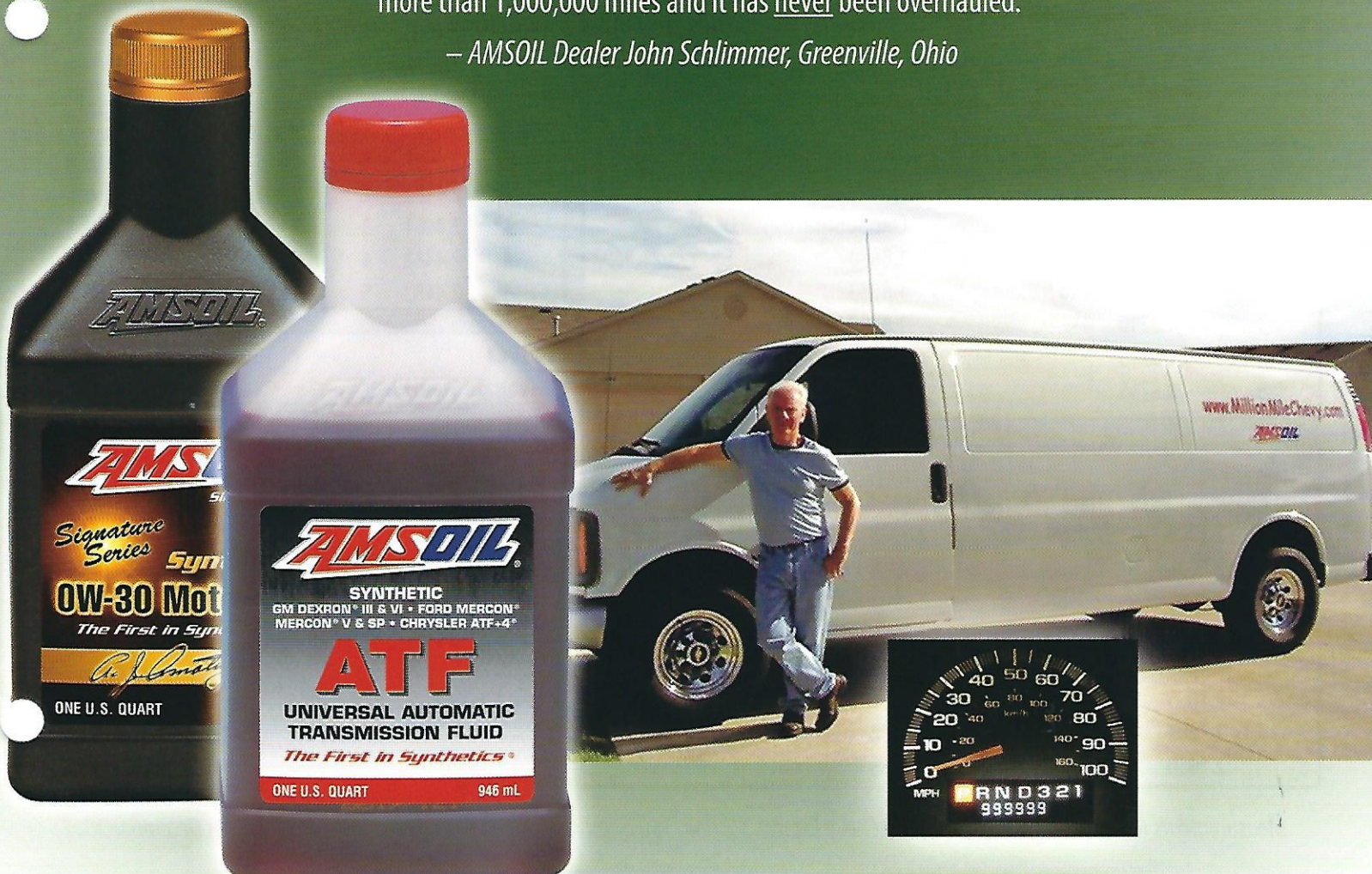
AMSOIL®

The First in Synthetics®

930,599 Mile Engine
1 Million Mile Van

"I've driven my 1999 Chevy van more than 1 million miles. I installed AMSOIL synthetic 0W-30 motor oil in the engine at 68,250 miles and at 68,745 miles installed AMSOIL lubes throughout the drive train. The original 350 gasoline engine was replaced in the fall of 2007... at 930,599 miles after a valve keeper in the engine wore out. It still has the original transmission with more than 1,000,000 miles and it has never been overhauled."

– AMSOIL Dealer John Schlimmer, Greenville, Ohio



Delivery Driver Tests AMSOIL

AMSOIL Dealer John Schlimmer of Greenville, Ohio drives a 1999 Chevy G-3500 Express delivery van over the road between 110,000 to 120,000 miles a year. When Schlimmer learned about AMSOIL synthetic motor oils and lubricants in 2000, he installed AMSOIL products throughout the vehicle's drive train.

He first installed AMSOIL 0W-30 Synthetic Motor Oil and went from changing his oil every two weeks to once every three months. He also installed an AMSOIL oil filter, AMSOIL Multi-Purpose Synthetic Grease, Automatic Transmission Fluid, and AMSOIL 75W-90 Synthetic Gear Oil in the vehicle's differential. Schlimmer drove the van until October 2007, when a valve keeper broke on the 5.7 liter, 350 gasoline engine. Schlimmer said the actual mileage on the engine did not factor in more than 6,000 hours of idle time. It had 930,599 miles on it.

