

Chapter 1

Channeling Your Inner Grease Monkey

In This Chapter

- ▶ Entering the world of bike repair and maintenance
 - ▶ Caring for your bike before, during, and after you ride
 - ▶ Making emergency, basic, and advanced repairs
 - ▶ Performing monthly and annual maintenance
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1ust as you'd bring along a map if you were heading off for a trip on your bike into an unfamiliar area, you should have a roadmap for your venture into the world of bike repair and maintenance. The journey you're about to take or have already started can be fulfilling and bring lifelong rewards as long as you have a guide to help you get where you're going. We've written this book to be your guide — to take the mystery out of bike repair and maintenance.

In this chapter, we open up the roadmap and examine all the different routes that are possible when it comes to caring for your bike.

Starting down the Road of Bike Repair and Maintenance

When it comes to bike repair and maintenance, the starting point is knowing the various parts of a bike, their function, and how they work together (see Chapter 2). When you know the various parts of the bike, you know

- ✓ How bearings reduce friction when you ride
- ✓ How to tighten threads an appropriate amount
- ✓ Why cables for brakes are different than shifters

- ✓ What combination of gears is best for your bike
- ✓ How springs drive derailleurs
- ✓ How to make sure a quick release wheel doesn't become dangerous

When you've figured out all the parts of your bike and how they work together, you're ready to get started on your journey. But wait! First you need a shop where you can work (see Chapter 3). Working on a bike doesn't require a lot of space, but it helps to have a location where you can operate comfortably. You'll want enough space for tools, a drop cloth to protect the floor, good ventilation, and lighting.



If you're serious about bike repair and maintenance think about two major additions to your shop:

- ✓ A workbench with a flat surface where you can work
- ✓ A bike stand that will hold your bike off the ground

Good news! You don't have to run out to the store to start your tool set. Many of the tools you need are probably in your house. If you have a variety of wrenches, Allen wrenches (hex keys), screwdrivers, pliers, and a hammer, you'll be able to perform a number of basic procedures on your bike. As you move into more advanced procedures, you'll need some specialized tools.



You may want to wait to buy a specialized tool until you have to actually perform the procedure it's used for. For example, you may need a crank extractor to remove a crank arm. Instead of running out to the store and buying a crank extractor right now, wait until you do your annual maintenance on your bike and actually need that tool.

When you do decide to purchase tools — such as a chain tool, chain whip, freewheel tool, or spoke wrench — you need to decide whether to buy them on the cheap or invest in a more expensive brand that will likely last longer than your bike. In Chapter 3, we give you some options.

Finally, to keep the moving parts of your bike in good working order, purchase an all-purpose lubricating oil. Focus on lubricating your chain and the pivot points in places like the brakes and derailleurs. Having a cleaner around when you're working on your bike is just as important. Look for an environmentally friendly product, such as a citrus degreaser.

Before, During, and After Your Ride

Bike repair and maintenance involves more than caring for your bike while you have it stowed away at home. It's an ongoing process that'll involve action before, during, and after your ride.

Before you ride

The before-you-ride part of the trilogy deals mostly with the preventive maintenance steps you should take, which not only help your bike but increase the safety of each ride.

One of the best things you can do to improve your safety is to do a pre-ride inspection and maintenance check:

- ✓ Using a gauge, check that your tire pressure is equal to the recommended level on the tire's sidewall. (See Chapter 6 for more information on tires.)
- ✓ Inspect the brake to make sure the pads are not worn and they tightly grip the wheel when you squeeze the brake levers. (See Chapter 8 for more on brakes.)
- ✓ Look and listen for looseness in the handlebars, headset, wheels, and other part. (See Chapter 16 for more information on inspecting your bike.)

Whether you have a brand-new bike or a 20-year-old clunker, things go wrong when you ride. Your best bet is to be prepared and bring a toolkit along with you to help you if you get into a jam. Here are some steps you should take to prepare your toolkit (see Chapter 4 for more information):

- ✓ Have a small tire pump mounted to your frame.
- ✓ Include everything you need to repair a flat, including a patch, glue, tire levers, and spare inner tube (in case you blow a tube).
- ✓ Include some hand tools, such as Allen wrenches, screwdrivers, a spoke wrench, and pliers. These will allow you to make adjustments as you ride.
- ✓ Pack away a rag to wipe the grease off your hands when you're finished.

