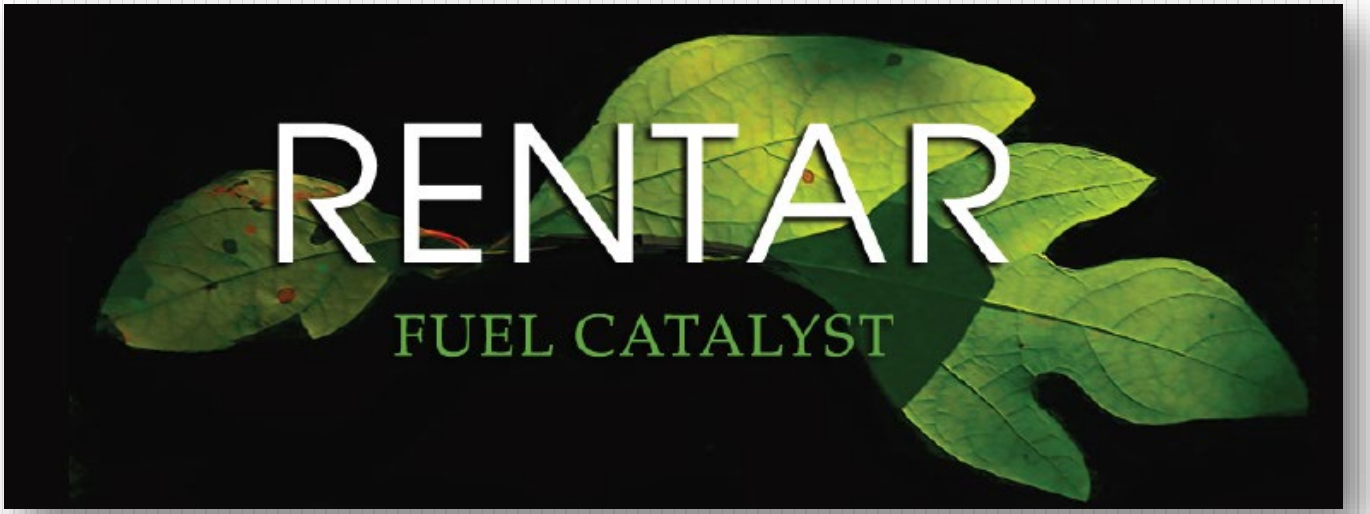
# Military Applications




Sole Source Technology with 33 Issued Patents

Energy and Emission Solutions

# Rentar Fuel Catalyst Is Independently Verified To:


- Reduce Fuel Consumption And Extend Range 2.0% To 12.0%
- Reduce Oil Fired Furnace Fuel Consumption 7.0% To 30.0%
- Reduce Greenhouse Gases (NOx, CO and $CO_2$) Up To 19.2%
- Reduce Particulate Matter (PM) Up To 58.2%
- Reduce Black Smoke (Opacity) Up To 44.8%
- Reduce Organic And Elemental Carbon Up To 35.0%

  Reduce Volatile Organics up to 63.0%

**Results vary based on the applications, type of engine and type of fuel utilized**

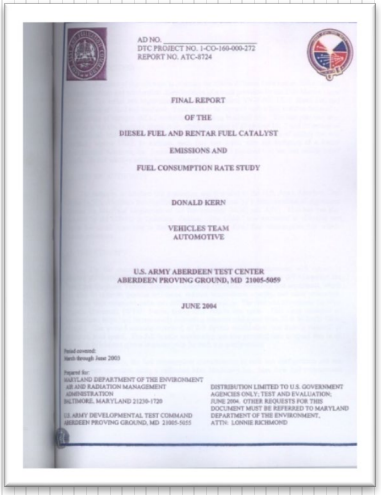
# Benefits of the Rentar Fuel Catalyst to the United States Armed Forces


- Extends Equipment Range
- Reduces Infrared Exhaust Signature
- Reduces Fuel Consumption
- Reduces Greenhouse Gas Emission
- Extends Engine Life
- Extends Oil Life
- Reduces Engine Maintenance
- 10 Year Warranty
- Easy to Install
- Pays for Itself in Fuel Savings in 3 to 12 Months

