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COLUMNS

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> By **David Hilgendorf**

Shows

> MCN will be presenting at this year's Americade, a unique rally for all motorcyclists, which is featured on pages 25, 38 and the back cover.

BIG MARKETING IS commonly branded as a "motorcycle show," but the industry uses that term very loosely.

The International Motorcycle Show (IMS) began in 1982 and is currently hosted annually in seven major U.S. cities. Considering all the doom and gloom coming from mainstream media, I was pleasantly surprised by the immense turnout in Chicago this year. However, the event had no demo rides, thanks to the cold, snowy weather. The stunt show was sequestered in a tiny corner, surrounded by booths and hard to see. The customs were spread out, making voting difficult.

Cross-referencing U.S. population centers with motorcycle registrations showed some questionable market selections for IMS. For instance, there's only one show in California, which has twice as many registered bikes as any other state. Florida has the second most motorcyclists, but no show. Third most is Texas, with one show. Yet, Minnesota got a show—thank you, Polaris. IMS also doesn't visit Georgia or North Carolina, with combined access to more than half a million warm-weather motorcyclists.

The other big show is American International Motorcycle Expo (AIMExpo), created by the Motorcycle Industry Council (MIC). It was originally held in Florida, then moved to Columbus, Ohio, and settles this year in Las Vegas—a hot spot, but not for motorcyclists. Does including foreign bikes make these American shows International?

A MIDSIZE ALTERNATIVE is Mama Tried (photo above) in Milwaukee, Wisconsin, also in February. This up-and-coming rave party includes a bar meet with custom builders, hooligan racing in the NBA arena with after-party, weekend trade show with custom bikes and vendors, followed by live bands Saturday night and ice racing Sunday afternoon.

This segmented experience left much to be desired, taking place close to and sponsored by Harley-Davidson. Parking was disorganized. There was a 30-minute outdoor line in the freezing cold, followed by confusion at the box office. Finding the custom bikes was like playing Where's Waldo?, entailing a climb of four flights of stairs and wading through throngs of beer-swilling bikers.

Vendors were strung along the side walls on different floors, with no apparent organization. The frisking and metal detectors at the door seemed irrelevant after spotting a vendor selling knives inside. A screening in the basement promoted some interesting titles, but was merely folding chairs in a bar with a projector filling one quarter of the screen. Mama didn't Tried hard enough.

Riders can find the same "underground marketing" vibe at the One Moto Show in Portland, Revival Cycles Handbuilt Show in Austin, Texas, or the Brooklyn Invitational in New York. To see actual motorcycles, go for the racing or visit on a Sunday morning.

THAT LEAVES RALLIES. Sturgis and Daytona are well-known for crowds and drunken debauchery. Harley's big 115th shindig this year is rumored to have a more "block-party" and less "festival" vibe. For motorcyclists, there are saner events, like the BMWMOA, Wing Ding, and MCN's perennial favorite, Americade (page 25), where we will be participating this year. It's good to have options. MCN

LETTERS

THE KAWASAKI Z900RS (MCN 3/18) was missing suspension travel.

—Ken Hill

Front Suspension: Inverted telescopic fork with adjustable compression, rebound and preload; 4.7-inch travel. Rear Suspension: Horizontal back-link swingarm with stepless adjustable rebound and preload; 5.5-inch travel.

—David Hilgendorf

LIKE MANY WHO rode when the original Z1 was introduced, I find the Z900RS very appealing. Every review I've read mentioned abrupt or jerky on/off throttle or similar complaints about low RPM shifting.

These reviews seemed to attribute this behavior to low RPM fueling issues possibly resulting from the engine maps required for emissions compliance.

Comments ranged from jerky, but the rider adapted, to the rider wouldn't buy or ride this bike until Kawasaki fixed the problem. I would appreciate any further thoughts on these issues and possible solutions.

—Steve Angelidis

An inquiry to Kawasaki for response to this concern has not received a reply. Other models based on this platform did not exhibit this problem. We suspect it is a fuel mapping issue that will be resolved at the factory or dealer level, if it applies to every Z900RS.

This is why test rides should be part of motorcycle sales. We wouldn't buy a bike with a known choppy throttle or recommend anyone else do so.

—David Hilgendorf

ANOTHER NEGATIVE RESULT of the government mandate for ethanol in our fuel is the loss of Tall Grass Prairies, which are quickly plowed to plant corn. It is hard to find the truth whether ethanol does anything for air quality as so much of the information available is politically and big money industry biased.

I have had jets plugged and other damage from it and try to find nonethanol gas for my older motorcycles. As long as agribusiness can buy Congress it will remain in our fuel.

—Ed Johnson

Decimation of prairies happened long before ethanol and has been ongoing for centuries. Conquest and capitalism are all about turning natural resources into financial gain.

—David Hilgendorf

I LIVE IN Oregon's Willamette Valley. Occasionally, we do get snow and ice on the roads. I presume the stuff being sprayed on the road beforehand is designed to prevent ice. Not a bad idea, however wet tar snakes are nothing compared to this slick stuff.

I recently experienced that slickness and lost the front wheel. Fortunately, the low speed fall left only minor aesthetic damage, but also left me with a burning desire to know what this stuff is.

—David Ruiz

In the heavy snow of the north, they use a combo of rock salt and sand along with plows for "de-icing" after the snow falls, which makes roads slippery with sand after the thaw.

In warmer southern states they spray "anti-icing" brine on the roads in preparation of precipitation during freezing temps. Much like Oregon, they consider any chance of freezing rain, ice or snow as a catastrophe.

The brine is a mixture of sodium chloride (salt) and water and is a relatively new technique to prevent ice from forming. Though I recently witnessed this anti-icing technique in Texas, I didn't try riding on it. It has been DOT approved since at least 1996 and is widely used (goo.gl/KCo7vS).

—David Hilgendorf

NAME CONFUSION

Ira's letter (MCN 3/18), might cause readers to think that Gerbing heated gear was not reliable or that the warranty was no good. I sold Gordon Gerbing's excellent products for many years—no warranty problems.

Around 2013, the company was sold to a venture capitalist firm (Glyde) who kept the Gerbing name, but promptly had the products made in China. There were several problems with that clothing and they even had a recall of the jacket liner.

Gordon Gerbing does not repair the Glyde jackets with the Gerbing name on them, which causes some confusion with customers. Gordon Gerbing has resumed business as Gordon's Heated Clothing, to differentiate his quality American-made product from Glyde.

—David Cushing

AMERICAN MANUFACTURERS such as Red Wing and Hytest are marketing boots to the industrial sector with Poron XRD protection in the metatarsal and ankle sections. These boots also include steel, aluminum or nonmetallic protection to the phalanges and calcaneus bones area.

When I compare these manufacturers to motorcycling boots such as Rokker or Stylmartin, the Red Wing and Hytest boots seem to offer more solid protection at very competitive prices. Do these boots have the necessary resistance to abrasion and impact to be recommended for motorcycle riding?

—Jorge Serrano

Before "motorcycle boots" existed, riders simply wore boots. Some motorcycle boots, such as race and motocross, are specifically designed for crash-protection. That level of protection comes with a restriction on movement and a

compromise in all-day comfort. There are other "motorcycle boots" that are barely more protection than shoes.

For casual daily riding, the comfort and protection provided by work boots like Red Wing should be sufficient. The challenge on some bikes is getting a work boot (especially steel toes) under the shift lever, due to their thickness.

Verify you are comfortable with the "feel" of the boot in operation of the foot controls. Stick with all leather work boots as they are sturdier and designed to take a beating.

Harley boots are made in China, licensed by Wolverine, which also sells work boots. I suspect most work boot brands use the exact same factories in China. Red Wing still assembles some (not all) of its boots in the U.S.

—David Hilgendorf

AFTER READING MARK'S **meticulous and detailed instructions of how to clean up the jets in a carburetor (MCN 4/18), I can see why fuel injection far surpasses carburetor engines, especially for multicylinder engines.**

—Humberto C Martinez

We have been doing a series on carbs (see pages 31-35). The advantage is they are simple, cheap and easy to work on (analog). The advantage of fuel injection is efficiency and computerized tuning (digital).

Fuel injection on motorcycles was poor in the 1990s, mostly because of the computers. Today, I'd recommend EFI over carburation in most instances, regardless of the upfront cost.

—David Hilgendorf

SEND LETTERS TO THE EDITOR

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AS A FORMER **MSF RiderCoach, I had many conversations with riders who had no intentions of ever wearing a helmet. Even when asked, "What if you knew tomorrow you would crash?" The reply was, "Still wouldn't wear one." Some said if a helmet law passed, they'd give up riding.**

I estimate 25 to 30 percent might quit riding, which could also reduce alcohol consumption and riding. You can't reason with closed-mindedness. Or is it ignorance?

—Ken Bowen

I call it Darwinism. We can only help those who would help themselves.

Something like "Red Asphalt" (driver's education videos that graphically depict automotive crash carnage) might be good in motorcycle training. Once they see the results of an unprotected motorcycle crash, a few might choose not riding or start gearing up.

Driving is a privilege, not a right. On public roadways, helmets should be mandatory at the federal level, like air bags and seatbelts. Ask any racetrack if they'll let you ride your bike without a helmet, boots, leathers and gloves.

States that pass helmet laws find most of these bikers riding in useless novelty helmets anyway, to spite the law. They won't stop riding.

—David Hilgendorf

MY BROTHER BOUGHT **a new Milwaukee Eight Harley. Oil seems to be consumed far more rapidly than normal. A couple of dealers said they could not fix it and if he wanted to pay to tear down the engine they would submit the bill to Harley and it "might be covered," even though it is still under warranty. Are there any technical service bulletins for a fix?**

—Tim Stephens

On some Milwaukee Eight engines, oil transfers from the transmission into the primary at sustained high RPM. We don't know why, or how common it is, but internal discussions lead us to believe it may be seal-related.

Harley initially ignored it, but have since acknowledged the problem. There is no recall, but there may be a TSB. MCN expects Harley's warranty claim process to handle each complaint on a case-by-case basis.

Owners with this problem need to keep bugging their dealer until it is fixed under warranty. If the dealer or The Motor Company refuse to fix it under warranty, invoke your state's lemon law. There's no reason to accept this defect if it happens to your bike.

—David Hilgendorf

WHY SHOULD WE **replace helmets every five years? What deteriorates to make a helmet unsafe? Some helmets are worn daily in the hot sun while others are rarely used and kept in a cool dark place.**

How important is the manufacturing date? I've seen helmets at dealers that are two years old. Does that mean there is only three years life left in the helmet?

—Doug Smith

The materials in helmets can and do degrade over time and with use and exposure to the elements, particularly the glue that holds it all together. If it's stored properly, a helmet may be good for longer than its recommended 5-year life, but is that something you want to chance your head with?

Also consider that newer helmets are manufactured with more modern technology and can be lighter, more comfortable and protect better.

If the choice is between a 2-year-old new-in-box helmet or not wearing one at all, buy the old helmet on clearance, wear it a lot and replace it in a few years. Frequently worn helmets are only good for about two years anyway.

Some helmets will obviously last longer than others, whether they have been worn or not. It's a judgment call.

—David Hilgendorf

Troubleshooting Headlights

GOT PROBLEMS? MCN DOWNTIME
5151 California Ave., Suite 100, Irvine, CA 92617 or email questions with JPEG images to: editor@mcnews.com Subject: Downtime

I HAVE A 2013 Yamaha Tenere which has lost all function of the headlights. I have checked the lights, relay, fuse, and circuit. The problem seems that the ECU is not providing a ground for the headlight relay to operate. How do I check further?

—Robert Preston

It sounds like you have done a thorough job. This is a concern with modern systems that use the ECU to control relay power. The idea is sound; reduce amp draw when starting by shutting off the headlights. This enables the use of smaller, lighter, less expensive and longer lasting batteries. The downside is that if the ground goes bad, the ECU usually requires replacement at $1,200.

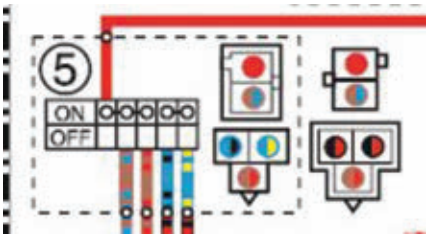
This circuit should be isolated better or use a less expensive relay box to control the circuit. This configuration is becoming more common for headlights, but has been standard procedure for EFI fuel pumps since 1998. Most EFI fuel pump relays are grounded by the ECU and sometimes lose relay ground control as well.

The most common reason is electrical surges from mishandling the vehicle. Connecting or disconnecting the battery, jumping the bike or causing an electrical surge with the key on overamps the first low-amp ground path it finds in the ECU. It literally burns out the ground trace on the circuit board. These mistakes have a very high price. If the ECU ground does fail, there are options. Let's double check the work and try to learn from the experience.

Check voltage across the battery terminals. With power off, it should have more than 12.5 volts. Now, disconnect the ignition or fuel injection fuse (to prevent running) and turn the engine over while measuring voltage across the terminals for about 6 seconds. If it drops below 10.5 volts, replace the battery.

The ECU may throw fault codes below this point. To check for codes, plug the fuse in, start the engine and look for the check engine light. If it is showing, there is an existing error. To see the code, turn off the stop switch to kill the engine and the code will show at the clock LCD. Send us the code and we'll look into it; however, continue to check through the remaining steps for other problems.

Check the bulb visually by looking for damaged filaments. Keep your fingers off the bulb, it is crystal and the skin oils will damage the surface. If they look good, make some test leads and test the high and low beam against the battery directly. If it doesn't light, replace the bulb. If it does light, check the fuses. Pull the fuse and do a continuity test across the contacts as well. It's not common, but I've had a couple break at the tab and still show battery voltage on both sides of the test ports.



Now you'll need to check the key switch's 2-pin and 3-pin connectors (above photo). Check with the key ON and plugged in. Back probe the metal portions of the wires with a gator clip and a "T" pin (left photo). Don't poke through the wire insulation or damage the connector. All wires should have battery power with the key on.

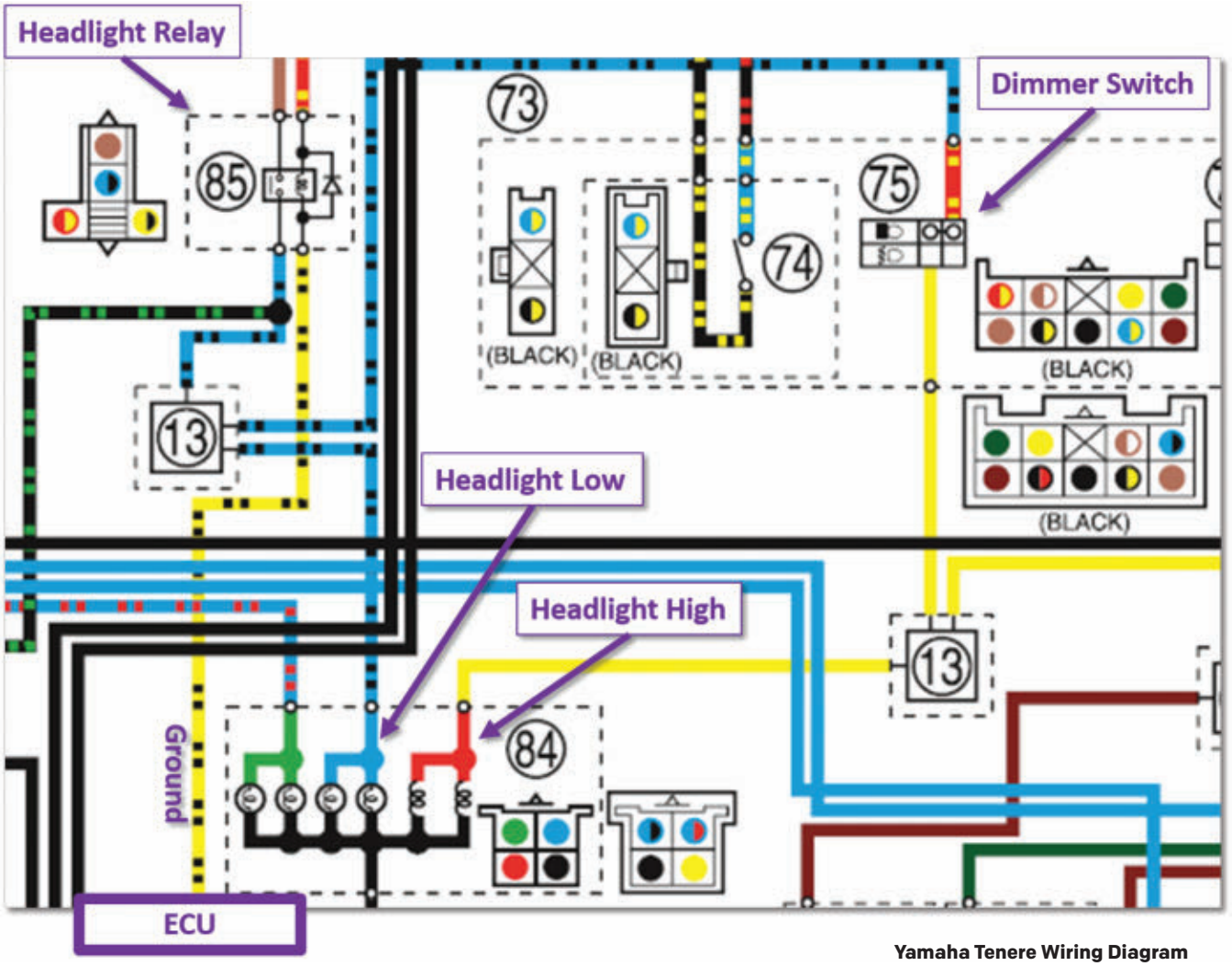
If they don't, turn the key off and see if the red wire has power. If it doesn't, there is an open between this point and the main fuse, but this would also mean the bike doesn't run. If it does have power and any of the other wires don't, the key switch is bad, replace it.

If all show power, check the dimmer switch. For this one, back probe both wires on the 10-pin switch connector. The red/yellow wire should have power with the key on and dimmer switch on low and high beam. The yellow wire should only have power when the switch is on high-beam.

If the red/yellow wire does not have power, the headlight relay power is not present. If red/yellow does have power, but the yellow does not, that means the dimmer switch is bad, replace it.

Next thing to check is power in/out of the headlight relay. The connector for the headlight relay will have a 4-pin connector. Red/yellow is primary coil power, which is supplied by the headlight fuse. Yellow/black is the primary coil ground, which is ECU controlled. When the key is turned on, the primary side of the relay should receive battery voltage and the ECU should ground the relay. You should see battery voltage on the red/yellow and less than 1 volt on

KEVIN O'SHAUGHNESSY, YAMAHA



Yamaha Tenere Wiring Diagram

the yellow/black ground.

If red/yellow doesn't have battery power, there is a break between the headlight fuse and relay. If the ground shows battery voltage, the voltage is not dropping through the load, which means ECU is not grounding. If no ground is present, you'll need to buy a new ECU or bypass it.

Bypassing the ECU requires connecting the yellow/black to a ground directly. Simply cut or disconnect the yellow/black wire between the ECU, (insulate the ECU side) and connect it to ground. This is not recommended because you'll have high power draw from the headlight, tail lights, etc., when pulling high amps with the starter motor.

If you want to go this route, I'd suggest getting a Shorai lithium iron phosphate battery (LiFePo4) which provides a much smaller size/per starting capacity. Get a higher amp hour rating of about +4 amp hours than the standard Ah rating.

This will give your bike the capacity it needs to start and run lights at the same time, while still fitting in your limited battery space. Generally speaking, larger Ah ratings require larger plate/battery sizes. It is a much less costly option at about $180 than replacing the XTZ ECU at $1200. You may want to contact Shorai's technical support for assistance with battery sizes/terminal position that would work for your application.

If the primary ground and power are working appropriately, then the last possibility is the secondary side of the headlight relay is not working. On the same 4-pin connector, the brown wire is power into the switch and blue/black is power-out to the lights and dimmer. Back probe these wires with the key on and see if they have battery voltage on both sides.

