



**DUNLOP'S HIGH-TECH TRAILMAX MISSION**  
**NEW 50/50 TIRES FOR NEW ADVENTURES**





**WANT AN ADVENTURE? THE INDUSTRY COVERS ADVENTURE, SCRAMBLER AND CROSSOVER SEGMENTS WITH GREAT MOTORCYCLES THAT WILL TAKE YOU WHEREVER YOU WANT TO GO. THAT WASN'T THE CASE NOT LONG AGO.**

Today, manufacturers have bolstered their lineups with even more offerings from 250s to 1290cc bikes and everything in between. Big-bore ADV bikes often incorporate the very latest in sophisticated electronic engine and suspension management systems, and offer performance formerly the exclusive domain of full-on sport bikes. Some of these bikes make upwards of 160 horsepower, can tour cross-country, and nip at the heels of the best of sport bikes down twisty roads while also offering impressive performance in the dirt—an amazing breadth of abilities that results in an unprecedented challenge to tire designers.

With the proliferation of new ADV bikes, it was time for Dunlop to reinvent the 50/50 tire.

Enter the all-new Trailmax® Mission.



*“This is a very difficult segment to tackle because of the wide variety of uses and fitments, but I believe customers will be surprised that the Mission delivers such a high level of grip no matter the surface and will also exceed their mileage expectations.”*

**Mike Buckley,**  
Senior VP, Sales and Marketing

## RE-INVENTING THE 50/50 TIRE

It’s safe to say the Mission was one of the most comprehensive tire projects Dunlop has ever undertaken. Customer input was key. Engineers and researchers attended consumer shows, rallies and various events for years gathering data, and more than ten rider surveys were conducted among a vast audience.

The result of the research showed Dunlop that the existing offerings in the 50/50 tire category presented riders with the ultimate compromise. You can have “this,” but you will give up “that.”

The challenge to the Mission team was to create a tire that didn’t force customers to compromise between street performance, dirt performance, ruggedness, or longevity. This presented one of the biggest challenges that the design team in Buffalo has ever faced.

## THE FALKEN CONNECTION

For the first time in its history, Dunlop tapped into newly available resources. Dunlop Motorcycle Tires’ re-acquisition by Sumitomo in 2015 gave the design team access to the engineers at Falken tires. Falken, a Sumitomo brand, has had tremendous success with the Wildpeak A/T3W, an off-road oriented light truck tire that puts a premium on ruggedness without sacrificing street performance.

The Dunlop team was able to learn from the successes of the Wildpeak’s unique design and ultimately incorporated several elements into the all-new Trailmax Mission. Utilizing elements from a light truck tire design to create a motorcycle tire—possibly an industry first—was certainly a first for Dunlop.



*“Longevity was very important, so we did a lot of durability testing including high-speed runs on pavement at a circuit in Texas. Some of the competitive product would be stressed in only 8-miles, but the Mission performed like our street tires there.”*

**Clark Stiles,**  
Dunlop Proving Grounds,  
Senior Test Engineer



## DEVELOPMENT

Two years in development, more than 30 prototypes, and 12 months alone spent just developing the unique tread pattern, the Mission delivers knobby-like performance off-road, has impressive grip on the street, plus great ride quality and stability everywhere it goes.

One of the primary goals was durability. Several months were spent piling on the miles—on the street, at the Huntsville Proving Grounds in wet and dry conditions, on gravel roads, trails, tire-shredding rocky terrain, and every condition Dunlop test riders could find. Dunlop also utilized a high-speed testing oval in Texas to put the Mission through durability torture.

The result: Consumers can expect to get double the miles of some of the competitive rear tires, and more than that from the front. The production version of the Mission rear tire delivered 8,000 miles in testing.\*

\* Test conducted by independent contracted riders on a 250-mile mountain loop. Tire sizes 110/80B19 front and 150/70B17 rear, on 2017 Suzuki V-Strom.







