



Cabco Yellow Inc. dba California Yellow Cab

528

SMART Emissions Reducer Trial Program Report

January 29, 2013

prepared by:



SMART Air Fuel Saver of California
Go green with the same machine.

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California Yellow Cab SMART Emissions Reducer Trial Program

Introduction

SMART Air Fuel Saver of California had offered Cabco Yellow Inc. dba California Yellow Cab a free trial program that would assist in the validation of the SMART Emissions Reducer installed in their vehicle fleet. The purpose of the program would demonstrate to California Yellow Cab that the SMART Emissions Reducer would reduce harmful vehicle emissions while providing a return on investment by reducing fuel consumption.

California Yellow Cab agreed to the trial program proposed by SMART Air Fuel Saver of California, at no upfront cost. If the SMART Emissions Reducer did not prove its worthiness, then the equipment would be removed from the vehicles, and returned to SMART Air Fuel Saver of California, at the cost of the company, and would restore the vehicles to the previous state before the modifications took place. In the event California Yellow Cab found the devices to have value, and perform as represented, then the California Yellow Cab would have the option to purchase the equipment, pay for labor services, and continue a rolling production of installs of the device, provided by SMART Air Fuel Saver of California. This trial program would last a period of 90 days. (Appendix A)

On August 13, 2012, SMART Air Fuel Saver of California and their Service Provider Extreme Energy Solutions Inc. began to install devices on vehicles authorized to be retrofitted for the trial program with California Yellow Cab (see Appendix item A). This authorization and program was supervised by Tim Conlon, California Yellow Cab President.

Action Plan

On Friday, August 10, 2012, SMART Air Fuel Saver of California and their Service Provider Extreme Energy Solutions reported to the California Yellow Cab Facility, located at 520 W. Dyer Road, Santa Ana, 92707, to begin installing the SMART Emissions Reducer on the selected vehicles. All installs were then concluded by Friday, August 10, 2012.

Prior to the SMART device installation, a series of vehicle verifications, to qualify the vehicle free from any mechanical issues that would effect the results of the overall outcome of the testing, would be performed. Each vehicle would undergo an emissions test, using a calibrated five gas analyzer and provide a copy of the results on site. At the conclusion of the 90 day period, each vehicle would again be tested for emissions readings. This would demonstrate the emissions increase or decrease at that time.

A total of four (4) vehicles were originally selected to be offered as candidates.

California Yellow Cab would track its fuel mileage results throughout the 90 day trial period, and SMART Air Fuel Saver of California would monitor the emissions results before and after the 90 day trial program, then compile all results in a report, and share them with California Yellow Cab for review. California Yellow Cab would share fuel consumption data with SMART Air Fuel Saver of California Representatives, so the SMART Representatives could examine the trend of the program. SMART Air Fuel Saver of California would be in contact with California Yellow Cab to ensure vehicle usage and to determine if the SMART Emissions Reducer would need to be serviced.

During the 90 day trial program, SMART Air Fuel Saver of California Representatives and Extreme Energy Solutions Technicians would be responsible for troubleshooting any and all issues with the device, perform periodic emissions testing of vehicles retrofitted with the SMART Emissions Reducer, and assist in servicing the SMART Emissions Reducer, as required by the manufacturer (SMART Air Fuel Saver LLC). SMART Air Fuel Saver of California Representatives and Extreme Energy Solutions Technicians would share how to maintain the unit with California Yellow Cab Fleet Mechanics, so California Yellow Cab Mechanics can take on the responsibilities of maintaining the SMART units. In Addition, SMART Air Fuel Saver of California Representatives and Extreme Energy Solutions Technicians would bring to the attention of California Yellow Cab Mechanics, any potential vehicle faults that SMART Air Fuel Saver of California Representatives and Extreme Energy Solutions Technicians would find during their monitoring of the vehicles, for priority to be repaired. This would allow for vehicles with faults not to run out the clock of the 90 day trial program without being repaired, and those faults effecting the vehicle's test results.

Officially, the 90 day trial program calendar had concluded on November 10, 2012, however the trial program was monitored and facilitated until Wednesday, December 12, 2012 (120 day trial), when SMART Air Fuel Saver of California Representatives had the opportunity to collect any and all final emissions data, and meet with the President, Tim Conlon, to review the data, and report generated by his department concerning the fuel economy results collected by California Yellow Cab. SMART Air Fuel Saver of California was asked to compile all data, reports, and proposals for review, including an invoice submitted for all SMART Emissions Reducer(s) and labor services provided to date.

