

# Instructions for the proper and safe use of aluminum wheels

## For Dealers

Before installing the tires, make sure the size, color, P.C.D. (pitch circle diameter), design and valve of the wheel are matched to the vehicle. If you find any faults or damages in your purchases, please contact your dealer. Note that, after installing the tires, you can't return those that are scratched or have paint damage.

## The signs and meanings in this instruction

- ⚠ Danger!** If the procedure is not performed properly, there is a great risk of a fatal accident or serious injury.
- ⚠ Warning!** If the procedure is not performed properly, you could have a fatal accident or serious injury.
- ⚠ Caution!** If the procedure is not performed properly, you could be injured or your purchases could be damaged.

## Before installing the tires

### Selection and verification of the wheels

Please make sure the size of the wheel, offset, number of holes, P.C.D. (pitch circle diameter), and mounting surface shape of the wheels are proper and all are matched to the vehicle. If not, the wheels can't be mounted to the vehicle.

- ⚠ Warning!** The same size and the same kind of the wheel should be installed to each axle. If you mix different kinds, there is a possibility your driving capability and safety will decline.
- ⚠ Caution!** If the size of the wheels are not matched to those of the tires, they could be damaged.

## Parts Name (About One-piece wheel)

RIM SPREAD / RIM / RIM DIAMETER / WELL / HUMP / OFFSET / DISK / BOLT HOLES DIAMETER / HUB MOUNT PLATE / CENTER BORE / P.C.D. (pitch circle diameter) / DESIGN SURFACE / RIM CENTER LINE / FLANGE / OUTER SIDE / VALVE HOLE / INNER SIDE

## Attaching the valve and installing the tires

Please use only the supplied valves.

Torque the valve nut to 1.5 ~ 2.5 N · m. While tightening, be careful not to cut the grommet and tighten it firmly so that the valve doesn't move easily by a touch of a finger. If the grommet is cut, that could cause an air leak. If the valve moves easily, that could also result in air leakage while driving. When you install the tires, the valve should be changed to the new one supplied with your purchase. Continual usage of an old valve could cause air leakage due to a deteriorated grommet. Be sure to use the short type valve core, JIS (Japanese Industrial Standards) B type #9000.

- ⚠ Caution!** Make sure to use only the supplied valves. Using other valves with unmatched sizes and shapes could cause air leakage.

## Installation of the tires

There are two different types of Aluminum wheels. Type A: The tire should be installed from the front side of the rim. Type B: The tire should be installed from the rear side of the rim. Please check your rim shape and installation type. And use lubricant on the tire bead when you install. Make sure to pump air into the tire after verifying that the tire bead is evenly placed on the rim.

- ⚠ Warning!** Be sure to take full safety measures when you pump air into the tire. Tire pressure is required to be under 300kPa(3.0kgf/cm<sup>2</sup>).
- ⚠ Caution!** After mounting the tire to the wheel, check that there is no air leakage in the area around the valve or in the area where the tire mates with the rim by immersing it in a water tank or soap water. As for air leakage from the valve, you should check both the valve hole of the wheel and valve spout.
- ⚠ Caution!** The check of wheel balance should be done on every wheel. Imbalance could cause abnormal vibration and deteriorates driving capability and safety.

## How to handle the Center Cap

The attaching method of the wheel center cap or center cover varies due to the type of the wheel. As for the special center cap, please follow the instructions for it. Installing or removing center cap or center cover should be done very carefully so as not to damage it.

## Mounting the wheels

### Selection of wheel lug nuts and bolts

A wheel comes with a 60-degree taper, spherical, or flat lug nut seats. Please use the nuts or bolts that match the shape of the seat.

**Spherical Seat**      **60-degree taper seat**      **Plane seat**

Be sure to verify the thread diameter, screw pitch, and length of the hub on the vehicle.

- ⚠ Danger!** Make sure to use only the instructed wheel lug nuts or bolts. If you use inaccurate lug nuts or bolts and you do not tighten properly, a wheel could come off the vehicle during driving.

## Wheel lug nut torquing

First tighten the lug nuts or bolts temporarily by turns. Follow the torque sequence, Penta Star Pattern, at right. Then tighten them evenly to recommended torque.

(Example) 60-degree taper: M10=5 ~ 7kg f · m (49 ~ 69N · m)  
M12=9 ~ 12 kg · f(88 ~ 118N · m)  
M14=16 ~ 18kg · f(158~177N · m)

**Four holes**      **Five holes**      **Six holes**

Please feel free to ask anything unclear to the dealers.

- ⚠ Danger!** A wheel is likely to come off the vehicle while driving. Follow the directions below when you install aluminum wheels to the vehicle.
  - Remove any dust and dirt from the hubs and check distortion.
  - Wheels must fit flat against the vehicle's hubs.
  - Make sure to use a torque wrench to tighten wheel lug nuts.

**⚠ Danger!** Over-tightening or under-tightening may cause distortion or deformation on the wheels and hub bolts that could lead to an accident. Be sure to tighten properly with accurate torque wrenches.

**⚠ Danger!** Finish tightening the lug nuts down with accurate torque wrenches, not with powered impact wrenches of any type. Over torque causes deformation on wheel lug nuts, bolts, and the wheels, which could lead to an accident.

When you install aluminum wheels, always be sure to keep spare tire wheels with its own wheel lug nuts or bolts together. As for original spare tire, use original wheel's nuts or bolts.