If you're planning an extended trip, you'll want to add some tools to your kit. These include a spare foldable tire, a chain tool, chain links and rivets, extra spokes, spare cables, lube, and the all-purpose MacGyver tool, duct tape. (See Chapter 4 for more information.)

While you're preparing for a possible roadside emergency, don't forget the following:

- ✓ Cellphone
- ✓ Identification
- ✓ Money
- ✓ Energy bars
- ✓ Rain jacket
- ✓ Sunglasses

While you ride

Although you may not think about riding as a time for bike maintenance, there are things you can do while you ride to care for and maintain your bike. If you get into the habit of doing these things, you'll extend the life of your bike and stay safer:

- ✓ Keep your tires properly inflated while you ride to improve rolling resistance and absorb shock.
- ✓ Pay attention to the road in front of you.
- ✓ Walk your bike over curbs and other objects.
- ✓ Raise yourself out of your seat and use your arms and legs like a horse jockey to absorb an impending blow.
- ✓ Shift into lower gears before you reach the steeper sections of inclines to put less strain on the chain and derailleurs.
- ✓ Look out for any creaks or loose parts on the bike before they're in need of repair.

For more information on safe riding practices, turn to Chapter 16.

After you ride

The trilogy of maintenance activities is completed with the after-you-ride phase. Dirt acts as a major abrasive against your bike and, as it works its way into the internal parts, it starts wearing out bearings and other components. After you ride is a great time to combat this enemy by washing your bike. Wet it down — but make sure you don't spray water directly at the hubs or bottom bracket. Use a brush and soap to scrub down your bike. Use degreaser to break up any difficult-to-remove grease.

Remember to always lubricate your bike after drying it — particularly the chain, derailleurs, brakes, and cogs. When you're finished, wipe off any excess grease so that it doesn't attract additional dirt.

For more information on washing and lubricating your bike, turn to Chapter 16.

Making Repairs

If you're lucky, you'll never have to repair your bike anywhere but in the comfort of your own shop at home. But nobody's that lucky. The fact is, if you ride long enough, sooner or later you're going to break down on the side of the road and have to make a repair, like one of the following:



- ✓ **Fixing a flat tire:** A flat tire is the most basic of emergency repairs (see Chapter 6).

Practice patching a tire before you have to — that way, if you get a flat on the road, you'll be able to fix it without stressing out.

- ✓ **Dealing with your wheels:** If you hit something with your wheel, the rim may bend or a spoke may break. You can repair both issues on the side of the road, depending on the severity of the damage (see Chapter 7).
- ✓ **Coping with the chain:** Your chain may act up on you while you ride. In some cases, a chain may jump off the smallest chainring and become jammed between the chain stay and the chainring. Worse, the chain may even break. To fix the chain, you'll need to have a chain tool and an extra link or two available, or else you'll be walking home (see Chapter 10).
- ✓ **Dealing with the derailleur:** The fact that derailleurs stick off the side of your bike make them vulnerable to being hit or knocked as you ride, which may bend or damage them. Depending on the situation, you may need to adjust the derailleur, reposition it, or remove it (see Chapter 14).



Some repairs you won't be able to make when you're on the road — mainly because specialized tools are needed. These include a loose crank, loose pedals, problems with the bottom bracket, or a bent frame. If any of these happens while you're on the road, your best bet is to call it a day, because riding could cause greater damage to your bike or lead to an accident.

