

# Cycling

# Contents

<b>Getting a Bike</b>	<b>5</b>
<b>Legal</b>	<b>6</b>
<b>Kinds of Bikes</b>	<b>7</b>
Upright . . . . .	7
Cargo Bikes . . . . .	7
Motorized . . . . .	8
<b>Prerequisites</b>	<b>9</b>
<b>Tips</b>	<b>10</b>
<b>Ride Safe</b>	<b>11</b>
Maps . . . . .	11
<b>Crash Positions</b>	<b>12</b>
<b>How to Lock Your Bike</b>	<b>13</b>
<b>Disguising Your Bike</b>	<b>14</b>
<b>Stashing Stuff</b>	<b>15</b>
<b>Smart Security Tips</b>	<b>16</b>
<b>Nutrition</b>	<b>17</b>
<b>Gears</b>	<b>18</b>
<b>Wind</b>	<b>19</b>
Travel . . . . .	19
Bikes and other forms of Transit . . . . .	19
Touring . . . . .	19
<b>Touring Gear</b> . . . . .	20
Cross Country Camping . . . . .	22
Inner City . . . . .	22
<b>Folding Bicycle</b>	<b>24</b>
<b>Keeping it Working</b>	<b>25</b>
Tools . . . . .	25
Portable Tools . . . . .	25
Road Crud . . . . .	26
Rust . . . . .	26

Wheels and Tires . . . . .	26
Brakes . . . . .	27
<b>Demonstrations</b>	<b>28</b>
<b>Yellow-White Bicycle Share Programs</b>	<b>29</b>

The bicycle is most popular vehicle in the world, and for good reason: A person on a bicycle is by far the most efficient means of transport known to man. Bicycles are beautiful things. They are cheap, reliable, faster and easier than walking and driving in the city, and downright sexy, as a bonus you end up looking pretty damn sexy after a few months. They can take you almost anywhere, they don't rely on fuel, a license or insurance, a most liberated way to get around these days.

# Getting a Bike

Find a bike of quality, good enough to not require constant replacement of parts. If the quality is too low you will likely learn to hate cycling and stay a petrol hog. Generally it is a better idea to decide if you are only going on road, since there are many different types of bikes for their use. Road bikes are for roads, and vice versa. A good compromise is a heavy mountain bike frame with road tires, this is pretty much what a hybrid bicycle is. Keep the knobby tires to swap on if you ever move to an area with only mud and dirt roads, or sell them. A variety of Hybrid tires are available: knobby but with a smooth rolling center line being quite popular.

Never buy junk bikes from department stores that rely on crude slave labor; these are designed as gifts to kids who will likely ride them for only a few weeks. However, you may be okay with a cheap cruiser like a Huffy or a Shwinn if you catch one on special. Main thing is to avoid the big box store bikes with tons of moving parts and gears as most of the time, the parts are of low quality and the wage slaves that put the bikes together are often poorly trained and merely slap the bikes together and these can develop serious problems. In particular, we get concerned about the NEXT brand of bikes that tend to tear up easily and can be hard to fix. Cheap garage rusters tend to be good for only about 500km and real maintenance or fine adjustment is almost impossible.

When buying, stick to a friendly local bicycle shop or, even better, a local bike co-op who will sell you a tuned and sized bicycle designed for long service life.

In the USA, quality barely used bikes are discarded to "thrift" shoppes which may sell for as little as \$10. Garage sales are also a good source of cheap bikes, beware the used department store type cycles unless you need a disposable with poor performance. A proper 1970's vintage quality bicycle and a little tuning is a much better choice for your money than a brand new discount-mart special.

Watch out for dents or bulges in the frame of the bike, this is a sign that the bike has been crashed, and may be hazardous to ride especially if it is of aluminum or exotic construction. Also look out for hairline cracks in the paint, especially near the tubing joints. These can be an early warning of frame damage.

For your first and maybe even your second bicycle don't choose anything too expensive or exotic, once you are a regular rider you will learn what factors matter to you in upgrades. Even the best local bicycle shop mechanic/clerk may be in love with some feature that is just not what you need right now.

*Horse thieves were among the very lowest, mangiest, least-tolerated kinds of criminals. When they were caught, they were hanged.*

Always acquire your cycle through honest means, as you can ruin lives stealing or stripping cycles. They may belong to less affluent people who have put every penny into making and maintaining their cycles as a work of fast clean functional art. Even if the owner is affluent or a corpgov salary man they are at least contributing more of their share than the petrol addicts. Most all local shops selling bicycles of any quality are small operations, don't kill them off by lifting perhaps a week or more worth of profits in a ride-away theft. A good way to get a bike is to put up ads on bulletin boards or check classified ads. You may also find bikes that need a bit of repair curbed or in a dumpster. Ask your local bike shop mechanic to check out a bike you are going to buy and estimate the value, including the price of required repairs and a tune up.

Remember: Arguably only acceptable theft is that which hurts large corporations, not the people around you. If your local target or walfart carries accessories that you need, that's fair game. If you see an unlocked bike on a bike rack, don't be a dick!

# Legal

Bicycles are free to drive in all locations without an operators license, although some require a license for cycle couriering. Some jurisdictions, especially cities, require the registration of a bicycle and either a plate or sticker to identify the bike. The authorities insist this helps return stolen bikes, but they have been used most effectively to earn the city money. Failure to have a sticker or plate may result in a confiscation or fine. The police have even confiscated parked or locked unregistered bicycles in homeless camp raids.

