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# 2014 IAMC Challenge Recap



*by Craig O. Olsen*

During the 2014 calendar year, 30 club members signed up to participate in the 2014 IAMC Challenge, and 19 participated by visiting at least one or more of the 45 sites. This past year the Challenge sites comprised mainly fire lookouts with some interesting water falls and lakes thrown in for variety. There were actually 42 fixed physical sites to visit with two others that were variable (picture of your bike in the snow and a water crossing). The 45th site consisted of posting an invitation on the club website of your own ride of which 8 participants posted an invite.

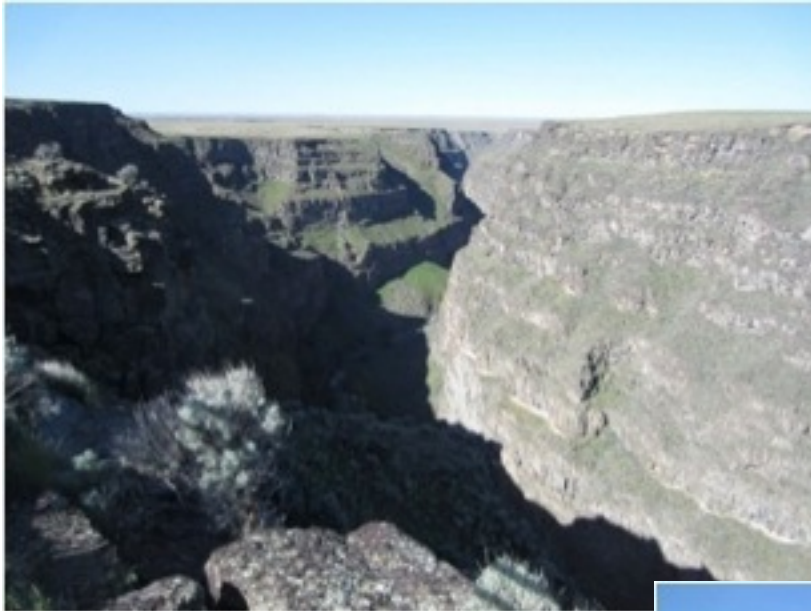
Of the 19 club members who participated during 2014, 9 who achieved the bronze tire level (10-19 sites visited) are Dan Driscoll, Dax Mickleson, Michael Hardy, Gary Kayser, Mark Englund, Robert Hammond, Chuch Scheer, Ron Schinnerer, and Ed Torrey. The three who reached the silver tire level (20-29 sites visited) include Jim Joprgenson, Rick Skinner, and Matthew Spurlock. The one club member who attained the gold tire level (30-39 sites visited) is Wayne Smith. Only one club member achieved platinum tire level (40-45 sites visited) - Craig Olsen.

We recognize all who participated in visiting last year's Challenge sites. A special thanks goes out to Rick Skinner who was primarily responsible for picking the 2014 Challenge sites. Three of the articles in this issue of the newsletter highlight the 2014 Challenge journey for some of the tire level winners.

# 2014 IAMC Challenge: A Room with a View

by Wayne Smith - 2014 Challenge Gold Tire Level Winner

The 2014 IAMC Challenge was another huge success and another great year to be riding the back roads of Idaho to visit the many challenge sites. This year I was able to visit, or get close to, 34 sites and logged close to 7,000 miles along the way. The sites I was able to visit lay in 4 different states and ranged in elevation from 750 feet at Palouse Falls State Park in southeast Washington to 9,265 feet at Mount Harrison Lookout in southern Idaho. Most of the sites this year were high elevation lookouts, so I had to wait for the snow to clear from these roads to visit many of these sites.



*Bruneau Canyon Overlook*

The road down to the river from this point looked like it would live up to its reputation of being rough and rocky. My GS 800 and Leland's KTM 990 are big, heavy bikes, and we knew this was going to be a challenge. I only dropped my bike twice on the way in and once on the way out, and I felt pretty good when Indian Hot Springs was finally checked off the list!

One of the first sites that I visited this year was #35 Indian Hot Springs. I found this site on Google Earth, and the roads looked pretty rough. This site is very remote, and after watching some of the YouTube videos, I decided this route may not be suitable for solo riding. I ask a friend if he was interested in riding with me on this trip, and he was more than willing. On May 4 the weather forecast looked good, so Leland and I set out for the desert south of Bruneau. We stopped at the Bruneau River overlook, and the view of the canyon was awesome. The GPS guided us south and west until we came to the rim of the canyon.



*Road into Indian Hot Springs*

The ride to Bell Mountain Lookout was another great ride. I have fly fished Silver Creek near Picabo for years and have always wondered how to get up in the mountains located to the north. While checking the route to Bell Mountain Lookout on Google Earth, I could see that Muldoon Canyon Road runs east from Bellevue and crosses a few miles of private land before entering the national forest and winds its way up a steep road to the top of Bell Mountain. I rode to Bellevue and headed east to what looked like an entry into a high dollar Sun Valley ranch, but the public road continued to the top of the ridge where Bell Mountain Lookout sits. At this point, I was looking down at Silver Creek and the entire valley surrounding that area. The view from this point was truly breathtaking. During the time that this lookout was operating, I'm sure the attendant working here would have agreed that this site truly had a room with a view.



*Bell Mountain Lookout, a room with a view*

The highest elevation of any of the challenge sites this year was the Mount Harrison Lookout at an elevation of 9,265 feet. On July 5 I chose the GS 1200 to ride to this site because it looked like the rode was good all the way to the top of Mount Harrison, and there would be a lot of highway miles traveled to get there. Riding south from Albion on Highway 77 to Howell Canyon Road, the road starts its accent past Pomerelle ski area and Cleveland Lake to the top of the mountain. I spent some extra time at the lookout just to take in the cool mountain air and views of the mountains and farm land that seemed to stretch for endless miles. From this point you could look south and see the City of Rocks area and Utah. The view in every direction went on forever. I have not spent much time in this area, but plan on coming back to do some exploring. There is a nice campground at Cleveland Lake, so in midsummer this area would be a great place to camp with the cool temperatures at this elevation.



*Mount Harrison Lookout*





*The view from Whitehawk Lookout towards Deadwood Reservoir*

from this lookout, his only reply was, "Yep." The view to the east of the Sawtooths and to the west of Deadwood Reservoir made me glad that I had picked this day to visit this site.

One of the most memorable trips of the year was a three day ride to the Island Park area with three challenge sites east of Ashton and then on to two more sites in Yellowstone National Park. I had been looking forward to this trip all year because it is such a great region to ride, so I plotted a route that took me through some areas of the state that I have never been in before. On August 22 the weather in western Idaho was partly cloudy with mild temperatures. I should have checked the weather forecast for eastern Idaho before I left, but what can go wrong in Idaho in August? I made my way across the state on the GS800 and discovered that eastern Idaho had experienced two weeks of rainy weather before I got there. The first site that I visited on this trip was Bishop Mountain Lookout. This was an interesting lookout because it is a steel tower rather than wood construction and is listed as a historic site. The road to this site was wet, but I made it to the site without a problem. That afternoon I went as far as I could legally go to Big Springs Lookout before being stopped by posting signs that read, "No entry for motorized vehicles."

The next site on my route was Warm River Butte Lookout which is east of Ashton. Sheep Falls and Cave Falls are also very close to this site, so I thought I could visit all three before dark and camp for the night at Warm River campground.

The ride to Deadwood Lookout and then on to Whitehawk Peak Lookout in late July was another memorable one because of the unexpected clear air and views. On July 26 the fires near Garden Valley were still burning but were mostly contained. The wind had shifted to the southwest, thus blowing the smoke toward Boise and away from these lookouts. I got within sight of Deadwood Lookout before coming to the locked gate. I then rode north past Deadwood Reservoir and back through Bear Valley and up the road to Whitehawk Peak Lookout. When I arrived, I got off my bike and the attendant came outside to investigate who had interrupted his solitude. I quickly learned that he was a man of few words. Mentioning to him that he probably had the best view in the world



*Muddy road on the way to Big Springs Lookout*



*Fall Creek Falls*

I started to ride up the dirt road to Warm River lookout, and the road was muddy but still decent for travel on two wheels. When I got within about a mile of the lookout it appeared that all was well until I came around a turn to find a very muddy stretch that looked like it was going to be a challenge. To make a long story short, I spent the night in the mud next to my bike that was laying in the road. The next morning I decided the only thing to do was put on my Superman cape and lift the bike up and ride it out. So I did. By the time I made it back to the asphalt, it was raining hard so I made the decision not to ride to Sheep Falls and Cave Falls because the roads that I had been on were muddy and getting worse. I had planned to cut across the Ashton-Flagg Ranch road to Yellowstone to visit Moose Falls and Jenny Lake but did not want to chance another mud encounter

while riding solo. I headed back to Idaho Falls on the highway with my tail between my legs, but when I stopped for an Egg McMuffin, it gave me new inspiration. By this time the rain had let up so I decided to visit Yellowstone and Fall Creek Falls by riding the highways. I rode in and out of the rain for the next day and a half but had a great adventure.