If the relay coupler shows battery power on both the brown and yellow/black wires, with less than 1 volt on the brown. The ECU is connecting ground but the relay is bad, replace it. If you have battery voltage on the brown, yellow/black and blue/black, with less than 1 volt on brown, then you have a missing power between the relay and light bulbs.

Hope this helps "light" the way. Let us know what you find!

—Kevin O'Shaughnessy

Kevin O'Shaughnessy is curriculum developer at Motorcycle Mechanics Institute, formerly R&D at Race Tech.

YAMAHA

Pipeline

> Edited by **Russell Evans**

» Yamaha

Yamaha has added three entries to the small-bore parade for 2018, echoing a movement among manufacturers to roll out a greater assortment of entry-level bikes suitable for non-riders.

Two of these entries are dual sport models: the wispy XT250 that is a street-legal trail bike, and the bulging TW200, which bears an unmistakable resemblance to Suzuki's Van Van 200.

The third new model for 2018 is the V Star 250, with a very Sportster-like profile and, interestingly, the only V-twin in its class. Yamaha places a fuel efficiency estimate at 78 miles per gallon for the air-cooled engine with a 66mm stroke. If correct, that translates to a range of nearly 200 miles.

With its light weight and 27-inch seat height, Yamaha is indeed marketing the **V Star 250** as a trainer or as a purchase for those looking for a smaller, easy-to-ride package. MSRP: $4,349

The **TW200**, with its tractor-like tires, also has a low seat and compact ergonomics, driven by an air-cooled, 196cc single-cylinder four-stroke engine, and has a 6-speed transmission. With its digital ignition and electric start, plus more than six inches of telescopic fork travel, it appears to be well suited for plunking around the ranch or in the woods. MSRP: $4,599

The **XT250** also has the makings of a useful trail bike, with its 249cc four-stroke single-cylinder engine. The XT has fuel injection, e-start, spark arrestor, a 5-speed transmission, nearly nine inches of front fork travel and more than 11 inches of ground clearance. MSRP: $5,199.

yamahamotorsports.com

INDUSTRY NEWS

» **THE MOTORCYCLE RIDERS** Foundation (MRF) released the following statement after an Arizona woman was struck and killed by an Uber SUV in autonomous mode:

"The MRF was disturbed and disheartened to hear the news of the tragedy in Arizona. It is incidents like these that must make regulators and policymakers ensure that before automated vehicles are ubiquitous on our nation's highways, a strong federal law must contain protections for all roadway users including pedestrians, bicyclists and motorcyclists.

Though we continue to remain optimistic that fully autonomous vehicles can help to reduce human errors that cause 94 percent of crashes, we continue to insist that the technology must be highly regulated and fully vetted with certifiable safety testing and evaluation."

» **TWO BILLS INTRODUCED** in Congress (H.R. 5212 and S. 2519) would cap mandated ethanol content in the nation's fuel supply at 9.7 percent and require the U.S. Environmental Protection Agency to prioritize the use of cellulosic biofuel ahead of other biofuels when determining volumes below blend wall levels.

The American Motorcyclist Association supports these bills, which would stop the federal government from forcing E15 fuel (15 percent ethanol by volume) into the market.

Capping the ethanol mandate helps ensure the availability of safe fuels, such as E10, and a continuing place in the market for ethanol-free gasoline (E0) for older motorcycles.

None of the estimated 22 million U.S. motorcycles and ATVs are certified by the EPA to operate on fuel containing more than 10 percent ethanol.

Inadvertent use of E15 in vehicles not designed for its use can damage fuel systems and engine components and void manufacturer's warranties.

NEOTEC II

» Shoei

THE NEOTEC II helmet, new to the North American market, can be equipped with a specially developed, SENA-exclusive SRL Bluetooth Communication System designed for seamless integration with the NEOTEC II.

The NEOTEC II is a "flip-up" modular helmet with improved aerodynamics, an internal sun shield, the Pinlock EVO fog-resistant system, and additional noise barriers, plus the ability to seamlessly integrate with the all-new SENA SRL (SHOEI Rider Link) Communication System.

The NEOTEC II's flip-up chin bar and face shield have been further refined, and a new dual locking system offers better holding power when in the full open position. Also new is the CNS-3 base plate system with airtight beading that keeps out water, dust and unwanted airflow. The QSV-1 internal sun shield fends off 99 percent of harmful UV rays.

SENA's exclusive SRL Communication System is tailored specifically to the NEOTEC II helmet.When installed, the SRL is virtually undetectable from the outside of the helmet, and functions with a simple 3-button control. Installation and deployment is user-friendly.

NEOTEC II helmet: $699 in solid and metallic colors; $799 with graphics. ***shoei-helmets.com***

Sena SRL Unit: $299. ***sena.com***

LATEST RECALLS

Make: Harley-Davidson
Model: Detachable Saddlebags: #90201561, #90201645, #90501552, #90201644, #90201555 and #90201513.
Component: Equipment
NHTSA #: 18E010000

Make: Fuel Helmets
Model: SH-HHGL1, size small
Component: Equipment
NHTSA #: 18E005000

Make: Kawasaki
Model: 2016-18 ZX-10R and ZX-10RR (ZX1000R, ZX1000S, and ZX1000Z)
Component: Power Train
NHTSA #: 18V089000

Make: Triumph
Model: 2016-18 Thruxton, Thruxton R
Component: Electrical System, Engine, Engine Cooling
NHTSA #: 18V084000

Make: Harley-Davidson
Model: All 2008-2011 Touring, CVO Touring and VSRC Motorcycles Equipped With Anti-Lock Brakes (ABS), Including Road King (FLHR), Road King Police (EFI) (FLHP), Road King Police (EFI) (FLHPE), Electra Glide Standard Police (EFI) (FLHTP), Electra Glide Classic (EFI) (FLHTC), Electra Glide Ultra Classic (EFI) (FLHTCU) and Street Glide (EFI) (FLHX), 2008 VROD (VRSCAWA), CVO Road King 4 (FLHRSE4), Night Rod (VRSCDA), CVO Ultra Classic 3 (FLHTCUSE3), Night Rod Special (VRSCDXA), 2008-2010 Road King Classic (EFI) (FLHRC), 2008-2009 Road Glide (EFI) (FLTR) and Electra Glide Standard (EFI) (FLHT), 2009-2010 V-Rod (VRSCAW), 2009 CVO Ultra Classic (FLHTCUSE4) and CVO Road Glide 3 (FLTRSE3), 2009-2011 Night Rod Special (VRSCDX) and V-Rod Muscle (VRSCF), 2010 CVO Ultra Classic 5 (FLHTCUSE5) and CVO Street Glide (FLHXSE), 2010-2011 Electra Glide Ultra Limited (FLHTK) and Road Glide Custom (FLTRX), 2011 Road Glide Ultra 103 (FLTRU103), Street Glide 103 (FLHX103), Road King Classic 103 (FLHRC103), CVO Ultra Classic 6 (FLHTCUSE6), CVO Road Glide Ultra (FLTRUSE), Road Glide Custom 103 (FLTRX103), and CVO Street Glide 2 (FLHXSE2) Motorcycles.
Component: Service Brakes
NHTSA #: 18V076000

Make: Indian
Model: 2015-2017 Roadmaster
Component: Electrical System
NHTSA #: 18V055000

Make: KTM
Model: 2015-2016 Super Duke R ABS, 2016 1290 Super Duke R SE ABS, 1290 Super Duke GT ABS and 2017-2018 Super Duke R and 1290 Super Duke GT
Component: Brakes
NHTSA #: 18V033000

Make: Suzuki
Model: 2017-2018 GSX-R1000, GSX-R1000A, GSX-R1000RA, GSX-R1000RZA
Component: Engine, Cooling
NHTSA #: 18V064000
Make: Honda
Model: 2009-10, 2012-2016 GL1800 Gold Wing.
Component: Air Bag
NHTSA #: 17V045000

Make: Ducati
Model: 2015-17 1299, Monster 1200, Multistrada, Panigale R XDiavel, 2017-18 Scrambler 800 Cafe Racer
Component: Brake System
NHTSA #: 17V812000

Make: Aprilia
Model: 2016-17, RSV4 1000, 2017 Tuono V4 1100
Component: Brake System
NHTSA #: 17V811000

Make: Honda
Model: 2017, '16, '10 VT1300CX Fury
Component: Fuel System
NHTSA #: 17V805000

Make: Kawasaki
Model: 2017-2018 Z125 PRO & PRO KRT Edition
Component: Electrical System, Fuel System
NHTSA #: 17V774000

Strategy

» **STREET** *BY WALT FULTON*

Fighting a Bogus Traffic Citation

I recently received a performance award—better known as a ticket. I pride myself in having ridden nearly 2 million miles on two wheels, while only receiving four moving violations.

Most riders are familiar with the important statutes, such as speed limits; coming to a complete stop at a stop sign or red light; yielding right of way; and obeying advisory signs, road markings and parking restrictions.

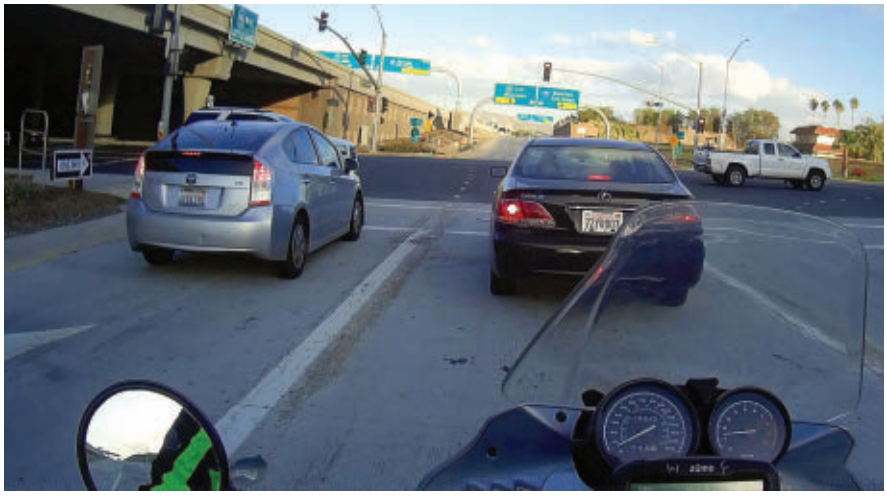
We should know that signs denoting a lower speed limit ahead require slowing to the posted speed before passing the sign and when traveling at the posted speed we cannot accelerate to a higher speed limit before we get to the sign. It wasn't for anything like that.

Stopped in a left-turn lane, the green arrow lit and I proceeded to turn left. A motor officer stepped out in traffic and motioned me to pull into the adjacent parking lot. As I removed my helmet and ear plugs he grumbled that ear plugs are illegal and that I probably turned on red because no one was in the intersection.

What do you say to an uninformed officer making incorrect statements? "Sir, ear plugs have been legal in California for years and the light wasn't red." But, the citation earned was for turning left from the wrong lane position, CVC #22100(b).

Surprisingly, 22100(b): "The approach for a left turn shall be made as close as practicable to the left-hand edge of the extreme left-hand lane," accurately describes my lawbreaking activity, but there is more to the story.

The first vehicle in the turn lane did not move when the green arrow lit, probably engaged with their smartphone. I was several vehicles back and noticed ample room in the lane. I eased up alongside the lead vehicle (lane sharing is allowed in California) and when he still didn't move, turned left, as close as was practicable.



(above) In California, when positioned in a left turn lane, drivers can be cited for not being "as close as practicable to the left-hand edge of the extreme left-hand lane." All three vehicles are in violation. (below) Page 48 of MSF "You and Your Motorcycle."

I pleaded not guilty and went to court ready for battle, with "27 8-by-10 color glossy pictures with circles and arrows" (thank you Arlo Guthrie). My defense was I was as far left as possible, given there was a vehicle next to me sharing the lane. After all the work researching and making exhibits, the officer didn't show up and the case was dismissed.

Signal timing and lane controls are the responsibility of the Department of Transportation, but when combined with poorly worded vehicle codes like 22100(b), they only serve to snarl city streets and traffic courts.

Though we aren't expected know every possible code at any given time, it certainly can't hurt to research them when it comes time to defend ourselves from doing nothing wrong. MCN

Walt Fulton is a retired roadracer, product specialist at Kawasaki and proprietor of Streetmasters Motorcycle Workshops.

WALT FULTON, MOTORCYCLE SAFETY FOUNDATION

» **ADVENTURE** *BY GREGORY W. FRAZIER*

When Your Bike is Cargo, Be Ready to Pay the Freight

If risk and stress are measures of adventure, highest on the meter may be transporting a motorcycle by air cargo. It can quickly dash a journey and seriously tax both wallet and patience.

When I informed a wannabe adventurer that the estimated cost to transport his motorcycle by air cargo from Miami, Florida, to Bogota, Colombia, was going to be between $1,800 and $2,500, he would not believe the facts. He blustered and countered that a friend who owned an air cargo company could do it for free.

To transport your motorcycle abroad and recover it in good shape, you'll fare better if you don't cut corners.

His highly touted plan sank like the Titanic when he learned his friend's air cargo company did not operate between Miami and Bogota. His friend did offer to connect him with a freight forwarder who could possibly facilitate the cargo movement, but offered no further assistance or advice.

The referred freight forwarder cost projection was $2,000 to $2,500. I queried if the estimate included crating, local transport to the customs warehouse for inspection and clearance, then to the air cargo loading point, as well as how payment was to be made.

Mr. Wannabe smirked and said the quote was a rip-off, supporting his claim with having flown his Norton 30 years earlier for $150.

My inner Noah looked skyward, "I've pointed the mammoth at the ship, but can't get it to climb aboard."

Mr. Wannabe Woolly Mammoth bypassed the friendly freight forwarder after acquiring the name of their air carrier. He drove to the carrier's headquarters and asked the receptionist how much the air cargo fee would be given the proffered motorcycle weight. The receptionist looked at a chart with prices based on weight and told him $750, reinforcing his belief that I and the freight forwarder had been biblically wrong.

Upon arrival in Florida, his quoted air cargo fee of $750 was as useless as an inner tube around a sinking mammoth. The freight forwarder he bypassed would not answer his emails, calls or messages, leaving him stranded as the ark prepared to sail.

To get Mr. Wannabe's motorcycle out of Miami and into Bogota took nearly three weeks. The final hard cost of the air freight (in January 2016) was $1,935, including:

- Air cargo = $1,060 (computed by volume, not weight)
- U.N. fee = $200
- Dangerous Goods certification = $50
- Airport delivery = $55
- U.S. Customs validation = $62
- Automated Export System = $22.50
- Crating = $300
- Freight forwarder = $100
- Miscellaneous = $85.50 (Notary, POA, Fed Ex, funds transfer)

Soft costs, such as hotel, food, taxi, and insurance to drive the motorcycle in Colombia were another $500 to $700.

TIPS

Long gone are days when an adventurous American motorcyclist could ride up to an air cargo carrier, fill out a form, hand over some cash, drain the gas, remove the battery and find his motorcycle across a body of water some days later.

- The cost of air cargo is determined by either weight or volume, whichever is greater.
- Some countries require crates made of specially treated wood. Building your own crate or reusing a dealer crate may not be considered acceptable.
- The crate should allow a forklift to move it, and open enough for inspection and verification of the VIN.
- Some carriers allow a few drops of gasoline, others do not. Even the same carrier might either allow a disconnected battery, or say no to any battery.
- There is also human risk, such as, "Sorry, we've no record of your motorcycle or where it is."

My top information source for international transport of motorcycles has been *horizonsunlimited.com*. While they offer a wealth of data, the downside is that information is often dated and international rules and regulations change quickly.

Mr. Wannabe did eventually get his motorcycle to Bogota. He never did say, "Thank you." When queried on his $750 quote, "The receptionist must not have known what she was talking about."

We can extrapolate why there are no longer woolly mammoths wandering the earth.

Dr. Gregory Frazier has authored four global motorcycle adventure books, logging six circumnavigations and over a million miles.

GREGORY W. FRAZIER

LEGAL *BY HARRY DEITZLER*

Modulating Brake Lights

In the 1970s, our state commission on equipment approved the Voevodsky Cyberlight, a unit which varies both the rate and intensity of flashing in response to G forces of braking.

While both the agency and the ruling have seemingly been superseded, I still have a functioning Cyberlite on my vintage Yamaha and have never been stopped by police to explain it.

A casual query indicates "Back Off" and other modulating brake lights are currently on the market. Are these lights legal? If not, what impact would their use have on liability in the event of a crash and injury?

The National Highway Traffic Safety Administration (NHTSA) issues Federal Motor Vehicle Safety Standards (FMVSS), which are mandatory for motor vehicles. The underlying lighting requirements for original and replacement lamps, reflective devices, and associated equipment on all vehicles are set forth in FMVSS, section 571.108. Subsection S3 specifically embraces motorcycles and subsection S4 defines brake lights.

Stop lamps give a steady light to the rear of a vehicle to indicate a vehicle is diminishing speed by braking. The description in Table I-c states that brake lights are to be "steady burning" and activated upon application of brakes.

Although the FMVSS defines and makes provision for modulating headlamps (limited to daytime hours), there is no mention of modulating stop lamps (brake lights). The FMVSS generally prohibits flashing lights on motor vehicles, subject to exceptions such as turn signals and for indication that the vehicle is disabled or stopped for an emergency.

State laws cannot supersede the FMVSS regarding vehicle lighting. Other than implicitly or explicitly permissive initial brake light flashes, modulating brake lights are in violation of the FMVSS standards and can subject the motorcycle operator to citation, if an observing police officer were so inclined.

Incorrectly, California code Article 7, section 25251.5 specifically permits a stop lamp to "flash not more than four times within the first four seconds by application of the brakes." Additionally, The West Virginia Department of Transportation Motorcycle Operator Manual states under BRAKE LIGHT: "Your motorcycle's brake light is usually not as noticeable as the brake lights on a car … help others notice you by flashing your brake light before you slow down." Followed by several examples.

Regarding civil liability in the event of a crash or injury, the opposing attorney would likely be permitted to argue that the violation of law was a distraction that contributed to causing the other person to be involved in the crash. The jury decision could go either way.

Harry Deitzler is partner at Hill, Peterson, Carper, Bee and Deitzler, PLLC. Submit questions at Motorcyclejustice.com

DIRT *BY GARY LAPLANTE*

Traction Control

For many riders, traction control is a feature that allows modern sophisticated bikes to do the job for us. Computer controlled tire traction can be a lifesaver in slippery situations. For bikes without traction control, we must handle loss of traction the old fashioned way, with careful throttle, delicate weight shifting and correct gear selection.

All riders should be prepared for the tires to spin or slip at some point. These two precious contacts to Mother Earth are the only thing keeping our motorcycles shiny side up.

Start with a correct set of fresh tires that are properly inflated. There are tires made specifically for almost every surface and some dual-sport tires work well on almost any surface. Second, learn how to read the terrain; seek out and use traction zones; avoid no-traction zones.

Tire traction is greatly influenced by weight placement and shifting. Body weight is a control element, as it usually represents a good percentage of the overall weight. Correct placement helps traction; incorrect placement hurts it.

Traction can also be improved or reduced by using the controls properly. Develop the delicate feel for acceleration and deceleration through the hands and feet on the controls and butt on the seat.

To avoid wheelspin, combine throttle control and front brake feel with the right hand, slipping the clutch with the left hand, gentle rear brake with the right foot, and use a higher gear. Quoting 1967 World Trials Champion Sammy Miller, "Traction is obtained by rolling on or rolling off the throttle."

One easy way to practice and develop traction control is by riding a lightweight dirt bike on firm dirt with a loose surface.

Extreme braking develops front brake feel for operating on the verge of lockup, where the real power is. Brake and power sliding are fun ways to quickly learn how to manage lean angles and throttle application. Lastly, drag races, which are won in the first 60 feet, because one competitor's tire hooked up better.

