

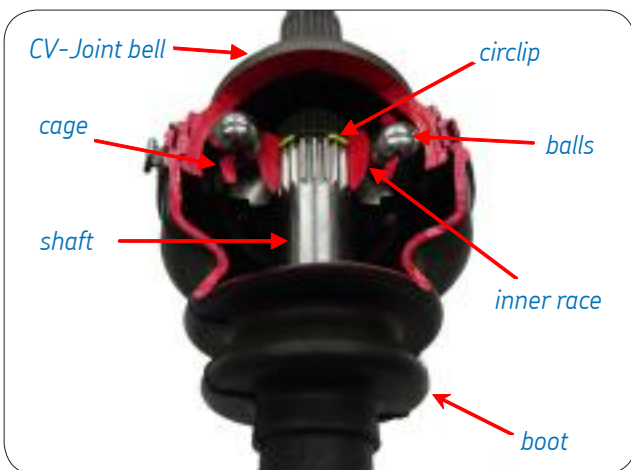
Replacement of the CV-joint VKJA 3867

This bulletin describes the replacement guidelines for a CV-joint on a Toyota AVENSIS 1.8 (AT221 model). It also highlights the CV-joint locking system used in this type of CV-joint design.

In some cases, replacing CV-joints could create a number of time consuming problems – that's why some mechanics prefer to replace the complete driveshaft, rather than just the CV-joint. However, even if such a replacement could potentially save around 30 minutes – it is both more costly for the car owner and is less profitable for the garage. Why? Because it is the labour charge and not the parts that generate the most income.

The VKJA 3867 kit supplied by SKF contains all of the components needed for the repair (see picture 1). This, coupled with the step-by-step replacement guidelines on the following pages – you can be sure that you will carry out a trouble free CV-joint replacement and that you will save money for the car owner and make more profit for your business.

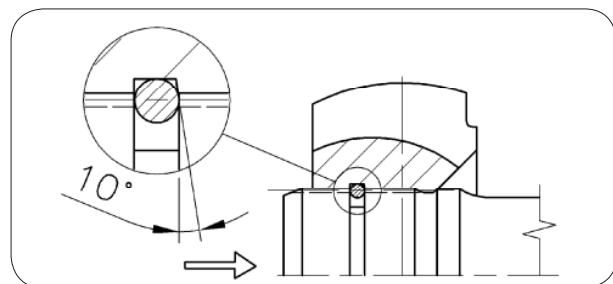
Cross-section of the CV-Joint



Picture 1: VKJA 3867 kit containing a pre-greased CV-joint, CV boot, short and long mounting clamps, grease bag, circlip, wheel nut, washer and a split-pin.

The CV-Joint design

The CV-joint is fitted to the shaft and locked into place by a circlip, which is positioned in a circular groove on the inner race of the CV-joint. The groove in the inner race allows an angular movement of less than 10°, which stops the circlip deflecting out of the groove during the removal phase of the CV-joint from the shaft.



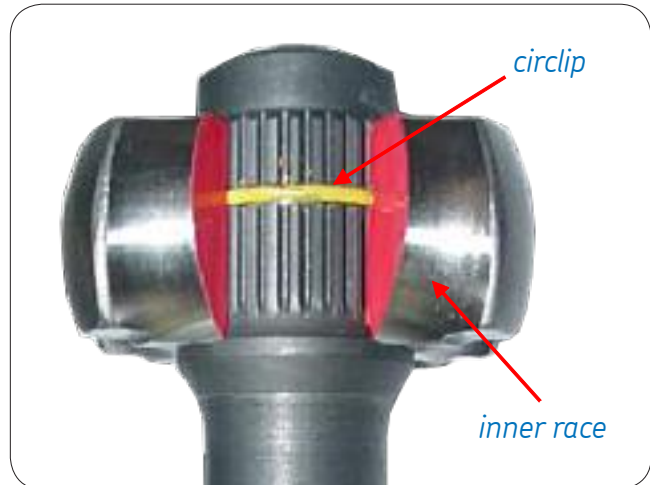
Picture 2: Circlip groove angle

SKF Pole Position

CV-Joint replacement guidelines for Toyota Avensis

The design of the groove of the circlip

The Toyota Avensis has a CV-joint locked to the shaft by a circlip positioned in the middle of the inner race (see picture 3). The groove in the inner race has a chamfer with an angle that is less than 10°. This design prevents the CV-joint being removed from the shaft by the usual methods of tapping with a hammer on the joint's face, or by using a puller. It is necessary to cut the CV-joint's cage and the inner race in order to remove the joint from the shaft. The replacement guidelines described below relate to the Toyota AVENSIS 1.8 AT221 model, but can also be applied to other applications with a similar CV-joint locking system.



Picture 3: The circlip is positioned in the middle of the inner race

Removal of the CV-Joint

1. Remove the driveshaft in accordance with the vehicle manufacturers workshop manual. **Tip:** add protection to the CV-joint on the gearbox side to prevent the CV-joint from sliding off the shaft.



Note: ALWAYS follow workshop health & safety procedures when carrying out repairs.

2. Place the driveshaft in a vice. **Tip:** always use a vice with aluminum or protective jaws to prevent the shaft from being damaged.



3. Remove both the inner and outer clips. Then, cut the boot and remove it.



4. Place the CV-joint bell in the vice with the shaft in a vertical position. Then break the cage, in several positions along the edge (close to the balls) using a hammer and chisel.



5. Remove the balls from the broken cage.



6. Place the shaft in a vice and cut the tracks of the inner race, in 2 or 3 of the positions by using a suitable cutting tool. Make sure that you do not damage the shaft itself whilst doing this!



7. Break the inner race by using the hammer and chisel, focusing on the cuts previously made in the tracks on the race. Expand and remove the circlip with circlip removal pliers.



Installation procedure of the new CV-joint

1. Put the short boot clamp on to the shaft first and then slide the boot on to the shaft.



2. Fix the new circlip into the groove on the shaft. Tip: To make the installation of the CV-joint on to the driveshaft easier – keep the circlip in its groove by using a hose clip. Take care not to over tighten.



3. Locate the CV-joint on to the splines on the end of the shaft, then tap the CV-joint on the shaft with a plastic hammer, until the circlip locks into its groove in the inner race. Remove the hose clip. Make sure that the CV-joint is locked onto the shaft correctly by moving the joint back and forth, to ensure the circlip is correctly engaged in the retaining groove. Slide the boot into position ready for mounting and fill with all of the supplied grease.



SKF Pole Position



4. Fit the short clamp onto the CV-boot and tighten it with a suitable tool, then pull the boot onto the CV-joint locating it into the correct position on the bell. Fit the long clamp and tighten it with the same tool. The clamp tightening operation must be performed by using special pliers with an integrated hold-down device; this prevents the unintentional opening of the clips after tightening.



Install the driveshaft according to the vehicle manufacturer workshop manual. After having completed the installation, rotate the driveshaft to make sure the clamps do not touch any surrounding components. Also check that the ABS sensor works correctly.

CV-joint replacements: 32 % profit for your garage and a 49 % saving for your customer.

Price comparison driveshaft versus CV-joint replacement: Toyota Avensis 1.8 AT221

	Retail price list	Labour cost/h	Time for replacement	Total labour cost	Total cost
Driveshaft VKJC 3878 Replacement 	£ 392	£ 40	1,86h	£ 74	£ 466
CV-joint VKJA 3867 Replacement 	£ 139	£ 40	2,44h	£ 98	£ 237
Garage profit				£ 24 (32 %)	
Customer saving					£ 229 (49 %)

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