The most common violations cops use to stop cyclists are helmet and safety light laws. They especially target underage cyclists for these. Light laws usually require a white forward and red rearward light or LED flasher at night, sometimes they are even required during reduced visibility even during daylight hours. Failure to comply with these bylaws often result in fines, and it gives police the right to search you. Most often these bylaws have been used to target the lower class, including scruffy kids, immigrants, and the homeless.

Many states and countries forbid riding on sidewalks. It is in your best interest to cycle on the street as you will avoid many accidents there. Learn the traffic bylaws, most good local cycle shops and any licensing center can provide you with them.

Highways, freeways, and interstates are closed to both pedestrians and cyclists in most countries for their safety. This can make navigating long trips difficult at times, especially in rural areas. It is not so much a cyclist riding in the emergency lane that is a concern but having to cross 55-75 mph traffic at every on and off ramp.

If you are drunk or stoned forget cycling. Lock up your bike and leave it or let somebody sober drive you and the bike home. Not only is it common sense, but in most states going past .08 blood alcohol and riding sometimes even pushing or sitting on a bicycle can get you arrested for a DUI, reckless self endangerment or intent to drive drunk, complete with FBI filed fingerprints, a criminal record, possible jail time, and a revoked drivers license!

# Kinds of Bikes

## Upright

The least expensive, most common bicycle, new and used, is the upright. Road bikes are built for speed, they may have multi-position hand grips and razor thin tires, good for paved roads. Be careful when using a road bike off road, even on gravel. Mountain bikes are built for impact and mud resistance, and the shocks and knobby tires are intended for off-road travel. You will waste your pedaling effort using a mountain bike for a city commute. Hybrids, or urban commuter, bikes take the ruggedness of a mountain bike to absorb potholes and curb drops but add road capable tires and sometimes multi-position handgrips. Touring bikes can also take some of the attributes of both mountain and road bikes. They emphasize long riding with stronger components and mounting points for pannier bags.

## Cargo Bikes

Cargo bikes can take many forms but they are usually based on the tricycle. Many of these are custom shop build jobs with either the front or back half of an inexpensive conventional bicycle removed and a large cargo area added. For front cargo the front wheel and forks are removed and a tubular frame is welded on, the front wheels are mounted on the sides of the cargo area and pivot on their mounts, a cross tube/handlebar attached to these pivots is pushed left or right to steer, these bikes have a very limited turn radius and are best for use in an area with few hills, but can be made with quite a large cargo capacity. A traditional tricycle design requires a bit more mechanical skill since a drive axle with a chain sprocket must be installed, the available cargo area is limited by the width of the axle, these are also available from specialty bike shops. There are frame attachments which make for a long tail bike allowing very large panniers or several buckets or coolers to be attached to this extension, the upside is that it is possible to quickly convert back to a normal bike with a trip to the bike shop but these extensions appear to put stress on the rear of the bicycle frame.

While still almost universally expensive, even when purchased used, for long travel the recumbent is definitely worth looking into. The recumbent position is like reclining in a lawn chair and pushing the pedals, instead of crouching over your handlebars. You will be able to put more leg power to use pedaling clipped-in feet sitting recumbent than you ever did on an upright. Due to the multiple drive chains, it is simple to add battery powered and regenerative drive systems. You can even add a stirling, steam, or gas booster motor, although this takes from the whole green purist idea. The only disadvantage with the recumbent cycle is their height and inability to push harder up hills.

Blurring the bicycle, motorcycle, and car; vehicles like the Twike and other custom lightweight hybrid vehicles let two or more riders travel petrol in style. Riders pedal inside an enclosed and stylishly designed vehicle and a battery and motor system give a power boost to uphill pedaling while recovering energy from downhill braking. On a sick day, plug in and charge a battery for a free ride. We expect the enterprising types to get out your welding, electrical, and plastic forming gear and design more vehicles like this to take back our streets and clean air.

## Motorized

A normal bicycle can be relatively easily converted to a motorbike with a simple kit. A halfway decent 2-stroke bicycle motor kit can be bought for around \$130, will give you up to 70+ miles per gallon, and will still give you the ability to use your pedals. 4-stroke motors are a possibility but are more expensive and add more weight to the bike. Electric bike kits are available, but are even more costly (more than 3 times the cost of a 2-stroke engine) and don't go more than 20 miles on a charge. The main advantage to an E-bike is that you can stay off the grid if you have a solar charger. Also, in some states an e-bike can be ridden anywhere it's legal to ride a bike (bike trails, bike lanes, etc.) since it's officially an "electrically assisted bicycle" and not a "motor vehicle" as long as the chain drive still works from the pedals. A gas or electric powered bicycle can be made street legal in most states and countries. In California (what is considered the strictest state), all you need to do is pay for registration and a permit as long as your bike meets all the standards. Motorizing your bicycle is one of the easiest ways to have a motor vehicle without handing over too much tribute to the CorpGov. Just be certain what type of motorized bicycle is legal in your state or province before you start shopping for parts.



# Prerequisites

These days, your state/country is probably looking for some serious dough in order to make up for their billions in debt. Motorbike riders are easy targets for your local pigs to make a quick buck because many motorbike riders don't follow all the rules. It will save you money in the long-run in order to, unfortunately, comply with every extent of the law.

Below is a list of what you need to make your bike legal in the state of California. Certain parts may be different depending on where you live, but since California is the strictest state in the U.S., that means this list is probably the most thorough:

- At least an M2 moped permit. An M1 Permit or an M1/M2 license will work as well. But with permits, you can only ride during the day. - Vehicle registration. This usually costs about \$19 and can be done via-mail. Processing takes around 6 weeks. - A headlight with a high-beam setting. - Left-hand mirror. - An engine that will only go up to 30mph on level ground. Chances are your motor will go faster than that, so just lie on the application. - The engine must be under the amount of CCs that would make the bike considered a motorcycle. Motorized bike engines are usually far below that. - Horn. - Rear light or reflector. - VIN number. Usually you can use the number stamped on the bike frame under the peddle crank. If there isn't a number on there, just make one up and stamp it somewhere on the bike frame. The only reason you need a VIN is for the registration. For the engine number, just use the last 4 digits of the VIN that you use.

