

车轮使用说明书

Steel Wheel Operating Manual


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1.安全准则 Safety Criterion

重要警告！

IMPORTANT!

 进行任何其它拆卸动作前，请拆下气门芯，以确保气体被排空。可用一根金属丝穿过气门嘴，确保其气门嘴不被堵塞。
Completely deflate tire by removing valve core from valve before attempting any demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

 并遵守安全说明，未能遵守有可能会受到严重伤害。
AND FOLLOW SAFETY INSTRUCTIONS. FAILURE TO DO COULD RESULT IN SERIOUS INJURY.



安全第一！
SAFETY FIRST!

2.安全警告事项 Safety Warnings



本标识表示警告。

Symbol indicates a warning message.



不遵守警告可能会导致严重的伤害或死亡。

Failure to heed warnings could lead to serious injury or death.

2.1 一般警告 GENERAL WARNINGS

2.1.1 轮胎和车轮拆装作业可能会极度危险，只能由培训合格的人员按照本说明、生产厂家的手册、操作说明或政府说明材料上规定，运用正确工具进行。

The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools, and following the procedures presented here and in manufacturers' catalogs, instruction manuals, or government instruction material.

2.1.2 配套的轮胎和轮辋，尺寸和轮廓都要符合要求。

Always use approved tire and rim combinations for sizes and contours.

2.1.3 轮胎和车轮拆卸过程中，请穿戴劳保用具。

Always wear personal protection equipment when servicing tire and wheels.

2.1.4 轮胎充气压力不得超过轮胎生产商建议的最大值。

Never exceed manufacturer's recommended tire inflation pressure.

2.1.5 使用合适的吊装技术和机械化吊装设备来移动沉重部件和总成。

Always use proper lifting techniques and mechanized lifting aids to move heavy components and assemblies.

2.1.6 请勿给未能确定、排除故障的轮胎再次充气。

Never reinflate a tire without determining and correcting its problem.

2.1.7 破损、磨损、腐蚀凹坑或损伤的零部件应当进行毁损处理、丢弃，并用完好产品替代。

Parts that are cracked, worn, pitted with corrosion or damaged must be destroyed, discarded and replaced with good parts.

2.1.8 不建议组合使用不同制造商生产的车轮部件。如必须把其它公司生产的部件装到宇翔的车轮上，请在组装前与宇翔确认。

We never recommend to assembly rim by mixing rim components which manufactured by different companies. Always verify the compatibility of components before assembling TYW's rim components to other company's parts.

2.1.9 宇翔的产品符合关于环境保护方面的设计要求，产品的存放、使用和废弃请遵照当地法律要求进行。

TYW's products comply with the design requirement respected to the environment protection requirements. Always deposit, use and discards parts in accordance with local legal requirements.



关于安全规程的文件请参考欧洲车轮制造商协会 EUWA 的手册：《车轮的安全和服务建议》

Further references explaining safety procedures can be found in literature published by EUWA-Association of European Wheel

Manufacturers: Safety and service recommendations for wheels

2.2 重要警告 IMPORTANT WARNINGS

2.2.1 请尽可能在图 1 所示“安全笼”等类似安全装置中进行充气。

Use a “Safety Cage” show as figure 1 or other safety device to inflate tires-rims assembly.



图 1 安全笼

Figure1 Safety Cage

2.2.2 请操作人员始终在图 2 所示“危险轨迹”范围外进行操作。请不要让第三者靠近危险轨迹。

Stay out of the range of the “trajectory” as indicated by area in the figure 2 below. During deflation work, DO NOT allow other workers or third parties to approach the area of the trajectory.

