

AUTOMOTIVE CONSULTING ENGINEERS LTD



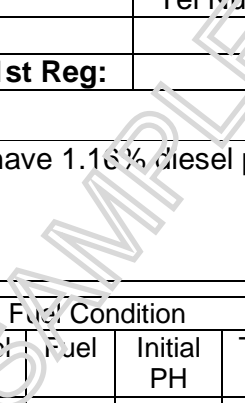
FUEL / OIL LABORATORY REPORT

Client:			
Your File Ref:		Operator Name:	
Date of Sale:		Del Miles:	
Failure Date:		Failure Miles:	
Policy No:		Your Contact:	
Vehicle:	Vauxhall Astra SXI CDTI 100	Reg No:	
VIN No:		Engine No:	
Odometer:		Report No:	

Inspect At:			
Telephone Contact Name	Service	Tel Number	
Opening Times:	8am to 5pm		
Visit Date:	03/02/11	Date 1st Reg:	Vat Registered:

DIAGNOSIS.

Analysis of the oil sample showed it to have 1.16% diesel present.



Fuel Condition											
Visco 40°C	Appear ance	Disper sancy	Water	Glycol	Fuel	Initial PH	TAN	Oxida -tion	TBN		ISO
73	70	N/A	485	N/A	N/A	N/A	N/A	N/A	N/A		N/A

Additive Elements (ppm)				
Ba	Ca	Mg	P	Zn
<1	1883	228	850	1078

Elemental Analysis - Contamination & Wear Metals (ppm)															
B	Na	Si	Li	Al	Cr	Cu	Fe	Pb	Sn	Mo	Ni	Ti	Ag	Mn	V
30	2	15	<1	12	2	5	31	1	1	7	<1	<1	2	1	<1
Oil Chg	Oil Age														
	-1														

Key	Normal	Caution	Serious
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Report No:		Vehicle:	
Your Ref:		Reg No:	

Symbols Definitions

Ba - Barium	K - Potassium	Ni - Nickel
Ca - Calcium	Li - Lithium	Ti - Titanium
Mg - Magnesium	Al - Aluminium	Ag - Silver
P - Phosphorus	Cr - Chromium	Mn - Manganese
B - Boron	Cu - Copper	Cd - Cadmium
Zn - Zinc	Fe - Iron	W - Tungsten
S - Sulphur	Pb - Lead	V - Vanadium
Na - Sodium	Sn - Tin	-
Si - Silicon	Mo - Molybdenum	-

ENGINEERS OPINION:

The analysis of the oil sample showed it to have 1.16% diesel present, we normally consider 2% and above to be detrimental to the engine operation. As such this percentage of fuel was not considered significant and clearly would not account for the high oil content reported. The water absorption level was also considered to be acceptable and viscosity appeared normal. As such we can rule out the engine over fuelling and water contamination causing this condition of excessive oil content. The fuel content may indicate DPF regeneration issues in service if the vehicle is fitted with this type of filter.

SAMPLED TAKEN BY.

LABORATORY INTERPRETER.

OPINION BY.

DUTY: It is the duty of an expert to help the Court on the matters within his expertise. This duty over-rides any obligation to the person from whom he has received instructions or by whom he is paid. "I understand my duty to the Court and have complied and will continue to comply with it and I am aware of the requirements of Part 35 and Practice Direction 35, this protocol and the practice direction on pre-action conduct." **STATEMENT OF TRUTH:** " I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer."

1-oil-fuel.dot v2

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"Helping You Make Informed Decisions"

Registered Office: 1st Floor, 8 -12 London Street, Southport, Merseyside, PR9 0UE. Registered in England No 2878702



AUTOMOTIVE CONSULTING ENGINEERS LTD

Our Ref	Vehicle
Your Ref	Reg No.

Appearance Rating	All Systems (Excl. Engines)	Appearance Rating	All Systems (Excl. Engines)
10	Clear & bright	50	Emulsified
20	Dark	60	Free Water
30	Hazy	70	Solid Debris
40	Cloudy	80	Solid Debris and Water

FERROGRAPHY – A microscopic study of wear particles to establish failure mode: available on request.

WATER – Essential to detect coolant leaks or contamination by sea or fresh water.

TBN – A measure of reserve alkalinity to protect the crankcase from acidic combustion gases.

SULPHATION – A measure of deterioration of the oil additives by sulphuric acid contamination.

TAN – A measure of corrosive acidic materials in oxidised overheated oils.

OXIDATION & NITRATION – A measure of deterioration of the oil by reaction with air.

ISO CLEANLINESS CODE – A scale to indicate amount of particles in oils >4, >6 and >14 microns.

WEAR METALS – Debris in oil from worn components.

ADDITIVE METALS – Elements added by manufacturer to give particular properties to the oil.

CONTAMINATION METALS – Elements indicative of dirt, coal & abrasive coolant residues etc.

TEST

Viscosity

Fuel

Oil Condition (OC)

Appearance

Soot

Dispersancy

Ferrous Debris / P.Q.

Water

Water (Electrical Oils)

Glycol

Total Base Number (TBN)

Total Acid Number (TAN)

Strong Acid Number (SAN)

Particle Count (ISO Code)

Initial PH

UNITS

Centistoke (cST)

Normal Caution Serious

Arbitrary scale 0-100

Arbitrary scale 0-100

%

Good Moderate or Poor

Arbitrary Scale 0-10000

% when values quoted

ppm when values quoted.

Y=Yes N=No

mg KOH / gm

mg KOH / gm

mg KOH / gm

No. Particles / ml >4, >6, >14 microns

Scale 0-14 7 = Neutral

N - Normal C - Caution S - Serious G - Good M - Moderate P - Poor

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