

UNITED STATES MARINE CORPS
 Company C
 7th Motor Transport Battalion
 Box 555687
 Camp Pendleton, CA 92055-5687

4790
 AA1
 02 JULY 98

OPERATION RENTAR FUEL CATALYST TESTING

1) OPERATIONAL REQUIREMENTS

- 2) M998 HMMWV
- 2) M923 5-Ton (Automatic Transmission)
- 2) MK48/14 LVS
- 1) MK48/16 LVS w/870 Trailers
- 2) MK48/18 LVS
- 1) MK48/15 LVS Wrecker
- 1) Operator and A-Driver per vehicle

2) OPERATIONAL OVERVIEW

The purpose of the operation was to conduct a test on the overall performance increase from the installation of the Rentar Fuel Catalyst. The operation was to be conducted in three phases.

On June 24, 1997, it was jointly decided by the USMC Coordinator, 2nd Lt. Sanders and Major Kelleher, and Worldstar Products & Services to extend the test to include a 4th Phase. This phase would make a final test which was agreed upon by USMC Coordinator and Worldstar Products & Services Coordinator, in the coming months. The Rentar was left on each vehicle during this extended time for evaluation.

This report reflects a recap of the first three phases and the findings of the 4th and final phase. This final report is being conducted on the only vehicles available at this time. Some vehicles have been traded out, or are no longer in operation, or are in the maintenance shop for repair.

The following is a description of each phase as known to me.

PHASE 1 was conducted to provide a baseline with which to evaluate the increased performance provided by the installation of the Rentar Fuel Catalyst. This was done by conducting a series of three different tests.

The first test consisted of a convoy of the vehicles in Enclosure 1 to Cabazon and back. This test measured fuel consumption and vehicle performance during an extended road march.

The second test consisted of measuring the emissions of the vehicles in Enclosure 1 when the vehicle was under stress, i.e. climbing a steep grade. For the purpose of this operation this test was called the "Under Load Opacity Test." The vehicle was required to climb a designated grade (65-degree incline) three times in a row. Each time the density of the exhaust was measured and recorded.

The third test involved measuring the density of the exhaust, and was similar to the Base Emissions Testing. This test is called the "Snap-Idle Test." It was conducted by maintaining a constant engine RPM while the vehicle was stationary. The operator accelerated the vehicle to 100% of maximum RPM, and the density of the exhaust was measured and recorded. This test was conducted three times in a row.

PHASE 2 of the operation involved the installation of the Rentar Fuel Catalyst on the vehicles in Enclosure 1. This Phase was conducted by Maintenance with the assistance of the Worldstar Products & Services Representatives. It was also necessary to put a minimum of 20 hours of road time on the vehicles that had the Rentar Fuel Catalyst installed. This was to insure that the Rentar Fuel Catalyst had cleaned out the fuel system adequately to provide an accurate indicator of increased performance.

PHASE 3 of the operation was conducted by performing the three previous tests again with the same vehicles, under the same conditions, and with the same operators in order to determine the percentage increases from the installation of the Rentar Fuel Catalyst.

3) OPERATIONAL TIME LINE: (flexible)

Thursday 15 May: Preload vehicles for convoy to Cabazon.

1300 Friday 16 May: Top off fuel on vehicles, and get accurate measurement of the fuel each vehicle contains, to the tenth of a gallon.

1400-1630 Friday 16 May: Convoy and Worldstar Briefs

0600 Monday 19 May: Formation

0700 Monday 19 May: Convoy Departs 7th MTBN

1000-1100 Monday 19 May: Convoy Arrives Cabazon

1130-1200 Monday 19 May: Convoy Departs Cabazon

1500-1600 Monday 19 May: Convoy Arrives 7th MTBN (refuel & record)

0800 Tuesday 20 May: Convoy Departs Motor Pool for Under-Load Opacity Test and Snap-Idle Test.

1300 Tuesday 20 May: Vehicles to Maintenance to begin Installation Process.

21-23 May: Installation of Fuel Catalyst

23-28 May: Break-in period for the Fuel Catalyst

0700 Thursday 29 May: Convoy Departs for Cabazon

1000-1100 Thursday 29 May: Convoy Arrives Cabazon

1130-1200 Thursday 29 May: Convoy Departs Cabazon

1500-1600 Thursday 29 May: Convoy Arrives 7th MTBN (refuel & record)

0800 Friday 30 May: Convoy Departs Motor Pool for Under-Load Opacity Test and Snap-Idle Test.

1300 Monday 2 June: Debrief Operation

PHASE 4 of the operation was conducted by performing the three previous tests again with the same vehicles, under the same conditions, and with as many of the same operators as possible in order to determine the percentage increases from the installation of the Rentar Fuel Catalyst.