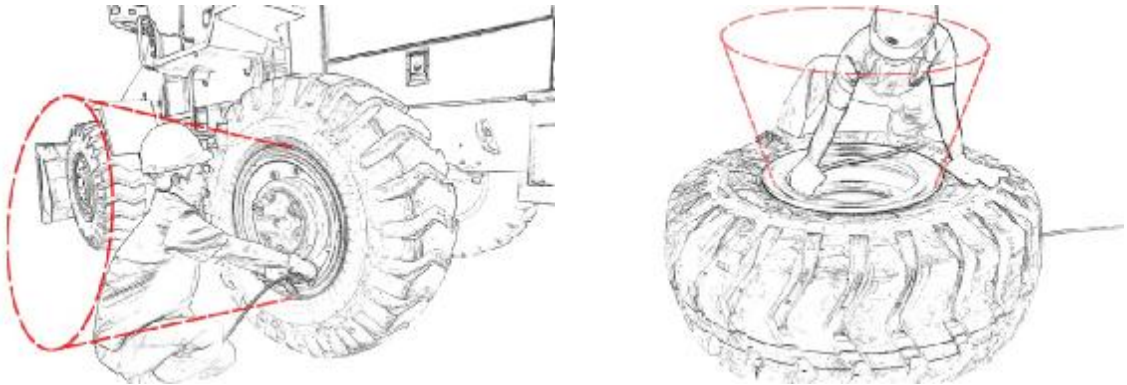


图 2 危险轨迹

Figure 2 Trajectory (danger zone)



在某些情况下，危险轨迹可能会与预期飞出的路径不一样。

Under some circumstances, the trajectory may deviate from its expected path.



图 2 所示的操作是错误的！

Note: Operating as figure 2 is incorrect!

2.2.3 充气过程中，当气体压力达到 20KPa(3psi)时，请暂停充气，确认车轮各部件已到达规定的位置后再把气压增大到标准气压。如果部件未到达正确的位置，请立即停止操作，排出空气，并查找原因。

Inflate to approximately 20KPa (3 psi) and again check for proper engagement of all components. If assembly is correct, continue to inflate to recommended pressure. If assembly is incorrect, STOP and DEFLATE, find the cause.

2.2.4 禁止使用自然状态下开口大于 10mm 的锁圈。

Discard any lock rings with more than 10mm opening ends without any force.

2.2.5 在装有轮胎的状态下，严禁进行焊接、打磨等产生加热或火焰的操作。

DO NOT make modifications involving welding, heating, soldering, etc. Such modifications could lead to the deformation as well as the deterioration of the strength and structural integrity of the rim components.

3. 车轮的结构及其部件的定义 Definitions of rim components

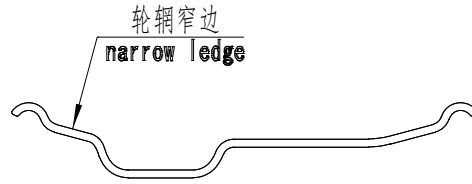


图 3 单件式轮辋
Figure 3 Single piece Rims

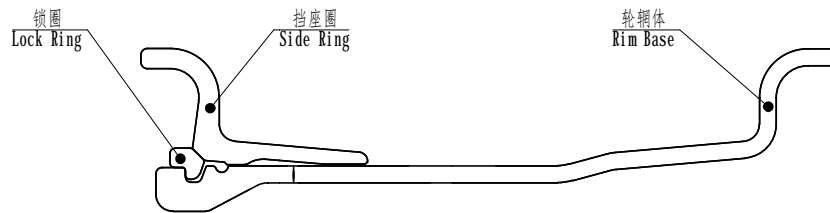


图 4 三件式车轮部件的名称
Figure 4 Names of 3-piece Rim Components

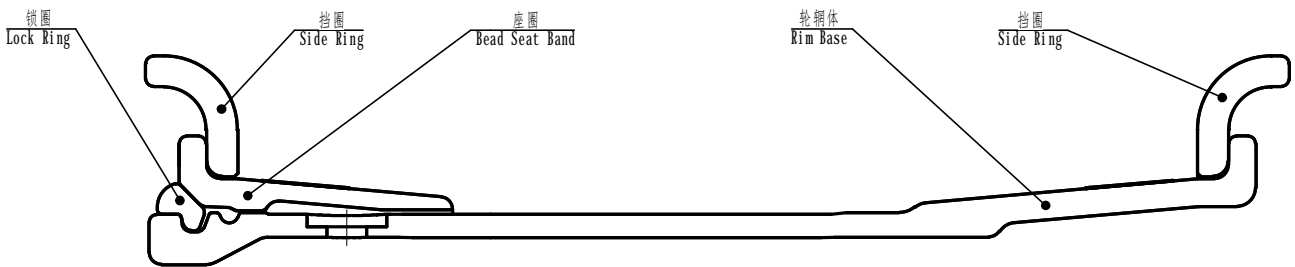


图 5 五件式车轮部件的名称
Figure 5 Names of 5-piece Rim Components

4. 轮胎和车轮的更换操作 Procedures for mounting and demounting wheel and tire assemblies

本节只介绍正确的操作顺序和应达到的效果，描述里涉及到的工具只作为参考。例如使用专门的装胎设备，动作和工件的朝向会有很大的不同，但操作顺序是一样的。

Only present correct procedures and expected effects. The required tools are for reference. For example, if special tire mounting equipment is applied, the action and place of the parts are different, but the procedures are the same.