Vehicle Inventory

California Yellow Cab vehicles retrofitted with the SMART Emissions Reducer for the trial program include the following:

1. California Yellow Cab Service Vehicle #787: 2007 Ford Crown Victoria

VIN: 2FAHP71W27X150221

Fuel: Gasoline

Retrofitted with the SMART Emissions Reducer Model: R200

2. California Yellow Cab Service Vehicle #626: 2005 Chevy Uplander

VIN: 1GBDV13L05D294325

Fuel: Gasoline

Retrofitted with the SMART Emissions Reducer Model: R200

3. California Yellow Cab Service Vehicle #659: 2006 Ford Crown Victoria

VIN: 2FAFP72WX6X152495

Fuel: CNG (compressed natural gas)

Retrofitted with the SMART Emissions Reducer Model: R200

4. California Yellow Cab Service Vehicle #628: 2007 Dodge Barlin Caravan

VIN: 1D4GP24R07B167703

Fuel: Gasoline

Retrofitted with the SMART Emissions Reducer Model: R200

Incidentals

The SMART Emissions Reducer for Vehicle #659 (2006 Ford Crown Victoria - CNG aka Compressed Natural Gas) was only cleaned once during the 120 day trial period. The emissions results are provided simply to show the need for basic maintenance of the SMART Emissions Reducer like that of maintenance for a vehicle's tires, oil change, air filter, brakes, hoses, etc.

This vehicle, upon the second emissions testing, had a check engine light on and the dashboard odometer light was not working correctly. Also, the California Yellow Cab Head Technician indicated that the catalytic converter had failed. These results can not be included in the overall study. However, the results do indicate the effectiveness of the SMART Emissions Reducer even under unusually negative circumstances and only one maintenance cleaning. This particular instance is also an effective example of the need for vehicle basic maintenance to consistently occur. The SMART Emissions Reducer is an enhancement to an engine's performance, not a "band-aid."

Despite the 2006 Ford Crown Victoria - CNG's maintenance challenges, the vehicle experienced a significant increase in Fuel Economy (15.73% or 2.8 more miles per gallon). This is evidence that the SMART Emissions Reducer can be effective even under extreme and negative vehicle circumstances.

California Yellow Cab Vehicle #628 (2007 Dodge Barlin Caravan - Gasoline) emissions and mileage results can not be included in this report due to the vehicle, on approximately 11.20.12, received an entirely new engine, thus negating the original baseline of the test.

Review and Results

In the recent 120 day test trial with California Yellow Cab of Orange County, the SMART Emissions Reducer has performed positively for both Emissions Reduction and Fuel Economy Results. This report is to give a summation of those results as well as the short term and long term benefits to California Yellow Cab's Fleet and expenses for both gasoline and CNG vehicles.

A copy of the SMART Air Fuel Saver Emissions Control Device Beta-Test Report (see Appendix item B). In this document is/was expressed the fuel economy results California Yellow Cab experienced, recognition of external activity that could hamper results, and suggestions for continuing the implementation of SMART Emissions Reducers into the rest of the County's Fleet. As of Wednesday December 12, 2012, all final emissions results were collected (Appendix C).

Original documents containing results before installation and after the 120 day trial have been put into a comparison chart for each vehicle. With each test subjects data, an explanation of variables will be reflected if there are results that may not be experienced due to external factors.

1. California Yellow Cab Service Vehicle #787: 2007 Ford Crown Victoria

VIN: 2FAHP71W27X150221

Fuel: Gasoline

Retrofitted with the SMART Emissions Reducer Model: R200

| Mileage (Baseline - Pre SER) | Mileage (Emissions Test with SER) | Total Mileage |
|------------------------------|-----------------------------------|---------------|
| 101,344 | 120,237 | 18,893 |

| Emissions | Emissions Baseline Test (Before SER Installed) 8.10.12 | Emissions Test (120 days with SER) 12.12.12 | Emissions Results (difference) | Percentage Change |
|-----------|--|---|--------------------------------|-------------------|
| NOx | 0 | 0 | 0 | 0% |
| CO | 1.00 | 0.04 | -0.96 | -96% |
| HC | 47 | 10 | 37 | -78.72% |
| CO2 | 14.7 | 14.7 | 0 | 0% |
| O2 | 0.95 | 0.96 | +0.01 | +1.05% |

| MPG Average (w/o SER) | MPG Average (w/ SER) |
|-----------------------|----------------------|
| 16 | 17.8 |

