BRAELIN

ALLOY WHEEL

Installation Instructions

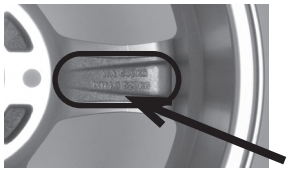
PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLING WHEELS

Failure to comply with these instructions can cause serious injury or death to the installer or occupants of the vehicle.

After installation, please review the Wheel Maintenance Guidelines on page 6 and complete the Checklist on page 7.

WHEEL FITMENT VERIFICATION

IMPORTANT



The total load rating of the (4) wheels must exceed the Gross Vehicle Weight (GVWR) of the vehicle. To calculate:
a) Find the vehicle's GVWR on the driver's side door, or in the owner's manual. This number may be shown in kg or lbs.
b) Find the wheel load rating which is usually molded into the rear of one of the spokes and shown in either kg or lbs, (see photo). To convert kg to lbs multiply by 2.2
c) To obtain the total load rating multiply the single wheel load rating by 4. This figure must exceed the GVWR of the vehicle. See example below:

GVWR = 5500lbs Total load rating = 690kg/wheel x 4 wheels x 2.2 lbs/kg = 6072lbs

1. Before starting make sure ALL wheels, tires, rings, caps, nuts, bolts, locks, keys, valves and TPMS sensors (if applicable) are correct, and that you have the proper tools to do the job. Also ensure that the nuts/bolts and lock key or socket adapter (if applicable) fit the vehicle's lug wrench.
2. Remove a wheel from the vehicle.
3. Clean the wheel studs/bolt holes, hub and mounting surface with a wire brush.
4. Test fit a centering ring (if required) on the vehicle's hub. The ring should fit snugly.
5. Remove the centering ring from vehicle hub and install it in the back of the wheel as shown (if required). The ring should fit snugly into the wheel's center hub hole. **(Fig #1)**

FIG #1

6. Before installing tires on the wheels, test fit a wheel, with centering ring installed, on the vehicle. Make sure that it sits flush against the wheel hub or brake drum and that it clears the brake caliper and suspension components. Remove all brake drum weights, spring clip retainers, rivets, locating pins and other obstructions that might prevent the wheel from sitting flush against the mounting surface. (Fig #2) Failure to remove these items can give a false torque reading causing the nuts/bolts to loosen and may result in the loss of a wheel.

CHECK FOR THESE OBSTRUCTIONS

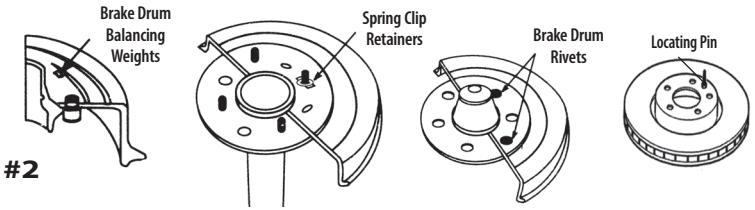


FIG #2

NOTE: Clearance between the wheel and the brake caliper may vary depending on brake pad wear.

7. Install nuts / bolts finger tight and rotate wheel. Make sure there is a minimum of 2mm clearance between the wheel and brake caliper or suspension components.
8. Repeat steps 2 through 7 for all four corners of the vehicle.

Do not use wheel adapters or modify the wheels to resolve clearance problems. Doing so can be dangerous and will void the warranty.

TIRE MOUNTING

Wheels damaged by the tire mounting equipment, or the installer, are not covered by the warranty. Follow the procedure below to eliminate any problems.

1. Mount tires according to the tire-mounting machine's recommended safety procedures.
2. All wheels and tires have their wheel diameter marked on them. Make sure the wheels and tires you are installing have the same diameter.
3. Make sure the tires you are installing do not exceed the rim width recommendation. All **Braelin** alloy wheels are designed to be compatible with U.S. Tire and Rim Association and European ETRTO standards.
4. Be sure the tire changing equipment does not grip or scrape against the wheel's face. The hold-down cone, normally used to secure original equipment steel wheels on a tire mounting machine, must not be used with alloy wheels, unless you have the proper adapter.
5. Be sure to lubricate both the tire bead and bead seat liberally.
6. Make sure the bottom bead breaker does not hit the bottom of the wheel as it travels upward (some older equipment). Alloy wheels have thicker rim sections than steel wheels and the bead breaker could hit the wheel causing damage. If you think the bead breaker will hit the wheel, install the proper shims from the tire changer manufacturer.