4) OPERATIONAL TIME LINE: (flexible)

Monday 29 June: Preload vehicles for convoy to Cabazon.

0830 Monday 29 June: Convoy and Worldstar Briefs

1030 Monday 29 June: Top off fuel on vehicles, and get accurate measurement of the fuel each vehicle contains, to the tenth of a gallon.

0630 Tuesday 30 June: Formation

0730 Tuesday 30 June: Convoy Departs 7th MTBN

0930-1000 Tuesday 30 June: Convoy Arrives Cabazon

1030-1100 Tuesday 30 June: Convoy Departs Cabazon

1200-1300 Tuesday 30 June: Convoy Arrives Turnaround Point (Hwy 79)

1400-1430 Tuesday 30 June: Convoy Arrives Cabazon

1630-1730 Tuesday 30 June: Convoy Arrives 7th MTBN (refuel & record)

0900-0930 Wednesday 01 July: Convoy Departs Motor Pool for Under-Load Opacity Test and Snap-Idle Test.

1200-1300 Wednesday 01 July: Convoy Arrives 7th MTBN

1300-1330 Wednesday 01 July: Review of all Paper Work

1430-1530 Wednesday 01 July : Debrief Operation

IN SUMMARY

The data accumulated during the test period, under extremely tight guidelines, show very good reductions in opacity and emission odors, as well as showing a significant increase in vehicle performance and MPG.

The individual reports given by the drivers were very positive. These reports can be found on the back of each Rentar Fuel Catalyst test form provided in this report. The data accumulated during this 14-month test appears to support the claims by the manufacturer of the Rentar.

I am forwarding this report, in its entirety, to Lynn Torres, Naval Facilities Engineering Service Center (NFESC), Fort Wynnem, CA., Gunnery Sgt. Jackson, Program Manager CSLE, MARCOR SYSCOM, Quantico, VA 22134 and Worldstar products & Services.

The Marines involved in this test performed to the highest standards and were very focused.



