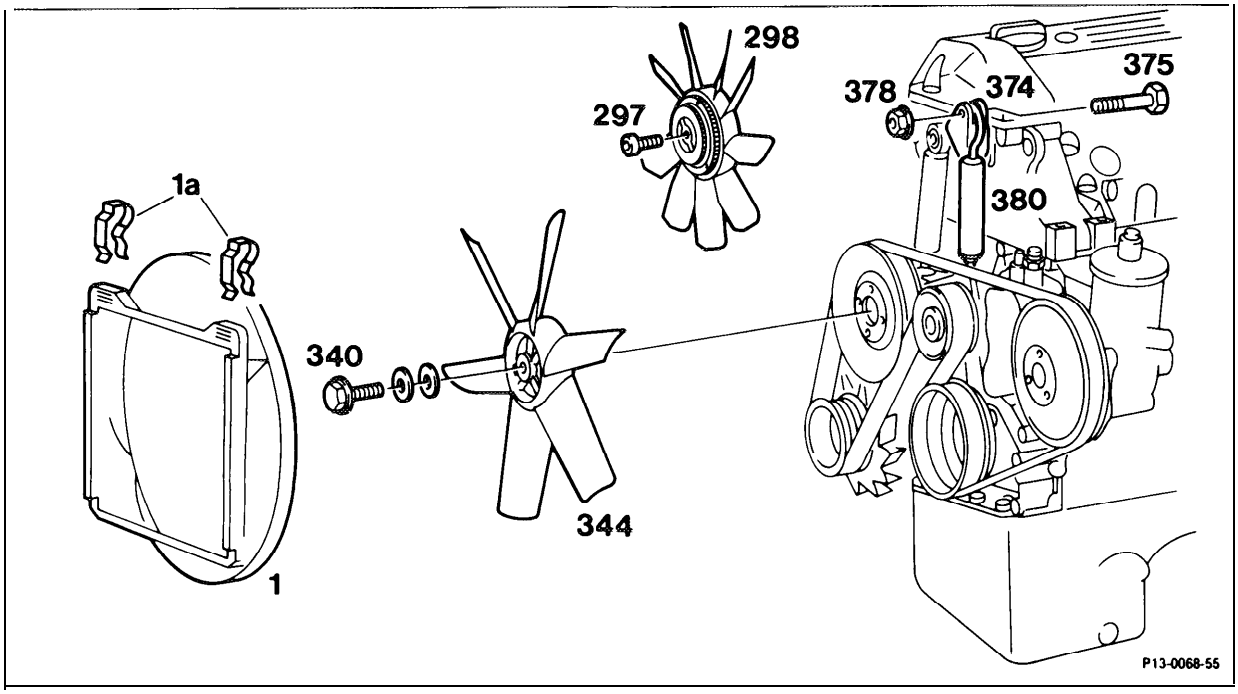
Job No.

13-342 Removal and installation of poly V-belt



Fan shroud (1)	On engine 602 in model 201 remove, install with one-piece radiator fan shroud (20-420, Number 2). On engine 602 in model 201 with divided fan shroud, remove, install fan shroud (Number 3). Detach fan shroud on engines 602 and 603 in model 124, place above fan.
Viscofan coupling (298)	unbolt, reinstall, remove together with fan shroud, bolt (297), 45 Nm. Special tools 103 589 01 09 00 and 603 589 00 40 00.
Tension lever (374) and tension spring (380)	release, by removing nut (378), take out bolt (375) and remove poly V-belt, Install and tensior (Numbers 6 - 11).

Caution!
Check poly V-belt section and tenstoner for damage and contamination, replace if required.
Do not use belt wax or similar lubricant.
Check seating of poly V-belt.

Poly V-belt dimensions

Engine	Poly V-belt layout Length of poly V-belt in mm		
	A[1])	B	C
602	-	**2030**	2100
603	-	2080	2145 (2120)[2])

[1]) Up to 09/85
[2]) Engine 603970

Note
Engine 602
Poly V-belt of different material and revised design.

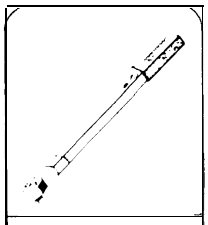
Engines 602.91 and 602.961
Poly V-belt (B drive) provided by additional manufacturer (Gates).