WARNING

Never exceed 40 psi/275 kPa when seating a tire to the bead of a wheel. In addition, never exceed the tire manufacturer's maximum air pressure recommendation shown on the tire sidewall. If the tire does not seat, disassemble, check for tire/wheel size mismatch, re-lubricate and re-install.

Never inflate a mounted tire with the center hold-down cone tightened on the wheel. Loosen it a little, to let the tire expand, but do not remove it completely. Never stand over a tire/wheel assembly during inflation.

WHEEL BALANCING

1. Balance the wheel and tire assembly according to the balancing machine's recommended safety procedures.
2. All **Braelin** alloy wheels must be centered on the balancer by the hub, from the rear, without the centering ring in place. Do not center these wheels from the front, unless you are using Haweka type centering plates.
3. All **Braelin** alloy wheels are checked at the factory for lateral and radial run out. In some cases a wheel and tire assembly may take excessive weight (greater than 4 oz/ 115 g) to balance. This happens when the heavy sides of both the wheel and the tire align. This imbalance can be reduced by rotating the tire 180° on the wheel, so that the heavy sides of the wheel and tire offset each other.
4. Install stick-on weights to the inside barrel of the wheel or mag-style clip-on weights to the rear edge. Never install clip-on weights to the front edge of an alloy wheel, as it will cause damage to the protective coating.

WHEEL AND TIRE INSTALLATION

1. Clean and inspect all studs/bolt holes and mounting surfaces prior to installation. Replace any stripped, missing or broken studs.
2. Before installing the wheels on the vehicle, be sure the correct size hub centering rings have been installed in the back of the wheels (if required).
3. When installing wheels be sure the stick-on weights clear the brake calipers and suspension components by at least 2mm. If interference is detected at this stage, re-balance the wheels with the machine's weight location setting altered to ensure proper clearance.
4. Before installation, make sure you have all the correct hardware. If you are not sure you have the right items, check with your local **Braelin** supplier.

   Hub/Centering Rings: Some models of **Braelin** wheels require a centering ring to properly position the wheel on the hub. Be sure that you have the correct size centering ring before mounting.

   Nuts/Bolts: There are three main types of nuts (**Fig #3, #4 and #5**), and two types of bolts (**Fig #6 and #7**). They vary in the way they seat against the wheel. In most cases **Braelin** wheels are drilled to accept 60° conical seat nuts/bolts. For some applications, the wheels may be drilled to accept radius seat nuts/bolts or flat seat nuts. Prior to installation inspect the wheel seat and hardware to be sure they are compatible.

FIG #3

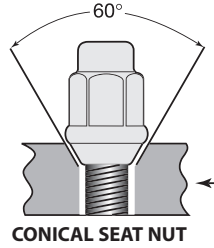


FIG #4

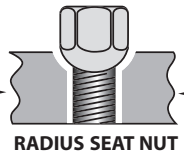


FIG #5

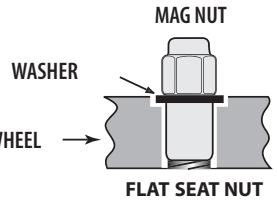


FIG #6

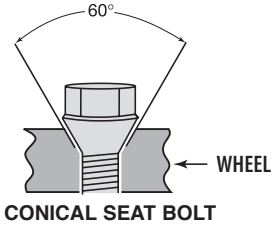
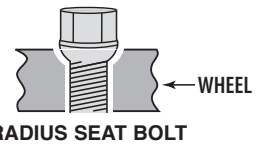