I took a five day ride with some friends near Stanley and Challis and got close enough to #15 Jureano Mountain Lookout. On this trip I visited two other lookouts in that area that were not on the list of Challenge sites for 2014. One of these is the Middle Fork Peak Lookout that lies about 27 miles as the crow flies southwest from Jureano Mountain Lookout. When we arrived there, I found a large nail stuck in my rear tire, which amazingly was not



*Middle Fork Peak Lookout*



*Nail in my rear tire*

flat. Not wishing to tempt fate, I road the next 30 miles to camp before I pulled it out, and unbelievably, no repair was needed!

The 2014 IAMC Challenge was a great adventure and I loved every minute of it. I don't think that a person can live long enough to ride all of this area in one lifetime. I can't wait for the 2015 Challenge to start.



## Some thoughts on my experience with the IAMC Challenge

by Rick Skinner - 2014 Challenge Silver Tire Level Winner

While get-togethers, dinners, club rides, education and events are fun, they are not what have kept me in IAMC over the years. The thing that has captured and held my interest in the club is the yearly Challenge. There's something about the Challenge that gets my pulse racing in anticipation each Spring. Kind of like a kid waiting for Christmas morning. I think it's the anticipation of the possibilities, 45 places to discover each year; that help to keep me focused and enthusiastic about riding. Would I ride and explore without the Challenge? Sure; but not as much.

I've had the opportunity to assist in putting the Challenge together the past couple of years. It has increased my appreciation for the effort and work of the club officers to pull the Challenge off. Finding 45 new sites year after year, that will be fun, interesting and accessible to every club member, can be a "challenge" in itself. Within the first couple of years of the Challenge, most of the favorite sites of the club officers had been visited, so each year it has become harder and harder to come up with interesting places from our "experience bank". This leads to choosing sites that none of us have visited before or haven't been to for many years. For me, that is the best part of the Challenge... not knowing exactly what the trail or road will be like. It adds to the adventure for me, but YMMV.

Do I always make it to every site? Nope. Do I and my bike always come back unscathed and unmarred? Nope. But for me, that is what I love about the Challenge. I have seen more of Idaho and surrounding states than I otherwise would have, and by trying to get to some of the more difficult sites, I have been forced to become a better rider. I have spent some time thinking about my five years of challenges and have come up with a short list; some of my favorite Challenge sites, from each year I've participated. Your list will be different and that is ok... **Ride your own ride, enjoy your ride...**



**2010 Jarbidge, Nv:** Neat old mining town near the Nv/Id border. You can chose to do this ride on 80 miles of gravel or mostly on Tarmac, great place to visit either way.



**2010 Trinity Lookout:** A fun ride, and that last corner with it's stair step ledge has a major pucker factor... views from the lookout are beyond awesome!

# IDAHO ADVENTURE MOTORCYCLE CLUB NEWSLETTER

January 2015

"Discover Adventure Together"

Issue #1



**2010 Battle Creek Ranch:** Waaay out in the Owyhee badlands, nasty muddy jeep trail of a road. I fell down so much I lost count. Total blast of a ride, because I survived it!...

**2011 Flint:** Hard to get to, but a very well preserved Owyhee Mountain's mine site



**2011 Black Rock Mine:** Up to this point, toughest trail I'd ever ridden, well worth the effort!

**2011 Louie Lake:** Ok, now This is the toughest trail I'd ridden... but what a grand ride!



**2012 Metropolis, Nv:** Cool old ghost town, tragic tale of water in the West and what happens without it...



# IDAHO ADVENTURE MOTORCYCLE CLUB NEWSLETTER

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**2012 Birch Creek Landing:** Remote Shangri-la on the Owyhee river, and great camping!



**2012 Cinnabar:** The best preserved mining town I've ever been to, and a beautiful spot, the road out the top to Monumental Summit is outstanding!

**2013 Josephus Lake:** A beautiful end to a great ride through the Frank Church Wilderness



**2013 Sheep Bridge:** We've all driven right by it a hundred times... but who knew it was there?

**2013 Alvord Playa:** On the way to Fields Or., you need a day here just to play!...





**2014 Indian Hot Springs on the Bruneau River:** The ride in here is epic... but with the right bike and some good friends, one you'll never forget.

**2014 Sheep Falls and Cave Falls:** In the Cascade Corner of Yellowstone park on Fall River. Not easy to get to, but worth it... hope you've enjoyed the Challenges as much as I have... let's keep em' going!!



# Sheep Falls: A Good Ride and a Wild Hike

by Craig O. Olsen - 2014 Challenge Platinum Tire Level Winner

During this past calendar year of 2014, I clocked nearly 14,000 miles on my motorbikes, and roughly half of that was made while visiting the IAMC Challenge sites. Many thanks to Rick Skinner for the 2014 list of challenge site - mostly fire lookouts with some interesting water falls and lakes thrown in to add variety.

For 2014, I was able to visit 42 of the 45 challenge sites. The only three sites I did not visit (and not for lack of trying mind you - I was stopped by early snow on October 21 trying to cross into Bear Valley from Landmark) were the three lookouts northwest of Salmon, Idaho, Jureano Mountain, Long Tom and Oreana lookouts. My hat (or maybe I should say helmet) is off to Ed Torrey, the only person from the club to visit these three sites, and to Wayne Smith who got within 6-7 miles of Jureano Mountain Lookout.



Demolition of the Bell Mountain Lookout (photo taken Oct. 16)

When I visited Bell Mountain Lookout in mid September, about three months after Wayne Smith's post, I was greeted to a view without a room! The lookout was in the process of being torn down. All that remained was a small 4 X 4 foot building with solar panels about the size of an out door privy, the functional purpose of which I am not sure.



Lone building on Bell Mountain

On September 16, I embarked on a three day journey to eastern Idaho and western Wyoming to pick up 13 challenge sites. During this 1,450 mile, three day, whirlwind trip, I visited what has become one of my most memorable challenge sites - Sheep Falls. It is not only a spectacular site located in a remote, hard to reach region of eastern Idaho, I had a most unusual journey getting there.

On the last day of my three day adventure I left Flagg Ranch Resort early in the morning traveling over the Anderson-Flagg Ranch Road through light rains, it having rained heavier the night before. The Garmin mapping software I used only showed a primitive forest service road off of the Cave Falls Road that stopped about a mile short of Sheep Falls, and the Benchmark maps did not shed any additional information on how to get there. I figured I could find a secondary route or trail once I got in the region. The road mapped by the Garmin software on my GPS ended in what appeared to be a crude turn around with space to park a few vehicles before I reached the end of the GPS route. This was about 1.5 miles as the crow flies from the falls. There was a trail leading out of there toward Falls River that had several fallen trees over it. It was not even suitable for dirt bikes, and I was on my KTM 990. So I started off on foot carrying the GPS by hand to guide me. After about 200 yards, the trail faded



out in a small clearing, leaving me to "bush whack" my own trail from there basically downhill through dense forest and brush towards the river. I had to skirt around several areas of denser bush and rock ledges to make my way in the general direction of Sheep Falls. It continued to rain lightly, and the ground was wet and slick.

When I was within about 2-3 hundred yards of the falls according to the GPS, I encountered another trail running parallel to Falls River leading west toward Sheep Falls. As I came around the last turn on this trail, Sheep Falls came into view, and I could see a jeep trail right next to Falls River that led east from Sheep Falls probably joining back somewhere to the primitive forest service road I came in on or to the Cave Falls Road further east of where I had come in.

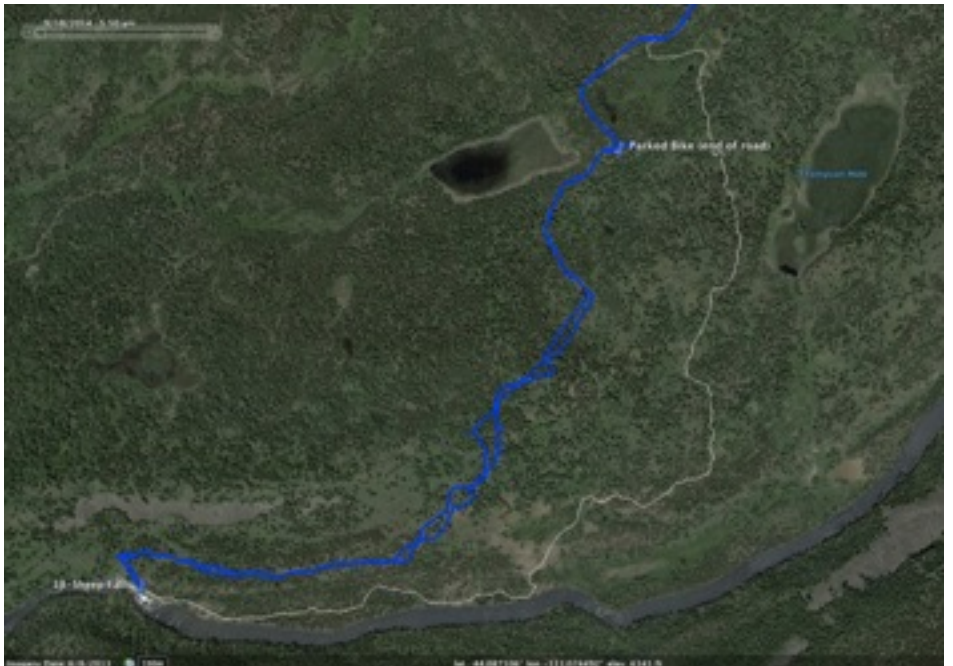


*Sheep Falls on Falls River*

Sheep Falls is singularly spectacular. Photos of it really don't do justice to how beautiful and majestic it is. The hike in was well worth it though it took me a little over an hour to go about 1.5 miles to get there making my own trail.