Manual traction control is essential to riding motorcycles proficiently, so be sure to include it when practicing. Experience loss of traction by choice, to be prepared when it comes by surprise.

Gary LaPlante is the author of "How to Ride Off-Road Motorcyles," and proprietor of MotoVentures.com Dirt First training.


WE TEST GEAR
SO YOU DON'T HAVE TO
RIDE BETTER
SUBSCRIBE TO MCN

REVIEWS

» Machineartmoto

ADVANCE GUARDS

Off-road riders who've mashed their fingers or broken levers recognize the value of good metal hand guards. Plastic shields provide additional relief from brush and cold wind. MachineArtMoto has taken this beyond the next level.

The ADVance Guards feature an extraordinarily beefy forged aluminum frame that mounts on the handlebar with a bracket on the inboard end and a bolt entering the bar's tip, an arrangement typical of wrap-around hand guards. What's not typical is their adjustable wind protection.

A central insert (gray in photo) can be removed to allow direct cooling airflow to hands in hot weather, and snaps back into place for refuge when the mercury drops. Swiveling shields are secured with three thumbscrews, and can be rotated upward (as shown) to create an even larger pocket of still air, or dropped down when maximum coverage isn't needed. Vertical height is 142mm with shield extended or 100mm for the metal frame only.

We tested on a 41-degree day, wearing a pair of thin Lycra trials riding gloves, to feel the difference with the shields up and down. The contrast wasn't subtle. Starting with shields extended, hands were cold, but not as unbearably as if they had been in the direct 70mph wind blast. We'd have been unable to operate the hand controls for more than a few minutes without any protection.

After lowering the shields, hands felt considerably colder, but would have been fine with true winter riding gloves. Combining appropriate gloves, heated grips and the ADVance Guards with their shields extended would produce a truly cozy environment, allowing indefinite ease of operation at the bars.

We didn't crash-test the ADVance Guards, but having crashed bikes with far less substantial guards, zero damage was sustained by hands and hand controls. Even given the heft of a full-sized adventure bike, we'd expect these guards to deliver adequate impact protection. Although fitment options currently focus on adventure models, check with MachineArtMoto for the latest additions to their lineup. Genuinely superlative engineering, fit, finish and functionality make these guards well worth the price—$249 to 269, depending on application.

—Mark Barnes

●●●●● **Machineartmoto, *machineartmoto.com***

» BMW AIRFLOW PANTS

When paramedics cut off my BMW Rallye 3 pants after I wrecked badly in the mountains of Baja California last November, it was time to go shopping. I live in Palm Springs and much of my riding is with the mercury hot enough to cook my hide. I needed pants designed for hot-weather riding. BMW's AirFlow trousers fit the bill. The fashion police would certainly approve of these stylish lookers, available in black and charcoal or two-tone gray.

The fit is European: slightly narrow but still generous and supremely comfortable, aided by a highly air-permeable poly mesh liner—with a solid poly panel in the seat extending down to the knees, silky soft as satin PJs. BMW pants are made in numeric sizes (not S through XL), allowing riders to find a more exact fit, although converting from European to U.S. sizing isn't always accurate.

The pants ride nice and high at the waist and fit perfectly without need for suspenders, thanks to two sturdy elasticated adjustment straps that together serve like a belt. The rear waistband is elevated, and elasticated for added stretch.

The outer shell is abrasion-resistant Cordura mesh with an 'Intelligent Coldblack Finish' to reduce absorption of thermal radiation and prevent overheating. Something NASA invented? Actually, it's an innovative textile from Swiss-based Schoeller Textil, which also employs a water, oil, and dirt-repellent 'NanoSphere' coating inspired by nature.

The real secret to the AirFlow's, er, cool functionality are the huge 'AirTex' wide-open mesh panels extending strategically seam to seam across the

» Jim Ford

THE ART OF RIDING SMOOTH

"Anticipate continuously, and precisely place myself first for safety, then for traction, and then for the absolute clearest view of the vanishing point."

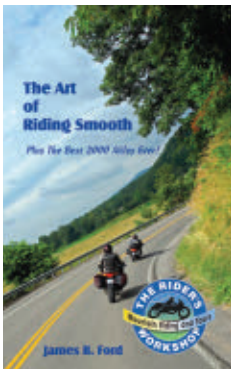
– The Jim Ford Rider's Workshop Mantra

Exactly 10 years ago, I had the pleasure of attending Jim Ford's Rider's Workshop for a review (MCN 2/08). It still remains, without question, the most enjoyable single weekend of motorcycling in my entire 21 year riding career.

What makes Ford's courses so profound is his repeated emphasis on tapping into an introspective mindset, far beyond the mere physical aspects of learning to ride competently. As I wrote in 2008, "We were being guided in the very personal process of tuning in to what noted psychologist Mihaly Csiksz-entmihalyi has termed flow." Flow is an often elusive mental state in which a person is fully immersed in the moment with complete focus, free from all discursive thoughts.

In this meditative state of "mushin," humans rely more on what they feel intuitively than on what they think rationally. Jim encouraged us to home in on our own intuitions, sensing the unique rhythm of each surface we negotiated. The idea was to ride those roads the way a great musician approaches a solo, where each note is not only played precisely in and of itself, but also fits perfectly within the context of the overall song.

After 11 years of running The Rider's Workshop and well over 600,000 miles of motorcycling under his belt, Mr. Ford has finally penned the definitive guide to his proven concepts of mastering mountain roads. "The Art Of Riding Smooth" covers



the essentials of the Rider's Workshop including positioning, awareness, intuition, and mind-melding with the motorcycle so that the rider and machine become one holistic unit. Ultimately, if practiced with intention, the reader can achieve what Jim calls being "unconsciously competent," or fully aware as second nature. This is the springboard for true development, both mental and physical.

Ironically, both in print and in person, Jim rarely speaks in terms of motorcycles or their controls when instructing his students. His analogies and instructions are usually given in terms of piloting aircraft, or of playing music. The skills required for proficient riding are in fact the same, and I'll never forget the euphoric feeling of "getting it" for the first time.

The last chapter of the book is the proverbial final exam—the "Magical Mountainous Tour." Ford is a true believer that the serpentine tarmac of the Appalachian Mountains constitutes the finest, most challenging riding in the U.S., if not the world. Mastering the mountains is a genre in and of itself. This last chapter proves it by intimately detailing an eight-day, 2,000-mile dream route by which the reader can utilize all the valuable lessons, tips, and tricks contained in "The Art Of Riding Smooth."

A thoroughly educational, enjoyable, and entertaining read, Ford's new paperback deserves to be right next to David Hough's books in any serious rider's collection, and that's the highest praise I can give. $25.

—Moshe K. Levy

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ridersworkshop.com

front of the thigh, one per leg. They inhale air like a vacuum cleaner.

There's no closure flap, and these pants don't come with a liner. In cold weather, the chill is noticeable and you'll know if it rains. Two weeks after purchase, I found myself riding in Austria in fresh-falling snow at 39 degrees! Thankfully I'd brought heavyweight leg-hugging fleece tights to wear under the pants, plus a pair of waterproof overpants. The triptych layering worked great.

Twin zippered slash thigh pockets will hold a set of keys and thin wallet, but not much else. A cargo pocket overlay would have greatly enhanced these pants. The lower-leg zippers seal at the cuff with rubber-and-Velcro flap closures. This allowed the pants to wrap around my legs and fit snugly inside my Forma Adventure boots. The legs are also wide enough to fit over the boot.

There's a reflective strip down each thigh. Pliable and height adjustable NP2 protectors wrap around the sides of knee and extend down to the shin, offering tremendous protection. Hip protectors, however, are dismally small. My only other complaint is the token pocket space.

Matching AirFlow jacket and gloves are available. However, the pants will mate to any other BMW jacket thanks to a compatible zipper. It wed perfectly to my five-year-old AirShell jacket. These pants may appear pricey at a MSRP of $409, but I love 'em.

—Christopher P. Baker

BMW
bmwmotorcycles.com/gearup

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The 2018 Gold Wing Tour is reimagined as a lighter, narrower, sportier and more aerodynamic machine, with all the latest technology.

HONDA GOLD WING

> By **David Hilgendorf**

Introduced as a 999cc, liquid-cooled four-cylinder standard in 1975, the Gold Wing quickly evolved into a touring bike as riders added fairings and luggage to better accommodate long-distance trips. Subsequent iterations were tailored toward touring riders, with larger engines and more luggage space and electronic features.

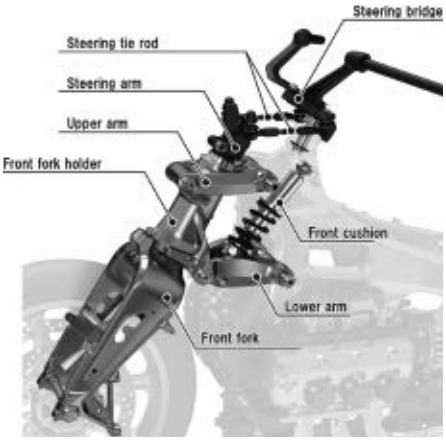
The 2018 Gold Wing receives a ground-up redesign, including engine, chassis, suspension and electronics. An 80-pound weight reduction makes it a sportier, more manageable touring rig.

ENGINE

Honda's liquid-cooled, horizontally opposed 1833cc six-cylinder engine receives a 1mm smaller bore and 2mm longer stroke, with a stronger crankshaft. The Unicam valve train now has a finger-follower rocker-arm system on the intake side and roller rocker-arm system on the exhaust side, eliminating the previous valve-lifter-support structure. The resulting engine is 29mm more compact and up to 13.7 pounds lighter (depending on transmission), allowing it to be moved forward in the frame.

Combustion efficiency was also improved via four valves per cylinder, while friction was reduced via a molybdenum coating on the piston skirts. The engine improvements, lighter overall weight and enhanced

KEVIN WING, COVER PHOTO: BRIAN J NELSON



vehicle aerodynamics led to improved fuel efficiency, which allowed Honda to reduce fuel tank capacity by 1.1 gallons, improving mass centralization while retaining a 200-plus mile range.

The Integrated Starter Generator (ISG), combines the generator and starter-motor functions into one component, eliminating 5.3 pounds and reducing starter noise. A more efficient intake system adds responsiveness and torque, and an updated and visually appealing exhaust system provides a fantastic aural experience.

The new ride-by-wire electronics add all the modern features, including Econ, Rain, Tour and Sport riding modes, traction control (HSTC), cruise control and Hill Start Assist (HSA). Performance is very aggressive in Sport and underwhelmingly anemic in Econ but perfectly balanced in Tour mode—apropos.

TRANSMISSION

The Gold Wing is available with a new six-speed manual transmission or seven-speed automatic Dual Clutch Transmission (DCT), including forward and reverse walking modes.

One of the DCT clutches rides on a hollow outer shaft, controlling odd-numbered gears; the other rides on an inner shaft and controls even-numbered gears. Multiple gears are engaged simultaneously, so the transmission is prepared for the next shift. The ECU uses sensors and an advanced algorithm to determine when to electronically trigger gear-changes. One clutch disengages as the other engages, resulting in quick and smooth shifts. Dampers reduce noise and vibration.

HONDA

Gear ratios are closer for low gears, improving acceleration, and wider for tall gears, reducing engine speeds while cruising. In Walking Mode, one clutch enables forward movement, and the other clutch enables rearward movement, controlled via paddle shifters.

The new manual six-speed gearbox also enables lower engine speeds when cruising as the gear ratios closely match that of the DCT. The assist and slipper clutch reduces load by 20 percent and back-torque during downshifting. An electric starter motor is used for reverse.

BRAKES & WHEELS

The new six-piston, radially mounted Nissin front-brake calipers feature 320mm front rotors, a huge step up from the outgoing Wing. The single rear brake rotor measures 316mm.

Combined ABS distributes braking force to both wheels and the new single modulator saves 2.9 pounds. Braking characteristics are automatically adjusted depending on ride mode.

Specially designed Bridgestone Exedra tires offer a wider 200/55-R16 rear for better stability at low speed and a 130/70-18 front tire. They track well and offer superb braking feel. Pressure monitoring informs of proper inflation.

CHASSIS & SUSPENSION

The chassis was revised for improved low-speed maneuverability and high-speed stability. The new robotically welded twin-spar aluminum frame and single-sided swingarm with built-in driveshaft are 4.4-pounds lighter.

A new double-wishbone suspension reduces friction and inertial mass in the front-end, transferring 30 percent less chatter to the handlebars. The vertical stroke trajectory also enables positioning of the engine closer to the front wheel. Similar in design to a Hossack suspension, the twin forked arms feature a twin-bearing (instead of ball-joint) steering head attached to a sturdy front strut, resulting in noticeably reduced brake judder and stiction, which improves braking performance.

The Showa front and Pro-Link rear suspension offer progressive electronically adjusted damping based on ride mode and four selectable levels of preload. A stepping motor moves a needle to control the oil flow rate and adjust damping force. All of this equates to a more compact and nimble motorcycle, belying the apparent mass.

ERGONOMICS & HANDLING

Mass centralization was improved by moving the engine forward and shortening the seat rail. The 36mm-farther-forward riding position is closer to a now electronically adjustable windscreen, providing an amazing level of control over airflow and wind noise at any speed. Stability and handling are improved at all speeds and while the overall mass is felt during directional transitions, it is easily managed.

INSTRUMENTS & CONTROLS

Selecting from the plethora of available electronic options is accomplished via a modern control system that can almost entirely be managed at the handlebars.

The center console features a large, glove-friendly jog-dial that replicates thumb controls, but it cannot be used in motion and is redundant. There are also nine buttons to control odometer settings, plus the heated grips and seat. The bottom three buttons are reserved for accessories, including an optional garage door opener.

The 7-inch (nontouch) color TFT display is easily viewed in any light and displays electronic vehicle selections as well as navigation and audio. The navigation user interface lacks touch control, making it difficult to input destinations. Traffic and weather require a subscription. Hopefully, UI improves with firmware updates.

The Gold Wing is the first motorcycle with Apple CarPlay, connecting the rider's iPhone to show maps, contacts and music, and making destination selection a bit easier. Android devices can also be connected via Bluetooth for phone and audio. Audio options include AM/FM and SiriusXM radio, as well as USB or Bluetooth input and Bluetooth wireless passenger comm. CB is an available option. The 4-speaker system is remarkably clear, even at freeway speeds.

ATTENTION TO DETAIL

LED lighting is used throughout and the turn signals auto-cancel. Security is wireless, via a key fob and the ignition knob on the dash. In case of fob battery failure, electronic storage locks can be individually opened like a puzzle box with a physical key, which also accesses a complex emergency start option via PIN, not key.

Each saddlebag holds 30 liters and the trunk swallows 50 liters. Big enough for one, but likely not two adult helmets. Lid dampers make closures soft, but it's difficult to tell if and when they latch, though the dash flashes if any storage is not sealed.

Thoughtful features include a center stand and a removable external helmet latch that secures near the rear passenger seat. Honda also offers trunk removal and installation kits, in case purchasers have a change of heart on configuration. An air bag is available and has been updated based on technology improvements, computer simulations and crash studies.

VALUE

The new Gold Wing Tour is lighter, narrower, sportier and more aerodynamic, with better technology—a smaller GL or a bigger ST. Pricing starts at $26,700 with manual and $27,700 with DCT, maxing out at $31,500 with the air bag.

It is also available as a bagger ($23,500-$25,000), with a shorter shield and without heated seat, center stand, HSTC, electronic suspension, trunk and rear speakers. It's pricy, but a great forever bike. MCN

TESTERS LOG

I've ridden it over 2,500 miles, and I love it. Our long-term loan rides on to Americade in June.

The only trouble was with the nav, which didn't display POI with the option checked. It also doesn't automatically offer gas station routing when fuel is low. Hoping for a software update.

I'll offer continued notes on the extended performance and functionality and be looking to review some accessories, too.

—David Hilgendorf

This is a big motorcycle and it does big things, the best being effortless cruising down the highway in amazing comfort. Power windscreen, satellite radio, heated seat and grips. A great way to get somewhere. It also does littler bike things like tight and nimble cornering—things an 838-pound bike shouldn't.

Then, there's the power. Put it in SPORT mode and the throttle blips—no lag. With six cylinders right below your chin, you'll hear some noise—truck-like noise. But the ride is smooth. Possibly the best touring bike on the planet.

—Russell Evans

Most surprising was great front tire feel, being such a behemoth. Brake testing initially made me nervous. I expected it to push the front and be too heavy to save. However, the wishbone suspension is excellent. Balance made her feel 200lbs lighter than actual. No wobbles at any speed, but with a 110mph limiter.

I can't say enough good things about the technology, either: huge LCD dash, walking speed reverse, electronic suspension and the seven-speed paddle-shift transmission are all on point.

—Brant Wiwi

HONDA

2018 HONDA GOLD WING TOUR

CycleStats™

QUICK HITS

MSRP: $26,700 to $31,500 (as tested)
Category: Touring
Displacement: 1833cc
Engine Type: Horizontally opposed six-cylinder four-stroke
Warranty: 3 years, unlimited mileage
GVWR: 1,259 lbs.
Wet Weight: 838 lbs.
Carry Capacity: 421 pounds
Seat Height: 28.5 inches
Colors: Candy Red, Pearl White or Blue

SPECIFICATIONS

Valvetrain: SOHC, 4 valves per cylinder, finger-follower rocker arm on intake, roller-rocker arm on exhaust.
Bore & Stroke: 73mm x 73mm
Comp. Ratio: 10.5:1
Transmission: 6-speed manual with reverse or 7-speed automatic DCT with forward and reverse walking mode
Final Drive: Shaft
Fueling: EFI, throttle by wire
Tank Capacity: 5.5 gallons
Fuel Grade: 86 octane
Exhaust: 6-into-2
Ground Clearance: 6 inches
Wheelbase: 66.7 inches
Rake & Trail: 30.5°, 4.3 inches
Tires: 130/70-18 front, 200/55-R16 rear.
Brakes: Dual radial-mount 6-piston Nissin calipers,320mm rotors front; 3-piston Nissin caliper, 316mm rotor rear; electronic combined ABS.
Suspension: Double-wishbone front, 4.3 in.; Pro-Link rear, 4.1 in. Showa shocks, electronic preload/damping.

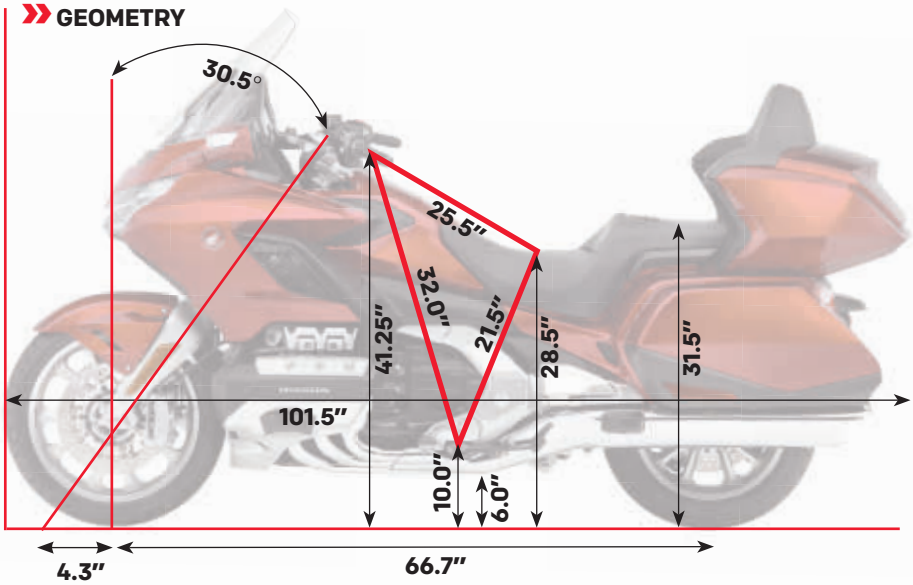
ELECTRICS

Battery: 12V/20 Ah (10 HR)
Ignition: Full transistorized electric with Integrated Starter Generator.
Instruments: (analog) speedo, tach; (digital) fuel, economy, range, nav.
Indicators: gear, temp, signal, hi-beam, oil, ABS, HSA, HSTC, cruise, heated seat/grips, preload, source, walk mode.

