

# AMSOIL-Sponsored Drivers Attempt World Speed Records

The Bonneville Salt Flats International Speedway in Tooele County, Utah hosts the fastest vehicles in the world every year as people from all walks of life attempt record-setting speed in various motorized vehicles. This year AMSOIL was represented by Boyd and Jo Coddington in the AMSOIL/Coddington 1927 Ford Model T Roadster and Fred Hayes on his HDT USA diesel motorcycles.

## Coddington's Hot Rod

Built by Coddington and his crew, the Model T Roadster features a 1200+ horsepower General Motors intercooled, turbo-charged, 2.0 liter Ecotec engine with a Liberty six-speed transmission and Winters quick-change rear-end.

Jo Coddington was behind the wheel in an attempt to



break the record for the fastest pre-1934 roadster, three-liter/blown gas/modified. The record to beat was 199 mph as the AMSOIL/Coddington car rolled into Utah. Jo had several great runs in the old roadster, but setting a new record is complicated. She had to drive three qualifying runs to qualify for the main course, one of which was over 200 mph, then two runs over 199 mph within a 24-hour period to become the new record holder. Unfortunately, when the week was done, the old 199 mph record remained intact. The car spun out at 180 mph toward the end of the week, and made one more run as a shake down the following day. The team learned a great deal from its first trip to the salt flats. The car remains strong, improvements will be made and the team will be back for another attempt at the world record this month.



## HDT USA/Fred Hayes

Fred Hayes currently holds eight world and four national land speed records on motorcycles. At the Salt Flats, he attempted to better those records and add another -- all on diesel-powered bikes.

## Fred Hayes

Hayes is an experienced motorcycle rider, earning top honors in several American motorcycle riding competitions through the years. In 2003, Hayes was awarded a platinum medal at the UK National Rally, the competition's highest award. Since then Hayes has ridden two HDT USA diesel motorcycles to the first recognized land speed records for diesel motorcycles.

Hayes' experience with motorcycles goes far beyond competition, though. He has been with Hayes Diversified Technologies (HDT USA) since the company's beginning in 1961 and has led the company to become the largest supplier of military motorcycles to the U.S. Defense Department. Hayes is HDT's president, C.E.O. and chief engineer. In addition, Hayes was a primary consultant to the Motorcycle Safety Foundation and the U.S. Marine Corps during the development of the Marine Corps' Military Motorcycle Operator Training Course and still holds credentials as a Military Motorcycle Chief Instructor. In short, Hayes knows motorcycles. He builds them and rides them, and does both in a superior fashion.

## Hayes Diversified Technologies

HDT USA develops and manufactures motorcycles for the U.S. Defense Department. The company is known for its advanced technology, superior engineering and revolutionary motorcycle design, but HDT began as something totally different. Throughout the 1960's and 1970's, HDT specialized in the development and manufacture of electro-mechanical switches and relays for defense and aerospace. The company was the original equipment manufacturer (OEM) for major defense companies like Lockheed, Boeing, Control Data and Unisys. In 1970, HDT expanded into commercial motorcycle sales, selling and racing PENTON Sport Cycles under the trade name METTCO. From 1976 through 1979, HDT was employed as a consulting firm to Honda's off-road racing and enduro teams. HDT produced suspension components and provided two-stroke engine performance modifications for Honda from 1977 through 1979.

In 1981, HDT used its unique combination of expertise in government contracting and off-road motorcycle development to place the winning bid to produce tactical military motorcycles for the U.S. Army. Since then, HDT USA has been awarded more than 45 contracts, resulting in over 2500 military motorcycles being delivered to the U.S. and allied military forces. HDT's M1030B1 Marine Corps motorcycle is known as the best performing, most reliable tactical military motorcycle now in service with any military organization, beating out competitive motorcycles from BMW and KTM.

