

Fuel Economy Savings Study



Whipsaw Sport Fishing Rentar Fuel Catalyst Testing

Data Accumulated By
Whipsaw Sport Fishing
Kewalo Basin Harbor
Honolulu, Hawaii

Purpose of Testing
To Track Fuel Economy with and Without The
Rentar Fuel Catalyst and determine the reduction on opacity.

Type of Testing
Baseline Vs. Post install data with Rentar Fuel Catalyst
1997 - 35' Cabo Flybridge Sportfish Boat
2 - 435 hp Caterpillar 3208TA V8 diesel inboard engines

Date of Testing
February 2013 through January 2014

Summary of Findings

Whipsaw Sport Fishing conducted the fuel economy studies. They solely managed and collected the data. The results are reported below.

At Whipsaw Sport Fishing's location, they created a baseline, installed the Rentar Fuel Catalyst and collected the "post" data. The results as documented in the attached report due to the Rentar Fuel Catalyst were an overall **16.64% average improvement in fuel consumption** on the two engines. In addition, opacity (black smoke) was cleared up so significantly that cleaning of the boats transom went from every time the boat went out to cleaning once a week.

Effect On A Fleet using approximately 820 gal X 12 months = 9840 gals per year per boat of diesel fuel.

The effect of using the Rentar Fuel Catalyst on the Whipsaw Sport Fishing boat based on a fleet of these type boats averaging 9840 gals per year; purchasing fuel at an average of \$4.50 per gallon would be a fuel cost reduction of \$7368 per boat annually.

Return On Investment

The return on investment (ROI) or repayment of the cost of the catalyst at suggested retail price for two catalysts (one for each engine) would be approximately 14.3 months.

Greenhouse Gas CO2 Emissions

In addition to saving 1637 gallons of fuel per year per boat, Whipsaw Sport Fishing would not be emitting 16.37 metric tons of CO2 greenhouse gas into the atmosphere. This number is based on an EPA standard which states that for every 100 gallons of diesel fuel burned equates to 1 metric ton of CO2 released into the atmosphere.

Being A Green Entity

Being a "green entity" has its own inherent value in protecting the environment and the health of its employees and clients. A positive public image is created by being "Green".

Monetary Value Of Reducing CO2 Greenhouse Gases

The 16.37 metric tons per boat of CO2 not being emitted will have a monetary value that could become an additional income stream for a fleet of Whipsaw Sport Fishing type boats. This would be the result of the upcoming cap & trade programs currently being adapted in the United States similar to the cap & trade programs in effect in 162 countries under the Kyoto Treaty.

Test Protocol

Kewalo Basin Harbor, Honolulu, Hawaii Controlled Comparison Testing

Whipsaw Sport Fishing used its charter boat as the test boat with two Diesel Engines.

Beginning and ending hourly and fuel readings were taken by the captain for Phase 1 and Phase 3. Whipsaw Sport Fishing also supplied the fuel used. Thirty days of baseline was collected showing an average of 6.10 gph. Fuel usage was acquired from the company's official fuel billing records, provided by the company, to ensure accuracy.

The testing was conducted in and around the above area. The boat was operated in similar weather conditions throughout the duration of the fuel economy study. At the conclusion of the Comparison Study, the test gallons per hour was compared prior to fuel catalyst installation (Phase 1) to test gallons per hour after fuel catalyst installation (Phase 3).

Testing Timeline

Phase 1 – one month's fuel figures from 2-1-2013 to 2-28-2013

Baseline information was collected on the charter boat.

Phase 2 - Cleanout period 3-21-2013 to 5-31-2013

Cleanout Period – The Rentar Fuel Catalysts were installed on each engine and the cleanout period ran for four months.

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The fuel consumption improvement was 9.05% for the July 2013 test period and 16.64% for the January 2014 test period

Through EPA recognized laboratories we has proven reductions in NOx of 15 to 20%, CO2 in this case would be 16.64%,based on the carbon balance method

See attached documentation showing the exact information provided by the Company.



Whipsaw Sport Fishing
Kewalo Basin Harbor , Honolulu, Hawaii

Boat: 1997 35' Cabo FLYBRIDGE SPORTFISH

Equiped with: 2/435-hp Caterpillar 3208TA V8 diesel inboards

February 2013 Fuel Usage

Feb	Charter Type	Hours	Fuel Used	GPH
1	3/4 Day	6.5	40.3	6.20
2	Full Day	9.2	55.8	6.07
5	Half Day	4.8	27.9	5.81
7	Half Day	4.9	28.2	5.76
8	3/4 Day	6	37.2	6.20
9	Full Day	9.3	57	6.13
11	Full Day	9.1	56.1	6.16
12	Half Day	4.7	27	5.74
15	Full Day	9.4	58.2	6.19
16	Full Day	9.2	56.6	6.15
17	Half Day	4.9	29.8	6.08
20	Full Day	8.7	52.6	6.05
21	Full Day	9.3	58.8	6.32
22	3/4 Day	7	43.9	6.27
23	Half Day	4.7	29	6.17
24	Full Day	9.1	56.5	6.21
28	Half Day	4.5	27.9	6.20
Total Fuel Used:			742.8	6.10
				Average GPH

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July 2013 Fuel Usage

July	Charter Type	Hours	Fuel Used	GPH
1	Full Day	8.5	46.3	5.45
2	Full Day	9.6	51.2	5.33
3	Half Day	5.4	24.6	4.56
4	Half Day	4.6	22.5	4.89
5	Half Day	4.8	24.3	5.06
6	Full Day	8.4	49.8	5.93
7	Full Day	9.3	51.6	5.55
8	Full Day	9.2	54.6	5.93
10	Full Day	9.1	56.3	6.19
11	Full Day	8.8	50.8	5.77
12	Half Day	4.6	23.5	5.11
13	Full Day	8.9	48.9	5.49
14	Full Day	9.3	51.6	5.55
15	Full Day	9.5	54	5.68
16	Full Day	9.4	55.1	5.86
17	Full Day	9.1	53.9	5.92
18	3/4 Day	6.6	38	5.76
19	Full Day	11	64.1	5.83

Total Fuel Used: 821.1

July Average GPH: 5.55

February Baseline GPH: 6.10

% Reduction -9.05%

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January 2014 Fuel Usage

Day	Charter Type	Hours	Fuel Used	GPH
1	Full Day	9	44	4.89
2	Full Day	7.9	32.8	4.15
3	Full Day	7.1	42.8	6.03
4	Full Day	9.8	50.2	5.12
5	Half Day	5.9	26.8	4.54
6	Full Day	8.6	39.8	4.63
7	Half Day	5.2	35	6.73
8	Half Day	4.1	18.8	4.59

Total Fuel Used: 290.2

January Average GPH: 5.08

February Baseline GPH: 6.10

% Reduction -16.64%