

Gelenkwelle

Drive shaft

Arbre de transmission

Albero di trasmissione

Arbol articulado

Kardanaxel

Cardanas

26 Propeller shaft

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Specifications

Propeller shaft

Model	320/6 323 i	320/6 A 323 i A *)
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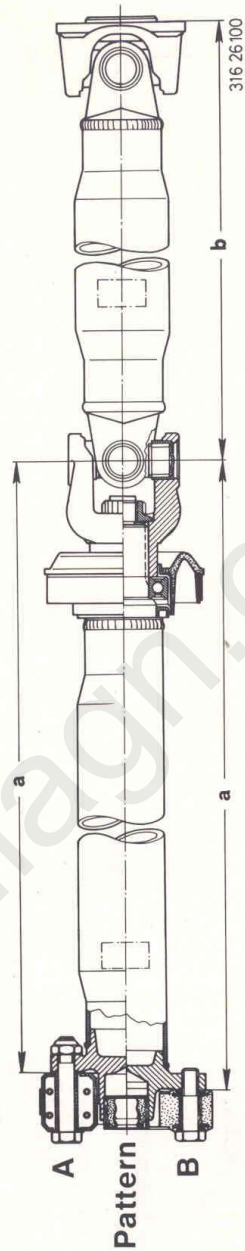
26 11 . . . Propeller shaft (standard version)

2-piece propeller shaft, front section with

'Giubo' coupling

'Jurid' joint disc

Propeller shaft pattern 'A' = with 'Giubo' coupling
pattern 'B' = with 'Jurid' joint disc



Length, front section 'a'	mm (in)	635.5 ± 1 (25.06 ± 0.04)	510.5 ± 1 (20.10 ± 0.04)
Length, rear section 'b'	mm (in)	916.5 ± 1 (36.08 ± 0.04)	
Max. imbalance per side (with pickup points at outer ends) at test speed 3250 1/min	gcm		15

*) Version for Sweden

Specifications

Propeller shaft

Model	320/6 323 i	320/6 A 323 i A *)
26 11 . . . Propeller shaft (standard version) – (continued)		
Max. imbalance at center (pickup point at center) at test speed 3250 1/min	gcm	10
Permissible bending moment at universal joints	Ncm (kpcm)	20 . . . 70 (2 . . . 7)
26 12 . . . Center bearing		
Center bearing preload in forward direction	mm (in)	2 (0.08)
Deep-groove ball bearing for center bearing		
– make	FAG/Kugelfischer	INA/Fafnir
– designation	6006.2 RS.795 008 or 6006.2 RSR.795 008	6006-2 RS AH 01
		SKF
		6006-2 RS1 TN/C4 PLT 41

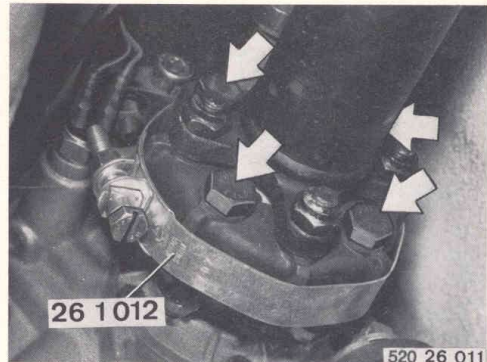
*) Version for Sweden

Propeller shaft		Specifications	
Model		320/6 323 i	320/6 A 323 i A *)
Tightening torques			
26 11 . . . Propeller shaft			
'Giubo' coupling to propeller shaft and to gearbox output flange (M 10)	Nm kpm lb.ft	68 . . . 76 6.9 . . . 7.7 50 . . . 56	
Joint disc to propeller shaft and to transmission output flange (M 10)	Nm kpm lb.ft	43 . . . 48 4.4 . . . 4.9 32 . . . 35	
Propeller shaft to final drive input flange (M 10)	Nm kpm lb.ft	68 . . . 76 6.9 . . . 7.7 50 . . . 56	
Fork piece to bearing journal (M 12 × 1.5) ¹⁾	Nm kpm lb.ft	95 . . . 105 9.7 . . . 10.7 70 . . . 77	
26 12 . . . Center bearing			
Center bearing to body (M 8)	Nm kpm lb.ft	22 . . . 24 2.2 . . . 2.4 16 . . . 18	

*) Version for Sweden
¹⁾ with Loctite 270

26 11 000 Propeller shaft – removing and installing

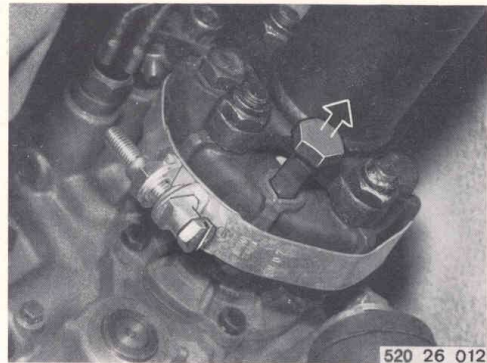
Take off the primary muffler (silencer).
Attach clamp strap 26 1 012.
Remove the bolts.
Do not re-use the stop nuts.



