



AUXILIARY

POWERTRAIN #PERFORMANCEINSIDE

NTN® 



With You

THE ROLE OF THE AUXILIARY SYSTEM

The engine's auxiliary system allows rotational power to be supplied to various components that help provide driving comfort for the driver, these components include air-conditioning, power steering and stop-start systems. The auxiliary system is made up of several components such as belts, idler rollers, tensioners, alternator pulleys and damper pulleys.

THE DIFFERENT TYPES OF ROLLERS AND BELTS

The auxiliary belt provides rotational power to the auxiliary systems components, such as the alternator, power steering pump, water pump (depending on the engine arrangement), and air-conditioning compressor. The auxiliary belt is connected to the crank via the damper pulley, the rotation of the crank moves the belt around the system, this in turn rotates the auxiliary system components.

The rollers are specially designed to ensure that the auxiliary system is very reliable, the rollers design guarantees the best possible system efficiency. The service life of the auxiliary system is extended by using specially designed bearings with an enlarged grease capacity.

- **Tensioner rollers:** are designed to regulate and maintain belt tension, there are two kinds of rollers which are either manually adjusted or automatically adjusted.
- **Idler rollers:** ensure the correct positioning of the belt and help increase its angle of contact around drive pulleys.



IDLER ROLLERS



TENSIONER ROLLERS

TRENDS

- Longer component replacement intervals
- Fewer kilometres /miles being travelled per year
- More components driven by the auxiliary belt: air-conditioning compressor, power steering, water pumps, etc.

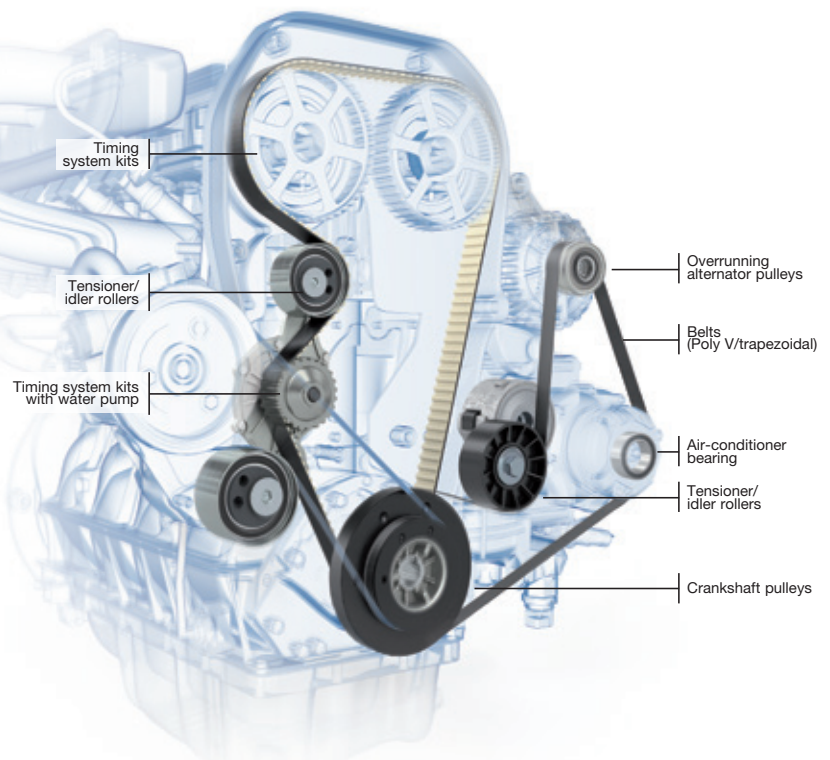
FOCUS ON THE NTN-SNR ENGINE RANGE

With nearly 3 000 part numbers, NTN-SNR offers its customers one of the most complete engine ranges on the OEM quality aftermarket. It includes roller units (tensioners, idlers, hydraulic rollers), belts and kits covering a full range of vehicle applications.

