

UIN 015B521

Diesel Engine

Unit No. 60396000377

Unit:
 Make
 Model
 Serial No. WDBE33D4HA
 Site

Compartment:
 Name Diesel Engine
 Make Mercedes Benz
 Model 300D
 Serial No.
 Capacity:

Customer:

DIAGNOSIS

All wear rates normal. Abrasive and other contaminant levels are acceptable. Viscosity within specified operating range.

Action: As oil and filter(s) already changed, resample next service interval to further monitor.

ANALYST: Ed.Eckert

LEGEND				
Normal	Severe	Abnormal	Caution	Normal

DATE SAMPLED	28-Nov-12	05-Aug-10	07-Feb-09	21-May-08	08-Aug-07	13-Sep-06
DATE RECEIVED	06-Dec-12	17-Aug-10	16-Feb-09	02-Jun-08	20-Aug-07	29-Sep-06
DATE REPORTED	11-Dec-12	23-Aug-10	17-Feb-09	03-Jun-08	22-Aug-07	04-Oct-06
LAB NO.	43020351042	43020047474	43009024225	43008098077	43007067487	43006065562
SIF NO.	11173787	092116650004	92116650010	61637870006	9443773	51277640042
TIME ON UNIT	Hrs 315000	310000	300,000	290,000	280,000	270,000
TIME ON OIL	Hrs 5000	10000	6500	10000	10000	10000
OIL BRAND	Mobil-1	Mobil-1	Mobil-1	Mobil-1	Mobil-1	Mobil-1
OIL TYPE	CI-4	CI-4				
OIL GRADE	SAE 5W40	SAE 5W40	SAE 5W40	SAE 15W-50	SAE 5W-40 and 15W-50 (Mixture)	SAE 5W40
OIL ADDED						
FILTER						
OIL CHANGED	Changed	Changed	Changed	Changed	Changed	Changed
WO NUMBER						
Metals (ppm)						
Iron (Fe)	30	39	39	75	57	41
Chromium (Cr)	2	1	2	2	2	2
Lead (Pb)	1	<1	1	1	<1	1
Copper (Cu)	2	2	3	3	2	3
Tin (Sn)	<1	<1	<1	<1	<1	<1
Aluminium (Al)	9	11	18	10	5	8
Nickel (Ni)	1	1	<1	<1	<1	<1
Silver (Ag)	<1	<1	<1	<1	<1	<1
Titanium (Ti)	<1	<1	<1	<1	<1	<1
Vanadium (V)	<1	<1	<1	<1	<1	<1
Contaminants (ppm)						
Silicon (Si)	11	17	42	14	7	13
Sodium (Na)	24	60	274	28	3	7
Potassium (K)	18	22	57	37	24	40
Water (%)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Coolant	No	No	Yes	No	No	No
Additives (ppm)						
Magnesium (Mg)	491	456	542	73	402	508
Calcium (Ca)	2463	2616	2302	2016	2297	1912
Barium (Ba)	<1	<1	<1	<1	<1	<1
Phosphorus (P)	1195	1135	1105	961	1183	1039
Zinc (Zn)	1360	1277	1250	1116	1516	1319
Molybdenum (Mo)	5	5	13	85	24	1
Boron (B)	58	51	61	62	82	38
Physical Tests						
Viscosity (cSt 100C)	14.2	14.2	14.0	16.9	15.9	14.8
Fuel (%)	<1	<1	<1	<1	<1	<1
Soot (%) Infrared	0.6	0.3	0.4	0.8	0.7	0.9
Physical / Chemical						
Base Number (mgKOH/g)	9.1	10.1	10.3	6.8	4.5	8.4

NOTE: The engine vacuum pump exploded at 293,300mi. After repairs, Delvac-1300 dino oil was used for 200 miles, then replaced with Mobil-1 at 293,500 miles. Since there were no other major incidents during this time period, I assume the abnormal analysis results were related to the vacuum pump failure.

935 SUNSHINE ROAD
KANSAS CITY, KS 66115-1122
(800) 332-8055, FAX (913) 281-9885

CUSTOMER NO.: 9000394
UNIT NO.: 603960000377
DESCRIPTION: ENGINE

MAKE: MERCEDES BENZ
MODEL 300D
OIL BRAND: MOBIL
OIL TYPE: DELVAC 1 5W40
SERIAL NO.: WDBEB33D4HA
FUEL TYPE: DIESEL

NO. COPIES 1

SAMPLE DATA

SPECTROCHEMICAL ANALYSIS (ppm)