**MEETING THE NEXT-LEVEL PERFORMANCE OF MODERN ADV  
BIKES CALLED FOR A WHOLE NEW APPROACH TO TIRE DESIGN  
AND CONSTRUCTION. END RESULT: THE MISSION IS ONE OF  
THE MOST VERSATILE TIRES DUNLOP HAS EVER MADE.**



### STAGGERED STEP

These steps give the side knobs more rigidity, and create more biting edges for increased off-road grip.



### AGGRESSIVE UPPER SIDEWALL

Wrap-around side lugs add rigidity and durability in rocky terrain, and improve steering in sand, mud and gravel.



### TREAD GROOVES

Deep tread grooves help the Mission deliver uncompromising grip in a wide variety of off-road terrain.



# A MASH-UP OF DUNLOP'S BEST STREET AND DIRT TECHNOLOGY

"It was basically a blank sheet for us," said Shawn Bell, Lead Innovation Design Engineer. "We did not start with an existing product. Instead, we were free to access all that we know about our dirt tires as well as our street tires. These ADV bikes are an interesting breed. Because of their high-performance and dirt application, they place an entirely higher level of demand on tires than street tires ever see. Yet they work at lean angles approachable on bikes equipped with sport tires. Also, while going to rallies and meeting with riders, we gained so much insight about our customers, and what's truly important to them for 50/50 tire use."

## TREAD PATTERN

One of the things that make the Mission unique is that Dunlop did not create a one-design-fits-all tire. Different bikes impose different demands on tires, so Dunlop engineers tuned popular fitments of front and rear tires for a diverse application of ADV bikes so that the tires consistently achieved Dunlop's objective of performance and longevity. These differences apply to both the tread pattern and construction.

The front Mission tire features a symmetrical tread pattern that helps reduce uneven wear. If you look closely, you will see that the 17- and 19-inch sizes feature hollowed out knobs to create additional biting edges and knob flex for greater off-road traction. In 21-inch front sizes, the tire achieved Dunlop's performance objectives without this additional detail, as the larger size of the tread

blocks provided the desired level of traction without the need for hollowed out knobs.

Some rear sizes utilize tie bars between knobs to achieve performance targets, while other sizes and fitments achieve the performance goals without the tie bars.

Dunlop incorporated Staggered Step technology in both the front and rear tires. These steps give the side knobs more rigidity and lug stability to prevent flex, and create more biting edges so as the tread wears, the next biting edge "steps up" to grab hold of the substrate. In the rear, there are three different sizes and shapes of lateral blocks depending on tire fitment, a direct result of testing, testing and more testing on a wide variety of machines.

*"We were dragging  
saddlebags on these tires  
on the street, but the  
most surprising part was  
how impressive the tire  
is on the dirt. It works on  
so many different terrain  
types—slippery wet  
rocks, loose terrain, we  
did a lot of riding on really  
aggressive terrain."*

**Taylor Knapp,**  
Dunlop Proving Grounds  
Test Rider



## COMMON TREAD ELEMENTS

Front and rear tire patterns have more in common than differences. One visual distinction for both front and rear is the prominent wrap-around side lug inspired by Falken's Wildpeak truck tire. These lugs have several advantages; they add rigidity and durability in rocky terrain; allow lower pressures to be run off-road with less risk of pinch-flattening; they help provide steering stability in sand, mud and gravel surfaces; and they have an uncanny ability to allow riders to steer out of ruts off-road, even on the really big and heavy ADV bikes. Additionally, the sidewall rubber is thicker to add higher durability and puncture resistance.

Both front and rear tires feature a distinctly higher land/sea ratio with about 60 percent land for greater street performance compared to the dirt-oriented D606 at 30 percent land ratio. Increased tread depth over the Trailsmart adds to Mission's superior off-road performance. These comparisons serve to illustrate just how different the Mission is compared to other Dunlop adventure and off-road tires.