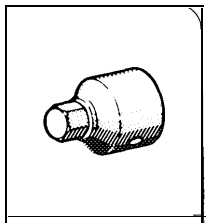
Production breakpoint: 04-08/88

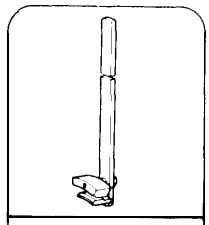
Model	Engine	Engine end No.		Vehicle identification end No.	
		Manual transmission	Automatic transmission	A	F
201.126	602.911	062585-067051	013074-013739	*	*
201.128	602.961	-	002420-003680	*	*

* not recorded

Special tools


001 589 72 21 00
00

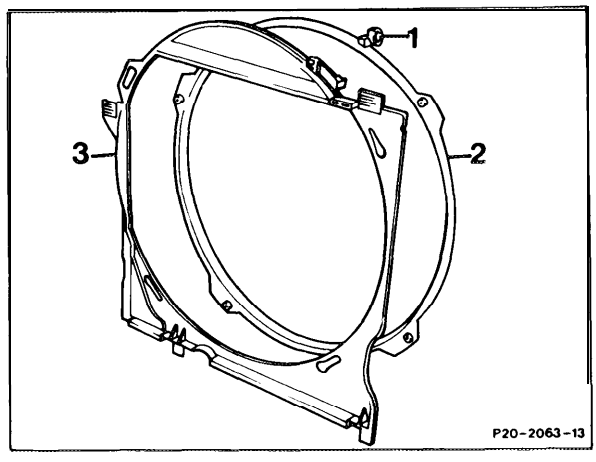

103 589 01 09 00
20


603 589 00 40 00
20

Removal

1 Remove radiator with one-piece fan shroud **on engine 602.911 in model 201 (20-420).**

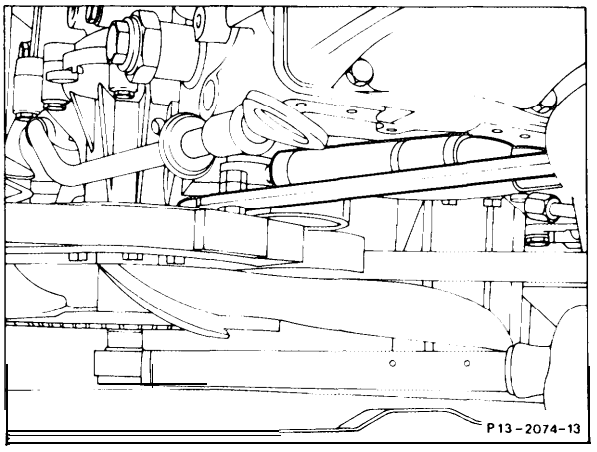
2 **On engine 602 in model 201** with divided fan shroud, open and remove, by taking out locking pin (1) and turning ring (2) to the left. Place ring on the fan, pull out housing (3) and remove ring.



3 **On engines 602 and 603 in model 124**
Detach fan shroud and lay on the fan. Unscrew Viscofan coupling with fan and remove with fan shroud.

Use screw driver bit 103 589 01 09 00 and steady 603 589 00 40 00 in order to detach and tighten up the hexagon socket bolt for the Viscofan coupling.

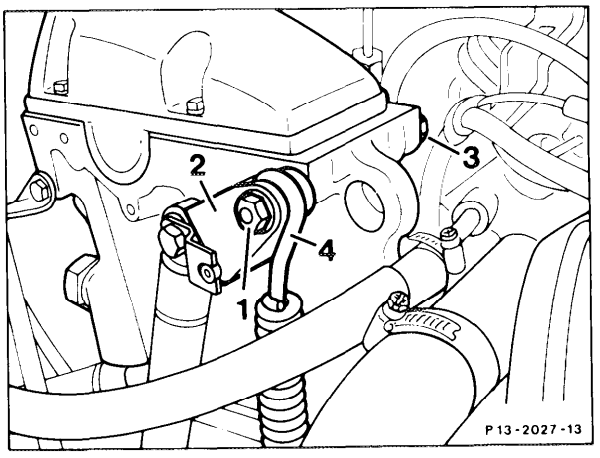
4 **On the engine 603.96 (TURBO)** the Visco-fan coupling cannot be removed without removing the radiator.



5 Detach tensioner, by unscrewing nut (378). Put a lever (12 - 13 mm dia., approx. 300 mm long) or rim wrench from vehicle tool kit in the hole in the spring tension lever (374). Press lever slightly to the left, until bolt (375) can be slid back in the direction of the manifold.

Release tension spring (380), by swinging lever to the right.

