



## COATES MOTORCYCLE CO.

COATES INTERNATIONAL, LTD.  
COATES ENTERPRISES, LTD.  
COATES PRECISION ENGINEERING, LTD.  
COATES AUTOMOTIVE, LTD.  
COATES ENGINE MANUFACTURING, LTD.  
COATES TECHNOLOGIES, LTD.

COATES INTERNATIONAL EURO, DIV. LTD.,  
LONDON, UK

COATES INTERNATIONAL, LTD.  
CALGARY, ALBERTA, CANADA

**The Coates C.S.R.V. V-Twin Air Cooled Motorcycle Engine surpassed the EPA emission standards by approximately 50% reduction of harmful emissions and achieved (47 MPG) miles per gallon of fuel.**

**In road tests and chassis roller tests the motorcycles reached speeds of 137 M.P.H. with plenty of throttle left for higher speeds.**

**The Coates CSR.V has shown in all their applications, approximately 50% lowering of harmful emissions and 27 to 30% savings in fuel consumption.**

2100 HIGHWAY 34 & RIDGEWOOD ROAD  
WALL TOWNSHIP, N.J. 07719-9738 USA  
PHONE: 732-449-7717

COMPLIANCE  
AND  
RESEARCH  
SERVICES, INC.

2 GARFIELD STREET LINDEN NJ 07036-1416  
PHONE (908) 925-5533 • FAX (908) 925-8281

June 24, 2003

Coates International  
2100 HWY 34 & Ridgewood Rd.  
Wall TWP, NJ 07719


Attn: George Coates  
Re: CSRV Motorcycle

Dear George,

In regards to your recent inquiry, Compliance and Research Services Inc. is recognized by both the US Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) as capable of performing motorcycle/motor scooter emissions testing as per the Code of Federal Regulations (CFR). The subparts that specifically govern motorcycle emissions regulations can be found in Title 40 of the CFR Part 86 subparts E and F (80.401-90 through 86.544-90 inclusive).

If you have any questions and/or comments, feel free to contact either Mark or myself at your convenience.

Regards,

  
Bob DePalma  
Lab Manager

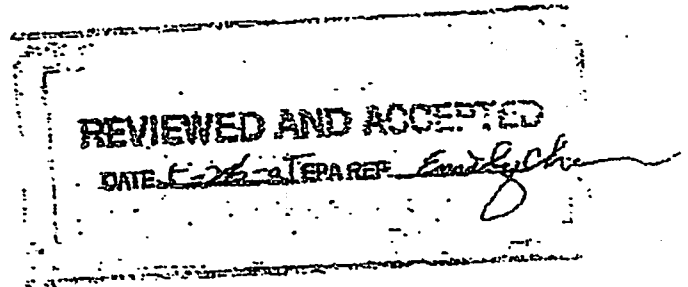
COMPLIANCE  
AND  
RESEARCH  
SERVICES, INC.

1701 West Front Street Plainfield NJ 07065  
PHONE (908) 561-1824 • FAX (908) 755-5595

May 19, 2005

Environmental Protection Agency  
2565 Plymouth Road  
Ann Arbor, MI 48105  
(734) 214-4733  
(734) 214-4869 fax

Attn: Bruce Sdunek  
Re: Letter of Intent to Certify



Dear Bruce,

I am writing on behalf of a new client of ours. These bikes are all domestically made and not imported by someone else. The customer, Coates Motorcycle Company, would like to request reduced testing and service accumulation for the remainder of 2005my. Then, continue durability to the full durability period for 2006my. The Coates Motorcycle Company is a Small Volume Manufacturer with current production limits of around 100 motorcycles per year. These motorcycles are full class 3 street bikes in the classical cruiser style. They eventually wish to produce more than this, however, we will cross that bridge when it happens. We would like to start with approximately 4000km durability, and then continue out to the remainder for 2006my. We will test the motorcycle ever 1000km so we have sufficient data points in the df calculations. If you have any questions and/or comments, please feel free to contact me at your leisure.

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Lab Manager



United States Environmental Protection Agency

NVFEL

Ann Arbor, Michigan 48105

**FAX TO:** Bob DePalma

**FAX NUMBER:** 908 755-5893

REV. 01/03

**PHONE NUMBER:** 908 561-1824

REV. 11/04

**LOCATION:** Compliance and Research Services, Inc.

**FROM:** Bruce Schmek

**FAX NUMBER:** 734 214 4869

**PHONE NUMBER:** 734 214 4733

**DIVISION:** Certification & Compliance Division

**DATE:** May 26, 2005

**PAGE 1 of 2 PAGES**

**MESSAGE:** Bob

Here is the Coates Motorcycle request for reduced testing, accepted.

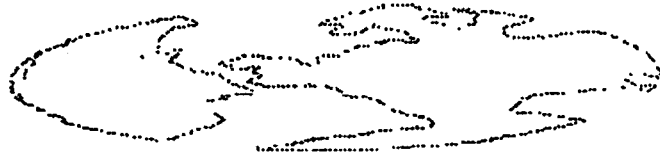
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Certification and Compliance Division

Environmental Protection Agency

edrecaatd

**PAGE 1 OF 2 PAGES**



208 Edgewood Lane  
Palatine, IL (USA), 60067

## Louis DeFilippi, LLC, Industrial Consulting

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*You've tried the others  
now try the independent*

Phone: (847) 925-8524  
FAX: (847) 303-1731  
E Mail: defilip1@flash.net

June 1, 2004

Messrs. Andrew Dorman and Ken Greenbaum  
Baird, Patrick & Co., Inc.  
20 Exchange Place  
New York, NY 10005

Dear Gentlemen:

### BACKGROUND

The consulting firm, nLake Technology Partners LLC (nLake) was engaged by Messrs. Andrew Dorman and Ken Greenbaum of Baird, Patrick & Co., Inc. to perform an independent technical evaluation specific to the performance of the Coates Motorcycle engine, including parameters such as emissions, volumetric efficiency and fuel efficiency. The tasks were to include reviewing and analyzing existing test reports and other technical information available at the Coates engineering and manufacturing facility that are relevant to a new spherical rotary valve (SRV) motorcycle engine developed by Coates International Ltd. and Coates Motorcycle Company Ltd. nLake in turn involved their associate Dr. Louis DeFilippi, President, Louis DeFilippi LLC, an independent consulting firm based in Palatine, IL, to visit the Coates facilities, as well as the facility that performed the emissions testing, Compliance and Research Services, Inc., and to write an independent assessment.

### VISIT

During the visit to the Coates facility in Wall Township NJ, Mr. George Coates reviewed what he believed to be the advantages of the SRV engine. We toured the facility and were shown the operation of a number of functional stationary SRV engines of various sizes. The motors were operated and ran smoothly. Similarly, a natural gas fueled SRV engine was operated and ran smoothly. An SRV motorcycle was driven by a Coates employee and shown to function smoothly and without problems. A Mercedes fitted with the SRV engine was successfully revved up to 14,000 RMP while in a stationary position and without an extensive warm-up period. All engines appeared to run quieter than expected.

