

Technical Report

Ford - EPA  
1981 Light Duty Vehicle  
Diesel Correlation

By

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## I. INTRODUCTION

In a letter from Ford Motor Company dated March 2, 1981, Ford requested a special correlation program with EPA. This special program would allow Ford to evaluate the sensitivity of two new diesel powered vehicles, with different engine configurations, on the Ford and EPA diesel emission measurement systems.

## II. SUMMARY OF RESULTS

There are some differences between diesel gaseous and particulate results, between Ford and EPA. The results are as follows:

Average of all FTP's on Ford Escort (#313W767)

|      | #<br>of Tests | HC (HFID)<br>( ----- ) | CO<br>( ----- ) | NOx<br>( ----- )<br>G/mi | CO <sub>2</sub><br>( ----- ) | Particulate<br>( ----- ) | FE<br>(MPG) |
|------|---------------|------------------------|-----------------|--------------------------|------------------------------|--------------------------|-------------|
| EPA  | 2             | .24                    | .70             | .74                      | 273                          | .184                     | 37.1        |
| FORD | 8             | .21                    | .69             | .74                      | 279                          | .145                     | 36.4        |

Average of all FTP's on Mazda Proceed Pickup (#12263)

|      | #<br>of Tests | HC (HFID)<br>( ----- ) | CO<br>( ----- ) | NOx<br>( ----- )<br>G/mi | CO <sub>2</sub><br>( ----- ) | Particulate<br>( ----- ) | FE<br>(MPG) |
|------|---------------|------------------------|-----------------|--------------------------|------------------------------|--------------------------|-------------|
| EPA  | 2             | .20                    | 1.10            | 1.32                     | 374                          | .325                     | 27.1        |
| FORD | 8             | .17                    | 1.08            | 1.48                     | 380                          | .328                     | 26.6        |

## III. TEST PROGRAM DESIGN

### A. Test Vehicles

The following vehicles were used:

| <u>Vehicle<br/>Type</u>               | <u>Engine<br/>Type &amp; Size</u> | <u>Transmission</u> | <u>Inertia<br/>Weight</u> | <u>Actual<br/>Dyno H.P.</u> |
|---------------------------------------|-----------------------------------|---------------------|---------------------------|-----------------------------|
| Ford Escort<br>(Front Wheel<br>Drive) | 2.0L<br>Toyo Kogyo<br>Diesel      | 5 spd.<br>Manual    | 2750 lbs.                 | 6.7 A.H.P.                  |
| Mazda Proceed<br>Pickup Truck         | 2.2L<br>Toyo Kogyo<br>Diesel      | 5 spd.<br>Manual*   | 3250 lbs.                 | 12.1 A.H.P.                 |

\* Tested as 4 speed manual only.

## B. Test Procedures and Sequences

The following procedures and sequences were used at Ford and EPA on both test vehicles.

- Vehicle Delivery
- Drain Fuel
- Fuel with 40% diesel test fuel  
(Diesel fuel was Phillips D-2  
Special Control Fuel, supplied by Ford)
- Prep LA-4
- Soak (Minimum 11 hours)
- FTP Emission Test\*  
(Includes gaseous and particulates)
- Highway Fuel Economy Test  
(Includes gaseous and particulates)
- 3 PAU Quick Check Coastdowns
- Add fuel to bring fuel level in vehicle to 40%
- Soak (Minimum 11 hours)

- \* Gaseous analysis on the vehicles consisted of all 3 bags analyzed at the end of the FTP test.

EPA performed standard bag analysis (analysis of bags after filling per 40 CFR 86.137-78 (b) 11, 13, 18) in conjunction with the aforementioned analysis at end of FTP test. Ford also performed the same procedure, (incorporating all bag analysis at end of test with standard bag analysis) on all post-EPA testing performed at Ford.

The previous procedures and sequences were performed for two days of back-to-back testing. The dynamometer tests performed on the vehicles were used as preconditioning for the next day's sequence of tests.

## IV. TEST RESULTS

All test results (gaseous and particulate) are summarized in Attachments A thru F. Attachments A and B are Lab Correlation Summaries of test results generated for both test vehicles using the standard bag analysis.

Attachments C and D are Lab Correlation Summaries of test results for both vehicles, where all the bags were analyzed at the end of each test. Also, Attachments C and D have all gaseous and particulate data (pre-EPA and post-EPA data supplied by Ford) combined, rather than performing separate Pre-EPA and Post-EPA analysis. Attachments E and F consist of Highway Fuel Economy Data for both vehicles.

Attachment G is a brief summary of all PAU quick check coast-down times (55 MPH to 45 MPH) recorded for both test vehicles.

## V. DISCUSSION OF RESULTS

### A. Ford Escort (Vehicle 313W767)

There appears to be no significant difference between analyzing all bags at the end of the test (See Attachment C), versus standard bag analysis (See Attachment A).

Significant percent differences may exist between Ford and EPA, where EPA measures HC (HFID) 12-17% higher, and measures particulates 16-21% higher. A high degree of confidence is lacking, however, because only two tests were performed at EPA. Therefore, to have a significant degree of confidence that an offset exists, more data (test results) would be needed from EPA.

Highway Fuel Economy Results (See Attachment E) appear to show no significant offsets in fuel economy. But there possibly is a 16% offset (with EPA measuring higher) in HC (HFID), which may reinforce that a HC (HFID) measuring offset does exist between Ford and EPA. Particulates however, reversed the offset indicated in the FTP results, which might require some investigation.

### B. Mazda Proceed Pickup Truck (Vehicle #12263).

Here again, there appears to be no significant difference between analyzing all bags at the end of the test (See Attachment D), versus standard bag analysis (See Attachment B).

Significant differences may exist, where EPA measures HC (HFID) 15-18% higher than Ford, and Ford measures NOx 9-12% higher than EPA. But, in contrast to the Ford Escort, there appears to be good agreement in particulate measurement on this vehicle. Here again, to have a significant degree of confidence that an offset exists, more data (test results) would be needed from EPA. Highway Fuel Economy results (See Attachment F) appear to show a good agreement in fuel economy. The large offset in HC (HFID) is not significant, due to the low level of HC (HFID) emissions.

## VI. CONCLUSIONS

The purpose of this program was outlined as a special correlation program, to allow Ford a preview of these new diesel vehicles. It is regrettable that more data could not have been generated at EPA, but due to test load and scheduling it was not possible. However, some inferences can be drawn from this program, in that some offsets in measuring HC (HFID), particulate and NOx may exist between EPA and Ford on diesel powered light duty vehicles.