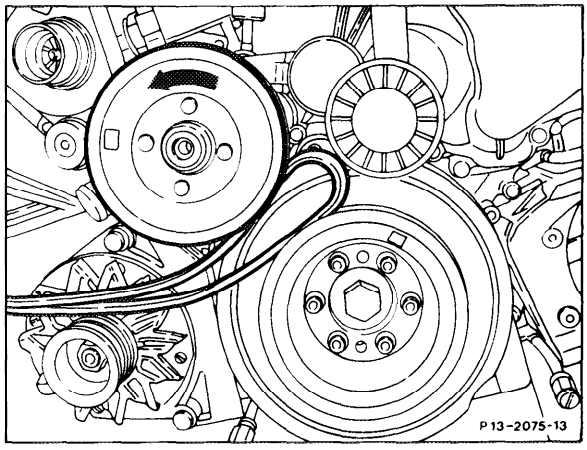
Remove poly V-belt, by pressing back the idler pulley.
Check poly V-belt section and tensioner for damage and contamination, replace if required (e.g. worn bearing points on tensioner, dents in pulley etc.).



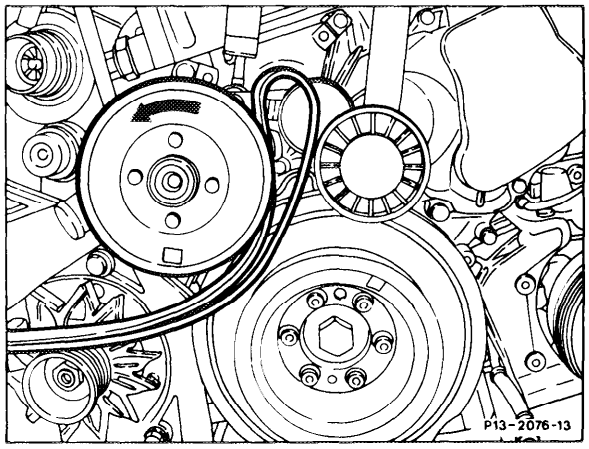
Putting on poly V-belt

Caution!
Do not use any belt wax or similar products.

6 Raise idler pulley slightly. Turn poly V-belt on the back, form a small loop and slide between coolant pump pulley and crankshaft pulley.

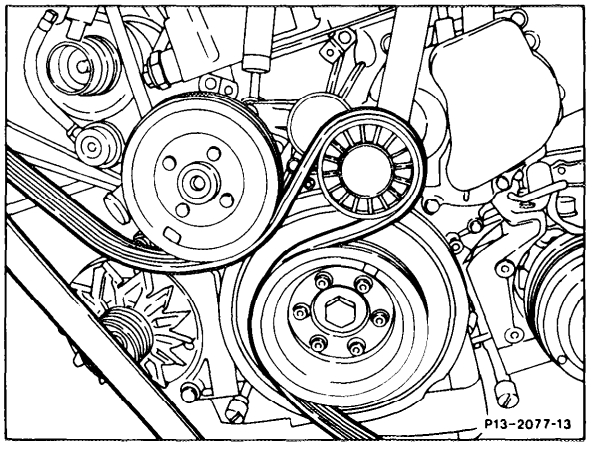


7 Press poly V-belt with the left hand firmly onto coolant pump pulley and turn this to the left (arrow) until poly V-belt rides up onto idler pulley.



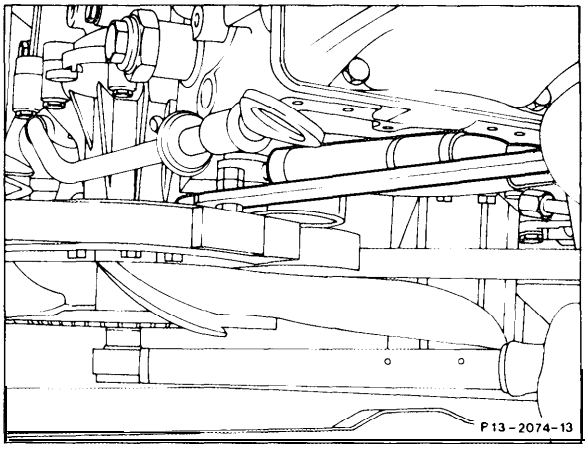
8 Put poly V-belt on idler pulley and crankshaft pulley. Then rotate the free part of poly V-belt and place onto the refrigeration compressor, power steering pump, coolant pump and alternator pulley.

9 Tension poly V-belt and install tensioner.



11 Check seating of poly V-belt on the pulleys.

12 **On engine** 602 **in model** 124 install fan or Viscofan coupling with fan and fan shroud.