### After Mounting the wheels

Never mount a wheel in a way that causes the tire or wheel to protrude from the fender, which is prohibited by law. After mounting the wheels, fully turn the steering wheel to the right and left to make sure the wheel does not come in contact with the vehicle body.

### Verifying tire pressure

Be sure to check tire pressure before driving. Especially be aware that low profile tire deteriorates its shock absorbing ability due to the lack of tire pressure and could cause damage to tires and wheels.

### Driving after installation

When installing new wheels or relocating the wheels, you should retighten the lug nuts or bolts to the recommended torque after driving about 100 kilometers. Regular checkups are also required to check the lug nuts or bolts for looseness. As for the wheels with center cover or center cap, verify whether retightening is needed or not.

### What to do in a dangerous situation ?

**⚠ Danger!** In order to avoid distortion or damages of the tires or wheels, it is better not to rub against the stone edges of the road, not to run over Cat's eyes (raised pavement markers), or not drive on bumpy roads. Continued driving on a damaged or distorted wheel could result in wheels' breaking or a cracking.

**⚠ Danger!** You should absolutely avoid sudden starting, sudden braking, and sudden turning that would damage the tires and cause serious accidents.

**⚠ Danger!** If an abnormal vibration or sound is sensed during driving, immediately stop the vehicle in a safe location and check the lug nuts for looseness, the wheels for deformation, and the condition of the tires. In case you find something abnormal, you should not drive until proper repair or tire exchange is performed.

### Daily Maintenance & Storage

Aluminum wheels excel in protection against corrosion, but they are not resistant to anti-freezing agents and salt. In order to avoid corrosion, it is necessary to wash wheels adequately and wipe them dry completely with a soft cloth after running on a seaside road or a snowy or muddy road. Cleaning before they are cooled down is likely to cause stains and unevenness.

Use of a sponge and polishing with some compound is also likely to cause flaws.

As some commercial wheel cleaners, tire cleaners, body cleaners and wax may contain strong acid or alkaline ingredients causing discoloration, stains and unevenness or abrasive materials, read the description carefully before using. Note that the corrosion or deficiency such as discoloration or peeling resulted from the use of such cleaners and wax is inapplicable to guarantee.

Manual washing is recommended because use of automated car washing machine is likely to damage the wheels. Damage caused by incorrect washing or damage by curb stones cannot be guaranteed.

Specially processed products or specially painted products such as plated, diamond-cut or sputtered have very delicate surfaces. Thus, great care is needed when using commercial wheel cleaners, which might cause flaws, peeling and corrosion on the painted surfaces. For regular maintenance, use neutral detergents, clean with a lot of water and a cloth as soft as possible and wipe dry completely.

Be sure not to use cleaners for plating or which contain iron powder removers. Read the description of the product carefully before use.

### Safe Keeping

For safe keeping of the tire wheels, after sufficient washing and adequate drying, keep them in a place without direct sun-light, rain, water, oil or high temperature/ humidity.

Also, for safe storage of the tire wheels, check the position where they are set and reduce air pressure of the tires to that of half of the recommended pressure during normal usage. When return to normal use after extended storage, after supplying the tires with air, checking the air pressure and adjusting the balance, confirm that there are no irregularity in tire wheels and note the recommended settings.

### Other cautions

#### Knock-down wheels

**⚠ Danger!** Be sure not to disassemble rims and discs or tighten or loosen the assembling bolts of knock-down wheels comprised of 2 or 3 pieces, which might cause wheels to disassemble or to leak air suddenly during driving.

#### Prohibition of wheel alteration and repairs

**⚠ Danger!** DO NOT attempt to repair or alter the wheels. Inappropriate alteration or repairing, which may incur unknown levels in strength, is extremely dangerous. For repair, contact the sales agent or the manufacturer. If the wheels are altered or repaired after manufacture and sale then they are inapplicable to guarantee.

The structure, specifications and price of the products might be changed without notice.

## Technical Standard

The aluminum wheels you bought conform to "Technical Standard of Light Alloy Disc Wheels (JWL or JWL-T) and are also acceptable to "Light Alloy Wheel Test Association for Automobiles (VIA)." For safety and keeping performance, observe the content described in this instruction manual. If there is anything you do not understand, contact the sales agent.

Technical Standard of Light Alloy Disc Wheel For Cars

### JWL

This standard is the technical standard specified by Ministry of Land, Infrastructure and Transport for light alloy disc wheel for cars (except automobiles which accommodate 11 people or more, two-wheelers and two wheeled vehicles with side cars.

If manufacturers conduct tests stated in the technical standard on their own responsibility and the results are complied with the standard, JWL marks are indicated.

Technical Standard of Light Alloy Disc Wheel For Trucks and Buses

### JWL-T

This standard is the technical standard specified by Ministry of Land, Infrastructure and Transport for light alloy disc wheel for trucks and buses. If manufacturers conduct tests stated in the technical standard on their own responsibility and the results are complied with the standard, JWL-T marks are indicated.

Quality Inspection Acceptable Mark

### VIA

A third party official institution, "Light Alloy Wheel Test Association for Automobiles," confirm whether products have quality complied with JWL or LWL-T standard or not. Those which passed the strict quality and strength tests by JWL or JWL-T standard are indicated by VIA mark.