# LAH CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 21, 1981

| LAB: EPA                    |        | VEH: 79050-F0000201 |        |       |       |      | VIN: 31JW767 |        |      |        |     | INERTIA WTI 2750 |       |       |      |                 | ACTUAL MPI 6.7 |  |
|-----------------------------|--------|---------------------|--------|-------|-------|------|--------------|--------|------|--------|-----|------------------|-------|-------|------|-----------------|----------------|--|
| DATE                        | TESTNO | TYPE                | MFID   | CO    | NOX   | CO2  | FE           | DRIVEN | DYNO | ODOM   | IMP | BARO             | HUM   | NAFC  | PART |                 |                |  |
| 03-24-81                    | 008362 | FTP                 | 0.223  | 0.70  | 0.76  | 275. | 36.8         | 36615  | 0007 | 1167.9 | 4.1 | 29.20            | 45.94 | 0.88  | .209 |                 |                |  |
| 03-26-81                    | 008397 | FTP                 | 0.260  | 0.70  | 0.74  | 271. | 37.3         | 36615  | 0007 | 1207.1 | 4.1 | 29.14            | 43.88 | 0.87  | .159 |                 |                |  |
| 1<----- (1.7M) -----> (MPG) |        |                     |        |       |       |      |              |        |      |        |     |                  |       |       |      | (IN-HG) (GAINS) |                |  |
|                             |        |                     |        |       |       |      |              |        |      |        |     |                  |       |       |      | (LB)            |                |  |
|                             |        |                     |        |       |       |      |              |        |      |        |     |                  |       |       |      | (G/M3)          |                |  |
| MEAN                        |        |                     | 0.241  | 0.70  | 0.75  | 273. | 37.1         |        |      |        |     |                  | 29.17 | 44.43 | 0.88 | .184            |                |  |
| STANDARD DEV.               |        |                     | 0.0262 | 0.001 | 0.014 | 3.   | 0.4          |        |      |        |     |                  | 0.040 | 1.442 | .005 | .035            |                |  |
| C.V.s                       |        |                     | 10.8   | 0.1   | 1.4   | 1.0  | 1.0          |        |      |        |     |                  | 0.1   | 3.3   | 0.6  | 19.2            |                |  |

## LAB CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 16, 1981

| LAB: EPA                    |        | VEH: 79050-F0ND0281       |       |      |      |      | VIN: 12263            |        |      | INERTIA WT: 3250 |     |       |       | ACTUAL MPI: 12.2 |        |
|-----------------------------|--------|---------------------------|-------|------|------|------|-----------------------|--------|------|------------------|-----|-------|-------|------------------|--------|
| DATE                        | TESTNO | TYPE                      | HFID  | CO   | NOX  | CO2  | FE                    | DRIVEN | DYNO | ODOM             | IMP | BARO  | HUM   | NAFC             | PART   |
| 03-26-81                    | 808395 | FTP                       | 0.210 | 1.20 | 1.51 | 376. | 26.9                  | 36615  | 0007 | 4690.8           | 9.5 | 29.02 | 47.79 | 0.89             | .356   |
| 03-27-81                    | 808396 | FTP                       | 0.190 | 1.00 | 1.26 | 370. | 27.3                  | 36615  | 0007 | 4727.8           | 9.5 | 29.28 | 46.32 | 0.88             | .294   |
| [<----- (G/M) ----->] (MPG) |        |                           |       |      |      |      |                       |        |      |                  |     |       |       |                  | (G/MI) |
| MEAN                        |        | 0.200 1.10 1.39 373. 27.1 |       |      |      |      | 29.15 47.05 0.88 .325 |        |      |                  |     |       |       |                  |        |
| STANDARD DEV.               |        | 0.041 0.141 .177 4. 0.3   |       |      |      |      | 0.044 1.034 .004 .044 |        |      |                  |     |       |       |                  |        |
| C.V. %                      |        | 7.1 12.9 12.8 1.1 1.0     |       |      |      |      | 0.6 2.2 0.4 13.5      |        |      |                  |     |       |       |                  |        |

## BAG DATA

| DATE                        | TESTNO | TYPE                        | DYNO | SITE | HFID  | 2     | 3                                                 | CO   | 2    | 3    | NOX  | 2    | 3    | CO2  | 2                     | 3    | FE   | 2    | 3    | PART   | 2    | 3    |
|-----------------------------|--------|-----------------------------|------|------|-------|-------|---------------------------------------------------|------|------|------|------|------|------|------|-----------------------|------|------|------|------|--------|------|------|
| 03-26-81                    | 808395 | FTP                         | 0007 | A004 | 0.224 | 0.237 | 0.160                                             | 1.51 | 1.08 | 1.08 | 1.51 | 1.60 | 1.32 | 399. | 381.                  | 349. | 25.3 | 26.6 | 29.0 | .485   | .310 | .328 |
| 03-27-81                    | 808396 | FTP                         | 0007 | A004 | 0.200 | 0.207 | 0.161                                             | 1.26 | 1.00 | 0.97 | 1.25 | 1.31 | 1.16 | 386. | 377.                  | 345. | 26.2 | 26.9 | 29.3 | .350   | .276 | .285 |
| [<----- (G/M) ----->] (MPG) |        |                             |      |      |       |       |                                                   |      |      |      |      |      |      |      | [<----- (MPG) ----->] |      |      |      |      | (G/MI) |      |      |
| MEAN                        |        | 0.212 0.222 0.160 1.38 1.04 |      |      |       |       | 1.03 1.38 1.45 1.24 393. 379. 347. 25.8 26.8 29.1 |      |      |      |      |      |      |      |                       |      |      |      |      | .418   | .298 | .307 |
| STANDARD DEV.               |        | 0.017 0.021 0.001 0.17 0.05 |      |      |       |       | 0.08 0.18 0.21 0.11 4. 3. 3. 0.6 0.2 0.2          |      |      |      |      |      |      |      |                       |      |      |      |      | .1     | .03  | .03  |
| C.V. %                      |        | 8.0 9.6 0.4 12.4 5.2        |      |      |       |       | 7.6 13.3 14.1 9.1 2.3 0.7 0.8 2.5 0.8 0.7         |      |      |      |      |      |      |      |                       |      |      |      |      | 22.8   | 10.4 | 9.9  |

| LAB: FORD                   |        | VEH: 79050-F0ND0281       |       |      |      |      | VIN: 12263             |        |      | INERTIA WT: 3250 |     |       |       | ACTUAL MPI: 12.5 |        |
|-----------------------------|--------|---------------------------|-------|------|------|------|------------------------|--------|------|------------------|-----|-------|-------|------------------|--------|
| DATE                        | TESTNO | TYPE                      | HFID  | CO   | NOX  | CO2  | FE                     | DRIVEN | DYNO | ODOM             | IMP | BARO  | HUM   | NAFC             | PART   |
| 03-31-81                    | 20     | FTP                       | 0.174 | 1.03 | 1.49 | 388. | 26.1                   | 1      | 0014 | 4802.0           | 9.5 | 29.10 | 44.52 | 0.87             | .322   |
| 03-31-81                    | 23     | FTP                       | 0.171 | 1.10 | 1.52 | 381. | 26.6                   | 1      | 0014 | 4838.0           | 9.5 | 29.18 | 52.92 | 0.91             | .318   |
| 04-01-81                    | 26     | FTP                       | 0.146 | 1.13 | 1.50 | 385. | 26.3                   | 1      | 0014 | 4878.0           | 9.5 | 29.00 | 28.01 | 0.82             | .324   |
| [<----- (G/M) ----->] (MPG) |        |                           |       |      |      |      |                        |        |      |                  |     |       |       |                  | (G/MI) |
| MEAN                        |        | 0.164 1.09 1.50 385. 26.3 |       |      |      |      | 29.09 41.82 0.87 .321  |        |      |                  |     |       |       |                  |        |
| STANDARD DEV.               |        | 0.0154 0.051 .015 4. 0.3  |       |      |      |      | 0.088 12.673 .044 .003 |        |      |                  |     |       |       |                  |        |
| C.V. %                      |        | 9.4 4.7 1.0 0.4 1.0       |       |      |      |      | 0.3 30.1 5.1 1.        |        |      |                  |     |       |       |                  |        |
| DIFF. %                     |        | -18. -1. 9. 3. -3.        |       |      |      |      | -0. -11. -2. -1.2      |        |      |                  |     |       |       |                  |        |

