The Lowdown on Cyclecomputers

Install yours like a pro

By Sheldon Brown

There is a bewildering variety of cyclecomputers on the market, offering a wide range of features — but all cyclecomputers display speed, total distance and trip distance. In addition, most feature a stop watch function. Many also calculate average speed, maximum speed for the trip, and have a built-in clock.

Some models also show cadence (pedal RPM) which normally requires an extra wire and a magnet attached to one of the cranks. Some high-end units also incorporate a heart monitor function, very useful for race training but of questionable utility for a touring cyclist.

PHOTO BY MARK GORSETH

Cyclecomputers are invaluable for measuring the miles to your next waypoint.

There are two special cyclecomputers that have features not shared by other models:

Shimano Flight Deck™

The Shimano Flight Deck™ is designed for use with Shimano STI brifter (brake/shifter) units. The newer versions of these have the control buttons built into the sides of the brifter hoods, which helps to further centralize control. You can change modes, stop and start the computer; all without moving your hands from the hoods.

In addition, there is circuitry built into the brifters that tells the computer what gear has been selected. This provides three unique functions:

1. Gear selection display. There is a pictographic display on the Flight Deck that shows which chainring and rear sprocket is in use at any given time.

2. Gear Ratio. There is also a display of the gear ratio of the selected gear combination. Unfortunately, Shimano didn't take the trouble to make the unit calculate any of the standard gear designations, such as gear inches or meters development (much less my Gain Ratio system).

3. "Virtual cadence." Since the computer knows the gear ratio, wheel diameter and speed, it is able to calculate the cadence without running a wire down to the crank set.

The Flight Deck is a very neat installation, but is probably the most difficult of cyclecomputers to install. The switch modules attach to each brifter, and the wiring runs under the handlebar tape. You also need to program it not only with wheel size, but with the specific front and rear sprocket sizes of the gears on your bike.

Also, The Flight Deck is limited in its wheel size options, and won't work correctly except on bikes with full-sized front wheels.

BikeBrain

If you want the cutting edge of cyclecomputer technology, the BikeBrain is it. BikeBrain uses a 3Com Palm™ palmtop computer, with a special bicycle mount and special custom software. In addition to the usual cyclecomputer functions, BikeBrain is designed to display route information. You can download route profiles from various sources, then enter them into the Palm unit. It will display the cue sheet, tell you when and which way to turn, and also display an elevation profile chart of the ride. For details on this very elaborate product, see their Web site at bikebrain.com

■ Wired/wireless.

Some higher-priced cyclecomputers are "wireless," and have a small radio transmitter in the fork-mounted sensor unit. The advantage touted for the wireless units is freedom from messy wiring. The usual customer for one of these is somebody who had a wired cyclecomputer, but had trouble with it, or found the wiring unsightly. This is not unusual, since most people make a mess of their first attempt at

installing a cyclecomputer.

I advise against wireless cyclecomputers. They are a needless complication, and require a second battery for the transmitter. Wired units can be reliable and tidy, if you follow the installation tips below:

■ **Sensor/Magnet Alignment:**

1. With one-magnet cyclecomputers, you usually have a choice of several places on the wheel to attach the spoke magnet, depending on the spoke pattern of the wheel. Generally, it is best to mount the magnet as close in toward the hub as possible. The farther in you mount it, the more slowly it will pass by the sensor, giving the sensor's magnetic switch more time to respond. If the magnet is too far out, the computer may give erratic readings at higher speeds.

2. Once the magnet is installed, attach the sensor to the fork or stay. Test the computer and make any needed adjustments to sensor or magnet position before securing the wire or attaching the mounting shoe to the handlebar.

3. Most cyclecomputers come with plastic tie-wraps to secure the wire to the frame. These work O.K., but they are unsightly unless they match the color of the bicycle frame. You can do a more professional job if you secure the wire with transparent plastic tape. The best I have found is clear mylar package-sealing tape. It is commonly available in 2-inch-wide rolls, usually with a handy dispenser/cutter. Make sure the relevant parts of the frame and fork are clean, and wash your hands before taping the wire down.

4. Once the magnet and sensor magnet are installed, remove the front wheel. This will make it easier to secure the wire.

■ **Front-Mount Wire Routing:**

1. The wire should run up the back side of the fork blade, slightly to the inside. This is not only more aerodynamic, but it helps keep the wire inconspicuous. If the sensor is mounted in front of the fork blade, make sure that the wire crosses back on the inside of the blade. Leave a very small amount of slack from where the wire leaves the sensor to where you begin to secure it to the fork, just in case slight sensor adjustments become necessary later.

2. The most common mistake in wire routing is to attach the wire to the head tube of the frame. This should never be done with a front-mount cyclometer, because you then have to allow two large loops of slack where the wire enters and leaves the head tube so that it won't get tugged on when the handlebars turn. The wire should always follow the front brake cable. Since the fork, brake and handlebars always move together, the wire can be secured along its full length.

3. Usually, I prefer to run the wire up along the back side of the brake cable, securing it to the cable with clear tape. If the wire is longer than it needs to be, the excess can be bundled up and tucked into the bottom of the steerer.

4. On bikes that are likely to be overhauled often, it is more convenient to wrap the wire around the brake cable in a spiral. This makes it easier to disconnect the wire for headset service, handlebar swaps, etc. The downside of the spiral wrap approach is that is can be unattractive, especially on bikes with bright-colored brake cable housing.

5. When you install a front-mount cyclecomputer on a bike with cantilever brakes, install the magnet and sensor on the left side, if possible. This allows you to run the wire out along the back of the cantilever and in along the left side of the transverse cable to the main cable. Since most front cantilevers have the transverse cable anchored on the left side, this will still allow the transverse cable to be unhooked to release the brake for wheel changes.

6. Suspension forks actually are easier to install cyclecomputers on. Assuming you have traditional center-pull cantilevers, run the cable up the slider to the brake bridge, then follow the cable housing to the handlebar.

■ **Rear-Mount Wire Routing:**

1. Wires from rear-mount cyclecomputers or cadence pickups should always be run under the chainstay, under the bottom bracket and under the down tube. This keeps them out of sight.

2. For mountain bikes, hybrids, or bikes with Campagnolo Ergo brifters, secure the wire to one of the gear shift cables running from the down tube to the handlebar-mounted shift lever.

3. For bikes that don't have handlebar-mounted shift levers, or that use Shimano road STI, it is usually best to run the wire from the down-tube directly to the bottom of the front brake cable, then follow up as with front mounts. You must allow sufficient slack to allow the handlebars to turn as far as they can possibly go in both directions without tugging on the wire, or the wire will surely break.

4. The slack loop must be kept clear of the tire. If the wire can possibly touch the tire, it will, (Murphy's law, corollary #1894) and it will wear away to nothing in no time.

5. The slack loop should be kept where it will not get in the way of normal operation of down-tube mounted shift levers, or you may accidentally yank on the wire while trying to shift. ●

Adventure Cycling member Sheldon Brown's column appears regularly in Adventure Cyclist. Visit his Web site at http://www.sheldonbrown.com/harris