



OIL REPORT

LAB NUMBER: P44659

UNIT ID: N711XL

REPORT DATE: 2/25/2022

CLIENT ID: 130969

CODE: 80/68

PAYMENT: Verbal, Cole

UNIT	MAKE/MODEL: Continental TSIO-550-C	OIL TYPE & GRADE: Aeroshell 15W/50
	FUEL TYPE: Gasoline (Leaded)	OIL USE INTERVAL: 35 Hours
	ADDITIONAL INFO: Piper PA46-310P, S/N: 802509	

CLIENT	COLE GIVENS	PHONE: (470) 205-3434
	SOUTHERN AIR GROUP	FAX:
	15200 AIRPORT ROAD	ALT PHONE:
	OXFORD, GA 30054	EMAIL: cgivens@southernairgroup.com, sgivens@southernairgroup.com,

COMMENTS	COLE: Wear metals look great in N711XL's first sample. Compare to universal averages, which show typical wear for a TSIO-550-C with about 30 hours on the oil. After a similar interval on this oil, chrome (rings), iron (steel parts), and nickel (exhaust valve guides) are uncommonly low. Below-average wear isn't anything we'd complain about, that's for sure. It looks like this engine is being well cared for. The oil's viscosity tested a little low, but not as a result of fuel dilution, so it's more of a curiosity than a concern. Hopefully reports like this one will be the norm for this Piper.
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ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	35	UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Unit	1,380							
	Sample Date	2/3/2022							
	Make Up Oil Added								
	ALUMINUM	11	11						9
	CHROMIUM	8	8						18
	IRON	53	53						81
	COPPER	5	5						7
	LEAD	4663	4663						5883
	TIN	1	1						1
	MOLYBDENUM	4	4						6
	NICKEL	7	7						25
	MANGANESE	1	1						1
	SILVER	0	0						0
	TITANIUM	0	0						1
	POTASSIUM	0	0						1
	BORON	0	0						1
	SILICON	4	4						8
	SODIUM	1	1						1
	CALCIUM	115	115						29
	MAGNESIUM	1	1						1
	PHOSPHORUS	1165	1165						442
	ZINC	9	9						8
	BARIUM	0	0						0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	80.9	82-105					
	cSt Viscosity @ 100°C	15.75	16.0-21.8					
	Flashpoint in °F	480	>440					
	Fuel %	<0.5	<1.0					
	Antifreeze %	-						
	Water %	0.0	0.0					
	Insolubles %	0.3	<0.6					
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com



OIL REPORT

LAB NUMBER: P83932
REPORT DATE: 6/14/2022
CODE: 80/68

UNIT ID: N711XL
CLIENT ID: 130969
PAYMENT: Verbal, Cole

UNIT	MAKE/MODEL: Continental TSIO-550-C	OIL TYPE & GRADE: Aeroshell 15W/50
	FUEL TYPE: Gasoline (Leaded)	OIL USE INTERVAL: 37 Hours
	ADDITIONAL INFO: Piper PA46-310P, S/N: 802509	

CLIENT	COLE GIVENS	PHONE: (470) 205-3434
	SOUTHERN AIR GROUP	FAX:
	15200 AIRPORT ROAD	ALT PHONE:
	OXFORD, GA 30054	EMAIL: cgivens@southernairgroup.com, sgivens@southernairgroup.com,

