The S•O•S℠ program is one element of a condition monitoring philosophy that you can put into place with your equipment to monitor the impact of your maintenance program. The S•O•S program combined with regular inspections, analysis of your equipment's site conditions, electronic data, and service history will enable you to evaluate your equipment's health. You can perform a maintenance program on your own, or you can enlist the assistance of your Cat® Dealer to perform any level of preventive maintenance that will keep your equipment running at peak performance.

Fuel Sampling **Methods**

Fuel sampling methods will depend on the type of fuel tank to be sampled. Storage tank and mobile equipment tank sampling methods are defined in this guide. Fuel analysis sample kits can be obtained from your local Cat Dealer. Size of fuel sample needed may be dependent upon the list of tests requested.

Storage Tank
Sampling Device Method

This sampling method requires a tank sampling device (commonly called a 'Bacon Bomb' or 'Sample Thief'), the appropriate length tape measure or rope, and a rope for use as a secondary trip line. The sampling device should be cleaned between tanks to avoid cross-contamination.

For adequate evaluation of all tests, fuel is needed from the bottom and middle of the tank. For this reason, select a sampling device size that is one-half of the total sample volume needed. For best sample results, a maximum of two sample draws is recommended to minimize tank disturbance.

The following steps outline the process for sampling bulk storage tanks through a service access cover.

Storage Tank
Automatic Sampling Valve Method

If storage tanks are equipped with automatic sampling valves at different sample levels, pull at least one-third of sample container from the lowest sampling point of the tank. Fill the rest of the sample container from the sampling valve level nearest the middle of the tank. Complete the sample label and ship according to your Cat Dealer's instructions.

Step A

Before sampling, assure that the tank has not been recently filled or agitated as this may adversely affect sample results. Locate the service access cover of the storage tank. Clean debris and dirt from the access cover before opening to prohibit tank contamination. During sampling, do not allow the sample container or sampling device to become contaminated with dirt or other material as this will affect the sample results.

Step B

Connect a trip line to the plunger of the tank sampling device. Lower the sampling device into the storage tank to one-half the depth of liquid in the tank. Using the trip line, open the plunger of the sampling device and allow the device to fill. Then, retract the device. The plunger will close during tank sampling device retraction. Empty the contents into the appropriate sample container obtained from your Cat Dealer.

Step C

Lower the tank sampling device to the bottom of the tank. When the device strikes the bottom of the tank, the plunger will open. Allow adequate time for sampling device to fill, then retract device. Plunger will close during device retraction. Empty the contents of the device into the same sample container referenced in Step B.

Step D

If sample container is not full after Step C, repeat Step B until lab sample container is full. Then, secure the sample bottle cap, fill out the label completely, and ship according to your Cat Dealer's instructions.

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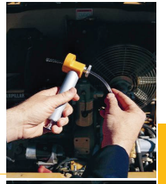
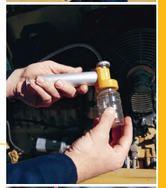
PEGJ0129-01

Fleet Fuel System
Vacuum Extraction Method

This sampling method uses a Vacuum Extraction pump to sample non-pressurized systems. It is important to use a new piece of tubing for each sample. Re-using tubing will contaminate other samples.

Please use proper vacuum pump bottles. Be sure that the material of the vacuum pump bottle is compatible with the fuel in question. If in doubt, contact the respective manufacturer to verify.





Step A
Before sampling, assure the tank has not been recently filled or agitated as this may adversely affect sample results. Determine depth of fuel tank to be sampled and cut tubing to appropriate length to allow for bottom sampling.

Step B
Insert the tubing through the head of the vacuum pump. Tighten the retaining nut. Tubing should extend about 4cm (1in) beyond the base of the vacuum pump head.

Step C
Install a new sampling bottle to the vacuum pump. Insert the end of the tubing into the fuel tank, retracting slightly when tubing reaches bottom of tank.

Fleet Fuel System Sampling

Step D
Pull the vacuum pump handle to create a vacuum. Hold the pump upright. If the pump is tilted or turned over, fuel may contaminate the pump. If fuel enters the pump, disassemble and clean it before taking the sample. Fill the vacuum pump bottle three-quarters full. Do not fill to the top. Do not allow any dirt to enter the bottle or bottle cap.

Step E
Withdraw the tubing from the compartment. Remove the bottle from the vacuum pump and transfer to lab sample container. If lab sample container is not full, take subsequent draws from center of tank. Once lab sample bottle is full, secure the sample bottle cap, fill out the label completely and ship according to your Cat Dealer's instructions.

Step F
To prevent contamination of the vacuum pump, loosen the retaining nut and extend the tubing far enough that tubing with no fuel on the outside is visible beyond the vacuum pump head. Use the tubing cutter to cut the extended tubing. The remaining tubing may be pulled up through the retaining nut without leaving fuel on the inside of the vacuum pump.

Fill Out Sample Labels **Completely**

To receive the most value from S·O·S℠ Services, supply all requested information on the provided fuel sample label. It is important to know the model, serial number and service meter units for the specific unit. For the storage tanks, the tank location and identification information is essential.

The label information is critical to turn the analysis data into useful fuel system health information and recommendations.

TIP: Fill out the sample label information before you begin taking the sample to keep the label clean and easy to read.

Fuel Sampling Guide

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