# Rentar Is Independently Verified By:

MINISTERO DELLA DIFESA
CENTRO POLIFUNZIONALE DI SPERIMENTAZIONE

DISPOSITIVO RENTAR PER LA RIDUZIONE DEL CONSUMO DI COMBUSTIBILE



FINAL REPORT
OF THE
DIESEL FUEL AND RENTAR FUEL CATALYST
EMISSIONS AND
FUEL CONSUMPTION RATE STUDY

DONALD KERN

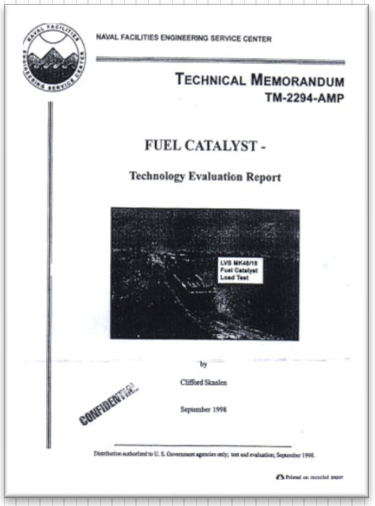
VEHICLES TEAM
AUTOMOTIVE

U.S. ARMY ABERDEEN TEST CENTER
ABERDEEN PROVING GROUND, MD 21005-5059

JUNE 2004

SUMMARY OF EMISSIONS REDUCTIONS

Toyota Motor Company
Penske Leasing
Rentar Environmental Solutions, Inc.



NAVAL FACILITIES ENGINEERING SERVICE CENTER

TECHNICAL MEMORANDUM
TM-2294-AMP

FUEL CATALYST -
Technology Evaluation Report

by
Clifford Skaalen

CONFIDENTIAL

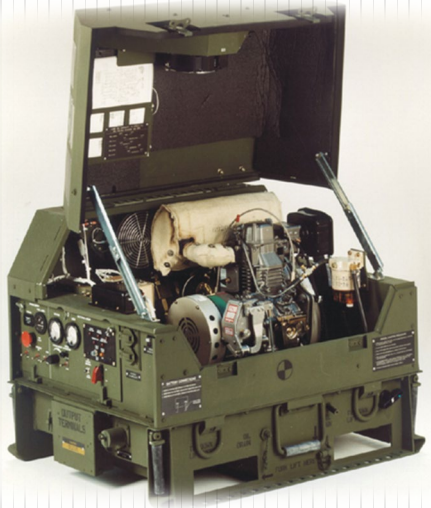
September 1998

- Southwest Research Institute
- EPA Recognized Laboratories
- CARB Recognized Laboratories
- Aberdeen Proving Grounds
- Naval Facilities Engineering Services Center
- U.S. Marine Corps
- Olson Ecological Laboratories
  EPA And California Air Resource Board (CARB) Recognized Laboratory
- Virginia Tech University
- Italian Ministry Of Defense
- England's Millbrook Proving

# Improve Range, Signature and Engine Life

RENTAR Fuel Catalyst

## Reduce Fuel Consumption and Exhaust Pollution



Type of Equipment Ideal for the Rentar Fuel Catalyst

# Government Recognition

DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICE
COMBAT SUPPORT AND COMBAT SERVICE SUPPORT
6501 E. ELEVEN MILE ROAD
WARREN, MICHIGAN 48397-5000

REPLY TO ATTENTION OF

March 15, 2006

Project Manager, Future Tactical Systems (PM FTS) (Provisional)

puraDYN filter Tech
2017 High Ridge Road
ATTN: Mr. Kevin Kroger
Boynton Beach, FL 33426

Dear Mr. Kroger:

This letter is in reference to your demonstration of "Pre-Combustion Fuel Catalysis" during the second annual Tactical Wheeled Vehicles (TWV) Technology Component Demonstrations at Yuma Proving Ground, January 23-27, 2006. Thank you for participating in this process and especially for the cooperation and patience you displayed during the review and demonstration set-up. The Expedited Modernization Initiative Procedure (EMIP) demonstrations educated both observers and decision makers on potential capabilities and allows us to provide the following feedback.

