

Interim Report on
1975 Light Duty Vehicle Emissions
Correlation Program as of April 10, 1973
(Domestic Manufacturers)

April 1973

Emission Control Technology Division
Office of Air and Water Programs
Environmental Protection Agency

Background

The 1975-76 exhaust emission standards require measurement of exhaust emissions with a different test procedure and at much lower pollutant concentration levels than has been common in previous certification testing. It is necessary to assure that all of the laboratories involved in the certification process are capable of obtaining comparable and reproducible results and to continue to assess questions of variability and technology development.

Purpose

The purpose of this correlation is to test 1975-76 prototype vehicles from as many vehicle manufacturers as are willing to participate. By comparing EPA's data to the manufacturer's own data, problems can be identified and resolved prior to the start of the certification cycle. It is planned that this will be a continuing project through FY74.

Test Procedure

Testing is performed according to the 1975 Federal Test Procedure. Details of this procedure can be found in the November 15, 1972, Federal Register. Testing includes the full evaporative emission procedure except in the case of the Chrysler cars.

Test Results

Test results are presented in the Appendix of this report. In addition to emission results, fuel consumption was calculated for each of the EPA tests using a carbon balance technique; the manufacturers did not supply fuel consumption data.

Conclusions

As this is an interim report on a continuing correlation program between the U.S. manufacturers and EPA, no conclusions can be offered at this time.

APPENDIX

GM 1975 Prototypes

Vehicle 0-2931 Oldsmobile 98 , 5500 lb., 455 CID
Odom: 23,906 CCS/EGR/EI/Ox. Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.46	7.15	1160	1.98	7.7
EPA Test 2	.46	2.27	1082	1.53	8.4
GM Test	.48	2.64	---	1.69	---

Vehicle ch-22769 Chevrolet Impala, 5000 lb., 400 CID
Odom: 12,782 Air/EGR/EI/Ox.Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.32	1.63	1075	2.05	8.5
EPA Test 2	.34	1.91	1046	1.99	8.8
GM Test	.30	1.53	---	2.10	---

Vehicle C-2240 Cadillac Calais, 5500 lb., 500 CID
Odom: 28,238 Air/EGR/Ox. Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.48	.81	939	1.86	9.5
EPA Test 2	.38	1.05	937	1.78	9.5
GM Test	.36	1.31	967	1.50	---

Vehicle B-5293 Buick LaSabre, 5000 lb., 350 CID
Odom: 22,881 Air/EGR/EFE/Ox. Conv./EI

	HC	CO	CO ₂	NOx	MPG
EPA Test	.39	2.58	855	2.05	9.4
GM Test	.39	2.94	864	1.74	---

Vehicle P-2444 Pontiac Catalina, 5000 lb., 400 CID
Odom: 21,181 Air/EGR/EFE/Ox. Conv./EI

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.20	1.50	889	1.55	10.2
EPA Test 2	.19	1.65	896	1.54	10.2
GM Test	.30	1.54	914	1.83	---

Vehicle B-2262 Buick Skylark, 4500 lb., 350 CID
 Odom: 24,296 Air/EGR/Ox. Conv./EFE/EI

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.25	1.75	868	1.69	10.3
EPA Test 2	.32	1.95	856	1.90	10.4
GM Test	.30	2.21	890	1.77	---

Vehicle 0-2932 Oldsmobile 98, 5500 lb., 455 CID
 Odom: 32,102 CCS/EGR/EI/Ox. Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test	.31	2.49	1000	1.47	9.0
GM Test	.31	3.45	1093	2.01	---

Vehicle ES 62370 Chevrolet Belair, 4500 lb., 350 CID
 Odom: 21,196 Air/EGR/Dual Ox. Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.45	2.21	781	2.36	11.6
EPA Test 2	.32	1.50	796	2.08	11.4
GM Test	.33	2.25	827	2.42	---

Vehicle C-2242 Cadillac Calais, 5500 lb., 500 CID
 Odom: 24,175 Air/EGR/Ox. Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.10	1.81	898	2.28	9.9
EPA Test 2	.12	2.29	762	1.96	11.0
GM Test (not given)					

Vehicle C-2243 Cadillac Calais, 5500 lb., 500 CID
 Odom: 21,778 Air/EGR/Ox. Conv./EI

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.24	3.83	1059	2.32	8.3
EPA Test 2	.28	2.02	975	2.50	9.0
GM Test	.31	3.66	1137	2.26	---

Vehicle B-82147 Buick Electra, 5500 lb., 455 CID
 Odom: 50,396 Air/EGR/Ox. Conv./EFE/EI

	HC	CO	CO ₂	NOx	MPG
EPA Test	.31	1.68	1014	1.88	8.8
GM Test	.27	1.61	997	1.13	---

Vehicle P-2223 Pontiac LaMans, 4500 lb., 350 CID
Odom: 20,056 Air/EGR/Ox. Conv./EFE/EI

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.44	2.64	1010	1.96	8.8
EPA Test 2	.34	2.28	962	1.84	9.1
EPA Test 3	.26	1.85	952	1.70	9.2
GM Test	.44	3.28	1009	2.35	---

Vehicle B-2262 Buick Skylark, 4500 lb., 350 CID
Odom: 50,240 Air/EGR/Ox. Conv./EFE/EI

