



## Winter Cycling Tips – Preparing Your Bike

Although the bicycle industry has created many niche bicycle designs in the recent past, none of them have created a true winter specific bike. Truth be told - most designers have no idea of how challenging our winters can be. That means you will be adapting a bicycle for winter duty. First we'll look at adaptations you may need to do to an existing bike to make it winter ready. Then we'll look at some off-road options for bikes. Commuters will generally be best off with a Gravel Bike for on-street winter duty.

Some of the challenges that need to be considered are:

1. A **derailleur drive train** takes a beating with rain, snow, sand, and slush. Depending on where you are cycling, the added problem of de-icer chemicals and road sand will mean extra cleaning and lubricating of the chain. Even with good care the drive trains will wear-out quicker. It's advisable to run inexpensive chain rings, chains, and cassettes for winter. Avoid using dry lubes as none of them offer much corrosion protection. Use of heavy viscosity lubes such as Phil Woods Tenacious Oil™ are recommended. This both lubricates and provides corrosion protection but means cleaning will be more difficult.
2. **Shifters** and cables may not function as well. Most shifters use a light grease as lubrication. The grease will thicken in sub-zero temperatures and prevent dogs from engaging/disengaging properly in the ratchet mechanism of the shifters. The result will be difficulty in shifting up or down, and ghost shifting where a shift occurs without any input from the rider. The solution is to have the shifters serviced where a light oil is substituted for the grease. **Cables** should be pulled, and the housings flushed and blown clear with a solvent. The cables need to then be lubricated sparingly with a very light viscosity oil (Tri Flow™ is ideal). Replace the **ferules** at each end of the cable housing with sealed ferules, if not already equipped. The cables are subjected to the worst conditions at the front and rear derailleurs where corrosion is inevitable, so this cable service may have to be done multiple times in a season depending upon conditions.
3. **Internally Geared Hubs**, although much more reliable in winter conditions, do require a lighter viscosity oil be installed in Fall and removed and replaced in Spring. Since the gears are in the sealed hub, they don't suffer the effects of water and corrosion that derailleur systems do. IGH bikes with belt drive are an often-overlooked gem for winter riding.
4. **The Frame**. Steel frames don't fare very well in our winter climate. The chemical soup that is created by de-icers corrode steel very quickly. Aluminum frames tend to do better but can suffer electrolytic reactions wherever other metals meet the aluminum of the frame such as any bolt-on accessories, seat posts, bottom bracket bearing cups etc. (see below for remedies for this). Carbon/composite frames are far too expensive to use for winter duty – don't go there.  
**Fenders** are the number one protection for the frame. These should be full cover for commuting duties. Clearance issues can be a problem area – causing snow/mud buildup. If you are mostly riding off-road the shorter fenders that mainly cover the downtube work well for the front and the rear beavertail fenders will fend off some spray. Some riders have fashioned protective guards out of a plastic milk jug that fastens onto the seat tube with zip ties to protect the front derailleur from wheel spray. Clear 3M Rock Guard™ can be placed in specific areas that receive a lot of splashes. The product can be removed/replaced using a heat gun if need be.
5. **All fasteners** should either be coated with Copper Coat™ or blue Locktite™ to prevent corrosion and seizing. Torque all fasteners and check them regularly so that you don't find yourself fumbling around in the snow

looking for that tiny cap screw that holds your front derailleur on. Seat posts should be greased to prevent them from seizing in the seat tube.

- 6. Winter Tires** make winter conditions much safer and studded winter tires are the answer in all conditions except one. Although they offer unmatched traction on ice, hard packed snow, loose snow, sand, slush, and mud - they can be slippery on both pavement and concrete wet or dry. Some riders prefer an ice tire for those conditions. Ice tires use a very soft rubber compound and thousands of micro sipes in the tread to maintain traction on ice and dry or wet pavement.
- 7. Pedals.** If this is a summer bike being transformed into a winter bike - ditch the step-in clipless pedals and opt for flats. That extra split second that is required to unclip could see you on the deck in icy conditions.
- 8. Lighting.** Your to-be-seen flashing front light won't cut it in winter. Invest in a good quality light that has at least 300 to 500 lumens of brightness. Some off-road riders may wish to use a front ground light in combination with a helmet mounted main light. Taillights are more straightforward in that almost any taillight will be effective. In both cases it's essential that you look for lights that are IP 6.7 or greater in terms of water resistance.

## Selecting a Bicycle

Here are a few possibilities. This article is mostly geared towards off-road riding. Commuters could use any of the bikes below but would likely find a Gravel Bike a better fit in city winter riding.