Coming back out was much more difficult, going uphill in heavy rain that lasted about 45 minutes of my two hour hike back to my bike. I had hiked in and out to the falls in my riding boots, which were thoroughly soaked by the time I got back to the bike. I suffered blisters on 8 of my toes as a result. On my way out I found the unmarked two track jeep-ATV trail to Sheep Falls coming off the road I had missed on my way coming in.

From there I made my way to Cave Falls and Warm River Butte, Big Springs, and Bishop Mountain lookouts that afternoon prior to riding back to Boise later that same evening.



*My hiking trail from the parked bike to Sheep Falls is shown in blue while the two track jeep-ATV trail seen on Google Earth is shown in white.*

***Editor's Note:*** The following article originally was submitted to the Wiki section of ThumperTalk.com by Sean Goulart, Contributing Editor, on October 29, 2014, and is reprinted here in full with his permission and permission of the publisher of ThumperTalk, Inc., Bryan G. Bosch. The article contains many good suggestions about riding warmer in colder weather and should stimulate your thinking about how to prepare for winter riding. By the way, if you are not already familiar with the ThumperTalk.com website, I encourage you to visit it. It is a tremendous repository of off-road and dual-sport riding knowledge on a wide variety of topics.

## STAY WARM! How to Ride Longer and Further Into the Season

*Submitted by Sean Goulart, Contributing Editor, ThumperTalk.com*

As the Summer turns into Fall and the leaves signal that snow isn't too far off, many riders will put away their bikes until Spring...but what if you could ride longer, squeezing in valuable seat time while Mother Nature does her best to convince you otherwise?

Whether you're an off-road, dual sport or street bike rider, we've spent some time talking to industry experts and experienced riders about how to gear up when it gets cold out.

### OFF-ROAD

Off road riders have a limited selection of gear to help keep warm when out on the trails or track. First off, when we ride motocross, we don't tend to wear anything extra gear-wise when competing because of the abundance of body heat generated. But there are still options for motocross/enduro/hare scrambles riders including goggles, thermals, gloves and socks. From top to bottom let's see what's smart.

#### Head and Face

When keeping your head warm, nothing works like a balaclava. I personally find these way too hot to wear while riding MX or trails but some riders swear by them. I'd recommend that if you try this method, you use the lightest weight balaclava that fits well under a helmet - like the Terramar ThermaSilk or Fair Isle Yowie (which can be used to make a number of garments like facemask, neck warmer, etc. and it won't freeze on you when you drool on it).

One good thing about these items is you can easily pull them down and out of the way if your core temperature gets too high...and the head is where a tremendous amount of heat will escape. Many times we've stopped as a group of riders and when the helmets come off, the rider's body heated moisture can easily be seen escaping off the top of the head.

While talking about your noggin, I've never seen anyone use a specific "winter helmet" for off-road riding, so you're on your own there, but I have seen some goggles that are specifically made to be used during the cold weather such as the Oakley Ambush Snow and the Smith Turbofan which has a small fan in the goggle (I've used these and they work!) These goggles feature anti-fog coatings and dual lenses, all designed to keep from fogging when you're riding. Remember that your breath is your enemy while riding in the cold, the differential between

the outside air and your heated breath is huge - and this makes any type of eyewear fog up, especially prescription eyeglasses...so try to use contact lenses if you have them.

## **Thermals**

This is one solution that seems to be popular among many riders and even some cold-weather racers and this segment is filled with many high tech products that crossover to other outdoor sports like skiing and snowboarding. It's important to use the right type and stay away from old-school cotton thermals...as they get wet and never dry out, making you even colder when you stop.

Most high tech thermals use polyester and nylon for wicking sweat away from the first layer of your body and also feature elastin and spandex to give some stretchiness. We suggest using the microweight or lightweight offerings only unless you're riding in the Arctic Circle.

## **Vests**

Riding vests have been around for years and because they concentrate warmth specific to your body's core area while not being bulky, they're very popular among the off-road crowd. Passive vests are the choice for motocross and off-road riders as they don't require a power source on the machine itself or any batteries. Some of the options here include the KLiM Torque and the Moose Expedition vest(s).

## **Gloves, Liners and Hand Guards**

Wearing a heavier, bulkier winter type glove just isn't an option when riding motocross, where you need precise control over your machine. To solve this, we use a glove liner with a regular non-vented motocross glove – both Under Armour and PolarTec have many selections in this regard and it's best you try them on before buying, as fit is important.. This provides the ultimate in control, but other riders tend to use a heavier glove made for this purpose like the Fly Racing Title Long glove or the KLiM Inversion Pro.

Stopping the wind is essential in keeping warm and hand guards serve that purpose as well as deflecting branches and protecting levers and controls. Look for larger hand guards such as the MSR Hand D-Flectors and if you want the ultimate in protection in this regard, look at a gauntlet type guard such as the Powermadd Star Series which features full coverage of your hands while operating the machine.

## **Boots and Socks**

I like wearing motocross boots and wouldn't consider wearing anything else while on my off road bike, and because of this I have a pair of boots that's one size larger than I wear in the cold weather. It's a bit larger to accommodate a sock liner and bulkier sock and still leave room for your feet to move around a bit in the boot... this is important to avoid moisture building up and also keeps the blood flow optimal to your feet, keeping them warm.

## **Heat Sources**

Some riders use a much more directed method of applying heat and this is through the liberal use of those little heat packs. These little bags of iron powder, water, salt, activated charcoal and vermiculite heat up through an oxidation process, and can produce heat anywhere from 100°F to 180°F for duration of up to 10 hours. Some riders use these items in their boots, gloves and I've seen riders using the heat belt type as well to keep their body core at optimal temperature.



## DUAL - PURPOSE and STREET

As opposed to motocross/enduro riders, when it comes to products to stay warm while riding your street and dual purpose bikes, the options are limitless...street riders tend to get much colder than off-roaders, due to the wind chill at higher speeds, coupled with the fact that they don't move around as much as off-road riders do. Wind is your enemy when riding on a streetbike, because it sucks away any heat you produce and is always working to cool you down. We can't look at every conceivable option, but from top to bottom let's see what's smart.

### Head and Face

Helmet fit is crucial when riding in the winter because wind tends to seep in everywhere when it's cold. We have a number of helmets here and we used two during this testing, one is the Bell Star and the other the ICON Airmada. While the Star is very lightweight with incredible venting, the air gets in everywhere...our Airmada is a tighter fit and just this small difference keeps out a lot of the cold air when we ride, so use the best fitting helmet you have in your arsenal to stay warmer and make sure the vents are closed when at speed.

Keeping your shield fog-free is very important and riders address this issue in a number of ways. Many shields come with anti-fog treatment applied but I've never found this to be very effective in the long term. I use the old fashioned Cat Crap anti-fog treatment on my shield and find it works excellent. Keeping your expelled breath deflected from the shield is half the battle and some helmets and balaclavas can work together to help with this with problem, so look for a higher nose piece on the interior of the helmet and a specific area where you expel your breath on the balaclava. Despite all these precautions, you may need to vent the mouthpiece of your helmet, or raise your shield manually when you stop.

We've read that some (insane) riders use a heated, dual visor snowmobile helmet and although this may sound comfy, we don't ride when the roads get ice on them so we just aren't in a position to test this out.

As described above, balaclavas are the "hot ticket" for this application and many models are available. We suggest you use the full length models with extra wind protection in the chest and throat areas as this is where you are the most vulnerable to the wind getting in as long as your helmet fits well. We've recently tried a few of these here at the office and we liked the Dainese Windstopper and for the ultimate head roaster, try the Arctiva Dickie, it extends well into the chest area.

### Thermals

When selecting some thermals for your street ride, we'd like to stress that those cotton old school thermals are not optimal as your base layer, but the new polyester/silk blends perform the important wicking functions that we know are important to stay in the saddle longer when it's freezing out.

We've used the KLIM Defender base layer with much success, staying toasty and warm even when the temps have hovered around 37 degrees (before wind chill is calculated). We also talked to riders who have been using the Dainese Map Windstopper Pants and they love them although quite pricey at almost \$100.

## Jackets and Vests

When looking at street and dual purpose jackets for the cold, we didn't find any significant differences so we'll group them together. One feature that rings clear again and again is layering of your jacket components, see end of this article for a better explanation.