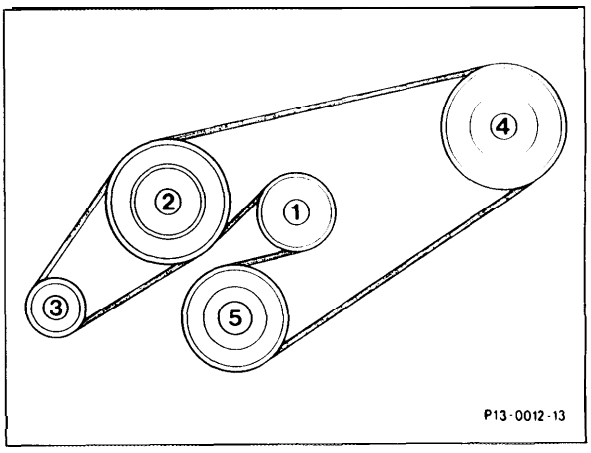
Tightening torque of Viscofan coupling fixing bolt 45 Nm.
Use steady 603 589 00 40 00 for tightening up.

13 On engine 602.911 in model 201 Install radiator (20-420) without divided fan shroud.

B Pulley layout on vehicles with power steering

Length of belt
Engine 602: 2030 mm
Engine 603: 2080 mm

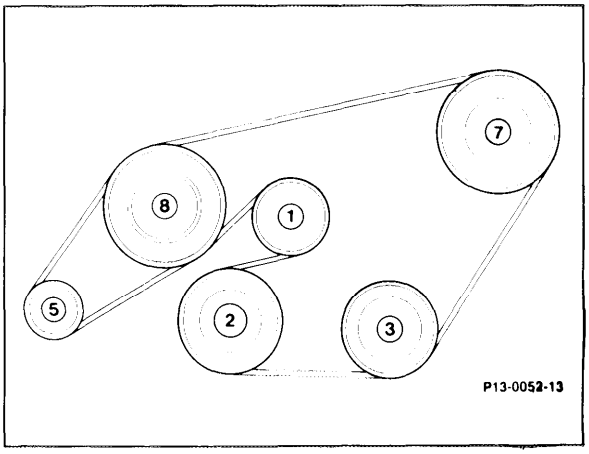
1 Idler pulley
2 Crankshaft
5 Alternator
7 Power steering pump
8 Coolant pump



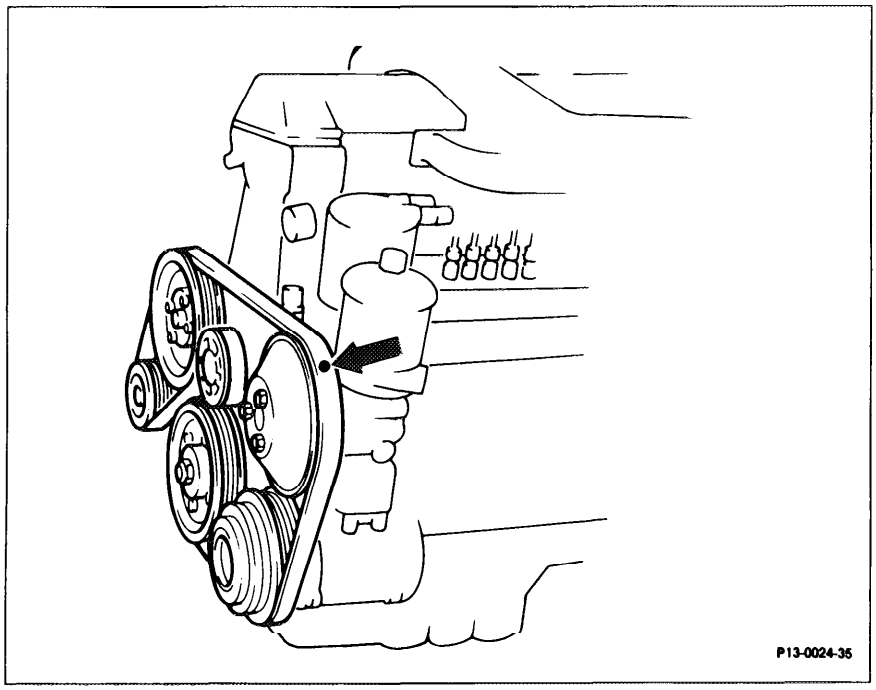
C Pulley layout on vehicles with power steering and refrigeration compressor

Length of belt
Engine 602: 2100 mm
Engine 603: 2145 mm
Engine 603.970: 2120 mm

1 Idler pulley
2 Crankshaft
3 Refrigeration compressor
5 Alternator
7 Power steering pump
8 Coolant pump



13-343 Checking condition of poly V-belt and tensioner



Compression pressure plotter	connect 001 589 76 21 00 with adapter 124 589 366 300 to positive terminal of battery and terminal 50 (Numbers 1 - 3).
Poly V-belt	mark at a clearly visible point with chalk (arrow). Turn engine in Increments.
Tensioner	check condition.