MAINTENANCE

($130/hr.)	Miles	Labor	Parts	Total
Routine	8,000	$100	$40	$140
Valves	24,000	$985	$250	$1235

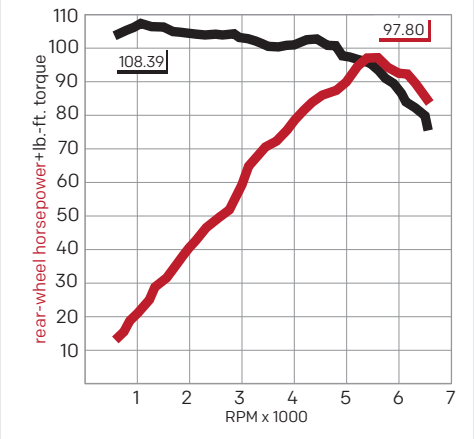
GEOMETRY



PERFORMANCE

Fuel Economy (MPG)
High: 49; **Low:** 33; **Average:** 40
Estimated Range: 220 mi.
60-0 mph: 122 feet
0-60 mph: 3.87 sec.
1/4 mile: 12.63 sec @ 106.9 mph
Power to Weight: 1:8.56
Speed @ 65 mph: 65
RPM @ 65 mph: 2,200
RPM @ limit: 6,500

HORSEPOWER & TORQUE



SMILES

1. Powerful engine
2. Excellent handling
3. Exhaust note

FROWNS

1. No touchscreen interface
2. No tie-down mount points
3. Reduced luggage capacity

EVALUATION

Engine:	●●●●●
Transmission/Clutch:	●●●●●
Brakes:	●●●●●
Suspension:	●●●●●
Handling:	●●●●●
Riding Impression:	●●●●●
Ergonomics:	●●●●◐
Instruments/Controls:	●●●●◐
Attention to Detail:	●●●●●
Value:	●●●●○
Overall:	●●●●●

The BMW G 310 R excels in cornering, with precise steering and handling that is, at the same time, soft and solid.

CLEAN MACHINE

BMW G 310 R IS AFFORDABLE, COMPACT AND EFFICIENT, BUT NOT CHEAP

> By **Russell Evans**

In a continuing drive to make its motorcycles affordable and accessible to just about everyone who wants one, BMW produced the G 310 R, a sturdy, straightforward, sub-$5,000 mount designed to conquer challenges presented by a great diversity of travelers, roadways, emission standards and fuel.

The 310 platform is produced in Bangalore, India, the heart of global small-bore motorcycle travel, in partnership with TVS Motor Company. Though TVS is India's third-largest motorcycle manufacturer, BMW, not surprisingly, went to extraordinary lengths to make sure everything was up to its rigorous standards.

A production area with new, high-quality machine tools made by leading German manufacturers is modeled after the BMW Motorrad plant in Berlin-Spandau. Quality management and state-of-the-art production follow Berlin-Spandau standards, while TVS's own QC has been based on Japanese role models for many years.

What this all means is that, while the G 310 R is relatively inexpensive, there is nothing cheap about it. BMW reports the engine assembly line is cutting-edge and automated, with testing technology at every interval. All relevant work stages are monitored and automatically recorded for size accuracy, tolerances and bolt-fitting values. Assembly is done in a completely sealed, glazed area that can only be accessed via air locks, to keep impurities out.

For good measure, workers were selected and trained by TVS and

BMW MOTORRAD

completed training programs held with colleagues from the BMW Motorrad plant in Berlin-Spandau over a period of more than a year prior to the start of production.

CYLINDER ANGLE

ENGINE

If something looks a little strange at first glance, it may be because the 313cc, liquid-cooled single-cylinder engine has been turned 180 degrees around its vertical axis. BMW engineering has determined that this facilitates a logical flow through the motor, allowing the intake tract to be positioned in the front (and exhaust in the rear), also lowering the center of gravity and clearing the way for a shorter wheelbase, less trail and a longer swingarm for stability.

Those seeking quick launches and track-worthy acceleration should look elsewhere. This is a very docile, 59 mpg ride, one for those desiring sane propulsion and minimal thrust. BMW credits a rotating counterbalance shaft in front of the crankshaft with suppression of some vibration for a smoother overall ride.

There is enough power, once you get under way, to smoothly cruise at highway speed. But with only 31 horsepower and 19 pound-feet of torque (80mm x 62.1mm, bore x stroke), the 310's efficient geometry was designed to squeeze out every little bit of performance.

We stayed above 6,000 rpm to keep throttle response up, and it is about here that the rider can both hear and feel the throttle dig into the powerband, a sensation so *wunderbar*, it almost makes up for the weak stoplight launches.

The double-overhead camshafts' management of the four-valve setup is based on the S 1000 R. Lightweight rocker arms are coated with Diamond Like Carbon (DLC) to reduce friction. The single sparkplug is placed centrally in the combustion chamber, another move to lower center of gravity. BMW says this also results in a straighter, power-enhancing supply of fresh fuel-air mixture.

The engine uses BMW's proven wet sump lubrication system to oil moving parts, while a small, but effective cooling system circulates liquid coolant through the radiator at the front of the engine.

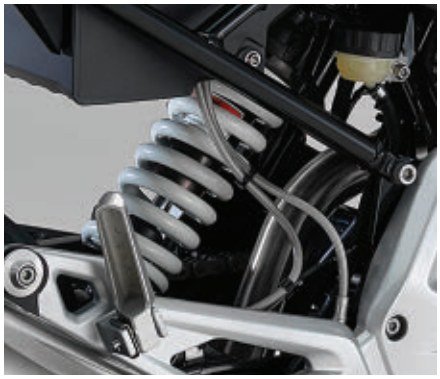
TRANSMISSION

A multi-plate wet clutch actuates shifting through a constant-mesh six-speed gearbox, which stood up to our rigorous testing and came through like a champ. No real issues, though the bike wasn't always eager to slip into neutral.

BRAKES & WHEELS

With a single 300mm front disc and bolted four-piston caliper, plus a single 240mm rear with two-piston floating caliper, the 310 has plenty of braking power. ABS comes standard on all BMW motorcycles, and the two-channel ABS is a nice upgrade for a bike in this price range. Scrubbing off speed was always smooth and controlled, however the brake pads weren't bedding properly and we had poor 60-0 results, with quick stops averaging 150 feet. Upgrade the pads!

The 17-inch, five-spoke, black alloy wheels (3.0 inches front; 4.0 inches rear) were smooth and stable and the Michelin Pilot Street Radial tires (110/70 R17 front; 150/60 R17 rear) were plenty sticky in the twisties and surprisingly smooth on Southern California's mostly concrete freeway system.



SUSPENSION & HANDLING

A planted, stable ride is one of the biggest things the 310 has going for it. The suspension and handling are exceptional and cornering is excellent. These are the G 310 R's most dialed and quality components overall.

Superb shock absorption is provided by the 41mm upside-down telescopic fork in front, with more than 5.5 inches of travel, and adjustable rear mono-shock linked to the swingarm with a direct-mounted spring strut. The rear delivers a little more than 5 inches of travel and is progressively wound to distribute spring rate based on conditions.

Bumps were absorbed without bounce or rebound, and the rigid tubular steel frame maintained a neutral attitude in tight cornering for complete feel and control. Such coexistence was impressive at this price point and facilitated precise steering, even across uneven pavement in sharp turns.

A steering head angle of only 25 degrees and a 4-inch rake are additional factors in the 310's pinpoint steering. The bike's unique geometry allowed the engineers to stretch the length of the swingarm to 25.5 inches without extending the wheelbase, which, the company says, enhances the bike's light and nimble handling.

ERGONOMICS

Ergos are in the eyes—and limbs—of the beholder. Average-sized to smaller riders will, most likely, find everything laid out perfectly, with everything in easy reach. This is a motorcycle on the smaller end of the spectrum.

Larger riders may find the cockpit a bit confining, as did our 6-foot-2 tester. Conversely, the 31-inch seat height will still require a bit of a hop for some to mount. BMW offers both a taller seat, raising things a half-inch, and a lower seat that brings the rider a half-inch closer to the ground. Otherwise, there are enough right angles in the rider posture to make even the toughest HR manager smile.

Riders with big feet or bulky boots will have to practice a bit to get shifting dialed, as there is minimal distance between peg and shift lever.

INSTRUMENTS & CONTROLS

The LCD screen offers a clear and easy read on the usual data, plus gear selection, fuel level, fuel range, average fuel consumption and average speed. A rubber-coated button on its lower left allows easy navigation to the desired data or setting.

ATTENTION TO DETAIL

The G 310 R is a scaled-down version of BMW's S 1000 R, and it follows along with many of the styling cues. It's a naked bike, with minimal decorated plastic; but the visible parts are arranged to make the styling cohesive and dynamic. Like any good sportscar

or sportbike, the bike always looks like it's about to spring. The headlight mask looks serious and deflects a small amount of wind blast, and the overall stance is muscular.

Details like polished embossings and the use of quality materials, the high-gloss "R" engraved in some of the plastic panels reflect pride in the roadster lineage. The three paint color variants all show off the individuality of many of the high-grade parts and the overall excellent fit and finish one would expect from BMW.

VALUE

A brand-new BMW—even a small one—for less than $5,000 is a bargain, if it fits one's need for simple, no-nonsense transportation, with a smooth ride and nimble handling, and without the need for point-and-squirt power.

Scheduled maintenance every 6,000 miles can add up, especially at each 12,000 mile interval that includes valve inspection and/or adjustment. But with a 3-year or 36,000-mile warranty, a range of 170 miles and nearly 60 miles per gallon fuel economy, there is good value here. MCN

TESTERS LOG

I couldn't help myself from thinking what this motorcycle might be like with 10 or 15 more horsepower and more torque (I know, a G 510 R), but, hey, this is not that bike.

This is a small, entry-level motorcycle, yet it brings so much to the table. We rarely find a mount of such quality and refinement under $5,000. The 3-year or 36,000 mile warranty also makes it very attractive.

I would heartily recommend this bike to anyone just starting out or looking for a very well-behaved commuter that will turn out 60 mpg (those under six feet tall, anyway).

With a mild throttle hit, adjustable and progressive suspension, rigid tube frame handling and unintimidating braking, riders won't overcook turns while learning and are likely to improve quickly with the confidence it inspires.

With high-quality and affordable offerings such as these on the market, it truly is a great time to be a motorcyclist.

—Russell Evans

The BMW G 310 R is the best performing entry-level standard I've ridden. I liked the full contemporary digital display, adjustable suspension, great linear power delivery, despite its tiny engine, and the way it pulls strongly from 6600 to 8800 rpm without being too buzzy.

The big boy front clip (forks, brakes, triple clamps) contributed largely to this, though the brake pads weren't bedding in, making quick stops difficult.

The bulbous tank gives the 310 more presence than some competitors' 650 twins, but the MSRP below $5k will leave you fist-pumping.

—Brant Wiwi

BMW MOTORRAD

2018 BMW G 310 R

CycleStats™

QUICK HITS

MSRP: $4,750
Category: Standard
Displacement: 313cc
Engine: Liquid-cooled single-cylinder
Warranty: 3-years, 36,000 miles
GVWR: 762 lbs.
Wet Weight: 357 lbs.
Carry Capacity: 405 lbs.
Seat Height: 31 in.
Colors: Cosmic Black/Polar White Metallic; Strato Blue Metallic; Pearl White

SPECIFICATIONS

Valvetrain: 4 valves, two overhead camshafts and finger followers
Bore & Stroke: 80mm x 62.1mm
Comp. Ratio: 10.6 : 1
Transmission: Constant mesh 6-speed; multi-plate wet clutch
Final Drive: Chain
Fueling: EFI
Tank Capacity: 2.9 gallons
Fuel Grade: 87 octane
Exhaust: 1-into-1
Ground Clearance: 7.75 in.
Wheelbase: 54.0 in.
Rake & Trail: 25.1°, 4.0 in.
Tires: Michelin Pilot Street Radial
Brakes: Single disc, 300mm, 4-piston radial-mount fixed caliper, front; Single disc, 240 mm, single-piston floating caliper, rear; ABS
Suspension: Upside down telescopic fork, 41 mm; Solid die-cast aluminum swingarm, directly hinged monoshock, adjustable preload.

ELECTRICS

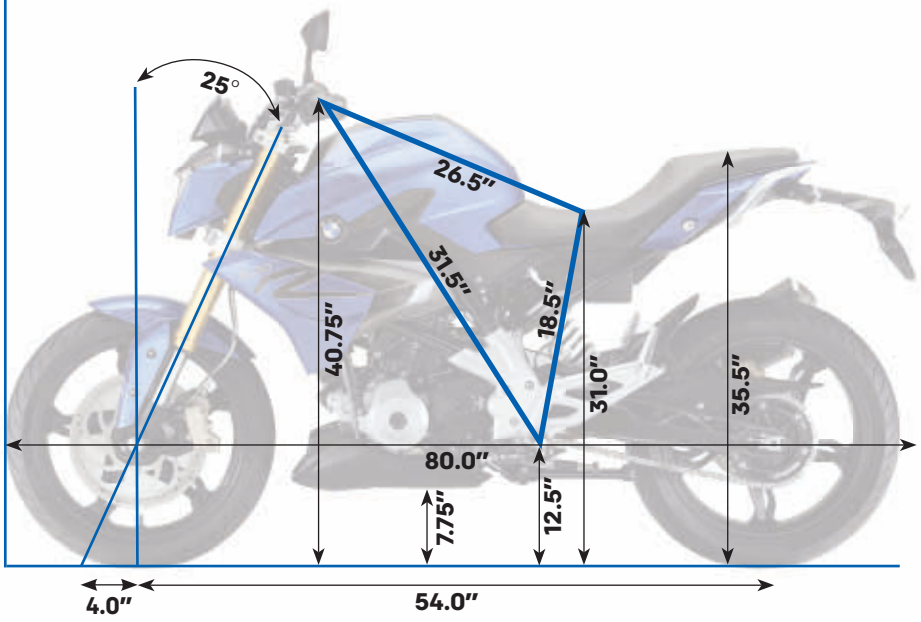
Battery: 12V/8Ah, maintenance free
Ignition: Electronic
Instruments: (digital) Speedometer, tachometer, clock, date, trip.
Indicators: Gear, fuel, shift prompt, ABS, hazard, neutral, engine.

MAINTENANCE

($130/hr.)	Miles	Labor	Parts	Total
Routine	6,000	$105	$55	$160
Valves	12,000	$645	$430	$1075

Courtesy: **Eddie Pangindian**, Service Manager, Brown Motor Works, Pomona, California. Labor costs may vary.

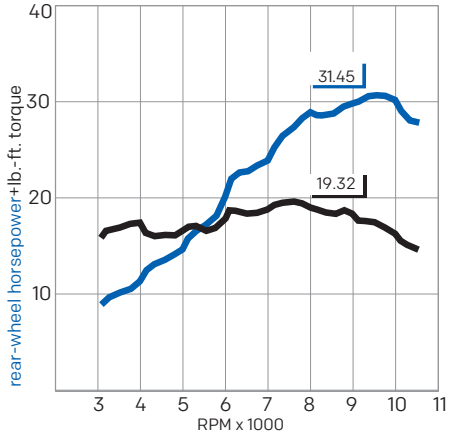
GEOMETRY



PERFORMANCE

Fuel Economy (MPG)
High: 59; **Low:** 59; **Average:** 59
Estimated Range: 171 miles
60-0 mph: 148.85 feet
0-60 mph: 6.02 sec.
1/4 mile: 15.11 sec @ 84.44 mph
Power to Weight: 1:11.5
Speed @ 65 mph: 63
RPM @ 65 mph: 6,500
RPM @ limit: 10,700

HORSEPOWER & TORQUE



SMILES

1. Suspension
2. Handling
3. Economy

FROWNS

1. Braking performance
2. Low-end power delivery
3. Small cockpit for tall riders

EVALUATION

Engine:	●●●○○
Transmission/Clutch:	●●●●○
Brakes:	●●●○○
Suspension:	●●●●●
Handling:	●●●●●
Riding Impression:	●●●●○
Ergonomics:	●●●◐○
Instruments/Controls:	●●●◐○
Attention to Detail:	●●●●○
Value:	●●●●◐
Overall:	●●●◐○

FIRST
IMPRESSION

ROYAL ENFIELD HIMALAYAN

> By **David Hilgendorf**

Royal Enfield is pursuing worldwide dominance in the middleweight segment. It has already achieved this in India, selling over 700,000 units last year. With annual growth in double-digit percentages, the factory is expected to manufacture over 900,000 motorcycles in 2018. Putting this in perspective, annual sales industrywide in the U.S. are expected to be about half that.

Royal Enfield's growth can be attributed to its domestic market, but it has been making a strong push in exports, and has built a wholly-owned American headquarters in Milwaukee, Wisconsin, in 2016. The HQ is mostly staffed by H-D expats, which gives the company a better understanding of the American consumer.

Royal Enfield observed its domestic consumer using the Bullet model to go weekend off-roading in the Himalayan mountains. Recognizing that this wasn't the ideal bike for such an endeavor, the engineers set out to make a bike that was equally good in both urban congestion and in the native mountainous terrain.

The design mandate for the Himalayan was to spec an all-new engine with strong low-end torque, good for powering up the side of even the tallest mountains. The bike also had to be lightweight, easy to work on, have a low seat height, and ample ground clearance and suspension travel.

After several years of development, the Himalayan launched in 2016 with a carbureted 411cc engine, 31-inch seat height, over 7-inches of suspension travel and 8-inch ground clearance.

Unfortunately, the bike did not meet international homologation for emissions and was primarily sold in India and Columbia for its first two years. Consumer interest prompted the U.S. team to get the bike certified for import. The most important piece of that equation was adding fuel injection.

According to Bear Haughton of Himalayan Heroes, an early adopter and Royal Enfield influencer, who has been leading tours in the Himalayas on the Himalayan for the past two years, "The fuel injection is a game-changer; the carbureted bikes stall all the time."

The five-speed LS410 (long stroke) air-cooled, SOHC single makes roughly 25 horsepower and 25 lb.-ft. of torque, which may not seem like much, but, considering its target demographic, is enough to get the bike from A to B, if you aren't in a hurry. We took the bike to an indicated 75 mph on a brief freeway stint, but the entire package is very buzzy above 40 mph on pavement. Long stints on the highway really aren't where this bike shines.

The linkage-assisted shock and front forks both provide over 7-inches of travel, but neither are adjustable. While this makes for a bouncy ride on pavement, once the going gets dirty, the bike hunkers down into its happy place. Combining a street-light, 400-pound wet weight with long-travel suspension, a 26.5-degree rake, 21-inch front wheel, Pirelli Scorpion MT 90 all-terrain tires and a low seat height makes for a whole lot of fun.

We tested the bike at TexPlex in Midlothian, Texas, a 1,000-acre mecca of outdoorsmanship. On the property, customers can mountain bike, shoot firearms, drive earth-movers, take an airborne side-by-side ride (as a passenger) or ride various technical double-track trails. There was ample rain the week before, and several of the trails were closed by mud as deep as four feet. That didn't stop Royal Enfield from cutting a trail through the woods and bogs, really putting the Himalayan through its paces.

The light weight and low-end grunt of the Himalayan are standouts when the going gets rough. The bike is easily maneuverable and powers through even the most difficult terrain. The suspension ate up berms, ruts, jumps and drops, though it isn't a motocross bike and will never be mistaken for one.

The fueling was superb and the bike never stalled, no matter what we were grinding it over or through, including foot-deep mud puddles. The only fail was taking a steep uphill switchback with a 100-percent (45-degree) grade, where the shifter rammed a berm, bumping it into neutral. Balance failed and gravity won.

