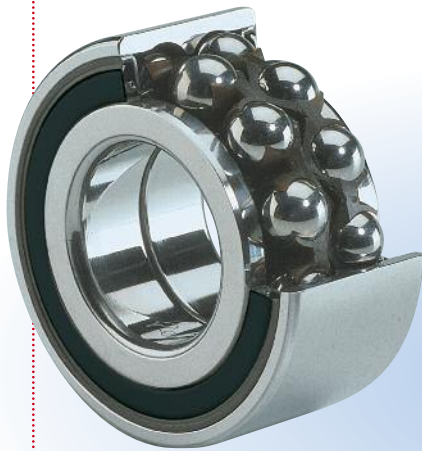


Installation and Removal of Wheel Bearings: How to proceed?

We are ending our series of documents on the installation of wheel bearings with bearings that are equipped with the ASB® system invented by SNR.

We will be looking at the **cartridge double-row ball bearing** and the **hub bearing**.



Double row ball
ASB bearing cartridge



Double row ball
ASB hub

Cartridge Bearing
Driving Front Wheels

Cartridge Bearing
Non-Driving Rear Wheels

Hub Bearing
Non-Driving Rear Wheels

ASB® Bearing
Wheel Speed Sensor

The SNR ASB® (Active Sensor Bearing) wheel bearing contains a seal that integrates a multi-pole magnetic encoder. As soon as the wheel starts to rotate, this magnetic encoder actuates a close-by miniature active sensor that delivers an electric signal. The frequency of this signal is proportional to the wheel speed-of-rotation. The information is therefore reliable, even at very low speeds. Compared with conventional system of passive speed sensing via a tone wheel, the ASB® concept permits to save weight and space, and simplifies wheel assembly.

Major Vehicle Makes and Models Fitted with This Bearing

For information only: always refer to the SNR catalogue.

Makes	Models	SNR Kits
ALFA ROMEO	156, 166	R160.25
	145/146	R158.43 - R158.46
FIAT	Seicento, Bravo/Brava, Marea, Multipla	R158.42 - R158.43 - R158.44 R158.45 - R158.46
LANCIA	Y, Kappa	R158.44 - R158.45 - R158.46
RENAULT	Laguna	R155.55 - R155.61 - R155.66
ROVER	R75	R161.26 - R161.27



I. REMOVAL

1 Remove in sequence:

- the driveshaft nut,
- the brake caliper
- the brake rotor
- the sensor attached to the steering knuckle by a screw. Disengage the driveshaft and remove the steering knuckle

2 Place the steering knuckle on either a tube or chucks. Using a sleeve of appropriate diameter, apply pressure to the hub to drive it out of the steering knuckle.

3 During this operation, the bearing separates into two parts: one inner ring stays on the hub, while the rest of the bearing remains in the steering knuckle.

4 If the ball train is still on the hub, remove it. To remove the inner ring, use a knife extractor that will be positioned and clamped into the pulling groove of the bearing inner ring. If the inner ring does not have such a groove, apply pressure between the face of this ring and that of the hub.



II. INSTALLATION

8 Before installing the new bearing, make sure that the hub and steering knuckle are in proper condition and that all surfaces in contact with the bearing are clean. One face of the ASB® bearing features a black magnetic encoder. Remove the plastic shield protecting the magnetic encoder just before installing the bearing. Do not let the magnetic encoder come into contact with a dirty surface. Keep the magnetic encoder away from any **magnetic surface**.

9 Put the steering knuckle on the side opposite to the direction of installation. Position the bearing in the lead-in opening of the housing, so that the magnetic encoder faces the vehicle inboard side. With a press and a sleeve of appropriate diameter and in perfect condition, apply pressure to the bearing **outer ring**. Do not press on the magnetic encoder, as this would damage it.

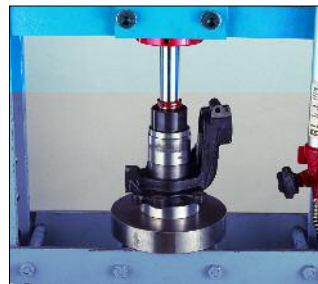
10 Carefully install the snap ring (removed in step 6):

- Do not damage the magnetic encoder with the fingers of the pliers,
- **Position the snap ring opening such that it provides a safe path to the sensor**



ASB® bearing face featuring the magnetic encoder

Other face of the ASB® bearing



Caution: for all operations detailed below, follow the general recommendations provided in the last page.

5 Place the knife extractor under the press, resting on either a tube or chucks. Using a sleeve of appropriate diameter, apply pressure to the hub to drive it out from the inner ring.



