

# Sensor & Magnet Installation

NOTE: A duplicate set of these same instructions are in each Sensor Kit and Magnet Kit.

## Step 1 - Connect sensor to instrument head

Connect the sensor to a running instrument head & pass the magnet over the sensor. While the magnet is near the sensor note how "SENSOR CLOSED" shows on the CheckMate, or if the instrument is an AutoCal, ProComp or Rallye note the "-" is lit while in COUNT mode (See manual)

The gap between the sensor & magnet is NOT critical! Too close (less than 1/16" (1.5mm)) and the magnet may actually hit the sensor. Too large a gap (see right) and the instrument may miss some closures.

A gap of between 1/8" (3mm) and 1/4" (6mm) is a good target to shoot for. It will give you a good closed period for each wheel revolution.

NOTE: Unlike steel, aluminum does NOT block the magnetic field of the magnet.

## Multiple closures

Next run the magnet across the sensor as shown on the right. Note how the instrument registers a SINGLE closure for each pass.

However, if you pass the magnet as shown in the last photos, note how you get two, maybe three closures for each pass.



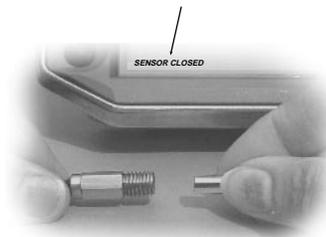
Multiple closures will cause the Current Speed to be erratic at very low speeds and the TOP/PEAK speed to be abnormally high on the AutoCal, ProComp or Rallye.

The CheckMate has enhanced software which filters multiple closures and provides accurate distance & speed readout at all times. Hence, a sensor used with a CheckMate may be installed with the magnet passing ACROSS the long side of the sensor.

CheckMate

AutoCal, ProComp or Rallye

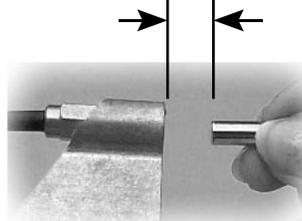
"SENSOR CLOSED"



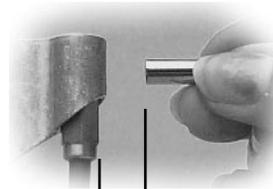
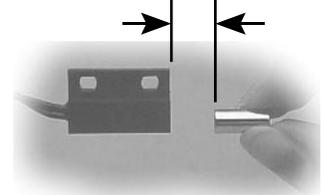
"DASH"



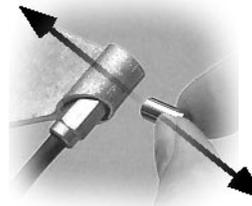
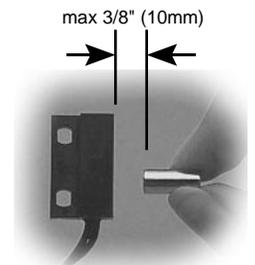
max 1/2" (12mm)



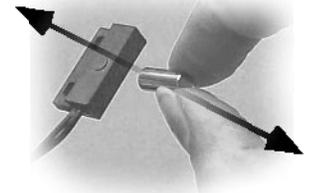
max 3/8" (10mm)



max 3/8" (10mm)



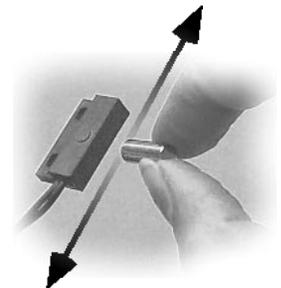
O.K. on CheckMate



O.K. on AutoCal, ProComp or Rallye.



