track
road
triathlon
mtb

Technical Manual
2008

wheels
rims
systems
accessories

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a better bike begins here
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THIS DOCUMENT ONLY CONCERNS 2008 NEW PRODUCTS.

THIS DOCUMENT UPDATES THE EXISTING TECHNICAL INFORMATION AND SHOULD THEREFORE BE KEPT IN A SAFE PLACE FOR AN UNLIMITED LENGTH OF TIME ALONG WITH THE MANUALS FROM PREVIOUS YEARS.


YOU CAN GO ON-LINE TO THE WWW.TECH-MAVIC.COM WEBSITE TO FIND ALL THE EDITIONS OF THIS MANUAL SINCE 1997.
THE NEW 2008 TECHNICAL MANUAL

THE 2008 TECHNICAL MANUAL IS ESSENTIAL FOR ENSURING THE MAINTENANCE OF MAVIC PRODUCTS.
IT CONSISTS OF 4 MAIN PARTS:

- WHEELS
- RIMS
- SYSTEMS AND ACCESSORIES
- TOOLS AND CUSTOMER SERVICE

You will find two types of technical information in each of these parts:
- Product drawings showing individual part numbers;
- Procedures to properly maintain our products as well as those to follow concerning the warranty and Mavic Service Centers.

As we have already mentioned, this document only offers technical information regarding the modifications of the existing products and new products in the 2008 range. It therefore concerns:

- The following wheels:
  - Aksium, Ksyrium Équipe 08, Ksyrium SL 08, Ksyrium SL Pr emium, R-Sys, Cosmic Carbone Ultimate, Crossride UB, Crossride 08, Crosstrail Lefty, C29ssmax, Crossmax ST Lefty, Crossmax ST 20 mm.
- The following rims:
  - TN 719 Disc, EN 521 Disc.
- The following components:
  - Wintech E-Bolt, Wintech Alti.

We hope this document will meet your needs and we are always open to listen to any suggestions to improve it.

Thank you for your confidence in us and have a good 2008 season.

MAVIC CUSTOMER SERVICE

Our objective is that you be the only service partner for the customer.

You are also assured that through the use of our world wide Mavic Service Center (MSC), you will benefit from maximum assistance, the best possible service and professional advice.

Mavic MSC is at your disposal to guide you through the necessary procedures in the event you need to return a part, make repairs, make standard replacements, or to send you spare parts needed for product maintenance.

We simply ask that you contact your MSC prior to all returns (see page 45), to obtain the proper return procedures. Mavic will only accept authorized returns.

For further information, contact your MSC or consult the end pages of this technical manual.

www.tech-mavic.com

This website (in French and English) is at your complete disposal. Every bit of information about Mavic products released since 1997 is available in PDF format, in both English and French.

Visit: www.tech-mavic.com where you will find all of this information. To connect to this website you will need a login and password:

User name: mavic-com
Password: dealer

Among other things on the website, you will find:

- All the technical details on all the Mavic products marketed since 1997 - wheels, rims, components – or organised by discipline and by product;
- 4 recap charts of spoke lengths and references for all our wheels, which will help you to manage your spoke stock;
- A program for calculating spoke length: starting with a given Mavic rim, select the drilling and lacing pattern, the width of your hub, as well as the diameter of the flanges and the distance between the flanges and the frame or fork support; the spoke length required for building your wheel will automatically be calculated.

We hope that this tool will meet your needs. Do not hesitate to inform us of any malfunctioning or improvements that you would like to see.
Dear dealers, we would like to remind you that it is your responsibility to give the following to your customers:
- wheel instructions
- warranty card (that you have filled out)
- all accessories supplied with the wheel, in particular the setting tools and quick release skewers.

It is also your responsibility to provide the customer with the following recommended Mavic wheel instructions:

- Choose a suitable wheel designed for the type of riding you wish to do;
- It is imperative to respect the instructions in the Technical Manual for tire pressure and sizes (see charts page 5 to 20);
- Respect the appropriate spoke tensions; For more specific information about each of our products, please consult the product pages, the technical manuals from previous years or the website [www.tech-mavic.com](http://www.tech-mavic.com). Inappropriate spoke tension can generate much stress and quickly cause damage to the rim;
- Clean the rims regularly using the Mavic soft stone (M40410);
- Remove stones and metal particles from the brake pads to avoid premature rim wear;
- Do not use a rim if the braking surfaces are worn, if eyelets are missing, or in any other case where safety might be compromised. The rim is a part that wears out as do brake pads, and must be replaced if it is worn (sidewall hollowed by wear, or cut out, cracked rim...);
- Check or have your rims checked regularly, at least at the start of each season and if possible after intensive use should you have a doubt about spoke tensions or the type of tire used. When checking, look inside (especially under the rim tape) and outside the rim. Check for signs of fatigue or wear: deterioration of braking surfaces, cracks in the sidewalls or around the eyelets.
- Mavic recommends that the total weight of the rider and his/her equipment (not including the bike) does not exceed the values below:
  - Road and All Road wheels: 100 kg; above this value see the Mavic rim of fer;
  - MTB wheels: 85 kg for Cr ossmax SLR Disc, Cr ossmax SLR and Cr ossmax SL Disc 08 wheels; 100 kg for Cr ossmax ST Disc, Cr ossmax ST, Crossmax 29”, Crosstrail Disc, Crosstrail, Crossride Disc, Crossride and Crossride UB wheels; 115 kg for Crossmax SX, Deetraks and Deemax UST wheels.

Following these recommendations will guarantee longer product life for the wheels, maximum performance and riding enjoyment.
**AKSIUM 08**

**USE:** use only on a road bike. Any other use (such as on a tandem, cyclo-cross bike, or off-road use...) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- Front: 870 g
- Rear M10: 1000 g
- Rear ED10: 985 g

**BLACK WHEEL REFERENCES:**
- Front: 995 660 10
- Rear M10: 996 661 11
- Rear ED10: 995 662 12
- Pair M10: 995 664 14
- Pair ED10: 995 663 14

**SILVER WHEEL REFERENCES:**
- Front: 995 581 10
- Rear M10: 995 582 11
- Rear ED10: 995 652 12
- Pair M10: 995 653 14
- Pair ED10: 995 654 14

**RIMS**

**SALES REFERENCES:**
- Black: 996 092 15 (front and rear)
- Silver: 996 093 15 (front and rear)

**VALVE HOLE Ø**
- Ø: 6.5 mm
- Length: ≥ 32 mm

**RECOMMENDED TIRE WIDTH AND PRESSURE**
- Dimensions: ETRTO 622 x 15C
- Recommended tire width: 19 to 32 mm
- Recommended tire pressure: See page 21

**HUBS**

**MAINTENANCE:**
- Clean with a dry cloth or soap and water.
- Do not use pressurized water.

**WHEEL BUILDING**

**REFERENCES AND LENGTHS:**
- Black:
  - Front + rear non-drive side: 996 075 01, length 282.5 mm (per 10, with nipples)
  - Drive side: 996 076 01, length 305 mm (per 10, with nipples)
- Silver:
  - Front + rear non-drive side: 996 077 01, length 282.5 mm (per 10, with nipples)
  - Drive side: 996 078 01, length 305 mm (per 10, with nipples)

**FEATURES:**
- Black steel or silver stainless steel, bladed straight pull spokes with ABS nipples

**LACING PATTERN:**
- Front: radial
- Rear: crossed 2 drive side, radial non-drive side

**TENSION:**
- Front: 80 to 90 kg
- Rear drive side: 150 to 165 kg

**ACCESSORIES MAINTENANCE**

**WHEELS SUPPLIED WITH:**
- Traditional aluminum front quick release skewer M40350
- Traditional aluminum rear quick release skewer M40351
- ED10 12D locking ring M40640 (with rear wheel ED10)
- Rim tape
- User guide and warranty card

**MAINTENANCE**
- Replacing the front axle and bearings
- Replacing the rear axle
- Maintaining and replacing the free wheel mechanism
- Replacing the rear bearings
- Replacing a spoke
- Replacing the front rim
- Replacing the rear rim

To quickly consult this information in a practical manner, refer to [www.tech-mavic.com](http://www.tech-mavic.com)
**USE:** use only on a road bike. Any other use (such as on a tandem, cyclo-cross bike, or off-road use...) is strongly advisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- **Front:** 810 g
- **Rear M10:** 975 g
- **Rear ED10:** 960 g

**BLACK WHEEL REFERENCES**
- **WORLD:**
  - Front: 996 110 10
  - Rear M10: 996 111 11
  - Rear ED10: 996 112 12
  - Pair M10: 995 507 14
  - Pair ED10: 996 113 14
- **USA:**
  - Front: 995 504 10
  - Rear M10: 995 505 11
  - Rear ED10: 995 506 12
  - Pair M10: 995 507 14
  - Pair ED10: 995 508 14

**SILVER WHEEL REFERENCES**
- **WORLD:**
  - Front: 996 114 10
  - Rear M10: 996 115 11
  - Rear ED10: 996 116 12
  - Pair M10: 995 715 14
  - Pair ED10: 996 717 14
- **USA:**
  - Front: 995 704 10
  - Rear M10: 995 708 11
  - Rear ED10: 995 709 12
  - Pair M10: 995 715 14
  - Pair ED10: 995 716 14

**RIMS**
- **SALES REFERENCES:**
  - **Black**
    - Front: 996 050 10
    - Rear: 996 050 13
  - **Silver**
    - Front: 996 051 10
    - Rear: 996 051 13

**HUBS**
- **MAINTENANCE:** Clean with a dry cloth or soap and water. Do not use pressurized water.

**WHEEL BUILDING**
- **REFERENCES AND LENGTHS:**
  - **Black front:** 996 057 01, length 278 mm (per 9, with nipples)
  - **Black drive side:** 996 058 01, length 274 mm (per 10, with nipples)
  - **Black non-drive side:** 996 059 01, length 298.5 mm (per 10, with nipples)
  - **Silver front:** 996 060 01, length 278 mm (per 9, with nipples)
  - **Silver drive side:** 996 061 01, length 274 mm (per 10, with nipples)
  - **Silver non-drive side:** 996 062 01, length 298.5 mm (per 10, with nipples)

**FEATURES:**
- Black or silver stainless steel, bladed straight pull spokes with ABS nipples

**LACING PATTERN:**
- **Front:** radial
- **Rear:** Isopulse

**TENSION:**
- **Front:** 80 to 90 kg
- **Rear drive side:** 130 to 145 kg

**ACCESSORIES**
- Traditional aluminum front quick release skewer M40350
- Traditional aluminum rear quick release skewer M40351
- ED10 12D locking ring M40640 (with rear wheel ED10)
- Rim tape
- User guide and warranty card

**MAINTENANCE**
- Replacing the front axle and bearings: See 2004 TM page 19
- Replacing the rear axle: See 2004 TM page 20
- Maintaining and replacing the free wheel mechanism: See 2004 TM page 21
- Replacing the rear bearings: See 2004 TM page 22
- Replacing a spoke: See page 25
- Replacing the front rim: See page 25
- Replacing the rear rim: See page 27

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
**KSYRIUM SL 08** (clincher version)

**USE:** use only on a road bike. Any other use (such as on a tandem, cyclo-cross bike, or off-road use...) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- **Front:** 645 g
- **Rear M10:** 855 g
- **Rear ED10:** 840 g

**WHEEL REFERENCES:**
- **WORLD**
  - **Front:** 996 118 10
  - **Rear M10:** 996 119 11
  - **Rear ED10:** 996 120 12
  - **Pair M10:** 995 720 14
  - **Pair ED10:** 996 121 14
- **USA**
  - **Front:** 995 717 10
  - **Rear M10:** 995 718 11
  - **Rear ED10:** 995 719 12
  - **Pair M10:** 995 720 14
  - **Pair ED10:** 995 721 14

