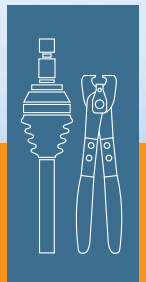




**Workshop Tips**



## > Trust the original



GKN Driveline is the world's leading automotive driveline technology and systems engineer. With its brand SPIDAN GKN Driveline provides original GKN parts to the worldwide independent aftermarket.

All driveshafts are geared to the particular demands of the vehicle.

GKN joint kits contain all the individual parts needed for professional repairs: joint, boot, clamps, tightening straps, bolts, nuts, spacers, etc.

GKN boots are specifically developed for the various joints. Their accurate fit guarantees optimum sealing and maximum wear resistance.



## > Test drive

While cornering pay attention to noises:

- > typical knocking when going round corners caused by the drifting of the balls over a pit worn in the joint
- > grinding noises may be the result of there being too much rotational play between the joint and the section tube

## > Safety on board:

### How to identify driveshaft damages

Driveshafts and constant velocity (CV) joints are bespoke components in modern cars for which high quality is critical. They transfer torque from the differential to the wheel and are therefore constantly subjected to extremely high stresses when the vehicle is in operation. As a result age-related wear is among the most commonly occurring causes of damage to the outboard (wheel side) and inboard (transmission side) joints, closely followed by damage resulting from defective boots, the use of inferior quality grease, and unfortunately, improper handling frequently occurring during installation and removal.



Since it is inherently difficult for repair shop customers to identify problems with driveshafts or to describe these problems accurately, repair shops have much to gain in terms of maximizing customer satisfaction by recognizing damage to the driveshaft early on and informing the customer.

However, how can damage to driveshafts and CV joints be detected with certainty and without error?

## > Test drive

Pay attention to vibrations in the steering wheel:

- > vibrations intensifying with increasing speed can be caused by excessive play in the joints or a bent shaft

## > Driveshaft inspection

Driveshaft inspection should be performed as part of a regular maintenance routine.

Normal vehicle maintenance and recognition of component discrepancies is necessary to prevent serious mechanical problems as well as driver discomfort. Failure to perform normal maintenance may also void the vehicle warranty.



### > Routine inspection steps for built-in driveshafts

- > Check the driveshaft for a tight fit
- > Check cleanness of the driveshaft (no grease contamination)
- > Check the shaft for damage and for bent or missing parts
- > Check the boots and clamps: torn, slipped and porous boots are the most frequent cause of failures
- > Check the slip spline for excessive radial movement
- > Check the joints for excessive radial looseness
- > Fixed joints: Check the joints in all possible steering angles



**DANGER!**

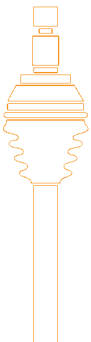
Rotating shafts can be dangerous. You can jam clothes, skin, hair, hands, etc. This can cause serious injury or death. In no circumstances you should be under the vehicle when the engine is running!

➤ **Routine inspection steps for removed but not dismantled shafts**

- Place profile tube in a vice  
(ATTENTION: use aluminium jaw!)
- Imitate the fixed joint's rotation. The joint must be movable smoothly without any bucking
- The fixed joint must have no excess radial movement

➤ **Please note that fault recognition can only be complete if the driveshaft is checked in the dismantled state.**

- Dismount both driveshaft and joints
- Clean all parts thoroughly
- Check each part separately



➤ **Repair tip! Compare materials**

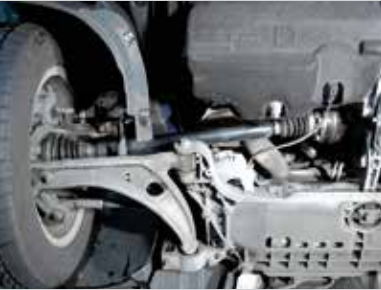
Before assembling compare the replacement driveshaft and the joint carefully.

Check the part numbers of all products and pay attention especially on the diameter of the shaft, internal and external gearing. Make sure the delivered joint has the right bending angle.

Start greasing only when you are sure you have chosen the right joint.

