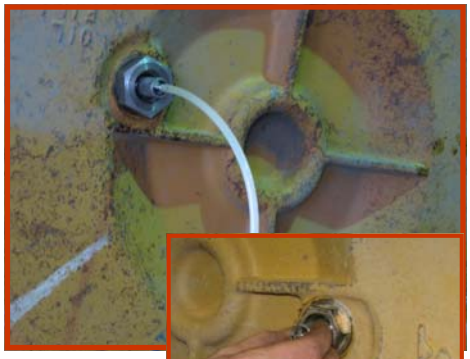


Keeping The Wheels Turning

Condition Based Maintenance is the key to profitability in a highly completive mining industry.

Effective Maintenance Procedures must be easy to understand, easy to implement, easy to repeat, and easy to track.

Oil Sampling & Oil Analysis continues to be the corner stone of condition based maintenance for lubricated machinery.

Drawing a Reliable Oil Sample from mobile equipment in a mining operation is always a risky business.

The* OILMISER™ (Severe Duty) *Plug & Sampling Valve manages the risk, and delivers the results.

Three basic issues impact the frequency of oil sampling and the confidence level in the results in a mining environment.

1. Prioritizing maintenance procedures for operating equipment can put oil sampling at the bottom of the list.
2. Sampling the oil on the inside means inserting a sampling tube through an open port from the outside.
3. The killers of rotating, lubricated machinery are dirt, dust, grit and water. Keeping it out is essential for machine reliability.

Heavy industrial wheel motors, planetary drives, and power train components, work in confined spaces, in dangerous and high traffic locations, where they are vulnerable to work place hazards and mechanical damage.

Oil fill ports, oil level ports and drain ports are fitted with low profile steel plugs, steel covers or protective steel guards. To draw an oil sample these plugs or covers must be removed and a sampling tube inserted. To reduce the risk of introducing more contamination, machinery must be thoroughly cleaned, and a clean work station organized prior to drawing an oil sample.

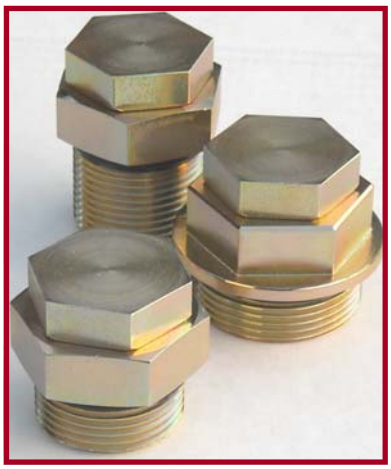
For the **OILMISER™** (Severe Duty) Plug & Sampling Valve, only the immediate area must be wiped clean. Removing the sealed Steel Hex Cap, presents a large open cavity, with a clean Hi-Flow Sampling valve (SV-HF25) easily accessible. The sampling probe SP-HF25), with a short length of sampling tube and vacuum pump quickly attaches by hand to the sampling valve. The oil sample is drawn, and the Steel Hex Cap is reinstalled. Job done, time, 15 minutes or less.

The **OILMISER™** (Severe Duty) Plug & Sampling Valve

- ***replaces the original steel plug***
- ***reduces preparation & cleaning time***
- ***eliminates the risks of an open port***
- ***standardizes the oil sampling procedure***
- ***delivers a reliable oil sample each & every time***

JLM Systems Limited
23091 Westminster Highway
Richmond, BC Canada V6V 1B9

Toll Free: 1-888-RENU OIL(736-8645)
Phone: 604-521-3248 Fax: 604-521-1244
E-mail: info@oilmiser.com



The **OILMISER™** (Severe Duty) Plug & Sampling Valve is a three piece assembly.

1. A threaded ***Steel Hex Plug*** & external seal with a threaded inside cavity.
2. A ***Hi-Flow Sampling Valve***, normally closed, recessed into the cavity.
3. A threaded ***Steel Hex Cap*** & external seal that threads into the Hex Plug cavity.

When fully assembled and installed, the Hex Plug Body and Cap protrudes 1 inch beyond the mounting surface. The low profile steel body and cap is well suited to the severe duty and hazards found in the off road work place, large external hex configuration with no female cavities that can peen over or get pluged with debris

Drawing a Reliable Oil Sample

When the Hex Cap is removed, a large, clean cavity provides easy access to the Hi-Flow (flush faced, normally closed) Sampling Valve (SV-HF25). The mating half of the sampling valve is the **OILMISER™** Hi-Flow Sampling Probe (SP-HF25). It connects quickly and easily by hand to the sampling valve. Only when the sampling probe is *fully engaged* with the sampling valve can lube oil be drawn out of the machine. The zero leakage sampling valve, resets when the sampling probe is disconnected.