**REFERENCES AND LENGTHS:**
- **324 178 01**, length 284.5 mm (per 11, integrated nipples)
- **324 179 01**, length 275 mm (per 10, integrated nipples)
- **324 180 01**, length 298.5 mm (per 10, integrated nipples)

**RIMS**

<table>
<thead>
<tr>
<th>SALES REFERENCES:</th>
<th>Clincher</th>
<th>Front: 996 054 10</th>
<th>Rear: 996 054 13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VALVE HOLE Ø</strong></td>
<td>Ø: 6.5 mm</td>
<td>Length: ≥ 32 mm</td>
<td></td>
</tr>
</tbody>
</table>

When replacing the rear rim:
1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

**HUBS**

<table>
<thead>
<tr>
<th>MAINTENANCE:</th>
<th>Clean with a dry cloth or soap and water. Do not use pressurized water.</th>
</tr>
</thead>
</table>

**WHEEL BUILDING**

<table>
<thead>
<tr>
<th>FEATURES:</th>
<th>Black Zicral bladed straight pull spokes with integrated M7 nipples (self-locking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LACING PATTERN:</td>
<td>Front: radial, Rear: Isopulse</td>
</tr>
<tr>
<td>TENSION:</td>
<td>Front: 110 to 130 kg, Rear drive side: 120 to 140 kg</td>
</tr>
</tbody>
</table>

**ACCESSORIES WHEELS SUPPLIED WITH:**
- BR 601 front quick release skewer M40149
- BR 601 rear quick release skewer M40150
- Computer magnet M40540 (with front wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- Spoke wrench M40494 (with rear wheel)
- ED10 12D locking ring M40640 (with rear wheel ED10)
- User guide and warranty card

**MAINTENANCE:**
- Replacing the front axle and bearings: See 2005 TM page 20
- Replacing the rear axle: See 2007 TM page 20
- Maintaining and replacing the free wheel mechanism: See 2003 TM page 21
- Replacing the rear bearings: See 2003 TM page 22
- Replacing a spoke: See 2003 TM page 23
- Replacing the front rim: See 2003 TM page 27
- Replacing the rear rim: See 2007 TM page 17

To quickly consult this information in a practical manner, refer to [www.tech-mavic.com](http://www.tech-mavic.com)
**KSYRIUM SL 08** (tubular version)

**USE:** Use only on a road bike. Any other use (such as on a tandem, cyclo-cross bike, or of f-road use...) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- Front: 645 g
- Rear M10: 830 g
- Rear ED10: 815 g

**WHEEL REFERENCES:**
- **WORLD**
  - Front: 995 727 10
  - Rear M10: 995 728 11
  - Rear ED10: 996 122 12
- **USA**
  - Front: 995 727 10
  - Rear M10: 995 728 11
  - Rear ED10: 995 729 12

**RIMS**

- **Tubular**
  - Front: 996 055 10
  - Rear: 996 055 13

**HUBS**

**MAINTENANCE:**
- Clean with a dry cloth or soap and water.
- Do not use pressurized water.

**WHEEL BUILDING**

**REFERENCES AND LENGTHS:**
- **Front:**
  - Drive side: 324 178 01, length 284.5 mm (per 11, integrated nipples)
  - Non-drive side: 996 152 01, length 278 mm (per 10, integrated nipples)
- **Rear M10:**
  - 996 153 01, length 301.5 mm (per 10, integrated nipples)
- **Rear ED10:**
  - 324 130 01

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- **WORLD**
  - Front: 995 727 10
  - Rear M10: 995 728 11
  - Rear ED10: 996 122 12
- **USA**
  - Front: 995 727 10
  - Rear M10: 995 728 11
  - Rear ED10: 995 729 12

**VALVE HOLE Ø**
- Ø: 6.5 mm
- Length: ≥ 32 mm

**RECOMMENDED TIRE WIDTH AND PRESSURE**
- Dimensions: Ø 700 622 tubular only
- Recommended tubular width: 19 to 23 mm
- Recommended tire pressure: See page 21

**When replacing the rear rim:**
1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;  
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

**ACCESSORIES**

- BR 601 front quick release skewer M40149
- BR 601 rear quick release skewer M40150
- Computer magnet M40540 (with front wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- Spoke wrench M40494 (with rear wheel)
- ED10 12D locking ring M40640 (with rear wheel ED10)
- User guide and warranty card

**MAINTENANCE**

- Replacing the front axle and bearings: See 2005 TM page 20
- Replacing the rear axle: See 2007 TM page 20
- Maintaining and replacing the free wheel mechanism: See 2003 TM page 21
- Replacing the rear bearings: See 2003 TM page 22
- Replacing a spoke: See 2003 TM page 23
- Replacing the front rim: See 2003 TM page 27
- Replacing the rear rim: See 2007 TM page 17

To quickly consult this information in a practical manner, refer to [www.tech-mavic.com](http://www.tech-mavic.com)
**Features:**
- Black Zicral bladed straight pull spokes with integrated M7 nipples (self-locking)
- BR 601 Titanium front quick release skewer 323 485 01
- BR 601 Titanium rear quick release skewer 323 486 01
- Computer magnet M40540 (with front wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- Spoke wrench M40494 (with rear wheel)
- ED10 12D locking ring M40640 (with rear wheel ED10)
- Wheel bags M40135
- User guide and warranty card

**References and lengths:**

<table>
<thead>
<tr>
<th>Reference Code</th>
<th>Diameter Length</th>
<th>Dimensional Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>324 178 01</td>
<td>≥ 32 mm</td>
<td>Length: 284.5 mm (per 11, integrated nipples)</td>
</tr>
<tr>
<td>324 179 01</td>
<td>≥ 32 mm</td>
<td>Length: 275 mm (per 10, integrated nipples)</td>
</tr>
<tr>
<td>324 180 01</td>
<td>≥ 32 mm</td>
<td>Length: 298.5 mm (per 10, integrated nipples)</td>
</tr>
</tbody>
</table>

**Lacing pattern:**

- Front: radial
- Rear: Isopulse

**Maintenance:**

- Front axle and bearings: See 2005 TM page 20
- Rear axle: See 2007 TM page 20
- Free play adjustment wrench: See 2003 TM page 22
- Spoke wrench: See 2003 TM page 23
- ED10 12D locking ring: See 2003 TM page 27
- Wheel bags: See 2007 TM page 17
- User guide and warranty card: See 2005 TM page 20

**Wheels supplied with:**

- Feature: BR 601 Titanium front quick release skewer 323 485 01
- Feature: BR 601 Titanium rear quick release skewer 323 486 01
- Feature: Computer magnet M40540 (with front wheel)
- Feature: Free play adjustment wrench M40123 (with rear wheel)
- Feature: Spoke wrench M40494 (with rear wheel)
- Feature: ED10 12D locking ring M40640 (with rear wheel ED10)
- Feature: Wheel bags M40135
- Feature: User guide and warranty card

**Wheel weights without quick release skewer:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front:</td>
<td>645 g</td>
</tr>
<tr>
<td>Rear M10:</td>
<td>850 g</td>
</tr>
<tr>
<td>Rear ED10:</td>
<td>835 g</td>
</tr>
</tbody>
</table>

**Wheel references:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>World</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front:</td>
<td>996 129 10</td>
<td>995 891 10</td>
</tr>
<tr>
<td>Rear M10:</td>
<td>996 130 11</td>
<td>996 892 11</td>
</tr>
<tr>
<td>Rear ED10:</td>
<td>996 131 12</td>
<td>995 893 12</td>
</tr>
<tr>
<td>Pair M10:</td>
<td>995 894 14</td>
<td>995 894 14</td>
</tr>
<tr>
<td>Pair ED10:</td>
<td>996 132 14</td>
<td>995 895 14</td>
</tr>
</tbody>
</table>

**Accessories:**

- WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:
  - Front: 645 g
  - Rear M10: 850 g
  - Rear ED10: 835 g

**Rims:**

- SALES REFERENCES:
  - Clincher:
    - Front: 996 056 10
    - Rear: 996 056 13

**Valve hole Ø:**

- Ø: 6.5 mm
- Length: ≥ 32 mm

**Recommended tire width and pressure:**

- Dimensions: ETRTO 622 x 15C
- Recommended tire pressure: 19 to 28 mm

**When replacing the rear rim:**

1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

**Hubs:**

- MAINTENANCE: Clean with a dry cloth or soap and water. Do not use pressurized water.

**Wheel building:**

- FEATURES:
  - Black Zicral bladed straight pull spokes with integrated M7 nipples (self-locking)

- LACING PATTERN:
  - Front: radial
  - Rear: Isopulse

- TENSION:
  - Front: 110 to 130 kg
  - Rear drive side: 120 to 140 kg

**Wheel references:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>World</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front:</td>
<td>996 129 10</td>
<td>995 891 10</td>
</tr>
<tr>
<td>Rear M10:</td>
<td>996 130 11</td>
<td>996 892 11</td>
</tr>
<tr>
<td>Rear ED10:</td>
<td>996 131 12</td>
<td>995 893 12</td>
</tr>
<tr>
<td>Pair M10:</td>
<td>995 894 14</td>
<td>995 894 14</td>
</tr>
<tr>
<td>Pair ED10:</td>
<td>996 132 14</td>
<td>995 895 14</td>
</tr>
</tbody>
</table>

**Wheel weights without quick release skewer:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front:</td>
<td>645 g</td>
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<td>Rear M10:</td>
<td>850 g</td>
</tr>
<tr>
<td>Rear ED10:</td>
<td>835 g</td>
</tr>
</tbody>
</table>

**Recommended tire width and pressure:**

- Recommended tire pressure: See page 21

**When replacing the rear rim:**

1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

**Recommended tire width and pressure:**

- Dimensions: ETRTO 622 x 15C
- Recommended tire width: 19 to 28 mm

**Wheel bags:**

- MAINTENANCE: Clean with a dry cloth or soap and water. Do not use pressurized water.

**References and lengths:**

<table>
<thead>
<tr>
<th>Reference Code</th>
<th>Diameter Length</th>
<th>Dimensional Description</th>
</tr>
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<tbody>
<tr>
<td>324 178 01</td>
<td>324 178 01</td>
<td>Length: 284.5 mm (per 11, integrated nipples)</td>
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<td>324 179 01</td>
<td>324 179 01</td>
<td>Length: 275 mm (per 10, integrated nipples)</td>
</tr>
<tr>
<td>324 180 01</td>
<td>324 180 01</td>
<td>Length: 298.5 mm (per 10, integrated nipples)</td>
</tr>
</tbody>
</table>

**Maintenance:**

- Front axle and bearings: See 2005 TM page 20
- Rear axle: See 2007 TM page 20
- Free play adjustment wrench: See 2003 TM page 22
- Spoke wrench: See 2003 TM page 23
- ED10 12D locking ring: See 2003 TM page 27
- Wheel bags: See 2007 TM page 17

**To quickly consult this information in a practical manner, refer to:**

www.tech-mavic.com
**USE:** use only on a road bike. Any other use (such as on a tandem, cyclo-cross bike, or off-road use…) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

### R-SYS (clincher version)

**SALES REFERENCES:**
- Clincher
  - Front: 996 052 10
  - Rear: 996 052 13

**REFERENCES AND LENGTHS:**
- Front: 107 955 01, length 285 mm (per 9, integrated nipples)
- Drive side: 996 073 01, length 294.5 mm (per 10, integrated nipples)
- Non-drive side: 107 956 01, length 283.7 mm (per 10, integrated nipples)

**WHEEL REFERENCES:**
- WORLD:
  - Front: 996 123 10
  - Rear M10: 996 124 11
  - Rear ED10: 996 126 14
- USA:
  - Front: 995 472 10
  - Rear M10: 995 473 11
  - Rear ED10: 995 474 12

**ACCESSORIES:**
- BR 601 front quick release skewer M40149
- BR 601 rear quick release skewer M40150
- Computer magnet integrated into spoke (front wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- Spoke wrench 996 079 01 (with rear wheel)
- Spoke wrench M40567 (with rear wheel)
- Tracomp ring tool 996 080 01
- ED10 12D locking ring M40640 (with rear wheel ED10)
- Wheel bags M40135
- User guide and warranty card

**FEATURES:**
- Front and rear non-drive side: carbon tubular spokes (Tracomp)
- Rear drive side: black Zicral bladed straight pull spokes with integrated M7 nipples (self-locking)

**LACING PATTERN:**
- Front: radial, Tracomp system
- Rear: crossed 2 drive side, radial non-drive side, Tracomp system

**TENSION:**
- Front: 55 to 70 kg
- Rear drive side: 90 to 110 kg

**WEIGHTS:**
- Front: 570 g
- Rear M10: 800 g
- Rear ED10: 785 g

**MAINTENANCE:**
- Replacing the front axle and bearings: See 2005 TM page 20
- Replacing the rear axle: See page 24
- Maintaining and replacing the free wheel mechanism: See 2003 TM page 21
- Replacing the rear bearings: See page 24
- Important note for fitting Tracomp spokes: See page 28
- Identifying a damaged Tracomp carbon spoke: See page 28
- Removing / Refitting the Tracomp ring: See page 29
- Truing and replacing a Tracomp spoke: See page 30
- Replacing the front rim: See page 30
- Replacing the rear rim: See page 31

Never turn a Tracomp spoke nipple without having first removed the Tracomp rings from the hub, otherwise the spoke may be irreversibly damaged.

