
THE SOLUTION TO SMALL RESERVOIR SIZE AND LOW OIL LEVELS

There is a trend towards equipment with small capacity sumps. This has a number of implications for good lubrication management practices.

Oil is designed to do a number of things some of which are:

- Completely separating surfaces moving relative to each other.
- Transfer heat away from the system to the outside.
- Stop rust.
- Provide a medium for chemical additives to work in a variety of ways.

The proper amount of oil in a machine is called the charge. When the charge becomes low in volume it means that the oil that remains must do the work of the normal charge. Eg If the amount of oil is $\frac{1}{2}$ of what it should be then we are asking the oil to work twice as hard as it was intended to do.

Working oils hard means that:

- Additives are depleted more quickly which in turn leads to accelerated wear as the anti – wear additives in the oil are consumed during use
- It also generally means that the oil gets hotter leading to greater stress on the anti-oxidant additive in the oil. In turn the oil begins to oxidise, polymerise and deposit itself as varnish and coke like material inside the machine.

In equipment with a reservoir/sump capacity which is higher than it need be then the equipment can accommodate a degree of oil loss before the operation of the component is compromised.

However, in equipment with small sump capacities there is very little leeway for oil loss before such loss has a detrimental impact on component life, production and maintenance costs.

In addition, very few reservoirs come with sight glasses or dip ticks on them and so in many cases it is not possible without opening the top or side plugs to get any idea of the oil level.

Opening the reservoir leads to the potential for the following:

- Inadequate PM practises may allow people to forget or it's too hot or too cold.
- It allows airborne contaminants to get into the component.
- The inherent issues of staff safety mean that machines in difficult to get at places run the risk of not being attended to.
- The inherent issues of staff safety mean that staff attending machines in difficult to get at places run the risk of harm.
- The plant may need to be shut down to in order to check the component.

In many cases it is impossible to see inside the box so we not only have the risk of having equipment being under filled but also over filled.

SOLUTIONS

Photo 1 shows a normal gearbox. The box has a sight glass as standard. The level can only be determined once the operator is directly in front of the sight level and the oil is relatively clean.



Solution 1

Fit a 3D sight glass. The oil level can be seen from the side as well as the front and is less susceptible to dirty oil obscuring the view.



Whilst this has several advantages over the standard sight glass its disadvantages are:

- It can only be seen when close up.
- It can get dirty or broken.
- It cannot protect the machine from oil loss. It requires an operator to interpret the oil level on the side.

Solution 2

The photograph shows the same gearbox fitted with an OPTOMATIC Constant Level Oiler.



The OPTOMATIC Constant Level Oiler is fitted directly into the previous sight glass fitting. Note that in this instance a closed system OPTOMATIC OILER and Watchdog Desiccant breather was fitted due to the environment.

The OPTOMATIC Constant Level Oiler has many advantages over the traditional and the 3D sight glasses:

- From some distance it is easy to see if the OPTOMATIC has oil in it. If the OPTOMATIC has oil in it then the component should have oil in it. It also may mean that in certain circumstances the safety of employees will be enhanced.
- By recording top up rates it is easy to gauge if the gearbox has a leak.
- The oiler is set up at the appropriate oil level for the gearbox meaning the gearbox cannot be over-filled or under-filled.
- The filled viewing glass acts as a reservoir. As the level falls it can easily be seen that oil needs to be added to the gearbox.
- Should a leak not be noticed for some time the large oil reservoir capacity may save the component from the issues associated with running under filled.
- The large reservoir means that the timing of topping up can be arranged to suit the staff not to suit the gearbox.
- The design of the unit means that topping up takes a fraction of the time it would normally take unscrewing and re-screwing filler plugs.

SUMMARY

Fitting an OPTOMATIC Constant Level Oiler (with Watchdog Desiccant Breather) is cheap insurance when compared to the cost of replacing a piece of equipment and the consequential loss of production.

Precise Lubrication has a variety of sizes of OPTOMATIC Constant Level Oilers and Watchdog Breathers available and can supply or supply and fit.