We tested two jackets made specifically for cold weather riding they have different features and price points.

In the more economical category (under \$200) was the [Joe Rocket Ballistic Revolution Jacket](#). It's a two-piece water resistant jacket with a removable, water resistant insulated liner (we rode in the rain and it never leaked), armour in the back, shoulder and elbows, with a two-way main zipper with storm flap, nine pockets and lots of reflective stripes. It also has a MP3 port as well as a comfy fleece lined collar with a Velcro closure at the top of the neck. It has a lot of sizing adjustment belts and straps...many of our staff took a ride in this jacket and amazingly it was adjustable enough to fit all of our riders here and everyone liked it.

We rode in the freezing morning and evening cold, in the rain, the heat, you name it. This jacket stood up to all the bad weather (and good) that we could throw at it. The removable liner was the high point and made this jacket not only warmer, but addressed our layering concerns while providing a way to use the jacket when the temps rose...we just took out the liner and stashed it away.



Photo: Joe Rocket Ballistic Revolution Jacket

Next up was the [KLiM Overland Jacket](#) which was higher priced (under \$450) but also feature packed with some very high quality construction which didn't go unnoticed by our staff. It has a two-piece waterproof (as opposed to water-resistant) jacket that has a plethora of features and provides you with both your mid-layer and outer layer garment.

We used the KLiM Overland jacket as part of the layering system that KLiM recommended to keep us warm and dry. The Overland jacket was the most comfortable we've ever used for this application. The venting system on the Overland was very effective and incorporates two large vents both in the front and rear panels, reflective hi-

vis striping, CE certified shoulder, elbow pads and back protector. The multitude of weatherproof pockets wasn't as abundant in this jacket as others in the segment, but there is a very cool MP3 port in the chest pocket!



**Photo: KLiM Overland Jacket**

We rode in all different weather in this jacket, from 37 to 65 degrees and surprisingly it was never too hot or too cold. Only when we wore the Defender base layer in over 50 degrees did the sweat level outstrip the ability of the base layer to absorb.

The Torque insulated mid-layer jacket plays an integral part in the design and overall execution and doubles as a stylish jacket on its own. Many times we arrived somewhere and just removed the outer shell, keeping the Torque jacket on by itself and this proved very comfortable as well as convenient.



**Photo: KLiM Torque Mid Layer Jacket**



## Pants

Winter riding pants are one item that we didn't get to test extensively as the offerings are best paired with the correct jacket. Many jackets have matching pants that zip into the jacket and we'd recommend buying the jacket first with this feature in mind, as you can always add the pants later. Remember how important durability and waterproofing are in pants as they take a lot more abuse than jackets and are closer to the road spray, dirt, gravel and mud...so get the right pair for the job.

## Gloves

Passive gloves for cold weather riding are always a trade-off, you sacrifice control for warmth. In the past, the warmer the glove, normally the bigger it was. But this is changing quickly and there are many good options and techniques available today.

The first one we like is using glove liners paired with your everyday (not vented) street gloves. We've found this method to be very comfortable in moderately low temps. We've used the Fieldshear house brand glove liners with great success. You can also purchase heated glove liners that allow you to pack in even more warmth but we've never tried them so we can't comment on how much more effective they are.

The second method we like is a heavier winter glove with no electrics, like the KLiM Caldera or the [Racer Gloves Advanced Gore-Tex glove](#) which features new 2 glove-in-1 technology so you can dial in both your grip and warmth levels with 2 separate insulation chambers. The "grip" chamber puts insulation above your hand for warmth and feel. The "warm" chamber puts much more insulation around your hand to provide maximum warmth.

Another popular way to keep your hands is electrically heated gloves. These are all the rage these days and why not? They offer instant warmth when needed and both bike powered and battery powered models are available.

Talking with riders about these gloves and then some name keep coming up. Gerbing has been making this cold weather gear for over 30 years so it's safe to say they've figured it out. One glove that riders really like is the Gerbing EX glove. It's a 12 volt glove that is powered by your motorcycle and it heats up to about 135 degrees!

Another popular glove in this segment is the FirstGear Heated Carbon gloves offer a bit more racer styling with prominent knuckle protectors and these also are powered from your motorcycle.

One thing to keep in mind with these types of motorcycle-powered gloves is that using a heat controller is always recommended so you can prevent overheating and battery mishaps due to user errors.

## Vests

Riding vests are also available in passive and heated units. We prefer to use a passive system like the KLiM jacket with a mid-layer jacket as opposed to a vest. Why? Because we believe that although very warm, these vests tend to interfere with the airflow needed for correct sweat dissipation that is engineered into these jackets and this makes you sweat even more...and then get cold...then the vest gets turned up again. Some riders swear by them but we firmly believe that a well engineered jacket will keep you warmer and more comfortable for a longer period of time.

## Windshields

Sometimes one of the hardest problems can be solved by a most obvious solution. You want to stay warm? Then consider a windshield because when you want to stay warm you have to block the wind...and we don't mean one of those tiny sport windscreens that cover your gauges...we mean the big old Plexiglas things. Some riders just hate the look, but fairings offer a huge amount of protection from not only the cold wind, but rain as well, and staying dry is key to keeping warm...not to mention it's easily removable when it's warm out again.

Popular windscreens that are available include the Memphis Shades and SlipStreamer brands and most are priced at around \$150 - \$200 which is a real deal for the amount of protection they offer. Most come with simple mounting hardware and we easily installed one in under an hour. It's an incredible, immediate and dramatic improvement if you want to ride in the cold weather.

## Heated Grips

Another ingenious way to keep your hands warm is using heated grips. We first used these when riding snowmobiles, and it allowed us to ride using a thin motocross glove even when temps were well below freezing. And the same benefit can be had on your motorcycle. This technology is easily retrofitted to your bike and to see how they worked we tried out a pair of heated grips from Oxford Products, as many riders we spoke with use and recommend these units.

The model we used was the [Oxford Heaterz Premium Grips](#), which came as a complete kit ready to mount on our test bike. These grips come in every handlebar size and this model came with the integral heat controller which allowed us finite control over the grip temperatures. Installation was really easy, took about an hour and they work just like the stock grips, except they're toasty warm!

The units fire up and get warm almost as soon as you turn them on and it's easy to keep them right at the temperature you need, we even adjusted them while riding. They can get really hot if you don't pay attention (up to a claimed 122 degrees) so the controller is a must with this type of item.



Photo: Oxford Heaterz Cruiser Grips

We were impressed with the Oxford Heaters grips, they're rainproof and use a soft rubber for better feel, and on days that weren't as cold, we used a lightweight street glove for better control and less bulkiness with excellent results - our hands were never cold. Then when it did get colder, we switched to a heavier, gauntlet type glove which also worked out perfect. This is a highly recommended item for anyone serious about riding in the cold weather.

In conclusion, there are a myriad of products available to keep you warm while riding and to help you ride longer into the season no matter what your budget. Layering is the key. We never recommend riding when temps are close to or below freezing as black ice is a huge danger and always remember to stay extra vigilant for obstacles, as cold tires don't grip like they do in the Summer.

## **Primer: Layering and Why It's Important**

In the past, keeping warm was an exercise in putting on as many warm clothes as you could and still reasonably operate your motorcycle. This method has huge drawbacks such as overheating, no sweat dissipation, bulkiness and weight, not to mention it is wholly ineffective for riders in any discipline. But this has all changed as space age fabrics and techniques have proven that layering with intelligent fabrics...

Mark Kincart from [KLiM](#) gave us some advice about layering in the winter and staying warm using their Overland jacket. Layering in the winter and staying warm is all about transportation of the bodies sweat off the skin. You sweat even when it's cold. So the first "Defender" base layer is your transport layer. When you look at the fabric on the inside you will see raised pillows of material. These allow circulation of air and provide a large surface area for the moisture to transport off the body."

Once it's pulled into the garment and off your skin you set it up to be evacuated through the "Torque" mid layer provides loft and insulation for the really cold days. This provides not only breath ability through the jacket but the ability to control the heat loss through venting which happens to line up with the venting on the outer shell.

Last is the outer layer comprised of the actual waterproof jacket (Gore-Tex shell).

High-humidity air between your skin and thermal is always trying to escape to somewhere cooler. The wicking action happens when sweat and moisture move across top the fibers but not absorbed...it escapes to the outside through the tiny holes in between the fibers.

So remember, don't just stack up clothes on top of clothes without thinking about where the heat and sweat will go...and how you'll get rid of it. You have to get that sweat off your skin and clothes...and then dry it by venting to the outside.





DUNLOP RALLY RAID 908



MICHELIN T63



KENDRA 270



DUNLOP 606



# TIRES



*by Ryan William Cantrell*

## The Basics

Tires are where the rubber meets the road in adventure riding. The right set of tires can be the difference between your adventure coming to fruition, or you being forced to tuck-tail and head home early. I've seen the right set of tires propel heavy bikes up steep, unexpected detours, and I've witnessed the wrong set of tires lead to dropped bikes and cracked ribs during an unexpected downpour.