Never fit another computer magnet other than the one integrated.

Only transport the wheels in the wheel bags supplied. Avoid side shocks to the Tracomp spokes.

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
**R-SYS**  
(tubular version)

**USE:** use only on a road bike. Any other use (such as on a tandem, cyclo-cross bike, or off-road use...) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- Front: 570 g
- Rear M10: 775 g
- Rear ED10: 780 g

**WHEEL REFERENCES:**
- WORLD:
  - Front: 995 525 10
  - Rear M10: 995 526 11
  - Rear ED10: 996 127 12
- USA:
  - Front: 995 525 10
  - Rear M10: 995 526 11
  - Rear ED10: 995 527 12

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**RIMS**

**SALES REFERENCES:**
- Tubular:
  - Front: 996 053 10
  - Rear: 996 053 13

**WHEEL BUILDING**

**REFERENCES AND LENGTHS:**
- Front: 107 955 01, length 285 mm (per 9, integrated nipples)
- Rear M10: 996 151 01, length 297.5 mm (per 10, integrated nipples)
- Rear ED10: 107 957 01, length 286.7 mm (per 10, integrated nipples)

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**HUBS**

**MAINTENANCE:** Clean with a dry cloth or soap and water. Do not use pressurized water.

**ACCESSORIES**

**WHEELS SUPPLIED WITH:**
- BR 601 front quick release skewer M40149
- BR 601 rear quick release skewer M40150
- Computer magnet integrated into spoke (front wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- Spoke wrench 996 079 01 (with rear wheel)
- Spoke wrench M40567 (with rear wheel)
- Tracomp ring tool 996 080 01
- ED10 12D locking ring M40640 (with rear wheel ED10)
- Wheel bags M40135
- User guide and warranty card

**MAINTENANCE**

- Replacing the front axle and bearings: See 2005 TM page 20
- Replacing the rear axle: See page 24
- Maintaining and replacing the free wheel mechanism: See 2003 TM page 21
- Replacing the rear bearings: See page 24
- Important note for fitting Tracomp spokes: See page 28
- Identifying a damaged Tracomp carbon spoke: See page 28
- Removing / Refitting the Tracomp ring: See page 29
- Truing and replacing a Tracomp spoke: See page 30
- Replacing the front rim: See page 30
- Replacing the rear rim: See page 31

To quickly consult this information in a practical manner, refer to www.tech-mavic.com

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**WHEELS SUPPLIED WITH:**

Never turn a Tracomp spoke nipple without having first removed the Tracomp rings from the hub, otherwise the spoke may be irreversibly damaged.

Never fit another computer magnet other than the one integrated.

Only transport the wheels in the wheel bags supplied. Avoid side shocks to the Tracomp spokes.
USE: use only on a road bike. Any other use (such as on a tandem, cyclo-cross bike, or off-road use…) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:
- Front: 520 g
- Rear M10: 680 g
- Rear ED10: 665 g

WHEEL REFERENCES:
- Front: 995 005 10
- Rear M10: 996 006 11
- Rear ED10: 995 007 12
- Pair M10: 995 035 14
- Pair ED10: 995 036 14

FEATURES:
- Unidirectional carbon fiber spokes molded to the rim, traditional nipples at rear on non-drive side only.
- BR 601 Titanium front quick release skewer 323 485 01
- BR 601 Titanium rear quick release skewer 323 486 01
- ED10 12D locking ring M40640 (with rear wheel ED10)
- Wheel bags M40135
- 2 pairs of Mavic brake pads for carbon rims. HG/Sram/Mavic: 995 737 01, ED: 995 738 01
- Bearing adjustment wrench M40123.
- User guide and warranty card

LACING PATTERN:
- Front and rear drive side: rim to rim “diameter” spoke, crossed 2.
- Rear non-drive side: radial

Only transport the wheels in the wheel bags supplied. Avoid side shocks to the Tracomp spokes.

ACCESSORIES WHEELS SUPPLIED WITH:
- BR 601 Titanium front quick release skewer 323 485 01
- BR 601 Titanium rear quick release skewer 323 486 01
- ED10 12D locking ring M40640 (with rear wheel ED10)
- Wheel bags M40135
- 2 pairs of Mavic brake pads for carbon rims. HG/Sram/Mavic: 995 737 01, ED: 995 738 01
- Bearing adjustment wrench M40123.
- User guide and warranty card

MAINTENANCE
- Replacing the front axle and bearings: See 2005 TM page 20
- Replacing the rear axle: See page 23
- Maintaining and replacing the free wheel mechanism: See 2003 TM page 21
- Replacing the rear bearings: See page 24
- Replacing a nipple: See page 32

Clean with dry cloth or soap and water. Do not use pressurized water. Do not pull or press the spokes whilst handling the quick release skewer. Do not transport on a bike rack. Only transport the wheels in the wheel bags supplied. Avoid side shocks to the spokes.
CROSSRIDE UB

**USE:** use only on a Cross Mountain or Cross Country MTB fitted with rim mounted brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, free-ride or downhill bike…) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**

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<thead>
<tr>
<th></th>
<th>Front:</th>
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<tbody>
<tr>
<td></td>
<td>805 g</td>
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**WHEEL REFERENCES:**

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<td>Front:</td>
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<td>995 498 10</td>
</tr>
<tr>
<td>Rear:</td>
<td>996 109 13</td>
<td>995 499 13</td>
</tr>
<tr>
<td>Pair:</td>
<td>995 500 14</td>
<td>995 500 14</td>
</tr>
</tbody>
</table>

**RIMS**

**SALES REFERENCES:**

|          | Front and rear: 996 095 15 |

**VALVE HOLE Ø**

- Ø: 8.5 mm with 6.5 mm valve adapter
- Length: ≥ 32 mm

**RECOMMENDED TIRE WIDTH AND PRESSURE**

- Dimensions: Ø 26”
- ETRTO 559 x 17C
- Recommended tire width: 1.5 to 2.1
- Recommended tire pressure: See page 21

**MAINTENANCE:** Clean with a dry cloth or soap and water. Do not use pressurized water.

**HUBS**

**323 479 01**

**323 484 01**

**323 483 01**

As the front hub is made up of 3 parts, and the rear hub of 2 parts, maintenance operations to the hubs (replacing the axle or bearings) must always be carried out on the assembled wheel (hub, rim and spokes assembled).

**WHEEL BUILDING**

**REFERENCES AND LENGTHS:**

|          | Front + rear non-drive side: 996 069 01, length 253 mm (per 10, with nipples) |
|          | Drive side: 996 070 01, length 276 mm (per 10, with nipples) |

**LACING PATTERN:**

- Front: radial
- Rear: crossed 2 drive side, radial non-drive side

**TENSION:**

- Front: 100 to 120 kg
- Rear drive side: 120 to 140 kg

**ACCESSORIES**

- Traditional aluminum front quick release skewer: M40350
- Traditional aluminum rear quick release skewer: M40351
- Rim tape 559x20x0.6
- User guide and warranty card

**WHEELS SUPPLIED WITH:**

- Replacing the front axle and bearings
- Replacing the rear axle
- Maintaining and replacing the free wheel mechanism
- Replacing the rear bearings
- Replacing a spoke
- Replacing the front rim
- Replacing the rear rim

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
USE: use only on a Cross Mountain or Cross Country MTB fitted with disc brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, free-ride or downhill bike...) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:
- Front: 910 g
- Rear: 1060 g

WHEEL REFERENCES INTERNATIONAL STANDARD:
- Front: 995 867 10
- Rear: 995 868 13
- Pair: 995 869 14

RIMS

SALES REFERENCES:
- Front and rear: 996 096 15

VALUES HOLE Ø
- Ø: 8.5 mm with 6.5 mm valve adapter
- Length: ≥ 32 mm

RECOMMENDED TIRE WIDTH AND PRESSURE
- Dimensions: Ø 26”
- ETRO 559 x 17C
- Recommended tire width: 1.5 to 2.3
- Recommended tire pressure: See page 21

MAINTENANCE: Clean with a dry cloth or soap and water. Do not use pressurized water.

WHEEL BUILDING

REFERENCES AND LENGTHS:
- Front and rear: Front and rear: 996 071 01, length 270 mm (per 12, with nipples)

FEATURES:
- Silver stainless steel straight pull bladed spokes with Self Lock system and traditional spoke nipples

LACING PATTERN:
- Front and rear: crossed 2 on both sides

TENSION:
- Front disc side: 100 to 120 kg
- Rear drive side: 120 to 140 kg

ACCESSORIES WHEELS SUPPLIED WITH:
- Traditional aluminum front quick release skewer: M40350
- Traditional aluminum rear quick release skewer: M40351
- Rim tape 559x20x0.6
- User guide and warranty card

MAINTENANCE
- Replacing the front axle and bearings
- Replacing the rear axle
- Maintaining and replacing the free wheel mechanism
- Replacing the rear bearings
- Replacing a spoke
- Replacing the front rim
- Replacing the rear rim

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
CROSSTRAIL LEFTY

USE: use only on a Cross Mountain or Cross Country MTB fitted with a Cannondale Lefty fork and disc brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, fre-ride or downhill bike...) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:
- Front: 825 g
- Rear: 975 g

WHEEL REFERENCES:
- Front: 995 838 10
- Rear: 995 197 13
- Pair: 995 839 14

SALES REFERENCES:
- Front: 995 418 10
- Rear: 995 418 13

VALVE HOLE Ø
- Ø: 6.5 mm
- Length: ≥ 32 mm

RECOMMENDED TIRE WIDTH AND PRESSURE
- Dimensions: Ø 26"
- ETRO 559 x 19C and UST Tubeless compatible
- Recommended tire width: 1.5” to 2.3”
- Recommended tire pressure: See page 21

When replacing the front rim:
1. With the valve hole near you, the raised indicator bump must be to the left of the valve hole.
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the disc side and should be a non-braking spoke.

When replacing the rear rim:
1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side and should be a non-traction spoke.

MAINTENANCE: Clean with a dry cloth or soap and water. Do not use pressurized water.

WHEEL BUILDING

REFERENCES AND LENGTHS:
- Front and rear: 995 419 01, length 273 mm (per 12, integrated nipples)

FEATURES:
- Black, bladed, stainless steel, straight pull spokes with integrated M7 nipples (self-locking).