## > Installation guidelines 1

### Driveshaft with disc connection (front wheel drive)



1

## > Disassembly

Raise the car on a lift up to working level.  
Remove the wheel.



2

Block the brakes.  
Loosen the bolts on both sides of the  
driveshaft.



3

Unscrew the bolts from the differential  
side joint. Then remove drive shaft nut.



4

Loosen wheel carrier.

#### ATTENTION!

Always take care of your own safety and the safety of others. Please work safely and wear safety equipment. Injuries such as cutting or bruising are possible.



5

Pull driveshaft out of the wheel hub. If required use special tools recommended by the car manufacturer.



6

Pull out driveshaft.

*For driveshafts with integrated transmission journal: Pull driveshaft with reinforcing rod out of the gearbox housing.*

ATTENTION! Oil drains!



7

## > Assembly

Clean wheel hub housing and differential flange surface. Surface must be free of dirt.



8

Centre joint on differential flange.

*Driveshafts with reinforcing rod must be inserted in gearbox housing until the lock. Gearboxes with a lock ring at the gearbox dependent: the lockring has to be engaged.*



## ➤ Continuation installation guidelines 1

### Driveshaft with disc connection (front wheel drive)



9

Tighten bolts. Consider torque specified by the manufacturer.



10

#### ATTENTION!

Always remember to use all parts provided!  
Use special tools recommended by the car manufacturer.

Insert driveshaft into wheel hub. Check after engagement strong seating by pulling the joint.



11

Tighten wheel carrier. Use new bolts and secure. Consider security measures of the manufacturer.

#### ATTENTION:

Only a new nut should be used!



12

Apply washer on outer thread. Apply and torque driveshaft nut according to instruction of the car manufacturer.

Mount the wheel and make a test drive.



## > Workshop tools - the range



- > **190130.** Threaded bolts with thread sizes of M14x1.5 and M16x1.5 for simple removal of the joints from the profile shaft. The thread of the bolt forces the joint off the profile shaft.



- > **190131.** Can be used for all external circlips to DIN 471.



- > **190132.** Specifically for driveshafts on constant velocity joints, engines and gearboxes. The centring bore in the tip reliably secures the circlip and prevents it jumping off.



- > **190134.** For tightening stainless-steel clips on driveshafts, ensuring compliance with the torques specified by the manufacturer (between 23 and 30 Nm, depending on manufacturer). Without the leverage, the high-strength stainless-steel clips cannot be reliably tightened and the boots could leak.



- > **190135.** Ideal for tightening the pipe clips on joint boots, radiator and fuel hoses. The hold-down device reliably prevents unintentional opening of the clips after tightening.



- > **190250.** Joint puller for the simple removal of constant-velocity joints with hidden safeguards.

## > Installation guidelines 2

### Driveshaft with disc connection (rear wheel drive)



1

## > Disassembly

Raise the car on a lift upon working level.  
Remove the wheel.



2

Block the brakes.  
Loosen the bolts on both sides of the  
driveshaft.



3

Unscrew the bolts from the differential  
side joint. Then remove drive shaft nut.



4

Remove joint from flange.

**ATTENTION!**

Always take care of your own safety and the safety of others. Please work safely and wear safety equipment. Injuries such as cutting or bruising are possible.



5

Remove driveshaft joint. If required use special tools recommended by the car manufacturer.



6

Pull driveshaft out of the wheel hub. Clean wheel hub housing and differential flange surface.



7

## > Assembly

Insert driveshaft into wheel hub.



8

Tighten driveshaft joint into wheel hub housing. If necessary use special tools recommended by the car manufacturer.

## > Continuation installation guidelines 2

### Driveshaft with disc connection (rear wheel drive)



9

Apply nut by hand.

**ATTENTION!**  
Only a new nut should be used!



10

Centre joint on differential flange and torque socket head screws. Use three washer plates.

**ATTENTION:**  
Only new socket head screws should be used!



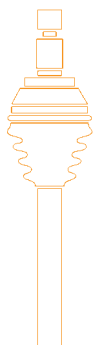
11

Tighten driveshaft nut. Torque according to instruction of the car manufacturer.



