**WEAR** CONTAMINATION **FLUID CONDITION** 

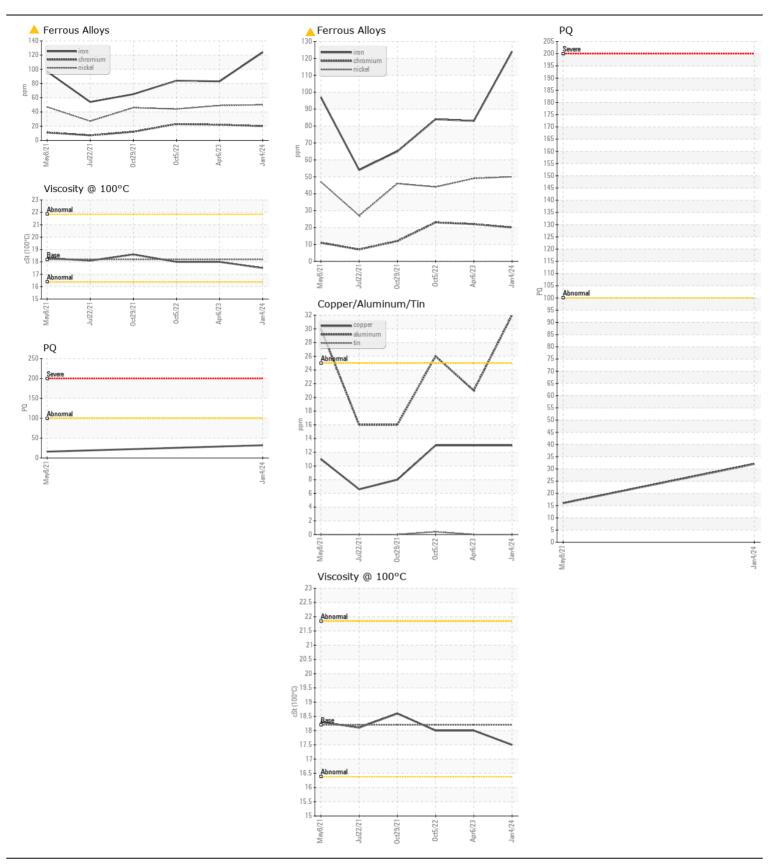
**ABNORMAL NORMAL NORMAL** 

(C-GKPK)