If you've been riding a while, you've probably got some hard opinions about the rubber you put on your bike. If that's the case, this article probably isn't for you. However, if you're not one who changes your tires like you change your underwear, then you may appreciate some advice about an important part of your adventure planning.

Here are some basic things to consider:

- . The softer the tire compound, the better grip you're going to get, but you'll log fewer miles between tire changes.
- . Wide open lug patterns will get you great traction on the dirt, but you'll burn through them quicker - especially if you're trying to run pavement between the dirt stretches.
- . Heavier bikes, especially those with more horsepower, are going to burn through rear tires quicker.
- . If you're going to make compromises with your tires, make sure you're making informed decisions. Don't let your pocketbook be the sole decision-maker for you.

- . As with so many things in life, you often get what you pay for.
- . Better traction = less fatigue. When you choose a tire that's right for your bike, your body expends less effort getting the bike through repeated corners encountered on the trail. This means that throughout the day, you're using less energy to keep the bike upright and on track.

## Finding the Right Tire for You

I'm as cheap as they come - ask anyone who has shared some trail time with me. That being said, I've also had to head home early from a ride more than once, because I made a poor choice in my tire selection. In one particular instance, I purchased a rear Metzeler Karoo 2 for my KTM950 because it was on sale for a price too cheap to pass up. I *knew* I'd be pushing it to try and run a tire with such a soft compound, on my upcoming 1500 mile trip... and I was right. After less than half the distance of the trip, the tire was toast, and my ride was prematurely over. It was a painful lesson for me, and one I never forgot.

When considering what tire best suits your need, consider the following factors:

- . The weight of your bike. Heavier bikes burn through tires quicker because they're managing more mass.
- . Are you usually carrying luggage for a trip, or are you just doing day rides?
- . Your riding style. Do you stop to smell the roses, or do you slam the cowbell like me?
- . What can you realistically afford?
- . How many miles are you putting on your bike this summer?
- . What are the *expected* conditions for the riding surface of your adventure *and* what's the worst-case scenario of what you could encounter?
- . Are you more interested in durability, or affordability? Expensive tires like the Rally Raid 908 last a long time but cost \$200 up front. Inexpensive tires like the Kenda 270 cost less, but are replaced more often.



Metzeler Karoo



Avon Gripster



Pirelli MT21

- . Wider lug patterns like those on the Dunlop 606 give you superior dirt traction, while the patterns and compound of the Avon Gripster will provide maximum longevity at the sacrifice of dirt traction.
- . Are you okay with predictable sliding when you're cornering on dirt, or do you want it to stick like glue?
- . What are the sidewalks like? Will they buckle under hard cornering, or hold fast under the pressure?
- . What's the ratio of pavement to dirt that you're expecting?
- . How will the compound and lugs hold up to the sharp rocks and gravel where you're traveling?

## Where to Buy

I love supporting our local businesses any chance I get: Big Twin, Carl's Cycles and Happy Trail are examples of local businesses that support our Dual Sporting community. A quick Google search can help you locate others in our area. When you buy local, you're not only supporting our local businesses, but you may also be saving on shipping costs. Additionally, most of the guys behind the counter ride our areas and can give you reliable advice about matching your next tires to where you're planning to ride.



On the flip side, buying online means you have a wider selection, and you can shop the sales. There are countless sites to choose from; some of the sites I've been impressed with over the years include:

- . Rocky Mountain ATV
- . Dennis Kirk
- . Motorcycle Superstore
- . Amazon Prime

## Closing Thoughts

DOT (Department of Transportation) versus non-DOT tires is a popular debate, in any dual sport forum. Non-DOT tires are usually less money, provide more traction but don't last as long. DOT-approved tires are tires that are approved by the DOT for highway use, meaning that they stand up to constant high speeds on pavement, high temperature conditions and are safe for heavy bikes. I won't give you any recommendations one way or the other - that decision is yours alone to make. But, I will speak from my own personal experience and say that I've run many non-DOT tires successfully on my XR650R, the KRL650 and other mid range bikes. However, when it came to the KTM950, I stuck to DOT-approved tires due to the excessive heat generated by the weight and power of the big bike.

My personal philosophy is that I want my front tire to stay put in a corner, but I don't mind if my rear tires provides a predictable slide. I often run a very aggressive, non-DOT tire in the front of my bike, while running a less aggressive and more durable rear tire (I rarely run the same brand or model tires front and rear). Running 18 psi in the front, and 21 psi in the rear will leave enough give for your knobs to do their job, without worrying about bending your rim on the unexpected rock in the trail. Again, do what you're comfortable with, and what you feel safe doing based on your bike, your skill sets and any local law/regulations in your area.



# IDAHO ADVENTURE MOTORCYCLE CLUB NEWSLETTER

January 2015

*"Discover Adventure Together"*

Issue #1

Conditions change rapidly. If you're going on a 1,000 mile dirt adventure, plan to hit snow, rain and mud - and choose your tires accordingly. It's always painful to watch your riding partner drop their bike repeatedly in the mud, because they assumed the trip would be dry and the snow had already melted off the passes. Planning for the worst case scenario can help ensure that your trip remains enjoyable, despite changing conditions. Don't undervalue your tires. They're what keep you connected to the path you're traveling. Choose the tire that's right for you, and let your efforts and energy be spent enjoying the trail and the views.

## Winter Bike Maintenance

by Dax Mickelson

The following article is a recompilation of the winter maintenance tips sent to me from the experts over at Big Twin Motorcycles. So enjoy learning, or being reminded, about how best to maintain your motorcycle over the cold winter months so that it will be in tip top shape come next riding season!

### Clean & Shine



Washing, waxing and polishing the motorcycle might seem like a waste of time since you are putting it away and no one will see it. But applying wax is a very important part of storing a motorcycle. Wax will act as a barrier against rust and moisture.

Don't forget to spray any other metal surfaces (such as the frame or engine) with a very light spray of WD-40. This will keep these areas shiny and protect from corrosion as well.



### Fuel

Gas tanks have a tendency to rust when not in use, and untreated pump gas breaks down and becomes gummy over time. To prevent rusting and make sure your fuel is ready to run after a few months in storage, you'll want to fill the tank with fresh fuel, but do not overfill. The correct level is when the fuel just touches the bottom of the filler neck. This gives enough room for the fuel to expand without overflowing the tank when temperature rises and treat your fuel with a product like Star Tron Fuel Treatment or Sta-bil fuel stabilizer



### Battery



Batteries have a tendency to self-discharge when sitting over time, especially when they remain hooked up to the bike. The easiest way to combat this is to hook up a battery tender to monitor the charge and keep the battery topped off without overcharging. Normally you should pull the battery from the bike for storage, but with a smart tender you can also connect the tender with the battery left in the bike. Before doing this, make sure the electrodes are clean and corrosion free. If necessary, clean them off and give them a light coating of grease.

## Tires

Check both front and rear tires with your air pressure gauge. Make sure each tire is properly inflated to the maximum recommend pressure. As it gets colder, air condenses in your tire so it is important to pump them up as to keep your tires healthy. Rubber is a flexible material and does not like to freeze (it cracks when it freezes). Placing 1/4"-1/2" piece of cardboard, carpet or wood board under each tire will help keep the rubber raised up from a freezing floor. Better yet, elevate bike on a stand such that the tires are not bearing any of the weight of the bike.



## Resources

1. Store Your Bike Rights This Winter. <http://www.americanmotorcyclist.com/Riding/Street/Resources/StoreYourBikeRight.aspx>
2. Winter Storage for Motorcycles. <http://www.clarity.net/adam/winter-storage.html>
3. 7 Ways to Keep Winter from Trashing Your Ride. <http://blog.esurance.com/motorcycle-storage-7-ways-to-keep-winter-from-trashing-your-ride/#.VHjv4daVGvM>
4. Ten Simple Steps to Winterize your Motorcycle. <http://www.bikebandit.com/community/guides/how-to-winterize-your-motorcycle>



# What about Your Helmet?

by Craig O. Olsen, M.D.

Few topics in the USA motorcycle community at large have generated more impassioned debates than those over mandatory motorcycle helmet laws.[1-2] Fortunately, this seems to be a non-issue in the dual-sport and dirt bike riding community. I have never been on a dual-sport or dirt bike ride where a single rider did not wear an appropriate helmet, let alone question the necessity to do so. However, it is not my intent to debate this issue, one still wonders, where did it all begin?

