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Importance of oil in your Hammer

The internal components of your Mincon Hammer have been made to some very close manufacturing tolerances, similar to the internal parts of the engine and gearbox of your car and the question is:

‘Would you run your car without oil in the engine or gearbox?’

The answer of course must be no and the same applies to your Hammer

- Lubrication provides a seal between the Piston and the internal wall of the Cylinder reducing air leakage across the Piston to conserve impact energy. Maintaining optimum air pressure within the Piston chamber provides more efficient drilling with faster penetration, greater production and improved earnings.
- Lubrication reduces friction between the running parts – these are parts that come in contact with, and move against other parts, such as the Piston against the Cylinder. Without lubrication the parts would become hot and change in shape and metallurgical make-up. If the Piston swells within the Cylinder, the running surfaces will become scored and from this scoring can develop minute cracking that eventually turns into more pronounced fissures that will lead to catastrophic failure of the components.
- The parts of your Hammer have been heat-treated to specific levels to give optimum results in terms of performance, wear and life. Heat generation, whether caused through oil starvation or by having been bogged in the ground, can change the metallurgical make-up of the metal. The metal can either soften or become brittle – when this happens the metal will crack more easily. Getting bogged can happen to the best driller but the best driller knows the importance of lubricating his Hammer properly and it is worth knowing that the Piston in your Hammer cycles around 2000 beats per minute (*around 50 million to 80 million beats throughout the life of the Hammer!*) – So even if it ran without oil for 1 minute, damage can still be caused.
- The Drill Bit and the Chuck of the Hammer are two other components that can benefit from having good lubrication, for without it the splines of these components can wear prematurely and through abrasion and heat generation one or both parts will fail. Oil having lubricated the Piston and Cylinder should still be in sufficient quantity to lubricate the splines as air is exhausted – if no oil is evident on the splines of the Bit, then there is insufficient oil passing through the system.

The amount and grade of oil required to lubricate the Hammer properly will depend on the conditions – usually for a 4” Hammer the consumption rate is around 1.5 to 2 litres of oil per hour at a constant flow rate. In wet conditions the rate may need to be doubled to offset the effect of ‘wash-off’ if water gets into the Hammer on deep holes or is injected with foam.

The grade will depend on the ambient temperature at the drilling site: normal temperate conditions (like the UK), calls for a 220 centistoke oil with protective additives – **Do Not Use Any Old Oil**. In hotter climates a 320 grade oil is employed to combat thinning of the lubricant through increased temperature. A thinner oil may be needed in extreme cold conditions (around 100 to 150 centistoke) to prevent clogging – some rigs have heaters in the lubricator to prevent the oil from thickening.

Remember: Use the correct grade for the conditions – Lubricate at the recommended consumption level for your Hammer – Make sure that the flow is constant and not intermittent.