4.1 单件式无内胎车轮的拆卸 Demounting Tubeless Single Piece Wheel and Tire Assemblies



在进行任何其它拆卸动作前，请拆下气门芯（如果是双胎车轮，两个轮胎都要泄气），以确保气体被排空。

Completely deflate tire by removing valve core from valve (both tires of a dual assembly) before attempting any demounting operation.

4.1.2 将总成放置于地面。

Lay the assembly on the floor.

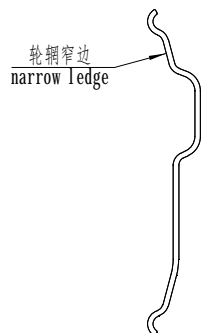
4.1.3 在胎圈座和轮缘中间插入撬胎棒，当心不要伤到胎圈座区域。当胎圈座完全脱离轮辋，把轮胎和轮辋翻转，重复脱圈步骤。

Drive a bead unseating tool between the tire bead and rim flange, being careful not to damage the tire bead area. After the bead has been completely released around the tire, turn the tire and rim over and repeat the bead unseating procedure.



4.1.4 轮辋窄边朝上，用植物基润滑油完全润滑轮缘和胎圈座。

With the narrow ledge on top, thoroughly lubricate the rim flange and tire bead area with a vegetable-based lubricant.



4.1.5 用两根撬胎棒将胎圈座撬离轮缘。操作小幅度进行，避免伤及胎圈座。继续进行到整圈胎圈座完全脱离轮缘。

Pry the bead over the rim flange using two tire irons. Take small bites to avoid damaging the bead. Continue until the top bead is completely over the rim flange.



4.1.6 要完全把轮胎从轮辋上拆除，先把总成翻转，轮辋窄边朝下，充分润滑另一面胎圈座和轮缘。确保胎圈座仍在轮辋槽内。把撬胎棒插入对面胎圈座。慢慢地，一点点地交替使用两条撬胎棒把轮辋与轮胎分离。

To completely remove the tire from the rim, turn assembly over so the narrow ledge is down and lubricate the second tire bead and rim flange. Be sure the bead still on the rim is in the rim well and insert the tire irons under the opposite side of the bead. Work the rim slowly out of the tire by taking small bites alternately using both tire irons.



4.2 单件式无内胎车轮的装配 Mounting Tubeless Single Piece Wheel and Tire Assemblies

4.2.1 把轮辋放在地上，轮辋窄边朝上。用植物基润滑油完全润滑胎圈座和轮缘部分。 Lay the rim on the floor with the narrow ledge on the top. Thoroughly lubricate the tire bead area and rim flange with a vegetable-based lubricant.



4.2.2 推底部胎圈座使其尽可能多地越过轮缘并使之进入轮辋槽。用撬胎棒让第一面胎圈座完全越过轮缘。操作小幅度进行，避免伤及胎圈座。

Push the bottom bead over the rim flange as far as possible and down into the rim well. Use tire irons to work the first tire bead completely over the rim flange, taking small bites and being careful not to damage the bead.



4.2.3 用撬胎棒让顶部胎圈座越过轮缘。可使用老虎钳阻止轮胎滑动。

Use tire irons to lever the top bead over the rim flange. Locking pliers may be used to resist tire slipping back off rim.



4.2.4 完全润滑两侧的胎缘和胎圈座。

Thoroughly lubricate the tire bead area and rim bead- seats on both sides of the tire.



