIM runs is further reduced by specifying the VEHSIM commands from within a Run Commands text file which is read by the program during a simulation, instead of interactively via the keyboard during <u>every</u> simulation.

In this section, descriptions of each of the VEHSIM run commands are presented. Detailed format descriptions for preparing and storing parts data in a Parts Library are contained in Appendix 1. Much of the information presented here and in Appendix 1 has been excerpted from the VEHSIM manual originally published by the Department of Transportation. The user can refer to the DOT-VEHSIM manual for further information, but should be cautioned that some of the commands and command options listed there <u>do not exist</u> in the Sierra-developed PC version.

Commands

VEHSIM Run Commands are short, ASCII text files which can be readily created, viewed and edited with an editor (such as DOS EDIT) or word processing program capable of reading and saving files as ASCII text.

Each line in a Run Commands file contains a single VEHSIM command (except Parts Data commands which span multiple lines). All VEHSIM commands are identified by an asterisk (*) in column 1. In addition, all commands contain a part name reference listed in columns 19-24. For example:

```
*ENGINE_ _ _ _ _ _ _ _ _ _ _ _CNY91E
```

would be the command line specifying that data on an engine named "CNY91E" will immediately follow.

A complete list of VEHSIM commands is presented in Table 2. The commands are organized into two groups: (1) Parts Data Commands; and (2) Utility Commands.

Table 2

VEHSIM Run Commands

Parts Data Commands	Utility Commands
*ACCESSORY	*DEBUG
*DRIVING SCHEDULE	*DROP
*ENGINE	*DUMP
*FULL CONVERTER	*LIMIT PRINT
*GEAR	*LOCKUP CONVERTER
*ROUTE	*MODIFY
*S.R. CONVERTER	*PRINT UNITS
*SHIFT LOGIC	*REMAP
*VEHICLE	*SIMULATE
	*TITLE
	*UNLOCK CONVERTER
	*USE

The function of each of these commands is described below in separate sections related to their specific uses.

Storing New Parts Data

When storing new parts in a Parts Library file, VEHSIM "Parts Data" commands are used. As mentioned above, Parts Data commands contain a part type designation immediately following the asterisk in column 1 (only the characters in columns 2-6 are used; e.g., "ENGIN" in the word engine) and a part name is in columns 19-24. Lines which follow this "command line" contain the specific part data. Parts such as the driving schedule and the engine can contain many subsequent data lines. VEHSIM recognizes the end of a multi-line stream of data for a part by detecting an asterisk in column 1 of the next command (or an end-of-file, EOF). The file "PARTS.DAT" on the distribution diskette is the VEHSIM Run Commands file which was used to create the companion Parts Library file "PARTS.BIN". This file contains examples of all types of Parts commands and part data streams. (See Appendix 1 for specific format descriptions.) To add parts to an existing Parts Library file, specify the name of an existing Parts Library file when prompted by VEHSIM. To create a new Parts Library file, enter a new filename at the VEHSIM prompt.

Each part command is described below.

*ACCESSORY	Indicates data describing inertial losses due to an engine accessory (e.g., fan or air conditioner) are to follow. Up to twenty accessories can be included in a particular vehicle/engine combination.
*DRIVING SCHED	Signals that data, in segment form (each subsequent record defines a segment), describing the speed (or acceleration) vs. time trace of a driving schedule are to follow. Note: In Sierra's VEHSIM program, road grade can also be described by segment as part of the driving schedule.
*ENGINE	Indicates engine map data (fuel consumption, throttle and manifold vacuum) follow.
*FULL CONVERTER	Marks torque converter data specifying input torque and RPM along with a speed ratio and torque ratio.
*GEAR	Gear ratio and inertia terms for a single gear.
*ROUTE	Indicates data describing the physical route to be driven (wind speed, road coefficient, etc.). Road grade can also be prescribed here (as a function of the route milepost) instead of under DRIVING SCHED. If grade is specified here and under DRIVING SCHED, the two values are added.
*S.R. CONVERTER	Signals that torque converter data in the form of input and output torques and RPMs are to follow.
*SHIFT LOGIC	Designates that shift criteria (shift lines, shift times, etc.) are to follow that apply to all input gears in the transmission. A transmission with N gears must have 2N - 2 shift lines.
*VEHICLE	Indicates that vehicle/chassis data (weight, frontal area, axle ratio, etc.) are to follow.

Performing a Model Simulation

Each Run Commands file which is set up to perform a VEHSIM model simulation must terminate with a *SIMULATE command. Before the *SIMULATE directive, a series of *USE (and optionally, *MODIFY) commands must be issued in the Run Commands file.

Utility commands related to performing a VEHSIM simulation are discussed below.

*USE	Directs VEHSIM to retrieve data from a parts library for the unique part name/part type combination listed

in columns 7-12 and 19-24, respectively of the *USE command line*. Acceptable part types are:

- ACCES (ACCESSORY)
- CONVE (CONVERTER)
- DRIVI (DRIVING SCHEDULE)
- ENGIN (ENGINE)
- GEAR
- ROUTE
- SHIFT (SHIFT LOGIC)
- VEHIC (VEHICLE).

*MODIFY — Enables the user to temporarily reset the values of a host of program parameters for the simulation currently being executed without permanently changing those parameters in a Parts Library file. The *MODIFY command must follow the *USE command which retrieves the data being modified in the Run Commands file. Program parameters that can be altered at run time with the *MODIFY command include gross vehicle weight, frontal area, drag coefficient, engine displacement and tire efficiency. (See the format description for the *MODIFY command in Appendix 1 for a complete list of modifiable parameters.)

*TITLE — Allows the user to specify a 60-character run title that will be printed at the top of each page of the simulation output file (.OUT).

*LIMIT PRINT — Lets the user restrict the amount of detail in the output file. The available limit options are:

- SEGMENT - outputs engine state data at the end of each segment;
- MILE - lists data only at fixed mileposts along a driving schedule (e.g., every 0.5 miles);
- SEC - outputs data at fixed time increments along a driving schedule (e.g., every 30 seconds);
- OFF - no limiting; outputs data for each <u>time step</u> being simulated; and
- SUMMARY - only outputs summary information over the entire driving schedule. (This is the default setting.)

*DEBUG — Provides the user with additional information beyond that normally output. <u>Note</u>: Although this command can be invoked to more closely examine the VEHSIM engine state calculations over key portions of a

---

* For example, *USE_ _CNY91E_ _ _ _ _ _ENGIN

driving schedule, the resulting output files are incompatible with VEHSIME. The same simulation must be run without DEBUG invoked to allow subsequent input into VEHSIME.

*PRINT UNITS — Allows the user to specify alternate engine state output units other than those specified in the ENGINE part being run.

*LOCKUP CONVERT — Gives the user the ability to "lock up" the torque converter for the gear box being modeled. *LOCKUP "removes" the torque converter by setting speed and torque ratios to unity.

*UNLOCK CONVERT — The converse to *LOCKUP, *UNLOCK allows a previously locked gear to be unlocked.

*SIMULATE — Directs VEHSIM to perform a simulation.

The least amount of data for which a VEHSIM simulation can be executed consists of:

- engine data;
- vehicle data;
- torque converter data (both drive and coast converters);
- gear data;
- a shift logic;
- a route description; and
- a driving schedule.

Optionally, *USE commands for accessory losses, and *LOCKUP and *UNLOCK CONVERTER commands to enable or disable locking of the torque converter can also be included in a simulation setup.

Four files on the distribution diskette, "LA4_OXC.DAT", "LA4_3WY.DAT", "LA92_OXC.DAT" and "LA92_3WY.DAT" are sample simulation Run Commands files. Figure 4 shows the contents of "LA92_3WY.DAT", a file which simulates a 3.8 liter Chrysler New Yorker with a three-way catalyst being driven over the LA92 driving cycle.

Removing Data From a Parts File

Unused or infrequently used part data can be dropped from a Parts Library file using the *DROP command. The *DROP command is discussed below.

*DROP — Directs VEHSIM to remove the part specified on the command line from a parts library. Similar in format to the *USE command, the unique part name/type combination listed in columns 7-12 and 19-23, respectively, is removed from a parts library.

Figure 4

Sample VEHSIM Run Commands Simulation File (LA92_3WY.DAT)

```
*USE  LEVEL       ROUTE
*PRINT UNITS      ENGINE      RPM          TORQUE       LB/HR
*LIMIT PRINT      SEGMENT
*USE  COCY2       CONVERTER
*USE  CODY2       CONVERTER
*USE  CN91G1      GEAR                     1
*USE  CN91G2      GEAR                     2
*USE  CN91G3      GEAR                     3
*USE  CN91G4      GEAR                     4
*USE  GEN3        SHIFT LOGIC
*USE  LFANA       ACCESORY
*USE  CNY91V      VEHICLE
*USE  CNY91E      ENGINE          1        1 2 3 4
*USE  H5D289      DRIVING SCHEDULE
*TITLE      LA92 Cycle H5D289, New Yorker 3-Way Map, Typical P/W
*MODIFY           SHIFT          2.
*MODIFY           WEIGHT      3750.
*SIMULATE
```

The file "DROPTMPL.DAT" on the distribution floppy is a template Run Commands file for dropping parts which can be edited and saved under different names. When editing the file, fill in the part name and part type to be removed in the <name> and <type> "placeholders" contained in the template file. Multiple parts can be removed from a parts library in a single VEHSIM run by creating additional *DROP lines in the file.

Inquiring About a Parts File

Two commands, *DUMP and *REMAP, can be issued in a Run Commands file to obtain either summary-level or detailed information about the contents of a Parts Library file. They are defined below.

*DUMP — Allows the user to obtain a dump of either a single part or the entire set of parts in a parts library. If the word DIRECTORY, instead of an individual part name, appears in the *DUMP command starting at column 19, VEHSIM will output a summary listing of part types and names of a parts library.

*REMAP — Enables the user to output a VEHSIM engine map at user-specified engine speed and load points instead of those initially prescribed for the engine map in the parts library. This command is useful for comparing fuel consumption, throttle and vacuum settings of engines for which initial data were specified at different speed and load points.

Output generated by both the *DUMP and *REMAP commands is directed to the printable VEHSIM output text file (suffixed .OUT).

The *DUMP command, with the DIRECTORY option as described above, is a handy way to create a "Table of Contents" for a parts library. If the user is working with a number of modular Parts Library files, keeping and updating listings of their contents is extremely useful.

The distribution diskette contains a Run Commands file called "DUMPDIR.DAT" just for this purpose. It can be employed on any existing parts library to generate a list of the library's contents. Figure 5 shows the contents of the "DUMPDIR.OUT" file. This file contains the "Table of Contents" listing of the "PARTS.BIN" parts library generated with the "DUMPDIR.DAT" Run Commands file.

4.2 Running VEHSIM

Step-by-step instructions for executing VEHSIM are presented in this section. It is assumed that the user is familiar with Section 4.1, "VEHSIM Commands".

In the instructions that follow, keyboard input required by the user is indicated in ***bold italics*** to distinguish it from prompts or output produced by the programs.

Step 1 Set your default directory to the location in which the PC-VEHSIM files were installed from the distribution diskette. Then begin execution of VEHSIM by simply typing:

VEHSIM

Step 2 A "VEHSIME" startup screen appears with a flashing reminder to ensure that all subsequent character input to VEHSIM be entered as UPPER CASE. At this point, make sure the keyboard "Caps Lock" is activated. When ready, press the *<ENTER>* key to remove the startup screen and begin interactive input.

Step 3 Enter the name of the Run Commands file to be input. For example:

LA92_3WY.DAT

If VEHSIM can't find the file (in the event you keyed in the wrong filename), it will prompt you for the Run Commands filename again.

Step 4 Enter the output "filespec". Recall that VEHSIM produces two similar output files, a printable text file (suffixed .OUT) and a non-printable binary file (suffixed .BIN) which is subsequently input to VEHSIME. VEHSIM automatically assigns these suffixes to the two output files. "Filespec" then refers

Figure 5

Sample DUMPDIR Output File (Listing of PARTS Library)

PARTS DATA FILE DIRECTORY (199 PARTS) 11-12-93

1	ENGIN	GEO92M	1992 Geo Metro
2	ENGIN	TOY92M	Toyota MR2
3	ENGIN	DOD91C	Dodge Caravan
4	ENGIN	CNY91E	1991 Chrysler New Yorker 3.3 L Engine
5	ENGIN	FCV92E	1992 Ford Crown Victoria 4.6L L4AEOD
6	ENGIN	CAV90V	1990 Chevrolet Cavalier 2.2L L3
7	ENGIN	CAV90E	1990 Chevrolet Cavalier 2.2L L3
8	ENGIN	FOR91E	Ford Escort Engine Map
9	ENGIN	FOR91P	1991 Ford Probe GL (2.2 L) Engine Map
10	ENGIN	VWJ91E	1991 Volkswagen Jetta Engine Map
11	ENGIN	PON91G	1991 Pontiac Grand Prix 2.3 L Engine Map
12	ENGIN	SAAB91	1991 Saab 9000 (2.3 L) Engine Map
13	ENGIN	PON90S	1990 Pontiac 6000 (3.1 L) Engine Map
14	ENGIN	BUL90E	1990 Buick LeSabre Engine Map - 3.8L
15	ENGIN	F15090	1990 Ford F150 Truck (4.9 L) Engine Map
16	ENGIN	SON28L	1991 GMC Sonoma 2.8L Truck Engine
17	ENGIN	SON43L	1991 GMC Sonoma 4.3L Truck Engine
18	ENGIN	SER57L	1990 GMC Sierra 5.7 L Truck Engine
19	ENGIN	VOL91S	1991 Volvo 740 (2.3 L) Engine Map
20	ENGIN	MB92E	1992 Mercedes-Benz 300E 3.0L Engine Map
21	ENGIN	NIS91S	1991 Nissan Sentra (1.6 L) Engine Map
22	ENGIN	NIS90T	1990 Nissan Pick-up Truck (2.4 L) Engine Map
23	ENGIN	SL291E	1991 Saturn SL2 (1.9 L) Engine Map
24	ENGIN	DAK52L	1992 Dodge Dakota 5.2 L Engine Map
25	ENGIN	DOD91S	1991 Dodge Shadow (2.5 L) Engine Map
26	ENGIN	RANG90	1990 Ford Ranger XLT Truck (2.3 L) Engine Map
27	ENGIN	HON91A	1991 Honda Accord (2.2 L) Engine Map
28	ENGIN	TOY90F	1990 Toyota 4-Runner Engine Map
29	ENGIN	CAM91E	1991 Chevrolet Camaro (5.7 L) Engine Map
30	ENGIN	F25090	1990 Ford F250 Truck (5.8L) Engine Map
31	ENGIN	FAKE1E	1991 Saturn SL2 (1.9 L) Engine Map
32	ENGIN	FAKE2E	1991 Saturn SL2 (1.9 L) Engine Map
33	CONVE	COCY2	11. INCH COAST CONVERTER FOR V-8 ENGINE
34	CONVE	CODY2	11. INCH DRIVE CONVERTER
35	CONVE	DODGC	Drive Converter for Dodge Shadow and Caravan
36	CONVE	6000C	Drive Converter for Pontiac 6000
37	CONVE	CAMAC	Chevrolet Camaro Drive Converter
38	CONVE	MERCC	Mercedes Benz 300E Drive Converter
39	CONVE	VOLVC	Volvo 740 Drive Converter
40	CONVE	GMCDC	Drive Converter for GMC Truck Data
41	CONVE	LESAC	Drive Converter for Buick LeSabre
42	CONVE	DAKOC	Drive Converter for Dodge Dakota
43	CONVE	NEWYC	Drive Converter for Chrysler New Yorker
44	CONVE	PRIXC	Drive Converter for Pontiac Grand Prix
45	CONVE	SL2DC	Drive Converter for Saturn SL2
46	CONVE	ACRDC	Drive Converter for Honda Accord
47	VEHIC	GEO92M	1992 Geo Metro Three-door Hatchback
48	VEHIC	TOY91M	1991 Toyota MR2 Three-door Liftback
49	VEHIC	DOD91C	1991 Dodge Caravan Wagon
50	VEHIC	CNY91V	1991 Chrysler New Yorker Four-door Sedan
51	VEHIC	FCV92V	1992 Ford Crown Victoria
52	VEHIC	CAV90V	1990 Chevrolet Cavalier
53	VEHIC	FOR91E	1991 Ford Escort Vehicle 2-Door Hatchback
54	VEHIC	FOR91P	1991 Ford Probe GL Two-door Sedan with Hatchback
55	VEHIC	VWJ91V	1991 Volkswagen Jetta Four-door Custom Sedan

Figure 5 Continued...

Sample DUMPDIR Output File (Listing of PARTS Library)

56	VEHIC	PON91G	1991 Pontiac Grand Prix 4-Door Sedan
57	VEHIC	SAAB91	1991 Saab 9000 Four-Door Hatchback
58	VEHIC	PON90S	1990 Pontiac 6000 Four-door sedan
59	VEHIC	BUL90V	1990 Buick Le Sabre
60	VEHIC	F15090	1990 Ford F150 Truck 4x2 Regular Cab
61	VEHIC	SON91X	1991 CMG Sonoma External Cab Pickup Truck
62	VEHIC	SON91F	1991 GMC Sonoma 4x2 Pick Up Truck
63	VEHIC	SIER90	1990 GMC Sierra Two-Door Pick-up Truck
64	VEHIC	VOL91S	1991 Volvo 740 Four-door Sedan
65	VEHIC	M30092	1992 Mercedes-Benz 300E Four-door Sedan
66	VEHIC	NIS91S	1991 Nissan Sentra Two-Door Sedan
67	VEHIC	NIS90T	1990 Nissan King Cab Pickup
68	VEHIC	SL291V	1991 Saturn SL2 Four-Door Sedan
69	VEHIC	DAK92V	1992 Dodge Dakota Pickup with 5.2 L Engine and L4OD Transmission
70	VEHIC	DOD91S	1991 Dodge Shadow Four-door Hatchback
71	VEHIC	RANG90	1990 Ford Ranger XLT Truck
72	VEHIC	HON91A	1991 Honda Accord Four-door Sedan
73	VEHIC	TOY90F	1990 Toyota Four-Runner Van
74	VEHIC	CAM91V	1991 Chevrolet Camaro Two-door Liftback
75	VEHIC	F25090	1990 Ford F250 Truck 4x2 Regular Cab
76	GEAR	GM92G1	First Gear for Geo Metro Five-speed Manual Transmission
77	GEAR	GM92G2	Second Gear for Geo Metro Five-speed Manual Transmission
78	GEAR	GM92G3	Third Gear for Geo Metro Five-speed Manual Transmission
79	GEAR	GM92G4	Fourth Gear for Geo Metro Five-speed Manual Transmission
80	GEAR	GM92G5	Fifth Gear for Geo Metro Five-speed Manual Transmission
81	GEAR	TM91G1	First Gear for 1991 Toyota MR2 Turbo
82	GEAR	TM91G2	Second gear for 1991 Toyota MR2 Turbo
83	GEAR	TM92G3	Third Gear for 1991 Toyota MR2 Turbo
84	GEAR	TM91G4	Fourth gear for 1991 Toyota MR2 Turbo
85	GEAR	TM91G5	Fifth Gear for 1991 Toyota MR2 Turbo
86	GEAR	DC91G1	First Gear for Dodge Caravan
87	GEAR	DC91G2	Second Gear for Dodge Caravan
88	GEAR	DC91G3	Third Gear for Dodge Caravan
89	GEAR	CN91G1	First Gear for Chrysler New Yorker L4 Transmission
90	GEAR	CN91G2	Second Gear for Chrysler New Yorker L4 Transmission
91	GEAR	CN91G3	Third Gear for Chrysler New Yorker L4 Transmission
92	GEAR	CN91G4	Fourth Gear for Chrysler New Yorker L4 Transmission
93	GEAR	CV92G1	First Gear for 1990 Ford Crown Victoria Four-door Sedan
94	GEAR	CV92G2	Second gear for 1990 Ford Crown Victoria Four-door Sedan
95	GEAR	CV92G3	Third Gear for 1990 Ford Crown Victoria Four-door Sedan
96	GEAR	CV92G4	Fourth gear for 1990 Ford Crown Victoria Four-door Sedan
97	GEAR	CV90G1	First Gear for Chevrolet Cavalier
98	GEAR	CV90G2	Second Gear for Chevrolet Cavalier
99	GEAR	CV90G3	Third Gear for Chevrolet Cavalier
100	GEAR	FO91G1	First Gear for 1991 Ford L4AEOD
101	GEAR	FO91G2	Second Gear for 1991 Ford L4AEOD
102	GEAR	FO91G3	Third Gear for 1991 Ford L4AEOD
103	GEAR	FO91G4	Fourth Gear for 1991 Ford L4AEOD
104	GEAR	VW91G1	First Gear for Volkswagen Jetta
105	GEAR	VW91G2	Second Gear for Volkswagen Jetta
106	GEAR	VW91G3	Third Gear for Volkswagen Jetta
107	GEAR	PG91G1	First Gear for Pontiac Grand Prix L3 Transmission
108	GEAR	PG91G2	Second Gear for Pontiac Grand Prix L3 Transmission
109	GEAR	PG91G3	Third Gear for Pontiac Grand Prix L3 Transmission
110	GEAR	S991G1	First Gear for Saab 9000
111	GEAR	S991G2	Second Gear for Saab 9000
112	GEAR	S991G3	Third Gear for Saab 9000

Figure 5 Continued...

Sample DUMPDIR Output File (Listing of PARTS Library)

113	GEAR	S991G4	Fourth Gear for Saab 9000
114	GEAR	S991G5	Fifth Gear for Saab 9000
115	GEAR	GMAG1	First Gear for GM L4OD Transmission (Buick/Pontiac)
116	GEAR	GMAG2	Second gear for GM L4OD Transmission (Buick/Pontiac)
117	GEAR	GMAG3	Third Gear for GM L4OD Transmission (Buick/Pontiac)
118	GEAR	GMAG4	Fourth gear for GM L4OD Transmission (Buick/Pontiac)
119	GEAR	FT91G1	First Gear for Ford Truck Transmission
120	GEAR	FT91G2	Second Gear for Ford Truck Transmission
121	GEAR	FT91G3	Third Gear for Ford Truck Transmission
122	GEAR	FT91G4	Fourth Gear for Ford Truck Transmission
123	GEAR	GMC5G1	First Gear for GMC M5OD Truck Transmission
124	GEAR	GMC5G2	Second Gear for GMC M5OD Truck Transmission
125	GEAR	GMC5G3	Third Gear for GMC M5OD Truck Transmission
126	GEAR	GMC5G4	Fourth Gear for GMC M5OD Truck Transmission
127	GEAR	GMC5G5	Fifth Gear for GMC M5OD Truck Transmission
128	GEAR	GMC4G1	First Gear for GMC L4OD Truck Transmission
129	GEAR	GMC4G2	Second Gear for GMC L4OD Truck Transmission
130	GEAR	GMC4G3	Third Gear for GMC L4OD Truck Transmission
131	GEAR	GMC4G4	Fourth Gear for GMC L4OD Truck Transmission
132	GEAR	VS91G1	First Gear for Volvo 470 L4OD Transmission
133	GEAR	VS91G2	Second Gear for Volvo 470 L4OD Transmission
134	GEAR	VS91G3	Third Gear for Volvo 470 L4OD Transmission
135	GEAR	VS91G4	Fourth Gear for Volvo 470 L4OD Transmission
136	GEAR	MB92G1	First Gear for Mercedes Benz A4 Transmission
137	GEAR	MB92G2	Second Gear for Mercedes Benz A4 Transmission
138	GEAR	MB92G3	Third Gear for Mercedes Benz A4 Transmission
139	GEAR	MB92G4	Fourth Gear for Mercedes Benz A4 Transmission
140	GEAR	NS91G1	First Gear for Nissan Sentra M5OD Transmission
141	GEAR	NS91G2	Second Gear for Nissan Sentra M5OD Transmission
142	GEAR	NS91G3	Third Gear for Nissan Sentra M5OD Transmission
143	GEAR	NS91G4	Fourth Gear for Nissan Sentra M5OD Transmission
144	GEAR	NS91G5	Fifth Gear for Nissan Sentra M5OD Transmission
145	GEAR	NP90G1	First Gear for Nissan Pick-up Truck M5OD Transmission
146	GEAR	NP90G2	Second Gear for Nissan Pick-up Truck M5OD Transmission
147	GEAR	NP90G3	Third Gear for Nissan Pick-up Truck M5OD Transmission
148	GEAR	NP90G4	Fourth Gear for Nissan Pick-up Truck M5OD Transmission
149	GEAR	NP90G5	Fifth Gear for Nissan Pick-up Truck M5OD Transmission
150	GEAR	SL91G1	First Gear for Saturn SL2 L4AEOD Transmission
151	GEAR	SL91G2	Second Gear for Saturn SL2 L4AEOD Transmission
152	GEAR	SL91G3	Third Gear for Saturn SL2 L4AEOD Transmission
153	GEAR	SL91G4	Fourth Gear for Saturn SL2 L4AEOD Transmission
154	GEAR	DD92G1	First Gear for Dodge Dakota Truck
155	GEAR	DD92G2	Second Gear for Dodge Dakota Truck
156	GEAR	DD92G3	Third Gear for Dodge Dakota Truck
157	GEAR	DD92G4	Fourth Gear for Dodge Dakota Truck
158	GEAR	DS91G1	First Gear for Dodge Shadow
159	GEAR	DS91G2	Second Gear for Dodge Shadow
160	GEAR	DS91G3	Third Gear for Dodge Shadow
161	GEAR	HA91G1	First Gear for Honda Accord L4OD
162	GEAR	HA91G2	Second Gear for Honda Accord L4OD
163	GEAR	HA91G3	Third Gear for Honda Accord L4OD
164	GEAR	HA91G4	Fourth Gear for Honda Accord L4OD
165	GEAR	TF90G1	First Gear for 1990 Toyota Four-Runner Van
166	GEAR	TF90G2	Second gear for 1990 Toyota Four-Runner Van
167	GEAR	TF90G3	Third Gear for 1990 Toyota Four-Runner Van
168	GEAR	TF90G4	Fourth gear for 1990 Toyota Four-Runner Van

Figure 5 Continued...

Sample DUMPDIR Output File (Listing of PARTS Library)

```
169 GEAR  CM91G1  First Gear for Chevrolet Camaro
170 GEAR  CM91G2  Second Gear for Chevrolet Camaro
171 GEAR  CM91G3  Third Gear for Chevrolet Camaro
172 GEAR  CM91G4  Fourth Gear for Chevrolet Camaro
173 GEAR  FT90G1  First Gear for Ford Truck Transmission - F250 with larger inertia
174 GEAR  FT90G2  Second Gear for Ford Truck Transmission - F250 with larger inertia
175 GEAR  FT90G3  Third Gear for Ford Truck Transmission - F250 with larger inertia
176 GEAR  FT90G4  Fourth Gear for Ford Truck Transmission - F250 with larger inertia
177 ACCES LFANA   FAN LOSSES
178 ACCES LPSA    POWER STEERING LOSSES
179 ACCES LACA    AIR CONDITIONING LOSSES
180 DRIVI HDC002  FTP HIGHWAY DRIVING CYCLE  764 SECONDS AND SEGMENTS
181 DRIVI UDC001  FTP URBAN DRIVING CYCLE  1371 SECONDS AND SEGMENTS
182 DRIVI SCC36   Speed Correction Cycle-36 Driving Cycle
183 DRIVI ACCEL1  First "Acceleration" Driving Cycle
184 DRIVI ACCEL2  Second Acceleration Driving Cycle
185 DRIVI SCC12   Speed Correction Cycle 12 Driving Cycle
186 SHIFT TEST2 TEST  SHIFT LOGIC(TCSM4R)WITH SHIFT TIME=.05 SECONDS
187 SHIFT M3-2  SHIFT LOGIC FOR 3 SPEED MANUAL TRANSMISSION (FTP)
188 SHIFT M4-2  SHIFT LOGIC FOR 4-SPEED MANUAL TRANS, WITH .05 SEC SHIFT TIME
189 SHIFT GMC1  SHIFT LOGIC FOR 5-SPEED MANUAL TRANSMISSION IN GMC TRUCKS
190 SHIFT GEO1  AGRESSIVE SHIFT LOGIC FOR 5-SPEED MANUAL TRANSMISSION IN SMALL CAR
191 SHIFT GEO2  Fuel Economy SHIFT LOGIC FOR 5-SPEED MANUAL TRANSMISSION IN SMALL CAR
192 SHIFT GEO3  Intermediate SHIFT LOGIC FOR 5-SPEED MANUAL TRANSMISSION IN SMALL CAR
193 SHIFT MRSH1 Toyota MR2 Turbo Shift Logic - Uses Negative Vacuums
194 SHIFT GEN1  GENERIC SHIFT LOGIC FOR 4-SPEED TRANSMISSION WITH .05 SEC SHIFT TIME
195 SHIFT GEN2  GENERIC SHIFT LOGIC FOR 4-SPEED TRANSMISSION WITH .5 SEC SHIFT TIME
196 SHIFT GEN3  GENERIC SHIFT LOGIC FOR 4-SPEED TRANSMISSION WITH 0.5 SEC SHIFT TIME
197 SHIFT GEN4  GENERIC SHIFT LOGIC FOR 4-SPEED TRANSMISSION WITH 0.5 SEC SHIFT TIME
198 ROUTE LEVEL   100 MILES OF LEVEL ROAD
199 ROUTE GRADE+  100 MILES OF 2% UPGRADE ROAD
```

to the root filename (i.e., you don't need to type a suffix here). For example, by typing

LA92_3WY

VEHSIM creates two output files, LA92_3WY.OUT and LA92_3WY.BIN.

Step 5 Enter the Library Parts filename. For example:

PARTS.BIN

This is usually, but not necessarily, an existing Library Parts file. When executing the model to create and store data in a new parts library, you enter the name of a file that doesn't yet exist. When VEHSIM can't find the name of the Parts Library file you input, it warns you that it's about to create a new parts file with the name you entered. If you're sure you want the program to create a new parts file, respond *Y* (yes) to the warning. If you mistakenly typed the name of an existing parts file which VEHSIM can't find and don't want to create a new file, respond *N* (no). VEHSIM will re-prompt you for the name of an existing parts file.

Step 6 Enter the time step (in seconds). The allowable range is from 0.01 to 0.5 seconds. The program will default to a time step of 0.05 seconds if you enter nothing here and simply type *<ENTER>*. A time step of 0.05 seconds provides a good balance between better simulation accuracy using small time steps and faster execution speed using large ones.

Note that when you're running VEHSIM in either the "Parts File Edit" or "Parts File Inquiry" modes, the time step is not applicable and VEHSIM does not prompt for it.

Step 7 VEHSIM displays a list of the files it plans to input and output based on your keyboard inputs and then pauses, letting you look over your filenames one last time. If they're OK, hit *<ENTER>*, and VEHSIM begins the run. If not, you can type *<Ctrl-C>* (hold down the "Ctrl" key and strike "C"), and the program will abort.

Step 8 The program runs in the mode implicitly described in the input Run Commands file. During this time, VEHSIM displays a "Processing Status" counter which indicates the current segment number being simulated (or part number being processed). When the program successfully completes execution, it displays another message and pauses. Hit *<ENTER>* to end VEHSIM and return to the DOS prompt.

The sample VEHSIM output file "LA92_3WY.OUT" (created from the "LA92_3WY.DAT" Run Commands file) is listed in Appendix 2. In addition to segment-by-segment engine state estimates, summary calculations and shift counts are listed at the end of the sample output file.

4.3 Running VEHSIME

Step 1 Set your default directory to the location in which the PC-VEHSIM files were installed from the distribution diskette. Then start VEHSIME by typing:

VEHSIME

Step 2 A "VEHSIME" startup screen appears with a flashing reminder to ensure that all subsequent character input to VEHSIME be entered as UPPER CASE. Make sure that your keyboard "Caps Lock" is activated. When ready, press the *<ENTER>* key to remove the startup screen and begin interactive input.

Step 3 Enter a program run title (up to 80 characters in length). This title appears at the top of the VEHSIME output file listing. For example:

3.8L NEW YORKER, 3-WAY CAT, LA92 CYCLE, HOT START

Step 4 Enter the desired start mode for the simulation (*C* for cold or *H* for hot). (See Section 5.2, "VEHSIME Emission Modes", for further information on how starts are modeled.)

Step 5 Enter the input VEHSIM driving cycle file. This is the second of two output files produced by VEHSIM. This is a binary file with a ".BIN" suffix. As an example:

LA92_3WY.BIN

Step 6 Enter the input engine emissions map file. The engine emissions map for VEHSIME is different from the engine performance map used in VEHSIM. The VEHSIME map is a map of emissions as a function of engine speed and load and is stored in text file with the suffix ".MAP". For example:

3WYNYRKR.MAP

Step 7 VEHSIME displays a list of the files it plans to input and output based on your keyboard inputs and then pauses. If they're OK, hit *<ENTER>*, and VEHSIME begins the run. If not, you can type *<Ctrl-C>* (hold down the "Ctrl" key and strike "C"), and the program will abort.

Note that VEHSIME never prompts for an output filename. Instead, it automatically creates the name of its output file based on the name of the input VEHSIM driving cycle file. It uses the root filename and attaches a suffix of either ".HOT" or ".CLD" for hot and cold start, respectively. This automatic naming ensures that consistent, easily traceable files will be produced when VEHSIM and VEHSIME are invoked for a series of runs.

Step 8 Like VEHSIM, the VEHSIME program then displays a "Processing Segment" counter which indicates the current segment number being simulated and the percent completion. When the program successfully completes execution, it displays another message and pauses. Hit *<ENTER>* to end VEHSIME and return to the DOS prompt.

The VEHSIME output file contains segment-by-segment estimates of both instantaneous and cumulative HC, CO and NOx emissions. Cumulative emission totals (grams) and rates (grams/mile) are listed at the end of the output file. Appendix 3 contains a printout of the sample VEHSIME output file "LA92_3WY.HOT".

###

5. TECHNICAL REFERENCE

This section presents a detailed discussion of the methodologies employed in the PC-VEHSIM models.

5.1 Basic Engine State Calculations

The equations[3] used by VEHSIM for the determination of engine speed and engine torque start with the input vehicle speed, V, and tractive force, F. This force is computed from the following equations:

$$F_{road} = F_{roll\ friction} + F_{aero\ drag} + F_{accel} + F_{grade} \qquad [1]$$

where:

$$F_{roll\ friction} = (Z_1 + Z_2\ V)\ W \qquad [2]$$

$$F_{aero\ drag} = \rho_{air}\ A_F\ C_D\ \frac{V^2}{2} \qquad [3]$$

$$F_{accel} = W\ \frac{a}{g} \qquad [4]$$

$$F_{grade} = W\ b \qquad [5]$$

The following terms are used in these equations: A_F, the frontal area of the vehicle; a, the acceleration rate; b, the fractional grade; C_D, the aerodynamic drag coefficient; g, the acceleration of gravity; ρ_{air}, the density of air; W, the vehicle weight; and Z_1 and Z_2 the coefficients of rolling friction.

The force on the wheels, F_w, is found from the road force and the tire efficiency, e_t.

$$F_w = \begin{cases} \dfrac{F_{road}}{e_t} & F_{road} > 0 \\ e_t\ F_{road} & F_{road} < 0 \end{cases} \qquad [6]$$

These equations (and the ones for rotational speed and torque below) are taken from the DOT-VEHSIM manual with the following modifications:

- The wind terms in the aerodynamic drag are not considered. These terms are not important in the determination of driving cycles for vehicle certification.

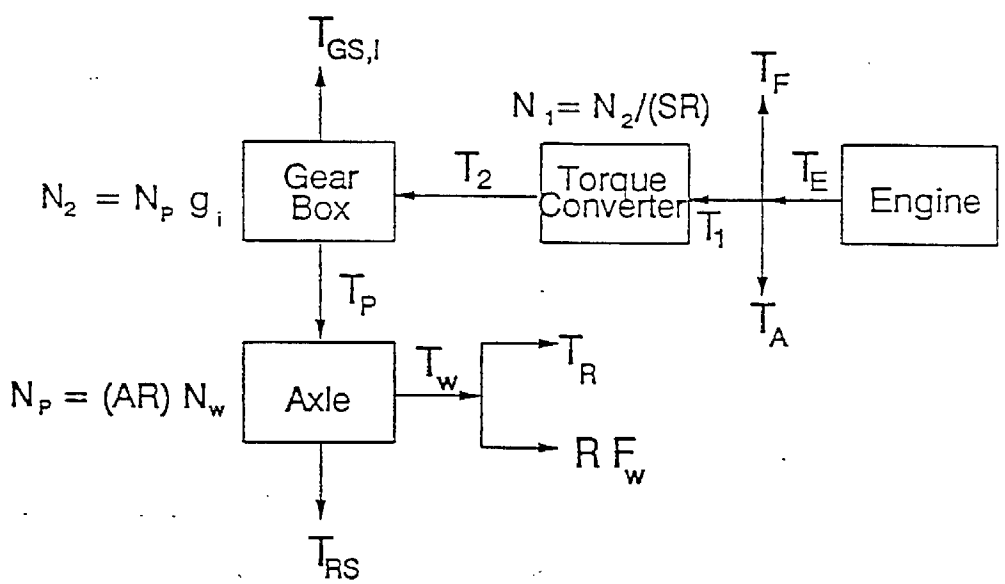
- Conversion factors are not included. These are not required so long as a consistent set of units is used.

- Typographical errors in the manual were corrected. This was usually confirmed by referring to the equation in the source code for VEHSIM.

VEHSIM computes the engine speed and torque by analyzing the changes in rotational speed and torque that take place between the wheels and the engine. Figure 6 shows the different elements considered in the analysis and the location of the rotational speed (N) and torque (T) points that are discussed in the analysis below. Note that the calculation proceeds from the wheels to the engine. This is opposite to the direction of power transfer from the engine to the wheels. The VEHSIM procedure starts with output values and computes input values.

Figure 6

Schematic of VEHSIM Calculation Elements



The computation of rotational speeds starts with the rotational speed of the wheels, N_w; this is found from the vehicle velocity, V, and the tire radius, R.

$$N_w = \frac{V}{2 \pi R} \qquad [7]$$

The VEHSIM analysis considers changes in speed and torque across the axle, the transmission, and the torque converter. The rotational speeds have the simplest analysis. The prop shaft rotational speed, N_p, is the wheel rotational speed times the axle ratio, AR.

$$N_p = (AR)\ N_w \qquad [8]$$

The prop shaft speed times the transmission gear ratio, g_i, gives the output speed of the torque converter, N_2.

$$N_2 = g_i\ N_p \qquad [9]$$

The engine speed, N_E, which is the same as the torque converter input speed, N_1, is given by the speed ratio across the torque converter, SR; this speed ratio is found from an empirical relationship for the torque converter operation for the specific vehicle.

$$N_1 = N_E = \frac{N_2}{(SR)} \qquad [10]$$

The determination of the engine torque from the wheel torque is more complicated than the similar process for rotational speed. There are three additional factors that need to be considered: rotational inertias, conversion efficiencies, and spin losses.

When the vehicle is accelerating or decelerating, the inertia of the rotating parts contributes to the total torque. VEHSIM defines a rear-end rotating inertia that combines the rotating inertia from the following parts (with moments of inertia shown by the symbols in parentheses): wheels (I_w for one wheel), prop shaft (I_p), input transmission gear ($I_{GIN,i}$), output transmission gear ($I_{GOUT,i}$), and torque converter turbine (I_2). It is convenient to define an overall equivalent moment of inertia, I_{rr}, for this rear-end rotational inertia term:

$$I_{rr} = 4\ I_w + (AR)^2\ e_r \left[I_p + I_{GOUT,i} + g_i^2\ e_i \left(I_2 + I_{GIN,i} \right) \right] \qquad [11]$$

Here e_r and e_i are the efficiencies of the differential and the ith gear, respectively, and g_i is the gear ratio. With this definition of I_{rr}, the rear-end rotating inertia torque, T_R, is found as

$$T_R = 2\ \pi\ I_{rr}\ \frac{\Delta N_w}{\Delta t} \qquad [12]$$

where Δt is the time step used in the VEHSIM computations and ΔN_w is the change in wheel rotational speed from one time step to the next.

Once T_R is known, the wheel torque, T_w, prop shaft torque, T_p, gear-box input torque, T_2, and torque converter input torque, T_1, can be computed by the following set of equations:

$$T_w = R\ F_w + T_R \qquad [13]$$

$$T_p = \frac{T_w}{(AR)\ e_r} + T_{RS} \qquad [14]$$

$$T_2 = \frac{T_p}{g_i\ e_i} + T_{gs,i} \qquad [15]$$

$$T_1 = \frac{T_2}{(TR)} \qquad [16]$$

where R is the wheel radius and the terms T_{RS} and $T_{GS,i}$ represent the axle spin loss and the spin loss for the axle and the transmission (in the ith gear), respectively. These loss terms may depend on rotational speed and are found from empirical equations or tables. TR, the torque ratio across the torque converter, is found from empirical relations between this variable and the output speed and torque of the torque converter.

The engine torque is simply the sum of the torque converter input torque plus the accessory torque, T_A, and the front-end rotating inertia torque, T_F.

$$T_E = T_1 + T_A + T_F \qquad [17]$$

The accessory torque is the sum over individual accessories, $T_{A,n}$, each of which can depend on engine speed

$$T_A = \sum_{n=1}^{N_{acc}} T_{A,n} \qquad [18]$$

The front-end rotating inertia torque is given by the following equation:

$$T_F = 2\pi\,(I_E + I_A + I_1)\,\frac{\Delta N_E}{\Delta t} \qquad [19]$$

This equation has introduced the moments of inertia for the engine flywheel (I_E), the sum of the accessories (I_A), and the torque converter pump (I_1); ΔN_E is the change in engine speed for one time step, Δt.

For each VEHSIM time step, the driving schedule values of speed, acceleration and the road schedule value of grade are used to compute the road load. Once the wheel force is computed from equation [6], equations [11] to [17] are used to compute the engine torque. The engine speed is determined from equations [7]-[10]. The engine speed and torque calculations are linked by the automatic transmission torque converter speed and torque ratios, SR and TR. These ratios are found from an empirical data table input to VEHSIM. This table uses the output capacity factor for the torque converter as the look up variable for the speed and torque ratios. This output capacity factor, K_o, is defined in terms of the output speed and torque for the converter,

$$K_o = \frac{N_2}{\sqrt{T_2}} \qquad [20]$$

Once the required engine speed and load are computed, the engine map is checked to ensure that this is a valid point. It is possible to supply the VEHSIM code with an impossible request, e.g., an acceleration that the vehicle does not have enough power to sustain.

If a highly negative torque below the minimum engine torque is requested (i.e., a sharp deceleration), the vehicle's brakes are assumed to supply the necessary additional deceleration that is not available from the engine breaking. If the requested engine torque is greater than the maximum torque at the requested engine speed, an iterative calculation is done to find the maximum acceleration that can take place within the limits of the engine power.

5.2 VEHSIME Cold Start Adjustments

The engine emission maps collected by EPA in the late 1970's as well as during recent testing for implementation within VEHSIME were "engine out" (i.e., raw emissions before the catalyst) and after-catalyst emissions for fully-warmed engines. Therefore, VEHSIME results based on these data are not representative of a cold start trip. Using the "original" stabilized maps along with FTP test data from ARB's In-Use Surveillance Testing Program[4], a cold start adjustment to VEHSIME was developed.

Both catalyst and non-catalyst maps for a 1977 231 CID Buick (oxidation catalyst) engine are available for use with VEHSIME. Table 3 shows the composite emissions over the LA4 cycle predicted by the model using each map and simulating a 4,000-pound passenger car with an automatic transmission. As shown in the table, the addition of the catalyst

reduces HC emissions by 94.5%, reduces CO emissions by 82.4%, and increases NOx emissions by 1%.

Table 3

VEHSIME Emissions Predictions Using Non-Catalyst and Warmed-Up Catalyst Engine Maps

grams/mile	HC	CO	NOx
Non-Catalyst Map	3.66	4.31	1.86
Catalyst Map	0.20	0.76	1.88

First Generation Cold Start Adjustment

The modifications[5] to VEHSIME to incorporate cold start emissions were based on the recognition that two "transitional effects" are occurring during a cold start: (1) combustion efficiency of a warming engine, and (2) reduction efficiency of a warming catalyst. To represent cold-engine, cold-catalyst emissions, adjustment factors were applied to the engine out (raw-warm) map for a 1977 231 CID Buick engine. These adjustment factors were developed from mean emissions of Bag 1:Bag 3 (cold vs. hot) emissions from non-catalyst, carbureted vehicles in the ARB In-Use Surveillance (Series 1-9) database. (To prevent a disproportionate influence from vehicles that had warmed up emissions near zero, the adjustment factor is computed from the ratio of the means rather than the mean of the ratios.) These factors are given in Table 4. (Only non-catalyst vehicles were analyzed since the factors are being applied to engine out maps).

Table 4

Ratio of Bag 1 to Bag 3 Emissions For Non-Catalyst Vehicles Tested by ARB

Pollutant Ratio Bag 1/Bag 3

HC	2.23	CO	2.50	NOx	1.04

These means are based on a sample of 175 vehicles. Although some 600 non-catalyst, carbureted vehicles are contained in the surveillance database, records for many of the vehicles contained only weighted

composite emissions and not individual bag data. No checks were performed on the remaining 175 vehicles to determine non-catalyst fleet representativeness.

Second, to represent the change in emissions from a cold catalyst to a fully warmed catalyst after "light-off", VEHSIME was modified to input two separate engine emission maps instead of one:

1. Raw-cold, the original fully warmed engine-out map adjusted as described above, and

2. Catalyst-warm, the unadjusted after-catalyst map.

For the initial segments of the input driving schedule, VEHSIME was modified to compute and output emissions based on the raw-cold map. At a "cross-over point" determined within the model, VEHSIME switched to the catalyst-warm map to compute and output emissions. To compute the map cross-over point, VEHSIME used pre-determined Cold FTP:Hot FTP ratios computed from 1485 oxidation-catalyst-equipped, carbureted vehicles in the ARB Surveillance database. The Cold FTP/Hot FTP ratios for this sample are shown in Table 5.

Table 5

Ratio of Cold FTP to Hot FTP Emissions For Oxidation Catalyst Vehicles Tested by ARB

Pollutant	Cold FTP/Hot FTP				
HC	1.89	CO	2.25	NOx	1.06

Note: Cold FTP = Bag 1 + Bag 2 and Hot FTP = Bag 3 + Bag 2

Given these ratios as model inputs, VEHSIME was modified to switch from the raw-cold map to the catalyst-warm map at the point where the ratio of cold FTP/hot FTP would equal the ratio computed from the ARB surveillance test results. For the cold/hot ratio to be correct for carbon monoxide emissions, the cross-over point turned out to be 172 seconds. For hydrocarbons, the cross-over point was estimated to be only 19 seconds*.

* Based on model emissions tests conducted by ARB, the 172-second cross-over point appears very reasonable, but the 19-second cross-over point is unrealistic. This indicates that the ratio of the raw-cold emissions estimated for the engine divided by the catalyst-warm emissions is significantly higher than the average surveillance vehicle tested by ARB.

The methodology summarized above is referred to as the "constant bag ratio" method since it represents catalyst pre-light off emissions based on a single mean Bag 1/Bag 3 ratio.

Second-Generation Cold Start Adjustment

The first approximation of the transition between cold start and warmed-up operation outlined above is based on the simplistic assumption that the elevated HC and CO emissions of a cold engine caused by fuel enrichment are higher than the engine-out emissions of a warmed-up engine by a constant amount for 505 seconds (the length of Bag 1 of the FTP). At this point, it was assumed that there would be a step change in the engine-out emissions down to the fully warmed up level. In fact, the emissions of the cold engine would be higher initially and they would approach the fully warmed up level during the first 505 seconds of the cycle.

To approximate this phenomenon, a methodology called "linear bag ratio" was also developed and evaluated. Under this approach, the "constant bag ratio" version of VEHSIME was revised to generate pre-cross-over emissions based not on a single raw-cold map, but rather on a "family of maps" constructed from a linear, rather than constant, adjustment of the original raw-warm map. The emissions vs. time relationship was constructed so that emissions were maximized at time equals zero and linearly reduced to warmed-up, non-catalyst emission levels at time equals 505 seconds. The emissions rate at time = 0 was established so that the average emissions during the first 505 seconds would exceed warmed-up, non-catalyst emissions by the same amount that Bag 1 emissions exceeded Bag 3 emissions for non-catalyst cars tested in the ARB surveillance program. The comparison between the constant bag ratio and linear bag ratio methods is illustrated in Figure 7.

For the cold/hot ratio to be correct for carbon monoxide emissions using the linear bag ratio approach, the cross-over point turned out to be 122 seconds. For hydrocarbons, the cross-over point was estimated to be only 13 seconds.

Final Revised Approach

Based on modal test data collected by EPA during 1986 and 1987, the cold start algorithm in VEHSIME was revised to its current form. The EPA test data consisted of four late-model three-way catalyst vehicles for which modal emissions and catalyst temperatures were collected over the "LA4" driving cycle. Table 6 lists the test vehicle for which modal data were available.

Figure 7

Cold Start, Engine-Out Emissions Profiles

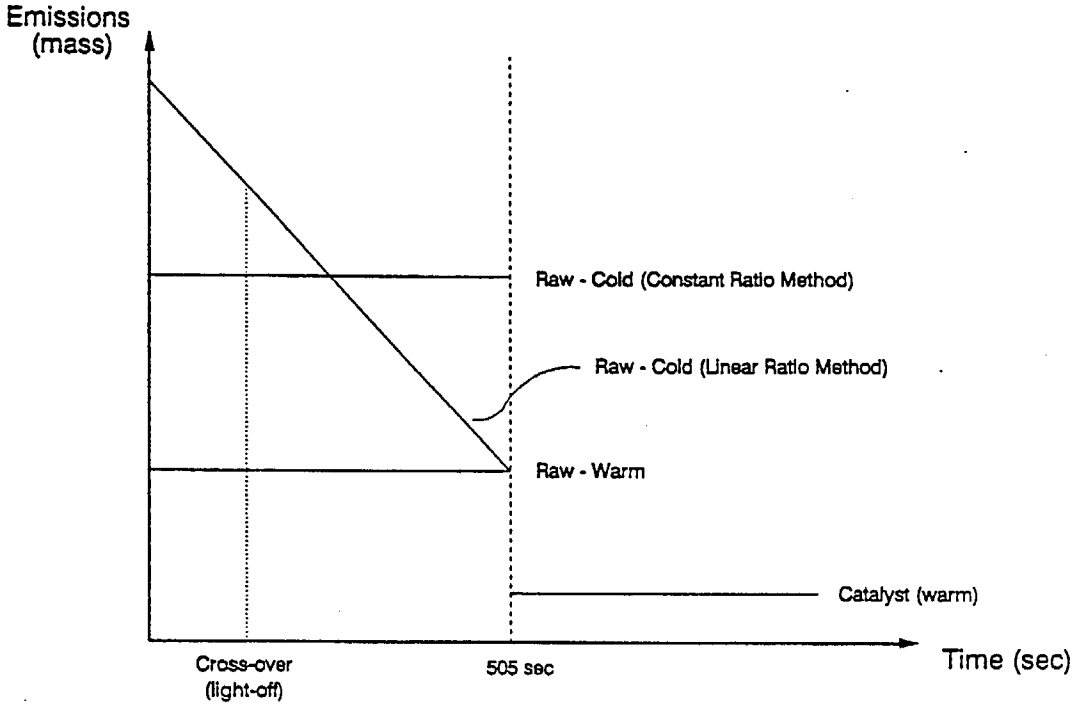


Table 6

Modal Data Test Sample

Vehicle	Catalyst	Fuel System	O_2 Sensor
1984 Volvo (2.3L)	3-Way	Multi-Pt F.I.	Heated
1984 Volvo (2.3L)	3-Way	Multi-Pt F.I.	Non-Heated
1984 Plymouth (2.2L)	3-Way	Multi-Pt F.I.	Non-Heated
1984 Chrysler (2.2L)	3-Way	Multi-Pt F.I.	Non-Heated

For each vehicle in the sample, second-by-second catalyst efficiencies and cold/hot emission ratios were computed as follows:

Catalyst Efficiency =
1 - (Tailpipe Emissions ÷ Engine Out Emissions)

Cold/Hot Ratio (C/H) =
Cold Engine Out Emissions / Warm Engine Out Emissions

Test sample mean catalyst efficiencies and C/H engine out ratios as a function of time are shown in Figure 8. From this figure, it was apparent that separate cold start adjustment equations for both catalyst warm-up and engine warm-up are required.

These adjustment equations are also shown in Figure 8. The boldface lines labeled "Catalyst Curve" and "Engine Curve" represent cold start adjustments due to the catalyst and engine warm-up, respectively. (Note that separate scales are shown for catalyst efficiency and C/H engine ratio.) The catalyst curve is a simplified step function representation of the mean cold start catalyst efficiency of the sample vehicles over time. The engine curve is a linear representation of the mean engine out C/H ratio over time.

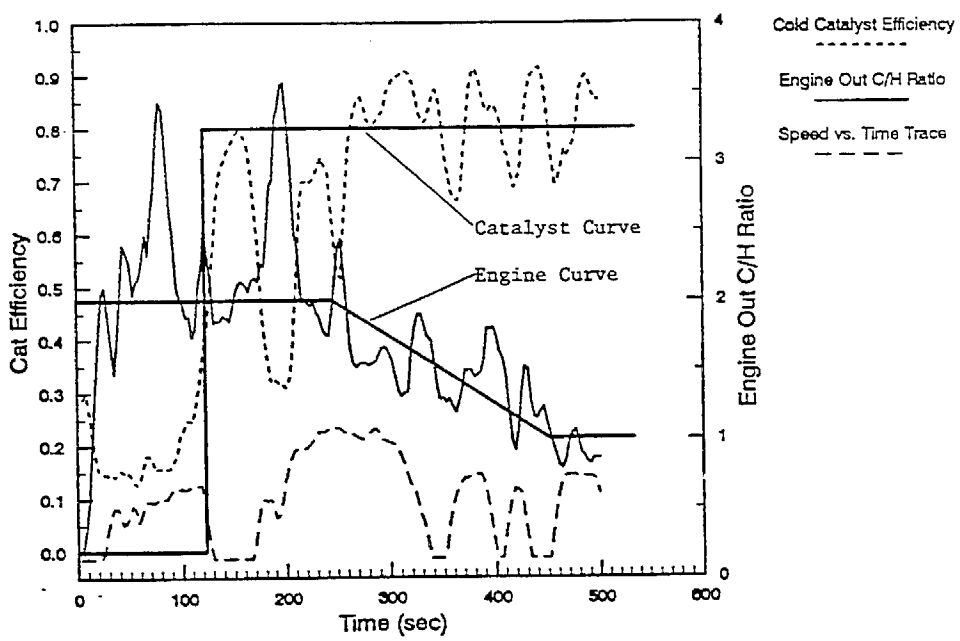
Mathematically, the catalyst warm-up and engine warm-up equations as a function of time are:

$$CAT(t) = 0.80 \quad \text{for } t \geq 120 \text{ seconds}$$
$$ = 0 \quad \text{for } t < 120$$

$$ENG(t) = 2.0 \quad \text{for } t < 245 \text{ seconds}$$
$$ = -0.0049t \quad \text{for } 245 \leq t < 450$$
$$ = 1.0 \quad \text{for } t \geq 450$$

Figure 8

Average Catalyst Efficiency and Engine Out Cold/Hot Ratio for EPA Data Sample



The VEHSIME model was modified to include a user-invocable cold start subroutine which applies the cold catalyst and engine equations to the engine out emission levels of a fully-warmed engine map as follows:

$$\text{COLD EMIS}(t,\text{RPM},\text{load}) = \text{MAP EMIS}(\text{RPM},\text{load}) \times (1-\text{CAT}(t)) \times \text{ENG}(t)$$

Finally, the catalyst efficiency element of the algorithm was refined by substituting the actual catalyst efficiency for each speed-load point computed from the difference between the engine-out and tailpipe emission maps for the individual VEHSIME engines.

###

6. REFERENCES

1. R. W. Zub, "A Computer Program (VEHSIM) for Vehicle Fuel Economy and Performance Simulation (Automobiles and Light Trucks)," (in three volumes with report number DOT-TSC-NHTSA-81.23.I, II and III), Transportation Systems Center, U.S. Department of Transportation, 1981.

2. T.C. Austin, T.R. Carlson, and J.M. Lee, "Estimating the Effect of Driving Pattern on Exhaust Emissions Using a Vehicle Simulation Model," Sierra Research report prepared for EPA Certification Division, October 22, 1990.

3. L.S. Caretto, "Development of a Vehicle Emissions Computer Simulation Model," Sierra Research report prepared for U.S. Environmental Protection Agency, Certification Division, October 16, 1992.

4. California Air Resources Board, In-Use Light-Duty Vehicle Surveillance Database, Series 1 through 9, Mobile Source Division.

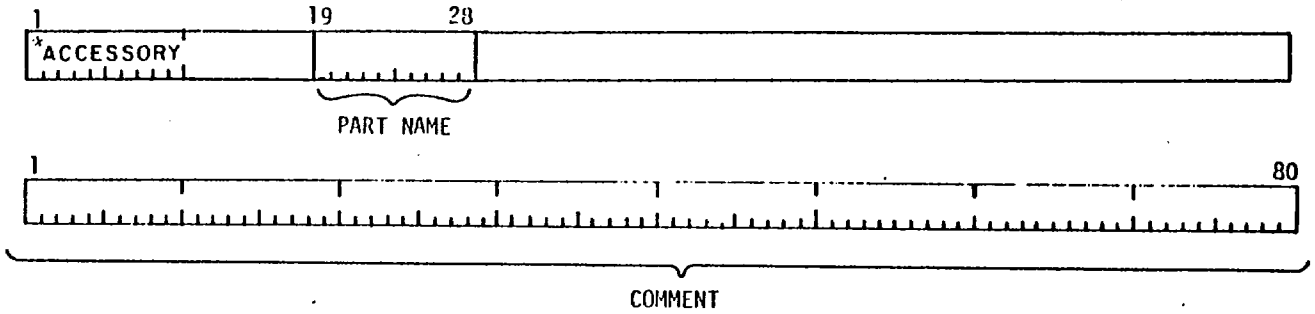
5. T.C. Austin, T.R. Carlson, and J.M. Lee, "Development of an Improved Computer Simulation of Vehicle Emissions During Cold Start and Warm-Up Operation," Sierra Research, Inc. report prepared for U.S. EPA Certification Division, Work Assignment 1-02 under Contract 68-c9-0053, September 20, 1991.

###

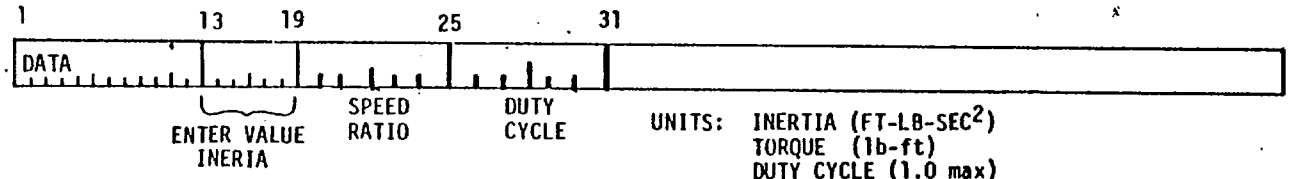
APPENDIX 1

VEHSIM Command Formats

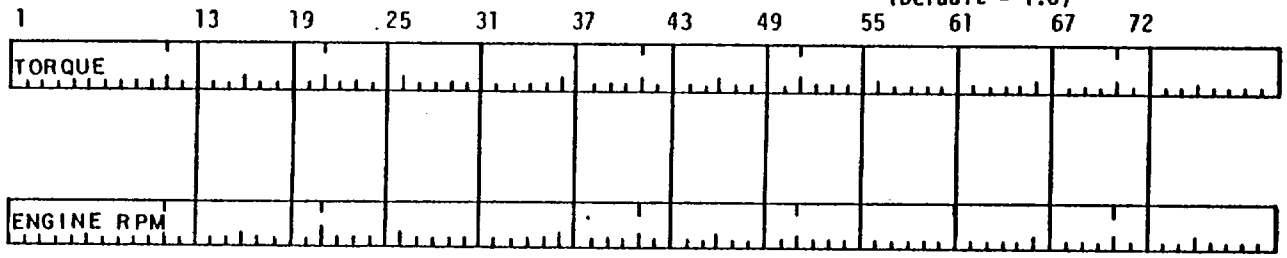
ACCESSORY



NOTE: ENTER ALL DATA WITH A DECIMAL POINT

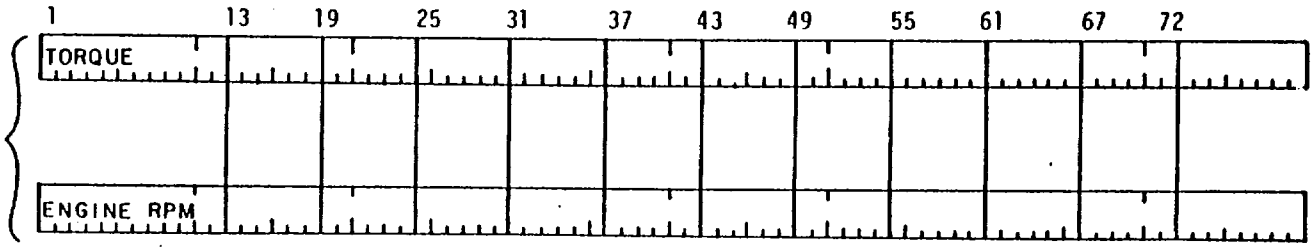


UNITS: INERTIA (FT-LB-SEC^2)
TORQUE (lb-ft)
DUTY CYCLE (1.0 max)
(Default = 1.0)



→ INCREASING RPM, FILL SPACES WITH DATA POINTS AS NEEDED UP TO 20 POINTS MAXIMUM

USE ONLY WHEN MORE THAN 10 DATA POINTS TO BE ENTERED



CONVERTER

1	19	20	31	35
*FULL CONVERTER	PART NAME		DRIVE COAST (enter one of the above)	

1	80
COMMENT	

NOTE: ENTER ALL DATA WITH A DECIMAL POINT

1	13	19	25	31	36
DATA	DIAM (inch)	CONST* INPUT TORQUE (lb-ft)	PUMP INERT (ft-lb-sec^2)	TURBINE INERT	

*MAY BE LEFT BLANK

LEAVE BLANK IF CONSTANT INPUT TORQUE IS SPECIFIED

1	13	19	25	31	37	43	49	55	61	67	72
INPUT TORQUE											
OUTPUT TORQUE											
INPUT RPM											
OUTPUT RPM											

→ INCREASING INPUT RPM, FILL SPACES WITH DATA AS NEEDED UP TO 20 POINTS MAXIMUM

USE ONLY WHEN MORE THAN 10 DATA POINTS TO BE ENTERED

1	13	19	25	31	37	43	49	55	61	67	72
INPUT RPM											
OUTPUT TORQUE											
INPUT RPM											
OUTPUT RPM											

CONVERTER (OPTIONAL FORM)

1	19	28	31	35
*S.R. CONVERTER	PART NAME		DRIVE COAST	

(enter one of the above)

1	80
COMMENT	

NOTE: ENTER ALL DATA WITH A DECIMAL POINT

1	13	19	25	31	36
DATA	DIAM (inch)	CONST* INPUT TORQUE (LB-FT)	PUMP INERT (ft-lb-sec^2)	TURBINE INERT	

*CONST INPUT TORQUE MUST BE SPECIFIED

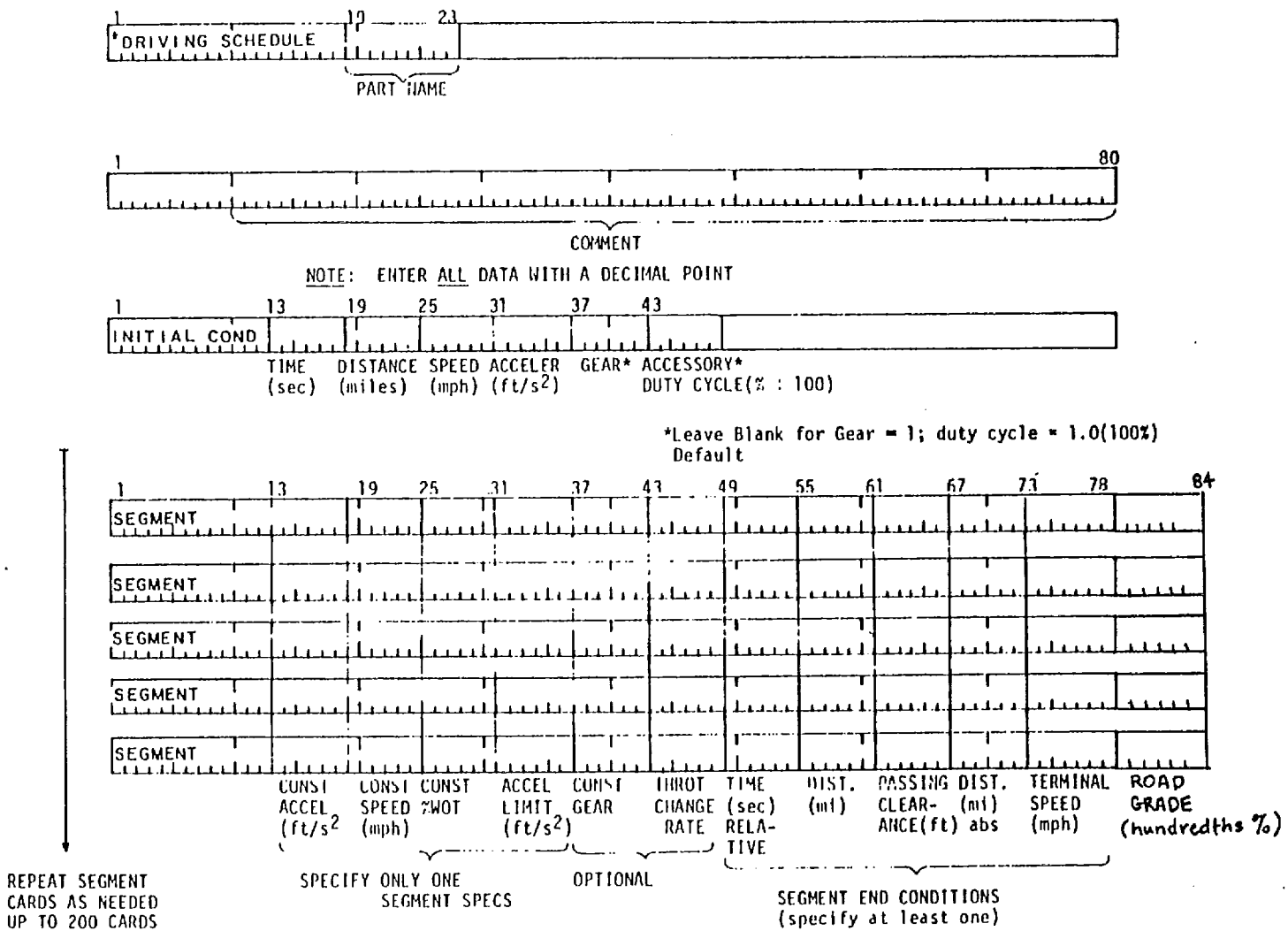
1	13	19	25	31	37	43	49	55	61	67	72
SPEED RATIO											
TORQUE RATIO											
INPUT RPM											

→ INCREASING RPM, FILL SPACES WITH DATA AS NEEDED UP TO 20 POINTS MAXIMUM

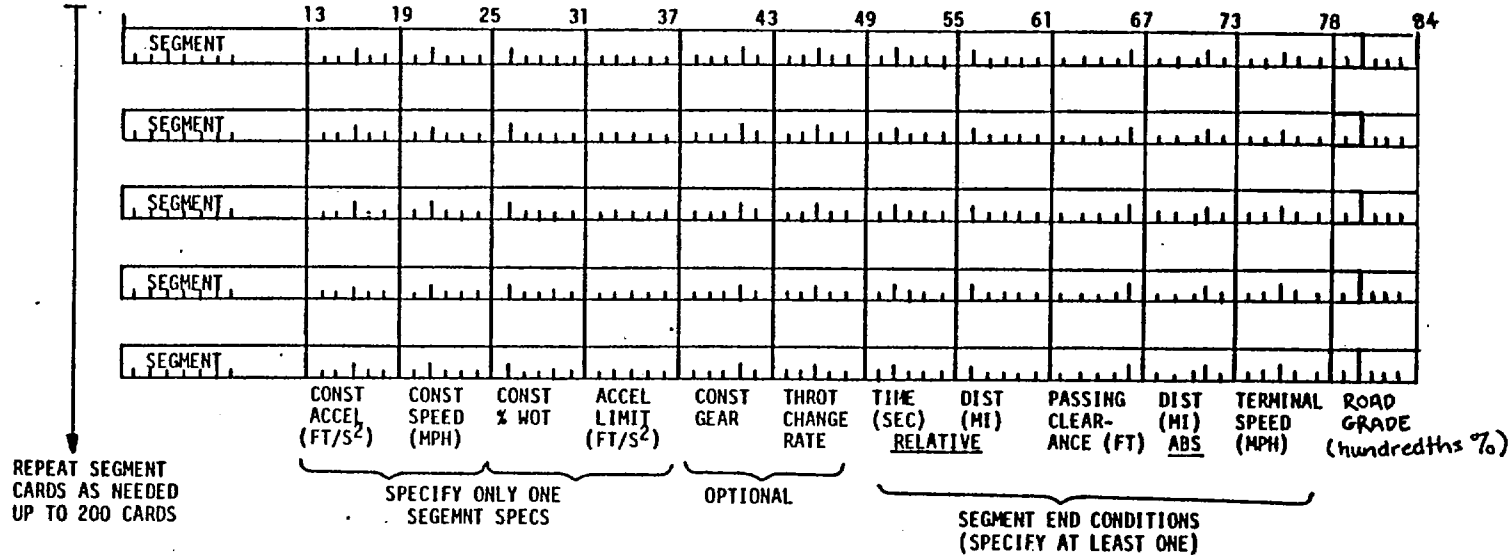
USE ONLY WHEN MORE THAN 10 DATA POINTS TO BE ENTERED

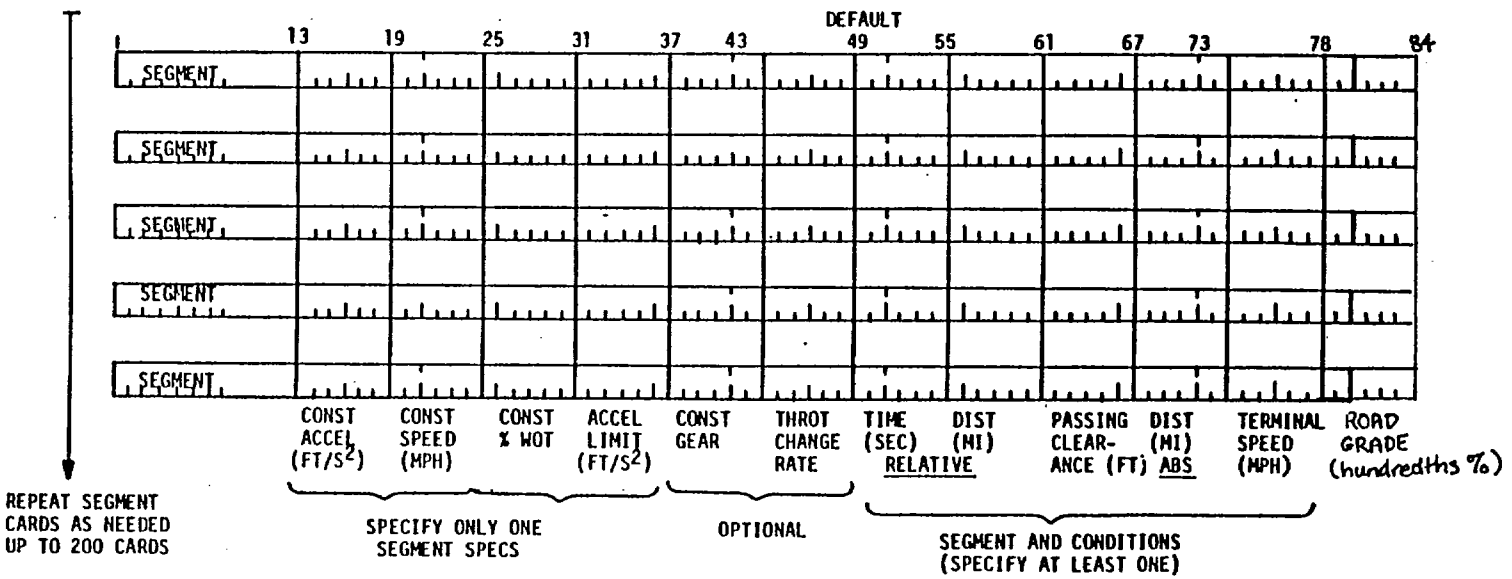
1	13	19	25	31	37	43	49	55	61	67	72
SPEED RATIO											
TORQUE RATIO											
INPUT RPM											

DRIVING SCHEDULE (Sheet 1 of 2)



DRIVING SCHEDULE (Sheet 2 of 2)





ENGINE (Sheet 1 of 2)

1	19–28	31–36	43–48	55–60	67–73
*ENGINE	ENGINE NAME	RPM PISTON	BHEP TORQUE HP	LB/HR BSFC GAL/HR	DIESEL (Default: Leave Blank)

(ENTER ONE OF ABOVE FOR EACH SET OF UNITS)

COMMENT

NOTE: ENTER ALL DATA WITH A DECIMAL POINT

1	13	19	25	31	37	43	49	55–60
DATA	BORE (in)	STROKE (in)	NUMB cyl	MIN ENGINE	MAX SPEED	ENGINE INERTIA (ft-lb-sec^2)	FUEL* SP GR (2. or 4.)	NUMB** CYCLES

*0.764 default if blank
*Use 0.1198 for emissions
**4. default if blank

1	13–18
SPEED POINT	ENTER VALUE

REPEAT SPEED POINT SETS AS NEEDED UP TO 20 SPEED PTS.