#PERFORMANCEINSIDE

The auxiliary system market has been growing over past few years, due to a growing awareness of the importance of inspecting and replacing auxiliary system components, at the same time as those of the engine timing system, so that the engine maintains its original performance level. These components are subjected to ever increasing demands, as the result of higher engine stresses, for example irregular engine motion and vibration, start-stop systems or the general downsizing* of petrol engines.

() All processes designed to reduce engine displacement without diminishing the final output and to increase the power/capacity ratio in order to reduce toxic emissions.*



OEM PERFORMANCE

As an original equipment manufacturer, we have gained the confidence of Europe's largest vehicle manufacturers. Our complete range of engine timing and auxiliary systems covers nearly 95% of all vehicles currently registered in Europe.

We guarantee:

- Quality which precisely matches the technical specifications of the vehicle manufacturers
- High durability
- First-class performance
- An ability to innovate and design the products of tomorrow
- Support to our customers via our technical teams, web communications and training programs.

Our auxiliary system range is one of the most comprehensive on the market today. It comprises of auxiliary belts, tensioner rollers, auxiliary system kits, damper pulleys, damper kits, overrunning alternator pulleys and air-conditioner compressor bearings.

ROLLER UNITS (GA3)

Tensioner rollers supply the correct tension to the auxiliary belt, so selecting quality tensioner rollers is an important factor in your engines performance.

NTN-SNR technology available on the OEM quality aftermarket includes:

- **Automatic tensioner:** rollers dampen any transient peaks in belt tension, helping to reduce belt slippage and noise.
- **Mechanical tensioner:** rollers absorb transient variations by using a spring built into the tensioner assembly.
- **Idler rollers:** With ribs or flanges



CRANKSHAFT PULLEYS AND CRANKSHAFT PULLEY KITS (DPF-DPFK)

The damper pulley, also known as the crankshaft pulley, absorbs vibrations caused by irregular motion emanating from the crankshaft. It enables the belt and the driven components to function at their optimal best.

A quality damper pulley provides a high level of protection to the engine and reduces the risk of the belt and the driven components failing.

NTN-SNR supplies 200 pulleys and damper kits which provide:

- Precisely controlled operation
- Highly filtered and well-protected auxiliary components
- Extended service life



Why replace the crankshaft damper pulley?

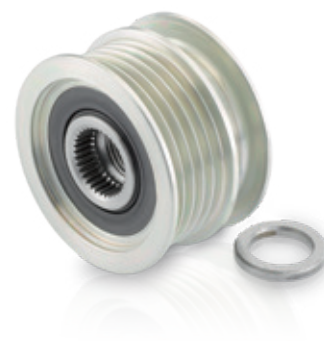
- Pulley deterioration can cause the crankshaft to break
- Pulley deterioration causes noise and vibrations which can be uncomfortable for the driver
- The crankshaft pulley retaining bolts are pushed to their elastic limit when tightened, this causes them to elongate or deform during installation. When a crankshaft pulley is replaced a new retaining bolt(s) should always be used where tightening angles are used to tighten the retaining bolt (s).

ALTERNATOR PULLEYS (GA7)

An overrunning alternator pulley helps to reduce stresses associated with the irregular motion of the engine, and any sudden variations in rotational speed and torque caused by the vehicle accelerating or deceleration. The over running alternator pulley (OAP) allows the alternator to rotate when the engine is accelerating and disengages when the engine is idling or slowing down. As the alternator is no longer working all the time, it means the alternator, belt and the auxiliary system have a greatly extended service life.

The overrunning alternator pulleys marketed by NTN-SNR were developed to:

- Withstand the stresses imparted by the latest generation of ever more complex and powerful engines
- Greatly reduce the risk of pulley and belt failure



ACCESSORY KITS (KA)

NTN SNR accessory kits are a complete repair solution, the kits include the auxiliary belt, tensioner rollers, idler rollers and all the required replacement fasteners required to complete the job to the manufacturers specifications.

