As detailed in MCN’s November “MC Bulletins,” Yamaha has lightly updated its flagship YZF-R1 superbike for 2012. The biggest news is that it has matched the ever-growing number of competitors that now provide traction control as standard equipment. In addition, the 2012 R1 receives several other notable upgrades, including revised rear suspension with a softer spring rate, a MotoGP-style lightweight upper triple clamp, redesigned titanium-clad mufflers with smaller heat shielding and more aggressive footpegs with increased knurling. Subtly different cosmetics make the new machine’s appearance distinctive, particularly from the front, thanks to a redesigned windscreen, improved LED position lights and attractive peripheral front reflective strips.

Traction control is no gimmick and, in fact, in this tester’s opinion, the equipping of high-powered motorcycles with traction control is the best safety improvement to arrive in years, bar none. Given the results of our recent testing, the performance of Yamaha’s TCS on both the road and track was truly impressive, both in its ease of adjustment and its transparent functionality, which aided both speed and safety.

Yamaha’s TCS relies on Hall Effect sensors that continuously monitor and compare front and rear wheel rotational speeds (using an ABS-style toothed ring on the front wheel, and monitoring the rear tire through the transmission). The ECU determines an allowable or optimal amount of wheel slip compared to predetermined preset values by way of algorithms programmed into the ECU. Based upon wheel speeds, engine rpm, throttle position, the chosen TCS mode and the transmission gear selected, when these programmed values are exceeded, the ECU makes corrections by reducing engine output far faster than a human can react. The methods by which the TCS controls power output include incrementally closing the throttle valves, partially cutting fuel delivery and retarding the ignition timing—all within milliseconds—to ease demands on traction and maintain grip.

7-Position Intervention

The YZF-R1’s rider-selectable, multi-level T/C system is managed via a toggle switch on the left handlebar that allows scrolling up or down the range of settings. Resets of the TCS setting require only that the throttle be fully closed. The level of TCS intervention selected is indicated by a simple block-style bar graph located in the upper right of the digital dash display, replacing the previous display which formerly indicated amount of throttle opening recorded by the TPS (throttle position sensor). To alert the rider that the TCS is actually operating, a flashing yellow light on the dash illuminates when TCS control is being applied.

Position “one” provides the least electronic intervention, with setting “six” being the most. The seventh option is “off” and switching the TCS “off” is the only mode choice that requires the motorcycle be stopped and the TCS selection mode switch be depressed for more than two continuous seconds. Additionally, Yamaha has also incorporated “wheelie control” into the new system. The final two T/C modes (five and six) restrict front wheel lift (even under the hardest throttle application) from inches to millimeters, respectively.

On The Road

Yamaha invited journalists to Southern California for a two-day intro, the launch including a day riding the mountain roads above Palm Springs on Highway 74 and a second day at a relatively new racetrack located deep in the Yucca Valley named Chuckwalla. A review of our notes from our February 2010 R1 evaluation, perhaps not surprisingly, revealed almost identical impressions as the overall changes are minimal with the exception of TCS and new engine Mode maps.

To review, the R1 was massively revised for its 2009 model year, which is when it first received its unique MotoGP pattern Crossplane crankshaft that creates an irregular firing order to increase traction while maintaining potent top end power. This was also when the engine’s bore and stroke dimension were made more oversquare and variable length intake funnels (YCC-I) were fitted. Other major changes included a new aluminum chassis with revised flex, a new magnesium subframe and the addition of three driving modes to alter power characteristics. For 2012, Yamaha has also refined the three driving modes, and in combi-
nation with the TCS options, a total of 21 possible variations are available to tailor the machine’s behavior to its rider’s taste.

Such a range of choices takes time for familiarity, but given the time constraints of the introduction, we tried to simplify our setting selections for the best possible result in the shortest amount of time. Our first decision was to pick a baseline power delivery setting via the D-Mode selector. On the street the R1 produces ample power in either of the first two modes (“A” or “STD”). We opted for the Standard mode as it softens the initial “hit” of throttle response to an acceptable level. With 154 hp on tap, a too-sudden power delivery only makes riding more difficult. On the other side of the spectrum, the “B” (or “rain”) mode, given our warm, sunny weather, was also unnecessary, so on the street, the Standard mode was used exclusively.

Next, experimenting with TCS on the street, we found that in the two highest TCS settings, wheelies were indeed, curtailed. Additionally, the rear wheel was also well-controlled when nearing traction limits, yet with almost undetectable intervention. In all but the two least restrictive TCS settings, the R1’s electronics completely controlled any loss of rear traction. And although the road surface appeared clean, bumps and tar strips still present grip challenges, yet our R1 always felt securely planted. On the street, TCS brings a new level of safety, but even so, the best advice is to always ride as though it isn’t there.

We felt the best results were obtained using the number two TCS setting (next-to-least intervention), this on clean, dry pavement, again using the “Standard” power choice in “D-Mode.”

On The Track

With lessons learned from past experience with various traction control systems on closed courses, it’s a normal practice to start your test with a high degree of T/C and then work your way down as you become more comfortable. In almost each case, it was not until the end of the test day that we finally experienced T/C in its minimal settings. With this latest R1, we took the opposite tact, actually opting for the number two setting while keeping the power in the “Standard” D-Mode to keep TCS intervention to a minimum. Once comfortable with the results and control provided by the traction control system, all the while learning the clockwise layout of the unfamiliar Chuckwalla track, we switched to the “A” mode for its quicker throttle response, adapting to the need to apply throttle and TCS-related steering corrections more quickly.

The Chuckwalla circuit is a fun track with primarily 2nd and 3rd gear corners (around 80–100 mph). Rapid progress around the track’s layout requires predominately fast corner entry, while connecting almost continuous turns joining each other.