Schlimmer sent the engine to AMSOIL INC. for analysis. Analysis showed that a valve keeper had worn out, causing the valve to become wedged in the chamber. The problem with the engine was not oil related. Measurements taken against manufacturer's specifications indicated the engine was still in useable condition. In each of five categories, the engine tested within 1 percent of manufacturer's original specifications for the engine. (See chart below)

Schlimmer replaced the engine and continues to drive the van with the original transmission with more than 1 million miles of service.

Cylinder and Piston Area

Cylinder Measurements				Piston Diameter		
Piston #	Top	Bottom	OEM	Piston #		
1	4.0015	4.0015	4.0007 to 4.0017	1	3.9978	0.99%
2	4.0015	4.0015	0.99%	2	3.9975	
3	4.0020	4.0010		3	3.9982	
4	4.0020	4.0010	1%	4	3.9980	
5	4.0020	4.0010		5	3.9980	
6	4.0020	4.0010		6	3.9963	
7	4.0020	4.0010		7	3.9980	
8	4.0020	4.0020		8	3.9970	

Camshaft

CAM BEARINGS		OEM	Cam Journal (all)	OEM
1	1.8712	1.8677 to 1.8697	1.8680	1.8677 to 1.8697
2	1.8710	1 to 5 thousandths	1.8680	0.99%
3	1.8710	1%	1.8680	
4	1.8715		1.8680	
5	1.8715		1.8680	

Rods

Rod Bearings - Bore	Top	Rod Bearings - Crank		
1	2.1000	2.0988	1	2.0988	OEM 2.0990 to 2.1000
2	2.1008	2.0988	2	2.0988	1%
3	2.1005	2.0988	3	2.0988	
4	2.1005	2.0988	4	2.0988	
5	2.1005	2.0988	5	2.0988	
6	2.1005	2.0988	6	2.0988	
7	2.1005	2.0988	7	2.0988	
8	2.1010	2.0988	8	2.0988	

Crankshaft Area

Main Bearing Bore Diameter Inside			
1	2.4505	OEM 2.4484 to 2.4493	
2	2.4510		1%
3	2.4505		
4	2.4505		
5	2.4490		

Thust Width (Main Bearing)	OEM Crank Thust Width 1.710	
1.7168	OEM 1.710 to 1.722	
1.7205		1%

