CFA
CASHMAN FLUIDS ANALYSIS

[redacted]

Oil Analysis Report

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item 30119782

Equipment Information				
Component	Engine	**Sample Point**		A - No Action
Make	VOLVO-PENTA	**Model**	TWD1663GE	B - Monitor
Unit Number	EPS003	**Serial Number**	D16-066089-CA3	C - Action
Meter	0	**Component Meter**	0	X - Immediate Action
Jobsite	Default Site	**Sample Site**	Long Beach California	A
Fluid Information				**Lab No** 2106191105
Fluid Type	CHEVRON DELO 400 LE	**Fluid Grade**	15W40	
Fluid Meter	0	**Filter Changed**	N	**Work Order No**
Fluid Changed	N	**Test Package**		

Sample Date 06/20/2019 **Entered** 06/22/2019 **Analyzed** 06/24/2019

Data Interpreter Comments Interpreted by : Alan Johnson

Wear Rate, Oil Condition and Total Ferrous Debris (pqL) index are acceptable. No action required. Continue to build a reliable operating trend. Sample again at the next scheduled service interval.

Element	UOM	E	Min/Max	Current					New Oil/Ref
SAMPLE DETAILS									
Lab No	-	-		2106191105					-
Meter	-	-		0					-
Fluid Meter	-	-							-
Comp Meter	-	-		0					-
Evaluation	-	-							-
V100 : Viscosity @ 100°C : ASTM D445									
V100	cSt	-		13.07					15.5
Fuel-GC (Contingent) : Fuel Dillution % Detection by Gas Chromatograph : ASTM D7593									
GC Fuel	% Vol	-		1.24					
ICP : Inductively Coupled Plasma : ASTM D5185 ICP									
Fe	ppm	-		6					
Cu	ppm	-		1					
Pb	ppm	-		1					
Sn	ppm	-		0					
Cr	ppm	-		0					
Ni	ppm	-		1					
Ti	ppm	-		76					0

Element	UOM	E	Min/Max	Current					New Oil/Ref
Al	ppm	-		1					
Si	ppm	-		8					
Na	ppm	-		3					
K	ppm	-		4					
B	ppm	-		102					494
Ca	ppm	-		1941					1570
Mg	ppm	-		511					408
P	ppm	-		1062					1144
Zn	ppm	-		1229					1267
Mo	ppm	-		1					80
Li	ppm	-		0					0
Sb	ppm	-		1					
Ba	ppm	-		0					0
Cd	ppm	-		0					
Mn	ppm	-		0					
Ag	ppm	-		0					
V	ppm	-		0					
Bi	ppm	-		0					
In	ppm	-		0					
PQL : Particle Quantifier Index : In-House									
pqL Index	N/A	-		0					
FTIR : FT-IR Spectroscopy : ASTM E2412									
Soot	ABS/CM-1	-		0					
OXI	ABS/CM-1	-		15					15
NIT	ABS/CM-1	-		7					4
Sulf	ABS/CM-1	-		19					20
AW	ABS/CM-1	-		18					22
FT-IR Glycol	ABS/CM-1	-		0					
FT-IR Water	ABS/CM-1	-		11					

Understanding your Report

Comprehensive Condition Testing

This report contains a sequence of tests designed to evaluate the component or system for wear rate, contamination and lubricant condition. Standard Test Packages are recommended based on criteria such as the type and criticality level of the system or component being analysed. Custom test packages are also available as a value added service.

Report Format

The report is organized into easily identified sections and columns.

Equipment Information contains all of the descriptive and identifying information applicable to the machine, system and/or component. The Overall Evaluation is displayed in a color-coded format. After carefully evaluating the laboratory test data in conjunction with the equipment and fluid information the analyst defines the Overall Evaluation and Alert Levels as:

A-No Action (Green) B-Monitor (Yellow) C-Action (Orange) X Immediate Action(Red)

Fluid Information contains the descriptive and indentifying information regarding the lubricant or fluid being analysed.

Analyst Comments contains descriptive interpretation, evaluation and recommendation statements the analyst has assigned which support the Overall Evaluation.

Sample Details contain the actual laboratory test data, organized into sub-sections which identify the applicable ASTM test method.

Column Identification

Element contains the names of the specific test analyte.

UOM displays the Unit of Measure for the test, such as parts per million.

E column shows the Evaluation Code describing if and how much a test result exceeded a statistical limit, if applicable. A-Green indicates no limit was exceeded. B-Yellow indicates a first level limit was exceeded. C-Orange indicates a second level limit was exceeded. X-Red indicates a third and final level limit was exceeded. Z-Gray indicates no limit exists.

Min/Max represents the actual limit value that was exceeded for the applicable Evaluation Code..

Current displays sample details and test result data for the current sample. Sample details and test data for previous samples are displayed in the next 4 columns.

New Oil/Ref column contains reference oil test data for the lubricant if provided.

Key to Analytes

Viscosity

V40: Viscosity at 40C deg V100: Viscosity at 100C deg VI: Viscosity Index

ICP Fine Metals and Total Ferrous Debris

Ag: Silver Al: Aluminum B: Boron Ba: Barium Ca: Calcium
Cd: Cadmium Cr: Chrome Cu: Copper Fe: Iron K: Potassium
Li: Lithium Mg: Magnesium Mn: Manganese Mo: Molybdenum Na: Sodium
Ni: Nickel P: Phosphorus Pb: Lead Sb: Antimony Si: Silicon
Sn: Tin Ti: Titanium V: Vanadium Zn: Zinc
pqL Index: Total Ferrous Debris

Infrared Spectroscopy

Soot: Soot OXI: Oxidation Sulf: Sulfation Nit: Nitration AW: Antiwear
FT-IR Water: Water Screening FT-IR Glycol: Glycol Screening

Contaminates

Water: Water Pos/Neg KF Water: Water ppm GC Fuel: % Fuel/Gasoline GC Glycol: % Glycol

Particle Count

4u: 4 microns 6u: 6 microns 14u: 14 microns 21u: 21 microns 38u: 38 microns
70u: 70 microns ISO Code: ISO 4406:1999

For more information on understanding your report visit www.cashmanfluidsanalysis.com

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