While this all happened in reverse slow-motion, and there was zero damage to bike or rider, the same failure would have been far more eventful, and likely more painful on a heavyweight bike. The Himalayan reaffirms that light is right when it comes to serious off-roading.

With a capable dual-sport bike, it is likely that Royal Enfield will position itself to make serious inroads on American soil. It's quite remarkable that this bike is $4,500, and dealers still make a profit. MCN

ROYAL ENFIELD

There's a lot to do at the Americade Rally, held the first week of June in Lake George, New York. You may not be able to experience everything offered, but you'll certainly have fun trying.

ROCKIN' AMERICADE

Getting the most out of one of the biggest—some say best—annual motorcycle events.

> By **Fred Rau**

It's true, I have attended the past 27 Americades. I still haven't experienced all the activities offered at this landmark event, but considering my level of experience and involvement, I might be able to offer some insight on why to attend, what to look for or how to best spend your time, depending of on your interests and priorities. For simplicity's sake, I will list activities based on the overall level of rider interest and engagement or my own personal enjoyment.

AMERICADE, FRED RAU

TOUREXPO is Americade's extremely popular trade show, where you can purchase about any motorcycle-related item imaginable. It may or may not be the largest motorcycle trade show in the country, but it is the most eclectic.

Unlike so many others of its type, where you see the same five leather jackets sold by 30 different vendors, or products designed for a single brand of bike, TourExpo features an incredibly diverse range of products, from tires, to pinstripers, to sophisticated electronics and trike conversion kits.

Kudos to the Americade organizers, who restrict the number of vendors selling the same kinds of products, to produce a one-of-a-kind motorcycle shopping experience.

INSIDER TIP: *TourExpo also has a great food vendor area, with some of the best trade show fare you'll ever sink your teeth into.*

AMERICADE FACTS

WHAT IS IT?
Americade is the world's largest multi-brand touring rally, attracting tens of thousands of motorcyclists for an annual weeklong festival. The event includes guided tours, a trade show, riding demos, rider training, guest speakers, boat cruises, stunt shows, comedy shows and much more. A registration wristband provides access to many of the events.

Americade is a gathering of friendly, courteous, fun-loving, nonbrand-specific motorcyclists. It is NOT the place for boozing, stunting, rowdiness, hostile attitudes or illegally loud bikes. The community welcomes riders not only for the economic boost, but also because of the many lasting friendships developed.

Americade works hard to be a good neighbor, by donating to dozens of local charities.

WHEN IS IT?
Americade is June 4 through 9, 2018

HOW DID IT START?
In May, 1983, Bill Dutcher (page 38) and a small staff hosted "Aspencade East," drawing over 2,000 riders. Dutcher arranged with Aspencade (New Mexico) organizer, Til Thompson, to use the name.

WHY AMERICADE?
In 1986, "Americade" better signified the multibrand national rally it had become.

WEATHER
June often brings great riding weather, with daytime highs of 75F and evenings around 60F. However, it can vary 15F in either direction and include rain. Some tours reach mountain summits with daytime highs in the mid-50s.

WHAT'S NEW?
New expo location with paved parking.
Two-day block party on Canada Street.
More convenient registration.
New music, stunt and comedy shows.
More guided rides.

ON A BUDGET?
Americade day passes start at $20 and weeklong passes start at $79. It's an easy ride on the I-87 as far as Saratoga Springs to the south or Pottersville to the north for a motel, Airbnb or VRBO.

The Department of Environmental Conservation (DEC) also offers nearby campgrounds for $27 per night and day use access for motorcycles is only $5:

dec.ny.gov/outdoor/7825.html
dirtdazerally.com
americade.com

DEMO RIDES are the second most popular reason to attend. Other than traveling to Cologne for Intermot, you won't find a better opportunity for throwing a leg over dozens of the major manufacturer's latest two-wheeled offerings.

There are many riders who attend Americade for no other purpose, and spend their entire week jumping from one bike to another. Be forewarned, demand is high, and reservations fill up early and quickly.

INSIDER TIP: *Spots are allocated daily, on a first-come, first-served basis. Lines form as early as 6 a.m. Show up after 8 a.m. and you might not get in.*

GUIDED MINI-TOURS are yet another high-demand activity. Several leave every morning, and you must sign up in advance. Highly-experienced Americade staffers will take you on a well-planned, daylong route through the Adirondack area. The price always includes a terrific lunch stop, replete with door prize giveaways.

My two personal favorites are the Covered Bridge Tour and the Ferry Tour, but others include steam train rides and similar attractions. This year there is a ride to visit the filming sets of the original Star Trek TV show. All are incredibly well-organized and terrific fun, especially for meeting and riding with other motorcyclists from all over the world.

INSIDER TIP: *Americade also provides extensive mapping and information for self-guided tours, available for free at registration.*

BOAT TOURS are a close second behind Mini-Tours, in terms of popularity. Lake George has two different tour boats that cruise the huge lake every day.

The boats are sponsored by different vendors and bike manufacturers. Always a highlight of Americade, the boat tours also sell out early, so don't wait to decide you want to go.

INSIDER TIP: *Besides the scenic ride around the lake, you'll also be entertained by a live band, receive a meal and a chance to win great door prizes.*

AMERICADE UNIVERSITY offers up a schedule of dozens of seminars. Unlike other rallies where the seminars are designed to sell you something, many here are very educational. Want to learn about how motorcycle tires are con-

FRED RAU

structed? How to make your battery last longer? How to optimize the features on that expensive GPS? What it's like to tour in a foreign country? There's probably a seminar here for you.

Don't forget the nightly Featured Speakers, where well-known motorcycling personalities share their insights into the industry and answer those questions you've always wanted to ask.

There is also a roundtable, featuring conversation with various motorcycling personalities, and early morning Coffee Clubs, one of which is hosted by yours truly. Drop by at 7 a.m. for free coffee, donuts and lively discussion.

INSIDER TIP: *Both myself and MCN Editor David Hilgendorf will be featured speakers at this year's Americade.*

Catch the Motorcycle Drill Team competition (top), or practice your precision riding at Americade's Cone Course (center). Everywhere in the Lake George community, you'll find the welcome mat out for this annual festival.

SHOWS are a big deal at Americade, and many attendees wouldn't miss them for the world:

Alonzo Bodden is not only one of the most famous and truly funny comedians in the country, but he's also an avid motorcyclist.

Rather than giving one of his trademark Vegas headliner shows, he tailors his act at Americade around his favorite sport, often including many of the riders in the audience. You might inadvertently become famous for the rest of the week.

INSIDER TIP: *If you can't take the heat, don't sit near the front, and don't raise your hand for a seemingly innocent question!*

THE FASHION SHOW models show off all the latest, greatest and most stylish motorcycle gear from the major manufacturers exhibiting at the event. The fashion show is practically always standing room only.

INSIDER TIP: *Everyone in the audience receives a ticket, and after the fashion show, all the displayed gear is given away to the crowd—about $10,000 worth.*

FRED RAU

This isn't even the tip of the iceberg. The world-famous Phil Smage Stunt Show will astound you with the things he can do on a motorcycle; Monday, Tuesday and Thursday.

Check out the Motorcycle Drill Team Competition to watch some precision maneuvering. On your way there, stop by the Vintage Garage to see the amazing collection of antique two-wheelers (page 48). You could also sign up for the Charity Poker Run, the Ride for Kids or the Amazing Ride, a scavenger hunt on your bike. Want to see how your riding skills stack up? Check out the Motorcycle Skills Challenge, the Cone Course

Many attendees enjoy demo rides aboard the latest offerings from various manufacturers. It's a great way to try new bikes and take in the sensational local mountain roads.

or sign up for one of several MSF riding courses offered during the week.

Don't stay too late or you might miss the Party on The Pier down at the lake, Thursday and Saturday nights. Food, live bands and a few thousand of your closest friends. Even bigger is the Friday Night Spectacular, which really lives up to its name. Thousands of riders gather in the park for concerts by two different bands, a catered dinner and literally tens of thousands of dollars' worth of door prizes, followed by one of the greatest fireworks shows you'll ever witness, set to music from the enormous loudspeaker system. It's pretty awesome.

Perhaps you're beginning to get the picture, because this synopsis doesn't reveal nearly all there is to see and do. Yet, Americade is so much more than just activities. These days the word "diversity" is somewhat overused, but it is the best word I can think of to describe what Americade embodies.

I have nothing against other rallies, trade shows and events. I attend many of them and usually enjoy myself, but nearly all of them are very brand, marque or rider-type specific. Go to Sturgis, Laconia, the Laughlin River Run or similar and the crowd is 90 percent or more Harley riders. Go to Wing Ding and it's entirely Gold Wing riders. At BMWMOA or RA rallies virtually everyone is on a BMW.

Even nonbrand specific groups, like the Motorcycle Sport Touring Association (which I love), have gatherings that are attended almost exclusively by sport-tourers. Likewise, there are adventure rider events, racer events, three-wheeler rallies, etc.

The thing I love most about Americade is that it is about the only event that draws from the entire spectrum of motorcycling. Touring riders are the largest contingent, but there are always lots of cruisers, sportbikes, three-wheelers, classics, antiques, and even scooters. Dual-sports get a simultaneous Dirt Daze rally nearby.

You're not going to find wet T-shirt contests, burnout exhibitions or other nonsense. For the most part, you'll find very little alcohol at Americade-sanctioned events or venues. Sure, there's some partying going on at night, and always a few hooligans about, but generally Americade is a very family-oriented rally. The kind you really wouldn't mind bringing the wife and kids to.

I would be remiss not to mention Americade's greatest virtue. Located right at the edge of Adirondack State Park, the event provides access to hundreds of miles of some of the greatest motorcycling roads in America. Most people don't realize how big the park really is. Covering more than 6 million acres, Adirondack Park is larger than Yellowstone, Glacier, the Grand Canyon and the Everglades, combined!

You could ride every day for a week, and still not cover all the great roads. I know, because I've tried. Lake George Village is also one of the most delightful places you'll ever visit, with block after block of interesting shops and great little restaurants. You won't go hungry. **INSIDER TIP:** *Try the Barnsider BBQ or Smokey Joe's Grill for ribs, and Mama Riso's for great Italian.*

A couple of years ago, I bought a T-shirt that summed it up: "Americade … Been there, Done that … Liked it, Did it again!" It isn't one reason, but many that have kept me returning annually for nearly three decades.

It is the best-run, most bang-for-your-buck, most entertaining and downright most FUN motorcycling event in the world. That's my opinion, and I'm sticking to it.

See you there! MCN

AMERICADE, FRED RAU

STARTING A CLUB

Share your favorite pastime with your favorite people, cruising down the road.

> By **Alisa Clickenger**

Sunshine on your shoulders, warm wind buffeting your helmet, everything running right and feeling tight as you ride down the road. Whether it's around the neighborhood or across the country, riding with the people you closely connect with can be one of the most rewarding motorcycling experiences. Starting your own motorcycle riding club might be the ticket to finding that rich experience of commonality in our lives. Here are a few pointers to get your wheels rolling.

First, create a vision for the club and craft a mission statement to maintain the focus of the group. Do you want to take weekend jaunts through local hill country, or perhaps more challenging and daring riding on dirt roads? Connect with existing like-minded riding pals to determine their buy-in. Ask for firm commitments from your friends to assist in forming a club, so you can share the workload, leadership responsibilities and to create a contingency plan to keep the club going when you are indisposed.

Next, develop a logo and consider trademarking it. "If your logo is original and your club takes off, you may want to get trademark protection for it," said Dave Rankine, a retired lawyer and member of the Airheads Beemer Club, who has put several entities together.

It is best to find a lawyer or paralegal who knows intellectual property law. You can guess which is cheaper. Register your logo either with your state or the federal patent office. Trademark protection is good for 10 years and is renewable indefinitely, but you must refile each time and indicate that the mark is still in use, if you want to keep it.

Perform both online and offline research to discover clubs and other businesses in your area, so you're not inventing an entity that already exists. Check with local motorcycle shops to find out what they know about other groups. Then, contact the clubs in your area and let them know of your intention to start a new organization.

JEN DALTON

Clubs often have a shared common interest that goes beyond a love of riding motorcycles. Increasingly, women's clubs are forming, nationwide.

Good community relations are important between clubs, riders and within the nonriding community. If you are interested in starting a 1-percenter (outlaw) club, there's a more formal process for gaining permission from existing clubs to protect your interests.

Next, define how you want to construct the club. Clubs can range from casual internet or email-based meetup groups to full-on formal organizations. Social media has made organizing groups and meetings equally fulfilling and less time consuming with less formality and a tailor-made communication infrastructure. An entire club can be informally operated from social media, or it can be used as a tool to further advance the cause of a more formal club.

On the formal side, your club can be a dba, or it can be incorporated, in which case most states require there be officers such as president, treasurer and secretary. A paralegal or attorney who has incorporated other entities can also set this up for a fee. If you decide to incorporate, you have to file annual paperwork with the state to keep your corporate status. It is also possible to

Though essentially a solitary pastime, riding with a group as a member of a club—as big or as small or as organized as you want it to be—can be quite enjoyable.

start a new chapter of a bigger club, where much of the legwork has already been done.

"We wanted to grow our tribe," said Jen Dalton, co-founder of The Litas Austin. "We wanted more amazing female riders to ride with. We had an amazing group of female riders already, but when we discovered what Jessica Haggett was doing with The Litas worldwide, we became very eager to grow and help empower women. A couple of us were sitting around thinking of group names, group ideas, logos, and we agreed that The Litas best represented what we wanted to stand for. We all wanted to be a part of something bigger than just our small group."

Many motorcycle clubs choose to become an American Motorcyclist Association chartered club. The charter fee with AMA in 2018 is $50 and they have a complete set of online guidelines to make starting a club easy for founders. This is a good option for enthusiasts who ride together, particularly if they will be hosting events, as sanctioning and economical event insurance coverage can be obtained through the AMA.

Another way to protect yourself is to get certified by the IRS as a 501(c)(7) social club for liability protection. "The club can't be sued for negligence, only for intentional or reckless conduct," said Rankine. "To do this you have to be incorporated as a nonprofit.

"You'll need articles of incorporation and bylaws that will be acceptable to the IRS. There's a 20-plus page application form that is best prepared by a CPA who has done that kind of work before. Eventually the IRS will tell you if you qualify, and then your club is officially a tax-free entity. Don't forget to file paperwork with the IRS annually, or they will negate your status as a nonprofit."

If you decide to charge membership dues, it's important to develop a dues structure and a purpose for the funds. Make sure everyone pays the dues, even the president, treasurer and your best friend. Feeling equal is important for everyone in the club, and this investment in your group generates trust and allegiance.

Funds can be used for organizational expenses, to rent space, to host events, to support the educational, mechanical or gear needs of members, or can be donated to charitable organizations. The only limit is the imagination of the members.

There are few things better than exploring our passion for motorcycling with like-minded people. Bringing people together is something to be proud of, as is dedication to transforming a vision into reality. Have a good time riding with friends and know that the legacy you've created might inspire several generations of riders. MCN

GETTING MORE MILEAGE FROM SOCIAL MEDIA

Ellie Rains just wanted some folks to ride with. What she ended up with was a community. Four years later, Rains' Facebook group has almost 14,000 members and is adding new members daily.

The group evolved to have several regional subgroups and has become a hub of information for all types of riders. Many women think of the group as a club and, in response to increasing demand, Rains has developed patches for the women to show their pride in the organization.

New riders, women wanting to get started riding, experienced riders and long-distance riders all post to the group. "Our group is a good tool for all types of riders," Rains said. "It takes a village, and inside the group, the support happens organically. We're a safe haven, with moderators, no drama. It's an excellent place to find information, people with whom to ride and stay, if you're a woman traveling on a motorcycle."

"To hear a woman say, 'I've always wanted to ride a motorcycle; I've always been a back-seat rider and I never thought I could do this,' and giving them the inspiration or push to do it is so fulfilling," group member Jen Dalton said. "I've been told that watching my journey has given them the courage to start riding, to ride harder, to make a difference. These are rewards that no one can take away, and are not counted by likes or comments, just pure happiness."

—Alisa Clickenger

SHUTTERSTOCK

When analyzing fuel delivery, be part mechanic, part scientist. Have plenty of room to work and a well-lighted space. Take your time, be organized and patient.

Carb Tuning 2019

A step-by-step process for checking or replacing jets, needles, throttle assembly and accelerator pump.

> By **Mark Barnes**

Last month, we covered the basics of carburetor function. Now we'll dig into methods for tailoring fueling to environmental conditions and riding demands. The carb shown is a Keihin FCR on a 2009 KTM 530XC-W, but the principles discussed apply to virtually all variants.

THE PRACTICE OF TUNING

Be a good scientist and always document baseline settings first. This isn't hard, but it requires a disciplined, systematic approach; otherwise, you'll chase your tail and make things worse.

Take careful notes and change one thing at a time, in small increments. Keep a journal with the date, weather conditions, approximate altitude, sizes of main and pilot jets, position of the needle, and exactly how many turns out the mixture screw is set.

It may seem unnecessarily redundant when opening the carb to make changes, but if new to the process, it will familiarize you with internal parts, allowing smoother work flow throughout the testing and adjustment phases.

The procedure for accessing carburetor(s) varies between bikes and can be rather involved if other parts must be removed. Details of carburetor disassembly also vary between models, and we can't cover them all here.

For simplicity, we've chosen a single-cylinder bike with a common carburetor. Review the bike's shop manual or carb manufacturer's website for more detailed specifics.

Jets are accessed through the bottom of the carb, either via a large threaded plug in the float bowl, or by removing the float bowl altogether. Drain the carb first, with the fuel petcock turned off. Carbs may have a drain screw that allows fuel to flow out of a tube below, or it may simply pour out when opening the float bowl. Be ready to catch it and keep it off the chain.

It's sometimes possible to get into a single cylinder bike's carb without removing it. Loosen the hose clamps that secure the airbox and intake manifold boots to the carb, then twist the carb to get to the carb's bottom on one side of the bike and its top on the other. This might require pulling the carb free of

MARK BARNES

one boot to tilt it before rotation.

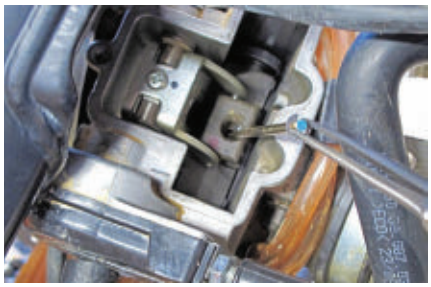
Be careful not to strain or damage any wires, hoses or cables. When only dealing with jets and there's enough clearance beneath the carb for the necessary tool, you may be able to remove and replace them directly. Older carbs, or those with many hours on them, should be pulled off, disassembled further and thoroughly cleaned and inspected, to ensure internal passageways are unobstructed and float operation is correct (per owner's manual).

A soft touch is required. Phillips screws on float bowls are often called butter bolts, because their heads strip very easily. Make sure the screwdriver fits tightly and consider upgrading them to hex key fasteners. Jets are made of brass, which is very soft. Use a 6mm socket to remove the main jet and just snug it down during installation. Some Mikuni carbs have a tiny brass washer on their main jets, don't lose it! Pilot jets are removed and replaced with a flat-head screwdriver.

Needles are accessed through the carb's top, which may screw off like a large bottlecap or lift off as a plate. The needle may reside within a spring, under a threaded plug, or have some other mounting arrangement. In any case, the needle itself will look the same—a long, sharp pin with five grooves and an e-clip near its top. On the carb shown, needle access was facilitated by holding the twistgrip fully open, thereby raising the slide and needle closer to the carb's open top. On a typical two-stroke carb, the whole slide/needle assembly will come out along with the carb top, since the throttle cable runs through and connects all these parts.

After removing and examining the jets and needle clip, check how far out the mixture screw is set by counting while turning it in, then returning it to where it was. After documenting all the settings in your journal, it's finally time to start tuning. The rich and lean symptoms described below will suggest which direction to go with the jetting. It's a good idea to have some likely alternative jets available for swapping.