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*Environmental & Regulatory Compliance, OSHA, EPA, FDA  
Effluent & Air Pretreatment, Microbiology, Analytical.  
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During the visit to Compliance and Research Services, Inc., Linden, NJ, Mr. Timko, President of same, showed me the various precision devices used to measure the tailpipe emissions of various vehicles. The facility has a dedicated dynamometer for the testing of motorcycles. This was the unit that was employed to test the Coates SRV motorcycle. Mr. Timko stated that his was one of the few facilities that performs EPA-certified emissions tests.

### Features

The SRV system has a number of impressive and innovative features common to all of the Coates engines inspected, including:

- An astoundingly large orifice to admit air to the cylinder.
- The replacement of many dozens of moving parts involving, and including, the poppet valves, with only two spherical rotary valve units.
- Elimination of the need for a liquid lubricant (motor oil) to lubricate the valves.
- Mechanical adjustments to yield an increased compression ratio but with a lower operating temperature.

### Tailpipe Emissions Data

Tailpipe emissions results for Motorcycle (obtained from independent testing facility) are as follows:

Item	Test range, MPH	HC (emissions) range, ppm	CO (emissions) range, ppm	NO <sub>x</sub> (emissions) range, ppm
SRV	---	1.5	6.8	NA
Current EPA limits	---	5.0	12.0	NA

I was also shown data collected from a direct comparison of tailpipe emissions for two Mercedes Benz 280SE Sedans, one fitted with a standard poppet valve system and one with the Coates SRV. The comparisons are:

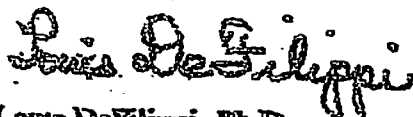
Engine fitted with valve system	Test range, MPH	HC (emissions) range, ppm	CO (emissions) range, ppm	NO <sub>x</sub> (emissions) range, ppm
Poppett	37 - 38	36 - 57	10.0 - 20.0	118 - 300
SRV	26 - 33.3	10.17 - 19.2	5.9 - 7.3	3.3 - 30.87

## ASSESSMENT

Concerning the motorcycle engine fitted with the SRV, these features have the potential to:

- Greatly improve the volumetric efficiency of the engine (this is based on assuming a valid air-flow benchmarking comparison to a Ford Lincoln 5.0 L engine that had air flow potential of 180 cfm with poppets, and 319 cfm for the SRV); which should result in an increase in fuel efficiency.
- Decrease required maintenance and adjustments, as well as simplify construction.
- Decrease the need for frequent oil changes.
- Reduce moving friction with a concomitant improvement in mechanical efficiency through reduction in friction horsepower, which should also result in an increase in fuel efficiency.
- Decrease emissions; the results obtained in emissions tests run by the EPA certified testing facility on a new motorcycle unit fitted with the CSRV on a 1650 cc engine are well below the current requirements. Assuming a comparison to the results obtained from the Mercedes tests is valid, one may conclude that emissions with the motorcycle engine fitted with the SRV system will be significantly lower than an equivalent poppet-fitted system.

Most Sincerely,



Louis DeFilippi, Ph.D.  
President, Louis DeFilippi, LLC  
Industrial Consulting

Compliance & Research Services  
A.L.S. Vehicle Emissions System

TEST NUMBER	CR14335	DATE	05-17-2005	FUEL TYPE	INDOLENE
VEHICLE REF	ci500501	A.C.		DENSITY	16.33
V.I.N.	ult6891wsc0011171	ENGINE FAM.		SPECIF. CO2	13.4
OPERATOR	mark	EVAP.FAM.		Gr.C/gal.	2433
DRIVER	bob	TEST TYPE	EPA78 .LA4	FUEL Fract.	.863
MAKE	coates	SHIFT FILE	SPEED	SP. GRAVITY	.743
MODEL		INERTIA WGT	1000	N.H.V.	18461
YEAR	2005	ACTUAL HP	0	WT FACTOR	.43
TANK CAP		INDIC. HP	0	WT FACTOR	1
ODOMETER	150	ALT. HP arb	0	WT FACTOR	.57
TRANS.					
REMARKS					
START TIME	09:56:20	END TIME	10:37:40		

#	EVENT	MILES	TIME	TIME of trace	HOLD	TIME of trace	ERROR
1	CRANK	-0.00	0.1	0.0 for	0.0	20.8 for	-4.5
2	phase 1	3.60	505.0	0.0 for	0.0	25.4 for	2.1
3	phase 2	3.83	864.0	0.0 for	0.0	989.6 for	2.2
4	eng off	-0.00	1.6	0.0 for	0.0	0.0 for	0.0
5	phase 2	-0.00	5.0	0.0 for	0.0	0.0 for	0.0
6	soak	-0.01	540.0	0.0 for	0.0	0.0 for	0.0
7	ready	-0.00	59.7	0.0 for	0.0	0.0 for	0.0
8	crank	-0.00	0.1	0.0 for	0.0	0.0 for	0.0
9	phase 3	3.60	505.0	0.0 for	0.0	0.0 for	0.0
10	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
11	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
12	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0

PHASE 1	THC	CO	NOx	CO2	NMHC	Tdry = 73.5	Twet = 56.4
SAMPLE	333.620	703.700	6.920	0.490	19.900	BARO. = 767.74	SEC = 505.20
AMBIENT	8.580	13.900	0.100	0.046	3.400	R-H = 32.14	VOL = 2887.25
GRAMS	15.343	65.722	0.912	667.736	14.558	M.P.G. 39.12	DF = 22.57
GMS/MI	4.265	18.268	0.254	185.602	4.047	MPGnhv 41.39	MI = 3.50
GMS/KM	2.653	11.366	0.158	115.474	2.518	KM/Lit 16.61	KM = 5.78

PHASE 2	THC	CO	NOx	CO2	NMHC	Tdry = 73.5	Twet = 56.4
SAMPLE	162.910	220.000	5.880	0.424	11.300	BARO. = 767.74	SEC = 870.50
AMBIENT	9.900	16.600	0.180	0.053	3.500	R-H = 32.14	VOL = 4969.34
GRAMS	12.444	33.418	1.313	960.611	11.801	M.P.G. 32.43	DF = 28.99
GMS/MI	3.249	8.725	0.343	250.811	3.081	MPGnhv 33.53	MI = 3.83
GMS/KM	2.021	5.429	0.213	156.045	1.917	KM/Lit 13.77	KM = 6.16

