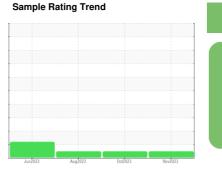


OIL ANALYSIS REPORT





NORMAL

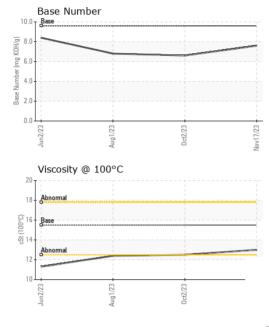
CATERPILLAR 745D 13393 (S/N 3T605704) Component **Diesel Engine**

Fluid PETRO CANADA DURON XL SYN BLEND 15W40 (--- GAL)

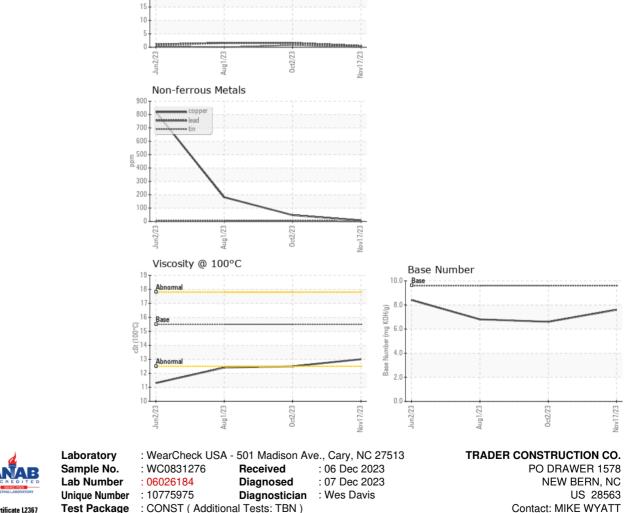
Resample at the next service interval to monitor. Sample Date Client Info 17 Nov 2023 02 Oct 2023 01 Aug 2023 Wear All component wear rates are normal. Machine Age hrs Client Info 1915 1526 1041 All component wear rates are normal. Oil Age hrs Client Info 389 485 545 Contamination There is no indication of any contamination in the oil. Oil Changed Client Info Changed Sample Status NORMAL			·	Jun202	3 Aug2023	0ct2023 1	lov2023	
Resemple Date Client Info 17 Nov 2023 02 Oct 2023 01 Aug 2023 War Component wear rates are normal. Oil Age hrs Client Info 1915 1526 1041 There is no indication of any contamination in the al. There is no indication of any contamination in the al. NORMAL	DIAGNOSIS	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Wear Name Name Cleant 101 1526 104 Name Oli Charged Cleant No Ranged Charged Charged Charged Charged Charged No Ranged <	Recommendation	Sample Number		Client Info		WC0831276	WC0831288	WC0837123
Nill component wear rates are normal. Oil App htts Client Info 389 485 545 Dire is no indication of any contamination in the oil. Sample Status Client Info Changed <th>Resample at the next service interval to monitor.</th> <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>17 Nov 2023</th> <th>02 Oct 2023</th> <th>01 Aug 2023</th>	Resample at the next service interval to monitor.	Sample Date		Client Info		17 Nov 2023	02 Oct 2023	01 Aug 2023
Contamination Client Info Changed Chan	Wear	Machine Age	hrs	Client Info		1915	1526	1041
Sample Status NORMAL NORMAL NORMAL NORMAL Sample Status moltacion currant Hatory1 Hatory1 Hatory2 Fuel WC Mehod S.2 +1.0 <1.0 <1.0 <1.0 Mainitry remaining in the oil. The condition of the oil is suitable for further service. WC Mehod S.2 NEG NEG NEG NEG Water WC Mehod S.2 NEG N	All component wear rates are normal.	Oil Age	hrs	Client Info		389	485	545
Sample Status NORMAL NORMAL NORMAL NORMAL Fuil Condition The Sh treault indicates that there is suitable dial is suitable for further service. CONTAMINATION Mot Method S-2 -L0 -L	Contamination	Oil Changed		Client Info		Changed	Changed	Changed
Off. CONTAMINATION method introducts history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Bakalinity remaining in the oil. The condition of the akalinity remaining in the oil. The condition of the akalinity remaining in the oil. The condition of the Giyool WC Method >0.2 NEG NEG NEG Water WC Method >0.2 0 31 35 Othor ppm ASTM 05165m >20 31 95 Wick Hethod ppm ASTM 05165m >20 0 0 0 Nickel ppm ASTM 05165m >2 0 0 0 Silvor ppm ASTM 05165m >2 0 0 0 Copper ppm ASTM 05165m >2 0 0 0 Vanadum ppm ASTM 05165m >30 8 47 181 Lead ppm ASTM 05165m 30 8 47 181 Vanadum ppm <		Sample Status				NORMAL	NORMAL	NORMAL