## BAG DATA

| DATE                        | TESTNO | TYPE                        | DYNO | SITE | HFID  | 2     | 3                                                 | CO   | 2    | 3    | NOX  | 2    | 3    | CO2  | 2                     | 3    | FE   | 2    | 3    | PART   | 2    | 3    |
|-----------------------------|--------|-----------------------------|------|------|-------|-------|---------------------------------------------------|------|------|------|------|------|------|------|-----------------------|------|------|------|------|--------|------|------|
| 03-31-81                    | 20     | FTP                         | 0014 | A014 | 0.203 | 0.187 | 0.124                                             | 1.28 | 0.96 | 0.98 | 1.42 | 1.63 | 1.28 | 422. | 388.                  | 361. | 23.4 | 26.0 | 28.0 | .410   | .300 | .299 |
| 03-31-81                    | 23     | FTP                         | 0014 | A014 | 0.179 | 0.190 | 0.130                                             | 1.33 | 0.99 | 1.15 | 1.49 | 1.62 | 1.36 | 400. | 386.                  | 353. | 25.2 | 26.1 | 28.6 | .403   | .283 | .318 |
| 04-01-81                    | 26     | FTP                         | 0014 | A014 | 0.178 | 0.146 | 0.121                                             | 1.31 | 1.06 | 1.12 | 1.49 | 1.61 | 1.32 | 405. | 393.                  | 354. | 24.4 | 25.7 | 28.6 | .409   | .289 | .327 |
| [<----- (G/M) ----->] (MPG) |        |                             |      |      |       |       |                                                   |      |      |      |      |      |      |      | [<----- (MPG) ----->] |      |      |      |      | (G/MI) |      |      |
| MEAN                        |        | 0.187 0.175 0.125 1.31 1.00 |      |      |       |       | 1.08 1.47 1.62 1.32 409. 390. 356. 24.7 25.4 28.4 |      |      |      |      |      |      |      |                       |      |      |      |      | .407   | .291 | .315 |
| STANDARD DEV.               |        | 0.014 0.025 0.005 0.02 0.05 |      |      |       |       | 0.04 0.04 0.01 0.04 12. 3. 4. 0.7 0.2 0.3         |      |      |      |      |      |      |      |                       |      |      |      |      | .004   | .01  | .01  |
| C.V. %                      |        | 7.6 14.4 3.7 1.9 5.1        |      |      |       |       | 8.5 2.8 0.6 3.0 2.8                               |      |      |      |      |      |      |      |                       |      |      |      |      | .9     | 3.   | 4.5  |
| DIFF. %                     |        | -12. -21. -22. -6. -4.      |      |      |       |       | 5. 6. 11. 6. 4. 3. 3. -4. -3. -3.                 |      |      |      |      |      |      |      |                       |      |      |      |      | -2.6   | -2.3 | 2.6  |

C.V. % IS THE COEFFICIENT OF VARIATION. (STU. DEV. / MEAN \* 100).

DIFF. % IS THE DIFFERENCE OF THE MEANS BETWEEN THE MEH AND EPA LAB. (MPH-EPA/EPA \* 100).

NOTE: THE COMMENTS PERTINENT TO THESE TESTS ARE LOCATED IN THE LAST TABLE OF THIS APPENDIX.

## ATTACHMENT B

Mazda Proceed Pickup FTP data analyzing each bag  
after filling

## LAB CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 16, 1981

| LAB: EPA                            |        | VEH: 74050-F0000181 |       |       |       | VIN: 313W767 |      |        |      | INERTIA WT: 2750 |       |       |       | ACTUAL MPI 6.7 |        |
|-------------------------------------|--------|---------------------|-------|-------|-------|--------------|------|--------|------|------------------|-------|-------|-------|----------------|--------|
| DATE                                | TESTNO | TYPE                | HF10  | CO    | NOX   | CO2          | FE   | DRIVER | DYNO | ODOM             | IMP   | BARO  | HUM   | NXFC           | PART   |
| 03-24-81                            | 80A362 | FTP                 | 0.223 | 0.70  | 0.76  | 275.         | 36.8 | 36615  | 0007 | 1167.9           | 4.1   | 29.20 | 45.99 | 0.88           | .209   |
| 03-26-81                            | 80A363 | FTP                 | 0.260 | 0.70  | 0.73  | 271.         | 37.3 | 36615  | 0007 | 1207.1           | 4.1   | 29.14 | 43.88 | 0.87           | .159   |
| 1<----- (G/M1) ----->1 (MPG)        |        |                     |       |       |       |              |      |        |      |                  |       |       |       |                | (G/M1) |
| 1<----- (IN-MG) (GAINS /LB) ----->1 |        |                     |       |       |       |              |      |        |      |                  |       |       |       |                | (G/M1) |
| MEAN                                |        |                     | 0.241 | 0.70  | 0.74  | 273.         | 37.1 |        |      |                  | 29.17 | 44.93 | 0.88  |                | .184   |
| STANDARD DEV.                       |        |                     | 0.042 | 0.001 | 0.021 | 3.           | 0.4  |        |      |                  | 0.040 | 1.492 | 0.005 |                | .085   |
| C.V.%                               |        |                     | 10.0  | 0.1   | 2.8   | 1.0          | 1.0  |        |      |                  | 0.1   | 3.3   | 0.6   |                | 19.2   |

