Evaluation of the Extractor Device

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Background

Emission Control International of Houston, Texas, requested that the Test and Evaluation Branch conduct a program to determine the emission control potential of their extractor device. The company presented test data conducted at Automotive Research Associates (ARA) which indicated significant reductions of HC and CO emissions.

Device

The extractor device is a thermal reactor which also acts as a muffler and replaces the stock muffler. It was presented to us welded to an exhaust system. Replacement of the stock exhaust system with the extractor device took about one-half hour.

Test Program

A 1970 Plymouth Valiant, 225 CID, from the EPA fleet was used for the test. Six tests were conducted, three with the stock exhaust system (baseline) and three with the extractor exhaust system. All testing was performed in accordance with the 1975 Federal emission test procedure. Full details of this procedure are found in the July 2, 1971, Federal Register, Volume 36, Number 128, Part II.

All tests were conducted using the standard dynamometer inertia loading for the Valiant which is 3000 pounds. Test fuel was Indolene Clear (an available lead free standard fuel).

Test Results

The test results are presented in the Appendix of this report. These results are summarized below.

Summary of Emission Results
% Change from Baseline

	Extractor	
HC	0	change
CO	11%	increase
CO_2	5%	increase
NOx	9%	decrease

Conclusions

The extractor system caused no significant changes in emissions. It appears that higher back pressure from the extractor caused a slight reduction in oxides of nitrogen.

APPENDIX

Extractor Test Program - 1975 Federal Test Procedure

	Test No.	HC gpm	CO gpm	CO_2 gpm	NO_x gpm
Baseline					
	16-149	2.25	27.27	407.73	6.22
	16-152	2.01	26.23	403.74	6.44
	16-155	2.03	26.39	418.42	6.35
average		2.10	26.63	409.96	6.34
Extractor					
	16-140	2.05	28.87	380.41	5.58
	16-141	2.04	28.97	389.69	5.86
	16-147	2.19	31.17	394.58	5.82
average		2.09	29.67	388.23	5.75