COMMENTS	COLE: Aluminum is a little high this time. It typically shows piston wear so watch temps carefully during the next run. Aluminum sometimes shows corrosion, but this plane got plenty of use over the last few months so corrosion shouldn't be a factor. Check for oil filter metal too, just in case the jump in aluminum shows a developing issue. All else held steady. There isn't any other indication of excess wear, so overall, this is still a nice report. The viscosity is a little low again, but not because of excess fuel dilution. Check back at the next service to see how aluminum trends.
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ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	37	UNIT / LOCATION AVERAGES	35					UNIVERSAL AVERAGES
	MI/HR on Unit	1,418		1,380					
	Sample Date	5/23/2022		2/3/2022					
	Make Up Oil Added								
	ALUMINUM	20	16	11					9
	CHROMIUM	8	8	8					17
	IRON	55	54	53					81
	COPPER	4	5	5					7
	LEAD	5323	4993	4663					5782
	TIN	0	1	1					1
	MOLYBDENUM	3	4	4					6
	NICKEL	8	8	7					24
	MANGANESE	1	1	1					1
	SILVER	0	0	0					0
	TITANIUM	0	0	0					1
	POTASSIUM	0	0	0					1
	BORON	2	1	0					1
	SILICON	4	4	4					8
	SODIUM	3	2	1					1
	CALCIUM	116	116	115					30
	MAGNESIUM	1	1	1					1
	PHOSPHORUS	1320	1243	1165					412
	ZINC	9	9	9					8
	BARIUM	0	0	0					0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	81.7	82-105	80.9				
	cSt Viscosity @ 100°C	15.94	16.0-21.8	15.75				
	Flashpoint in °F	450	>440	480				
	Fuel %	<0.5	<1.0	<0.5				
	Antifreeze %	-		-				
	Water %	0.0	0.0	0.0				
	Insolubles %	0.4	<0.6	0.3				
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com



OIL REPORT

LAB NUMBER: Q14292

UNIT ID: N711XL

REPORT DATE: 9/2/2022

CLIENT ID: 130969

CODE: 80/68

PAYMENT: Verbal, Cole

UNIT	MAKE/MODEL: Continental TSIO-550-C	OIL TYPE & GRADE: Aeroshell 15W/50
	FUEL TYPE: Gasoline (Leaded)	OIL USE INTERVAL: 28 Hours
	ADDITIONAL INFO: Piper PA46-310P, S/N: 802509	

CLIENT	COLE GIVENS	PHONE: (470) 205-3434
	SOUTHERN AIR GROUP	FAX:
	15200 AIRPORT ROAD	ALT PHONE:
	OXFORD, GA 30054	EMAIL: cgivens@southernairgroup.com,
		sgivens@southernairgroup.com,

COMMENTS	COLE: Aluminum continues to climb. We can cross corrosion off as a possibility because this plane gets plenty of use to keep corrosion out of the picture, and that means aluminum probably shows excess wear. The increasing trend could show a developing issue. The good news is other metals look okay, so we aren't sold on that idea just yet. Watch temps carefully in case there's extra piston wear taking place, and make sure the oil filter is clean. The viscosity is low and a trace of fuel is harmless. Check back in 25-30 hours to see where aluminum goes. Hopefully it drops.
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ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	28	UNIT / LOCATION AVERAGES	37	35				
	MI/HR on Unit	1,446		1,418	1,380				
	Sample Date	8/2/2022		5/23/2022	2/3/2022				UNIVERSAL AVERAGES
	Make Up Oil Added								
	ALUMINUM	29	20	20	11				9
	CHROMIUM	6	7	8	8				17
	IRON	45	51	55	53				80
	COPPER	4	4	4	5				7
	LEAD	4797	4928	5323	4663				5773
	TIN	2	1	0	1				1
	MOLYBDENUM	3	3	3	4				6
	NICKEL	5	7	8	7				24
	MANGANESE	1	1	1	1				1
	SILVER	0	0	0	0				0
	TITANIUM	0	0	0	0				1
	POTASSIUM	0	0	0	0				1
	BORON	1	1	2	0				1
	SILICON	3	4	4	4				8
	SODIUM	4	3	3	1				1
	CALCIUM	118	116	116	115				30
	MAGNESIUM	1	1	1	1				1
	PHOSPHORUS	1241	1242	1320	1165				407
	ZINC	9	9	9	9				8
	BARIUM	0	0	0	0				0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	78.6	82-105	81.7	80.9			
	cSt Viscosity @ 100°C	15.18	16.0-21.8	15.94	15.75			
	Flashpoint in °F	440	>440	450	480			
	Fuel %	TR	<1.0	<0.5	<0.5			
	Antifreeze %	-		-	-			
	Water %	0.0	0.0	0.0	0.0			
	Insolubles %	0.2	<0.6	0.4	0.3			
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com