1	13	19	25	31	37	43	49	55	61	67–72
LOAD POINT										
FUEL RATE										
THROTTLE										
MANIFOLD										

→ INCREASING LOAD, FILL SPACES WITH DATA POINTS AS NEEDED UP TO 20 POINTS MAXIMUM

UNITS: THROTTLE (DEGREE)
MANIFOLD (in. Hg.)

USE ONLY WHEN MORE THAN 10 DATA POINTS TO BE ENTERED

1	13	19	25	31	37	43	49	55	61	67–72
LOAD POINT										
FUEL RATE										
THROTTLE										
MANIFOLD										

*Emission rate (gm/hr) may be entered in FUEL RATE data field. See also *notes.

ENGINE (Sheet 2 of 2)

	1	13–18	19	25	31	37	43	49	55	61	67	72
SPEED POINT		ENTER VALUE										
LOAD POINT												
FUEL RATE												
THROTTLE												
MANIFOLD												

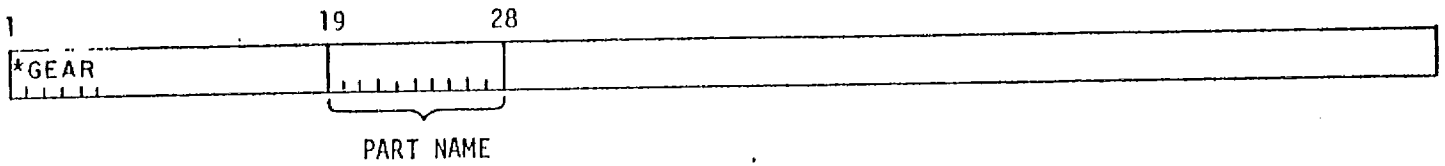
	1	13–18	19	25	31	37	43	49	55	61	67	72
SPEED POINT		ENTER VALUE										
LOAD POINT												
FUEL RATE												
THROTTLE												
MANIFOLD												

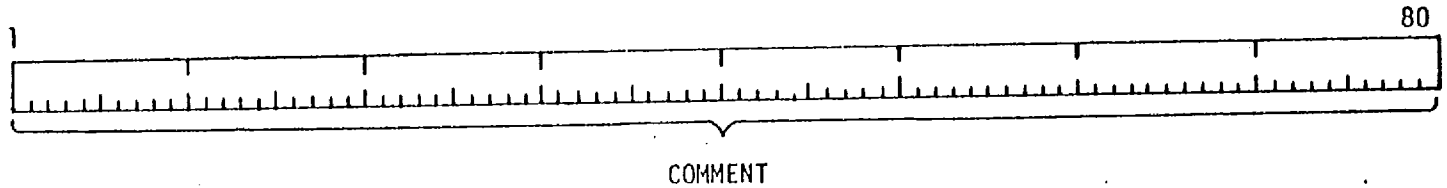
	1	13–18	19	25	31	37	43	49	55	61	67	72
SPEED POINT		ENTER VALUE										
LOAD POINT												
FUEL RATE												
THROTTLE												
MANIFOLD												

Increasing load, fill spaces with data points as needed up to 20 points maximum

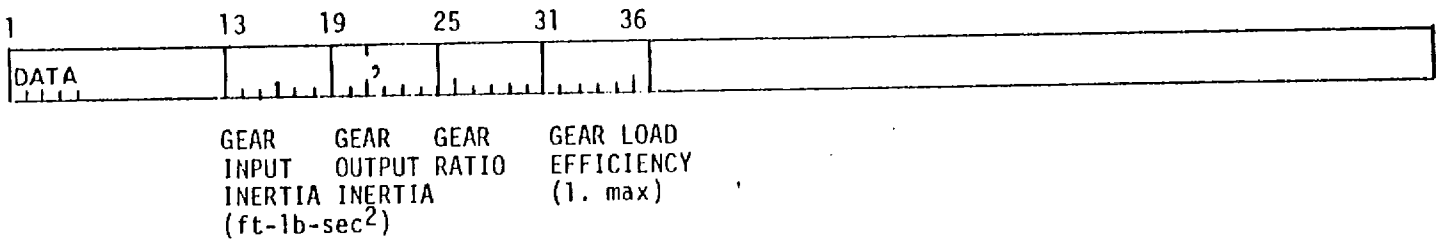
Units: throttle (deg)
manifold (in Hg)

GEAR

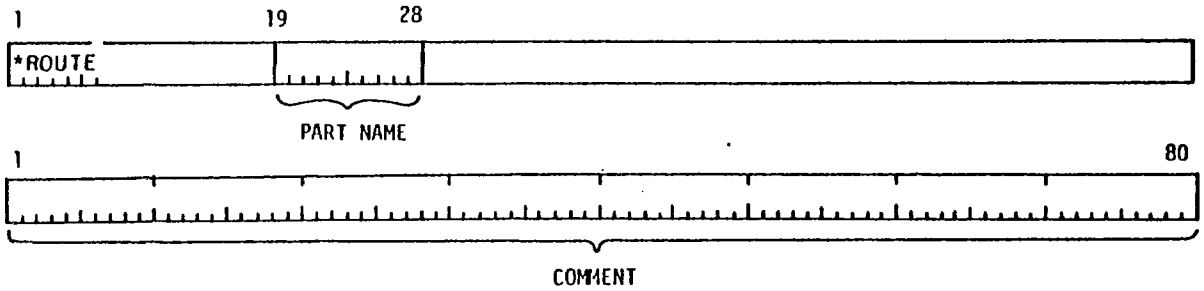




NOTE: ENTER ALL DATA WITH A DECIMAL POINT
TORQUE LOSS IN UNITS OF: LB-FT

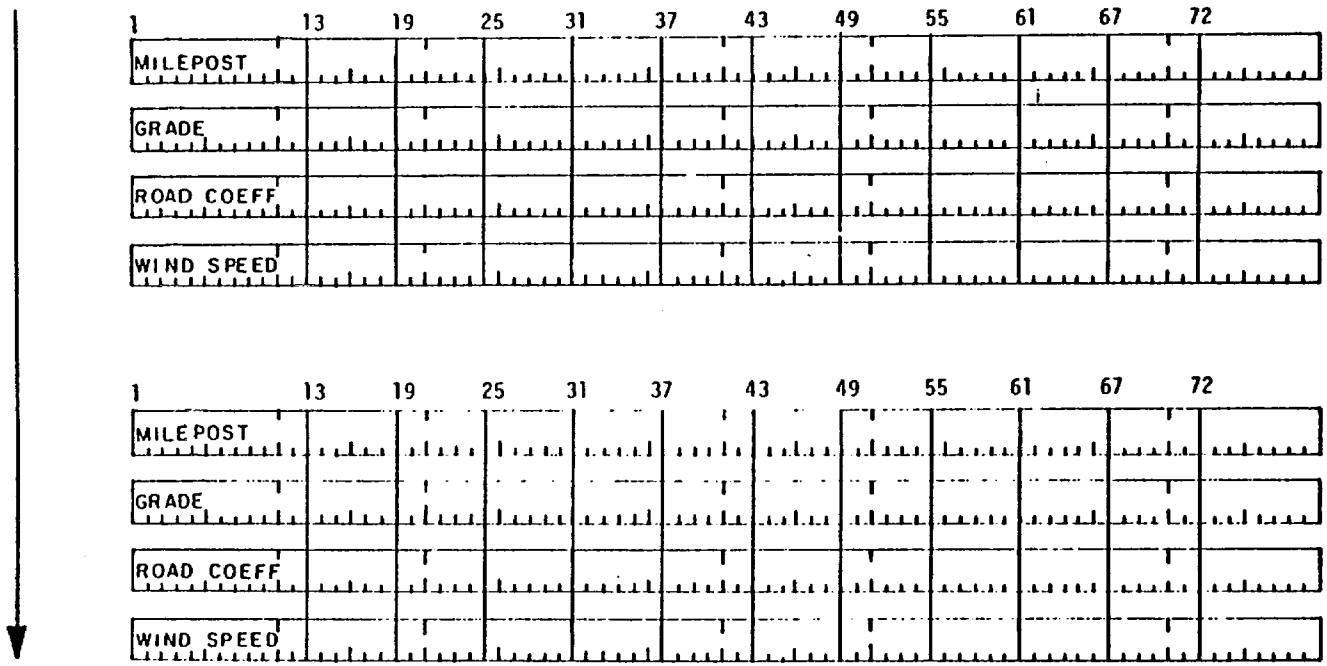


ROUTE



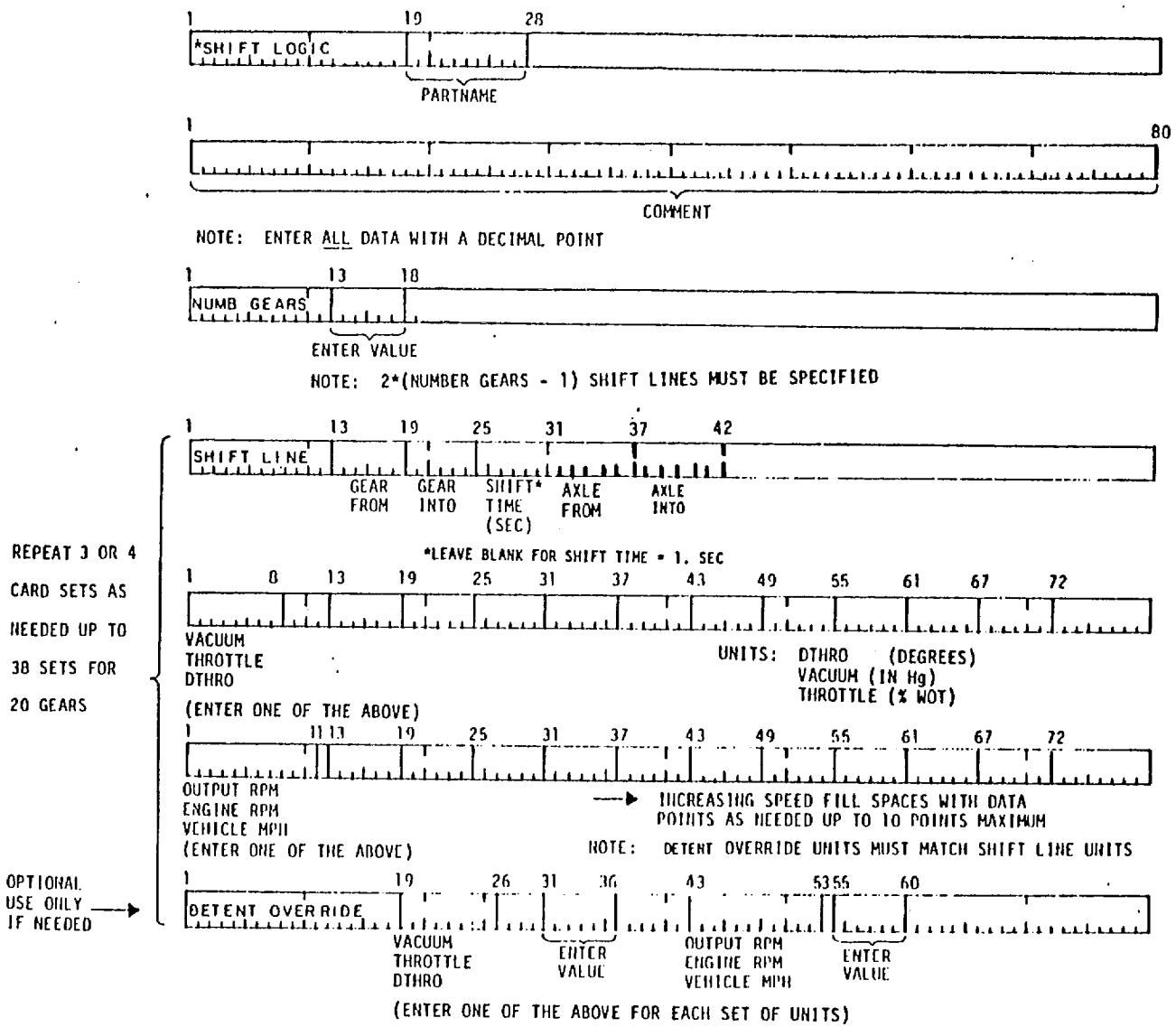
NOTE: ENTER ALL DATA WITH A DECIMAL POINT
SPECIFY GRADE AND ROAD COEFF FOR
UP TO THE DATA POINT MILEPOST

UNITS: MILEPOST (absolute miles)
GRADE (%)
ROAD COEFF (1.0 max)
WIND SPEED (mph)

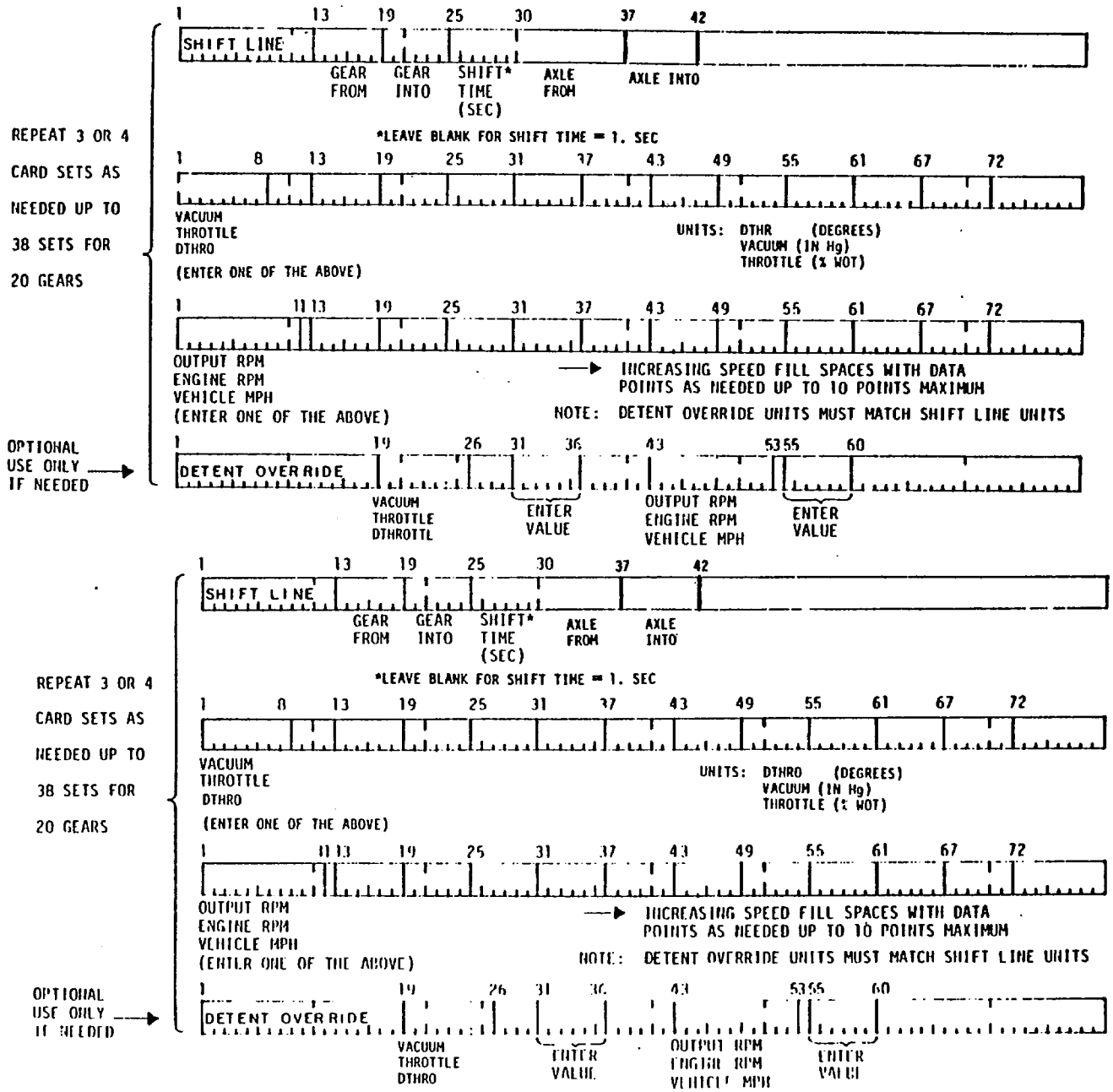


REPEAT 4-CARD SETS AS NEEDED UP TO 10 SETS (100 points maximum)

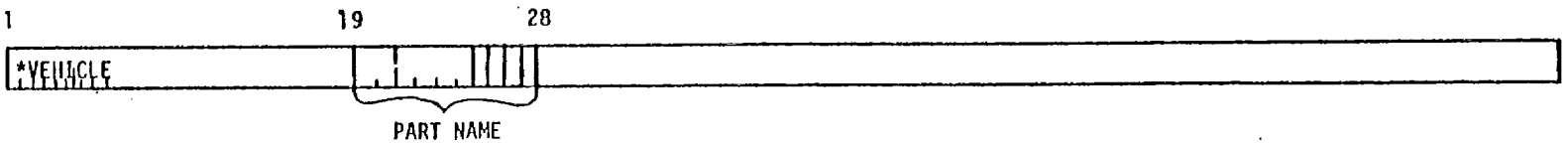
SHIFT LOGIC (Sheet 1 of 2)

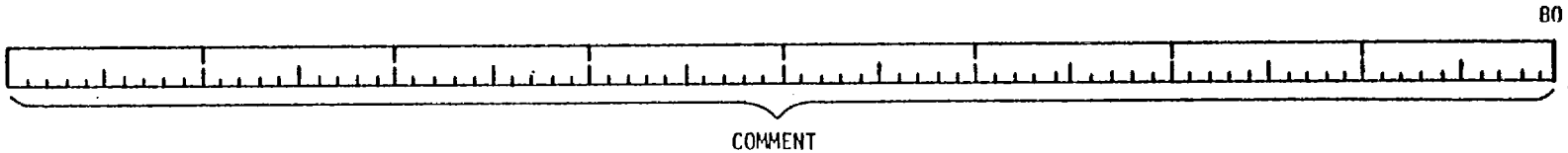


SHIFT LOGIC (Sheet 2 of 2)

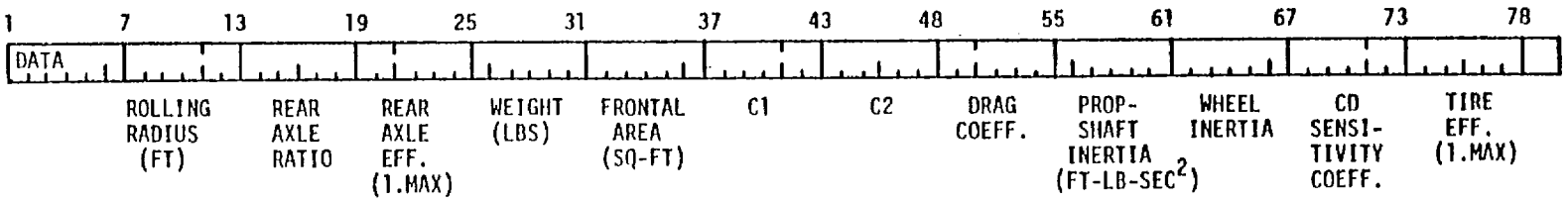


VEHICLE

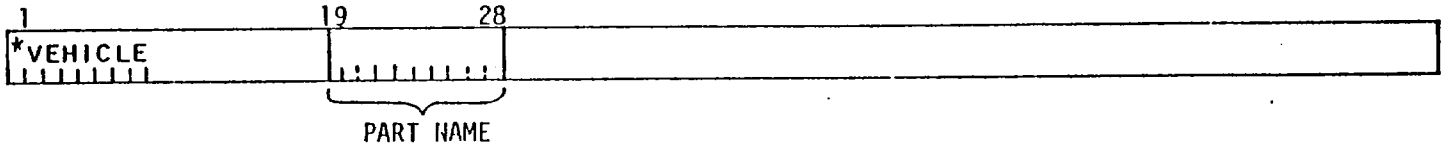


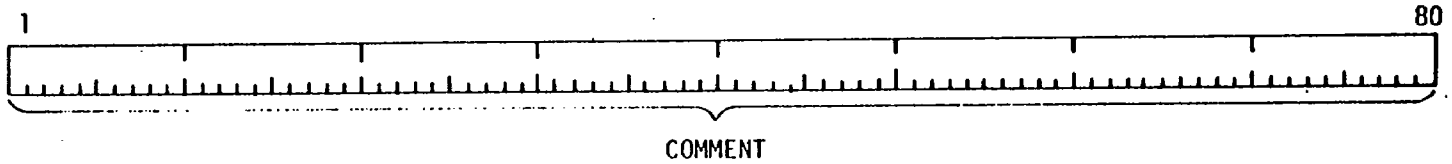


NOTE: ENTER ALL DATA WITH A DECIMAL POINT

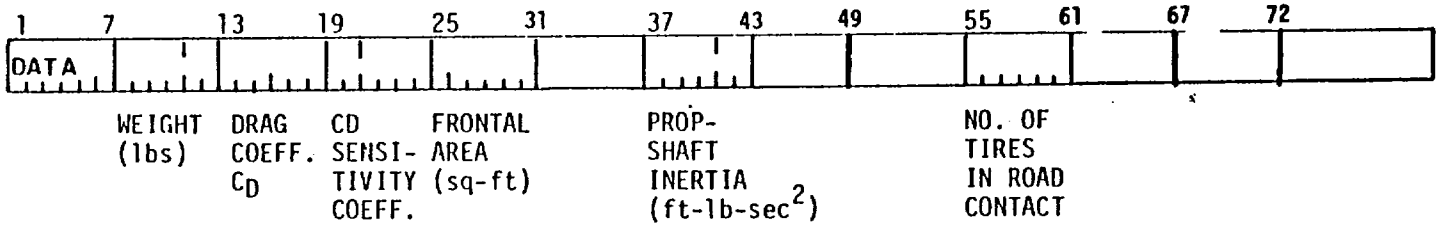


VEHICLE (OPTIONAL)

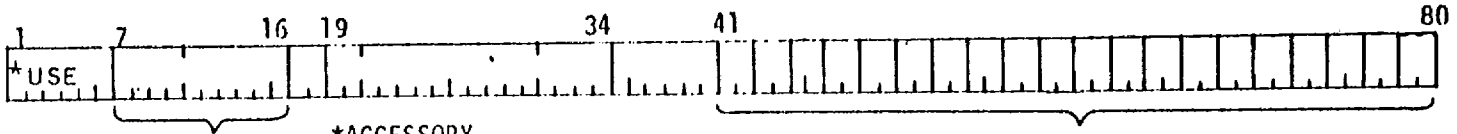




NOTE: ENTER ALL DATA WITH A DECIMAL POINT



USE



PART NAME

*ACCESSORY
*CONVERTER

LIST GEAR NUMBERS WHEN REQUIRED WITHOUT DECIMAL POINTS (right justified), gear numbers range from 1 to 20

*DRIVING SCHEDULE
*ENGINE - LIST ALL GEARS TO BE USED WITH THE ENGINE
*GEAR - SPECIFY THE GEAR
*ROUTE
*SHIFT LOGIC
*VEHICLE

(enter one of the above)

NOTE: ONE OF EACH PART ABOVE MUST BE DEFINED BY A USE COMMAND IN ORDER TO RUN A SIMULATION WITH THE FOLLOWING EXPECTIONS:

1. ACCESSORIES ARE NOT REQUIRED.
2. TWO CONVERTERS (drive and coast) must be specified.

*More than one of these parts may be defined.

MODIFY

1	19	31	36	43	52
*MODIFY					

enter value with decimal point

PART NAME
OPTIMAL
(MUST USE WITH DUTY CYCLE)

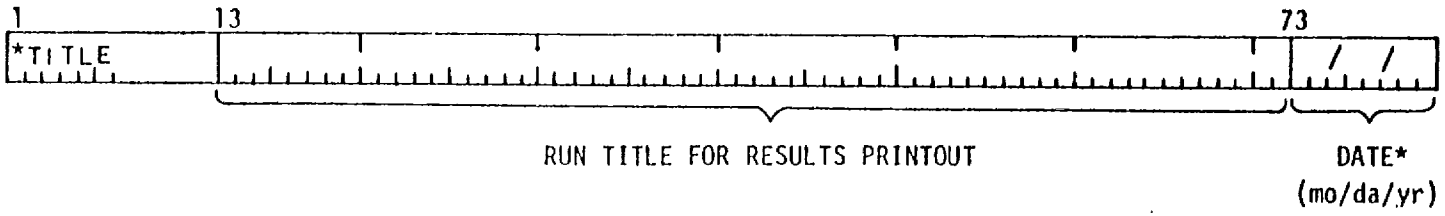
AREA
C1
C2
C4
CD
CYLINDERS
DIESEL
DISPLACEMENT
DUTY CYCLE
FUEL DENSITY
DYNAMOMETER
REAR AXLE R
STROKE
TIRE EFF
WEIGHT
WHEEL
WIND
IDLE
STEP
UPSHIFT
DOWNSHIFT
TRR
PHI
TOPSPEED
LOCKUP 2 NUMBERS | RRM >1=ON 0=OFF GEAR NUMBER

(enter one of the above)

Units:
AREA (sq. ft.)
DISPLACEMENT (cu in)
FUEL DENSITY (sp gr)
STROKE (in)
TIRE EFF (1. max)
WEIGHT (lbs)
WIND (mph)
IDLE (RPM)
STEP (sec) - default is .05 sec
UPSHIFT (± % change in vac/throt)
DOWNSHIFT (± % change in vac/throt)
PHI (Radians)
C_1, C_2

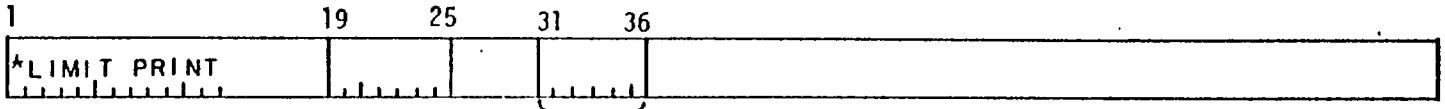
Enter Value with decimal point
(Note: Must specify accessory to be modified

TITLE



*Optional - insert to override actual date

LIMIT PRINT



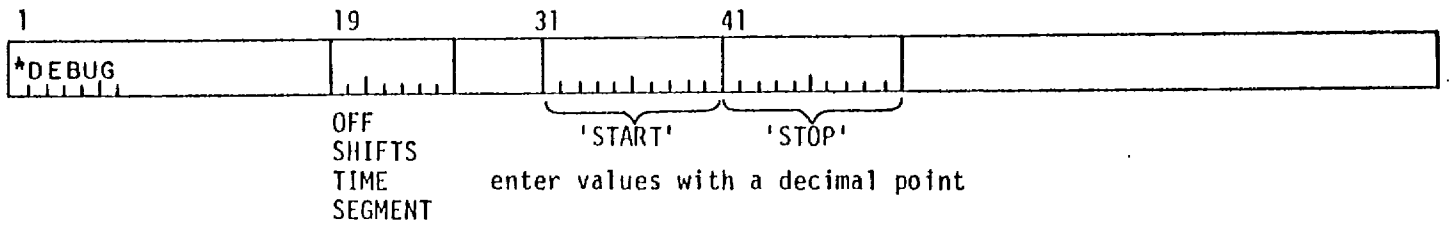
MILE
SEC
SEGMENT
OFF - FOR DETAILED PRINTOUT (including parts used data)
SUMMARY

ENTER VALUE FOR MILE, SEC WITH A DECIMAL POINT
(.1 mile, 10. sec defaults if no value entered)

(enter one of the above)

NOTE: IF NO LIMIT PRINT COMMANDED,
PRINTOUT IS SUMMARY ONLY

DEBUG



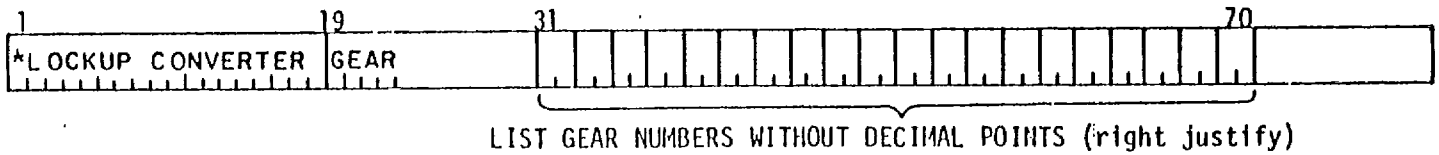
NOTES: FOR SHIFTS AND SEGMENT, ENTER SEGMENT NUMBERS
FOR TIME, ENTER VALUES IN SECONDS
IF NO 'START' SPECIFIED, DEBUG PRINTOUT STARTS AT BEGINNING OF RUN
IF NO 'STOP' SPECIFIED, DEBUG PRINTOUT CONTINUES TO END OF RUN

PRINT UNITS

1	19	24	31	36	43	48	55	60
*PRINT UNITS	ENGINE		RPM PISTON		BMEP TORQUE HP		LB/HR BSFC GAL/HR	

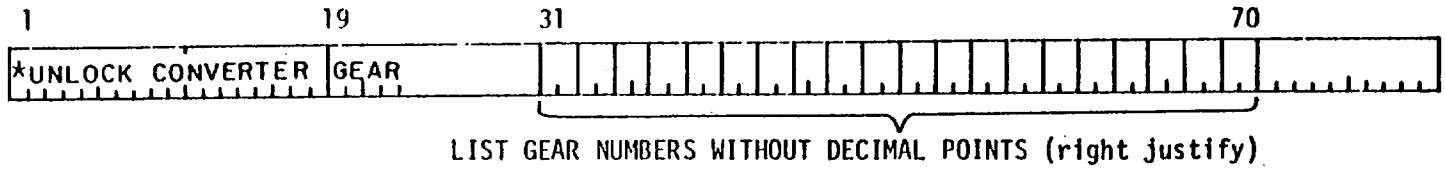
(enter one of the above for each set of units)

LOCKUP CONVERTER GEAR



NOTE: GEAR NUMBERS RANGE FROM 1 to 20

UNLOCK CONVERTER GEAR

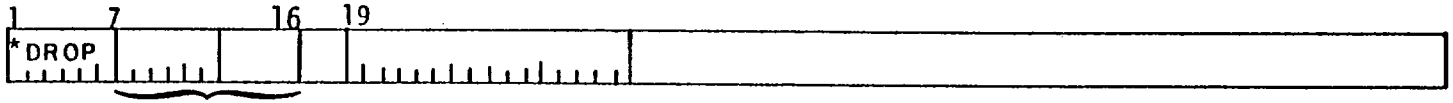


NOTE: GEAR NUMBERS RANGE FROM 1 TO 20

SIMULATE

1	19		31	
*SIMULATE	BLANK CAR		DIALOG BATCH CONTI	- IF UNDER USER CONTROL, GO TO COMMAND LEVEL BEFORE SIMULATING

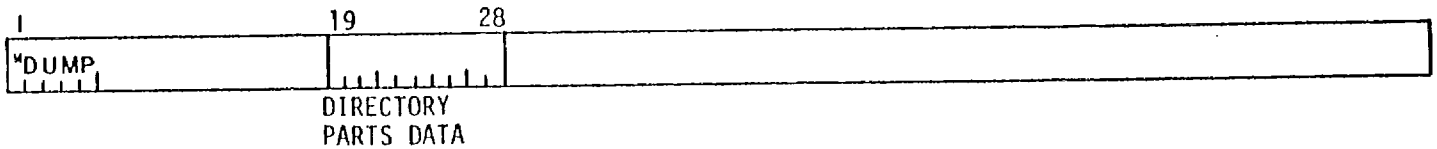
(Default, Car)



ACCESSORY
CONVERTER
DRIVING SCHEDULE
ENGINE
GEAR
ROUTE
SHIFT LOGIC
VEHICLE

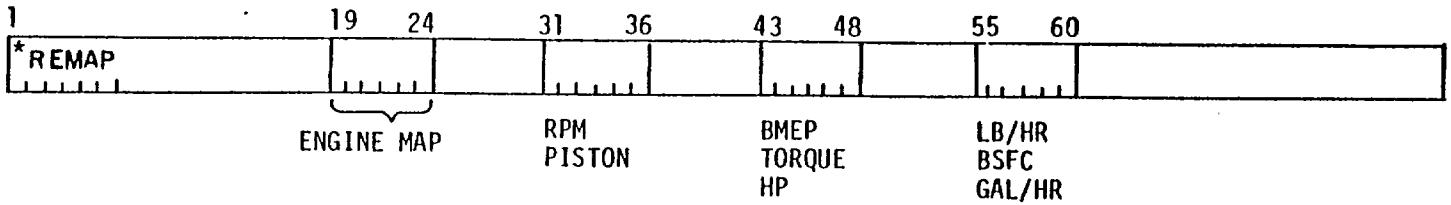
(enter one of the above)

DUMP



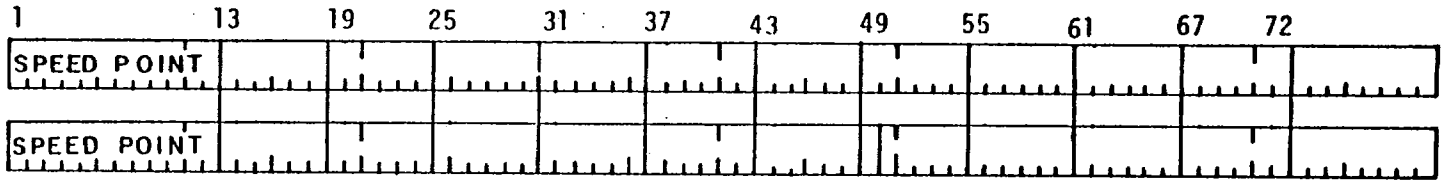
(enter one of the above)

REMAP

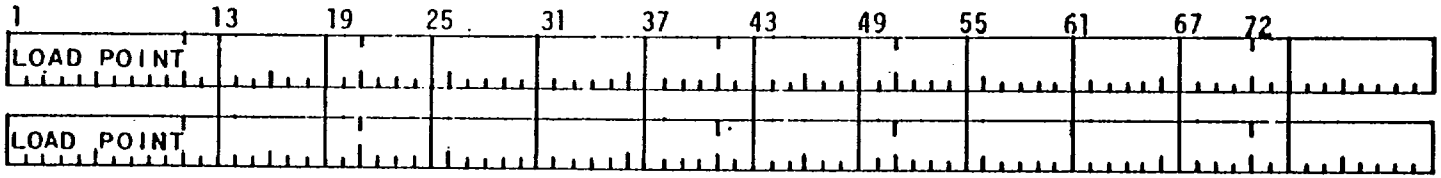


(enter one of the above for each set of units)

NOTE: ENTER ALL DATA WITH A DECIMAL POINT



INCREASING VALUE, FILL SPACES WITH DATA POINTS AS NEEDED UP TO 20 POINTS MAXIMUM



USE ONLY WHEN MORE THAN 10 DATA POINTS TO BE ENTERED FOR EACH

APPENDIX 2

Sample VEHSIM Output File

```
*USE  LEVEL       ROUTE
*PRINT UNITS      ENGINE      RPM         TORQUE      LB/HR
*LIMIT PRINT      SEGMENT
*USE  COCY2       CONVERTER
*USE  CODY2       CONVERTER
*USE  CN91G1      GEAR                    1
*USE  CN91G2      GEAR                    2
*USE  CN91G3      GEAR                    3
*USE  CN91G4      GEAR                    4
*USE  GEN3        SHIFT LOGIC
*USE  LFANA       ACCESORY
*USE  CNY91V      VEHICLE
*USE  CNY91E      ENGINE          1       1 2 3 4
*USE  H5D289      DRIVING SCHEDULE
*TITLE      Cycle H5D289 for Typical Power-to-Weight Configuration
*MODIFY           SHIFT           2.
*MODIFY           WEIGHT      3750.
*SIMULATE

TIME STEP FOR THIS RUN = 0.05 SECONDS
```

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
0.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1	0.0
1.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1	0.0
2.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	2	0.0
3.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	3	0.0
4.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	4	0.0
5.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	5	0.0
6.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	6	0.0
7.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	7	0.0
8.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	8	0.0
9.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	9	0.0
10.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	10	0.0
11.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	11	0.0
12.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	12	0.0
13.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	13	0.0
14.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	14	0.0
15.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	15	0.0
16.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	16	0.0
17.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	17	0.0
18.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	18	0.0
19.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	19	0.0
20.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	20	0.0
21.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	21	0.0
22.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	22	0.0
23.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	23	0.0
24.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	24	0.0
25.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	25	0.0
26.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	26	0.0
27.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	27	0.0
28.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	28	0.0
29.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	29	0.0
30.00	0.000	0.0	0.00	0.00	24.57	0.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	30	0.0
31.00	0.000	1.2	1.76	2.25	1.18	0.0	1	0.1	0.9	2.7	744.	19.	14.8	0.210	0.346	19.	31	0.0
32.00	0.001	4.2	4.40	3.04	0.84	0.2	1	0.5	6.8	9.8	904.	57.	10.3	0.605	0.819	54.	32	0.0
33.00	0.003	7.3	4.55	3.97	0.68	0.6	1	1.0	12.2	16.1	1177.	72.	8.8	0.808	0.901	64.	33	0.0
34.00	0.005	8.8	2.20	6.95	0.75	1.0	1	1.2	7.8	10.1	1221.	43.	14.3	0.939	0.939	41.	34	0.0
35.00	0.007	10.8	2.93	6.41	0.63	1.5	1	1.5	12.3	16.0	1488.	57.	13.2	0.946	0.946	49.	35	0.0
36.00	0.011	12.3	2.20	8.02	0.65	2.0	1	1.8	11.0	14.2	1659.	45.	15.4	0.966	0.966	40.	36	0.0
37.00	0.014	13.1	1.17	9.12	0.90	2.4	1	1.9	7.1	9.5	1759.	28.	18.7	0.970	0.970	29.	37	0.0
38.00	0.018	12.3	-1.17	15.82	99.99	2.9	1	1.9	-2.7	-2.8	1376.	-11.	29.9	1.165	0.858	0.	38	7.7
39.00	0.021	12.3	0.00	11.81	2.27	3.3	1	1.8	1.8	2.7	1652.	9.	26.5	0.970	0.970	16.	39	0.0
40.00	0.024	11.5	-1.17	16.47	99.99	3.7	1	1.7	-2.0	-2.0	1246.	-9.	29.9	1.203	0.831	0.	40	26.2
41.00	0.028	11.5	0.00	11.85	2.31	4.0	1	1.6	1.6	2.5	1545.	9.	25.6	0.970	0.970	15.	41	0.0
42.00	0.031	11.1	-0.59	16.95	99.99	4.4	1	1.6	-0.6	-0.7	1174.	-3.	29.9	1.232	0.812	3.	42	0.0
43.00	0.034	11.1	0.00	11.87	2.34	4.6	1	1.6	1.6	2.4	1491.	8.	25.1	0.970	0.970	15.	43	0.0
44.00	0.037	11.1	0.00	11.87	2.34	4.9	1	1.6	1.6	2.4	1491.	8.	25.1	0.970	0.970	15.	44	0.0
45.00	0.040	13.0	2.93	6.64	0.61	5.0	1	1.9	14.9	19.3	1767.	57.	13.9	0.962	0.962	48.	45	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
46.00	0.044	14.9	2.79	6.37	0.66	5.1	1	2.3	16.4	21.3	2008.	56.	13.8	0.970	0.970	46.	46	0.0
47.00	0.049	16.8	2.79	6.12	0.68	5.2	1	2.6	18.6	24.3	2264.	56.	13.6	0.970	0.970	46.	47	0.0
48.25	0.054	16.9	0.00	20.20	1.49	5.5	2	2.7	2.7	3.3	1255.	14.	20.1	0.970	0.970	18.	48	0.0
49.25	0.059	16.1	-1.17	40.95	99.99	5.9	2	2.6	-0.3	-0.1	744.	-1.	29.9	1.560	0.641	0.	49	75.7
50.25	0.063	15.7	-0.59	39.93	99.99	6.3	2	2.4	-0.3	-0.1	744.	-1.	29.9	1.521	0.658	0.	50	8.5
51.35	0.068	15.5	-0.44	24.19	99.99	6.4	2	2.4	0.1	-1.6	1154.	-7.	29.9	0.970	0.970	0.	51	0.0
52.35	0.073	15.1	-0.59	38.48	99.99	6.7	2	2.3	-0.3	-0.1	744.	-1.	29.9	1.466	0.682	0.	52	9.1
53.35	0.077	13.9	-1.76	35.43	99.99	7.0	2	2.3	-0.3	-0.1	744.	-1.	29.9	1.349	0.741	0.	53	146.8
54.35	0.080	10.9	-4.40	27.80	99.99	7.3	2	2.1	-0.2	-0.1	744.	-1.	29.9	1.059	0.944	0.	54	457.5
55.35	0.083	8.5	-3.52	21.70	99.99	7.5	1	1.5	-0.3	-0.1	744.	-1.	29.9	1.495	0.669	0.	55	359.6
56.35	0.085	6.2	-3.37	15.86	99.99	7.6	1	1.0	-0.2	-0.1	744.	-1.	29.9	1.092	0.915	0.	56	343.3
57.35	0.086	4.3	-2.79	11.02	99.99	7.6	1	0.7	-0.1	-0.1	744.	-1.	29.9	0.759	0.759	0.	57	275.4
58.35	0.087	3.6	-1.03	9.23	99.99	7.7	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.636	0.636	0.	58	66.3
59.35	0.088	3.5	0.00	7.99	3.09	7.7	1	0.4	0.4	0.8	744.	6.	21.5	0.613	0.613	7.	59	0.0
60.35	0.089	1.5	-2.93	3.82	99.99	7.6	1	0.2	0.0	-0.1	744.	-1.	29.9	0.263	0.263	0.	60	293.3
61.35	0.089	0.0	-0.83	0.12	99.99	7.6	1	0.0	0.0	-0.1	744.	-1.	29.9	0.009	0.009	0.	61	43.4
62.35	0.089	0.0	0.00	0.00	24.57	7.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	62	0.0
63.35	0.089	0.0	0.00	0.00	24.57	7.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	63	0.0
64.35	0.089	0.0	0.00	0.00	24.57	7.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	64	0.0
65.35	0.089	0.0	0.00	0.00	24.57	7.3	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	65	0.0
66.35	0.089	0.0	0.00	0.00	24.57	7.3	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	66	0.0
67.35	0.089	0.0	0.00	0.00	24.57	7.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	67	0.0
68.35	0.089	0.0	0.00	0.00	24.57	7.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	68	0.0
69.35	0.089	0.0	0.00	0.00	24.57	7.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	69	0.0
70.35	0.089	0.0	0.00	0.00	24.57	7.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	70	0.0
71.35	0.089	0.0	0.00	0.00	24.57	6.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	71	0.0
72.35	0.089	0.0	0.00	0.00	24.57	6.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	72	0.0
73.35	0.089	1.2	1.76	2.25	1.18	6.8	1	0.1	0.9	2.7	744.	19.	14.8	0.210	0.346	19.	73	0.0
74.35	0.090	3.5	3.37	3.36	0.95	6.7	1	0.4	4.4	6.6	785.	44.	12.9	0.581	0.802	43.	74	0.0
75.35	0.092	7.6	6.16	3.22	0.63	6.6	1	1.0	16.8	22.1	1281.	91.	6.1	0.770	0.896	77.	75	0.0
76.35	0.094	11.0	4.99	4.31	0.57	6.5	1	1.5	20.1	26.5	1557.	90.	8.7	0.919	0.919	71.	76	0.0
77.35	0.098	13.7	3.96	5.59	0.56	6.4	1	2.0	20.4	26.2	1863.	74.	12.0	0.956	0.956	58.	77	0.0
78.35	0.102	16.4	3.97	5.47	0.57	6.4	1	2.6	24.6	31.6	2206.	75.	12.0	0.968	0.968	57.	78	0.0
79.35	0.107	18.3	2.79	6.28	0.66	6.4	1	3.0	20.3	26.5	2456.	57.	13.8	0.970	0.970	46.	79	0.0
80.35	0.112	20.3	2.93	7.44	0.57	6.4	2	3.4	23.2	28.3	1603.	93.	8.4	0.911	0.911	73.	80	0.0
81.35	0.118	20.6	0.45	17.72	0.87	6.6	2	3.5	6.6	8.0	1529.	27.	19.0	0.970	0.970	28.	81	0.0
82.25	0.123	19.6	-1.61	31.78	99.99	6.9	2	3.5	-1.2	-1.4	1112.	-6.	29.9	1.270	0.787	0.	82	107.5
83.25	0.128	17.3	-3.37	39.94	99.99	7.1	2	3.4	1.6	-0.3	810.	-2.	29.9	1.539	0.650	0.	83	370.4
84.25	0.132	12.3	-7.34	31.27	99.99	7.3	2	2.8	-0.2	-0.1	744.	-1.	29.9	1.191	0.840	0.	84	799.2
85.25	0.135	8.1	-6.16	20.59	99.99	7.4	1	1.7	-0.3	-0.1	744.	-1.	29.9	1.419	0.705	0.	85	674.0
86.25	0.137	6.1	-2.94	15.49	99.99	7.5	1	1.0	-0.2	-0.1	744.	-1.	29.9	1.068	0.937	0.	86	292.2
87.25	0.139	9.2	5.14	4.03	0.61	7.3	1	1.3	17.3	22.5	1371.	86.	7.8	0.875	0.903	72.	87	0.0
88.25	0.142	12.3	4.54	5.15	0.53	7.3	1	1.8	20.7	26.9	1704.	83.	11.0	0.941	0.941	65.	88	0.0
89.25	0.146	15.3	4.40	5.24	0.54	7.2	1	2.3	25.2	32.4	2076.	82.	11.3	0.961	0.961	62.	89	0.0
90.25	0.150	17.6	3.37	5.84	0.61	7.1	1	2.8	22.9	29.8	2364.	66.	12.8	0.970	0.970	51.	90	0.0
91.25	0.155	20.0	3.52	5.86	0.58	7.1	1	3.4	27.3	35.5	2686.	69.	12.7	0.970	0.970	52.	91	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
92.25	0.161	21.5	2.21	10.05	0.55	7.2	2	3.7	19.6	23.4	1653.	74.	11.9	0.937	0.937	60.	92	0.0
93.25	0.167	23.0	2.20	10.02	0.55	7.2	2	4.1	21.0	25.0	1756.	75.	11.9	0.944	0.944	59.	93	0.0
94.25	0.174	23.4	0.58	16.26	0.81	7.4	2	4.2	8.8	10.6	1738.	32.	17.7	0.970	0.970	31.	94	0.0
95.25	0.180	24.2	1.18	13.09	0.67	7.5	2	4.5	14.0	16.5	1804.	48.	14.8	0.966	0.966	42.	95	0.0
96.25	0.187	24.6	0.58	15.28	0.85	7.7	2	4.6	9.3	11.3	1827.	32.	17.1	0.970	0.970	32.	96	0.0
97.25	0.194	25.7	1.61	11.26	0.62	7.7	2	4.9	18.7	22.0	1922.	60.	13.4	0.963	0.963	49.	97	0.0
98.25	0.201	26.1	0.00	16.19	1.48	7.9	2	5.0	5.0	6.5	1938.	18.	21.8	0.970	0.970	23.	98	0.0
99.25	0.209	26.9	1.18	12.15	0.70	8.0	2	5.3	15.9	18.8	1998.	49.	14.4	0.970	0.970	42.	99	0.0
100.25	0.216	26.9	0.00	15.66	1.50	8.1	2	5.3	5.3	6.8	1998.	18.	21.3	0.970	0.970	23.	100	0.0
101.25	0.224	26.9	0.00	15.66	1.50	8.2	2	5.3	5.3	6.8	1998.	18.	21.3	0.970	0.970	23.	101	0.0
102.25	0.231	26.5	-0.58	18.38	9.65	8.4	2	5.2	0.0	0.9	1968.	2.	28.8	0.970	0.970	14.	102	0.0
103.25	0.238	25.7	-1.18	25.82	99.99	8.5	2	5.1	-5.0	-4.5	1694.	-14.	29.9	1.093	0.915	1.	103	0.0
104.25	0.245	21.9	-5.57	28.90	99.99	8.7	2	5.2	-0.9	-2.6	1344.	-10.	29.9	1.174	0.852	0.	104	572.9
105.25	0.250	16.5	-7.92	41.97	99.99	8.8	2	4.1	-0.3	-0.1	744.	-1.	29.9	1.598	0.626	0.	105	862.6
106.25	0.254	10.0	-9.53	25.44	99.99	8.9	2	2.5	-0.2	-0.1	744.	-1.	29.9	0.969	0.969	0.	106	1056.6
107.25	0.256	4.6	-7.92	11.71	99.99	9.0	1	1.0	-0.2	-0.1	744.	-1.	29.9	0.807	0.807	0.	107	885.5
108.25	0.257	1.5	-4.55	3.82	99.99	9.0	1	0.3	0.0	-0.1	744.	-1.	29.9	0.263	0.263	0.	108	486.0
109.25	0.257	0.4	-1.61	1.03	99.99	8.9	1	0.1	0.0	-0.1	744.	-1.	29.9	0.071	0.071	0.	109	136.7
110.25	0.257	0.0	-0.58	0.02	99.99	8.9	1	0.0	0.0	-0.1	744.	-1.	29.9	0.002	0.002	0.	110	14.3
111.25	0.257	0.0	0.00	0.00	24.57	8.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	111	0.0
112.25	0.257	0.0	0.00	0.00	24.57	8.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	112	0.0
113.25	0.257	0.0	0.00	0.00	24.57	8.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	113	0.0
114.25	0.257	0.0	0.00	0.00	24.57	8.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	114	0.0
115.25	0.257	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	115	0.0
116.25	0.257	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	116	0.0
117.25	0.257	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	117	0.0
118.25	0.257	0.4	0.58	0.87	2.36	8.6	1	0.0	0.1	1.2	744.	8.	18.4	0.069	0.125	9.	118	0.0
119.25	0.257	1.2	1.18	2.40	1.47	8.6	1	0.1	0.6	2.0	744.	14.	14.4	0.210	0.337	15.	119	0.0
120.25	0.258	1.9	1.03	3.79	1.45	8.6	1	0.2	0.9	2.1	744.	15.	14.4	0.333	0.476	15.	120	0.0
121.25	0.259	3.8	2.78	4.04	0.97	8.6	1	0.5	4.1	5.8	768.	40.	14.0	0.644	0.844	39.	121	0.0
122.25	0.260	7.6	5.72	3.38	0.64	8.5	1	1.0	15.7	20.9	1259.	87.	6.6	0.782	0.898	74.	122	0.0
123.25	0.263	11.3	5.57	3.76	0.59	8.4	1	1.6	23.1	30.5	1616.	99.	7.1	0.915	0.915	77.	123	0.0
124.25	0.266	14.5	4.55	5.14	0.53	8.3	1	2.2	24.5	31.5	1972.	84.	11.0	0.955	0.955	64.	124	0.0
125.25	0.271	17.9	4.99	4.84	0.52	8.2	1	2.9	33.1	42.4	2408.	92.	10.2	0.967	0.967	65.	125	0.0
126.25	0.276	21.4	5.13	4.19	0.58	8.1	1	3.7	40.9	52.7	2868.	96.	9.3	0.970	0.970	65.	126	0.0
127.25	0.283	24.8	5.13	3.42	0.70	7.8	1	4.7	47.9	62.2	3338.	98.	8.0	0.970	0.970	63.	127	0.0
128.25	0.290	28.2	4.94	5.87	0.46	7.8	2	5.7	52.1	62.5	2196.	150.	0.0	0.925	0.925	100.	128	0.0
129.25	0.298	30.5	3.37	7.81	0.49	7.8	2	6.5	40.7	47.8	2305.	109.	8.5	0.953	0.953	75.	129	0.0
130.25	0.307	31.7	1.76	10.49	0.60	7.8	2	7.0	25.5	30.0	2353.	67.	12.8	0.970	0.970	52.	130	0.0
131.25	0.316	32.1	0.58	13.00	0.91	7.9	2	7.1	13.3	16.2	2382.	36.	16.1	0.970	0.970	34.	131	0.0
132.25	0.325	32.3	0.00	14.65	1.41	8.0	2	7.2	7.2	9.3	2399.	20.	20.1	0.970	0.970	26.	132	0.0
133.25	0.334	31.9	-0.58	16.70	5.24	8.1	2	7.1	0.9	2.2	2370.	5.	27.5	0.970	0.970	17.	133	0.0
134.25	0.342	30.3	-2.35	19.24	99.99	8.2	2	7.1	-8.5	-8.5	2080.	-21.	29.9	1.050	0.952	0.	134	97.8
135.25	0.350	28.0	-3.37	21.59	99.99	8.3	2	6.6	-6.2	-6.7	1895.	-19.	29.9	1.065	0.939	0.	135	241.7
136.25	0.358	24.2	-5.57	27.24	99.99	8.5	2	6.0	-2.3	-4.0	1559.	-13.	29.9	1.119	0.894	0.	136	550.1
137.25	0.364	20.0	-6.16	30.83	99.99	8.6	2	4.8	1.5	-1.6	1165.	-7.	29.9	1.238	0.808	0.	137	686.5