# Tips

Typically, the kind of engine you will be getting in a kit will come from China. There are some better-quality engines out there like Morini motors, but they're much more expensive than what they're worth. Chinese motors are usually very functional but they can be a crapshoot. Try to find a distributor you're confident in.

As soon as you get your kit, replace as many of the parts(bolts, studs, etc.) as possible. The hardware that comes with the kits are usually okay but strip and break off easily. Any local hardware store will carry more suitable parts.

Once you have your kit fully installed and functional, use blue or red Loctite(or any threadlocker) to keep the nuts in place from the vibration.

The instructions that come with most kits are translated from Chinese or written by a Chinese native, so they're not always helpful. They're usually just good enough to put together most of the kit, but in the case that you get confused there are plenty of videos on the internet and there are some motorized bicycle forums that are happy to help out.

Chinese instructions tell you to break in the motor using a 16:1 ratio of gas to oil. In China, their oil is different so they use a 16:1 mix. If you're in the Americas or Europe, it's better to use a 24:1 mix on break-in and a 32:1 mix after break in. A 16:1 mix won't hurt your engine, though.

## Ride Safe

Try to ride with traffic and take a lane if possible, you are actually safer in traffic than trying to squeak by on the edge where any idiot can open a car door in front of you and send you flying out into traffic to be crushed by a bus. Don't get hyper aggressive, while it is normal to roll to an intersection and verify it is clear before crossing against a light or stop sign don't blindly blow intersections this is one way cyclists get killed. Do not try to hitch a free ride on a car or truck, hanging on makes you very unstable and you can end up surprised by a sudden acceleration, stop, or change in direction. Do not carry any bags or wear clothing that may interfere with your steering or the motion of your wheels or brakes, if you want to carry freight get panniers and proper racks or a good trailer. Keep your bicycle maintained, a brake or drive chain failure can be dangerous, even worse is if the bicycle itself should fall apart spilling you onto the street or highway. Make yourself seen through bright colors, sound signals, and proper lighting. Wear safety gear, no barefooting and wear a helmet.

## Maps

The folks at Google maps have thoughtfully provided us with an on-line map service for bicyclists, although the service is still in beta and asks for people to report unmapped bike routes and roads unsafe for bikes. Go to <http://maps.google.com/> and click "Get Directions" and then the bicycle logo.

# Crash Positions

If you are going to crash your cycle DO NOT stop the fall with your hands. Arm, hand, and clavicle fractures can be caused by attempting to protect yourself from a fall. Either stay clamped to your handlebars and let the bars take the pain or make fists and cross your arms against your chest, tuck your chin to save that pretty face ,and let your back and helmet take the beating. In order to train your body to tuck and roll it might be good to find some sand or soft grass to practice controlled falls.

# How to Lock Your Bike

Avoid the cheap wire or cable locks. A bike thief with access to a hacksaw can merely cut through this if your bike looks expensive enough to get a few crack rocks for.

For really good security, there are only two good locks that give you piece of mind: a steel "D" lock or one of the Kryptonite or similar chain heavy locks. Yes, these can be removed, but we want a potential thief to have to get blow torches or heavy stuff duty stuff like commercial bolt cutters or diamond tipped saws to get to it. A chain lock is really cool too because it can double as a fierce weapon!

When possible, try to put the chain or D lock through both the front tire and the frame. Many thieves will try to take the front tire to replace their front tire because of ease of stealing. This will not protect the seat. If you have a seat with a removable lever feature, ALWAYS take your seat with you as many times someone will rip off your seat to replace one that was ripped off from them. If you do not, consider using a hex bolt to fasten the seat. Many thieves will have access to a philips or flathead screwdriver, but many may not have an allen wrench laying around.

Two locks are always better than one, if you do not mind the inconvenience and live in an area with a large number of bike thieves.

Most of the time, bikes are stolen from outside the house. Thieves know that when you are asleep, they have hours to get through any lock on the bike if it is one with pawn value. Thieves, by nature, are very observant and notice bikes that are dormant in the same place for long periods of time. For this reason, ALWAYS put bikes inside your apartment with you. If out and about, always lock your bike up in traffic areas that are well lit. Move the place you lock your bike up from time to time to make it not look like an abandoned bike.

By far though, the best bike defense is to make sure your bike looks old and not new and worth crack rocks. A brand new Mongoose nice paint and custom racing parts is going to get swiped faster than a Huffy beach cruiser with stickers all over it and spray paint and scratches.

As always, BE SURE TO KEEP AN EXTRA COPY OF THE KEY TO YOUR LOCK IN A SAFE PLACE SEPARATE FROM YOUR KEYRING!. Nothing can suck worse than losing your keys then having to "steal" your own bike.

# Disguising Your Bike

Taking corporate logos from a new cycle and adding stickers and tape will quickly make it look broken or used and reduce the perceived value and risk of theft.

One method people have used is to "uglify" the bicycle by painting it a hideous color combination (such as mismatched florescent colors) with added flecks or using a simulated rust finish available in craft stores. If the thief thinks your bike isn't worth stealing, he'll probably make his way to the Shimano further down the rack. Replacing the bolts on your seat with Torx head bolts will slow down, or maybe even deter, a would-be thief. Grinding off the logos from the gears; a worn, fugly looking seat; mismatched pedals, tires and handlebar grips; all of these can make your bike look like an ugly duckling while keeping it riding like a swan. Remember, don't think "art bike" here, think "camouflage".