Your demonstration was observed by a technical team composed of engineers, logisticians, user representatives, test representatives, and subject matter experts. A technology of the type of warfighting capability (Distribution and Mission Enhancement) you demonstrated was viewed as having High Potential military utility in the near-term (Fiscal Years 2006-2007). A technology of this type capability may be pursued. Also, we have referred your technology to the Fuels and Lubes Team within the Tank Automotive Research, Development and Engineering Center (TARDEC) for further assessment. EMIP is an on-going process, and you may be asked more questions by someone from the offices of the Project Manager for Tactical Vehicles (PM TV) or others involved in this process.

To improve subsequent demonstrations, if you have not submitted your opinion about what went well and what requires further improvements in the EMIP process, we encourage you to do so. Please provide comments / suggestions to the questions you received at registration to the indicated contact or submit your comments to the TruckTech mailbox at TruckTech@tacom.army.mil.

Thanks again for your participation in this year's TWV Technology Component Demonstrations. We look forward to your continued involvement in this process. Your firm's further submission of information and participation is voluntary. Unless funded specifically by a contract, signed by a government contracting official, no reimbursement will be made to your firm for the sharing of information or participation in this process. Neither this letter nor your demonstration of your product constitutes an endorsement of your product by the Government.

## H.R. 4546 THE NATIONAL DEFENSE AUTHORIZATION ACT

***House Military appropriations bill –***
Written in bill: "*Given the magnitude of potential fuel savings and emissions reductions, the committee does not understand why the Department (of Defense) has not taken advantage of this technology. The committee urges the Secretary of Defense to take immediate steps for the application of this new technology as soon as practicable.*"

ARAI®
Progress through Research

RENTAR Fuel Catalyst

Automotive Research Association of India is co-operative industrial research association by the automotive industry with the Ministry of Industries, Government Of India

Testing Conducted on 6SL8800TA 200 KW Kirloskar 250 Genset Engine

Tested with ISO: 8178 D2 - 5 Mode Test Protocol

3.04% Fuel Improvement

58.2% Reduction of Particulate Matter

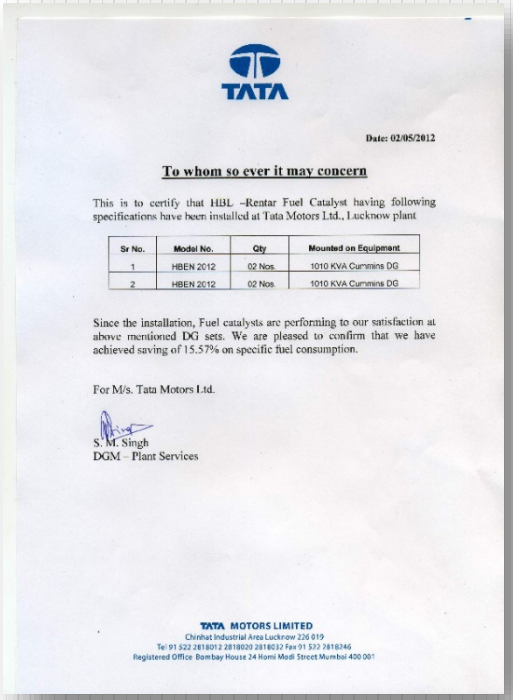
7.9% NOx Reduction

35.4% CO Reduction

15.4% Hydrocarbon Reduction

See Test Study

# Testimonial Letters



TATA

Date: 02/05/2012

**To whom so ever it may concern**

This is to certify that HBL –Rentar Fuel Catalyst having following specifications have been installed at Tata Motors Ltd., Lucknow plant