+1.8 miles per gallon
+11.25% increase in fuel efficiency

| | | | |
|---|-------------|---|-----------------|
| 2007 Ford Crown Victoria Tank Capacity: | 19 gallons | Average Fuel Savings with SER during 4 Month Trial: Calculation: (34.2 x 4 months) x \$4.028 | \$551.03 |
| 2012 Average Fuel Cost in California: | \$4.028 | Total Cost of InterCharger/SMART Emissions Reducer Unit: | \$504 installed |
| Increase of MPG with SER: | 1.8 gallons | Net Profit/Loss after the 4 month Trial: | + \$47.03 |
| Average MPG Range on a 19 gallon Tank without the SER: (16 mpg x 19 gallon tank) | 304 miles | Average Return on Investment (ROI): | 3.5 months |
| Average MPG Range on a 19 gallon Tank with the SER: (17.8 mpg x 19 gallon tank) | 338.2 miles | Average Fuel Savings with SER per month: (\$551.03 / 4 months = \$137.76) | \$137.76 |
| Increase of Milage per Tank with SER: (338.2 - 304) | 34.2 miles | Projected Annual Average Fuel Savings with SER: (\$137.76 x 12 months) | \$1653.12 |

2. California Yellow Cab Service Vehicle #626: 2005 Chevy Uplander

VIN: 1GBDV13L05D294325

Fuel: Gasoline

Retrofitted with the SMART Emissions Reducer Model: R200

| Mileage (Baseline - Pre SER) | Mileage (Emissions Test with SER) | Total Mileage |
|------------------------------|-----------------------------------|---------------|
| 363,487 | 374,233 | 10,746 |

| Emissions | Emissions Baseline Test (Before SER Installed) 8.12.12 | Emissions Test (120 days with SER) 12.12.12 | Emissions Results (difference) | Percentage Change |
|-----------|--|---|--------------------------------|-------------------|
| NOx | 16 | 2 | -14 | -87.5% |
| CO | 0.29 | 0.04 | -0.25 | -86.21% |
| HC | 156 | 5 | -151 | -96.8% |
| CO2 | 14.8 | 14.6 | -0.2 | -1.35% |
| O2 | 0.97 | 1.01 | +0.04 | +4.12% |

| MPG Average (w/o SER) | MPG Average (w/ SER) |
|-----------------------|----------------------|
| 16 | 17.8 |

**+1.8 miles per gallon
+11.25% increase in fuel efficiency**

| | | | |
|--|--------------------|--|-------------------|
| 2005 Chevy Uplander Tank Capacity: | 25 gallons | Average Fuel Savings with SER during 4 Month Trial: Calculation: (45 x 4 months) x \$4.028 | \$725.04 |
| 2012 Average Fuel Cost in California: | \$4.028 | Total Cost of InterCharger/SMART Emissions Reducer Unit: | \$504 installed |
| Increase of MPG with SER: | 1.8 gallons | Net Profit/Loss after the 4 month Trial: | + \$221.04 |
| Average MPG Range on a 19 gallon Tank without the SER: (16 mpg x 25 gallon tank) | 400 miles | Average Return on Investment (ROI): | 2.7 months |
| Average MPG Range on a 19 gallon Tank with the SER: (17.8 mpg x 25 gallon tank) | 445 miles | Average Fuel Savings with SER per month: (\$725.03 / 4 months = \$181.26) | \$181.26 |
| Increase of Milage per Tank with SER: | 45 miles | Projected Annual Average Fuel Savings with SER: (\$181.26 x 12 months) | \$2,175.12 |

3. California Yellow Cab Service Vehicle #659: 2006 Ford Crown Victoria

VIN: 2FAFP72WX6X152495

Fuel: CNG (compressed natural gas)

Retrofitted with the SMART Emissions Reducer Model: R200

NOTE:

This vehicle is not being included in the official final *emissions* results for the following reasons:

1. Check Engine light was illuminated
2. The California Yellow Cab Head Technician indicated that the Catalytic converter was failing
3. The SMART Emissions Reducer had only been cleaned once during the entire 120 day trial**

**This vehicle was not maintained during the test period as required by the trial contract, voiding any findings. However, it should be noted that the SMART Emissions Reducer was cleaned by the California Yellow Cab Head Technician during emissions testing and a second emissions test revealed an immediate decrease in hydrocarbons (HC) of 54 points or 11.76%.

| Mileage (Baseline - Pre SER) | Mileage (Emissions Test with SER) | Total Mileage |
|------------------------------|-----------------------------------|---------------|
| 363,487 | 374,233 | 10,746 |

| Emissions | Emissions Baseline Test (Before SER Installed) 8.10.12 | Emissions Test (120 days with SER) 12.12.12 | Emissions Results (difference) | Percentage Change | Emissions Test (2nd Cleaning - 120 day Emission Test) 12.12.12 | Emissions Results (difference from 1st 12.12.12 test) | Percentage Change |
|-----------|--|---|--------------------------------|-------------------|--|---|-------------------|
| NOx | 169 | 17 | -152 | -89.94% | 18 | | |
| CO | 0.07 | 0.04 | -0.03 | -42.86% | 0.05 | | |
| HC | 148 | 459 | +311 | +210.14% | 405 | -54 | -11.76% |
| CO2 | 12.2 | 10.2 | -2.0 | -16.39% | 10.2 | | |
| O2 | 4.35 | 7.06 | +2.71 | +62.30% | 7.11 | | |

| MPG Average (w/o SER) | MPG Average (w/ SER) |
|-----------------------|----------------------|
| 15 | 17.8 |

