

# **OIL ANALYSIS REPORT**

Sample Rating Trend



# Area [wo26621] Temsa 2002

Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- GAL)

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

### Contaminants

There is no indication of any contamination in the oil.

## **Oil Condition**

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

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0916691		
Sample Date		Client Info		11 Apr 2024		
Machine Age	kms	Client Info		282510		
Oil Age	kms	Client Info		12000		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINATION		method	limit/bass	ourropt	biotomut	history ()
	N		limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0		
Iron	ppm	ASTM D5185(m)	>90	23		
Chromium	ppm	ASTM D5185(m)	>20	<1		
Nickel	ppm	ASTM D5185(m)	>2	0		
Titanium	ppm	ASTM D5185(m)	>2	<1		
Silver	ppm	ASTM D5185(m)	>2	0		
Aluminum	ppm	ASTM D5185(m)	>20	8		
Lead	ppm	ASTM D5185(m)	>40	0		
Copper	ppm	ASTM D5185(m)	>330	2		
Tin	ppm	ASTM D5185(m)	>15	0		
Antimony	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		0		
Beryllium	ppm	ASTM D5185(m)		0		
Cadmium	ppm	ASTM D5185(m)		0		
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	250	39		
Barium	ppm	ASTM D5185(m)	10	0		
Molybdenum	ppm	ASTM D5185(m)	100	87		
Manganese	ppm	ASTM D5185(m)		<1		
Magnesium	ppm	ASTM D5185(m)	450	95		
Calcium	ppm	ASTM D5185(m)	3000	2080		
Phosphorus	ppm	ASTM D5185(m)	1150	935		
Zinc	ppm	ASTM D5185(m)	1350	1087		
Sulfur	ppm	ASTM D5185(m)	4250	3007		
Lithium	ppm	ASTM D5185(m)		<1		
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	4		
Sodium	ppm	ASTM D5185(m)		2		
Potassium	ppm	ASTM D5185(m)	>20	3		
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>6	0.3		
Nitration	Abs/cm	ASTM D7624*	>20	11.2		
Sulfation	Abs/.1mm	ASTM D7415*	>30	21.0		