## BAG DATA

| DATE          | TESTNO | TYPE | DYNO | SITE | HF10  | 2     | 3     | CO   | 2    | 3    | NOX  | 2    | 3    | CO2  | 2    | 3    | FE   | 2               | 3    | PART | 2    | 3    |        |  |
|---------------|--------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|-----------------|------|------|------|------|--------|--|
| 03-24-81      | 80B362 | FTP  | 0007 | A004 | 0.202 | 0.244 | 0.189 | 0.82 | 0.66 | 0.70 | 0.70 | 0.81 | 0.72 | 284. | 280. | 258. | 35.6 | 36.2            | 39.2 | .240 | .173 | .254 |        |  |
| 03-26-81      | 80B363 | FTP  | 0007 | A004 | 0.244 | 0.285 | 0.223 | 0.88 | 0.66 | 0.64 | 0.71 | 0.78 | 0.66 | 287. | 274. | 251. | 35.2 | 37.0            | 40.3 | .217 | .130 | .170 |        |  |
| (ALL G/MI)    |        |      |      |      |       |       |       |      |      |      |      |      |      |      |      |      |      | 1<---(MPG)--->1 |      |      |      |      | (G/MI) |  |
| MEAN          |        |      |      |      | 0.225 | 0.267 | 0.206 | 0.85 | 0.66 | 0.67 | 0.70 | 0.79 | 0.64 | 286. | 277. | 255. | 35.4 | 36.6            | 39.8 | .229 | .152 | .212 |        |  |
| STANDARD DEV. |        |      |      |      | 0.033 | 0.025 | 0.024 | 0.04 | 0.00 | 0.04 | 0.01 | 0.02 | 0.04 | 2.   | 4.   | 5.   | 0.3  | 0.6             | 0.8  | .021 | .03  | .06  |        |  |
| C.V.%         |        |      |      |      | 14.7  | 4.5   | 11.7  | 4.7  | 0.2  | 6.1  | 1.0  | 2.7  | 6.2  | 0.7  | 1.5  | 1.9  | 0.8  | 1.5             | 2.0  | 7.1  | 2.0  | 28.  |        |  |

| LAB: FORD                           |        | VEH: 74050-F0000181 |       |       |       | VIN: 313W767 |      |        |      | INERTIA WT: 2750 |       |        |       | ACTUAL MPI 6.4 |        |
|-------------------------------------|--------|---------------------|-------|-------|-------|--------------|------|--------|------|------------------|-------|--------|-------|----------------|--------|
| DATE                                | TESTNO | TYPE                | HF10  | CO    | NOX   | CO2          | FE   | DRIVER | DYNO | ODOM             | IMP   | BARO   | HUM   | NXFC           | PART   |
| 03-16-81                            | 26     | FTP                 | 0.233 | 0.69  | 0.79  | 300.         | 33.7 | 0      | 0014 | 883.0            | 4.5   | 29.22  | 18.54 | 0.79           | .154   |
| 03-17-81                            | 29     | FTP                 | 0.222 | 0.72  | 0.72  | 280.         | 36.1 | 0      | 0014 | 915.0            | 4.5   | 28.89  | 24.47 | 0.81           | .194   |
| 03-18-81                            | 33     | FTP                 | 0.232 | 0.69  | 0.72  | 272.         | 37.3 | 0      | 0014 | 954.0            | 4.5   | 28.94  | 17.45 | 0.79           | .151   |
| 03-19-81                            | 36     | FTP                 | 0.247 | 0.69  | 0.71  | 273.         | 37.1 | 0      | 0014 | 984.0            | 4.5   | 28.92  | 17.48 | 0.79           | .124   |
| 03-20-81                            | 39     | FTP                 | 0.144 | 0.62  | 0.71  | 273.         | 37.1 | 0      | 0014 | 1020.0           | 4.5   | 28.94  | 19.97 | 0.79           | .136   |
| 03-20-81                            | 42     | FTP                 | 0.185 | 0.63  | 0.75  | 275.         | 36.9 | 0      | 0014 | 1052.0           | 4.5   | 29.07  | 26.25 | 0.81           | .141   |
| 03-30-81                            | 48     | FTP                 | 0.222 | 0.80  | 0.80  | 282.         | 35.8 | 1      | 0014 | 1272.0           | 4.5   | 28.80  | 64.39 | 0.97           | .162   |
| 03-31-81                            | 53     | FTP                 | 0.180 | 0.69  | 0.72  | 274.         | 36.9 | 1      | 0014 | 1329.0           | 4.5   | 29.31  | 37.45 | 0.85           | .146   |
| 1<----- (G/M1) ----->1 (MPG)        |        |                     |       |       |       |              |      |        |      |                  |       |        |       |                | (G/M1) |
| 1<----- (IN-MG) (GAINS /LB) ----->1 |        |                     |       |       |       |              |      |        |      |                  |       |        |       |                | (G/M1) |
| MEAN                                |        |                     | 0.213 | 0.64  | 0.74  | 279.         | 36.4 |        |      |                  | 29.01 | 28.87  | 0.83  |                | .155   |
| STANDARD DEV.                       |        |                     | 0.024 | 0.054 | 0.036 | 9.           | 1.2  |        |      |                  | 0.171 | 17.679 | 0.064 |                | .012   |
| C.V.%                               |        |                     | 12.3  | 7.8   | 4.9   | 3.4          | 3.3  |        |      |                  | 0.6   | 61.2   | 7.7   |                | 8.     |
| DIFF. %                             |        |                     | -12.  | -1.   | -1.   | 2.           | -2.  |        |      |                  | -1.   | -34.   | -6.   |                | -21.2  |

## BAG DATA

| DATE          | TESTNO | TYPE | DYNO | SITE | HF10  | 2     | 3     | CO   | 2    | 3    | NOX  | 2    | 3    | CO2  | 2    | 3    | FE   | 2    | 3    | PART  | 2                 | 3     |
|---------------|--------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------------------|-------|
| 03-16-81      | 26     | FTP  | 0014 | A014 | 0.220 | 0.264 | 0.175 | 0.85 | 0.67 | 0.62 | 0.74 | 0.85 | 0.69 | 316. | 305. | 280. | 32.0 | 33.2 | 36.2 | .221  | .132              | .146  |
| 03-17-81      | 29     | FTP  | 0014 | A014 | 0.197 | 0.252 | 0.184 | 0.89 | 0.68 | 0.67 | 0.70 | 0.76 | 0.66 | 305. | 278. | 265. | 33.1 | 36.3 | 38.1 | .184  | .128              | .154  |
| 03-18-81      | 33     | FTP  | 0014 | A014 | 0.204 | 0.242 | 0.193 | 0.85 | 0.65 | 0.64 | 0.70 | 0.77 | 0.63 | 291. | 274. | 254. | 34.7 | 37.0 | 39.4 | .203  | .131              | .149  |
| 03-19-81      | 36     | FTP  | 0014 | A014 | 0.215 | 0.255 | 0.202 | 0.74 | 0.68 | 0.63 | 0.68 | 0.77 | 0.63 | 285. | 277. | 255. | 35.5 | 36.4 | 39.6 | .150  | .111              | .130  |
| 03-20-81      | 39     | FTP  | 0014 | A014 | 0.154 | 0.212 | 0.144 | 0.78 | 0.59 | 0.55 | 0.69 | 0.75 | 0.63 | 295. | 274. | 254. | 34.2 | 37.0 | 40.0 | .145  | .119              | .147  |
| 03-20-81      | 42     | FTP  | 0014 | A014 | 0.144 | 0.222 | 0.145 | 0.73 | 0.64 | 0.56 | 0.73 | 0.80 | 0.66 | 303. | 274. | 256. | 33.5 | 36.4 | 39.6 | .163  | .134              | .139  |
| 03-30-81      | 48     | FTP  | 0014 | A014 | 0.198 | 0.261 | 0.168 | 1.04 | 0.73 | 0.74 | 0.76 | 0.86 | 0.70 | 296. | 288. | 261. | 34.2 | 35.2 | 38.5 | .249  | .119              | .162  |
| 03-31-81      | 53     | FTP  | 0014 | A014 | 0.172 | 0.193 | 0.163 | 0.80 | 0.68 | 0.64 | 0.71 | 0.78 | 0.63 | 298. | 275. | 254. | 34.0 | 36.7 | 39.6 | .202  | .121              | .150  |
| (ALL G/M1)    |        |      |      |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |       | 1<--- (MPG) --->1 |       |
| MEAN          |        |      |      |      | 0.190 | 0.244 | 0.172 | 0.84 | 0.66 | 0.63 | 0.71 | 0.79 | 0.65 | 299. | 281. | 260. | 33.9 | 36.1 | 38.9 | .195  | .124              | .147  |
| STANDARD DEV. |        |      |      |      | 0.027 | 0.032 | 0.020 | 0.10 | 0.04 | 0.06 | 0.03 | 0.04 | 0.03 | 9.   | 11.  | 9.   | 1.1  | 1.3  | 1.3  | .04   | .008              | .01   |
| C.V.%         |        |      |      |      | 14.0  | 13.0  | 11.7  | 11.4 | 5.9  | 9.7  | 3.8  | 5.2  | 4.4  | 3.2  | 3.9  | 3.5  | 3.1  | 3.6  | 3.3  | 19.7  | 6.4               | 6.5   |
| DIFF. %       |        |      |      |      | -16.  | -8.   | -16.  | -1.  | 0.   | -6.  | 1.   | -0.  | -5.  | 5.   | 1.   | 2.   | -4.  | -1.  | -2.  | -14.8 | -18.4             | -30.7 |

