

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id

CATERPILLAR 349F 133

Component Diesel Engine Fluid PETRO CANADA 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

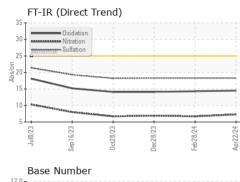
Fluid Condition

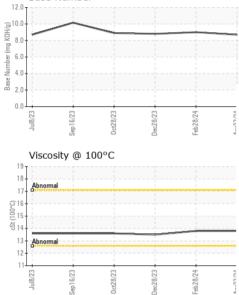
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0917250	WC0906047	WC0879010
Sample Date		Client Info		22 Apr 2024	28 Feb 2024	28 Dec 2023
Machine Age	hrs	Client Info		7528	7240	6976
Oil Age	hrs	Client Info		250	264	338
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	۷	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	4	4	4
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	1	1
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Codmium						
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	ppm	ASTM D5185m method	limit/base	0 current	0 history1	0 history2
	ppm		limit/base	-		-
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 1	history1 0	history2 5
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 1 0	history1 0 0	history2 5 10
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 1 0 57	history1 0 0 65	history2 5 10 58
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 1 0 57 <1	history1 0 0 65 0	history2 5 10 58 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 1 0 57 <1 941	history1 0 65 0 1024 1127 1012	history2 5 10 58 0 856 998 1063
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 1 0 57 <1 941 1028 1002 1211	history1 0 65 0 1024 1127 1012 1280	history2 5 10 58 0 856 998 1063 1116
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 1 0 57 <1 941 1028 1002	history1 0 65 0 1024 1127 1012	history2 5 10 58 0 856 998 1063
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 1 0 57 <1 941 1028 1002 1211	history1 0 65 0 1024 1127 1012 1280	history2 5 10 58 0 856 998 1063 1116
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		Current 1 0 57 <1 941 1028 1002 1211 3304	history1 0 0 65 0 1024 1127 1012 1280 3243	history2 5 10 58 0 856 998 1063 1116 3348
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 1 0 57 <1 941 1028 1002 1211 3304 Current	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2 1	history2 5 10 58 0 856 998 1063 1116 3348 history2 2 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 1 0 57 <1 941 1028 1002 1211 3304 Current 4	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2	history2 5 10 58 0 856 998 1063 1116 3348 history2 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base >25	current 1 0 57 <1 941 1028 1002 1211 3304 current 4 <1	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2 1 0 history1 0 history1	history2 5 10 58 0 856 998 1063 1116 3348 history2 2 0 2 0 2 0 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	method ASTM D5185m	limit/base >25 >20	current 1 0 57 <1 941 1028 1002 1211 3304 current 4 <1 0 current 0 current 0.3	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2 1 0 history1 0 history1 0.2	history2 5 10 58 0 856 998 1063 1116 3348 history2 2 0 2 0 2 0 2 0 2 0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base >25 >20 limit/base	current 1 0 57 <1 941 1028 1002 1211 3304 current 4 <1 0 current	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2 1 0 history1 0 history1	history2 5 10 58 0 856 998 1063 1116 3348 history2 2 0 2 0 2 0 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	method ASTM D5185m	limit/base >25 >20 limit/base >3	current 1 0 57 <1 941 1028 1002 1211 3304 current 4 <1 0 current 0 current 0.3	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2 1 0 history1 0 history1 0.2	history2 5 10 58 0 856 998 1063 1116 3348 history2 2 0 2 0 2 0 2 0 2 0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base >25 >20 limit/base >3 >20	current 1 0 57 <1 941 1028 1002 1211 3304 current 4 <1 0 current 0.3 7.3	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2 1 0 history1 0 history1 0.2 6.7	history2 5 10 58 0 856 998 1063 1116 3348 history2 2 0 2 0 2 0.2 history2 0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	current 1 0 57 <1 941 1028 1002 1211 3304 current 4 <1 0 current 0.3 7.3 18.3	history1 0 0 65 0 1024 1127 1012 1280 3243 history1 2 1 0 history1 0 history1 0.2 6.7 18.3	history2 5 10 58 0 856 998 1063 1116 3348 history2 2 0 2 0 2 0.2 history2 0.2 6.9 18.3

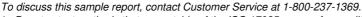


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	VISUAL		method	limit/base	current	history1	l history2
	White Metal Yellow Metal	scalar scalar	*Visual *Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
24 -	Sand/Dirt	scalar	*Visual *Visual	NONE NORML	NONE NORML	NONE NORML	NONE
Feb28/24 Apr22/24	Appearance scala Odor scala		*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPER	ΓIES	method	limit/base	e current	history1	l history2
	Visc @ 100°C	cSt	ASTM D445		13.8	13.8	13.5
	GRAPHS						
	Iron (ppm)			1	Lead (ppm)		
8/24 -	200 - Severe				80 - Severe		-
Feb28/24	E 150 - Abnormal			шdd	60 -		
	100 + 0				40 - Abnormal		
	50				20-		
	Jul8/23 -	Dec28/23 -	Feb28/24 -	Apr22/24 -	Jul8/23	0ct28/23	Uec20/23 - Feb28/24 - Apr22/24 -
		Dec	Feb	Ap	ー Chromium (pj		Feb Apr
	Aluminum (ppm)	pm)					
	40 - Severe				40 - Severe	-	
	20 - Abnormal		· · · · · · · · · · · · · · · · · · ·	L L L L L L L L L L L L L L L L L L L	30 20 - Abnormal		
Feb28/24	10-				10		
			24	24	53 53	23	24
	Jul8/23 - Sep16/23 -	Dec28/23	Feb28/24	Apr22/24	Jul8/23 Sep16/23	0ct28/23	Uec26/23 Feb28/24 Apr22/24
	Copper (ppm)	_			Silicon (ppm)		
	400 Abronmat 300				80 Severe	1	
					60		
	톱 200 -				Abnormal		
	100-				20-		
	p16/23	3/23	8/24	2/24	Jul8/23	8/23	8/24
	Jul8/23 Sep16/23	Dec28/23	Feb28/24	Apr22/24	Jul8/23 Sep 16/23	0ct28/23	Uec20/23 Feb28/24 Apr22/24
	Viscosity @ 100°C	2		13	Base Number		
	18 Abnormal			(^B /HO	0.0		
	() 16 () 16 () 14 () 14			y Bm) L	8.0	 	
	di 14- Abnormal			Base Number (mg KOH/g)	4.0		
	12			Base	2.0		
	Jul8/23	Dec28/23 +	Feb28/24 -	Apr22/24	Jul8/23 +	0ct28/23 +	Uec20/23 + Feb28/24 - Apr22/24 +
	Ju Sep1	Dec2	Feb2	Aprí	Ju Sep1	Octí	Feb2 Apr2
Unique Number Test Package	: WearCheck USA - 50 : WC0917250 : 06183811 : 11035137 : MOB 1 (Additional To contact Customer Sen	Recei Teste Diagr ests: TBN	ived : 17 id : 20 nosed : 20	7 May 2024) May 2024 May 2024 - 1		MY Conta	TON & SONS INC 706 38TH AVE N RTLE BEACH, SC US 29577 act: JAMIE HUCKS



* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Contact/Location: JAMIE HUCKS - CLBMYR

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