LACING PATTERN:
- Front and rear: crossed 2 on both sides

TENSION:
- Front disc side: 100 to 120 kg
- Rear drive side: 115 to 135 kg

ACCESSORIES
- “Lefty” assembly accessories M40777 (front wheel)
- Rear quick release skewer M40352
- Removable UST valve 995 282 01
- Wrench for aerodynamic spokes
- User guide and warranty card

MAINTENANCE:
- Fitting and removing the front wheel from the fork: See 2004 TM page 18
- Replacing the front axle and bearings: See 2004 TM page 19
- Replacing the rear axle: See 2004 TM page 20
- Maintaining and replacing the free wheel mechanism: See 2007 TM page 21
- Replacing the rear bearings: See 2004 TM page 22
- Replacing a spoke: See 2004 TM page 25
- Replacing the front rim: See 2004 TM page 26
- Replacing the rear rim: See 2004 TM page 29

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
**USE:** use only on a Cross Mountain or Cross Country MTB fitted with disc brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, free-ride or downhill bike…) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

### WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:

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<thead>
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<th></th>
<th>Front</th>
<th>Rear</th>
</tr>
</thead>
<tbody>
<tr>
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### WHEEL REFERENCES INTERNATIONAL STANDARD:

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<thead>
<tr>
<th></th>
<th>Front</th>
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<th>Pair</th>
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<tbody>
<tr>
<td>Code</td>
<td>995 856 10</td>
<td>995 857 13</td>
<td>995 858 14</td>
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</tbody>
</table>

### RIMS

**SALES REFERENCES:**

|        | Front: 996 063 10 | Rear: 996 063 13 |

**VALVE HOLE Ø**

- Ø: 6.5 mm
- Length: ≥ 32 mm

**RECOMMENDED TIRE WIDTH AND PRESSURE**

- Dimensions: Ø 29"
- ETRTO 622 x 19C and UST Tubeless compatible
- Recommended tire width: 1.5” to 2.3”

When replacing the front rim:

1. The raised indicator bump must be to the left of the valve hole.
2. The first spoke to the right of the valve hole should be on the disc side and should be a non-braking spoke.

When replacing the rear rim:

1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The first spoke to the right of the valve hole should be inserted onto the drive side into a marked hub hole.

### HUBS

**FEATURES:**

- Black (+1 decorated spoke per wheel), round, Zicral, straight pull spokes with integrated aluminum M7 nipples (self-locking).
- BX 601 front quick release skewer M40140
- BX 601 rear quick release skewer M40141
- Computer magnet M40540
- M7 spoke wrench M40494 (with rear wheel)
- UST valves 995 282 01
- Anti-ejection plugs 996 065 01 (with rear wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- User guide and warranty card

**WHEEL BUILDING**

**REFERENCES AND LENGTHS:**

|        | Front: 996 066 01, length 292 mm (per 13, integrated nipples) | Rear drive side: 996 067 01, length 279 mm (per 12, integrated nipples) | Rear non-drive side: 996 068 01, length 293.5 mm (per 12, integrated nipples) |

**LACING PATTERN:**

- Front: crossed 2 on both sides
- Rear: IsoPulse

**TENSION:**

- Front disc side: 110 to 130 kg
- Rear drive side: 120 to 140 kg

**MAINTENANCE:**

- Clean with a dry cloth or soap and water. Do not use pressurized water.
- Refer to www.tech-mavic.com for maintenance instructions.

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
**USE:** use only on a Cross Mountain or Cross Country MTB fitted with disc brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, free-ride or downhill bike…) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- Front: 805 g
- Rear: 935 g

**WHEEL REFERENCES INTERNATIONAL STANDARD:**
- Front: 995 862 10
- Rear: 995 857 13
- Pair: 995 863 14

<table>
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<th>RIMS</th>
<th>SALES REFERENCES:</th>
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<tbody>
<tr>
<td>Front: 995 063 10</td>
<td>Rear: 995 063 13</td>
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</table>

**VALVE HOLE Ø**
- Ø: 6.5 mm
- Length: ≥ 32 mm

**RECOMMENDED TIRE WIDTH AND PRESSURE**
- Dimensions: Ø 29”
- ETRTO 622 x 19C and UST Tubeless compatible
- Recommended tire width: 1.5” to 2.3”
- Recommended tire pressure: See page 21

When replacing the front rim:
1. With the valve hole near you, the raised indicator bump must be to the left of the valve hole
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the disc side and should be a non-braking spoke.

When replacing the rear rim:
1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

**MAINTENANCE:** Clean with a dry cloth or soap and water. Do not use pressurized water.

**HUBS**

**WHEEL BUILDING**

**REFERENCES AND LENGTHS:**
- Front: 996 066 01, length 292 mm (per 13, integrated nipples)
- Rear drive side: 996 067 01, length 279 mm (per 12, integrated nipples)
- Rear non-drive side: 996 068 01, length 293.5 mm (per 12, integrated nipples)

**FEATURES:**
- Black (+1 decorated spoke per wheel), round, Zicral, straight pull spokes with integrated aluminum M7 nipples (self-locking).

**LACING PATTERN:**
- Front: crossed 2 on both sides
- Rear: Isopulse

**TENSION:**
- Front disc side: 110 to 130 kg
- Rear drive side: 120 to 140 kg

**ACCESSORIES**

- BX 601 front quick release skewer M40140
- BX 601 rear quick release skewer M40141
- Computer magnet M40540
- M7 spoke wrench M40494 (with rear wheel)
- UST valves 995 282 01
- Anti-ejection plugs 996 065 01 (with rear wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- User guide and warranty card

**MAINTENANCE**
- Replacing the front axle and bearings: See page 23
- Replacing the rear axle: See 2006 TM page 20
- Maintaining and replacing the free wheel mechanism: See 2007 TM page 21
- Replacing the rear bearings: See 2003 TM page 22
- Replacing a spoke: See 2003 TM page 24
- Replacing the front rim: See 2007 TM page 22
- Replacing the rear rim: See 2006 TM page 17

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
CROSSMAX ST DISC 20 MM

**USE:** use only on a Cross Mountain or Cross Country MTB fitted with disc brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, free-ride or downhill bike...) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- Front: 755 g
- Rear: 895 g

**WHEEL REFERENCES INTERNATIONAL STANDARD:**
- Front: 995 573 10
- Rear: 995 119 13
- Pair: 995 574 14

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**
- Front: 755 g
- Rear: 895 g

**SALES REFERENCES:**
- Front: 995 400 10
- Rear: 995 400 13

**RIMS**

**VALVE HOLE Ø**
- Ø: 6.5 mm
- Length: ≥ 32 mm

**RECOMMENDED TIRE WIDTH AND PRESSURE**
- Dimensions: Ø 26"
- ETRTO 559 x 19C and UST Tubeless compatible
- Recommended tire width: 1.5” to 2.3”
- Recommended tire pressure: See page 21

**When replacing the front rim:**
1. With the valve hole near you, the raised indicator bump must be to the left of the valve hole
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the disc side and should be a non-braking spoke

**When replacing the rear rim:**
1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

**HUBS**

**MAINTENANCE:** Clean with a dry cloth or soap and water. Do not use pressurized water.

**WHEEL BUILDING**

**REFERENCES AND LENGTHS:**
- Front: 995 401 01, length 261 mm (per 12 + 1 decorated, integrated nipples)
- Rear drive side: 995 402 01, length 248 mm (per 12, integrated nipples)
- Rear non-drive side: 995 403 01, length 263 mm (per 12, integrated nipples)

**FEATURES:**
- Black (+1 decorated spoke per wheel), round, Zicral, straight pull spokes with integrated aluminum M7 nipples (self-locking).

**LACING PATTERN:**
- Front: crossed 2 on both sides
- Rear: Isopulse

**TENSION:**
- Front disc side: 110 to 130 kg
- Rear drive side: 110 to 130 kg

**ACCESSORIES**

**MAINTENANCE**

- BX 601 rear quick release skewer M40141
- Removable UST valve 995 282 01
- Computer magnet M40540 (with front wheel)
- M7 spoke wrench M40494 (with rear wheel)
- Anti-ejection plugs 996 065 01 (with rear wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- User guide and warranty card

- Replacing the front axle and bearings
- See page 24
- Replacing the rear axle
- See 2007 TM page 20
- Maintaining and replacing the free wheel mechanism
- See 2007 TM page 21
- Replacing the rear bearings
- See 2003 TM page 22
- Replacing a spoke
- See 2003 TM page 24
- Replacing the front rim
- See 2007 TM page 22
- Replacing the rear rim
- See 2006 TM page 17

To quickly consult this information in a practical manner, refer to [www.tech-mavic.com](http://www.tech-mavic.com)
**CROSSMAX ST LEFTY**

**USE:** use only on a Cross Mountain or Cross Country MTB fitted with a Cannondale Lefty fork and disc brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, free-ride or downhill bike…) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

**WHEEL WEIGHTS WITHOUT QUICK RELEASE SKEWER:**

- Front: 745 g
- Rear: 895 g

**WHEEL REFERENCES INTERNATIONAL STANDARD:**

- Front: 995 834 10
- Rear: 995 913 13
- Pair: 995 835 14

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**RIMS**

**SALES REFERENCES:**

- Front: 996 146 10
- Rear: 996 146 13

**VALVE HOLE Ø**

- Ø: 6.5 mm
- Length: ≥ 32 mm

**RECOMMENDED TIRE WIDTH AND PRESSURE**

- Dimensions: Ø 26”
- ETRTO 559 x 19C and UST Tubeless compatible
- Recommended tire width: 1.5” to 2.3”

When replacing the front rim:

1. With the valve hole near you, the raised indicator bump must be to the left of the valve hole.
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the disc side and should be a non-braking spoke.

When replacing the rear rim:

1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

**MAINTENANCE:** Clean with a dry cloth or soap and water. Do not use pressurized water.

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**HUBS**

**REFERENCES AND LENGTHS:**

- 995 401 01, length 261 mm (per 13, integrated nipples)
- 995 402 01, length 248 mm (per 12, integrated nipples)
- 995 403 01, length 263 mm (per 12, integrated nipples)

**WHEEL BUILDING**

**FEATURES:** Black (+1 decorated spoke per wheel), round, Zicral, straight pull spokes with integrated aluminum M7 nipples (self-locking).

**LACING PATTERN:**

- Front: crossed 2 on both sides
- Rear: Isopulse

**TENSION:**

- Front disc side: 110 to 130 kg
- Rear drive side: 110 to 130 kg

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**ACCESSORIES**

- BX 601 rear quick release skewer M40141
- Removable UST valve 995 282 01
- Computer magnet M40540 (with front wheel)
- M7 spoke wrench M40494 (with rear wheel)
- Anti-ejection plugs 996 065 01 (with rear wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- User guide and warranty card

**MAINTENANCE**

- Replacing the front axle and bearings See 2004 TM page 18
- Replacing the rear axle See 2007 TM page 20
- Maintaining and replacing the free wheel mechanism See 2007 TM page 21
- Replacing the rear bearings See 2003 TM page 22
- Replacing a spoke See 2003 TM page 24
- Replacing the front rim See 2007 TM page 22
- Replacing the rear rim See 2006 TM page 17

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
USE: use only on a Cross Mountain or Cross Country MTB fitted with a Cannondale Lefty fork and disc brakes. Any other use (such as on a tandem, Cyclo-Cross bike, road bike, free-ride or downhill bike…) is strongly inadvisable, is the sole responsibility of the user and voids the Mavic warranty.

RIMS

| SALES REFERENCES: | Front: 996 139 10 | Rear: 996 139 13 |

Valve Hole Ø

- Ø: 6.5 mm
- Length: ≥ 32 mm

Recommended Tire Width and Pressure

- Dimensions: Ø 26”
- ETRO 559 x 19C and UST Tubeless compatible
- Recommended tire width: 1.5” to 2.3”

When replacing the front rim:
1. With the valve hole near you, the raised indicator bump must be to the left of the valve hole
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the disc side and should be a non-braking spoke.

When replacing the rear rim:
1. With the valve hole near you, the 2 raised indicator bumps must be to the right of the valve hole;
2. The spoke in the 1st hole to the right of the valve hole should be inserted on the drive side into a marked hub hole.