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
138.25	0.369	16.1	-5.72	40.96	99.99	8.6	2	3.6	-0.3	-0.1	744.	-1.	29.9	1.560	0.641	0.	138	606.4
139.25	0.373	11.5	-6.75	29.26	99.99	8.7	2	2.5	-0.2	-0.1	744.	-1.	29.9	1.114	0.897	0.	139	731.1
140.25	0.375	8.1	-4.99	20.60	99.99	8.8	1	1.6	-0.3	-0.1	744.	-1.	29.9	1.420	0.704	0.	140	534.8
141.25	0.377	5.0	-4.54	12.73	99.99	8.8	1	0.9	-0.2	-0.1	744.	-1.	29.9	0.877	0.877	0.	141	483.2
142.25	0.378	3.5	-2.21	8.90	99.99	8.8	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.613	0.613	0.	142	206.8
143.25	0.379	1.9	-2.34	4.84	99.99	8.8	1	0.3	-0.1	-0.1	744.	-1.	29.9	0.334	0.334	0.	143	223.0
144.25	0.379	0.1	-1.05	0.16	99.99	8.8	1	0.0	0.0	-0.1	744.	-1.	29.9	0.011	0.011	0.	144	69.7
145.25	0.379	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	145	0.0
146.25	0.379	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	146	0.0
147.25	0.379	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	147	0.0
148.25	0.379	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	148	0.0
149.25	0.379	0.0	0.00	0.00	24.57	8.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	149	0.0
150.25	0.379	0.0	0.00	0.00	24.57	8.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	150	0.0
151.25	0.379	0.0	0.00	0.00	24.57	8.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	151	0.0
152.25	0.379	0.0	0.00	0.00	24.57	8.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	152	0.0
153.25	0.380	1.5	2.20	2.66	1.02	8.6	1	0.2	1.3	3.3	744.	23.	15.2	0.263	0.424	24.	153	0.0
154.25	0.381	6.6	7.92	2.36	0.64	8.5	1	0.9	18.6	26.0	1286.	106.	3.0	0.670	0.858	89.	154	0.0
155.25	0.383	12.4	8.17	2.61	0.60	8.3	1	1.8	36.1	47.4	1796.	139.	0.0	0.899	0.899	100.	155	0.0
156.25	0.387	16.2	5.58	4.64	0.49	8.2	1	2.5	33.2	42.4	2203.	101.	9.3	0.957	0.957	72.	156	0.0
157.25	0.392	19.7	5.13	4.55	0.53	8.2	1	3.3	37.6	48.3	2644.	96.	9.7	0.970	0.970	66.	157	0.0
158.25	0.398	22.7	4.40	5.05	0.58	8.1	2	4.0	37.3	45.9	1818.	133.	2.0	0.899	0.899	96.	158	0.0
159.25	0.405	25.4	3.96	6.32	0.52	8.1	2	4.8	38.3	46.1	1978.	122.	5.1	0.925	0.925	87.	159	0.0
160.25	0.412	27.7	3.37	7.69	0.50	8.1	2	5.5	36.6	43.3	2113.	108.	8.1	0.944	0.944	77.	160	0.0
161.25	0.420	30.4	3.97	6.99	0.47	8.0	2	6.5	46.7	55.1	2316.	125.	6.7	0.945	0.945	84.	161	0.0
162.25	0.429	32.3	2.78	8.57	0.52	8.1	2	7.2	37.1	43.3	2416.	94.	10.0	0.963	0.963	66.	162	0.0
163.25	0.438	33.9	2.35	9.54	0.53	8.1	2	7.9	34.4	40.0	2516.	83.	11.1	0.970	0.970	60.	163	0.0
164.25	0.448	35.0	1.61	10.90	0.60	8.1	2	8.3	27.1	31.9	2598.	65.	13.2	0.970	0.970	50.	164	0.0
165.25	0.458	36.6	2.34	9.41	0.53	8.1	2	9.0	37.5	43.9	2716.	85.	10.9	0.970	0.970	60.	165	0.0
166.50	0.470	36.9	0.00	25.27	0.81	8.3	3	9.2	9.2	10.8	1746.	32.	17.5	0.970	0.970	32.	166	0.0
167.50	0.481	37.2	0.44	20.23	0.65	8.4	3	9.3	14.8	17.0	1774.	50.	14.6	0.963	0.963	43.	167	0.0
168.50	0.491	37.6	0.59	18.73	0.62	8.5	3	9.5	16.9	19.4	1799.	57.	13.9	0.960	0.960	47.	168	0.0
169.50	0.502	37.6	0.00	24.61	0.82	8.6	3	9.5	9.5	11.2	1779.	33.	17.1	0.970	0.970	32.	169	0.0
170.50	0.512	37.6	0.00	24.61	0.82	8.7	3	9.5	9.5	11.2	1779.	33.	17.1	0.970	0.970	32.	170	0.0
171.50	0.522	37.2	-0.59	30.94	2.40	8.8	3	9.3	2.1	3.0	1760.	9.	26.3	0.970	0.970	17.	171	0.0
172.50	0.533	37.2	0.00	24.98	0.81	8.9	3	9.3	9.3	11.0	1760.	33.	17.3	0.970	0.970	32.	172	0.0
173.50	0.543	36.9	-0.44	29.54	1.52	9.1	3	9.2	3.8	4.9	1746.	15.	24.0	0.970	0.970	20.	173	0.0
174.50	0.553	36.5	-0.58	31.80	2.37	9.2	3	9.0	2.0	2.9	1727.	9.	26.4	0.970	0.970	16.	174	0.0
175.50	0.563	36.5	0.00	25.68	0.80	9.3	3	9.0	9.0	10.6	1727.	32.	17.6	0.970	0.970	32.	175	0.0
176.50	0.573	34.9	-2.35	44.96	99.99	9.4	3	9.0	-3.0	-2.8	1374.	-11.	29.9	1.165	0.858	0.	176	157.8
177.50	0.583	33.4	-2.20	46.17	99.99	9.5	3	8.3	-2.5	-2.2	1287.	-9.	29.9	1.191	0.840	0.	177	147.2
178.50	0.592	31.9	-2.20	47.43	99.99	9.7	3	7.7	-2.1	-1.8	1204.	-8.	29.9	1.216	0.822	0.	178	154.2
179.50	0.600	29.2	-3.97	53.69	99.99	9.8	3	7.3	-0.3	-0.9	992.	-5.	29.9	1.351	0.740	0.	179	384.4
180.50	0.608	25.0	-6.16	63.55	99.99	9.9	3	6.4	-0.3	-0.1	744.	-1.	29.9	1.542	0.649	0.	180	644.1
181.50	0.615	25.0	0.00	28.10	0.96	9.9	3	4.7	4.7	5.5	1194.	24.	18.0	0.961	0.961	26.	181	0.0
182.50	0.622	26.0	1.61	11.51	0.60	9.9	3	5.0	18.9	22.6	1395.	85.	8.2	0.856	0.904	71.	182	0.0
183.50	0.629	27.5	2.21	8.73	0.62	9.9	3	5.5	25.6	30.6	1522.	106.	5.0	0.830	0.903	83.	183	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
184.50	0.637	29.1	2.34	8.16	0.62	9.9	3	6.0	28.6	34.1	1587.	113.	4.0	0.841	0.903	87.	184	0.0
185.50	0.645	31.0	2.79	6.92	0.64	9.8	3	6.7	35.3	42.1	1700.	130.	1.3	0.837	0.903	96.	185	0.0
186.50	0.654	32.2	1.76	10.48	0.59	9.9	3	7.2	25.9	31.1	1634.	100.	7.1	0.905	0.905	77.	186	0.0
187.50	0.663	34.1	2.79	7.28	0.60	9.8	3	7.9	39.4	46.9	1798.	137.	1.0	0.869	0.904	99.	187	0.0
188.50	0.673	34.7	1.02	16.21	0.55	9.9	3	8.2	20.0	23.2	1694.	72.	12.3	0.942	0.942	58.	188	0.0
189.50	0.683	35.6	1.18	15.11	0.54	9.9	3	8.6	22.5	26.1	1738.	79.	11.5	0.939	0.939	62.	189	0.0
190.50	0.693	36.4	1.18	15.03	0.54	10.0	3	8.9	23.1	26.9	1773.	80.	11.4	0.941	0.941	62.	190	0.0
191.50	0.703	36.8	0.58	19.14	0.61	10.0	3	9.1	16.2	18.7	1759.	56.	14.0	0.959	0.959	47.	191	0.0
192.50	0.713	36.9	0.00	25.27	0.81	10.1	3	9.2	9.2	10.8	1746.	32.	17.5	0.970	0.970	32.	192	0.0
193.50	0.723	37.2	0.44	20.23	0.65	10.2	3	9.3	14.8	17.0	1774.	50.	14.6	0.963	0.963	43.	193	0.0
194.50	0.734	37.6	0.59	18.73	0.62	10.2	3	9.5	16.9	19.4	1799.	57.	13.9	0.960	0.960	47.	194	0.0
195.50	0.744	37.2	-0.59	30.94	2.40	10.3	3	9.3	2.1	3.0	1760.	9.	26.3	0.970	0.970	17.	195	0.0
196.50	0.755	37.6	0.59	18.73	0.62	10.4	3	9.5	16.9	19.4	1798.	57.	13.9	0.960	0.960	47.	196	0.0
197.50	0.765	38.0	0.58	18.67	0.62	10.5	3	9.7	17.0	19.6	1816.	57.	13.9	0.960	0.960	47.	197	0.0
198.50	0.776	38.4	0.59	18.45	0.62	10.5	3	9.9	17.4	20.0	1834.	57.	13.8	0.960	0.960	48.	198	0.0
199.50	0.786	39.2	1.17	14.82	0.54	10.6	3	10.3	25.5	29.4	1901.	81.	11.3	0.946	0.946	62.	199	0.0
200.50	0.797	39.6	0.59	18.07	0.62	10.6	3	10.5	18.2	21.0	1889.	58.	13.6	0.962	0.962	48.	200	0.0
201.50	0.808	39.9	0.44	19.07	0.66	10.7	3	10.7	16.5	19.0	1895.	53.	14.2	0.966	0.966	44.	201	0.0
202.50	0.820	40.7	1.18	14.65	0.53	10.7	3	11.1	27.0	31.1	1968.	83.	11.1	0.949	0.949	63.	202	0.0
203.44	0.830	40.3	-0.59	27.39	2.13	10.8	3	10.9	3.0	4.1	1906.	11.	24.8	0.970	0.970	19.	203	0.0
204.44	0.842	41.1	1.18	14.60	0.53	10.9	3	11.3	27.3	31.5	1984.	83.	11.1	0.950	0.950	63.	204	0.0
205.44	0.853	41.1	0.00	21.95	0.84	10.9	3	11.3	11.3	13.3	1944.	36.	15.8	0.970	0.970	34.	205	0.0
206.44	0.864	40.7	-0.58	26.91	2.04	11.0	3	11.1	3.3	4.4	1926.	12.	24.4	0.970	0.970	19.	206	0.0
207.44	0.874	31.9	-12.91	47.42	99.99	11.1	3	11.9	0.7	-1.8	1204.	-8.	29.9	1.216	0.822	0.	207	1427.3
208.44	0.881	16.9	-22.00	42.98	99.99	11.2	3	7.2	-0.2	-0.1	744.	-1.	29.9	1.043	0.959	0.	208	2490.9
209.54	0.884	1.3	-20.83	3.25	99.99	11.2	1	0.5	0.0	-0.1	744.	-1.	29.9	0.224	0.224	0.	209	2423.0
209.93	0.884	0.4	-3.37	1.02	99.99	11.2	1	0.1	0.0	-0.1	744.	-1.	29.9	0.070	0.070	0.	210	346.1
210.93	0.884	0.4	0.00	0.95	4.79	11.2	1	0.0	0.0	0.5	744.	4.	24.7	0.070	0.119	4.	211	0.0
211.93	0.885	2.7	3.37	3.10	1.00	11.2	1	0.3	3.4	5.2	744.	37.	14.6	0.469	0.696	36.	212	0.0
212.93	0.885	3.8	1.61	6.63	1.00	11.1	1	0.5	2.5	3.4	744.	24.	15.2	0.661	0.801	24.	213	0.0
213.93	0.887	3.8	0.00	8.67	3.08	11.1	1	0.5	0.5	0.9	744.	6.	21.4	0.666	0.666	7.	214	0.0
214.93	0.887	1.5	-3.37	3.82	99.99	11.1	1	0.2	0.0	-0.1	744.	-1.	29.9	0.263	0.263	0.	215	345.7
215.93	0.887	0.0	-0.83	0.12	99.99	11.1	1	0.0	0.0	-0.1	744.	-1.	29.9	0.009	0.009	0.	216	43.4
216.93	0.887	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	217	0.0
217.93	0.887	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	218	0.0
218.93	0.887	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	219	0.0
219.93	0.887	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	220	0.0
220.93	0.887	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	221	0.0
221.93	0.887	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	222	0.0
222.93	0.887	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	223	0.0
223.93	0.887	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	224	0.0
224.93	0.887	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	225	0.0
225.93	0.887	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	226	0.0
226.93	0.887	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	227	0.0
227.93	0.887	0.0	0.00	0.00	24.57	10.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	228	0.0
228.93	0.887	0.0	0.00	0.00	24.57	10.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	229	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
229.93	0.887	0.0	0.00	0.00	24.57	10.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	230	0.0
230.93	0.887	0.0	0.00	0.00	24.57	10.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	231	0.0
231.93	0.887	0.0	0.00	0.00	24.57	10.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	232	0.0
232.93	0.887	0.0	0.00	0.00	24.57	10.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	233	0.0
233.93	0.887	0.0	0.00	0.00	24.57	10.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	234	0.0
234.93	0.887	0.0	0.00	0.00	24.57	10.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	235	0.0
235.93	0.887	0.0	0.00	0.00	24.57	10.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	236	0.0
236.93	0.887	0.0	0.00	0.00	24.57	10.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	237	0.0
237.93	0.887	0.0	0.00	0.00	24.57	10.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	238	0.0
238.93	0.887	0.0	0.00	0.00	24.57	10.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	239	0.0
239.93	0.887	0.0	0.00	0.00	24.57	10.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	240	0.0
240.93	0.887	0.0	0.00	0.00	24.57	10.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	241	0.0
241.93	0.887	0.0	0.00	0.00	24.57	10.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	242	0.0
242.93	0.887	0.0	0.00	0.00	24.57	10.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	243	0.0
243.93	0.887	0.0	0.00	0.00	24.57	10.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	244	0.0
244.93	0.887	0.0	0.00	0.00	24.57	10.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	245	0.0
245.93	0.887	0.0	0.00	0.00	24.57	10.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	246	0.0
246.93	0.887	0.0	0.00	0.00	24.57	10.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	247	0.0
247.93	0.888	1.5	2.20	2.66	1.02	10.6	1	0.2	1.3	3.3	744.	23.	15.2	0.263	0.424	24.	248	0.0
248.93	0.889	5.0	5.14	2.92	0.76	10.6	1	0.6	9.3	13.5	1013.	70.	8.1	0.642	0.842	64.	249	0.0
249.93	0.890	8.8	5.57	3.67	0.61	10.6	1	1.2	17.8	23.3	1358.	90.	6.9	0.843	0.904	75.	250	0.0
250.93	0.893	11.5	3.96	5.52	0.56	10.5	1	1.6	17.1	22.1	1592.	73.	11.6	0.940	0.940	59.	251	0.0
251.93	0.897	14.2	3.97	5.54	0.56	10.5	1	2.1	21.2	27.5	1929.	75.	12.0	0.959	0.959	58.	252	0.0
252.93	0.901	15.4	1.76	7.14	0.84	10.5	1	2.4	11.5	15.3	2068.	39.	15.2	0.970	0.970	36.	253	0.0
253.93	0.905	16.1	1.02	7.52	1.16	10.4	1	2.5	8.1	11.0	2162.	27.	16.3	0.970	0.970	29.	254	0.0
255.18	0.911	16.1	0.00	20.27	1.52	10.5	2	2.5	2.5	3.1	1196.	14.	19.5	0.970	0.970	17.	255	0.0
256.18	0.916	16.9	1.18	12.57	0.72	10.5	2	2.7	9.3	11.2	1296.	45.	14.2	0.939	0.939	42.	256	0.0
257.18	0.920	16.5	-0.58	41.93	99.99	10.5	2	2.6	-0.3	-0.1	744.	-1.	29.9	1.597	0.626	0.	257	6.5
258.18	0.925	16.9	0.58	16.62	0.85	10.5	2	2.7	5.9	7.1	1267.	29.	17.3	0.959	0.959	30.	258	0.0
259.18	0.930	17.9	1.61	10.93	0.65	10.5	2	2.9	12.5	15.1	1391.	57.	12.7	0.929	0.929	50.	259	0.0
260.18	0.935	19.1	1.76	10.75	0.62	10.5	2	3.2	14.4	17.3	1477.	61.	12.4	0.934	0.934	52.	260	0.0
261.18	0.940	20.3	1.76	11.08	0.60	10.5	2	3.4	15.4	18.4	1556.	62.	12.8	0.942	0.942	52.	261	0.0
262.18	0.946	20.4	0.00	19.93	1.38	10.6	2	3.5	3.5	4.4	1515.	15.	22.6	0.970	0.970	20.	262	0.0
263.18	0.952	21.1	1.03	14.54	0.67	10.6	2	3.6	10.9	12.9	1581.	43.	15.4	0.961	0.961	39.	263	0.0
264.18	0.958	21.1	0.00	19.89	1.36	10.6	2	3.6	3.6	4.7	1567.	16.	23.0	0.970	0.970	20.	264	0.0
265.18	0.964	22.3	1.76	11.44	0.58	10.6	2	3.9	17.0	20.2	1690.	63.	13.3	0.949	0.949	52.	265	0.0
266.18	0.970	23.0	1.03	14.40	0.67	10.6	2	4.1	12.0	14.2	1713.	44.	15.4	0.966	0.966	39.	266	0.0
267.18	0.976	23.8	1.17	13.31	0.66	10.6	2	4.3	13.6	16.1	1774.	48.	14.9	0.966	0.966	42.	267	0.0
268.18	0.983	24.2	0.59	15.57	0.83	10.7	2	4.5	9.2	11.1	1795.	33.	17.2	0.970	0.970	32.	268	0.0
269.18	0.990	24.6	0.58	15.31	0.85	10.7	2	4.6	9.3	11.3	1824.	32.	17.1	0.970	0.970	32.	269	0.0
270.18	0.997	25.0	0.58	15.02	0.86	10.7	2	4.7	9.5	11.5	1854.	33.	17.0	0.970	0.970	32.	270	0.0
271.18	1.004	25.7	1.03	13.05	0.72	10.7	2	4.9	13.7	16.3	1906.	45.	15.0	0.970	0.970	40.	271	0.0
272.18	1.011	25.7	0.00	16.48	1.47	10.7	2	4.9	4.9	6.3	1909.	17.	22.0	0.970	0.970	23.	272	0.0
273.18	1.018	26.5	1.18	12.28	0.70	10.8	2	5.2	15.6	18.4	1968.	49.	14.4	0.970	0.970	42.	273	0.0
274.17	1.026	27.6	1.61	10.96	0.63	10.8	2	5.5	20.3	23.9	2056.	61.	13.2	0.967	0.967	49.	274	0.0
275.17	1.033	28.4	1.18	11.73	0.72	10.8	2	5.8	16.9	20.1	2110.	50.	14.2	0.970	0.970	43.	275	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
276.17	1.041	29.2	1.17	11.56	0.73	10.8	2	6.1	17.4	20.7	2169.	50.	14.1	0.970	0.970	42.	276	0.0
277.17	1.050	30.3	1.61	10.67	0.64	10.8	2	6.5	22.7	26.7	2251.	62.	13.1	0.970	0.970	49.	277	0.0
278.17	1.058	31.1	1.18	11.52	0.72	10.8	2	6.7	19.0	22.5	2310.	51.	14.1	0.970	0.970	43.	278	0.0
279.17	1.067	31.1	0.00	14.37	1.48	10.8	2	6.7	6.7	8.7	2310.	20.	19.6	0.970	0.970	25.	279	0.0
280.17	1.075	30.7	-0.58	16.35	6.07	10.8	2	6.6	0.7	1.8	2280.	4.	27.6	0.970	0.970	16.	280	0.0
281.17	1.084	31.1	0.58	12.82	0.93	10.8	2	6.7	12.8	15.5	2310.	35.	15.7	0.970	0.970	34.	281	0.0
282.17	1.092	29.6	-2.20	19.88	99.99	10.9	2	6.8	-8.0	-7.9	2023.	-21.	29.9	1.055	0.948	0.	282	84.9
283.17	1.101	29.2	-0.59	16.54	7.72	10.9	2	6.1	0.3	1.4	2170.	3.	28.1	0.970	0.970	15.	283	0.0
284.17	1.109	29.2	0.00	14.41	1.54	10.9	2	6.1	6.1	7.8	2169.	19.	19.7	0.970	0.970	24.	284	0.0
285.17	1.117	28.8	-0.58	16.75	7.45	10.9	2	5.9	0.4	1.4	2139.	3.	28.1	0.970	0.970	15.	285	0.0
286.17	1.125	28.0	-1.18	21.60	99.99	11.0	2	5.8	-5.2	-4.6	1895.	-13.	29.9	1.065	0.939	4.	286	0.0
287.17	1.132	23.0	-7.33	28.02	99.99	11.0	2	6.1	-0.5	-3.2	1448.	-12.	29.9	1.145	0.874	0.	287	784.8
288.17	1.138	21.1	-2.79	29.55	99.99	11.1	2	4.2	-1.9	-2.2	1272.	-9.	29.9	1.195	0.837	0.	288	233.3
289.17	1.144	21.5	0.58	17.11	0.79	11.1	2	3.7	7.9	9.5	1595.	31.	18.0	0.970	0.970	31.	289	0.0
290.17	1.150	20.7	-1.17	29.90	99.99	11.1	2	3.7	-2.3	-2.0	1235.	-8.	29.9	1.207	0.829	0.	290	35.7
291.17	1.155	20.7	0.00	19.92	1.37	11.1	2	3.5	3.5	4.5	1537.	16.	22.8	0.970	0.970	20.	291	0.0
292.17	1.161	19.6	-1.61	31.77	99.99	11.2	2	3.5	-1.2	-1.4	1112.	-6.	29.9	1.270	0.787	0.	292	107.4
293.17	1.166	16.5	-4.55	41.96	99.99	11.2	2	3.4	-0.3	-0.1	744.	-1.	29.9	1.598	0.626	0.	293	469.5
294.17	1.170	13.1	-4.99	33.31	99.99	11.2	2	2.7	-0.2	-0.1	744.	-1.	29.9	1.269	0.788	0.	294	524.3
295.22	1.173	9.4	-5.13	22.99	99.99	11.2	1	1.8	-0.7	-0.2	771.	-1.	29.9	1.592	0.628	0.	295	533.6
296.15	1.175	7.3	-3.37	18.56	99.99	11.3	1	1.2	-0.2	-0.1	744.	-1.	29.9	1.279	0.782	0.	296	342.6
297.14	1.177	3.8	-5.14	9.65	99.99	11.3	1	0.7	-0.1	-0.1	744.	-1.	29.9	0.665	0.665	0.	297	555.2
298.14	1.178	0.8	-4.39	2.04	99.99	11.3	1	0.1	0.0	-0.1	744.	-1.	29.9	0.141	0.141	0.	298	467.3
299.14	1.178	0.0	-1.18	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	299	85.6
300.14	1.178	0.0	0.00	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	300	0.0
301.14	1.178	0.0	0.00	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	301	0.0
302.14	1.178	0.0	0.00	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	302	0.0
303.14	1.178	0.0	0.00	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	303	0.0
304.14	1.178	0.0	0.00	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	304	0.0
305.14	1.178	0.0	0.00	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	305	0.0
306.14	1.178	0.0	0.00	0.00	24.57	11.2	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	306	0.0
307.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	307	0.0
308.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	308	0.0
309.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	309	0.0
310.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	310	0.0
311.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	311	0.0
312.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	312	0.0
313.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	313	0.0
314.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	314	0.0
315.14	1.178	0.0	0.00	0.00	24.57	11.1	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	315	0.0
316.14	1.178	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	316	0.0
317.14	1.178	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	317	0.0
318.14	1.178	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	318	0.0
319.14	1.178	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	319	0.0
320.14	1.178	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	320	0.0
321.14	1.178	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	321	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
322.14	1.178	0.0	0.00	0.00	24.57	11.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	322	0.0
323.14	1.178	0.4	0.58	0.87	2.36	11.0	1	0.0	0.1	1.2	744.	8.	18.4	0.069	0.125	9.	323	0.0
324.14	1.178	2.7	3.37	3.11	1.00	10.9	1	0.3	3.4	5.2	744.	37.	14.6	0.471	0.699	36.	324	0.0
325.14	1.180	7.1	6.75	2.85	0.64	10.9	1	0.9	17.2	23.3	1273.	96.	5.0	0.726	0.883	81.	325	0.0
326.14	1.182	11.3	6.15	3.27	0.61	10.8	1	1.6	25.2	33.6	1624.	109.	5.2	0.906	0.906	83.	326	0.0
327.14	1.186	15.2	5.72	4.37	0.51	10.8	1	2.3	31.8	41.1	2085.	103.	8.5	0.949	0.949	74.	327	0.0
328.14	1.190	18.2	4.40	5.27	0.53	10.7	1	2.9	30.1	38.8	2444.	83.	11.2	0.970	0.970	60.	328	0.0
329.14	1.196	20.5	3.37	6.24	0.60	10.7	2	3.5	26.5	32.6	1636.	105.	6.2	0.902	0.902	80.	329	0.0
330.14	1.202	23.7	4.70	4.97	0.56	10.7	2	4.3	41.4	50.9	1892.	141.	0.0	0.901	0.901	100.	330	0.0
331.14	1.209	26.4	3.96	6.60	0.50	10.6	2	5.1	39.9	47.8	2045.	123.	5.6	0.929	0.929	86.	331	0.0
332.14	1.217	29.1	3.97	7.36	0.45	10.6	2	6.0	44.5	52.6	2223.	124.	6.9	0.942	0.942	85.	332	0.0
333.14	1.225	30.6	2.20	9.75	0.55	10.6	2	6.6	29.0	33.9	2282.	78.	11.8	0.966	0.966	58.	333	0.0
334.14	1.234	32.1	2.20	9.79	0.55	10.6	2	7.1	30.6	35.7	2386.	79.	11.7	0.969	0.969	58.	334	0.0
335.14	1.243	33.3	1.76	10.55	0.59	10.6	2	7.6	27.1	31.9	2471.	68.	12.8	0.970	0.970	52.	335	0.0
336.14	1.252	34.4	1.61	10.88	0.60	10.6	2	8.1	26.5	31.2	2553.	64.	13.2	0.970	0.970	49.	336	0.0
337.14	1.262	36.4	2.94	7.75	0.54	10.5	2	8.9	44.6	51.7	2706.	100.	9.1	0.969	0.969	68.	337	0.0
338.14	1.272	38.7	3.37	6.48	0.58	10.5	2	10.1	53.5	61.9	2877.	113.	7.5	0.969	0.969	73.	338	0.0
339.14	1.283	40.6	2.79	6.89	0.62	10.4	2	11.0	48.7	56.8	3013.	99.	8.6	0.970	0.970	65.	339	0.0
340.24	1.296	42.7	2.79	12.71	0.51	10.4	3	12.2	51.6	39.5	2131.	97.	9.5	0.919	0.919	70.	340	0.0
341.24	1.308	43.5	1.17	14.46	0.53	10.4	3	12.7	29.5	33.8	2090.	85.	11.0	0.955	0.955	63.	341	0.0
342.24	1.320	44.2	1.03	15.06	0.54	10.5	3	13.1	28.1	32.2	2114.	80.	11.6	0.959	0.959	60.	342	0.0
343.24	1.333	45.0	1.18	14.34	0.53	10.5	3	13.6	31.1	35.6	2156.	87.	10.8	0.957	0.957	64.	343	0.0
344.24	1.345	45.3	0.00	19.66	0.86	10.5	3	13.8	13.8	16.1	2143.	39.	15.0	0.970	0.970	36.	344	0.0
345.24	1.358	44.9	-0.59	23.76	1.82	10.6	3	13.5	4.7	6.2	2124.	15.	21.9	0.970	0.970	22.	345	0.0
346.24	1.370	44.5	-0.58	23.94	1.81	10.6	3	13.3	4.7	6.2	2105.	15.	22.0	0.970	0.970	22.	346	0.0
347.24	1.382	43.8	-1.03	34.10	99.99	10.7	3	12.9	-2.0	-1.3	1886.	-3.	29.9	1.066	0.938	9.	347	0.0
348.24	1.394	43.4	-0.58	24.68	1.87	10.7	3	12.6	4.3	5.6	2054.	14.	22.7	0.970	0.970	21.	348	0.0
349.24	1.406	42.6	-1.18	35.66	99.99	10.8	3	12.3	-4.3	-3.6	1827.	-10.	29.9	1.071	0.934	5.	349	0.0
350.24	1.418	41.9	-1.02	36.87	99.99	10.9	3	11.8	-2.3	-1.7	1789.	-5.	29.9	1.076	0.930	8.	350	0.0
351.24	1.430	41.5	-0.59	26.26	2.04	10.9	3	11.6	3.4	4.6	1965.	12.	24.1	0.970	0.970	20.	351	0.0
352.23	1.441	40.7	-1.17	39.53	99.99	11.0	3	11.3	-4.5	-3.8	1718.	-12.	29.9	1.089	0.919	3.	352	0.0
353.23	1.452	40.4	-0.59	27.33	2.12	11.0	3	10.9	3.0	4.2	1909.	11.	24.7	0.970	0.970	19.	353	0.0
354.23	1.464	41.1	1.18	14.60	0.53	11.1	3	11.3	27.4	31.5	1987.	83.	11.1	0.950	0.950	63.	354	0.0
355.23	1.475	41.5	0.58	17.61	0.63	11.1	3	11.5	19.5	22.4	1976.	60.	13.4	0.964	0.964	49.	355	0.0
356.23	1.487	42.6	1.61	12.41	0.51	11.1	3	12.2	34.9	40.2	2072.	102.	8.6	0.944	0.944	74.	356	0.0
357.23	1.499	43.4	1.18	14.41	0.53	11.1	3	12.6	29.6	33.9	2087.	85.	10.9	0.954	0.954	64.	357	0.0
358.23	1.511	44.2	1.18	14.37	0.53	11.1	3	13.1	30.4	34.7	2123.	86.	10.9	0.956	0.956	64.	358	0.0
359.23	1.523	44.9	1.02	15.04	0.54	11.2	3	13.5	28.7	32.8	2147.	80.	11.5	0.960	0.960	60.	359	0.0
360.23	1.536	45.7	1.18	14.31	0.52	11.2	3	14.0	31.9	36.4	2189.	87.	10.8	0.958	0.958	64.	360	0.0
361.23	1.549	46.5	1.18	14.28	0.52	11.2	3	14.5	32.7	37.3	2226.	88.	10.7	0.959	0.959	64.	361	0.0
362.23	1.562	46.8	0.44	17.08	0.66	11.2	3	14.7	21.5	24.7	2214.	59.	13.3	0.970	0.970	47.	362	0.0
363.23	1.575	47.2	0.58	16.51	0.62	11.3	3	15.0	24.1	27.4	2233.	65.	12.9	0.970	0.970	51.	363	0.0
364.23	1.588	48.0	1.18	14.11	0.52	11.3	3	15.5	34.3	39.1	2294.	89.	10.6	0.960	0.960	65.	364	0.0
365.23	1.601	47.6	-0.58	22.51	1.62	11.3	3	15.3	6.1	7.8	2252.	18.	20.1	0.970	0.970	24.	365	0.0
366.23	1.615	48.4	1.18	14.07	0.52	11.3	3	15.8	34.7	39.5	2311.	90.	10.5	0.961	0.961	65.	366	0.0
367.17	1.627	48.0	-0.59	22.64	1.62	11.4	3	15.5	6.2	7.8	2271.	18.	20.2	0.970	0.970	24.	367	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
368.17	1.640	47.2	-1.18	30.54	99.99	11.4	3	15.1	-3.3	-2.5	2060.	-6.	29.9	1.052	0.951	9.	368	0.0
369.17	1.653	46.1	-1.61	31.57	99.99	11.5	3	14.6	-8.5	-7.7	2003.	-20.	29.9	1.056	0.947	0.	369	11.5
370.17	1.666	45.7	-0.58	23.16	1.74	11.5	3	14.0	5.3	6.8	2163.	16.	21.1	0.970	0.970	23.	370	0.0
371.17	1.679	44.9	-1.18	32.80	99.99	11.6	3	13.7	-3.9	-3.1	1943.	-8.	29.9	1.061	0.943	7.	371	0.0
372.17	1.691	44.2	-1.02	33.59	99.99	11.7	3	13.2	-1.8	-1.0	1908.	-3.	29.9	1.064	0.940	10.	372	0.0
373.17	1.703	43.8	-0.59	24.47	1.89	11.7	3	12.9	4.3	5.7	2074.	14.	22.6	0.970	0.970	21.	373	0.0
374.17	1.716	44.5	1.03	15.03	0.54	11.7	3	13.3	28.5	32.5	2130.	80.	11.5	0.959	0.959	60.	374	0.0
375.17	1.728	44.9	0.58	16.86	0.63	11.7	3	13.5	22.1	25.3	2129.	62.	13.1	0.968	0.968	50.	375	0.0
376.17	1.740	45.3	0.59	16.74	0.63	11.8	3	13.8	22.6	25.8	2148.	63.	13.0	0.968	0.968	50.	376	0.0
377.17	1.753	46.5	1.76	12.25	0.47	11.8	3	14.5	41.6	47.8	2252.	111.	8.2	0.947	0.947	77.	377	0.0
378.16	1.766	48.0	2.20	10.49	0.47	11.8	3	15.5	50.5	58.0	2335.	131.	6.1	0.943	0.943	87.	378	0.0
379.16	1.780	48.8	1.18	14.01	0.52	11.8	3	16.1	35.1	40.0	2330.	90.	10.5	0.961	0.961	65.	379	0.0
380.16	1.793	49.5	1.03	14.65	0.53	11.8	3	16.6	33.4	38.1	2357.	85.	11.0	0.964	0.964	62.	380	0.0
381.16	1.807	49.9	0.58	16.47	0.60	11.8	3	16.9	26.4	30.1	2360.	67.	12.7	0.970	0.970	52.	381	0.0
382.16	1.821	49.9	0.00	19.23	0.79	11.9	3	16.9	16.9	19.7	2361.	44.	14.9	0.970	0.970	39.	382	0.0
383.16	1.835	49.9	0.00	19.23	0.79	11.9	3	16.9	16.9	19.7	2361.	44.	14.9	0.970	0.970	39.	383	0.0
384.16	1.849	49.5	-0.58	22.74	1.46	11.9	3	16.6	7.1	8.9	2342.	20.	19.8	0.970	0.970	25.	384	0.0
385.16	1.863	49.5	0.00	19.20	0.80	12.0	3	16.6	16.6	19.3	2342.	43.	14.9	0.970	0.970	38.	385	0.0
386.16	1.876	48.8	-1.03	28.99	25.83	12.0	3	16.1	-0.6	0.4	2141.	1.	29.4	1.046	0.956	14.	386	0.0
387.16	1.890	48.8	0.00	19.15	0.81	12.1	3	16.1	16.1	18.8	2308.	43.	14.8	0.970	0.970	38.	387	0.0
388.16	1.903	48.8	0.00	19.15	0.81	12.1	3	16.1	16.1	18.8	2308.	43.	14.8	0.970	0.970	38.	388	0.0
389.16	1.917	48.4	-0.58	22.61	1.55	12.1	3	15.8	6.5	8.3	2290.	19.	19.9	0.970	0.970	25.	389	0.0
390.16	1.930	48.8	0.58	16.50	0.61	12.1	3	16.1	25.4	29.0	2308.	66.	12.8	0.970	0.970	51.	390	0.0
391.16	1.944	49.5	1.03	14.65	0.53	12.2	3	16.6	33.4	38.1	2357.	85.	11.0	0.964	0.964	62.	391	0.0
392.16	1.958	50.3	1.17	13.83	0.52	12.2	3	17.2	36.6	41.6	2398.	91.	10.3	0.963	0.963	65.	392	0.0
393.16	1.972	50.7	0.59	16.41	0.59	12.2	3	17.4	27.3	31.2	2398.	68.	12.7	0.970	0.970	52.	393	0.0
394.16	1.986	51.8	1.61	11.52	0.52	12.2	3	18.3	45.9	52.1	2480.	110.	8.1	0.958	0.958	75.	394	0.0
395.16	2.001	52.6	1.17	13.42	0.53	12.2	3	18.9	39.2	44.5	2502.	93.	10.0	0.965	0.965	65.	395	0.0
396.16	2.015	53.4	1.18	13.21	0.53	12.2	3	19.5	40.4	45.8	2538.	95.	9.9	0.965	0.965	66.	396	0.0
397.16	2.030	54.1	1.03	13.99	0.53	12.2	3	20.1	38.5	43.6	2564.	89.	10.5	0.968	0.968	63.	397	0.0
398.16	2.045	55.3	1.76	10.10	0.54	12.2	3	21.1	53.3	60.4	2644.	120.	6.9	0.960	0.960	78.	398	0.0
399.41	2.065	55.3	0.00	23.36	0.59	12.2	4	21.1	21.1	24.0	1908.	66.	12.8	0.958	0.958	53.	399	0.0
400.41	2.080	56.1	1.17	13.10	0.51	12.3	4	21.8	43.4	50.6	2015.	132.	4.1	0.919	0.919	92.	400	0.0
401.41	2.096	56.4	0.45	18.26	0.53	12.3	4	22.0	30.4	34.8	1975.	93.	9.7	0.943	0.943	69.	401	0.0
402.41	2.111	56.4	0.00	22.96	0.59	12.3	4	22.1	22.1	25.1	1945.	68.	12.7	0.958	0.958	54.	402	0.0
403.41	2.127	56.4	0.00	22.96	0.59	12.4	4	22.1	22.1	25.1	1945.	68.	12.7	0.958	0.958	54.	403	0.0
404.41	2.143	57.2	1.17	13.32	0.49	12.4	4	22.7	44.8	52.1	2050.	133.	4.2	0.921	0.921	93.	404	0.0
405.32	2.157	56.8	-0.58	30.53	0.83	12.4	4	22.4	11.5	13.4	1935.	36.	15.8	0.970	0.970	34.	405	0.0
406.32	2.173	57.5	1.18	13.35	0.49	12.4	4	23.1	45.5	52.9	2063.	135.	4.2	0.922	0.922	93.	406	0.0
407.32	2.189	57.6	0.00	22.57	0.58	12.5	4	23.1	23.1	26.3	1985.	69.	12.5	0.959	0.959	55.	407	0.0
408.32	2.205	57.6	0.00	22.57	0.58	12.5	4	23.1	23.1	26.3	1985.	69.	12.5	0.959	0.959	55.	408	0.0
409.32	2.221	58.0	0.58	16.96	0.52	12.5	4	23.5	34.6	39.6	2035.	102.	8.5	0.942	0.942	74.	409	0.0
410.32	2.237	58.0	0.00	22.44	0.58	12.6	4	23.5	23.5	26.7	1998.	70.	12.4	0.959	0.959	55.	410	0.0
411.32	2.253	58.4	0.59	16.89	0.51	12.6	4	23.9	35.2	40.3	2049.	103.	8.4	0.942	0.942	75.	411	0.0
412.32	2.270	58.4	0.00	22.32	0.58	12.6	4	23.9	23.9	27.1	2012.	71.	12.4	0.959	0.959	55.	412	0.0
413.32	2.286	58.8	0.58	16.96	0.51	12.7	4	24.2	35.5	40.6	2062.	103.	8.4	0.942	0.942	75.	413	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
414.32	2.302	59.1	0.44	18.06	0.52	12.7	4	24.5	33.1	37.8	2065.	96.	9.4	0.945	0.945	70.	414	0.0
415.32	2.319	58.8	-0.44	26.99	0.73	12.7	4	24.2	15.7	17.9	2002.	47.	14.6	0.970	0.970	41.	415	0.0
416.32	2.335	58.8	0.00	22.21	0.58	12.8	4	24.2	24.2	27.5	2025.	71.	12.3	0.959	0.959	56.	416	0.0
417.32	2.351	58.0	-1.18	38.94	4.83	12.8	4	23.5	0.9	1.8	1975.	5.	27.6	0.970	0.970	15.	417	0.0
418.32	2.367	58.0	0.00	22.44	0.58	12.9	4	23.5	23.5	26.7	1998.	70.	12.4	0.959	0.959	55.	418	0.0
419.32	2.383	57.6	-0.58	29.79	0.83	12.9	4	23.1	12.1	14.0	1962.	37.	15.6	0.970	0.970	35.	419	0.0
420.32	2.399	57.6	0.00	22.57	0.58	13.0	4	23.1	23.1	26.3	1985.	69.	12.5	0.959	0.959	55.	420	0.0
421.32	2.415	57.6	0.00	22.57	0.58	13.0	4	23.1	23.1	26.3	1985.	69.	12.5	0.959	0.959	55.	421	0.0
422.32	2.431	57.6	0.00	22.57	0.58	13.0	4	23.1	23.1	26.3	1985.	69.	12.5	0.959	0.959	55.	422	0.0
423.32	2.447	57.6	0.00	22.57	0.58	13.1	4	23.1	23.1	26.3	1985.	69.	12.5	0.959	0.959	55.	423	0.0
424.32	2.463	58.5	1.37	12.32	0.48	13.1	4	23.9	50.3	58.7	2106.	146.	1.9	0.917	0.917	100.	424	0.0
425.32	2.480	58.9	0.59	16.89	0.51	13.1	4	24.3	35.8	40.9	2065.	104.	8.3	0.942	0.942	75.	425	0.0
426.32	2.496	59.3	0.58	16.97	0.51	13.1	4	24.7	36.0	41.2	2078.	104.	8.4	0.943	0.943	75.	426	0.0
427.32	2.513	59.7	0.58	16.98	0.50	13.1	4	25.1	36.5	41.7	2091.	105.	8.4	0.943	0.943	75.	427	0.0
428.32	2.529	60.3	0.00	22.96	0.61	13.1	4	25.7	25.7	25.8	2076.	65.	12.8	0.960	0.960	52.	428	0.0
429.32	2.546	61.1	1.18	14.03	0.45	13.1	4	26.4	50.2	58.1	2179.	140.	4.4	0.926	0.926	95.	429	0.0
430.26	2.562	60.3	-1.18	36.20	3.03	13.2	4	25.7	2.2	3.3	2054.	8.	25.7	0.970	0.970	18.	430	0.0
431.26	2.579	59.9	-0.58	27.98	0.80	13.2	4	25.3	13.8	15.9	2040.	41.	15.1	0.970	0.970	37.	431	0.0
432.26	2.595	59.5	-0.58	28.27	0.81	13.3	4	24.9	13.5	15.6	2027.	40.	15.2	0.970	0.970	37.	432	0.0
433.26	2.612	59.1	-0.59	28.70	0.82	13.3	4	24.5	13.0	15.0	2013.	39.	15.3	0.970	0.970	36.	433	0.0
434.26	2.628	59.1	0.00	22.12	0.57	13.4	4	24.5	24.5	27.8	2035.	72.	12.3	0.959	0.959	56.	434	0.0
435.26	2.645	59.5	0.59	16.90	0.50	13.4	4	24.9	36.5	41.7	2086.	105.	8.3	0.943	0.943	75.	435	0.0
436.26	2.661	59.5	0.00	22.01	0.57	13.4	4	24.9	24.9	28.2	2049.	72.	12.2	0.960	0.960	56.	436	0.0
437.26	2.678	59.5	0.00	22.01	0.57	13.4	4	24.9	24.9	28.2	2049.	72.	12.2	0.960	0.960	56.	437	0.0
438.26	2.694	59.9	0.58	16.98	0.50	13.5	4	25.3	36.7	42.0	2099.	105.	8.4	0.943	0.943	75.	438	0.0
439.26	2.711	60.3	0.58	17.00	0.50	13.5	4	25.7	37.2	42.5	2112.	106.	8.3	0.943	0.943	75.	439	0.0
440.26	2.728	60.7	0.59	16.95	0.49	13.5	4	26.1	37.9	43.2	2126.	107.	8.3	0.943	0.943	76.	440	0.0
441.26	2.745	60.7	0.00	21.69	0.57	13.5	4	26.1	26.1	29.5	2089.	74.	12.0	0.960	0.960	57.	441	0.0
442.26	2.762	61.4	1.02	14.87	0.45	13.5	4	26.7	47.4	54.6	2179.	132.	5.7	0.931	0.931	90.	442	0.0
443.26	2.779	61.8	0.59	17.02	0.49	13.5	4	27.1	39.2	44.7	2162.	108.	8.2	0.944	0.944	77.	443	0.0
444.26	2.796	61.8	0.00	21.43	0.56	13.6	4	27.2	27.2	30.7	2126.	76.	11.9	0.960	0.960	58.	444	0.0
445.26	2.813	61.8	0.00	21.43	0.56	13.6	4	27.2	27.2	30.7	2126.	76.	11.9	0.960	0.960	58.	445	0.0
446.26	2.830	61.8	0.00	21.43	0.56	13.6	4	27.2	27.2	30.7	2126.	76.	11.9	0.960	0.960	58.	446	0.0
447.26	2.847	61.1	-1.03	32.86	1.56	13.7	4	26.5	5.7	7.1	2081.	18.	20.8	0.970	0.970	23.	447	0.0
448.26	2.864	60.7	-0.58	27.44	0.80	13.7	4	26.1	14.4	16.6	2068.	42.	14.9	0.970	0.970	38.	448	0.0
449.25	2.881	60.3	-0.59	27.83	0.81	13.8	4	25.7	13.9	16.0	2054.	41.	15.1	0.970	0.970	37.	449	0.0
450.25	2.898	60.3	0.00	21.80	0.57	13.8	4	25.7	25.7	29.1	2076.	74.	12.1	0.960	0.960	57.	450	0.0
451.25	2.915	60.3	0.00	21.80	0.57	13.8	4	25.7	25.7	29.1	2076.	74.	12.1	0.960	0.960	57.	451	0.0
452.25	2.931	59.5	-1.17	36.91	3.23	13.9	4	24.9	1.9	3.0	2027.	8.	26.1	0.970	0.970	17.	452	0.0
453.25	2.948	58.8	-1.03	35.14	1.82	13.9	4	24.2	4.2	5.5	2003.	14.	23.0	0.970	0.970	21.	453	0.0
454.25	2.964	59.1	0.44	18.06	0.52	13.9	4	24.5	33.1	37.8	2065.	96.	9.4	0.945	0.945	70.	454	0.0
455.20	2.980	58.8	-0.44	26.98	0.73	14.0	4	24.2	15.7	17.9	2003.	47.	14.6	0.970	0.970	41.	455	0.0
456.20	2.996	58.8	0.00	22.21	0.58	14.0	4	24.2	24.2	27.5	2025.	71.	12.3	0.959	0.959	56.	456	0.0
457.20	3.012	58.8	0.00	22.21	0.58	14.0	4	24.2	24.2	27.5	2025.	71.	12.3	0.959	0.959	56.	457	0.0
458.20	3.028	58.4	-0.58	29.12	0.82	14.1	4	23.9	12.7	14.6	1989.	39.	15.4	0.970	0.970	36.	458	0.0
459.20	3.045	58.0	-0.59	29.60	0.83	14.1	4	23.5	12.2	14.1	1976.	37.	15.6	0.970	0.970	35.	459	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
460.20	3.061	58.0	0.00	22.44	0.58	14.1	4	23.5	23.5	26.7	1998.	70.	12.4	0.959	0.959	55.	460	0.0
461.20	3.077	58.0	0.00	22.44	0.58	14.2	4	23.5	23.5	26.7	1998.	70.	12.4	0.959	0.959	55.	461	0.0
462.20	3.093	58.4	0.59	16.89	0.51	14.2	4	23.9	35.2	40.3	2049.	103.	8.4	0.942	0.942	75.	462	0.0
463.20	3.109	59.1	1.02	14.40	0.48	14.2	4	24.5	44.4	51.3	2105.	128.	5.4	0.927	0.927	89.	463	0.0
464.20	3.126	59.5	0.59	16.90	0.50	14.2	4	24.9	36.5	41.7	2086.	105.	8.3	0.943	0.943	75.	464	0.0
465.20	3.142	59.9	0.58	16.98	0.50	14.2	4	25.3	36.7	42.0	2099.	105.	8.4	0.943	0.943	75.	465	0.0
466.20	3.159	59.9	0.00	21.90	0.57	14.2	4	25.3	25.3	28.7	2062.	73.	12.2	0.960	0.960	56.	466	0.0
467.20	3.176	60.3	0.58	17.00	0.50	14.2	4	25.7	37.2	42.5	2112.	106.	8.3	0.943	0.943	75.	467	0.0
468.20	3.193	61.1	1.18	14.04	0.45	14.2	4	26.4	50.2	58.1	2180.	140.	4.4	0.926	0.926	95.	468	0.0
469.20	3.210	61.1	0.00	21.60	0.56	14.3	4	26.5	26.5	30.0	2103.	75.	12.0	0.960	0.960	57.	469	0.0
470.20	3.227	61.1	0.00	21.60	0.56	14.3	4	26.5	26.5	30.0	2103.	75.	12.0	0.960	0.960	57.	470	0.0
471.20	3.244	61.4	0.44	17.96	0.50	14.3	4	26.8	35.7	40.6	2142.	100.	9.2	0.947	0.947	72.	471	0.0
472.20	3.261	61.4	0.00	21.52	0.56	14.3	4	26.8	26.8	30.3	2113.	75.	12.0	0.960	0.960	57.	472	0.0
473.20	3.278	61.1	-0.44	25.68	0.71	14.4	4	26.5	17.6	20.0	2081.	51.	14.2	0.970	0.970	43.	473	0.0
474.20	3.295	60.7	-0.58	27.44	0.80	14.4	4	26.1	14.4	16.6	2068.	42.	14.9	0.970	0.970	38.	474	0.0
475.20	3.311	59.9	-1.18	36.64	3.23	14.4	4	25.3	2.0	3.0	2040.	8.	26.0	0.970	0.970	17.	475	0.0
476.20	3.328	59.1	-1.18	37.58	3.74	14.5	4	24.5	1.5	2.5	2013.	7.	26.7	0.970	0.970	16.	476	0.0
477.20	3.344	59.1	0.00	22.12	0.57	14.5	4	24.5	24.5	27.8	2035.	72.	12.3	0.959	0.959	56.	477	0.0
478.20	3.361	59.1	0.00	22.12	0.57	14.5	4	24.5	24.5	27.8	2035.	72.	12.3	0.959	0.959	56.	478	0.0
479.20	3.377	59.9	1.18	13.88	0.46	14.5	4	25.3	48.6	56.3	2140.	138.	4.5	0.925	0.925	94.	479	0.0
480.13	3.393	59.5	-0.58	28.27	0.81	14.6	4	24.9	13.5	15.6	2027.	40.	15.2	0.970	0.970	37.	480	0.0
481.13	3.409	59.9	0.58	16.98	0.50	14.6	4	25.3	36.7	41.9	2098.	105.	8.4	0.943	0.943	75.	481	0.0
482.13	3.426	58.8	-1.61	50.12	99.99	14.6	4	24.4	-6.8	-6.0	1812.	-17.	29.9	1.072	0.933	0.	482	0.0
482.24	3.427	58.0	-10.62	51.68	99.99	14.6	4	30.3	-4.0	-5.7	1779.	-17.	29.9	1.078	0.928	0.	483	1059.9
483.23	3.443	57.6	-0.58	29.78	0.83	14.7	4	23.2	12.1	14.0	1963.	37.	15.6	0.970	0.970	35.	484	0.0
484.23	3.459	56.8	-1.18	40.52	7.20	14.7	4	22.4	0.3	1.2	1935.	3.	28.4	0.970	0.970	14.	485	0.0
485.23	3.475	56.1	-1.03	38.28	2.31	14.7	4	21.8	2.7	3.8	1911.	10.	25.2	0.970	0.970	18.	486	0.0
486.23	3.490	55.3	-1.17	57.35	16.20	14.8	4	21.1	-0.2	0.4	1664.	1.	29.5	1.099	0.910	11.	487	0.0
487.23	3.506	54.1	-1.76	58.71	99.99	14.8	4	20.5	-5.1	-4.4	1614.	-14.	29.9	1.108	0.902	0.	488	39.0
488.23	3.520	52.6	-2.21	59.48	99.99	14.9	4	19.6	-4.6	-3.9	1553.	-13.	29.9	1.120	0.893	0.	489	98.2
489.23	3.535	49.2	-4.99	61.85	99.99	14.9	4	18.8	-2.8	-3.0	1406.	-11.	29.9	1.156	0.865	0.	490	439.1
490.23	3.548	46.1	-4.55	64.36	99.99	15.0	4	16.4	-2.2	-2.2	1276.	-9.	29.9	1.194	0.837	0.	491	400.1
491.23	3.560	43.0	-4.54	68.65	99.99	15.0	4	14.4	-1.0	-1.4	1128.	-7.	29.9	1.260	0.794	0.	492	415.5
492.23	3.571	37.2	-8.51	90.47	99.99	15.0	4	12.9	1.9	-0.2	774.	-1.	29.9	1.589	0.629	0.	493	913.6
493.23	3.581	29.6	-11.14	75.31	99.99	15.1	4	10.1	-0.2	-0.1	744.	-1.	29.9	1.315	0.760	0.	494	1210.5
494.23	3.588	21.5	-11.89	54.70	99.99	15.1	3	6.8	-0.2	-0.1	744.	-1.	29.9	1.327	0.754	0.	495	1313.3
495.23	3.593	16.5	-7.33	41.99	99.99	15.1	3	4.0	-0.2	-0.1	744.	-1.	29.9	1.019	0.982	0.	496	790.9
496.23	3.598	15.7	-1.18	39.94	99.99	15.1	3	2.6	-0.2	-0.1	744.	-1.	29.9	0.969	0.969	0.	497	78.9
497.48	3.603	17.1	3.29	4.56	0.50	15.1	1	2.7	21.8	45.4	2300.	104.	9.0	0.970	0.970	72.	498	0.0
498.48	3.608	20.2	4.54	5.10	0.53	15.1	1	3.4	34.6	44.6	2716.	86.	10.7	0.970	0.970	60.	499	0.0
499.48	3.614	23.7	5.13	3.58	0.67	15.0	1	4.3	45.6	59.1	3186.	97.	8.3	0.970	0.970	63.	500	0.0
500.48	3.621	26.0	3.38	7.35	0.52	15.0	2	5.0	34.3	40.7	1998.	107.	7.6	0.938	0.938	77.	501	0.0
501.48	3.629	27.9	2.78	8.69	0.52	14.9	2	5.6	31.5	37.0	2112.	92.	10.1	0.953	0.953	67.	502	0.0
502.48	3.637	29.4	2.21	9.72	0.56	14.9	2	6.1	27.8	32.6	2201.	78.	11.8	0.963	0.963	58.	503	0.0
503.48	3.645	30.2	1.17	11.43	0.73	14.9	2	6.4	18.2	21.6	2244.	51.	14.0	0.970	0.970	43.	504	0.0
504.48	3.654	31.1	0.00	14.37	1.48	14.9	2	6.7	6.7	8.7	2310.	20.	19.6	0.970	0.970	25.	505	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
505.48	3.662	31.1	0.00	14.37	1.48	14.9	2	6.7	6.7	8.7	2310.	20.	19.6	0.970	0.970	25.	506	0.0
506.48	3.671	30.3	-1.18	19.25	99.99	14.9	2	6.6	-5.3	-4.6	2079.	-12.	29.9	1.050	0.952	6.	507	0.0
507.48	3.679	30.0	-0.44	15.59	3.54	14.9	2	6.3	1.9	3.2	2229.	8.	25.7	0.970	0.970	18.	508	0.0
508.48	3.688	30.0	0.00	14.10	1.55	14.9	2	6.3	6.3	8.2	2228.	19.	19.2	0.970	0.970	25.	509	0.0
509.48	3.696	29.6	-0.58	16.28	6.92	14.9	2	6.2	0.5	1.6	2199.	4.	27.9	0.970	0.970	16.	510	0.0
510.48	3.704	30.0	0.58	12.60	0.96	14.9	2	6.3	12.1	14.8	2228.	35.	15.3	0.970	0.970	34.	511	0.0
511.48	3.712	28.8	-1.76	20.68	99.99	14.9	2	6.3	-7.6	-7.3	1958.	-20.	29.9	1.060	0.944	0.	512	36.9
512.48	3.720	28.8	0.00	14.60	1.54	14.9	2	5.9	5.9	7.7	2139.	19.	20.0	0.970	0.970	24.	513	0.0
513.48	3.728	28.0	-1.18	21.60	99.99	14.9	2	5.8	-5.2	-4.6	1894.	-13.	29.9	1.065	0.939	4.	514	0.0
514.48	3.736	28.4	0.59	13.16	0.94	14.9	2	5.8	11.3	13.8	2108.	34.	15.6	0.970	0.970	33.	515	0.0
515.42	3.743	28.0	-0.59	17.30	8.84	14.9	2	5.6	0.1	1.1	2080.	3.	28.5	0.970	0.970	14.	516	0.0
516.42	3.751	28.4	0.59	13.15	0.94	14.9	2	5.8	11.4	13.8	2109.	34.	15.6	0.970	0.970	33.	517	0.0
517.42	3.759	28.4	0.00	14.80	1.53	14.9	2	5.8	5.8	7.5	2109.	19.	20.3	0.970	0.970	24.	518	0.0
518.42	3.767	28.8	0.58	13.01	0.95	14.9	2	5.9	11.5	13.9	2139.	34.	15.6	0.970	0.970	33.	519	0.0
519.42	3.775	28.4	-0.58	17.00	7.75	14.9	2	5.8	0.3	1.3	2109.	3.	28.2	0.970	0.970	15.	520	0.0
520.42	3.783	28.4	0.00	14.80	1.53	14.9	2	5.8	5.8	7.5	2109.	19.	20.3	0.970	0.970	24.	521	0.0
521.42	3.791	28.0	-0.59	17.30	8.84	14.9	2	5.6	0.1	1.1	2079.	3.	28.5	0.970	0.970	14.	522	0.0
522.42	3.798	26.5	-2.20	23.92	99.99	14.9	2	5.7	-5.5	-5.6	1769.	-17.	29.9	1.079	0.926	0.	523	112.8
523.42	3.805	24.2	-3.37	27.24	99.99	14.9	2	5.3	-3.4	-4.0	1559.	-13.	29.9	1.119	0.894	0.	524	277.0
524.42	3.812	22.7	-2.21	28.26	99.99	14.9	2	4.5	-3.0	-3.0	1418.	-11.	29.9	1.153	0.867	0.	525	148.1
525.42	3.818	20.4	-3.37	30.14	99.99	14.9	2	4.2	-1.3	-1.8	1210.	-8.	29.9	1.214	0.824	0.	526	310.6
526.41	3.823	17.7	-3.96	37.42	99.99	15.0	2	3.6	2.0	-0.5	875.	-3.	29.9	1.457	0.686	0.	527	447.2
527.41	3.828	15.7	-2.94	39.90	99.99	15.0	2	2.9	-0.3	-0.1	744.	-1.	29.9	1.520	0.658	0.	528	282.6
528.41	3.832	13.1	-3.81	33.30	99.99	15.0	2	2.5	-0.2	-0.1	744.	-1.	29.9	1.268	0.789	0.	529	386.7
529.41	3.835	10.8	-3.37	27.45	99.99	15.0	2	1.9	-0.2	-0.1	744.	-1.	29.9	1.046	0.956	0.	530	337.4
530.41	3.838	8.4	-3.52	21.35	99.99	15.0	1	1.5	-0.3	-0.1	744.	-1.	29.9	1.471	0.680	0.	531	359.7
531.41	3.840	7.3	-1.61	18.56	99.99	15.0	1	1.1	-0.2	-0.1	744.	-1.	29.9	1.279	0.782	0.	532	133.2
532.41	3.842	5.0	-3.37	12.71	99.99	15.0	1	0.8	-0.2	-0.1	744.	-1.	29.9	0.876	0.876	0.	533	344.0
533.41	3.843	3.8	-1.77	9.65	99.99	15.0	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.665	0.665	0.	534	154.3
534.41	3.844	3.5	-0.44	8.88	99.99	15.0	1	0.4	-0.1	0.0	744.	0.	29.9	0.612	0.612	0.	535	0.0
535.41	3.845	1.9	-2.34	4.83	99.99	15.0	1	0.3	-0.1	-0.1	744.	-1.	29.9	0.332	0.332	0.	536	223.0
536.41	3.845	0.8	-1.61	2.03	99.99	15.0	1	0.1	0.0	-0.1	744.	-1.	29.9	0.140	0.140	0.	537	136.5
537.41	3.845	0.0	-1.18	0.00	24.57	15.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	538	85.6
538.41	3.845	0.0	0.00	0.00	24.57	15.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	539	0.0
539.41	3.845	0.0	0.00	0.00	24.57	15.0	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	540	0.0
540.41	3.845	0.8	1.18	1.63	1.54	15.0	1	0.1	0.4	1.9	744.	14.	14.3	0.141	0.241	14.	541	0.0
541.41	3.846	1.9	1.61	3.54	1.16	14.9	1	0.2	1.3	2.8	744.	20.	14.9	0.333	0.497	20.	542	0.0
542.41	3.846	3.8	2.78	4.04	0.97	14.9	1	0.5	4.1	5.8	768.	40.	14.0	0.644	0.844	39.	543	0.0
543.41	3.848	6.8	4.55	3.82	0.70	14.9	1	0.9	11.5	15.3	1137.	71.	8.8	0.785	0.898	63.	544	0.0
544.41	3.850	9.5	3.97	4.89	0.62	14.9	1	1.3	14.2	18.9	1364.	73.	10.0	0.912	0.912	62.	545	0.0
545.41	3.853	11.0	2.20	7.65	0.68	14.9	1	1.6	9.8	12.8	1501.	45.	14.9	0.960	0.960	40.	546	0.0
546.41	3.856	11.1	0.00	11.87	2.34	14.9	1	1.6	1.6	2.4	1491.	8.	25.1	0.970	0.970	15.	547	0.0
547.41	3.859	10.4	-1.03	18.61	99.99	14.9	1	1.5	-0.7	-1.0	1016.	-5.	29.9	1.334	0.750	0.	548	50.0
548.40	3.862	8.8	-2.34	22.38	99.99	14.9	1	1.4	-0.3	-0.1	744.	-1.	29.9	1.542	0.648	0.	549	219.0
549.40	3.864	9.2	0.58	10.76	1.25	14.9	1	1.3	3.1	4.1	1233.	17.	19.3	0.970	0.970	20.	550	0.0
550.40	3.867	10.0	1.18	9.67	0.88	14.9	1	1.4	5.4	7.0	1343.	27.	18.2	0.969	0.969	28.	551	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
551.40	3.870	10.4	0.58	10.74	1.22	14.9	1	1.4	3.5	4.7	1394.	18.	20.7	0.970	0.970	21.	552	0.0
552.40	3.873	10.4	0.00	11.92	2.40	14.9	1	1.4	1.4	2.2	1397.	8.	24.4	0.970	0.970	14.	553	0.0
553.40	3.875	5.4	-7.33	13.74	99.99	14.9	1	1.2	-0.2	-0.1	744.	-1.	29.9	0.946	0.946	0.	554	814.9
554.40	3.876	1.9	-5.13	4.84	99.99	14.9	1	0.4	-0.1	-0.1	744.	-1.	29.9	0.334	0.334	0.	555	554.9
555.40	3.876	0.1	-1.05	0.16	99.99	14.9	1	0.0	0.0	-0.1	744.	-1.	29.9	0.011	0.011	0.	556	69.7
556.40	3.876	0.0	0.00	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	557	0.0
557.40	3.876	0.0	0.00	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	558	0.0
558.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	559	0.0
559.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	560	0.0
560.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	561	0.0
561.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	562	0.0
562.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	563	0.0
563.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	564	0.0
564.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	565	0.0
565.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	566	0.0
566.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	567	0.0
567.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	568	0.0
568.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	569	0.0
569.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	570	0.0
570.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	571	0.0
571.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	572	0.0
572.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	573	0.0
573.40	3.876	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	574	0.0
574.40	3.876	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	575	0.0
575.40	3.876	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	576	0.0
576.40	3.876	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	577	0.0
577.40	3.876	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	578	0.0
578.40	3.876	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	579	0.0
579.40	3.876	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	580	0.0
580.40	3.876	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	581	0.0
581.40	3.876	0.4	0.58	0.87	2.36	14.7	1	0.0	0.1	1.2	744.	8.	18.4	0.069	0.125	9.	582	0.0
582.40	3.876	1.5	1.61	2.81	1.20	14.7	1	0.2	1.0	2.6	744.	19.	14.8	0.262	0.411	19.	583	0.0
583.40	3.877	3.5	2.94	3.78	0.98	14.7	1	0.4	3.9	5.6	753.	39.	14.0	0.605	0.819	39.	584	0.0
584.40	3.878	6.1	3.81	4.13	0.77	14.7	1	0.8	8.7	11.4	1027.	58.	10.7	0.772	0.896	54.	585	0.0
585.40	3.881	10.3	6.31	3.28	0.61	14.6	1	1.4	23.5	30.5	1523.	105.	5.2	0.880	0.903	83.	586	0.0
586.40	3.884	14.1	5.58	4.22	0.53	14.6	1	2.1	28.8	37.5	1946.	101.	8.2	0.944	0.944	74.	587	0.0
587.40	3.888	16.8	3.96	5.49	0.57	14.6	1	2.6	25.2	32.3	2257.	75.	12.0	0.970	0.970	57.	588	0.0
588.40	3.893	19.1	3.37	5.92	0.59	14.6	1	3.1	25.0	32.5	2564.	67.	13.0	0.970	0.970	51.	589	0.0
589.40	3.899	19.9	1.18	13.43	0.67	14.5	2	3.3	11.2	13.3	1503.	46.	14.7	0.954	0.954	42.	590	0.0
590.40	3.904	21.4	2.20	10.04	0.55	14.5	2	3.7	19.4	23.1	1644.	74.	11.9	0.937	0.937	60.	591	0.0
591.40	3.911	23.3	2.79	8.27	0.54	14.5	2	4.2	25.8	30.9	1796.	90.	9.7	0.934	0.934	69.	592	0.0
592.40	3.917	24.5	1.76	11.06	0.59	14.5	2	4.5	18.9	22.3	1841.	64.	13.1	0.958	0.958	52.	593	0.0
593.11	3.922	24.2	-0.58	26.91	17.66	14.5	2	4.5	-0.2	0.3	1559.	1.	29.4	1.119	0.894	10.	594	0.0
594.11	3.928	20.0	-6.16	30.84	99.99	14.5	2	4.8	1.5	-1.6	1164.	-7.	29.9	1.238	0.808	0.	595	686.5
595.11	3.933	16.9	-4.55	42.60	99.99	14.5	2	3.5	2.2	-0.1	750.	-1.	29.9	1.624	0.616	0.	596	524.0
596.11	3.937	13.4	-5.13	34.08	99.99	14.5	2	2.8	-0.2	-0.1	744.	-1.	29.9	1.298	0.771	0.	597	540.4

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
597.11	3.941	13.4	0.00	20.50	1.62	14.6	2	2.0	2.0	2.4	995.	13.	17.2	0.970	0.970	15.	598	0.0
598.11	3.945	14.9	3.37	5.94	0.60	14.5	1	2.3	19.3	24.8	2007.	65.	12.9	0.966	0.966	52.	599	0.0
599.11	3.950	17.6	3.97	5.50	0.56	14.5	1	2.8	26.5	34.2	2363.	76.	11.9	0.970	0.970	57.	600	0.0
600.11	3.955	20.3	3.96	5.57	0.55	14.5	1	3.4	30.7	39.8	2726.	77.	11.9	0.970	0.970	55.	601	0.0
601.11	3.961	22.6	3.37	6.64	0.57	14.5	2	4.0	29.4	35.5	1770.	105.	6.8	0.920	0.920	79.	602	0.0
602.11	3.967	24.5	2.79	8.35	0.54	14.4	2	4.6	27.3	32.5	1875.	91.	9.7	0.941	0.941	69.	603	0.0
603.11	3.974	26.8	3.37	7.50	0.51	14.4	2	5.2	35.3	41.9	2050.	107.	7.8	0.942	0.942	77.	604	0.0
604.11	3.982	28.0	1.76	10.60	0.61	14.4	2	5.6	22.0	25.9	2088.	65.	12.9	0.966	0.966	52.	605	0.0
605.11	3.990	29.5	2.20	9.73	0.56	14.4	2	6.2	27.8	32.5	2205.	77.	11.8	0.963	0.963	58.	606	0.0
606.11	3.998	29.9	0.59	12.58	0.96	14.4	2	6.3	12.2	14.8	2220.	35.	15.2	0.970	0.970	34.	607	0.0
607.11	4.007	30.7	1.17	11.49	0.72	14.4	2	6.6	18.5	22.0	2279.	51.	14.1	0.970	0.970	43.	608	0.0
608.11	4.015	31.1	0.00	14.37	1.48	14.4	2	6.7	6.7	8.7	2310.	20.	19.6	0.970	0.970	25.	609	0.0
609.11	4.024	31.1	0.00	14.37	1.48	14.4	2	6.7	6.7	8.7	2310.	20.	19.6	0.970	0.970	25.	610	0.0
610.11	4.033	30.3	-1.18	19.25	99.99	14.4	2	6.6	-5.3	-4.6	2079.	-12.	29.9	1.050	0.952	6.	611	0.0
611.11	4.041	30.3	0.00	14.18	1.53	14.4	2	6.5	6.4	8.4	2250.	19.	19.3	0.970	0.970	25.	612	0.0
612.11	4.049	30.3	0.00	14.18	1.53	14.4	2	6.5	6.4	8.4	2250.	19.	19.3	0.970	0.970	25.	613	0.0
613.11	4.058	30.7	0.59	12.72	0.94	14.4	2	6.6	12.6	15.4	2280.	35.	15.5	0.970	0.970	34.	614	0.0
614.11	4.066	31.1	0.58	12.82	0.93	14.4	2	6.7	12.8	15.5	2310.	35.	15.7	0.970	0.970	34.	615	0.0
615.11	4.075	32.3	1.76	10.52	0.60	14.4	2	7.2	26.1	30.7	2399.	67.	12.8	0.970	0.970	52.	616	0.0
616.10	4.084	32.6	0.44	13.45	0.97	14.4	2	7.3	12.1	14.9	2421.	32.	16.9	0.970	0.970	32.	617	0.0
617.10	4.093	32.6	0.00	14.72	1.39	14.4	2	7.3	7.3	9.5	2421.	21.	20.2	0.970	0.970	26.	618	0.0
618.10	4.102	32.6	0.00	14.72	1.39	14.4	2	7.3	7.3	9.5	2421.	21.	20.2	0.970	0.970	26.	619	0.0
619.10	4.111	31.1	-2.20	18.63	99.99	14.4	2	7.3	-9.3	-9.2	2143.	-22.	29.9	1.046	0.956	0.	620	72.0
620.10	4.119	26.9	-6.16	23.08	99.99	14.4	2	7.2	-4.0	-5.9	1807.	-17.	29.9	1.072	0.932	0.	621	595.3
621.10	4.126	22.3	-6.75	28.58	99.99	14.4	2	5.7	-0.5	-2.8	1381.	-11.	29.9	1.164	0.859	0.	622	717.2
622.10	4.132	18.0	-6.31	35.68	99.99	14.4	2	4.2	1.6	-0.6	927.	-4.	29.9	1.399	0.715	0.	623	712.9
623.10	4.136	13.8	-6.16	35.08	99.99	14.4	2	3.0	-0.3	-0.1	744.	-1.	29.9	1.336	0.748	0.	624	660.1
624.10	4.139	9.6	-6.15	24.42	99.99	14.4	2	2.0	-0.2	-0.1	744.	-1.	29.9	0.930	0.930	0.	625	662.7
625.10	4.141	4.6	-7.34	11.69	99.99	14.4	1	1.0	-0.2	-0.1	744.	-1.	29.9	0.806	0.806	0.	626	816.5
626.10	4.143	6.0	2.20	5.91	0.88	14.4	1	0.8	5.3	6.9	916.	40.	14.3	0.860	0.904	39.	627	0.0
627.10	4.145	9.7	5.72	3.65	0.61	14.4	1	1.3	20.2	26.3	1447.	96.	6.5	0.877	0.903	77.	628	0.0
628.10	4.148	13.9	6.16	3.87	0.53	14.3	1	2.1	31.2	40.3	1936.	109.	6.9	0.938	0.938	80.	629	0.0
629.10	4.153	17.0	4.55	5.17	0.53	14.3	1	2.7	29.0	37.2	2298.	85.	11.1	0.966	0.966	62.	630	0.0
630.10	4.158	19.7	3.96	5.56	0.55	14.3	1	3.3	29.8	38.7	2652.	77.	11.9	0.970	0.970	56.	631	0.0
631.10	4.163	21.2	2.20	10.00	0.55	14.3	2	3.7	19.2	23.0	1636.	74.	11.8	0.936	0.936	60.	632	0.0
632.10	4.169	22.0	1.18	13.95	0.63	14.3	2	3.9	12.5	14.9	1653.	47.	15.1	0.961	0.961	42.	633	0.0
633.10	4.176	22.3	0.00	19.81	1.32	14.3	2	3.9	3.9	5.1	1656.	16.	23.8	0.970	0.970	21.	634	0.0
634.10	4.182	22.3	0.00	19.81	1.32	14.3	2	3.9	3.9	5.1	1656.	16.	23.8	0.970	0.970	21.	635	0.0
635.10	4.188	22.3	0.00	19.81	1.32	14.3	2	3.9	3.9	5.1	1656.	16.	23.8	0.970	0.970	21.	636	0.0
636.10	4.194	23.0	1.03	14.38	0.67	14.3	2	4.1	12.0	14.3	1715.	44.	15.4	0.966	0.966	39.	637	0.0
637.10	4.201	23.0	0.00	19.08	1.35	14.3	2	4.1	4.1	5.3	1708.	16.	23.6	0.970	0.970	21.	638	0.0
638.10	4.207	22.7	-0.45	22.02	4.47	14.3	2	4.0	0.6	1.4	1685.	4.	28.3	0.970	0.970	13.	639	0.0
639.10	4.213	22.3	-0.58	28.54	99.99	14.3	2	3.9	-0.4	0.0	1381.	0.	29.8	1.164	0.859	8.	640	0.0
640.10	4.219	21.9	-0.58	28.90	99.99	14.3	2	3.8	-0.4	0.0	1344.	0.	29.9	1.174	0.852	8.	641	0.0
641.10	4.226	22.7	1.17	13.83	0.64	14.3	2	4.0	12.9	15.3	1696.	47.	15.1	0.963	0.963	42.	642	0.0
642.10	4.232	23.8	1.61	11.65	0.60	14.3	2	4.3	17.1	20.2	1786.	59.	13.6	0.958	0.958	49.	643	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
643.10	4.239	25.0	1.76	10.99	0.60	14.3	2	4.7	19.3	22.8	1875.	64.	13.1	0.959	0.959	52.	644	0.0
644.10	4.246	25.3	0.45	15.22	0.95	14.3	2	4.8	8.6	10.4	1876.	29.	17.7	0.970	0.970	30.	645	0.0
645.10	4.253	25.7	0.58	14.57	0.88	14.3	2	4.9	9.9	11.9	1906.	33.	16.7	0.970	0.970	32.	646	0.0
646.10	4.260	26.5	1.18	12.29	0.70	14.3	2	5.1	15.5	18.4	1966.	49.	14.5	0.970	0.970	42.	647	0.0
647.10	4.267	26.9	0.58	13.89	0.91	14.3	2	5.3	10.5	12.7	1995.	33.	16.2	0.970	0.970	33.	648	0.0
648.10	4.275	27.3	0.59	13.67	0.91	14.3	2	5.4	10.8	13.0	2025.	34.	16.0	0.970	0.970	33.	649	0.0
649.10	4.283	28.0	1.02	12.23	0.76	14.3	2	5.6	15.1	18.0	2076.	46.	14.6	0.970	0.970	40.	650	0.0
650.10	4.291	29.2	1.76	10.48	0.61	14.3	2	6.0	23.1	27.1	2170.	66.	12.8	0.968	0.968	52.	651	0.0
651.10	4.299	30.0	1.18	11.38	0.73	14.3	2	6.3	18.1	21.5	2225.	51.	14.0	0.970	0.970	43.	652	0.0
652.10	4.307	30.0	0.00	14.10	1.55	14.3	2	6.3	6.3	8.2	2228.	19.	19.2	0.970	0.970	25.	653	0.0
653.10	4.315	29.6	-0.58	16.28	6.92	14.3	2	6.2	0.5	1.6	2199.	4.	27.9	0.970	0.970	16.	654	0.0
654.10	4.324	29.6	0.00	14.23	1.55	14.3	2	6.2	6.2	8.0	2198.	19.	19.4	0.970	0.970	25.	655	0.0
655.10	4.332	28.8	-1.18	20.69	99.99	14.3	2	6.1	-5.2	-4.6	1958.	-12.	29.9	1.060	0.944	4.	656	0.0
656.10	4.340	28.4	-0.58	16.98	7.74	14.3	2	5.8	0.3	1.3	2111.	3.	28.2	0.970	0.970	15.	657	0.0
657.10	4.347	28.0	-0.59	17.29	8.82	14.3	2	5.7	0.1	1.1	2081.	3.	28.5	0.970	0.970	14.	658	0.0
658.10	4.355	27.3	-1.02	22.47	99.99	14.3	2	5.6	-3.7	-3.1	1841.	-9.	29.9	1.069	0.935	6.	659	0.0
659.10	4.363	25.7	-2.35	25.76	99.99	14.3	2	5.5	-4.9	-5.0	1696.	-16.	29.9	1.093	0.915	0.	660	138.0
660.10	4.370	24.6	-1.61	27.02	99.99	14.3	2	4.9	-4.6	-4.3	1596.	-14.	29.9	1.111	0.900	0.	661	55.1
661.10	4.376	25.0	0.58	15.00	0.86	14.3	2	4.7	9.5	11.5	1857.	33.	16.9	0.970	0.970	32.	662	0.0
662.10	4.384	26.5	2.21	9.85	0.55	14.3	2	5.2	24.6	29.0	1994.	76.	11.8	0.957	0.957	59.	663	0.0
663.10	4.391	28.0	2.20	9.79	0.56	14.3	2	5.6	26.1	30.7	2099.	77.	11.8	0.960	0.960	58.	664	0.0
664.10	4.399	29.6	2.35	9.50	0.54	14.3	2	6.2	29.3	34.4	2216.	82.	11.4	0.962	0.962	61.	665	0.0
665.10	4.407	30.7	1.61	10.69	0.63	14.3	2	6.6	23.0	27.1	2279.	62.	13.1	0.970	0.970	49.	666	0.0
666.09	4.416	32.3	2.34	9.56	0.53	14.3	2	7.2	32.4	37.8	2404.	82.	11.3	0.967	0.967	60.	667	0.0
667.09	4.425	33.0	1.03	12.06	0.73	14.3	2	7.5	18.8	22.5	2449.	48.	14.7	0.970	0.970	41.	668	0.0
668.09	4.435	34.2	1.76	10.58	0.59	14.3	2	8.0	28.0	32.9	2538.	68.	12.8	0.970	0.970	52.	669	0.0
669.09	4.444	34.6	0.58	13.42	0.85	14.3	2	8.1	14.8	18.1	2568.	37.	16.8	0.970	0.970	35.	670	0.0
670.09	4.454	35.3	1.03	12.30	0.70	14.3	2	8.5	20.6	24.6	2620.	49.	14.9	0.970	0.970	41.	671	0.0
671.09	4.464	36.1	1.17	11.98	0.66	14.2	2	8.8	22.9	27.3	2679.	53.	14.6	0.970	0.970	44.	672	0.0
672.34	4.476	36.1	0.00	26.10	0.80	14.3	3	8.8	8.8	10.4	1708.	32.	17.8	0.970	0.970	31.	673	0.0
673.34	4.486	36.9	1.18	14.98	0.54	14.3	3	9.2	23.6	27.4	1797.	80.	11.4	0.942	0.942	62.	674	0.0
674.34	4.497	36.9	0.00	25.27	0.81	14.3	3	9.2	9.2	10.8	1746.	32.	17.5	0.970	0.970	32.	675	0.0
675.34	4.507	37.6	1.03	15.71	0.55	14.3	3	9.5	22.3	25.8	1823.	74.	12.0	0.946	0.946	59.	676	0.0
676.34	4.518	37.6	0.00	24.61	0.82	14.3	3	9.5	9.5	11.2	1779.	33.	17.1	0.970	0.970	32.	677	0.0
677.34	4.528	38.4	1.18	14.84	0.54	14.3	3	9.9	24.9	28.8	1865.	81.	11.3	0.944	0.944	63.	678	0.0
678.29	4.538	38.0	-0.59	29.90	2.32	14.3	3	9.7	2.3	3.3	1798.	10.	25.9	0.970	0.970	17.	679	0.0
679.29	4.549	37.6	-0.58	30.28	2.27	14.3	3	9.5	2.3	3.3	1779.	10.	26.0	0.970	0.970	17.	680	0.0
680.29	4.559	37.6	0.00	24.61	0.82	14.3	3	9.5	9.5	11.2	1779.	33.	17.1	0.970	0.970	32.	681	0.0
681.29	4.569	37.2	-0.59	30.94	2.40	14.4	3	9.3	2.1	3.0	1760.	9.	26.3	0.970	0.970	17.	682	0.0
682.29	4.580	36.9	-0.44	29.54	1.52	14.4	3	9.2	3.8	4.9	1745.	15.	24.0	0.970	0.970	20.	683	0.0
683.29	4.590	36.1	-1.18	44.01	99.99	14.4	3	9.0	-3.9	-3.2	1447.	-12.	29.9	1.145	0.873	0.	684	12.3
684.29	4.600	35.7	-0.58	33.02	2.45	14.4	3	8.7	1.8	2.6	1690.	8.	26.8	0.970	0.970	16.	685	0.0
685.29	4.610	36.1	0.58	19.41	0.61	14.4	3	8.8	15.8	18.2	1729.	55.	14.1	0.958	0.958	47.	686	0.0
686.29	4.620	35.7	-0.58	33.04	2.45	14.4	3	8.6	1.8	2.6	1689.	8.	26.8	0.970	0.970	16.	687	0.0
687.29	4.630	35.7	0.00	26.55	0.79	14.5	3	8.6	8.6	10.2	1689.	32.	18.0	0.970	0.970	31.	688	0.0
688.29	4.640	35.7	0.00	26.55	0.79	14.5	3	8.6	8.6	10.2	1689.	32.	18.0	0.970	0.970	31.	689	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
689.29	4.650	36.1	0.58	19.42	0.61	14.5	3	8.8	15.7	18.2	1729.	55.	14.1	0.958	0.958	47.	690	0.0
690.29	4.660	36.1	0.00	26.10	0.80	14.5	3	8.8	8.8	10.4	1708.	32.	17.8	0.970	0.970	31.	691	0.0
691.29	4.670	35.7	-0.58	33.04	2.45	14.5	3	8.6	1.8	2.6	1689.	8.	26.8	0.970	0.970	16.	692	0.0
692.29	4.680	35.7	0.00	26.55	0.79	14.5	3	8.6	8.6	10.2	1689.	32.	18.0	0.970	0.970	31.	693	0.0
693.29	4.689	34.9	-1.18	44.96	99.99	14.5	3	8.5	-3.4	-2.8	1374.	-11.	29.9	1.165	0.858	0.	694	18.4
694.29	4.699	34.6	-0.44	32.07	1.59	14.6	3	8.2	3.1	4.1	1637.	13.	24.7	0.970	0.970	19.	695	0.0
695.29	4.709	34.2	-0.58	34.14	2.73	14.6	3	8.0	1.4	2.2	1619.	7.	26.9	0.970	0.970	15.	696	0.0
696.29	4.718	33.8	-0.59	34.41	3.00	14.6	3	7.8	1.2	2.0	1600.	6.	27.0	0.970	0.970	14.	697	0.0
697.29	4.727	33.4	-0.58	34.37	2.95	14.6	3	7.7	1.2	2.0	1581.	7.	26.8	0.970	0.970	14.	698	0.0
698.29	4.737	33.0	-0.58	34.49	3.07	14.6	3	7.5	1.2	1.9	1562.	6.	26.8	0.970	0.970	14.	699	0.0
699.29	4.745	30.3	-3.97	50.97	99.99	14.6	3	7.7	-0.5	-1.2	1076.	-6.	29.9	1.294	0.773	0.	700	379.4
700.29	4.754	29.2	-1.61	53.62	99.99	14.7	3	6.4	-1.0	-0.9	994.	-5.	29.9	1.350	0.741	0.	701	101.6
701.29	4.762	28.4	-1.17	55.60	99.99	14.7	3	6.0	-0.9	-0.7	938.	-4.	29.9	1.390	0.719	0.	702	53.2
702.29	4.769	25.0	-5.00	63.60	99.99	14.7	3	6.1	-0.3	-0.1	744.	-1.	29.9	1.543	0.648	0.	703	509.6
703.29	4.775	21.1	-5.72	53.68	99.99	14.7	3	5.0	-0.2	-0.1	744.	-1.	29.9	1.302	0.768	0.	704	598.6
704.29	4.781	16.9	-6.16	43.00	99.99	14.7	3	3.9	-0.2	-0.1	744.	-1.	29.9	1.043	0.959	0.	705	654.8
705.29	4.785	13.4	-5.13	34.11	99.99	14.7	2	2.8	-0.2	-0.1	744.	-1.	29.9	1.299	0.770	0.	706	540.4
706.29	4.789	13.3	-0.44	14.89	14.89	14.7	1	1.9	0.0	0.4	1543.	1.	29.3	1.122	0.891	10.	707	0.0
707.28	4.792	12.5	-1.18	15.68	99.99	14.7	1	1.9	-2.9	-3.0	1406.	-11.	29.9	1.156	0.865	0.	708	4.9
707.91	4.794	12.7	0.58	10.36	1.22	14.7	1	1.8	4.3	6.0	1706.	18.	22.8	0.970	0.970	23.	709	0.0
708.91	4.798	15.6	4.40	5.24	0.54	14.7	1	2.4	25.7	33.1	2114.	82.	11.3	0.962	0.962	62.	710	0.0
709.91	4.803	19.1	5.13	4.65	0.53	14.7	1	3.1	36.4	46.4	2565.	95.	9.8	0.970	0.970	66.	711	0.0
710.91	4.809	22.2	4.55	4.96	0.54	14.6	1	3.9	38.2	49.4	2982.	87.	10.6	0.970	0.970	59.	712	0.0
711.91	4.815	24.5	3.37	7.02	0.54	14.6	2	4.6	32.0	38.5	1901.	106.	7.2	0.929	0.929	78.	713	0.0
712.91	4.822	25.6	1.61	11.28	0.62	14.6	2	4.9	18.6	21.9	1916.	60.	13.4	0.963	0.963	49.	714	0.0
713.91	4.830	26.4	1.18	12.32	0.70	14.6	2	5.1	15.5	18.3	1961.	49.	14.5	0.970	0.970	42.	715	0.0
714.91	4.837	26.5	0.00	15.92	1.49	14.6	2	5.2	5.2	6.7	1968.	18.	21.5	0.970	0.970	23.	716	0.0
715.91	4.844	26.9	0.58	13.87	0.91	14.6	2	5.3	10.5	12.7	1998.	33.	16.2	0.970	0.970	33.	717	0.0
716.91	4.852	27.3	0.59	13.65	0.92	14.6	2	5.4	10.8	13.1	2027.	34.	16.0	0.970	0.970	33.	718	0.0
717.91	4.859	27.3	0.00	15.41	1.51	14.6	2	5.4	5.4	7.0	2028.	18.	21.0	0.970	0.970	23.	719	0.0
718.91	4.867	27.6	0.44	13.89	1.01	14.6	2	5.5	9.6	11.7	2050.	30.	16.6	0.970	0.970	31.	720	0.0
719.91	4.875	28.4	1.18	11.73	0.72	14.6	2	5.8	16.9	20.1	2110.	50.	14.2	0.970	0.970	43.	721	0.0
720.91	4.883	28.8	0.58	13.01	0.95	14.6	2	5.9	11.5	13.9	2139.	34.	15.6	0.970	0.970	33.	722	0.0
721.91	4.891	28.8	0.00	14.60	1.54	14.6	2	5.9	5.9	7.7	2139.	19.	20.0	0.970	0.970	24.	723	0.0
722.91	4.899	29.2	0.58	12.86	0.96	14.6	2	6.1	11.7	14.2	2168.	34.	15.4	0.970	0.970	33.	724	0.0
723.91	4.907	28.8	-0.58	16.75	7.45	14.6	2	5.9	0.4	1.4	2139.	3.	28.1	0.970	0.970	15.	725	0.0
724.91	4.915	28.8	0.00	14.60	1.54	14.6	2	5.9	5.9	7.7	2139.	19.	20.0	0.970	0.970	24.	726	0.0
725.91	4.923	28.0	-1.18	21.60	99.99	14.6	2	5.8	-5.2	-4.6	1894.	-13.	29.9	1.065	0.939	4.	727	0.0
726.91	4.931	28.0	0.00	15.01	1.53	14.6	2	5.6	5.6	7.3	2080.	18.	20.5	0.970	0.970	24.	728	0.0
727.90	4.938	27.6	-0.58	17.53	8.44	14.6	2	5.5	0.2	1.1	2050.	3.	28.5	0.970	0.970	14.	729	0.0
728.90	4.946	26.5	-1.61	23.90	99.99	14.6	2	5.5	-5.9	-5.6	1770.	-17.	29.9	1.079	0.927	0.	730	39.1
729.90	4.953	24.6	-2.79	27.03	99.99	14.6	2	5.3	-4.0	-4.2	1595.	-14.	29.9	1.112	0.899	0.	731	201.8
730.90	4.959	20.7	-5.72	29.88	99.99	14.6	2	4.9	-0.4	-2.0	1237.	-8.	29.9	1.206	0.829	0.	732	599.8
731.90	4.964	16.5	-6.16	41.97	99.99	14.6	2	3.8	-0.3	-0.1	744.	-1.	29.9	1.599	0.626	0.	733	657.3
732.90	4.969	15.0	-2.20	38.16	99.99	14.6	2	2.6	-0.3	-0.1	744.	-1.	29.9	1.453	0.688	0.	734	197.0
733.90	4.973	14.2	-1.18	36.11	99.99	14.7	2	2.2	-0.3	-0.1	744.	-1.	29.9	1.375	0.727	0.	735	78.9