Emergency repairs are the ones no one wants to deal with. Much more preferable are all the repairs you can do in your shop at home. Some of these repairs are simpler to perform than others. If you're new to bike maintenance and repair, try these basic repairs before attempting the more advanced ones:

- ✓ **Repair flat tires.** Flat tires are the main source of problems with tires and tubes, and you'll have to learn how to remove a tire, find the puncture in the tube, patch the leak, and reinstall it. After you've done it a few times, it's pretty easy. (See Chapter 6.)
- ✓ **Overhaul hubs.** Central to maintaining your wheels in good working order is caring for the hubs. Overhauling them at least once a year will keep your wheels spinning smoothly. (See Chapter 7.)
- ✓ **Change brake pads.** Few things are more important than being able to stop on your bike when you need to. Learn how to adjust your brakes and change the pads, and you'll be in good shape. (See Chapter 8.)
- ✓ **Adjust saddles and seat-post position:** This is where you can make adjustments that your butt will thank you for. Choosing the right saddle and then adjusting it to the right fit will make riding a more enjoyable and comfortable experience. (See Chapter 9.)
- ✓ **Replace chain.** The hard-working chain is one of the most exposed parts of your bike and, as a result, it needs a lot of care. After it has given you a few thousand miles, you'll need to replace it. (See Chapter 10.)

- ✔ **Replace cassettes and freewheels.** Over time, the teeth on the cogs of cassettes and freewheels will wear out causing your chain to skip gears. With a couple of tools and a little bit of effort, you can replace them yourself. (See Chapter 11.)

In reality, advanced repairs are not that advanced — they're just a little more complicated than basic repairs. In some cases, you'll need a specialized tool or two and you'll have to be careful to follow the directions step by step. With a little concentration and determination, you too can be a hard-core grease monkey who knows how to handle just about any repair on your bike, including the following:

- ✔ **Maintain the suspension.** Although you'll be limited to the kind of frame repairs you can perform, you can handle the maintenance and repair of suspension. In some cases, you'll need to make an oil change or adjust the air pressure depending on what type of suspension you have. (See Chapter 12.)
- ✔ **Overhaul the pedals, crankarms, and bottom bracket.** The pedal, crankarms, and bottom bracket are part of the drivetrain of your bike and work to transfer force to the rear wheel. They absorb a lot of force and should be overhauled every year. You'll need one or more specialized tools for this job. (See Chapter 13.)
- ✔ **Adjust the shifting system.** Most modern-day shifters are highly calibrated mechanisms that only require minor adjustments and maintenance. Most of your work supporting the shifting system will come from keeping the rear and front derailleurs in good working order. (See Chapter 14.)
- ✔ **Overhaul the steering system.** Handlebars, stem, and headset give you the smooth steering you expect of your bike. The bearings inside the headset take a pounding from the road so do this component a favor and adjust it frequently and overhaul it annually. (See Chapter 15.)

Even the most gung-ho grease monkeys should take some of the most difficult procedures to the pros at their local bike shop. Your local bike shop will have the expensive tools and, more important, the experience to handle these procedures properly. The following repairs should all be handled by a pro:

- ✔ **Repairing frames:** Frame repair is beyond the scope of what most people can accomplish at home. Some bike shops even recommend that you go to a frame specialist for many jobs or replace the frame altogether.
- ✔ **Fitting a headset:** Adjusting or overhauling a headset is an easy job that you can perform at home or on the road. But when you're installing a new headset, it's time to head to your local bike shop to leverage their experience and specialized tools.

- ✓ **Truing a wheel:** Truing is complicated stuff. You need specialized tools (such as a truing stand, a spoke tension meter, and a dishing tool) and a lot of practice.
- ✓ **Working on suspension:** There are many different types of front and rear suspension and all repair work on them should be done either by the manufacturer, your local bicycle store, or a specialty bicycle suspension repair facility.

Performing Maintenance

In bike repair and maintenance you have two options:

- ✓ You can focus on the maintenance so that your bike will need fewer repairs.
- ✓ You can ignore maintenance and end up having to do more repair work.

We prefer the former. If you do, too, here are the maintenance activities you should be performing on a monthly and annual basis.



Monthly maintenance

Put your monthly maintenance on the calendar for the months you ride and it will soon become a habit and normal part of your life.