+2.8 miles per gallon
+15.73% increase in fuel efficiency

| | | | |
|---|--------------------|---|-------------------|
| 2006 Ford Crown Victoria Tank Capacity: | 19 gallons | Average Fuel Savings with SER during 4 Month Trial: Calculation: (53.2 x 4 months) x \$4.028 | \$857.16 |
| 2012 Average Fuel Cost in California: | \$4.028 | Total Cost of InterCharger/SMART Emissions Reducer Unit: | \$504 installed |
| Increase of MPG with SER: | 2.8 gallons | Net Profit/Loss after the 4 month Trial: | + \$353.16 |
| Average MPG Range on a 19 gallon Tank without the SER: (15 mpg x 19 gallon tank) | 285 miles | Average Return on Investment (ROI): | 2.35 months |

| | | | |
|---|-------------------|---|-------------------|
| 2006 Ford Crown Victoria Tank Capacity: | 19 gallons | Average Fuel Savings with SER during 4 Month Trial: Calculation: (53.2 x 4 months) x \$4.028 | \$857.16 |
| Average MPG Range on a 19 gallon Tank with the SER: (17.8 mpg x 19 gallon tank) | 338.2 miles | Average Fuel Savings with SER per month: ($\$857.16 / 4 \text{ months} = \214.29) | \$214.29 |
| Increase of Milage per Tank with SER: (338.2 - 304) | 53.2 miles | Projected Annual Average Fuel Savings with SER: ($\$214.29 \times 12 \text{ months}$) | \$2,571.48 |

Summary

Four months (120 days) of testing validates that the product, the SMART Emissions Reducer, not only significantly reduces the toxic harmful emissions levels that are omitted into the environment, but the product also offers a return on investment in the form of saving valuable resources on fuel cost. SMART Air Fuel Saver of California suggests taking these points into consideration when making a decision about purchasing the SMART Emissions Reducer it has tested for the last four months:

The SMART Emissions Reducer effectively reduces emissions and is first and foremost an emissions control device. Due to its form and functionality, it has the ability to increase fuel economy. It increases combustion efficiencies and addresses emissions on the combustion side of the engine, unlike all other emissions control devices that mitigate the issue after the fact of the fuel being burned.

The device improved the quality of health, by improving the quality of the air. The lowering or elimination of emissions provides a cleaner work environment for the mechanics, therefore improving air quality conditions for workers exposed to those conditions which potentially may save the company in healthcare costs.

The SMART Emissions Reducers pay for themselves. The Return On Investment (ROI) in fuel savings occurs at approximately a 2 to 12 month period of time allowing for fuel savings where the other vehicle units are already paid for even before a purchase has been made. Based on the fuel economy results for three of California Yellow Cab's vehicles (2 gasoline and 1 CNG), the average Return on Investment (ROI) for California Yellow Cab shows a 2.85 month average.

There is a return on investment on emissions compliance, fees and fines, as well as retrofitting vehicles to CNG conversion (\$10,000/vehicle), the purchase of new "hybrid" vehicles *\$26,000 - \$40,000/vehicle) or new vehicles with a CNG conversion (\$40,000-50,000/vehicle) that is not factored into the overall Return on Investment (ROI) provided here in this report to California Yellow Cab.

The Return On Investment figures in this report are only from the fuel cost savings while using the SMART Emissions Reducer. Actual Return on Investment may be higher due to, including but not limited to, emissions compliance, fees and fines, CNG vehicle conversions, healthcare costs and vehicle maintenance.

I hereby certify that the information that has been supplied herein this report is truthful and accurate to the best of my ability and true to the data provided to me by the SMART Air Fuel Saver of California Representative(s), the Extreme Energy Solutions Technicians and California Yellow Cab Representatives and Reports. I understand that I am presenting this information in good standing and an attempt to inflate or manipulate data is an unlawful act to cause or do harm to the integrity of the people, punishable and enforceable under the color of the law. As Vice President, I sign this report that I am in healthy state of mind to do so.

01.29.13

Martha Sweeney
Vice President of SMART Air Fuel Saver of California
Deputy Administrator and SER Department Head of SMART Air Fuel Saver LLC

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