

WEAR CONTAMINATION FLUID CONDITION

ABNORMAL NORMAL NORMAL



## **VOLVO A40G 354142**

Component Diesel Engine

No corrective action is recommended at this time. Resample at the next service interval to monitor.    Sample Date   Machine Age   hrs   Oil Age   hrs   Oil Age   hrs   Oil Changed   Filter Changed   Sample Status	Method Client Info Client Info Client Info	Limit/Abn	Current	History1	History2
No corrective action is recommended at this time. Resample at the next service interval to monitor.  Sample Date Machine Age hrs Oil Age hrs Filter Age hrs Oil Changed Filter Changed Sample Status  WEAR  Exhaust valve wear is indicated.  WEAR  Exhaust valve wear is indicated.  Iron ppm Chromium ppm Nickel ppm Titanium ppm Aluminum ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm Siltcon ppm Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/cm Silt scalar Debris scalar Appearance Scalar Odor Scalar Emulsified Water scalar Odor scalar Emulsified Water scalar Debris scalar pebris permulsified Water scalar pebris permulsified Water scalar pebris permulsified Water scalar pebris permulsified Water ppm Molybdenum ppm Manganese ppm Magnesium ppm Phosphorus ppm Phosphorus ppm	Client Info		VCP444106		
Machine Age   hrs   Oil Age   hrs   Filter Age   Oil Changed   Filter Changed   Sample Status    WEAR   Iron   ppm   Chromium   ppm   Nickel   ppm   Titanium   ppm   Silver   ppm   Aluminum   ppm   Vanadium   ppm   Putassium   ppm   Putassium   ppm   Vanadium	Client Info		21 Feb 2024		
Filter Age Oil Changed Filter Changed Sample Status  NEAR  Exhaust valve wear is indicated.  NExhaust valve wear is indicated.  Nickel ppm Nickel ppm Nickel ppm Aluminum ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal Scalar Niter Silver Soot % Nitration Abs/mm Silver Soot % Nitration Abs/mm Silver Soot % Nitration Abs/mm Silt scalar Appearance Scalar Odor Scalar Emulsified Water Scalar Sand/Dirt scalar Appearance Scalar Codor Scalar Emulsified Water Scalar			3175		
Oil Changed Filter Changed Sample Status  WEAR  Exhaust valve wear is indicated.  Iron ppm   Chromium ppm   Nickel ppm   Titanium ppm   Nickel ppm   Titanium ppm   Nickel ppm   Nickel ppm   Titanium ppm   Nickel p	Client Info		0		
WEAR  Exhaust valve wear is indicated.    Iron   ppm   Chromium   ppm   Nickel   ppm   Titanium   ppm   Silver   ppm   Aluminum   ppm   Lead   ppm   Tin   ppm   Vanadium   ppm   Puel   Vater   Cilycol   Soot % %   Nitration   Abs/tmm   Silt   Scalar   Debris   Scalar   Debris   Scalar   Sand/Dirt   Scalar   Appearance   Scalar   Appearance   Scalar   Appearance   Scalar   Codor   Scalar   Appearance   Scalar   Appearanc	Client Info		0		
WEAR  Exhaust valve wear is indicated.    Iron   ppm   Chromium   ppm   Nickel   ppm   Titanium   ppm   Silver   ppm   Aluminum   ppm   Lead   ppm   Tin   ppm   Vanadium   ppm   Puel   Vater   Cilycol   Soot % %   Nitration   Abs/tmm   Silt   Scalar   Debris   Scalar   Debris   Scalar   Sand/Dirt   Scalar   Appearance   Scalar   Appearance   Scalar   Appearance   Scalar   Codor   Scalar   Appearance   Scalar   Appearanc	Client Info		N/A		
Iron   ppm   Chromium   ppm   Nickel   ppm   Titanium   ppm   Nickel   ppm   Titanium   ppm   Nickel   ppm	Client Info		N/A		
Chromium ppm Nickel ppm Titanium ppm Silver ppm Aluminum ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Silicon ppm Potassium ppm Fuel Water Glycol Soot % Nitration Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Scalar Scand/Directory Scalar Scalar Scand/Directory Scalar Scand			ABNORMAL		
Chromium ppm Nickel ppm Titanium ppm Silver ppm Aluminum ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Silicon ppm Potassium ppm Fuel Water Glycol Soot % Nitration Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Scalar Scand/Dir Scalar Appearance Scalar Scand/Dir Scalar Appearance Scalar Scand/Dir Scand Scalar Scand Sca	AOTM DEADE	400	40		
Nickel ppm Titanium ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Tellow Metal scalar Tellow Metal scalar Silicon ppm Potassium ppm Fuel Water Glycol Soot % Nitration Abs/cm Sulfation Abs/cm Sulfa	ASTM D5185m		10		