PHASE 3	THC	CO	NOx	CO2	NMHC	Tdry = 73.5	Twet = 56.4
SAMPLE	194.370	272.200	11.420	0.454	12.400	BARO. = 767.74	SEC = 505.20
AMBIENT	10.050	12.400	0.170	0.050	3.400	R-H = 32.14	VOL = 2883.82
GRAMS	8.698	24.746	1.503	606.878	8.268	M.P.G. 47.67	DF = 26.76
GMS/MI	2.415	6.872	0.417	168.529	2.296	MPGnhv 49.45	MI = 3.60
GMS/KM	1.503	4.275	0.260	104.852	1.428	KM/Lit 20.24	KM = 5.79

\*\*\*\*\*

WEIGHTED	THC	CO	NOx	CO2	NMHC	FUEL ECONOMY	NOxKI = .85473
GRAMS/MI	3.230	10.201	0.345	214.502	3.065	M.P.G. 37.02	NHVmpg 38.43
GRAMS/KM	2.010	6.347	0.215	133.454	1.907	KM/Lit 15.72	NHVkpl 16.34

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Compliance & Research Services  
A.L.S. Vehicle Emissions System

ST NUMBER	CR14307	DATE	05-09-2005		FUEL TYPE	INDOLENE
VEHICLE REF	ci500502	A.C.			DENSITY	16.33
V.I.N.	4K7S8135136015521	ENGINE FAM.			SPECIF. CO2	13.4
OPERATOR	M.TIMKO	EVAP.FAM.			Gr.C/gal.	2433
DRIVER	B.DePALMA	TEST TYPE	EPA78	.LA4	FUEL Fract.	.863
MAKE	COATES	SHIFT FILE	SPEED		SP. GRAVITY	.743
MODEL		INERTIA WGT	1000		N.H.V.	18461
YEAR		ACTUAL HP	0		WT FACTOR	.43
TANK CAP	7	INDIC. HP	0		WT FACTOR	1
ODOMETER		ALT. HP arb	0		WT FACTOR	.57
TRANS.	MANUAL					
REMARKS	370kg					
START TIME	10:54:28	END TIME	11:36:10			

#	EVENT	MILES	TIME	TIME of trace	HOLD	TIME of trace	ERROR
1	CRANK	-0.00	0.1	20.6 for	20.4	21.1 for	-2.4
2	phase 1	3.58	528.2	23.1 for	2.8	423.0 for	-4.9
3	phase 2	3.86	864.0	0.0 for	0.0	615.8 for	-2.7
4	eng off	0.00	1.8	0.0 for	0.0	723.3 for	-2.7
5	phase 2	-0.00	5.0	0.0 for	0.0	0.0 for	0.0
6	soak	-0.01	540.0	0.0 for	0.0	0.0 for	0.0
7	ready	-0.00	58.1	0.0 for	0.0	0.0 for	0.0
8	crank	-0.00	0.1	0.0 for	0.0	0.0 for	0.0
9	phase 3	3.61	505.0	0.0 for	0.0	0.0 for	0.0
0	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
1	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
2	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0

PHASE 1	THC	CO	NOx	CO2	NMHC	Tdry = 75.8	Twet = 59
SAMPLE	385.390	596.000	8.770	0.562	18.700	BARO. = 765.32	SEC = 528.0
AMBIENT	9.570	14.000	0.160	0.055	3.200	R-H = 34.78	VOL = 3002.0
GRAMS	18.447	57.674	1.232	793.402	17.680	M.P.G. = 33.90	DF = 20.0
GMS/MI	5.146	16.090	0.344	221.346	4.932	MPGnhv = 35.96	MI = 3.0
GMS/KM	3.202	10.011	0.214	137.713	3.069	KM/Lit = 14.39	KM = 5.0

PHASE 2	THC	CO	NOx	CO2	NMHC	Tdry = 75.8	Twet = 59
SAMPLE	164.390	205.200	8.270	0.494	9.400	BARO. = 765.32	SEC = 870.0
AMBIENT	11.810	14.700	0.210	0.063	3.400	R-H = 34.78	VOL = 4935.0
GRAMS	12.336	31.096	1.896	1109.437	11.842	M.P.G. = 28.74	DF = 25.0
GMS/MI	3.195	8.054	0.491	287.333	3.067	MPGnhv = 29.57	MI = 3.0
GMS/KM	1.988	5.011	0.306	178.768	1.908	KM/Lit = 12.20	KM = 6.0

PHASE 3	THC	CO	NOx	CO2	NMHC	Tdry = 75.8	Twet = 59
SAMPLE	138.200	185.000	11.510	0.493	8.600	BARO. = 765.32	SEC = 505.0
AMBIENT	13.860	14.100	0.230	0.066	3.400	R-H = 34.78	VOL = 2859.0
GRAMS	5.832	16.165	1.537	636.947	5.583	M.P.G. = 47.26	DF = 25.0
GMS/MI	1.615	4.478	0.426	176.447	1.546	MPGnhv = 48.34	MI = 3.0
GMS/KM	1.005	2.786	0.265	109.778	0.962	KM/Lit = 20.07	KM = 5.0

