
SCHEDULED OIL SAMPLING (SOS)

SOS SERVICES IMPROVE THE HEALTH OF YOUR CAT MACHINE

Cat SOS Services analyse your coolants, oils, and fuel lubricants to better manage the health and condition of your equipment.

Regular fluid evaluation helps:

- Manage your equipment better
- Reveal excessive wear, contamination, or other “unseen” issues
- Prevent unexpected failures & unplanned downtime

100%

of fluid samples are tested in-house. We don't outsource anything.

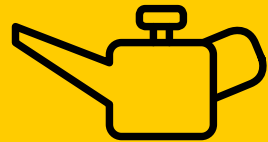
25%

of fluid samples performed come from other machine OEMs. We can help you no matter the brand.

7+

industries serviced, from agriculture and aviation, to landscaping and landfill, to mining, marine, and more.

3 CRITICAL TESTS TO SUPPORT YOUR EQUIPMENT



Oil sampling

Comprehensive analysis of lubricated systems—engines, transmissions, hydraulics, final drives, differentials, gear boxes and compressors.

- Spot early signs of damaging wear, metals, dirt, and fuel
- Identify contaminants like water that can hamper performance
- Assess condition of your oil, look for signs of degradation, and provide an overall particle analysis



Coolant sampling

Checks for chemical balance, ensuring protection and efficiency. Two testing levels: one to check routine characteristics, another for in-depth analysis.

- Analysis of the products of coolant degradation
- Identify existing coolant system problems
- Pinpoint causes of identified issues



Diesel fuel sampling

Regular tests on diesel can prevent wear on components, valves, valve guides, piston rings and more—lowering maintenance and operating costs.

- Check for acceptable quality
- Track microbial growth and identify contamination
- Monitor appropriate usage



MACHINE TEST RESULTS DETERMINE CAUSE AND SOURCE OF ISSUES

	Elevated Test Results	Possible Sources
Diesel engines	Iron, chrome	→ Cylinder liners, piston rings
	Iron, chrome, aluminum	→ Cylinder liners, piston rings, aluminum piston skirt
	Lead, aluminium, iron	→ Lower rod and main bearings, crankshaft
	Sodium, potassium, copper	→ Coolant contamination
	Silicon greater than aluminum, iron, lead	→ Dirt, cylinder liners, piston rings, bearing overlay
	Soot, iron, lead, chrome	→ Soot wear on cylinder liners, piston rings, bearings
Powershift transmissions	Silicon, iron	→ Wet clutch friction material and separator plates
	Aluminum, copper, iron	→ Torque converter
	Copper greater than lead or tin	→ Bronze bushing or thrust wear
Hydraulic & steering systems	Iron, chrome	→ Cylinder & rod wear
	Silicon greater than aluminum, iron, chrome	→ Dirt entry, pump wear, cylinder & rod wear
Differentials & final drives	Silicon greater than aluminum, iron, chrome, nickel	→ Dirt entry, gear wear, bearing wear
	Copper greater than lead or tin	→ Bronze bushing or thrust washer

MANTRAC LABS OFFER THE BEST POSSIBLE ANALYSIS

Our multiple Cat ISO 9001 certified laboratory facilities help you ensure 100% uptime at your worksite.

Regular fluid evaluation helps:

- Prevent costly failures
- Elevate productivity and profitability
- Shorten repair times

As the Africa expert in fluid analysis, Mantrac has:

2,800+

Customers helped through SOS

106,000+

Samples analysed to date

4,100+

Samples analysed last year, 24% of which were non-Cat

2,200+

Registered customers

4,000

Red alerts from SOS sent to notified customers, saving tens of thousands of hours of downtime

CAT SOS IN ACTION: A CASE STUDY

ELEMECH ENGINEERING

Oil sampling MANTRAC CAT

SGM

W/O: _____

S.M.R: _____

Date: 22/2/19

Customer code: CE2942

Oil type: _____

Oil is HOT. Yes No

S.O.S Analysis

S.N: _____

Final Drive

Front Rear

Final Drive

Front Rear

Differential Front

Differential Rear

Final Drive

Front Rear

Transmission

Hydraulic

Final Drive

Front Rear

Final Drive

Front Rear

Differential Front

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S.O.S Analysis Label Scheduled oil

Customer Name: _____

Model: _____

S.N: _____

Site: _____

Hours on oil: _____

Oil added since last: _____

Lab code: _____

Was oil changed: _____

Oil brand: Shell

Take sample when: _____

المحرك

ناقل الحركة

الهيدروليك

الإدارة النهائية يمين

خلفي أمامي

الإدارة النهائية شمال

خلفي أمامي

الكرونة الأمامية

الكرونة الخلفية

الجيربوكس

الرادياتير

S.O.S Analysis

S.N: _____

Final Drive

Front Rear

Final Drive

Front Rear

Differential Front

Differential Rear

Final Drive

Front Rear

Final Drive

Front Rear

Differential Front

Differential Rear

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Differential Rear

CAT SOS IN ACTION: A CASE STUDY

ELEMECH ENGINEERING

Situation

Elemech Engineering is an international contractor specialised in civil, electrical and electro-mechanical projects throughout Kenya, Tanzania and Zambia. The customer previously conducted their own maintenance using other brands of oils.

- > Engine oil ODI: 200 hours
- > Hydraulic oil ODI: 1000 hours

CAT SOS IN ACTION: A CASE STUDY

ELEMECH ENGINEERING

Recommendation

The customer enrolled 12 machines in a CVA preventive maintenance contract, including Mantrac SOS. Machines are:

- > **Maintained according to OEM specifications**
- > **Supported by Mantrac Condition Monitoring experts**
- > **Using Caterpillar Fluids DEO 15W-40, HYDO Advanced 30 and TDTO 30/50**

Result

Elemech Engineering was able to save money with extended drain intervals, reduced oil consumption, and reduction in labor charges, filters changes and downtime. These savings include:

- > **Annual saving of \$7000 in oil costs due to extended drain intervals**
- > **Hydraulic oil ODI extended to 6000 hours from 1000 hours**
- > **Diesel engine oil ODI extended from 200 hours up to 250 hours by using SOS analysis**

CAT SOS IN ACTION: A CASE STUDY A PREMIER EGYPTIAN BEACHSIDE RESORT

CAT SOS IN ACTION: A CASE STUDY

A PREMIER EGYPTIAN BEACHSIDE RESORT

Situation

This Egyptian resort uses Cat 3412 generator sets onsite.

The customer noted excessive black smoke and oil dilution during regular operations onsite, and Cat Scheduled Oil Sampling (SOS) revealed a red alert, with high positive fuel dilution and low oil viscosity.

CAT SOS IN ACTION: A CASE STUDY

A PREMIER EGYPTIAN BEACHSIDE RESORT

Recommendation

Through a service inspection, Mantrac made an early identification of several issues that allowed us to recommend immediate repairs.

- > **Partial fracture of inlet valve no. 7**
- > **Excessive wear of its insert**
- > **Light on piston no. 7**
- > **Damage to injector tip no. 7**
- > **Excessive oil leakage from a turbocharger**

Result

With minimal repairs, Mantrac got the customer's generator up and running swiftly without any significant component failure.

- > **Cost of actual repairs (based on condition monitoring report): \$6,700**
- > **Cost of potential repairs (had components actually failed): \$40,435**
- > **Final savings to customer: \$33,735**