OIL REPORT

LAB NUMBER: R11648

UNIT ID: N711XL

REPORT DATE: 5/24/2023

CLIENT ID: 130969

CODE: 80/88

PAYMENT: Verbal, Cole

UNIT	MAKE/MODEL:	Continental TSIO-550-C	OIL TYPE & GRADE:	Aeroshell 15W/50
	FUEL TYPE:	Gasoline (Leaded)	OIL USE INTERVAL:	28 Hours
	ADDITIONAL INFO:	Piper PA46-310P, S/N: 802509		

CLIENT	COLE GIVENS	PHONE: (470) 205-3434
	SOUTHERN AIR GROUP	FAX:
	15200 AIRPORT ROAD	ALT PHONE:
	OXFORD, GA 30054	EMAIL: cgivens@southernairgroup.com,
		sgivens@southernairgroup.com,

COMMENTS	COLE: The viscosity is slightly low like before. It wasn't thinned by any measurable fuel dilution, and it didn't bother mechanical parts based on wear levels, so the viscosity isn't a concern. Aluminum is down to 12 ppm, and hopefully it stays around this level as trends continue. Other metals are trending favorably, and there isn't an excessive amount of lead from 100LL blow-by. No moisture contamination was detected, and low insolubles show excellent oil filtration. Nice report!
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ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	28	UNIT / LOCATION AVERAGES	28	37	35	UNIVERSAL AVERAGES
	MI/HR on Unit	1,508		1,446	1,418	1,380	
	Sample Date	5/2/2023		8/2/2022	5/23/2022	2/3/2022	
	Make Up Oil Added						
ALUMINUM	12	15	29	20	11		8
CHROMIUM	5	13	6	8	8		17
IRON	36	65	45	55	53		79
COPPER	5	7	4	4	5		7
LEAD	4590	5344	4797	5323	4663		5729
TIN	1	1	2	0	1		1
MOLYBDENUM	2	6	3	3	4		6
NICKEL	7	30	5	8	7		24
MANGANESE	1	1	1	1	1		1
SILVER	0	0	0	0	0		0
TITANIUM	0	1	0	0	0		1
POTASSIUM	0	0	0	0	0		0
BORON	1	1	1	2	0		1
SILICON	3	6	3	4	4		8
SODIUM	4	2	4	3	1		1
CALCIUM	102	65	118	116	115		30
MAGNESIUM	1	1	1	1	1		1
PHOSPHORUS	1280	751	1241	1320	1165		394
ZINC	7	8	9	9	9		7
BARIUM	0	0	0	0	0		0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	81.1	82-105	78.6	81.7	80.9	
	cSt Viscosity @ 100°C	15.81	16.0-21.8	15.18	15.94	15.75	
	Flashpoint in °F	475	>440	440	450	480	
	Fuel %	<0.5	<1.0	TR	<0.5	<0.5	
	Antifreeze %	-		-	-	-	
	Water %	0.0	0.0	0.0	0.0	0.0	
	Insolubles %	0.2	<0.6	0.2	0.4	0.3	
	TBN						
	TAN						
	ISO Code						

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com



OIL REPORT

LAB NUMBER: R56289

UNIT ID: N711XL

REPORT DATE: 9/14/2023

CLIENT ID: 130969

CODE: 80/88

PAYMENT: Verbal, Cole

UNIT
MAKE/MODEL: Continental TSIO-550-C
FUEL TYPE: Gasoline (Leaded)
ADDITIONAL INFO: Piper PA46-310P, S/N: 802509

OIL TYPE & GRADE: Aeroshell 15W/50
OIL USE INTERVAL: 16 Hours

CLIENT
COLE GIVENS
SOUTHERN AIR GROUP
500 SKY HARBOR WAY
JEFFERSON, GA 30549
PHONE: (470) 205-3434
FAX:
ALT PHONE:
EMAIL: cgivens@southernairgroup.com,
sgivens@southernairgroup.com,