## Brief History of the Motorcycle Helmet



*Daimler's 1885 Reitwagen (ride wagon)*

To answer that we need to go back to origins of the motorcycle. While the first gasoline-driven two-wheeled motorcycle was invented by Gottlieb Daimler in 1885, the first motorbikes were powered by steam engines and were built in 1867-8 by Sylvester H. Roper in Roxbury, Massachusetts and Michaux-Perreux in France.[3-4, 6] Gottlieb Daimler, however, is credited with developing the first motorcycle helmet, "a leather cap with fur lining" that offered little real protection. [5]

In 1914 Dr. Eric Gardner, the medical officer at the Brooklands race track in Weybridge, England, noted a motorcyclist with head injuries about every two weeks. He had helmets made from shellacked canvas that were "stiff enough to stand a heavy blow and smooth enough to glance off any projections it encountered." The Auto-Cycle Union, the governing body for motorcycle sport in Great Britain, made these helmets compulsory for the 1914 Isle of Man TT races. One rider in that race who hit a gate with a glancing blow was saved by the helmet. The medical officer for the Isle of Man TT races commented that

following the TT they normally had several interesting concussion cases, but in 1914 there were none.[7]

The next milestone occurred in May 1935 when T. E. Lawrence (also known as Lawrence of Arabia) crashed his Brough Superior SS100 on a narrow road near his cottage adjacent to Wareham, England. Swerving to miss two boys on bicycles, he lost control of his motorcycle and was thrown over the handlebars, suffering serious head injuries from which he died in a coma after six days in hospital. Following Lawrence's death, Sir Hugh Cairns, one of Lawrence's attending physicians and a neurosurgeon, began a long study at Oxford of injuries to motorcycle dispatch riders and concluded that the adoption of crash helmets as a standard by both military and civilian motorcyclists would result in considerable saving of life.[8] While his recommendations were adopted by the British military for its DISPATCH riders during World War II, it took 32 years before motorcycle crash helmets were made universally compulsory in the United Kingdom.



*Lawrence on his Brough Superior SS100*

In 1953 C. F. Lombard, a professor at the University of Southern California, developed and applied for the first motorcycle helmet patent in the USA. This helmet was designed to absorb the shock of an impact. It consisted of a layer of comfort padding coupled with an outer layer of padding that not only absorbed, but spread out the energy created by impact. This was the beginning of the modern-day motorcycle helmet, and helmet manufacturers quickly followed Lombard's lead.[9]



Perceiving a need for improved safety in the auto racing field, Roy Richter founded BELL in 1954 that started by manufacturing protective headgear for auto racing. In 1957 Bell introduced the use of a non-resilient polystyrene liner with a hard outer shell. That same year Bell began supplying helmets to law enforcement agencies for their motorcycle patrolmen. In 1968 BELL introduced the first full-face helmet, the Star, for auto racing, and in 1971 they developed the first full-face motorcycle helmet and first full-face off-road motorcycle helmet.[11]

1968 Bell Star Helmet (the first full-faced helmet)

## Standardization of Motorcycle Helmet Design and Performance



Helmet Testing has come a long ways since this 1912 football helmet test.

The death in 1956 of William "Pete" Snell, a popular amateur auto racer, from head injuries during a race that his helmet failed to prevent led to the formation of the Snell Memorial Foundation the following year.[10] A group of Pete's friends, colleagues and fellow racers including Dr. George Snively, formed this foundation for the purpose of improving the design of truly protective helmets. Dr. Snively, who was the principal architect of the Snell Memorial Foundation, had already been interested in helmets and crash injury protection. With the support and encouragement of the Sports Car Club of America he intensified his efforts, and within a few years the newly incorporated foundation published the first Snell standard for protective headgear. Over the next



William "Pete" Snell

twenty years, Snively continually revised this standard upward demanding more and more protective performance from the helmet industry. Joined by the support of a considerably larger motorcycling public, Snively got that improved performance.

Today, the Snell Memorial Foundation tests various kinds of helmets, as well as publishes standards for and certifies them for use in prescribed activities including automotive racing, karting, motorcycling, bicycling, non-motorized sports, harness racing, equestrian sports, competitive skiing and snowboarding. The Snell Foundation evaluates each helmet model in seven areas and specifications that include 105 degrees of peripheral vision from the midline, impact absorption testing using a free-fall drop test from a fixed height with a head form in the helmet to measure impact energy transferred to the interior of the helmet (five different anvil shapes are used in

this test), protection by the helmet shell from penetration, strength of the chin bar for full-face helmets to resist deflection, positional stability to see if the helmet tends to "roll-off" the head form, retention system strength of the chin straps to resist breakage and deflection, and penetration resistance of the face shield.[13, 15] The Snell motorcycle helmet certification standards (currently SNELL M2010) are voluntary and are more stringent than those for the mandatory US government department of transportation (DOT) certification.



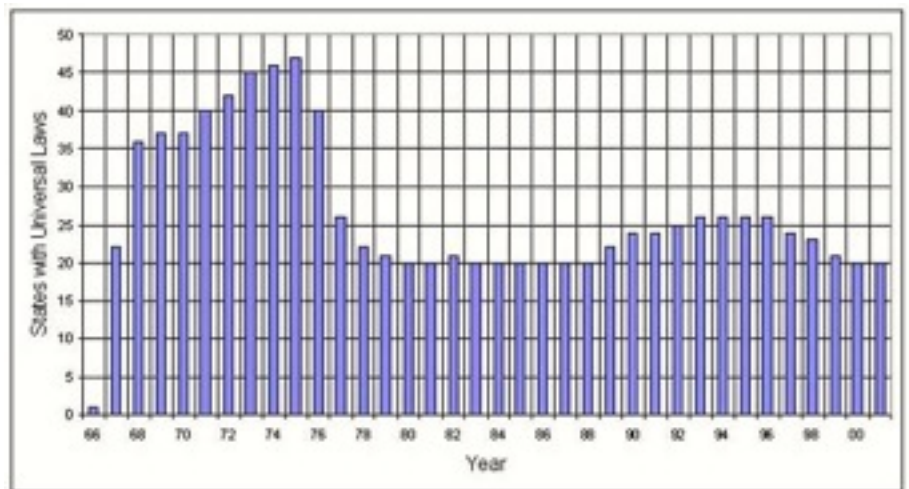
Snell Certification Tags (beginning to present)

Helmet manufacturers voluntarily submit their products to the Snell Memorial Foundation for certification, and if their helmets pass the demanding series of performance tests, they are invited to enter into a contract with Snell that entitles the manufacturer to use the Snell name and logo on their packaging and in their advertising. Under contract the manufacturer is required to maintain their high standards for all of their certified production, and verification is achieved through a random sample test program (from the same helmets sold in stores), thus continually monitoring the quality of helmets sold directly to the consumer.[15] The Snell Memorial Foundation updates and improves their testing standards approximately every five years.

With the passage of The Highway Safety Act of 1966 the Secretary of Transportation was required to set uniform standards for state highway safety programs. One of those standards, issued in 1967, dealt with motorcycle safety and required that states adopt universal helmet use laws, mandating helmet use by all motorcycle riders. States failing to comply would lose a portion of their federal-aid highway construction funds. Prior to 1966, no state had enacted a motorcycle helmet use law. By 1975, 47 states and the District of Columbia had adopted universal helmet use laws.

In 1975 Congress revisited the Highway Safety Act and eliminated the motorcycle helmet law requirement and withdrew the potential withholding of funds from states without such laws. As a result, many states reconsidered their laws, and by 1980 28 states had repealed their universal helmet laws or amended them to cover only riders below a specified age (typically 18).[12] The State of Idaho had a universal motorcycle helmet law from January 1968 until March 1978 at which time it was amended to only cover riders less than age 18.

Under universal helmet laws, most states experienced 20 to 40 percent lower fatality rates than during periods without laws or under limited laws. Motorcycle helmets also reduce the risk of head injury by approximately 70 percent. Numerous studies have shown that helmets do save lives and significantly reduce fatalities from head injuries sustained in motorcycle accidents.[12, 17-18] The single most effective piece of motorcycle safety equipment in preventing motorcycle crash fatalities is the motorcycle helmet.



Number of States with Universal Helmet Laws

The Department of Transportation formed by the National Highway Traffic Safety Administration in 1966 announced in 1972 a draft motorcycle helmet standard, the Federal Motor Vehicle Safety Standard 218 (FMVSS 218), that took effect in



1974 requiring all motorcycle helmets sold in the US to meet certain minimum safety standards. These standards were taken from the 1971 American Standards Institute standard Z90.1. Only slight changes have been made to the FMVSS 218 standards over the years with the most recent implemented in May 2013. The FMVSS 218 sets standards in four areas of helmet performance: impact attenuation (basically energy absorption), penetration resistance, and retention system effectiveness (how well does the helmet stay on the head during a crash). The standard also requires peripheral vision to be no less than 105 degrees from the helmet midline, and projections from the surface of the helmet (snaps, rivets, etc.) may not exceed 5 mm.[12-13]



DOT Certification Sticker

The National Highway Traffic Safety Administration does not test helmets against the FMVSS 218 standards before they can claim DOT certification; rather, each helmet manufacturer marketing their helmets for road use in the United States must test and self-certify the models they want to sell and then affix the "DOT" emblem signifying compliance with FMVSS 218. While helmet manufacturers are on the honor system for certification of their helmets, the standard is enforced by acquiring random samples of the product and sending them to an independent testing lab for verification of compliance. Helmet manufacturers can be penalized for marketing non-compliant products - up to \$5,000 per helmet.