C.V.% IS THE COEFFICIENT OF VARIATION. (STD. DEV./MEAN \*100).

DIFF. % IS THE DIFFERENCE OF THE MEANS BETWEEN THE MFR AND EPA LAB. (MFR-EPA/EPA \*100).

NOTE: THE COMMENTS PERTINENT TO THESE TESTS ARE LOCATED IN THE LAST TABLE OF THIS APPENDIX.

## ATTACHMENT C

Ford Escort FTP data performing all bag analysis  
at end of test.

LAB CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 16, 1981

| LAB: EPA      |        | VEH: 7905D-FUHD0181 |                             |       |      |      |      |        |      |        |     | VINI 12263 |                      |      |      | INERTIA WT: 3250 |        |  |  | ACTUAL MPI 18.2 |  |
|---------------|--------|---------------------|-----------------------------|-------|------|------|------|--------|------|--------|-----|------------|----------------------|------|------|------------------|--------|--|--|-----------------|--|
| DATE          | TESTNO | TYPE                | MFID                        | CO    | NOX  | CO2  | FE   | DRIVER | DYNO | ODOM   | IMP | BARO       | HUM                  | NAFC | PART |                  |        |  |  |                 |  |
| 03-26-81      | 808334 | FTP                 | 0.210                       | 1.20  | 1.51 | 377. | 26.8 | 36615  | D007 | 4690.8 | 9.5 | 29.02      | 47.79                | 0.89 | .356 |                  |        |  |  |                 |  |
| 03-27-81      | 808335 | FTP                 | 0.190                       | 1.00  | 1.13 | 370. | 27.3 | 36615  | D007 | 4727.8 | 9.5 | 29.28      | 46.32                | 0.88 | .294 |                  |        |  |  |                 |  |
|               |        |                     | 14----- (G/MPI)-----> (MPG) |       |      |      |      |        |      |        |     |            | (IN-HG) (GRAINS /LB) |      |      |                  | (G/mi) |  |  |                 |  |
| MEAN          |        |                     | 0.200                       | 1.10  | 1.32 | 374. | 27.1 |        |      |        |     | 29.15      | 47.05                | 0.88 | .325 |                  |        |  |  |                 |  |
| STANDARD DEV. |        |                     | 0.014                       | 0.141 | .264 | 5.   | 0.4  |        |      |        |     | 0.184      | 1.039                | .004 | .044 |                  |        |  |  |                 |  |
| C.V.%         |        |                     | 7.1                         | 12.9  | 20.4 | 1.3  | 1.3  |        |      |        |     | 0.6        | 2.2                  | 0.4  | 13.5 |                  |        |  |  |                 |  |

BAG DATA

| DATE          | TESTNO | TYPE | DYNO | SITE | MFID  | 2     | 3     | CO   | 2    | 3    | NOX        | 2    | 3    | CO2  | 2    | 3    | FE   | 2    | 3    | PART | 2    | 3    |
|---------------|--------|------|------|------|-------|-------|-------|------|------|------|------------|------|------|------|------|------|------|------|------|------|------|------|
| 03-26-81      | 808334 | FTP  | 0007 | A004 | 0.224 | 0.237 | 0.160 | 1.49 | 1.08 | 1.08 | 1.52       | 1.61 | 1.32 | 400. | 382. | 349. | 25.3 | 26.5 | 29.0 | .485 | .320 | .328 |
| 03-27-81      | 808335 | FTP  | 0007 | A004 | 0.200 | 0.207 | 0.161 | 1.26 | 1.00 | 0.97 | 0.97       | 1.18 | 1.16 | 385. | 378. | 345. | 26.3 | 26.8 | 29.3 | .350 | .278 | .285 |
|               |        |      |      |      |       |       |       |      |      |      | (ALL G/M1) |      |      |      |      |      |      |      |      |      |      |      |
|               |        |      |      |      |       |       |       |      |      |      |            |      |      |      |      |      |      |      |      |      |      |      |
|               |        |      |      |      |       |       |       |      |      |      |            |      |      |      |      |      |      |      |      |      |      |      |
|               |        |      |      |      |       |       |       |      |      |      |            |      |      |      |      |      |      |      |      |      |      |      |
| MEAN          |        |      |      |      | 0.212 | 0.222 | 0.160 | 1.37 | 1.04 | 1.03 | 1.24       | 1.39 | 1.24 | 393. | 380. | 347. | 25.8 | 26.6 | 29.1 | .418 | .298 | .307 |
| STANDARD DEV. |        |      |      |      | 0.017 | 0.021 | 0.001 | 0.17 | 0.05 | 0.08 | 0.39       | 0.30 | 0.11 | 11.  | 3.   | 3.   | 0.7  | 0.2  | 0.2  | .1   | .03  | .03  |
| C.V.%         |        |      |      |      | 8.0   | 9.6   | 0.4   | 12.2 | 5.2  | 7.6  | 31.2       | 21.8 | 9.1  | 2.7  | 0.7  | 0.8  | 2.7  | 0.8  | 0.7  | 22.8 | 10.4 | 9.9  |