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
734.90	4.977	14.2	0.00	20.43	1.59	14.7	2	2.1	2.1	2.6	1055.	13.	17.9	0.970	0.970	16.	736	0.0
735.90	4.981	13.8	-0.59	35.09	99.99	14.7	2	2.1	-0.3	-0.1	744.	-1.	29.9	1.336	0.748	0.	737	10.5
736.90	4.984	13.8	0.00	20.47	1.61	14.7	2	2.0	2.0	2.5	1025.	13.	17.6	0.970	0.970	15.	738	0.0
737.90	4.988	11.9	-2.78	30.27	99.99	14.7	2	2.1	-0.2	-0.1	744.	-1.	29.9	1.153	0.867	0.	739	267.7
738.90	4.991	8.4	-5.13	21.38	99.99	14.7	1	1.6	-0.3	-0.1	744.	-1.	29.9	1.473	0.679	0.	740	551.2
739.90	4.993	4.2	-6.16	10.70	99.99	14.7	1	0.8	-0.1	-0.1	744.	-1.	29.9	0.737	0.737	0.	741	676.4
740.90	4.993	1.2	-4.40	3.07	99.99	14.7	1	0.2	0.0	-0.1	744.	-1.	29.9	0.211	0.211	0.	742	468.3
741.90	4.994	0.0	-0.66	0.11	99.99	14.7	1	0.0	0.0	-0.1	744.	-1.	29.9	0.008	0.008	0.	743	23.8
742.90	4.994	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	744	0.0
743.90	4.994	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	745	0.0
744.90	4.994	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	746	0.0
745.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	747	0.0
746.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	748	0.0
747.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	749	0.0
748.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	750	0.0
749.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	751	0.0
750.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	752	0.0
751.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	753	0.0
752.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	754	0.0
753.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	755	0.0
754.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	756	0.0
755.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	757	0.0
756.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	758	0.0
757.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	759	0.0
758.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	760	0.0
759.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	761	0.0
760.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	762	0.0
761.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	763	0.0
762.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	764	0.0
763.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	765	0.0
764.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	766	0.0
765.90	4.994	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	767	0.0
766.90	4.994	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	768	0.0
767.90	4.994	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	769	0.0
768.90	4.994	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	770	0.0
769.90	4.994	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	771	0.0
770.90	4.994	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	772	0.0
771.90	4.994	1.5	2.20	2.66	1.02	14.5	1	0.2	1.3	3.3	744.	23.	15.2	0.263	0.424	24.	773	0.0
772.90	4.995	5.3	5.72	2.81	0.72	14.5	1	0.7	11.1	15.8	1075.	77.	7.0	0.649	0.847	70.	774	0.0
773.90	4.997	9.1	5.57	3.70	0.61	14.5	1	1.2	18.5	24.2	1390.	92.	6.8	0.858	0.904	75.	775	0.0
774.90	5.000	11.4	3.37	6.06	0.59	14.5	1	1.6	14.7	19.3	1578.	64.	12.7	0.946	0.946	53.	776	0.0
775.90	5.003	14.5	4.55	5.14	0.53	14.5	1	2.2	24.7	31.7	1983.	84.	11.0	0.956	0.956	63.	777	0.0
776.90	5.008	17.3	3.97	5.49	0.56	14.4	1	2.7	26.0	33.5	2318.	76.	11.9	0.970	0.970	57.	778	0.0
777.90	5.013	19.1	2.78	14.63	0.72	14.4	2	3.2	20.9	10.9	1524.	38.	15.9	0.905	0.905	35.	779	0.0
778.90	5.018	21.0	2.79	8.01	0.56	14.4	2	3.6	23.2	28.1	1645.	90.	9.4	0.921	0.921	70.	780	0.0
779.73	5.023	20.7	-0.58	29.88	99.99	14.4	2	3.5	-0.5	-0.1	1237.	-1.	29.9	1.206	0.829	6.	781	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
780.73.	5.029	20.7	0.00	19.92	1.37	14.4	2	3.5	3.5	4.5	1537.	16.	22.8	0.970	0.970	20.	782	0.0
781.73	5.034	19.6	-1.61	31.77	99.99	14.4	2	3.5	-1.2	-1.4	1112.	-6.	29.9	1.270	0.787	0.	783	107.4
782.73	5.040	18.4	-1.76	34.67	99.99	14.4	2	3.3	-0.6	-0.8	970.	-4.	29.9	1.366	0.732	0.	784	137.6
783.73	5.045	16.9	-2.21	42.61	99.99	14.4	2	3.0	0.9	-0.1	749.	-1.	29.9	1.625	0.615	0.	785	222.3
784.73	5.049	16.9	0.00	20.20	1.49	14.4	2	2.7	2.7	3.3	1255.	14.	20.1	0.970	0.970	18.	786	0.0
785.73	5.054	16.5	-0.58	41.97	99.99	14.5	2	2.6	-0.3	-0.1	744.	-1.	29.9	1.599	0.626	0.	787	6.5
786.73	5.059	16.9	0.58	16.63	0.85	14.5	2	2.7	5.9	7.1	1268.	29.	17.3	0.960	0.960	30.	788	0.0
787.73	5.063	16.9	0.00	20.20	1.49	14.5	2	2.7	2.7	3.3	1255.	14.	20.1	0.970	0.970	18.	789	0.0
788.73	5.068	16.9	0.00	20.20	1.49	14.5	2	2.7	2.7	3.3	1255.	14.	20.1	0.970	0.970	18.	790	0.0
789.73	5.073	17.3	0.59	16.59	0.85	14.5	2	2.7	6.1	7.4	1298.	30.	17.4	0.961	0.961	30.	791	0.0
790.73	5.078	19.1	2.78	7.73	0.58	14.5	2	3.2	20.8	25.6	1521.	88.	8.6	0.905	0.905	71.	792	0.0
791.73	5.083	20.3	1.76	11.07	0.60	14.4	2	3.4	15.3	18.4	1554.	62.	12.8	0.942	0.942	52.	793	0.0
792.73	5.089	21.0	1.03	14.52	0.67	14.4	2	3.6	10.8	12.9	1575.	43.	15.4	0.961	0.961	39.	794	0.0
793.73	5.095	22.2	1.76	11.45	0.58	14.4	2	3.9	16.9	20.1	1686.	63.	13.3	0.949	0.949	52.	795	0.0
794.73	5.101	22.3	0.00	19.81	1.32	14.4	2	3.9	3.9	5.1	1656.	16.	23.8	0.970	0.970	21.	796	0.0
795.73	5.107	22.7	0.58	16.93	0.79	14.4	2	4.0	8.4	10.2	1686.	32.	18.0	0.970	0.970	31.	797	0.0
796.73	5.114	22.3	-0.58	28.53	99.99	14.5	2	3.9	-0.4	0.0	1381.	0.	29.8	1.163	0.859	8.	798	0.0
797.73	5.120	22.7	0.58	16.95	0.79	14.5	2	4.0	8.4	10.2	1684.	32.	18.0	0.970	0.970	31.	799	0.0
798.73	5.126	22.3	-0.58	28.55	99.99	14.5	2	3.9	-0.4	0.0	1379.	0.	29.8	1.164	0.859	8.	800	0.0
799.73	5.132	23.7	2.20	9.98	0.55	14.5	2	4.3	21.7	25.8	1805.	75.	11.9	0.946	0.946	59.	801	0.0
800.73	5.139	25.6	2.79	8.45	0.53	14.4	2	4.9	28.7	34.0	1954.	91.	9.8	0.944	0.944	68.	802	0.0
801.73	5.147	27.5	2.79	8.63	0.52	14.4	2	5.5	31.0	36.6	2085.	92.	10.0	0.951	0.951	68.	803	0.0
802.73	5.155	29.5	2.94	8.61	0.50	14.4	2	6.2	35.1	41.1	2225.	97.	9.8	0.956	0.956	69.	804	0.0
803.73	5.163	29.9	0.58	12.59	0.97	14.4	2	6.3	12.1	14.7	2221.	35.	15.2	0.970	0.970	34.	805	0.0
804.61	5.170	29.2	-1.18	20.27	99.99	14.4	2	6.2	-5.2	-4.6	1990.	-12.	29.9	1.057	0.946	5.	806	0.0
805.61	5.178	27.6	-2.34	22.09	99.99	14.4	2	6.1	-6.5	-6.4	1863.	-18.	29.9	1.068	0.937	0.	807	117.8
806.61	5.185	25.0	-3.82	26.83	99.99	14.4	2	5.7	-3.7	-4.5	1630.	-15.	29.9	1.105	0.905	0.	808	326.7
807.61	5.192	23.8	-1.76	27.45	99.99	14.4	2	4.7	-4.0	-3.7	1524.	-13.	29.9	1.126	0.888	0.	809	80.4
808.61	5.199	23.4	-0.58	27.51	30.52	14.4	2	4.2	-0.3	0.2	1487.	1.	29.6	1.134	0.882	9.	810	0.0
809.61	5.205	24.2	1.18	13.11	0.67	14.4	2	4.5	14.0	16.5	1802.	48.	14.8	0.966	0.966	42.	811	0.0
810.61	5.212	23.4	-1.18	27.74	99.99	14.5	2	4.4	-3.9	-3.5	1483.	-12.	29.9	1.135	0.881	0.	812	13.6
811.53	5.218	23.0	-0.58	27.88	43.34	14.5	2	4.1	-0.3	0.1	1448.	0.	29.6	1.145	0.873	9.	813	0.0
812.53	5.224	20.4	-3.82	30.14	99.99	14.5	2	4.3	-1.1	-1.8	1210.	-8.	29.9	1.214	0.824	0.	814	366.4
813.53	5.229	18.8	-2.34	33.69	99.99	14.5	2	3.5	-0.4	-1.0	1015.	-5.	29.9	1.334	0.749	0.	815	207.2
814.53	5.234	17.3	-2.20	39.95	99.99	14.5	2	3.1	0.8	-0.3	810.	-2.	29.9	1.540	0.649	0.	816	218.0
815.53	5.239	15.0	-3.37	38.15	99.99	14.5	2	2.8	-0.3	-0.1	744.	-1.	29.9	1.453	0.688	0.	817	333.5
816.53	5.243	13.1	-2.79	33.31	99.99	14.5	2	2.3	-0.2	-0.1	744.	-1.	29.9	1.269	0.788	0.	818	267.7
817.53	5.246	9.2	-5.72	23.40	99.99	14.5	1	1.9	-0.3	-0.1	744.	-1.	29.9	1.612	0.620	0.	819	620.8
818.53	5.248	6.9	-3.37	17.55	99.99	14.5	1	1.2	-0.2	-0.1	744.	-1.	29.9	1.209	0.827	0.	820	342.8
819.53	5.250	4.6	-3.37	11.71	99.99	14.5	1	0.8	-0.2	-0.1	744.	-1.	29.9	0.807	0.807	0.	821	344.2
820.53	5.251	4.6	0.00	10.48	3.06	14.5	1	0.6	0.6	0.9	744.	6.	21.4	0.806	0.806	7.	822	0.0
821.53	5.252	4.6	0.00	10.48	3.06	14.5	1	0.6	0.6	0.9	744.	6.	21.4	0.806	0.806	7.	823	0.0
822.53	5.253	4.2	-0.58	10.69	99.99	14.5	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.737	0.737	0.	824	12.5
823.53	5.255	5.4	1.76	6.73	0.94	14.5	1	0.7	3.9	5.1	824.	32.	15.3	0.851	0.904	32.	825	0.0
824.53	5.256	4.6	-1.18	11.63	99.99	14.5	1	0.6	-0.2	-0.1	744.	-1.	29.9	0.801	0.801	0.	826	83.7
825.53	5.257	3.5	-1.61	8.84	99.99	14.5	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.609	0.609	0.	827	135.4

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
826.53	5.258	2.3	-1.76	5.79	99.99	14.5	1	0.3	-0.1	-0.1	744.	-1.	29.9	0.399	0.399	0.	828	153.8
827.53	5.259	2.3	0.00	5.27	3.23	14.5	1	0.3	0.3	0.8	744.	6.	21.9	0.403	0.422	6.	829	0.0
828.53	5.259	1.9	-0.58	4.84	99.99	14.5	1	0.2	-0.1	-0.1	744.	-1.	29.9	0.334	0.334	0.	830	13.6
829.53	5.260	3.1	1.76	5.46	1.01	14.5	1	0.4	2.2	3.4	744.	24.	15.2	0.543	0.713	24.	831	0.0
830.53	5.261	6.0	4.39	3.70	0.74	14.5	1	0.8	9.8	13.1	1061.	65.	9.5	0.742	0.888	59.	832	0.0
831.53	5.263	4.5	-2.20	11.53	99.99	14.5	1	0.7	-0.1	-0.1	744.	-1.	29.9	0.795	0.795	0.	833	205.1
832.53	5.264	2.6	-2.79	6.70	99.99	14.5	1	0.4	-0.1	-0.1	744.	-1.	29.9	0.461	0.461	0.	834	276.2
833.37	5.264	2.3	-0.58	5.85	99.99	14.5	1	0.3	-0.1	-0.1	744.	-1.	29.9	0.403	0.403	0.	835	13.4
834.37	5.265	2.3	0.00	5.27	3.23	14.5	1	0.3	0.3	0.8	744.	6.	21.9	0.403	0.422	6.	836	0.0
835.37	5.266	3.1	1.18	5.86	1.21	14.5	1	0.4	1.6	2.6	744.	18.	14.8	0.544	0.676	19.	837	0.0
836.37	5.267	4.2	1.61	7.28	0.97	14.5	1	0.5	2.8	3.6	744.	25.	15.3	0.736	0.853	25.	838	0.0
837.37	5.268	3.5	-1.03	8.90	99.99	14.5	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.613	0.613	0.	839	66.4
838.37	5.269	3.8	0.44	7.83	1.67	14.5	1	0.5	1.0	1.7	744.	12.	14.2	0.666	0.666	13.	840	0.0
839.37	5.270	4.2	0.59	8.39	1.46	14.5	1	0.5	1.4	2.0	744.	14.	14.4	0.736	0.736	15.	841	0.0
840.37	5.271	3.5	-1.03	8.90	99.99	14.4	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.613	0.613	0.	842	66.4
841.37	5.272	3.5	0.00	7.99	3.09	14.4	1	0.4	0.4	0.8	744.	6.	21.5	0.613	0.613	7.	843	0.0
842.37	5.273	3.5	0.00	7.99	3.09	14.4	1	0.4	0.4	0.8	744.	6.	21.5	0.613	0.613	7.	844	0.0
843.37	5.274	4.6	1.61	7.88	0.95	14.4	1	0.6	3.1	3.7	744.	26.	15.4	0.806	0.901	26.	845	0.0
844.37	5.275	5.8	1.76	6.85	0.93	14.4	1	0.8	4.2	5.5	859.	33.	15.3	0.880	0.903	33.	846	0.0
845.37	5.277	3.5	-3.37	8.90	99.99	14.4	1	0.6	-0.1	-0.1	744.	-1.	29.9	0.613	0.613	0.	847	344.8
846.37	5.277	0.8	-3.96	2.03	99.99	14.4	1	0.1	0.0	-0.1	744.	-1.	29.9	0.140	0.140	0.	848	416.1
847.37	5.278	3.4	3.96	2.87	0.91	14.4	1	0.4	5.0	7.9	818.	51.	11.5	0.547	0.775	49.	849	0.0
848.37	5.279	3.7	0.44	7.69	1.67	14.4	1	0.5	1.0	1.7	744.	12.	14.2	0.654	0.654	13.	850	0.0
849.37	5.280	2.2	-2.20	5.68	99.99	14.4	1	0.3	-0.1	-0.1	744.	-1.	29.9	0.391	0.391	0.	851	206.2
850.34	5.280	0.0	-3.37	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	852	346.2
851.34	5.280	1.2	1.76	2.25	1.18	14.4	1	0.1	0.9	2.7	744.	19.	14.8	0.210	0.346	19.	853	0.0
852.34	5.281	6.5	8.36	2.20	0.64	14.4	1	0.9	19.4	27.5	1299.	111.	2.1	0.657	0.851	92.	854	0.0
853.34	5.284	12.5	8.05	2.67	0.59	14.4	1	1.8	36.1	47.5	1811.	138.	1.0	0.902	0.902	99.	855	0.0
854.34	5.288	17.5	7.34	3.60	0.49	14.3	1	2.8	46.5	59.7	2401.	131.	6.0	0.952	0.952	86.	856	0.0
855.34	5.294	22.5	7.33	3.08	0.57	14.3	1	4.0	60.1	76.2	3028.	132.	5.6	0.970	0.970	81.	857	0.0
856.34	5.300	26.0	4.72	5.48	0.50	14.2	2	5.0	45.9	56.2	2041.	145.	1.7	0.917	0.917	100.	858	0.0
857.34	5.308	29.3	4.99	5.80	0.46	14.2	2	6.1	54.8	65.6	2274.	151.	-18.9	0.929	0.929	100.	859	0.0
858.33	5.317	32.4	4.54	5.83	0.50	14.2	2	7.3	56.3	66.2	2470.	141.	4.4	0.946	0.946	91.	860	0.0
859.33	5.326	36.0	5.36	3.19	0.79	14.1	2	8.8	73.0	85.6	2735.	164.	0.0	0.948	0.948	100.	861	0.0
860.33	5.337	39.1	4.55	4.87	0.59	14.0	2	10.3	69.5	80.7	2931.	145.	3.7	0.961	0.961	88.	862	0.0
861.33	5.348	42.2	4.54	4.53	0.64	14.0	2	11.9	75.7	87.6	3148.	146.	3.5	0.966	0.966	87.	863	0.0
862.33	5.360	44.5	3.00	9.41	0.45	14.0	3	13.3	57.4	62.7	2218.	149.	2.3	0.920	0.920	99.	864	0.0
863.33	5.372	46.3	2.75	9.01	0.47	13.9	3	14.4	56.6	66.0	2292.	151.	-14.2	0.928	0.928	99.	865	0.0
864.33	5.386	47.9	2.21	10.50	0.47	13.9	3	15.4	50.4	58.0	2329.	131.	6.1	0.943	0.943	87.	866	0.0
865.33	5.399	49.7	2.80	6.62	0.62	13.9	3	16.8	62.9	72.5	2437.	156.	0.0	0.937	0.937	100.	867	0.0
866.33	5.413	51.3	2.21	9.55	0.51	13.9	3	17.9	55.4	63.3	2482.	134.	5.5	0.948	0.948	87.	868	0.0
867.33	5.428	52.8	2.20	9.23	0.52	13.9	3	19.0	57.4	65.6	2548.	135.	5.3	0.950	0.950	87.	869	0.0
868.33	5.442	54.0	1.76	10.41	0.53	13.8	3	20.0	51.4	58.4	2583.	119.	7.1	0.959	0.959	78.	870	0.0
869.33	5.458	55.1	1.61	10.75	0.54	13.8	3	20.9	50.2	56.9	2629.	114.	7.6	0.961	0.961	75.	871	0.0
870.33	5.473	56.3	1.76	9.88	0.55	13.8	3	21.9	54.7	62.0	2688.	121.	6.8	0.961	0.961	78.	872	0.0
871.33	5.489	57.3	1.61	10.22	0.55	13.8	3	22.9	53.5	60.5	2733.	116.	7.3	0.963	0.963	75.	873	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
872.33	5.505	58.5	1.76	9.41	0.57	13.8	3	24.0	58.1	65.7	2792.	124.	6.4	0.962	0.962	79.	874	0.0
873.33	5.521	59.4	1.18	13.76	0.46	13.8	4	24.8	47.9	55.5	2123.	137.	4.4	0.924	0.924	94.	875	0.0
874.33	5.538	60.1	1.03	14.55	0.47	13.8	4	25.4	45.8	53.0	2138.	130.	5.5	0.928	0.928	90.	876	0.0
876.33	5.572	61.8	0.00	37.56	99.99	13.8	4	27.2	27.2	-786.1	2126.	-1942.	29.9	0.960	0.960	0.	877	0.0
877.33	5.589	61.8	0.00	21.43	0.56	13.8	4	27.2	27.2	30.7	2126.	76.	11.9	0.960	0.960	58.	878	0.0
878.33	5.606	61.8	0.00	21.43	0.56	13.8	4	27.2	27.2	30.7	2126.	76.	11.9	0.960	0.960	58.	879	0.0
879.33	5.623	62.6	1.17	14.18	0.44	13.8	4	28.0	52.1	60.1	2228.	142.	4.4	0.928	0.928	95.	880	0.0
880.33	5.641	63.4	1.18	13.68	0.45	13.8	4	28.8	53.5	61.6	2255.	144.	3.8	0.929	0.929	96.	881	0.0
881.26	5.657	63.0	-0.58	26.09	0.77	13.8	4	28.4	16.3	18.7	2146.	46.	14.5	0.970	0.970	40.	882	0.0
882.26	5.675	63.0	0.00	21.16	0.55	13.9	4	28.4	28.4	32.1	2167.	78.	11.8	0.961	0.961	59.	883	0.0
883.26	5.692	62.6	-0.59	26.41	0.78	13.9	4	28.0	15.8	18.1	2132.	45.	14.6	0.970	0.970	39.	884	0.0
884.26	5.709	61.8	-1.17	34.45	2.36	13.9	4	27.2	3.3	4.5	2105.	11.	24.1	0.970	0.970	20.	885	0.0
885.26	5.726	61.8	0.00	21.43	0.56	13.9	4	27.2	27.2	30.7	2126.	76.	11.9	0.960	0.960	58.	886	0.0
886.26	5.744	62.2	0.58	17.11	0.48	13.9	4	27.6	39.5	45.0	2176.	109.	8.3	0.945	0.945	77.	887	0.0
887.26	5.761	62.2	0.00	21.34	0.56	13.9	4	27.6	27.6	31.2	2140.	77.	11.9	0.961	0.961	58.	888	0.0
888.26	5.778	62.6	0.58	17.14	0.48	13.9	4	28.0	39.9	45.5	2189.	109.	8.3	0.945	0.945	77.	889	0.0
889.26	5.796	63.5	1.32	11.88	0.49	13.9	4	28.9	56.6	65.4	2266.	152.	0.0	0.926	0.926	100.	890	0.0
890.26	5.814	64.3	1.18	13.26	0.46	13.9	4	29.8	54.8	63.1	2283.	145.	3.4	0.930	0.930	96.	891	0.0
891.26	5.831	64.7	0.58	16.84	0.47	13.9	4	30.2	42.6	48.4	2258.	113.	8.1	0.946	0.946	78.	892	0.0
892.26	5.850	65.5	1.29	12.23	0.47	13.9	4	31.2	59.1	68.0	2332.	153.	-44.7	0.929	0.929	100.	893	0.0
893.26	5.868	66.0	0.00	20.79	0.54	13.9	4	31.7	31.7	35.0	2268.	81.	11.5	0.962	0.962	60.	894	0.0
894.26	5.886	66.8	1.18	12.29	0.48	13.9	4	32.6	58.6	67.1	2362.	149.	2.4	0.934	0.934	97.	895	0.0
895.19	5.904	66.4	-0.58	24.88	0.72	14.0	4	32.1	19.4	22.1	2262.	51.	14.0	0.970	0.970	43.	896	0.0
896.19	5.922	66.8	0.58	16.04	0.48	14.0	4	32.6	45.3	51.5	2328.	116.	7.7	0.948	0.948	79.	897	0.0
897.19	5.941	67.2	0.58	15.89	0.49	14.0	4	33.0	45.9	52.1	2341.	117.	7.6	0.948	0.948	79.	898	0.0
898.19	5.959	66.4	-1.17	31.18	1.57	14.0	4	32.1	6.5	8.1	2261.	19.	19.8	0.970	0.970	25.	899	0.0
899.19	5.978	66.4	0.00	20.50	0.53	14.0	4	32.1	32.1	36.2	2281.	83.	11.2	0.962	0.962	61.	900	0.0
900.19	5.996	66.0	-0.59	25.00	0.73	14.0	4	31.7	18.8	21.5	2248.	50.	14.0	0.970	0.970	42.	901	0.0
901.19	6.014	65.7	-0.44	23.82	0.67	14.0	4	31.3	21.8	24.7	2238.	58.	13.4	0.970	0.970	47.	902	0.0
902.19	6.033	65.7	0.00	20.63	0.54	14.1	4	31.3	31.3	35.4	2258.	82.	11.3	0.962	0.962	61.	903	0.0
903.19	6.051	66.4	1.03	13.61	0.47	14.1	4	32.1	54.7	62.4	2337.	140.	4.7	0.939	0.939	93.	904	0.0
904.14	6.068	66.0	-0.59	25.00	0.73	14.1	4	31.7	18.8	21.5	2248.	50.	14.0	0.970	0.970	42.	905	0.0
905.14	6.087	65.7	-0.44	23.82	0.67	14.1	4	31.3	21.8	24.7	2238.	58.	13.4	0.970	0.970	47.	906	0.0
906.13	6.105	65.3	-0.58	24.98	0.74	14.1	4	30.9	18.4	21.0	2224.	50.	14.0	0.970	0.970	42.	907	0.0
907.13	6.123	65.3	0.00	20.71	0.54	14.1	4	30.9	30.9	34.9	2244.	82.	11.4	0.962	0.962	60.	908	0.0
908.13	6.141	64.5	-1.18	32.11	1.90	14.1	4	30.0	4.9	6.3	2197.	15.	21.7	0.970	0.970	22.	909	0.0
909.13	6.159	64.5	0.00	20.86	0.55	14.2	4	30.0	30.0	33.9	2217.	80.	11.6	0.961	0.961	60.	910	0.0
910.13	6.177	64.1	-0.58	25.52	0.76	14.2	4	29.6	17.3	19.8	2183.	48.	14.3	0.970	0.970	41.	911	0.0
911.13	6.194	63.7	-0.59	25.82	0.77	14.2	4	29.2	16.7	19.2	2170.	46.	14.4	0.970	0.970	40.	912	0.0
912.13	6.212	63.7	0.00	21.02	0.55	14.2	4	29.2	29.1	32.9	2190.	79.	11.7	0.961	0.961	59.	913	0.0
913.13	6.230	63.7	0.00	21.02	0.55	14.2	4	29.2	29.1	32.9	2190.	79.	11.7	0.961	0.961	59.	914	0.0
914.13	6.248	64.5	1.18	13.18	0.46	14.2	4	30.0	55.1	63.4	2289.	145.	3.3	0.931	0.931	96.	915	0.0
915.13	6.266	64.5	0.00	20.86	0.55	14.2	4	30.0	30.0	33.9	2217.	80.	11.6	0.961	0.961	60.	916	0.0
916.13	6.284	64.9	0.58	16.76	0.47	14.2	4	30.4	42.8	48.7	2265.	113.	8.1	0.947	0.947	78.	917	0.0
917.13	6.302	64.5	-0.58	25.34	0.75	14.3	4	30.0	17.7	20.2	2197.	48.	14.2	0.970	0.970	41.	918	0.0
918.13	6.319	64.1	-0.58	25.53	0.76	14.3	4	29.6	17.3	19.8	2183.	48.	14.3	0.970	0.970	41.	919	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
919.13	6.337	64.8	1.17	13.11	0.46	14.3	4	30.4	55.4	63.7	2300.	145.	3.3	0.932	0.932	96.	920	0.0
920.13	6.355	65.2	0.59	16.57	0.48	14.3	4	30.8	43.5	49.5	2277.	114.	7.9	0.947	0.947	79.	921	0.0
921.13	6.373	65.3	0.00	20.71	0.54	14.3	4	30.9	30.9	34.9	2244.	82.	11.4	0.962	0.962	60.	922	0.0
922.13	6.392	65.3	0.00	20.71	0.54	14.3	4	30.9	30.9	34.9	2244.	82.	11.4	0.962	0.962	60.	923	0.0
923.13	6.410	64.1	-1.76	43.77	99.99	14.3	4	29.8	-7.4	-6.6	2006.	-17.	29.9	1.056	0.947	2.	924	0.0
924.13	6.427	63.4	-1.03	30.84	1.38	14.3	4	28.9	7.3	8.9	2161.	22.	18.3	0.970	0.970	26.	925	0.0
925.13	6.445	63.0	-0.58	26.07	0.77	14.4	4	28.4	16.4	18.7	2147.	46.	14.5	0.970	0.970	40.	926	0.0
926.13	6.462	63.4	0.58	17.22	0.47	14.4	4	28.8	41.0	46.7	2217.	111.	8.3	0.945	0.945	77.	927	0.0
927.13	6.480	64.1	1.03	14.60	0.45	14.4	4	29.6	51.4	58.9	2266.	137.	5.5	0.935	0.935	92.	928	0.0
928.13	6.498	64.9	1.17	13.08	0.46	14.4	4	30.5	55.5	63.8	2302.	146.	3.3	0.932	0.932	96.	929	0.0
929.13	6.516	65.3	0.59	16.54	0.48	14.4	4	30.9	43.6	49.6	2280.	114.	7.9	0.947	0.947	79.	930	0.0
930.13	6.534	64.5	-1.18	32.10	1.90	14.4	4	30.0	4.9	6.3	2197.	15.	21.6	0.970	0.970	22.	931	0.0
931.13	6.552	64.1	-0.58	25.52	0.76	14.4	4	29.6	17.3	19.8	2184.	48.	14.3	0.970	0.970	41.	932	0.0
932.13	6.570	63.4	-1.03	30.86	1.38	14.4	4	28.8	7.3	8.9	2160.	22.	18.4	0.970	0.970	26.	933	0.0
933.13	6.587	63.7	0.44	17.99	0.49	14.4	4	29.1	38.4	43.6	2217.	103.	9.1	0.949	0.949	73.	934	0.0
934.13	6.605	63.4	-0.44	24.60	0.69	14.5	4	28.8	19.6	22.3	2159.	54.	13.7	0.970	0.970	45.	935	0.0
935.13	6.623	63.4	0.00	21.08	0.55	14.5	4	28.8	28.8	32.6	2180.	78.	11.7	0.961	0.961	59.	936	0.0
936.13	6.640	63.4	0.00	21.08	0.55	14.5	4	28.8	28.8	32.6	2180.	78.	11.7	0.961	0.961	59.	937	0.0
937.13	6.658	63.4	0.00	21.08	0.55	14.5	4	28.8	28.8	32.6	2180.	78.	11.7	0.961	0.961	59.	938	0.0
938.13	6.676	63.7	0.44	17.99	0.49	14.5	4	29.1	38.4	43.6	2217.	103.	9.1	0.949	0.949	73.	939	0.0
939.13	6.693	64.5	1.18	13.17	0.46	14.5	4	30.0	55.1	63.4	2290.	145.	3.3	0.931	0.931	96.	940	0.0
940.13	6.711	65.3	1.18	12.84	0.47	14.5	4	30.9	56.3	64.7	2315.	147.	3.0	0.932	0.932	97.	941	0.0
941.13	6.729	64.9	-0.59	25.24	0.76	14.5	4	30.4	17.8	20.3	2210.	48.	14.2	0.970	0.970	41.	942	0.0
942.13	6.747	63.7	-1.76	44.18	99.99	14.5	4	29.4	-7.6	-6.8	1991.	-18.	29.9	1.057	0.946	1.	943	0.0
943.13	6.765	63.0	-1.02	31.03	1.38	14.6	4	28.4	7.2	8.8	2147.	22.	18.5	0.970	0.970	26.	944	0.0
944.13	6.782	59.9	-4.55	48.52	99.99	14.6	4	27.7	-6.5	-6.4	1854.	-18.	29.9	1.068	0.936	0.	945	338.4
945.13	6.798	55.3	-6.75	58.09	99.99	14.6	4	25.0	-4.3	-4.8	1664.	-15.	29.9	1.099	0.910	0.	946	618.1
946.13	6.813	50.7	-6.75	60.66	99.99	14.6	4	21.1	-2.8	-3.4	1473.	-12.	29.9	1.138	0.879	0.	947	639.1
947.13	6.827	49.2	-2.21	61.84	99.99	14.6	4	17.1	-3.5	-3.0	1407.	-11.	29.9	1.156	0.865	0.	948	113.3
948.13	6.840	48.0	-1.76	62.80	99.99	14.7	4	16.0	-3.2	-2.6	1355.	-10.	29.9	1.171	0.854	0.	949	65.6
949.13	6.853	46.1	-2.79	64.35	99.99	14.7	4	15.3	-2.5	-2.2	1276.	-9.	29.9	1.194	0.837	0.	950	194.0
950.13	6.866	44.2	-2.78	65.94	99.99	14.7	4	14.1	-2.1	-1.8	1201.	-8.	29.9	1.217	0.822	0.	951	200.3
951.13	6.878	41.1	-4.55	73.16	99.99	14.7	4	13.2	-0.6	-1.0	1022.	-5.	29.9	1.330	0.752	0.	952	424.1
952.13	6.889	39.9	-1.76	76.11	99.99	14.8	4	11.1	-1.0	-0.7	960.	-4.	29.9	1.374	0.728	0.	953	101.0
953.13	6.899	36.1	-5.58	91.84	99.99	14.8	4	11.0	-0.3	-0.1	744.	-1.	29.9	1.604	0.623	0.	954	556.0
954.13	6.909	32.6	-5.13	82.94	99.99	14.8	4	9.1	-0.3	-0.1	744.	-1.	29.9	1.449	0.690	0.	955	510.9
955.13	6.918	29.2	-4.99	74.29	99.99	14.8	4	7.7	-0.2	-0.1	744.	-1.	29.9	1.298	0.771	0.	956	500.8
956.13	6.925	24.6	-6.75	62.59	99.99	14.8	3	6.5	-0.3	-0.1	744.	-1.	29.9	1.518	0.659	0.	957	713.1
957.13	6.931	20.7	-5.72	52.67	99.99	14.8	3	4.9	-0.2	-0.1	744.	-1.	29.9	1.278	0.783	0.	958	599.2
958.12	6.937	19.2	-2.21	48.84	99.99	14.8	3	3.6	-0.2	-0.1	744.	-1.	29.9	1.185	0.844	0.	959	194.2
959.12	6.942	16.5	-3.96	41.97	99.99	14.8	3	3.3	-0.2	-0.1	744.	-1.	29.9	1.018	0.982	0.	960	400.2
960.12	6.946	15.0	-2.20	38.16	99.99	14.8	2	2.6	-0.3	-0.1	744.	-1.	29.9	1.453	0.688	0.	961	197.0
961.12	6.950	11.9	-4.55	30.27	99.99	14.9	2	2.3	-0.2	-0.1	744.	-1.	29.9	1.153	0.867	0.	962	474.1
962.12	6.953	9.6	-3.37	21.82	99.99	14.9	1	1.7	3.4	-0.3	821.	-2.	29.9	1.524	0.656	0.	963	481.9
963.12	6.955	8.4	-1.76	21.37	99.99	14.9	1	1.3	-0.3	-0.1	744.	-1.	29.9	1.473	0.679	0.	964	150.3
964.12	6.957	5.8	-3.82	14.75	99.99	14.9	1	1.0	-0.2	-0.1	744.	-1.	29.9	1.016	0.984	0.	965	397.1

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
965.12	6.958	1.2	-6.75	3.05	99.99	14.9	1	0.2	0.0	-0.1	744.	-1.	29.9	0.210	0.210	0.	966	747.9
966.12	6.959	0.0	-1.76	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	967	154.6
967.12	6.959	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	968	0.0
968.12	6.959	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	969	0.0
969.12	6.959	1.2	1.76	2.25	1.18	14.8	1	0.1	0.9	2.7	744.	19.	14.8	0.210	0.346	19.	970	0.0
970.12	6.959	3.1	2.79	4.05	0.98	14.8	1	0.4	3.3	4.7	744.	33.	15.0	0.544	0.758	33.	971	0.0
971.12	6.960	5.0	2.79	4.68	0.89	14.8	1	0.6	5.4	7.1	871.	43.	13.4	0.749	0.890	42.	972	0.0
972.12	6.962	8.3	4.99	3.98	0.63	14.8	1	1.1	15.2	19.9	1288.	81.	8.1	0.842	0.903	69.	973	0.0
973.12	6.965	11.4	4.54	4.95	0.54	14.8	1	1.6	19.2	25.4	1602.	83.	10.4	0.929	0.929	66.	974	0.0
974.12	6.969	14.5	4.55	5.14	0.53	14.8	1	2.2	24.6	31.6	1980.	84.	11.0	0.956	0.956	63.	975	0.0
975.12	6.973	16.8	3.37	5.78	0.61	14.8	1	2.6	21.9	28.4	2259.	66.	12.8	0.970	0.970	51.	976	0.0
976.12	6.978	18.7	2.79	6.32	0.65	14.8	1	3.1	20.8	27.2	2515.	57.	13.9	0.970	0.970	46.	977	0.0
977.12	6.983	21.0	3.37	6.29	0.60	14.7	2	3.6	27.2	33.3	1670.	105.	6.4	0.907	0.907	80.	978	0.0
978.12	6.990	23.7	3.96	5.89	0.56	14.7	2	4.3	35.6	43.1	1867.	121.	4.4	0.915	0.915	88.	979	0.0
979.12	6.997	26.4	3.97	6.61	0.50	14.7	2	5.1	40.1	47.9	2049.	123.	5.6	0.929	0.929	86.	980	0.0
980.12	7.004	27.9	2.20	9.79	0.56	14.7	2	5.6	26.1	30.6	2095.	77.	11.8	0.960	0.960	58.	981	0.0
981.12	7.012	29.5	2.35	9.50	0.54	14.7	2	6.2	29.3	34.3	2212.	81.	11.4	0.962	0.962	61.	982	0.0
982.12	7.020	30.6	1.61	10.69	0.63	14.7	2	6.6	23.0	27.0	2274.	62.	13.1	0.970	0.970	49.	983	0.0
983.12	7.029	32.5	2.78	8.55	0.52	14.7	2	7.3	37.4	43.7	2432.	94.	10.0	0.963	0.963	66.	984	0.0
984.12	7.038	34.1	2.35	9.51	0.53	14.7	2	8.0	34.7	40.4	2534.	84.	11.1	0.970	0.970	60.	985	0.0
985.12	7.048	35.2	1.61	10.91	0.60	14.7	2	8.4	27.3	32.2	2615.	65.	13.2	0.970	0.970	50.	986	0.0
986.12	7.058	36.0	1.17	11.98	0.66	14.6	2	8.8	22.8	27.2	2674.	53.	14.6	0.970	0.970	44.	987	0.0
987.12	7.068	36.8	1.18	14.99	0.54	14.6	3	9.2	23.5	27.3	1794.	80.	11.4	0.942	0.942	62.	988	0.0
988.12	7.078	37.9	1.61	11.92	0.54	14.6	3	9.7	29.9	34.9	1869.	98.	8.5	0.931	0.931	73.	989	0.0
989.12	7.089	38.0	0.00	24.26	0.82	14.6	3	9.7	9.7	11.4	1798.	33.	17.0	0.970	0.970	32.	990	0.0
990.12	7.100	38.0	0.00	24.26	0.82	14.7	3	9.7	9.7	11.4	1798.	33.	17.0	0.970	0.970	32.	991	0.0
991.12	7.110	38.0	0.00	24.26	0.82	14.7	3	9.7	9.7	11.4	1798.	33.	17.0	0.970	0.970	32.	992	0.0
992.12	7.121	38.0	0.00	24.26	0.82	14.7	3	9.7	9.7	11.4	1798.	33.	17.0	0.970	0.970	32.	993	0.0
993.12	7.131	37.2	-1.18	43.19	99.99	14.7	3	9.5	-4.4	-3.7	1514.	-13.	29.9	1.127	0.887	0.	994	6.0
994.12	7.141	36.9	-0.44	29.53	1.52	14.7	3	9.2	3.8	4.9	1746.	15.	24.0	0.970	0.970	20.	995	0.0
995.12	7.152	36.1	-1.18	44.00	99.99	14.7	3	9.0	-3.9	-3.2	1447.	-12.	29.9	1.145	0.873	0.	996	12.2
996.12	7.162	35.7	-0.58	33.00	2.44	14.7	3	8.7	1.8	2.6	1690.	8.	26.8	0.970	0.970	16.	997	0.0
997.12	7.171	34.9	-1.18	44.93	99.99	14.7	3	8.5	-3.4	-2.8	1376.	-11.	29.9	1.165	0.858	0.	998	18.3
998.12	7.181	34.9	0.00	27.11	0.79	14.7	3	8.3	8.3	9.7	1651.	31.	18.3	0.970	0.970	31.	999	0.0
999.12	7.191	33.8	-1.61	45.84	99.99	14.8	3	8.2	-2.9	-2.4	1310.	-10.	29.9	1.184	0.845	0.	1000	75.0
1000.12	7.200	31.5	-3.37	48.18	99.99	14.8	3	8.0	-1.1	-1.7	1173.	-7.	29.9	1.233	0.811	0.	1001	301.4
1001.12	7.208	28.8	-3.96	54.64	99.99	14.8	3	7.1	-0.2	-0.8	964.	-4.	29.9	1.371	0.729	0.	1002	385.0
1002.11	7.216	25.7	-4.55	65.36	99.99	14.8	3	6.2	-0.3	-0.1	744.	-1.	29.9	1.586	0.631	0.	1003	456.4
1003.11	7.223	24.6	-1.61	62.57	99.99	14.8	3	4.9	-0.3	-0.1	744.	-1.	29.9	1.518	0.659	0.	1004	117.3
1004.11	7.229	23.4	-1.76	59.52	99.99	14.8	3	4.6	-0.3	-0.1	744.	-1.	29.9	1.444	0.693	0.	1005	136.5
1005.11	7.236	22.3	-1.61	56.73	99.99	14.8	3	4.2	-0.3	-0.1	744.	-1.	29.9	1.376	0.727	0.	1006	120.6
1006.11	7.242	21.5	-1.18	54.68	99.99	14.8	3	3.9	-0.2	-0.1	744.	-1.	29.9	1.326	0.754	0.	1007	71.9
1007.11	7.247	20.0	-2.20	50.87	99.99	14.8	3	3.8	-0.2	-0.1	744.	-1.	29.9	1.234	0.810	0.	1008	192.1
1008.11	7.253	20.0	0.00	28.24	1.07	14.8	3	3.4	3.4	4.0	970.	21.	16.7	0.947	0.947	23.	1009	0.0
1009.11	7.258	19.2	-1.18	48.81	99.99	14.9	3	3.3	-0.2	-0.1	744.	-1.	29.9	1.184	0.844	0.	1010	74.9
1010.11	7.264	19.2	0.00	28.26	1.09	14.9	3	3.2	3.2	3.7	934.	21.	16.4	0.944	0.944	22.	1011	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1011.11	7.269	18.0	-1.76	45.77	99.99	14.9	3	3.2	-0.2	-0.1	744.	-1.	29.9	1.110	0.901	0.	1012	143.5
1012.11	7.273	11.9	-8.94	30.27	99.99	14.9	2	3.0	-0.2	-0.1	744.	-1.	29.9	1.153	0.867	0.	1013	986.1
1013.11	7.276	6.9	-7.34	17.55	99.99	14.9	1	1.5	-0.2	-0.1	744.	-1.	29.9	1.209	0.827	0.	1014	815.2
1014.11	7.277	2.7	-6.16	6.87	99.99	14.9	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.473	0.473	0.	1015	677.1
1015.11	7.278	0.8	-2.78	2.05	99.99	14.9	1	0.1	0.0	-0.1	744.	-1.	29.9	0.141	0.141	0.	1016	275.7
1016.11	7.278	0.4	-0.59	1.02	99.99	14.9	1	0.1	0.0	-0.1	744.	-1.	29.9	0.070	0.070	0.	1017	15.3
1017.08	7.278	0.0	-2.61	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1018	14.3
1018.08	7.278	0.0	0.00	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1019	0.0
1019.08	7.278	0.0	0.00	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1020	0.0
1020.08	7.278	0.0	0.00	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1021	0.0
1021.08	7.278	0.0	0.00	0.00	24.57	14.9	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1022	0.0
1022.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1023	0.0
1023.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1024	0.0
1024.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1025	0.0
1025.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1026	0.0
1026.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1027	0.0
1027.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1028	0.0
1028.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1029	0.0
1029.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1030	0.0
1030.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1031	0.0
1031.08	7.278	0.0	0.00	0.00	24.57	14.8	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1032	0.0
1032.08	7.278	0.4	0.58	0.87	2.36	14.8	1	0.0	0.1	1.2	744.	8.	18.4	0.069	0.125	9.	1033	0.0
1033.08	7.278	2.7	3.37	3.11	1.00	14.8	1	0.3	3.4	5.2	744.	37.	14.6	0.471	0.699	36.	1034	0.0
1034.08	7.279	6.0	4.99	3.36	0.72	14.8	1	0.8	11.0	15.0	1095.	72.	8.3	0.720	0.881	65.	1035	0.0
1035.08	7.282	9.1	4.55	4.39	0.62	14.8	1	1.2	15.4	20.3	1336.	80.	8.7	0.893	0.896	67.	1036	0.0
1036.08	7.284	11.4	3.37	6.06	0.59	14.8	1	1.6	14.7	19.3	1578.	64.	12.7	0.946	0.946	53.	1037	0.0
1037.08	7.288	14.2	3.97	5.54	0.56	14.8	1	2.1	21.2	27.4	1924.	75.	12.0	0.959	0.959	58.	1038	0.0
1038.08	7.292	16.0	2.78	6.17	0.68	14.8	1	2.5	17.6	23.0	2156.	56.	13.6	0.970	0.970	46.	1039	0.0
1039.08	7.297	18.0	2.79	6.24	0.66	14.7	1	2.9	19.9	26.0	2412.	57.	13.8	0.970	0.970	46.	1040	0.0
1040.09	7.302	20.0	2.94	7.35	0.58	14.7	2	3.4	22.9	28.0	1583.	93.	8.2	0.908	0.908	73.	1041	0.0
1041.09	7.308	21.5	2.20	10.06	0.55	14.7	2	3.7	19.4	23.2	1649.	74.	11.9	0.937	0.937	59.	1042	0.0
1042.09	7.314	23.0	2.21	10.00	0.55	14.7	2	4.1	21.0	25.0	1753.	75.	11.9	0.944	0.944	59.	1043	0.0
1043.09	7.321	24.2	1.76	11.13	0.59	14.7	2	4.5	18.6	22.0	1819.	63.	13.2	0.957	0.957	52.	1044	0.0
1044.09	7.327	25.0	1.17	12.85	0.68	14.7	2	4.7	14.4	17.0	1857.	48.	14.7	0.969	0.969	42.	1045	0.0
1045.09	7.335	25.7	1.03	13.05	0.72	14.7	2	4.9	13.7	16.3	1906.	45.	15.0	0.970	0.970	40.	1046	0.0
1046.09	7.342	26.9	1.76	10.72	0.61	14.7	2	5.3	21.0	24.7	2009.	65.	12.9	0.963	0.963	52.	1047	0.0
1047.09	7.349	27.6	1.03	12.33	0.75	14.7	2	5.5	15.0	17.8	2047.	46.	14.7	0.970	0.970	40.	1048	0.0
1048.09	7.357	27.6	0.00	15.24	1.52	14.7	2	5.5	5.5	7.1	2050.	18.	20.8	0.970	0.970	24.	1049	0.0
1049.09	7.365	28.4	1.18	11.73	0.72	14.7	2	5.8	16.9	20.1	2110.	50.	14.2	0.970	0.970	43.	1050	0.0
1050.09	7.373	29.2	1.17	11.56	0.73	14.7	2	6.1	17.4	20.7	2169.	50.	14.1	0.970	0.970	42.	1051	0.0
1051.09	7.381	29.2	0.00	14.41	1.54	14.7	2	6.1	6.1	7.8	2169.	19.	19.7	0.970	0.970	24.	1052	0.0
1052.10	7.389	30.0	1.18	11.38	0.73	14.7	2	6.3	18.1	21.5	2228.	51.	14.0	0.970	0.970	43.	1053	0.0
1053.10	7.397	29.6	-0.58	16.28	6.92	14.7	2	6.2	0.5	1.6	2199.	4.	27.9	0.970	0.970	16.	1054	0.0
1054.10	7.406	29.6	0.00	14.23	1.55	14.7	2	6.2	6.2	8.0	2198.	19.	19.4	0.970	0.970	25.	1055	0.0
1055.10	7.414	28.8	-1.18	20.69	99.99	14.7	2	6.1	-5.2	-4.6	1958.	-12.	29.9	1.060	0.944	4.	1056	0.0
1056.10	7.422	28.0	-1.18	21.61	99.99	14.7	2	5.8	-5.2	-4.6	1894.	-13.	29.9	1.065	0.939	4.	1057	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1057.10	7.429	23.8	-6.16	27.46	99.99	14.7	2	6.0	-1.9	-3.7	1523.	-13.	29.9	1.126	0.888	0.	1058	626.3
1058.10	7.435	18.8	-7.33	33.71	99.99	14.7	2	4.7	2.1	-0.9	1014.	-5.	29.9	1.335	0.749	0.	1059	838.8
1059.10	7.439	11.9	-10.12	30.24	99.99	14.7	2	3.1	-0.2	-0.1	744.	-1.	29.9	1.152	0.868	0.	1060	1123.8
1060.10	7.442	6.1	-8.51	15.49	99.99	14.7	1	1.4	-0.2	-0.1	744.	-1.	29.9	1.067	0.937	0.	1061	954.9
1061.10	7.443	1.5	-6.75	3.79	99.99	14.7	1	0.3	0.0	-0.1	744.	-1.	29.9	0.261	0.261	0.	1062	747.8
1062.10	7.443	1.5	0.00	3.49	3.73	14.7	1	0.2	0.2	0.7	744.	5.	23.1	0.263	0.327	5.	1063	0.0
1063.10	7.444	4.2	3.97	3.27	0.87	14.7	1	0.5	6.1	8.8	873.	53.	11.2	0.620	0.829	51.	1064	0.0
1064.10	7.445	8.0	5.72	3.47	0.63	14.7	1	1.1	16.6	21.9	1300.	89.	6.7	0.803	0.901	75.	1065	0.0
1065.11	7.448	10.3	3.37	5.75	0.62	14.7	1	1.4	13.2	17.3	1437.	63.	12.0	0.934	0.934	54.	1066	0.0
1066.11	7.451	13.0	3.97	5.60	0.55	14.7	1	1.9	19.4	25.1	1783.	74.	12.0	0.951	0.951	59.	1067	0.0
1067.11	7.455	15.3	3.37	5.90	0.61	14.7	1	2.3	19.8	25.5	2060.	65.	12.9	0.968	0.968	52.	1068	0.0
1068.11	7.460	17.9	3.81	5.59	0.57	14.7	1	2.9	26.0	33.7	2405.	74.	12.2	0.970	0.970	55.	1069	0.0
1069.11	7.465	20.3	3.52	5.87	0.57	14.6	1	3.4	27.7	36.0	2728.	69.	12.8	0.970	0.970	52.	1070	0.0
1070.11	7.471	22.9	3.82	5.89	0.58	14.6	2	4.1	33.3	40.4	1810.	117.	4.7	0.912	0.912	86.	1071	0.0
1071.11	7.478	25.2	3.37	7.19	0.53	14.6	2	4.8	33.1	39.4	1946.	106.	7.4	0.933	0.933	78.	1072	0.0
1072.11	7.485	27.2	2.94	8.31	0.52	14.6	2	5.4	32.0	37.8	2069.	96.	9.4	0.948	0.948	70.	1073	0.0
1073.11	7.493	28.7	2.20	9.76	0.56	14.6	2	5.9	26.9	31.6	2151.	77.	11.8	0.962	0.962	58.	1074	0.0
1074.11	7.501	30.2	2.20	9.74	0.55	14.6	2	6.4	28.6	33.4	2256.	78.	11.8	0.965	0.965	58.	1075	0.0
1075.11	7.509	31.0	1.18	11.51	0.72	14.6	2	6.7	18.9	22.5	2303.	51.	14.1	0.970	0.970	43.	1076	0.0
1076.12	7.518	32.2	1.76	10.52	0.60	14.6	2	7.2	26.1	30.6	2393.	67.	12.8	0.970	0.970	52.	1077	0.0
1076.91	7.525	31.9	-0.58	16.70	5.25	14.6	2	7.1	0.9	2.2	2369.	5.	27.5	0.970	0.970	17.	1078	0.0
1077.91	7.534	32.3	0.58	13.04	0.90	14.6	2	7.2	13.4	16.4	2399.	36.	16.1	0.970	0.970	34.	1079	0.0
1078.91	7.543	31.9	-0.58	16.70	5.25	14.6	2	7.1	0.9	2.2	2369.	5.	27.5	0.970	0.970	17.	1080	0.0
1079.91	7.552	31.1	-1.18	18.63	99.99	14.6	2	6.9	-5.3	-4.6	2142.	-11.	29.9	1.046	0.956	7.	1081	0.0
1080.92	7.560	28.8	-3.37	20.69	99.99	14.6	2	6.9	-6.8	-7.3	1958.	-20.	29.9	1.060	0.944	0.	1082	235.6
1081.92	7.568	25.0	-5.58	26.83	99.99	14.6	2	6.3	-2.7	-4.5	1630.	-15.	29.9	1.105	0.905	0.	1083	545.6
1082.92	7.574	22.7	-3.37	28.26	99.99	14.6	2	4.8	-2.4	-3.0	1418.	-11.	29.9	1.153	0.867	0.	1084	292.8
1083.92	7.580	18.8	-5.72	33.70	99.99	14.6	2	4.3	1.3	-1.0	1015.	-5.	29.9	1.335	0.749	0.	1085	634.9
1084.92	7.585	15.4	-4.99	39.14	99.99	14.6	2	3.2	-0.3	-0.1	744.	-1.	29.9	1.491	0.671	0.	1086	522.0
1085.92	7.589	13.4	-2.94	34.05	99.99	14.6	2	2.4	-0.2	-0.1	744.	-1.	29.9	1.297	0.771	0.	1087	285.0
1086.92	7.592	11.9	-2.20	30.23	99.99	14.6	2	2.0	-0.2	-0.1	744.	-1.	29.9	1.151	0.868	0.	1088	200.0
1087.92	7.595	8.8	-4.55	22.34	99.99	14.6	1	1.6	-0.3	-0.1	744.	-1.	29.9	1.539	0.650	0.	1089	481.9
1088.92	7.597	5.0	-5.57	12.69	99.99	14.6	1	1.0	-0.2	-0.1	744.	-1.	29.9	0.874	0.874	0.	1090	605.7
1089.92	7.598	1.9	-4.55	4.80	99.99	14.6	1	0.3	-0.1	-0.1	744.	-1.	29.9	0.330	0.330	0.	1091	485.9
1090.93	7.599	2.3	0.58	4.77	1.79	14.6	1	0.3	0.7	1.6	744.	11.	14.1	0.400	0.508	12.	1092	0.0
1091.93	7.599	2.7	0.58	5.54	1.70	14.6	1	0.3	0.9	1.7	744.	12.	14.2	0.469	0.563	12.	1093	0.0
1092.93	7.600	3.5	1.18	6.51	1.17	14.6	1	0.4	1.8	2.7	744.	19.	14.8	0.610	0.727	20.	1094	0.0
1093.93	7.602	6.4	4.40	3.82	0.73	14.6	1	0.8	10.4	13.7	1089.	66.	9.4	0.764	0.894	60.	1095	0.0
1094.93	7.604	10.6	6.31	3.23	0.62	14.6	1	1.5	24.3	31.9	1554.	108.	4.8	0.892	0.897	84.	1096	0.0
1095.93	7.607	13.6	4.39	5.26	0.54	14.6	1	2.0	22.3	28.8	1868.	81.	11.3	0.951	0.951	63.	1097	0.0
1096.93	7.611	15.9	3.37	5.83	0.61	14.6	1	2.5	20.7	26.8	2139.	66.	12.8	0.970	0.970	52.	1098	0.0
1097.93	7.616	18.2	3.38	5.87	0.60	14.5	1	3.0	23.9	31.0	2449.	66.	12.9	0.970	0.970	51.	1099	0.0
1098.93	7.622	20.2	2.93	7.43	0.58	14.5	2	3.4	23.2	28.3	1600.	93.	8.3	0.911	0.911	73.	1100	0.0
1099.93	7.627	21.7	2.21	10.11	0.54	14.5	2	3.8	19.8	23.6	1667.	74.	12.0	0.939	0.939	60.	1101	0.0
1100.93	7.633	21.9	0.00	19.84	1.34	14.5	2	3.8	3.8	4.9	1626.	16.	23.5	0.970	0.970	21.	1102	0.0
1101.93	7.639	20.7	-1.76	29.88	99.99	14.5	2	3.9	-2.1	-2.0	1237.	-8.	29.9	1.206	0.829	0.	1103	108.7