O.K. on CheckMate



**Not good** on AutoCal, ProComp or Rallye.

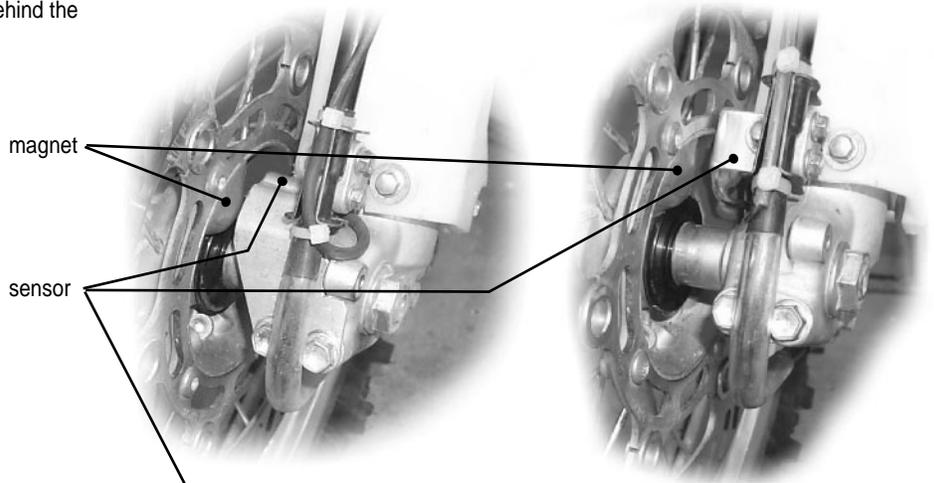
## Step 2 - Examples of sensor locations

There are only 2 basic locations - in front of the fork leg or behind the fork leg.

### 1 - Sensor in front of fork

GOOD: The magnet will then go inside of the hub, where it is well protected.

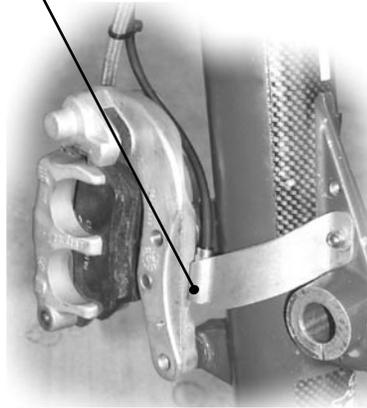
NOT SO GOOD: If you don't run a disc guard the sensor is out front where something could hit it.



### 2 - Sensor behind the fork

GOOD: The sensor is protected by the fork leg.

NOT SO GOOD: The magnet must be outside of the hub, where the chances of something hitting it are increased.



Avoid attaching the magnet directly to the brake disc. Doing so will weaken the magnet's effectiveness, plus the putty will not adhere well to the steel disk. Always putty the magnet to the aluminum tab, either in front of the disc (as shown) or behind the disc using the long 6mm screw in the kit.

magnet on aluminum tab

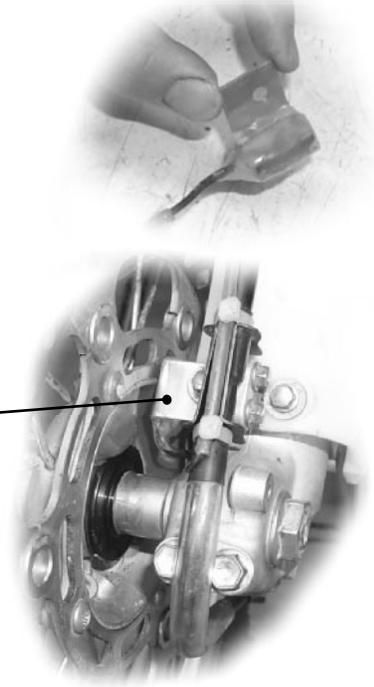


More examples of sensor locations

At the right is how Malcom Smith mounted a CheckMate sensor on one of his bikes.



At the far right we bend a tab to 90°, Silicone the sensor then attach it to an existing screw.



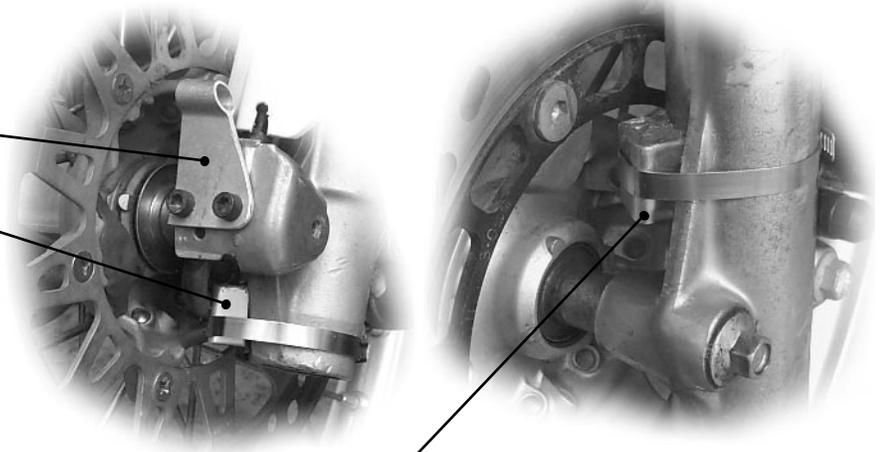
Note how the sensor is positioned inside of the tab, where it's well protected.