FIG #7



5. **When installing nuts/bolts, check for thread engagement. Make sure all nuts/bolts are threaded on by at least the diameter of the stud/bolt (a stud/bolt hole with a diameter of 12mm must engage the nut/bolt by at least 12mm). Check engagement on all studs/bolts as some may have different lengths. Less than one stud/bolt hole diameter engagement is unsafe and may cause loss of tightening torque. If you do not have the proper thread engagement, do not install the wheels. (Fig #8 and #9)**

FIG #8

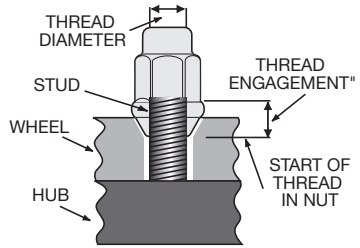
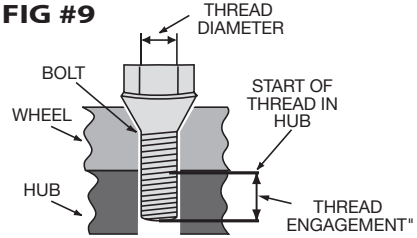
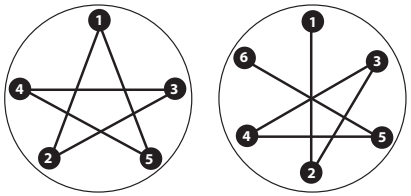


FIG #9



6. **Make sure nuts do not bottom out on the studs, or bolts do not bottom out in the bolt holes. This is extremely dangerous as the torque of the nuts/bolts is not being applied to the wheel. If nuts bottom out on studs, use longer closed-end nuts, or alternatively open-end nuts. If bolts bottom out in bolt holes, use shorter bolts. Make sure bolts do not extend past the interior hub assembly, potentially touching the spindle or suspension components, or into the drums touching the brake springs. If bolts are too long order shorter bolts. Do not install the wheels until you have the correct hardware.**
7. Nuts/bolts must be tightened in a crisscross pattern to ensure uniform pressure and alignment. **(Fig #10)** Apply torque evenly by repeating the crisscross pattern until desired torque is reached. Never use fewer nuts/bolts than a wheel requires.

FIG #10



8. **DO NOT USE IMPACT WRENCHES TO TIGHTEN NUTS/BOLTS.**
   This can cause under or over-tightening which can result in wheel failure. In addition, using them can damage the finish of chrome nuts/bolts and in some cases the wheel.
9. Tighten all nuts/bolts to the torque specification shown in the vehicle owner's or service manual. If this information is not available, use the chart below for your particular thread size. **USE a MANUAL, calibrated torque wrench to Ensure proper TORQUE SETTINGS.**

TORQUE SPECIFICATIONS								
Diameter	**10mm**	**12mm**	**14mm**	**3/8"**	**7/16"**	**1/2"**	**9/16"**	**5/8"**
Pound - foot	45 - 50	70 - 75	85 - 90	40 - 45	55 - 60	75 - 80	100 - 110	140 - 150
Newton - meters	60 - 68	95 - 102	115 - 122	55 - 60	75 - 81	102 - 108	135 - 150	190 - 205

AFTER INSTALLATION

1. Make sure the new nuts/bolts are compatible with the vehicle's spare tire. If not, keep the original nuts/bolts in the vehicle.
2. Fill in the correct torque setting and tire pressure on the checklist.
3. If locks were installed, make sure you obtain the key and keep in the vehicle. Record the key number on the checklist for future reference.
4. Clean tires and wheels (see wheel maintenance guidelines on page 6).
5. Complete the checklist on page 7.

WHEEL MAINTENANCE GUIDELINES

Alloy wheels require special care in order to keep them in good condition. Proper maintenance will prevent peeling, pitting and corrosion. In order to protect your wheels' finish from deterioration and to prevent your warranty from being voided, we recommend that you follow these steps:

