



MOBILE OIL ANALYSIS REPORT

 CONTAMINATION
 OIL CONDITION
 WEAR

SEVERE
ABNORMAL
NORMAL

125101 - Diesel Engine

Unit Make : PETERBILT

Unit Model : PB 320

Comp Make : CUMMINS

Comp Model : {n/a}

Serial No : 3BPZL50X7F166806

Cust. Ref No. : {n/a}

Stub No. : KL-M2319685

Date Rec'd : Nov 10, 2015

Sample Date : Oct 21, 2015

Diagnostician : Wes Davis

RECOMMENDATION

We advise that you check for the source of the coolant leak. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Sample Date	04/21/15	07/27/15	09/01/15	Current	UOM
Time on Unit	6079	6514	6670	6819	hrs
Time on Oil	0	0	0	0	hrs
Time on Fltr	0	0	0	0	hrs
Oil Maint.	not chg	not chg	not chg	changed	---
Filter Maint.	not chg	not chg	not chg	changed	---

CONTAMINATION

Test for glycol is positive. There is a high concentration of glycol present in the oil. There is a moderate concentration of water present in the oil. The system cleanliness is acceptable for your target ISO 4406 cleanliness code.

Sample Date	04/21/15	07/27/15	09/01/15	Current	Abn
Silicon	12	15	4.1	11	25
Fuel (%)	<2.0	<2.0	<2.0	<2.0	3.0
Glycol	---	---	---	0.12	0.06
Water (%)	<0.1	<0.1	<0.1	0.418	0.2
Soot (%)	2.5	3.3	0.5	0.8	6
>4µm(c)	897	474	320	4551	---
>6µm(c)	488	258	174	2479	---
>14µm(c)	83	44	29	422	---
>21µm(c)	28	14	10	142	---
>38µm(c)	4	2	1	22	---
>70µm(c)	0	0	0	2	---
ISO 4406(c)	16/14	15/13	15/12	18/16	---

OIL CONDITION

Oil Type: 36 QTS of CONOCO PHILLIPS GUARDOL ECT WITH TITANIUM

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sample Date	04/21/15	07/27/15	09/01/15	Current	Base
Potassium	43	65	23	414	
Boron	24	24	58	66	85
Barium	0.0	0.0	0.0	0.0	
Calcium	2004	1948	1642	1547	1800
Magnesium	321	299	251	204	350
Molybdenum	15	18	7.4	226	
Sodium	14	42	24	1676	
Phosphorus	930	956	911	831	1000
Sulfur	3060	3082	3417	3047	3500
Zinc	1197	1210	1030	960	1100
Visc 100°C (cSt)	15.7	17.08	15.76	17.84	15.3
BN (mg/KOH/g)	6.82	7.13	8.28	9.44	9.5

WEAR

All component wear rates are normal.

Sample Date	04/21/15	07/27/15	09/01/15	Current	Abn
PQ	---	---	---	---	---
Iron	68	89	23	47	90
Nickel	0.6	0.8	0.2	0.7	2
Chromium	1.8	2.1	0.4	1.2	20
Titanium	86	87	79	73	2
Copper	11	13	0.0	62	330
Aluminum	21	23	5.9	14	20
Tin	0.0	0.0	6.0	7.1	15
Lead	5.5	8.5	4.5	14	40



WEAR CHECK

MOBILE OIL ANALYSIS REPORT

CONTAMINATION	SEVERE
OIL CONDITION	NORMAL
WEAR	ABNORMAL

2400 - Front Diesel Engine

Unit Make : PETERBILT

Unit Model : 379

Serial No : 79017429

Date Rec'd : Sep 15, 2006

Comp Make : CUMMINS

Cust. Ref No. : {n/a}

Sample Date : Aug 29, 2006

Comp Model : ISX

Stub No. : WC-MF063395

Diagnostician : Mark Brinson

RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Sample Date				Current	UOM
Time on Unit				236119	hrs
Time on Oil				18000	hrs
Time on Fltr				18000	hrs
Oil Maint.				changed	---
Filter Maint.				changed	---

CONTAMINATION

There is an abnormal amount of solids and carbon present in the oil.

Sample Date				Current	Abn
Silicon				1.4	35
Potassium				24	20
Sodium				19	80
Fuel (%)				<2.0	3.0
Glycol				---	0.06
Water (%)				<0.1	0.2
Soot (%)				6.6	7.5
Sulfation (%)				126	100
Nitration (%)				218	100

OIL CONDITION

Oil Type: 40 QTS of SHELL ROTELLA S 10W40

The oil is no longer serviceable due to the presence of contaminants.

Sample Date				Current	Base
Boron				0.6	0
Barium				0.2	---
Calcium				2655	392
Magnesium				10	291
Molybdenum				2.7	0
Sodium				19	399
Phosphorus				872	535
Sulfur				4106	---
Zinc				1008	557
Visc 40°C (cSt)				---	99
Visc 100°C (cSt)				12.6	14.2
VI				---	---
Oxidation (%)				215	---
AN (mg/KOH/g)				---	---
BN (mg/KOH/g)				5.0	5.2

WEAR

The iron level is abnormal. All other component wear rates are normal.