The most commonly used motorcycle helmet standard internationally comes from the Economic Community of Europe as ECE 22.05. It is required by 50 countries worldwide and is similar to the DOT standard in testing for peripheral vision through an arc of 105 degrees from the helmet midline, impact absorption testing, retention system testing, and chin strap buckle system testing for slippage. Additionally, the ECE 22.05 standard tests for abrasion resistance of the helmet surface, assessment of rigidity of the helmet shell, and performance of the visor; but it does not include test for penetration resistance. This standard requires mandatory batch testing of helmets before they are released to the riding public, rather than random testing after thousands of helmets with unknown quality are delivered to the dealers.[13, 16] Helmets certified to the ECE 22.05 standard are approved for competition events by AMA, CCS, FIM, Formula-USA, WERA and MotoGP.



ECE 22.05 Certification (DOT also)

Is one standard better than another and what should you look for when purchasing a new helmet? Even though the Snell standards and some of the ECE 22.05 standards exceed those of DOT, there is no real evidence that they protect the head any better in a crash situation than a DOT certified helmet. Despite the DOT standards being old, they have "the right stuff" in that their tests correspond to the 90th percentile of all motorcycle accident impacts. The DOT standards can be enforced very strictly and the results of testing are repeatable.[18-19]

## What to Look for When Purchasing a New Helmet

First of all, make sure that the motorcycle helmet you are considering is DOT certified. Additional certification by Snell or ECE is optional depending on your desires. The National Highway Traffic Safety Administration periodically publishes the results of its compliance tests, so that you can check to see which helmet manufacturer and helmet model passes or fails their certification.[25] You can also check manufacturer's helmet brand and model for compliance at [Helmetcheck.org](http://Helmetcheck.org). [26]

Full-face helmets provide the most protection to your head and face both while riding and if involved in a crash. Wind drag and wind noise are also less with full-face helmets compared to open-face helmets. Both of these features add to a quieter more comfortable riding experience.[20] Quieter riding is not only more comfortable, it

is safer. Increased riding noise (wind, engine and road noise) over time is additive to riding fatigue that leads to rider error thus increasing your riding risk. Hearing protection should always be used when riding regardless of how quiet the helmet is, not only to protect your hearing, but to decrease riding fatigue.[23-24]

There are four key components of a modern motorcycle helmet that work together to protect you when riding: hard outer shell, crushable EPS foam lining under the shell, comfort lining (padding) next to your head, and chin strap. The helmet's thin rigid outer shell protects your head from abrasions and puncture wounds. Most shells are made of strong lightweight plastics or fiberglass composites. Some are made of advanced, lightweight materials such as Kevlar or carbon fiber. The thick EPS foam lining under the shell is made of expanded polystyrene that is lightweight and crushable, protecting your head by absorbing, spreading and reducing the high-impact energy that otherwise would traumatize your head and brain in a crash. The helmet lining (padding) surrounding the interior of the helmet holds your head and creates a snug comfortable fit desirable in a motorcycle helmet. Some helmets have removable, variable-size cheek pads as part of the lining, thus allowing you to fine-tune your helmet's fit. In most helmets these linings can be removed and are washable, allowing you to keep your helmet clean. A sturdy chin strap that cinches down with a pair of D-rings holds your helmet in place. Some helmets have quick-release latches, but most rely on D-rings.[21]

A fifth component found on most full-face helmets is the face shield that not only lets you see the road, but keeps stuff on the road from bouncing up and hitting you in the face. Good shields are made of polycarbonate and are tested for penetration resistance.

A few special features to look for in a full-face helmet include:[22]

1. Face shield that is easy to remove and replace.
2. Eye port that is amply high and wide.
3. Helmet liner and cheek pad sections that are removable and can be washed.
4. Sufficient room for eyeglasses and sunglasses.
5. Cheek pads that are variable in size.
6. Air vents that effectively keep you cool, prevent face shield fogging and can be easily operated while wearing gloves.
7. Chin strap fastener to secure the loose end of your chin strap after it is cinched down (also easy to connect while wearing gloves).
8. Room for speakers if you use an in-helmet communication or sound system.
9. Chin bar skirt to prevent turbulent wind from swirling up into your helmet from below (these may be optional and can be detached).
10. Breath box inside the helmet to seal the area around your nose and mouth to prevent condensation from forming on your face shield, as well as protecting your face from extreme cold (these also may be optional and can be added to or detached from an existing helmet).
11. Visor anti-fog inner shield inserts can help prevent moisture build-up and fog on the inside of a helmet's face shield.



*Helmet chin skirt*



*Helmet breath box*



*Helmet anti-fog insert*

Off-road motorcycle helmets offer the same degree of protection as full-face street helmets, but many of them will not have built-in face shields. Some will have integrated goggles to be worn with the helmet. When considering an off-road helmet, many of the same features listed above will be important. Since these types of helmets are prone to more minor damage from flying rocks and low-hanging branches, look for ones that have replaceable, scratch-resistant parts. Off-road riding is physically more demanding than highway riding, so a good ventilation system to keep you cool and comfortable is even more important.

## How to Make Sure Your Helmet Fits Right

Regardless of how well designed your helmet is, if it does not fit properly, it will not adequately protect your head and may significantly detract from your riding experience. Know your head shape and determine which manufacturer's helmets best fit your shape. Head shapes are grouped into five basic categories: round, oval (the most common American head shape), earth (somewhat wider in the middle near the temples), egg (wider at the top and narrower at the bottom), and reverse egg (narrow at the top than at the bottom). Generally speaking, one manufacturer's helmets will fit your head better than another. Even the same helmet size will fit slightly differently from model to model among the same helmet brand.

The key is to make sure the helmet fits snugly but not uncomfortably. Loose helmets are noisy due to the wind rushing past your ears while those too tight will be an annoying distraction and cause headaches. A lighter weight helmet will add less stress to your neck than a heavy weight one. Helmets with new carbon fiber compounds have significantly less overall weight.

These key points will be helpful when trying out a new helmet:[22]

1. A helmet that fits right will be tight as you pull it on due to resistance from the foam padding inside.
2. A helmet that pulls on too easily will not fit snug enough to stay put or block out wind noise.
3. When trying on a helmet that fits properly, its entire inside comfort liner will make contact with your head.
4. A full-face helmet should grip your cheeks and jaw as well as the top and sides of your head.
5. A feature on some full-face helmets is removable cheek pads allowing you to try different pad sizes to fine tune the helmet's fit.
6. A helmet should surround your head with even pressure without causing "hot spot" pressure points.
7. A snug helmet is better than a loose one because the inside padding will settle and compress as it molds to your head.
8. A helmet should seal in but not pinch your ears.
9. A helmet should remain snug, stable and in place when you shake your head vigorously up and down and side to side.
10. Your skin and cheeks should move with the helmet when you try to twist it on your head.
11. Your nose and chin should not touch the face shield.
12. The face shield should seal all the way around the helmet opening.
13. The face shield should operate easily and remain in position when completely or partially raised.
14. The face shield should not contain areas that distort your view.



*Roll-off test (chin strap secured)*

Make sure the helmet remains securely on your head when the chin strap is snugly fastened. Perform a roll-off test (with the helmet on your head and chin strap securely fastened) by grasping the helmet's rear lip where it touches the back of your neck and then lifting up and rolling the helmet forward off your head. Continue pulling until your tugging becomes uncomfortable. If the helmet comes off or displaces significantly forward, you should continue searching for a helmet that stays put.

One last test before you purchase your new helmet is to put it on with the chin strap fastened and wear it for at least 20-30 minutes. If the helmet becomes uncomfortable in any way (pressing against your forehead, top of your head or pinching your ears), try different cheek pads or a different helmet model or brand.

Keep in mind regarding safety that it is important to make yourself highly visible to other drivers. A bright colored helmet is probably one of the best attention grabbers going for you when it comes to alerting other drivers of your presents on the road with them.

## How to Care for Your Helmet

Some useful tips to care for your motorcycle helmet and extend its life are summarized here by Brian Weston of Arai Helmets:[27]

1. After each ride, wipe the helmet's liner out with a damp cloth to remove any excess sweat or road grime from the surface.
2. When storing your helmet, even for short periods of time, keep the shield open and place the helmet on a slotted shelf, so air can flow freely and prevent odor buildup.
3. If your helmet is stored in a garage, where cats and dogs as well as other rodents could foul it, put it in the cloth sack that it came in (air will still pass through), and put it on a high shelf away from pets. A used dryer sheet, one that has 95% of the scent gone, placed in a helmet will help absorb odors and prevent static build-up.
4. Cleaning road soot and bugs from the shield pivot mechanism is always a good idea. It will prevent premature wear and also that annoying crunching sound as you open and close your shield. Doing this with the pre-storage wash is a good idea and perhaps again at mid-season, especially if you live where there are lots of bugs or road debris.
5. Lastly, think of your helmet's interior as another piece of clothing that's up close and personal to your body. Would you wear the same pair of underwear and never wash them? Your head, hair and face deserve the same respect, attention and hygiene you give your backside.