1. Wash your wheels on a weekly basis with non-detergent soap and water, using a soft brush or sponge. Cleaning your wheels frequently will remove salt, dirt and brake dust that can be corrosive to the finish.
2. Beware of car washes that use steam cleaners, scouring pads, bristle brushes and / or tire cleaners. High temperatures, rough cleaning materials and corrosive chemicals can cause permanent damage to your wheels.
3. Never spray cold water on extremely hot wheels. Allow your wheels to cool before cleaning them. Extreme temperature change can cause damage or discoloration to the finish.
4. Specific cleaning / maintenance procedures by finish type:
   All Gloss Finish Painted / Machined / Milled Wheels: Wash on a weekly basis with non-detergent soap and water, using a soft brush or sponge. A non-abrasive (without additional cleaning/polishing agents) automotive wax should be applied after cleaning to help maintain their appearance.
   All Matt or Satin Finish Painted / Machined / Milled Wheels: Wash on a weekly basis with non-detergent soap and water, using a soft brush or sponge. Ensure any soap used does NOT contain any additional wax or polishing agents. Regular, non-wax soaps are fine, but any other maintenance products used must be specifically designed for matt finishes. NEVER buff, polish or wax the matt finish as this will create glossy spots / highlights and ruin the matt effect.
   All Vapour Chrome (PVD) Wheels: Wash on a weekly basis with non-detergent soap and water, using a soft brush or sponge. A non-abrasive (without additional cleaning/polishing agents) automotive wax should be applied after cleaning to help maintain their appearance. **DO NOT UNDER ANY CIRCUMSTANCES USE CHROME WHEEL CLEANING PRODUCTS.** The Vapour Chrome (PVD) finish has a protective clear coat just like a painted wheel that will be irreparably damaged by the harsh acids and chemicals in chrome cleaning products. Use of chrome or other type of corrosive cleaners on a Vapour Chrome (PVD) finish wheel will void the cosmetic warranty.
   All Chrome Wheels (EXCEPT Vapour Chrome / PVD, see above): Wash on a weekly basis with non-detergent soap and water, using a soft brush or sponge. Specialized chrome finish cleaners may also be used, but be very careful to follow product application instructions as they can easily damage the wheel finish if used incorrectly. A non-abrasive (without additional cleaning/polishing agents) automotive wax should be applied after cleaning to help maintain their appearance.
5. In the case of **machined, milled or chrome finishes,** we recommend that you remove your alloy wheels and install a set of painted alloy or steel wheels for winter. Snow, slush, sand and road salt are hard on these special finishes and can destroy them in a short period of time.
6. To store your alloy wheels, **remove the center caps, then wash and dry all parts thoroughly**. Place in a clean bag and keep in a dry place.
7. If you hit a curb or pothole, or have an accident and suspect structural damage, have your wheels inspected immediately by a licensed mechanic. If structural damage is found, replace the wheel immediately.

CHECKLIST

Complete this checklist after installation. All points should be verified before releasing the vehicle to the owner. Check all boxes and sign on the bottom line. Please review this checklist with the client.

❏ The total wheel load rating exceeds the GVWR of the vehicle.

❏ Wheel fitment verification has been done. No obstructions prevent the wheels from seating flush on the mounting surfaces. e.g., brake drum weights, spring clips retainers, rivets, locating pins or other obstructions.

❏ Centering rings are the correct size for the vehicle and have been installed (if required).

❏ Studs/bolt holes are free from rust, corrosion and damage.

❏ Wheel nuts/bolts and locks are correct for the application, e.g.: thread size, thread engagement, bottoming out, seating.

❏ Wheel nuts/bolts and locks fit the vehicle's original lug wrench and spare tire.

❏ Wheels and stick-on wheel weights clear brake calipers or suspension components by a minimum of 2mm.

❏ Tires have sufficient clearance from inside and outside fenders and all suspension components.

❏ Nuts/bolts are tightened to the proper torque specification with a manual, calibrated torque wrench. The torque setting for this vehicle is

_____ lb-ft or _____ N-m.

❏ TPMS sensors have been installed and are functional (if equipped).

❏ Customer has been instructed to re-torque nuts/bolts after 40km.

❏ Tires have been inflated to the correct pressure. The correct pressure for this vehicle is _____ psi or _____ kPa. (cold)

❏ Record wheel lock code (if applicable) _____

❏ Customer is given this Installation Instructions Manual.

_____ Installer

_____ dd / mm / yr

Keep this document with the owner's manual and give it to the new owner if you sell the vehicle.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