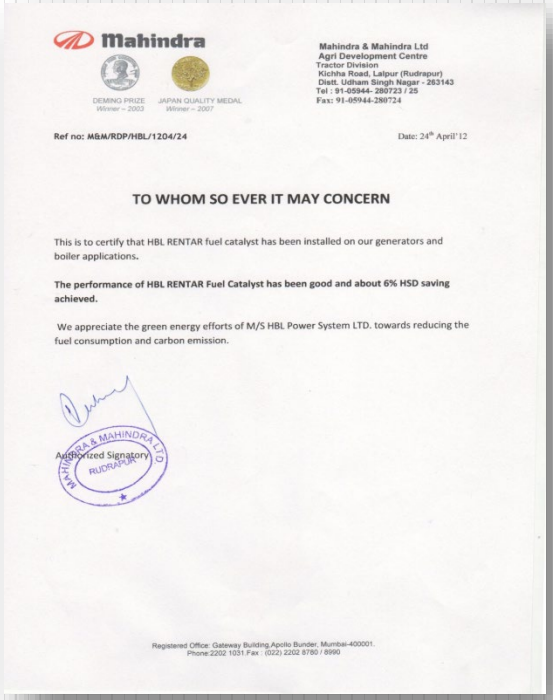
| Sr No. | Model No. | Qty | Mounted on Equipment |
|---|---|---|---|
| 1 | HBEN 2012 | 02 Nos. | 1010 KVA Cummins DG |
| 2 | HBEN 2012 | 02 Nos. | 1010 KVA Cummins DG |

Since the installation, Fuel catalysts are performing to our satisfaction at above mentioned DG sets. We are pleased to confirm that we have achieved saving of 15.57% on specific fuel consumption.

For M/s. Tata Motors Ltd.

S. M. Singh
DGM – Plant Services

TATA MOTORS LIMITED
Chinhat Industrial Area Lucknow 226 019
Tel: 91 522 2818012 2818020 2818032 Fax 91 522 2818346
Registered Office: Bombay House 24 Homi Modi Street Mumbai 400 001



Mahindra

DEMING PRIZE Winner – 2003 JAPAN QUALITY MEDAL Winner – 2007

Mahindra & Mahindra Ltd
Agri Development Centre
Tractor Division
Kichha Road, Lalpur (Rudrapur)
Distt. Udham Singh Nagar - 263143
Tel : 91-05944- 280723 / 25
Fax: 91-05944-280724

Ref no: M&M/RDP/HBL/1204/24

Date: 24th April'12

**TO WHOM SO EVER IT MAY CONCERN**

This is to certify that HBL RENTAR fuel catalyst has been installed on our generators and boiler applications.

**The performance of HBL RENTAR Fuel Catalyst has been good and about 6% HSD saving achieved.**

We appreciate the green energy efforts of M/S HBL Power System LTD. towards reducing the fuel consumption and carbon emission.

Authorized Signatory

MAHINDRA & MAHINDRA LTD RUDRAPUR

Registered Office: Gateway Building,Apollo Bunder, Mumbai-400001.
Phone:2202 1031,Fax : (022) 2202 8760 / 8990

YAMANAGOLD 15 ANOS

March 21st 2019

We at Mineração Maracá Indústria e Comércio, a YAMANAGOLD job site, have successfully piloted the Rentar fuel catalyst model HBEN 2012 on our CAT 785C haul trucks with results that surpassed our objectives for fuel efficiency with a payback of less than a year. As a result, we have purchased the Rentar fuel catalyst for installation on our fleet.

We are pleased with the support from SOTREQ, our Rentar dealer, and from the direct relationship with the manufacturer itself. We are also pleased with the trouble-free performance of the catalysts, to date.

We are looking forward to our continued use of the Rentar fuel catalysts.

**Fabio Gonçalves**
*Maintenance Coordinator*
Tel: +55 62 3383-4049

YAMANAGOLD 15 ANOS

**Mineração Maracá Indústria e Comércio**
Rodovia GO 347 s/n – Fazenda Genipapo
Alto Horizonte GO – Brasil
76560-000

http://www.yamana.com

# US Army Aberdeen Test Center

RENTAR Fuel Catalyst

## FINAL REPORT
## DIESEL FUEL AND RENTAR FUEL CATALYST EMISSIONS AND FUEL CONSUMPTION RATE STUDY

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***U.S. Army Aberdeen Test Center / Aberdeen Proving Ground, MD***