A length of clean plastic sampling tube connects the sampling probe, to the vacuum pump and a clean sample bottle. This ***closed loop*** insures that no unrelated contamination can enter the oil sample. The resulting oil analysis delivers the level of confidence necessary for effective Condition Based Maintenance.

In some non rotating machinery, like gearboxes and differentials, the only available access port may be above the oil level, requiring an internal drop tube to draw an oil sample. For this situation, the threaded steel hex plug has an extended body with a ¼" NPT back port. If the internal configuration of the gearbox or differential housing is suitable the Extended Plug & Sampling Valve can be an excellent option.

Part No.	Male Plug & Thread
PSV-SC12	Steel Cap SAE-12
PSV-HF16	Steel Plug SAE-16
PSV-HF16E	Plug (Extended) SAE-16
PSV-HF20	Steel Plug SAE-20
Contact factory for more options	

Checking the Oil Level

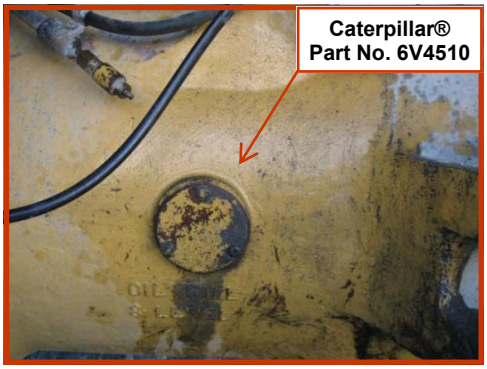
In many cases, the existing *Oil Level Plug* will be the only access port for drawing an oil sample from rotating machinery.

In addition to drawing a reliable oil sample, the **OILMISER™** *Plug & Sampling Valve* can be used as a simple, safe, and accurate fluid level gauge on mobile machinery.

Insure that the *Plug & Sampling Valve* is below the manufacturer's recommended oil level. Remove the *Hex Cap*. Attach a short length of plastic sample tube to a *Hi-Flow Sampling Probe (SP-HF25)*. Fully engage the sampling probe with the sampling valve in the plug, while holding the free (open) end of the sampling tube straight up. Lube oil will run up the plastic tube to the level of the oil inside the wheel motor. If no oil appears in the plastic tube, the oil level is below the sampling valve. The rate at which the lube oil runs up the plastic tube will vary with oil viscosity and oil temperature.

JLM Systems Limited
23091 Westminster Highway
Richmond, BC Canada V6V 1B9

Toll Free: 1-888-RENU OIL(736-8645)
Phone: 604-521-3248 Fax: 604-521-1244
E-mail: info@oilmiser.com



Keeping The Wheels Turning

Inspection Covers & OILMISER™ *Plug & Sampling Valve*

On oil reservoirs, gearboxes and differentials, a cover plate or inspection plate may be reconfigured to accept an **OILMISER™** *Plug & Sampling Valve*.

If the cover plate is above the oil level, an internal drop tube will be required to draw an oil sample.

The Caterpillar® 785 Haul truck is a typical application. The differential inspection cover P/N 6V4510 will be replaced with an **OILMISER™** Cover Plate including a **(Severe Duty)** ***Plug & Sampling Valve.***

This application will use a 6 inch drop tube and the *(Extended) Plug & Sampling Valve* **(P/N PSV-HF16E-DT62)** to draw a reliable oil sample from below the oil level. The thickness of the casting and the internal curvature requires a minimum clearance behind the cover plate (for the 6" drop tube) of 2 inches. The "drop tube" can be cut to length and bent to suit the application on site

All parts and pieces of the cover plate, plug, and sampling valve are captive, eliminating the possibility of falling into the differential. The down tube and retaining nut are industry standards, and when properly assembled will not come loose.

Proper orientation of the down tube inside the differential after installation is essential. Metal to metal contact between the cover plate and the *plug & sampling valve*, will insure the position of the down tube, relative to the cover, plate when it is installed. It is necessary to specify the bolt hole location on the cover plate,(i.e. 3 bolts, 4.25" BC, 1 bolt at 12 o'clock).

When the *plug & sampling valve* is tightened into the cover plate, the drop tube can be positioned at 180° down from one of the three bolt holes. The cover plate and the *plug & sampling valve* are metal stamped to identify orientation when positioning the down tube on site.

JLM Systems Limited
23091 Westminster Highway
Richmond, BC Canada V6V 1B9

Toll Free: 1-888-RENU OIL(736-8645)
Phone: 604-521-3248 Fax: 604-521-1244
E-mail: info@oilmiser.com