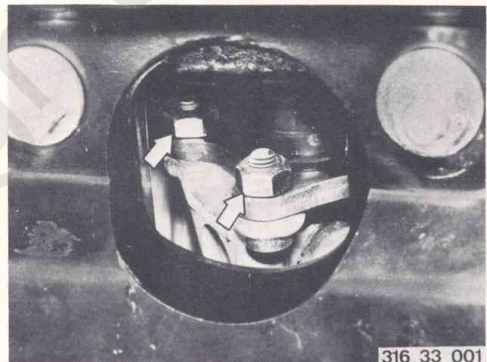
Tighten clamp strap 26 1 012 until the bolts can be taken out by hand.

When installing: to prevent distortion of the 'Giubo' coupling, always tighten the nuts, never the bolts.

Warning: the clamp strap must be removed after tightening the nuts.

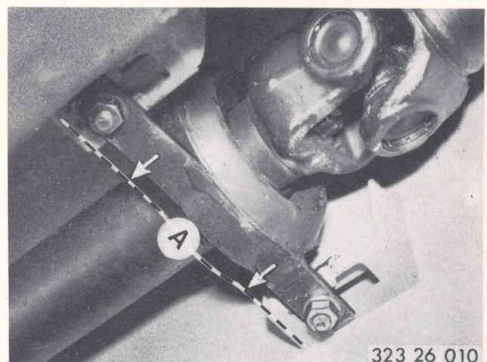


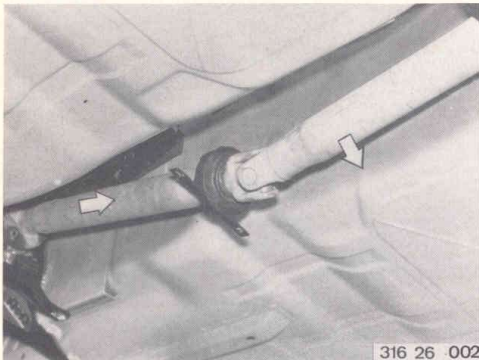
Detach propeller shaft from final drive.
Do not re-use the stop nuts.



Detach the center bearing.

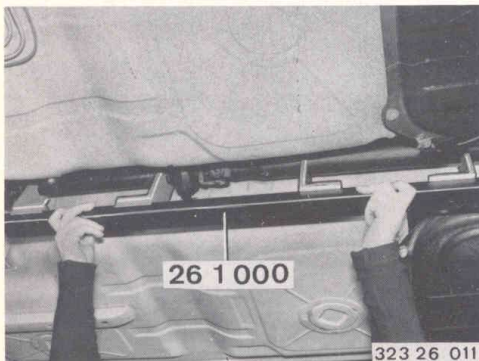
When installing: preload the center bearing forwards by 2 mm (0.08 in) (A).





316 26 002

Hinge the propeller shaft down and withdraw it from the centering journal on the gearbox.
When installing: check condition of centering assembly and grease with 'Longterm 2'. Renew centering assembly if damaged.



323 26 011

26 11 001 Complete propeller shaft – renewing

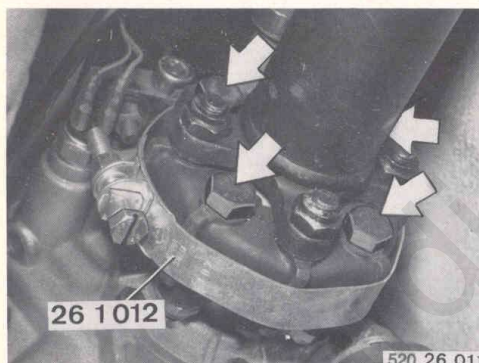
Remove the propeller shaft – 26 11 000.

The propeller shaft is balanced as a complete unit, and must therefore be renewed complete.

When installing: grease the centering assembly with 'Longterm 2'. Align the propeller shaft with special fixture 26 1 000 or a template made up in your own workshop:

- a) by moving the center bearing to one side
- b) by placing shim plates under the center bearing.

If the propeller shaft is not properly aligned, this can be a frequent cause of vibration or drumming.



