Report of the Month

What went wrong for this '07 Expedition's 5.4L V-8 engine? Take a look at the data, then read the caption below to see what happened.

To learn more about where the elements are coming from, click here.

ELEMENTS IN PARTS PER MILLION			UNIT/ LOCATION AVERAGES					UNIVERSAL AVERAGES
	MI/HR on Oil	6,000						
	MI/HR on Unit	121,922						
	Sample Date	01/07/13						
	ALUMINUM	4	4					3
	CHROME	5	5					1
	IRON	106	106					19
	COPPER	2	2					3
	LEAD	0	0					0
	TIN	3	3					1
	MO LYBDENUM	72	72					74
	NICKEL	1	1					1
	PO TASSIUM	2	2					2
	BORON	45	45					60
	SILICON	11	11					14
	SODIUM	9	9					54
	CALCIUM	1150	1150					2161
	MAGNESIUM	738	738					107
	PHOSPHORUS	730	730					713
	ZINC	744	744					812
	BARIUM	1	1					2

PROPERTIES			Values Should Be*				
	SUS Viscosity @210°F	52.3	48-57				
	cSt Viscosity @ 100°C	7.98	6.7-9.7				
	Flashpoint in °F	395	>355				
	Fuel %	<0.5	<2.0				
	Antifreeze %	0.0	0.0				
	Water %	0.0	0.0				
	Insolubles %	0.3	<0.6				
	TBN	2.7	>1.0				
	TAN						
	ISO Code						

*THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

Typically chrome and iron are from a ring/cylinder interface, but in this case a rocker arm went bad. According to the owner, it got so hot that it turned the steel around the roller bearing blue. "When it went bad," he said, "it started beating on the camshaft and scored a lobe," which led to the high iron. When he got the engine disassembled, the cam looked like someone had taken 80 grit sandpaper to it. He got it fixed at the dealer and while the dealer couldn't tell him why it happened, they did say they've seen it before and it's relatively rare but that it does happen. All's well that ends well: the engine now runs beautifully.