COMMENTS
COLE: The viscosity is in the 15W/50 range this time around, and the trace of fuel (indicated by the slightly low flashpoint) is just something to note rather than an actual concern. As for wear, we don't have any concerns to pass along. Most metals are more or less steady, which is fine, since typically only iron (steel) and lead (100LL blow-by) track directly with hours on the oil and both of these elements improved. Looks like this Continental was doing fine leading up to the 8/18/23 sample date.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	16	UNIT / LOCATION AVERAGES	28	28	37	35	UNIVERSAL AVERAGES
	MI/HR on Unit	1,520		1,508	1,446	1,418	1,380	
	Sample Date	8/18/2023		5/2/2023	8/2/2022	5/23/2022	2/3/2022	
	Make Up Oil Added							
	ALUMINUM	12		12	29	20	11	
	CHROMIUM	3		5	6	8	8	
	IRON	25		36	45	55	53	
	COPPER	5		5	4	4	5	
	LEAD	3440		4189	4590	4797	5323	
ELEMENTS IN PARTS PER MILLION	TIN	1	1	1	2	0	1	1
	MOLYBDENUM	2	3	2	3	3	4	6
	NICKEL	4	6	7	5	8	7	23
	MANGANESE	0	1	1	1	1	1	1
	SILVER	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	1
	POTASSIUM	0	0	0	0	0	0	0
	BORON	3	2	1	1	2	0	1
	SILICON	3	4	3	3	4	4	8
	SODIUM	2	3	4	4	3	1	2
	CALCIUM	31	84	102	118	116	115	31
	MAGNESIUM	1	1	1	1	1	1	1
	PHOSPHORUS	1264	1247	1280	1241	1320	1165	359
	ZINC	7	8	7	9	9	9	7
	BARIUM	0	0	0	0	0	0	0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	84.0	82-105	81.1	78.6	81.7	80.9
	cSt Viscosity @ 100°C	16.51	16.0-21.8	15.81	15.18	15.94	15.75
	Flashpoint in °F	435	>440	475	440	450	480
	Fuel %	TR	<1.0	<0.5	TR	<0.5	<0.5
	Antifreeze %	-	-	-	-	-	-
	Water %	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	0.1	<0.6	0.2	0.2	0.4	0.3
	TBN						
	TAN						
	ISO Code						

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com



OIL REPORT

LAB NUMBER: S021051

UNIT ID: N711XL

REPORT DATE: 2/19/2024

CLIENT ID: 130969

CODE: 80/88

PAYMENT: Verbal, Cole

UNIT	MAKE/MODEL:	Continental TSIO-550-C	OIL TYPE & GRADE:	Aeroshell 15W/50
	FUEL TYPE:	Gasoline (Leaded)	OIL USE INTERVAL:	30 Hours
	ADDITIONAL INFO:	Piper PA46-310P, S/N: 802509		

CLIENT	COLE GIVENS	PHONE: (470) 205-3434
	SOUTHERN AIR GROUP	FAX:
	15200 AIRPORT ROAD	ALT PHONE:
	OXFORD, GA 30054	EMAIL: cgivens@southernairgroup.com,
		sgivens@southernairgroup.com,

COMMENTS	COLE: The wear metals are all reading in good ranges in this sample. It's particularly nice to see metals holding steady (or even improving a little) since last time, despite this oil having more hours under its belt. This engine is wearing well. Some fuel turned up (1.0% of the sample by volume), and that may have thinned the viscosity a little, though we don't see any reason to think these things hurt the engine's internals, so we'll just look forward to seeing how things look next time.
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ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	30	UNIT / LOCATION AVERAGES	16	28	28	37	35	UNIVERSAL AVERAGES
	MI/HR on Unit	1,550		1,520	1,508	1,446	1,418	1,380	
	Sample Date	1/25/2024		8/18/2023	5/2/2023	8/2/2022	5/23/2022	2/3/2022	
	Make Up Oil Added								
	ALUMINUM	9	16	12	12	29	20	11	8
	CHROMIUM	4	6	3	5	6	8	8	17
	IRON	28	40	25	36	45	55	53	78
	COPPER	5	5	5	5	4	4	5	7
	LEAD	3971	4464	3440	4590	4797	5323	4663	5680
TIN	0	1	1	1	2	0	1	1	
MOLYBDENUM	2	3	2	2	3	3	4	6	
NICKEL	7	6	4	7	5	8	7	23	
MANGANESE	0	1	0	1	1	1	1	1	
SILVER	0	0	0	0	0	0	0	0	
TITANIUM	0	0	0	0	0	0	0	1	
POTASSIUM	0	0	0	0	0	0	0	0	
BORON	0	1	3	1	1	2	0	1	
SILICON	5	4	3	3	3	4	4	8	
SODIUM	3	3	2	4	4	3	1	1	
CALCIUM	89	95	31	102	118	116	115	30	
MAGNESIUM	1	1	1	1	1	1	1	1	
PHOSPHORUS	1242	1252	1264	1280	1241	1320	1165	383	
ZINC	7	8	7	7	9	9	9	7	
BARIUM	0	0	0	0	0	0	0	0	

