



## Synthetic Oil for your Harley

Synthetic oil for Harley-Davidson motorcycle's is probably one of the most debated subjects you will find on any message board or in any Harley magazine. I'm not about to fuel the fire about the motor companies *about-face* on the use of synthetics, conflicting research reports, or all the mechanics who swear that "only Harley oil is formulated for Harley engines". Rather than writing about the merits of synthetic oil being a superior product over petroleum based products, I thought I'd simply share my own experiences and let you decide. Performance is what counts so I set out to try several brands for myself to see if there really was a difference. I'm not a chemist nor do I own a sophisticated test facility so my comparisons are based on personal observations and simple temperature readings. To read about wear test comparisons performed between Screamin' Eagle® Synthetic (SYN3) and AMSOIL Synthetic Oil check out [Amsoil vs. Harley SYN3](#). Also worth reading is the [Great Oil Debate](#) article written for **American Iron magazine** regarding synthetic oils.

### Let the Tests Begin

For my comparison I used a stock 2004 Heritage Twin Cam 88b with free breathing SE exhaust and K&N air cleaner. Following the initial break-in period, the recommended 1000 mile service was performed and lubricants were replaced with Harley brand petroleum based lubricants. The bike was driven an additional 1500 miles and monitored daily for oil temperature after the first week. All tests were performed during the summer months on a daily commute of 40 miles under a combination of traffic conditions. I live in Southern California so the clutch and tranny get a good workout with plenty of time to heat up. What I found was my oil temperature averaged approximately 240 degrees (Fahrenheit) at the conclusion of each commute and appeared to fluctuate approximately 7-10 degrees.

Following this test (4+ weeks later) I changed oil to H-D's Screamin' Eagle® Syn3 20W-50 in the crankcase, primary, and transmission as recommended. Outdoor temps during this test period varied but were typically in the mid to upper 90's. Once again I followed the same daily temperature testing and found the oil temperature dropped off an average of 2 degrees below that of the regular petroleum-based oil. Temperature readings fluctuated about the same as the conventional oil. Also the all too familiar shifting "clunk" seemed like it had quieted down slightly. On the down side, the occurrence of false neutrals (or false 1st gear) increased substantially! Coincidence? This led me to want to try another product line just to see if it was related to the Syn3 oil or an unrelated occurrence.

### Third Time's a Charm!

My third test was using Amsoil Synthetic [20W-50](#) oil in the crankcase, Amsoil synthetic [10W-40](#) oil in the primary chaincase, and Amsoil [Severe Gear 75W-90](#)

Synthetic Gear Lube in the transmission. I should note here that the synthetic oils were those specified for use in V-Twin motorcycles and lacked the friction modifiers as recommended for Harley engines. I also used only genuine H-D oil filters for each test. While you can use the same 20W-50 for all 3 crankcase, primary, and transmission as with H-D Syn3 (the name Syn3 refers to use in all 3), I chose to use viscosity ranges that more closely matched those of the recommended petroleum based oils. This is probably just my own opinion but I believe 20W-50 is too heavy for the primary which requires more cooling than it does lubrication. Same goes for the transmission, where the originally equipped gear oil is closer to 75W-90 and 20W-50 seems like it would be too thin. Harley doesn't openly publish the viscosity of their petroleum based gear oil (they just give a part number) but most agree it is in the range of 75W-90. Using 3 different lubricant viscosities also happens to be a recommendation of the manufacturer, who calls this a "Three-fluid system".

This test using the Amsoil three-fluid system showed an average temperature reduction of 12 degrees from stock and 9 degrees less than Harley-Davidson's Syn3. Temperature fluctuation seems to have flattened out as well with the oil temp staying between 225 and 230. Outdoor temps during the day have been a consistent 90+ degrees with quite a few days breaking the 100 mark during the testing.

## **Things That Go Clunk in the Night**

Aside from cooler operating temperatures the shifting dramatically improved using the heavier 75W-90 Synthetic gear oil. That familiar "clunk" sounded slightly quieter than with the Syn3 oil... but this might have been my own perception since the shifting felt smoother. Overall I'd have to say that the Amsoil (in my opinion) is outperforming the Syn3 oil. I had thought of switching back to Syn3 to do another test, However, since the dealer charges \$2 more per quart for Syn3 than what Amsoil costs, it just didn't make sense to switch back.

**Slightly cooler operating temperatures, reduced noise, and cheaper price have sold me on this oil. Though I am far from being a scientific test facility, based on my own comparison I would highly recommend Amsoil to anyone thinking of making the switch to synthetic oil. To read about wear test comparisons performed between Screamin' Eagle® Synthetic (SYN3) and AMSOIL Synthetic Oil check out [Amsoil vs. Harley SYN3](#)**