| LAB: FORD     |        | VEH: 7905D-FURD0181 |                             |       |      |      |      |        |      |        |     | VINI 12263 |                      |      |      | INERTIA WT: 3250 |        |  |  | ACTUAL MPI 12.5 |  |
|---------------|--------|---------------------|-----------------------------|-------|------|------|------|--------|------|--------|-----|------------|----------------------|------|------|------------------|--------|--|--|-----------------|--|
| DATE          | TESTNO | TYPE                | MFID                        | CO    | NOX  | CO2  | FE   | DRIVER | DYNO | ODOM   | IMP | BARO       | HUM                  | NAFC | PART |                  |        |  |  |                 |  |
| 03-16-81      | 1      | FTP                 | 0.175                       | 0.96  | 1.52 | 375. | 26.9 | 1      | 0014 | 4390.0 | 9.5 | 29.20      | 14.99                | 0.78 | .351 |                  |        |  |  |                 |  |
| 03-17-81      | 4      | FTP                 | 0.176                       | 1.16  | 1.46 | 372. | 27.2 | 1      | 0014 | 4448.0 | 9.5 | 28.73      | 25.32                | 0.81 | .330 |                  |        |  |  |                 |  |
| 03-18-81      | 7      | FTP                 | 0.180                       | 1.02  | 1.41 | 371. | 27.2 | 0      | 0014 | 4470.0 | 9.5 | 28.93      | 17.45                | 0.79 | .338 |                  |        |  |  |                 |  |
| 03-19-81      | 13     | FTP                 | 0.170                       | 1.14  | 1.48 | 380. | 26.6 | 0      | 0014 | 4544.0 | 9.5 | 28.96      | 33.02                | 0.84 | .324 |                  |        |  |  |                 |  |
| 03-20-81      | 16     | FTP                 | 0.162                       | 1.05  | 1.47 | 381. | 26.5 | 0      | 0014 | 4582.0 | 9.5 | 28.94      | 28.14                | 0.82 | .312 |                  |        |  |  |                 |  |
| 03-31-81      | 20     | FTP                 | 0.174                       | 1.03  | 1.48 | 390. | 25.9 | 1      | 0014 | 4802.0 | 9.5 | 29.12      | 44.49                | 0.87 | .322 |                  |        |  |  |                 |  |
| 03-31-81      | 23     | FTP                 | 0.171                       | 1.11  | 1.51 | 384. | 26.3 | 1      | 0014 | 4838.0 | 9.5 | 29.18      | 52.92                | 0.91 | .318 |                  |        |  |  |                 |  |
| 04-01-81      | 26     | FTP                 | 0.146                       | 1.15  | 1.49 | 383. | 26.4 | 1      | 0014 | 4878.0 | 9.5 | 29.00      | 28.04                | 0.82 | .314 |                  |        |  |  |                 |  |
|               |        |                     | 14----- (G/MPI)-----> (MPG) |       |      |      |      |        |      |        |     |            | (IN-HG) (GRAINS /LB) |      |      |                  | (G/mi) |  |  |                 |  |
| MEAN          |        |                     | 0.169                       | 1.08  | 1.48 | 380. | 26.6 |        |      |        |     | 29.01      | 30.55                | 0.83 | .328 |                  |        |  |  |                 |  |
| STANDARD DEV. |        |                     | 0.018                       | 0.072 | .034 | 6.   | 0.5  |        |      |        |     | 0.152      | 12.840               | .043 | .018 |                  |        |  |  |                 |  |
| C.V.%         |        |                     | 0.4                         | 6.6   | 2.3  | 1.7  | 1.7  |        |      |        |     | 0.5        | 42.0                 | 5.1  | 5.8  |                  |        |  |  |                 |  |
| DIFF. %       |        |                     | -15.                        | -2.   | 12.  | 2.   | -2.  |        |      |        |     | -0.        | -35.                 | -6.  | .92  |                  |        |  |  |                 |  |

BAG DATA

| DATE          | TESTNO | TYPE | DYNO | SITE | MFID  | 2     | 3     | CO   | 2    | 3    | NOX  | 2    | 3    | CO2  | 2    | 3    | FE   | 2    | 3    | PART | 2    | 3           |  |        |  |
|---------------|--------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|--|--------|--|
| 03-16-81      | 1      | FTP  | 0014 | A014 | 0.183 | 0.196 | 0.131 | 1.13 | 0.93 | 0.91 | 1.59 | 1.56 | 1.37 | 406. | 377. | 350. | 24.9 | 26.9 | 29.0 | .545 | .299 | .305        |  |        |  |
| 03-17-81      | 4      | FTP  | 0014 | A014 | 0.172 | 0.200 | 0.136 | 1.34 | 1.11 | 1.13 | 1.45 | 1.51 | 1.37 | 399. | 371. | 352. | 25.3 | 27.3 | 28.7 | .406 | .313 | .303        |  |        |  |
| 03-18-81      | 7      | FTP  | 0014 | A014 | 0.184 | 0.207 | 0.127 | 1.20 | 0.99 | 0.93 | 1.35 | 1.54 | 1.21 | 391. | 375. | 349. | 25.4 | 26.4 | 29.0 | .436 | .325 | .287        |  |        |  |
| 03-19-81      | 13     | FTP  | 0014 | A014 | 0.163 | 0.197 | 0.123 | 1.45 | 1.09 | 1.02 | 1.37 | 1.63 | 1.28 | 400. | 387. | 353. | 25.2 | 26.1 | 28.7 | .408 | .308 | .291        |  |        |  |
| 03-20-81      | 16     | FTP  | 0014 | A014 | 0.166 | 0.184 | 0.119 | 1.27 | 0.96 | 1.06 | 1.45 | 1.56 | 1.32 | 401. | 386. | 356. | 25.2 | 26.2 | 28.4 | .424 | .270 | .298        |  |        |  |
| 03-31-81      | 20     | FTP  | 0014 | A014 | 0.203 | 0.189 | 0.124 | 1.28 | 0.98 | 0.96 | 1.40 | 1.62 | 1.27 | 414. | 394. | 360. | 24.1 | 25.6 | 28.0 | .410 | .300 | .299        |  |        |  |
| 03-31-81      | 23     | FTP  | 0014 | A014 | 0.179 | 0.190 | 0.130 | 1.33 | 1.01 | 1.13 | 1.48 | 1.60 | 1.36 | 403. | 392. | 354. | 25.1 | 25.8 | 28.4 | .403 | .283 | .318        |  |        |  |
| 04-01-81      | 26     | FTP  | 0014 | A014 | 0.178 | 0.146 | 0.121 | 1.35 | 1.08 | 1.13 | 1.47 | 1.59 | 1.32 | 402. | 392. | 352. | 25.1 | 25.8 | 28.7 | .409 | .289 | .327        |  |        |  |
| (ALL G/M1)    |        |      |      |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      | (---MPG)--- |  | (G/mr) |  |
| MEAN          |        |      |      |      | 0.178 | 0.189 | 0.126 | 1.29 | 1.02 | 1.03 | 1.44 | 1.58 | 1.31 | 403. | 384. | 353. | 25.1 | 26.3 | 28.6 | .430 | .298 | .305        |  |        |  |
| STANDARD DEV. |        |      |      |      | 0.012 | 0.019 | 0.008 | 0.10 | 0.07 | 0.09 | 0.08 | 0.04 | 0.06 | 8.   | 9.   | 3.   | 0.5  | 0.6  | 0.3  | .05  | .02  | .01         |  |        |  |
| C.V.%         |        |      |      |      | 7.0   | 9.9   | 4.5   | 7.6  | 6.5  | 8.8  | 5.2  | 2.6  | 4.3  | 2.0  | 2.3  | 1.0  | 2.0  | 2.4  | 1.2  | 11.1 | 6.7  | 4.3         |  |        |  |
| DIFF. %       |        |      |      |      | -16.  | -15.  | -21.  | -6.  | -2.  | 1.   | 16.  | 13.  | 6.   | 3.   | 1.   | 2.   | -3.  | -1.  | -2.  | 2.9  | 0    | -7          |  |        |  |