Prepared for U.S. Army Developmental Test Command

Maryland Department of the Environment


**Results:** Using No. 2 diesel fuel

3.6% Fuel Consumption Improvement

14.1% CO2 Improvement

12.0% NOx Improvement

17.4% Carbon Monoxide Improvement

12.6% Hydrocarbons

10.9% O2 improvement

See Test Study

# EFFECT OF RENTAR FUEL CATALYST ON EMISSIONS AND EFFICIENCY FROM A COMMERCIAL BOILER FIRING NUMBER 2 HEATING OIL

RENTAR Fuel Catalyst

Virginia Tech Advanced Research Institute

*Virginia Polytechnic Institute / Alexandria Research Institute*

Commercial Boiler Firing Number 2 Heating Oil Furnace
Located At the Everett Meredith Middle School – Delaware
*Study Paid for by the State of Delaware*

**Results:**

7.6% Fuel Consumption Improvement

13.0% NOx Improvement

4.0% Carbon Monoxide Improvement

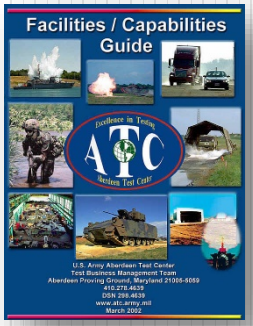
13% Total Hydrocarbons

7.6% CO2 Improvement by Carbon Balance Assumption

See Test Study

# Proven Effective by

## U.S. Army's Aberdeen Proving Grounds




Tested with EPA Equipment and EPA Protocol
Results Using Number 2 Diesel Fuel

3.6% Fuel Reduction
14.1% $CO_2$ Greenhouse Gas Reduction
12.0% NOx Reduction
17.4% CO Reduction
12.6% Hydrocarbon Reduction