Here are the steps you'll take during your monthly maintenance:

- ✓ **Check for structural damage.** Visually inspect your frame for signs of stress and structural damage, paying particular attention to areas where the frame is welded and hard-to-see sections such as the underside of frame tubes.
- ✓ **Inspect the wheels and tires.** Are they spinning straight? Are the tires worn, cut, or torn and are the spokes tight?
- ✓ **Clean your bike.** Dirt is your number-one enemy so if you don't have the time to clean your bike after every ride, make sure you do it monthly, especially if you've been riding on a regular basis.
- ✓ **Lubricate your bike.** You take your car for an oil change every 3,000 miles — make sure your bike gets a lube job every month that you ride to extend the life of its movable parts.

- ✓ **Check for tightness.** Even if they're tightened properly, fasteners such as nuts and bolts have a way of working themselves loose over time. You don't want something to fall off while you ride, which could be dangerous or cause you to lose a part, so check to make sure everything is tight as a part of your monthly maintenance.
- ✓ **Check the brakes.** When a squirrel runs out in front of you is not the time to discover that your brake pads are worn out. Check the brake pads for wear, confirm that the cable clamp has the cable securely in place, and give your brake levers a firm squeeze to confirm that the brakes evenly and firmly grab the rim.
- ✓ **Examine the chain, cogs, and chainrings.** Don't let your chain wear out because it'll shorten the life of your chainrings and cogs. Measure the chain to confirm that 12 links measure 12 inches and, if not, replace the chain or soon you'll be replacing the much more expensive cogs and chainrings.
- ✓ **Protect your saddle.** If you have a leather saddle, you'll need to pay attention here. Leather saddles are great, but they require a little extra work, including a regular leather treatment to clean the leather and replenish the leather's natural oils.
- ✓ **Focus on your suspension.** If you have suspension on your bike, inspect all suspension pivot and linkage bolts for correct tightness. If you have suspension forks, check your owner's manual for instructions on how to care for them.



For more information on monthly maintenance, including instructions on how to do all these things, turn to Chapter 17.

Annual maintenance

Do you yearn to ride your bike in the middle of those cold winter months? Do the next best thing and become reacquainted with your bike by giving it an annual overhaul:

- ✓ **Deep-clean the chain.** Soak the chain in an environmentally safe degreaser to get a deep clean in between the links, rollers, and pins.
- ✓ **True the wheels.** All those bumps over the course of the year are going to affect the tension of your spokes and, as a result, your wheel alignment. Take the time to bring it back into true.
- ✓ **Replace cables and the housing.** Inspects your cables and the housing in which they run. If you notice any kinks, rusting, fraying, or a buildup of dirt and grime, it's probably time to install new ones.

- ✓ **Overhaul the hubs.** Overhauling the hubs annually is especially important if you have traditional hubs with loose bearings. If you have sealed bearings, you probably can go a few years.
- ✓ **Overhaul the headset.** Yearly maintenance is a good time to inspect, clean, adjust, and overhaul the headset.
- ✓ **Overhaul the pedals.** Pedals are another component that utilizes bearings. As with the hubs, if you want them to continue spinning smoothly, give them an overhaul.
- ✓ **Overhaul the bottom bracket.** The bottom bracket is the center of your drivetrain. All the revolutions of the bottom bracket add up over the course of a year, so do your bike a favor and overhaul or replace the bottom bracket.
- ✓ **Clean the rear derailleur.** The focus here is on removing the derailleur so that you can clean the dirt where it builds up most, on the two jockey wheels.
- ✓ **Replace the brake pads.** Keep an extra set at home. They're cheap and easy to install, and when you install a fresh pair, they give you peace of mind.
- ✓ **Replace the handlebar grips or tape.** Need to add a little pizzazz to your bike after a long year of riding? Inject some color and life as well as some comfort for your hands by replacing the handlebar tape or grips.
- ✓ **Wax the frame.** If you take apart your bike for the annual overhaul, take advantage of easy access to a clean frame and give your bike a good waxing.
- ✓ **Check your accessories.** Don't make the mistake of discovering that you're missing an important accessory — like a patch kit, tool, or extra batteries for your light — when you have an emergency. Take a quick look at your accessories and confirm that everything is there.



For more information on annual maintenance, turn to Chapter 17.

