

# RADIAL SPOKE

## CAUTION

1. When a spoke is bent or broken, the spokes that are intact are under excess tension. To avoid breaking more spokes and eliminate this excess tension, you must loosen all the spokes. After replacing the defective spokes, increase the tension to its original level. This modification is not necessary on the Crossmax® UST® and Ksyrium® SSC® wheels.
2. On the Cosmic® Carbone SSC® wheel, if the breakage seems to be the result of fatigue, it is recommended to replace all the spokes on the side where the breakage occurred.

## TOOLS NEEDED

- 2 x 5 mm Allen wrenches.
- 1 x 10 mm Allen wrench.
- 1 hub wrench M40123.
- 1 spoke wrench for Crossride® and Cosmos® wheels.
- 1 key for spoke tension M40001 and 1 key for spoke support M40567 for the Cosmic® Carbone SSC® wheel.
- 1 tensionometer Hozan type for Crossride®, Cosmos® and Cosmic® Carbone SSC® wheels.
- 1 key for spoke tension and support M40494 for Crossmax® UST® and Ksyrium® SSC® wheels.
- Mavic thread lock M40315.
- Grease.

- 1 Disassemble the wheel (see pages 11 - 12). This procedure is not necessary on the rear Crossmax® UST® and Ksyrium® SSC® wheels. Just remove the spoke retention clips on the free wheel side without twisting it.

## CAUTION

Loosen the adjustment nut one turn in order not to damage the bearings.

Do not manipulate the free wheel body FTS kit (risk of losing the free wheel mechanism) and hold the free wheel body FTS kit in place on the hub to avoid losing oil.

- 2 Remove the axle (except for rear Crossmax® UST® and Ksyrium® SSC® wheels).
- 3 With a spoke wrench, loosen the nut of the defective spoke.
- 4 Remove the spoke or the spoke head by the hub body.
- 5 Place the new spoke by the interior of the hub with the head supporting :
  - the hub for Crossride® and Cosmos® wheels.
  - the hub for Crossmax® UST® and Ksyrium® SSC® wheels greasing the spoke head (contact zone between the spoke and the socket).
  - the grooved washers for the Cosmic® Carbone SSC® wheel.
- 6 Only for rear Crossmax® UST® and Ksyrium® SSC® wheels, replace the spoke retention clips on the free wheel side without twisting it.
- 7 Screw the nut of the socket and increase the tension of the spokes after putting one or two drops of Mavic thread lock on the socket thread (Crossmax® UST® and Ksyrium® SSC® only) :
  - 70 - 90 kg for a front Crossride® or Cosmos® wheel.
  - 110 - 130 kg for a front Cosmic® Carbone SSC® wheel.
  - Ksyrium® SSC® : 90 - 110 kg for the front wheel and 130 - 150 kg for the rear wheel on the free wheel side.
  - Crossmax® UST® : 100 - 120 kg for the front wheel and 130 - 150 kg for the rear wheel on the free wheel side.
- 8 Install the axle if it is necessary (see pages 11 - 12).
- 9 Adjust the bearing free play (install the wheel to the frame and put the bike down on the floor) : the adjuster nut contacts the external face of the bearing when using hub wrench M40123. Repeat this operation if the adjustment doesn't seem to be optimum.
- 10 Check the adjustment for truing and roundness (see page 16).
- 11 For the Crossmax® UST® and Ksyrium® SSC® wheels, let the thread lock dry with the wheel flat for about 2 hours before using it.