With the motor thoroughly warmed up from at least 20 minutes of riding (not idling in the driveway), test the mixture at large throttle openings and sort the main jet first, using a plug chop. This requires a riding environment suitable for a high-speed pass, where the bike can be quickly run through the gears and maintain full throttle for a brief period.



Jet needles and e-clips are accessed and removed easily with pliers from the top of the carburetor.

Ride with the throttle wide-open for 30 seconds, then pull the clutch in while simultaneously hitting the kill switch, then close the throttle and stop. Use the tallest gear possible to keep the engine under load and avoid banging against the rev-limiter or overrevving the motor.

Immediately pull the spark plug out and check its condition. Assuming the bike is not burning oil, if the insulator is black, the main jet is too large or rich. If it's white, the main jet is too small or lean. Change the main jet one size at a time, until the insulator looks tan at the end of this procedure. Main jet sizes skip numbers, so one step in size may be numerically higher or lower by several digits. Use the old plugs to warm up the motor, then install fresh, clean plugs for the plug chop. If it's impractical or unsafe to perform a plug chop, the main jet size recommended by an expert familiar with the bike will likely do fine.

Once the proper main jet size has been established, the lower end of throttle range is next, starting with the mixture screw. From idle, open the throttle abruptly. The concern is how cleanly the motor revs off the bottom and while returning to idle, not how it behaves at high rpm, so only twist the throttle open for a split second. If the motor hesitates before the revs climb or if the revs hang above idle for a moment on return, the mixture is too lean. If the motor bogs or flutters on its way up or drops below idle or stalls on return, the mixture is too rich.

Air screws and fuel screws function in reverse of one another. Start with the owner manual's or jet kit instructions' recommended setting and make initial adjustments in half-turn increments. As the engine gets closer to achieving smooth and consistent behavior, adjust in quarter-turn, then eighth-turn increments. Mixture screws typically end up between one and three turns out, but check the range for your carb.

If proper performance can't be achieved within this range, switch to a larger or smaller pilot jet, depending on which end of the range was reached. A fuel screw that can't open far enough indicates the need for a richer pilot jet, an air screw that can't open far enough calls for a leaner pilot jet, and vice versa.

An alternative method: With the engine smoothly idling as low as possible, turn the mixture screw a quarter-turn in one direction. If rpm increases, do so again. Repeat until rpm fall or reaching the limit of adjustment. If rpm fall with the first move, reverse direction and pursue the highest rpm to the limit of adjustment, eventually using eighth-turns to zero in. If rpm is still rising at either edge of the adjustment range, change the pilot jet size accordingly.

These two tuning methods should yield the same results and can be used to double-check each other. This second method may allow for finer tuning, as it's often easier to hear subtle differences in idling rpm, or see them on a tach, than to sort out corresponding differences in how the motor behaves revving from and returning to idle. Either way, reset the idle screw afterward to achieve the desired rpm at closed throttle.

Now, on to midrange and needle position. After settling into a steady speed at 25 percent throttle, roll the twistgrip open at a moderately fast rate (1-2 seconds from 25 percent to 75 percent open). If the motor pulls strong at first but then feels sluggish toward the end, the mixture is too rich. If power seems soft at first, but then builds suddenly

MARK BARNES

toward the end, the mixture is too lean.

Adjust the needle until the motor pulls cleanly and evenly through the midrange, keeping in mind that the bike may naturally have a power curve that isn't perfectly linear. Motors make more power with more revs, so the goal is the smoothest progression possible, not equal power at all rpm. Move the clip down to make the mixture richer, up to make it leaner.

After each change, reassemble things enough to check your work. Keep track of all parts and their arrangement during disassembly. Exploded parts diagrams and photos can be very helpful.

The accelerator pump shoots an extra burst of fuel when needed, helping to avoid a low-speed lean sputter.

THE ACCELERATOR PUMP

The JD Jetting jet kit we installed in our carb included a couple of neat tricks worth mentioning, which require a brief explanation of accelerator pump (AP) function.

An AP shoots a fixed-duration burst of extra fuel into the four-stroke carb throat when the throttle is opened further. This is especially useful when the throttle is opened suddenly at low rpm, creating a dramatic increase in air speed through the carb throat. Since fuel is 600 times heavier than air by volume, it can take a moment for fuel flow to catch up to a big jump in airflow. CV carbs address this issue by limiting how abruptly airflow can increase, but conventional slide carbs require fuel flow augmentation. The AP's squirt provides compensation during this momentary lag, avoiding a lean stumble. Ideally that squirt decreases as fuel flow catches up.

According to our KTM expert, the stock AP delivers a two-second squirt; others can range from one to three seconds. That may not sound like much, but successfully negotiating tight, technical riding can require numerous throttle adjustments over the course of several seconds. It's possible to end up with an overly rich mixture right when you need the crispest response. An overactive AP could still be squirting fuel against a closed slide, instead of into the gaping maw of a wide-open carb throat. Or, with less severe changes in throttle opening, it could simply produce a rich excess, resulting in a stall-threatening bog.

MARK BARNES

In a previous article on FCR carb modifications (MCN 3/13), we substituted a different diaphragm for the OEM part in the AP. Said diaphragm is a plunger-shaped piece responsible for squirt duration, limited by the short post extending from its center. The longer the post, the shorter the squirt, and we achieved improved performance and a more precise connection between wrist and rear wheel with a diaphragm from a different bike, known to produce a one-second squirt.

Installation was a simple matter of removing the AP cover on the float bowl, popping the old diaphragm out, dropping the new one in, and bolting it all back together. New diaphragms, which are extremely simple items, can be shockingly pricy ($30) when purchased from OEMs and are often bundled with other parts.

JD Jetting's solution was much simpler. Instead of a replacement diaphragm, our kit included a tiny extension to tap onto the original part's post. Squirt duration is thereby shortened, though we can't say by exactly how much. The results felt the same as we achieved before with a new diaphragm.

There is no "correct" duration for an AP's squirt. Woods riding, like our KTM is used for, typically involves using lower gears, only rare sudden transitions from very small to very large throttle openings, and that big motor generates immediate wheel-spin whenever the throttle is opened abruptly. All situations that make a brief squirt duration preferable, because rpm quickly match throttle position, which is then most often promptly reduced.

What's ideal for the woods could create dangerously lean conditions for a street rider who whacks and holds the throttle wide-open from low rpm, in higher gears, with zero wheel-spin on pavement. In that situation, it may be many seconds before revs match throttle position, prompting a roll-out. Riding that involves lots of staccato throttle fluctuations will benefit from a relatively shorter squirt. Extended periods of steady, heavy-handed acceleration require a longer squirt.

JD Jetting also supplied rubber O-rings (two strengths) that attach to the lever operating our carb's AP to create a tighter connection to the throttle cable assembly. This further enhanced precise control at the twistgrip.

FINE TUNING

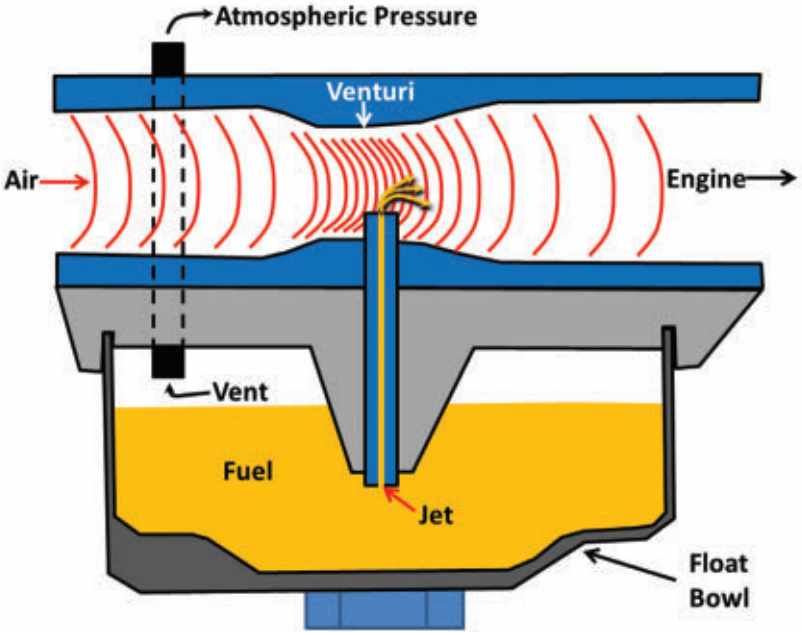
If the bike has been running well, you may only have to make one or two of the above tweaks, but understanding the entire tuning process is necessary to know which tweaks are needed. Many motorcycles come from the factory with carburetion issues, perhaps because tuning was done in an environment different from the place of sale, or performance was compromised to meet emission standards or fuel economy goals. A local mechanic can probably suggest jets and settings that will work better than the stock configuration.

Jet kit developers will have determined what works best on each bike and will supply an assortment of parts and setting recommendations covering a wide variety of environmental conditions. A kit will cost more than buying the individual parts recommended by a mechanic, but adds the benefit of developer dyno testing, plus extra jets and needles for use in other conditions. However, advice will only get you close. That final inch on the way to fueling perfection can only be traversed through careful assessment and manipulation. MCN

CARBURETOR Troubleshooting

Your motorcycle's behavior will help point you toward the source of your fueling issues, once you understand the principles and the parts.

> By **Kevin O'Shaughnessy**



At the heart of carburetion is the venturi, a narrowing passage that draws fuel from the float bowl and mixes it with air—known as atomization. The mist is fed into the cylinder.

The first time I worked on a carburetor I was an inquisitive 9-year-old. My dad had an old power assisted bicycle motor, which clamped to the frame. The knurled wheel attached to the motor could drive the tire of any bicycle. The motivation: my buddy got a new Huffy bicycle with a super-cool lowrider banana seat. I was blessed with a 10 speed women's bike, donated by good old Mom. Motor power seemed a good way to pimp my ride and I remember watching my dad rebuild the carb on our Chevy Vega.

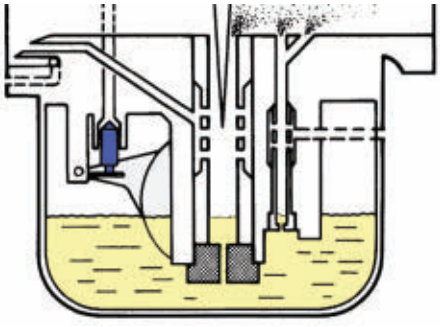
I proceeded to pull the carb apart, cleaned it with gas and gave it fresh 2-stroke fuel, without really understanding how it functioned. I got it working; inside our apartment. Unfortunately, dad heard the 'bring-ding-ding' engine noise in the living room. He opened my bedroom door, was barraged by 2-stroke smoke and found a strange kid with a huge smile and crazy wide eyes. I never did get the chance to strap it on Mom's bike.

A common question is how to troubleshoot carburetors. Often the problem is bad fuel combined with clogged pilot and needle jets that need to be cleaned or replaced (page 31). Diagnosing more challenging problems requires deeper carburetor knowledge and knowing at what throttle position the problem occurs.

Let's start by covering the basics. First, the carburetor purpose is to provide the proper amount of atomized fuel to the engine. This is caused through a fluid dynamic called the Venturi effect.

When operating, the engine's intake cycle draws air through the carburetor. As air passes through the narrower portion of the carburetor, called the venturi, the velocity increases and the pressure drops. If the pressure drops enough, we can use that energy to pull or push fuel into the venturi.

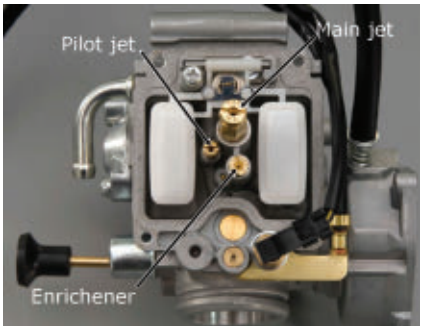
Fuel is introduced into the float bowl through a fuel line that is governed by a fuel valve. The valve is connected to and monitored by the float. When the fuel rises to the proper level, the float closes the valve and shuts off fuel. If the fuel level is too high, fuel will increase flow and cause a rich running condition. Too low will reduce flow and cause a lean condition.



The float bowl at the base of the carb is a reservoir of fuel sent to the venturi through a tiny nozzle called a jet.

Fuel jets are small ports that allow fuel flow from the float bowl to the venturi. As rpm increases, so does the

KEVIN O'SHAUGHNESSY

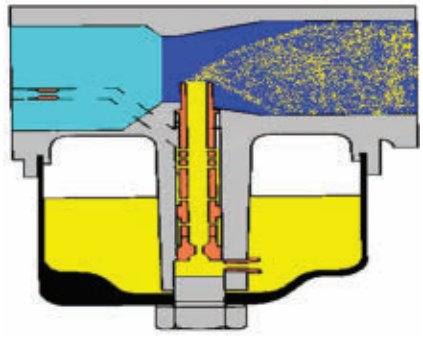


The difference in sizes of jets can be seen in this image of a Yamaha carburetor.

air volume and velocity; therefore, different jet sizes are used to affect different throttle and rpm ranges. Pilot jets, aka slow jets, have very small holes and operate most effectively at idle and just-off-throttle. Main jets have large holes and operate at wider throttle openings. Ports that are too small restrict flow and create lean running conditions. Too large increases flow and creates rich conditions.

Old fuel and corrosion create deposits that narrow or close the ports. Since the pilot is the smallest hole, it is the most likely to be plugged. This can be indicated by an engine running fine with the choke on, (a separate jet) but dying when warm or when the choke is turned off. It might also pop and stall with the choke off as it becomes lean and misfires.

The float bowl is vented to outside ambient pressure. When the engine is off, the pressure outside and in the venturi are equal. When the engine is running, pressure drops in the venturi and



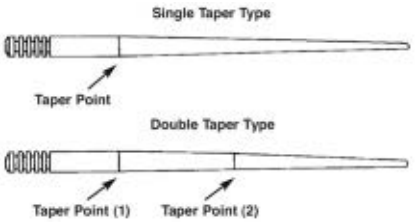
KEVIN O'SHAUGHNESSY

Fast-moving air in the venturi facilitates atomization—creation of a fine mixture of fuel and air ideal for combustion.

atmospheric pressure tries to equalize this low pressure zone. Since the fuel is interfering with this path, it is pushed into the fast-moving air of the venturi and begins the process of atomization.

Fuel droplets are broken into smaller and smaller droplets en route to the combustion chamber. This is an important part of carburetion, since the dense fuel droplets need to react proportionately with the diffused oxygen molecules. The smaller the atomized droplet, the more efficient the burn will be.

We can control transition between the pilot and main jet with a slide mechanism. Throttle raises and lowers a slide and tapered needle. The tapered needle sits inside the needle-jet. As the taper moves up and down in the needle-jet, the port is opened and closed. This gives control over main jet access to the venturi. At idle, the pilot jet is providing most of the fuel and the slide is low.

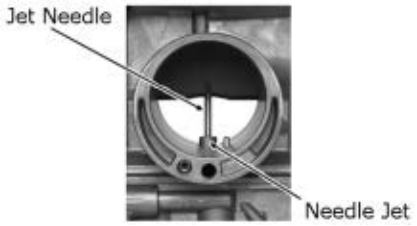


Jets are tapered for optimum dispensing of fuel, which is controlled by a slide mechanism in the throttle assembly.

When low, the large taper of the needle nearly closes the needle-jet and restricts main jet access to the venturi. When the slide moves up, the taper narrows and more fuel is allowed past the needle-jet. At three-quarters to wide-open throttle the main jet is fully accessed.

Putting this all into motion: At idle the engine draws fuel from the pilot jet. As the throttle is actuated, the slide rises, the needle taper narrows and more fuel is allowed from the main jet. At three-quarters to wide-open throttle the main jet is fully accessed.

We only need to know a couple bits of info to troubleshoot most problems. First, is the running condition rich or lean? Second, at what throttle position does the problem occur? The type of



The jet needle regulates fuel to the needle jet. Fueling issues linked to the jet needle and/or needle jet are generally confined to mid-throttle performance.

running condition tells me if I have too much or too little fuel. The throttle position indicates which circuit of fuel is causing the problem.

We've identified that jet sizes and fuel level create rich or lean conditions. If a fueling problem occurs at idle, the issue is likely to be with the pilot jet. If the issue occurs mid-throttle, it is likely a problem with the needle or main jet. At open throttle it is most likely the main jet. While the pilot supplies fuel at all throttle positions, by the time you reach one-quarter throttle it has a very small effect. Anything past this point is probably not a pilot issue.

This is a glimpse of where to start, but true learning begins after tearing into a carburetor and seeing it firsthand. Find a clean spot in your garage. Lay down some towels and a drain pan. Drain the carb, open the carb bowl and look at the jets and float. Move the slide mechanism up and notice the taper of the needle. Try to find clogged ports and dried fuel rings on the needle or needle-jet. These will cause lean running conditions.

If you really want to learn, get a jet kit with a few size options. Try out a step up or down from recommended jet sizes, then run the bike at various throttle positions and loads. Be careful of running too lean, which can cause overheating and melt pistons. Mark Barnes covered carb removal in more depth last month (MCN 4/18), and covers rejetting this month, starting on page 31.

If only I knew about carbs and toxic fumes when working on that 2-stroke bicycle engine. Never service carburetors or run 2-strokes indoors. My room never smelled the same again. MCN

Most electric motorcycles look like their internal combustion predecessors. With no exhaust to generate sound, noise must be engineered to alert others of their approach.

Sound Familiar?

Electric vehicles are so quiet, government agencies are requiring that they have an audible signature. **What will that be?**

> By **Glynn Kerr**

One advantage of electric vehicles, on top of the reduction in harmful emissions, is lower noise pollution. However welcome that might be, in rural and urban environments, one side-effect is the potential for accidents.

If pedestrians and cyclists can no longer hear vehicles approaching, they have no warning of impending danger. This risk is elevated for children, the sight-impaired, and the elderly.

It was fascinating watching two Lightning electric GP bikes try to weave through a crowded paddock with almost zero reaction from the spectators, an issue which subsequently required the fitting of horns. If it is true that "loud pipes save lives," what are the consequences of having virtually no noise at all?

Many countries have taken the step of imposing mandatory audible alerts at low speeds. In the U.S., a ruling by the National Highway Traffic Safety Administration came into effect in February this year, requiring all electric and hybrid vehicles to emit a sound that is audible over other white noise below 18.6 mph (30 km/h). Full compliance is required by September 2020, although exactly why the U.S. agency used a metric ceiling for its law is unclear.

Many other countries are in the process of introducing similar legislation, but with their own individual standards. Globalization, it seems, has yet to become absolute. Some nations propose rationing the options to government-approved soundtracks, while others recognize that the sound of a vehicle is part of its individuality.

The engine and exhaust notes on internal combustion engine (ICE) vehicles are often unique to specific brands, and manufacturers will no doubt be keen to maintain that feature, even with the introduction of alternative power sources.

In fact, it may not just be electric or hybrid vehicles that are targets of the new minimum-noise-level legislation. Manufacturers of the new environmentally-friendly vehicles point out the huge

improvements in ICE design in recent years, which have made some regular vehicles as quiet as electrics and hybrids. Thus, they argue, with reason, that any new legislation should equally apply to them. So, in the future, your Honda four might be required to bleep as you drive along, too.

Researchers have been aware of the issue for some time. In 2010, Warwick University in the U.K. conducted a study on electric vehicle noise through a delivery van known as ELVIN (Electric Vehicle with Interactive Noise). Inviting public feedback, ELVIN drove around the University's campus playing different sounds, including one resembling a 1950s sci-fi movie spaceship. The fact that ELVIN was green and somewhat resembled a bug-eyed monster may have something to do with that particular choice.

While this was no doubt a fun and funding-attractive project, the amount of publicity about its existence seems to overshadow the conclusions. If there were any responses, the university seems to have kept them to itself or its sponsors.

