



Brand of NTN corporation

# POSSIBLE CV JOINT DEGRADATION

## CVJ



CVJ RANGE

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## GENERAL RECOMMENDATIONS

CV joints fail for many reasons. NTN has analyzed them and gives you technical advice to resolve them. NTN provides you with complete CV joint kits to make your work easier. Our kits include everything you need for a correct repair (replacement parts, hardware, collar and grease). We recommend that you always use these specific SNR components for an optimal repair.

Find our **cv joint** removal and installation tutorials on  **YouTube** :



**Wheel side joint:**  
Removal and installation  
on the driveshaft



**Driveshaft:**  
Removal and installation  
on the vehicle

**Removal of the differential  
side boot** and installation on  
the driveshaft



**Removal of the wheel  
side boot** and installation  
on the driveshaft



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# 1 BOOT FAILURE

## DRIVING IMPRESSIONS

- Noise - rubbing of convolutions
- Grease leakage to the ground

## PRODUCT FAILURE

- Degradation of the boot
- Tearing/cutting of the boot
- Abrasion of the boot
- Inversion of the shape of the boot
- Damage of the clamping collar
- Collar rotation

## CAUSES

- Exterior attacks on the boot
- Internal attack if the product degrades - rupture of one of the components inside (race, balls, loss of material due to friction)

- Friction / abrasion with large steering input
- Extreme conditions of use / outside of manufacturer's specifications (extreme deviation, speed or temperatures)
- Damage to the collar of the boot / improper tightening of the collar

## PRODUCT IMPACT

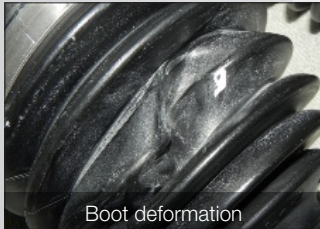
- Loss of primary functions of the boot
  - Maintain grease inside the joint for its proper operation
  - Protect the joint from the exterior environment



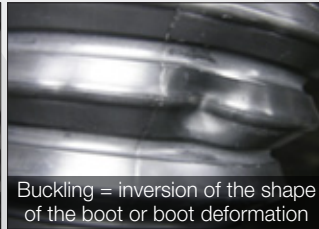
Boot crack



Boot cut



Boot deformation



Buckling = inversion of the shape of the boot or boot deformation



Damage of the clamping collar

## RECOMMENDATIONS

- Remplacement du soufflet si dégradations externes ou internes et remplissage de graisses
- Remplacement du collier et remplissage de graisses
- Vérifier les préconisations de couple de serrage

## 2 DURABILITY FAILURE

### DRIVING IMPRESSIONS

- Noise
- Steering wheel vibrations
- Floor and/or dashboard vibrations

### PRODUCT FAILURE

- Degradation of cup and cup stem
- Degradation of driveshaft

### CAUSES

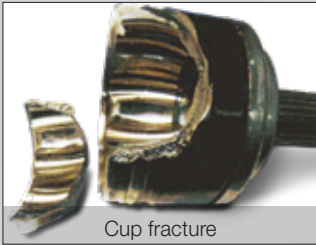
- Transmission of very high and/or very frequent torques
- This fatigues and degrades the material faster
- Corrosion
- Poor interfacing with the hub
- Too high tension on the joint stem

### PRODUCT IMPACT

- Degradation of contact surfaces resulting in noise and vibrations
- Degradation of hardened surfaces - spalling, seizing, loss of material
- Fracture of cup stem
- Fracture of part of the cup
- Fracture of part of the shaft

### RECOMMENDATIONS

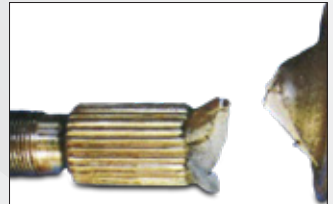
- If the shaft is damaged, replace the complete driveshaft along with the safety nut (available in our DK kits)
- If one of the joints is damaged, replace the complete joint (cup, boot, collar, grease, circlip...) and fill the joint with grease



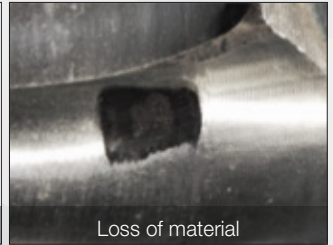
Cup fracture



Cup spalling



Fracture of cup stem



Loss of material

## 3 STATIC/FATIGUE FAILURE

### DRIVING IMPRESSIONS

The driver will be unaware of component fatigue, but it will eventually result in a fracture:

- Loss of primary function - loss of mobility
- Immobilization of the vehicle without early indications (no warning signs)

### PRODUCT FAILURE

- Fracture of one of the components (cup/ connecting spline/tulip)

### CAUSES

- Utilization of the product outside of the manufacturer's specifications
- Incidental maneuver (example: impact start and running over kerb)

### PRODUCT IMPACT

- Fracture of cup stem
  - Fracture of a connecting spline
  - Fracture of part of the cup
- Result: No longer transmits torque from the gearbox to the wheels

### RECOMMENDATIONS

- If the shaft or cup is severely damaged, replace the complete driveshaft along with the safety nut (available in our DK kits)
- If the cup is slightly damaged, replace the complete joint (cup/tulip, boot, collar, grease, circlip...) and fill the joint with grease





Cup fracture

Fracture of cup stem

Spline damage

Fracture of connecting spline

Cup fracture

## 4 INTERNAL COMPONENT FAILURE

### DRIVING IMPRESSIONS

- Noise
- Steering wheel vibrations
- Floor and/or dashboard vibrations

### PRODUCT FAILURE

- Degradation of component inside the joints
  - cup and/or tulip.
- Cup: Race, cage, balls, circlip, connecting splines
- Tulip: Spider, spring, circlip, roller

### CAUSES

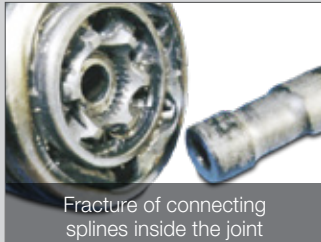
- Transmission of very high and/or very frequent torques
- Shocks or jolts coming from outside

### PRODUCT IMPACT

- Impact of internal components on the operation of the joint
  - Loss of internal material
  - Internal degradation of boot or cup/tulip
  - Loss of function of the joint
  - Internal friction

### RECOMMENDATIONS

- Obligatory replacement of the complete CV joint



Fracture of connecting splines inside the joint



Cage fracture



Cage fracture



Ball damage

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