# Stashing Stuff

The pigs, TSA, and border cops already know that bikes are full of places to hide stuff, and in any case pot is so stinky any K9 unit walking by will find your stash, Bad piggy-doggy!! But for the most part everyone else sees a bicycle as an invisible solid object possibly worthy of stripping or looting but not for hiding stuff. Even if you are not carrying a party in your pocket, safely hiding your travel or emergency cash can be an issue, be sure to securely lock the frame. If the bike is not new it may appear not worth the effort of cracking a good lock. Remember a little hidden cash is always nice if you have to lam it on the quick.

Here are some ideas:

- The metal tubing on a bicycle is full of places to stash, you might need to use some sort of stuffing to hide your stash or avoid rattles,
- Don't drop a stash down where it can get stuck inside a bend or weld in the frame, you could waste hours with a coat hangar when you need to fish it out.
- Use a ziplock bag if there is a chance of riding or parking the bike in rain.
- A quick release seat tube may be too easy and obvious since walk-by seat theft is a problem in some areas
- An old nasty water bottle might be too gross for anyone to touch, if it is a dark color nobody can tell you have stashed something in it, use stuffing to avoid rattles.
- Water bottles are one of the safest places for an underage kid to stash and transport hard alcohol, but be sure they seal well or the leaking alcohol smell will give you away, clear moonshine, vodka, or Everclear are probably the safest since other liquors will leave a long lasting residue in the plastic.
- The tires on some bikes are a place to hide a joint or large value bill or two, don't overdo it or your ride will get bumpy or wobbly.
- The handlebar tube is a popular stash point, remove the caps or ends and blow, out comes the J.
- An old bike maintenance book from the 70's recommended hiding a joint or two under the wrapping tape of a road bike handlebars, this is also a great place for emergency cash.
- Any of these hiding places is perfect for stashing a spare bike lock key.
- Don't forget about a valuable stash when you give away an old bike or send it into the shop for work!

## Smart Security Tips

Don't leave all of your lights, pump, bags, helmet, and other gadgets, even a quick release seat post or front wheel on your bike when you are parked. They are all quick release for a reason, and not to make theft easy, keep this stuff ready to go in your bike messenger bag or pack, the front wheel and seat usually can be locked to your bike with your U-lock or cable. Just in case attach an extra red flasher to the back of your helmet where it won't be easily stolen keeping you legal.

A good rule of thumb is to never store a bicycle outside overnight, and if you have to lock up your bicycle, especially in an urban area, try to check on it at least once an hour, being viewable from a window near your desk or your restaurant seat is good enough. If there is an option to take your bicycle inside that is always the best choice.

Lastly karma counts, if you are honest in dealing with others, even with stores, there are many who trust that your stuff, or the stuff you really need will be available to you even if you are settled in a place where everyone has their stuff ripped off. Resist the urge to steal what you need and enjoy the cosmic benefits.



# Nutrition

Stay hydrated and fed while cycling, don't waste your time with lo-cal diet foods; you need fuel, around 7000 Calories is reasonable. If it does not cause you indigestion try to eat fats in the afternoon and evening to digest as you sleep. A banana which is rich in potassium ions can help prevent cramping from long rides. Backpack drinking systems are available now for low prices if you prefer using these to water bottles, these make it easy to sip all day so you can drink all that you need. Many sport drinks come in a decent squirt bottle that fits standard bottle cages. See Backpacking, Camping, and Cheap Chow for some low price portable food and drink suggestions. If you will be going through towns be sure to do some dumpster diving especially at pizza, bakery, and donut places; stock up on the free fuel.

Have some baking soda for indigestion; oatmeal, coconut milk or another laxative if you get backed up, which happens easily on the road eating less fiber and dehydration. You might want activated charcoal or other medicine for diarrhea mostly from forgetting to wash your hands or strange foods.

Gel shots are now a popular and expensive way to get that little sugar boost on hills, we have experimented and found that honey with salt added and put into a gel-shot bottle does the job on cramps and hills better for less money, try your own recipe designed for your body needs; suggested additives are table salt and potassium chloride(salt substitute) for cramping, and caffeine. Once filled put the gel flask into a pot of hot water, this will help dissolve any salts or other additives. Another idea is a 50/50 mix of honey and peanut butter, it is like a liquid sports bar. Shots are not a substitute to stopping for a sit down or lie down rest and meal or snack every few hours

The other vitamin C, caffeine. There is something to the idea that caffeine makes you pedal harder and longer, some call it liquid motivation. Caffeine is a diuretic, it makes you pee more, this means hydration becomes a more important priority than before. Many people just drink their coffee when taking a rest break, but there are coffee cup holders made for bikes as well as commuter cups with open bottom handles which clip nicely to a bicycle handlebar. There are unconfirmed reports of a person near Corvallis Oregon who built a Stirling steam assist motor for his bicycle and added a steam tap so he could make espresso on rest stops. Be wary of side effects. Stomach aches and horrible tiredness later in the day.

Mixing large dose caffeine or Ritalin with ephedrine or pseudoephedrine cold or asthma medications, or even going straight to real speed drugs like Adderall or other amphetamines can make you cycle harder for a long day, maybe two but even if you are in good shape when you start the reduced appetite and lack of rest will make you miserable for the rest of a tour, worst case it could cause life threatening cardiac problems or catastrophic overheating leading to heat stroke. These drugs are to be reserved for EMERGENCY USE ONLY.

