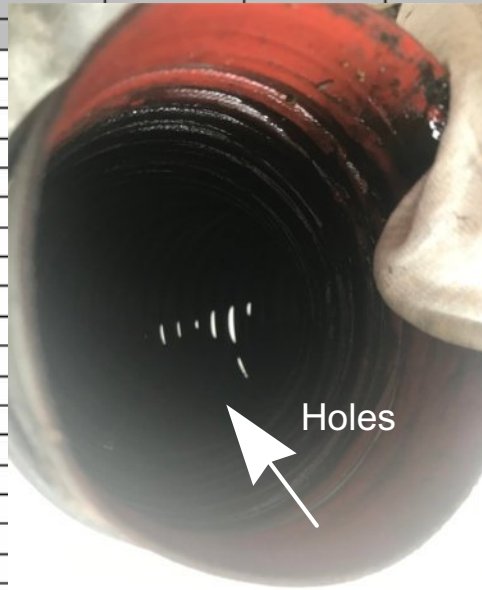


Report of the Month

The IO-360 engine in this Piper Arrow had a problem.
Can you tell what it was?

To learn more about where the elements are coming from, [click here](#).

ELEMENTS IN PARTS PER MILLION	MIHR on Oil	30	UNIT / LOCATION AVERAGES	52					UNIVERSAL AVERAGES
	MIHR on Unit	532		481					
	Sample Date	5/31/2020		1/30/2020					
	Make Up Oil Added	5 qts		9 qts					
	ALUMINUM	16	19	21					6
	CHROMIUM	7	10	13					4
	IRON	26	36	45					28
	COPPER	3	4	5					7
	LEAD	2893	3398	3902					4462
	TIN	1	3	4					1
	MOLYBDENUM	1	1	0					0
	NICKEL	1	2	2					2
	MANGANESE	0	0	0					0
	SILVER	0	0	0					0
	TITANIUM	0	0	0					0
	POTASSIUM	1	1	0					1
	BORON	0	1	1					1
	SILICON	15	22	29					5
	SODIUM	1	1	1					1
	CALCIUM	52	50	48					17
	MAGNESIUM	2	4	5					3
	PHOSPHORUS	186	117	48					536
	ZINC	4	7	9					4
	BARIUM	0	0	0					0



Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	94.2	86-105	76.7				
	cSt Viscosity @ 100°C	18.99	17.0-21.8	14.68				
	Flashpoint in °F	470	>430	455				
	Fuel %	<0.5	<1.0	<0.5				
	Anti freeze %	-		-				
	Water %	0.0	0.0	0.0				
	Insolubles %	0.2	<0.6	0.3				
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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The first sample was the owner's initial analysis after he bought the airplane. That sample indicated high silicon. he changed the air filter element and found some leaks in the filter housing, repairing everything he could find. That helped. But when he did the second sample, silicon had improved, but it was still elevated. And we were still seeing metal. At that point the owner pulled the SCEET air duct off. It's not easy to see in the picture, but the duct had many holes in the walls. That should take care of the lingering dirt contamination issues, and help improve wear quite a bit.