C.V.% IS THE COEFFICIENT OF VARIATION (STD. DEV./MEAN \*100).  
 DIFF. % IS THE DIFFERENCE OF THE MEANS BETWEEN THE MFH AND EPA LAB. (MFH-EPA/EPA \*100).  
 NOTE: THE COMMENTS PERTINENT TO THESE TESTS ARE LOCATED IN THE LAST TABLE OF THIS APPENDIX.

ATTACHMENT D

Mazda Proceed Pickup FTP data performing all bag analysis at end of test.

## LAB CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 16, 1981

LAB: EPA VEH: 7905D-FORDD181 VIN: 313W767 INERTIA WT: 2750 ACTUAL HP: 6.7

| DATE                                                                                                                                                                      | TESTNO   | TYPE | HFID  | CO    | NOX  | CO2  | FE DRIVER | DYNO  | ODOM | IHP    | BARO  | HUM   | NXFC  | PART |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|-------|-------|------|------|-----------|-------|------|--------|-------|-------|-------|------|------|
| 03-24-81                                                                                                                                                                  | 808364-1 | HFET | 0.158 | 0.36  | 0.55 | 197. | 51.5      | 36615 | D007 | 1177.5 | 4.1   | 29.20 | 47.38 | 0.89 | .101 |
| 03-26-81                                                                                                                                                                  | 808365-1 | HFET | 0.164 | 0.38  | 0.54 | 197. | 51.4      | 36615 | D007 | 1216.6 | 4.1   | 29.08 | 47.71 | 0.89 | —    |
| <div style="display: flex; justify-content: space-between;"> <span> &lt;----- (G/MI) -----&gt;  (MPG)</span> <span>(IN-HG) (GRAINS /LB)</span> <span>(G/MI)</span> </div> |          |      |       |       |      |      |           |       |      |        |       |       |       |      |      |
| MEAN                                                                                                                                                                      |          |      | 0.161 | 0.37  | 0.54 | 197. | 51.4      |       |      |        | 29.14 | 47.54 | 0.89  | .101 |      |
| STANDARD DEV.                                                                                                                                                             |          |      | .0042 | 0.014 | .007 | 0.   | 0.1       |       |      |        | 0.084 | 0.234 | .001  | —    |      |
| C.V.%                                                                                                                                                                     |          |      | 2.6   | 3.4   | 1.3  | 0.0  | 0.1       |       |      |        | 0.3   | 0.5   | 0.2   | —    |      |

## LAB CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 16, 1981

LAB: FORD VEH: 7905D-FORDD181 VIN: 313W767 INERTIA WT: 2750 ACTUAL HP: 6.9

| DATE                                                                                                                                                                      | TESTNO | TYPE | HFID  | CO    | NOX  | CO2  | FE DRIVER | DYNO | ODOM | IHP    | BARO  | HUM    | NXFC  | PART |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|-------|-------|------|------|-----------|------|------|--------|-------|--------|-------|------|------|
| 03-16-81                                                                                                                                                                  | 27-1   | HFET | 0.133 | 0.41  | 0.54 | 204. | 49.8      | 0    | D014 | 892.0  | 4.5   | 29.23  | 16.90 | 0.79 | .106 |
| 03-17-81                                                                                                                                                                  | 30-1   | HFET | 0.140 | 0.43  | 0.54 | 211. | 48.1      | 0    | D014 | 923.0  | 4.5   | 28.93  | 26.54 | 0.81 | .113 |
| 03-18-81                                                                                                                                                                  | 34-1   | HFET | 0.141 | 0.39  | 0.50 | 200. | 50.6      | 0    | D014 | 963.0  | 4.5   | 28.96  | 15.41 | 0.78 | .100 |
| 03-19-81                                                                                                                                                                  | 37-1   | HFET | 0.147 | 0.42  | 0.51 | 198. | 51.1      | 0    | D014 | 994.0  | 4.5   | 28.91  | 17.48 | 0.79 | .100 |
| 03-20-81                                                                                                                                                                  | 40-1   | HFET | 0.131 | 0.38  | 0.54 | 194. | 52.4      | 0    | D014 | 1030.0 | 4.5   | 28.94  | 21.11 | 0.80 | .109 |
| 03-20-81                                                                                                                                                                  | 43-1   | HFET | 0.132 | 0.37  | 0.55 | 197. | 51.6      | 0    | D014 | 1063.0 | 4.5   | 29.11  | 26.16 | 0.81 | .117 |
| 03-23-81                                                                                                                                                                  | 46-1   | HFET | 0.129 | 0.38  | 0.54 | 198. | 51.3      | 0    | D014 | 1118.0 | 4.5   | 29.47  | 25.45 | 0.81 | .117 |
| 03-30-81                                                                                                                                                                  | 49-1   | HFET | 0.137 | 0.40  | 0.60 | 200. | 50.8      | 1    | D014 | 1282.0 | 4.5   | 28.82  | 64.62 | 0.95 | .112 |
| 03-31-81                                                                                                                                                                  | 54-1   | HFET | 0.129 | 0.40  | 0.55 | 198. | 51.1      | 1    | D014 | 1339.0 | 4.5   | 29.32  | 43.15 | 0.87 | .126 |
| <div style="display: flex; justify-content: space-between;"> <span> &lt;----- (G/MI) -----&gt;  (MPG)</span> <span>(IN-HG) (GRAINS /LB)</span> <span>(G/MI)</span> </div> |        |      |       |       |      |      |           |      |      |        |       |        |       |      |      |
| MEAN                                                                                                                                                                      |        |      | 0.135 | 0.40  | 0.54 | 200. | 50.8      |      |      |        | 29.08 | 28.54  | 0.82  | .111 |      |
| STANDARD DEV.                                                                                                                                                             |        |      | .0062 | 0.020 | .028 | 5.   | 1.2       |      |      |        | 0.217 | 15.890 | .055  | .008 |      |
| C.V.%                                                                                                                                                                     |        |      | 4.6   | 5.0   | 5.2  | 2.5  | 2.4       |      |      |        | 0.7   | 55.7   | 6.7   | 7.6  |      |
| DIFF. %                                                                                                                                                                   |        |      | -16.  | 9.    | -1.  | 2.   | -1.       |      |      |        | -0.   | -40.   | -7.   | 9.9  |      |

