Report of the Month

This O-540 looked terrible after its overhaul. Why?

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

ELEMENTS IN PARTS PER MILLION								
	MI/HRon Oil	39	UNIT/ LOCATION AVERAGES	61	35	7	6	UNIVERSAL AVERAGES
	MI/HRon Unit	224		185	124	90	83	
	Sample Date	06/06/12		11/11/11	05/17/11	03/29/11	08/25/10	
	ALUMINUM	2	11	22	9	8	8	6
	CHROME	1	44	21	10	10	9	8
	IRON	21	81	141	39	45	89	27
	COPPER	3	22	69	28	14	11	7
	LEAD	3185	1902	4787	1864	918	762	2833
	TIN	0	2	0	0	0	0	1
	MOLYBDENUM	2	0	1	0	0	0	0
	NICKEL	1	2	4	1	1	1	2
	POTASSIUM	0	1	0	1	1	1	1
	BORON	0	1	2	1	0	1	0
	SILICON	3	6	7	5	4	4	6
	SODIUM	0	0	0	0	0	0	1
	CALCIUM	7	2	7	1	1	1	11
	MAGNESIUM	2	3	7	2	1	6	8
	PHOSPHORUS	0	1	0	0	0	0	695
	ZINC	1	2	14	2	1	1	6
	BARIUM	0	0	0	0	0	0	0

PROPERTIES		Values Should Be*					
	SUS Viscosity @210°F	92.4	86-105	87.4	86.0	72.3	69.7
	cSt Viscosity @100°C	18.55	17.0-21.8	17.35	17.01	13.56	12.88
	Flashpoint in °F	475	>460	535	470	485	495
	Fuel %	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
	Antifreeze %	-	-	-	-	-	-
	Water %	0.0	0.0	0.0	0.0	0.0	TR
	Insolubles %	0.4	<0.6	0.5	0.4	0.3	0.3
	TBN						
	TAN						
	ISO Code						

*THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

The original problem was an issue with the prop governor that spread metal throughout the engine, prompting the overhaul. Unfortunately, the oil sump had a cavity that was not obvious to see, and lots of metal had accumulated there. When the overhauler cleaned the metal out of the case, he missed the small cavity. The initial samples after the overhaul looked terrible. Then things seemed to improve, but the improvement wasn't real--metals just read lower because the oil was only run 6 and 7 hours. When they did longer runs in May and November, that's when the cavity full of metal really showed itself. They took the sump off and looked inside, and sure enough it was full of metal. After a thorough cleaning, the sump was put back in service and the next report was much better.