At the right are two examples in the same photo,

a CheckMate sensor tab cut & attached with two screws,

and a AutoCal sensor clamped below the axle.

These are both O.K. if you run a disc cover.

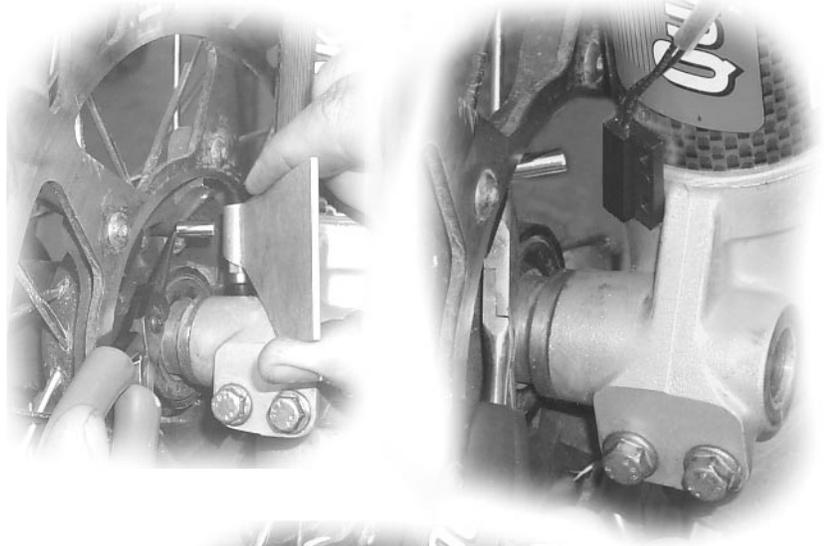


At the far right is a AutoCal sensor clamped above the axle. A great way to mount on conventional forks.

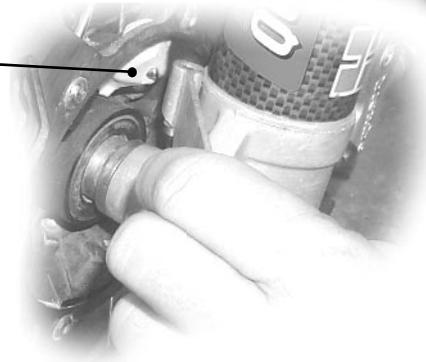
### Step 3 - Mockup sensor location for your bike

Hold the magnet with a needle nose pliers and find the best combination for your front end. We suggest the sensor in front of the fork leg, along with a disk cover.

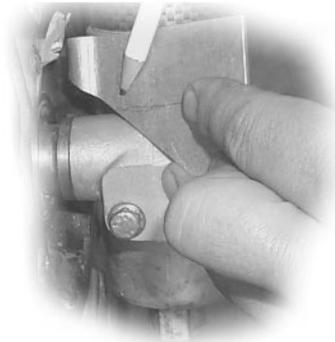
Look for existing screws on your front end, which may be used for securing the sensor tab. If none are handy then you'll have to drill a hole or two to attach the tab to your fork.



Take the TAN colored mockup putty from the magnet kit and place it where you plan to locate the magnet, then push the magnet into the putty. This will temporarily hold the magnet while you complete the sensor installation.