4.2.5 将轮胎放置在安全护笼里。给轮胎充气使胎圈座就位。检查轮胎轮辋的同心度。成功的安装取决于轮胎形状被保持得多好。如果胎圈座位于或靠近其正确位置，通过给轮胎充气就能定位。如果两侧胎圈座被挤压到一起，就要使用增压泵环确保胎圈座和轮辋的气密性。

Place the tire in a safety cage. Inflate the tire to seat the beads. Check for correct concentric centering of tire on rim. Successful mounting depends on how well the shape of the tire has been maintained. If the beads are in or near their molded position, they can be seated by inflating the tire. Where the beads have been squeezed together, the use of an inflator ring will be required to provide a seal between the tire bead and rim.



:胎就位不正确，就停下-放气-总成纠正-重复步骤。

If assembly is incorrect – STOP – DEFLATE – CORRECT THE ASSEMBLY – repeat procedure.

4.3 三件式车轮的拆卸 Demounting 3- Piece Wheel and Tire Assemblies



4.1.1 在进行任何其它拆卸动作前，请拆下气门芯（如果是双胎车轮，两个轮胎都要泄气），以确保气体被排空。

Completely deflate tire by removing valve core from valve (both tires of a dual assembly) before attempting any demounting operation.

4.3.3 将两根撬胎棒卡入轮胎和挡座圈之间，两根撬胎棒的距离约 120mm。

Drive the end of two tire iron tools between the tire and side flange about 120 mm apart.



4.3.4 将两根金属棒向下向两侧撬。保持其中一条不动，把另外一条再往旁侧撬 120mm。连续重复上述步骤直至整个胎圈座完全脱离。

Pry both tools down and out. Leave one tool in position and place the second about 120mm beyond. Repeat in successive steps until the tire bead is completely unseated.

4.3.5 将挡座圈位置压低。从锁圈缺口处开始将锁圈撬起，进而拆卸。

Depress the side flange down along the rim base. Pry the lock ring loose, starting at the split then remove the lock ring.



4.3.6 用撬胎棒压住挡座圈，从密封圈槽取出密封圈。

Hold the side flange down with tire iron to remove the "O" ring from ring groove.



4.3.7 拆卸挡座圈。

Remove the side flange.



4.3.8 翻转轮胎和轮辋。按照步骤 4.3.3，将撬胎棒插入轮胎和固定轮缘中间，拆下另一面胎圈座。重复步骤 4.3.3、4.3.4，直至胎圈座完全脱离。从轮胎中取出轮辋体。

Turn tire and rim over and unseat second bead by inserting both tire iron tools between tire and fixed rim flange as in step 4.3.3. Repeat steps 4.3.3 and 4.3.4 until the tire bead is completely broken loose from the rim on the fixed flange side. Lift rim base out of tire.

4.4 三件式车轮的装配 Mounting 3- Piece Wheel and Tire Assemblies



4.4.1 清除多件式轮辋部件衔接处的灰尘、锈蚀，尤其是安装锁圈和密封圈的上端。未充分清理会加大轮胎、轮辋检查、维修和重新正确安装的难度。

Clean all dirt and rust from interlocking faces of multi-piece rim components particularly the guttersections which hold the lock ring and "O" ring in place. Failure to adequately clean all components will inhibit efforts to inspect, maintain, and reassemble the tire and wheel correctly.



4.4.2 检查轮辋体和车轮部件，看是否有裂纹、磨损、锈蚀和损伤。

Inspect rim base and wheel components for cracks, wear, corrosion and damage.



4.4.3 若怀疑部件有问题，应用完好的部件替换。

In situations where part condition is suspect or in doubt destroy the part, discard and replace with good part.

4.4.4 检查轮胎是否有磨损、断裂、撕裂、穿刺或其它损伤。

Inspect the tire for wear, cracks, tears, punctures and other damage.

4.4.5 往轮辋上安装气门嘴。Install valve spud on rim.



遵照气门嘴生产商的建议和安装说明。

Follow valve spud manufacturer's recommendations- and installation instructions.

4.4.6 将轮辋放置在地面上，固定轮缘一侧朝下。用植物基润滑油将两侧胎圈座润滑，将轮胎放置在轮辋体上。

Place rim base on the floor with fixed flange side down. Lubricate both bead seats of the tire with vegetable base lubricant. Place tire over rim base.



4.4.7 将挡座圈放置在轮辋体上方，用手尽量向下压挡座圈。确保挡座圈不被轮辋卡住。

Place side flange over rim base and push straight down with hands as far as possible. Make sure side flange does not bind on rim base.