See Test Study

U.S. ARMY ABERDEEN TEST CENTER

## U.S. Naval Facilities Engineering Center

21.0% Fuel Improvement
50% to 39% Reduction in Particular Matter

United States Department of Navy

See Test Study

## United States Marine Corp

5 Vehicle Test Results

Conducted by USMC 7th Motor Transportation Battalion
Camp Pendleton

38.7% Fuel Reduction

44.8 Opacity Reduction

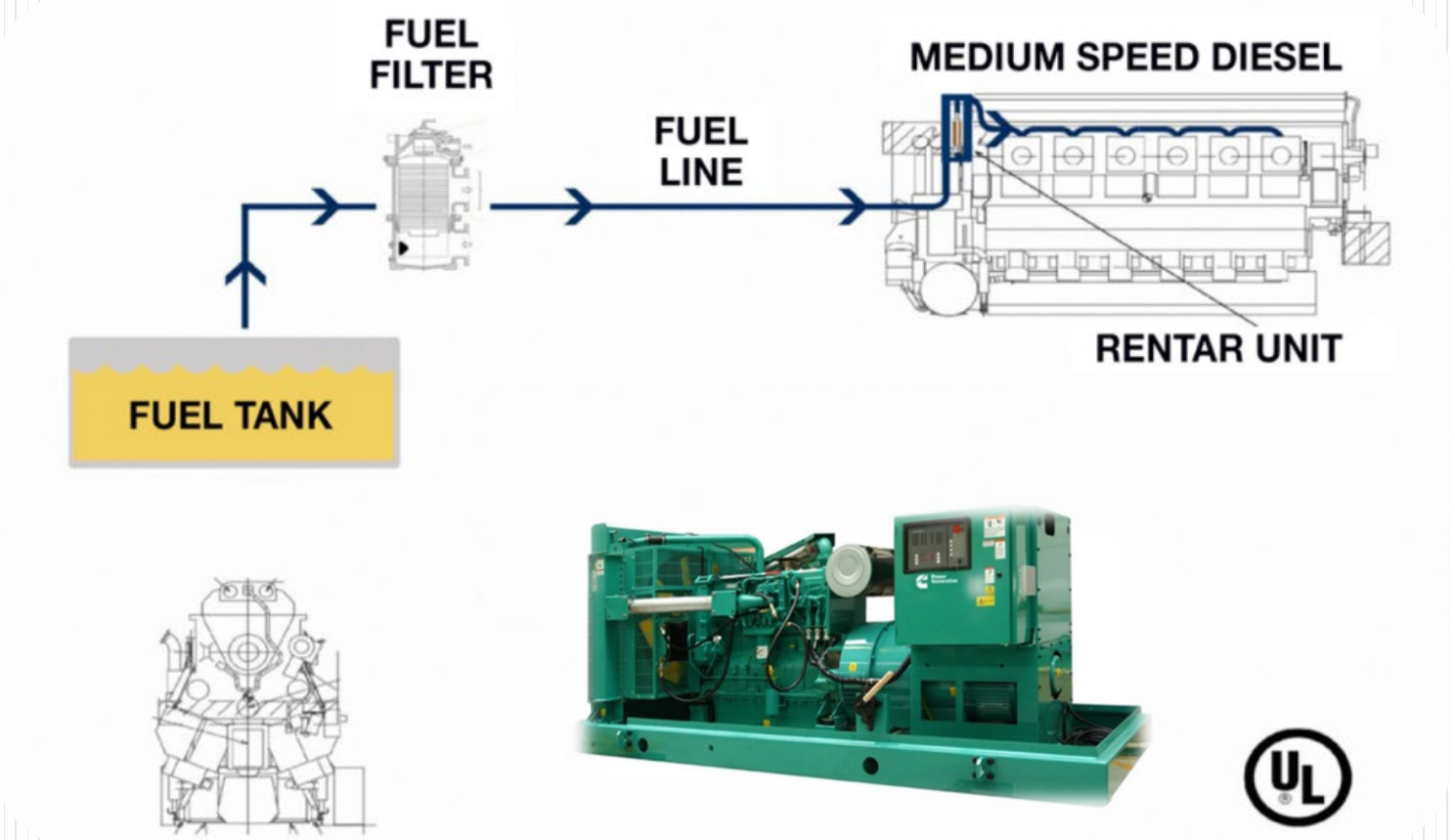
See Test Study

## Italian Ministry of Defense

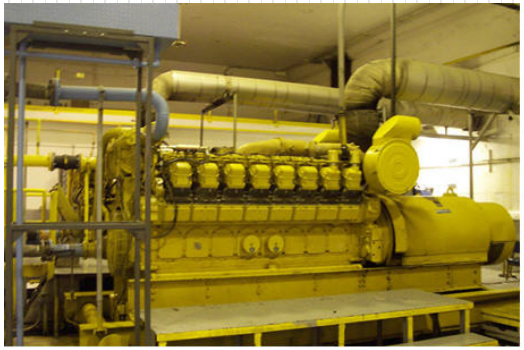

MINISTERO DELLA DIFESA

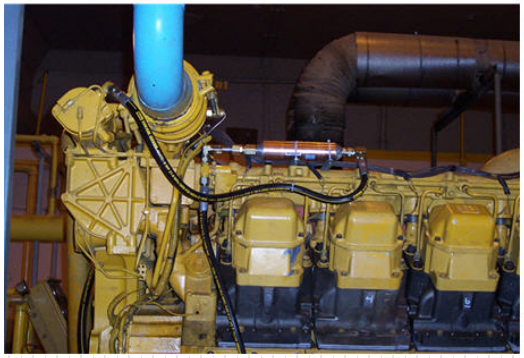
4.0% Fuel Improvement

# Simple Installation



# Generators / Gensets





Stationary Generators Fuel Consumption Reduced 4% to 12%

# Caterpillar 777D
# Schedule of Annual Fuel Savings at Various Fuel Cost
# Using the Rentar Fuel Catalyst

*Assuming the Caterpillar 777D*
*Consumes 20 GPH / 20 Hours per Day / 6 days per Week / 50 Weeks per Year*

| Per Gallon Price | $4.00 | $6.00 | $8.00 | $10.00 | $12.00 |
|---|---|---|---|---|---|
| 2% Savings = | $ 9,600 | $14,400 | $19,200 | $24,000 | $28,800 |
| 4% Savings = | $19,200 | $28,800 | $38,400 | $48,000 | $57,600 |
| 6% Savings = | $28,800 | $43,200 | $57,600 | $72,000 | $86,400 |
| 8% Savings = | $38,400 | $57,600 | $76,800 | $96,000 | $115,200 |