**CESSNA 521040** 

Component

Iron	Right Piston Aircraft Engine							
Test	SHELL AEROSHELL W 15W50 MGR (12 LTR)							
We advise that you check the engine tuning and timing. We advise that you check for excessive valve and valve guide clearance. The oil change at the time of samping has been noted. We recommend an early resample to monitor this condition.    Sample Date		Toot	LIOM	Mothod	Limit/Abn	Current	Liston (1	
We advise that you check for excessive valve and valve guide clearance. The oil shange at the time of sampling has been noted. We recommend an early resample to moritor his condition.    TSN	We advise that you check the engine tuning and timing. We advise that you check for excessive valve and valve guide clearance. The oil change at the time of sampling has been noted. We recommend an		OOW		LIIIIII/AUII			-
TSN		•						
Part		·	hre				·	
March   Marc								
Filter Age   Nrs   Client Info   Changed   C	carly recample to memor the container.							
Pilor Changed   Client Info   Changed   Cha						-		
Filter Changed   Sample Status   Client Info   Changed ABNORM   Changed NormAL			1110			-		
Name		_				•		-
PQ							- U	Ü
Nickel ppm levels are abnormal. Exhaust valve wear is indicated.   Iron								
Chromium   ppm   ASTM DS(85)m   >20   20   22   23	WEAR	PQ		ASTM D8184*		32		
Chromium   ppm   ASIMDSISSIM   25   49   44     Titanium   ppm   ASIMDSISSIM   215   50   49   44     Titanium   ppm   ASIMDSISSIM   25   50   0   0   0     Aluminum   ppm   ASIMDSISSIM   25   32   21   26     Aluminum   ppm   ASIMDSISSIM   225   32   21   26     Aluminum   ppm   ASIMDSISSIM   225   32   21   26     Aluminum   ppm   ASIMDSISSIM   225   33   33   33     Tin   ppm   ASIMDSISSIM   255   13   31   31   31     Tin   ppm   ASIMDSISSIM   250   0   0   0   0     Vanadium   ppm   ASIMDSISSIM   250   5   0   0   0   0     Vanadium   ppm   ASIMDSISSIM   250   5   0   0   0   0     Vanadium   ppm   ASIMDSISSIM   250   5   0   0   0   0     Vanadium   ppm   ASIMDSISSIM   250   5   0   0   0   0     Vanadium   ppm   ASIMDSISSIM   250   0   0   0   0   0   0     Vanadium   ppm   ASIMDSISSIM   0   0   0   0   0   0   0   0     Vanadium   ppm   ASIMDSISSIM   0   0   0   0   0   0   0   0   0	Nickel ppm levels are abnormal. Exhaust valve wear is indicated.	Iron	ppm	ASTM D5185(m)	>90	124	83	84
Titanium   ppm   ASTM DS185(m)   0   1   <1		Chromium	ppm	ASTM D5185(m)	>20	20	22	23
Silver   ppm   ASTM DS185 m    >5   0   0   0   0   0   0   1   2   2   2   2   2   2   2   2   2		Nickel	ppm	ASTM D5185(m)	>15	<b>△</b> 50	49	44
Aluminum   ppm   ASTM D5185/m   >25   32   21   26		Titanium	ppm	ASTM D5185(m)		0	1	<1
Lead		Silver	ppm	ASTM D5185(m)	>5	0	0	0
Copper		Aluminum	ppm	ASTM D5185(m)	>25	32	21	26
Tin		Lead	ppm	ASTM D5185(m)	>20000	6519	5428	4984
Vanadium   ppm   ASTM DS185(m)   Visual*   NONE		Copper	ppm	ASTM D5185(m)	>25	13	13	13
White Metal Yellow Metal   Scalar Visual*   NONE NONE   NONE NONE   NO		Tin	ppm	ASTM D5185(m)	>30	0	0	<1
Yellow Metal   scalar   Visual*   NONE   N		Vanadium	ppm	ASTM D5185(m)		0	0	0
Silicon   ppm   ASTM D5185(m)   >15   13   10   13		White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Potassium   ppm   ASTM D5185(m)   >20   5   0   <1		Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Fuel   WC Method   >4.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1	CONTAMINATION	Silicon	ppm	ASTM D5185(m)	>15	13	10	13
Fuel   WC Method   >4.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1	There is no indication of any contamination in the oil.	Potassium	ppm	ASTM D5185(m)	>20	5	0	<1
Glycol   Silt   scalar   Visual*   NONE   NONE   NONE   VLITE   VLITE		Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Silt		Water		WC Method	>0.1	NEG	NEG	NEG
Debris   Scalar   Visual*   NONE   NORML		Glycol		WC Method		NEG	NEG	NEG
Sand/Dirt   scalar   Visual*   NONE   NONE   NONE   NONE   Appearance   scalar   Visual*   NORML   N		Silt	scalar	Visual*	NONE	NONE	VLITE	VLITE
Appearance   Scalar   Visual*   NORML   NORM		Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Odor		Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Emulsified Water   scalar   Visual*   >0.1   NEG   NEG   NEG		Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Sodium   ppm   ASTM D5185(m)   C1   C1   C1   C1   C1   C1   C1   C		Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Boron   ppm   ASTM D5185(m)   0   < 1   < 1		Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Boron   ppm   ASTM D5185(m)   0   < 1   < 1	FLUID CONDITION	Sodium	ppm	ASTM D5185(m)		<1	<1	1
Barium   ppm   ASTM D5185(m)   5   4   6   6	The oil is no longer serviceable as a result of the abnormal and/or	Boron	ppm	ASTM D5185(m)		0	<1	<1
Molybdenum         ppm         ASTM D5185(m)         5         4         6         6           Manganese         ppm         ASTM D5185(m)         0         <1         0           Magnesium         ppm         ASTM D5185(m)         10         1         <1         1           Calcium         ppm         ASTM D5185(m)         10         4         6         22           Phosphorus         ppm         ASTM D5185(m)         1280         913         935         859           Zinc         ppm         ASTM D5185(m)         10         4         3         3           Sulfur         ppm         ASTM D5185(m)         1800         1243         1147         1168		Barium	ppm	ASTM D5185(m)		0	0	0
Manganese         ppm         ASTM D5185(m)         0         <1		Molybdenum	ppm	ASTM D5185(m)	5	4	6	6
Magnesium         ppm         ASTM D5185(m)         10         1         <1		-	ppm			0	<1	0
Phosphorus         ppm         ASTM D5185(m)         1280         913         935         859           Zinc         ppm         ASTM D5185(m)         10         4         3         3           Sulfur         ppm         ASTM D5185(m)         1800         1243         1147         1168		-	ppm	ASTM D5185(m)	10	1	<1	1
Zinc         ppm         ASTM D5185(m)         10         4         3         3           Sulfur         ppm         ASTM D5185(m)         1800         1243         1147         1168		-	ppm			4	6	22
Sulfur         ppm         ASTM D5185(m)         1800         1243         1147         1168		Phosphorus	ppm	ASTM D5185(m)	1280	913	935	859
		Zinc	ppm	ASTM D5185(m)	10	4	3	3
Visc @ 100°C cSt ASTM D7279(m) 18.2 17.5 18.0 18.0		Sulfur	ppm	ASTM D5185(m)	1800	1243	1147	1168
		Visc @ 100°C	cSt	ASTM D7279(m)	18.2	17.5	18.0	18.0





CALA ISO 17025:2017 Accredited Laboratory

Unique Number : 5709238

Laboratory Sample No. Lab Number

: WC0811220 : 02608152

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Recieved Diagnosed

Diagnostician : Kevin Marson

: 12 Jan 2024

: 11 Jan 2024

Test Package : AVI 1 ( Additional Tests: PQ )

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

**CENTRAL AIRWAYS** 1138 LEN BIRCHALL WAY KINGSTON, ON CA K7M 9A1 Contact: CHRIS DAKIN

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Validity of results and interpretation are based on the sample and information as supplied.