12

Secure driveshaft nut against loosening.  
Mount the wheel and make a test drive.



### ➤ **Repair tip! Driveshaft installation**

Avoid overstretching the plunging joint by leaving the shaft hanging down when still fixed to the gearbox housing. This might cause an extreme pressure on the ball cage which is likely to cause a break. Use special feed tools recommended by the car manufacturers. Comply with the indicated tightening torques specified by the car manufacturer.

## > Installation guidelines 3

### Driveshaft disassembly/assembly: wheel-sided joint



1

## > Disassembly

Cut off both retaining clips.



2

Turn boot inside out over driveshaft.



3

Expand circlip (e.g. use tool no. 190132).



4

Insert threaded bolt into shaft.  
Pull joint from shaft.



#### ATTENTION!

Always take care of your own safety and the safety of others. Please work safely and wear safety equipment. Injuries such as cutting or bruising are possible.



*Joints fitted with inside-positioned circlip (invisible) as well as driveshafts without threads: use the joint puller (art. no. 190250) to remove the joint from the shaft. Alternatively you can pull it off by tapping with a plastic / rubber hammer on the joint's face.*



5

Pull off boot. Remove waste grease and clean the joint.



6

### > Assembly

Apply both retaining clips to the shaft. Place boot in correct position between ridges of the shaft.

Fill half the grease supplied into the joint.



7

Place circlip in the groove of the ball hub. Both shanks of the circlip should lie in the outer recess. *If the circlip has to be positioned inside, place it in the groove of the shaft.*

Plug the joint on the shaft until the splines of the shaft and the ball hub are in line.



## ➤ Continuation installation guidelines 3

### Driveshaft disassembly/assembly: wheel-sided joint



8

Using a plastic or rubber hammer drive the joint carefully on the shaft until the circlip expands to fit its function position.

The circlip should snap into the groove of the connecting shaft or respectively expand behind the ball hub.



9

Fill in the remaining grease.



10

Lock retaining clip by hand as tight as possible.



11

Lock retaining clip with pliers (e.g. use tool no. 190135).



#### ATTENTION!

Always take care of your own safety and the safety of others. Please work safely and wear safety equipment. Injuries such as cutting or bruising are possible.



12

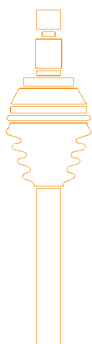
Pull boot onto joint in correct position.  
De-aerate boot.



13

Apply second retaining clip by hand as tight as possible. Then lock it with pliers (e.g. tool no. 190135).

**ATTENTION:** Check close fit! The boot rim must be in full contact with joint and driveshaft.



### > Repair tip! Boot assembly/disassembly

Whenever possible use boots specifically developed for the joint in question. During assembly do not distort or overstretch the boot. Pay attention to the correct tightening force of the clamp; proceed in accordance with the manufacturer's instructions. Always comply with the indicated tightening torques of the locking screw of the joint. Always de-aerate boots. Use suitable tools.

## > Installation guidelines 4

### Driveshaft disassembly/assembly: gear-sided joint



1

#### > Disassembly

Cut off retaining clip. Turn boot inside out over the driveshaft.



2

Expand and take off circlip (e.g. with tool no. 190131).



3

Knock joint from shaft using a plastic or rubber hammer.



4

**ATTENTION:** Always make sure you knock on the hub. Knocking on the ball guide ring or joint will damage the joint.

Pull off boot from shaft.



#### ATTENTION!

Always take care of your own safety and the safety of others. Please work safely and wear safety equipment. Injuries such as cutting or bruising are possible.



5

## > Assembly

Apply both retaining clips to the shaft. Place boot in correct position between ridges of the shaft.



6

Fill half the grease supplied into the joint. Plug the joint on the shaft until the splines of the shaft and the ball hub are in line.



7

Apply gear-sided joints with disc connection using a plastic or rubber hammer.

**ATTENTION:** Use a tube to make sure you only hit the hub of the joint.

Like that you can avoid damages to the ball cage or the joint itself.