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1102.94	7.645	17.3	-4.99	39.96	99.99	14.5	2	3.7	2.6	-0.3	809.	-2.	29.9	1.540	0.649	0.	1104	581.7
1103.94	7.649	13.1	-6.16	33.31	99.99	14.5	2	2.9	-0.2	-0.1	744.	-1.	29.9	1.269	0.788	0.	1105	660.8
1104.94	7.652	9.6	-5.13	24.41	99.99	14.5	2	1.9	-0.2	-0.1	744.	-1.	29.9	0.930	0.930	0.	1106	543.7
1105.94	7.655	8.8	-1.18	22.37	99.99	14.6	1	1.3	-0.3	-0.1	744.	-1.	29.9	1.541	0.649	0.	1107	81.0
1106.94	7.657	10.7	2.94	6.36	0.63	14.5	1	1.5	12.2	16.0	1476.	57.	13.1	0.945	0.945	49.	1108	0.0
1107.94	7.660	12.6	2.78	6.96	0.61	14.5	1	1.8	13.7	17.8	1708.	55.	14.2	0.961	0.961	46.	1109	0.0
1108.94	7.664	14.1	2.21	7.17	0.71	14.5	1	2.1	12.7	16.6	1895.	46.	14.9	0.970	0.970	40.	1110	0.0
1109.94	7.668	14.5	0.58	16.33	0.88	14.5	2	2.2	5.0	6.0	1104.	29.	16.9	0.946	0.946	29.	1111	0.0
1110.87	7.672	13.1	-2.20	33.31	99.99	14.5	2	2.2	-0.2	-0.1	744.	-1.	29.9	1.269	0.788	0.	1112	198.9
1111.87	7.675	11.1	-2.94	28.22	99.99	14.5	2	1.9	-0.2	-0.1	744.	-1.	29.9	1.075	0.931	0.	1113	287.0
1113.13	7.679	11.1	0.00	11.87	2.34	14.5	1	1.6	1.6	2.4	1491.	8.	25.1	0.970	0.970	15.	1114	0.0
1114.13	7.682	11.1	0.00	11.87	2.34	14.5	1	1.6	1.6	2.4	1491.	8.	25.1	0.970	0.970	15.	1115	0.0
1115.13	7.685	13.1	2.94	6.63	0.61	14.5	1	1.9	14.9	19.3	1768.	57.	13.8	0.962	0.962	48.	1116	0.0
1116.13	7.689	15.6	3.81	5.59	0.58	14.5	1	2.4	22.6	29.1	2111.	72.	12.2	0.966	0.966	56.	1117	0.0
1117.13	7.694	18.4	3.97	5.52	0.55	14.5	1	3.0	27.7	35.8	2466.	76.	11.9	0.970	0.970	56.	1118	0.0
1118.13	7.699	20.7	3.37	6.25	0.60	14.5	2	3.5	26.7	32.8	1647.	105.	6.2	0.904	0.904	80.	1119	0.0
1119.13	7.706	23.7	4.54	5.20	0.55	14.5	2	4.3	40.2	49.2	1890.	137.	2.0	0.904	0.904	97.	1120	0.0
1120.13	7.713	25.6	2.79	8.45	0.53	14.5	2	4.9	28.7	34.1	1955.	91.	9.8	0.944	0.944	68.	1121	0.0
1121.13	7.720	27.9	3.37	7.74	0.49	14.4	2	5.6	37.0	43.7	2130.	108.	8.1	0.945	0.945	77.	1122	0.0
1122.13	7.728	29.9	2.94	8.57	0.50	14.4	2	6.3	35.6	41.7	2253.	97.	9.8	0.957	0.957	69.	1123	0.0
1123.13	7.736	31.0	1.61	10.72	0.63	14.4	2	6.7	23.4	27.5	2304.	63.	13.1	0.970	0.970	49.	1124	0.0
1124.14	7.745	32.2	1.76	10.52	0.60	14.4	2	7.2	26.1	30.6	2393.	67.	12.8	0.970	0.970	52.	1125	0.0
1125.14	7.754	34.1	2.79	8.36	0.53	14.4	2	8.0	39.7	46.2	2545.	95.	9.8	0.966	0.966	66.	1126	0.0
1126.14	7.764	35.6	2.20	9.78	0.54	14.4	2	8.6	34.7	40.6	2646.	81.	11.4	0.970	0.970	58.	1127	0.0
1127.14	7.774	36.8	1.76	10.62	0.57	14.4	2	9.2	30.7	36.2	2735.	70.	12.8	0.970	0.970	52.	1128	0.0
1128.14	7.785	38.7	2.79	7.43	0.58	14.4	2	10.1	46.1	53.6	2876.	98.	9.1	0.970	0.970	65.	1129	0.0
1129.14	7.796	40.2	2.20	9.94	0.51	14.4	3	10.8	40.1	47.1	1999.	124.	5.1	0.924	0.924	88.	1130	0.0
1130.14	7.807	41.4	1.76	11.67	0.51	14.4	3	11.5	35.6	41.2	2026.	107.	7.7	0.939	0.939	77.	1131	0.0
1131.14	7.819	42.1	1.03	15.24	0.55	14.4	3	11.9	26.2	30.1	2023.	78.	11.7	0.956	0.956	60.	1132	0.0
1132.14	7.830	42.9	1.18	14.44	0.53	14.4	3	12.3	29.1	33.4	2067.	85.	10.9	0.953	0.953	63.	1133	0.0
1133.14	7.842	43.7	1.17	14.44	0.53	14.4	3	12.8	29.7	34.1	2101.	85.	10.9	0.955	0.955	63.	1134	0.0
1134.14	7.855	43.8	0.00	20.37	0.85	14.4	3	12.9	12.8	15.0	2072.	38.	15.3	0.970	0.970	36.	1135	0.0
1135.14	7.867	43.4	-0.58	24.70	1.87	14.4	3	12.6	4.3	5.6	2053.	14.	22.7	0.970	0.970	21.	1136	0.0
1136.15	7.879	43.0	-0.58	24.99	1.89	14.4	3	12.4	4.1	5.4	2035.	14.	23.0	0.970	0.970	21.	1137	0.0
1137.15	7.891	42.2	-1.18	36.29	99.99	14.4	3	12.1	-4.4	-3.7	1806.	-11.	29.9	1.073	0.932	4.	1138	0.0
1138.15	7.902	41.9	-0.44	24.59	1.44	14.4	3	11.8	5.7	7.1	1983.	19.	21.0	0.970	0.970	24.	1139	0.0
1139.15	7.914	41.5	-0.59	26.28	2.04	14.4	3	11.5	3.4	4.6	1964.	12.	24.1	0.970	0.970	20.	1140	0.0
1140.15	7.925	41.9	0.59	17.45	0.63	14.4	3	11.8	19.9	22.9	1994.	60.	13.4	0.964	0.964	49.	1141	0.0
1141.15	7.937	41.9	0.00	21.45	0.85	14.4	3	11.8	11.8	13.8	1982.	36.	15.6	0.970	0.970	34.	1142	0.0
1142.15	7.949	41.9	0.00	21.45	0.85	14.4	3	11.8	11.8	13.8	1982.	36.	15.6	0.970	0.970	34.	1143	0.0
1143.15	7.960	42.2	0.44	18.29	0.67	14.4	3	11.9	18.1	20.7	2000.	54.	13.9	0.968	0.968	45.	1144	0.0
1144.15	7.972	42.6	0.58	17.34	0.63	14.4	3	12.2	20.3	23.3	2025.	60.	13.3	0.965	0.965	49.	1145	0.0
1145.15	7.984	42.6	0.00	21.02	0.85	14.5	3	12.2	12.1	14.2	2015.	37.	15.5	0.970	0.970	35.	1146	0.0
1146.15	7.996	42.6	0.00	21.02	0.85	14.5	3	12.2	12.1	14.2	2015.	37.	15.5	0.970	0.970	35.	1147	0.0
1147.15	8.008	42.6	0.00	21.02	0.85	14.5	3	12.2	12.1	14.2	2015.	37.	15.5	0.970	0.970	35.	1148	0.0
1148.15	8.019	42.6	0.00	21.02	0.85	14.5	3	12.2	12.1	14.2	2015.	37.	15.5	0.970	0.970	35.	1149	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1149.15	8.031	42.6	0.00	21.02	0.85	14.5	3	12.2	12.1	14.2	2015.	37.	15.5	0.970	0.970	35.	1150	0.0
1150.15	8.043	42.6	0.00	21.02	0.85	14.5	3	12.2	12.1	14.2	2015.	37.	15.5	0.970	0.970	35.	1151	0.0
1151.15	8.055	42.2	-0.58	25.62	1.94	14.5	3	11.9	3.8	5.1	1996.	13.	23.5	0.970	0.970	20.	1152	0.0
1152.15	8.067	43.0	1.18	14.44	0.53	14.5	3	12.4	29.1	33.4	2068.	85.	10.9	0.953	0.953	63.	1153	0.0
1153.15	8.079	43.4	0.58	17.17	0.63	14.5	3	12.6	20.9	23.9	2060.	61.	13.2	0.966	0.966	49.	1154	0.0
1154.06	8.090	43.0	-0.58	25.00	1.89	14.5	3	12.4	4.1	5.4	2034.	14.	23.0	0.970	0.970	21.	1155	0.0
1155.06	8.102	42.6	-0.59	25.40	1.96	14.5	3	12.2	3.8	5.1	2015.	13.	23.4	0.970	0.970	20.	1156	0.0
1156.07	8.113	41.9	-1.02	36.91	99.99	14.5	3	11.8	-2.3	-1.7	1787.	-5.	29.9	1.076	0.929	8.	1157	0.0
1157.07	8.125	40.7	-1.76	39.64	99.99	14.5	3	11.6	-5.7	-5.2	1715.	-16.	29.9	1.089	0.918	0.	1158	57.5
1158.07	8.136	36.9	-5.58	43.38	99.99	14.6	3	11.4	-2.8	-3.5	1497.	-12.	29.9	1.132	0.884	0.	1159	532.5
1159.07	8.145	32.6	-6.31	46.84	99.99	14.6	3	9.6	-1.2	-2.0	1242.	-8.	29.9	1.204	0.830	0.	1160	639.7
1160.07	8.154	28.0	-6.75	57.42	99.99	14.6	3	7.8	2.1	-0.5	899.	-3.	29.9	1.429	0.700	0.	1161	739.4
1161.07	8.161	23.4	-6.75	59.48	99.99	14.6	3	6.1	-0.3	-0.1	744.	-1.	29.9	1.443	0.693	0.	1162	714.9
1162.07	8.167	18.4	-7.33	46.77	99.99	14.6	3	4.6	-0.2	-0.1	744.	-1.	29.9	1.135	0.881	0.	1163	788.7
1163.07	8.171	14.6	-5.58	37.10	99.99	14.6	3	3.1	-0.2	-0.1	744.	-1.	29.9	0.900	0.900	0.	1164	590.1
1164.07	8.175	12.3	-3.37	31.26	99.99	14.6	2	2.2	-0.2	-0.1	744.	-1.	29.9	1.190	0.840	0.	1165	336.1
1165.07	8.178	9.2	-4.55	23.37	99.99	14.6	1	1.7	0.4	-0.1	744.	-1.	29.9	1.610	0.621	0.	1166	509.7
1166.07	8.180	5.8	-4.99	14.71	99.99	14.6	1	1.1	-0.2	-0.1	744.	-1.	29.9	1.014	0.986	0.	1167	536.3
1167.07	8.181	1.9	-5.72	4.80	99.99	14.6	1	0.4	-0.1	-0.1	744.	-1.	29.9	0.330	0.330	0.	1168	625.1
1168.08	8.181	0.4	-2.21	0.97	99.99	14.6	1	0.1	0.0	-0.1	744.	-1.	29.9	0.066	0.066	0.	1169	208.1
1168.99	8.181	0.0	-2.61	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1170	14.3
1169.99	8.181	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1171	0.0
1170.99	8.181	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1172	0.0
1171.99	8.181	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1173	0.0
1172.99	8.181	0.0	0.00	0.00	24.57	14.6	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1174	0.0
1173.99	8.181	0.4	0.58	0.87	2.36	14.6	1	0.0	0.1	1.2	744.	8.	18.4	0.069	0.125	9.	1175	0.0
1174.99	8.182	4.1	5.58	2.44	0.78	14.6	1	0.5	8.3	12.9	967.	70.	7.8	0.555	0.782	65.	1176	0.0
1175.99	8.184	9.1	7.33	2.74	0.63	14.6	1	1.2	23.8	31.4	1468.	112.	3.3	0.806	0.901	89.	1177	0.0
1176.99	8.187	11.8	3.97	5.54	0.55	14.6	1	1.7	17.6	23.0	1630.	74.	11.7	0.942	0.942	60.	1178	0.0
1177.99	8.190	14.1	3.37	6.02	0.59	14.5	1	2.1	18.2	23.5	1906.	65.	13.0	0.963	0.963	52.	1179	0.0
1179.00	8.194	15.6	2.20	6.70	0.76	14.5	1	2.4	14.0	18.4	2093.	46.	14.5	0.970	0.970	40.	1180	0.0
1179.83	8.198	15.0	-1.02	38.15	99.99	14.5	2	2.4	-0.3	-0.1	744.	-1.	29.9	1.453	0.688	0.	1181	59.4
1180.83	8.202	14.2	-1.18	36.10	99.99	14.5	2	2.2	-0.3	-0.1	744.	-1.	29.9	1.375	0.727	0.	1182	78.9
1181.83	8.206	13.4	-1.18	34.05	99.99	14.5	2	2.1	-0.2	-0.1	744.	-1.	29.9	1.297	0.771	0.	1183	79.7
1182.83	8.210	13.6	0.58	9.49	1.32	14.5	1	2.0	4.7	6.5	1823.	19.	22.0	0.970	0.970	23.	1184	0.0
1183.84	8.213	14.4	1.18	8.19	0.99	14.5	1	2.2	7.9	10.6	1931.	29.	17.5	0.970	0.970	30.	1185	0.0
1185.09	8.219	14.6	0.00	20.40	1.58	14.5	2	2.2	2.2	2.7	1084.	13.	18.2	0.970	0.970	16.	1186	0.0
1186.09	8.223	14.2	-0.58	36.12	99.99	14.5	2	2.1	-0.3	-0.1	744.	-1.	29.9	1.376	0.727	0.	1187	8.9
1187.09	8.227	15.1	2.78	6.36	0.66	14.5	1	2.3	16.5	21.4	2023.	56.	13.8	0.970	0.970	46.	1188	0.0
1188.34	8.232	15.7	0.00	20.30	1.54	14.5	2	2.4	2.4	3.0	1166.	14.	19.1	0.970	0.970	17.	1189	0.0
1189.34	8.236	15.7	0.00	20.30	1.54	14.5	2	2.4	2.4	3.0	1166.	14.	19.1	0.970	0.970	17.	1190	0.0
1190.34	8.241	14.6	-1.61	37.13	99.99	14.5	2	2.4	-0.3	-0.1	744.	-1.	29.9	1.414	0.707	0.	1191	128.6
1191.34	8.244	13.1	-2.20	33.32	99.99	14.5	2	2.2	-0.2	-0.1	744.	-1.	29.9	1.269	0.788	0.	1192	198.9
1192.34	8.248	10.0	-4.55	25.43	99.99	14.5	2	1.9	-0.2	-0.1	744.	-1.	29.9	0.969	0.969	0.	1193	475.7
1193.34	8.250	7.3	-3.96	18.56	99.99	14.5	1	1.3	-0.2	-0.1	744.	-1.	29.9	1.279	0.782	0.	1194	412.8
1194.34	8.252	3.5	-5.58	8.89	99.99	14.5	1	0.7	-0.1	-0.1	744.	-1.	29.9	0.612	0.612	0.	1195	607.7

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1195.34	8.252	0.8	-3.96	2.02	99.99	14.5	1	0.1	0.0	-0.1	744.	-1.	29.9	0.139	0.139	0.	1196	416.1
1196.33	8.252	0.0	-1.18	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1197	85.6
1197.33	8.252	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1198	0.0
1198.33	8.252	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1199	0.0
1199.33	8.252	0.0	0.00	0.00	24.57	14.5	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1200	0.0
1200.34	8.252	0.4	0.58	0.87	2.36	14.5	1	0.0	0.1	1.2	744.	8.	18.4	0.069	0.125	9.	1201	0.0
1201.34	8.253	2.7	3.37	3.11	1.00	14.5	1	0.3	3.4	5.2	744.	37.	14.6	0.471	0.699	36.	1202	0.0
1202.34	8.254	7.1	6.75	2.85	0.64	14.5	1	0.9	17.2	23.3	1273.	96.	5.0	0.726	0.883	81.	1203	0.0
1203.34	8.257	11.3	6.15	3.27	0.61	14.5	1	1.6	25.2	33.6	1624.	109.	5.2	0.906	0.906	83.	1204	0.0
1204.34	8.260	15.2	5.72	4.37	0.51	14.5	1	2.3	31.8	41.1	2085.	103.	8.5	0.949	0.949	74.	1205	0.0
1205.34	8.265	19.0	5.57	4.31	0.53	14.5	1	3.1	39.0	49.8	2559.	102.	9.0	0.967	0.967	70.	1206	0.0
1206.34	8.271	21.7	3.97	5.34	0.61	14.4	2	3.8	32.5	40.0	1738.	121.	3.5	0.900	0.900	90.	1207	0.0
1207.34	8.277	23.6	2.78	8.34	0.54	14.4	2	4.3	26.1	31.1	1815.	90.	9.8	0.936	0.936	69.	1208	0.0
1208.34	8.284	24.8	1.76	11.01	0.59	14.4	2	4.6	19.2	22.6	1863.	64.	13.1	0.959	0.959	52.	1209	0.0
1209.34	8.291	25.9	1.61	11.23	0.62	14.4	2	5.0	18.8	22.2	1936.	60.	13.4	0.963	0.963	49.	1210	0.0
1210.34	8.298	27.1	1.77	10.68	0.60	14.4	2	5.3	21.3	25.1	2026.	65.	12.9	0.964	0.964	52.	1211	0.0
1211.35	8.306	28.6	2.20	9.77	0.56	14.4	2	5.8	26.8	31.4	2143.	77.	11.8	0.962	0.962	58.	1212	0.0
1212.35	8.314	29.8	1.76	10.43	0.61	14.4	2	6.3	23.7	27.8	2214.	66.	12.7	0.970	0.970	52.	1213	0.0
1212.84	8.318	29.6	-0.58	16.29	6.93	14.4	2	6.2	0.5	1.6	2198.	4.	27.9	0.970	0.970	16.	1214	0.0
1213.84	8.326	29.6	0.00	14.23	1.55	14.4	2	6.2	6.2	8.0	2198.	19.	19.4	0.970	0.970	25.	1215	0.0
1214.84	8.334	28.8	-1.18	20.69	99.99	14.4	2	6.1	-5.2	-4.6	1958.	-12.	29.9	1.060	0.944	4.	1216	0.0
1215.84	8.342	26.1	-3.97	24.85	99.99	14.4	2	6.1	-4.2	-5.3	1730.	-16.	29.9	1.086	0.921	0.	1217	336.7
1216.84	8.349	22.3	-5.57	28.58	99.99	14.4	2	5.3	-1.1	-2.8	1380.	-11.	29.9	1.164	0.859	0.	1218	570.1
1217.84	8.354	19.2	-4.55	32.75	99.99	14.4	2	4.1	0.6	-1.1	1061.	-6.	29.9	1.303	0.767	0.	1219	484.7
1218.85	8.359	16.5	-3.96	41.93	99.99	14.4	2	3.3	-0.3	-0.1	744.	-1.	29.9	1.597	0.626	0.	1220	400.7
1219.85	8.363	12.7	-5.58	32.26	99.99	14.4	2	2.7	-0.2	-0.1	744.	-1.	29.9	1.228	0.814	0.	1221	593.5
1220.85	8.367	9.6	-4.54	21.92	99.99	14.4	1	1.8	-1.5	-0.3	817.	-2.	29.9	1.531	0.653	0.	1222	435.5
1221.85	8.369	6.9	-3.97	17.50	99.99	14.4	1	1.2	-0.2	-0.1	744.	-1.	29.9	1.206	0.829	0.	1223	414.2
1222.85	8.370	4.2	-3.96	10.63	99.99	14.4	1	0.7	-0.1	-0.1	744.	-1.	29.9	0.733	0.733	0.	1224	414.6
1223.85	8.371	2.3	-2.79	5.80	99.99	14.4	1	0.4	-0.1	-0.1	744.	-1.	29.9	0.399	0.399	0.	1225	276.3
1224.85	8.372	0.8	-2.20	1.98	99.99	14.4	1	0.1	0.0	-0.1	744.	-1.	29.9	0.137	0.137	0.	1226	206.7
1225.82	8.372	0.0	-1.18	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1227	85.6
1226.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1228	0.0
1227.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1229	0.0
1228.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1230	0.0
1229.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1231	0.0
1230.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1232	0.0
1231.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1233	0.0
1232.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1234	0.0
1233.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1235	0.0
1234.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1236	0.0
1235.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1237	0.0
1236.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1238	0.0
1237.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1239	0.0
1238.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1240	0.0
1239.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1241	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1240.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1242	0.0
1241.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1243	0.0
1242.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1244	0.0
1243.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1245	0.0
1244.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1246	0.0
1245.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1247	0.0
1246.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1248	0.0
1247.82	8.372	0.0	0.00	0.00	24.57	14.4	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1249	0.0
1248.82	8.372	3.4	5.13	2.35	0.85	14.4	1	0.4	6.4	10.2	885.	61.	9.4	0.501	0.735	58.	1250	0.0
1249.82	8.374	9.5	8.98	2.16	0.67	14.4	1	1.3	30.2	39.4	1571.	132.	0.0	0.786	0.899	100.	1251	0.0
1250.82	8.377	14.5	7.34	3.46	0.50	14.3	1	2.2	38.3	49.9	2028.	129.	4.6	0.931	0.931	90.	1252	0.0
1251.82	8.382	16.4	2.79	7.52	0.60	14.3	2	2.6	17.8	21.7	1372.	83.	8.4	0.860	0.904	69.	1253	0.0
1252.82	8.386	17.3	0.00	20.17	1.48	14.3	2	2.7	2.7	3.5	1285.	14.	20.4	0.970	0.970	18.	1254	0.0
1253.82	8.391	18.4	1.61	11.06	0.64	14.3	2	3.0	12.8	15.4	1418.	57.	12.8	0.933	0.933	50.	1255	0.0
1254.83	8.397	21.3	4.54	4.77	0.61	14.3	2	3.7	35.8	43.5	1749.	131.	1.7	0.876	0.903	96.	1256	0.0
1255.83	8.403	24.4	4.55	5.38	0.54	14.3	2	4.5	41.4	50.5	1932.	137.	2.4	0.909	0.909	97.	1257	0.0
1256.83	8.410	27.1	3.97	6.80	0.49	14.3	2	5.3	41.1	49.0	2091.	123.	6.0	0.933	0.933	86.	1258	0.0
1257.83	8.418	29.8	3.96	7.17	0.46	14.3	2	6.3	45.5	53.8	2273.	124.	6.8	0.944	0.944	84.	1259	0.0
1258.83	8.427	31.3	2.20	9.77	0.55	14.2	2	6.8	29.7	34.7	2330.	78.	11.7	0.967	0.967	58.	1260	0.0
1259.83	8.435	31.7	0.59	12.90	0.91	14.2	2	7.0	13.2	16.0	2352.	36.	15.9	0.970	0.970	34.	1261	0.0
1260.83	8.444	32.4	1.02	12.01	0.74	14.2	2	7.2	18.2	21.8	2404.	48.	14.6	0.970	0.970	41.	1262	0.0
1261.83	8.453	33.2	1.18	11.73	0.69	14.2	2	7.6	20.6	24.5	2464.	52.	14.3	0.970	0.970	43.	1263	0.0
1262.83	8.463	34.7	2.20	9.79	0.54	14.2	2	8.2	33.6	39.3	2575.	80.	11.5	0.970	0.970	58.	1264	0.0
1263.83	8.473	36.3	2.35	9.40	0.53	14.2	2	8.9	37.3	43.6	2694.	85.	10.9	0.970	0.970	60.	1265	0.0
1264.83	8.483	37.4	1.61	11.87	0.55	14.2	3	9.4	29.3	34.3	1847.	98.	8.5	0.929	0.929	73.	1266	0.0
1265.84	8.494	39.0	2.34	9.24	0.53	14.2	3	10.2	40.4	47.6	1952.	128.	4.0	0.916	0.916	91.	1267	0.0
1266.84	8.504	40.1	1.61	12.14	0.53	14.2	3	10.8	32.1	37.2	1958.	100.	8.5	0.939	0.939	73.	1268	0.0
1267.84	8.516	40.5	0.59	17.82	0.63	14.2	3	11.0	18.9	21.7	1929.	59.	13.5	0.963	0.963	48.	1269	0.0
1268.84	8.527	40.9	0.58	17.78	0.63	14.2	3	11.2	19.0	21.8	1946.	59.	13.5	0.964	0.964	48.	1270	0.0
1269.24	8.531	40.7	-0.58	26.91	2.04	14.2	3	11.1	3.3	4.4	1925.	12.	24.4	0.970	0.970	19.	1271	0.0
1270.24	8.543	40.7	0.00	22.21	0.84	14.2	3	11.1	11.1	13.0	1925.	35.	16.0	0.970	0.970	34.	1272	0.0
1271.24	8.554	40.7	0.00	22.21	0.84	14.2	3	11.1	11.1	13.0	1925.	35.	16.0	0.970	0.970	34.	1273	0.0
1272.24	8.565	41.5	1.17	14.63	0.53	14.2	3	11.5	27.6	31.7	2002.	83.	11.1	0.951	0.951	63.	1274	0.0
1273.24	8.577	42.6	1.61	12.40	0.51	14.2	3	12.1	34.8	40.2	2071.	102.	8.6	0.944	0.944	74.	1275	0.0
1274.24	8.589	43.0	0.59	17.20	0.63	14.2	3	12.4	20.8	23.8	2043.	61.	13.2	0.966	0.966	49.	1276	0.0
1275.24	8.601	44.4	2.20	11.02	0.46	14.2	3	13.2	45.6	52.8	2180.	127.	6.2	0.936	0.936	87.	1277	0.0
1276.24	8.614	45.2	1.18	14.32	0.53	14.2	3	13.7	31.4	35.9	2168.	87.	10.8	0.958	0.958	64.	1278	0.0
1277.24	8.626	45.3	0.00	19.66	0.86	14.2	3	13.8	13.8	16.1	2143.	39.	15.0	0.970	0.970	36.	1279	0.0
1278.24	8.639	44.9	-0.59	23.76	1.82	14.2	3	13.5	4.7	6.2	2124.	15.	21.9	0.970	0.970	22.	1280	0.0
1279.24	8.651	43.4	-2.20	34.61	99.99	14.2	3	13.3	-7.0	-6.5	1866.	-18.	29.9	1.067	0.937	0.	1281	94.9
1280.24	8.663	40.3	-4.55	40.67	99.99	14.3	3	12.8	-4.6	-5.0	1691.	-15.	29.9	1.094	0.914	0.	1282	391.8
1281.25	8.674	38.0	-3.37	42.77	99.99	14.3	3	10.9	-4.0	-4.0	1559.	-13.	29.9	1.119	0.894	0.	1283	262.6
1282.25	8.684	36.1	-2.79	44.01	99.99	14.3	3	9.7	-3.3	-3.2	1447.	-12.	29.9	1.145	0.873	0.	1284	204.2
1283.25	8.694	36.5	0.59	19.16	0.61	14.3	3	9.0	16.1	18.6	1747.	56.	14.0	0.958	0.958	47.	1285	0.0
1284.25	8.704	37.9	2.20	9.41	0.55	14.3	3	9.7	37.3	44.0	1900.	122.	4.6	0.916	0.916	88.	1286	0.0
1285.25	8.715	39.1	1.76	11.31	0.54	14.3	3	10.3	33.1	38.6	1930.	105.	7.6	0.930	0.930	77.	1287	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1286.25	8.726	40.6	2.21	10.01	0.51	14.3	3	11.1	40.8	47.8	2017.	124.	5.2	0.924	0.924	88.	1288	0.0
1287.25	8.737	42.1	2.20	10.41	0.49	14.3	3	11.9	42.6	49.7	2083.	125.	5.6	0.928	0.928	87.	1289	0.0
1288.25	8.749	43.3	1.76	11.97	0.50	14.3	3	12.6	37.8	43.6	2110.	109.	8.0	0.942	0.942	77.	1290	0.0
1289.25	8.762	44.8	2.20	11.13	0.45	14.2	3	13.5	46.1	53.3	2196.	127.	6.3	0.937	0.937	87.	1291	0.0
1290.25	8.774	45.6	1.18	14.31	0.52	14.2	3	14.0	31.8	36.3	2186.	87.	10.8	0.958	0.958	64.	1292	0.0
1291.25	8.787	46.0	0.58	16.66	0.63	14.3	3	14.2	23.1	26.3	2180.	63.	13.0	0.969	0.969	50.	1293	0.0
1292.26	8.800	46.7	1.03	14.84	0.54	14.3	3	14.7	30.6	34.9	2231.	82.	11.4	0.961	0.961	61.	1294	0.0
1293.02	8.810	46.5	-0.44	21.68	1.34	14.3	3	14.5	7.8	9.5	2200.	23.	17.5	0.970	0.970	27.	1295	0.0
1294.02	8.823	46.5	0.00	19.16	0.85	14.3	3	14.5	14.5	17.0	2200.	41.	14.8	0.970	0.970	37.	1296	0.0
1295.02	8.835	46.5	0.00	19.16	0.85	14.3	3	14.5	14.5	17.0	2200.	41.	14.8	0.970	0.970	37.	1297	0.0
1296.02	8.848	46.1	-0.59	23.01	1.76	14.3	3	14.3	5.3	6.8	2181.	16.	21.1	0.970	0.970	23.	1298	0.0
1297.02	8.861	46.1	0.00	19.32	0.86	14.3	3	14.3	14.3	16.7	2181.	40.	14.9	0.970	0.970	37.	1299	0.0
1298.02	8.874	46.1	0.00	19.32	0.86	14.3	3	14.3	14.3	16.7	2181.	40.	14.9	0.970	0.970	37.	1300	0.0
1299.02	8.887	46.8	1.03	14.84	0.54	14.3	3	14.7	30.7	35.0	2234.	82.	11.4	0.961	0.961	61.	1301	0.0
1300.02	8.900	47.6	1.18	14.17	0.52	14.3	3	15.3	33.9	38.6	2276.	89.	10.6	0.960	0.960	64.	1302	0.0
1301.02	8.913	48.0	0.58	16.50	0.62	14.3	3	15.5	24.7	28.2	2270.	65.	12.8	0.970	0.970	51.	1303	0.0
1302.02	8.927	48.4	0.59	16.46	0.61	14.3	3	15.8	25.3	28.8	2289.	66.	12.8	0.970	0.970	51.	1304	0.0
1303.03	8.940	48.0	-0.59	22.64	1.62	14.3	3	15.5	6.1	7.8	2270.	18.	20.2	0.970	0.970	24.	1305	0.0
1304.03	8.953	48.0	0.00	19.08	0.83	14.3	3	15.5	15.5	18.1	2271.	42.	14.8	0.970	0.970	38.	1306	0.0
1305.03	8.967	47.2	-1.18	30.54	99.99	14.3	3	15.1	-3.3	-2.5	2060.	-6.	29.9	1.052	0.951	9.	1307	0.0
1306.03	8.980	46.5	-1.02	31.18	99.99	14.3	3	14.6	-1.2	-0.3	2024.	-1.	29.9	1.054	0.948	12.	1308	0.0
1307.03	8.993	46.8	0.44	17.08	0.66	14.3	3	14.7	21.5	24.7	2213.	59.	13.3	0.970	0.970	47.	1309	0.0
1308.03	9.006	47.2	0.58	16.51	0.62	14.3	3	15.0	24.0	27.4	2232.	64.	12.9	0.970	0.970	51.	1310	0.0
1309.03	9.019	48.4	1.77	11.73	0.49	14.3	3	15.8	44.1	50.5	2336.	114.	7.9	0.950	0.950	78.	1311	0.0
1310.03	9.032	48.4	0.00	19.11	0.82	14.3	3	15.8	15.8	18.4	2290.	42.	14.8	0.970	0.970	38.	1312	0.0
1311.03	9.046	48.8	0.58	16.50	0.61	14.3	3	16.1	25.4	29.0	2308.	66.	12.8	0.970	0.970	51.	1313	0.0
1312.03	9.059	48.4	-0.58	22.61	1.55	14.3	3	15.8	6.5	8.2	2290.	19.	20.0	0.970	0.970	25.	1314	0.0
1313.03	9.073	47.6	-1.18	30.19	99.99	14.4	3	15.4	-3.2	-2.4	2081.	-6.	29.9	1.050	0.953	9.	1315	0.0
1314.03	9.086	46.5	-1.61	31.18	99.99	14.4	3	14.9	-8.7	-7.9	2024.	-21.	29.9	1.054	0.948	0.	1316	9.5
1315.04	9.098	44.2	-3.37	33.62	99.99	14.4	3	14.4	-7.0	-6.8	1907.	-19.	29.9	1.064	0.940	0.	1317	229.8
1316.04	9.110	42.2	-2.94	36.31	99.99	14.4	3	13.0	-6.0	-5.9	1805.	-17.	29.9	1.073	0.932	0.	1318	190.0
1317.04	9.122	41.5	-1.03	37.79	99.99	14.4	3	11.6	-2.5	-1.9	1762.	-6.	29.9	1.081	0.925	7.	1319	0.0
1318.04	9.133	41.1	-0.58	26.53	2.01	14.4	3	11.3	3.4	4.6	1945.	12.	24.1	0.970	0.970	20.	1320	0.0
1319.04	9.145	40.7	-0.58	26.89	2.03	14.4	3	11.1	3.3	4.4	1926.	12.	24.4	0.970	0.970	19.	1321	0.0
1320.04	9.156	40.3	-0.59	27.37	2.13	14.4	3	10.9	3.0	4.1	1907.	11.	24.8	0.970	0.970	19.	1322	0.0
1321.04	9.167	39.6	-1.02	41.93	99.99	14.4	3	10.6	-2.8	-2.1	1652.	-7.	29.9	1.101	0.908	6.	1323	0.0
1322.04	9.178	39.2	-0.59	28.47	2.21	14.4	3	10.3	2.7	3.7	1856.	11.	25.3	0.970	0.970	18.	1324	0.0
1323.04	9.189	38.8	-0.58	28.79	2.17	14.5	3	10.1	2.7	3.7	1838.	11.	25.4	0.970	0.970	18.	1325	0.0
1324.04	9.200	38.0	-1.18	42.74	99.99	14.5	3	9.9	-4.7	-4.0	1562.	-13.	29.9	1.118	0.894	0.	1326	1.9
1325.05	9.210	37.7	-0.58	30.20	2.27	14.5	3	9.6	2.3	3.3	1782.	10.	25.9	0.970	0.970	17.	1327	0.0
1326.05	9.221	37.3	-0.59	30.85	2.40	14.5	3	9.4	2.1	3.0	1763.	9.	26.3	0.970	0.970	17.	1328	0.0
1327.05	9.231	36.6	-1.02	43.64	99.99	14.5	3	9.2	-3.2	-2.6	1476.	-9.	29.9	1.137	0.879	2.	1329	0.0
1328.05	9.241	34.7	-2.79	45.14	99.99	14.5	3	9.1	-2.8	-2.7	1361.	-10.	29.9	1.169	0.855	0.	1330	211.3
1329.05	9.250	31.6	-4.55	48.04	99.99	14.5	3	8.5	-0.6	-1.7	1178.	-7.	29.9	1.230	0.813	0.	1331	443.4
1330.05	9.258	29.7	-2.78	52.52	99.99	14.5	3	7.0	-0.8	-1.0	1026.	-5.	29.9	1.327	0.754	0.	1332	239.6
1331.05	9.267	29.3	-0.59	35.90	5.62	14.5	3	6.1	0.4	0.9	1385.	3.	27.6	0.970	0.970	10.	1333	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1332.05	9.275	28.9	-0.58	35.86	5.40	14.5	3	5.9	0.4	0.9	1367.	3.	27.5	0.970	0.970	10.	1334	0.0
1333.05	9.283	28.8	0.00	27.78	0.89	14.5	3	5.9	5.9	7.0	1366.	27.	18.5	0.967	0.967	28.	1335	0.0
1334.05	9.291	28.0	-1.18	57.41	99.99	14.5	3	5.8	-0.5	-0.5	899.	-3.	29.9	1.429	0.700	0.	1336	60.5
1335.05	9.298	28.0	0.00	27.89	0.90	14.6	3	5.6	5.6	6.6	1330.	26.	18.4	0.966	0.966	27.	1337	0.0
1336.05	9.306	28.4	0.59	18.96	0.67	14.6	3	5.8	11.3	13.3	1387.	50.	13.7	0.940	0.940	45.	1338	0.0
1337.06	9.314	29.6	1.76	10.54	0.60	14.6	3	6.2	23.4	28.1	1529.	97.	7.0	0.887	0.900	77.	1339	0.0
1338.06	9.322	30.0	0.58	19.33	0.66	14.6	3	6.3	12.1	14.1	1457.	51.	13.9	0.944	0.944	45.	1340	0.0
1339.06	9.331	30.3	0.44	21.04	0.68	14.6	3	6.4	10.8	12.7	1461.	45.	14.7	0.950	0.950	41.	1341	0.0
1340.06	9.339	29.2	-1.61	53.78	99.99	14.6	3	6.4	-1.0	-0.9	989.	-5.	29.9	1.353	0.739	0.	1342	101.9
1341.06	9.347	26.5	-3.96	67.27	99.99	14.6	3	6.3	0.9	-0.1	744.	-1.	29.9	1.632	0.613	0.	1343	404.1
1342.06	9.354	25.3	-1.76	64.22	99.99	14.6	3	5.1	-0.3	-0.1	744.	-1.	29.9	1.558	0.642	0.	1344	133.7
1342.93	9.360	25.0	-0.45	34.88	3.07	14.6	3	4.7	1.0	1.4	1183.	6.	24.2	0.970	0.970	11.	1345	0.0
1343.94	9.367	24.6	-0.58	62.57	99.99	14.6	3	4.6	-0.1	0.0	744.	0.	29.9	1.518	0.659	1.	1346	0.0
1344.94	9.374	24.6	0.00	28.13	0.97	14.6	3	4.6	4.6	5.4	1176.	24.	17.9	0.960	0.960	25.	1347	0.0
1345.94	9.381	25.3	1.03	14.22	0.65	14.6	3	4.8	13.4	16.2	1291.	66.	10.6	0.899	0.899	58.	1348	0.0
1346.94	9.388	26.1	1.17	13.51	0.63	14.6	3	5.0	15.1	18.3	1335.	72.	9.9	0.896	0.896	62.	1349	0.0
1347.94	9.395	27.3	1.77	10.65	0.60	14.6	3	5.4	21.4	25.6	1457.	92.	7.3	0.859	0.904	75.	1350	0.0
1348.94	9.403	28.4	1.61	11.45	0.59	14.6	3	5.8	20.9	25.1	1470.	90.	7.9	0.885	0.901	73.	1351	0.0
1349.94	9.411	29.2	1.17	14.31	0.59	14.6	3	6.0	17.3	20.7	1464.	74.	10.5	0.914	0.914	62.	1352	0.0
1350.94	9.419	29.2	0.00	27.71	0.88	14.6	3	6.1	6.1	7.1	1384.	27.	18.5	0.968	0.968	28.	1353	0.0
1351.94	9.427	29.6	0.59	19.16	0.66	14.6	3	6.2	12.0	14.0	1441.	51.	13.8	0.943	0.943	45.	1354	0.0
1352.94	9.436	30.0	0.58	19.34	0.65	14.6	3	6.3	12.1	14.1	1458.	51.	13.9	0.944	0.944	45.	1355	0.0
1353.94	9.444	31.1	1.61	11.45	0.58	14.6	3	6.7	23.3	27.9	1576.	93.	8.1	0.905	0.905	73.	1356	0.0
1354.94	9.453	32.6	2.20	8.42	0.62	14.6	3	7.3	31.0	37.2	1682.	116.	4.1	0.888	0.899	87.	1357	0.0
1355.94	9.462	33.8	1.76	10.60	0.58	14.6	3	7.8	27.5	32.7	1699.	101.	7.3	0.912	0.912	77.	1358	0.0
1356.95	9.472	34.6	1.18	15.18	0.54	14.6	3	8.1	21.6	25.3	1697.	78.	11.5	0.935	0.935	62.	1359	0.0
1357.95	9.481	34.9	0.44	21.57	0.63	14.6	3	8.3	13.3	15.5	1667.	49.	15.0	0.960	0.960	42.	1360	0.0
1358.81	9.489	34.6	-0.44	32.07	1.59	14.6	3	8.2	3.1	4.1	1637.	13.	24.7	0.970	0.970	19.	1361	0.0
1359.81	9.499	34.9	0.44	21.55	0.63	14.6	3	8.3	13.4	15.5	1668.	49.	14.9	0.960	0.960	43.	1362	0.0
1360.81	9.509	34.6	-0.44	32.07	1.59	14.6	3	8.2	3.1	4.1	1636.	13.	24.7	0.970	0.970	19.	1363	0.0
1361.81	9.518	34.9	0.44	21.55	0.63	14.6	3	8.3	13.4	15.5	1668.	49.	14.9	0.960	0.960	43.	1364	0.0
1362.81	9.528	34.9	0.00	27.11	0.79	14.6	3	8.3	8.3	9.7	1651.	31.	18.3	0.970	0.970	31.	1365	0.0
1363.81	9.538	34.9	0.00	27.11	0.79	14.6	3	8.3	8.3	9.7	1651.	31.	18.3	0.970	0.970	31.	1366	0.0
1364.82	9.547	34.2	-1.02	45.51	99.99	14.6	3	8.1	-3.2	-2.5	1334.	-10.	29.9	1.177	0.850	0.	1367	2.8
1365.82	9.557	33.8	-0.59	34.40	3.00	14.6	3	7.8	1.2	2.0	1600.	6.	27.0	0.970	0.970	14.	1368	0.0
1366.82	9.566	32.6	-1.76	46.82	99.99	14.7	3	7.8	-2.4	-2.0	1244.	-8.	29.9	1.204	0.831	0.	1369	98.5
1367.82	9.575	31.5	-1.61	48.13	99.99	14.7	3	7.3	-1.8	-1.7	1175.	-7.	29.9	1.232	0.812	0.	1370	89.0
1368.82	9.584	30.0	-2.20	51.67	99.99	14.7	3	6.9	-1.1	-1.1	1053.	-6.	29.9	1.308	0.764	0.	1371	168.2
1369.82	9.592	28.8	-1.76	54.59	99.99	14.7	3	6.3	-0.8	-0.8	966.	-4.	29.9	1.370	0.730	0.	1372	121.6
1370.82	9.600	27.3	-2.20	61.66	99.99	14.7	3	6.0	0.2	-0.3	826.	-2.	29.9	1.518	0.659	0.	1373	188.9
1371.82	9.607	23.8	-5.14	60.57	99.99	14.7	3	5.7	-0.3	-0.1	744.	-1.	29.9	1.469	0.681	0.	1374	527.6
1372.82	9.613	23.0	-1.17	58.55	99.99	14.7	3	4.3	-0.3	-0.1	744.	-1.	29.9	1.420	0.704	0.	1375	68.6
1373.82	9.620	23.0	0.00	28.23	1.00	14.7	3	4.1	4.1	4.9	1102.	23.	17.5	0.958	0.958	24.	1376	0.0
1374.82	9.626	22.3	-1.03	56.70	99.99	14.7	3	4.1	-0.3	-0.1	744.	-1.	29.9	1.376	0.727	0.	1377	53.4
1375.82	9.632	20.4	-2.79	51.87	99.99	14.7	3	4.0	-0.2	-0.1	744.	-1.	29.9	1.258	0.795	0.	1378	260.0
1376.83	9.637	18.8	-2.34	47.81	99.99	14.7	3	3.5	-0.2	-0.1	744.	-1.	29.9	1.160	0.862	0.	1379	209.8

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1377.83	9.642	17.7	-1.61	45.02	99.99	14.7	3	3.1	-0.2	-0.1	744.	-1.	29.9	1.092	0.916	0.	1380	126.5
1378.83	9.647	16.1	-2.35	40.94	99.99	14.7	3	2.9	-0.2	-0.1	744.	-1.	29.9	0.993	0.993	0.	1381	214.1
1379.83	9.651	14.6	-2.20	37.13	99.99	14.7	2	2.5	-0.3	-0.1	744.	-1.	29.9	1.414	0.707	0.	1382	197.5
1380.83	9.655	12.7	-2.79	32.29	99.99	14.8	2	2.2	-0.2	-0.1	744.	-1.	29.9	1.230	0.813	0.	1383	268.1
1381.83	9.658	11.1	-2.34	28.23	99.99	14.8	2	1.8	-0.2	-0.1	744.	-1.	29.9	1.075	0.930	0.	1384	217.0
1382.83	9.661	9.2	-2.79	23.40	99.99	14.8	1	1.5	-0.3	-0.1	744.	-1.	29.9	1.612	0.620	0.	1385	272.2
1383.83	9.664	8.8	-0.58	22.39	99.99	14.8	1	1.2	-0.3	-0.1	744.	-1.	29.9	1.543	0.648	0.	1386	9.6
1384.83	9.666	7.3	-2.20	18.58	99.99	14.8	1	1.1	-0.2	-0.1	744.	-1.	29.9	1.280	0.781	0.	1387	203.4
1385.83	9.668	6.1	-1.77	15.51	99.99	14.8	1	0.9	-0.2	-0.1	744.	-1.	29.9	1.068	0.936	0.	1388	153.0
1386.83	9.669	5.0	-1.60	12.73	99.99	14.8	1	0.7	-0.2	-0.1	744.	-1.	29.9	0.877	0.877	0.	1389	133.4
1387.84	9.671	4.2	-1.18	10.69	99.99	14.8	1	0.6	-0.1	-0.1	744.	-1.	29.9	0.736	0.736	0.	1390	83.9
1388.84	9.672	3.5	-1.03	8.90	99.99	14.8	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.613	0.613	0.	1391	66.4
1389.84	9.672	2.7	-1.18	6.85	99.99	14.8	1	0.4	-0.1	-0.1	744.	-1.	29.9	0.472	0.472	0.	1392	84.6
1390.84	9.673	2.3	-0.58	5.85	99.99	14.8	1	0.3	-0.1	-0.1	744.	-1.	29.9	0.403	0.403	0.	1393	13.4
1391.84	9.674	1.5	-1.18	3.80	99.99	14.8	1	0.2	0.0	-0.1	744.	-1.	29.9	0.262	0.262	0.	1394	85.1
1392.84	9.674	1.2	-0.44	3.04	99.99	14.7	1	0.1	0.0	-0.1	744.	0.	29.9	0.209	0.209	0.	1395	0.0
1393.84	9.674	0.0	-1.76	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1396	154.6
1394.84	9.674	1.2	1.76	2.25	1.18	14.7	1	0.1	0.9	2.7	744.	19.	14.8	0.210	0.346	19.	1397	0.0
1395.84	9.675	4.2	4.40	3.04	0.84	14.7	1	0.5	6.8	9.8	904.	57.	10.3	0.605	0.819	54.	1398	0.0
1396.84	9.677	7.3	4.55	3.97	0.68	14.7	1	1.0	12.2	16.1	1177.	72.	8.8	0.808	0.901	64.	1399	0.0
1397.84	9.679	8.8	2.20	6.95	0.75	14.7	1	1.2	7.8	10.1	1221.	43.	14.3	0.939	0.939	41.	1400	0.0
1398.84	9.682	10.8	2.93	6.41	0.63	14.7	1	1.5	12.3	16.0	1488.	57.	13.2	0.946	0.946	49.	1401	0.0
1399.84	9.685	12.3	2.20	8.02	0.65	14.7	1	1.8	11.0	14.2	1659.	45.	15.4	0.966	0.966	40.	1402	0.0
1400.84	9.688	13.1	1.17	9.12	0.90	14.7	1	1.9	7.1	9.5	1759.	28.	18.7	0.970	0.970	29.	1403	0.0
1401.85	9.692	12.3	-1.17	15.82	99.99	14.7	1	1.9	-2.7	-2.8	1376.	-11.	29.9	1.165	0.858	0.	1404	7.7
1402.85	9.695	12.3	0.00	11.81	2.27	14.7	1	1.8	1.8	2.7	1652.	9.	26.5	0.970	0.970	16.	1405	0.0
1403.85	9.699	11.5	-1.17	16.47	99.99	14.7	1	1.7	-2.0	-2.0	1246.	-9.	29.9	1.203	0.831	0.	1406	26.2
1404.85	9.702	11.5	0.00	11.85	2.31	14.7	1	1.6	1.6	2.5	1545.	9.	25.6	0.970	0.970	15.	1407	0.0
1405.85	9.705	11.1	-0.59	16.95	99.99	14.7	1	1.6	-0.6	-0.7	1174.	-3.	29.9	1.232	0.812	3.	1408	0.0
1406.85	9.708	11.1	0.00	11.87	2.34	14.7	1	1.6	1.6	2.4	1491.	8.	25.1	0.970	0.970	15.	1409	0.0
1407.85	9.711	11.1	0.00	11.87	2.34	14.7	1	1.6	1.6	2.4	1491.	8.	25.1	0.970	0.970	15.	1410	0.0
1408.85	9.715	13.0	2.93	6.64	0.61	14.7	1	1.9	14.9	19.3	1767.	57.	13.9	0.962	0.962	48.	1411	0.0
1409.85	9.718	14.9	2.79	6.37	0.66	14.7	1	2.3	16.4	21.3	2008.	56.	13.8	0.970	0.970	46.	1412	0.0
1410.85	9.723	16.8	2.79	6.12	0.68	14.7	1	2.6	18.6	24.3	2264.	56.	13.6	0.970	0.970	46.	1413	0.0
1412.10	9.729	16.9	0.00	20.20	1.49	14.7	2	2.7	2.7	3.3	1255.	14.	20.1	0.970	0.970	18.	1414	0.0
1413.10	9.733	16.1	-1.17	40.95	99.99	14.7	2	2.6	-0.3	-0.1	744.	-1.	29.9	1.560	0.641	0.	1415	75.7
1414.10	9.738	15.7	-0.59	39.93	99.99	14.7	2	2.4	-0.3	-0.1	744.	-1.	29.9	1.521	0.658	0.	1416	8.5
1415.20	9.743	15.5	-0.44	24.19	99.99	14.7	2	2.4	0.1	-1.6	1154.	-7.	29.9	0.970	0.970	0.	1417	0.0
1416.20	9.747	15.1	-0.59	38.48	99.99	14.7	2	2.3	-0.3	-0.1	744.	-1.	29.9	1.466	0.682	0.	1418	9.1
1417.21	9.751	13.9	-1.76	35.43	99.99	14.7	2	2.3	-0.3	-0.1	744.	-1.	29.9	1.349	0.741	0.	1419	146.8
1418.21	9.754	10.9	-4.40	27.80	99.99	14.7	2	2.1	-0.2	-0.1	744.	-1.	29.9	1.059	0.944	0.	1420	457.5
1419.21	9.757	8.5	-3.52	21.70	99.99	14.7	1	1.5	-0.3	-0.1	744.	-1.	29.9	1.495	0.669	0.	1421	359.6
1420.21	9.759	6.2	-3.37	15.86	99.99	14.7	1	1.0	-0.2	-0.1	744.	-1.	29.9	1.092	0.915	0.	1422	343.3
1421.21	9.760	4.3	-2.79	11.02	99.99	14.7	1	0.7	-0.1	-0.1	744.	-1.	29.9	0.759	0.759	0.	1423	275.4
1422.21	9.762	3.6	-1.03	9.23	99.99	14.7	1	0.5	-0.1	-0.1	744.	-1.	29.9	0.636	0.636	0.	1424	66.3
1423.21	9.763	3.5	0.00	7.99	3.09	14.7	1	0.4	0.4	0.8	744.	6.	21.5	0.613	0.613	7.	1425	0.0

DRIVING SCHEDULE (H5D289) USING ROUTE (LEVEL)

SEC.	MILES	MPH	ACC	INST MPG	BSFC	CUM MPG	GEAR	RDLD	HPW	HPE	RPM	TORQ	VAC	SR	ETA	PCT.WOT	SEG	BRAKES
1424.21	9.763	1.5	-2.93	3.82	99.99	14.7	1	0.2	0.0	-0.1	744.	-1.	29.9	0.263	0.263	0.	1426	293.3
1425.21	9.763	0.0	-0.83	0.12	99.99	14.7	1	0.0	0.0	-0.1	744.	-1.	29.9	0.009	0.009	0.	1427	43.4
1426.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1428	0.0
1427.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1429	0.0
1428.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1430	0.0
1429.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1431	0.0
1430.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1432	0.0
1431.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1433	0.0
1432.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1434	0.0
1433.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1435	0.0
1434.21	9.763	0.0	0.00	0.00	24.57	14.7	1	0.0	0.0	0.1	744.	1.	28.9	0.000	0.000	1.	1436	0.0

SHIFT FREQUENCY DATA

11-19-92

TOTAL SHIFTS = 74 SHIFTS PER MILE = 7.6 NUMB GEARS = 4

GEAR INTO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
UPSHIFTS	0	28	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOWNSHIFTS	28	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VEHICLE PERFORMANCE SIMULATION 11-19-92
****

RUN TITLE = Cycle H5D289 for Typical Power-to-Weight Configuration

SCHEDULE AVERAGES

FUEL ECONOMY	= 14.67	MPG
WORK PER MILE	= 0.55	HP-HR/MI
AVG SP FUEL CONS	= 0.74	LBS/HP-HR
AVG SPEED	= 24.5	MPH

TOTALS

VARIABLE	(UNITS)	TOTAL AMOUNT	PERCENT OF TOTAL (CRUISE	ACCEL	DECEL	IDLE)	(BRAKES)
TIME	(SECS)	1434.2	10.3	40.2	34.3	15.2	
DISTANCE	(MILES)	9.8	15.6	46.9	37.5	0.0	
ENERGY	(HP-HR)	5.37	10.6	82.8	6.0	0.1	
FUEL	(LBS)	3.98	11.6	65.1	19.7	3.6	7.4

ENERGY SUPPLY

	HP-HR
(1) ENGINE	= 5.37
(2) KINETIC ENERGY	= 0.00
(3) POTENTIAL ENERGY	= 0.00
(4) ROTATING INERTIA	= 0.00

BREAKDOWN

	PERCENT ENGINE HP-HR
(1) ACCESSORIES	= 5.64
(2) TORQUE CONVERTER	= 5.60
(3) GEAR BOX	= 1.81
(4) DIFFERENTIAL	= 1.78
(5) TIRE SLIP	= 1.74
3+4+5	= 5.33
2+3+4+5	= 10.93
(6) AERODYNAMIC DRAG	= 23.10
(7) ROLLING RESIST	= 28.42
SUBTOTAL 1- 7	= 68.09
(8) BRAKES	= 27.42
(9) ENGINE MOTORING	= 3.16
SUBTOTAL 1- 9	= 98.67
(10) OTHER ENERGY	= 0.00
TOTAL 1-10	= 98.67

ADDITIONAL RUN DATA

DRIVING SCHEDULE NAME	= H5D289	ROUTE NAME	= LEVEL
VEHICLE NAME	= CNY91V	ENGINE NAME	= CNY91E
CONVERTER NAME	= CODY2	SHIFT LOGIC NAME	= GEN3
WEIGHT (LBS)	= 3750.	STROKE (INCHES)	= 3.19
DISPLACEMENT (CU IN)	= 201.4	REAR AXLE RATIO	= 3.18
WIND VELOCITY (MPH)	= 0.0	FUEL DENSITY (LB/GAL)	= 5.98
AERO DRAG = 26.20 , 0.38		TIRES = 12.00 , 0.09 , 0.98	

APPENDIX 3

Sample VEHSIME Output File

CHRYSLER NEW YORKER, CYCLE H5D289, MID POWER/WEIGHT, HOT START

EMISSIONS GENERATED DURING DRIVING CYCLE

TIME (sec)	DISTANCE (miles)	MPH	ACCEL	HPW	RPME	TORQUE	INSTANTANEOUS(grams) HC	CO	NOx	CUMULATIVE(grams) HC	CO	NOx	RATE(grams/mile) HC	CO	NOx
1.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0008	0.000	0.00	0.00	0.00
2.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0016	0.000	0.00	0.00	0.00
3.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0024	0.000	0.00	0.00	0.00
4.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0031	0.001	0.00	0.00	0.00
5.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0039	0.001	0.00	0.00	0.00
6.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0047	0.001	0.00	0.00	0.00
7.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0055	0.001	0.00	0.00	0.00
8.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0063	0.001	0.00	0.00	0.00
9.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0071	0.001	0.00	0.00	0.00
10.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0079	0.002	0.00	0.00	0.00
11.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0087	0.002	0.00	0.00	0.00
12.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0094	0.002	0.00	0.00	0.00
13.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.00	0.0102	0.002	0.00	0.00	0.00
14.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0110	0.002	0.00	0.00	0.00
15.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0118	0.002	0.00	0.00	0.00
16.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0126	0.002	0.00	0.00	0.00
17.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0134	0.003	0.00	0.00	0.00
18.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0142	0.003	0.00	0.00	0.00
19.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0149	0.003	0.00	0.00	0.00
20.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0157	0.003	0.00	0.00	0.00
21.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0165	0.003	0.00	0.00	0.00
22.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0173	0.003	0.00	0.00	0.00
23.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0181	0.003	0.00	0.00	0.00
24.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0189	0.004	0.00	0.00	0.00
25.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0197	0.004	0.00	0.00	0.00
26.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0205	0.004	0.00	0.00	0.00
27.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0212	0.004	0.00	0.00	0.00
28.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0220	0.004	0.00	0.00	0.00
29.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0228	0.004	0.00	0.00	0.00
30.00	0.0000	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.01	0.0236	0.005	0.00	0.00	0.00
31.00	0.0002	1.20	1.76	0.9	744.0	19.048	0.0020	0.0046	0.0002	0.01	0.0282	0.005	79.81	168.95	28.28
32.00	0.0009	4.20	4.40	6.8	904.1	56.980	0.0026	0.0075	0.0011	0.02	0.0357	0.006	17.35	38.98	6.36
33.00	0.0025	7.30	4.55	12.2	1177.4	71.988	0.0032	0.0120	0.0022	0.02	0.0477	0.008	7.62	18.97	3.19
34.00	0.0047	8.80	2.20	7.8	1221.1	43.425	0.0029	0.0101	0.0019	0.02	0.0578	0.010	4.64	12.17	2.09
35.00	0.0075	10.80	2.93	12.3	1487.8	56.583	0.0020	0.0102	0.0011	0.02	0.0680	0.011	3.21	9.11	1.47
36.00	0.0107	12.30	2.20	11.0	1659.0	44.956	0.0008	0.0051	0.0002	0.02	0.0731	0.011	2.32	6.85	1.05
37.00	0.0142	13.09	1.17	7.1	1759.2	28.372	0.0005	0.0028	0.0001	0.03	0.0760	0.011	1.78	5.35	0.80
38.00	0.0177	12.30	-1.17	-2.7	1375.9	-10.562	0.0004	0.0006	0.0001	0.03	0.0765	0.011	1.45	4.32	0.65
39.00	0.0211	12.30	0.00	1.8	1652.5	8.729	0.0003	0.0011	0.0000	0.03	0.0776	0.011	1.22	3.67	0.54
40.00	0.0245	11.50	-1.17	-2.0	1246.1	-8.534	0.0005	0.0004	0.0002	0.03	0.0780	0.012	1.08	3.19	0.48
41.00	0.0276	11.50	0.00	1.6	1545.0	8.526	0.0003	0.0009	0.0001	0.03	0.0789	0.012	0.97	2.85	0.42
42.00	0.0308	11.10	-0.59	-0.6	1174.1	-3.052	0.0005	0.0003	0.0002	0.03	0.0792	0.012	0.89	2.57	0.39
43.00	0.0339	11.10	0.00	1.6	1491.2	8.419	0.0004	0.0008	0.0001	0.03	0.0800	0.012	0.82	2.36	0.35
44.00	0.0370	11.10	0.00	1.6	1491.2	8.419	0.0004	0.0008	0.0001	0.03	0.0808	0.012	0.76	2.19	0.33
45.00	0.0403	13.04	2.93	14.9	1767.4	57.230	0.0015	0.0099	0.0005	0.03	0.0908	0.013	0.73	2.25	0.31
46.00	0.0442	14.95	2.79	16.4	2008.0	55.778	0.0019	0.0097	0.0007	0.03	0.1005	0.013	0.71	2.27	0.30
47.00	0.0486	16.85	2.79	18.6	2263.6	56.300	0.0025	0.0100	0.0009	0.03	0.1105	0.014	0.70	2.27	0.29
48.25	0.0545	16.90	0.00	2.7	1255.1	14.004	0.0012	0.0025	0.0006	0.04	0.1130	0.015	0.64	2.07	0.27
49.25	0.0591	16.10	-1.17	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1136	0.015	0.60	1.92	0.25
50.25	0.0635	15.70	-0.59	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1143	0.015	0.56	1.80	0.24
51.35	0.0683	15.53	-0.44	0.1	1153.8	-7.093	0.0006	0.0003	0.0002	0.04	0.1146	0.015	0.53	1.68	0.23
52.35	0.0725	15.13	-0.59	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1152	0.016	0.50	1.59	0.21
53.35	0.0766	13.93	-1.76	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1158	0.016	0.48	1.51	0.21
54.35	0.0800	10.93	-4.40	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1164	0.016	0.46	1.46	0.20
55.35	0.0827	8.53	-3.52	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1171	0.016	0.45	1.42	0.19
56.35	0.0848	6.23	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1177	0.016	0.45	1.39	0.19
57.35	0.0862	4.33	-2.79	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1183	0.016	0.44	1.37	0.19
58.35	0.0873	3.63	-1.03	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1189	0.016	0.44	1.36	0.19
59.35	0.0883	3.50	0.00	0.4	744.0	5.989	0.0009	0.0021	0.0002	0.04	0.1210	0.017	0.45	1.37	0.19
60.35	0.0890	1.50	-2.93	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1216	0.017	0.45	1.37	0.19
61.35	0.0892	0.05	-0.83	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.04	0.1222	0.017	0.45	1.37	0.19
62.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1230	0.017	0.45	1.38	0.19
63.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1238	0.017	0.46	1.39	0.19
64.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1246	0.017	0.46	1.40	0.19
65.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1254	0.018	0.46	1.41	0.20
66.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1262	0.018	0.47	1.41	0.20
67.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1270	0.018	0.47	1.42	0.20

68.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1277	0.018	0.48	1.43	0.
69.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1285	0.018	0.48	1.44	0.
70.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1293	0.018	0.49	1.45	0.
71.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1301	0.018	0.49	1.46	0.
72.35	0.0892	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.04	0.1309	0.019	0.49	1.47	0.
73.35	0.0894	1.20	1.76	0.9	744.0	19.048	0.0020	0.0046	0.0002	0.05	0.1354	0.019	0.52	1.52	0.
74.35	0.0900	3.50	3.37	4.4	784.8	43.992	0.0021	0.0053	0.0004	0.05	0.1408	0.019	0.54	1.56	0.
75.35	0.0916	7.57	6.16	16.8	1281.3	90.683	0.0031	0.0141	0.0020	0.05	0.1549	0.021	0.56	1.69	0.
76.35	0.0941	10.97	4.99	20.1	1556.5	89.521	0.0027	0.0185	0.0013	0.05	0.1733	0.022	0.57	1.84	0.
77.35	0.0976	13.67	3.96	20.4	1863.4	73.977	0.0025	0.0143	0.0009	0.06	0.1876	0.023	0.58	1.92	0.
78.35	0.1017	16.38	3.97	24.6	2205.6	75.157	0.0032	0.0103	0.0011	0.06	0.1979	0.024	0.59	1.95	0.
79.35	0.1066	18.28	2.79	20.3	2455.8	56.706	0.0024	0.0114	0.0008	0.06	0.2093	0.025	0.58	1.96	0.
80.35	0.1119	20.28	2.93	23.2	1603.1	92.825	0.0026	0.0192	0.0012	0.06	0.2285	0.026	0.58	2.04	0.
81.35	0.1176	20.58	0.45	6.6	1528.7	27.431	0.0011	0.0039	0.0006	0.07	0.2324	0.027	0.56	1.98	0.
82.25	0.1226	19.60	-1.61	-1.2	1111.9	-6.439	0.0005	0.0002	0.0002	0.07	0.2326	0.027	0.54	1.90	0.
83.25	0.1277	17.30	-3.37	1.6	809.9	-1.723	0.0004	0.0006	0.0002	0.07	0.2332	0.027	0.52	1.83	0.
84.25	0.1318	12.30	-7.34	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.07	0.2338	0.028	0.51	1.77	0.
85.25	0.1347	8.10	-6.16	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.07	0.2344	0.028	0.50	1.74	0.
86.25	0.1366	6.09	-2.94	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.07	0.2350	0.028	0.49	1.72	0.
87.25	0.1387	9.20	5.14	17.3	1371.4	86.302	0.0030	0.0155	0.0017	0.07	0.2506	0.030	0.51	1.81	0.
88.25	0.1417	12.30	4.54	20.7	1703.7	82.940	0.0025	0.0195	0.0012	0.07	0.2701	0.031	0.52	1.91	0.
89.25	0.1455	15.30	4.40	25.2	2075.7	82.095	0.0031	0.0126	0.0024	0.08	0.2827	0.033	0.52	1.94	0.
90.25	0.1501	17.59	3.37	22.9	2363.7	66.146	0.0030	0.0098	0.0010	0.08	0.2926	0.034	0.53	1.95	0.
91.25	0.1553	19.99	3.52	27.3	2686.1	69.321	0.0025	0.0154	0.0008	0.08	0.3079	0.035	0.53	1.98	0.
92.25	0.1611	21.50	2.21	19.6	1652.8	74.200	0.0021	0.0166	0.0009	0.08	0.3245	0.036	0.52	2.01	0.
93.25	0.1673	23.00	2.20	21.0	1755.6	74.777	0.0023	0.0159	0.0009	0.09	0.3404	0.037	0.51	2.04	0.
94.25	0.1737	23.40	0.58	8.8	1737.6	31.953	0.0005	0.0025	0.0001	0.09	0.3429	0.037	0.50	1.97	0.
95.25	0.1803	24.20	1.18	14.0	1804.3	48.142	0.0012	0.0072	0.0004	0.09	0.3501	0.037	0.49	1.94	0.
96.25	0.1871	24.60	0.58	9.3	1826.7	32.433	0.0006	0.0039	0.0002	0.09	0.3540	0.037	0.47	1.89	0.
97.25	0.1941	25.69	1.61	18.7	1922.5	60.172	0.0020	0.0106	0.0007	0.09	0.3646	0.038	0.47	1.88	0.
98.25	0.2013	26.10	0.00	5.0	1938.4	17.633	0.0007	0.0056	0.0003	0.09	0.3702	0.039	0.45	1.84	0.
99.25	0.2087	26.90	1.18	15.9	1998.2	49.350	0.0016	0.0086	0.0006	0.09	0.3788	0.039	0.44	1.82	0.
100.25	0.2161	26.90	0.00	5.3	1997.8	17.974	0.0007	0.0066	0.0004	0.09	0.3854	0.039	0.43	1.78	0.
101.25	0.2236	26.90	0.00	5.3	1997.8	17.974	0.0007	0.0066	0.0004	0.09	0.3919	0.040	0.42	1.75	0.
102.25	0.2310	26.50	-0.58	0.0	1968.5	2.384	0.0006	0.0056	0.0003	0.09	0.3975	0.040	0.41	1.72	0
103.25	0.2383	25.70	-1.18	-5.0	1694.3	-13.973	0.0003	0.0014	0.0000	0.09	0.3989	0.040	0.40	1.67	0
104.25	0.2449	21.90	-5.57	-0.9	1344.3	-10.067	0.0004	0.0005	0.0001	0.10	0.3994	0.040	0.39	1.63	0
105.25	0.2502	16.50	-7.92	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.10	0.4001	0.040	0.38	1.60	0
106.25	0.2539	10.00	-9.53	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.10	0.4007	0.041	0.38	1.58	0
107.25	0.2559	4.60	-7.92	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.10	0.4013	0.041	0.38	1.57	0
108.25	0.2568	1.50	-4.55	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.10	0.4019	0.041	0.38	1.57	0
109.25	0.2570	0.40	-1.61	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.10	0.4025	0.041	0.38	1.57	0
110.25	0.2571	0.01	-0.58	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.10	0.4032	0.041	0.38	1.57	0
111.25	0.2571	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.10	0.4039	0.041	0.38	1.57	0
112.25	0.2571	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.10	0.4047	0.042	0.38	1.57	0
113.25	0.2571	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.10	0.4055	0.042	0.38	1.58	0
114.25	0.2571	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.10	0.4063	0.042	0.38	1.58	0
115.25	0.2571	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.10	0.4071	0.042	0.39	1.58	0
116.25	0.2571	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.10	0.4079	0.042	0.39	1.59	0
117.25	0.2571	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.10	0.4087	0.042	0.39	1.59	0
118.25	0.2572	0.40	0.58	0.1	744.0	8.132	0.0011	0.0026	0.0002	0.10	0.4113	0.042	0.39	1.60	0
119.25	0.2574	1.20	1.18	0.6	744.0	14.409	0.0018	0.0041	0.0002	0.10	0.4154	0.043	0.40	1.61	0
120.25	0.2578	1.90	1.03	0.9	744.0	14.621	0.0018	0.0042	0.0002	0.10	0.4196	0.043	0.41	1.63	0
121.25	0.2586	3.80	2.78	4.1	768.3	39.539	0.0021	0.0050	0.0003	0.11	0.4246	0.043	0.41	1.64	0
122.25	0.2602	7.55	5.72	15.7	1259.1	87.253	0.0032	0.0137	0.0020	0.11	0.4383	0.045	0.42	1.68	0
123.25	0.2628	11.35	5.57	23.1	1615.9	99.125	0.0026	0.0194	0.0011	0.11	0.4577	0.046	0.43	1.74	0
124.25	0.2664	14.45	4.55	24.5	1971.6	83.871	0.0029	0.0145	0.0029	0.12	0.4723	0.049	0.43	1.77	0
125.25	0.2709	17.85	4.99	33.1	2407.5	92.390	0.0030	0.0083	0.0117	0.12	0.4806	0.061	0.44	1.77	0
126.25	0.2763	21.35	5.13	40.9	2868.4	96.462	0.0021	0.0166	0.0013	0.12	0.4972	0.062	0.44	1.80	0
127.25	0.2827	24.85	5.13	47.9	3338.3	97.854	0.0015	0.0259	0.0041	0.12	0.5231	0.066	0.43	1.85	0
128.25	0.2901	28.19	4.94	52.1	2195.6	149.569	0.0013	0.0049	0.0595	0.12	0.5280	0.126	0.42	1.82	0
129.25	0.2982	30.48	3.37	40.7	2305.3	108.833	0.0024	0.0053	0.0297	0.13	0.5333	0.155	0.42	1.79	0
130.25	0.3069	31.68	1.76	25.5	2353.1	66.935	0.0030	0.0096	0.0010	0.13	0.5429	0.157	0.42	1.77	0
131.25	0.3157	32.08	0.58	13.3	2382.4	35.751	0.0017	0.0116	0.0008	0.13	0.5545	0.157	0.41	1.76	0
132.25	0.3247	32.30	0.00	7.2	2398.9	20.437	0.0012	0.0120	0.0007	0.13	0.5665	0.158	0.40	1.74	0
133.25	0.3336	31.90	-0.58	0.9	2369.5	4.825	0.0011	0.0112	0.0006	0.13	0.5777	0.159	0.40	1.73	0
134.25	0.3422	30.30	-2.35	-8.5	2079.7	-21.484	0.0008	0.0072	0.0004	0.13	0.5849	0.159	0.39	1.71	0
135.25	0.3503	28.00	-3.37	-6.2	1894.9	-18.628	0.0005	0.0044	0.0002	0.13	0.5893	0.159	0.38	1.68	0
136.25	0.3576	24.21	-5.57	-2.3	1559.4	-13.427	0.0003	0.0008	0.0000	0.13	0.5901	0.159	0.38	1.65	0
137.25	0.3637	20.01	-6.16	1.5	1165.0	-7.268	0.0005	0.0003	0.0002	0.13	0.5904	0.159	0.37	1.62	0
138.25	0.3688	16.11	-5.72	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.14	0.5910	0.160	0.37	1.60	0
139.25	0.3726	11.50	-6.75	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.14	0.5916	0.160	0.36	1.59	0
140.25	0.3753	8.10	-4.99	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.14	0.5922	0.160	0.36	1.58	0
141.25	0.3771	5.01	-4.54	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.14	0.5929	0.160	0.36	1.57	0
142.25	0.3783	3.50	-2.21	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.14	0.5935	0.160	0.36	1.57	0
143.25	0.3791	1.90	-2.34	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.14	0.5941	0.160	0.36	1.57	0
144.25	0.3793	0.06	-1.05	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.14	0.5947	0.161	0.36	1.57	0
145.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.5955	0.161	0.36	1.57	0
146.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.5963	0.161	0.36	1.57	0
147.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.5971	0.161	0.36	1.57	0