HUBS

Recommended tire pressure: See page 21

MAINTENANCE: Clean with a dry cloth or soap and water. Do not use pressurized water.

WHEEL BUILDING

| REFERENCES AND LENGTHS: | Front: 996 141 01, length 261 mm (per 13, integrated nipples) | Rear drive side: 996 142 01, length 248 mm (per 12, integrated nipples) | Rear non-drive side: 996 143 01, length 263 mm (per 12, integrated nipples) |

LACING PATTERN:

- Front: crossed 2 on both sides
- Rear: Isopulse

TENSION:

- Front disc side: 110 to 130 kg
- Rear drive side: 110 to 130 kg

FEATURES:

- White (+1 decorated spoke per wheel), round, Zicral, straight pull spokes with integrated aluminum M7 nipples (self-locking).

ACCESSORIES

- BX 601 front quick release skewer M40140
- BX 601 rear quick release skewer M40141
- Computer magnet M40540
- M7 spoke wrench M40494 (with rear wheel)
- UST valves 995 282 01
- Anti-ejection plugs 996 065 01 (with rear wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- User guide and warranty card

WHEELS SUPPLIED WITH:

- BX 601 front quick release skewer M40140
- BX 601 rear quick release skewer M40141
- Computer magnet M40540
- M7 spoke wrench M40494 (with rear wheel)
- UST valves 995 282 01
- Anti-ejection plugs 996 065 01 (with rear wheel)
- Free play adjustment wrench M40123 (with rear wheel)
- User guide and warranty card

MAINTENANCE:

- Fitting and removing the front wheel from the fork
- See 2004 TM page 18
- Replacing the front axle and bearings
- See 2004 TM page 19
- Replacing the rear axle
- See 2007 TM page 20
- Maintaining and replacing the free wheel mechanism
- See 2007 TM page 21
- Replacing the rear bearings
- See 2003 TM page 22
- Replacing a spoke
- See 2003 TM page 24
- Replacing the front rim
- See 2007 TM page 22
- Replacing the rear rim
- See 2006 TM page 17

To quickly consult this information in a practical manner, refer to www.tech-mavic.com
**INDEXING COMPATIBILITY OF ROAD WHEELS**

Since 2004, all Mavic road wheels are fitted with the FTS-L free wheel body, and are consequently M10 and ED10 compatible (you choose when ordering the wheel).

Refer to the following chart to know which wheel and which cassette to use according to your transmission:

<table>
<thead>
<tr>
<th>Your transmission:</th>
<th>SHIMANO</th>
<th>CAMPAGNOLO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of speeds:</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>ED10</td>
<td>M10</td>
</tr>
<tr>
<td>Mavic wheel to be used:</td>
<td>M10</td>
<td>ED10</td>
</tr>
<tr>
<td>M9 positioning spacer M40417*:</td>
<td>With</td>
<td>With</td>
</tr>
<tr>
<td>Type of cassette to be used:</td>
<td>HG8</td>
<td>M10**</td>
</tr>
<tr>
<td>M10**</td>
<td>HG9</td>
<td>M10**</td>
</tr>
<tr>
<td>ED8</td>
<td>M10</td>
<td>ED8</td>
</tr>
<tr>
<td>M9</td>
<td>M10</td>
<td>M110</td>
</tr>
</tbody>
</table>

*The M9 positioning spacer is also supplied with the M10 wheels and the gray spacer kit M40409. It must be:
• Kept for mounting with a Shimano 8, 9 or 10 speed transmission.
• Removed for mounting with a Campagnolo 8, 9 or 10 speed transmission.

**To obtain information on the M10 cassette, refer to our website www.mavic.com, our retailer catalogue or to the user guide supplied with the cassette.**

**SPECIAL CASE FOR THE SPEEDCITY WHEEL**

Since 2004, the Speedcity wheel is offered with M10 compatibility (in place of HG9 in 2003). It is, of course, supplied with the positioning spacer M40417.

Consequently, it can be used with:
• the HG 8 or 9 speed cassettes, by keeping the M9 positioning spacer M40417;
• the M10 Mavic cassettes with 8 (alu spacers), 9 (gray spacers) or 10 (yellow spacers) speeds, by removing the M9 positioning spacer M40417;

Since 2005, by using the FTS-L technology, it is also possible to mount an ED10 free wheel body on a Speedcity wheel and therefore an ED9 or ED10 cassette.

**RECOMMENDED MAXIMUM TIRE PRESSURES FOR MAVIC WHEELS**

### ROAD, TRIATHLON and ALL ROAD*

<table>
<thead>
<tr>
<th>Tire width in mm</th>
<th>Maximum pressure (bar)</th>
<th>Maximum pressure (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>10.0</td>
<td>146</td>
</tr>
<tr>
<td>23</td>
<td>9.5</td>
<td>138</td>
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<tr>
<td>25</td>
<td>9.0</td>
<td>131</td>
</tr>
<tr>
<td>28</td>
<td>8.0</td>
<td>117</td>
</tr>
</tbody>
</table>

### CROSS COUNTRY RACING*

<table>
<thead>
<tr>
<th>Tire width in &quot; in mm</th>
<th>Maximum pressure (bar)</th>
<th>Maximum pressure (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>7.70</td>
<td>113</td>
</tr>
<tr>
<td>1.20</td>
<td>7.00</td>
<td>103</td>
</tr>
<tr>
<td>1.50</td>
<td>6.00</td>
<td>88</td>
</tr>
<tr>
<td>1.75</td>
<td>5.20</td>
<td>76</td>
</tr>
<tr>
<td>1.85</td>
<td>4.80</td>
<td>71</td>
</tr>
<tr>
<td>1.90</td>
<td>4.70</td>
<td>69</td>
</tr>
<tr>
<td>1.95</td>
<td>4.50</td>
<td>66</td>
</tr>
<tr>
<td>2.00</td>
<td>4.30</td>
<td>63</td>
</tr>
<tr>
<td>2.10</td>
<td>4.00</td>
<td>59</td>
</tr>
<tr>
<td>2.20</td>
<td>3.70</td>
<td>55</td>
</tr>
<tr>
<td>2.30</td>
<td>3.30</td>
<td>49</td>
</tr>
</tbody>
</table>

### CROSS MOUNTAIN*

<table>
<thead>
<tr>
<th>Tire width in &quot; in mm</th>
<th>Maximum pressure (bar)</th>
<th>Maximum pressure (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.90</td>
<td>4.70</td>
<td>69</td>
</tr>
<tr>
<td>1.95</td>
<td>4.50</td>
<td>66</td>
</tr>
<tr>
<td>2.00</td>
<td>4.30</td>
<td>63</td>
</tr>
<tr>
<td>2.10</td>
<td>4.00</td>
<td>59</td>
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<tr>
<td>2.20</td>
<td>3.70</td>
<td>55</td>
</tr>
<tr>
<td>2.30</td>
<td>3.30</td>
<td>49</td>
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</tbody>
</table>

### ENDURO FR*

<table>
<thead>
<tr>
<th>Tire width in &quot; in mm</th>
<th>Maximum pressure (bar)</th>
<th>Maximum pressure (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.10</td>
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<td>55</td>
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<tr>
<td>2.20</td>
<td>3.50</td>
<td>52</td>
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<tr>
<td>2.30</td>
<td>3.30</td>
<td>49</td>
</tr>
<tr>
<td>2.40</td>
<td>3.20</td>
<td>47</td>
</tr>
<tr>
<td>2.50</td>
<td>3.00</td>
<td>44</td>
</tr>
</tbody>
</table>

### EXTREME MTB*

<table>
<thead>
<tr>
<th>Tire width in &quot; in mm</th>
<th>Maximum pressure (bar)</th>
<th>Maximum pressure (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.30</td>
<td>3.30</td>
<td>49</td>
</tr>
<tr>
<td>2.40</td>
<td>3.20</td>
<td>47</td>
</tr>
<tr>
<td>2.50</td>
<td>3.00</td>
<td>44</td>
</tr>
<tr>
<td>2.60</td>
<td>2.80</td>
<td>41</td>
</tr>
<tr>
<td>2.70</td>
<td>2.70</td>
<td>39</td>
</tr>
<tr>
<td>2.80</td>
<td>2.50</td>
<td>36</td>
</tr>
<tr>
<td>2.90</td>
<td>2.40</td>
<td>34</td>
</tr>
<tr>
<td>3.00</td>
<td>2.20</td>
<td>32</td>
</tr>
</tbody>
</table>

*See riding segmentation chart on page 04.
**WHEEL MAINTENANCE**

**REMEMBER OF THE WARRANTY**
Before any repair of a Mavic wheel (or any other Mavic product), please note that it has a warranty against manufacturing or material defects for a period of 2 years from the date of original purchase by the original buyer (see Mavic warranty on page 45).

This means that:

- During the warranty period, and when it is definitely covered by the warranty (first contact your MSC), you must return the Mavic wheel (or any other Mavic product) directly to your MSC, following the procedure on page 44, to benefit from the Mavic warranty.

However, if you decide to repair the wheel yourself (or any other Mavic product), your customer will lose the Mavic warranty.

- For repairs after the warranty period has expired, we advise you to repair to the following pages before carrying out work on the Mavic wheel. If replacing the rim, please note the new serial number of the rim on the original warranty card and the date of intervention.

Only this procedure will allow your customer’s new rim to be covered by the Mavic warranty.

**REPAIRS**
The following pages will help you to maintain the wheels in the 2008 range and are organized as follows:

**HUBS** ........................................................................................................................................................................................................................................ Pages 23 to 24
- Replacing the front axle and bearings on the Crossmax ST 20 mm and C29ssmax 20 mm wheels ............................................................... Page 23
- Replacing the rear axle on the R-Sys and Cosmic Carbone Ultimate wheels ................................................................. Page 23
- Replacing the rear bearings on the R-Sys and Cosmic Carbone Ultimate wheels ................................................................. Page 24

**WHEEL BUILDING** ..................................................................................................................................................................................................................... Pages 25 to 32
- Replacing a spoke or front rim on the Aksium 08, Ksyrium Equipe 08 and Crossride UB wheels ............................................................... Page 25
- Replacing the rear rim on the Aksium 08 and Crossride UB wheels ............................................................... Page 26
- Replacing the rear rim on the Ksyrium Equipe 08 wheel ............................................................... Page 27
- Important note for fitting Tracomp spokes ............................................................................................... Page 28
- Identifying a damaged Tracomp carbon spoke ............................................................................................... Page 28
- Removing / Refitting the Tracomp ring ............................................................................................... Page 29
- Truing, replacing a Tracomp spoke or the front rim on the R-Sys wheel ............................................................... Page 30
- Replacing the rear rim of the R-Sys wheel ............................................................................................................. Page 31
- Replacing a spoke nipple on the Cosmic Carbone Ultimate wheel ............................................................................................................. Page 32

All maintenance operations not detailed in the following pages can be found in the 2002, 2003, 2004, 2005, 2006 or 2007 technical manuals. Refer to the product sheets (pages 5 to 20 of this manual) for more details.

All these operations can also be found at [www.tech-mavic.com](http://www.tech-mavic.com)

Before any operation, we recommend removing:

- the wheel from the bike by releasing the quick release skewer
- the skewer, the tire
- the cassette and chain-disc (if necessary) for the rear wheel
- the brake disc (if necessary)
REPLACING THE FRONT AXLE AND BEARINGS ON THE CROSSMAX ST 20MM AND CROSSMAX 29 20MM WHEELS

Tools needed
• 1 hub wrench M40123
• Bearing press kit M40218

Introduce end lugs of the hub wrench M40123 into the holes of the adjustment nut on the non-disc side.

Manually keep the axle on the disc side in place and fully unscrew the adjustment nut using the hub wrench. Remove the hub axle.

Use the bearing press kit M40218 to remove the old bearings and fit the new ones.

Refit the axle by tightening the adjustment screw as far as possible and then unscrew it 1/4 of a turn.