The advantages of a kit are:

- All the parts required to complete the job, in a single box
- No misidentification of parts
- One simple order number

BELTS (CA)

The auxiliary belt transmits rotational power and torque to the components of the auxiliary system such as, the alternator, power steering pump, water pump (depending on the engine), and air-conditioner compressor.

We offer our customers:

- A large range consisting of nearly 800 part numbers
- A target coverage of 95% of the current vehicle market

Quality and innovation are the values that inspire us. In order to continue raising our high rates of customer satisfaction, our new range of belts, have been sourced and produced for us by the world's leading OEM belt manufacturers.

Our new range of belts conforms to all OE standards and requirements, we apply these same OE standards and requirements to the manufacturing of our engine timing system rollers, auxiliary system rollers and wheel bearings.

If the auxiliary belt breaks it can cause problems for the vehicles driver, all the components driven by the auxiliary belt such as the alternator, power steering system and air-conditioning immediately stop working. In severe cases the broken auxiliary belt can enter the vehicles timing belt system causing the timing belt system to fail, this normally results in a costly engine failure. For this reason, we recommend replacing the auxiliary belt when changing the timing belt and rollers.

There are two types of belts:

- Trapezoidal belts: this type of belt is mainly for smaller type pulleys, making it ideal for use with the alternator.
- Multi-V belts (ribbed belts) and Multi-V STRETCH.

Multi V belts are being used more and more, the Multi V type belt is easy to use and can be adapted for use with all types of rollers. Flexible and accommodating, it is ideal for the more complex auxiliary systems used today. For some newer applications, a Multi-V Stretch belt has been developed, this is for engines with a fixed centre distance and shorter belt paths.

BELT LABELLING

The auxiliary belts are either supplied separately or in our kits, The NTN SNR kits are Labelled SNR CA followed by the belt number for example: SNR CA6PK1740

NTN SNR only use belts that fully comply with the original manufacturers specifications. This allows us to fully guarantee the quality of the belts we supply either individually or in our auxiliary kits.





AIR-CONDITIONER BEARINGS (ACB)

Once only used on high-end vehicles, air-conditioning is more or less standard equipment on most vehicles produced today. In general, there are two ball type bearings in an air conditioning compressor.

Two problems can occur:

- Noise
- Bearing failure

These problems normally lead to the replacement of the entire compressor unit, or just the bearings in the compressor can sometimes be replaced where cost may be an issue.

Air conditioning compressor bearings are listed by their size, unlike other product ranges which are listed by the vehicle model.

70% of all vehicles manufactured in Europe today, use NTN-SNR bearings in their air conditioning system.

MANUFACTURER KNOW HOW

NTN-SNR QUALITY

NTN SNR constantly monitors the quality of its products, so we can guarantee our customers only receive high grade components. To achieve these high standards we have to:

- Applying the same specifications to the automotive aftermarket as are required for original equipment parts.
- Supplying parts with the same specifications as the vehicle manufacturer, such as bolts, washers and nuts, to make sure any repair can be carried out correctly.
- Taking advantage of the NTN SNR groups know-how to carry out tests, certifications and expert analyses
- Supplying original equipment and OEM-quality products.

WHY CHOOSE NTN-SNR PRODUCTS?

#PERFORMANCEINSIDE guarantees the quality of all the components used in NTN SNR kits.

- NTN-SNR is an original equipment manufacturer, supplying all the major European and Asian vehicle manufacturers and their global operations. NTN SNR produce auxiliary rollers and many of the bearings used with in the rollers themselves.
- We have a large range of aftermarket products comprising of original equipment or OEM-quality products, the range covers 95% of all vehicles registered today.
- Our kits contain all the parts required to carry out the repair to the manufacturers specifications

INSPECTION AND REPLACEMENT

Auxiliary belt replacement is a common maintenance job which helps to maintain overall vehicle driving comfort and engine performance. Even if the auxiliary belt is not part of the vehicles normal servicing schedule, NTN-SNR strongly recommend regular monitoring of the auxiliary system and its connected components.

- Never reuse a worn auxiliary belt
- During the auxiliary belt replacement process, it is recommended that the alignment of the pulleys is checked and that other components in the auxiliary system such as the water pump, crankshaft pulley and alternator are all in good working condition.