ATTACHMENT E

Ford Escort Highway Fuel Economy Data

## LAB CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 16, 1981

LAB: EPA VEH: 7905U-FORD0181 VIN: 12263 INERTIA WT: 3250 ACTUAL HP: 12.2

| DATE     | TESTNO   | TYPE | HFID                 | CO   | NOX  | CO2  | FE    | DRIVER | DYNO | ODOM   | IHP | BARO    | HUM          | NXFC | PART   |
|----------|----------|------|----------------------|------|------|------|-------|--------|------|--------|-----|---------|--------------|------|--------|
| 03-26-81 | 808336-1 | HFET | 0.109                | 0.58 | 1.24 | 280. | 36.2  | 36615  | D007 | 4702.5 | 9.5 | 29.02   | 51.75        | 0.90 | .244   |
| 03-27-81 | 808337-1 | HFET | 0.090                | 0.54 | 1.03 | 283. | 35.9  | 36615  | D007 | 4739.3 | 9.5 | 29.31   | 44.13        | 0.87 | .214   |
|          |          |      | <----- (G/MI) -----> |      |      |      | (MPG) |        |      |        |     | (IN-HG) | (GRAINS /LB) |      | (G/MI) |

|               |       |       |      |      |      |  |  |  |  |       |       |      |      |
|---------------|-------|-------|------|------|------|--|--|--|--|-------|-------|------|------|
| MEAN          | 0.100 | 0.56  | 1.13 | 282. | 36.0 |  |  |  |  | 29.16 | 47.94 | 0.89 | .229 |
| STANDARD DEV. | .0134 | 0.029 | .148 | 2.   | 0.2  |  |  |  |  | 0.205 | 5.388 | .020 | .021 |
| C.V.%         | 13.5  | 5.2   | 13.1 | 0.8  | 0.6  |  |  |  |  | 0.7   | 11.2  | 2.2  | 9.26 |

## LAB CORRELATION SUMMARY - TEST DATA

PROCESSED: APR 16, 1981

LAB: FUPD VEH: 7905U-FORD0181 VIN: 12263 INERTIA WT: 3250 ACTUAL HP: 12.5

| DATE     | TESTNO | TYPE | HFID                 | CO   | NOX  | CO2  | FE    | DRIVER | DYNO | ODOM   | IHP | BARO    | HUM          | NXFC | PART   |
|----------|--------|------|----------------------|------|------|------|-------|--------|------|--------|-----|---------|--------------|------|--------|
| 03-16-81 | 2-1    | HFET | 0.064                | 0.43 | 0.94 | 267. | 37.9  | 0      | D014 | 4398.0 | 9.5 | 29.16   | 15.06        | 0.78 | .175   |
| 03-17-81 | 5-1    | HFET | 0.076                | 0.58 | 1.21 | 284. | 35.6  | 0      | D014 | 4443.0 | 9.5 | 28.86   | 24.54        | 0.81 | .239   |
| 03-18-81 | 8-1    | HFET | 0.070                | 0.45 | 0.95 | 270. | 37.7  | 0      | D014 | 4481.0 | 9.5 | 28.93   | 17.45        | 0.79 | .173   |
| 03-19-81 | 11-1   | HFET | 0.087                | 0.60 | 1.15 | 279. | 36.3  | 0      | D014 | 4519.0 | 9.5 | 28.93   | 22.77        | 0.80 | .248   |
| 03-19-81 | 14-1   | HFET | 0.084                | 0.57 | 1.16 | 282. | 36.0  | 0      | D014 | 4555.0 | 9.5 | 28.95   | 21.11        | 0.80 | .237   |
| 03-20-81 | 17-1   | HFET | 0.077                | 0.57 | 1.80 | 276. | 36.8  | 0      | D014 | 4593.0 | 9.5 | 28.94   | 123.92       | 1.30 | .234   |
| 03-20-81 | 19-1   | HFET | 0.060                | 0.39 | 0.91 | 271. | 37.4  | 0      | D014 | 4615.0 | 9.5 | 28.96   | 24.83        | 0.81 | .134   |
| 03-31-81 | 21-1   | HFET | 0.064                | 0.42 | 1.03 | 276. | 36.7  | 1      | D014 | 4814.0 | 9.5 | 29.18   | 45.99        | 0.88 | .170   |
| 03-31-81 | 24-1   | HFET | 0.068                | 0.55 | 1.28 | 281. | 36.2  | 1      | D014 | 4838.0 | 9.5 | 29.15   | 53.00        | 0.91 | .237   |
| 04-01-81 | 27-1   | HFET | 0.080                | 0.59 | 1.16 | 281. | 36.0  | 1      | D014 | 4889.0 | 9.5 | 29.00   | 28.04        | 0.82 | .226   |
|          |        |      | <----- (G/MI) -----> |      |      |      | (MPG) |        |      |        |     | (IN-HG) | (GRAINS /LB) |      | (G/MI) |

|               |       |       |      |      |      |  |  |  |  |       |        |      |      |
|---------------|-------|-------|------|------|------|--|--|--|--|-------|--------|------|------|
| MEAN          | 0.073 | 0.52  | 1.16 | 277. | 36.7 |  |  |  |  | 29.01 | 37.67  | 0.87 | .208 |
| STANDARD DEV. | .0092 | 0.081 | .258 | 6.   | 0.8  |  |  |  |  | 0.112 | 32.642 | .156 | .040 |
| C.V.%         | 12.6  | 15.7  | 22.2 | 2.1  | 2.1  |  |  |  |  | 0.4   | 86.7   | 18.0 | 19.3 |
| DIFF. %       | -27.  | -8.   | 2.   | -2.  | 2.   |  |  |  |  | -1.   | -21.   | -2.  | 9.2  |

ATTACHMENT F

Mazda Proceed Pickup Highway Fuel Economy Data

PAU Quick Check Coastdown Times

Ford Escort #313 W 767

|           | Pre-EPA *<br>Ford Site<br><u>14</u> | EPA Site *<br><u>07</u> | Post-EPA *<br>Ford Site<br><u>14</u> |
|-----------|-------------------------------------|-------------------------|--------------------------------------|
|           | 14.00                               | 13.96                   | 14.02                                |
|           | 14.10                               | 14.02                   | 13.81                                |
|           | 14.16                               |                         |                                      |
|           | 14.00                               |                         |                                      |
|           | 14.35                               |                         |                                      |
|           | 14.00                               |                         |                                      |
| $\bar{x}$ | 14.10                               | 13.99                   | 13.92                                |

Mazda Proceed Pickup #12263

|           | Pre-EPA *<br>Ford Site<br><u>14</u> | EPA Site *<br><u>07</u> | Post-EPA *<br>Ford Site<br><u>14</u> |
|-----------|-------------------------------------|-------------------------|--------------------------------------|
|           | 12.79                               | 12.43                   | 12.39                                |
|           | 12.69                               | 12.38                   | 12.61                                |
|           | 12.84                               |                         | 12.65                                |
|           | 12.69                               |                         |                                      |
|           | 12.44                               |                         |                                      |
| $\bar{x}$ | 12.69                               | 12.41                   | 12.55                                |

\* The above coastdown times are averages of 3 consecutive coastdowns.