

Scheduled Oil Sampling (SOS)



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Introduction:

Scheduled Oil Sampling was developed by Caterpillar® to evaluate engine wear. The method involves analyzing the engine oil for contaminants and metal particles. The concentrations of certain particles in the oil are used as early warning signs of engine damage. Once the risk factors are identified a preventative maintenance plan can be established to avoid a catastrophic failure.

Applications:

- Aviation
- Road Maintenance
- Construction
- Transportation
- Mining

SOS Sample Preparation with the ML500 diluter:

The ML500 is available with a large volume probe that was designed specifically for SOS by Hamilton Company and Caterpillar®. The probe uses a 5 mL disposable tip to accurately aspirate an oil sample and dilute it with kerosene for analysis. The probe includes an air pump that is used to ensure the oil is thoroughly mixed and expelled from the tip.

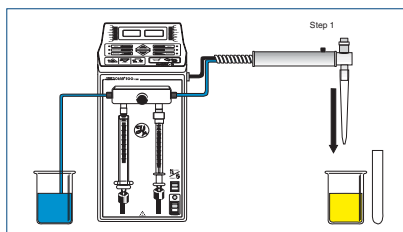
Diluter Overview:

The ML500 Diluter is a semi-automated liquid handling device, ideal for repetitive and precise aspiration and dispensing over a wide range of volumes. The instrument is designed to:

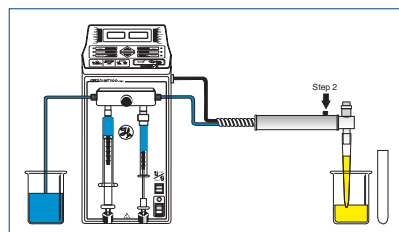
- Eliminate tedious volume changes associated with traditional dispensing techniques
- Reducing user to user variation
- Increasing dispense accuracy and precision
- Decreasing preparation time per sample
- Record the work performed in an electronic log

General SOS Method:

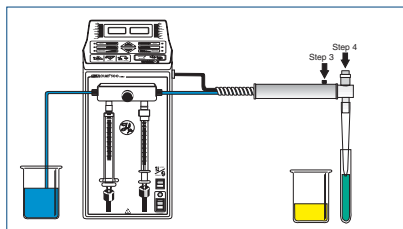
The ML500 Diluter is a dual syringe instrument with one active valve above the diluent (left) syringe. The pump is primed by filling the syringe with kerosene (diluent) through the input valve position and then dispensing from the output position. Once air bubbles are removed, the system is ready to prepare samples as described in the figures below:



Step 1 - Place the disposable tip into the sample and press the probe button.

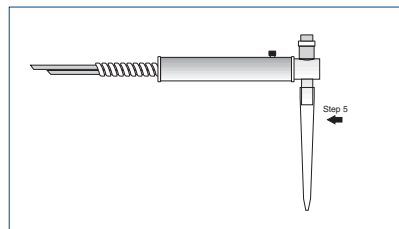


Step 2 - The left syringe fills with 5 to 25 mL of diluent, while the disposable tip is filled with 1 to 5 mL of sample.



Step 3 - Press the probe button to dispense the sample with diluent into a vial.

Step 4 - Press the sample purge button to dispense residual sample or diluent into the vial.



Step 5 - Replace the disposable tip to prepare for the next sample.

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Ordering Information:

Hamilton Company offers three different ML500 series for Scheduled Oil Sampling and a variety of additional fluid handling applications.

ML500A Series (p/n ML503115) – Basic Nonprogrammable MICROLAB*. This unit ships with an A series controller, diluter valve, tubing, concorde style hand probe, manual, 2.5mL diluent syringe, and a 250µL sample syringe. The large volume hand probe (p/n 35898), 5mL disposable tips (p/n 75702), and additional syringes must be purchased separately**.

ML500B Series (p/n ML530115) – Programmable MICROLAB*. This unit ships with a B series controller, diluter valve, tubing, concorde style hand probe, manual, 2.5mL diluent syringe, and a 250µL sample syringe. The large volume hand probe (p/n 35898), 5mL disposable tips (p/n 75702), and additional syringes must be purchased separately**.

ML500C Series (p/n ML531115 or ML560115) – Computer Controlled MICROLAB*. These units ship with the ML500 control software, manual, and a communications cable. A valve and probe package (p/n LRGPKG) is available separately and provides the diluter valve, tubing, large volume hand probe, and 5mL disposable tips. Syringes are also sold separately**.

*To learn more about the ML500 part numbers and series above please visit:
www.hamiltoncompany.com/diluters/model-features.asp

**To view replacement parts and accessories visit:
<http://www.hamiltoncompany.com/diluters/accessories.asp>