148.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.5979	0.161	0.36	1.58	0.42
149.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.5987	0.161	0.37	1.58	0.43
150.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.5994	0.161	0.37	1.58	0.43
151.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.6002	0.162	0.37	1.58	0.43
152.25	0.3793	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.14	0.6010	0.162	0.37	1.58	0.43
153.25	0.3795	1.50	2.20	1.3	744.0	23.354	0.0020	0.0046	0.0002	0.14	0.6056	0.162	0.37	1.60	0.43
154.25	0.3806	6.61	7.92	18.6	1285.6	106.399	0.0031	0.0142	0.0019	0.14	0.6197	0.164	0.38	1.63	0.43
155.25	0.3833	12.38	8.17	36.1	1795.7	138.700	0.0022	0.0165	0.0128	0.15	0.6362	0.177	0.38	1.66	0.46
156.25	0.3872	16.18	5.58	33.2	2203.4	101.167	0.0027	0.0084	0.0188	0.15	0.6446	0.195	0.39	1.66	0.50
157.25	0.3922	19.68	5.13	37.6	2644.1	95.978	0.0024	0.0125	0.0059	0.15	0.6571	0.201	0.39	1.68	0.51
158.25	0.3981	22.68	4.40	37.3	1817.7	132.669	0.0022	0.0160	0.0134	0.15	0.6731	0.215	0.39	1.69	0.54
159.25	0.4048	25.38	3.96	38.3	1978.0	122.343	0.0022	0.0121	0.0215	0.16	0.6852	0.236	0.39	1.69	0.58
160.25	0.4121	27.68	3.37	36.6	2112.8	107.750	0.0024	0.0099	0.0203	0.16	0.6951	0.257	0.39	1.69	0.62
161.25	0.4202	30.39	3.97	46.7	2315.9	124.870	0.0017	0.0030	0.0464	0.16	0.6981	0.303	0.38	1.66	0.72
162.25	0.4289	32.28	2.78	37.1	2415.8	94.167	0.0029	0.0082	0.0130	0.16	0.7063	0.316	0.38	1.65	0.74
163.25	0.4381	33.88	2.35	34.4	2516.5	83.495	0.0032	0.0125	0.0032	0.17	0.7188	0.319	0.38	1.64	0.73
164.25	0.4477	34.98	1.61	27.1	2598.0	64.570	0.0025	0.0135	0.0008	0.17	0.7323	0.320	0.38	1.64	0.71
165.25	0.4576	36.58	2.34	37.5	2716.5	84.800	0.0028	0.0172	0.0017	0.17	0.7495	0.322	0.38	1.64	0.70
166.50	0.4704	36.90	0.00	9.2	1745.6	32.468	0.0006	0.0033	0.0001	0.17	0.7528	0.322	0.37	1.60	0.68
167.50	0.4807	37.20	0.44	14.8	1773.5	50.422	0.0012	0.0077	0.0004	0.17	0.7605	0.322	0.36	1.58	0.67
168.50	0.4911	37.60	0.59	16.9	1798.6	56.777	0.0016	0.0098	0.0006	0.18	0.7703	0.323	0.36	1.57	0.66
169.50	0.5015	37.60	0.00	9.5	1778.7	33.004	0.0005	0.0031	0.0001	0.18	0.7735	0.323	0.35	1.54	0.64
170.50	0.5120	37.60	0.00	9.5	1778.7	33.004	0.0005	0.0031	0.0001	0.18	0.7766	0.323	0.34	1.52	0.63
171.50	0.5224	37.20	-0.59	2.1	1759.6	8.928	0.0004	0.0025	0.0001	0.18	0.7792	0.323	0.34	1.49	0.62
172.50	0.5327	37.20	0.00	9.3	1759.8	32.697	0.0005	0.0029	0.0001	0.18	0.7820	0.323	0.33	1.47	0.61
173.50	0.5430	36.90	-0.44	3.8	1745.6	14.743	0.0004	0.0024	0.0001	0.18	0.7844	0.323	0.33	1.44	0.60
174.50	0.5532	36.50	-0.58	2.0	1726.9	8.804	0.0003	0.0020	0.0001	0.18	0.7864	0.323	0.32	1.42	0.58
175.50	0.5633	36.50	0.00	9.0	1726.6	32.165	0.0004	0.0023	0.0001	0.18	0.7888	0.323	0.32	1.40	0.57
176.50	0.5733	34.90	-2.35	-3.0	1374.4	-10.538	0.0004	0.0006	0.0001	0.18	0.7894	0.324	0.31	1.38	0.56
177.50	0.5827	33.40	-2.20	-2.5	1287.2	-9.177	0.0005	0.0005	0.0002	0.18	0.7898	0.324	0.31	1.36	0.56
178.50	0.5918	31.90	-2.20	-2.1	1203.7	-7.873	0.0005	0.0003	0.0002	0.18	0.7902	0.324	0.30	1.34	0.55
179.50	0.6003	29.19	-3.97	-0.3	991.7	-4.562	0.0005	0.0004	0.0002	0.18	0.7905	0.324	0.30	1.32	0.54
180.50	0.6078	24.99	-6.16	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.18	0.7911	0.324	0.30	1.30	0.53
181.50	0.6148	25.00	0.00	4.7	1193.7	24.338	0.0026	0.0087	0.0018	0.18	0.7998	0.326	0.30	1.30	0.53
182.50	0.6218	26.01	1.61	18.9	1395.4	85.077	0.0029	0.0159	0.0017	0.19	0.8157	0.328	0.30	1.31	0.53
183.50	0.6293	27.51	2.21	25.6	1521.8	105.645	0.0027	0.0179	0.0014	0.19	0.8336	0.329	0.30	1.32	0.52
184.50	0.6371	29.11	2.34	28.6	1587.5	112.922	0.0026	0.0189	0.0012	0.19	0.8526	0.330	0.30	1.34	0.52
185.50	0.6455	31.00	2.79	35.3	1699.9	130.080	0.0024	0.0193	0.0036	0.19	0.8719	0.334	0.30	1.35	0.52
186.50	0.6543	32.20	1.76	25.9	1633.7	99.916	0.0025	0.0197	0.0011	0.20	0.8916	0.335	0.30	1.36	0.51
187.50	0.6635	34.05	2.79	39.4	1798.0	136.951	0.0022	0.0164	0.0126	0.20	0.9080	0.348	0.30	1.37	0.52
188.50	0.6730	34.75	1.02	20.0	1693.7	71.981	0.0020	0.0156	0.0008	0.20	0.9236	0.348	0.30	1.37	0.52
189.50	0.6828	35.55	1.18	22.5	1737.9	78.928	0.0024	0.0176	0.0010	0.20	0.9411	0.349	0.30	1.38	0.51
190.50	0.6928	36.36	1.18	23.1	1773.0	79.614	0.0025	0.0172	0.0010	0.21	0.9584	0.350	0.30	1.38	0.51
191.50	0.7029	36.75	0.58	16.2	1759.3	55.726	0.0014	0.0094	0.0005	0.21	0.9678	0.351	0.29	1.38	0.50
192.50	0.7132	36.90	0.00	9.2	1745.6	32.468	0.0005	0.0026	0.0001	0.21	0.9704	0.351	0.29	1.36	0.49
193.50	0.7234	37.20	0.44	14.8	1773.5	50.422	0.0012	0.0077	0.0004	0.21	0.9781	0.351	0.29	1.35	0.49
194.50	0.7338	37.60	0.59	16.9	1798.6	56.777	0.0016	0.0098	0.0006	0.21	0.9879	0.352	0.29	1.35	0.48
195.50	0.7442	37.20	-0.59	2.1	1759.7	8.929	0.0004	0.0025	0.0001	0.21	0.9904	0.352	0.28	1.33	0.47
196.50	0.7546	37.59	0.59	16.9	1797.9	56.766	0.0015	0.0098	0.0006	0.21	1.0002	0.353	0.28	1.33	0.47
197.50	0.7651	37.98	0.58	17.0	1815.5	56.668	0.0016	0.0098	0.0006	0.21	1.0100	0.353	0.28	1.32	0.46
198.50	0.7757	38.39	0.59	17.4	1834.3	57.385	0.0016	0.0100	0.0006	0.22	1.0200	0.354	0.28	1.31	0.46
199.50	0.7865	39.18	1.17	25.5	1900.6	81.368	0.0028	0.0156	0.0015	0.22	1.0356	0.355	0.28	1.32	0.45
200.50	0.7974	39.58	0.59	18.2	1888.7	58.333	0.0018	0.0102	0.0007	0.22	1.0458	0.356	0.28	1.31	0.45
201.50	0.8085	39.88	0.44	16.5	1895.2	52.527	0.0016	0.0088	0.0006	0.22	1.0546	0.357	0.27	1.30	0.44
202.50	0.8197	40.68	1.18	27.0	1967.5	82.976	0.0029	0.0147	0.0025	0.22	1.0693	0.359	0.27	1.30	0.44
203.44	0.8302	40.30	-0.59	3.0	1906.4	11.381	0.0006	0.0046	0.0002	0.23	1.0739	0.359	0.27	1.29	0.43
204.44	0.8415	41.06	1.18	27.3	1984.2	83.286	0.0030	0.0143	0.0027	0.23	1.0882	0.362	0.27	1.29	0.43
205.44	0.8529	41.10	0.00	11.3	1944.2	35.806	0.0009	0.0057	0.0003	0.23	1.0939	0.362	0.27	1.28	0.42
206.44	0.8643	40.70	-0.58	3.3	1925.5	12.115	0.0006	0.0052	0.0003	0.23	1.0991	0.363	0.27	1.27	0.42
207.44	0.8744	31.90	-12.91	0.7	1204.0	-7.877	0.0005	0.0003	0.0002	0.23	1.0994	0.363	0.26	1.26	0.41
208.44	0.8812	16.90	-22.00	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.23	1.1000	0.363	0.26	1.25	0.41
209.54	0.8839	1.28	-20.83	0.0	744.0	-0.695	0.0003	0.0007	0.0002	0.23	1.1007	0.363	0.26	1.25	0.41
209.93	0.8840	0.40	-3.37	0.0	744.0	-0.695	0.0001	0.0002	0.0001	0.23	1.1010	0.363	0.26	1.25	0.41
210.93	0.8841	0.40	0.00	0.0	744.0	3.712	0.0007	0.0015	0.0002	0.23	1.1025	0.363	0.26	1.25	0.41
211.93	0.8846	2.67	3.37	3.4	744.0	36.553	0.0020	0.0046	0.0002	0.23	1.1070	0.363	0.26	1.25	0.41
212.93	0.8854	3.77	1.61	2.5	744.0	24.003	0.0020	0.0046	0.0002	0.24	1.1116	0.364	0.27	1.26	0.41
213.93	0.8865	3.80	0.00	0.5	744.0	6.007	0.0009	0.0021	0.0002	0.24	1.1137	0.364	0.27	1.26	0.41
214.93	0.8872	1.50	-3.37	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.24	1.1143	0.364	0.27	1.26	0.41
215.93	0.8875	0.05	-0.83	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.24	1.1149	0.364	0.27	1.26	0.41
216.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1157	0.364	0.27	1.26	0.41
217.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1165	0.364	0.27	1.26	0.41
218.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1173	0.365	0.27	1.26	0.41
219.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1181	0.365	0.27	1.26	0.41
220.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1189	0.365	0.27	1.26	0.41
221.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1196	0.365	0.27	1.26	0.41
222.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1204	0.365	0.27	1.26	0.41
223.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1212	0.365	0.27	1.26	0.41
224.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1220	0.365	0.27	1.26	0.41
225.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1228	0.366	0.27	1.27	0.41
226.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1236	0.366	0.27	1.27	0.41

227.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1244	0.366	0.27	1.27	0.4
228.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1252	0.366	0.27	1.27	0.4
229.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1259	0.366	0.27	1.27	0.4
230.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1267	0.366	0.27	1.27	0.4
231.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1275	0.366	0.27	1.27	0.4
232.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1283	0.367	0.27	1.27	0.4
233.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1291	0.367	0.28	1.27	0.4
234.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1299	0.367	0.28	1.27	0.4
235.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.24	1.1307	0.367	0.28	1.27	0.4
236.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1314	0.367	0.28	1.27	0.4
237.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1322	0.367	0.28	1.28	0.4
238.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1330	0.368	0.28	1.28	0.4
239.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1338	0.368	0.28	1.28	0.4
240.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1346	0.368	0.28	1.28	0.4
241.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1354	0.368	0.28	1.28	0.4
242.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1362	0.368	0.28	1.28	0.4
243.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1370	0.368	0.28	1.28	0.4
244.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1377	0.368	0.28	1.28	0.4
245.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1385	0.369	0.28	1.28	0.4
246.93	0.8875	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.25	1.1393	0.369	0.28	1.28	0.4
247.93	0.8877	1.50	2.20	1.3	744.0	23.354	0.0020	0.0046	0.0002	0.25	1.1439	0.369	0.28	1.29	0.
248.93	0.8886	4.99	5.14	9.3	1013.3	69.876	0.0030	0.0096	0.0018	0.25	1.1534	0.371	0.29	1.30	0.
249.93	0.8905	8.79	5.57	17.8	1357.9	89.990	0.0030	0.0153	0.0018	0.26	1.1688	0.372	0.29	1.31	0.
250.93	0.8933	11.49	3.96	17.1	1592.4	72.882	0.0022	0.0156	0.0010	0.26	1.1843	0.373	0.29	1.33	0.
251.93	0.8969	14.19	3.97	21.2	1929.4	74.740	0.0026	0.0137	0.0010	0.26	1.1980	0.374	0.29	1.34	0.
252.93	0.9010	15.39	1.76	11.5	2068.2	38.788	0.0013	0.0078	0.0005	0.26	1.2059	0.375	0.29	1.34	0.
253.93	0.9053	16.09	1.02	8.1	2161.6	26.685	0.0010	0.0094	0.0006	0.26	1.2153	0.376	0.29	1.34	0.
255.18	0.9109	16.10	0.00	2.5	1195.7	13.700	0.0012	0.0025	0.0007	0.27	1.2177	0.376	0.29	1.34	0.
256.18	0.9155	16.88	1.18	9.3	1295.6	45.219	0.0025	0.0094	0.0017	0.27	1.2271	0.378	0.29	1.34	0.
257.18	0.9201	16.49	-0.58	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.27	1.2278	0.378	0.29	1.33	0.
258.18	0.9248	16.86	0.58	5.9	1266.6	29.402	0.0026	0.0087	0.0017	0.27	1.2365	0.380	0.29	1.34	0.
259.18	0.9296	17.94	1.61	12.5	1391.4	57.047	0.0023	0.0107	0.0014	0.27	1.2471	0.381	0.29	1.34	0.
260.18	0.9348	19.14	1.76	14.4	1477.1	61.465	0.0022	0.0116	0.0012	0.28	1.2587	0.382	0.29	1.35	0.
261.18	0.9402	20.34	1.76	15.4	1556.4	62.117	0.0019	0.0118	0.0009	0.28	1.2705	0.383	0.29	1.35	0.
262.18	0.9459	20.40	0.00	3.5	1515.1	15.400	0.0006	0.0018	0.0002	0.28	1.2723	0.383	0.29	1.35	0.
263.18	0.9517	21.10	1.03	10.9	1581.3	42.988	0.0011	0.0053	0.0005	0.28	1.2776	0.384	0.29	1.34	0.
264.18	0.9575	21.10	0.00	3.6	1567.1	15.656	0.0005	0.0016	0.0002	0.28	1.2792	0.384	0.29	1.34	0.
265.18	0.9636	22.27	1.76	17.0	1690.1	62.741	0.0016	0.0120	0.0006	0.28	1.2912	0.385	0.29	1.34	0.
266.18	0.9698	22.97	1.03	12.0	1712.7	43.678	0.0008	0.0049	0.0002	0.28	1.2962	0.385	0.29	1.34	0.
267.18	0.9763	23.77	1.17	13.6	1773.5	47.707	0.0011	0.0068	0.0004	0.28	1.3030	0.385	0.29	1.33	0.
268.18	0.9830	24.17	0.59	9.2	1794.9	32.525	0.0006	0.0034	0.0002	0.28	1.3064	0.385	0.29	1.33	0.
269.18	0.9898	24.56	0.58	9.3	1824.3	32.419	0.0006	0.0039	0.0002	0.28	1.3102	0.386	0.29	1.32	0.
270.18	0.9966	24.96	0.58	9.5	1853.6	32.580	0.0007	0.0043	0.0002	0.28	1.3146	0.386	0.29	1.32	0.
271.18	1.0037	25.66	1.03	13.7	1905.8	44.835	0.0012	0.0071	0.0004	0.29	1.3216	0.386	0.28	1.32	0.
272.18	1.0108	25.70	0.00	4.9	1908.7	17.466	0.0006	0.0051	0.0003	0.29	1.3267	0.387	0.28	1.31	0.
273.18	1.0180	26.50	1.18	15.6	1968.5	49.178	0.0015	0.0084	0.0006	0.29	1.3352	0.387	0.28	1.31	0.
274.17	1.0256	27.60	1.61	20.3	2056.5	60.964	0.0023	0.0104	0.0008	0.29	1.3456	0.388	0.28	1.31	0.
275.17	1.0333	28.41	1.18	16.9	2109.7	50.004	0.0019	0.0093	0.0007	0.29	1.3549	0.389	0.28	1.31	0.
276.17	1.0413	29.20	1.17	17.4	2169.0	50.096	0.0020	0.0097	0.0008	0.29	1.3646	0.389	0.28	1.31	0.
277.17	1.0496	30.30	1.61	22.7	2250.5	62.297	0.0027	0.0099	0.0010	0.30	1.3745	0.390	0.28	1.31	0.
278.17	1.0581	31.11	1.18	19.0	2310.3	51.240	0.0023	0.0103	0.0009	0.30	1.3848	0.391	0.28	1.31	0.
279.17	1.0668	31.10	0.00	6.7	2309.8	19.863	0.0012	0.0117	0.0007	0.30	1.3965	0.392	0.28	1.31	0
280.17	1.0754	30.70	-0.58	0.7	2280.4	4.257	0.0011	0.0104	0.0006	0.30	1.4069	0.393	0.28	1.31	0
281.17	1.0839	31.10	0.58	12.8	2309.8	35.284	0.0016	0.0112	0.0008	0.30	1.4182	0.394	0.28	1.31	0
282.17	1.0924	29.60	-2.20	-8.0	2022.6	-20.603	0.0007	0.0063	0.0004	0.30	1.4245	0.394	0.28	1.30	0
283.17	1.1005	29.22	-0.59	0.3	2170.0	3.307	0.0009	0.0087	0.0005	0.30	1.4332	0.394	0.28	1.30	0
284.17	1.1087	29.20	0.00	6.1	2168.7	18.986	0.0010	0.0094	0.0006	0.31	1.4426	0.395	0.28	1.30	0
285.17	1.1167	28.80	-0.58	0.4	2139.3	3.387	0.0009	0.0082	0.0005	0.31	1.4508	0.395	0.27	1.30	0
286.17	1.1246	28.00	-1.18	-5.2	1894.5	-12.711	0.0005	0.0044	0.0002	0.31	1.4552	0.396	0.27	1.29	0
287.17	1.1317	23.00	-7.33	-0.5	1447.9	-11.685	0.0004	0.0007	0.0001	0.31	1.4559	0.396	0.27	1.29	0
288.17	1.1378	21.10	-2.79	-1.9	1271.9	-8.937	0.0005	0.0004	0.0002	0.31	1.4563	0.396	0.27	1.28	0
289.17	1.1437	21.48	0.58	7.9	1595.0	31.217	0.0007	0.0027	0.0003	0.31	1.4591	0.396	0.27	1.28	0
290.17	1.1496	20.68	-1.17	-2.3	1234.9	-8.359	0.0005	0.0004	0.0002	0.31	1.4594	0.396	0.27	1.27	0
291.17	1.1553	20.70	0.00	3.5	1537.4	15.509	0.0005	0.0017	0.0002	0.31	1.4611	0.397	0.27	1.26	0
292.17	1.1609	19.60	-1.61	-1.2	1112.2	-6.444	0.0006	0.0002	0.0002	0.31	1.4614	0.397	0.27	1.26	0
293.17	1.1659	16.50	-4.55	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.31	1.4620	0.397	0.27	1.25	0
294.17	1.1700	13.10	-4.99	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.31	1.4626	0.397	0.27	1.25	0
295.22	1.1733	9.43	-5.13	-0.7	771.5	-1.124	0.0003	0.0006	0.0002	0.31	1.4632	0.397	0.27	1.25	0
296.15	1.1755	7.30	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0001	0.31	1.4638	0.397	0.26	1.25	0
297.14	1.1770	3.80	-5.14	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.31	1.4644	0.398	0.26	1.24	0
298.14	1.1777	0.80	-4.39	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.31	1.4651	0.398	0.26	1.24	0
299.14	1.1778	0.00	-1.18	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.31	1.4658	0.398	0.27	1.24	0
300.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.31	1.4666	0.398	0.27	1.25	0
301.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.31	1.4674	0.398	0.27	1.25	0
302.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.31	1.4682	0.398	0.27	1.25	0
303.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.31	1.4690	0.398	0.27	1.25	0
304.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.31	1.4698	0.399	0.27	1.25	0
305.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.31	1.4706	0.399	0.27	1.25	0
306.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4713	0.399	0.27	1.25	0
307.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4721	0.399	0.27	1.25	0

308.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4729	0.399	0.27	1.25	0.34
309.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4737	0.399	0.27	1.25	0.34
310.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4745	0.400	0.27	1.25	0.34
311.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4753	0.400	0.27	1.25	0.34
312.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4761	0.400	0.27	1.25	0.34
313.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4769	0.400	0.27	1.25	0.34
314.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4776	0.400	0.27	1.25	0.34
315.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4784	0.400	0.27	1.26	0.34
316.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4792	0.400	0.27	1.26	0.34
317.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4800	0.401	0.27	1.26	0.34
318.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4808	0.401	0.27	1.26	0.34
319.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4816	0.401	0.27	1.26	0.34
320.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4824	0.401	0.27	1.26	0.34
321.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4831	0.401	0.27	1.26	0.34
322.14	1.1778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.32	1.4839	0.401	0.27	1.26	0.34
323.14	1.1778	0.40	0.58	0.1	744.0	8.132	0.0011	0.0026	0.0002	0.32	1.4865	0.402	0.27	1.26	0.34
324.14	1.1783	2.69	3.37	3.4	744.0	36.604	0.0020	0.0046	0.0002	0.32	1.4911	0.402	0.28	1.27	0.34
325.14	1.1796	7.10	6.75	17.2	1273.4	96.044	0.0031	0.0140	0.0020	0.33	1.5051	0.404	0.28	1.28	0.34
326.14	1.1821	11.29	6.15	25.2	1624.2	108.729	0.0026	0.0195	0.0011	0.33	1.5246	0.405	0.28	1.29	0.34
327.14	1.1858	15.19	5.72	31.8	2085.4	103.404	0.0026	0.0108	0.0163	0.33	1.5354	0.421	0.28	1.29	0.36
328.14	1.1905	18.19	4.40	30.1	2443.8	83.427	0.0033	0.0107	0.0038	0.34	1.5461	0.425	0.28	1.30	0.36
329.14	1.1958	20.49	3.37	26.5	1636.0	104.582	0.0025	0.0197	0.0011	0.34	1.5658	0.426	0.28	1.31	0.36
330.14	1.2020	23.67	4.70	41.4	1892.4	141.232	0.0020	0.0137	0.0226	0.34	1.5795	0.449	0.28	1.31	0.37
331.14	1.2089	26.37	3.96	39.9	2045.4	122.641	0.0021	0.0103	0.0262	0.34	1.5898	0.475	0.28	1.32	0.39
332.14	1.2166	29.07	3.97	44.5	2223.4	124.306	0.0018	0.0055	0.0394	0.34	1.5954	0.514	0.28	1.31	0.42
333.14	1.2249	30.57	2.20	29.0	2281.6	77.955	0.0034	0.0092	0.0011	0.35	1.6046	0.515	0.28	1.31	0.42
334.14	1.2336	32.07	2.20	30.6	2386.2	78.645	0.0035	0.0096	0.0011	0.35	1.6142	0.516	0.28	1.31	0.42
335.14	1.2427	33.27	1.76	27.1	2471.2	67.708	0.0028	0.0116	0.0010	0.35	1.6258	0.517	0.28	1.31	0.42
336.14	1.2521	34.37	1.61	26.5	2552.7	64.264	0.0026	0.0128	0.0009	0.36	1.6386	0.518	0.28	1.31	0.41
337.14	1.2619	36.37	2.94	44.6	2705.9	100.408	0.0022	0.0124	0.0053	0.36	1.6510	0.524	0.28	1.31	0.41
338.14	1.2723	38.67	3.37	53.5	2876.6	113.028	0.0015	0.0106	0.0420	0.36	1.6615	0.566	0.28	1.31	0.44
339.14	1.2833	40.57	2.79	48.7	3013.2	98.946	0.0018	0.0183	0.0036	0.36	1.6799	0.569	0.28	1.31	0.44
340.24	1.2960	42.66	2.79	51.6	2131.1	97.291	0.0030	0.0114	0.0149	0.37	1.6913	0.584	0.28	1.30	0.45
341.24	1.3080	43.46	1.17	29.5	2089.6	84.905	0.0031	0.0123	0.0043	0.37	1.7035	0.588	0.28	1.30	0.45
342.24	1.3202	44.16	1.03	28.1	2114.3	79.910	0.0032	0.0118	0.0011	0.37	1.7153	0.590	0.28	1.30	0.45
343.24	1.3325	44.97	1.18	31.1	2156.1	86.623	0.0031	0.0108	0.0062	0.37	1.7262	0.596	0.28	1.30	0.45
344.24	1.3451	45.30	0.00	13.8	2142.9	39.428	0.0015	0.0089	0.0006	0.38	1.7350	0.596	0.28	1.29	0.44
345.24	1.3576	44.90	-0.59	4.7	2123.9	15.302	0.0009	0.0085	0.0005	0.38	1.7435	0.597	0.28	1.28	0.44
346.24	1.3701	44.50	-0.58	4.7	2105.2	15.354	0.0009	0.0082	0.0005	0.38	1.7517	0.597	0.28	1.28	0.44
347.24	1.3823	43.80	-1.03	-2.0	1886.4	-3.493	0.0005	0.0043	0.0002	0.38	1.7560	0.598	0.27	1.27	0.43
348.24	1.3944	43.42	-0.58	4.3	2054.2	14.411	0.0008	0.0073	0.0004	0.38	1.7633	0.598	0.27	1.26	0.43
349.24	1.4064	42.62	-1.18	-4.3	1827.2	-10.295	0.0004	0.0034	0.0002	0.38	1.7667	0.598	0.27	1.26	0.43
350.24	1.4181	41.92	-1.02	-2.3	1788.6	-4.849	0.0004	0.0028	0.0001	0.38	1.7695	0.598	0.27	1.25	0.42
351.24	1.4297	41.54	-0.59	3.4	1965.2	12.407	0.0007	0.0059	0.0003	0.38	1.7754	0.599	0.27	1.24	0.42
352.23	1.4412	40.74	-1.17	-4.5	1717.7	-11.637	0.0003	0.0017	0.0001	0.38	1.7771	0.599	0.26	1.23	0.42
353.23	1.4524	40.36	-0.59	3.0	1909.3	11.431	0.0006	0.0049	0.0003	0.38	1.7821	0.599	0.26	1.23	0.41
354.23	1.4637	41.12	1.18	27.4	1987.0	83.336	0.0030	0.0143	0.0027	0.38	1.7963	0.602	0.26	1.23	0.41
355.23	1.4752	41.51	0.58	19.5	1976.0	59.508	0.0020	0.0104	0.0007	0.39	1.8067	0.602	0.26	1.22	0.41
356.23	1.4869	42.59	1.61	34.9	2071.8	101.927	0.0026	0.0113	0.0149	0.39	1.8180	0.617	0.26	1.22	0.42
357.23	1.4988	43.40	1.18	29.6	2087.3	85.253	0.0031	0.0123	0.0045	0.39	1.8302	0.622	0.26	1.22	0.41
358.23	1.5110	44.20	1.18	30.4	2122.6	85.950	0.0031	0.0115	0.0053	0.40	1.8418	0.627	0.26	1.22	0.42
359.23	1.5234	44.90	1.02	28.7	2147.4	80.153	0.0033	0.0113	0.0012	0.40	1.8531	0.628	0.26	1.22	0.41
360.23	1.5360	45.70	1.18	31.9	2189.4	87.321	0.0031	0.0101	0.0071	0.40	1.8632	0.635	0.26	1.21	0.41
361.23	1.5488	46.51	1.18	32.7	2226.2	88.050	0.0032	0.0093	0.0081	0.40	1.8725	0.643	0.26	1.21	0.42
362.23	1.5617	46.81	0.44	21.5	2214.2	58.522	0.0025	0.0100	0.0009	0.41	1.8825	0.644	0.26	1.21	0.41
363.23	1.5748	47.20	0.58	24.1	2233.1	64.505	0.0028	0.0100	0.0010	0.41	1.8925	0.645	0.26	1.20	0.41
364.23	1.5880	48.01	1.18	34.3	2294.5	89.435	0.0032	0.0079	0.0103	0.41	1.9003	0.656	0.26	1.20	0.41
365.23	1.6013	47.61	-0.58	6.1	2252.2	18.177	0.0011	0.0107	0.0006	0.41	1.9110	0.656	0.26	1.19	0.41
366.23	1.6146	48.38	1.18	34.7	2311.4	89.784	0.0032	0.0075	0.0109	0.42	1.9185	0.667	0.26	1.19	0.41
367.17	1.6271	48.00	-0.59	6.2	2270.6	18.140	0.0010	0.0103	0.0006	0.42	1.9288	0.668	0.26	1.19	0.41
368.17	1.6404	47.20	-1.18	-3.3	2060.0	-6.392	0.0007	0.0069	0.0004	0.42	1.9357	0.668	0.26	1.18	0.41
369.17	1.6533	46.10	-1.61	-8.5	2003.4	-20.305	0.0007	0.0060	0.0003	0.42	1.9417	0.669	0.25	1.17	0.40
370.17	1.6661	45.72	-0.58	5.3	2162.9	16.443	0.0010	0.0092	0.0005	0.42	1.9509	0.669	0.25	1.17	0.40
371.17	1.6787	44.92	-1.18	-3.9	1943.0	-8.376	0.0006	0.0051	0.0003	0.42	1.9560	0.670	0.25	1.17	0.40
372.17	1.6911	44.22	-1.02	-1.8	1907.8	-2.750	0.0005	0.0046	0.0002	0.42	1.9606	0.670	0.25	1.16	0.40
373.17	1.7033	43.84	-0.59	4.3	2073.9	14.369	0.0008	0.0076	0.0004	0.42	1.9683	0.670	0.25	1.16	0.39
374.17	1.7156	44.51	1.03	28.5	2130.0	80.212	0.0032	0.0116	0.0013	0.43	1.9798	0.671	0.25	1.15	0.39
375.17	1.7280	44.90	0.58	22.1	2129.4	62.423	0.0025	0.0103	0.0009	0.43	1.9902	0.672	0.25	1.15	0.39
376.17	1.7405	45.31	0.59	22.6	2148.1	63.185	0.0025	0.0103	0.0009	0.43	2.0005	0.673	0.25	1.15	0.39
377.17	1.7532	46.49	1.76	41.6	2252.4	111.366	0.0023	0.0062	0.0297	0.43	2.0067	0.703	0.25	1.14	0.40
378.16	1.7664	47.99	2.20	50.5	2335.2	130.516	0.0014	0.0019	0.0537	0.43	2.0086	0.757	0.25	1.14	0.43
379.16	1.7798	48.79	1.18	35.1	2330.2	90.176	0.0032	0.0071	0.0116	0.44	2.0156	0.768	0.25	1.13	0.43
380.16	1.7935	49.49	1.03	33.4	2356.6	84.801	0.0034	0.0083	0.0058	0.44	2.0239	0.774	0.25	1.13	0.43
381.16	1.8073	49.89	0.58	26.4	2359.9	67.075	0.0030	0.0097	0.0010	0.44	2.0337	0.775	0.25	1.13	0.43
382.16	1.8211	49.90	0.00	16.9	2360.5	43.722	0.0020	0.0111	0.0008	0.45	2.0448	0.776	0.25	1.12	0.43
383.16	1.8350	49.90	0.00	16.9	2360.5	43.722	0.0020	0.0111	0.0008	0.45	2.0559	0.777	0.24	1.12	0.42
384.16	1.8488	49.50	-0.58	7.1	2341.8	19.975	0.0012	0.0120	0.0007	0.45	2.0679	0.777	0.24	1.12	0.42
385.16	1.8625	49.50	0.00	16.6	2341.6	43.335	0.0020	0.0110	0.0009	0.45	2.0790	0.778	0.24	1.12	0.42
386.16	1.8762	48.80	-1.03	-0.6	2141.1	0.955	0.0009	0.0082	0.0005	0.45	2.0871	0.779	0.24	1.11	0.42
387.16	1.8897	48.80	0.00	16.1	2308.5	42.664	0.0019	0.0108	0.0009	0.45	2.0979	0.780	0.24	1.11	0.41

388.16	1.9033	48.80	0.00	16.1	2308.5	42.664	0.0019	0.0108	0.0009	0.46	2.1087	0.781	0.24	1.11	0
389.16	1.9168	48.40	-0.58	6.5	2289.8	18.924	0.0011	0.0113	0.0007	0.46	2.1200	0.781	0.24	1.11	0
390.16	1.9303	48.79	0.58	25.4	2308.0	66.019	0.0030	0.0095	0.0010	0.46	2.1295	0.782	0.24	1.10	0
391.16	1.9440	49.49	1.03	33.4	2356.6	84.802	0.0034	0.0083	0.0058	0.46	2.1378	0.788	0.24	1.10	0
392.16	1.9578	50.29	1.17	36.6	2398.0	91.216	0.0030	0.0083	0.0110	0.47	2.1462	0.799	0.24	1.10	0
393.16	1.9718	50.69	0.59	27.3	2398.0	68.264	0.0030	0.0103	0.0010	0.47	2.1565	0.800	0.24	1.09	0
394.16	1.9861	51.78	1.61	45.9	2479.6	110.416	0.0021	0.0064	0.0331	0.47	2.1629	0.833	0.24	1.09	0
395.16	2.0006	52.58	1.17	39.2	2501.6	93.484	0.0028	0.0101	0.0097	0.47	2.1730	0.843	0.24	1.09	0
396.16	2.0153	53.38	1.18	40.4	2538.4	94.703	0.0027	0.0106	0.0092	0.48	2.1837	0.852	0.24	1.08	0
397.16	2.0302	54.08	1.03	38.5	2564.3	89.379	0.0028	0.0124	0.0057	0.48	2.1961	0.858	0.24	1.08	0
398.16	2.0454	55.28	1.76	53.3	2643.6	120.045	0.0015	0.0061	0.0584	0.48	2.2022	0.916	0.24	1.08	0
399.41	2.0646	55.30	0.00	21.1	1907.5	66.117	0.0027	0.0150	0.0010	0.48	2.2171	0.917	0.23	1.07	0
400.41	2.0801	56.06	1.17	43.4	2014.8	131.826	0.0019	0.0105	0.0291	0.49	2.2277	0.946	0.23	1.07	0
401.41	2.0957	56.37	0.45	30.4	1974.6	92.532	0.0028	0.0140	0.0071	0.49	2.2416	0.953	0.23	1.07	0
402.41	2.1114	56.40	0.00	22.1	1944.5	67.711	0.0023	0.0121	0.0008	0.49	2.2537	0.954	0.23	1.07	0
403.41	2.1270	56.40	0.00	22.1	1944.5	67.711	0.0023	0.0121	0.0008	0.49	2.2658	0.955	0.23	1.07	0
404.41	2.1428	57.16	1.17	44.8	2050.2	133.481	0.0018	0.0094	0.0329	0.50	2.2752	0.988	0.23	1.06	0
405.32	2.1572	56.80	-0.58	11.5	1934.6	36.253	0.0008	0.0050	0.0003	0.50	2.2802	0.988	0.23	1.06	0
406.32	2.1730	57.54	1.18	45.5	2063.2	134.591	0.0017	0.0090	0.0347	0.50	2.2892	1.023	0.23	1.05	0
407.32	2.1890	57.60	0.00	23.1	1985.0	69.480	0.0025	0.0121	0.0009	0.50	2.3013	1.024	0.23	1.05	0
408.32	2.2050	57.60	0.00	23.1	1985.0	69.480	0.0025	0.0121	0.0009	0.50	2.3134	1.025	0.23	1.05	0
409.32	2.2211	57.99	0.58	34.6	2035.0	102.113	0.0026	0.0121	0.0137	0.51	2.3254	1.038	0.23	1.05	0
410.32	2.2372	58.00	0.00	23.5	1998.4	70.077	0.0025	0.0121	0.0009	0.51	2.3375	1.039	0.23	1.04	0
411.32	2.2533	58.39	0.59	35.2	2049.1	103.275	0.0026	0.0117	0.0149	0.51	2.3492	1.054	0.23	1.04	0
412.32	2.2696	58.40	0.00	23.9	2011.9	70.678	0.0026	0.0120	0.0009	0.51	2.3612	1.055	0.23	1.04	0
413.32	2.2858	58.79	0.58	35.5	2061.8	103.317	0.0026	0.0114	0.0154	0.52	2.3726	1.071	0.23	1.04	0
414.32	2.3022	59.09	0.44	33.1	2065.3	96.037	0.0028	0.0119	0.0110	0.52	2.3844	1.082	0.23	1.04	0
415.32	2.3186	58.79	-0.44	15.7	2002.3	46.949	0.0015	0.0083	0.0006	0.52	2.3927	1.082	0.22	1.03	0
416.32	2.3349	58.80	0.00	24.2	2025.4	71.282	0.0027	0.0120	0.0009	0.52	2.4047	1.083	0.22	1.03	0
417.32	2.3511	58.00	-1.18	0.9	1975.3	4.903	0.0007	0.0058	0.0003	0.52	2.4105	1.083	0.22	1.03	0
418.32	2.3673	58.00	0.00	23.5	1998.4	70.077	0.0025	0.0121	0.0009	0.53	2.4226	1.084	0.22	1.02	0
419.32	2.3833	57.60	-0.58	12.1	1962.0	37.443	0.0010	0.0062	0.0004	0.53	2.4287	1.085	0.22	1.02	0
420.32	2.3993	57.60	0.00	23.1	1985.0	69.480	0.0025	0.0121	0.0009	0.53	2.4408	1.086	0.22	1.02	0
421.32	2.4153	57.60	0.00	23.1	1985.0	69.480	0.0025	0.0121	0.0009	0.53	2.4529	1.087	0.22	1.02	0
422.32	2.4313	57.60	0.00	23.1	1985.0	69.480	0.0025	0.0121	0.0009	0.53	2.4650	1.087	0.22	1.01	0
423.32	2.4473	57.60	0.00	23.1	1985.0	69.480	0.0025	0.0121	0.0009	0.54	2.4771	1.088	0.22	1.01	0
424.32	2.4634	58.48	1.37	50.3	2106.3	146.302	0.0015	0.0075	0.0471	0.54	2.4846	1.135	0.22	1.01	0
425.32	2.4797	58.88	0.59	35.8	2065.3	104.006	0.0025	0.0112	0.0160	0.54	2.4958	1.151	0.22	1.01	0
426.32	2.4961	59.27	0.58	36.0	2078.1	104.054	0.0025	0.0110	0.0165	0.54	2.5068	1.168	0.22	1.00	0
427.32	2.5127	59.67	0.58	36.5	2091.3	104.659	0.0025	0.0106	0.0174	0.55	2.5174	1.185	0.22	1.00	0
428.32	2.5293	60.30	0.00	25.7	2075.9	65.378	0.0025	0.0109	0.0009	0.55	2.5282	1.186	0.22	1.00	0
429.32	2.5462	61.06	1.18	50.2	2179.0	139.959	0.0014	0.0053	0.0490	0.55	2.5336	1.235	0.22	1.00	0
430.26	2.5621	60.30	-1.18	2.2	2053.8	8.413	0.0007	0.0067	0.0004	0.55	2.5403	1.235	0.21	0.99	0
431.26	2.5788	59.90	-0.58	13.8	2040.3	40.926	0.0013	0.0077	0.0005	0.55	2.5480	1.236	0.21	0.99	0
432.26	2.5954	59.51	-0.58	13.5	2026.9	40.319	0.0013	0.0075	0.0005	0.55	2.5555	1.237	0.21	0.98	0
433.26	2.6118	59.11	-0.59	13.0	2013.2	39.152	0.0012	0.0072	0.0005	0.55	2.5627	1.237	0.21	0.98	0
434.26	2.6282	59.10	0.00	24.5	2035.5	71.737	0.0027	0.0120	0.0010	0.56	2.5746	1.238	0.21	0.98	0
435.26	2.6447	59.49	0.59	36.5	2085.9	104.945	0.0025	0.0107	0.0173	0.56	2.5853	1.255	0.21	0.98	0
436.26	2.6612	59.50	0.00	24.9	2048.9	72.348	0.0027	0.0119	0.0010	0.56	2.5973	1.256	0.21	0.98	0
437.26	2.6778	59.50	0.00	24.9	2048.9	72.348	0.0027	0.0119	0.0010	0.57	2.6092	1.257	0.21	0.97	0
438.26	2.6944	59.89	0.58	36.7	2098.7	104.997	0.0025	0.0104	0.0179	0.57	2.6196	1.275	0.21	0.97	0
439.26	2.7110	60.28	0.58	37.2	2111.9	105.607	0.0025	0.0101	0.0188	0.57	2.6296	1.294	0.21	0.97	0
440.26	2.7278	60.69	0.59	37.9	2125.8	106.784	0.0025	0.0096	0.0202	0.57	2.6393	1.314	0.21	0.97	0
441.26	2.7447	60.70	0.00	26.1	2089.3	74.201	0.0029	0.0117	0.0010	0.58	2.6509	1.315	0.21	0.97	0
442.26	2.7617	61.37	1.02	47.4	2178.7	131.584	0.0016	0.0060	0.0421	0.58	2.6569	1.357	0.21	0.96	0
443.26	2.7788	61.77	0.59	39.2	2162.2	108.489	0.0024	0.0086	0.0230	0.58	2.6656	1.380	0.21	0.96	0
444.26	2.7959	61.80	0.00	27.2	2126.4	75.928	0.0031	0.0113	0.0010	0.58	2.6769	1.381	0.21	0.96	0
445.26	2.8131	61.80	0.00	27.2	2126.4	75.928	0.0031	0.0113	0.0010	0.59	2.6883	1.382	0.21	0.96	0
446.26	2.8303	61.80	0.00	27.2	2126.4	75.928	0.0031	0.0113	0.0010	0.59	2.6996	1.383	0.21	0.95	0
447.26	2.8473	61.10	-1.03	5.7	2081.0	17.937	0.0008	0.0079	0.0005	0.59	2.7075	1.384	0.21	0.95	0
448.26	2.8642	60.70	-0.58	14.4	2067.5	42.161	0.0014	0.0082	0.0006	0.59	2.7157	1.384	0.21	0.95	0
449.25	2.8811	60.30	-0.59	13.9	2053.8	40.985	0.0014	0.0079	0.0006	0.59	2.7236	1.385	0.21	0.95	0
450.25	2.8978	60.30	0.00	25.7	2075.9	73.579	0.0029	0.0118	0.0010	0.60	2.7354	1.386	0.21	0.94	0
451.25	2.9146	60.30	0.00	25.7	2075.9	73.579	0.0029	0.0118	0.0010	0.60	2.7471	1.387	0.21	0.94	0
452.25	2.9312	59.50	-1.17	1.9	2026.6	7.737	0.0007	0.0067	0.0004	0.60	2.7538	1.387	0.20	0.94	0
453.25	2.9476	58.80	-1.03	4.2	2002.7	14.396	0.0007	0.0065	0.0004	0.60	2.7603	1.388	0.20	0.94	0
454.25	2.9640	59.08	0.44	33.1	2065.2	96.033	0.0028	0.0119	0.0110	0.60	2.7722	1.399	0.20	0.94	0
455.20	2.9795	58.80	-0.44	15.7	2002.7	46.967	0.0014	0.0079	0.0006	0.60	2.7801	1.399	0.20	0.93	0
456.20	2.9959	58.80	0.00	24.2	2025.4	71.282	0.0027	0.0120	0.0009	0.61	2.7921	1.400	0.20	0.93	0
457.20	3.0122	58.80	0.00	24.2	2025.4	71.282	0.0027	0.0120	0.0009	0.61	2.8041	1.401	0.20	0.93	0
458.20	3.0285	58.40	-0.58	12.7	1989.2	38.641	0.0011	0.0068	0.0004	0.61	2.8108	1.402	0.20	0.93	0
459.20	3.0447	58.00	-0.59	12.2	1975.5	37.484	0.0010	0.0064	0.0004	0.61	2.8172	1.402	0.20	0.93	0
460.20	3.0608	58.00	0.00	23.5	1998.4	70.077	0.0025	0.0121	0.0009	0.61	2.8292	1.403	0.20	0.92	0
461.20	3.0769	58.00	0.00	23.5	1998.4	70.077	0.0025	0.0121	0.0009	0.62	2.8413	1.404	0.20	0.92	0
462.20	3.0930	58.39	0.59	35.2	2049.1	103.275	0.0026	0.0117	0.0149	0.62	2.8530	1.419	0.20	0.92	0
463.20	3.1094	59.09	1.02	44.4	2105.4	128.079	0.0019	0.0083	0.0338	0.62	2.8613	1.453	0.20	0.92	0
464.20	3.1258	59.49	0.59	36.5	2085.8	104.937	0.0025	0.0107	0.0173	0.62	2.8720	1.470	0.20	0.92	0
465.20	3.1424	59.88	0.58	36.7	2098.6	104.991	0.0025	0.0104	0.0179	0.63	2.8824	1.488	0.20	0.92	0
466.20	3.1591	59.90	0.00	25.3	2062.4	72.962	0.0028	0.0118	0.0010	0.63	2.8943	1.489	0.20	0.92	0
467.20	3.1757	60.29	0.58	37.2	2112.1	105.614	0.0025	0.0101	0.0188	0.63	2.9043	1.508	0.20	0.91	0

468.20	3.1926	61.09	1.18	50.2	2179.8	140.002	0.0014	0.0053	0.0491	0.63	2.9096	1.557	0.20	0.91	0.49
469.20	3.2096	61.10	0.00	26.5	2102.8	74.825	0.0030	0.0116	0.0010	0.64	2.9212	1.558	0.20	0.91	0.49
470.20	3.2265	61.10	0.00	26.5	2102.8	74.825	0.0030	0.0116	0.0010	0.64	2.9327	1.559	0.20	0.91	0.48
471.20	3.2436	61.40	0.44	35.7	2141.6	99.606	0.0027	0.0099	0.0156	0.64	2.9427	1.574	0.20	0.91	0.49
472.20	3.2606	61.40	0.00	26.8	2112.9	75.296	0.0030	0.0115	0.0010	0.64	2.9542	1.575	0.20	0.91	0.48
473.20	3.2776	61.10	-0.44	17.6	2081.0	50.512	0.0018	0.0092	0.0007	0.65	2.9634	1.576	0.20	0.90	0.48
474.20	3.2945	60.70	-0.58	14.4	2067.6	42.165	0.0014	0.0082	0.0006	0.65	2.9716	1.577	0.20	0.90	0.48
475.20	3.3113	59.90	-1.18	2.0	2040.2	7.796	0.0007	0.0069	0.0004	0.65	2.9785	1.577	0.20	0.90	0.48
476.20	3.3278	59.10	-1.18	1.5	2012.8	6.564	0.0007	0.0064	0.0004	0.65	2.9849	1.577	0.19	0.90	0.47
477.20	3.3442	59.10	0.00	24.5	2035.5	71.737	0.0027	0.0120	0.0010	0.65	2.9969	1.578	0.19	0.90	0.47
478.20	3.3607	59.10	0.00	24.5	2035.5	71.737	0.0027	0.0120	0.0010	0.65	3.0088	1.579	0.19	0.90	0.47
479.20	3.3772	59.87	1.18	48.6	2139.9	138.113	0.0015	0.0065	0.0438	0.66	3.0153	1.623	0.19	0.89	0.48
480.13	3.3926	59.50	-0.58	13.5	2026.6	40.305	0.0012	0.0070	0.0005	0.66	3.0223	1.624	0.19	0.89	0.48
481.13	3.4091	59.87	0.58	36.7	2098.2	104.973	0.0025	0.0104	0.0178	0.66	3.0327	1.641	0.19	0.89	0.48
482.13	3.4256	58.78	-1.61	-6.8	1812.1	-17.274	0.0004	0.0032	0.0001	0.66	3.0358	1.642	0.19	0.89	0.48
482.24	3.4274	58.00	-10.62	-4.0	1778.6	-16.831	0.0000	0.0003	0.0000	0.66	3.0361	1.642	0.19	0.89	0.48
483.23	3.4434	57.62	-0.58	12.1	1962.7	37.472	0.0010	0.0062	0.0004	0.66	3.0423	1.642	0.19	0.88	0.48
484.23	3.4593	56.82	-1.18	0.3	1935.3	3.158	0.0006	0.0051	0.0003	0.66	3.0474	1.642	0.19	0.88	0.47
485.23	3.4750	56.12	-1.03	2.7	1911.3	10.411	0.0006	0.0049	0.0003	0.66	3.0524	1.643	0.19	0.88	0.47
486.23	3.4905	55.32	-1.17	-0.2	1663.9	1.123	0.0002	0.0010	0.0000	0.66	3.0533	1.643	0.19	0.87	0.47
487.23	3.5057	54.12	-1.76	-5.1	1614.0	-14.279	0.0003	0.0009	0.0000	0.66	3.0542	1.643	0.19	0.87	0.47
488.23	3.5205	52.61	-2.21	-4.6	1552.5	-13.319	0.0003	0.0008	0.0000	0.66	3.0550	1.643	0.19	0.87	0.47
489.23	3.5346	49.21	-4.99	-2.8	1406.3	-11.036	0.0004	0.0006	0.0001	0.66	3.0557	1.643	0.19	0.86	0.46
490.23	3.5479	46.11	-4.55	-2.2	1275.9	-9.000	0.0005	0.0004	0.0002	0.66	3.0561	1.643	0.19	0.86	0.46
491.23	3.5603	43.01	-4.54	-1.0	1128.0	-6.691	0.0006	0.0002	0.0002	0.66	3.0564	1.643	0.19	0.86	0.46
492.23	3.5714	37.21	-8.51	1.9	773.7	-1.159	0.0003	0.0006	0.0002	0.66	3.0569	1.643	0.19	0.86	0.46
493.23	3.5807	29.62	-11.14	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.66	3.0576	1.643	0.19	0.85	0.46
494.23	3.5878	21.51	-11.89	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.67	3.0582	1.644	0.19	0.85	0.46
495.23	3.5931	16.51	-7.33	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.67	3.0588	1.644	0.19	0.85	0.46
496.23	3.5975	15.71	-1.18	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.67	3.0594	1.644	0.19	0.85	0.46
497.48	3.6031	17.12	3.29	21.8	2300.1	103.562	0.0032	0.0075	0.0304	0.67	3.0670	1.674	0.19	0.85	0.46
498.48	3.6083	20.22	4.54	34.6	2716.0	86.330	0.0027	0.0167	0.0019	0.67	3.0837	1.676	0.19	0.85	0.46
499.48	3.6144	23.71	5.13	45.6	3185.9	97.354	0.0016	0.0223	0.0023	0.67	3.1060	1.678	0.19	0.86	0.46
500.48	3.6213	26.02	3.38	34.3	1998.1	106.880	0.0025	0.0126	0.0149	0.68	3.1185	1.693	0.19	0.86	0.47
501.48	3.6288	27.91	2.78	31.5	2111.7	92.052	0.0029	0.0112	0.0094	0.68	3.1298	1.703	0.19	0.86	0.47
502.48	3.6368	29.42	2.21	27.8	2201.0	77.706	0.0033	0.0104	0.0011	0.68	3.1402	1.704	0.19	0.86	0.47
503.48	3.6450	30.22	1.17	18.2	2244.3	50.560	0.0022	0.0100	0.0009	0.68	3.1502	1.705	0.19	0.86	0.47
504.48	3.6537	31.10	0.00	6.7	2309.8	19.863	0.0012	0.0117	0.0007	0.69	3.1619	1.705	0.19	0.87	0.47
505.48	3.6623	31.10	0.00	6.7	2309.8	19.863	0.0012	0.0117	0.0007	0.69	3.1736	1.706	0.19	0.87	0.47
506.48	3.6708	30.30	-1.18	-5.3	2079.1	-11.738	0.0008	0.0072	0.0004	0.69	3.1808	1.707	0.19	0.87	0.46
507.48	3.6792	30.01	-0.44	1.9	2228.8	7.657	0.0010	0.0098	0.0006	0.69	3.1906	1.707	0.19	0.87	0.46
508.48	3.6875	30.00	0.00	6.3	2228.1	19.351	0.0011	0.0103	0.0006	0.69	3.2009	1.708	0.19	0.87	0.46
509.48	3.6958	29.60	-0.58	0.5	2198.7	3.749	0.0009	0.0092	0.0005	0.69	3.2101	1.708	0.19	0.87	0.46
510.48	3.7041	30.00	0.58	12.1	2228.1	34.772	0.0014	0.0100	0.0007	0.69	3.2201	1.709	0.19	0.87	0.46
511.48	3.7123	28.80	-1.76	-7.6	1958.2	-19.608	0.0006	0.0054	0.0003	0.69	3.2255	1.709	0.19	0.87	0.46
512.48	3.7203	28.80	0.00	5.9	2138.9	18.806	0.0009	0.0089	0.0005	0.69	3.2344	1.710	0.19	0.87	0.46
513.48	3.7281	28.00	-1.18	-5.2	1894.1	-12.713	0.0005	0.0044	0.0002	0.69	3.2388	1.710	0.19	0.87	0.46
514.48	3.7360	28.38	0.59	11.3	2107.6	34.305	0.0012	0.0082	0.0005	0.69	3.2470	1.711	0.19	0.87	0.46
515.42	3.7433	28.00	-0.59	0.1	2079.5	2.764	0.0007	0.0069	0.0004	0.70	3.2538	1.711	0.19	0.87	0.46
516.42	3.7512	28.40	0.59	11.4	2109.4	34.316	0.0012	0.0082	0.0005	0.70	3.2621	1.712	0.19	0.87	0.46
517.42	3.7590	28.40	0.00	5.8	2109.2	18.628	0.0009	0.0084	0.0005	0.70	3.2704	1.712	0.19	0.87	0.46
518.42	3.7670	28.80	0.58	11.5	2138.6	34.225	0.0013	0.0087	0.0006	0.70	3.2791	1.713	0.19	0.87	0.45
519.42	3.7749	28.40	-0.58	0.3	2109.2	3.207	0.0008	0.0078	0.0005	0.70	3.2869	1.713	0.19	0.87	0.45
520.42	3.7828	28.40	0.00	5.8	2109.2	18.628	0.0009	0.0084	0.0005	0.70	3.2953	1.714	0.19	0.87	0.45
521.42	3.7907	28.00	-0.59	0.1	2079.4	2.763	0.0008	0.0073	0.0004	0.70	3.3026	1.714	0.19	0.87	0.45
522.42	3.7982	26.50	-2.20	-5.5	1769.0	-16.683	0.0004	0.0025	0.0001	0.70	3.3051	1.714	0.18	0.87	0.45
523.42	3.8053	24.20	-3.37	-3.4	1558.8	-13.417	0.0003	0.0008	0.0000	0.70	3.3059	1.714	0.18	0.87	0.45
524.42	3.8118	22.69	-2.21	-3.0	1418.2	-11.222	0.0004	0.0006	0.0001	0.70	3.3066	1.714	0.18	0.87	0.45
525.42	3.8178	20.40	-3.37	-1.3	1210.5	-7.978	0.0005	0.0004	0.0002	0.70	3.3069	1.714	0.18	0.87	0.45
526.41	3.8230	17.70	-3.96	2.0	875.1	-2.742	0.0004	0.0005	0.0002	0.70	3.3074	1.715	0.18	0.87	0.45
527.41	3.8277	15.69	-2.94	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.70	3.3080	1.715	0.18	0.86	0.45
528.41	3.8317	13.09	-3.81	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.70	3.3086	1.715	0.18	0.86	0.45
529.41	3.8350	10.80	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.70	3.3093	1.715	0.18	0.86	0.45
530.41	3.8377	8.40	-3.52	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.70	3.3099	1.715	0.18	0.86	0.45
531.41	3.8398	7.30	-1.61	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.70	3.3105	1.715	0.18	0.86	0.45
532.41	3.8416	5.00	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.71	3.3111	1.716	0.18	0.86	0.45
533.41	3.8428	3.79	-1.77	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.71	3.3117	1.716	0.18	0.86	0.45
534.41	3.8438	3.49	-0.44	-0.1	744.0	-0.257	0.0003	0.0006	0.0002	0.71	3.3124	1.716	0.18	0.86	0.45
535.41	3.8445	1.90	-2.34	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.71	3.3130	1.716	0.18	0.86	0.45
536.41	3.8449	0.80	-1.61	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.71	3.3136	1.716	0.18	0.86	0.45
537.41	3.8450	0.00	-1.18	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.71	3.3144	1.716	0.18	0.86	0.45
538.41	3.8450	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.71	3.3152	1.716	0.18	0.86	0.45
539.41	3.8450	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.71	3.3159	1.717	0.18	0.86	0.45
540.41	3.8451	0.80	1.18	0.4	744.0	13.549	0.0017	0.0039	0.0002	0.71	3.3199	1.717	0.18	0.86	0.45
541.41	3.8455	1.90	1.61	1.3	744.0	19.542	0.0020	0.0046	0.0002	0.71	3.3244	1.717	0.18	0.86	0.45
542.41	3.8463	3.80	2.78	4.1	768.3	39.539	0.0021	0.0050	0.0003	0.71	3.3294	1.717	0.19	0.87	0.45
543.41	3.8478	6.84	4.55	11.5	1136.7	70.673	0.0033	0.0116	0.0023	0.72	3.3411	1.720	0.19	0.87	0.45
544.41	3.8500	9.55	3.97	14.2	1364.0	72.605	0.0028	0.0136	0.0017	0.72	3.3546	1.721	0.19	0.87	0.45
545.41	3.8529	11.05	2.20	9.8	1500.9	44.715	0.0015	0.0069	0.0008	0.72	3.3615	1.722	0.19	0.87	0.45
546.41	3.8560	11.10	0.00	1.6	1491.2	8.419	0.0004	0.0008	0.0001	0.72	3.3623	1.722	0.19	0.87	0.45

547.41	3.8590	10.40	-1.03	-0.7	1016.2	-4.945	0.0005	0.0003	0.0002	0.72	3.3626	1.722	0.19	0.87	0.4
548.40	3.8616	8.80	-2.34	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.72	3.3633	1.722	0.19	0.87	0.4
549.40	3.8641	9.18	0.58	3.1	1233.0	17.383	0.0014	0.0040	0.0009	0.72	3.3673	1.723	0.19	0.87	0.4
550.40	3.8668	9.98	1.18	5.4	1342.7	27.441	0.0021	0.0073	0.0014	0.73	3.3746	1.725	0.19	0.87	0.4
551.40	3.8696	10.38	0.58	3.5	1394.2	17.799	0.0011	0.0031	0.0006	0.73	3.3777	1.725	0.19	0.87	0.4
552.40	3.8725	10.40	0.00	1.4	1397.2	8.172	0.0004	0.0007	0.0001	0.73	3.3784	1.725	0.19	0.87	0.4
553.40	3.8747	5.40	-7.33	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.73	3.3790	1.726	0.19	0.87	0.4
554.40	3.8757	1.90	-5.13	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.73	3.3797	1.726	0.19	0.87	0.4
555.40	3.8760	0.06	-1.05	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.73	3.3803	1.726	0.19	0.87	0.4
556.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3811	1.726	0.19	0.87	0.4
557.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3818	1.726	0.19	0.87	0.4
558.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3826	1.726	0.19	0.87	0.4
559.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3834	1.726	0.19	0.87	0.4
560.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3842	1.727	0.19	0.87	0.4
561.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3850	1.727	0.19	0.87	0.4
562.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3858	1.727	0.19	0.87	0.4
563.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3866	1.727	0.19	0.87	0.4
564.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3874	1.727	0.19	0.87	0.4
565.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3881	1.727	0.19	0.87	0.4
566.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3889	1.728	0.19	0.87	0.4
567.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3897	1.728	0.19	0.87	0.4
568.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3905	1.728	0.19	0.87	0.4
569.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3913	1.728	0.19	0.87	0.4
570.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3921	1.728	0.19	0.88	0.4
571.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3929	1.728	0.19	0.88	0.4
572.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3936	1.728	0.19	0.88	0.4
573.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.73	3.3944	1.729	0.19	0.88	0.4
574.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.74	3.3952	1.729	0.19	0.88	0.4
575.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.74	3.3960	1.729	0.19	0.88	0.4
576.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.74	3.3968	1.729	0.19	0.88	0.4
577.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.74	3.3976	1.729	0.19	0.88	0.4
578.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.74	3.3984	1.729	0.19	0.88	0.4
579.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.74	3.3991	1.730	0.19	0.88	0.4
580.40	3.8760	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.74	3.3999	1.730	0.19	0.88	0.
581.40	3.8760	0.40	0.58	0.1	744.0	8.132	0.0011	0.0026	0.0002	0.74	3.4025	1.730	0.19	0.88	0.
582.40	3.8763	1.49	1.61	1.0	744.0	18.582	0.0020	0.0046	0.0002	0.74	3.4071	1.730	0.19	0.88	0.
583.40	3.8770	3.50	2.94	3.9	753.1	39.225	0.0020	0.0047	0.0002	0.74	3.4118	1.730	0.19	0.88	0.
584.40	3.8783	6.08	3.81	8.7	1027.0	58.205	0.0031	0.0098	0.0018	0.75	3.4216	1.732	0.19	0.88	0.
585.40	3.8806	10.28	6.31	23.5	1522.7	105.072	0.0027	0.0179	0.0014	0.75	3.4396	1.733	0.19	0.89	0.
586.40	3.8840	14.09	5.58	28.8	1946.0	101.260	0.0026	0.0141	0.0103	0.75	3.4536	1.744	0.19	0.89	0.
587.40	3.8883	16.79	3.96	25.2	2257.1	75.072	0.0033	0.0096	0.0011	0.75	3.4633	1.745	0.19	0.89	0.
588.40	3.8932	19.09	3.37	25.0	2564.3	66.571	0.0026	0.0131	0.0009	0.76	3.4763	1.746	0.19	0.89	0.
589.40	3.8987	19.89	1.18	11.2	1503.1	46.482	0.0016	0.0073	0.0009	0.76	3.4837	1.747	0.19	0.89	0.
590.40	3.9044	21.38	2.20	19.4	1644.4	73.894	0.0021	0.0164	0.0009	0.76	3.5001	1.747	0.19	0.90	0.
591.40	3.9106	23.28	2.79	25.8	1796.1	90.224	0.0026	0.0176	0.0031	0.76	3.5177	1.751	0.20	0.90	0.
592.40	3.9172	24.48	1.76	18.9	1841.0	63.681	0.0019	0.0117	0.0007	0.77	3.5295	1.751	0.20	0.90	0.
593.11	3.9220	24.20	-0.58	-0.2	1558.8	1.025	0.0002	0.0006	0.0000	0.77	3.5300	1.751	0.20	0.90	0.
594.11	3.9282	20.00	-6.16	1.5	1164.1	-7.253	0.0005	0.0003	0.0002	0.77	3.5303	1.751	0.20	0.90	0.
595.11	3.9333	16.90	-4.55	2.2	749.7	-0.783	0.0003	0.0006	0.0002	0.77	3.5310	1.752	0.19	0.90	0.
596.11	3.9375	13.40	-5.13	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.77	3.5316	1.752	0.19	0.90	0.
597.11	3.9412	13.40	0.00	2.0	995.2	12.715	0.0011	0.0021	0.0004	0.77	3.5337	1.752	0.19	0.90	0.
598.11	3.9451	14.88	3.37	19.3	2007.2	64.899	0.0023	0.0112	0.0008	0.77	3.5449	1.753	0.20	0.90	0.
599.11	3.9496	17.59	3.97	26.5	2363.0	76.112	0.0034	0.0093	0.0011	0.77	3.5541	1.754	0.20	0.90	0.
600.11	3.9549	20.29	3.96	30.7	2725.7	76.716	0.0027	0.0171	0.0010	0.78	3.5712	1.755	0.20	0.90	0.
601.11	3.9608	22.59	3.37	29.4	1769.7	105.236	0.0025	0.0179	0.0051	0.78	3.5891	1.760	0.20	0.91	0.
602.11	3.9674	24.49	2.79	27.3	1874.8	91.044	0.0027	0.0160	0.0046	0.78	3.6051	1.765	0.20	0.91	0.
603.11	3.9745	26.79	3.37	35.3	2049.8	107.388	0.0025	0.0113	0.0174	0.78	3.6165	1.782	0.20	0.91	0.
604.11	3.9821	27.99	1.76	22.0	2088.0	65.116	0.0025	0.0108	0.0009	0.79	3.6272	1.783	0.20	0.91	0.
605.11	3.9901	29.49	2.20	27.8	2205.4	77.470	0.0033	0.0103	0.0011	0.79	3.6375	1.784	0.20	0.91	0.
606.11	3.9983	29.89	0.59	12.2	2219.8	34.987	0.0014	0.0099	0.0007	0.79	3.6474	1.785	0.20	0.91	0.
607.11	4.0067	30.69	1.17	18.5	2279.1	50.777	0.0022	0.0102	0.0009	0.79	3.6576	1.786	0.20	0.91	0.
608.11	4.0154	31.10	0.00	6.7	2309.8	19.863	0.0012	0.0117	0.0007	0.79	3.6693	1.786	0.20	0.91	0.
609.11	4.0240	31.10	0.00	6.7	2309.8	19.863	0.0012	0.0117	0.0007	0.80	3.6810	1.787	0.20	0.91	0.
610.11	4.0325	30.30	-1.18	-5.3	2079.1	-11.738	0.0008	0.0072	0.0004	0.80	3.6882	1.788	0.20	0.91	0.
611.11	4.0409	30.30	0.00	6.4	2250.4	19.489	0.0011	0.0107	0.0006	0.80	3.6989	1.788	0.20	0.92	0.
612.11	4.0494	30.30	0.00	6.4	2250.4	19.489	0.0011	0.0107	0.0006	0.80	3.7096	1.789	0.20	0.92	0.
613.11	4.0578	30.70	0.59	12.6	2280.2	35.363	0.0016	0.0108	0.0008	0.80	3.7204	1.790	0.20	0.92	0.
614.11	4.0664	31.10	0.58	12.8	2309.6	35.283	0.0016	0.0112	0.0008	0.80	3.7317	1.790	0.20	0.92	0
615.11	4.0752	32.30	1.76	26.1	2398.7	67.230	0.0030	0.0104	0.0010	0.80	3.7420	1.791	0.20	0.92	0
616.10	4.0842	32.60	0.44	12.1	2421.0	32.280	0.0015	0.0118	0.0007	0.81	3.7539	1.792	0.20	0.92	0
617.10	4.0933	32.60	0.00	7.3	2421.2	20.582	0.0012	0.0119	0.0006	0.81	3.7658	1.793	0.20	0.92	0
618.10	4.1023	32.60	0.00	7.3	2421.2	20.582	0.0012	0.0119	0.0006	0.81	3.7777	1.793	0.20	0.92	0
619.10	4.1112	31.10	-2.20	-9.3	2142.5	-22.456	0.0008	0.0081	0.0005	0.81	3.7859	1.794	0.20	0.92	0
620.10	4.1192	26.90	-6.16	-4.0	1807.4	-17.276	0.0004	0.0031	0.0001	0.81	3.7890	1.794	0.20	0.92	0
621.10	4.1261	22.30	-6.75	-0.5	1380.9	-10.639	0.0004	0.0006	0.0001	0.81	3.7895	1.794	0.20	0.92	0
622.10	4.1317	18.00	-6.31	1.6	926.9	-3.550	0.0004	0.0004	0.0002	0.81	3.7900	1.794	0.20	0.92	0
623.10	4.1361	13.80	-6.16	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.81	3.7906	1.794	0.20	0.92	0
624.10	4.1393	9.60	-6.15	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.81	3.7912	1.795	0.20	0.92	0
625.10	4.1413	4.60	-7.34	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.81	3.7918	1.795	0.20	0.92	0
626.10	4.1428	6.04	2.20	5.3	916.2	39.657	0.0026	0.0078	0.0012	0.81	3.7996	1.796	0.20	0.92	0