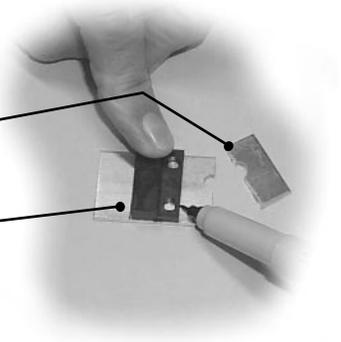
The CheckMate sensor bracket was designed to be hacksawed & bent into whatever shape is needed for your setup. Drill holes where required & either use the screws in the kit or use existing screws on the fork leg.



At the far right we mark a AutoCal tab where it will be hacksawed. A great way to attach the sensor is to prepare a tab as shown at the far right. This will work on almost every front end, plus it protects the sensor very well.

First hacksaw the tab right thru the center of the hole.

Then locate the sensor as shown and mark each side. These are where you will bend each end of the tab, forming a "U" shaped channel.



### Step 4 - Prepare sensor mounting tab

For the CheckMate tab clamp it in a vise and use a dull chisel just below the round section to form a bend. Do NOT beat on the round section with a hammer, as this will distort the threads inside.

For the AutoCal, ProComp or Rallye tab bend with your fingers as shown.

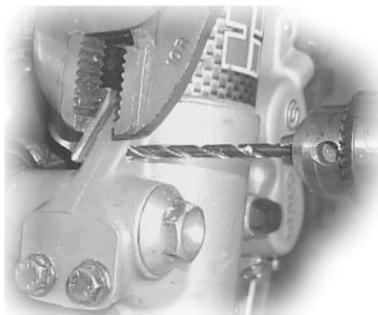
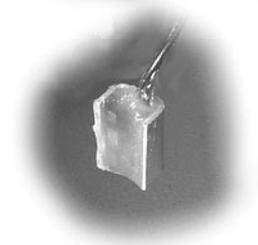
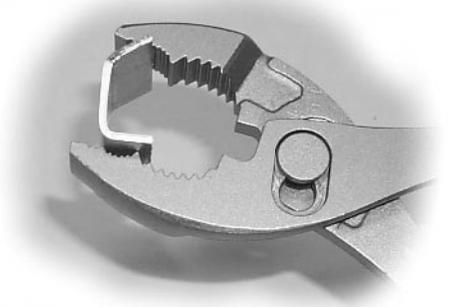
If you are forming a channel be sure to bend both sides to 90°.

Use a good grade of Silicone "Glue & Seal" to attach the AutoCal, ProComp or Rallye to it's tab.

First smear some Silicone onto the tab, place the sensor in it's final location, then let set.

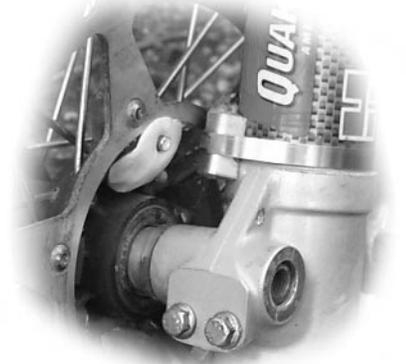
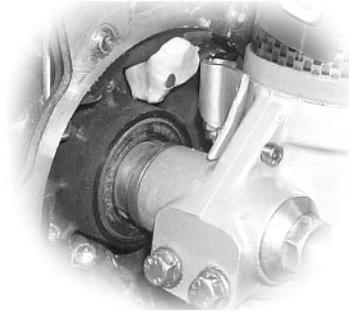
Finish by completely covering the sensor with Silicone.

On the CheckMate tab you may have to match drill a hole thru the fork and tab as shown at the right.