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	rend)		FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Oxidation			Oxidation	Abs/.1mm	ASTM D7414*	>25	17.1		
30- Nitration Sulfation			Base Number (BN)	mg KOH/g	ASTM D2896*	8.5	8.34		
Abnormal B 25 W 20			. ,	ingriorisg				late to mid	la i a ta muQ
₽ 20-			VISUAL		method	limit/base	current	history1	history2
15-			White Metal	scalar	Visual*	NONE	NONE		
10			Yellow Metal	scalar	Visual*	NONE	NONE		
Apr11/24		11/24	Precipitate	scalar	Visual*	NONE	NONE		
Apr		April 1	Silt	scalar	Visual*	NONE	NONE		
PQ			Debris	scalar	Visual*	NONE	NONE		
250 T			Sand/Dirt	scalar	Visual*	NONE	NONE		
200 Severe			Appearance	scalar	Visual*	NORML	NORML		
150			Odor Emulsified Water	scalar scalar	Visual* Visual*	NORML	NORML NEG		
			Free Water		Visual*	>0.2	NEG		
50			FLUID PROPER	scalar		limit/bases			
0			Visc @ 100°C	cSt	method ASTM D7279(m)	limit/base 10.9	current	history1	history2
Apr11/24		Apr11/24	GRAPHS	001	Konin Dr2ro(iii)	10.0	10.7		
Viscosity @ 100	<u>۱</u> ۰۲		Iron (ppm)				Lead (ppm)		
<sup>14</sup> T	, с		250 Severe			80	Severe		
13 - Abnormal									
			E 150 - Abnormal			ed 40	Abnormal		
12 11- Base 10-			50			20			
10			1/24			Apr11/24	1/24		1/24
9 - Abnormal			Apr1			Apr1	Apr11/24		Apr11/24
8			Aluminum (ppm)				Chromium (pp	om)	
Apr1 1/24		61 Fr	40 Severe			40	Severe		
Aŗ		ν.	= 30 -						
PQ			훕 <sub>20</sub> <mark>Abnormal</mark>			트 30 문 20	Abnormal		
50 T			10			10			
DO - Severe			1/24			0	1/24		1/24
50 -			Apr11			Apr11/24	Apr11/24		Apr11/24
Abnormal			Copper (ppm)				Silicon (ppm)		
50 -			400 Severe			80	Severe		
			300-			60			
0 5			E 200						
7		r.	<u> 음</u> 200			튭.40	Abnormal		
Apr1 1/24		hathan	100-			<u>특</u> 40· 20·	Abnormal		
Apri 1/2		ACL Frank	100			20			24
Apri 1/2		1 CT 8 Tank					Apromal		Apr11/24
Apri 1/2		A	100	2		20			Apr11/24
Apr11/2		A11.04	Viscosity @ 100°C	5		20 6 1/1/1/24	Base Number		Apr11/24
Apr11/2		A17.74	Viscosity @ 100°C	2		20 6 1/1/1/24	Base Number		Apri1/24
Apr11/2		A1	Viscosity @ 100°C	C		20 6 1/1/1/24	Base Number		Apri 1/24
Apr11/2		A17.04	Viscosity @ 100°C	C		20 6 1/1/1/24	Base Number		Apri 1/24
Apri 1/2		A11.04	Viscosity @ 100°C	2		20. 0. (0,115.0. (0,115.0. 0. 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Base Number		
Apr11/2		A11.04	Viscosity @ 100°C	2		20. 0. (0,115.0. (0,115.0. 0. 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Base Number		
Apr112		A1174	Viscosity @ 100°C	C		20 6 1/1/1/24	Base Number		Apri1/24
VPULIC VPULIC	<b>O</b> CALA	Laboratory	Viscosity @ 100°C	5 Appleby		20. +7/11/10 (0)15.0. (0)15.0. (0)160,0 Bull 10.0. +7/11/10 Bull 10.0. +7/11/10 Bull 10.0. Bull 10.0. B	Abnomal Base Number Abnomal Base Abnomal		+ZILLINGY AND GARAGE
APHIX	Testing Accreditation No. 1305219	Laboratory Sample No. Lab Number	Viscosity @ 100°C		ved : 12	200 6711 Judy (0,15.0 10,00	Abnomal Base Number Abnomal Base Abnomal	567	AND GARAGE WALLACE RD
	ISO 17025:2017 Accredited	Sample No. Lab Number Unique Number	Viscosity @ 100°C	5 Appleby Recei	ved : 12 d : 18	20. +7/11/10 (0)15.0. (0)15.0. (0)160,0 Bull 10.0. +7/11/10 Bull 10.0. +7/11/10 Bull 10.0. Bull 10.0. B	Abnormal Abnormal Abnormal Abnormal Abnormal Base Abnormal Base Abnormal	567 NC	AND GARAGE WALLACE RD ORTH BAY, ON CA P1A 3T3
	ISO 17025:2017 Accredited Laboratory	Sample No. Lab Number Unique Number Test Package	WearCheck - C8-117 WC0916691 02628340 5761472 MOB 3	5 Appleby Recei Teste Diagr	ved : 12 d : 18 losed : 19	200 67 17 17 17 17 17 17 17 17 17 1	Abnormal Abnormal Abnormal Abnormal Base Abnormal Base Abnormal 5H9 ONTA	567 NC Contact: Ale	AND GARAGE WALLACE RD ORTH BAY, ON CA P1A 3T3 xandra Pavone
	ISO 17025:2017 Accredited Laboratory	Sample No. Lab Number Unique Number Test Package s sample report,	WearCheck - C8-117 : WC0916691 : 02628340 : 5761472 : MOB 3 contact Customer Serv	5 Appleby Recei Teste Diagr	ved : 12 d : 18 nosed : 19 200-268-213	200 6711 100 100 100 100 100 100 100	Abnomal Base Number Abnomal Base Abnomal 5H9 ONTA n Marson Alexanda	567 NC Contact: Ale ra.Pavone@onta	AND GARAGE WALLACE RD ORTH BAY, ON CA P1A 3T3 xandra Pavone arionorthland.ca
	ISO 17025:2017 Accredited Laboratory To discuss this Test denoted (	Sample No. Lab Number Unique Number Test Package s sample report, (*) outside scope	WearCheck - C8-117 WC0916691 02628340 5761472 MOB 3	5 Appleby Recei Teste Diagr	ved : 12 d : 18 nosed : 19 200-268-213 podified, (e) te	200 1. 20	Abnormal Base Number Abnormal Base Abnormal 5H9 ONTA n Marson Alexandu aal lab.	567 NC Contact: Ale ra.Pavone@onta T:	AND GARAGE WALLACE RD ORTH BAY, ON CA P1A 3T3 xandra Pavone

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Submitted By: Ed Violette

# FERROGRAPHY REPORT

# Area [wo26621] Temsa 2002

Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- GAL)

# Magn: 200x Illum: BC

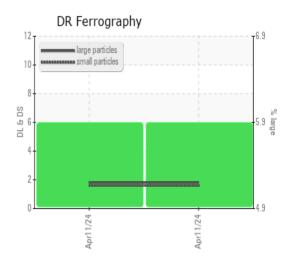


# Magn: 100x Illum: RW

DR-FERROGRAP	ΉY	method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		1.8		
Small Particles		DR-Ferr*		1.6		
Total Particles		DR-Ferr*	>	3.4		
Large Particles Percentage	%	DR-Ferr*		5.9		
Severity Index		DR-Ferr*		0		
FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		1		
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1		

# WEAF

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



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