For the vehicle owner this reduces

- Labour costs and vehicle downtime
- The risk of an auxiliary system failure or sever engine damage

MAIN POSSIBLE FAILURES

OIL LEAKS

SYMPTOM

- Oil leaking from the actuator

CAUSES

- Impacts during the installation process
- Incorrect operation of the actuator

NTN-SNR RECOMMENDATION

- Follow the manufacturers fitting procedures



BROKEN ALUMINIUM BRACKET

SYMPTOM

- The roller bracket is broken
- The auxiliary belt is thrown from the pulleys

CAUSES

- Worn overrunning alternator pulley
- Fixed (non-overrunning) alternator pulley installed in place of an overrunning alternator pulley

NTN-SNR RECOMMENDATION

- Replace the belt, the roller and the overrunning alternator pulley
- Check all auxiliary system components
- Use suitable tools



MISALIGNMENT AND PREMATURE WEAR OF THE HYDRAULIC ROLLER

SYMPTOM

- Actuator damage

CAUSES

- Omission of the washer during installation, leading to misalignment of the actuator and premature wear.
- Incorrect tightening or loosening of the linkage

NTN-SNR RECOMMENDATION

- Do not forget to re-install the washer



SEIZURE OR UNUSUAL NOISE

SYMPTOM

- Significant corrosion

CAUSES

- Omission of the protective cap during installation: ingress of water and dust into the bearing
- Grease degraded by contamination and no longer providing effective lubrication for the internal elements

NTN-SNR RECOMMENDATION

- Install the cap supplied with the new roller
- Check that all of the plastic engine guards are correctly installed



WORN BELT TRACKS

SYMPTOM

- Premature wear of the belt tracks, frayed cord may be visible. Significant noise.

CAUSES

- Use of an unsuitable tool such as a screw driver during the installation process
- Misalignment of the belt during installation of the pulley's

NTN-SNR RECOMMENDATION

- Replace the belt and realign the pulleys
- Check the condition of all auxiliary system and engine timing components
- Carefully follow the manufacturers fitment recommendations



BROKEN OR STRIPPED BELT TRACKS

SYMPTOM

- Stripping of teeth

CAUSES

- Ageing accelerated by heat or abnormal stress
- Possible presence of foreign material in the belt tracks

NTN-SNR RECOMMENDATION

- Replace the belt
- Check and restore the condition of the transmission system
- Check to ensure that plastic engine guards are correctly installed



PARTICULATE FORMATION

SYMPTOM

- Material is pulled away from the belt and accumulates in the belt tracks

CAUSES

- Adherence of particulates causes abnormal noise
- Misalignment of the pulleys
- Pulley wear

NTN-SNR RECOMMENDATION

- Follow the manufactures fitment instructions
- Check the engine cooling system
- Check the pulleys for wear, replace the belt, check the tension applied by the tensioner roller.
- A belt should always be dry and completely free of any traces of oil or grease (oil and grease can affect the structure of the belt)



IRREGULAR BREAKS

SYMPTOM

- Tears across the width of the belt
- Damage on the back with the appearance of small holes and fraying

CAUSES

- Objects such as gravel entering the belt system due to the plastic engine covers not being fitted

NTN-SNR RECOMMENDATION

- Replace the belt
- Check the transmission system
- Follow the manufacturers fitting instructions
- Inspect the engine pulleys for wear or signs of damage





For the distributors and workshop owners, NTN-SNR offer a new generation of digital and internet based services.