520 26 011

26 11 051 Rubber coupling for front of propeller shaft – renewing

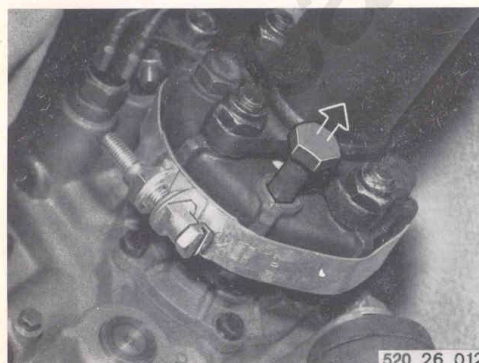
Detach exhaust pipe support, and exhaust pipes at manifolds.

When installing: make sure there are no trapped stresses in the exhaust pipe support.

Attach clamp strap 26 1 012.

Unscrew the bolts.

Do not re-use the stop nuts.



520 26 012

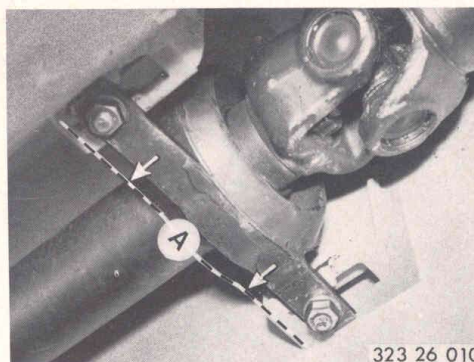
Tighten clamp strap 26 1 012 until the bolts can be taken out by hand.

When installing: to prevent distortion in the 'Giubo' coupling, always tighten the nuts, never the bolts.

Warning: remove the clamp strap after the nuts have been tightened.

Detach the center bearing.

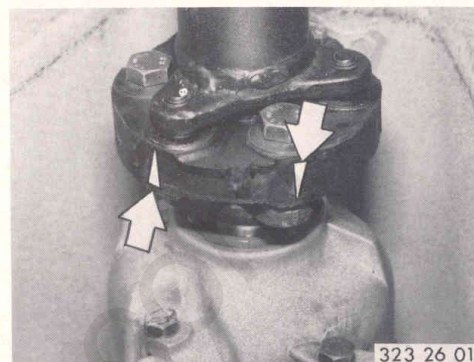
When installing: preload the center bearing forwards by approx. 2 mm (0.08 in) (A).
Hinge the propeller shaft down and withdraw from the centering journal on the gearbox.
Detach the 'Giubo' coupling or joint disc.



Automatic transmission version:

Install the joint disc with the arrowheads pointing to the flange arms of the propeller shaft and the output flange.

If this is neglected, noise and premature wear of the joint disc may result.

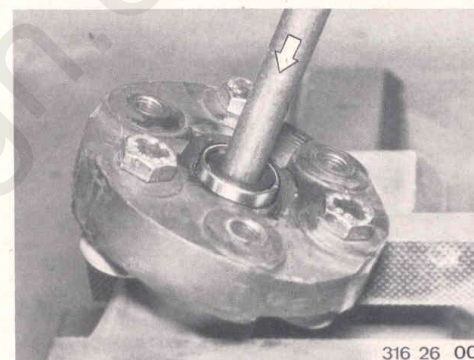


26 11 501 Centering assembly for front of propeller shaft – renewing – propeller shaft removed –

Pack the centering assembly with high-viscosity grease.

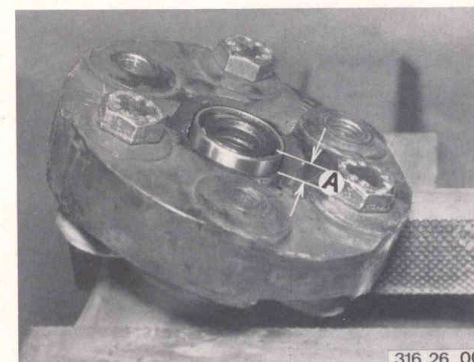
Insert a 14 mm (0.55 in) diameter drift.

Strike the drift with a hammer to exert pressure and force out the centering assembly.



When installing: apply app. 6 g (0.21 oz) of Molykote 'Longterm 2' grease to the centering assembly, and drive in.

Projection A = 5 mm (0.2 in); oil seal ring side faces out.



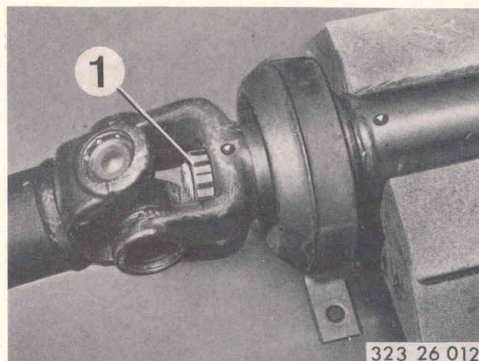
26 12 501 Complete propeller shaft center bearing – renewing – propeller shaft removed –

Mark the relative positions of the propeller shaft halves and the joints.