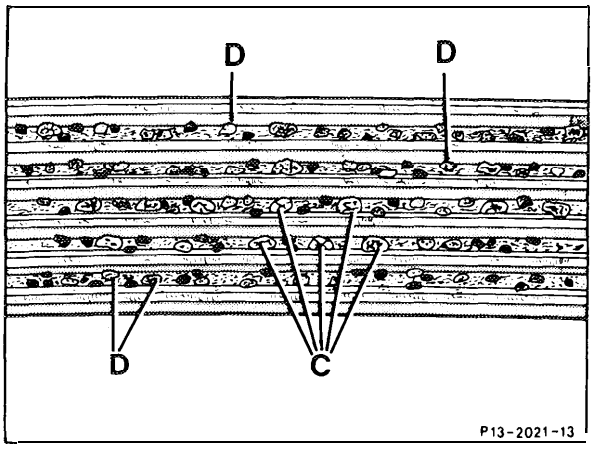
Caution!
Note different design.

A. Poly V-belts

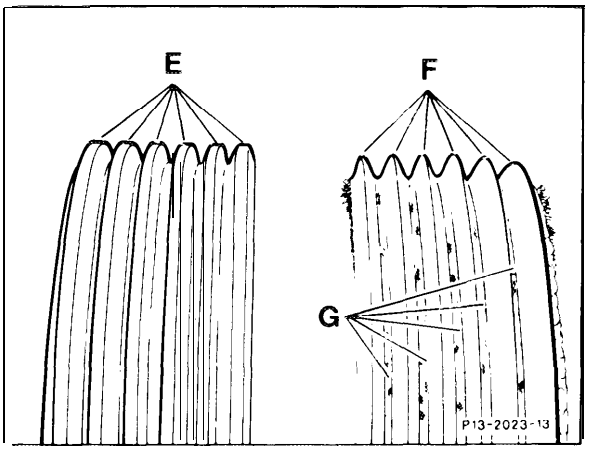
The poly V-belt is to be replaced if one of the following damaged patterns is determined during testing.

Damage pattern

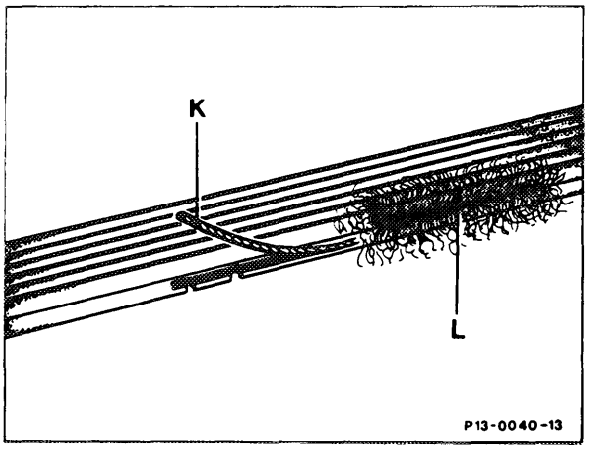
C Lumps of rubber in base of ribs.
D Deposits of dirt or stones.



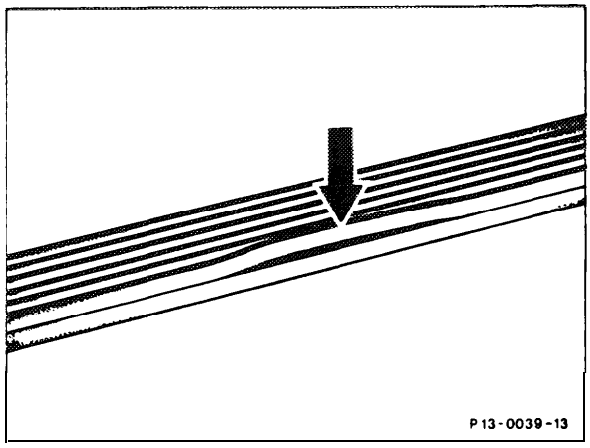
Flank wear
F Ribs are pointed.
E New poly V-belt - ribs are trapezoidal.
G Strand visible in base of ribs (lighter points).



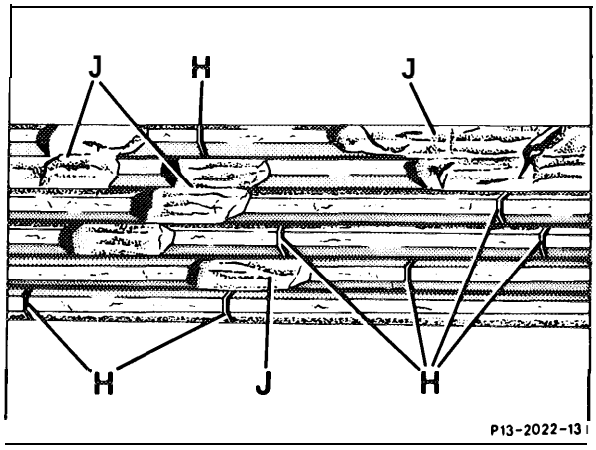
K Strand torn out sideways.
L Outer strands frayed.



