Diesel Engine Coolant / Antifreeze.

With wintertime temperatures approaching, now is the time to ensure that your diesel engine coolant/antifreeze is up to the task of staying in its liquid form. Easy, right? Everyone has a hydrometer or refractometer and they're easy to use. What goes in there if you need to add coolant though?

There are a number of coolants available for heavy-duty diesel engine applications on the market today. What sets them apart from your average yellow jug of Prestone is the presence of "Supplemental Coolant Additives" or SCA's. These SCA's are either Borate/Nitrate or Phosphate/Molybdate based chemical additions to the basic coolant. These two types of SCA's are not compatible and the main reason that you should match the type of antifreeze when "topping off". These SCA's do two things;

1. They lower the surface tension of the coolant. This is intended to decrease the likelihood that small bubbles will form near the surface of the cylinder liners causing cavitation erosion.

2. The mixture continually tries to adhere to the surface of anything it comes in contact with. This also reduces the chances that cavitation erosion can happen and it protects the rest of the cooling system from corrosion.

As the SCA is trying to continually stick to surfaces, there becomes less and less of it in the coolant and its concentration should be checked periodically and maintained as necessary. SCA concentration is checked with test strips that are available at any reputable parts store or on the internet.

The latest generation of coolants use Organic Acid Technology (OAT) to eliminate the need to monitor SCA levels and are good for up to 6 years in some cases. Though the OAT type coolants are not compatible with either of the other SCA's discussed here, they are all compatible with each other. Additionally they are much kinder to the softer metals like aluminum.