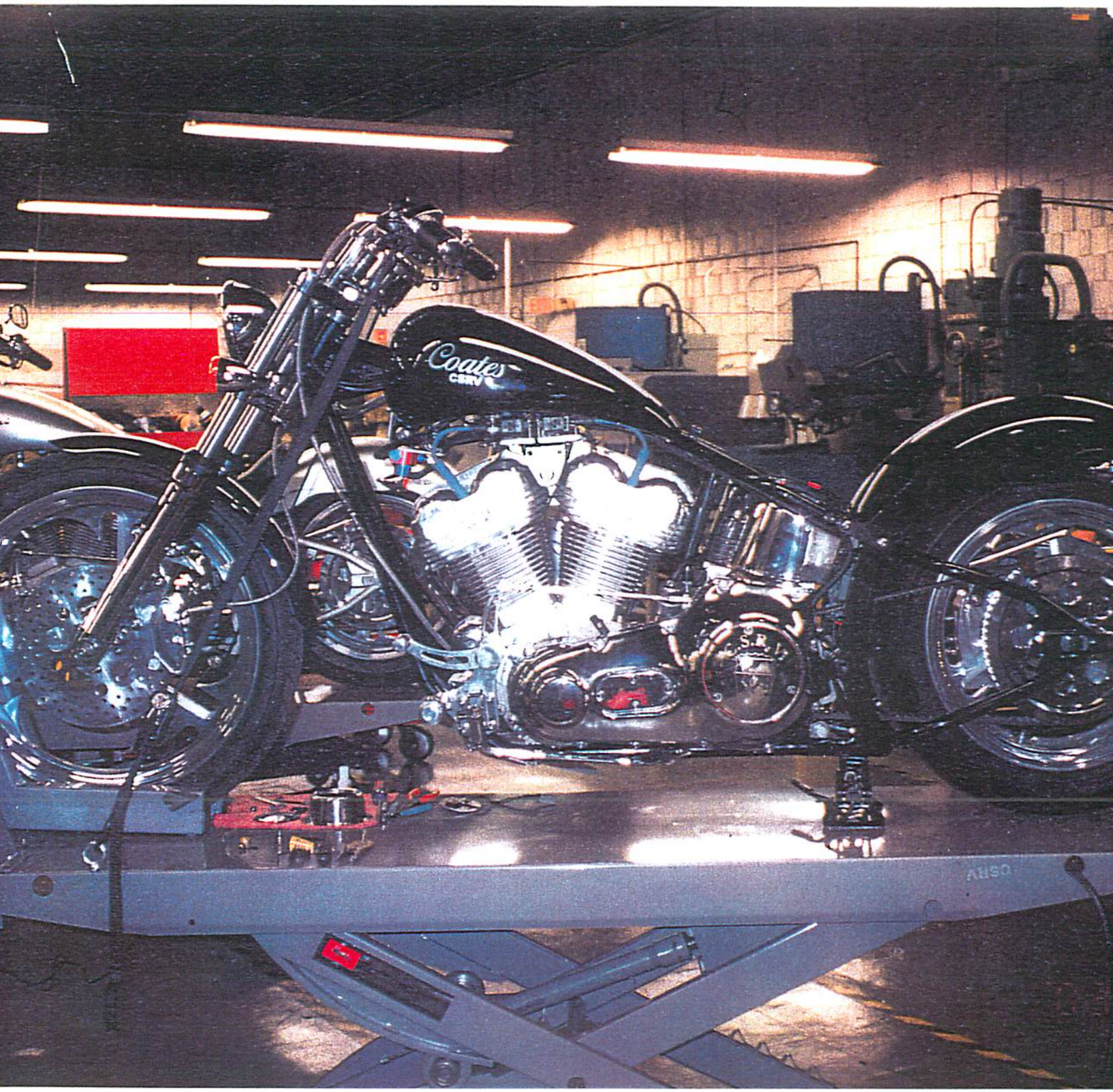
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EIGHTED	THC	CO	NOx	CO2	NMHC	FUEL ECONOMY	NOxKf = .879
GRAMS/MI	3.164	8.732	0.443	243.134	3.034	M.P.G. = 33.40	NHVmpg = 34.0
GRAMS/KM	1.968	5.433	0.275	151.268	1.888	KM/Lit = 14.18	NHVkpl = 14.0

\*\*\*\*\*











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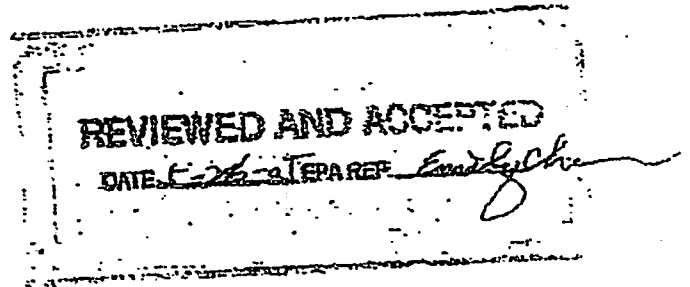
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**DATE:** May 26, 2005

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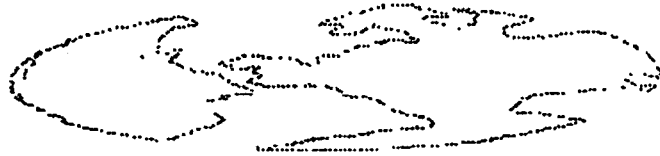
Bruce Schmek

Certification and Compliance Division

Environmental Protection Agency

edrecatred

**PAGE 1 OF 2 PAGES**



208 Edgewood Lane  
Palatine, IL (USA), 60067

## Louis DeFilippi, LLC, Industrial Consulting

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*You've tried the others  
now try the independent*

Phone: (847) 925-8524  
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Current EPA limits	---	5.0	12.0	NA

I was also shown data collected from a direct comparison of tailpipe emissions for two Mercedes Benz 280SE Sedans, one fitted with a standard poppet valve system and one with the Coates SRV. The comparisons are:

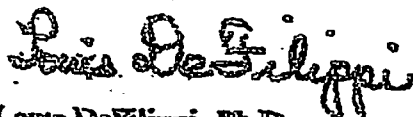
Engine fitted with valve system	Test range, MPH	HC (emissions) range, ppm	CO (emissions) range, ppm	NO <sub>x</sub> (emissions) range, ppm
Poppett	37 - 38	36 - 57	10.0 - 20.0	118 - 300
SRV	26 - 33.3	10.17 - 19.2	5.9 - 7.3	3.3 - 30.87

## ASSESSMENT

Concerning the motorcycle engine fitted with the SRV, these features have the potential to:

- Greatly improve the volumetric efficiency of the engine (this is based on assuming a valid air-flow benchmarking comparison to a Ford Lincoln 5.0 L engine that had air flow potential of 180 cfm with poppets, and 319 cfm for the SRV); which should result in an increase in fuel efficiency.
- Decrease required maintenance and adjustments, as well as simplify construction.
- Decrease the need for frequent oil changes.
- Reduce moving friction with a concomitant improvement in mechanical efficiency through reduction in friction horsepower, which should also result in an increase in fuel efficiency.
- Decrease emissions; the results obtained in emissions tests run by the EPA certified testing facility on a new motorcycle unit fitted with the CSRV on a 1650 cc engine are well below the current requirements. Assuming a comparison to the results obtained from the Mercedes tests is valid, one may conclude that emissions with the motorcycle engine fitted with the SRV system will be significantly lower than an equivalent poppet-fitted system.