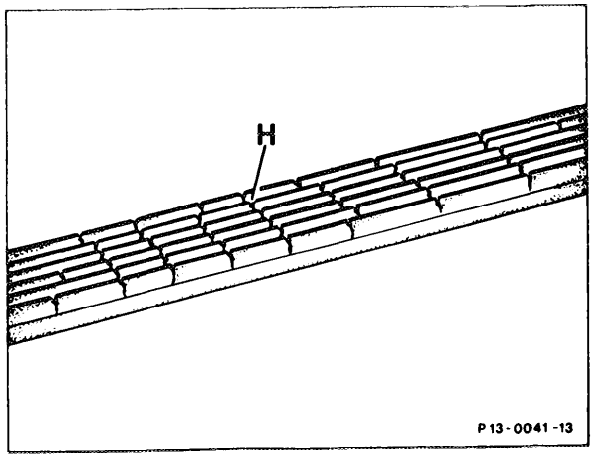
Rib detached from base of belt (arrow).



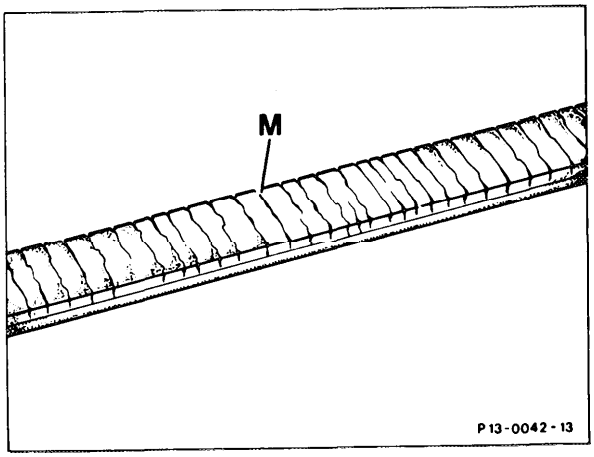
H Transverse cracks in ribs and or
J Rib fractures



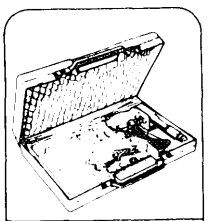
H Transverse cracks in several ribs.



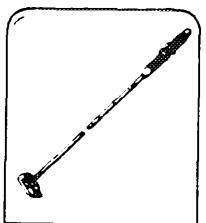
M Transverse cracks on the back.



Special tools



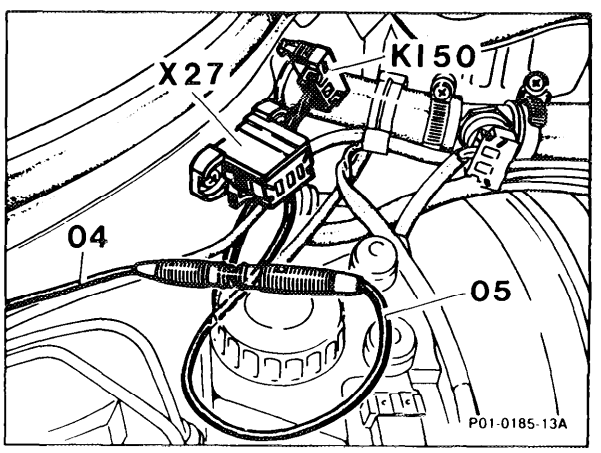
001 589 78 21 00
01



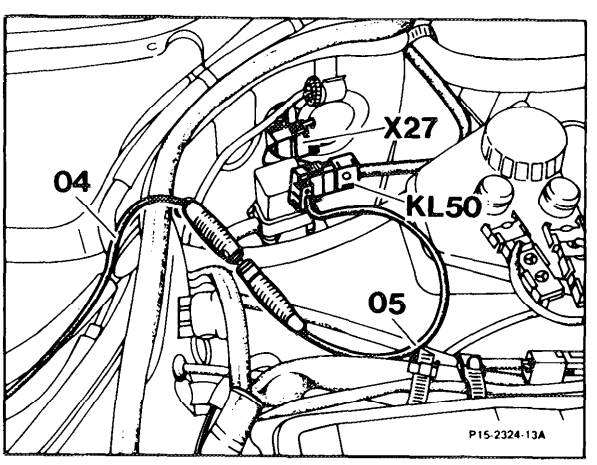
124 589 36 63 00

Model 124 and 126

1 Connect compression pressure plotter 001 589 78 21 00, by separating plug connection (X 27) at the left unit compartment wall and connect connector lead (04) of the compression pressure plotter to the plug (terminal 50) with adapter lead 124 589 36 63 00 (05).