**The Mountain Bike** – This is where many people will start. The advantages are as follows.

1. Low gearing allows the rider to plow through most winter conditions where pedalling resistance is greater due to soft snow, slush, and mud. Mountain Bike component groups allow for even lower gearing options. One-by drive trains are becoming more common – eliminating the front derailleur reduces the possibility of a dropped chain
2. Wider tires (2.25") with large tread blocks give adequate traction in hard-pack, powder snow and slush – **but not on ice**. Studded tires are available to improve ice traction.
3. Disc Brakes (either mechanical or hydraulic) give safe reliable braking in conditions where rim brakes fail miserably due to wet rims.
4. Will generally be faster over hard-pack cross country terrain.

Some of the limitations of Mountain Bikes are:

1. The tire width is inadequate to help float the rider and bike in soft conditions, and frame and fork clearances may limit how wide of a tire that can be fitted.
2. For commuters fitting full cover fenders can be a challenge on full suspension bikes and even on some hardtails since the shock fork can limit how much fender is possible.



**The Mountain "Plus" Bike (a.k.a Mid-fat)** – Perhaps the best compromise. The advantages are similar to the Mountain Bike. In addition:



1. The wider (2.8" – 3.0") tires improve on the mountain bike's traction – especially in climbing and descending. Studded tires are available to improve ice traction.
2. Some bikes will also accept a cross country (narrower) 29er wheelset.
3. Will be faster than a Full-Fat in most conditions.

The one disadvantage of the Plus Bike is that it will not provide the floatation in very soft conditions that a Full Fat bike will. As with the Mountain Bike, fitting accessories can prove challenging.

**The Fat Bike** – This remains a bit of a niche product. Any areas of the world that don't count sand and snow in their terrain description will also see a scarcity of fat bikes. However, in their element they offer unmatched float and traction.

Advantages include:

1. The super wide (4.2" – 4.5") tires possess a huge footprint that displaces weight over a large area, so conditions like loose snow, sand and mud are easy to ride over instead of through.
2. Climbing and descending with a Fat Bike will seem mind-blowingly easy. Conditions where a Mountain Bike or Mid-Fat would lose traction climbing or would see the front wheel wash-out are child's play for a Fat Bike.
3. Although models with suspension are available, the low tire pressures (4-6 psi) make suspension unnecessary and only add weight to an already heavier bike.

Limitations:

1. The nature of these bikes in combination with the very low gearing (mostly one-by 10/11/12) mean that these bikes are about going places – not about going places fast.
2. Due to the limited production of these bikes accessory prices tend to be quite high and a little difficult to find in some markets. Save up for your studded tires.
3. The wide dropout width means these will not fit on wind/mag trainers (why would you anyway) and will require an adapter to fit on fork-mount roof rack systems.
4. If you have a tire pump with a gauge or use a standard tire gauge you will likely need a Fat-Tire gauge, as most standard gauges won't go low enough.



### What about Electric Pedal Assist Bikes?

Electric Pedal Assist bikes are showing up in all categories of bikes including Mountain Bikes and Fat Bikes. It is recommended that any Electric Bike purchase occur only after a thorough test ride in the conditions that you expect to ride the bike. Winter riding introduces several situations where an electric bike may create danger for the rider and the riders around them.

1. Assist is calculated off the setting the system is set in, pedal cadence, and the pedal force being applied. Control systems are getting better at not overcompensating, but they're not infallible. Due to the unique circumstances of off-road winter riding and the various surfaces involved there is the possibility that a combination of too high assist setting + low pedal cadence + high pedal load + a slippery surface would see the system apply too much assist sending the bike out of control. Surging remains one of the most difficult areas for Electric Assist System manufacturers to get right in all situations.
2. Battery technology is improving all the time, but the fact is that in sub-zero temperatures battery run time will be substantially reduced. Add to that the greater rolling resistance caused by cold thickened lubricants and higher rolling resistance of the tires and you have a distinct possibility of running out of charge. A dead 60 lb bike on a July day is one thing, that same 60 lb bike in January is another matter entirely. The takeaway here is to be conservative on the distances that you do until you better understand the winter range of your system and carry a spare fully charged battery.
3. Electric Assist turns almost anyone into a superstar cyclist . . . right? That over confidence can be problematic in a closely spaced group traveling at lower speeds on tight twisting trails. Injury rates among Electric Assist bike riders is alarmingly high. Most often it is a case of going too fast for the conditions, a lack of knowledge of how the bike handles at its limits, and inadequate bike handling skills.

So, what is the bottom line?

Winter cycling can offer a refreshing change from the go-fast/go-far mindset of riding in the summer. With the right bike, exploration becomes the focus. Our winters provide a real mechanical challenge to all bikes, but with a little

preparation the bike will very much function normally. Maintenance intervals will be shorter and a little nastier, and component life will be shorter - but hey winters in Arizona aren't cheap either. If you can rent some examples of the bikes listed in this article it will give you a good idea of whether A - you like winter riding and B - what type of bike suits you best. And don't forget to read the other articles in this series regarding how to dress for winter riding.