Scan the part number on the carton or the catalogue



Save favorites in offline mode and manual search



Obtain the technical information direct to your device



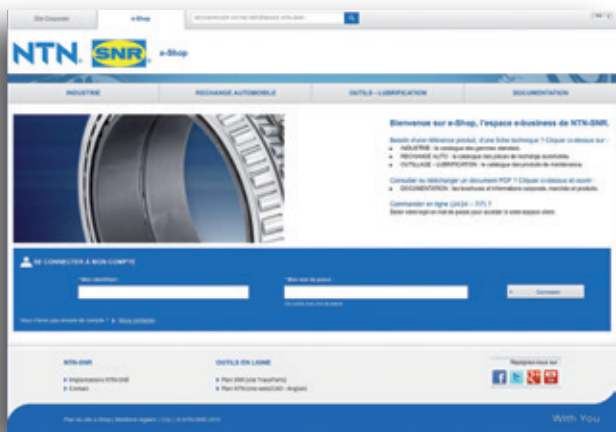
View the product in 3D

SMARTPHONE APPLICATION

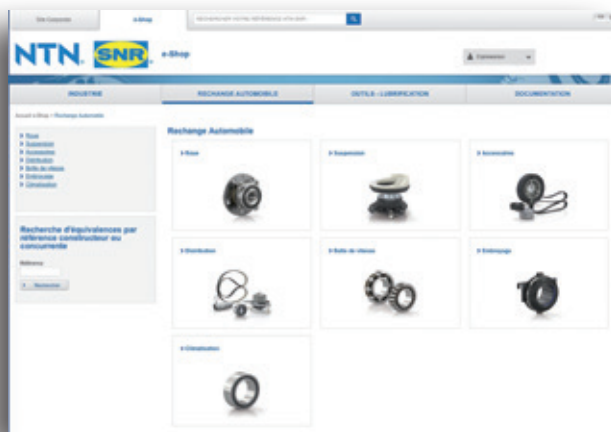
To bring information right to the heart of the retailer and garage workshops, NTN-SNR have launched TechScan'R, a smartphone/tablet computer application unlike any other. TechScan'R provides access to all technical information online for most NTN SNR products. TechScan'R can be used to make sure the correct parts are ordered and supplied, it can also be link other related products and installation instructions at the click of a button.

E-SHOP AND ONLINE CATALOGUE

The online sales site, reserved for distributors, is available in eight languages. The "Automotive Aftermarket" section is easy to find. It includes all of the part numbers in the catalogue, accessible by range and by vehicle.



Online order



Electronic catalogue

E-SHOP AND ONLINE CATALOGUE

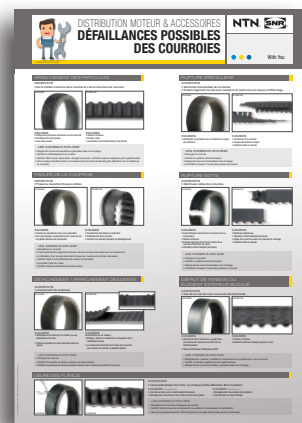
In addition, NTN-SNR provides its customers with installation/removal assistance: TechInfo data sheets. These documents explain the best methods for installing the most complicated products or ones which require specific fitting methods.

Booklets outlining the main potential failures of timing system components, rollers and belts have also been compiled along with corresponding posters, these can be found on the NTN SNR website.