627.10	4.1449	9.74	5.72	20.2	1447.0	95.557	0.0028	0.0167	0.0016	0.82	3.8163	1.797	0.20	0.92	0.43
628.10	4.1482	13.94	6.16	31.2	1936.0	109.317	0.0024	0.0139	0.0133	0.82	3.8302	1.811	0.20	0.92	0.44
629.10	4.1525	17.04	4.55	29.0	2298.2	84.921	0.0034	0.0083	0.0060	0.82	3.8385	1.817	0.20	0.92	0.44
630.10	4.1576	19.74	3.96	29.8	2651.7	76.557	0.0028	0.0154	0.0010	0.83	3.8540	1.818	0.20	0.93	0.44
631.10	4.1633	21.24	2.20	19.2	1635.6	73.849	0.0021	0.0163	0.0009	0.83	3.8703	1.819	0.20	0.93	0.44
632.10	4.1693	22.04	1.18	12.5	1652.8	47.323	0.0009	0.0061	0.0003	0.83	3.8763	1.819	0.20	0.93	0.44
633.10	4.1755	22.30	0.00	3.9	1656.2	16.107	0.0003	0.0012	0.0000	0.83	3.8776	1.819	0.20	0.93	0.44
634.10	4.1817	22.30	0.00	3.9	1656.2	16.107	0.0003	0.0012	0.0000	0.83	3.8788	1.819	0.20	0.93	0.43
635.10	4.1879	22.30	0.00	3.9	1656.2	16.107	0.0003	0.0012	0.0000	0.83	3.8800	1.819	0.20	0.93	0.43
636.10	4.1942	23.00	1.03	12.0	1715.0	43.691	0.0008	0.0049	0.0002	0.83	3.8850	1.819	0.20	0.93	0.43
637.10	4.2006	23.00	0.00	4.1	1708.2	16.377	0.0003	0.0018	0.0000	0.83	3.8868	1.819	0.20	0.93	0.43
638.10	4.2069	22.69	-0.45	0.6	1685.4	4.293	0.0003	0.0013	0.0000	0.83	3.8881	1.819	0.20	0.92	0.43
639.10	4.2132	22.30	-0.58	-0.4	1380.9	0.114	0.0004	0.0006	0.0001	0.83	3.8887	1.819	0.20	0.92	0.43
640.10	4.2193	21.90	-0.58	-0.4	1344.3	-0.051	0.0004	0.0005	0.0001	0.83	3.8893	1.820	0.20	0.92	0.43
641.10	4.2255	22.66	1.17	12.9	1696.0	47.286	0.0009	0.0061	0.0003	0.83	3.8954	1.820	0.20	0.92	0.43
642.10	4.2320	23.76	1.61	17.1	1786.1	59.410	0.0016	0.0106	0.0006	0.83	3.9060	1.820	0.20	0.92	0.43
643.10	4.2387	24.96	1.76	19.3	1874.9	63.869	0.0020	0.0116	0.0007	0.84	3.9176	1.821	0.20	0.92	0.43
644.10	4.2457	25.26	0.45	8.6	1876.4	29.250	0.0007	0.0047	0.0002	0.84	3.9223	1.821	0.20	0.92	0.43
645.10	4.2528	25.66	0.58	9.9	1905.7	32.870	0.0008	0.0051	0.0003	0.84	3.9275	1.822	0.20	0.92	0.43
646.10	4.2600	26.46	1.18	15.5	1965.5	49.161	0.0015	0.0084	0.0006	0.84	3.9359	1.822	0.20	0.92	0.43
647.10	4.2674	26.86	0.58	10.5	1994.9	33.378	0.0010	0.0065	0.0004	0.84	3.9424	1.823	0.20	0.92	0.43
648.10	4.2749	27.26	0.59	10.8	2024.8	33.817	0.0010	0.0069	0.0004	0.84	3.9493	1.823	0.20	0.92	0.43
649.10	4.2826	27.96	1.02	15.1	2076.4	45.552	0.0016	0.0087	0.0006	0.84	3.9580	1.824	0.20	0.92	0.43
650.10	4.2905	29.16	1.76	23.1	2169.8	65.623	0.0027	0.0103	0.0010	0.85	3.9683	1.825	0.20	0.92	0.43
651.10	4.2988	29.96	1.18	18.1	2225.3	50.707	0.0021	0.0100	0.0008	0.85	3.9783	1.826	0.20	0.93	0.42
652.10	4.3071	30.00	0.00	6.3	2228.1	19.351	0.0011	0.0103	0.0006	0.85	3.9886	1.826	0.20	0.93	0.42
653.10	4.3154	29.60	-0.58	0.5	2198.7	3.749	0.0009	0.0092	0.0005	0.85	3.9978	1.827	0.20	0.93	0.42
654.10	4.3236	29.60	0.00	6.2	2198.4	19.168	0.0010	0.0099	0.0006	0.85	4.0076	1.827	0.20	0.93	0.42
655.10	4.3317	28.80	-1.18	-5.2	1957.9	-12.380	0.0006	0.0054	0.0003	0.85	4.0130	1.828	0.20	0.93	0.42
656.10	4.3397	28.42	-0.58	0.3	2110.7	3.215	0.0008	0.0078	0.0005	0.85	4.0208	1.828	0.20	0.93	0.42
657.10	4.3475	28.02	-0.59	0.1	2080.8	2.772	0.0008	0.0073	0.0004	0.85	4.0281	1.829	0.20	0.93	0.42
658.10	4.3552	27.32	-1.02	-3.7	1841.0	-8.873	0.0005	0.0036	0.0002	0.85	4.0317	1.829	0.20	0.93	0.42
659.10	4.3625	25.72	-2.35	-4.9	1696.2	-15.557	0.0003	0.0014	0.0000	0.85	4.0331	1.829	0.20	0.92	0.42
660.10	4.3695	24.62	-1.61	-4.6	1596.3	-14.003	0.0003	0.0009	0.0000	0.85	4.0340	1.829	0.20	0.92	0.42
661.10	4.3764	25.00	0.58	9.5	1856.6	32.596	0.0007	0.0044	0.0002	0.85	4.0384	1.829	0.20	0.92	0.42
662.10	4.3836	26.48	2.21	24.6	1993.6	76.309	0.0028	0.0132	0.0010	0.86	4.0515	1.830	0.20	0.92	0.42
663.10	4.3911	27.98	2.20	26.1	2099.3	76.818	0.0030	0.0118	0.0010	0.86	4.0633	1.831	0.20	0.93	0.42
664.10	4.3991	29.58	2.35	29.3	2215.9	81.502	0.0034	0.0101	0.0024	0.86	4.0735	1.833	0.20	0.93	0.42
665.10	4.4075	30.68	1.61	23.0	2278.6	62.473	0.0028	0.0098	0.0010	0.87	4.0832	1.834	0.20	0.93	0.42
666.09	4.4162	32.28	2.34	32.4	2404.4	82.463	0.0034	0.0098	0.0033	0.87	4.0931	1.838	0.20	0.93	0.42
667.09	4.4253	32.98	1.03	18.8	2449.3	48.153	0.0021	0.0114	0.0008	0.87	4.1045	1.838	0.20	0.93	0.42
668.09	4.4346	34.18	1.76	28.0	2538.4	68.156	0.0027	0.0127	0.0009	0.88	4.1172	1.839	0.20	0.93	0.41
669.09	4.4442	34.57	0.58	14.8	2567.8	36.979	0.0016	0.0119	0.0005	0.88	4.1291	1.840	0.20	0.93	0.41
670.09	4.4539	35.28	1.03	20.6	2619.9	49.299	0.0019	0.0127	0.0005	0.88	4.1418	1.840	0.20	0.93	0.41
671.09	4.4638	36.07	1.17	22.9	2679.2	53.430	0.0020	0.0135	0.0005	0.88	4.1553	1.841	0.20	0.93	0.41
672.34	4.4763	36.10	0.00	8.8	1707.7	31.864	0.0005	0.0025	0.0001	0.88	4.1579	1.841	0.20	0.93	0.41
673.34	4.4865	36.88	1.18	23.6	1796.8	80.008	0.0026	0.0170	0.0010	0.88	4.1748	1.842	0.20	0.93	0.41
674.34	4.4967	36.90	0.00	9.2	1745.6	32.468	0.0005	0.0026	0.0001	0.88	4.1775	1.842	0.20	0.93	0.41
675.34	4.5071	37.58	1.03	22.3	1822.6	74.480	0.0024	0.0149	0.0009	0.89	4.1924	1.843	0.20	0.93	0.41
676.34	4.5175	37.60	0.00	9.5	1778.7	33.004	0.0005	0.0031	0.0001	0.89	4.1956	1.843	0.20	0.93	0.41
677.34	4.5281	38.38	1.18	24.9	1865.1	81.161	0.0028	0.0162	0.0014	0.89	4.2117	1.845	0.20	0.93	0.41
678.29	4.5381	38.00	-0.59	2.3	1797.6	9.547	0.0004	0.0030	0.0001	0.89	4.2147	1.845	0.20	0.93	0.41
679.29	4.5486	37.60	-0.58	2.3	1778.9	9.643	0.0004	0.0029	0.0001	0.89	4.2175	1.845	0.20	0.93	0.41
680.29	4.5590	37.60	0.00	9.5	1778.7	33.004	0.0005	0.0031	0.0001	0.89	4.2207	1.845	0.20	0.93	0.40
681.29	4.5694	37.20	-0.59	2.1	1759.6	8.928	0.0004	0.0025	0.0001	0.89	4.2232	1.845	0.20	0.92	0.40
682.29	4.5797	36.90	-0.44	3.8	1745.5	14.742	0.0004	0.0024	0.0001	0.89	4.2256	1.845	0.19	0.92	0.40
683.29	4.5899	36.09	-1.18	-3.9	1446.6	-11.665	0.0004	0.0007	0.0001	0.89	4.2263	1.845	0.19	0.92	0.40
684.29	4.5998	35.72	-0.58	1.8	1689.6	8.215	0.0003	0.0014	0.0000	0.89	4.2277	1.845	0.19	0.92	0.40
685.29	4.6098	36.10	0.58	15.8	1729.5	55.235	0.0013	0.0092	0.0005	0.89	4.2370	1.846	0.19	0.92	0.40
686.29	4.6198	35.70	-0.58	1.8	1688.9	8.204	0.0003	0.0014	0.0000	0.89	4.2384	1.846	0.19	0.92	0.40
687.29	4.6297	35.70	0.00	8.6	1688.8	31.567	0.0004	0.0017	0.0000	0.89	4.2401	1.846	0.19	0.92	0.40
688.29	4.6396	35.70	0.00	8.6	1688.8	31.567	0.0004	0.0017	0.0000	0.90	4.2418	1.846	0.19	0.91	0.40
689.29	4.6496	36.09	0.58	15.7	1729.2	55.231	0.0013	0.0092	0.0005	0.90	4.2510	1.846	0.19	0.91	0.40
690.29	4.6596	36.10	0.00	8.8	1707.7	31.864	0.0004	0.0020	0.0000	0.90	4.2531	1.846	0.19	0.91	0.40
691.29	4.6696	35.70	-0.58	1.8	1689.0	8.205	0.0003	0.0014	0.0000	0.90	4.2545	1.846	0.19	0.91	0.40
692.29	4.6795	35.70	0.00	8.6	1688.8	31.567	0.0004	0.0017	0.0000	0.90	4.2562	1.846	0.19	0.91	0.39
693.29	4.6893	34.90	-1.18	-3.4	1374.3	-10.535	0.0004	0.0006	0.0001	0.90	4.2568	1.846	0.19	0.91	0.39
694.29	4.6990	34.61	-0.44	3.1	1637.3	13.044	0.0003	0.0012	0.0000	0.90	4.2580	1.846	0.19	0.91	0.39
695.29	4.7085	34.22	-0.58	1.4	1618.5	7.119	0.0003	0.0010	0.0000	0.90	4.2590	1.846	0.19	0.90	0.39
696.29	4.7180	33.81	-0.59	1.2	1599.5	6.429	0.0003	0.0010	0.0000	0.90	4.2599	1.847	0.19	0.90	0.39
697.29	4.7273	33.42	-0.58	1.2	1580.8	6.553	0.0003	0.0009	0.0000	0.90	4.2609	1.847	0.19	0.90	0.39
698.29	4.7365	33.02	-0.58	1.2	1562.1	6.275	0.0003	0.0009	0.0000	0.90	4.2618	1.847	0.19	0.90	0.39
699.29	4.7453	30.32	-3.97	-0.5	1075.6	-5.873	0.0005	0.0003	0.0002	0.90	4.2620	1.847	0.19	0.90	0.39
700.29	4.7536	29.22	-1.61	-1.0	993.5	-4.591	0.0005	0.0004	0.0002	0.90	4.2624	1.847	0.19	0.90	0.39
701.29	4.7616	28.42	-1.17	-0.9	938.1	-3.725	0.0004	0.0004	0.0002	0.90	4.2628	1.847	0.19	0.90	0.39
702.29	4.7690	25.01	-5.00	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.90	4.2634	1.847	0.19	0.89	0.39
703.29	4.7754	21.11	-5.72	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.90	4.2640	1.848	0.19	0.89	0.39
704.29	4.7807	16.91	-6.16	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.90	4.2647	1.848	0.19	0.89	0.39
705.29	4.7849	13.41	-5.13	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.90	4.2653	1.848	0.19	0.89	0.39
706.29	4.7886	13.28	-0.44	0.0	1542.8	1.218	0.0003	0.0008	0.0001	0.90	4.2661	1.848	0.19	0.89	0.39

707.28	4.7922	12.47	-1.18	-2.9	1405.9	-11.029	0.0004	0.0006	0.0001	0.90	4.2667	1.848	0.19	0.89	0.
707.91	4.7944	12.70	0.58	4.3	1706.2	18.468	0.0002	0.0012	0.0000	0.90	4.2679	1.848	0.19	0.89	0.
708.91	4.7983	15.60	4.40	25.7	2114.1	82.151	0.0032	0.0119	0.0026	0.91	4.2798	1.851	0.19	0.89	0.
709.91	4.8031	19.10	5.13	36.4	2565.5	94.970	0.0026	0.0111	0.0083	0.91	4.2909	1.859	0.19	0.89	0.
710.91	4.8089	22.20	4.55	38.2	2982.3	87.079	0.0020	0.0178	0.0009	0.91	4.3087	1.860	0.19	0.90	0.
711.91	4.8154	24.50	3.37	32.0	1900.6	106.287	0.0025	0.0148	0.0106	0.91	4.3236	1.870	0.19	0.90	0.
712.91	4.8223	25.59	1.61	18.6	1915.7	60.133	0.0019	0.0106	0.0007	0.92	4.3342	1.871	0.19	0.90	0.
713.91	4.8295	26.40	1.18	15.5	1960.6	49.133	0.0015	0.0084	0.0006	0.92	4.3426	1.872	0.19	0.90	0.
714.91	4.8369	26.50	0.00	5.2	1968.1	17.803	0.0007	0.0061	0.0003	0.92	4.3486	1.872	0.19	0.90	0.
715.91	4.8443	26.90	0.58	10.5	1997.5	33.393	0.0010	0.0065	0.0004	0.92	4.3552	1.872	0.19	0.90	0.
716.91	4.8518	27.30	0.59	10.8	2027.4	33.832	0.0010	0.0070	0.0004	0.92	4.3622	1.873	0.19	0.90	0.
717.91	4.8594	27.30	0.00	5.4	2027.5	18.146	0.0008	0.0070	0.0004	0.92	4.3692	1.873	0.19	0.90	0.
718.91	4.8670	27.60	0.44	9.6	2049.8	29.975	0.0010	0.0075	0.0005	0.92	4.3767	1.874	0.19	0.90	0.
719.91	4.8748	28.40	1.18	16.9	2109.6	50.004	0.0019	0.0093	0.0007	0.92	4.3860	1.875	0.19	0.90	0.
720.91	4.8828	28.80	0.58	11.5	2138.9	34.227	0.0013	0.0087	0.0006	0.92	4.3947	1.875	0.19	0.90	0.
721.91	4.8908	28.80	0.00	5.9	2138.9	18.806	0.0009	0.0089	0.0005	0.93	4.4036	1.876	0.19	0.90	0.
722.91	4.8988	29.20	0.58	11.7	2168.3	34.405	0.0013	0.0091	0.0006	0.93	4.4127	1.876	0.19	0.90	0.
723.91	4.9069	28.80	-0.58	0.4	2138.9	3.385	0.0009	0.0082	0.0005	0.93	4.4209	1.877	0.19	0.90	0.
724.91	4.9149	28.80	0.00	5.9	2138.9	18.806	0.0009	0.0089	0.0005	0.93	4.4298	1.877	0.19	0.90	0.
725.91	4.9228	28.00	-1.18	-5.2	1894.1	-12.713	0.0005	0.0044	0.0002	0.93	4.4342	1.877	0.19	0.90	0.
726.91	4.9305	28.00	0.00	5.6	2079.5	18.451	0.0008	0.0079	0.0005	0.93	4.4421	1.878	0.19	0.90	0.
727.90	4.9383	27.60	-0.58	0.2	2050.2	2.857	0.0007	0.0069	0.0004	0.93	4.4490	1.878	0.19	0.90	0.
728.90	4.9458	26.51	-1.61	-5.9	1769.9	-16.696	0.0004	0.0025	0.0001	0.93	4.4515	1.878	0.19	0.90	0.
729.90	4.9529	24.60	-2.79	-4.0	1594.8	-13.978	0.0003	0.0009	0.0000	0.93	4.4524	1.878	0.19	0.90	0.
730.90	4.9592	20.70	-5.72	-0.4	1237.2	-8.395	0.0005	0.0004	0.0002	0.93	4.4528	1.879	0.19	0.90	0.
731.90	4.9643	16.50	-6.16	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.93	4.4534	1.879	0.19	0.90	0.
732.90	4.9687	15.00	-2.20	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.93	4.4540	1.879	0.19	0.90	0.
733.90	4.9728	14.20	-1.18	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.93	4.4546	1.879	0.19	0.90	0.
734.90	4.9767	14.20	0.00	2.1	1054.6	13.004	0.0011	0.0020	0.0005	0.93	4.4566	1.880	0.19	0.90	0.
735.90	4.9806	13.80	-0.59	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.93	4.4572	1.880	0.19	0.89	0.
736.90	4.9844	13.80	0.00	2.0	1024.9	12.863	0.0011	0.0020	0.0004	0.94	4.4592	1.880	0.19	0.89	0.
737.90	4.9880	11.90	-2.78	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	0.94	4.4598	1.880	0.19	0.89	0.
738.90	4.9908	8.41	-5.13	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.94	4.4605	1.880	0.19	0.89	0.
739.90	4.9926	4.21	-6.16	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	0.94	4.4611	1.881	0.19	0.89	0.
740.90	4.9933	1.21	-4.40	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.94	4.4617	1.881	0.19	0.89	0.
741.90	4.9935	0.04	-0.66	0.0	744.0	-0.695	0.0003	0.0006	0.0002	0.94	4.4623	1.881	0.19	0.89	0.
742.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4631	1.881	0.19	0.89	0.
743.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4639	1.881	0.19	0.89	0.
744.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4647	1.881	0.19	0.89	0.
745.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4655	1.881	0.19	0.89	0.
746.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4663	1.882	0.19	0.89	0.
747.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4670	1.882	0.19	0.89	0.
748.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4678	1.882	0.19	0.89	0.
749.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4686	1.882	0.19	0.89	0.
750.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4694	1.882	0.19	0.90	0.
751.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4702	1.882	0.19	0.90	0.
752.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4710	1.883	0.19	0.90	0.
753.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4718	1.883	0.19	0.90	0.
754.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4726	1.883	0.19	0.90	0.
755.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4733	1.883	0.19	0.90	0.
756.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4741	1.883	0.19	0.90	0.
757.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4749	1.883	0.19	0.90	0.
758.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4757	1.883	0.19	0.90	0.
759.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4765	1.884	0.19	0.90	0.
760.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4773	1.884	0.19	0.90	0.
761.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4781	1.884	0.19	0.90	0.
762.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4788	1.884	0.19	0.90	0.
763.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.94	4.4796	1.884	0.19	0.90	0.
764.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.95	4.4804	1.884	0.19	0.90	0.
765.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.95	4.4812	1.885	0.19	0.90	0.
766.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.95	4.4820	1.885	0.19	0.90	0.
767.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.95	4.4828	1.885	0.19	0.90	0.
768.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.95	4.4836	1.885	0.19	0.90	0.
769.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.95	4.4844	1.885	0.19	0.90	0.
770.90	4.9935	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	0.95	4.4851	1.885	0.19	0.90	0.
771.90	4.9937	1.50	2.20	1.3	744.0	23.354	0.0020	0.0046	0.0002	0.95	4.4897	1.885	0.19	0.90	0.
772.90	4.9947	5.35	5.72	11.1	1074.6	77.458	0.0032	0.0107	0.0021	0.95	4.5004	1.888	0.19	0.90	0.
773.90	4.9967	9.15	5.57	18.5	1389.6	91.633	0.0029	0.0158	0.0017	0.96	4.5162	1.889	0.19	0.90	0.
774.90	4.9995	11.45	3.37	14.7	1577.8	64.083	0.0019	0.0125	0.0009	0.96	4.5287	1.890	0.19	0.91	0.
775.90	5.0031	14.54	4.55	24.7	1982.9	83.881	0.0029	0.0143	0.0030	0.96	4.5430	1.893	0.19	0.91	0.
776.90	5.0076	17.25	3.97	26.0	2317.6	76.016	0.0034	0.0088	0.0011	0.96	4.5518	1.894	0.19	0.91	0.
777.90	5.0126	19.15	2.78	20.9	1523.7	37.681	0.0012	0.0045	0.0006	0.97	4.5563	1.895	0.19	0.91	0.
778.90	5.0182	21.03	2.79	23.2	1644.9	89.658	0.0025	0.0198	0.0011	0.97	4.5762	1.896	0.19	0.91	0.
779.73	5.0230	20.70	-0.58	-0.5	1236.8	-0.539	0.0004	0.0003	0.0002	0.97	4.5765	1.896	0.19	0.91	0.
780.73	5.0288	20.70	0.00	3.5	1537.4	15.509	0.0005	0.0017	0.0002	0.97	4.5782	1.896	0.19	0.91	0.
781.73	5.0344	19.60	-1.61	-1.2	1112.2	-6.444	0.0006	0.0002	0.0002	0.97	4.5784	1.897	0.19	0.91	0.
782.73	5.0397	18.40	-1.76	-0.6	970.5	-4.231	0.0005	0.0004	0.0002	0.97	4.5788	1.897	0.19	0.91	0.
783.73	5.0446	16.90	-2.21	0.9	749.3	-0.778	0.0003	0.0006	0.0002	0.97	4.5794	1.897	0.19	0.91	0.
784.73	5.0492	16.90	0.00	2.7	1255.1	14.004	0.0009	0.0020	0.0005	0.97	4.5815	1.897	0.19	0.91	0.
785.73	5.0539	16.50	-0.58	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	0.97	4.5821	1.898	0.19	0.91	0.

786.73	5.0585	16.88	0.58	5.9	1267.7	29.408	0.0026	0.0087	0.0017	0.97	4.5908	1.899	0.19	0.91	0.38
787.73	5.0632	16.90	0.00	2.7	1255.1	14.004	0.0009	0.0020	0.0005	0.97	4.5928	1.900	0.19	0.91	0.38
788.73	5.0679	16.90	0.00	2.7	1255.1	14.004	0.0009	0.0020	0.0005	0.98	4.5948	1.900	0.19	0.91	0.37
789.73	5.0727	17.30	0.59	6.1	1297.9	29.832	0.0024	0.0081	0.0016	0.98	4.6030	1.902	0.19	0.91	0.37
790.73	5.0777	19.11	2.78	20.8	1521.2	88.473	0.0027	0.0179	0.0014	0.98	4.6209	1.903	0.19	0.91	0.37
791.73	5.0832	20.31	1.76	15.3	1553.8	62.104	0.0019	0.0118	0.0009	0.98	4.6327	1.904	0.19	0.91	0.37
792.73	5.0889	21.01	1.03	10.8	1575.2	42.957	0.0011	0.0054	0.0005	0.98	4.6381	1.905	0.19	0.91	0.37
793.73	5.0949	22.21	1.76	16.9	1686.1	62.720	0.0016	0.0120	0.0006	0.99	4.6501	1.905	0.19	0.91	0.37
794.73	5.1011	22.30	0.00	3.9	1656.2	16.107	0.0003	0.0012	0.0000	0.99	4.6513	1.905	0.19	0.91	0.37
795.73	5.1074	22.70	0.58	8.4	1685.6	31.680	0.0004	0.0017	0.0000	0.99	4.6530	1.905	0.19	0.91	0.37
796.73	5.1136	22.30	-0.58	-0.4	1381.1	0.115	0.0004	0.0006	0.0001	0.99	4.6536	1.905	0.19	0.91	0.37
797.73	5.1199	22.68	0.58	8.4	1684.1	31.672	0.0004	0.0017	0.0000	0.99	4.6553	1.905	0.19	0.91	0.37
798.73	5.1261	22.28	-0.58	-0.4	1379.3	0.107	0.0004	0.0006	0.0001	0.99	4.6559	1.906	0.19	0.91	0.37
799.73	5.1325	23.71	2.20	21.7	1804.8	74.976	0.0024	0.0153	0.0009	0.99	4.6712	1.906	0.19	0.91	0.37
800.73	5.1393	25.61	2.79	28.7	1953.8	91.477	0.0028	0.0144	0.0062	0.99	4.6856	1.913	0.19	0.91	0.37
801.73	5.1467	27.51	2.79	31.0	2084.6	92.154	0.0029	0.0118	0.0090	1.00	4.6974	1.922	0.19	0.91	0.37
802.73	5.1546	29.51	2.94	35.1	2225.5	96.977	0.0028	0.0084	0.0159	1.00	4.7058	1.937	0.19	0.91	0.38
803.73	5.1629	29.91	0.58	12.1	2221.4	34.730	0.0014	0.0099	0.0007	1.00	4.7157	1.938	0.19	0.91	0.38
804.61	5.1701	29.20	-1.18	-5.2	1990.4	-12.208	0.0006	0.0052	0.0003	1.00	4.7209	1.938	0.19	0.91	0.37
805.61	5.1780	27.60	-2.34	-6.5	1863.2	-18.139	0.0005	0.0039	0.0002	1.00	4.7248	1.939	0.19	0.91	0.37
806.61	5.1853	25.00	-3.82	-3.7	1630.3	-14.533	0.0003	0.0009	0.0000	1.00	4.7257	1.939	0.19	0.91	0.37
807.61	5.1921	23.80	-1.76	-4.0	1523.7	-12.869	0.0003	0.0008	0.0001	1.00	4.7265	1.939	0.19	0.91	0.37
808.61	5.1986	23.40	-0.58	-0.3	1487.1	0.588	0.0003	0.0007	0.0001	1.00	4.7272	1.939	0.19	0.91	0.37
809.61	5.2052	24.17	1.18	14.0	1802.1	48.130	0.0012	0.0071	0.0004	1.00	4.7344	1.939	0.19	0.91	0.37
810.61	5.2118	23.36	-1.18	-3.9	1483.1	-12.235	0.0003	0.0007	0.0001	1.00	4.7351	1.939	0.19	0.91	0.37
811.53	5.2178	23.00	-0.58	-0.3	1447.6	0.413	0.0003	0.0006	0.0001	1.00	4.7357	1.939	0.19	0.91	0.37
812.53	5.2238	20.40	-3.82	-1.1	1210.5	-7.978	0.0005	0.0004	0.0002	1.00	4.7361	1.940	0.19	0.91	0.37
813.53	5.2293	18.80	-2.34	-0.4	1015.2	-4.929	0.0005	0.0003	0.0002	1.00	4.7364	1.940	0.19	0.91	0.37
814.53	5.2343	17.30	-2.20	0.8	809.5	-1.718	0.0004	0.0006	0.0002	1.00	4.7370	1.940	0.19	0.90	0.37
815.53	5.2388	15.00	-3.37	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.00	4.7376	1.940	0.19	0.90	0.37
816.53	5.2427	13.10	-2.79	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7382	1.940	0.19	0.90	0.37
817.53	5.2458	9.20	-5.72	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7388	1.940	0.19	0.90	0.37
818.53	5.2480	6.90	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7394	1.941	0.19	0.90	0.37
819.53	5.2496	4.60	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7401	1.941	0.19	0.90	0.37
820.53	5.2509	4.60	0.00	0.6	744.0	6.057	0.0009	0.0021	0.0002	1.01	4.7422	1.941	0.19	0.90	0.37
821.53	5.2521	4.60	0.00	0.6	744.0	6.057	0.0009	0.0021	0.0002	1.01	4.7442	1.941	0.19	0.90	0.37
822.53	5.2534	4.20	-0.58	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7449	1.941	0.19	0.90	0.37
823.53	5.2547	5.38	1.76	3.9	823.5	32.428	0.0023	0.0060	0.0006	1.01	4.7509	1.942	0.19	0.90	0.37
824.53	5.2561	4.57	-1.18	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7515	1.942	0.19	0.90	0.37
825.53	5.2572	3.48	-1.61	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7521	1.942	0.19	0.90	0.37
826.53	5.2580	2.28	-1.76	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7528	1.942	0.19	0.90	0.37
827.53	5.2586	2.30	0.00	0.3	744.0	5.687	0.0009	0.0020	0.0002	1.01	4.7548	1.942	0.19	0.90	0.37
828.53	5.2592	1.90	-0.58	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.01	4.7554	1.943	0.19	0.90	0.37
829.53	5.2599	3.10	1.76	2.2	744.0	23.807	0.0020	0.0046	0.0002	1.01	4.7599	1.943	0.19	0.90	0.37
830.53	5.2612	6.04	4.39	9.8	1060.5	64.894	0.0032	0.0104	0.0020	1.02	4.7704	1.945	0.19	0.91	0.37
831.53	5.2626	4.54	-2.20	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.02	4.7710	1.945	0.19	0.91	0.37
832.53	5.2636	2.63	-2.79	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.02	4.7716	1.945	0.19	0.91	0.37
833.37	5.2642	2.30	-0.58	-0.1	744.0	-0.695	0.0003	0.0005	0.0001	1.02	4.7722	1.945	0.19	0.91	0.37
834.37	5.2649	2.30	0.00	0.3	744.0	5.687	0.0009	0.0020	0.0002	1.02	4.7742	1.945	0.19	0.91	0.37
835.37	5.2656	3.10	1.18	1.6	744.0	18.445	0.0020	0.0046	0.0002	1.02	4.7787	1.945	0.19	0.91	0.37
836.37	5.2666	4.20	1.61	2.8	744.0	25.084	0.0020	0.0046	0.0002	1.02	4.7833	1.946	0.19	0.91	0.37
837.37	5.2677	3.50	-1.03	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.02	4.7839	1.946	0.19	0.91	0.37
838.37	5.2687	3.80	0.44	1.0	744.0	12.274	0.0016	0.0036	0.0002	1.03	4.7875	1.946	0.19	0.91	0.37
839.37	5.2698	4.20	0.59	1.4	744.0	14.435	0.0018	0.0041	0.0002	1.03	4.7916	1.946	0.19	0.91	0.37
840.37	5.2709	3.50	-1.03	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.03	4.7923	1.946	0.19	0.91	0.37
841.37	5.2719	3.50	0.00	0.4	744.0	5.989	0.0009	0.0021	0.0002	1.03	4.7943	1.946	0.20	0.91	0.37
842.37	5.2728	3.50	0.00	0.4	744.0	5.989	0.0009	0.0021	0.0002	1.03	4.7964	1.947	0.20	0.91	0.37
843.37	5.2740	4.60	1.61	3.1	744.0	25.986	0.0020	0.0046	0.0002	1.03	4.8010	1.947	0.20	0.91	0.37
844.37	5.2754	5.80	1.76	4.2	859.1	33.386	0.0024	0.0067	0.0008	1.03	4.8077	1.948	0.20	0.91	0.37
845.37	5.2767	3.50	-3.37	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.03	4.8083	1.948	0.20	0.91	0.37
846.37	5.2773	0.80	-3.96	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.03	4.8089	1.948	0.20	0.91	0.37
847.37	5.2779	3.43	3.96	5.0	818.2	50.504	0.0023	0.0059	0.0006	1.04	4.8148	1.948	0.20	0.91	0.37
848.37	5.2789	3.73	0.44	1.0	744.0	12.269	0.0016	0.0036	0.0002	1.04	4.8184	1.949	0.20	0.91	0.37
849.37	5.2797	2.23	-2.20	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.04	4.8191	1.949	0.20	0.91	0.37
850.34	5.2800	0.00	-3.37	0.0	744.0	0.684	0.0004	0.0008	0.0001	1.04	4.8198	1.949	0.20	0.91	0.37
851.34	5.2802	1.20	1.76	0.9	744.0	19.048	0.0020	0.0046	0.0002	1.04	4.8244	1.949	0.20	0.91	0.37
852.34	5.2812	6.54	8.36	19.4	1298.9	111.370	0.0031	0.0144	0.0019	1.04	4.8388	1.951	0.20	0.92	0.37
853.34	5.2839	12.53	8.05	36.1	1811.1	137.791	0.0022	0.0160	0.0140	1.05	4.8548	1.965	0.20	0.92	0.37
854.34	5.2880	17.54	7.34	46.5	2400.6	130.553	0.0013	0.0022	0.0604	1.05	4.8570	2.025	0.20	0.92	0.38
855.34	5.2936	22.53	7.33	60.1	3027.7	132.173	0.0008	0.0033	0.0948	1.05	4.8603	2.120	0.20	0.92	0.40
856.34	5.3003	25.98	4.72	45.9	2041.1	144.648	0.0017	0.0094	0.0391	1.05	4.8696	2.159	0.20	0.92	0.41
857.34	5.3080	29.32	4.99	54.8	2274.3	151.415	0.0009	0.0045	0.0971	1.05	4.8742	2.256	0.20	0.92	0.43
858.33	5.3166	32.41	4.54	56.3	2469.7	140.883	0.0010	0.0015	0.0752	1.05	4.8757	2.332	0.20	0.92	0.44
859.33	5.3261	35.99	5.36	73.0	2734.8	164.422	0.0679	5.5930	0.0125	1.12	10.4687	2.344	0.21	1.97	0.44
860.33	5.3365	39.10	4.55	69.5	2930.9	144.634	0.0095	0.4722	0.0739	1.13	10.9409	2.418	0.21	2.05	0.45
861.33	5.3478	42.19	4.54	75.7	3148.1	146.200	0.0239	1.2554	0.0389	1.15	12.1963	2.457	0.22	2.28	0.46
862.33	5.3598	44.48	3.00	57.4	2217.7	148.567	0.0012	0.0043	0.0609	1.15	12.2005	2.518	0.22	2.28	0.47
863.33	5.3725	46.34	2.75	56.6	2291.7	151.176	0.0010	0.0035	0.0786	1.16	12.2040	2.596	0.22	2.27	0.48
864.33	5.3855	47.85	2.21	50.4	2329.5	130.795	0.0014	0.0019	0.0534	1.16	12.2059	2.650	0.21	2.27	0.49
865.33	5.3991	49.75	2.80	62.9	2436.8	156.289	0.0018	0.0678	0.0764	1.16	12.2737	2.726	0.21	2.27	0.50

866.33	5.4131	51.25	2.21	55.4	2482.4	134.021	0.0011	0.0020	0.0737	1.16	12.2756	2.800	0.21	2.27	0.5
867.33	5.4276	52.75	2.20	57.4	2548.3	135.111	0.0010	0.0021	0.0811	1.16	12.2778	2.881	0.21	2.26	0.5
868.33	5.4424	53.95	1.76	51.4	2583.1	118.664	0.0016	0.0059	0.0522	1.16	12.2836	2.933	0.21	2.26	0.5
869.33	5.4575	55.05	1.61	50.2	2628.7	113.759	0.0017	0.0076	0.0420	1.16	12.2912	2.975	0.21	2.25	0.5
870.33	5.4730	56.25	1.76	54.7	2687.8	121.073	0.0014	0.0062	0.0635	1.17	12.2974	3.039	0.21	2.25	0.5
871.33	5.4888	57.35	1.61	53.5	2733.1	116.209	0.0015	0.0081	0.0515	1.17	12.3055	3.090	0.21	2.24	0.5
872.33	5.5049	58.55	1.76	58.1	2792.2	123.568	0.0012	0.0062	0.0753	1.17	12.3117	3.166	0.21	2.24	0.5
873.33	5.5212	59.35	1.18	47.9	2122.9	137.324	0.0016	0.0070	0.0417	1.17	12.3188	3.207	0.21	2.23	0.5
874.33	5.5378	60.05	1.03	45.8	2137.7	130.113	0.0017	0.0073	0.0378	1.17	12.3260	3.245	0.21	2.23	0.5
876.33	5.5717	61.80	0.00	27.2	2126.4	*******	0.0036	0.0285	0.0014	1.18	12.3545	3.246	0.21	2.22	0.5
877.33	5.5889	61.80	0.00	27.2	2126.4	75.928	0.0031	0.0113	0.0010	1.18	12.3659	3.248	0.21	2.21	0.5
878.33	5.6060	61.80	0.00	27.2	2126.4	75.928	0.0031	0.0113	0.0010	1.18	12.3772	3.249	0.21	2.21	0.5
879.33	5.6233	62.56	1.17	52.1	2227.7	141.786	0.0013	0.0039	0.0553	1.18	12.3812	3.304	0.21	2.20	0.5
880.33	5.6408	63.37	1.18	53.5	2254.5	143.607	0.0012	0.0032	0.0598	1.18	12.3843	3.364	0.21	2.20	0.4
881.26	5.6571	63.00	-0.58	16.3	2145.8	45.801	0.0016	0.0086	0.0007	1.19	12.3929	3.364	0.21	2.19	0.5
882.26	5.6746	63.00	0.00	28.4	2166.7	77.843	0.0032	0.0109	0.0011	1.19	12.4038	3.365	0.21	2.19	0.5
883.26	5.6920	62.60	-0.59	15.8	2132.1	44.603	0.0017	0.0091	0.0007	1.19	12.4129	3.366	0.21	2.18	0.5
884.26	5.7093	61.80	-1.17	3.3	2104.9	11.314	0.0009	0.0080	0.0005	1.19	12.4209	3.367	0.21	2.18	0.5
885.26	5.7265	61.80	0.00	27.2	2126.4	75.928	0.0031	0.0113	0.0010	1.19	12.4323	3.368	0.21	2.17	0.5
886.26	5.7437	62.19	0.58	39.5	2175.7	108.596	0.0024	0.0083	0.0237	1.20	12.4406	3.391	0.21	2.17	0.5
887.26	5.7610	62.20	0.00	27.6	2139.8	76.562	0.0031	0.0112	0.0011	1.20	12.4518	3.392	0.21	2.16	0.5
888.26	5.7783	62.59	0.58	39.9	2189.1	109.234	0.0024	0.0079	0.0248	1.20	12.4598	3.417	0.21	2.16	0.
889.26	5.7958	63.47	1.32	56.6	2265.6	151.552	0.0025	0.0202	0.0010	1.20	12.4800	3.418	0.21	2.15	0.
890.26	5.8136	64.28	1.18	54.8	2283.2	145.086	0.0011	0.0023	0.0643	1.21	12.4823	3.483	0.21	2.15	0.
891.26	5.8315	64.67	0.58	42.6	2258.3	112.614	0.0022	0.0059	0.0311	1.21	12.4882	3.514	0.21	2.14	0.
892.26	5.8496	65.54	1.29	59.1	2331.5	153.274	0.0025	0.0202	0.0010	1.21	12.5084	3.515	0.21	2.14	0.
893.26	5.8679	66.00	0.00	31.7	2267.7	81.135	0.0035	0.0093	0.0022	1.21	12.5177	3.517	0.21	2.13	0.
894.26	5.8863	66.77	1.18	58.6	2361.5	149.229	0.0010	0.0011	0.0752	1.21	12.5188	3.592	0.21	2.13	0.
895.19	5.9036	66.40	-0.58	19.4	2261.6	51.405	0.0021	0.0094	0.0008	1.22	12.5282	3.593	0.21	2.12	0.
896.19	5.9221	66.77	0.58	45.3	2327.6	116.123	0.0021	0.0038	0.0382	1.22	12.5320	3.631	0.21	2.12	0.
897.19	5.9407	67.17	0.58	45.9	2340.7	116.794	0.0020	0.0037	0.0395	1.22	12.5357	3.671	0.21	2.11	0.
898.19	5.9592	66.37	-1.17	6.5	2260.6	18.787	0.0011	0.0108	0.0007	1.22	12.5466	3.671	0.21	2.11	0.
899.19	5.9777	66.40	0.00	32.1	2281.2	83.445	0.0034	0.0088	0.0044	1.23	12.5554	3.676	0.20	2.10	0.
900.19	5.9961	66.00	-0.59	18.8	2247.9	50.176	0.0022	0.0101	0.0009	1.23	12.5654	3.677	0.20	2.10	0.
901.19	6.0143	65.70	-0.44	21.8	2237.6	57.955	0.0025	0.0100	0.0009	1.23	12.5754	3.678	0.20	2.09	0.
902.19	6.0326	65.70	0.00	31.3	2257.6	82.270	0.0034	0.0094	0.0032	1.23	12.5848	3.681	0.20	2.09	0.
903.19	6.0509	66.38	1.03	54.7	2336.7	140.282	0.0011	0.0009	0.0641	1.23	12.5857	3.745	0.20	2.08	0.
904.14	6.0683	66.00	-0.59	18.8	2247.9	50.180	0.0020	0.0095	0.0008	1.24	12.5952	3.746	0.20	2.08	0.
905.14	6.0866	65.70	-0.44	21.8	2237.7	57.958	0.0025	0.0100	0.0009	1.24	12.6052	3.747	0.20	2.07	0.
906.13	6.1048	65.30	-0.58	18.4	2224.3	49.570	0.0021	0.0099	0.0008	1.24	12.6151	3.747	0.20	2.07	0.
907.13	6.1229	65.30	0.00	30.9	2244.2	81.604	0.0034	0.0096	0.0026	1.24	12.6247	3.750	0.20	2.06	0.
908.13	6.1409	64.50	-1.18	4.9	2196.7	15.110	0.0010	0.0096	0.0006	1.25	12.6344	3.751	0.20	2.06	0.
909.13	6.1589	64.50	0.00	30.0	2217.2	80.282	0.0034	0.0102	0.0014	1.25	12.6446	3.752	0.20	2.05	0.
910.13	6.1767	64.10	-0.58	17.3	2183.4	47.592	0.0019	0.0096	0.0008	1.25	12.6542	3.753	0.20	2.05	0.
911.13	6.1945	63.70	-0.59	16.7	2169.7	46.385	0.0018	0.0095	0.0007	1.25	12.6637	3.753	0.20	2.04	0.
912.13	6.2122	63.70	0.00	29.1	2190.3	78.975	0.0033	0.0106	0.0011	1.26	12.6743	3.755	0.20	2.04	0.
913.13	6.2299	63.70	0.00	29.1	2190.3	78.975	0.0033	0.0106	0.0011	1.26	12.6849	3.756	0.20	2.04	0.
914.13	6.2477	64.47	1.18	55.1	2289.2	145.400	0.0011	0.0022	0.0653	1.26	12.6870	3.821	0.20	2.03	0.
915.13	6.2656	64.50	0.00	30.0	2217.2	80.282	0.0034	0.0102	0.0014	1.26	12.6972	3.822	0.20	2.03	0.
916.13	6.2835	64.89	0.58	42.8	2265.5	112.971	0.0022	0.0057	0.0318	1.27	12.7029	3.854	0.20	2.02	0.
917.13	6.3015	64.49	-0.58	17.7	2196.6	48.231	0.0020	0.0098	0.0008	1.27	12.7127	3.855	0.20	2.02	0.
918.13	6.3194	64.10	-0.58	17.3	2183.2	47.583	0.0019	0.0096	0.0008	1.27	12.7223	3.856	0.20	2.01	0.
919.13	6.3373	64.83	1.17	55.4	2299.8	145.439	0.0011	0.0019	0.0664	1.27	12.7242	3.922	0.20	2.01	0.
920.13	6.3553	65.23	0.59	43.5	2277.4	114.090	0.0022	0.0053	0.0335	1.27	12.7295	3.955	0.20	2.00	0.
921.13	6.3735	65.30	0.00	30.9	2244.2	81.604	0.0034	0.0096	0.0026	1.28	12.7391	3.958	0.20	2.00	0.
922.13	6.3916	65.30	0.00	30.9	2244.2	81.604	0.0034	0.0096	0.0026	1.28	12.7488	3.961	0.20	1.99	0.
923.13	6.4096	64.10	-1.76	-7.4	2006.2	-17.205	0.0007	0.0061	0.0003	1.28	12.7549	3.961	0.20	1.99	0.
924.13	6.4273	63.43	-1.03	7.3	2160.5	21.657	0.0010	0.0093	0.0006	1.28	12.7642	3.961	0.20	1.99	0.
925.13	6.4449	63.04	-0.58	16.4	2147.0	45.861	0.0018	0.0093	0.0007	1.28	12.7735	3.962	0.20	1.98	0.
926.13	6.4624	63.41	0.58	41.0	2216.6	110.557	0.0023	0.0072	0.0272	1.29	12.7806	3.989	0.20	1.98	0.
927.13	6.4801	64.11	1.03	51.4	2265.7	136.526	0.0013	0.0030	0.0537	1.29	12.7837	4.043	0.20	1.97	0.
928.13	6.4981	64.91	1.17	55.5	2302.3	145.571	0.0011	0.0018	0.0668	1.29	12.7854	4.110	0.20	1.97	0.
929.13	6.5161	65.31	0.59	43.6	2280.0	114.222	0.0022	0.0052	0.0337	1.29	12.7907	4.144	0.20	1.96	0
930.13	6.5342	64.51	-1.18	4.9	2197.1	15.130	0.0010	0.0096	0.0006	1.29	12.8003	4.144	0.20	1.96	0.
931.13	6.5520	64.11	-0.58	17.3	2183.6	47.605	0.0019	0.0097	0.0008	1.29	12.8100	4.145	0.20	1.96	0
932.13	6.5697	63.41	-1.03	7.3	2159.7	21.620	0.0010	0.0093	0.0006	1.29	12.8193	4.146	0.20	1.95	0
933.13	6.5874	63.69	0.44	38.4	2217.3	103.277	0.0026	0.0079	0.0210	1.30	12.8272	4.167	0.20	1.95	0
934.13	6.6051	63.39	-0.44	19.6	2159.2	54.167	0.0022	0.0098	0.0008	1.30	12.8370	4.167	0.20	1.94	0
935.13	6.6227	63.40	0.00	28.8	2180.2	78.488	0.0033	0.0107	0.0011	1.30	12.8477	4.168	0.20	1.94	0
936.13	6.6403	63.40	0.00	28.8	2180.2	78.488	0.0033	0.0107	0.0011	1.31	12.8584	4.170	0.20	1.94	0
937.13	6.6579	63.40	0.00	28.8	2180.2	78.488	0.0033	0.0107	0.0011	1.31	12.8692	4.171	0.20	1.93	0
938.13	6.6755	63.70	0.44	38.4	2217.5	103.284	0.0026	0.0079	0.0210	1.31	12.8771	4.192	0.20	1.93	0
939.13	6.6933	64.49	1.18	55.1	2289.9	145.434	0.0011	0.0021	0.0654	1.31	12.8792	4.257	0.20	1.92	0
940.13	6.7114	65.30	1.18	56.3	2315.2	146.761	0.0010	0.0014	0.0695	1.31	12.8806	4.327	0.20	1.92	0
941.13	6.7294	64.89	-0.59	17.8	2210.2	48.337	0.0020	0.0098	0.0008	1.32	12.8905	4.327	0.20	1.92	0
942.13	6.7473	63.69	-1.76	-7.6	1991.1	-17.841	0.0007	0.0059	0.0003	1.32	12.8963	4.328	0.20	1.91	0
943.13	6.7649	63.03	-1.02	7.2	2146.9	21.563	0.0010	0.0091	0.0005	1.32	12.9055	4.328	0.19	1.91	0
944.13	6.7820	59.93	-4.55	-6.5	1853.7	-17.992	0.0005	0.0038	0.0002	1.32	12.9092	4.328	0.19	1.90	0
945.13	6.7980	55.33	-6.75	-4.3	1664.3	-15.064	0.0002	0.0010	0.0000	1.32	12.9102	4.328	0.19	1.90	0
946.13	6.8127	50.73	-6.75	-2.8	1473.2	-12.080	0.0003	0.0007	0.0001	1.32	12.9109	4.329	0.19	1.90	0

947.13	6.8266	49.22	-2.21	-3.5	1406.7	-11.042	0.0004	0.0006	0.0001	1.32	12.9115	4.329	0.19	1.89	0.63
948.13	6.8401	48.02	-1.76	-3.2	1355.2	-10.238	0.0004	0.0006	0.0001	1.32	12.9121	4.329	0.19	1.89	0.63
949.13	6.8532	46.12	-2.79	-2.5	1276.3	-9.005	0.0005	0.0004	0.0002	1.32	12.9125	4.329	0.19	1.88	0.63
950.13	6.8657	44.22	-2.78	-2.1	1200.6	-7.823	0.0005	0.0003	0.0002	1.32	12.9129	4.329	0.19	1.88	0.63
951.13	6.8776	41.12	-4.55	-0.6	1021.8	-5.032	0.0005	0.0003	0.0002	1.32	12.9132	4.329	0.19	1.88	0.63
952.13	6.8888	39.92	-1.76	-1.0	960.1	-4.068	0.0005	0.0004	0.0002	1.32	12.9136	4.330	0.19	1.87	0.63
953.13	6.8994	36.11	-5.58	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9142	4.330	0.19	1.87	0.63
954.13	6.9089	32.62	-5.13	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9148	4.330	0.19	1.87	0.63
955.13	6.9175	29.21	-4.99	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9155	4.330	0.19	1.87	0.63
956.13	6.9250	24.61	-6.75	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9161	4.330	0.19	1.87	0.63
957.13	6.9313	20.71	-5.72	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9167	4.330	0.19	1.86	0.62
958.12	6.9369	19.21	-2.21	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9173	4.330	0.19	1.86	0.62
959.12	6.9418	16.51	-3.96	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9179	4.331	0.19	1.86	0.62
960.12	6.9462	15.01	-2.20	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9186	4.331	0.19	1.86	0.62
961.12	6.9499	11.90	-4.55	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9192	4.331	0.19	1.86	0.62
962.12	6.9529	9.61	-3.37	3.4	821.4	-1.904	0.0004	0.0005	0.0002	1.32	12.9197	4.331	0.19	1.86	0.62
963.12	6.9554	8.41	-1.76	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9203	4.331	0.19	1.86	0.62
964.12	6.9574	5.80	-3.82	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9210	4.331	0.19	1.86	0.62
965.12	6.9584	1.20	-6.75	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.32	12.9216	4.331	0.19	1.86	0.62
966.12	6.9585	0.00	-1.76	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.33	12.9224	4.332	0.19	1.86	0.62
967.12	6.9585	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.33	12.9231	4.332	0.19	1.86	0.62
968.12	6.9585	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.33	12.9239	4.332	0.19	1.86	0.62
969.12	6.9587	1.20	1.76	0.9	744.0	19.048	0.0020	0.0046	0.0002	1.33	12.9285	4.332	0.19	1.86	0.62
970.12	6.9593	3.10	2.79	3.3	744.0	32.955	0.0020	0.0046	0.0002	1.33	12.9330	4.332	0.19	1.86	0.62
971.12	6.9604	5.00	2.79	5.4	871.0	43.084	0.0025	0.0069	0.0009	1.33	12.9400	4.333	0.19	1.86	0.62
972.12	6.9623	8.32	4.99	15.2	1287.5	81.045	0.0031	0.0140	0.0019	1.34	12.9539	4.335	0.19	1.86	0.62
973.12	6.9650	11.42	4.54	19.2	1602.3	83.099	0.0026	0.0192	0.0012	1.34	12.9731	4.336	0.19	1.86	0.62
974.12	6.9686	14.52	4.55	24.6	1979.8	83.878	0.0029	0.0144	0.0030	1.34	12.9875	4.339	0.19	1.86	0.62
975.12	6.9730	16.82	3.37	21.9	2259.2	65.926	0.0029	0.0098	0.0010	1.34	12.9973	4.340	0.19	1.86	0.62
976.12	6.9779	18.72	2.79	20.8	2514.7	56.832	0.0024	0.0121	0.0008	1.35	13.0093	4.341	0.19	1.86	0.62
977.12	6.9834	21.02	3.37	27.2	1670.0	104.762	0.0025	0.0201	0.0011	1.35	13.0295	4.342	0.19	1.87	0.62
978.12	6.9896	23.72	3.96	35.6	1867.1	121.298	0.0023	0.0150	0.0139	1.35	13.0445	4.356	0.19	1.87	0.62
979.12	6.9966	26.42	3.97	40.1	2049.4	122.877	0.0021	0.0102	0.0266	1.35	13.0547	4.383	0.19	1.87	0.63
980.12	7.0041	27.92	2.20	26.1	2095.2	76.793	0.0030	0.0118	0.0010	1.36	13.0666	4.384	0.19	1.87	0.63
981.12	7.0121	29.53	2.35	29.3	2211.8	81.477	0.0034	0.0102	0.0024	1.36	13.0768	4.386	0.19	1.86	0.63
982.12	7.0205	30.62	1.61	23.0	2274.3	62.446	0.0027	0.0098	0.0010	1.36	13.0866	4.387	0.19	1.86	0.62
983.12	7.0292	32.51	2.78	37.4	2432.0	94.275	0.0028	0.0085	0.0125	1.37	13.0951	4.400	0.19	1.86	0.63
984.12	7.0385	34.11	2.35	34.7	2533.6	83.810	0.0031	0.0129	0.0032	1.37	13.1080	4.403	0.19	1.86	0.63
985.12	7.0481	35.21	1.61	27.3	2615.1	64.687	0.0025	0.0138	0.0008	1.37	13.1218	4.404	0.19	1.86	0.62
986.12	7.0580	36.01	1.17	22.8	2674.3	53.397	0.0020	0.0135	0.0005	1.37	13.1353	4.404	0.19	1.86	0.62
987.12	7.0681	36.81	1.18	23.5	1793.8	79.958	0.0026	0.0170	0.0010	1.38	13.1523	4.405	0.19	1.86	0.62
988.12	7.0785	37.91	1.61	29.9	1869.0	98.028	0.0026	0.0159	0.0067	1.38	13.1682	4.412	0.19	1.86	0.62
989.12	7.0890	38.00	0.00	9.7	1797.6	33.314	0.0006	0.0034	0.0002	1.38	13.1716	4.412	0.19	1.86	0.62
990.12	7.0996	38.00	0.00	9.7	1797.6	33.314	0.0006	0.0034	0.0002	1.38	13.1751	4.412	0.19	1.86	0.62
991.12	7.1102	38.00	0.00	9.7	1797.6	33.314	0.0006	0.0034	0.0002	1.38	13.1785	4.412	0.19	1.85	0.62
992.12	7.1207	38.00	0.00	9.7	1797.6	33.314	0.0006	0.0034	0.0002	1.38	13.1820	4.413	0.19	1.85	0.62
993.12	7.1312	37.20	-1.18	-4.4	1514.3	-12.722	0.0003	0.0008	0.0001	1.38	13.1827	4.413	0.19	1.85	0.62
994.12	7.1414	36.91	-0.44	3.8	1746.1	14.751	0.0004	0.0024	0.0001	1.38	13.1852	4.413	0.19	1.85	0.62
995.12	7.1516	36.11	-1.18	-3.9	1447.4	-11.677	0.0004	0.0007	0.0001	1.38	13.1858	4.413	0.19	1.84	0.62
996.12	7.1616	35.73	-0.58	1.8	1690.2	8.225	0.0003	0.0014	0.0000	1.38	13.1873	4.413	0.19	1.84	0.62
997.12	7.1714	34.93	-1.18	-3.4	1376.1	-10.564	0.0004	0.0006	0.0001	1.38	13.1878	4.413	0.19	1.84	0.62
998.12	7.1811	34.90	0.00	8.3	1650.9	30.979	0.0004	0.0017	0.0001	1.38	13.1895	4.413	0.19	1.84	0.61
999.12	7.1906	33.80	-1.61	-2.9	1310.4	-9.538	0.0004	0.0005	0.0001	1.38	13.1900	4.413	0.19	1.83	0.61
1000.12	7.1997	31.50	-3.37	-1.1	1173.0	-7.393	0.0005	0.0003	0.0002	1.38	13.1903	4.413	0.19	1.83	0.61
1001.12	7.2081	28.80	-3.96	-0.2	964.4	-4.136	0.0005	0.0004	0.0002	1.38	13.1907	4.414	0.19	1.83	0.61
1002.11	7.2156	25.70	-4.55	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.38	13.1913	4.414	0.19	1.83	0.61
1003.11	7.2226	24.60	-1.61	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.38	13.1919	4.414	0.19	1.83	0.61
1004.11	7.2293	23.40	-1.76	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.38	13.1926	4.414	0.19	1.82	0.61
1005.11	7.2356	22.31	-1.61	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.1932	4.414	0.19	1.82	0.61
1006.11	7.2417	21.50	-1.18	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.1938	4.414	0.19	1.82	0.61
1007.11	7.2475	20.00	-2.20	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.1944	4.414	0.19	1.82	0.61
1008.11	7.2530	20.00	0.00	3.4	969.8	21.494	0.0023	0.0065	0.0011	1.39	13.2010	4.416	0.19	1.82	0.61
1009.11	7.2585	19.20	-1.18	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.2016	4.416	0.19	1.82	0.61
1010.11	7.2638	19.20	0.00	3.2	933.7	21.026	0.0022	0.0060	0.0009	1.39	13.2076	4.417	0.19	1.82	0.61
1011.11	7.2690	18.00	-1.76	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.2082	4.417	0.19	1.82	0.61
1012.11	7.2731	11.90	-8.94	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.2089	4.417	0.19	1.82	0.61
1013.11	7.2758	6.90	-7.34	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.2095	4.417	0.19	1.82	0.61
1014.11	7.2771	2.70	-6.16	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.2101	4.417	0.19	1.82	0.61
1015.11	7.2776	0.80	-2.78	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.2107	4.417	0.19	1.82	0.61
1016.11	7.2777	0.40	-0.59	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.39	13.2113	4.417	0.19	1.82	0.61
1017.08	7.2778	0.00	-2.61	0.0	744.0	0.684	0.0004	0.0008	0.0001	1.39	13.2121	4.418	0.19	1.82	0.61
1018.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.39	13.2129	4.418	0.19	1.82	0.61
1019.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.39	13.2137	4.418	0.19	1.82	0.61
1020.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.39	13.2145	4.418	0.19	1.82	0.61
1021.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.39	13.2153	4.418	0.19	1.82	0.61
1022.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.39	13.2160	4.418	0.19	1.82	0.61
1023.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.39	13.2168	4.419	0.19	1.82	0.61
1024.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2176	4.419	0.19	1.82	0.61
1025.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2184	4.419	0.19	1.82	0.61
1026.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2192	4.419	0.19	1.82	0.61

1027.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2200	4.419	0.19	1.82	0.6
1028.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2208	4.419	0.19	1.82	0.6
1029.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2215	4.419	0.19	1.82	0.6
1030.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2223	4.420	0.19	1.82	0.6
1031.08	7.2778	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.40	13.2231	4.420	0.19	1.82	0.6
1032.08	7.2779	0.40	0.58	0.1	744.0	8.132	0.0011	0.0026	0.0002	1.40	13.2257	4.420	0.19	1.82	0.6
1033.08	7.2783	2.69	3.37	3.4	744.0	36.604	0.0020	0.0046	0.0002	1.40	13.2303	4.420	0.19	1.82	0.6
1034.08	7.2795	6.05	4.99	11.0	1095.4	72.040	0.0033	0.0111	0.0022	1.40	13.2414	4.422	0.19	1.82	0.6
1035.08	7.2816	9.15	4.55	15.4	1335.8	79.690	0.0030	0.0145	0.0018	1.41	13.2559	4.424	0.19	1.82	0.6
1036.08	7.2845	11.45	3.37	14.7	1578.0	64.080	0.0019	0.0125	0.0009	1.41	13.2684	4.425	0.19	1.82	0.6
1037.08	7.2880	14.15	3.97	21.2	1924.3	74.732	0.0026	0.0138	0.0010	1.41	13.2821	4.426	0.19	1.82	0.6
1038.08	7.2922	16.05	2.78	17.6	2156.2	55.912	0.0022	0.0099	0.0008	1.41	13.2920	4.427	0.19	1.82	0.6
1039.08	7.2969	17.95	2.79	19.9	2411.7	56.612	0.0025	0.0109	0.0009	1.42	13.3030	4.428	0.19	1.82	0.6
1040.09	7.3022	19.96	2.94	22.9	1583.1	92.999	0.0026	0.0189	0.0012	1.42	13.3219	4.429	0.19	1.82	0.6
1041.09	7.3080	21.46	2.20	19.4	1649.4	73.919	0.0021	0.0165	0.0009	1.42	13.3383	4.430	0.19	1.83	0.6
1042.09	7.3141	22.96	2.21	21.0	1753.2	75.029	0.0023	0.0160	0.0009	1.42	13.3543	4.431	0.19	1.83	0.6
1043.09	7.3207	24.16	1.76	18.6	1818.5	63.438	0.0019	0.0118	0.0007	1.43	13.3661	4.431	0.19	1.83	0.6
1044.09	7.3275	24.96	1.17	14.4	1857.0	48.176	0.0013	0.0075	0.0005	1.43	13.3736	4.432	0.19	1.83	0.6
1045.09	7.3345	25.66	1.03	13.7	1906.0	44.836	0.0012	0.0071	0.0004	1.43	13.3807	4.432	0.19	1.82	0.6
1046.09	7.3418	26.86	1.76	21.0	2009.2	64.643	0.0023	0.0111	0.0008	1.43	13.3919	4.433	0.19	1.82	0.6
1047.09	7.3494	27.57	1.03	15.0	2047.2	45.647	0.0016	0.0085	0.0006	1.43	13.4003	4.434	0.19	1.82	0.6
1048.09	7.3570	27.60	0.00	5.5	2049.8	18.276	0.0008	0.0074	0.0004	1.43	13.4077	4.434	0.19	1.82	0.6
1049.09	7.3648	28.40	1.18	16.9	2109.6	50.004	0.0019	0.0094	0.0007	1.43	13.4171	4.435	0.19	1.82	0.6
1050.09	7.3728	29.20	1.17	17.4	2168.8	50.095	0.0020	0.0097	0.0008	1.44	13.4267	4.436	0.19	1.82	0.6
1051.09	7.3809	29.20	0.00	6.1	2168.7	18.986	0.0010	0.0094	0.0006	1.44	13.4361	4.436	0.19	1.82	0.6
1052.10	7.3892	30.00	1.18	18.1	2228.4	50.727	0.0021	0.0100	0.0008	1.44	13.4461	4.437	0.19	1.82	0.6
1053.10	7.3974	29.61	-0.58	0.5	2199.0	3.751	0.0009	0.0092	0.0005	1.44	13.4552	4.438	0.19	1.82	0.6
1054.10	7.4057	29.60	0.00	6.2	2198.4	19.168	0.0010	0.0099	0.0006	1.44	13.4651	4.438	0.19	1.82	0.6
1055.10	7.4138	28.80	-1.18	-5.2	1957.9	-12.380	0.0006	0.0054	0.0003	1.44	13.4705	4.439	0.19	1.82	0.6
1056.10	7.4217	27.99	-1.18	-5.2	1893.8	-12.714	0.0005	0.0044	0.0002	1.44	13.4749	4.439	0.19	1.82	0.6
1057.10	7.4288	23.79	-6.16	-1.9	1523.0	-12.857	0.0003	0.0008	0.0001	1.44	13.4756	4.439	0.19	1.81	0.6
1058.10	7.4348	18.79	-7.33	2.1	1014.4	-4.917	0.0005	0.0003	0.0002	1.44	13.4760	4.439	0.19	1.81	0.6
1059.10	7.4390	11.89	-10.12	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.44	13.4766	4.439	0.19	1.81	0.6
1060.10	7.4415	6.09	-8.51	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.44	13.4772	4.439	0.19	1.81	0.6
1061.10	7.4426	1.49	-6.75	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.44	13.4778	4.439	0.19	1.81	0.6
1062.10	7.4430	1.50	0.00	0.2	744.0	4.859	0.0008	0.0018	0.0002	1.45	13.4796	4.440	0.19	1.81	0.6
1063.10	7.4438	4.15	3.97	6.1	873.5	52.642	0.0025	0.0070	0.0009	1.45	13.4866	4.441	0.19	1.81	0.6
1064.10	7.4455	8.00	5.72	16.6	1299.7	88.658	0.0031	0.0144	0.0019	1.45	13.5010	4.442	0.19	1.81	0.6
1065.11	7.4480	10.30	3.37	13.2	1437.3	63.049	0.0023	0.0119	0.0013	1.45	13.5130	4.444	0.20	1.81	0.6
1066.11	7.4512	13.01	3.97	19.4	1783.0	74.070	0.0023	0.0153	0.0009	1.46	13.5283	4.445	0.20	1.82	0.6
1067.11	7.4552	15.31	3.37	19.8	2060.4	64.981	0.0024	0.0109	0.0009	1.46	13.5392	4.446	0.20	1.82	0.6
1068.11	7.4598	17.90	3.81	26.0	2405.2	73.543	0.0032	0.0103	0.0011	1.46	13.5495	4.447	0.20	1.82	0.6
1069.11	7.4651	20.30	3.52	27.7	2727.7	69.410	0.0024	0.0161	0.0008	1.46	13.5656	4.447	0.20	1.82	0.
1070.11	7.4711	22.91	3.82	33.3	1809.9	117.318	0.0024	0.0166	0.0093	1.47	13.5822	4.457	0.20	1.82	0.
1071.11	7.4778	25.21	3.37	33.1	1946.0	106.324	0.0025	0.0138	0.0125	1.47	13.5961	4.469	0.20	1.82	0.
1072.11	7.4850	27.21	2.94	32.0	2069.0	96.025	0.0028	0.0118	0.0111	1.47	13.6078	4.480	0.20	1.82	0.
1073.11	7.4928	28.71	2.20	26.9	2150.8	77.131	0.0032	0.0111	0.0011	1.47	13.6189	4.481	0.20	1.82	0.
1074.11	7.5010	30.21	2.20	28.6	2256.1	77.792	0.0034	0.0096	0.0011	1.48	13.6285	4.483	0.20	1.82	0.
1075.11	7.5095	31.01	1.18	18.9	2303.4	51.197	0.0023	0.0103	0.0009	1.48	13.6389	4.483	0.20	1.82	0.
1076.12	7.5183	32.21	1.76	26.1	2392.5	67.190	0.0030	0.0103	0.0010	1.48	13.6491	4.485	0.20	1.82	0.
1076.91	7.5254	31.90	-0.58	0.9	2369.2	4.823	0.0009	0.0089	0.0005	1.48	13.6580	4.485	0.20	1.81	0.
1077.91	7.5343	32.30	0.58	13.4	2398.6	35.855	0.0017	0.0117	0.0007	1.49	13.6697	4.486	0.20	1.81	0.
1078.91	7.5432	31.90	-0.58	0.9	2369.2	4.823	0.0011	0.0112	0.0006	1.49	13.6809	4.486	0.20	1.81	0.
1079.91	7.5519	31.10	-1.18	-5.3	2142.2	-11.282	0.0008	0.0082	0.0005	1.49	13.6890	4.487	0.20	1.81	0.
1080.92	7.5603	28.80	-3.37	-6.8	1958.1	-19.605	0.0006	0.0054	0.0003	1.49	13.6944	4.487	0.20	1.81	0.
1081.92	7.5677	24.99	-5.58	-2.7	1629.7	-14.524	0.0003	0.0009	0.0000	1.49	13.6953	4.487	0.20	1.81	0.
1082.92	7.5744	22.70	-3.37	-2.4	1418.4	-11.225	0.0004	0.0006	0.0001	1.49	13.6960	4.487	0.20	1.81	0.
1083.92	7.5801	18.80	-5.72	1.3	1014.7	-4.921	0.0005	0.0003	0.0002	1.49	13.6963	4.488	0.20	1.81	0.
1084.92	7.5849	15.39	-4.99	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.49	13.6969	4.488	0.20	1.81	0.
1085.92	7.5889	13.39	-2.94	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.49	13.6975	4.488	0.20	1.80	0.
1086.92	7.5924	11.89	-2.20	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.49	13.6982	4.488	0.20	1.80	0.
1087.92	7.5952	8.79	-4.55	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.49	13.6988	4.488	0.20	1.80	0.
1088.92	7.5972	4.99	-5.57	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.49	13.6994	4.488	0.20	1.80	0.
1089.92	7.5981	1.89	-4.55	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.49	13.7000	4.488	0.20	1.80	0.
1090.93	7.5987	2.28	0.58	0.7	744.0	11.303	0.0015	0.0034	0.0002	1.49	13.7034	4.489	0.20	1.80	0.
1091.93	7.5994	2.68	0.58	0.9	744.0	11.956	0.0015	0.0035	0.0002	1.49	13.7069	4.489	0.20	1.80	0.
1092.93	7.6002	3.48	1.18	1.8	744.0	19.243	0.0020	0.0046	0.0002	1.50	13.7115	4.489	0.20	1.80	0.
1093.93	7.6016	6.38	4.40	10.4	1088.5	66.042	0.0033	0.0110	0.0022	1.50	13.7225	4.491	0.20	1.81	0.
1094.93	7.6040	10.63	6.31	24.3	1554.0	107.843	0.0027	0.0184	0.0013	1.50	13.7409	4.492	0.20	1.81	0.
1095.93	7.6073	13.63	4.39	22.3	1867.8	81.123	0.0028	0.0161	0.0014	1.50	13.7570	4.494	0.20	1.81	0.
1096.93	7.6114	15.92	3.37	20.7	2139.3	65.679	0.0026	0.0105	0.0009	1.51	13.7675	4.495	0.20	1.81	0.
1097.93	7.6162	18.23	3.38	23.9	2448.9	66.493	0.0028	0.0112	0.0010	1.51	13.7788	4.496	0.20	1.81	0.
1098.93	7.6215	20.23	2.93	23.2	1599.9	92.811	0.0026	0.0192	0.0012	1.51	13.7979	4.497	0.20	1.81	0.
1099.93	7.6273	21.73	2.21	19.8	1667.5	74.276	0.0021	0.0168	0.0008	1.52	13.8147	4.498	0.20	1.81	0.
1100.93	7.6334	21.90	0.00	3.8	1626.5	15.955	0.0004	0.0014	0.0001	1.52	13.8161	4.498	0.20	1.81	0.
1101.93	7.6393	20.70	-1.76	-2.1	1236.8	-8.389	0.0005	0.0004	0.0002	1.52	13.8165	4.498	0.20	1.81	0.
1102.94	7.6446	17.30	-4.99	2.6	809.2	-1.712	0.0004	0.0006	0.0002	1.52	13.8170	4.498	0.20	1.81	0.
1103.94	7.6488	13.10	-6.16	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.52	13.8176	4.498	0.20	1.81	0.
1104.94	7.6520	9.60	-5.13	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.52	13.8183	4.498	0.20	1.81	0.
1105.94	7.6545	8.80	-1.18	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.52	13.8189	4.499	0.20	1.81	0.