Most Sincerely,



Louis DeFilippi, Ph.D.  
President, Louis DeFilippi, LLC  
Industrial Consulting

Compliance & Research Services  
A.L.S. Vehicle Emissions System

TEST NUMBER	CR14335	DATE	05-17-2005	FUEL TYPE	INDOLENE
VEHICLE REF	ci500501	A.C.		DENSITY	16.33
V.I.N.	ult6891wsc0011171	ENGINE FAM.		SPECIF. CO2	13.4
OPERATOR	mark	EVAP.FAM.		Gr.C/gal.	2433
DRIVER	bob	TEST TYPE	EPA78 .LA4	FUEL Fract.	.863
MAKE	coates	SHIFT FILE	SPEED	SP. GRAVITY	.743
MODEL		INERTIA WGT	1000	N.H.V.	18461
YEAR	2005	ACTUAL HP	0	WT FACTOR	.43
TANK CAP		INDIC. HP	0	WT FACTOR	1
ODOMETER	150	ALT. HP arb	0	WT FACTOR	.57
TRANS.					
REMARKS					
START TIME	09:56:20	END TIME	10:37:40		

#	EVENT	MILES	TIME	TIME of trace	HOLD	TIME of trace	ERROR
1	CRANK	-0.00	0.1	0.0 for	0.0	20.8 for	-4.5
2	phase 1	3.60	505.0	0.0 for	0.0	25.4 for	2.1
3	phase 2	3.83	864.0	0.0 for	0.0	989.6 for	2.2
4	eng off	-0.00	1.6	0.0 for	0.0	0.0 for	0.0
5	phase 2	-0.00	5.0	0.0 for	0.0	0.0 for	0.0
6	soak	-0.01	540.0	0.0 for	0.0	0.0 for	0.0
7	ready	-0.00	59.7	0.0 for	0.0	0.0 for	0.0
8	crank	-0.00	0.1	0.0 for	0.0	0.0 for	0.0
9	phase 3	3.60	505.0	0.0 for	0.0	0.0 for	0.0
10	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
11	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
12	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0

PHASE 1	THC	CO	NOx	CO2	NMHC	Tdry = 73.5	Twet = 56.4
SAMPLE	333.620	703.700	6.920	0.490	19.900	BARO. = 767.74	SEC = 505.20
AMBIENT	8.580	13.900	0.100	0.046	3.400	R-H = 32.14	VOL = 2887.25
GRAMS	15.343	65.722	0.912	667.736	14.558	M.P.G. 39.12	DF = 22.57
GMS/MI	4.265	18.268	0.254	185.602	4.047	MPGnhv 41.39	MI = 3.50
GMS/KM	2.653	11.366	0.158	115.474	2.518	KM/Lit 16.61	KM = 5.78

PHASE 2	THC	CO	NOx	CO2	NMHC	Tdry = 73.5	Twet = 56.4
SAMPLE	162.910	220.000	5.880	0.424	11.300	BARO. = 767.74	SEC = 870.50
AMBIENT	9.900	16.600	0.180	0.053	3.500	R-H = 32.14	VOL = 4969.34
GRAMS	12.444	33.418	1.313	960.611	11.801	M.P.G. 32.43	DF = 28.99
GMS/MI	3.249	8.725	0.343	250.811	3.081	MPGnhv 33.53	MI = 3.83
GMS/KM	2.021	5.429	0.213	156.045	1.917	KM/Lit 13.77	KM = 6.16

PHASE 3	THC	CO	NOx	CO2	NMHC	Tdry = 73.5	Twet = 56.4
SAMPLE	194.370	272.200	11.420	0.454	12.400	BARO. = 767.74	SEC = 505.20
AMBIENT	10.050	12.400	0.170	0.050	3.400	R-H = 32.14	VOL = 2883.82
GRAMS	8.698	24.746	1.503	606.878	8.268	M.P.G. 47.67	DF = 26.76
GMS/MI	2.415	6.872	0.417	168.529	2.296	MPGnhv 49.45	MI = 3.60
GMS/KM	1.503	4.275	0.260	104.852	1.428	KM/Lit 20.24	KM = 5.79

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WEIGHTED	THC	CO	NOx	CO2	NMHC	FUEL ECONOMY	NOxKI = .85473
GRAMS/MI	3.230	10.201	0.345	214.502	3.065	M.P.G. 37.02	NHVmpg 38.43
GRAMS/KM	2.010	6.347	0.215	133.454	1.907	KM/Lit 15.72	NHVkpl 16.34

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Compliance & Research Services  
A.L.S. Vehicle Emissions System

ST NUMBER	CR14307	DATE	05-09-2005		FUEL TYPE	INDOLENE
VEHICLE REF	ci500502	A.C.			DENSITY	16.33
V.I.N.	4K7S8135136015521	ENGINE FAM.			SPECIF. CO2	13.4
OPERATOR	M.TIMKO	EVAP.FAM.			Gr.C/gal.	2433
DRIVER	B.DePALMA	TEST TYPE	EPA78	.LA4	FUEL Fract.	.863
MAKE	COATES	SHIFT FILE	SPEED		SP. GRAVITY	.743
MODEL		INERTIA WGT	1000		N.H.V.	18461
YEAR		ACTUAL HP	0		WT FACTOR	.43
TANK CAP	7	INDIC. HP	0		WT FACTOR	1
ODOMETER		ALT. HP arb	0		WT FACTOR	.57
TRANS.	MANUAL					
REMARKS	370kg					
START TIME	10:54:28	END TIME	11:36:10			

#	EVENT	MILES	TIME	TIME of trace	HOLD	TIME of trace	ERROR
1	CRANK	-0.00	0.1	20.6 for	20.4	21.1 for	-2.4
2	phase 1	3.58	528.2	23.1 for	2.8	423.0 for	-4.9
3	phase 2	3.86	864.0	0.0 for	0.0	615.8 for	-2.7
4	eng off	0.00	1.8	0.0 for	0.0	723.3 for	-2.7
5	phase 2	-0.00	5.0	0.0 for	0.0	0.0 for	0.0
6	soak	-0.01	540.0	0.0 for	0.0	0.0 for	0.0
7	ready	-0.00	58.1	0.0 for	0.0	0.0 for	0.0
8	crank	-0.00	0.1	0.0 for	0.0	0.0 for	0.0
9	phase 3	3.61	505.0	0.0 for	0.0	0.0 for	0.0
0	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
1	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0
2	end	0.00	0.0	0.0 for	0.0	0.0 for	0.0

PHASE 1	THC	CO	NOx	CO2	NMHC	Tdry = 75.8	Twet = 59
SAMPLE	385.390	596.000	8.770	0.562	18.700	BARO. = 765.32	SEC = 528.0
AMBIENT	9.570	14.000	0.160	0.055	3.200	R-H = 34.78	VOL = 3002.0
GRAMS	18.447	57.674	1.232	793.402	17.680	M.P.G. = 33.90	DF = 20.0
GMS/MI	5.146	16.090	0.344	221.346	4.932	MPGnhv = 35.96	MI = 3.0
GMS/KM	3.202	10.011	0.214	137.713	3.069	KM/Lit = 14.39	KM = 5.0

PHASE 2	THC	CO	NOx	CO2	NMHC	Tdry = 75.8	Twet = 59
SAMPLE	164.390	205.200	8.270	0.494	9.400	BARO. = 765.32	SEC = 870.0
AMBIENT	11.810	14.700	0.210	0.063	3.400	R-H = 34.78	VOL = 4935.0
GRAMS	12.336	31.096	1.896	1109.437	11.842	M.P.G. = 28.74	DF = 25.0
GMS/MI	3.195	8.054	0.491	287.333	3.067	MPGnhv = 29.57	MI = 3.0
GMS/KM	1.988	5.011	0.306	178.768	1.908	KM/Lit = 12.20	KM = 6.0