Refit the wheel into the fork and check bearing play;
If there is play, gently screw the adjustment nut using hub wrench M40123 until there is no play.

REPLACING THE REAR AXLE ON THE R-SYS AND COSMIC CARBONE ULTIMATE WHEELS

Tools needed
• 2 x 5 mm Allen wrench

The cassette no longer has to be removed for this operation.
Nevertheless, it is no longer possible to remove the cassette if the free wheel body is not fitted to the hub.
Start by unscrewing the adjustment nut 1 turn using hub wrench M40123; this is to avoid damaging the bearings during refitting;

Insert a 5 mm Allen wrench into each end of the axle and unscrew the axle end screw on the drive side.

Remove the drive side axle end screw and the axle from the non-drive side.

The free wheel body is no longer held in place and is easily knocked out of position;
Replace the faulty parts, screw the axle back in and refit the axle end screw (tightening torque: 10 Nm);
Gently screw the adjustment nut using hub wrench M40123 until there is no play.

The axle end screw of all QRM+ hubs now comes with a dry thread lock on its thread. This avoids inopportune loosening of the part.

This thread lock loses its effectiveness after 4 to 5 dismantling/assembly operations. The axle end screw should then be replaced.

Axle end screws can be ordered separately to complete axle units using the following references:

<table>
<thead>
<tr>
<th>Road wheels</th>
<th>Steel M10/ED10 324 130 01</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Titanium M10/ED10 995 469 01</td>
</tr>
</tbody>
</table>
Tools needed
• 1 bearing press kit M40120

Remove the axle (see page 23) and free wheel mechanism in accordance with the appropriate procedures for these wheels (refer to www.tech-mavic.com or previous years’ technical manuals for the procedures);

Extract the bearings using bearing press kit M40120.

Fit the new bearings using bearing press kit M40120.

Remove the axle (see page 23) and free wheel mechanism in accordance with the appropriate procedures for these wheels (refer to www.tech-mavic.com or previous years’ technical manuals for the procedures);
WHEEL BUILDING

REPLACING A SPOKE OR FRONT RIM ON THE AKSIUM 08, KSYRIUM EQUIPE 08 AND CROSSRIDE UB WHEELS

Tools needed
- 1 spoke wrench
- 1 spoke wrench for aerodynamic spokes M40567
- Mavic tensiometer 995 643 01 + tension-reading conversion chart supplied

The reference and length of spokes to be used are given in the product pages (pages 5 to 20). The hub is in 3 parts (2 flanges + central tube). These 3 parts are not fixed to each other.
If no spokes have been fitted (bare hub), it is possible that the 2 flanges have pivoted with respect to each other. Once the spokes have been fitted and are under traction, the hub parts will automatically go back to their correct position.

Clip the hub cap to the flange (Aksium 08 and Crossride UB only).

Introduce the head of each spoke into the receiving positions on one of the hub’s flanges:
- from the outside of the flange for the Aksium 08 and Crossride UB,
- from the inside of the flange for the Ksyrium Equipe 08.

Prepare the spokes by screwing a nipple 3 turns onto each, and then thread the spokes, head first, into every other hole of the rim, from the outside.

Prepare the spokes by screwing a nipple 3 turns onto each, and then thread the spokes, head first, into every other hole of the rim, from the outside.

Repeat these operations for the spokes on the other side;

Screw each nipple uniformly (1 turn of the spoke wrench for each spoke and for each turn of the wheel) to tension the wheel, checking the heads are correctly positioned in the groove of the hub to ensure a spoke does not become unhooked and to prevent the hub from breaking.

Set the final tension and center the wheel respecting the spoke tensions given in the product pages (pages 5 and 20).

Self Lock spokes are used for the Crossride UB wheel: their threaded part is curved to increase frictional torque with the nipple. The nipples are therefore not of the ABS type, but thread lock is not needed.

As ABS nipples are used for the Aksium 08 and Ksyrium Equipe 08 wheels, thread lock is not needed.
Tools needed
• 1 spoke wrench
• 1 spoke wrench for aerodynamic spokes M40567
• Mavic tensiometer 995 643 01 + tension-reading conversion chart supplied

The reference and length of spokes to be used are given in the product pages (pages 5 to 20).

These wheels must be built as follows:
- Spokes fitted radially on the non-drive side and crossed 2 on the drive side.
- Drive side, the traction spokes must be fitted into the slots’ external slits and the non-traction spokes into the slots’ internal slits.

The hub is in 2 parts (flanges on non-drive side + tube – slots – hub nose).

If no spokes have been fitted (bare hub), it is possible that the 2 flanges pivot with respect to each other. Once the spokes have been fitted and are under traction, the hub parts will automatically go back to their correct position.

Prepare the spokes by screwing a nipple 3 turns onto each spoke;
Start on the non-drive side (shorter spokes);

With the valve hole near you, thread a spoke, head first, into the first hole to the right of the valve hole, and continue every 1 hole in 2.

Introduce the head of each spoke into the receiving positions on the hub’s flange, on the non-drive side, from the outside of the flange.

Clip the hub cap to the flange.
Turn the wheel over and introduce the remaining spokes (the longer ones) into the remaining holes in the rim.

The first spoke to the right of the valve hole is a non-traction spoke: insert it into an inside notch of the hub and repeat this 1 spoke out of 4.

The 3rd spoke to the right of the valve hole is a traction spoke: insert it into an outside notch of the hub and repeat this for all the remaining spokes.

Screw each nipple uniformly (1 turn of the spoke wrench for each spoke and for each turn of the wheel) to tension the wheel, checking the heads are correctly positioned in the groove of the hub on the non-drive side to ensure a spoke does not become unhooked and to prevent the hub from breaking.

Set the final tension and center the wheel respecting the spoke tensions given in the product pages (pages 5 to 20).

Self Lock spokes are used for the Crossride UB wheel: their threaded part is curved to increase frictional torque with the nipple. The nipples are therefore not of the ABS type, but thread lock is not needed.

As ABS nipples are used for the Aksium 08 wheel, thread lock is not needed.
REPLACING THE REAR RIM OF THE KSYRIUM EQUIPE 08 WHEEL

Tools needed
- 1 spoke wrench
- 1 spoke wrench for aerodynamic spokes M40567
- Mavic tensiometer 995 643 01 + tension-reading conversion chart supplied

The reference and length of spokes to be used are given in the product pages (page 6).

These wheels must be built as follows:
- Spokes fitted radially on the drive side and crossed 2 on the non-drive side.
- On the non-drive side, spokes hot crossed and laced (going from the hub to the rim, the traction spokes pass above and then below the non-traction spokes).

Prepare the spokes by screwing a nipple 3 turns onto each spoke;

Start with drive side spokes (shorter spokes);

With the valve hole near you, thread a spoke, head first, into the first hole to the left of the valve hole, and continue every 1 hole in 2.

Insert the spoke heads into the hub notches on the drive side, from the inside.

The first spoke to the left of the valve hole must be located into a notch for which there is no slot opposite it on the non-drive side.

Now thread a spoke, head first, into the 3rd hole to the right of the valve hole, and then continue 1 hole in 4;

And finally, thread a spoke, head first, into the first hole to the right of the valve hole. These are traction spokes.

Present the head of this spoke under the 1st crossed non-traction spoke, and then above the 2nd crossed non-traction spoke. Place the head of this spoke into the notch of the corresponding slot.

Repeat the last operation for all the remaining spokes;

Set the final tension and center the wheel respecting the spoke tensions given in the product pages (pages 5 to 20).

As ABS nipples are used, thread lock is not needed.
With the R-Sys Tracomp concept, the nipple and the tubular spoke are fixed together. Thus, when turning the nipple of a tubular spoke, the spoke itself turns along its entire length (nipple, tube and head).

In the Tracomp concept, the heads of the tubular spokes are held fixed inside the hub body by the Tracomp ring in order to withstand the compression. This prevents the spokes from turning freely.

CONSEQUENTLY, BEFORE TURNING THE NIPPLE OF A TUBULAR SPOKE (TRUING, REPLACING A SPOKE, REPLACING A RIM), THE TRACOMP RING MUST FIRST BE REMOVED FROM THE HUB.

IDENTIFYING A DAMAGED CARBON TRACOMP SPOKE

Tools needed
• Safety gloves

Because of their unidirectional carbon construction, and particularly after a shock, the carbon Tracomp spokes may split: if this happens, they are no longer able to support compression forces, but they continue to support the traction forces associated with spoke tension.

In this case, the wheel does not go out of true and the shape of the spoke stays the same, making it difficult to detect a damaged spoke.

To identify a damaged spoke, proceed as follows:

Press the carbon Tracomp spoke with your fingers along its entire length.

Carry out rotational movements around the carbon Tracomp spoke, along its entire length, using your fingers.

If a cracking can be heard or if the spoke feels elastic when rotated, then the spoke is broken and must be replaced.

When a spoke is broken, it is impossible to center or laterally and radially true the wheel because the head of the spoke does not turn at the same time as the nipple.
**REMOVING / REFITTING THE TRACOMP RING**

Tools needed
- Tracomp ring tool 996 080 01
- 1 x 4/5 mm flat screwdriver
- A mallet
- 1 x 5 mm Allen wrench and 1 x hub wrench M40123 (front wheel) or 2 x 5 mm Allen wrenches (rear wheel)

Removing the Tracomp ring:
Remove the axle in accordance with the procedure for the hub in question (refer to www.tech-mavic.com or previous years’ technical manuals).

1. Place the Tracomp ring tool 996 080 01 onto the hub in such a way the picture of the screwdriver is visible.
2. Pass the tip of the screwdriver through the hole in the Tracomp ring tool.
3. Insert the tip of the screwdriver through the slot in the Tracomp ring tool and into the groove of the Tracomp ring.
4. Push the screwdriver handle downwards to lever out the Tracomp ring.

The spokes are now able to turn freely and can be extracted.

Refitting the Tracomp ring:

1. Present the Tracomp ring to the spoke heads with the conical side downwards and the inside groove facing upwards.
2. Place the Tracomp ring tool 996 080 01 against the ring in such a way the picture of the mallet is visible.
3. Forcefully fit the Tracomp ring into the hub using a mallet. The entire surface of the bottom side of the Tracomp ring must be in contact with the hub body.

Refit the axle in accordance with the procedure for the hub in question (refer to www.tech-mavic.com or previous years’ technical manuals).
Once the Tracomp ring has been removed, fully unscrew the nipple and slide the spoke along the hole in the hub to remove it. Refit the new spoke in the same way.

Screw the nipples into the rim using spoke wrench 996 079 01 until the thread lock has disappeared.

Without refitting the Tracomp ring, replace the axle so as to be able to place the wheel in the centering unit.

Set the final tension and center the wheel taking care to respect appropriate spoke tensions;

Remove the axle once again in order to refit the Tracomp ring in accordance with the appropriate procedure (see page 29 or consult the www.tech-mavic.com website);

Refit the axle in accordance with the appropriate procedure (see page 23 or consult the www.tech-mavic.com website);

If you have to replace the spoke with the integrated magnet, you should first of all unclip the plastic clips that hold the magnet in place in order to thread the spoke through the hole in the hub.
REPLACING THE REAR RIM OF THE R-SYS WHEEL

Tools needed
• Tracomp spoke wrench 996 079 01
• Tracomp ring tool 996 080 01
• A flat screwdriver
• A mallet
• 2 x 5 mm Allen wrenches

The reference and length of spokes to be used are given in the product pages (pages 9 and 10).

These wheels must be built as follows:
- Spokes fitted radially on the non-drive side and crossed 2 on the drive side.
- On the drive side, the traction spokes locate into the notches of the outermost slots of the hub.

Remove the axle and Tracomp ring in accordance with the appropriate procedures (see page 29 or consult the www.tech-mavic.com website);
With the valve hole near you, place the rim such that the 2 raised indicator bumps are to the right of the valve hole;
Start with the drive side;

Screw the nipple of a Zicral spoke 2 turns into the 1st hole to the right of the valve hole, then do the same for all the Zicral spokes, 1 hole in 2 of the rim.