Titanium ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Scalar Scalar Scalar Pusition of any contamination in the oil.  Silicon ppm Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Scalar Debris scalar Debris scalar Scand/Dirt scalar Appearance scalar Codor scalar Emulsified Water Scalar Debris Scalar Debris Scalar Scand/Dirt Scalar Appearance Scalar Codor Scalar Emulsified Water Scalar Debris S	ASTM D5185m		1		
Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm Vanadium ppm Vanadium ppm White Metal scalar Yellow Metal scalar Potassium ppm Potassium ppm Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/cm Sulfation Abs/cm Scalar Debris scalar Debris scalar Emulsified Water scalar Appearance scalar Codor scalar Emulsified Water scalar Debris Scalar Debris Scalar Debris Scalar Sand/Dirt Scalar Appearance Scalar Codor Scalar Emulsified Water scalar Debris Scalar Sand/Dirt Scalar Appearance Scalar Codor Scalar Emulsified Water Scalar Debris Scalar Scand/Dirt Scalar Debris Scalar Scand/Dirt Scalar Scand/Dirt Scalar Scand/Dirt Scalar Debris Scalar Scand/Dirt Scalar Debris Scalar Scand/Dirt Scand Sc	ASTM D5185m	>2	<u>4</u> 4		
Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Silicon ppm Potassium ppm Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/Imm Silt scalar Debris scalar Debris scalar Sand/Dirt scalar Appearance Scalar Codor scalar Emulsified Water scalar Emulsified Water scalar Debris scalar Debris scalar Debris scalar Debris scalar Sand/Dirt scalar Appearance scalar Sand/Dirt scalar Appearance ppm Manganese Scalar Debris Scalar Debris Scalar Debris Scalar Sand/Dirt Scalar Sand/Dirt Scalar Sand/Dirt Scalar Sand/Dirt Scalar Sand/Dirt Scalar Sand/Dirt Scalar Scalar Sand/Dirt Scalar	ASTM D5185m ASTM D5185m	0	<1 0		
Lead ppm Copper ppm Tin ppm White Metal scalar Yellow Metal Yellow Metal Yellow Yellow Metal Yellow Y			-		
Copper ppm Tin ppm Wanadium ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Scilicon ppm Potassium ppm Fuel Water Glycol Soot % Nitration Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Scalar Debris scalar Debris scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Emulsified Water scalar Debris Scalar Sand/Dirt scalar Appearance podor scalar Emulsified Water scalar Debris Scalar Sand/Dirt scalar Debris Scalar Sand/Dirt scalar Debris Scalar Sand/Dirt scalar Appearance podor scalar Emulsified Water scalar Debris Scalar Sand/Dirt Scalar Debris Scalar Debris Scalar Sand/Dirt Scalar Debris Scal	ASTM D5185m ASTM D5185m		3 -1		
Tin ppm Vanadium ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Scalar Yellow Metal scalar Scalar Yellow Metal scalar Scalar Yellow Metal scalar Scalar Scalar Scalar Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Scalar Scala	ASTM D5185m		<1 4		
Vanadium ppm White Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Yellow Metal scalar Scilicon ppm Potassium ppm Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Sulfation Abs/cm Scalar Debris scalar Sand/Dirt scalar Appearance scalar Codor scalar Codor scalar Emulsified Water scalar Emulsified Water scalar Debris Scalar Sand/Dirt Scalar Appearance scalar Codor scalar Emulsified Water scalar S	ASTM D5185m		1		
White Metal Yellow Metal Scalar Yellow Metal Scalar Yellow Metal Scalar	ASTM D5185m	/10	ا <1		
There is no indication of any contamination in the oil.  Silicon ppm Potassium ppm Fuel Water Glycol Soot % Nitration Abs/cm Sulfation Abs/.mm Silt scalar Debris scalar Debris scalar Appearance scalar Odor scalar Emulsified Water scalar  Sodium ppm Boron ppm Barium ppm Manganese ppm Calcium ppm Phosphorus ppm		NONE	NONE		
CONTAMINATION There is no indication of any contamination in the oil.  Silicon ppm Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/cm Sulfation Abs/mm Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  Sodium ppm Boron ppm Boron ppm Boron ppm Boron ppm Boron ppm Boron ppm Molybdenum ppm Molybdenum ppm Manganese ppm		NONE	NONE		
There is no indication of any contamination in the oil.  Potassium ppm Fuel Water Glycol Soot % % Nitration Abs/cm Sulfation Abs/.1mm Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  Emulsified Water Soldium ppm Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Phosphorus ppm Phosphorus ppm	····				
There is no indication of any contamination in the oil.  Fuel  Water Glycol Soot % % Nitration Abs/cm Sulfation Abs/.1mm Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  Sodium ppm Boron ppm Barium ppm Molybdenum ppm Manganese ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Phosphorus ppm	ASTM D5185m	>25	8		