# Gears

If your bike has multiple gears, use them! Pedaling shouldn't be a huge chore. It's better to lightly "spin" your cranks at a moderately fast cadence rather than standing up and pushing really hard one leg at a time, which is inefficient. It is possible to spin too fast: experiment with your gears to find what works best. Most people find their favorite cadence between 1 and 2 revolutions per second. If you just can't push anymore switch to the very lowest gear of all, hop off and push or carry the bike up the hill.

# Wind

Hills and mountains passes eventually reach a top and you get a free ride eventually, headwinds can make you feel like you are climbing Everest and there is no free downhill. If the winds are not in your favor try to find a route where you have some protection to slow the wind or ask locals how long the winds typically last and consider making camp for a day or two.

## Travel

If you travel frequently a folding or take-apart model of bicycle may be for you. Some can even be disassembled or folded to fit a suitcase or duffel-bag. This may save you a double fare or extra charge on airplane, bus, and train trips as well as hitch hiking a ride. If disassembling a bicycle for travel be sure to take off the derailleur as this is very easily broken. Don't worry about deflating your tires for fear that the unpressurized plane cargo hold can cause damage, in actuality direct summer sunlight heating the tires will cause a much greater change in tire pressure. See Airlines for more travel packing info.

## Bikes and other forms of Transit

As we mention above there are folding bicycles that can fit in a regular suitcase, preferably hard sided. If you are going to go with your regular bicycle here is our experience in the US.

- Amtrak. Amtrak will consider any bike as luggage for a 5 USD fee. However, you will have to remove the pedals and steering and put the entire bike in a box. If you do not have a box, Amtrak sells bike boxes for 15 USD. Some trains can carry unboxed bikes in a luggage car, the catch-22 is that customer service can give you bad info, we have heard of bitter old conductors destructively taking apart bicycles with pipe wrenches to box them when there was no luggage car, good luck getting reimbursed for damage, this is also a problem on several Canadian lines.
- Greyhound. Greyhound is probably the worst way to go on a bike. You must break the bike down completely and Greyhound charges shipping rates to wherever you want to go with the bike. This shipping can get expensive, and unless you have an expensive 300 USD touring bike, it may be more cost effective to buy another or rent a bike at the place you arrive.

## Touring

Bicycle touring involves traveling with a bicycle, hopefully something reliable that once you have done some conditioning to your body doesn't waste your effort or make you unnecessarily sore. The following are tips on making that trip easier or more comfortable, but in the end a bicycle and a way to carry a little camping gear are all you need. Don't let our suggestions on gear keep you on the couch instead of the road piloting your own destiny machine.

A touring bicycle is built tougher than a road racing bike using wider smooth tread road tires and wheels instead of razor thin speed tires. They are often on a hard tail mountain bike frame, frequently with solid front forks with braze ons for a rack and some type of multiple hand position handlebars. A quality drive train including long life well maintained tires, crank and hub bearings, shifters, cables, derailleurs, gears, and chain are important to squeeze the most forward movement out of your pedaling effort. A comfortable well fitted bicycle is important, ergonomic body to bicycle interface points can get sore but sometimes this is lack of conditioning, consider posture and the feel against your hands, feet, and seat, this really make a difference on how many hours/kilometers you can spend cycling. Smooth road tires designed for long miles, comfortable multi position handlebars and grips, padded gloves, bar ends, comfortable performance touring seat, and often clip-in or clipless snap-in pedals and cycling shoes are added for comfort on long rides. Be specific that you are purchasing for long tours, don't let the speed freaks at the pro cycling shop sell you racing stuff that might make you sore. Since you are carrying your own support gear racks and panniers are attached over the front and rear tires, care in sizing must be taken that your heels do not strike the rear panniers. Wearing a backpack on long rides will cause much unneeded fatigue and can quickly cut short a trip, let the bicycle frame shoulder the load. Bicycle lights are vital in case you have to drive near dusk when drivers are most distracted, redundant front and rear flashers and possibly a more powerful beam front light for night trails. Reflector tape and reflector vests or bright clothing will make you more visible day and night. Bring sun protection for your skin, eyes, and lips, especially in summer, your sunglasses will also protect from insects and pebbles kicked up by cars. Like backpacking and other travel gear your bicycle and overnight kit should be tested with short rides and backyard or nearby park overnights if possible.

You will need to include enough nutritious food in your plans, you should pack on lots of carbohs vitamins and minerals even a day or two before you set out. If you don't eat you will be facing the crash after just five or six hours pedaling, your gel or honey shot is only an emergency fix. If you feel weak and light headed stop and eat real food, even if you are on a time crunch don't try to ride past the glucose crash. We usually pack our own food but grab fresh fruits and vegetables and cheese when we make a stop, bananas are the top of the list for potassium cramp prevention and good energy. Hydration can mean over ten liters a day in the heat of summer, be sure to keep up with both sodium and potassium intake.