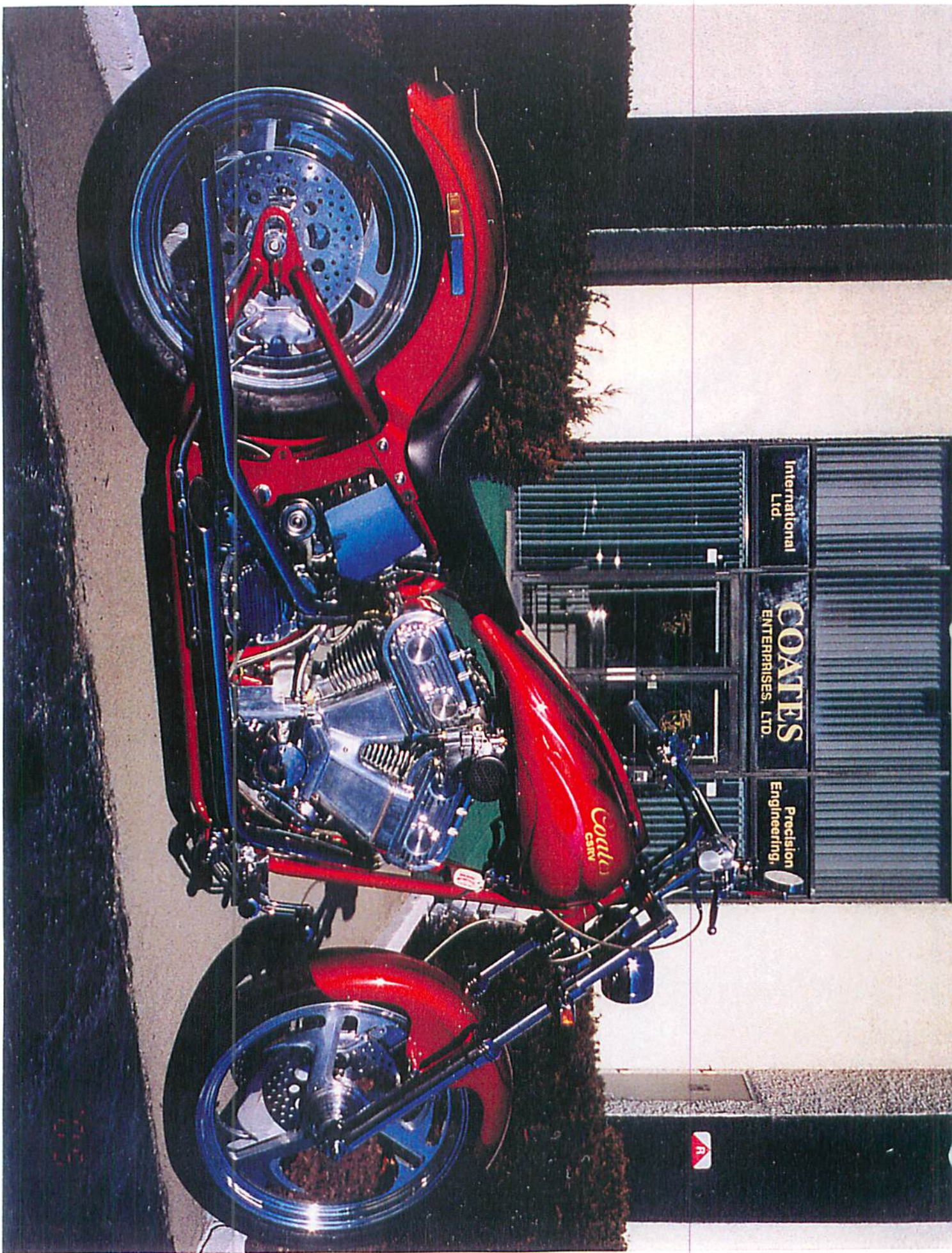
PHASE 3	THC	CO	NOx	CO2	NMHC	Tdry = 75.8	Twet = 59
SAMPLE	138.200	185.000	11.510	0.493	8.600	BARO. = 765.32	SEC = 505.0
AMBIENT	13.860	14.100	0.230	0.066	3.400	R-H = 34.78	VOL = 2859.0
GRAMS	5.832	16.165	1.537	636.947	5.583	M.P.G. = 47.26	DF = 25.0
GMS/MI	1.615	4.478	0.426	176.447	1.546	MPGnhv = 48.34	MI = 3.0
GMS/KM	1.005	2.786	0.265	109.778	0.962	KM/Lit = 20.07	KM = 5.0

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EIGHTED	THC	CO	NOx	CO2	NMHC	FUEL ECONOMY	NOxKf = .879
GRAMS/MI	3.164	8.732	0.443	243.134	3.034	M.P.G. = 33.40	NHVmpg = 34.0
GRAMS/KM	1.968	5.433	0.275	151.268	1.888	KM/Lit = 14.18	NHVkpl = 14.0