Crank Journal Mains		OEM	.0009 to .0024 oil clearance	
1	2.4482	1	2.4483-2.4493	0.99%
2	2.4482	2	2.4483-2.4493	
3	2.4481	3	2.4483-2.4493	
4	2.4481	4	2.4483-2.4493	
5	2.4482	5	2.4478-2.4480	1%

Valves

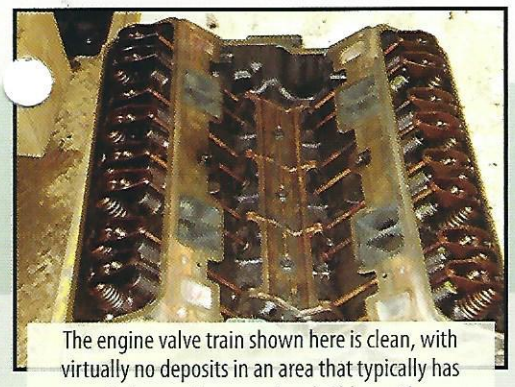
Valvetrain Stem Wear		Valve Stems Are Worn
Intake	0.344	1%
Intake OEM	0.3415	
Exhaust	0.3445	
Exhaust OEM	0.341	1.01%

3-5 thousandths overall wear intake & exhaust

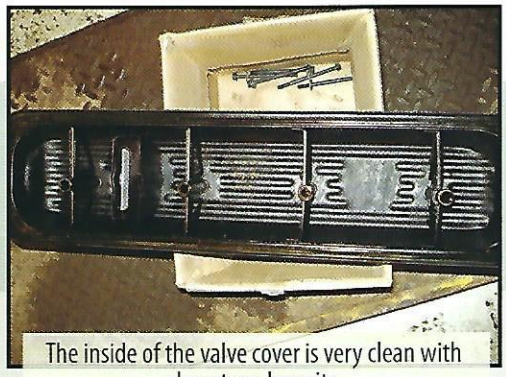
Rocker and Pivot Balls exhibit minimal wear.

Measurements taken during analysis of 1999 Chevy Express 5.7 liter, 350 gasoline engine by an independent machinist in December 2007.

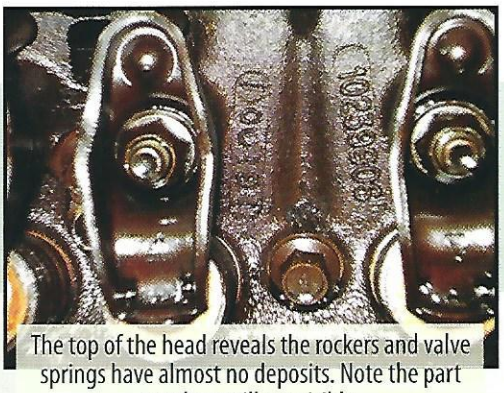
CHRONOLOGY OF ANALYSIS



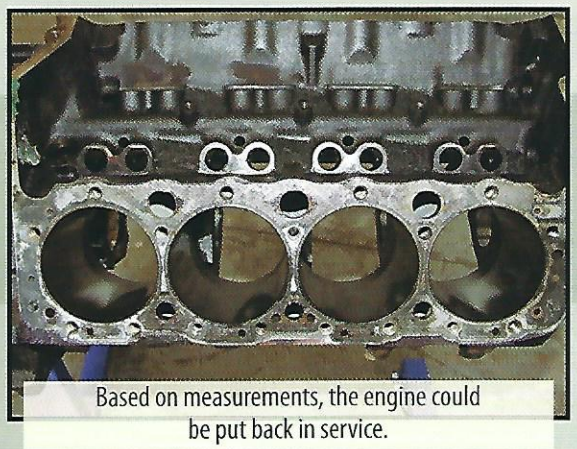
The engine valve train shown here is clean, with virtually no deposits in an area that typically has sludge and heavy carbon buildup with conventional motor oil.