## Touring Gear

Unless you are exclusively eating in restaurants and going from couch to couch, hopping hotels, or B&B's you may want to choose from the following options:

- Tent-Hammock, bivvy sack, tarp tent, or cyclist ultra-light tent, Sleeping bag with mosquito net, ground pad
- Lightweight cookset and stove, The Triangia alcohol stove and lightweight aluminum pot and kettle set is popular, as are cartridge gas stoves, take enough fuel. Liquid fuel stoves are mostly for very long trips or third world exploration. On the cheap a few cans for cooking in and a soft drink can alcohol stove will work.
- Bike lock, pump, flat kit, and repair tools and parts including spare innertube; for longer trips away from bike shops consider a folded tire, hypercracker, spokes, brake pads, brake and shifter cables, and other spares
- Lightweight wind jacket even in summer, lightweight poncho or rainwear, long underwear, wool hat, and fleece vest or scarf for cool evenings

- Good cycling shoes, padded gloves, padded cycling shorts, quick dry cycling clothes; these will prevent soreness and rubbing on long rides and as you train. Cotton retains moisture dries slow, often leaves friction sores, and after a hard day you can catch a chill once the sun goes down.
- Some people like to have a set of compact comfortable off-bike clothes and shoes or sandals for after they wash off or make camp.
- Sunglasses of the wrap around style, sun block lotion, and sun block lipstick, don't forget the back of your neck, nose, ears, hands, and legs if you are have not been out in the sun much or are sensitive, for most people the lips never fully tan so they always need protection.
- MP3 or radio and good tough earphones, internationally a small shortwave radio set for English news.
- Calling card or mobile phone and emergency cash or credit card
- Maps and compass, GPS, cycle computer, printing google maps works for planning but have a large highway map too.
- Notebook and pencil in a ziplock bag to record the experience
- Small supply of baby wipes in a ziplock bag or those wet towelettes which come in a packet, toothbrush, perhaps a stick of travel deodorant; wipes also substitute for toilet paper in a pinch
- Toilet paper
- Two way radios with headsets if riding with a friend or group, much safer than turning to shout to trailing partners
- Water bottles, backpack water systems weigh heavy after a long day cycling, extra water in two liter soft drink bottles as needed, some cyclists need flavor for their water especially hard or disinfected water
- Purification tablets or filter should be carried just in case, if filtering water have a light folding water carrier or bag for use in camp.
- Snacks, gel shots and nutrition bars can be bought or DIY, be sure they don't make you feel dry. Salty food can prevent cramping, spicy stuff is usually not good for rolling snacks or short breaks especially in hot weather.
- Lightweight quick food, no cook stuff is best during the day, add boiling water type instant foods work good for dinner, resupply at grocery stores, don't over pack
- Packable quick dry travel towel, soap, dry line, flat universal drain plug for sink washing clothes if on a longer tour
- Extra socks wool or synthetic, lightweight change of clothes, underwear, hat or bandanna
- ID cards, consider cyclist trip insurance for injury, theft, and accident
- Helmet, head injuries suck, cover it in rude stickers, glue army men to it, whatever; just wear it!
- Shoes, the best ones are made for cycling, it is worth trying snap-in clipless pedals and shoes which allow longer power strokes. Choose something comfortable that breathes and doesn't compress your feet or cause blisters. Carry extra laces and always inspect for wear, blown seams, and tearing before any journey.

- Diaper rash salve, if it is really hot and humid or you are wearing cotton the sweat can get really concentrated and might leave burns similar to diaper rash, use at first sign of trouble.

## Cross Country Camping

A favorite way to cross long distances is to pedal and hitch rides during the day and stealth camp using a tent or hammock and if needed a rain cover or bug screen at night.

If you are stealthing it remember that your cycle gear is covered with reflectors and lights which really stand out under flashlights or car headlights giving your camp away. Put away your reflector vest and cover reflective and brightly colored items on the bike. Aim the bottom of your laid down bike toward the road, it has no reflectors and is also covered in dark road dust. It might even be advisable to carry a dark tarp or cover to protect you bike form rain, dew, and prying eyes. Be sure to lock your bicycle to a tree or pipe in case prowlers somehow detect your camp and attempt to quietly steal it. If you go out for a drink at a pub be wary of telling the locals exactly what you are doing, we have heard of after-hours hide and seek where the pubbers had fun searching for one cyclists stealth camp. It should be obvious that lights, mobile phones, computers, music, smoking, campfires, and chatting are all easily noticed save these activities for the morning or daytime breaks.

Often stealth camping is as easy as riding out of town until you see a stand of trees and brush. You can either blunder straight in if it is already dark and nobody will see your trail, or you can find an existing trail into the woods and cut sideways from that leaving less sign of your passing. Another important tip is never enter a fenced area, especially tall cyclone fence, you never know when the landowner will close the door or gate trapping you in for who knows how long. Avoid areas where it appears that parties regularly take place, beer cans, cheap liquor bottles, and cigarette butts are all evidence that this is a party hangout. There are plenty of tough guys who would love to prove their value by beating, robbing, or intimidating a lone touring cyclist. For privacy some riders will enter a day use only type of park, wildlife, or recreation area. Once the rangers lock the entry gate you will have the place to yourself, there might even be running water and electricity for you to use, as above only do this if you can just walk your bike around the exit gate before opening time.

Smart use of stealth, dull colored gear, and hidden by brush in urban industrial, rural, or wilderness areas means you don't pay for hotels and campsites, that can save you between \$10-\$60 a day. With some light backpacker gear in your panniers and smart use of gathering, dumpster diving, and social engineering at restaurants you should be able to travel nearly any distance for almost free. Good places to check out for unpatrolled wooded stealth camp areas that will appear on maps are near cemeteries, golf courses away from the fairway, electrical sub stations, near rail yards, near zoos, near highways, near airports, and some day use parks and wildlife areas. see Backpacking for more gear and campsite ideas.

## Inner City

Cycling can be quite fast in cities, as you can weave in, out, and alongside cars and into spaces they can't fit, allowing you to maintain a constant speed. Don't cycle on the sidewalk except where the path is wide and you do not pass any doors, not only does cycling on a busy sidewalk endanger pedestrians it also gives cyclists a bad reputation overall, unless the way is clear just use gear zero, push the bike.