Even before the electric generation, acoustic engineers have been toying with the sounds our regular ICE vehicles make. Mercedes-Benz has been piping artificial noise, such as up-shift blips, into the passenger compartment of its sportier models for some years through a "sound generator," and is certainly not alone in the practice.

Audio engineering has become a science to itself, and electric vehicles take that to an entirely new level. In the future, there will be little if any connection between the noise a vehicle creates when in motion, and the sound it emits.

Motorcycle manufacturers have also been playing with our eardrums. Government noise level tests are typically measured in a rolling situation, so some engineers decided to exploit that by tweaking the exhaust to give louder throttle blips in neutral than when in gear. It's a show-off thing for impressing your friends and annoying your neighbors.

Hardly at the same level as Audi's test-sensing diesel scandal, but it's likely the authorities would take a dim view of the practice, and will change their measuring methods, if they haven't already.

GLYNN KERR

ELVIN drove around Warwick University in the U.K. playing potential vehicle sounds. Public comment was invited.

Perhaps no motorcycle brand has a more distinctive engine sound than Harley-Davidson. The Motor Company will have to decide what the note of its new electric motorcycles will be—probably not its signature "potato potato" sound.

So what sound should electric bikes make? This dilemma was first introduced to me during the early stages of an electric mega-scooter project a few years back. Seemingly, anything was possible, including a sound resembling a Harley-Davidson, as The Motor Company was unable to trademark its "potato potato" audible signature.

Harley-Davidson has, in turn, entered the fray with its own LiveWire project, an electric motorcycle that is scheduled to enter production next year. When the prototype first made an appearance in 2014, it was set on a rolling road, with a suitably leather-clad model demonstrating the sound.

Harley-Davidson has clearly been through the same "but-what-should-it-sound-like?" management meetings as my mega-scooter company and Warwick University, but its solution had to be manly and as American as Mom's apple pie. They chose a jet engine, which, you'd have to admit, is not a bad way to go. The reality was pretty convincing, although having been woken up by two Y2Ks firing their turbine engines up outside my hotel room during the Legend of the Motorcycle event, I feel it may not be the ideal sonic experience.

Whichever way designers end up taking the artificial noise conundrum, I hope nobody tries to simply replicate the original ICE sound. Yes, whatever comes out will be artificial, but please, let's not pretend these new things are the same as those old things.

The world is moving on, and we need to embrace whatever the future has in store. Without the drama, energy and engineering magnificence of a piston-engined machine, vehicles should not be allowed to fake the sound of one. MCN

BILL DUTCHER

RACER, INDUSTRY INSIDER AND AMERICADE FOUNDER

His racing days long behind, Dutcher has remained an avid dual-sport rider, riding around the world, in such places as Tierra Del Fuego, bottom left, with a friend. In his younger days, before founding Americade, Dutcher put his racing skills to the test in venues such as the Houston Astrodome, right. He also mastered the business side of the industry, working for Bultaco and Harley-Davidson, where he occasionally met up with Hollywood stars such as Burt Reynolds, bottom right.

> By **Joe Michaud**

Bill Dutcher is an Ivy League graduate who had an early itch to race motorcycles. In spring of his junior year at Harvard University, he raced in New England scrambles with notable success. In the Northeast, he was known as a go-fast guy. During a chance encounter, Bultaco importer John Taylor offered the stunned Dutcher a sales rep job. Between 1965 and 1975, he worked outside sales, then as sales manager, and eventually, director of marketing.

In 1980, while working for Harley-Davidson, Dutcher attended the Aspencade touring rally in Ruidoso, New Mexico. In 1981, faced with relocating to Milwaukee for the Harley job, he quit so he could remain in the Lake George, New York, area.

Dutcher saw an opportunity to adapt the New Mexico touring rally format to the Adirondack mountains of upstate New York. He believed the Lake George area would be a perfect fit, with its proximity to dense Northeast population and excellent local roads for riding.

Dutcher made a deal with Aspencade organizer Til Thompson that allowed him to use the Aspencade name in exchange for some cash and a percentage of the profit, if there was any. Dutcher launched Aspencade East in May of 1983 and attracted 2,000 riders.

As the event grew, it was renamed Americade, to better reflect the diversity of the large multibrand national touring rally it had become. Estimated annual attendance is in the tens of thousands.

Q&A

WITH **BILL DUTCHER**

Q: What lit the motorcycling spark in you?

A: My step-father gave me a ride on his Indian when I was 6. I'll never forget my terror as the acceleration made me grab for—and miss—his belt. Obviously, I didn't fall off and die; but it sure got my attention. Fast forward about eight years to a friend with a high-piper Triumph Tiger Cub Scrambler and a big yard. After riding around the woods for a few hours with friends, it seemed so natural. My lifelong love affair with motorized two-wheelers was set in motion.

Q: At 17-years-old, you toured Europe solo on a motorcycle?

A: Small sailboat racing was popular in Connecticut where I grew up. My father and I built a plywood Bluejay that we raced and I was good enough to get a trip to Sweden to compete in 1959. When the event was over, I had time on my hands, so I hitchhiked around Europe until I finally bought a heavily-used R-25 BMW for $100. Riding that bike through the Alps was like mainlining a drug, and I've never recovered.

Q: You were a successful motorcycle racer while attending Harvard?

A: I was not an academic by nature and, after a few weeks at Harvard, I realized I might actually be the stupidest person in the room. Academic probation came in mid-semester and, by Spring, I was asked to take some time off. However, I was able to teach sailing and I earned enough money to buy a 1956 500cc Triumph, the TR5R, with twin Amal 376's and Q cams. I learned how to drift a motorcycle with that bike, a watershed moment for me.

Q: You returned to Harvard after your hiatus?

A: Harvard wanted me to have had a 'real' job before returning, so I worked at absolutely the dirtiest job at IBM in New York City, where I ran a de-collation machine that separated the multi-part carbon paper forms used in the punch card era of computers. We were all required to wear white shirts and suits and the de-collation machine spewed carbon in the air. I looked like a coal miner at day's end. It did, however, give me a look into corporate life and it was not for me. Everything was IBM all the time, it was very Stepford Wives and my soul was a motorcycling soul. But the job got me back into Harvard riding a 250cc Honda Hawk.

Q: Your Harvard graduation day had a motorcycling twist, didn't it?

A: In my senior year, I managed to get a sponsored ride on Boston Yamaha's new 250cc TD1-B. However, wouldn't you know, Graduation Day was the same day as my Novice Pro race at Laconia (laughs). I knew exactly how long it took to drive to the track, so I attended Harvard Graduation Day with my Langlitz one-piece leathers and highly-polished English race boots on under my robe, to save time. After a delayed, requisite graduation photo with my parents, I violated all local speed laws getting myself to Laconia, arriving just as my race started, leaving me a lap or so behind. I managed to un-lap myself before my Goodyear 'blue dots' let loose and I crashed at something around 100. MCN

CYCLE ANALYSIS > By **Mark Barnes, Ph.D.**

Who's To Say?

RECENTLY, I'VE GOTTEN contradictory advice on mechanical projects, all from people with respectable credentials who know more than I do about the matter. I've had to pivot from mechanics to my own area of expertise: psychology.

Everybody does similar analyses, without being psychologists. We all encounter situations wherein we must rely on someone else's guidance and select inputs from conflicting voices. Everyone can't be right, so who's to say? We can't tell based on the topic—that's what we need help understanding. We pick consultants based on the personal and interpersonal characteristics we associate with trustworthiness, though even these are debatable.

Are you more likely to believe someone who portrays things as simple or complex? Some consider the most succinct explanation most likely true. They're suspicious of convoluted, multi-faceted theories that sound impressive, but often baffle listeners with gibberish. Experts communicate in a straightforward manner, readily understood by anyone with sense. Fancy talk is for those lost in over-complications who are trying to hide their ignorance or pull something over on us.

Others believe experts appreciate there's more than one side to any issue and develop as comprehensive a position as possible, though it may contain ambiguities and not make a tidy package. They're suspicious of perspectives that can be summed up in a sound bite or that take a one-dimensional stance in which there is only one truth and everything else is nonsense. Reductionism is equated with simple-mindedness or strategic omission and distortion.

Both groups often consider the other contemptibly foolish. Campers trust only those from their own campground. So it goes when we can't assess the information itself.

Do you find someone more believable when they speak vehemently or dispassionately? Those who see vivid emotionality as confirming the truth of what's said, often find people who talk in calm, even tones boring and lacking conviction. Without passion, words fall flat.

Others view dramatic expressions of feeling warily; a contemplative stance seems more credible. They interpret forceful speech as betraying irrationality, or an effort to push ideas that don't stand on logical merits, that rely instead on emotional reactions.

Such considerations have little relation to the information, but are regularly used to determine its worth. Others include how the source responds to inquiries (defensively and evasively or openly and thoroughly?); whether they demand agreement or compliance; their consistency over time and across situations; their accomplishments and accuracy track record. These don't directly confirm facts; they determine confidence in the speaker.

BACK TO SORTING through recent mechanical advice. First, could the sources explain their position? They had to provide a coherent account that fit alongside well-established reference points–or revise those in compelling ways. That someone can't show their work doesn't make them wrong, but it does reduce my confidence in their conclusions. Any version of "Because I said so!" or "We've always done it this way!" was an instant disqualifier.

Second, did they welcome or take offense at queries? My questions shouldn't threaten their ego; curiosity should be appreciated. Otherwise, I considered their counsel potentially contaminated by narcissistic needs or rigid orthodoxy. That someone gets their hackles up when challenged also doesn't make them wrong, but such people often adopt positions based on what bolsters their self-esteem or confirms what they already believed, rather than on hard evidence.

Third, was there consensus? Odds are, any truth is known by more than one party. When a source was the only person holding that view, I grew skeptical. Maybe they were totally honest, but the chances were still slim that my outcome would match theirs. For instance, if everyone else gave a product rave reviews, a single person's bad experience carried little predictive value.

Fourth, what was the sources' agenda? If they were selling something, I took their words with grains of salt. Conversely, if a seller acknowledged the value of a competitor's product, this carried extra weight, since that source had incentive to find fault. Besides money, people can pursue status, insisting on recognition as the expert. They can be driven to win concrete performance contests, and therefore to also make the best sense of all available evidence.

Some find helping others an enjoyable boost to their self-worth, or view others' difficulties as opportunities to exploit a competitive advantage. The more powerful a person's agenda, the greater chance of being blind to facts, including the fact there is an agenda.

Finally, when possible, I chose the source that convincingly accounted for alternative positions, too. One expert on engine break-in explained the origins of opposing viewpoints, how they made sense back then because of the state of technology, and how advances in manufacturing, metallurgy, lubricants, etc., led to different approaches later.

How do you decide who you will believe? MCN

Dr. Mark Barnes is a clinical psychologist, in private practice. Author of "Why We Ride," excerpts from 20 years of MCN columns.

Numbness: Cubital Tunnel Syndrome

NUMBNESS, TINGLING AND sometime weakness in the hands of motorcyclists are usually caused by nerves being compressed somewhere between the neck and the fingers.

Cubital tunnel syndrome is compression of the ulnar nerve at the elbow. Everyone understands hitting their funny bone. That is the ulnar nerve, which is neither funny nor bone. The ulnar nerve supplies sensation to the small finger and adjacent side of the ring finger. The ulnar nerve also supplies most of the small muscles in the hand that are important for finger dexterity and power.

To understand the forces that contribute to ulnar nerve dysfunction, it is important to understand basic elbow mechanics. The elbow incorporates a fixed hinge between the humerus in the upper arm and the ulna in the forearm.

The axis of this rotation is in the center of the humerus at the elbow, when the elbow is viewed from the side. The ulnar nerve is restrained behind the elbow's axis of rotation by multiple fibrous structures.

Because of this, each time the elbow is flexed, the nerve is elongated (tension). The fibrous bands themselves can also compress the nerve. This combination restricts the microcirculation in the nerve, causing progressive damage to its internal structure.

Symptoms of cubital tunnel syndrome begin much like carpal tunnel syndrome (MCN 3/18), starting with numbness and tingling in the fingers at night or in early morning, often disturbing sleep. These symptoms are the result of the way humans sleep, with elbows flexed and nerve placed in tension. This creates susceptibility to compression by any combination of fibrous bands.

If cubital tunnel syndrome progresses, the ring and small finger become numb during part or all of the day and one sees atrophy of the muscles in the hand, often first noted in the muscle between the thumb and index finger when the hand is viewed from the back.

An electro diagnostic study is often done to establish the diagnosis as well as to help clarify the severity of the disorder. The nerve conduction component of that study measures the speed and the voltage strength of the nerve. The electromyogram measures the degree of loss in nerve signal to the muscles that are innervated.

Treatment of cubital tunnel syndrome may also begin a lot like carpal tunnel syndrome. A splint is prescribed, for night use, to hold the elbow closer to full extension, relaxing the nerve. Many patients find it easier to use a carpal tunnel wrist splint, as opposed to an elbow extension splint at night. It is a simple start, and if elbow extension improves the symptoms, it firms up the diagnosis.

Patients are also advised to avoid pressure on their inner elbows, such as supporting the elbow on the armrests of a chair or a tabletop.

Multiple surgical procedures have been devised for cubital tunnel syndrome and degree of invasiveness varies. Some recent data support the use of the minimally invasive decompression of the nerve by dividing the bands constricting the nerve. This also allows the nerve to move slightly toward the front of the elbow with flexion, keeping tension in the nerve to a minimum.

Surgeons consider such factors as severity of the cubital tunnel syndrome, age and activity level of the patient, and the need for the ulnar nerve to be protected from contact. The presence of a disease entity that impairs circulation, such as diabetes, is also considered. MCN

Dr. Cary Tanner is a surgeon, chairman of the board at Fresno Surgical Hospital and medical director of Summit Surgery Center.

REHABILITATION

For patients who have had minimally invasive ulnar nerve decompression, we allow an immediate return to activity, if the wound remains clean. Showering is allowed, and the patient may return to his or her workout routine, if the wound is not immersed in water while the sutures are in.

When an ulnar nerve transposition is done, the ulnar nerve is freed from its restraining ligaments and moved (transposed) to the front of the elbow. All four basic types of anterior ulnar nerve transpositions rely on the healing of the soft tissue before returning to a full workout, or riding motocross.

Typically, full range of motion is allowed four weeks post-surgery and strengthening begins at six weeks. There may be an initial immobilization period in a splint, depending on the procedure.

Once full range of motion of the elbow has returned and the patient has at least 80 percent of expected grip and elbow flexion and extension strength, riding may resume. Some racers begin with a riding progression to regain timing and coordination. Starting on flat ground at eight weeks, with jumps allowed at 10-12 weeks post-op. A protective elbow sleeve may be used for a few months.

With more invasive approaches, it is likely the elbow will have soreness for at least three months. Since most patients requiring a more invasive procedure are also the ones with the greatest degree of nerve dysfunction, they should expect improvement in nerve function only after several months to a year. A follow-up electrodiagnostic study is sometimes needed to gauge improvement in nerve function.

—Rick Lembo A.T.C.

YOUR RIGHTS > By **Jim Halvorsen**

Speed

WE'VE ALL HEARD clichés about motorcyclists. Recently, this one made me ponder: "There are old bikers and bold bikers, but no old, bold bikers." I interpreted this to mean if you're fortunate enough to get through your riding youth in one piece, you're likely to have matured to responsible ridership.

While nursing a recent hip replacement, the thought occurred: Have I lost my spontaneous, throw-caution-to-the-wind, scrape-the-floorboards attitude? The resounding, undeniable answer was yes.

Like many others, I was a longtime dirt bike rider who gave up the thrill of two wheels for the more responsible lifestyle of marriage, children, work and the trimmings of the all-American dream. It was only when my wife once asked my opinion about her buying a motorcycle that the dormant seed of riding was rekindled. She too had ridden dirt bikes.

Being a police officer who specialized in crash reconstruction, my answer was, "It's not a good idea." I reminded her that, in my investigations, the motorcyclist was always injured to some degree. Even though she knew what the response would be, she was soon riding. It wasn't long before I was taking her bike out occasionally, too. Perhaps a little more than occasionally.

I returned to find her in the garage one day, hands on hips with an impatient scowl. "If you want to ride a bike, why don't you go get your own?" How many riders have wives that told them to go buy a motorcycle? That began my foray back onto two wheels.

I BELIEVE I would not have made it through my twenties and thirties on two wheels. Surely, I would have been the bold rider. As an adrenaline junkie, I've jumped off cliffs and bridges, gone ice climbing, performed inverted aerials on skis, crashed canoes in wild rivers and wrecked cars. A motorcycle would likely have been my demise.

After a career dedicated to traffic safety, I can assuredly say there are three major reasons people are killed in crashes: alcohol, speed and lack of seat belt use. According to NHTSA, of the 37,461-people killed on our roads in 2016, over 82 percent (in almost equal proportion) were killed because of the "The Big Three." Having touched on alcohol and helmets (a safety device, like seatbelts) in previous columns, it's time to consider speed.

Mathematically, speed is exponential to stopping distance. Most driver's education classes teach that the stopping distance of a skidding vehicle is directly proportional to the square of the speed of the vehicle. Thus, a car traveling 10 mph may require 4 feet to skid to an abrupt halt, but a car going twice as fast would require four times the distance, or 16 feet to skid to a stop.

A doubling of speed results in a quadrupling of stopping distance. A tripling of speed increases stopping distance by a factor of nine. And a quadrupling of speed increases stopping distance by a factor of 16. This is not good math for us thrill-seekers.

SPEED MAKES TAKING that curve more exhilarating, makes the wind blow harder in our face, amps up the G-forces. But experience has taught older riders that with speed comes reduced ability to swerve, longer stopping distances, less time for avoidance and more violent crashes with longer slides. It also affords less opportunity to take in scenery and makes it more difficult to hear.

Wind-related noise is proportional to speed and can be loud enough to contribute to noise-induced hearing loss. Wind noise ranges from 85 decibels at 15 mph to 120 decibels at 60 mph. According to research, noise-induced hearing loss begins with sounds at or above 85 decibels. As part of the older, not bolder crowd, I remove my hearing aids and replace them with ear protection. If you're not using some sort of noise suppression device, you should. It makes riding more enjoyable.

Even though I've slowed down both on and off the bike, wear glasses, use hearing aids and have an artificial hip, there's a certain euphoria I still get from riding. That feeling of freedom traversing a winding road that crisscrosses the river down the mountain, the instant g-forces experienced at the twist of the throttle or the trek across the wide-open plains, where asphalt is stretched right to the horizon.

We don't often think about speed in terms of exponential stopping distances, and neither do other drivers. NHTSA claims that in 2015, 33 percent of motorcyclists killed were speeding. That doesn't specify who was at fault, but you're either dead right or dead wrong. MCN

Jim Halvorsen is a retired police officer, MSF RiderCoach, police motor instructor and architect of motorcycle checkpoints.

> By **Russell Evans**

Shopping List

ALMOST EVERY BIKE we get to test at MCN is a marvel of modern technology. Computer-mapped fuel injection, anti-lock braking systems, lots of them with traction control, lighter-yet-stronger materials integrated into the engineering more than ever before. But there are a few that stand out, of course. Based on our recent extensive testing, here are the only five 2018 motorcycles I would buy, in alphabetical order:

APRILIA SHIVER 900: Featured in our April issue, the handling and power of this Italian wonder was easy to love, right from the start. There just aren't that many bikes out there that are eager to jump right out of your hands and will still make you grin. The thing I liked most about this bike is how it brought back all the thrills of when I first hopped on a motorcycle. Hard to believe it only cranks out 78 horsepower.

This, as well as the little occasional wheelies during quick green light launches, is all in Sport mode, of course. As a bonus, you can dial the power back to Tour and Rain modes, the latter chopping power by 25 percent. The Shiver is a racer when you want it to be, a docile, gas-sipping commuter when you want it to be. Love this thing.