6 If there is a snap ring, remove it from its groove with pliers.



7 Put the inner ring and its ball train back into the outer ring that remained in the steering knuckle. Place the steering knuckle under the press, resting on either a tube or chucks. Using a sleeve of appropriate diameter, apply pressure to the inner ring of the bearing.



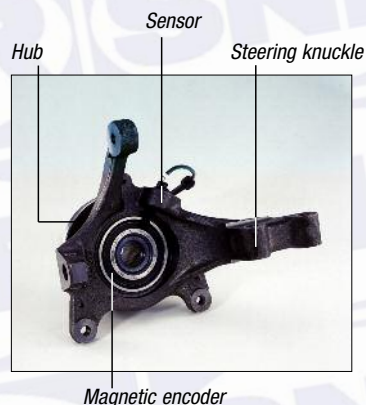
11 Place the hub on the work surface of the press. Position the bearing/steering knuckle assembly onto the hub. With a sleeve of appropriate diameter and in perfect condition, apply pressure to the bearing **inner ring** until it is fully seated against the hub shoulder. Do not press on the magnetic encoder, as this would damage it. Increase the pressure towards the end of travel (4 tons required).



12 Install the complete assembly on the vehicle. Install the driveshaft in the hub with extreme care to avoid shocks: the driveshaft end piece could damage the magnetic encoder. Before fitting the driveshaft, clean the magnetic encoder. Make sure it is free of metallic particles. Re-attach the brake rotor and caliper. With a torque wrench, tighten the new driveshaft lock nut to the torque value recommended by the car manufacturer. To do this, prevent the hub from rotating either by applying the brakes or by re-installing the wheel and lowering the car onto the ground, **without letting it move**.



13 Clean the sensor and re-attach it.

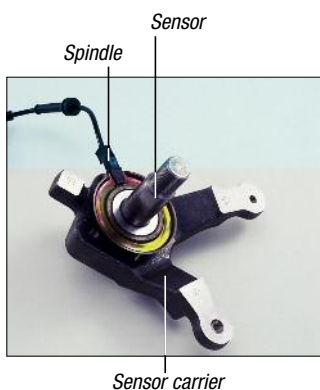


Hub Bearing with ASB® System

I. REMOVAL

- 1 Remove in sequence:
 - the brake drum or rotor and caliper
 - the hub cap
 - the spindle nut

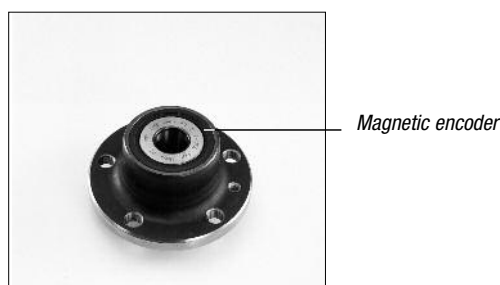
Remove the hub bearing by hand or with a puller.



II. INSTALLATION

- 2 Before installing the new bearing, check the overall condition of the spindle and the cleanliness of all surfaces that will contact the bearing. The SNR kit contains all parts necessary for assembly. Remove the plastic shield from the magnetic encoder just before installing the bearing. Protect the magnetic encoder against shocks. Do not let the magnetic encoder come into contact with a dirty surface. Keep the magnetic encoder away from any **magnetic surface**. Make sure that the encoder is clean. Install the hub bearing on the spindle either by hand or with a threaded chuck positioned at the end of the spindle.

- 3 Using a torque wrench, tighten the new spindle nut to the torque recommended by the car manufacturer. Re-install the hub cap. Re-attach the brake drum or rotor and caliper.



PRECAUTIONS TO TAKE WHEN INSTALLING BEARINGS

1. Always refer to the technical manual of the vehicle.
2. Prepare all necessary equipment and tools before starting installation. Make sure they are clean and in good working condition.
3. Verify the kit part number. Remove the bearing from its package at the last moment, and always place it on a clean workbench.
4. Clean parts and components that are in the vicinity of the bearing and check they are in proper condition. Check particularly that the hub, steering knuckle and driveshaft are free of scratches, scoring or indentations. Replace any damaged parts.
5. Do not remove or damage parts that are not provided in the kit (e.g. slinger ring)
6. **Never remove or separate the components of a bearing.**
7. To ensure correct bearing installation, use a press (approx. 10 tons capacity)
8. Always apply the load to the ring that is being fitted. The fitting load must never be transmitted through the rolling elements (balls, rollers). Never apply pressure to both rings at once.
9. Apply the torque values recommended by the car manufacturer.