Fluid Condition Puel WC Method >5 <1.0 <1.0 <1.0 B DR result indicates that there is suitable WC Method >50 NEG NEG NEG aikal inty remaining in the oil. The condition of the oil is suitable for further service. WC AR ME TALS WC Method >50 20 31 35 Chromium ppm ASTM DS185m >100 20 31 35 Chromium ppm ASTM DS185m >20 0 0 0 Nicked ppm ASTM DS185m >22 0 0 0 0 Sitver ppm ASTM DS185m >22 0	oil.		NI	mathad	limit/booo	ourropt	biotonut	biotony?
Mater WC Method >0.2 NEG NEG NEG Suitable for further service. Water WC Method NEG NEG NEG WEAR METALS method Imit/base current Nistory1 inistory2 Iron ppm ASTM 05185m >20 <1	Fluid Condition		IN					
Big suitable for further service. Giycol WC Method NEG NEG NEG Version ppm ASTM 05185n >100 20 31 35 Iron ppm ASTM 05185n >20 <1	The BN result indicates that there is suitable							
WEAR METALS method limibbase current history1 history2 Iron ppm ASTM0515m >100 20 31 35 Chromium ppm ASTM0515m >20 <1	alkalinity remaining in the oil. The condition of the				>0.2			
Iron ppm ASTU 05155m >1.00 20 3.1 3.5 Chromium ppm ASTU 05155m >20 <1	oil is suitable for further service.	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1		WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 0 <1 0 Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >25 1 0 1 Lead ppm ASTM D5185m >26 1 0 1 Lead ppm ASTM D5185m >26 1 0 1 Lead ppm ASTM D5185m >20 <1		Iron	ppm	ASTM D5185m	>100	20	31	35
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 1 0 1 Lead ppm ASTM D5185m >330 8 47 181 Tim ppm ASTM D5185m >1 0 1 1 Vanadium ppm ASTM D5185m 1 0 0 0 Vanadium ppm ASTM D5185m 1 1 2 2 Boron ppm ASTM D5185m 1 1 2 2 Barum ppm ASTM D5185m 1 1 2 2 Magaese ppm ASTM D5185m 1 0 -1 1 Magnesium ppm ASTM D5185m 1010 899 930 930 Calcium ppm ASTM D5185m 1070 1072 1097 1134 Phosphorus ppm ASTM D5185m 1270 1164 1237		Chromium	ppm	ASTM D5185m	>20	<1	2	2
Titanium ppm ASTM D5185m >2 0 0 0 Silver pm ASTM D5185m >2 1 0 0 Aluminium pm ASTM D5185m >2 1 0 0 Lead ppm ASTM D5185m >40 <1		Nickel		ASTM D5185m	>2	0	<1	
Silver ppm ASTM D518m >2 0 0 1 Aluminum ppm ASTM D518m S40 <1		Titanium		ASTM D5185m	>2	0	0	0
Aluminum ppm ASTM D5185m >25 1 0 1 Lead ppm ASTM D5185m >40 <1		Silver						
Lead ppm ASTM D5185m >40 <1								
Copper ppm ASTM D5185m >330 8 477 181 Tin ppm ASTM D5185m >15 0 <1								2
Tin ppm ASTM D5185m >15 0 <1								
Vanadium ppm ASTM 05185m 0 0 0 Cadmium ppm ASTM 05185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM 05185m 1 1 2 2 Barium ppm ASTM 05185m 1 2 0 <1 Molybdenum ppm ASTM 05185m 60 60 60 <1 Manganese ppm ASTM 05185m 1010 899 9033 930 Calcium ppm ASTM 05185m 1010 899 9033 930 Calcium ppm ASTM 05185m 1070 1072 1097 1134 Phosphorus ppm ASTM 05185m 1070 3216 2770 2951 CONTAMINANTS ppm ASTM 05185m 2060 3216 2770 2951 Solicon ppm ASTM 05185m 22 3								