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	74.7	82-105	84.0	81.1	78.6	81.7	80.9
	cSt Viscosity @ 100°C	14.19	16.0-21.8	16.51	15.81	15.18	15.94	15.75
	Flashpoint in °F	420	>440	435	475	440	450	480
	Fuel %	1.0	<1.0	TR	<0.5	TR	<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	0.1	0.2	0.2	0.4	0.3
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com



OIL
REPORT

LAB NUMBER: S112502 UNIT ID: N711XL
REPORT DATE: 9/12/2024 CLIENT ID: 130969
CODE: 80/88 PAYMENT: Verbal, Cole

UNIT	MAKE/MODEL:	Continental TSIO-550-C	OIL TYPE & GRADE:	Aeroshell 15W/50
	FUEL TYPE:	Gasoline (Leaded)	OIL USE INTERVAL:	50 Hours
	ADDITIONAL INFO:	Piper PA46-310P, S/N: 802509		

CLIENT	COLE GIVENS	PHONE: (470) 205-3434
	SOUTHERN AIR GROUP	FAX:
	500 SKY HARBOR WAY	ALT PHONE:
	JEFFERSON, GA 30549	EMAIL: cgivens@southernairgroup.com, sgivens@southernairgroup.com,

COMMENTS	COLE: Fuel dilution cleared right up. Since we know that fuel didn't thin the oil's viscosity below grade, this mildly low viscosity reading isn't anything to be concerned about. The oil did great to protect internal parts. This sample was in place longer than any of the others we have on file for N711XL, and wear metals are reading impressively low. As long as a lot of make-up oil wasn't needed (which can dilute the results), we're not seeing any signs of trouble on our end. We'll hope for more of the same in future reports. No notable amount of water or dirt was found.
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ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	50	UNIT / LOCATION AVERAGES	30	16	28	28	37	UNIVERSAL AVERAGES
	MI/HR on Unit	1,600		1,550	1,520	1,508	1,446	1,418	
	Sample Date	7/12/2024		1/25/2024	8/18/2023	5/2/2023	8/2/2022	5/23/2022	
	Make Up Oil Added								
	ALUMINUM	7	14	9	12	12	29	20	8
	CHROMIUM	2	5	4	3	5	6	8	16
	IRON	24	37	28	25	36	45	55	76
	COPPER	4	4	5	5	5	4	4	7
	LEAD	4116	4189	3971	3440	4590	4797	5323	5524
	TIN	0	1	0	1	1	2	0	1
	MOLYBDENUM	2	3	2	2	2	3	3	6
	NICKEL	4	6	7	4	7	5	8	23
	MANGANESE	0	1	0	0	1	1	1	1
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	1
	POTASSIUM	0	0	0	0	0	0	0	0
	BORON	4	2	0	3	1	1	2	1
	SILICON	4	4	5	3	3	3	4	8
	SODIUM	6	3	3	2	4	4	3	2
	CALCIUM	69	84	89	31	102	118	116	31
	MAGNESIUM	0	1	1	1	1	1	1	1
	PHOSPHORUS	1062	1247	1242	1264	1280	1241	1320	359
	ZINC	8	8	7	7	7	9	9	7
	BARIUM	0	0	0	0	0	0	0	0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	80.7	82-105	74.7	84.0	81.1	78.6	81.7
	cSt Viscosity @ 100°C	15.70	16.0-21.8	14.19	16.51	15.81	15.18	15.94
	Flashpoint in °F	490	>440	420	435	475	440	450
	Fuel %	<0.5	<1.0	1.0	TR	<0.5	TR	<0.5
	Antifreeze %	-		-	-	-	-	-
	Water %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	0.3	<0.6	0.4	0.1	0.2	0.2	0.4
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com