Get pannier racks to fit on your bike over the wheels and a good set of waterproof panniers if you plan to spend more than thirty minutes pedaling without stopping or you plan to carry a very large amount of groceries or gardening supplies. For most around town schlepping though a good backpack

or courier bag is better. The reason to use a bag is that when you stop you can lock up the bike but the expensive panniers and their contents are nearly impossible to properly secure, although if you are stuck in this situation just leave them empty, open, and unzipped. Even better than taking your bags in is to also take your whole bicycle inside where you have control of it. A few places permit indoor storage of regular bicycles but if you have a good fold up model and a bag you can take it almost anywhere.

In a city environment large thick knobby mountain bike tires are really of no use and put a lot of extra drag on, get proper smooth road bike tires or at least some knobbies with a smooth center strip, these have much less rolling friction on roads allowing you to waste less work.

Some bus and commuter rail systems allow bicycles aboard, find out if this is possible and which routes offer this service. Avoiding use of a car and mixing in some public transport on your bicycle commute can help you save lots of time, money, and effort especially if there is a very steep hill or long stretch of highway between you and your destination.

# Folding Bicycle

Most folding cycles with 20 inch tires have long handlebar necks and seat posts, this means that regular panniers on the rear will interfere with pedaling. The good news is regular shopping tote bags can be easily hung from the handlebars and many large camping backpacks with side straps can be strapped down lying on its side with two straps to the cargo rack and one side strap running through the bottom of the bicycle seat to keep it upright, be sure that any hanging straps are secured and do not interfere with the wheels or chain.

While most folder bicycles have smaller tires have no fear, a few of us have traveled hundreds and thousands of miles both commuting and on several week cross country trips and we can attest that the gear ratio and large front sprocket makes pedaling just as easy as a full sized cycle. One of us has a folder with adjustable handlebar post height, high for upright posture so you can see cars and pedestrians in the city and dropped low for aggressive long distance highway travel.

We have seen folding bikes with a child seat made with nylon strap used like a like a swing and a second strap with buckle under the kids armpits, the child rides between the adult and the handlebars, be sure to have a helmet for the child.

If placed inside a large travel bag sold by some specialty folding cycle shops you can avoid an extra bicycle penalty charge on many buses and trains since the folded bike is then considered just another large bag as long as nobody sees inside.

Even if not traveling or commuting you have the ability to fold and bag up and take your bicycle with you nearly anywhere, from work to a small apartment, massively reducing the opportunity for thieves to get their hands on it.



# Keeping it Working

Once you have a bike, you'll want to keep it working well. One of the most important aspects of bike maintenance is the lubrication of the chain. Almost any cheap oil will work in a pinch to keep the chain moving freely and free of rust: just get the chain nice and wet, then wipe it dry, to reduce dirt buildup. Try to keep the oil off the wheels where it can hurt your ability to brake. If you have the choice buy a proper bicycle chain oil and grease to lube the bearings and chain, only use WD40 to unstick rust jammed parts then clean it off and oil the chain, WD40 draws moisture and encourages rust. Do not use WD40 on the chain or other 'sealed' parts, as it will dissolve the lubrication inside the chain. Replace a chain that becomes "stretched" this means that the link pins have become partly worn-through, this link to gear tooth size mismatch will eat up the sprockets of your drive train causing skipping and eventual failure.

If you have a problem repairing your bike, The Sheldon Brown Website is probably a good place to look for guidance. Sheldon Brown (1944-2008) was one of the best technical authorities on bicycles and he will be missed. <http://sheldonbrown.com/articles.html>

## Tools

Owning your own tools makes maintenance less expensive. Plus, many tools you use on bikes, like pliers, wrenches and screwdrivers, are not bike-specific, so they will be useful for all kinds of other things, too. Some bike-specific tools, such as spoke, freewheel, and pedal wrenches and specialized brake tools, will make maintenance much easier, and you'll be more likely to do a good job. Many cities have bike co-ops or shops where you can use their tools for free or for a small fee.

## Portable Tools

The world is full of sharp stuff just waiting to pop your tire and make you carry your bike home, always carry the kit for changing a flat tire. Rema tip-top repair kits with the sandpaper, tube of vulcanizer paste, and sticky patches is one favorite since it is so small and works really well, the repairs will outlast the innertube. Other tube patches especially cheap glueless sticky patches and even inexpensive grocery store "cheese grater" rubber cement patch kits have failed us many times. If you thought the cheapo kits were junk, then for sure avoid the mini fix-a-flat inflater cans, they fill your tire with goo that makes it almost impossible to properly patch later. Pop your quick releases or loosen the nuts and swap out the blown tube for a good one, repair the flat tube in the warm dry comfort of your own home later, but don't forget to put it back in your pack for spare. Remove the innertube from the tire and inflate so you can find the hole, if there is a nail puncture or thorn expect two and maybe more puncture holes. If you are at home and are having trouble finding the leak immersing the tube in the tub or covering with soap will make telltale bubbles. With the vulcanizing patches first sand the innertube smooth, this is especially important in areas with large mold lines on the rubber, apply a circle of paste larger than the patch and allow five minutes to dry before applying the patch. If you have the time to wait and the extra paste, rub a ring of paste around the edge of your patch and allow to dry to strengthen your patch job.

At a minimum carry a small quality puncture kit and mini pump or co2 cartridge quick inflater, but also carry a spare inner tube. A small toolkit can make the difference between being mobile in a few minutes or a long walk home. Tire valve caps can be purchased with valve core tools, this is useful if you have Schrader valve tires, occasionally a loose valve core will be the reason for a leaky tire. If you have Presta valve tubes you should get a Schrader adapter in case you want to use a garage air hose. Since you are carrying a pump, a needle valve for sports equipment and balls is easy enough to throw into your repair kit.