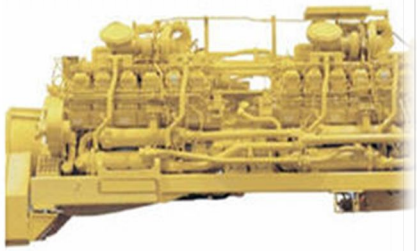
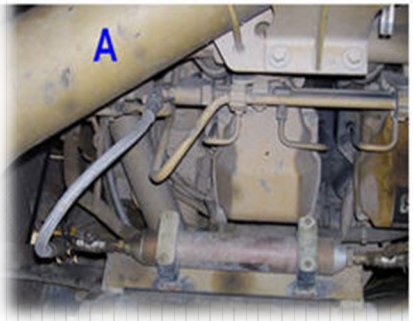
*Results vary based on the applications, type of engine and type of fuel utilize*

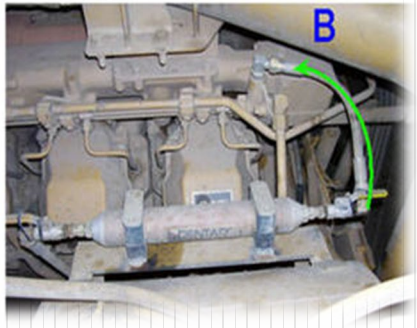
# Heavy Duty Equipment

## Wheel Loader 980H with Cat C15 | USA
5.6% Improvement in Fuel Efficiency



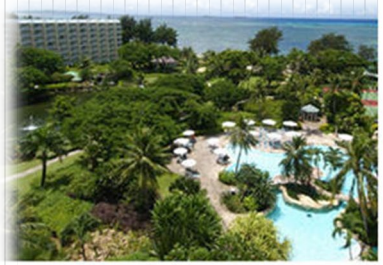
## Cat 797B with Cat 3524B Engine | Chile
6.3% Improvement in Fuel Efficiency



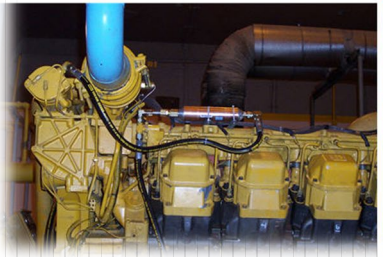
# Generators / Gensets

Genset with Cat 3306 Engine | Saipan
5.3% Improvement in Fuel Efficiency




Genset with Cat 3516 Engine | Alaska
6.1% Improvement in Fuel Efficiency






# Rentar Case Studies

## CASE STUDY

### COVANTA ENERGY

Covanta Holding Corporation (NYSE: CVA) is an international owner and operator of Energy-from-Waste power generation projects converting municipal solid waste into renewable energy for numerous communities throughout the United States.
2009 consolidated operating revenues were $1.55 billion with $397 million in operating cash flow and adjusted EBITDA of $515 million.

COVANTA ENERGY
*for a cleaner world*

Installed Rentar Fuel Catalyst on entire fleet of heavy-duty diesel vehicles at 28 plants around the United States.

- **5% reduction in fuel consuption.**
- **43.6% reduction in CO2 emissions.**
- **75.9% reduction in CO.**
- **47.7% reduction in NOx**
- **52.6% reduction in particulate matter.**

## CASE STUDY

### U.S. ARMY

Located in Hartford County, Maryland on 79,000 acres with research capabilities in Automotive; Environmental Effects & Technologies; Fire Control; Firepower; Support and Survivability/Lethality; Warfighter & Support Equipment.

U.S.ARMY

Excellence in Testing ATC Aberdeen Test Center

The Aberdeen Test Center tested Rentar units on a Navistar International 359.9 cu. in., 170 hp. diesel engine and reported the following:

- **3.6% Fuel Consumption improvement.**
- **3.6% Extended Range improvement.**
- **12% NOx improvement.**
- **14% $CO_2$ improvement.**
- **17.4% CO improvement.**
- **12.6% HC improvement.**
- **10.9% $O_2$ improvement.**

## CASE STUDY

### TOYOTA

Toyota Motor Company, established in 1937, is today the world's largest automobile manufacturer by sales (7,051,000 units FY 2009), with 320,808 employees building autos under the DAIHATSU, HNO, LEXUS and TOYOTA brands.