## "Single Battlefield Fuel"

In 1984, all NATO military forces adopted a long-term goal of employing a single battlefield fuel to reduce the logistics burden of supplying gasoline, diesel, aviation gasoline and

aviation kerosene. Years later, the U.S. Navy announced they would not supply or transport gasoline in any form, only heavy fuels such as diesel and jet fuel. The only equipment still operating on gas was small field generator sets and motorcycles. The military approached several motorcycle manufacturers to determine what options were available as alternatives to gas-powered bikes. All of these manufacturers claimed that a diesel-fueled motorcycle was neither commercially practical, cost effective, nor, in some cases, even possible given the performance requirements. After requesting proposals from all interested sources, the U.S. Marine Corps found the answer at HDT USA. In May 2001, HDT unveiled the first motorcycle powered by a diesel engine that was designed specifically for motorcycles.

#### The Search for a More Durable Oil

Because HDT motorcycles are made for the military, their engines and the oil that protects them must withstand much



more rigorous testing and use than the average bike. "The military does not perform a civilian-type break-in; that's not how they use their vehicles," said Hayes. These motorcycles are operated in every kind of severe condition imaginable, from the ice and cold of mountainous regions to the sand and heat of the Iraqi desert. They run hard, and breaking down in the heat of battle should be the last thing on a soldier's mind. These severe conditions dictate that the oil be able to flow readily in sub-zero temperatures to quickly lubricate moving parts, yet stay viscous enough to cool and protect in extreme heat.

HDT was servicing their motorcycles with Mobil Delvac 1 5W-40 and using Mobil 0W-30 racing oil for their race engines. Mobil's 0W-30 is not diesel-rated or recommended for motorcycle wet-clutch applications. "We have seen for several years that our engines 'like' the lighter oils, especially during initial run-in," said Hayes. "This has been especially evident when we look at camshaft and rod bearings after a new engine has been run very hard with no run-in." HDT had been using Mobil 1 for three years, finding it was superior to conventional diesel oil, but they were having problems with blow-by.

#### Impressive Results

Hayes said HDT was drawn to AMSOIL because of the availability of AMSOIL 0W-20 Synthetic Motor Oil and Series 3000 5W-30 Heavy Duty Diesel Oil. "We noticed an increase in horsepower right away as compared to Delvac 1," said Hayes. "But what was quite surprising was the condition of

an engine after a 50-mile run-in and over 120 full-throttle dyno runs. The camshaft bearings, the small and large end rod bearing didn't even look like they had been run. During that series of dyno runs, we registered the highest horsepower and torque readings ever." Hayes said their testing proved that AMSOIL Series 3000 5W-30 Heavy Duty Diesel Oil provided better cam bearing lubrication, better transmission operation and less blow-by than their previous oil. "We picked up just over one horsepower at the rear wheel," he said. "In addition, it appears that overall coolant temperature was down about five degrees."

Hayes said AMSOIL provides superior performance in the two areas that matter to him most: horsepower and lubrication, especially in new engines. At start-up, the exhaust cams are the last components the oil reaches. Because the military doesn't break-in their vehicles like civilians do, and they typically don't have time to allow a warm-up period, it is vital that the engine oil is able to flow immediately. For this reason, HDT takes their engines straight to dyno with no break-in, and they are run wide open.

"The lubrication to the exhaust cams was really good," said Hayes. "They looked beautiful."

#### Commercially Available Motorcycles

HDT USA is working on development of commercially available motorcycles, tentatively scheduled for release by early 2008. The company is so impressed with AMSOIL that these motorcycles will come factory-filled with AMSOIL synthetic lubricants. This quote from HDT's website sums up their experience with AMSOIL: "With over a year of testing, we have found that AMSOIL products continually outperform all other lubricants. AMSOIL provides improved performance, increased fuel economy, lower oil consumption and significantly reduced engine wear in all operating conditions."

#### Bonneville Results

The weather did not cooperate with Hayes and his attempt to set new records, but eventually he was able to set two new national and international records. In the 750 MPS-D class (modified partial streamlining, diesel-powered, 750 max. displacement) Hayes set a new record of 103.3215 mph. The old record was 101.617 mph. Hayes also set a new record in the MPS-DB 750 class (modified partial streamlining, diesel-powered, 750 max. displacement) of 110.4325, easily beating the old 105.147 record. All records are unofficial until reviewed by the AMA and FIM later this year. Unfortunately, due to the inclement weather and repeated track delays, they were unable to make all the runs necessary to set any other records.