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES nethod limil/base current history1 history2 Boron ppm ASTM D5185m 1 1 2 2 Barium ppm ASTM D5185m 1 0 60 60 56 Manganese ppm ASTM D5185m 10 0 41 1 Magnesium ppm ASTM D5185m 10 0 60 60 56 Manganesium ppm ASTM D5185m 1010 899 903 930 Calcium ppm ASTM D5185m 1070 1072 1097 1134 Phosphorus ppm ASTM D5185m 1070 1072 1097 1134 Phosphorus ppm ASTM D5185m 1270 1164 1237 1262 Sulfur ppm ASTM D5185m 260 32 4 6 Sodium ppm ASTM D5185m >20 1 2 2 Sodi% % 'ASTM D5185m<								
Boron ppm ASTM D5185m 1 1 2 2 Barium ppm ASTM D5185m 1 2 0 <1 Molybdenum ppm ASTM D5185m 60 60 60 60 56 Manganese ppm ASTM D5185m 10 899 903 930 Calcium ppm ASTM D5185m 1010 899 903 930 Calcium ppm ASTM D5185m 1070 1072 1097 1134 Phosphorus ppm ASTM D5185m 1270 1164 1237 1262 Sulfur ppm ASTM D5185m 2760 3216 2770 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 2060 3216 2770 2951 Silicon ppm ASTM D5185m 206 3 4 6 Sodium ppm ASTM D5185m 20 1 2 <1 NTFRA-RED method								
Barium ppm ASTM D5185m 1 2 0 <1		ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 1 2 0 <1 Molybdenum ppm ASTM D5185m 60 60 60 56 Manganese ppm ASTM D5185m 1 0 <1		Boron	ppm	ASTM D5185m	1	1	2	2
Molybdenum ppm ASTM D5185m 60 60 56 Manganesse ppm ASTM D5185m 1 0 <1		Barium		ASTM D5185m	1	2	0	<1
Manganese ppm ASTM D5185m 1 0 <1 1 Magnesium ppm ASTM D5185m 1010 899 903 930 Calcium ppm ASTM D5185m 1070 1072 1097 1134 Phosphorus ppm ASTM D5185m 1150 923 982 966 Zinc ppm ASTM D5185m 1270 1164 1237 1262 Sulfur ppm ASTM D5185m 2060 3216 2770 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 6 Sodium ppm ASTM D5185m >20 1 2 <1		Molybdenum	ppm	ASTM D5185m	60	60	60	56
Magnesium ppm ASTM D5185m 1010 899 903 930 Calcium ppm ASTM D5185m 1070 1072 1097 1134 Phosphorus ppm ASTM D5185m 1150 923 982 966 Zinc ppm ASTM D5185m 1270 1164 1237 1262 Sulfur ppm ASTM D5185m 2060 3216 2770 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 6 Sodium ppm ASTM D5185m >20 1 2 <1 Potassium ppm ASTM D5185m >20 1 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % %STM D7844 >3 0.3 0.4 0.4 Nitration Abs/m %ASTM D7844 >3 0.3 0.4 0.4 Sulfation Mbs/1m %				ASTM D5185m	1	0	<1	
Calcium ppm ASTM D5185m 1070 1072 1097 1134 Phosphorus ppm ASTM D5185m 1150 923 982 966 Zinc ppm ASTM D5185m 1270 1164 1237 1262 Sulfur ppm ASTM D5185m 2060 3216 2770 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 6 Sodium ppm ASTM D5185m >20 1 2 <1 Potassium ppm ASTM D5185m >20 1 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.4 Nitration Abs/cm *ASTM D7824 >20 9.3 9.4 9.9 Sulfation Abs/lmm *ASTM D7845 >30 20.2 20.6 21.2 FLUID DEGRAD-TION		-	ppm	ASTM D5185m	1010	899	903	930
Phosphorus ppm ASTM D5185m 1150 923 982 966 Zinc ppm ASTM D5185m 1270 1164 1237 1262 Sulfur ppm ASTM D5185m 2060 3216 2770 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 6 Sodium ppm ASTM D5185m >25 3 4 6 Sodium ppm ASTM D5185m >20 1 2 <1 Ptotassium ppm ASTM D5185m >20 1 2 <1				ASTM D5185m	1070	1072	1097	1134