DUCATI MULTISTRADA 950: Since this is only a wish list and I don't have all this cash lying around to actually buy all these bikes, I'm all about bang for the buck. I also spent a couple of weeks testing Ducati's MS 1200, which has considerably more horsepower than little brother (135 versus 92), but aboard the 950, it didn't feel like it was much less powerful than the 1200 at all.

The 950 cruised easily on the freeways, with all the power anyone would need. Where there was a big difference in feel was in the 950's lighter weight (565 versus 637 pounds). Both of these Ducs were balanced, nimble and quite capable, off road.

The 950 does not have a full-color digital display, but for nearly $4,000 less, it is the easy bang-for-the-buck choice.

HONDA GOLD WING: Featured in this issue, Honda could call this the Gold Standard. Not many in the room would laugh. Four decades of development and refinement are evident in every detail of the new slimmed down Wing.

I know Honda is making it sleeker and sportier to entice a younger crowd, and some will say there's not enough on-board storage. But get on the open road and hit the windshield riser and you are engulfed in a bubble of tranquility. Wind blast disappears. The thrum of the trusty six-cylinder engine doesn't intrude much.

If you want to cover a lot of miles and arrive at your destination still fresh, this dreamboat delivers. Our test bike also came with Dual-Clutch Transmission (DCT), four-way adjustable suspension, even an airbag (!). I would look no further for a long-haul tourer.

KAWASAKI Z900RS: Being a big bang-for-the-buck guy, it would take a lot for a standard, single-use motorcycle to turn my head. This one has the goods.

The folks at Kawasaki were wise to map out a little press ride on the canyon roads near Malibu in California, because we could all see that this retro-styled railer was capable of much more than just Sunday cruises down Pacific Coast Highway.

Like the Aprilia Shiver, this 948cc beast brought all the power one could ever want, its 95 horsepower at the rear wheel was plenty of thrust for the bike's 473 pounds. Its 43 miles per gallon of fuel was a bonus. I'm more interested in fun per mile.

Whipping it around those steep and winding twisties showed me that the RS was built to turn and hold a line. It's also a blast with the type of straight-line power that helped the original Z1 set 46 motorcycle speed records in the 1970s. No windscreen, no cruise control, no storage—no problem.

SUZUKI V-STROM 1000: I love this bike because it does so many things so well and goes about its business in a very humble way. The engineering is so efficient that it seems to amplify the dyno-measured 87 horsepower at the rear wheel.

That's no small amount, but it's barely half of what's available on some other offerings in the class, like the Ducati MS 1200, BMW R1200GS and KTM 1290 Super Duke. It doesn't do off-road, which is fine, though I'd also look at the V-Strom XT to extend range, should I want to go down a dusty road.

What the standard V-Strom does is give you a smooth, comfortable and nearly-silent ride with pinpoint handling. You can bag it up and ride all day, hundreds of miles, and get up the next day, ready to do it again. At $12,999, the V-Strom scores big on the bang-for-the-buck meter. MCN

Russell Evans is managing editor of MCN. He has been a motorcyclist, in the dirt and on the streets, for more than 40 years.

TOTAL CONTROL > By **Lee Parks**

Competition Drives Progress

WHY COMPETITION?

When it comes to all the amazing products and services we as motorcyclists consume these days, we are fortunate beyond measure. In fact, we owe an incalculable debt to those brave innovators and entrepreneurs who pushed the limits of thought and technology, and financed product development.

While it's easy to take all this progress for granted, it's worth taking a moment to look behind the bodywork and see what the engine looks like that creates it. That prime motivator is competition. Competition drives innovation, and innovation drives progress.

Honda Motor Company's prolific founder Soichiro Honda (1906–1991), understood this perhaps better than anyone. With more than 100 patents to his name and an enviable racing pedigree, it's clear he believed in the value of competition for improvement of his products, as he was famously quoted as saying "Racing improves the breed." Perhaps more illuminating was his stance on innovation: "I'd sooner die than imitate other people. That's why we had to work so hard! Because we didn't imitate."

Of course, innovation often requires a degree of risk. While I'm in the "risk management" business, I realize that a world completely devoid of risk is also devoid of meaningful progress. What that means for us as a group of motorcyclists is it's everyone's responsibility to protect competition—not individual competitors. We must recognize that competition means some companies may go bankrupt, as we've seen with OEMs like Excelsior-Henderson, and the closing of brands like Victory and Buell.

On the flipside, legislatively, we don't want to block innovations because they will make it harder for rivals. Competition forces them to work even harder to keep up, multiplying the benefits to consumers. Interestingly, Japanese industries—such as motorcycle manufacturers—that are most competitive internationally are those in which domestic rivalry is the strongest.

BENEFITS OF COMPETITION

There are many direct and indirect benefits of competition. To start with, look at any industry where there is a monopoly and you will notice how poor the customer service is and how little innovation is created and implemented.

Institutions like the DMV, utilities, IRS, etc., are all notorious for their lack of customer-centricity. As a direct result of this, the primary reason I am a AAA member is that in California, where I live, the AAA can perform many DMV functions for things like title transfers and vehicle registrations.

One of the best benefits of competition is the decrease in prices of goods and services. For example, laser eye surgery, which is not covered by most insurance, used to be extremely expensive. Thanks to competition, technology has been developed that has made it incredibly safe, efficient and affordable.

In addition to increased efficiency and productivity, competition leads to new genres of products and services, and new technology solutions. It allows new firms to enter into markets dominated by incumbents, as my Total Control Training company has been fortunate enough to do in states like California and Pennsylvania where we manage the state rider education programs.

One of the newer benefits of modern competition has been the creation of self-correcting economic ecosystems. In these user-biased structures, consumer ratings let the market decide who is trustworthy and which products work best over time based on volunteered feedback. Ecommerce giants like eBay, Amazon and Yelp make every user a stakeholder in the integrity of the platform.

DISRUPTIVE TECHNOLOGIES

One of the consequences of competition, especially in laissez faire capitalism economies, is the introduction of disruptive technologies. That is a technological innovation, product or service that eventually overturns the existing dominant technology or status quo product in the market. Some examples of disruptive technologies you may be familiar with include:

Status Quo: Mainframe computers
Disruptive Tech: Desktops
Status Quo: Gasoline vehicles
Disruptive Tech: Hybrid and electric
Status Quo: CDs and DVDs
Disruptive Tech: iTunes and Netflix
Status Quo: Film photography
Disruptive Tech: Digital imaging
Status Quo: Padded leather suits
Disruptive Tech: Viscoelastic body armor

The reason competition and the resulting disruptive technologies are so critical for progress is perhaps best summed up by something said to me several years ago by a state administrator of motorcycle safety programs: "If you don't have an open market for curriculum, you don't challenge your vendor to improve or be responsive to your needs."

So the next time you're comparison shopping motorcycles or gear (or anything else for that matter) in person or on your computer, tablet or smart phone, be thankful for competition. Take Soichiro Honda's words to heart… even if the only racing you're doing is placing an order with your online shopping cart. MCN

Lee Parks (MCN editor '95-'00) is author of Total Control: Performance Street Riding and proprietor of Total Control Training.

Inconsiderate Riders

I ADMIT TO having mixed feelings about group riding. I distinctly remember my wife and I going on our very first group ride, almost exactly 40 years ago. At the time, we found it quite exhilarating, though I'm honestly not sure why. It might have had to do with feeling accepted or being a part of something larger than ourselves. They say, "there's safety in numbers," but there is also a certain comfort in abdicating responsibility and giving over your free will to herd mentality.

No longer responsible for keeping track of the route or deciding on gas, restroom and meal stops, we join the other little fish in the school, carried along in the safe and serene bosom of brotherhood, with hardly a care in the world. When we arrive at whatever destination has been preordained, we are even shielded from the minor stress that might occur from having to interact with strangers.

The group typically walks together, sits together, eats together, and if on a trip that involves overnight stays, gets lodging in the same hotel, on the same floor, side-by-side. After dinner together, and before going to separate rooms for the night, they set a specific time and place to meet for breakfast the next morning, and probably even discuss exactly how to spend the next day together.

IF THAT SOUNDS negative, I'm not really trying to portray it in that manner. There are times when all of us—myself included—want and need the companionship, support and comfort that comes from such an arrangement. It is also true that as I got older, and for reasons once again that I am unsure of, I opted less and less for riding with groups, preferring either just my wife and myself, or entirely solo.

That may come at least in part from the fact that I spend months at a time as a tour leader. During these times it is my job to be responsible for dozens of riders, 24 hours a day, for weeks on end. Beyond even the responsibilities of leading a local club ride, during tours I am responsible for every route, hotel room, meal, and even the maintenance and repair of every bike, not to mention the transport of everyone's luggage.

It can become quite stressful, which may go a long way toward explaining my aversion to group rides once I'm back home, even though such rides don't place me in the same high-stress position. Still, when I am home and riding with friends, I find lately I'm a lot touchier about the foibles of others.

WE RECENTLY MET with a group at a pre-set place and time, to go on a casual lunch ride. Two minutes before departure we were informed one of the riders needed to immediately stop for gas. I was steamed, but tried not to show it, as six bikes waited while this inconsiderate rider filled up.

It so happened that all in this group were linked with communicators, which can be a blessing or a curse, depending on the circumstances. We weren't on the road for 10 minutes after our gas stop before one rider announced that his phone was ringing, and he needed to pull over to answer it.

I figured, "Let him pull out, get his call, and he can catch up later." Instead, the leader opted to pull the entire group over to the side of the road, where we cooled our heels for 15 minutes while this inconsiderate rider talked on his phone! Bad form for both the phone addict and the ride leader.

During the next 90 minutes, several inconsiderate riders ran stop signs and red lights, made illegal and dangerous passes and cut off other vehicles, to ensure they kept their place in the line of bikes. God forbid they should fall behind by a few hundred feet, or let another vehicle intrude between bikes.

Then, to top it off, I ended up with one of those inconsiderate riders with extra-loud pipes, directly in front of me. To make sure his uber-annoying and illegal exhaust was keeping him safe, he continuously blipped the throttle at every stop. Watching my windshield rattle from the sound waves, I nearly lost it. Only my wife's imploring kept me from pulling alongside to kick him and his bike over on their sides. Instead, I made some lame excuse to the leader over the comm and we left the ride.

Not all group rides are bad, some I enjoy immensely, but it seems that more frequently, too many riders are forgetting to bring along something called common courtesy. Do everyone a favor and don't be one of them. MCN

Fred Rau (MCN editor '91-'95) is author of Motorcycle Touring Bible and proprietor of Fred Rau Adventure Tours - FredRau.com.

OPEN ROAD > By **Dave Searle**

Sixth Sense

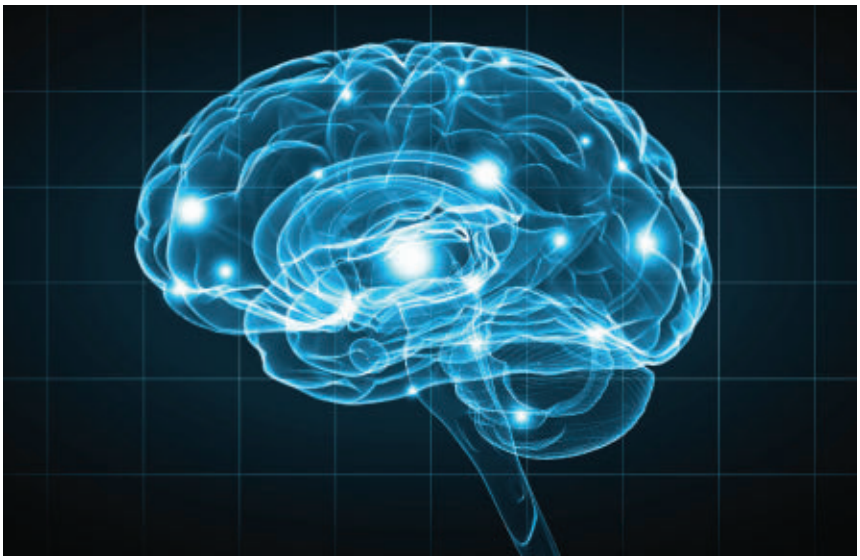
WE'RE NOT TALKING about spooky abilities like telepathy or clairvoyance. Rather, the normal and critical body awareness that enables each of us to cross a pitch-black room without falling, to pass a field sobriety test when we haven't been drinking, or to safely control a speeding motorcycle on a complex path with ever-changing velocities, turns, elevation changes and surfaces.

We all depend on this unconscious ability every day, when we ride or even walk, and we all recognize those athletes who have this sense to an extraordinary degree, like world-class racers, or freestyle snowboarders and other competitors in the Olympic Games.

Have you ever wondered exactly how it works? Some of the concepts in ABS and traction control technology share similar function. These motorcycle systems rely on miniature gyroscopes and accelerometers, arranged 90-degrees apart, to locate the motorcycle in virtual space so that calculations of its dynamic traction forces can be made.

Our body's vestibular system, located in the inner ear, uses the exact same design of three-axis (forward-back, side-to-side, up-and-down) position sensors and accelerometers to provide the feedback that our brains need to determine three-dimensional motion, equilibrium and spatial awareness.

VISUAL INFORMATION IS also critical. Even though we may still be able to walk in the dark, the information we receive through our binocular vision helps us to determine speeds, distances and the position of our extremities. A close relationship between our vision and vestibular systems begins at birth. It's thought that our visual sense is guided by our sense of movement when we are very young, and that later our vision begins to guide movement.



The sixth sense is primarily located in the cerebellum, which regulates smoothly balanced muscular activity, such as posture, balance, coordination and speech.

Vision is such a powerful sense, it can override the other senses, which might or might not be advantageous in certain situations. Processing visual information is the brain's primary job, occupying between half and two-thirds of its entire electrical activity. This suggests that the development of safe self-driving vehicles will surely require a tremendous amount of computing power, too.

If our vision is good, our brains compute accurate reactions to stimuli. If it's off, we can suffer in a variety of ways. A loss of equilibrium and dizziness in a motorcyclist can be lethal, so it's important to keep our vestibular and visual systems in sync. "Sensory integration" is the goal of most rehabilitative therapy after spinal injuries.

THE FINAL PIECE of the puzzle is our proprioceptive sense, coming from the sensors in our muscles and joints that enable our brains to create a virtual model of our body in space. Although this sense is perhaps the least well-known, understanding how it works is fascinating.

To determine how our limbs are flexed, we use sensors called muscle spindles, coiled protein structures deep in our muscle bundles that function as extension and velocity sensors.

Others in our tendons, called Golgi organs, sense muscle efforts, providing a sense of weight to objects we handle. There are others in the skin and joints, so our central processing units (brains) can determine things like the angle of our joints and how fast their positions are changing.

Although the term "kinesthetic sense" is generally interchangeable with proprioceptive sense, kinesthesia is more properly regarded as the conscious effort to control body movements, as in muscle memory, hand-eye coordination and sports training. It does not include the sense of balance.

We should be aware of how inner ear infections, over-the-counter drugs and many other substances can interfere with the sixth sense. We might feel a bit "off" but not understand why. For instance, an inner ear infection can reduce the vestibular system's contri-

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bution to balance, while our vision still supports it—unless we are in a pitch-black space. Common tinnitus, often the result of prolonged riding of motorcycles without ear protection, can also interfere with proprioception.

While it should go without saying, drinking compromises your sixth sense. Officers trained to conduct NHTSA's Standardized Field Sobriety Test correctly identify alcohol-impaired drivers more than 90 percent of the time. For the first of three standard sobriety tests, the police officer asks you to follow a point with your eyes. The officer will be looking for jerking movements of the eyes, indicating you are unable to smoothly follow a target—not safe.

In the walk-and-turn test, you are directed to take nine steps in a straight line, touching heel-to-toe, then turn on one foot and return the same way. The officer will watch for a loss of balance when listening to instructions, to see if you begin before the instructions are finished; if you stop to regain balance; step off-line; take an incorrect number of steps; or make an improper turn. If more than two false moves, there is a 79-percent chance your blood alcohol level is 0.08 or higher.

In the last test, you will be asked to stand with one foot approximately six inches off the ground and count aloud from one thousand until you are told to put your foot down (30 seconds later). The officer will be looking for swaying, hopping, using arms for balance or putting the foot down early. Two or more false moves predict a BAC of 0.10 or greater with 83-percent accuracy.

If you want to test your sixth sense, try the Field Sobriety Test!

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As defined by the NHTSA, the Standardized Field Sobriety Test, when administered by a trained officer, is legally admissible as evidence in court.

IT'S ALSO POSSIBLE to improve the sixth sense, to make motorcycle riding safer, faster or both. Performing balancing exercise with eyes closed is a good technique, isolating the vestibular system from visual clues. Yoga and Tai Chi are other methods that specifically work on smoothly controlling muscle movements.

Physical therapy offers many techniques to return injured or medically challenged patients to improved functionality and balance. While conventional weight training is a well-accepted method for improving athletic performance, even pro football players may take ballet lessons to improve proprioception.

In 2006, I attended BMW's factory off-road riding school in Hechlingen, Germany. Our mounts for the class were R1200GS models. Big bikes, to be sure, and I imagined they would not be easy to manage. But the first level of instruction was to ride these beasts in a crazy variety of odd positions: side-saddle across big mud bogs, standing on the luggage racks, on the seats—anything but in the normal seated position, which was strictly forbidden.

Having never tried such stunts before, it was a bit scary, but the effect of this drill was to quickly heighten our sense of balance to such a degree that the bikes became much easier to handle—a revelation I would have never expected.

This all dawned on me recently, after we purchased a new 4K high-definition television, and my inability to focus sharply on the bigger screen sent me looking for answers. After months of unexplained headaches and a worrisome sense of confusion combined with lingering sinus congestion, it turned out that I had both bad eyeglasses and a low-grade infection. Once remedied, I was back at my personal "normal"—much to my relief.

While it's interesting that the proprioceptive sense is often temporarily compromised by rapid body growth, particularly during adolescence, it is also important to recognize that it often degrades with age, as with so many of our youthful abilities. Don't take it for granted that your sixth sense is as sharp as it used to be. Chronic infections can also do permanent damage to senses that we motorcyclists desperately need.

WHAT CAN WE do to keep it sharp? Regular practice of balance exercises is a good place to start. Paying attention to posture, which can assist with acquiring a more accurate picture of our body's position in space, is another. Get a balance board, try Yoga, Tai Chi, or practice meditation, which inevitably helps to integrate our various subsystems into a better functioning whole.

When we don't feel our best, we should pay attention to what our bodies are telling us, rather than tough it out. We need our sixth sense to be safe riders. MCN

Dave Searle (MCN editor '00-'16) started freelancing for Road Rider in 1988 and became the technical editor of MCN in 1996.

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Vintage

This 1932 Indian Scout, in original, unrestored and rideable condition, was the People's Choice Award winner last year. It is an example of motorcycles that will be on display at Americade's Vintage Garage in Lake George, New York, June 5-9.

Vintage Garage Exhibit at **Americade**

The Antique Motorcycle Club of America will once again serve as host of the Vintage Garage Exhibit, June 5-9 at the 2018 Americade Rally in Lake George, New York. The Vintage Garage Exhibit has proven to be a popular attraction among Americade attendees since its inception. Visitors to the exhibit can expect to see machines from the early 1900's up to 1983. The display bikes are all in original condition or restored to original specification, and all are fully functional and rideable.

As the Antique Motorcycle Club of America is a home for all bikes vintage & classic, visitors will be able to see an eclectic mix of machines of all brands and models from around the world, and many will recognize bikes that they owned in their youth, as well as others that earlier generations of their family may have once owned.

Founded in 1954 by four enthusiasts, the Antique Motorcycle Club of America is dedicated to motorcycling history through the preservation, restoration and operation of old-time motorcycles by encouraging the adherence to originality in preservation or restoration of older motorcycles.

Additionally, the Club extends this interest to related documents, publications, accessories and riding gear. The Club is international in scope with 77 affiliated chapters located in the U.S., Canada, England, Europe and Australia. Each year the club is host to 16 national meets and a handful of national road runs. ***antiquemotorcycle.org***