8

The joint must be fixed unmovably on the shaft.

Then put the circlip in place.

*For further steps please view installation instructions no. 3 (wheel-sided joint), no. 9-13.*

## ➤ Possible wearing states of CV joints



### ➤ Joint bell and hub

Some areas in the ball tracks slightly polished.



Some areas extremely polished, small craters in the ball tracks.



Wearing signs clearly visible, deep craters in the ball tracks.



All the joints on these pages are defective. We recommend a replacement in all these cases.

If in doubt always replace the joint to ensure the driver's safety!



## ATTENTION!

Whenever you have to change a boot also inspect the CV joint thoroughly! A defective boot can always be the indication for a defective CV joint. Does the joint function properly? Is it enough only to replace the boot?

### > Ball cage



hub



ball cage

Breakage in one or more windows.



Signs of wearing or dimples in one or more windows.



Chipping of the edges in one or more windows.



Signs of wearing on internal and external contours (could appear on wheel-sided fixed joints).



## > Lubricant and grease distribution

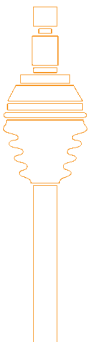
Different joint lubricants are available for ball and tripod joints, as well as for standard and high-performance applications. The ingredients are perfectly adjusted to the steel of the joint and the boots for the respective application. This enables the components to act smoothly.

High-performance greases can withstand temperatures of up to 160° Celsius for short periods of time, while standard joint lubricants are designed to withstand short-term exposure to temperatures of up to 110° Celsius.



Using a standard lubricant in a high-performance application may result in the outgassing of the grease, and ultimately to the total failure of the joint.

The amount of grease in the SPIDAN repair kit is sufficient to completely fill the corresponding joint. The remainder of the grease is fed into the boot.



### > Repair tip! Consider all parts!

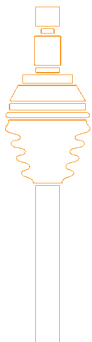
The SPIDAN repair kit provides you with all parts needed for the correct repair. When mounting the joint always consider all parts. Always replace the circlip and use new screws for fixing. At the wheelsided joint always replace nuts and socket head screws. Always use special tools when fixing the retaining clips.



## > What is as good as original GKN parts?

### Remanufactured parts by GKN!

- > **Competence:** GKN is the leading OE supplier.
- > **Quality:** GKN remanufactured driveshafts are produced in certified remanufacturing sites (ISO TS 16949, ISO 14001) with machines according to OE-standards.
- > **Performance:** GKN remanufactured driveshafts guarantee the original performance of the car with regard to Noise Vibration Harshness as well as the original joint angle.
- > **Safety:** GKN remanufactured driveshafts offer safety standards according to OE requirements.
- > **Warranty:** For remanufactured driveshafts GKN offers the same warranty as for new parts.
- > **Range:** Remanufacturing allows GKN to supply non-OE references to extend the product range.
- > **Costs:** GKN provides driveshafts even for older cars for which driveshafts cannot be produced economically for a reasonable price.
- > **Green Technology:** Remanufacturing saves raw materials and energy and minimizes the waste that used parts would produce. GKN takes care of the waste management for used parts and residual materials (i.e. used oil and swarf).



### > Repair tip! TPE boots

SPIDAN TPE boots are fixed with boot clamps of stainless steel which require a special torque of 23-30 Nm. Use our special tool for these clamps. If they are fixed too tight or too loose you may state the following consequences: leaking, undependable fit, damage to the boot.

Please note that damages caused by an assembly error cannot be covered by warranty!

## > Competence from the leading OE supplier

- > Stock management
- > Excellent supply service
- > OE-quality level products
- > Extensive sales & marketing support
- > Updated product catalogue
- > Online catalogue
- > Certified TecAlliance Data Supplier
- > TecCom

We understand the requirements and characteristics of front-wheel, rear-wheel and four-wheel drives, we design to meet the varying needs of all types of vehicles from the electrically-operated through to light trucks, sports cars, luxury cars and 4x4 vehicles.

Your partner for premium SPIDAN products:

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