Zinc ppm ASTM D5185m 1270 1164 1237 1262 Sulfur ppm ASTM D5185m 2060 3216 2770 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 6 Sodium ppm ASTM D5185m >25 3 4 6 Sodium ppm ASTM D5185m >20 0 0 2 Potassium ppm ASTM D5185m >20 1 2 <1		Phosphorus				923	982	966
SulfurppmASTM D5185m2060321627702951CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25346SodiumppmASTM D5185m>20002PotassiumppmASTM D5185m>2012<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.30.40.4NitrationAbs/cm*ASTM D7415>3020.220.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2517.016.718.2				ASTM D5185m	1270	1164	1237	1262
SiliconppmASTM D5185m>25346SodiumppmASTM D5185m002PotassiumppmASTM D5185m>2012<1		Sulfur				3216	2770	2951
SodiumppmASTM D5185m002PotassiumppmASTM D5185m>2012<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.30.40.4NitrationAbs/cm*ASTM D7624>209.39.49.9SulfationAbs/1mm*ASTM D7415>3020.220.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2517.016.718.2		CONTAMINANTS	3	method	limit/base	current	history1	history2
SodiumppmASTM D5185m002PotassiumppmASTM D5185m>2012<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.30.40.4NitrationAbs/cm*ASTM D7624>209.39.49.9SulfationAbs/1mm*ASTM D7415>3020.220.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2517.016.718.2		Silicon	ppm	ASTM D5185m	>25	3	4	6
PotassiumppmASTM D5185m>2012<1		Sodium		ASTM D5185m		0	0	
Soot % % *ASTM D7844 >3 0.3 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 9.3 9.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 20.6 21.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.0 16.7 18.2		Potassium	ppm	ASTM D5185m	>20	1	2	<1
Nitration Abs/cm *ASTM D7624 >20 9.3 9.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 20.6 21.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.0 16.7 18.2		INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 9.3 9.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 20.6 21.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.0 16.7 18.2		Soot %	%	*ASTM D7844	>3	0.3	0.4	0.4
SulfationAbs/.1mm*ASTM D7415>3020.220.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2517.016.718.2								
Oxidation Abs/.1mm *ASTM D7414 >25 17.0 16.7 18.2								
Oxidation Abs/.1mm *ASTM D7414 >25 17.0 16.7 18.2		FLUID DEGRADA	ATION _					
					>25			, in the second s
		Dase NULLIDEL (DIN)	nig KOH/g	AG TWI D2030	9.0	7.0	0.0	0.0



OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.5	13.0	12.5	12.4
GRAPHS						
Ferrous Alloys						
45 40						
35						
30		-				
25 - 20 -						



Test Package : CONST (Additional Tests: TBN) Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. mwyatt@traderconstruction.com * - 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)

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