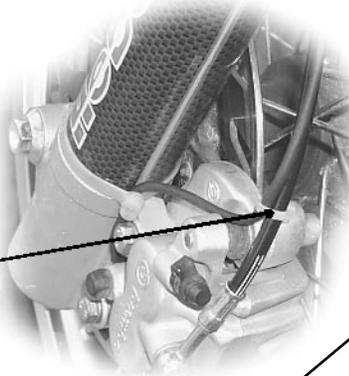


### Step 5 - Install sensor & route wires

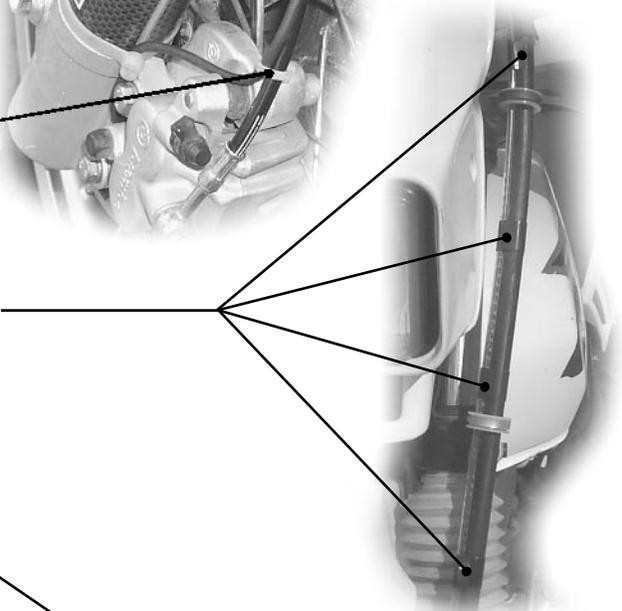
Bolt or clamp the sensor in it's final location. If you use a hose clamp as shown at the right be sure to use a STAINLESS STEEL clamp, like the one in the kit. A regular steel clamp will not allow the magnet to close the sensor.



Next run the wire up the brake hose. It's best to have a small loop near the sensor, to avoid putting any undue tension on the wires. High tension may cause erratic sensor operation or even sensor damage.



Zip-tie or tape the wire to the brake hose, then run the wire up the hose. If the sensor wire connector is too large to pass thru the guide, slit the guide with a hacksaw and spread it to allow the connector to slip thru.

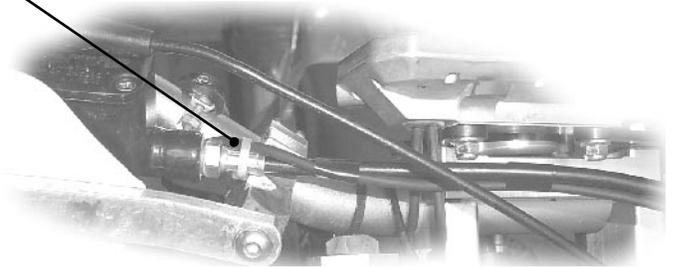


Between the guides electrical tape every 4" to 6" , or tape all the way up to the master cylinder.

Be sure to run the wire all the way to the master cylinder.



When using zip-ties on any wire be careful not to over tighten the zip-tie. This can cut wires!



Connect the sensor wire to the instrument head, then pump the forks while checking for the sensor wire snagging, or rubbing unnecessarily, against some part of the bike.

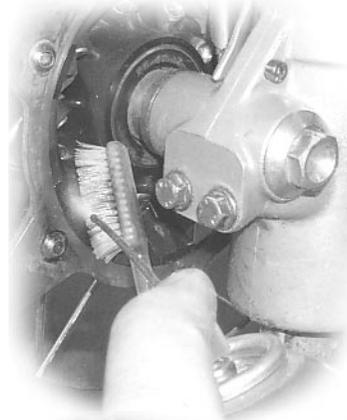


## Step 6 - Install final putty

Very slowly rotate the front wheel while the magnet passes over the sensor. Watch for the SENSOR CLOSED message or the DASH on the instrument's display. Mark the 2 points on the tire where the sensor closes and where it releases. It should stay closed for a minimum of 2 1/2 inches (60mm). Shown is over 5 inches (130mm), which is easy to obtain with the rare earth magnet.



Next clean the inside of the hub with brake contact cleaner, then select the GRAY colored Loctite putty from the magnet kit.



Roll the putty between your palms and keep folding it for at least 1 minute. The putty will look marbled at first - keep rolling. You will begin to feel heat being generated by the putty. The putty will become a dark, uniform color - now it's ready for application.



It hardens in 5 minutes so don't waste much time.

Push the putty onto the hub or the magnet plate. Wet your fingers with water and mold the putty to create a smooth surface.

Push the magnet straight into the putty, then cover the magnet with a thin skin of putty. Keep working the putty with wet hands until the putty is molded into every nook and cranny of the area you have chosen for your magnet installation.



Recheck for a good closed time for the sensor before the putty hardens all the way.

**Installation finished!**