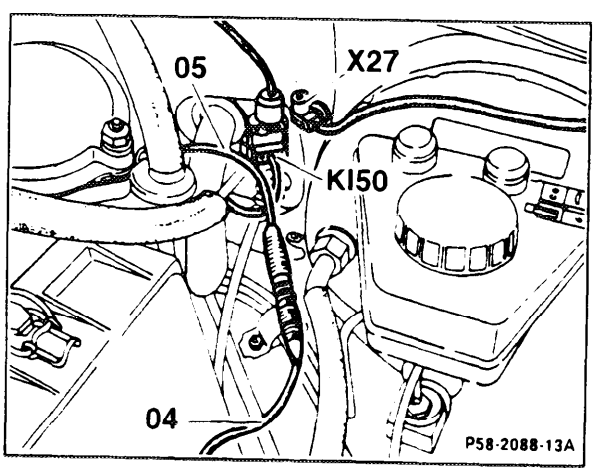
Model 124



Model 126

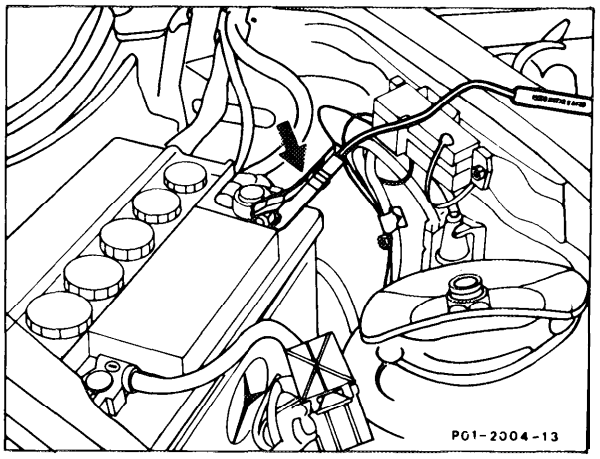
Model 201

2 Connect compression pressure plotter 001 589 78 21 00, by separating plug connector (X 27) at left front wall and connect the connector lead (04) of compression pressure plotter to the plug (terminal 50) with adapter lead 124 589 36 63 00.



Model 201

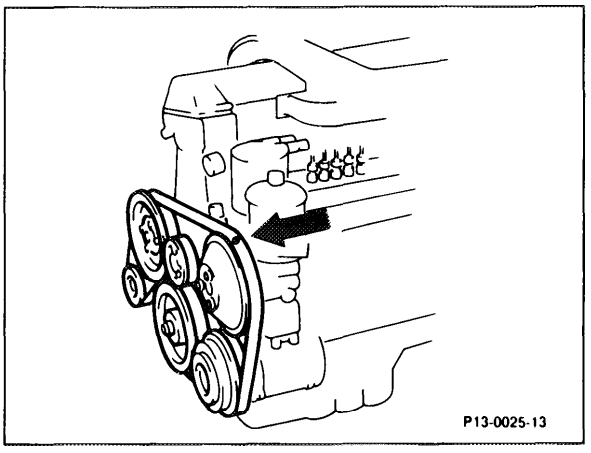
3 Connect up second connector lead of the compression plotter to positive terminal (terminal 30) of the battery.



4 Mark poly V-belt with chalk at a clearly visible point (arrow).

5 Turn engine in increments and check poly V-belt for damage.

Complete process when marking is visible again (one complete belt revolution).



B. Tensioner

The following parts are to be checked on the tension lever bearing (1 st design up to 10 85):

6 Check bearing pin (30) of tension lever (360) for firm seating.

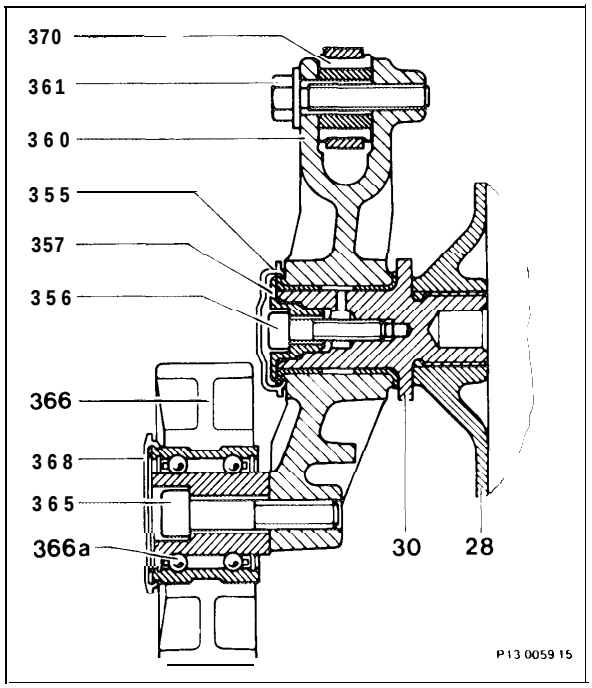
Note

The collar of bearing pin (30) must contact the timing case cover (28). The idler pulley must not have any alignment problems.