A.A. ILASIN
SSGT
TEST COORDINATOR

RENTAR FUEL CATALYST TEST SUMMARY

**CAMP PENLETON
USMC 7th MOTOR TRANSPORTATION BATTALION "CHARLIE COMPANY"**

SSGT ILASIN "USMC" COORDINATOR
TEST TYPE: CONTROLLED LOOP

JUNE 29 - JULY 1, 1998

NUMBER OF VEHICLES/MILES = 4/321.7

VEHICLE INFORMATION		BASE-LINE TEST		RENTAR CATALYST TEST INTERMEDIATE		RENTAR CATALYST TEST FINAL JUNE 29, 30 & JULY 1		% OF CHANGE	
VEHICLE #	TYPE ENGINE	MPG	OPACITY SNAP LOAD	MPG	OPACITY SNAP LOAD	MPG	OPACITY SNAP LOAD	MPG	OPACITY SNAP LOAD
544684	M998-HMMV AM GEN	14.5	36.7 24.7	15.1	NOT PERFORMED	13.96	14.3 15.0	D 3.72	-61 -39
517959	M923-5-TON CUM-250	7.1	13.3 15.7	7.9	14.3 16.6	10.26	10.6 9.3	U 44.5	-20 -41
532264	M923-5-TON CUM-250	10.3	8.3 5.7	9.4	7.0 3.7	11.3	8.3 5.7	U 10.0	0 0
566859/580173	MK48/16 LVS DDA-8V92	3.7	19.0 33.7	NOT PERFORMED		7.56	23.7 33	U 104.0	+19.5 -99
560565	M998-HMMV AM GEN	15.4	39.0 7.3	NOT PERFORMED					
563216/563759	MK48/14 LVS DDA-8V92	COMBAT DEADLINE AFTER INTERMEDIATE TEST							
582554	M998-HMMV AM GEN	EXCHANGED 1 FOR 1 TO MSSG11 AFTER INTERMEDIATE TEST							
530095	M923-5-TON CUM-250	EXCHANGED 1 FOR 1 TO MSSG15 AFTER INTERMEDIATE TEST							
517807	M923-5-TON CUM-250	DROP TO MSSG15 AFTER INTERMEDIATE TEST							
561147/560168	MK48/16 LVS DDA-8V92	CODE H AFTER INTERMEDIATE TEST							
561202/551410	MK48/18 LVS DDA-8V92	CODE H AFTER INTERMEDIATE TEST							
563566/561656	MK48/18 LVS DDA-8V92	COMBAT DEADLINE AFTER INTERMEDIATE TEST							
563245/561600	MK48/15 LVS DDA-8V92	NOT AVAILABLE AFTER INTERMEDIATE TEST							
FLEET TEST TOTALS:								AVERAGE BENEFITS = U 38.7 15.4 -44.8	

*** " " MEANS SMOKE OPACITY WENT DOWN THIS PERCENTAGE FROM BASE-LINE (GOOD READING)
 " + " MEANS SMOKE OPACITY WENT UP THIS PERCENTAGE FROM BASE-LINE (BAD READING)
 " 0 " INDICATES AN INCREASE IN FUEL ECONOMY (GOOD READING)
 " D " INDICATES A DECREASE IN FUEL ECONOMY (BAD READING)

BASE-LINE VERIFICATION

FINAL VERIFICATION (RENTAR INSTALLED)

TESTING TECHNICIAN *[Signature]* DATE *28 July 98* TESTING TECHNICIAN *[Signature]* DATE *28 July 98*
 VERIFIED BY WPS *[Signature]* DATE *July 29, 1998* VERIFIED BY WPS *[Signature]* DATE *July 29, 1998*

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RE SUMMARY

The data accumulated during the test period, under extremely light pedaling, show very poor performance and ETC.

The individual reports about the drivers were very poor. The reports can be found on the back of each Radar File packet, use the file number in this report. This data was accumulated during this 15-month test period to support the claim by the manufacturer of the Radar.

I am forwarding this report, in its entirety, to Lynn Torres, Nevada Firearms Enforcement Section, Center (PSSS), Post 1000, Reno, Nevada, 89501, and to the Program Manager, CALIFORNIA, MANDOR STROON, Quantico, VA, 22134 and Virginia's sister, Savio.

The Machine involved in this test is a 1987 Ford, and the driver, just as every other...

[Handwritten Signature]
A.A. LASH
TEST COORDINATOR

UNITED STATES MARINE CORPS
3rd Marine Amphibious Brigade
Camp Pendleton, CA 93505-5007

OPERATIONAL PERFORMANCE

- 1) Model 1000
- 2) Model 1000
- 3) Model 1000
- 4) Model 1000
- 5) Model 1000

In the course of this operation, a total of 1000 tests were conducted. The test results were as follows: 1) Model 1000, 2) Model 1000, 3) Model 1000, 4) Model 1000, 5) Model 1000.

AGE 1 was completed pursuant to a baseline test which was conducted to establish the accuracy of the system. The test results were as follows: 1) Model 1000, 2) Model 1000, 3) Model 1000, 4) Model 1000, 5) Model 1000.

TABLE 1: SUMMARY OF TEST RESULTS

TEST TYPE	NO. OF TESTS	NO. OF FAILURES	PERCENTAGE FAILURES	REMARKS
1. MODEL 1000	1000	100	10%	
2. MODEL 1000	1000	100	10%	
3. MODEL 1000	1000	100	10%	
4. MODEL 1000	1000	100	10%	
5. MODEL 1000	1000	100	10%	

AGE 1 was completed pursuant to a baseline test which was conducted to establish the accuracy of the system. The test results were as follows: 1) Model 1000, 2) Model 1000, 3) Model 1000, 4) Model 1000, 5) Model 1000.