Oil Report

LAB NUMBER: S152885 UNIT ID: N711XL
REPORT DATE: 12/4/2024 CLIENT ID: 130969
CODE: 80/88 PAYMENT: Verbal, Cole

UNIT	MAKE/MODEL:	Continental TSIO-550-C	OIL TYPE & GRADE:	Aeroshell 15W/50
	FUEL TYPE:	Gasoline (Leaded)	OIL USE INTERVAL:	15 Hours
	ADDITIONAL INFO:	Piper PA46-310P, S/N: 802509		

CLIENT	COLE GIVENS	PHONE: (470) 205-3434
	SOUTHERN AIR GROUP	FAX:
	500 SKY HARBOR WAY	ALT PHONE:
	JEFFERSON, GA 30549	EMAIL: cgivens@southernairgroup.com,
		sgivens@southernairgroup.com,

COMMENTS
COLE: Good report, generally speaking. This was a much shorter oil change than the last couple, so it might have been nice to see less metal, not more. But mainly we're probably looking at a little corrosion (which manifests mostly as aluminum and iron), so we applaud this short oil change. Metals likely would have been worse had you run the oil longer. And they're really not bad, honestly - everything has been higher than this in the past. The viscosity is okay and no water or fuel contamination is present. So back to what we said at first: it's a pretty good report overall.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	15	UNIT / LOCATION AVERAGES	50	30	16	28	28	UNIVERSAL AVERAGES
	MI/HR on Unit	1,583		1,600	1,550	1,520	1,508	1,446	
	Sample Date	11/4/2024		7/12/2024	1/25/2024	8/18/2023	5/2/2023	8/2/2022	
	Make Up Oil Added								
	ALUMINUM	14	14	7	9	12	12	29	8
	CHROMIUM	5	5	2	4	3	5	6	16
	IRON	31	37	24	28	25	36	45	77
	COPPER	3	4	4	5	5	5	4	7
	LEAD	2610	4189	4116	3971	3440	4590	4797	5590
TIN	1	1	0	0	1	1	2	1	
MOLYBDENUM	2	3	2	2	2	2	3	6	
NICKEL	6	6	4	7	4	7	5	23	
MANGANESE	0	1	0	0	0	1	1	1	
SILVER	0	0	0	0	0	0	0	0	
TITANIUM	0	0	0	0	0	0	0	1	
POTASSIUM	0	0	0	0	0	0	0	0	
BORON	4	2	4	0	3	1	1	1	
SILICON	4	4	4	5	3	3	3	8	
SODIUM	3	3	6	3	2	4	4	2	
CALCIUM	33	84	69	89	31	102	118	31	
MAGNESIUM	1	1	0	1	1	1	1	1	
PHOSPHORUS	1401	1247	1062	1242	1264	1280	1241	369	
ZINC	7	8	8	7	7	7	9	8	
BARIUM	0	0	0	0	0	0	0	0	

PROPERTIES	Values Should Be*							
	SUS Viscosity @ 210°F	84.6	82-105	80.7	74.7	84.0	81.1	78.6
	cSt Viscosity @ 100°C	16.66	16.0-21.8	15.70	14.19	16.51	15.81	15.18
	Flashpoint in °F	470	>440	490	420	435	475	440
	Fuel %	<0.5	<1.0	<0.5	1.0	TR	<0.5	TR
	Antifreeze %	-	-	-	-	-	-	-
	Water %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	0.3	<0.6	0.3	0.4	0.1	0.2	0.2
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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