As the holes in the rim are orientated, the spokes are naturally positioned in the right direction. non-traction spokes must pass below the traction spokes, without touching at the crossover point.

Insert the heads of these spokes into the hub slots: the heads of the non-traction spokes should be inserted into the inside slits of the slots, the heads of the traction spokes into the outside slits.

Turn the wheel over and insert all the Tracomp spokes, nipple first, into the hub on the non-drive side.

Without refitting the Tracomp ring, replace the axle so as to be able to place the wheel in the centering unit. Set the final tension and center the wheel taking care to respect appropriate spoke tensions.

Remove the axle once again in order to refit the Tracomp ring in accordance with the appropriate procedure (see page 29 or consult the www.tech-mavic.com website).
Tools needed
- 1 traditional spoke wrench
- 1 small flat screwdriver
- Mavic tensiometer 995 643 01 + tension-reading conversion chart supplied

Turn the wheel on the drive side and remove the clip that holds the spokes in place using a small flat screwdriver.

Fully unscrew the nipple to be replaced and remove it via the inside of the hub.

Screw the new nipple 2 turns onto the threaded rod and insert the nipple head into its correct position.

Replace the clip that holds the spokes in place and set the final tension and center the wheel taking care to respect appropriate spoke tensions.
<table>
<thead>
<tr>
<th>MAVIC RIMS</th>
</tr>
</thead>
</table>

## SEGMENTATION OF THE RIM RANGE

<table>
<thead>
<tr>
<th>AERODYNAMIC</th>
<th>CLASSIC</th>
<th>ALL ROAD</th>
<th>CROSS COUNTRY</th>
<th>CROSS MOUNTAIN</th>
<th>ENDURO FR</th>
<th>EXTREME MTB</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXP33</td>
<td>OPEN PRO</td>
<td>A 719</td>
<td>XC 717 DISC</td>
<td>XM 819 DISC (UST)</td>
<td>XM 819 (UST)</td>
<td>EX 823 DISC (UST)</td>
</tr>
<tr>
<td></td>
<td>REFLEX (tubular)</td>
<td></td>
<td>XC 717</td>
<td>TN 719 DISC</td>
<td>EN 521 DISC</td>
<td>EX 729 DISC</td>
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<td>XM 719 DISC</td>
<td></td>
<td>EX 721</td>
</tr>
<tr>
<td>CXP23*</td>
<td>A 319</td>
<td>A 317 DISC*</td>
<td>XM 517*</td>
<td>EN 321 DISC</td>
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<td>EX 325 DISC</td>
</tr>
<tr>
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<td></td>
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<td>XM 317 DISC*</td>
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<td>XM 317</td>
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<tr>
<td>CXP22</td>
<td>OPEN SPORT</td>
<td>A 119*</td>
<td>XM 117 DISC*</td>
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<td></td>
<td></td>
<td>XM 117</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

* O.E.M. specific rims
 CONDITIONS OF USE FOR A RIM

 CONDITIONS OF USE TO BE GIVEN TO YOUR CUSTOMERS

Mavic uses the most advanced technology in the design of its rims and wheels. However, a rim cannot last forever and wears down according to its use: type of riding, terrain, brake pad, spoke tension, tires, tire pressure, weather conditions, etc.

Each rim has been designed for a specific use and discipline (Road, Cross-Country, Freeride, Downhill, Touring...). Any other use of a rim for which it has not been designed is highly inadvisable, the sole responsibility of the user and voids the Mavic warranty.

Please advise your customers of the following points:

• Choose a suitable rim designed for the type of riding you wish to do: do not use a road rim on an MTB, do not use Cross Country rims to build wheels for a bike to be used for freeride, downhill...

• You must follow the instructions in this technical manual for tire pressure and sizes (see following charts);

• Respect the appropriate spoke tensions; Mavic recommends spoke tensions between 70 and 90 kg (for a front or rear wheel on the free wheel side with a crossed 3 pattern). Inappropriate spoke tension can generate too much stress and damage the rim;

• Clean the rims regularly using the Mavic soft stone (M40410);

• Remove stones and metal particles from the brake pads;

• Replace the brake pads when they are worn;

• Do not use a rim if the braking surfaces are worn, if eyelets are missing, or in any other case where safety might be compromised. The rim is a part that wears out as do brake pads, and must be replaced if it is worn (sidewall hollowed by wear, or cut out, cracked rim...);

• For rims fitted with a wear indicator (internal or external) do not continue to use the rim if the indicator appears (internal wear indicator) or disappears (external wear indicator) on at least one of the 2 braking surfaces;

• For rims not fitted with a wear indicator, use a depth gauge to check that the maximum wear on each side is not more than 0.4 mm;

• Check or have your rims checked regularly, at least at the start of each season and if possible after intensive use or if you have a doubt about spoke tension or the type of tire used. When checking, look inside (especially under the rim tape) and outside the rim. Check for signs of fatigue or wear: damage to braking surfaces, appearance or disappearance of the wear indicator (only on rims fitted with a wear indicator), cracks in the sidewalls or around the eyelets...

• The total weight of the rider and his/her equipment (not including the bike) must not exceed the following values:
  - Road rims: 100 kg;
  - All Road rims: 105 kg for A 119, A 319 and A 317 Disc rims, 125 kg for the A 719 rim.
  - MTB rims: 90 kg for XM 117, XM 117 Disc, XM 317, XM 317 Disc, XM 517, XC 717 and XC 717 Disc rims; 115 kg for XM 719, XM 719 Disc, XM 819, XM 819 Disc, EN 521 Disc, EN 321 Disc, EX 325 Disc, EX 721, EX 729 Disc and EX 823 Disc rims.

Following these recommendations will guarantee longer product life for the rims, maximum performance and riding enjoyment.
# TECHNICAL FEATURES OF THE NEW 2008 RIMS

<table>
<thead>
<tr>
<th>MTB</th>
<th>CROSS MOUNTAIN</th>
<th>ENDURO FR</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN 719 DISC</td>
<td>EN 521 DISC</td>
<td></td>
</tr>
</tbody>
</table>

## RIM WIDTH

![Rim Diagram]

- **Concept**: 
- **Material**: MAXTAL 6106
- **Valve hole diameter (in mm)**: 8.5, supplied with valve adapter
- **ETRTO compatibility**: 622 x 19C 559 x 21C
- **Recommended tire width (in mm)**: 1.5 à 2.3 2.1 à 2.5
- **Eyelets**: Single
- **Average weight (in grams)**: 510
- **Finish and drilling**: Black 32-hole
- **Recommended spoke nipple length (in mm)**: 12
- **Spoke support diameter (in mm)**: 598
- **Recommended rim tape (ETRTO x length x thickness)**: 622 x 20 x 0.6 559 x 23 x 0.6

Mavic rims not appearing in the above chart have not been changed. Their technical features can be found in the technical manuals from previous years or on the technical manual website: [www.tech-mavic.com](http://www.tech-mavic.com)

## RECOMMENDATION FOR MAXIMUM TIRE PRESSURE

### ROAD & TRIATHLON*

<table>
<thead>
<tr>
<th>Tire width in mm</th>
<th>Maximum pressure (bar)</th>
<th>Maximum pressure (PSI)</th>
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<tbody>
<tr>
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<td>28</td>
<td>8.0</td>
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### ALL ROAD*

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<tr>
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<td>32</td>
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### CROSS COUNTRY RACING*

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<td>28</td>
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<tr>
<td>2.50</td>
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### CROSS MOUNTAIN*

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<td>2.40</td>
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<td>2.60</td>
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<td>2.90</td>
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### EXTREME MTB*

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<th>Maximum pressure (bar)</th>
<th>Maximum pressure (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.30</td>
<td>2.30</td>
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<td>2.90</td>
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* See riding segmentation chart on page 33.
<table>
<thead>
<tr>
<th>COMPUTERS</th>
<th>ELECTRONIC ACCESSORIES</th>
<th>BRAKES</th>
<th>TRANSMISSION</th>
<th>WHEEL ACCESSORIES</th>
<th>KITS</th>
<th>ACCESSORIES</th>
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</thead>
<tbody>
<tr>
<td>WINTECH ALTI</td>
<td>PEDALING CADENCE KIT</td>
<td>SSC BRAKES</td>
<td>M10 CASSETTE N°.1</td>
<td>QUICK RELEASE</td>
<td>REPLACEMENT KIT</td>
<td>ROAD WHEEL BAG</td>
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<td></td>
<td>HOME TRAINER SENSOR KIT</td>
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<td>M10 CASSETTE N°.2</td>
<td>SKEWER BR 601</td>
<td>ROAD SPOKE KIT</td>
<td>MTB WHEEL BAG</td>
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<tr>
<td>WINTECH HR</td>
<td>2nd BIKE KIT</td>
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<td>M10 CASSETTE N°.3</td>
<td>QUICK RELEASE SKEWER BX 601</td>
<td>MTB SPOKE KIT</td>
<td>SOFT STONE</td>
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<tr>
<td>WINTECH ES</td>
<td>HANDLEBAR SUPPORT KIT</td>
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<td>M10 CASSETTE N°.4</td>
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<td>UNIVERSAL MAGNET</td>
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<td>SAINT DERRAILLEUR AXLE KIT</td>
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<td>SAINT DERRAILLEUR AXLE KIT</td>
<td></td>
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<tr>
<td>WINTECH FS</td>
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<td>QUICK RELEASE AXLE KIT</td>
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<td>9 AND 20 MM FORK SUPPORT NUT KITS</td>
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<td>9 AND 12 MM FRAME SUPPORT NUT KITS</td>
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<td>TRACK COG LOCK RING</td>
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</table>
Dear dealers, we would like to remind you that it is your responsibility to give the following to your customers:

- product instructions
- warranty card (that you have filled out)
- all the accessories supplied with the product.

We also advise the users of Mavic components to follow the instructions below:

- Follow the conditions of use described at the top of each Mavic component product page. Any other use outside of these conditions is inadvisable, the sole responsibility of the user and voids the Mavic warranty;
- Although water resistant, it is strongly inadvisable to use pressurized water on electronic and mechanical components;
- It is also inadvisable to use solvents and petroleum products to clean the various components. It is preferable to use warm water, or soap and water, and to dry with a cloth.
- Do not leave the liquid crystal WINTECH screens exposed to the sun (e.g. behind the windshield of your vehicle);
- Each of Wintech’s electronic components has its own digital code. The synchronization operation allows components of the same system to function with the same digital code and therefore be impenetrable to outside signals. This means that each component of a system cannot be used with the components of another system fitted to another bike (technology).

This synchronization operation is vital for the correct operation of the system. It must be carried out before using the system for the first time and each time one of the batteries is replaced.

Following these recommendations will guarantee longer product life for the components, maximum performance and riding enjoyment.

**GENERAL POINTS**

**MAINTENANCE**

- Replacing the batteries: only use the following battery types:
  - CR2032: HR, ES, FS and E-Bolt computers and speed and cadence sensors.
  - CR2430: Alti computer
- Battery life: 12 to 24 months (depending on use).
- Although resistant to solvents and petroleum products, it is inadvisable to use these types of products to clean the various components.
- Recommendation: use warm water, or soap and water, and dry with a cloth.
- Do not leave the computer in the sun (e.g. behind the windshield of a vehicle) when not in use.
- Do not dismantle any component; this will make the warranty void.
- Biking is a sport which may require intense physical activity and as such poses a risk dependent on the route and the environment. For your own safety, keep an eye on the road and the traffic. Wear a helmet.
- The features, shape and general presentation are subject to change without prior notification.

**DISPOSING OF WORN EQUIPMENT BY PRIVATE USERS IN THE EUROPEAN UNION:**

If this symbol is on the product or its packaging, it means you cannot dispose of the product as you do ordinary household waste.