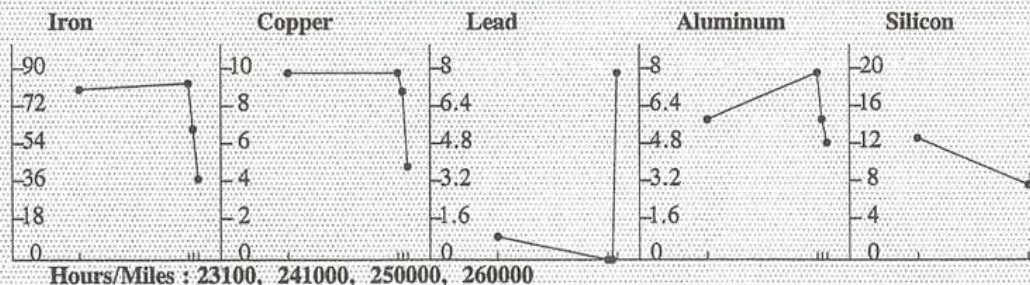
PHYSICAL PROPERTIES

LAB#	SAMPLE DATE RECEIPT DATE	TIME ON OIL TIME ON UNIT	SPECTROCHEMICAL ANALYSIS (ppm)																	PHYSICAL PROPERTIES								
			IRON	CHROMIUM	LEAD	COPPER	TIN	ALUMINIUM	NICKEL	SILVER	SILICON	BORON	SODIUM	MAGNESIUM	CALCIUM	BARIUM	PHOSPHORUS	ZINC	MOLYBDENUM	TITANIUM	VANADIUM	POTASSIUM	FUEL %VOLI	VIS @ 40 C cSt	VIS @ 100 C cSt	WATER %VOLI	SOOT/SOLIDS %WT	GLYCOL
95347 NORMAL	10/18/2005 10/28/2005	7800 260000	39	1	8	5	0	5	0	0	13	54	0	543	2492	0	1192	1680	3	0	0	0	<1	N/A	14.00	0	N/A	NEG
125577 NORMAL	10/15/2004 10/25/2004	9000 250000	63	2	0	9	0	6	0	0	9	126	0	468	2245	0	1151	1487	5	0	0	0	<1	N/A	14.94	0	N/A	NEG
128266 NORMAL	10/24/2003 10/30/2003	10100 241000	85	3	0	10	0	8	0	0	8	141	3	470	2262	0	1130	1337	15	0	0	0	<1	N/A	15.01	0	N/A	NEG
62768 NORMAL	05/24/2002 06/05/2002	10800 231000	82	4	1	10	0	6	0	0	13	161	0	498	2725	0	1418	1463	33	0	0	25	<1	N/A	14.92	0	N/A	NEG

LAB# ADDITIONAL TESTS

GRAPHICAL ANALYSIS

LAB#	TBN	F-SOOT
95347	10.4	0.6
125577	7.4	1.1
128266	7.5	1.0
62768	8.2	0.86



Key
A: Abnormal C: Critical

MOBIL ACCUTRACK - KANSAS CITY

LAB# ANALYSIS RECOMMENDATIONS

RESULTS OF TEST PERFORMED INDICATE NO CORRECTIVE ACTION REQUIRED.

95347

ANALYST-DAB

ANALYSES INDICATE NORMAL CONDITION. RESAMPLE AT NORMAL INTERVAL.

125577

ANALYST-MWP

ANALYSES INDICATE NORMAL CONDITION. RESAMPLE AT NORMAL INTERVAL.

128266

ANALYST-MWP

RESULTS OF TEST PERFORMED INDICATE NO CORRECTIVE ACTION REQUIRED. NOTE: OIL CONDITION IS SATISFACTORY FOR CONTINUED USE.

62768

ANALYST-MWP

PERFORMANCE ANALYSIS COMPANY
 3323 RUDY STREET , KNOXVILLE , TN, 37921
 Phone: (423)524-3563 FAX: (423)546-9404

DESCRIPTION: EQUIPMENT
 MERCEDES BENZ 300D
 NUMBER: 3EJD967
 COMPONENT: DIESEL ENGINE

LUBRICATION
 BRAND: MOBIL 1
 GRADE: 5W40
 VISCOSITY: 0

Location:

OIL CHANGED THIS SAMPLE: Yes

CURRENT OR MOST RECENT SAMPLE RECEIVED 07/06/2000

Lab Number	Date Taken	Unit MI/HR	Oil MI/HR	WEAR METALS						CONTAMINATES		ENGINE SOOT	FUEL	WATER	SOLIDS	GLYCOL	VISC	TBN	TAN	GRADE	BRAND
				IRON	ALUM	COPPER	CHROME	LEAD	TIN	SODIUM	DIRT										
66693Y	06/29/2000	220000	10000	21	3	5	0	3	0	5	11	LIGHT	NEG	NEG	NONE	NEG	130			5W40	MOBIL 1

COMMENTS

Iron appears to be normal.
 Aluminum appears to be normal.
 Copper appears to be normal.
 Chrome appears to be normal.
 Lead appears to be normal.
 Silicon appears to be normal.
 ENGINE SOOT : LIGHT - Soot Normal
 No water detected.
 Solids: New Oil or no visible metal or dirt detected in this sample.
 No antifreeze detected.
 Oil sample base number (TBN) not requested.
 Oil sample acid number (TAN) not requested.

**1987 Mercedes 300D Turbo
 Purchased car at 180,000 miles
 Immediately switched to Mobil-1 synthetic
 Started with 4,000 mile drain intervals**

HISTORY WHICH INCLUDES MOST RECENT SAMPLE RECEIVED

Lab Number	Date Taken	Unit MI/HR	Oil MI/HR	WEAR METALS						CONTAMINATES		ENGINE SOOT	FUEL	WATER	SOLIDS	GLYCOL	VISC	TBN	TAN	GRADE	BRAND
				IRON	ALUM	COPPER	CHROME	LEAD	TIN	SODIUM	DIRT										
66693Y	06/29/2000	220000	10000	21	3	5	0	3	0	5	11	LIGHT	NEG	NEG	NONE	NEG	130			5W40	MOBIL 1
48722Y	02/20/1999	203500	3500	6	0	4	0	0	0	5	6	LIGHT	NEG	NEG	NONE	NEG	133			15W50	MOBIL 1

NOTES:

From 188,000-->192,000: Mobil-1 15W-50 (No analysis performed)
 From 192,000-->196,000: Mobil-1 15W-50 (No analysis performed)
 From 196,000-->200,000: Mobil-1 15W-50 (No analysis performed)
 From 200,000-->203,500: Mobil-1 15W-50 (Lab # 48722Y)
 From 203,500-->210,000: Mobil-1 15W-50 (No analysis performed)
 From 210,000-->220,000: Delvac-1 5W-40 (Lab # 66693Y)