4.4.8 润滑全新的橡胶密封圈。先将密封圈卡在密封圈槽的一侧里，再拉长将其套入槽内，而不要顺着密封圈槽滚动进去。然后润滑整个密封圈区域（注意，可能需要用撬棒向下压挡座圈，以便露出密封圈槽）。

Lubricate a new rubber "O" ring. Place "O" ring in groove on one side and stretch "O" ring snapping it into place rather than rolling it into place. Then lubricate the entire "O" ring area. (NOTE: It may be necessary to hold the side flange down with the tire iron tool in order to expose the "O" ring groove.)



4.4.9 压住挡座圈使其位置低于锁圈槽，将锁圈卡入锁圈槽（最上方的槽）。

Hold the side flange down to position it below both grooves in the rim base and snap lock ring into lock ring (upper) groove.



4.4.10 检查所有的部件确保都安装正确。

Check components to make sure that parts are correctly assembled.



注意：锁圈应当完全嵌入槽内。

NOTE: Lock ring should be fully seated in groove.

4.4.11 将轮辋和轮胎放置在安全笼里充气，按之前介绍过的（图 2），操作人员站在危险轨迹外。当充气压力达到 20KPa(3psi)时，再次确认所有部件安装是否正确。若安装正确，继续按照要求的气压给轮胎充气。

Place rim and tire in a safety cage during tire inflation. Stand out of the trajectory during inflation as illustrated (figure 2). Inflate to approximately 3 psi and again check for proper engagement of all components. If assembly is correct, continue to inflate to recommended pressure.



如果轮胎就位不正确，就停下-放气-总成纠正-重复步骤。

If assembly is incorrect – STOP – DEFLATE – CORRECT THE ASSEMBLY – repeat procedure.

4.5 五件式车轮的拆卸 Demounting 5-Piece Wheel and Tire Assemblies



4.1.1 在进行任何其它拆卸动作前，请拆下气门芯（如果是双胎车轮，两个轮胎都要泄气），以确保气体被排空。

Completely deflate tire by removing valve core from valve (both tires of a dual assembly) before attempting any demounting operation.

4.5.2 完全放气后（若有限位键先拆下），将总成放置于地面。（有锁圈的一侧朝上）。

After complete deflation (Remove driving key if present), place the assembly on the floor (with the lock ring side up).

4.5.3 用 2 根撬胎棒拆下锁圈。（注意：若未能拆卸，可按照步骤 4.5.5，先把胎圈座分离）

Remove the lock ring, using two tire irons. (NOTE: If this is not possible, the tire bead may be unseated as shown in step 4.5.5).



4.5.4 向下撬座圈，将密封圈从槽内拉出。

Remove the "O" ring by prying the bead seat band back and inserting a screwdriver under the "O" ring and pulling it from the groove.



4.5.5 将两根撬胎棒卡入撬口（有些轮辋上提供的是一个连续的台阶）。把撬胎棒往下撬。沿着轮辋移动工具约 120mm，重复步骤直至胎圈座完全脱离。

Drive the end of two tire iron tools into the pry bar pockets(A continuous lip is provided on some rims). Pry both tools down. Release the tools and move about 120mm around the rim,continue the procedure until the tire bead is unseated.



4.5.6 用吊具或撬棒拆卸座圈。

Remove bead seat band using hoist or pry bars.



4.5.7 拆卸挡圈。

Remove the side flange.



4.5.8 翻转总成，在背面重复胎圈座拆卸工作（步骤 4.5.5）。

Turn assembly over and repeat tire bead unseating procedure on the back side(Steps 4.5.5).

4.5.9 使用吊具把轮辋从轮胎中移走。

Lift rim base from tire using hoist.

4.5.10 拆卸挡圈。

Remove the side flange.

注意：在某些情况下，进行步骤 4.5.5 时，使用液压安装工具可能更好。然而必须要小心，避免挡圈折弯、焊缝损伤等问题。

NOTE: In some cases it may be advantageous to use a hydraulic demounting tool. However, caution must be used to avoid bending the flange or breaking the butt weld. Follow procedure outlined in step 4.5.5.