Water Glycol Soot % % Nitration Abs/.mm Sulfation Abs/.1mm Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  Sodium ppm Boron ppm Boron ppm Barium ppm Molybdenum ppm Molybdenum ppm Manganese ppm Magnesium ppm Manganese ppm Magnesium ppm Calcium ppm Calcium ppm Phosphorus ppm	ASTM D5185m	>20	2		
Glycol Soot % Nitration Abs/cm Sulfation Abs/.1mm Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  Sodium ppm Boron ppm Boron ppm Barium ppm Molybdenum ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm		>6.0	<1.0		
Soot % % Nitration Abs/cm Sulfation Abs/.1mm Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Emulsified Water scalar Sodium ppm Boron ppm Boron ppm Barium ppm Molybdenum ppm Molybdenum ppm Manganese ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm	WC Method	>0.2	NEG		
Nitration Abs/cm Sulfation Abs/.1mm Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.  Sodium ppm Boron ppm Barium ppm Molybdenum ppm Molybdenum ppm Manganese ppm Manganese ppm Magnesium ppm Calcium ppm Calcium ppm Phosphorus ppm	WC Method		NEG		
Sulfation Abs/.1mm Silt scalar Debris scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Emulsified Water scalar Sodium ppm Boron ppm Boron ppm Magnasium ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Phosphorus ppm	*ASTM D7844		0.3		
Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  Sodium ppm Boron ppm Barium ppm Manganese ppm Manganese ppm Manganese ppm Manganese ppm Calcium ppm Phosphorus ppm		>20	9.5		
Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water	*ASTM D7415		21.8		
Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar  FLUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is acceptable for the time in service.  Sodium ppm Boron ppm Barium ppm Molybdenum ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm	*Visual	NONE	NONE		
Appearance scalar Odor scalar Emulsified Water scalar Emulsified Water scalar Emulsified Water scalar Sodium ppm  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is acceptable for the time in service.  Sodium ppm  Boron ppm  Barium ppm  Molybdenum ppm  Manganese ppm  Manganese ppm  Calcium ppm  Phosphorus ppm		NONE	NONE		
Codor scalar Emulsified Water scalar Emulsified Water scalar Sodium ppm  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is acceptable for the time in service.  Sodium ppm  Boron ppm  Molybdenum ppm  Molybdenum ppm  Manganese ppm  Magnesium ppm  Calcium ppm  Phosphorus ppm		NONE	NONE		
FLUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is acceptable for the time in service.  Sodium ppm Boron ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm		NORML NORML	NORML NORML		
FLUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is acceptable for the time in service.  Sodium ppm Boron ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm		>0.2	NEG		
The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is acceptable for the time in service.  Boron Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm	Visuai				
The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is acceptable for the time in service.  Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm	ASTM D5185m	>158	1		
bil. The condition of the oil is acceptable for the time in service.    Molybdenum   ppm   Manganese   ppm   Magnesium	ASTM D5185m	250	20		
Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm	ASTM D5185m	10	1		
Magnesium ppm Calcium ppm Phosphorus ppm	ASTM D5185m	100	40		
Calcium ppm Phosphorus ppm	ASTM D5185m		1		
Phosphorus ppm ,	ASTM D5185m	450	439		
	ASTM D5185m	3000	1538		
	ASTM D5185m		911		
	ASTM D5185m		1074		
	ASTM D5185m		3314		
	*ASTM D7414		20.0		
	ASTM D2896 ASTM D445		7.9 12.7		







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No.

Lab Number : 06102233 Unique Number : 10900463

: VCP444106 Received **Tested** Test Package : MOB 1 ( Additional Tests: TBN )

: 27 Feb 2024 : 28 Feb 2024 Diagnosed

: 29 Feb 2024 - Sean Felton

US 33619 Contact: ROBERT TURNER rturner@ripatampa.com T:

**RIPA AND ASSOCIATES** 

10149 FISHER AVENUE

To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - 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)

F:

TAMPA, FL