On the contrary, you are responsible for disposing of worn equipment, and are required to take it to an approved electrical and electronic equipment recycling point.

Separate sorting and recycling of your worn equipment preserves natural resources and ensures the equipment is recycled in such a way as to respect human health and the environment.

For further information on suitable waste disposal points, please contact your town hall, your household waste collection service or the shop where you purchased the product.
After fitting the computer and before using it for the first time, the digital synchronisation operation MUST be carried out. This operation is described in the instructions supplied with the computer. If this is not done, communication will not be established between the computer and the various sensors, and your system will not function.
After fitting the computer and before using it for the first time, the digital synchronisation operation MUST be carried out. This operation is described in the instructions supplied with the computer. If this is not done, communication will not be established between the computer and the various sensors, and your system will not function.
This information is in addition to that given for the Wintech ES, HR and E-Bolt.

Incorrect altitude display:
1- The computer uses atmospheric pressure to calculate altitude.
2- The start altitude must therefore be calibrated against a known value.
3- If in doubt, check the battery and replace it if it is less than 3 Volts.

Incorrect cumulative altitude display:
1- The computer uses atmospheric pressure to calculate cumulative altitude.
2- Abrupt changes in atmospheric conditions may therefore lead to errors in the calculated cumulative altitude.
3- If in doubt, check the battery and replace it if it is less than 3 Volts.

Continually fluctuating altitude reading, even when at standstill:
1- The computer uses atmospheric pressure to calculate altitude.
2- The altitude displayed at a given place may vary if the atmospheric conditions change.
3- If in doubt, check the battery and replace it if it is less than 3 Volts.

If the problem continues after having carried out all the above checks, contact your Mavic Service Center (MSC).

All memorized information is lost each time the battery is removed; remember to note the information before removing the battery and to carry out the synchronisation operation again once the battery has been replaced.

The batteries lose part of their capacity in the cold. Incorrect functioning may occur during an early morning ride if the battery is at 80% of its capacity, but become normal again when the temperature increases.
<table>
<thead>
<tr>
<th>REFERENCE</th>
<th>NAME</th>
<th>PRODUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>323 477 01</td>
<td>Multifunction tool: Removing the UST Tubeless rim tape (A), Fitting the UST rim tape (C) Adjusting the front axles on the Cosmos, Ksyrium Equipe, Crossland, Crossmax Enduro, Crossmax Enduro Disc, Cosmic Elite 05 and Speedcity 05 (B), Aksium, Crossride 06, Crossride Disc, Crosstrail, Crosstrail Disc, Aksium 08, Ksyrium Equipe 08, Crossride UB/Disc 08, Crossride UB wheels</td>
<td>![Image]</td>
</tr>
<tr>
<td>M40119</td>
<td>Bearing press kit for bearings: M40075 M40076</td>
<td>![Image]</td>
</tr>
<tr>
<td>M40120</td>
<td>Bearing press kit for bearings: M40077 M40078</td>
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<tr>
<td>M40631</td>
<td>Bearing press kit for bearings: M40632</td>
<td>![Image]</td>
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<tr>
<td>M40373</td>
<td>Guide ring and bearing press kit for bearings: M40318 M40660</td>
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<td>Bearing press kit for bearings: M40179</td>
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<td>Bearing press kit for bearings: M4077</td>
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<td>Bearing press kit for bearings: 324 170 01</td>
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<tr>
<td>M40410</td>
<td>Mavic soft stone for cleaning the braking surface of the rim, Ceramic or UB Control.</td>
<td>![Image]</td>
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</table>

A+B: Bearing press kit for the front wheel.
A+C: Bearing press kit for the rear wheel.
D: Bearing press kit for the front and rear wheels.
E: Bearing press kit for the front and rear wheels.
F: Guide ring for the 12 mm Allen wrench needed for removing the free wheel on the Crossroc UST, Crossroc UST Disc, Crossride, Crossride Ceramic, Cosmos and Cosmic Elite wheels.
<table>
<thead>
<tr>
<th>REFERENCE</th>
<th>NAME</th>
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<tbody>
<tr>
<td>995 643 01</td>
<td>Mavic tensiometer for all Mavic wheels (except Tracomp spokes)</td>
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<tr>
<td>M40001</td>
<td>Spoke wrench for Cosmic Carbone, Cosmic Carbone SSC and Cosmic Carbone SL wheels</td>
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<td>323 908 01</td>
<td>Cosmic Carbone Pro spoke wrench + spoke wrench for aerodynamic spokes</td>
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<tr>
<td>M40567</td>
<td>Wrench kit for aerodynamic spokes.</td>
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<tr>
<td>996 079 01</td>
<td>Wrench kit for Tracomp spokes, for R-Sys wheels</td>
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<tr>
<td>M40652</td>
<td>Zamak spoke wrench for M7 Fore drilled wheels (except R-Sys)</td>
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<td>M40630</td>
<td>Wrench for adjusting hollow screws on M9 Fore drilled wheels and rims</td>
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<td>Cosmic Carbone Ultimate spoke wrench kit</td>
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<tr>
<td>M40123</td>
<td>Hub wrench for adjusting free play on Mavic QRM+ hubs</td>
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<td>996 204 01</td>
<td>Mavic thread lock</td>
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<td>996 136 01</td>
<td>Mavic mineral oil for lubricating the FTS, FTS-L, FTS-X and ITS4 free wheel bodies. Capacity 60 ml. Only use this oil for lubricating FTS, FTS-L, FTS-X and ITS4 free wheel bodies</td>
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<td>996 080 01</td>
<td>TraComp ring tool</td>
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</table>
1. Contact the Mavic Service Center in your geographical zone to obtain a PRODUCT RETURN NUMBER;

2. In accordance with the instructions of your Mavic Service Center, send the damaged part or product to them with a note containing the following information:
   - Your name and address;
   - The product return number that was given to you. This number should also be indicated on the outside of your package;
   - The reason for the return;
   - Proof of date of purchase attesting that the product was sold within the last 2 years (receipt or warranty card filled out).

   **WARNING:** the wheels must be sent without the tire, cassette, skewer, bag or anything else in order to avoid any risk of loss or damage. To be able to process your request as quickly as possible, we ask you to follow this procedure. **ANY OTHER TYPE OF RETURN WILL BE REFUSED.**

3. After the Mavic Service Center receives your package, it will make a diagnosis and will declare whether the damaged product is covered by the warranty or not. The product will then be exchanged or repaired.

   **NOTE:** If the warranty is refused, your Mavic Service Center will inform you about the cost of the repair.

   If the product cannot be repaired, it will be destroyed by Mavic unless you have given prior contrary instructions.

   If you decide to repair the Mavic product, please read the preceding pages.

Your Mavic Service Center is available for information regarding repairs and the Mavic warranty. Please do not hesitate to contact them.
MAVIC WARRANTY

Mavic products purchased from a Mavic authorized dealer are guaranteed against manufacturing and material defects for a period of 2 years from the date of original purchase, under the following conditions.

OBLIGATIONS

Mavic will replace or repair a product or a part considered to be defective by Mavic. This is Mavic’s only liability.

Complementary warranties may exist according to regional laws. In France, Mavic guarantees against hidden defects as required by French law, within the conditions and limits laid down by articles 1641 and the Civil Code.

RESTRICTIONS

This warranty does not cover the consequences of normal wear & tear, damage resulting from shipping, storage, accidents, negligence, shocks or falls, failure to follow instructions for use, improper installation or installation with incompatible products, poor maintenance, normal wear & tear, abnormal or improper use, modification or alteration of the product.

The conditions of the Mavic warranty do not apply to products purchased from dealers other than Mavic authorized dealers, including the conformity of products warranty.

This warranty is not transferable and only applies to the original pur chaser.

This warranty does not cover the consequences of normal wear & tear of parts that can wear out such as the braking surfaces or rims (for rim braking systems), brake pads, bearings, pawl assemblies, seals, rear derailleur jockey wheels, batteries, etc.

This warranty does not cover products whose repair has not been carried out by the Mavic Service Center or its representative in the country concerned (1).

This warranty does not cover any product whose item number or identification has deteriorated or been removed.

This warranty does not apply to «Mavic Special Race Service» products (2).

This warranty does not exclude the specific rights in each country. A consumer may have other rights depending on his/her place of residence. Certain jurisdictions do not allow for the exclusion or limitation of specific damages, secondary or as a result of, or limitations on the duration of the warranty. Therefore, these exclusions and limitations do not apply to everyone. Local taxes, customs duty or shipping fees may be applied. In the United States, additional rights that are different from one state to another may also be applied. If one part of this warranty was found to be inapplicable by an administrative or judicial procedure, the other parts would remain applicable.

APPLICATION PROCEDURE

Mavic authorized dealers are responsible for managing all claims under the warranty. The authorized dealer must obtain authorization from the Mavic Customer Service (or its representative in certain countries (1)) prior to the return of the defective product (3).

The complete product with proof and date of purchase (sales receipt, copy of the warranty card…) has to be sent by the authorized dealer to the Mavic Service Center (or its representative in certain countries (1)), who will ensure proper procedures are followed.

The new or repaired product will be returned to the authorized dealer.

WARRANTY CARD

The warranty card that is printed in the user guide delivered with each product must be dated, signed and stamped by the authorized dealer, and saved by the customer with no limitation in the duration. It must be used in any claims.

(1) Updated lists are available upon request to: Mavic - 74996 Annecy Cedex 09 or on the Mavic website: www.mavic.com

(2) Products engraved «SSC» or whose serial number has been used by the Mavic Race Department.

(3) Any claims made by any other means or without prior agreement for the return cannot be taken into account.

CONTACTING YOUR MAVIC SERVICE CENTER

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>TELEPHONE</th>
<th>FAX</th>
<th>E-MAIL</th>
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</thead>
<tbody>
<tr>
<td>MSC GERMANY</td>
<td>(+49) 08033 305163</td>
<td>(+49) 08033 305169</td>
<td><a href="mailto:msc_de@mavic.fr">msc_de@mavic.fr</a></td>
</tr>
<tr>
<td>MSC AUSTRALIA</td>
<td>(+61) 3 8878 1000</td>
<td>(+61) 3 8878 1001</td>
<td><a href="mailto:msc_at@mavic.fr">msc_at@mavic.fr</a></td>
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<tr>
<td>MSC AUSTRIA</td>
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<td><a href="mailto:msc_at@mavic.fr">msc_at@mavic.fr</a></td>
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<td>MSC BENELUX</td>
<td>(+32) 01 434 7470</td>
<td>(+32) 01 432 3904</td>
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<tr>
<td>MSC CANADA EAST</td>
<td>(+1-514) 332 1320 or 1-800 363 0693</td>
<td>(+1-514) 335 1691</td>
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<tr>
<td>MSC CANADA WEST</td>
<td>(+1-604) 324 6900 or 1-800 363 0693</td>
<td>(+1-604) 324 6100</td>
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<tr>
<td>MSC SPAIN AND PORTUGAL</td>
<td>(+34) 93 729 24 74</td>
<td>(+34) 93 729 04 93</td>
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<tr>
<td>MSC FRANCE</td>
<td>(+33) 04 50 65 72 81</td>
<td>(+33) 04 50 65 71 45</td>
<td><a href="mailto:msc_france@mavic.fr">msc_france@mavic.fr</a></td>
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<tr>
<td>MSC UK</td>
<td>(+44) 1256 408 637</td>
<td>(+44) 1256 465 562</td>
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<tr>
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<td>(+39) 03 5499 3975</td>
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<td>(+81) 04 8997 4501</td>
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<td>(+64) 4 528 3608</td>
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<tr>
<td>MSC SWITZERLAND</td>
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<td>(+41) 041 784 12 73</td>
<td><a href="mailto:msc_ch@mavic.fr">msc_ch@mavic.fr</a></td>
</tr>
<tr>
<td>MSC USA</td>
<td>(+1-888) 466 28 42</td>
<td>(+1-978) 373 1113</td>
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