

## COLD WEATHER STARTING

When the ambient temperature drops, many problems can follow. Cold water leaks and hard starting are a couple of the most common problems that can arise. If you are experiencing hard starting with diesel engines, check for these possible causes:

- (1) Oil level – The oil level should never be overlooked and should be checked each day before cranking.
- (2) Battery charge – Diesel engines must develop at least a minimum of 250 RPM'S in order to fire enough to start. This pertains to both mechanical and electronic engines. One dead cell or poor battery condition can be enough to slow starter and not achieve minimum RPM requirements. In addition, check electrical connections for possible problems.
- (3) Fuel – Verify fuel supply and condition. Is engine getting adequate fuel pressure? Is fuel filter plugged? Is fuel starting to show signs of gelling?
- (4) Power supply – Is kill solenoid receiving power on mechanical engines? For electronic engines, check power supply to ECM and active fault codes with OEM software equipment.
- (5) Exhaust check - Is there smoke coming out of exhaust during cranking? If answer is no, there is a possible problem with the fuel system and further testing is needed.
- (6) Flash files – Some OEM's such as Cat have new flash files available that address this problem on most engines. This is updated software that may not have been available when your engine was assembled.
- (7) Accessory drive – Some applications have an accessory drive running off the engine, such as hydraulic pumps. These drives can, for different reasons, drag down the engine and keep the starter from obtaining necessary RPM's during cranking.
- (8) Starter – There are different grades of starters being supplied by OEM dealers to keep unit cost down. Some of these lower grade starters can be challenged in cold weather.

If these suggestions do not solve your problem with cold weather cranking, you may have what is referred to as a hard parts problem, which can include such items as timing, injector/nozzle, and low cylinder compression. Refer to OEM troubleshooting guide for testing.

Remember that you can always consult with your Universal Lubricants Sales Rep. or our Technical Services staff at 1-800-444-OILS (6457).