Technical booklets

TECHINFO



Poster



EDCA LOGISTICS

24 000 M² COMPLETELY **DEDICATED to the automotive aftermarket.**

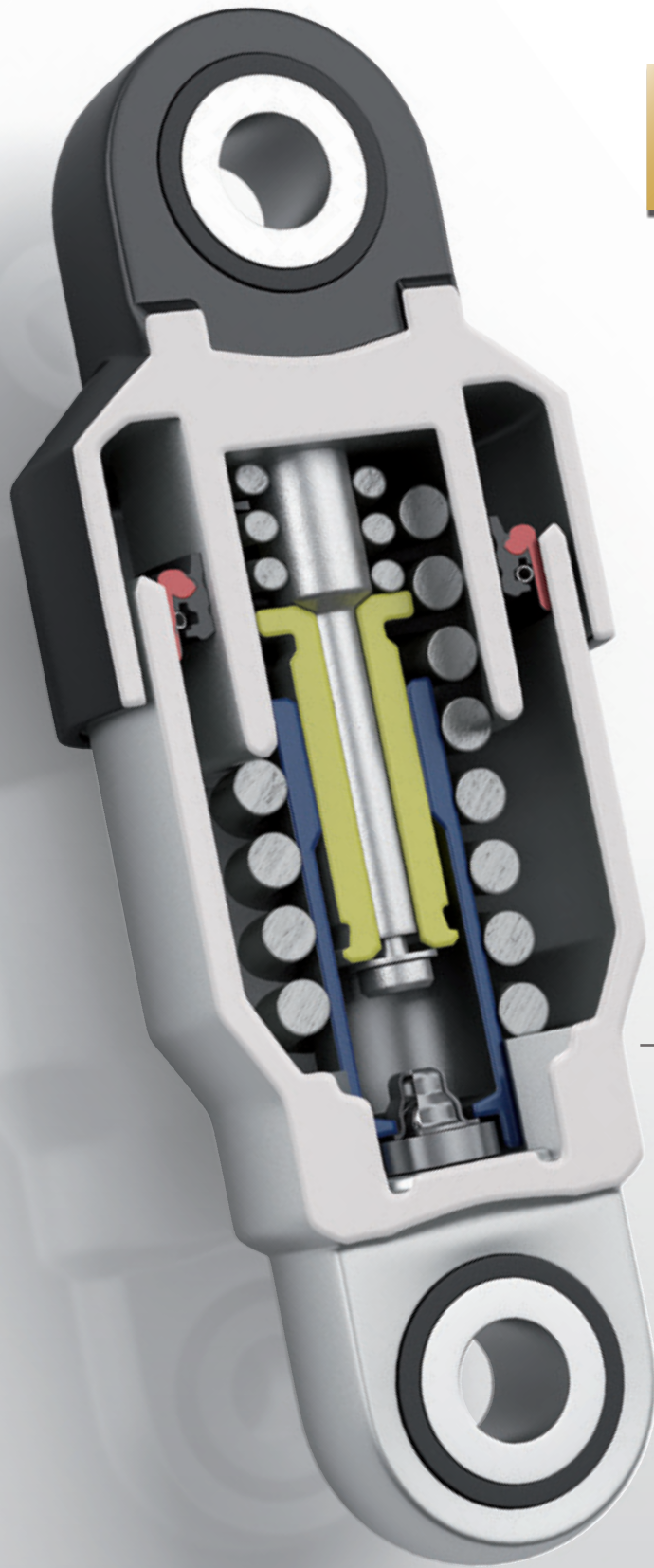
Created to serve a large area extending from South America to Russia and from Europe to the Middle East, this state-of-the-art building is optimised for order processing and was designed with environmental protection in mind. This major investment has been built in response to market growth and reflects the objective of NTN-SNR to develop and consolidate its position as the market leader.

“We worked on the development of Western Europe, which is our main market, and on exports, which represent a significant share of our sales today. The continuation of this development in the years ahead will require a change in logistics methods,” says Eric Malavasi, Director of Automotive Aftermarket and Logistics. This building as well as the modernisation of the process, allows NTN-SNR to support growth in the Automotive Aftermarket sector and optimise the flow of the 7,000 products it offers to its customers.

All of this helps to deliver 40 tonnes of parts per day under the most favorable conditions.



**AWARDED
GRAND PRIX FOR
INNOVATION 2017**
CATEGORY "PARTS,
EQUIPMENT AND COMPONENTS"



REDUCTION OF FUEL CONSUMPTION

- Reduction of belt tension by 50% where possible

PROLONGED SERVICE LIFE

- Protection against premature failure of rollers and belts

RELIABILITY

- Bench test validation using 100 million cycle tests

READY FOR USE

- Identical dimensions, no engine design modification

SUITABLE FOR THE AFTERMARKET

- Compatible with conventional rollers
- No special tools required
- No additional training necessary
- Identical inspection method
- Similar installation procedures
- No additional costs for the end user

10 PATENT APPLICATIONS FILED

HYDRAULIC TENSIONER ROLLER WITH VARIABLE DAMPING



With You



AUXILIARY

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