Helmet maintenance is important to ensure that your helmet remains in top condition and will continue to be safe and function as it should. Here are 10 steps for great helmet care:[28]

1. Carry your helmet correctly. Do up the chinstrap and carry it like a handbag, or better still, carry it in the bag it came with when you took it out of the box. Don't carry it by the chin bar. If you've ever owned an old helmet, you'll know that the chin bar gets worn inside from finger pressure, and in the event of an accident you want the foam interior to be strong and uncompressed so it absorbs any forces the way it was designed to.
2. Don't store your gloves in your helmet. This is a major factor in reducing the life span of your helmet lining. The sweat from your hands can eat into the stitching in your gloves, and this sweat, coupled with dirt, can eat into your helmet's lining.
3. Use cleaning products as intended. If in doubt, read the instructions. Some cleaning products are far too abrasive on the shell and can make it weaker through corrosion. Cleaners, such as kitchen sprays, alloy wheel cleaners and bleach, may get even the most stubborn bugs off your nice helmet, but they will make it structurally weaker.
4. Never balance your helmet on the mirrors of your bike; there's one place it'll always end up - on the floor. So put it there. Also hanging it on a mirror can damage the compressible foam lining, rendering your helmet as good as useless.
5. Clean your helmet properly at least once a year. Don't rush the job; take your time. Most helmets these days have a removable lining that you can take out and properly wash. This removes dirt, grease and build up that can cause your helmet to wear faster than it should.
6. Never put a wet helmet back in the cupboard. Always dry it out first; but dry it properly. It may be tempting to use a hair dryer or to place your helmet on a boiler or hot radiator. This can cause the glue used in the helmet's construction to weaken. You don't want the foam interior coming away from the outer shell; your helmet won't protect your head as it should if that happens. Dry it naturally or using a very gentle heat source. A wet helmet stored in a cupboard will deteriorate through mold and start a slow rotting process.



7. Don't assume your helmet is useless because you have dropped it or it has rolled down a couple of steps in the house. Send it back to the manufacturer for an inspection; they will let you know if your helmet is still useable. Arai, for example, will X-ray your helmet to check if it is still fit to use.
8. Helmets are a lot more robust than you think. They are designed to be stripped and re-assembled for cleaning, as well as to keep your head safe. Don't be scared to take it apart; but on the same note don't force something that doesn't feel like it wants to be forced.
9. A five dollar cleaning product can inflict several hundred dollars worth of damage to your helmet and render it useless. Consult the helmet manufacturer and find out which products are best products to use. Don't be tempted to use the same stuff you would use to clean your bike or your oven!
10. Your helmet is the most important piece of equipment you own. Buy the very best one you can afford and change it every five years.

## When Should You Replace Your Helmet?

The motorcycle helmet is designed to protect your head. When the compressible foam lining absorbs the shock of a single major blow, your helmet has done its job and should be replaced. Once compressed the EPS foam loses its protective capability to absorb the shock from another blow. Even dropping a helmet from waist height onto a concrete floor can compromise some of the materials used in its construction.

One of the most common substitutes for a helmet rack is the motorcycle's rear view mirror. Repeatedly dropping a helmet onto the rear view mirror can damage (compresses) the helmet EPS foam, rendering the helmet ineffective to adequately protect your head should you be involved in a crash.

If the compressible EPS foam lining feels loose or becomes compressed after years of use, replace the helmet. As a rule, any helmet should be replaced after five years of use or seven years from its manufacture date (located on the label attached to the chin strap or inside helmet lining). The materials from which helmets are made (compressible EPS foam, glues, and resins) begin to break down over time, with continued use, and from heating and cooling. Sweat and hair and body oils, as well as cosmetic, also contribute to the deterioration of vital helmet materials.[29-30]

Minor chips or scratches in the outer shell of a helmet are okay; but major ones, especially cracks, compromise the integrity of the helmet and reduce its ability to protect your head. With any major injury to the outer helmet shell, replace the helmet.

If the face shield is scratched such that it interferes or obstructs your full range of vision or distracts you while riding, replace the face shield. If the face shield is cracked, it loses some of its protective integrity and should be replaced as well.

Another reason to replace your helmet every five years is that helmet technology, styling and comfort have advanced well past what your current helmet provides, so buying a new one makes good sense.[22]

## What is the Future of Motorcycle Helmets?

Modern motocross helmets have a crushable foam EPS liner that is sufficiently thick and dense to absorb up to a 300G load during a catastrophic crash. However, such a liner is too stiff to absorb lesser blows (60-120G) typically experienced by dirt bike riders that are concussion producing. The designers of the 6D ATR-1



6D Helmet with dual EPS liners

helmet came up with a novel concept to correct this problem. Their helmet incorporates two separate EPS foam liners (instead of one) that are separated by 27 hourglass-shaped elastomer dampers holding the two liners 7mm apart and can move three dimensionally to absorb not only direct blows but oblique ones as well. The softer inner liner better protects the rider's head during lesser concussion causing blows (<120G load) while the denser outer lining still protects the rider's head during more catastrophic blows (up to 300G load). Air can flow between the two EPS liners, thus helping to cool the helmet in addition to the usual vents. This helmet will have particular appeal to a rider with post-concussion syndrome because it has the best low-impact protection due to its dual liners.[31]



*Nuviz HUD Unit*

Another innovation now coming of age in the motorcycle world is the addition of augmented reality in the form of heads-up displays (HUD). Incorporated into helmet designs these devices allow the rider to see transparent displays of information projected without the rider having to look away from what they are seeing. Nuviz HUD is a small device that mounts to the outside of any full-face helmet and relays GPS navigational and telemetric data in real time to a tiny



*Helmet with Nuviz HUD Unit attached*



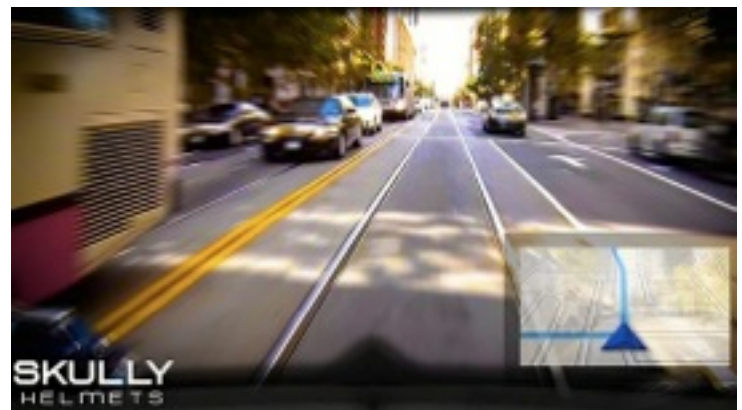
screen focused about 30 feet out, so that the rider can maintain focus at distance while viewing it. It can also control devices like cell phones and cameras via Bluetooth.

*Nuviz HUD display (GPS navigation route)*



*Skully Helmet with HUD unit*

Skully incorporated these features into their new helmet, the AR-1, that integrates onboard GPS, a rear-view camera, hands-free device control, helmet speakers,



*Skully helmet display (GPS navigation route)*

and a true HUD display. The helmet runs an Android OS and utilizes Bluetooth connectivity to connect the user to their favorite smart phone and/or other devices. While quite expensive (around \$1,200), the price is much less than you would pay separately for a premium helmet, an HUD module, a GPS navigation device, and a rear-view camera system.[32]

Another helmet offering a rear view mirror, but without the use of cameras or electronics, is the Reevu MSX1 system. Initially debuted in 2004, it underwent revisions and improvements to reappear in 2010. It consists of a series of tiny mirrors (polycarbonate moldings coated with a mirrored finish) located inside a tunnel over the top of the EPS foam helmet liner. The rear of the helmet is a large mirrored cover, designed to mute headlights at night, but provide enough transparency to allow the system to work. The front of the rear view system consists of a mirrored polycarbonate surface that has a viewing area of approximately 87mm wide and 17mm tall located at the top of the eye port and out of the rider's direct line of sight, but available to the rider's vision when looking upward. The angle of this mirror can be adjusted forward or backward by a set screw to get the mirror situated in the optimal position. There are some parallax issues, and the eyes can not resolve the complete mirror width in the short distance, so the ends of the mirror on both sides appear duplicated. It is not quite like looking into the rear view mirror in a car, although parallax issues can arise there as well. The view out the back is narrow in the vertical plane due to the narrow vertical height of the mirror, but by moving the head up and down slightly, the vertical field can be scanned. The image in the mirror is not perfectly clear or lighted like you get from looking at a rear view mirror in a car. Because of the encased mirrored tunnel, the MSX1 helmet is heavier than most.[33]



Comparison of rear view through Reevu Helmet and standard mirrors.

Motorcycle helmet technology is continually changing and improving. A motorcycle helmet is the single most important piece of protective gear that you can wear, but regardless of how advanced it is, if it is not properly fitted to your head and worn every time you ride, you will not benefit from it.

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