TOYOTA

Toyota has installed Rentar Units of all their auto transport trucks operating in the Port(s) of Long Beach & Los Angeles with the following resuilts:

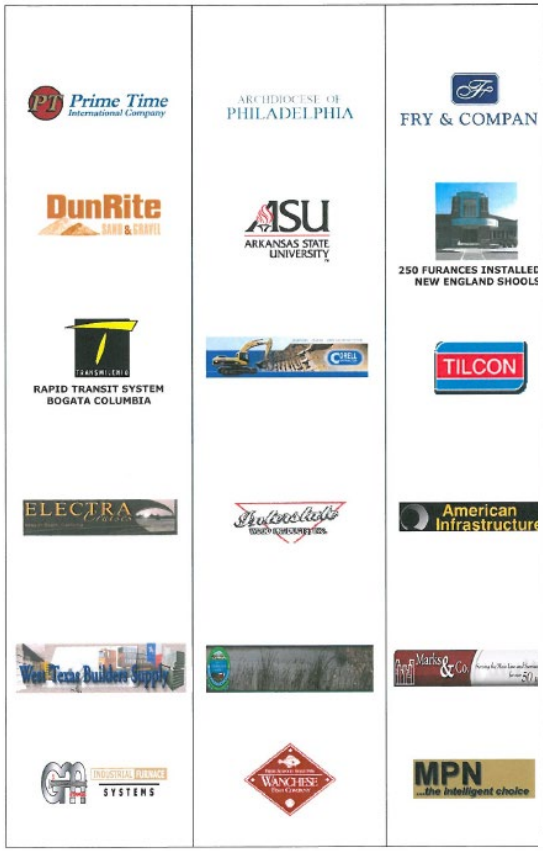
STEADY STATE (Highway Driving)

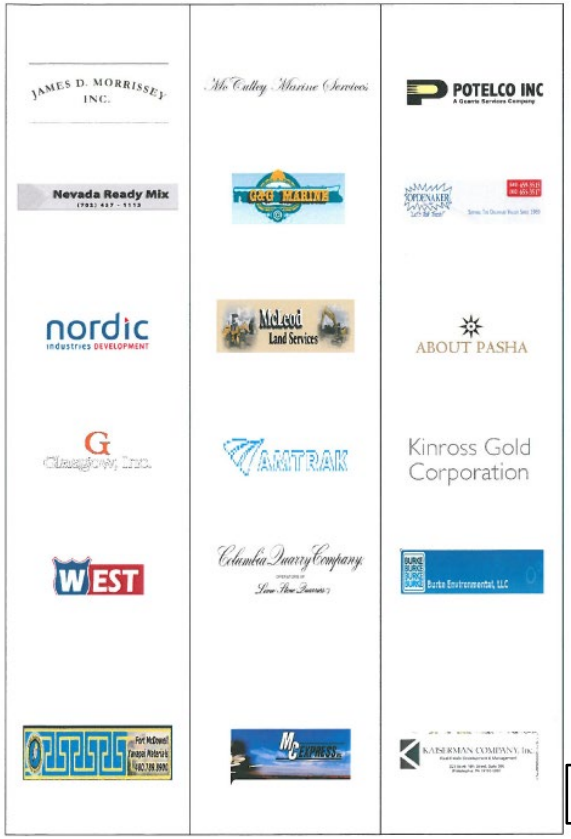
- **11.3% Fuel Consumption improvement.**
- **42.2% Particulate Matter improvement.**
- **9.7% $CO_2$ improvement.**
- **33.5% Carbon Monoxide improvement.**
- **36.8% Total Hydrocarbon improvement.**

Toyota Laboratory Results conducted by EPA & CARB recognized laboratory.

# Logo's of Rentar Fuel Catalyst Purchasers





# THANK YOU


## Rentar Environmental Solutions, Inc.

Contact: Joel Ratner (561) 331-1012

Email: JoelRatner@Rentar.com

Website: DieselCatalyst.com


Results vary based on the applications, type of engine and type of fuel utilized