



OIL REPORT

LAB NUMBER: L88481

UNIT ID: N2085Q

REPORT DATE: 12/27/2019

CLIENT ID: 188576

CODE: 155/10

PAYMENT: Bulk Sub Account

UNIT

MAKE/MODEL: Lycoming IO-360-A1B6D

OIL TYPE & GRADE: Phillips XC (A/C) 20W/50

FUEL TYPE: Gasoline (Leaded)

OIL USE INTERVAL: 34 Hours

ADDITIONAL INFO: Cessna C 177RG, S/N: RL-20854-51A

CLIENT

GARY VANDYKE

PHONE: [REDACTED]

FAX:

ALT PHONE:

EMAIL: [REDACTED]

COMMENTS

GARY: We're hoping that some work was done on this engine recently, as that'd be the perfect explanation for the sudden jumps in metals in this sample. If that's not applicable, there may be a problem here. Aluminum, chrome, and iron show piston, ring, and steel wear. Copper comes from brass/bronze wear. This could even be enough chrome to show a ring problem, and that copper might be from a piston pin plug. Look for metal in the oil filter, and check compressions. Silicon could be dirt -- check for air intake leaks too. If this is wear-in, then we'll look for progress ahead.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	34	UNIT / LOCATION AVERAGES	30	5	5	6	5	UNIVERSAL AVERAGES
	MI/HR on Unit	1,141		1,006	622	604	575	568	
	Sample Date	9/15/2019		6/24/2017	10/8/2012	10/29/2010	12/19/2007	12/19/2006	
	Make Up Oil Added	3 qts		5 qt					
	ALUMINUM	32	3	12	2	2	1	1	6
	CHROMIUM	64	2	35	2	2	2	2	3
	IRON	43	12	26	9	6	10	9	22
	COPPER	19	4	3	3	3	3	2	6
	LEAD	1921	1385	3468	798	651	522	498	3478
	TIN	1	1	0	0	1	2	0	1
	MOLYBDENUM	0	0	0	0	0	0	0	0
	NICKEL	1	0	1	0	0	0	0	2
	MANGANESE	1	0	0	0	0	0	0	0
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	0
	POTASSIUM	0	0	1	0	0	1	0	1
	BORON	2	0	0	1	0	0	0	1
	SILICON	23	6	4	9	7	9	5	5
	SODIUM	1	0	2	1	0	0	1	1
	CALCIUM	64	0	69	0	0	0	0	26
	MAGNESIUM	1	0	2	0	0	0	0	1
	PHOSPHORUS	36	102	75	137	116	118	1	608
	ZINC	4	6	4	2	0	1	2	3
	BARIUM	0	0	0	0	0	0	0	0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	87.4	86.105	100.8	86.2	88.3	88.8	90.9
	cSt Viscosity @ 100°C	17.34	17.0-21.8	20.55	17.05	17.57	17.68	18.19
	Flashpoint in °F	445	430	430	490	510	500	450
	Fuel %	<0.5	<1.0	TR	<0.5	<0.5	<0.5	0.5
	Antifreeze %							
	Water %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	0.5	0.6	0.4	0.4	0.2	0.3	0.3
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE



OIL REPORT

LAB NUMBER: N89604

UNIT ID: N2085Q

REPORT DATE: 9/27/2021

CLIENT ID: 188576

CODE: 155/10

PAYMENT: Bulk Sub Account

UNIT

MAKE/MODEL: Lycoming IO-360-A1B6D

OIL TYPE & GRADE: Phillips XC (A/C) 20W/50

FUEL TYPE: Gasoline (Leaded)

OIL USE INTERVAL: 68 Hours

ADDITIONAL INFO: Cessna C 177RG, S/N: RL-20854-51A

CLIENT

GARY VANDYKE

PHONE: [REDACTED]

FAX: [REDACTED]

ALT PHONE: [REDACTED]

EMAIL: [REDACTED]

COMMENTS

Notes included with this sample state the #2 cylinder was replaced 74.1 hours ago with an overhauled unit. There was also a note about the oil fill tube leaking at the base and that was fixed at this oil change. A lot of excess wear showed up. Considering the recent work and long oil run, we would not have automatically suspected a major problem because some of the high wear could have been from break-in, and long oil runs will cause more metal to show up naturally. Since we suggested checking for oil filter metal in 2019, we would have likely done the same here.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	68	UNIT / LOCATION AVERAGES	34	30	5	5	6	UNIVERSAL AVERAGES
	MI/HR on Unit	1,217		1,141	1,006	622	604	575	
	Sample Date	9/9/2021		9/15/2019	6/24/2017	10/8/2012	10/29/2010	12/19/2007	
	Make Up Oil Added	10 qts		3 qt	5 qt				
	ALUMINUM	23	3	32	12	2	2	1	6
	CHROMIUM	61	2	64	35	2	2	2	3
	IRON	148	12	43	26	9	6	10	22
	COPPER	35	4	19	3	3	3	3	6
	LEAD	3606	1385	1921	3468	798	651	522	3478
	TIN	2	1	1	0	0	1	2	1
	MOLYBDENUM	2	0	0	0	0	0	0	0
	NICKEL	5	0	1	1	0	0	0	2
	MANGANESE	2	0	1	0	0	0	0	0
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	0
	POTASSIUM	0	0	0	1	0	0	1	1
	BORON	0	0	2	0	1	0	0	1
	SILICON	10	6	23	4	9	7	9	5
	SODIUM	2	0	1	2	1	0	0	1
	CALCIUM	40	0	64	69	0	0	0	26
	MAGNESIUM	0	0	1	2	0	0	0	1
	PHOSPHORUS	28	102	36	75	137	116	118	608
	ZINC	4	6	4	4	2	0	1	3
	BARIUM	0	0	0	0	0	0	0	0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	99.3	86.105	87.4	100.8	86.2	88.3	88.8
	cSt Viscosity @ 100°C	20.20	17.0-21.8	17.34	20.55	17.05	17.57	17.68
	Flashpoint in °F	455	430	445	430	490	510	500
	Fuel %	<0.5	<1.0	<0.5	TR	<0.5	<0.5	<0.5
	Antifreeze %							
	Water %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	0.4	0.6	0.5	0.4	0.4	0.2	0.3
	TBN							
	TAN							
	ISO Code							

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