1106.94	7.6572	10.70	2.94	12.2	1475.8	56.804	0.0020	0.0104	0.0011	1.52	13.8292	4.500	0.20	1.81	0.59
1107.94	7.6605	12.60	2.78	13.7	1707.8	54.651	0.0013	0.0090	0.0004	1.52	13.8382	4.500	0.20	1.81	0.59
1108.94	7.6642	14.10	2.21	12.7	1894.6	45.915	0.0013	0.0072	0.0005	1.52	13.8454	4.501	0.20	1.81	0.59
1109.94	7.6681	14.50	0.58	5.0	1103.9	28.525	0.0034	0.0113	0.0023	1.53	13.8567	4.503	0.20	1.81	0.59
1110.87	7.6717	13.10	-2.20	-0.2	744.0	-0.695	0.0003	0.0006	0.0001	1.53	13.8573	4.503	0.20	1.81	0.59
1111.87	7.6751	11.10	-2.94	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.53	13.8579	4.503	0.20	1.81	0.59
1113.13	7.6789	11.10	0.00	1.6	1491.2	8.419	0.0005	0.0010	0.0001	1.53	13.8589	4.503	0.20	1.80	0.59
1114.13	7.6820	11.10	0.00	1.6	1491.2	8.419	0.0004	0.0008	0.0001	1.53	13.8597	4.503	0.20	1.80	0.59
1115.13	7.6854	13.05	2.94	14.9	1768.4	57.397	0.0015	0.0100	0.0005	1.53	13.8697	4.504	0.20	1.80	0.59
1116.13	7.6894	15.65	3.81	22.6	2111.4	72.357	0.0029	0.0113	0.0010	1.53	13.8810	4.505	0.20	1.81	0.59
1117.13	7.6941	18.36	3.97	27.7	2466.0	76.331	0.0032	0.0115	0.0011	1.53	13.8924	4.506	0.20	1.81	0.59
1118.13	7.6995	20.65	3.37	26.7	1646.6	104.629	0.0025	0.0199	0.0011	1.54	13.9123	4.507	0.20	1.81	0.59
1119.13	7.7057	23.72	4.54	40.2	1889.9	136.712	0.0020	0.0138	0.0207	1.54	13.9261	4.528	0.20	1.81	0.59
1120.13	7.7125	25.62	2.79	28.7	1954.8	91.482	0.0028	0.0144	0.0062	1.54	13.9406	4.534	0.20	1.81	0.59
1121.13	7.7199	27.92	3.37	37.0	2129.7	107.849	0.0024	0.0095	0.0212	1.54	13.9500	4.555	0.20	1.81	0.59
1122.13	7.7280	29.92	2.94	35.6	2253.0	97.152	0.0028	0.0078	0.0168	1.55	13.9579	4.572	0.20	1.81	0.59
1123.13	7.7364	31.02	1.61	23.4	2303.9	62.633	0.0028	0.0097	0.0010	1.55	13.9676	4.573	0.20	1.81	0.59
1124.14	7.7452	32.22	1.76	26.1	2393.1	67.194	0.0030	0.0103	0.0010	1.55	13.9778	4.574	0.20	1.80	0.59
1125.14	7.7544	34.12	2.79	39.7	2545.2	95.311	0.0026	0.0107	0.0093	1.56	13.9885	4.583	0.20	1.80	0.59
1126.14	7.7641	35.62	2.20	34.7	2645.7	80.584	0.0029	0.0157	0.0012	1.56	14.0042	4.584	0.20	1.80	0.59
1127.14	7.7742	36.82	1.76	30.7	2734.8	69.508	0.0024	0.0163	0.0008	1.56	14.0205	4.585	0.20	1.80	0.59
1128.14	7.7847	38.73	2.79	46.1	2876.1	97.910	0.0020	0.0163	0.0018	1.56	14.0368	4.587	0.20	1.80	0.59
1129.14	7.7957	40.23	2.20	40.1	1999.0	123.707	0.0021	0.0115	0.0236	1.56	14.0482	4.611	0.20	1.80	0.59
1130.14	7.8070	41.43	1.76	35.6	2025.6	106.860	0.0025	0.0120	0.0161	1.57	14.0602	4.627	0.20	1.80	0.59
1131.14	7.8186	42.13	1.03	26.2	2022.8	78.127	0.0030	0.0131	0.0010	1.57	14.0733	4.628	0.20	1.80	0.59
1132.14	7.8304	42.93	1.18	29.1	2066.9	84.855	0.0030	0.0127	0.0041	1.57	14.0860	4.632	0.20	1.80	0.59
1133.14	7.8424	43.73	1.17	29.7	2101.3	85.136	0.0031	0.0120	0.0046	1.58	14.0980	4.637	0.20	1.80	0.59
1134.14	7.8546	43.80	0.00	12.8	2072.0	38.102	0.0013	0.0078	0.0005	1.58	14.1058	4.637	0.20	1.80	0.59
1135.14	7.8667	43.40	-0.58	4.3	2053.3	14.394	0.0008	0.0073	0.0004	1.58	14.1131	4.637	0.20	1.79	0.59
1136.15	7.8787	43.01	-0.58	4.1	2034.6	14.053	0.0008	0.0070	0.0004	1.58	14.1201	4.638	0.20	1.79	0.59
1137.15	7.8906	42.20	-1.18	-4.4	1805.7	-10.869	0.0004	0.0031	0.0001	1.58	14.1232	4.638	0.20	1.79	0.59
1138.15	7.9022	41.92	-0.44	5.7	1983.0	18.766	0.0007	0.0063	0.0003	1.58	14.1295	4.638	0.20	1.79	0.59
1139.15	7.9138	41.52	-0.59	3.4	1964.0	12.386	0.0007	0.0058	0.0003	1.58	14.1354	4.639	0.20	1.79	0.59
1140.15	7.9254	41.91	0.59	19.9	1994.3	60.241	0.0021	0.0105	0.0008	1.58	14.1459	4.639	0.20	1.78	0.59
1141.15	7.9371	41.90	0.00	11.8	1982.1	36.474	0.0010	0.0063	0.0004	1.58	14.1521	4.640	0.20	1.78	0.58
1142.15	7.9487	41.90	0.00	11.8	1982.1	36.474	0.0010	0.0063	0.0004	1.59	14.1584	4.640	0.20	1.78	0.58
1143.15	7.9604	42.20	0.44	18.1	2000.0	54.439	0.0018	0.0095	0.0007	1.59	14.1679	4.641	0.20	1.78	0.58
1144.15	7.9722	42.60	0.58	20.3	2025.0	60.418	0.0022	0.0104	0.0008	1.59	14.1783	4.642	0.20	1.78	0.58
1145.15	7.9840	42.60	0.00	12.1	2015.2	37.067	0.0011	0.0069	0.0005	1.59	14.1852	4.642	0.20	1.78	0.58
1146.15	7.9958	42.60	0.00	12.1	2015.2	37.067	0.0011	0.0069	0.0005	1.59	14.1921	4.643	0.20	1.77	0.58
1147.15	8.0077	42.60	0.00	12.1	2015.2	37.067	0.0011	0.0069	0.0005	1.59	14.1989	4.643	0.20	1.77	0.58
1148.15	8.0195	42.60	0.00	12.1	2015.2	37.067	0.0011	0.0069	0.0005	1.59	14.2058	4.644	0.20	1.77	0.58
1149.15	8.0313	42.60	0.00	12.1	2015.2	37.067	0.0011	0.0069	0.0005	1.59	14.2126	4.644	0.20	1.77	0.58
1150.15	8.0432	42.60	0.00	12.1	2015.2	37.067	0.0011	0.0069	0.0005	1.60	14.2195	4.644	0.20	1.77	0.58
1151.15	8.0549	42.20	-0.58	3.8	1996.5	13.367	0.0007	0.0064	0.0004	1.60	14.2259	4.645	0.20	1.77	0.58
1152.15	8.0668	42.96	1.18	29.1	2068.3	84.882	0.0031	0.0127	0.0042	1.60	14.2385	4.649	0.20	1.77	0.58
1153.15	8.0787	43.36	0.58	20.9	2059.6	61.072	0.0023	0.0104	0.0008	1.60	14.2490	4.650	0.20	1.76	0.58
1154.06	8.0896	43.00	-0.58	4.1	2034.1	14.046	0.0007	0.0064	0.0004	1.60	14.2553	4.650	0.20	1.76	0.57
1155.06	8.1015	42.60	-0.59	3.8	2015.1	13.298	0.0007	0.0067	0.0004	1.60	14.2620	4.650	0.20	1.76	0.57
1156.07	8.1133	41.90	-1.02	-2.3	1787.2	-4.867	0.0004	0.0028	0.0001	1.60	14.2648	4.651	0.20	1.76	0.57
1157.07	8.1247	40.70	-1.76	-5.7	1715.2	-15.851	0.0003	0.0017	0.0000	1.60	14.2665	4.651	0.20	1.76	0.57
1158.07	8.1355	36.90	-5.58	-2.8	1496.7	-12.447	0.0003	0.0007	0.0001	1.60	14.2673	4.651	0.20	1.75	0.57
1159.07	8.1452	32.60	-6.31	-1.2	1242.1	-8.473	0.0005	0.0004	0.0002	1.60	14.2677	4.651	0.20	1.75	0.57
1160.07	8.1536	27.99	-6.75	2.1	899.2	-3.117	0.0004	0.0005	0.0002	1.61	14.2681	4.651	0.20	1.75	0.57
1161.07	8.1607	23.39	-6.75	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2687	4.651	0.20	1.75	0.57
1162.07	8.1665	18.39	-7.33	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2694	4.651	0.20	1.75	0.57
1163.07	8.1711	14.59	-5.58	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2700	4.652	0.20	1.75	0.57
1164.07	8.1748	12.29	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2706	4.652	0.20	1.75	0.57
1165.07	8.1778	9.19	-4.55	0.4	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2712	4.652	0.20	1.75	0.57
1166.07	8.1799	5.79	-4.99	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2718	4.652	0.20	1.74	0.57
1167.07	8.1810	1.89	-5.72	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2725	4.652	0.20	1.74	0.57
1168.08	8.1813	0.38	-2.21	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.61	14.2731	4.652	0.20	1.74	0.57
1168.99	8.1813	0.00	-2.61	0.0	744.0	0.684	0.0003	0.0007	0.0001	1.61	14.2738	4.652	0.20	1.74	0.57
1169.99	8.1813	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.61	14.2746	4.653	0.20	1.74	0.57
1170.99	8.1813	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.61	14.2754	4.653	0.20	1.74	0.57
1171.99	8.1813	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.61	14.2762	4.653	0.20	1.74	0.57
1172.99	8.1813	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.61	14.2769	4.653	0.20	1.75	0.57
1173.99	8.1814	0.40	0.58	0.1	744.0	8.132	0.0011	0.0026	0.0002	1.61	14.2795	4.653	0.20	1.75	0.57
1174.99	8.1820	4.12	5.58	8.3	967.3	69.980	0.0028	0.0087	0.0015	1.61	14.2883	4.655	0.20	1.75	0.57
1175.99	8.1838	9.08	7.33	23.8	1468.2	112.279	0.0028	0.0171	0.0015	1.62	14.3053	4.656	0.20	1.75	0.57
1176.99	8.1867	11.78	3.97	17.6	1630.3	74.135	0.0022	0.0164	0.0009	1.62	14.3217	4.657	0.20	1.75	0.57
1177.99	8.1903	14.08	3.37	18.2	1906.2	64.741	0.0021	0.0117	0.0008	1.62	14.3334	4.658	0.20	1.75	0.57
1179.00	8.1944	15.58	2.20	14.0	2093.3	46.148	0.0017	0.0089	0.0007	1.62	14.3423	4.659	0.20	1.75	0.57
1179.83	8.1980	15.00	-1.02	-0.3	744.0	-0.695	0.0003	0.0005	0.0001	1.62	14.3428	4.659	0.20	1.75	0.57
1180.83	8.2021	14.20	-1.18	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.62	14.3434	4.659	0.20	1.75	0.57
1181.83	8.2059	13.39	-1.18	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.62	14.3441	4.659	0.20	1.75	0.57
1182.83	8.2096	13.57	0.58	4.7	1822.9	18.695	0.0005	0.0037	0.0002	1.62	14.3478	4.659	0.20	1.75	0.57
1183.84	8.2135	14.37	1.18	7.9	1931.0	28.876	0.0007	0.0056	0.0003	1.62	14.3534	4.659	0.20	1.75	0.57
1185.09	8.2186	14.60	0.00	2.2	1084.3	13.147	0.0013	0.0023	0.0006	1.63	14.3558	4.660	0.20	1.75	0.57
1186.09	8.2226	14.20	-0.58	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.63	14.3564	4.660	0.20	1.75	0.57

1187.09	8.2266	15.06	2.78	16.5	2022.9	55.641	0.0019	0.0097	0.0007	1.63	14.3661	4.661	0.20	1.75	0.5
1188.34	8.2320	15.70	0.00	2.4	1166.0	13.550	0.0012	0.0024	0.0007	1.63	14.3685	4.662	0.20	1.75	0.5
1189.34	8.2364	15.70	0.00	2.4	1166.0	13.550	0.0010	0.0019	0.0005	1.63	14.3704	4.662	0.20	1.74	0.5
1190.34	8.2406	14.60	-1.61	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.63	14.3710	4.662	0.20	1.74	0.5
1191.34	8.2444	13.10	-2.20	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.63	14.3717	4.662	0.20	1.74	0.5
1192.34	8.2476	10.00	-4.55	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.63	14.3723	4.663	0.20	1.74	0.5
1193.34	8.2500	7.30	-3.96	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.63	14.3729	4.663	0.20	1.74	0.5
1194.34	8.2515	3.50	-5.58	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.63	14.3735	4.663	0.20	1.74	0.5
1195.34	8.2521	0.80	-3.96	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.63	14.3741	4.663	0.20	1.74	0.5
1196.33	8.2522	0.00	-1.18	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.63	14.3749	4.663	0.20	1.74	0.5
1197.33	8.2522	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.63	14.3757	4.663	0.20	1.74	0.5
1198.33	8.2522	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.63	14.3765	4.664	0.20	1.74	0.5
1199.33	8.2522	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.63	14.3773	4.664	0.20	1.74	0.5
1200.34	8.2523	0.40	0.58	0.1	744.0	8.132	0.0011	0.0026	0.0002	1.63	14.3799	4.664	0.20	1.74	0.5
1201.34	8.2527	2.69	3.37	3.4	744.0	36.604	0.0020	0.0046	0.0002	1.64	14.3845	4.664	0.20	1.74	0.5
1202.34	8.2540	7.10	6.75	17.2	1273.4	96.044	0.0031	0.0140	0.0020	1.64	14.3984	4.666	0.20	1.74	0.5
1203.34	8.2566	11.29	6.15	25.2	1624.2	108.729	0.0026	0.0195	0.0011	1.64	14.4180	4.667	0.20	1.75	0.5
1204.34	8.2603	15.19	5.72	31.8	2085.4	103.404	0.0026	0.0109	0.0163	1.64	14.4288	4.683	0.20	1.75	0.5
1205.34	8.2650	18.99	5.57	39.0	2558.8	102.243	0.0023	0.0094	0.0159	1.65	14.4382	4.699	0.20	1.75	0.5
1206.34	8.2707	21.70	3.97	32.5	1737.9	120.920	0.0024	0.0184	0.0055	1.65	14.4566	4.705	0.20	1.75	0.5
1207.34	8.2770	23.59	2.78	26.1	1815.4	90.063	0.0026	0.0173	0.0034	1.65	14.4739	4.708	0.20	1.75	0.
1208.34	8.2837	24.79	1.76	19.2	1863.0	63.803	0.0020	0.0117	0.0007	1.65	14.4855	4.709	0.20	1.75	0.
1209.34	8.2907	25.89	1.61	18.8	1936.4	60.252	0.0020	0.0106	0.0007	1.66	14.4961	4.710	0.20	1.75	0.
1210.34	8.2981	27.10	1.77	21.3	2025.8	65.006	0.0024	0.0111	0.0009	1.66	14.5072	4.711	0.20	1.75	0.
1211.35	8.3058	28.60	2.20	26.8	2142.7	77.081	0.0031	0.0112	0.0011	1.66	14.5184	4.712	0.20	1.75	0.
1212.35	8.3139	29.80	1.76	23.7	2214.1	65.904	0.0028	0.0101	0.0010	1.66	14.5285	4.713	0.20	1.75	0.
1212.84	8.3180	29.60	-0.58	0.5	2198.4	3.747	0.0005	0.0045	0.0003	1.66	14.5330	4.713	0.20	1.75	0.
1213.84	8.3262	29.60	0.00	6.2	2198.4	19.168	0.0010	0.0099	0.0006	1.67	14.5429	4.714	0.20	1.75	0.
1214.84	8.3343	28.80	-1.18	-5.2	1957.9	-12.380	0.0006	0.0054	0.0003	1.67	14.5483	4.714	0.20	1.75	0.
1215.84	8.3419	26.09	-3.97	-4.2	1730.5	-16.087	0.0003	0.0019	0.0001	1.67	14.5502	4.714	0.20	1.74	0.
1216.84	8.3487	22.29	-5.57	-1.1	1380.3	-10.629	0.0004	0.0006	0.0001	1.67	14.5508	4.714	0.20	1.74	0.
1217.84	8.3544	19.19	-4.55	0.6	1061.0	-5.644	0.0005	0.0003	0.0002	1.67	14.5511	4.714	0.20	1.74	0.
1218.85	8.3594	16.49	-3.96	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.67	14.5517	4.714	0.20	1.74	0.
1219.85	8.3634	12.68	-5.58	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.67	14.5523	4.715	0.20	1.74	0.
1220.85	8.3665	9.59	-4.54	-1.5	816.6	-1.829	0.0004	0.0005	0.0002	1.67	14.5528	4.715	0.20	1.74	0.
1221.85	8.3688	6.88	-3.97	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.67	14.5535	4.715	0.20	1.74	0.
1222.85	8.3703	4.18	-3.96	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.67	14.5541	4.715	0.20	1.74	0.
1223.85	8.3712	2.28	-2.79	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.67	14.5547	4.715	0.20	1.74	0.
1224.85	8.3717	0.78	-2.20	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.67	14.5553	4.715	0.20	1.74	0.
1225.82	8.3718	0.00	-1.18	0.0	744.0	0.684	0.0004	0.0008	0.0001	1.67	14.5561	4.715	0.20	1.74	0.
1226.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5569	4.716	0.20	1.74	0.
1227.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5577	4.716	0.20	1.74	0.
1228.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5584	4.716	0.20	1.74	0.
1229.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5592	4.716	0.20	1.74	0.
1230.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5600	4.716	0.20	1.74	0.
1231.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5608	4.716	0.20	1.74	0.
1232.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5616	4.717	0.20	1.74	0.
1233.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5624	4.717	0.20	1.74	0.
1234.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5632	4.717	0.20	1.74	0
1235.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5640	4.717	0.20	1.74	0
1236.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5647	4.717	0.20	1.74	0
1237.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.67	14.5655	4.717	0.20	1.74	0
1238.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5663	4.717	0.20	1.74	0
1239.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5671	4.718	0.20	1.74	0
1240.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5679	4.718	0.20	1.74	0
1241.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5687	4.718	0.20	1.74	0
1242.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5695	4.718	0.20	1.74	0
1243.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5702	4.718	0.20	1.74	0
1244.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5710	4.718	0.20	1.74	0
1245.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5718	4.718	0.20	1.74	0
1246.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5726	4.719	0.20	1.74	0
1247.82	8.3718	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.68	14.5734	4.719	0.20	1.74	0
1248.82	8.3722	3.40	5.13	6.4	885.4	60.700	0.0025	0.0072	0.0010	1.68	14.5806	4.720	0.20	1.74	0
1249.82	8.3740	9.48	8.98	30.2	1571.3	131.554	0.0026	0.0187	0.0013	1.68	14.5993	4.721	0.20	1.74	0
1250.82	8.3773	14.48	7.34	38.3	2028.1	129.155	0.0019	0.0104	0.0287	1.69	14.6097	4.750	0.20	1.74	0
1251.82	8.3816	16.38	2.79	17.8	1372.1	83.057	0.0030	0.0155	0.0017	1.69	14.6252	4.751	0.20	1.74	0
1252.82	8.3864	17.30	0.00	2.7	1284.9	14.158	0.0009	0.0020	0.0005	1.69	14.6272	4.752	0.20	1.74	0
1253.82	8.3913	18.36	1.61	12.8	1417.8	57.189	0.0023	0.0106	0.0013	1.69	14.6379	4.753	0.20	1.74	0
1254.83	8.3968	21.26	4.54	35.8	1749.1	130.541	0.0024	0.0180	0.0075	1.69	14.6558	4.761	0.20	1.75	0
1255.83	8.4031	24.37	4.55	41.4	1931.8	137.217	0.0019	0.0126	0.0246	1.70	14.6684	4.785	0.20	1.75	0
1256.83	8.4103	27.07	3.97	41.1	2091.0	122.962	0.0020	0.0091	0.0294	1.70	14.6775	4.815	0.20	1.75	0
1257.83	8.4182	29.77	3.96	45.5	2272.5	124.338	0.0018	0.0042	0.0429	1.70	14.6818	4.858	0.20	1.74	0
1258.83	8.4267	31.27	2.20	29.7	2330.4	78.274	0.0036	0.0085	0.0011	1.70	14.6902	4.859	0.20	1.74	0
1259.83	8.4354	31.67	0.59	13.2	2352.5	35.823	0.0017	0.0116	0.0008	1.71	14.7018	4.860	0.20	1.74	0
1260.83	8.4443	32.37	1.02	18.2	2404.1	47.590	0.0021	0.0112	0.0008	1.71	14.7130	4.860	0.20	1.74	0
1261.83	8.4534	33.17	1.18	20.6	2463.9	52.238	0.0022	0.0115	0.0008	1.71	14.7245	4.861	0.20	1.74	0
1262.83	8.4628	34.67	2.20	33.6	2575.3	80.103	0.0031	0.0140	0.0011	1.71	14.7385	4.862	0.20	1.74	0
1263.83	8.4727	36.28	2.35	37.3	2694.3	84.910	0.0028	0.0166	0.0020	1.72	14.7551	4.864	0.20	1.74	0
1264.83	8.4829	37.37	1.61	29.3	1846.6	97.620	0.0026	0.0164	0.0060	1.72	14.7715	4.870	0.20	1.74	0
1265.84	8.4935	38.96	2.34	40.4	1951.6	128.197	0.0021	0.0125	0.0224	1.72	14.7840	4.893	0.20	1.74	0

1266.84	8.5045	40.06	1.61	32.1	1958.1	99.706	0.0026	0.0139	0.0100	1.72	14.7979	4.903	0.20	1.74	0.58
1267.84	8.5157	40.46	0.59	18.9	1928.7	59.044	0.0019	0.0103	0.0007	1.72	14.8083	4.903	0.20	1.74	0.58
1268.84	8.5270	40.86	0.58	19.0	1946.2	58.965	0.0019	0.0103	0.0007	1.73	14.8186	4.904	0.20	1.74	0.58
1269.24	8.5315	40.70	-0.58	3.3	1925.3	12.111	0.0002	0.0021	0.0001	1.73	14.8207	4.904	0.20	1.74	0.57
1270.24	8.5428	40.70	0.00	11.1	1925.3	35.476	0.0009	0.0054	0.0003	1.73	14.8261	4.905	0.20	1.74	0.57
1271.24	8.5541	40.70	0.00	11.1	1925.3	35.476	0.0009	0.0054	0.0003	1.73	14.8314	4.905	0.20	1.73	0.57
1272.24	8.5655	41.48	1.17	27.6	2002.3	83.230	0.0030	0.0140	0.0028	1.73	14.8454	4.908	0.20	1.73	0.57
1273.24	8.5772	42.58	1.61	34.8	2071.0	101.911	0.0026	0.0113	0.0149	1.73	14.8567	4.923	0.20	1.73	0.57
1274.24	8.5890	42.98	0.59	20.8	2042.8	61.148	0.0022	0.0105	0.0008	1.74	14.8672	4.923	0.20	1.73	0.57
1275.24	8.6012	44.43	2.20	45.6	2179.8	127.135	0.0018	0.0064	0.0387	1.74	14.8736	4.962	0.20	1.73	0.58
1276.24	8.6136	45.23	1.18	31.4	2168.0	86.901	0.0031	0.0106	0.0065	1.74	14.8842	4.969	0.20	1.73	0.58
1277.24	8.6262	45.30	0.00	13.8	2142.9	39.428	0.0015	0.0089	0.0006	1.74	14.8931	4.969	0.20	1.73	0.58
1278.24	8.6387	44.90	-0.59	4.7	2123.9	15.302	0.0009	0.0085	0.0005	1.74	14.9016	4.970	0.20	1.72	0.58
1279.24	8.6510	43.40	-2.20	-7.0	1866.2	-18.185	0.0005	0.0040	0.0002	1.74	14.9056	4.970	0.20	1.72	0.57
1280.24	8.6626	40.30	-4.55	-4.6	1691.2	-15.480	0.0003	0.0013	0.0000	1.74	14.9069	4.970	0.20	1.72	0.57
1281.25	8.6735	38.00	-3.37	-4.0	1559.0	-13.421	0.0003	0.0008	0.0000	1.74	14.9077	4.970	0.20	1.72	0.57
1282.25	8.6838	36.10	-2.79	-3.3	1446.8	-11.667	0.0004	0.0007	0.0001	1.75	14.9084	4.970	0.20	1.72	0.57
1283.25	8.6939	36.48	0.59	16.1	1747.2	55.922	0.0014	0.0095	0.0005	1.75	14.9179	4.971	0.20	1.72	0.57
1284.25	8.7042	37.92	2.20	37.3	1899.8	121.752	0.0022	0.0142	0.0162	1.75	14.9321	4.987	0.20	1.72	0.57
1285.25	8.7149	39.12	1.76	33.1	1929.8	105.012	0.0025	0.0143	0.0113	1.75	14.9463	4.998	0.20	1.72	0.57
1286.25	8.7260	40.63	2.21	40.8	2017.3	124.434	0.0021	0.0110	0.0253	1.75	14.9573	5.023	0.20	1.71	0.58
1287.25	8.7375	42.13	2.20	42.6	2083.2	125.265	0.0020	0.0092	0.0304	1.76	14.9664	5.054	0.20	1.71	0.58
1288.25	8.7493	43.33	1.76	37.8	2110.0	108.600	0.0024	0.0099	0.0208	1.76	14.9763	5.075	0.20	1.71	0.58
1289.25	8.7616	44.83	2.20	46.1	2196.2	127.481	0.0017	0.0059	0.0402	1.76	14.9822	5.115	0.20	1.71	0.58
1290.25	8.7741	45.63	1.18	31.8	2186.2	87.256	0.0031	0.0102	0.0070	1.76	14.9924	5.122	0.20	1.71	0.58
1291.25	8.7869	46.03	0.58	23.1	2180.1	63.429	0.0026	0.0102	0.0009	1.77	15.0026	5.123	0.20	1.71	0.58
1292.26	8.7998	46.73	1.03	30.6	2231.1	82.206	0.0034	0.0099	0.0031	1.77	15.0125	5.126	0.20	1.71	0.58
1293.02	8.8096	46.50	-0.44	7.8	2199.7	22.789	0.0008	0.0077	0.0005	1.77	15.0202	5.126	0.20	1.70	0.58
1294.02	8.8226	46.50	0.00	14.5	2199.7	40.515	0.0016	0.0096	0.0007	1.77	15.0298	5.127	0.20	1.70	0.58
1295.02	8.8355	46.50	0.00	14.5	2199.7	40.515	0.0016	0.0096	0.0007	1.77	15.0394	5.128	0.20	1.70	0.58
1296.02	8.8483	46.10	-0.59	5.3	2180.7	16.381	0.0010	0.0095	0.0006	1.77	15.0488	5.128	0.20	1.70	0.58
1297.02	8.8611	46.10	0.00	14.3	2180.8	40.150	0.0016	0.0094	0.0007	1.78	15.0582	5.129	0.20	1.70	0.58
1298.02	8.8739	46.10	0.00	14.3	2180.8	40.150	0.0016	0.0094	0.0007	1.78	15.0676	5.130	0.20	1.70	0.58
1299.02	8.8869	46.79	1.03	30.7	2234.0	82.264	0.0034	0.0098	0.0031	1.78	15.0774	5.133	0.20	1.70	0.58
1300.02	8.9000	47.60	1.18	33.9	2275.8	89.054	0.0032	0.0083	0.0097	1.78	15.0857	5.142	0.20	1.70	0.58
1301.02	8.9132	47.99	0.58	24.7	2270.3	65.264	0.0029	0.0098	0.0010	1.79	15.0954	5.143	0.20	1.69	0.58
1302.02	8.9266	48.39	0.59	25.3	2289.3	66.046	0.0029	0.0096	0.0010	1.79	15.1050	5.145	0.20	1.69	0.58
1303.03	8.9400	47.99	-0.59	6.1	2270.3	18.132	0.0011	0.0110	0.0007	1.79	15.1160	5.145	0.20	1.69	0.58
1304.03	8.9533	48.00	0.00	15.5	2270.6	41.907	0.0018	0.0104	0.0008	1.79	15.1264	5.146	0.20	1.69	0.57
1305.03	8.9666	47.20	-1.18	-3.3	2060.0	-6.392	0.0007	0.0069	0.0004	1.79	15.1333	5.146	0.20	1.69	0.57
1306.03	8.9796	46.50	-1.02	-1.2	2024.1	-0.788	0.0007	0.0064	0.0004	1.79	15.1397	5.147	0.20	1.69	0.57
1307.03	8.9925	46.79	0.44	21.5	2213.2	58.502	0.0025	0.0100	0.0009	1.80	15.1497	5.148	0.20	1.68	0.57
1308.03	9.0056	47.18	0.58	24.0	2232.1	64.484	0.0028	0.0100	0.0010	1.80	15.1597	5.149	0.20	1.68	0.57
1309.03	9.0189	48.37	1.77	44.1	2335.9	113.506	0.0022	0.0041	0.0359	1.80	15.1638	5.185	0.20	1.68	0.57
1310.03	9.0323	48.40	0.00	15.8	2289.6	42.284	0.0019	0.0106	0.0008	1.80	15.1744	5.185	0.20	1.68	0.57
1311.03	9.0458	48.80	0.58	25.4	2308.3	66.025	0.0030	0.0095	0.0010	1.81	15.1839	5.186	0.20	1.68	0.57
1312.03	9.0593	48.40	-0.58	6.5	2289.6	18.920	0.0011	0.0113	0.0007	1.81	15.1952	5.187	0.20	1.68	0.57
1313.03	9.0726	47.60	-1.18	-3.2	2080.7	-6.035	0.0008	0.0072	0.0004	1.81	15.2024	5.188	0.20	1.68	0.57
1314.03	9.0857	46.50	-1.61	-8.7	2023.9	-20.623	0.0007	0.0064	0.0004	1.81	15.2088	5.188	0.20	1.67	0.57
1315.04	9.0983	44.20	-3.37	-7.0	1906.6	-18.810	0.0005	0.0046	0.0002	1.81	15.2134	5.188	0.20	1.67	0.57
1316.04	9.1103	42.20	-2.94	-6.0	1805.1	-17.241	0.0004	0.0031	0.0001	1.81	15.2165	5.188	0.20	1.67	0.57
1317.04	9.1219	41.49	-1.03	-2.5	1762.5	-5.585	0.0004	0.0024	0.0001	1.81	15.2189	5.188	0.20	1.67	0.57
1318.04	9.1334	41.12	-0.58	3.4	1945.1	12.456	0.0006	0.0055	0.0003	1.81	15.2244	5.189	0.20	1.67	0.57
1319.04	9.1448	40.72	-0.58	3.3	1926.4	12.130	0.0006	0.0052	0.0003	1.81	15.2297	5.189	0.20	1.67	0.57
1320.04	9.1560	40.32	-0.59	3.0	1907.3	11.397	0.0006	0.0049	0.0003	1.81	15.2346	5.189	0.20	1.66	0.57
1321.04	9.1671	39.62	-1.02	-2.8	1652.0	-6.655	0.0002	0.0009	0.0000	1.81	15.2355	5.189	0.20	1.66	0.57
1322.04	9.1781	39.24	-0.59	2.7	1856.4	10.526	0.0005	0.0041	0.0002	1.81	15.2396	5.189	0.20	1.66	0.57
1323.04	9.1889	38.85	-0.58	2.7	1837.6	10.615	0.0005	0.0038	0.0002	1.81	15.2434	5.190	0.20	1.66	0.56
1324.04	9.1996	38.04	-1.18	-4.7	1561.5	-13.460	0.0003	0.0008	0.0000	1.81	15.2442	5.190	0.20	1.66	0.56
1325.05	9.2101	37.67	-0.58	2.3	1781.8	9.691	0.0004	0.0029	0.0001	1.81	15.2471	5.190	0.20	1.66	0.56
1326.05	9.2205	37.26	-0.59	2.1	1762.8	8.978	0.0004	0.0026	0.0001	1.81	15.2497	5.190	0.20	1.65	0.56
1327.05	9.2308	36.57	-1.02	-3.2	1476.1	-9.082	0.0003	0.0007	0.0001	1.81	15.2504	5.190	0.20	1.65	0.56
1328.05	9.2407	34.67	-2.79	-2.8	1360.7	-10.324	0.0004	0.0006	0.0001	1.81	15.2510	5.190	0.20	1.65	0.56
1329.05	9.2499	31.56	-4.55	-0.6	1178.1	-7.473	0.0005	0.0003	0.0002	1.82	15.2513	5.190	0.20	1.65	0.56
1330.05	9.2584	29.67	-2.78	-0.8	1026.5	-5.105	0.0005	0.0003	0.0002	1.82	15.2516	5.190	0.20	1.65	0.56
1331.05	9.2666	29.29	-0.59	0.4	1385.4	3.290	0.0004	0.0006	0.0001	1.82	15.2523	5.191	0.20	1.65	0.56
1332.05	9.2746	28.89	-0.58	0.4	1366.7	3.428	0.0004	0.0006	0.0001	1.82	15.2529	5.191	0.20	1.64	0.56
1333.05	9.2826	28.80	0.00	5.9	1366.3	26.739	0.0020	0.0069	0.0013	1.82	15.2597	5.192	0.20	1.64	0.56
1334.05	9.2905	28.00	-1.18	-0.5	899.4	-3.122	0.0004	0.0005	0.0002	1.82	15.2602	5.192	0.20	1.64	0.56
1335.05	9.2983	28.00	0.00	5.6	1330.1	26.214	0.0022	0.0074	0.0014	1.82	15.2676	5.194	0.20	1.64	0.56
1336.05	9.3061	28.39	0.59	11.3	1386.7	50.249	0.0022	0.0093	0.0014	1.82	15.2769	5.195	0.20	1.64	0.56
1337.06	9.3142	29.55	1.76	23.4	1529.2	96.592	0.0027	0.0180	0.0014	1.83	15.2950	5.196	0.20	1.64	0.56
1338.06	9.3224	29.95	0.58	12.1	1456.6	50.929	0.0019	0.0090	0.0011	1.83	15.3039	5.197	0.20	1.64	0.56
1339.06	9.3308	30.25	0.44	10.8	1461.3	45.472	0.0018	0.0075	0.0010	1.83	15.3115	5.198	0.20	1.64	0.56
1340.06	9.3391	29.15	-1.61	-1.0	988.9	-4.519	0.0005	0.0004	0.0002	1.83	15.3118	5.199	0.20	1.64	0.56
1341.06	9.3468	26.45	-3.96	0.9	744.0	-0.695	0.0003	0.0006	0.0002	1.83	15.3125	5.199	0.20	1.64	0.56
1342.06	9.3540	25.25	-1.76	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.83	15.3131	5.199	0.20	1.64	0.56
1342.93	9.3601	25.00	-0.45	1.0	1182.6	6.190	0.0005	0.0003	0.0002	1.83	15.3134	5.199	0.20	1.64	0.56
1343.94	9.3670	24.60	-0.58	-0.1	744.0	-0.005	0.0003	0.0006	0.0002	1.83	15.3140	5.199	0.20	1.63	0.56
1344.94	9.3738	24.60	0.00	4.6	1175.5	24.099	0.0027	0.0088	0.0018	1.83	15.3228	5.201	0.20	1.63	0.55

1345.94	9.3807	25.27	1.03	13.4	1290.6	66.058	0.0029	0.0121	0.0018	1.84	15.3349	5.203	0.20	1.63	0.5
1346.94	9.3878	26.07	1.17	15.1	1334.9	72.192	0.0028	0.0133	0.0017	1.84	15.3482	5.205	0.20	1.63	0.5
1347.94	9.3952	27.26	1.77	21.4	1457.3	92.201	0.0028	0.0169	0.0015	1.84	15.3651	5.206	0.20	1.64	0.5
1348.94	9.4030	28.36	1.61	20.9	1470.2	89.641	0.0028	0.0171	0.0015	1.85	15.3822	5.208	0.20	1.64	0.5
1349.94	9.4110	29.16	1.17	17.3	1464.0	74.137	0.0026	0.0148	0.0014	1.85	15.3970	5.209	0.20	1.64	0.5
1350.94	9.4191	29.20	0.00	6.1	1384.4	27.005	0.0019	0.0065	0.0012	1.85	15.4036	5.210	0.20	1.64	0.5
1351.94	9.4272	29.59	0.59	12.0	1440.9	51.091	0.0020	0.0091	0.0012	1.85	15.4127	5.211	0.20	1.63	0.5
1352.94	9.4355	29.99	0.58	12.1	1458.4	50.956	0.0019	0.0089	0.0011	1.85	15.4216	5.213	0.20	1.63	0.5
1353.94	9.4440	31.06	1.61	23.3	1576.1	93.118	0.0026	0.0188	0.0012	1.86	15.4404	5.214	0.20	1.63	0.5
1354.94	9.4528	32.55	2.20	31.0	1681.8	116.219	0.0025	0.0199	0.0019	1.86	15.4603	5.216	0.20	1.64	0.5
1355.94	9.4620	33.75	1.76	27.5	1698.5	100.983	0.0025	0.0195	0.0021	1.86	15.4798	5.218	0.20	1.64	0.5
1356.95	9.4715	34.56	1.18	21.6	1696.9	78.214	0.0023	0.0179	0.0009	1.86	15.4977	5.219	0.20	1.64	0.5
1357.95	9.4812	34.86	0.44	13.3	1667.0	48.680	0.0009	0.0065	0.0003	1.86	15.5042	5.219	0.20	1.64	0.5
1358.81	9.4895	34.60	-0.44	3.1	1636.8	13.036	0.0003	0.0010	0.0000	1.87	15.5052	5.219	0.20	1.63	0.5
1359.81	9.4991	34.89	0.44	13.4	1668.5	48.704	0.0009	0.0065	0.0003	1.87	15.5117	5.219	0.20	1.63	0.5
1360.81	9.5088	34.59	-0.44	3.1	1636.4	13.031	0.0003	0.0012	0.0000	1.87	15.5129	5.219	0.20	1.63	0.5
1361.81	9.5184	34.88	0.44	13.4	1668.1	48.699	0.0009	0.0065	0.0003	1.87	15.5194	5.220	0.20	1.63	0.5
1362.81	9.5281	34.90	0.00	8.3	1650.9	30.979	0.0004	0.0017	0.0001	1.87	15.5210	5.220	0.20	1.63	0.5
1363.81	9.5378	34.90	0.00	8.3	1650.9	30.979	0.0004	0.0017	0.0001	1.87	15.5227	5.220	0.20	1.63	0.5
1364.82	9.5474	34.20	-1.02	-3.2	1333.7	-9.901	0.0004	0.0005	0.0001	1.87	15.5232	5.220	0.20	1.63	0.5
1365.82	9.5569	33.82	-0.59	1.2	1600.0	6.436	0.0003	0.0010	0.0000	1.87	15.5242	5.220	0.20	1.62	0.5
1366.82	9.5661	32.62	-1.76	-2.4	1243.6	-8.496	0.0005	0.0004	0.0002	1.87	15.5246	5.220	0.20	1.62	0.5
1367.82	9.5750	31.52	-1.61	-1.8	1174.7	-7.420	0.0005	0.0003	0.0002	1.87	15.5249	5.220	0.20	1.62	0.
1368.82	9.5836	30.02	-2.20	-1.1	1053.2	-5.523	0.0005	0.0003	0.0002	1.87	15.5252	5.220	0.20	1.62	0.
1369.82	9.5917	28.82	-1.76	-0.8	965.8	-4.158	0.0005	0.0004	0.0002	1.87	15.5256	5.221	0.20	1.62	0.
1370.82	9.5995	27.32	-2.20	0.2	826.1	-1.977	0.0004	0.0005	0.0002	1.87	15.5261	5.221	0.19	1.62	0.
1371.82	9.6066	23.82	-5.14	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.87	15.5268	5.221	0.19	1.62	0.
1372.82	9.6131	23.02	-1.17	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.87	15.5274	5.221	0.19	1.62	0.
1373.82	9.6195	23.00	0.00	4.1	1102.4	23.168	0.0028	0.0089	0.0018	1.87	15.5363	5.223	0.19	1.62	0.
1374.82	9.6258	22.30	-1.03	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.87	15.5369	5.223	0.19	1.61	0.
1375.82	9.6318	20.40	-2.79	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5375	5.223	0.19	1.61	0.
1376.83	9.6372	18.80	-2.34	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5381	5.223	0.19	1.61	0.
1377.83	9.6423	17.70	-1.61	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5387	5.224	0.19	1.61	0.
1378.83	9.6470	16.10	-2.35	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5394	5.224	0.19	1.61	0.
1379.83	9.6512	14.60	-2.20	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5400	5.224	0.19	1.61	0.
1380.83	9.6550	12.70	-2.79	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5406	5.224	0.19	1.61	0.
1381.83	9.6583	11.10	-2.34	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5412	5.224	0.19	1.61	0.
1382.83	9.6611	9.20	-2.79	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5418	5.224	0.19	1.61	0.
1383.83	9.6636	8.80	-0.58	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5425	5.224	0.19	1.61	0.
1384.83	9.6659	7.30	-2.20	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5431	5.225	0.19	1.61	0.
1385.83	9.6677	6.10	-1.77	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5437	5.225	0.19	1.61	0.
1386.83	9.6693	5.01	-1.60	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5443	5.225	0.19	1.61	0.
1387.84	9.6706	4.20	-1.18	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5449	5.225	0.19	1.61	0.
1388.84	9.6716	3.50	-1.03	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5456	5.225	0.19	1.61	0.
1389.84	9.6725	2.70	-1.18	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5462	5.225	0.19	1.61	0.
1390.84	9.6732	2.30	-0.58	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5468	5.225	0.19	1.61	0.
1391.84	9.6737	1.50	-1.18	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.88	15.5474	5.226	0.19	1.61	0.
1392.84	9.6741	1.20	-0.44	0.0	744.0	-0.371	0.0003	0.0006	0.0002	1.88	15.5481	5.226	0.19	1.61	0.
1393.84	9.6743	0.00	-1.76	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.88	15.5488	5.226	0.19	1.61	0.
1394.84	9.6744	1.20	1.76	0.9	744.0	19.048	0.0020	0.0046	0.0002	1.88	15.5534	5.226	0.19	1.61	0.
1395.84	9.6752	4.20	4.40	6.8	904.1	56.980	0.0026	0.0075	0.0011	1.89	15.5609	5.227	0.19	1.61	0.
1396.84	9.6768	7.30	4.55	12.2	1177.4	71.988	0.0032	0.0120	0.0022	1.89	15.5729	5.229	0.20	1.61	0.
1397.84	9.6790	8.80	2.20	7.8	1221.1	43.425	0.0029	0.0101	0.0019	1.89	15.5831	5.231	0.20	1.61	0.
1398.84	9.6817	10.80	2.93	12.3	1487.8	56.583	0.0020	0.0103	0.0011	1.89	15.5933	5.232	0.20	1.61	0.
1399.84	9.6849	12.30	2.20	11.0	1659.0	44.956	0.0008	0.0051	0.0002	1.89	15.5984	5.233	0.20	1.61	0.
1400.84	9.6885	13.09	1.17	7.1	1759.2	28.372	0.0005	0.0028	0.0001	1.89	15.6012	5.233	0.20	1.61	0.
1401.85	9.6920	12.30	-1.17	-2.7	1375.9	-10.562	0.0004	0.0006	0.0001	1.90	15.6018	5.233	0.20	1.61	0.
1402.85	9.6954	12.30	0.00	1.8	1652.5	8.729	0.0003	0.0011	0.0000	1.90	15.6029	5.233	0.20	1.61	0.
1403.85	9.6987	11.50	-1.17	-2.0	1246.1	-8.534	0.0005	0.0004	0.0002	1.90	15.6033	5.233	0.20	1.61	0.
1404.85	9.7019	11.50	0.00	1.6	1545.0	8.526	0.0003	0.0009	0.0001	1.90	15.6042	5.233	0.20	1.61	0.
1405.85	9.7050	11.10	-0.59	-0.6	1174.1	-3.052	0.0005	0.0003	0.0002	1.90	15.6045	5.233	0.20	1.61	0.
1406.85	9.7081	11.10	0.00	1.6	1491.2	8.419	0.0004	0.0008	0.0001	1.90	15.6053	5.233	0.20	1.61	0.
1407.85	9.7112	11.10	0.00	1.6	1491.2	8.419	0.0004	0.0008	0.0001	1.90	15.6061	5.233	0.20	1.61	0.
1408.85	9.7145	13.04	2.93	14.9	1767.4	57.230	0.0015	0.0099	0.0005	1.90	15.6161	5.234	0.20	1.61	0.
1409.85	9.7184	14.95	2.79	16.4	2008.0	55.778	0.0019	0.0097	0.0007	1.90	15.6258	5.235	0.20	1.61	0.
1410.85	9.7229	16.85	2.79	18.6	2263.6	56.300	0.0025	0.0100	0.0009	1.90	15.6358	5.236	0.20	1.61	0.
1412.10	9.7287	16.90	0.00	2.7	1255.1	14.004	0.0012	0.0025	0.0006	1.90	15.6383	5.236	0.20	1.61	0.
1413.10	9.7333	16.10	-1.17	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.90	15.6390	5.236	0.20	1.61	0.
1414.10	9.7377	15.70	-0.59	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6396	5.237	0.20	1.61	0.
1415.20	9.7425	15.53	-0.44	0.1	1153.8	-7.093	0.0006	0.0003	0.0002	1.91	15.6399	5.237	0.20	1.61	0.
1416.20	9.7468	15.13	-0.59	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6405	5.237	0.20	1.60	0
1417.21	9.7508	13.93	-1.76	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6411	5.237	0.20	1.60	0
1418.21	9.7543	10.93	-4.40	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6418	5.237	0.20	1.60	0
1419.21	9.7570	8.53	-3.52	-0.3	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6424	5.237	0.20	1.60	0
1420.21	9.7590	6.23	-3.37	-0.2	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6430	5.238	0.20	1.60	0
1421.21	9.7605	4.33	-2.79	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6436	5.238	0.20	1.60	0
1422.21	9.7616	3.63	-1.03	-0.1	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6442	5.238	0.20	1.60	0
1423.21	9.7626	3.50	0.00	0.4	744.0	5.989	0.0009	0.0021	0.0002	1.91	15.6463	5.238	0.20	1.60	0
1424.21	9.7633	1.50	-2.93	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6469	5.238	0.20	1.60	0
1425.21	9.7635	0.05	-0.83	0.0	744.0	-0.695	0.0003	0.0006	0.0002	1.91	15.6476	5.238	0.20	1.60	0

1426.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6483	5.238	0.20	1.60	0.54
1427.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6491	5.239	0.20	1.60	0.54
1428.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6499	5.239	0.20	1.60	0.54
1429.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6507	5.239	0.20	1.60	0.54
1430.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6515	5.239	0.20	1.60	0.54
1431.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6523	5.239	0.20	1.60	0.54
1432.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6531	5.239	0.20	1.60	0.54
1433.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6539	5.240	0.20	1.60	0.54
1434.21	9.7635	0.00	0.00	0.0	744.0	0.684	0.0004	0.0008	0.0002	1.91	15.6546	5.240	0.20	1.60	0.54

TOTAL EMISSIONS GENERATED DURING DRIVING CYCLE

TIME (sec)	DISTANCE (miles)	CUMULATIVE(grams) HC	CO	NOx	RATE(grams/mile) HC	CO	NOx
1434.21	9.763	1.913	15.655	5.240	0.1959	1.6034	0.5367

Appendix D

LA92 Driving Cycle
Speed vs. Time Trace

LA92 Speed vs. Time Trace

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
1	0	51	15.4	101	26.9
2	0	52	15	102	26.5
3	0	53	13.8	103	25.7
4	0	54	10.8	104	21.9
5	0	55	8.4	105	16.5
6	0	56	6.1	106	10
7	0	57	4.2	107	4.6
8	0	58	3.5	108	1.5
9	0	59	3.5	109	0.4
10	0	60	1.5	110	0
11	0	61	0	111	0
12	0	62	0	112	0
13	0	63	0	113	0
14	0	64	0	114	0
15	0	65	0	115	0
16	0	66	0	116	0
17	0	67	0	117	0
18	0	68	0	118	0.4
19	0	69	0	119	1.2
20	0	70	0	120	1.9
21	0	71	0	121	3.8
22	0	72	0	122	7.7
23	0	73	1.2	123	11.5
24	0	74	3.5	124	14.6
25	0	75	7.7	125	18
26	0	76	11.1	126	21.5
27	0	77	13.8	127	25
28	0	78	16.5	128	28.4
29	0	79	18.4	129	30.7
30	0	80	20.4	130	31.9
31	1.2	81	20.7	131	32.3
32	4.2	82	19.6	132	32.3
33	7.3	83	17.3	133	31.9
34	8.8	84	12.3	134	30.3
35	10.8	85	8.1	135	28
36	12.3	86	6.1	136	24.2
37	13.1	87	9.6	137	20
38	12.3	88	12.7	138	16.1
39	12.3	89	15.7	139	11.5
40	11.5	90	18	140	8.1
41	11.5	91	20.4	141	5
42	11.1	92	21.9	142	3.5
43	11.1	93	23.4	143	1.9
44	11.1	94	23.8	144	0
45	13.1	95	24.6	145	0
46	15	96	25	146	0
47	16.9	97	26.1	147	0
48	16.9	98	26.1	148	0
49	16.1	99	26.9	149	0
50	15.7	100	26.9	150	0

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
151	0	201	39.9	251	11.5
152	0	202	40.7	252	14.2
153	1.5	203	40.3	253	15.4
154	6.9	204	41.1	254	16.1
155	12.7	205	41.1	255	16.1
156	16.5	206	40.7	256	16.9
157	20	207	31.9	257	16.5
158	23	208	16.9	258	16.9
159	25.7	209	2.7	259	18
160	28	210	0.4	260	19.2
161	30.7	211	0.4	261	20.4
162	32.6	212	2.7	262	20.4
163	34.2	213	3.8	263	21.1
164	35.3	214	3.8	264	21.1
165	36.9	215	1.5	265	22.3
166	36.9	216	0	266	23
167	37.2	217	0	267	23.8
168	37.6	218	0	268	24.2
169	37.6	219	0	269	24.6
170	37.6	220	0	270	25
171	37.2	221	0	271	25.7
172	37.2	222	0	272	25.7
173	36.9	223	0	273	26.5
174	36.5	224	0	274	27.6
175	36.5	225	0	275	28.4
176	34.9	226	0	276	29.2
177	33.4	227	0	277	30.3
178	31.9	228	0	278	31.1
179	29.2	229	0	279	31.1
180	25	230	0	280	30.7
181	25	231	0	281	31.1
182	26.1	232	0	282	29.6
183	27.6	233	0	283	29.2
184	29.2	234	0	284	29.2
185	31.1	235	0	285	28.8
186	32.3	236	0	286	28
187	34.2	237	0	287	23
188	34.9	238	0	288	21.1
189	35.7	239	0	289	21.5
190	36.5	240	0	290	20.7
191	36.9	241	0	291	20.7
192	36.9	242	0	292	19.6
193	37.2	243	0	293	16.5
194	37.6	244	0	294	13.1
195	37.2	245	0	295	9.6
196	37.6	246	0	296	7.3
197	38	247	0	297	3.8
198	38.4	248	1.5	298	0.8
199	39.2	249	5	299	0
200	39.6	250	8.8	300	0

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
301	0	351	41.5	401	56.4
302	0	352	40.7	402	56.4
303	0	353	40.3	403	56.4
304	0	354	41.1	404	57.2
305	0	355	41.5	405	56.8
306	0	356	42.6	406	57.6
307	0	357	43.4	407	57.6
308	0	358	44.2	408	57.6
309	0	359	44.9	409	58
310	0	360	45.7	410	58
311	0	361	46.5	411	58.4
312	0	362	46.8	412	58.4
313	0	363	47.2	413	58.8
314	0	364	48	414	59.1
315	0	365	47.6	415	58.8
316	0	366	48.4	416	58.8
317	0	367	48	417	58
318	0	368	47.2	418	58
319	0	369	46.1	419	57.6
320	0	370	45.7	420	57.6
321	0	371	44.9	421	57.6
322	0	372	44.2	422	57.6
323	0.4	373	43.8	423	57.6
324	2.7	374	44.5	424	59.1
325	7.3	375	44.9	425	59.5
326	11.5	376	45.3	426	59.9
327	15.4	377	46.5	427	60.3
328	18.4	378	48	428	60.3
329	20.7	379	48.8	429	61.1
330	24.2	380	49.5	430	60.3
331	26.9	381	49.9	431	59.9
332	29.6	382	49.9	432	59.5
333	31.1	383	49.9	433	59.1
334	32.6	384	49.5	434	59.1
335	33.8	385	49.5	435	59.5
336	34.9	386	48.8	436	59.5
337	36.9	387	48.8	437	59.5
338	39.2	388	48.8	438	59.9
339	41.1	389	48.4	439	60.3
340	43	390	48.8	440	60.7
341	43.8	391	49.5	441	60.7
342	44.5	392	50.3	442	61.4
343	45.3	393	50.7	443	61.8
344	45.3	394	51.8	444	61.8
345	44.9	395	52.6	445	61.8
346	44.5	396	53.4	446	61.8
347	43.8	397	54.1	447	61.1
348	43.4	398	55.3	448	60.7
349	42.6	399	55.3	449	60.3
350	41.9	400	56.1	450	60.3

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
451	60.3	501	27.3	551	10
452	59.5	502	29.2	552	10.4
453	58.8	503	30.7	553	10.4
454	59.1	504	31.5	554	5.4
455	58.8	505	31.1	555	1.9
456	58.8	506	31.1	556	0
457	58.8	507	30.3	557	0
458	58.4	508	30	558	0
459	58	509	30	559	0
460	58	510	29.6	560	0
461	58	511	30	561	0
462	58.4	512	28.8	562	0
463	59.1	513	28.8	563	0
464	59.5	514	28	564	0
465	59.9	515	28.4	565	0
466	59.9	516	28	566	0
467	60.3	517	28.4	567	0
468	61.1	518	28.4	568	0
469	61.1	519	28.8	569	0
470	61.1	520	28.4	570	0
471	61.4	521	28.4	571	0
472	61.4	522	28	572	0
473	61.1	523	26.5	573	0
474	60.7	524	24.2	574	0
475	59.9	525	22.7	575	0
476	59.1	526	20.4	576	0
477	59.1	527	17.7	577	0
478	59.1	528	15.7	578	0
479	59.9	529	13.1	579	0
480	59.5	530	10.8	580	0
481	59.9	531	8.4	581	0
482	58.8	532	7.3	582	0.4
483	58	533	5	583	1.5
484	57.6	534	3.8	584	3.5
485	56.8	535	3.5	585	6.1
486	56.1	536	1.9	586	10.4
487	55.3	537	0.8	587	14.2
488	54.1	538	0	588	16.9
489	52.6	539	0	589	19.2
490	49.2	540	0	590	20
491	46.1	541	0.8	591	21.5
492	43	542	1.9	592	23.4
493	37.2	543	3.8	593	24.6
494	29.6	544	6.9	594	24.2
495	21.5	545	9.6	595	20
496	16.5	546	11.1	596	16.9
497	15.7	547	11.1	597	13.4
498	18.4	548	10.4	598	13.4
499	21.5	549	8.8	599	15.7
500	25	550	9.2	600	18.4

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
601	21.1	651	29.2	701	29.2
602	23.4	652	30	702	28.4
603	25.3	653	30	703	25
604	27.6	654	29.6	704	21.1
605	28.8	655	29.6	705	16.9
606	30.3	656	28.8	706	13.4
607	30.7	657	28.4	707	13.1
608	31.5	658	28	708	12.3
609	31.1	659	27.3	709	12.7
610	31.1	660	25.7	710	15.7
611	30.3	661	24.6	711	19.2
612	30.3	662	25	712	22.3
613	30.3	663	26.5	713	24.6
614	30.7	664	28	714	25.7
615	31.1	665	29.6	715	26.5
616	32.3	666	30.7	716	26.5
617	32.6	667	32.3	717	26.9
618	32.6	668	33	718	27.3
619	32.6	669	34.2	719	27.3
620	31.1	670	34.6	720	27.6
621	26.9	671	35.3	721	28.4
622	22.3	672	36.1	722	28.8
623	18	673	36.1	723	28.8
624	13.8	674	36.9	724	29.2
625	9.6	675	36.9	725	28.8
626	4.6	676	37.6	726	28.8
627	6.1	677	37.6	727	28
628	10	678	38.4	728	28
629	14.2	679	38	729	27.6
630	17.3	680	37.6	730	26.5
631	20	681	37.6	731	24.6
632	21.5	682	37.2	732	20.7
633	22.3	683	36.9	733	16.5
634	22.3	684	36.1	734	15
635	22.3	685	35.7	735	14.2
636	22.3	686	36.1	736	14.2
637	23	687	35.7	737	13.8
638	23	688	35.7	738	13.8
639	22.7	689	35.7	739	11.9
640	22.3	690	36.1	740	8.4
641	21.9	691	36.1	741	4.2
642	22.7	692	35.7	742	1.2
643	23.8	693	35.7	743	0
644	25	694	34.9	744	0
645	25.3	695	34.6	745	0
646	25.7	696	34.2	746	0
647	26.5	697	33.8	747	0
648	26.9	698	33.4	748	0
649	27.3	699	33	749	0
650	28	700	30.3	750	0

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
751	0	801	23.8	851	2.3
752	0	802	25.7	852	0
753	0	803	27.6	853	1.2
754	0	804	29.6	854	6.9
755	0	805	30	855	13.8
756	0	806	29.2	856	18.8
757	0	807	27.6	857	23.8
758	0	808	25	858	27.3
759	0	809	23.8	859	30.7
760	0	810	23.4	860	33.8
761	0	811	24.2	861	37.6
762	0	812	23.4	862	40.7
763	0	813	23	863	43.8
764	0	814	20.4	864	46.1
765	0	815	18.8	865	48
766	0	816	17.3	866	49.5
767	0	817	15	867	51.5
768	0	818	13.1	868	53
769	0	819	9.2	869	54.5
770	0	820	6.9	870	55.7
771	0	821	4.6	871	56.8
772	0	822	4.6	872	58
773	1.5	823	4.6	873	59.1
774	5.4	824	4.2	874	60.3
775	9.2	825	5.4	875	61.1
776	11.5	826	4.6	876	61.8
777	14.6	827	3.5	877	61.8
778	17.3	828	2.3	878	61.8
779	19.2	829	2.3	879	61.8
780	21.1	830	1.9	880	62.6
781	20.7	831	3.1	881	63.4
782	20.7	832	6.1	882	63
783	19.6	833	4.6	883	63
784	18.4	834	2.7	884	62.6
785	16.9	835	2.3	885	61.8
786	16.9	836	2.3	886	61.8
787	16.5	837	3.1	887	62.2
788	16.9	838	4.2	888	62.2
789	16.9	839	3.5	889	62.6
790	16.9	840	3.8	890	63.7
791	17.3	841	4.2	891	64.5
792	19.2	842	3.5	892	64.9
793	20.4	843	3.5	893	66
794	21.1	844	3.5	894	66
795	22.3	845	4.6	895	66.8
796	22.3	846	5.8	896	66.4
797	22.7	847	3.5	897	66.8
798	22.3	848	0.8	898	67.2
799	22.7	849	3.5	899	66.4
800	22.3	850	3.8	900	66.4

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
901	66	951	44.2	1001	31.5
902	65.7	952	41.1	1002	28.8
903	65.7	953	39.9	1003	25.7
904	66.4	954	36.1	1004	24.6
905	66	955	32.6	1005	23.4
906	65.7	956	29.2	1006	22.3
907	65.3	957	24.6	1007	21.5
908	65.3	958	20.7	1008	20
909	64.5	959	19.2	1009	20
910	64.5	960	16.5	1010	19.2
911	64.1	961	15	1011	19.2
912	63.7	962	11.9	1012	18
913	63.7	963	9.6	1013	11.9
914	63.7	964	8.4	1014	6.9
915	64.5	965	5.8	1015	2.7
916	64.5	966	1.2	1016	0.8
917	64.9	967	0	1017	0.4
918	64.5	968	0	1018	0
919	64.1	969	0	1019	0
920	64.9	970	1.2	1020	0
921	65.3	971	3.1	1021	0
922	65.3	972	5	1022	0
923	65.3	973	8.4	1023	0
924	64.1	974	11.5	1024	0
925	63.4	975	14.6	1025	0
926	63	976	16.9	1026	0
927	63.4	977	18.8	1027	0
928	64.1	978	21.1	1028	0
929	64.9	979	23.8	1029	0
930	65.3	980	26.5	1030	0
931	64.5	981	28	1031	0
932	64.1	982	29.6	1032	0
933	63.4	983	30.7	1033	0.4
934	63.7	984	32.6	1034	2.7
935	63.4	985	34.2	1035	6.1
936	63.4	986	35.3	1036	9.2
937	63.4	987	36.1	1037	11.5
938	63.4	988	36.9	1038	14.2
939	63.7	989	38	1039	16.1
940	64.5	990	38	1040	18
941	65.3	991	38	1041	20
942	64.9	992	38	1042	21.5
943	63.7	993	38	1043	23
944	63	994	37.2	1044	24.2
945	59.9	995	36.9	1045	25
946	55.3	996	36.1	1046	25.7
947	50.7	997	35.7	1047	26.9
948	49.2	998	34.9	1048	27.6
949	48	999	34.9	1049	27.6
950	46.1	1000	33.8	1050	28.4

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
1051	29.2	1101	21.9	1151	42.6
1052	29.2	1102	21.9	1152	42.2
1053	30	1103	20.7	1153	43
1054	29.6	1104	17.3	1154	43.4
1055	29.6	1105	13.1	1155	43
1056	28.8	1106	9.6	1156	42.6
1057	28	1107	8.8	1157	41.9
1058	23.8	1108	10.8	1158	40.7
1059	18.8	1109	12.7	1159	36.9
1060	11.9	1110	14.2	1160	32.6
1061	6.1	1111	14.6	1161	28
1062	1.5	1112	13.1	1162	23.4
1063	1.5	1113	11.1	1163	18.4
1064	4.2	1114	11.1	1164	14.6
1065	8.1	1115	11.1	1165	12.3
1066	10.4	1116	13.1	1166	9.2
1067	13.1	1117	15.7	1167	5.8
1068	15.4	1118	18.4	1168	1.9
1069	18	1119	20.7	1169	0.4
1070	20.4	1120	23.8	1170	0
1071	23	1121	25.7	1171	0
1072	25.3	1122	28	1172	0
1073	27.3	1123	30	1173	0
1074	28.8	1124	31.1	1174	0
1075	30.3	1125	32.3	1175	0.4
1076	31.1	1126	34.2	1176	4.2
1077	32.3	1127	35.7	1177	9.2
1078	31.9	1128	36.9	1178	11.9
1079	32.3	1129	38.8	1179	14.2
1080	31.9	1130	40.3	1180	15.7
1081	31.1	1131	41.5	1181	15
1082	28.8	1132	42.2	1182	14.2
1083	25	1133	43	1183	13.4
1084	22.7	1134	43.8	1184	13.8
1085	18.8	1135	43.8	1185	14.6
1086	15.4	1136	43.4	1186	14.6
1087	13.4	1137	43	1187	14.2
1088	11.9	1138	42.2	1188	16.1
1089	8.8	1139	41.9	1189	15.7
1090	5	1140	41.5	1190	15.7
1091	1.9	1141	41.9	1191	14.6
1092	2.3	1142	41.9	1192	13.1
1093	2.7	1143	41.9	1193	10
1094	3.5	1144	42.2	1194	7.3
1095	6.5	1145	42.6	1195	3.5
1096	10.8	1146	42.6	1196	0.8
1097	13.8	1147	42.6	1197	0
1098	16.1	1148	42.6	1198	0
1099	18.4	1149	42.6	1199	0
1100	20.4	1150	42.6	1200	0

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
1201	0.4	1251	10.4	1301	46.8
1202	2.7	1252	15.4	1302	47.6
1203	7.3	1253	17.3	1303	48
1204	11.5	1254	17.3	1304	48.4
1205	15.4	1255	18.4	1305	48
1206	19.2	1256	21.5	1306	48
1207	21.9	1257	24.6	1307	47.2
1208	23.8	1258	27.3	1308	46.5
1209	25	1259	30	1309	46.8
1210	26.1	1260	31.5	1310	47.2
1211	27.3	1261	31.9	1311	48.4
1212	28.8	1262	32.6	1312	48.4
1213	30	1263	33.4	1313	48.8
1214	29.6	1264	34.9	1314	48.4
1215	29.6	1265	36.5	1315	47.6
1216	28.8	1266	37.6	1316	46.5
1217	26.1	1267	39.2	1317	44.2
1218	22.3	1268	40.3	1318	42.2
1219	19.2	1269	40.7	1319	41.5
1220	16.5	1270	41.1	1320	41.1
1221	12.7	1271	40.7	1321	40.7
1222	9.6	1272	40.7	1322	40.3
1223	6.9	1273	40.7	1323	39.6
1224	4.2	1274	41.5	1324	39.2
1225	2.3	1275	42.6	1325	38.8
1226	0.8	1276	43	1326	38
1227	0	1277	44.5	1327	37.6
1228	0	1278	45.3	1328	37.2
1229	0	1279	45.3	1329	36.5
1230	0	1280	44.9	1330	34.6
1231	0	1281	43.4	1331	31.5
1232	0	1282	40.3	1332	29.6
1233	0	1283	38	1333	29.2
1234	0	1284	36.1	1334	28.8
1235	0	1285	36.5	1335	28.8
1236	0	1286	38	1336	28
1237	0	1287	39.2	1337	28
1238	0	1288	40.7	1338	28.4
1239	0	1289	42.2	1339	29.6
1240	0	1290	43.4	1340	30
1241	0	1291	44.9	1341	30.3
1242	0	1292	45.7	1342	29.2
1243	0	1293	46.1	1343	26.5
1244	0	1294	46.8	1344	25.3
1245	0	1295	46.5	1345	25
1246	0	1296	46.5	1346	24.6
1247	0	1297	46.5	1347	24.6
1248	0	1298	46.1	1348	25.3
1249	0	1299	46.1	1349	26.1
1250	3.5	1300	46.1	1350	27.3

Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
1351	28.4	1400	8.8
1352	29.2	1401	10.8
1353	29.2	1402	12.3
1354	29.6	1403	13.1
1355	30	1404	12.3
1356	31.1	1405	12.3
1357	32.6	1406	11.5
1358	33.8	1407	11.5
1359	34.6	1408	11.1
1360	34.9	1409	11.1
1361	34.6	1410	11.1
1362	34.9	1411	13.1
1363	34.6	1412	15
1364	34.9	1413	16.9
1365	34.9	1414	16.9
1366	34.9	1415	16.1
1367	34.2	1416	15.7
1368	33.8	1417	15.4
1369	32.6	1418	15
1370	31.5	1419	13.8
1371	30	1420	10.8
1372	28.8	1421	8.4
1373	27.3	1422	6.1
1374	23.8	1423	4.2
1375	23	1424	3.5
1376	23	1425	3.5
1377	22.3	1426	1.5
1378	20.4	1427	0
1379	18.8	1428	0
1380	17.7	1429	0
1381	16.1	1430	0
1382	14.6	1431	0
1383	12.7	1432	0
1384	11.1	1433	0
1385	9.2	1434	0
1386	8.8	1435	0
1387	7.3	1436	0
1388	6.1		
1389	5		
1390	4.2		
1391	3.5		
1392	2.7		
1393	2.3		
1394	1.5		
1395	1.2		
1396	0		
1397	1.2		
1398	4.2		
1399	7.3		

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13. ABSTRACT *(Maximum 200 Words)*

This project had two primary objectives. The first objective was to develop a computer model capable of characterizing vehicle exhaust emissions over various driving cycles. The second objective was to construct a driving cycle which would be more representative of typical California driving patterns. The contractor accomplished the first task by developing two computer models (VEHSIM and VEHSIME). These models estimate vehicle exhaust emissions based on user supplied speed versus time traces. For the second task, the contractor equipped a "chase car" with a laser range finder which allowed the chase car to determine the speed of each vehicle being followed. The contractor collected speed-time profile data of hundreds of vehicles along randomly selected road routes in the Greater Metropolitan Los Angeles area in southern California. This was analyzed and used to construct the new driving cycle. When the new driving cycle is compared against the existing Federal Test Procedure (FTP) using the computer models developed by the contractor, emissions of carbon monoxide and oxides of nitrogen are projected to be over twice as high on the new cycle than on the FTP, while the hydrocarbons remained nearly the same over both cycles.

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