A very important tool especially if you are on a long trip is a rear sprocket tool or sprocket whip, this is the only safe way to remove the rear sprocket which allows you to replace right side spokes, some old or cheap bicycles often have a lock nut instead of a cartridge and use a large tool. These right side spokes are most often cut or weakened when the chain skips down behind the lowest sprocket. There is a mini tool made for road warriors with Shimano and SRAM gear cassettes called a hypercracker. A hypercracker is super portable and lets you loosen all but the tightest jammed sprockets by sticking it between your wheel and the frame and rolling backwards, the original is no longer made but several replacements have stepped in and upgraded the design, some even integrate a spoke tightening tool. Be careful, some designs put pressure on the frame dropout and can damage the dropout if the gear cartridge is really jammed, the better design puts the pressure on the lower triangle frame tube.

Folding combo bike tools will provide spoke tighteners, chain breakers, hex and screw drivers, sometimes even sockets or wrenches meaning you can fix and adjust most parts of your bike on the road as well as much of your other gear.

If you will be away from support for a long time you might even go so far as to carry extra tubes, a spare chain, brake pads, a brake/gear cable, a few spokes, folding tire, and extra patch kits. The parts and tools to service and replace wheel bearings might be advisable especially if you don't have sealed bearings.

## Road Crud

Beyond tools, it's important to do simple things to keep your bike in working order. Grit from the road sticks to your bike and its parts, even if you've got full fenders. Once a week, or after every ride in the wet, clean off the gears and the chain. An old toothbrush (clean it off first if you've used it before) and a rag will do wonders. The main place to focus on is in the actual teeth of the gears, most especially in between. Getting rid of all this destructive crud will increase the life of your gears and chain, and subsequently save you money and hassle. This takes all of ten minutes to do and is completely worth it.

## Rust

Stopping rust also helps: if there's any exposed unpainted or unfinished metal on the frame of your bike, you can touch it up with a little hobby paint. This isn't for cosmetic purposes so much as preventing rusting. Rust eats away at your bike and can compromise the structural integrity of the frame, so watch out: the last thing you want is for your frame to break while you're in traffic.

## Wheels and Tires

Bike tires lose pressure over time. Pump your tires up to the maximum PSI rating marked on your tires once a week and you'll never have to worry about it. Keeping your tires inflated properly reduces

rolling resistance, which means less work for you when you're pedaling. It also means that your wheels and tires are going to stand less a chance of being damaged due to extra stress on them. If you have the money invest in the best tires; Kevlar and good rubber will prevent blowouts and tread failures while lasting for several seasons, a folding spare tire is advisable for emergencies. Riding for a long time on low air pressure will destroy a tire sidewall, broken glass or jagged metal can cut some tires even in the tread area, if you should find yourself with a destroyed tire you can attempt to use a large tire patch or strong tape to limp yourself to town, even inserting a piece of cloth or cardboard between tire and tube or carefully wrapping that part of the inflated tube with fiber tape might help in an emergency. Check your spokes regularly for tightness and tighten with a spoke tool, since this will keep your wheels from warping or ripping out other spokes.

## **Brakes**

Many occasional cyclists or people who live in flat areas will let their bicycle rust away before wearing out the first set of brake pads, but if you are a somewhat serious cyclist and travel in urban, hilly, or mountainous territory you need to keep an eye on your brake pad wear. Some cheaper brakes just go metal on metal when worn out and can ruin your aluminum wheels, better brakes will wear into another material that is not as good at breaking so you will know to replace them. On long tours or trips a set of brake pads are a very useful few ounces in your panniers. Disk brakes are more like automotive brakes and can easily last for thousands of miles even in high usage mountainous areas if properly adjusted, even so disk brake pads are even smaller than rim brakes, an extra set in your kit is insurance against unexpected wear.

# Demonstrations

A cycle is a highly effective means of transport to and escape from a demonstration it can also be used to make a roadblock much as bicycle cops are known to do. Use an old bike for demonstrations as riot-police like to damage and confiscate bikes used in demonstrations.

# Yellow-White Bicycle Share Programs

Find out if cities you are traveling to offer a Yellow Bicycle Program. Furthermore, if you find yourself a new local in a larger city, think about aiding those following your traveling example and start up a Yellow Bike Program in your new town. To do this, you can either approach city official yourself with the idea, or simply start it up without them. You'll need some cheap yet solid bikes, and some yellow paint. You can draw up a small map of suggested pick-up and drop-off points in town for the bikes, like public/school/park/downtown bike racks, fences by vacant lots, etc. Tagging some of these places with a minimal yellow stencil design can help, too. Encourage friends to look out for the welfare of the bikes if they see them tossed or crashed-up, either reporting to you are fixing them themselves. You can also attach a little sticker or tag to every bike before you put it out explaining the ideals behind your program to prevent wanton theft or destruction, and also encourage visitors to follow your example.

A good idea is to paint every part of the bike even pedals and tires to reduce theft, resale, and stripping value, be sure to mask areas able to be damaged by paint. Single speed coaster brake bikes have the lowest moving part count and the highest resistance to abuse, unless you are in a very hilly city this is the best type for a yellow bikes program. If possible include some sort of front baskets, folding wire pannier baskets, and such to allow shopping trips.

Most programs in anything other than a tiny town or community result in many lost bikes, you may have to consider moving to a free membership program, order dozens of locks with the same key and require a library card proving that the member is a local to join the club and receive a key, this will slow down random vandals and thieves but will also stop the short term traveler from easily accessing a service they need most.

As a last option collect and fix junk bikes so you have a supply to give to travelers and locals letting them know that an unused or unneeded bicycle would be best utilized by returning it in good condition.



Cycling

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