4.6 五件式车轮的装配 Mounting 5-Piece Wheel and Tire Assemblies



4.6.1 清除多件式轮辋部件衔接处的灰尘、锈蚀，尤其是安装锁圈和密封圈的上端。未充分清理会增加轮胎、轮辋检查、维修和重新正确安装的难度。

Clean all dirt and rust from interlocking faces of multi-piece rim components particularly the gutter sections which hold the lock ring and “O” ring in place. Failure to adequately clean all components will inhibit efforts to inspect, maintain, and reassemble the tire and wheel correctly.



4.6.2 检查轮辋体和车轮部件，看是否有裂纹、磨损、锈蚀和损伤。Inspect rim base and wheel components for cracks, wear, corrosion and damage.



4.6.3 若怀疑部件有问题，应用完好的部件替换。

In situations where part condition is suspect or in doubt destroy the part, discard and replace with good part.

4.6.4 检查轮胎是否有磨损、断裂、撕裂、穿刺或其它损伤。

Inspect the tire for wear, cracks, tears, punctures and other damage.

4.6.5 往轮辋上安装气门嘴。

Install valve spud on rim.



遵照气门嘴生产商的建议和安装说明。

Follow valve spud manufacturer's recommendations- and installation instructions.

4.6.6 把轮辋体放置在地面上，锁圈槽一侧朝上。把第一个挡圈放进轮辋体，用植物基润滑油将两侧胎圈座润滑。再用带吊索的轮胎装卸机或起重设备将轮胎放置在轮辋上。

Place rim base on floor, gutter side up. Place inner flange on rim base, lubricate tire beads with vegetable lubricant. Place tire on rim using tire handler or hoist with sling.



4.6.7 给轮胎施压，使下方轮胎的胎圈座推入轮辋 5° 胎圈座面上。同时暴露更多的上端位置以方便装配。

Depress the tire so that the lower tire bead is driven onto the back 5° Bead Seat taper of the rim. This will expose more of the gutter at the upper side of the rim base to facilitate assembly.



4.6.8 将第二个挡圈套在装有轮胎的轮辋体上。

Place the outer flange over the rim base on the tire.



4.6.9 将座圈套在轮辋体上。若有定位块，必须要注意对齐。因为座圈和轮辋体的间隙有限，若座圈安装不当，可能会卡住。

Place the bead seat band on the rim base. If present, driver pockets must be aligned. Due to limited clearance between bead seats and rim base, bead seat band will bind if cocked slightly.



若卡住，把座圈拿出来重新安装，或使用橡胶锤、塑料锤或铜锤轻敲座圈，让其安装到位。

If necessary, remove and reinstall, or use rubber, plastic or brass faced mallet to tap, lightly upward on the bead seat band in order to get it to seat properly.

4.6.8 润滑全新的橡胶密封圈。先将密封圈卡在密封圈槽的一侧里，再拉长将其套入槽内，而不要顺着密封圈槽滚动进去。然后润滑整个密封圈区域。

Lubricate a new rubber "O" ring. Place "O" ring in groove on one side and stretch "O" ring snapping it into place rather than rolling it into place. Then lubricate the entire "O" ring area.



4.6.9 将锁圈套入锁圈槽并逐段安装到位。如有要求则安装限位键。

Start the lock ring in the lock ring groove and push or walk it into place. Insert drive key as required in pockets.



4.6.10 检查所有的部件确保都安装正确。

Check components to make sure that parts are correctly assembled.



注意：锁圈应当完全嵌入槽内。

NOTE: Lock ring should be fully seated in groove.

4.5.11 将轮辋和轮胎放置在安全笼里充气，按之前介绍过的（图 2），操作人员站在危险轨迹外。当充气压力达到 20KPa(3psi)时，再次确认所有部件安装是否正确。若安装正确，继续按照要求的气压给轮胎充气。

Place rim and tire in a safety cage during tire inflation. Stand out of the trajectory during inflation as illustrated (figure 2). Inflate to approximately 3 psi and again check for proper engagement of all components. If assembly is correct, continue to inflate to recommended pressure.



如果轮胎就位不正确，就停下-放气-总成纠正-重复步骤。

If assembly is incorrect – STOP – DEFLATE – CORRECT THE ASSEMBLY – repeat procedure.