	HC	CO	CO ₂	NOx	MPG
EPA Test	.28	1.10	911	1.93	9.7
GM Test	.39	3.75	890	1.80	---

Vehicle ch-25169 Chevrolet Vega, 2750 lbs., 140 CID
Odom: 22,094 Air/EGR/Ox. Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.33	2.15	519	1.83	16.9
EPA Test 2	.42	2.29	546	2.19	16.0
GM Test	.52	2.68	492	1.80	---

Vehicle C-2241 Cadillac Calais, 5500 lbs., 500 CID
Odom: 21,345 Ox. Cat.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.33	2.05	1079	2.36	8.2
EPA Test 2	.53	2.72	1051	2.34	8.2
GM Test	.40	2.97	1105	2.45	---

Vehicle B-1258 Buick Skylark, 4500 lbs., 350 CID
Odom: 50,101 Air/EGR/Ox. Conv./EFE/EI

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.32	2.42	922	1.47	9.7
EPA Test 2	.27	2.12	882	1.46	9.9
GM Test	.37	2.89	912	1.29	---

Chrysler 1975 Prototypes

Vehicle 12 M 467 Plymouth Fury, 4500 lbs., 360 CID EPA
System miles: approx. 50,000

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.34	4.11	764	2.80	11.6
EPA Test 2	.37	3.38	767	2.76	11.6
EPA Test 3	.54	6.43	721	2.25	12.1
EPA Test 4	.43	4.83	742	2.63	12.0
Chry.Test 1	.46	3.56	762	4.36	---
Chry.Test 2	.37	3.35	792	3.14	---
Chry.Test 3	.93	4.80	667	2.49	---

Vehicle 12 M 414 Plymouth Fury, 4500 lbs., 360 CID EPA
Odom: 52,284

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.22	1.56	747	2.25	11.9
EPA Test 2	.23	2.13	758	2.10	11.8
EPA Test 3	.43	3.00	757	2.02	11.8
EPA Test 4	.27	2.00	750	1.94	11.8
Chry.Test 1	.64	3.01	719	2.01	---
Chry.Test 2	.34	2.86	766	2.24	---
Chry.Test 3	.83	3.70	797	1.74	---

Vehicle 12 M 497 Plymouth Fury, 4500 lbs., 360 CID EPA
Odom: 52,211

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.44	4.70	774	1.57	11.3
EPA Test 2	.48	3.00	781	1.58	12.7
Chry.Test	.37	5.11	787	1.11	---

Vehicle 12 M 736 Plymouth Fury, 4500 lbs., 360 CID EPA

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.45	1.91	883	1.14	10.0
EPA Test 2	.37	1.56	879	1.13	10.1
EPA Test 3	.38	1.14	874	1.08	10.1
EPA Test 4	.42	1.42	863	1.07	10.1
EPA Test 5	.45	1.88	870	1.12	10.1
EPA Test 6	.43	1.61	895	1.14	9.8

Chry. (not given)

Ford 1975 Prototypes

Vehicle 22058 Ford Maverick, 3500 lbs., 250 CID
 Odom: 7655 EGR/Thermactor/Ox. Cat.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.32	2.01	590	2.90	14.8
EPA Test 2	.32	2.51	588	2.04	14.8
EPA Test 3	.32	2.53	579	2.01	15.1
EPA Test 4	.32	2.17	570	1.99	15.3
EPA Test 5	.31	1.71	579	1.90	15.1
EPA Test 6	.33	2.13	574	2.03	15.3
EPA Test 7	.28	2.86	657	1.71	13.4
Ford Test 1	.24	---	---	1.67	---
Ford Test 2	.39	3.94	---	1.84	---
Ford Test 3	.38	3.46	---	1.87	---
Ford Test 4	.38	3.20	---	2.12	---
Ford Test 5	.39	2.27	---	2.40	---

Vehicle 23 F 76 Ford F-100, 4500 lbs., 360 CID ?
 Odom: 8862

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.23	1.92	816	2.37	10.8
EPA Test 2	.16	1.19	842	2.39	10.5
EPA Test 3	.19	.82	819	2.83	10.8
EPA Test 4	.22	2.05	822	2.69	10.7
EPA Test 5	.28	.71	817	2.53	10.9
EPA Test 6	.24	1.20	819	2.37	10.9
EPA Test 7	.20	1.64	864	2.58	10.3
EPA Test 8	.19	1.98	841	2.72	10.5
EPA Test 9	.48	1.61	844	2.86	10.5
Ford (not given)					

Vehicle 2L33-D Lincoln, 5500 lbs., 460 CID
 Odom: 8,112 Thermactor/EGR/Ox. Conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.40	3.48	1020	3.70	8.6
EPA Test 2	.33	2.56	968	3.17	9.3
EPA Test 3	.28	2.59	999	3.20	8.9
Ford Test	.47	2.28	---	2.60	---

AMC 1975 Prototypes

Vehicle 824-8D Gremlin, 3500 lbs., 304 CID
Odom: 20,485 AC mini-conv.

	HC	CO	CO ₂	NOx	MPG
EPA Test 1	.32	1.54	589	2.29	15.1
EPA Test 2	.32	1.59	598	2.40	14.8
EPA Test 3	.28	1.60	582	2.41	15.1
EPA Test 4	.31	1.41	599	2.36	14.8
AMC Test 1	.39	1.88	---	2.24	---
AMC Test 2	.31	1.36	---	2.07	---
AMC Test 3	.33	1.13	---	2.17	---
AMC Test 4	.30	1.56	---	2.07	---