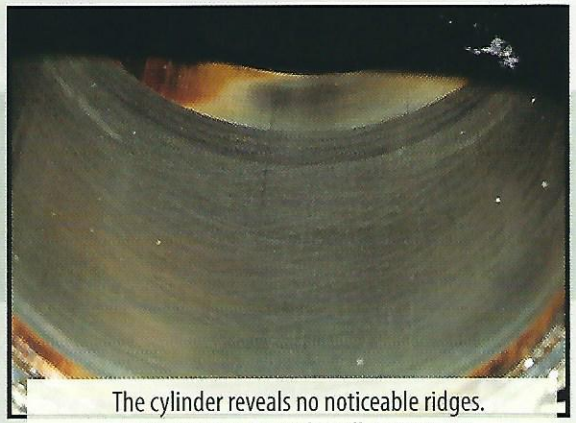
The inside of the valve cover is very clean with almost no deposits.



The top of the head reveals the rockers and valve springs have almost no deposits. Note the part numbers still are visible.

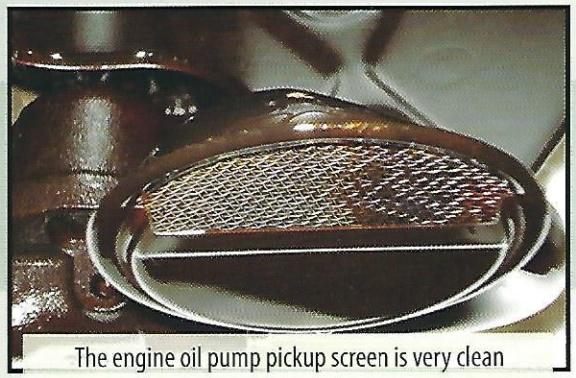


Based on measurements, the engine could be put back in service.

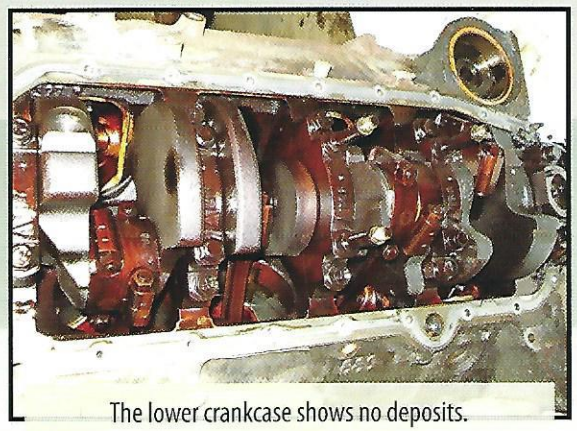


The cylinder reveals no noticeable ridges. Note crosshatch marks still are present.

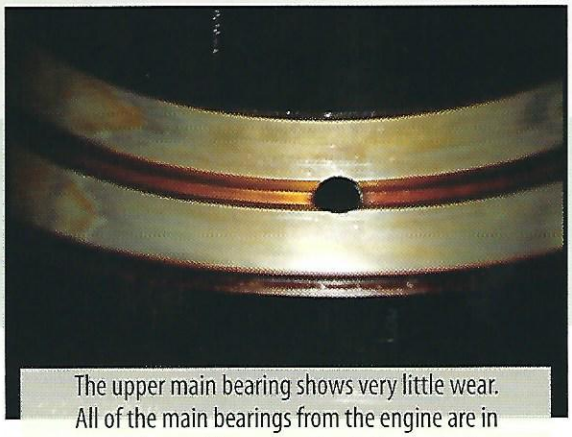
The uncleaned oil pan shows no sludge or heavy varnish.



The engine oil pump pickup screen is very clean and has no deposits.



The lower crankcase shows no deposits.



The upper main bearing shows very little wear. All of the main bearings from the engine are in useable condition, according to the analysis.

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