Sample Date				Current	Abn
*White Metal				NONE	---
*Babbitt				NONE	---
PQ				---	---
Iron				150	165
Nickel				1.0	4
Chromium				6.9	5
Titanium				0.0	---
Copper				4.7	90
Aluminum				2.5	20
Tin				1.3	5
Lead				24	150



MOBILE OIL ANALYSIS REPORT

CONTAMINATION	SEVERE
OIL CONDITION	ABNORMAL
WEAR	NORMAL

88U - Diesel Engine

Unit Make : GROVE

Unit Model : TM1300

Comp Make : DETROIT

Comp Model : 8.2

Serial No : {n/a}

Cust. Ref No. : {n/a}

Stub No. : KL-MF007111

Date Rec'd : Aug 2, 2010

Sample Date : Jul 28, 2010

Diagnostician : Jonathan Hester

RECOMMENDATION

We advise that you check the fuel injection system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Sample Date			02/15/10	Current	UOM
Time on Unit			1048	1277	hrs
Time on Oil			301	530	hrs
Time on Fltr			301	530	hrs
Oil Maint.			changed	n/a	---
Filter Maint.			n/a	not chg	---

CONTAMINATION

There is a high amount of fuel present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Sample Date			02/15/10	Current	Abn
Silicon			113	62	25
Fuel (%)			<2.0	12.0	3.0
Glycol			---	---	0.06
Water (%)			<0.1	<0.1	0.2
Soot (%)			0.1	0.1	3
>4µm(c)			---	---	---
>6µm(c)			---	---	---
>14µm(c)			---	---	---
>21µm(c)			---	---	---
>38µm(c)			---	---	---
>70µm(c)			---	---	---
ISO 4406(c)			---	---	---

OIL CONDITION

Oil Type: 5 GAL of CHEVRON DELO 400 MULTIGRADE 15W40

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sample Date			02/15/10	Current	Base
Potassium			0.0	0.3	5.4
Boron			37	36	151
Barium			0.0	0.0	0.4
Calcium			753	1571	2046
Magnesium			994	339	0
Molybdenum			8.7	23	250
Sodium			5.3	0.8	0.0
Phosphorus			1045	763	1043
Sulfur			6148	3766	5012
Zinc			1199	918	943
Visc 100°C (cSt)			14.00	9.28	14.4
BN (mg/KOH/g)			6.78	7.00	12.5

WEAR

All component wear rates are normal.

Sample Date			02/15/10	Current	Abn
*White Metal			NONE	NONE	---
*Babbitt			NONE	NONE	---
PQ			---	---	---
Iron			25	13	120
Nickel			0.4	0.0	2
Chromium			2.0	1.4	20
Titanium			0.0	0.0	2
Copper			5.5	2.1	30
Aluminum			2.4	2.3	20
Tin			1.9	0.1	15
Lead			4.2	2.2	40



MOBILE OIL ANALYSIS REPORT

CONTAMINATION	NORMAL
OIL CONDITION	ATTENTION
WEAR	NORMAL

[R12] R12-F-01 - Diesel Engine

Unit Make : CATERPILLAR

Unit Model : C-18

Serial No : WJH04806

Date Rec'd : Jun 23, 2011

Comp Make : {n/a}

Cust. Ref No. : {n/a}

Sample Date : Jun 15, 2011

Comp Model : {n/a}

Stub No. : KL-M2208634

Diagnostician : Jonathan Hester

RECOMMENDATION

Oil and filter change at the time of sampling has been noted.
Resample at the next service interval to monitor.

Sample Date	04/14/11	05/11/11	05/31/11	Current	UOM
Time on Unit	1	106	567	700	hrs
Time on Oil	1	106	567	700	hrs
Time on Fltr	1	106	567	700	hrs
Oil Maint.	not chg	not chg	not chg	changed	---
Filter Maint.	not chg	not chg	changed	changed	---

CONTAMINATION

There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

Sample Date	04/14/11	05/11/11	05/31/11	Current	Abn
Silicon	18	15	16	15	25
Fuel (%)	<2.0	<2.0	<2.0	<2.0	5
Glycol	---	---	---	---	0.06
Water (%)	<0.1	<0.1	<0.1	<0.1	0.2
Soot (%)	0	0	0	0.1	3
>4µm(c)	89	333	38	871	---
>6µm(c)	48	181	20	474	---
>14µm(c)	8	30	3	80	---
>21µm(c)	2	10	1	27	---
>38µm(c)	0	1	0	4	---
>70µm(c)	0	0	0	0	---
ISO 4406(c)	14/13/10	16/15/12	12/11/8	17/16/13	---

OIL CONDITION

Oil Type: 17 GAL of CHEVRON DELO 400 LE 15W40

The oil viscosity is lower than normal. Confirm oil type.

Sample Date	04/14/11	05/11/11	05/31/11	Current	Base
Potassium	2.2	5.9	0.0	3.6	
Boron	2.3	5.0	1.4	1.5	
Barium	2.3	3.9	3.2	3.3	
Calcium	2608	2489	2569	2112	
Magnesium	307	291	295	243	
Molybdenum	1.3	0.6	0.8	0.6	
Sodium	5.3	4.6	3.8	3.4	
Phosphorus	1665	1133	1133	971	1200
Sulfur	3912	3630	3680	3018	3200
Zinc	1328	1223	1279	1123	1300
Visc 100°C (cSt)	10.87	10.38	9.57	9.99	15.7
BN (mg/KOH/g)	12.4	12.71	11.9	11.0	9.6

WEAR

All component wear rates are normal.

Sample Date	04/14/11	05/11/11	05/31/11	Current	Abn
PQ	---	---	---	---	---
Iron	7.4	6.4	13	16	100
Nickel	0.2	0.0	0.4	0.3	2
Chromium	0.3	0.3	0.5	0.5	20
Titanium	0.0	0.4	0.4	0.3	2
Copper	7.3	12	26	29	330
Aluminum	1.1	0.6	0.8	0.7	25
Tin	0.7	0.0	3.0	0.0	15
Lead	1.6	3.6	4.8	3.3	40