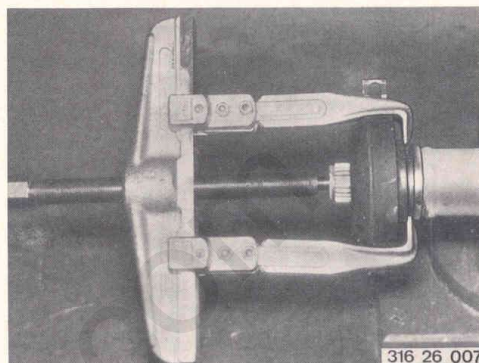
Unscrew nut (1).

Pull out the propeller shaft half.

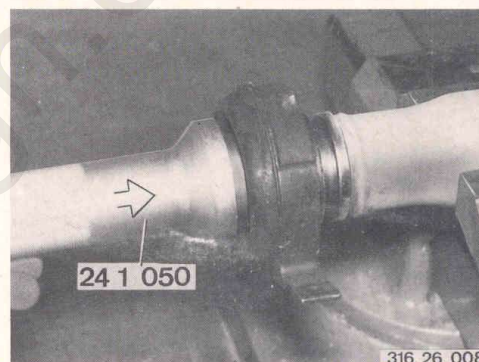
When installing: apply Loctite 270 to thread when tightening nut.



Pull off the center bearing without the dust cover, using a Kukko B 150 puller (available from the trade).

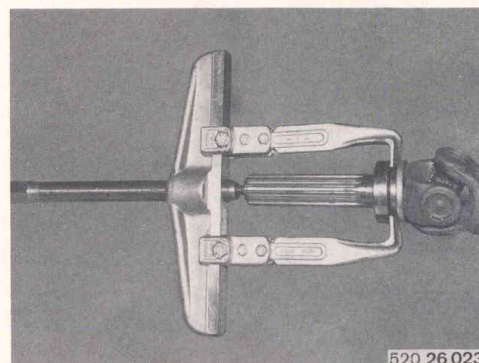


When installing: drive the center bearing on to the propeller shaft with sleeve 24 1 050. Coat the ball bearing pickup surface with water.



26 12 511 Ball bearing in center bearing – renewing – center bearing removed –

Pull the ball bearing off the shaft with a Kukko B 150 puller (available from the trade).



Trouble-shooting – propeller shaft

Fault	Cause	Remedy
Vibration or drumming	a) Propeller shaft not properly balanced	a) Align the propeller shaft with fixture 26 1 000 by pushing center bearing to side and placing shim plates under center bearing
	b) Centering bearing seized or defective	b) Free centering bearing or renew; grease with Molykote Longterm 2
	c) Runout at centering journal or flange	c) Check centering journal and flange for runout with dial gauge. Reposition or renew flange
	d) Center bearing defective, rubber split	d) Renew center bearing
	e) Balancing plate torn off by bottoming car or similar	e) Renew propeller shaft
	f) Universal joints worn or too tight	f) Check bending moment: if play or bending moment are too great (crushed needle rollers), renew propeller shaft
	g) Giubo coupling distorted	g) Attach clamp strap 26 1 012. Unscrew bolts and tighten at nuts only. Renew defective bolts.
	h) Giubo coupling or joint disc defective; rubber split	h) Renew Giubo coupling or joint disc
	i) Bending angle between gearbox and propeller shaft	i) Place shim plates between body and cross-member. Min. distance between cross-member upper surface and gearbox lower surface = 28 mm (1.1 in). Check rubber mountings and renew if necessary.
Center bearing whines when starting	a) Center bearing not at right angle to propeller shaft b) Center bearing not preloaded, or preloaded at an angle c) Bearing seat conical	a) Align center bearing at a right angle to propeller shaft b) Preloaded center bearing by 2 mm (0.08 in) forwards and perpendicular to propeller shaft c) Measure bearing seat with dial micrometer – conicity 0.03 ... 0.04 mm (0.0012 ... 0.0016 in).
Propeller shaft rattles and bangs at center bearing	a) Center bearing defective b) Bending angle between front propeller shaft and rear section at center bearing excessive c) Propeller shaft compressed in installed position	a) Renew center bearing b) Insert shims between body and center bearing. Align with special tool 26 1 000 c) Relieve axial tension on propeller shaft at engine/transmission and at final drive
Heterodyning (variable-intensity drumming) at app. 110–140 km/h (68–87 mile/h) with automatic transmission	a) Axial play at output flange	a) Renew output flange