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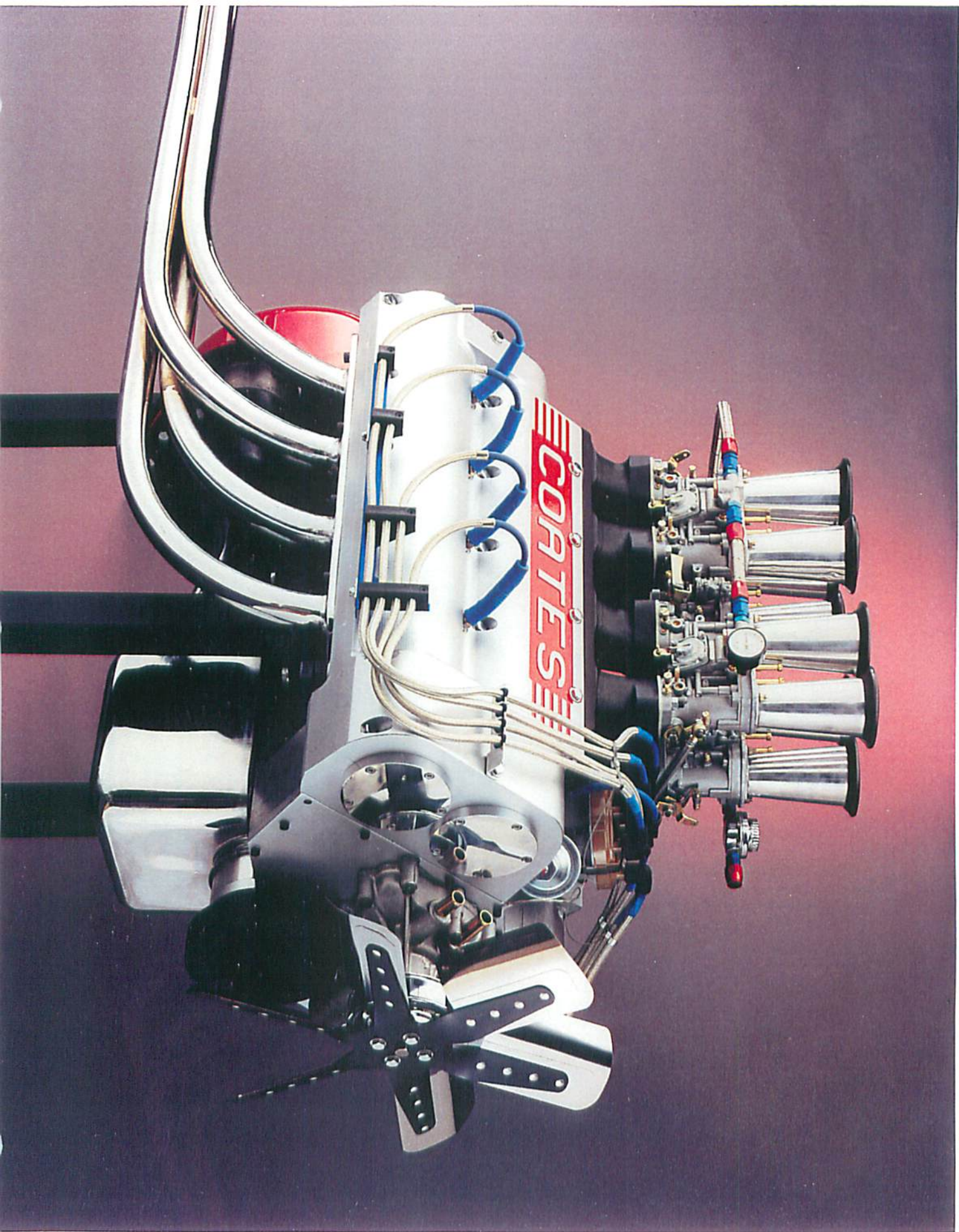
International  
Ltd.

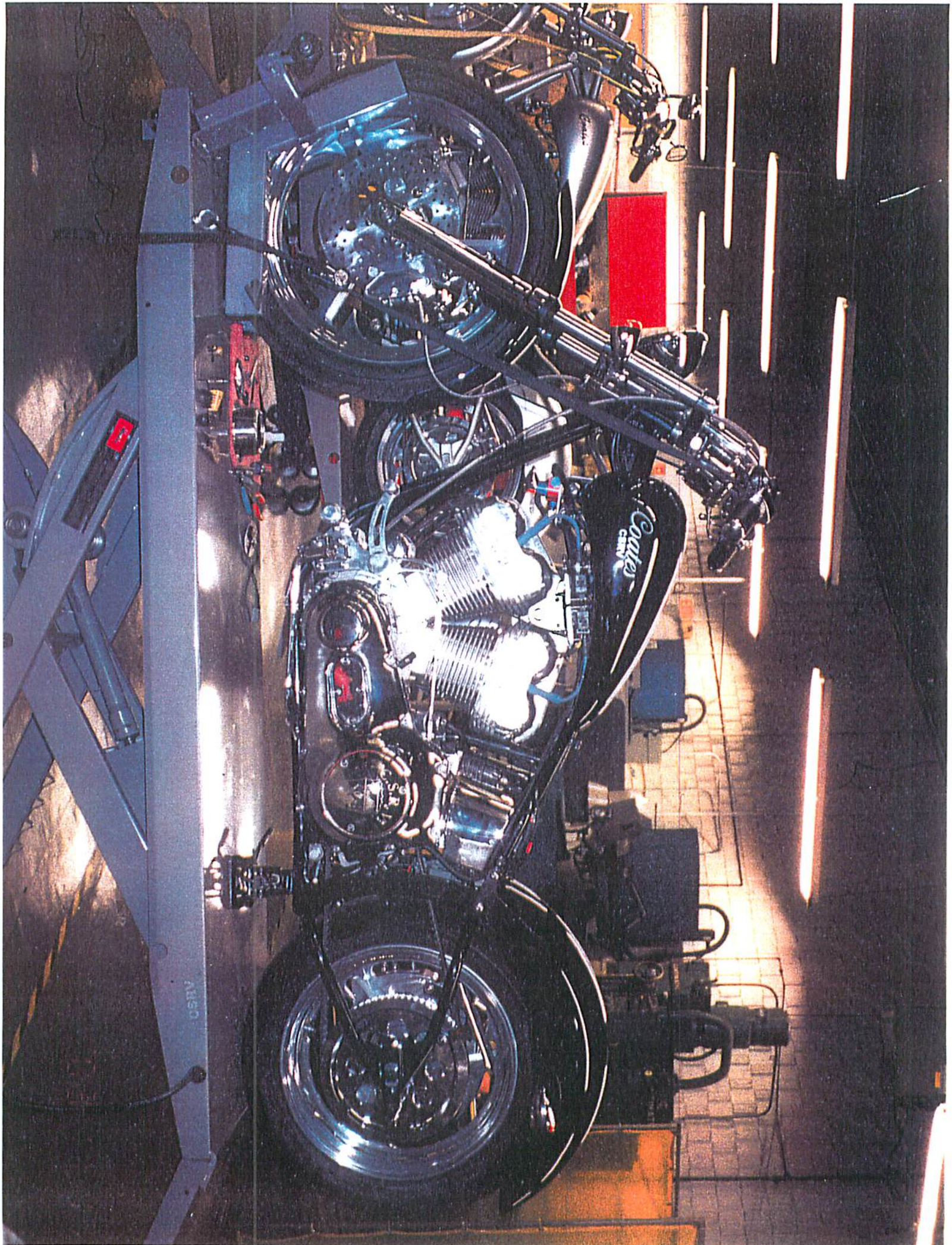
**COATES**  
ENTERPRISES, LTD.