## CONSTRUCTION

To meet the performance and mileage goals, bias construction was used, with the line featuring a mix of bias and bias-belted tires as needs dictated. Bias construction is generally better for off-road since tread and sidewall elements are designed as one component. Bias tire construction also allowed designers to use heavy-duty ply material such as nylon, polyester and/or fiberglass belts that are similar to those used in tough touring tires such as the American Elite® and Elite® 4. The result is a tire with excellent off-road performance that delivers the desired stability at higher speeds.

Just like the tread pattern, construction varies based on fitment application—different sizes of the Mission have their own unique touches to maximize performance on different bikes. For example, belts were removed on some designs during development to help improve compliance of the tire in off-road terrain. This is tailored to bikes more likely to be the “most” adventurous when it comes to off-road. The Mission tires are tubeless but can also be run on tube-type rims.



## DESIGNED AND MANUFACTURED IN BUFFALO

The Dunlop tire factory in Buffalo, New York enjoys a long track record of building everything from high-performance racing tires to premium touring tires. The Mission is the first off-road capable tire designed and manufactured in Buffalo, so having the proper equipment on hand was vital. While no new equipment was required for the Mission line, some tire machines had to be modified to build them—the same machines used to build the bias-ply E4, American Elite and D408F™/D407™ Harley-Davidson® touring tires. However, Mission tires incorporate a tread depth twice as deep as any other motorcycle tire made in Buffalo before. A huge change and manufacturing challenge.





## MISSION ACCOMPLISHED

Dunlop tested many competitor tires and while there are a lot of good products on the market, no one tire can do all the things Mission does, as well as it does, on such a variety of machines. With the Mission, Dunlop stayed focused on delivering a higher level of performance, mileage and durability over a wider range of conditions and terrain than any other tire. Today's ADV bikes, Scramblers and Crossovers make enormous demands on tires, and deserve nothing less than the best technology. The Mission delivers. Now it's your Mission to see for yourself.

# EXPANDING DUNLOP'S ADVENTURE TIRE LINEUP

Within the Adventure/Scrambler/Dual-Sport/realm, Dunlop has targeted specific DOT applications, meeting a wide variety of riding needs with a broad selection of tires from the Dakar-ready D908RR™ to the heavily dirt-oriented D606™, the new Geomax® EN91, the road-oriented Trailsmart and Roadsmart III®, and now the Mission, landing right in the middle, designed to cover it all.

	ADVENTURE	STREET										DIRT										
D606																						
D908RR																						
TRAILSMART																						
ROADSMART III																						
ENDURO EN91																						
TRAILMAX MISSION																						







90/90-21



Other Front Sizes



Rear Sizes

Available in a wider size range than any of Dunlop's ADV tires, the Mission fills a void in the line for ADV bikes, Scramblers and Crossovers that are ridden aggressively off-road.

Available sizes:

**Phase 1** (Shipping 11/01/19):

	Size	Load/Speed
Front	90/90-21	54T
	110/80-19	59T
	120/70B19	60T
Rear	150/70B17	69T
	170/60B17	72T
	140/80B18	70T
	150/70B18	70T

**Phase 2** (Shipping 12/01/19):

	Size	Load/Speed
Rear	130/80B17	65T
	120/90-18	65T
	140/80B17	69T

**Phase 3** (Shipping 01/01/20):

	Size	Load/Speed
Front	100/90-19	57T
Rear	120/90-17	64T
	130/90-18	69T

Mission\_Action\_1



Mission\_Action\_2



Mission\_Action\_3



Mission\_Action\_4



Mission\_Action\_5



Mission\_Action\_6



Mission\_Action\_7



Mission\_Action\_8



# IMAGE KEY



90/90-21 Front: Mission\_Front\_3\_4 Mission\_Front\_Tread



Other Front Sizes: Mission\_Front\_3\_4 Mission\_Front\_Tread



Mission\_Front\_Profile



Mission\_Rear\_3\_4 Mission\_Rear\_Tread



Mission\_Rear\_Profile



Mission\_Detail\_1



Mission\_Detail\_2



Mission\_Detail\_3



Mission\_Detail\_4



Mission\_Detail\_5