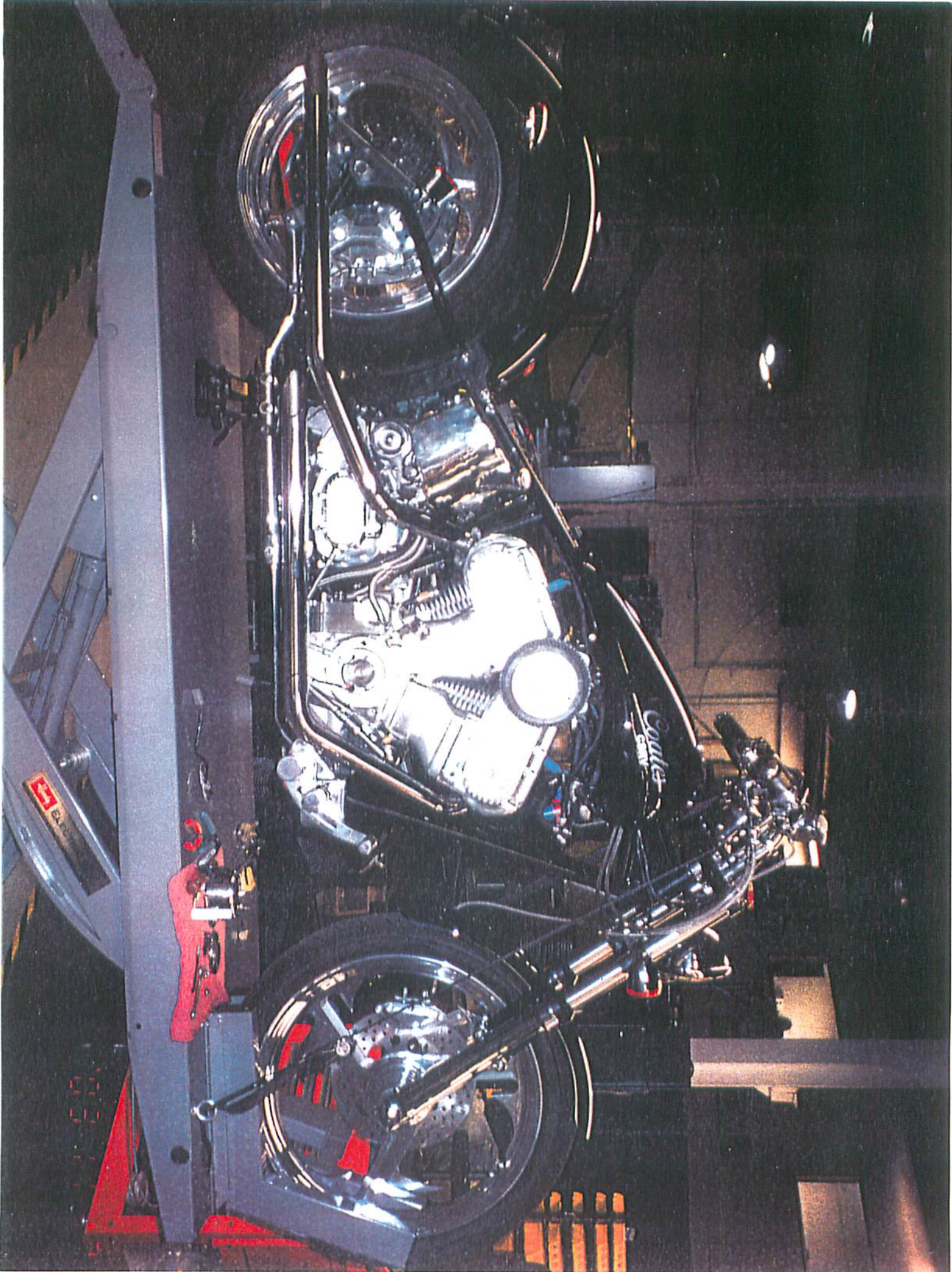
Precision  
Engineering.













UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY  
2565 PLYMOUTH ROAD  
ANN ARBOR, MICHIGAN 48105-2498

OFFICE OF  
AIR AND RADIATION

April 3, 2003

Mr. George Coates  
Coates International, LTD  
2100 Highway 34 & Ridgewood Rd.  
Wall Twp., New Jersey 07719-9738

Dear Mr. Coates:

Attached per your request is a series of EPA documents pertaining to the certification of motorcycles. These documents supplement the certification rules published in the "Code of Federal Regulations", 40CFR, Part 86, Subparts E & F. 40CFR, Part 86, in book form, is available from the Government Printing Office; charge orders can be made by telephone to the GPO Order Desk at 202-512-1803. It can also be found in larger libraries, such as a Law or a University library. Access to the CFR is available on the Internet at this location:

<http://www.access.gpo.gov/nara/cfr/cfr-retrieve.html#page1>

Small volume motorcycle manufacturers are those with total volume projected sales in the United States of less than 10,000 units for the specified model year. Certification requirements for the small volume motorcycle manufacturer are summarized in Subpart E, Section §86.406-78(c)(2). These manufacturers are allowed to submit a reduced amount of paperwork for the certification process. They must, however, perform the same testing for each engine family as required for a large volume motorcycle manufacturer.

The application for certification by a small volume motorcycle manufacturer must include the following:

- The information outline in Chapter 4 of the Manufacturers Guidance Letter CD-88-19, dated December 5, 1988, reference 40CFR §86.437-78(b).
- A copy of the fee filing form submitted to the appropriate bank with the required fee payment. (Reference to CD-92-07.)
- A copy of the "Family Information" computer information form (reference CD-93-02). Model year 1998 and later engine families must use the engine family identification format described in CD-96-12, dated December 3, 1996.
- The information listed in Attachment A to this letter.

Attachment A

MOTORCYCLE TEST INFORMATION TO BE REVIEWED BY EPA

1. Brief, general description of the manufacturing process for these motorcycles, including how/when/where and by whom the vehicles are initially assembled; how/when/where and by whom the vehicles will be modified (if necessary) following initial assembly.
2. Documentation to prove that the applicant is an authorized United States representative of the manufacturer of the motorcycles.
3. Description of the method used by the manufacturer to notify the applicant of any running changes made to the vehicle (changes the manufacturer makes to production motorcycles after certification).
4. Description of the test procedure used for certification testing.
5. Location and brief description of the test facility used for certification testing, including the type of dynamometer used.
6. Copy of test maintenance log of motorcycle(s) used in certification testing, including corrected odometer distance (miles or kilometers), emissions, and a description of all maintenance.
7. Confirmation that production motorcycles are identical in all material respects to the motorcycles described in application for certificate.
8. Copies of owner's manuals, repair manuals, warranties, emission labels, and any sales information available to the public (as they become available).
9. Description of the maintenance schedule if the owner's manual is not available or if the maintenance schedule is not included in the owner's manual.

At the time a small volume motorcycle manufacturer submits an application for certification, the EPA intends to audit the manufacturer's certification program. Attachment A to this letter contains a list items that will be audited before certification of an engine family, pursuant to 40CFR §86.437-78(b)(1)(ii). To hasten the certification process manufacturers should provide this information with the certification application. Attachment B to this letter contains a partial list of items that are not required to be included in the application but are to be maintained at the manufacturer's facilities, available for review by an EPA representative.

If you have any questions about this material, please contact Mary Green at 734-214-4912, or [green.mary@epa.gov](mailto:green.mary@epa.gov)

Thank you for your cooperation.

Respectfully,



Mary F. Green, EPA  
Vehicles Programs Group  
Vehicles Programs & Compliance Division