7 Check tensioner with bearing bush.

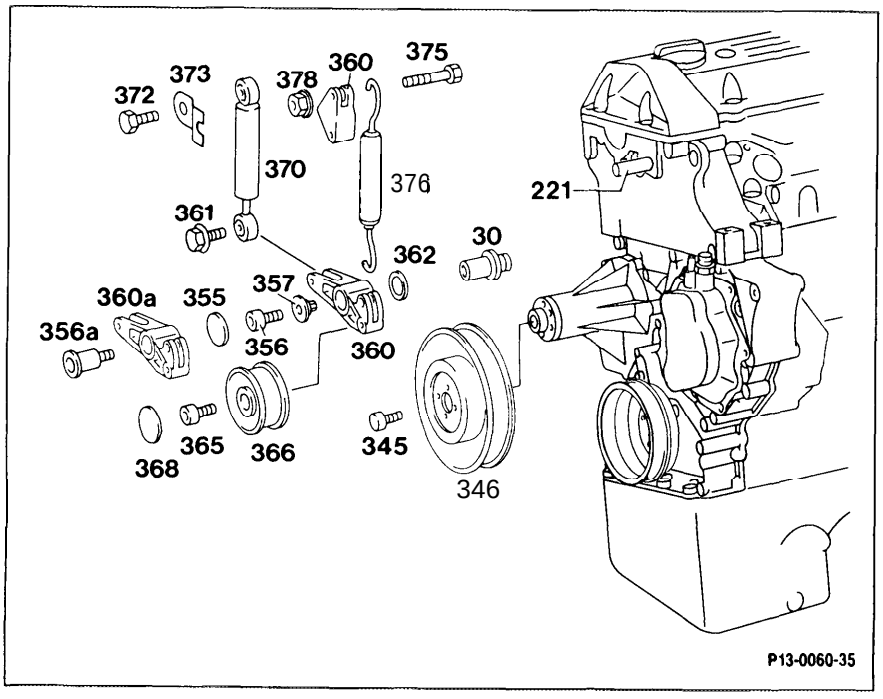
Note

The idler pulley must not exhibit any alignment faults. The bearing bushes are worn when there is a detectable play between the bearing pin (30) and tension lever (360).



13-345 Removal, installation and dismantling of poly V-belt tensioner

Preceding work:
Fan and fan shroud removed (20-312 or 20-335).
Radiator removed (only Model 201, 126, 20-420).
Poly V-belt removed (13-340).



Sealing cap (368)	.....	press off, press on.
Idler pulley (366)	.....	remove, install, 25 Nm.
Pulley (346)	.....	remove, Install. Hexagon socket bolt, 10 Nm Internal Torx bolt, 14 Nm.
Damper (370)	.....	unbolt, install, 25 Nm. Check for function.
Tension spring (376)	.....	remove, assemble.

Tensioner - 1st design:

Sealing cap (355) ...	remove, install.
Tensioner (360)	remove, install. 10 Nm. Check for condition and wear.
Bearing pin (30)	remove, Install, 100 Nm. Clean thread and coat with Omnifit 100 M orange 002 989 23 71.

Tensioner - 2nd design:

Bearing pin (30)	deleted. Use dowel screw fitting bolt (356), 100 Nm. Clean thread and coat with Omnrfit 100 M orange 002 989 23 71.

Note
Only the 2nd design is now available as a replacement part. Complete with bearing and close-tolerance bolt.

Adhesives

Omnifit 100 M orange	002 989 23 71

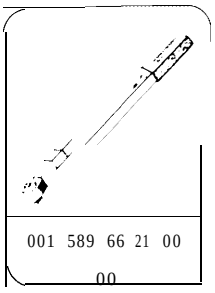
Tightening torques	(Nm)
Hexagon socket bolt on idler pulley	25
Hexagon socket bolt on coolant pump pulley	10
Internal Torx bolt on coolant pump pulley	14
Hexagon bolts on damper	25
Internal hexagon bolt on tensioning lever	10
Bearing pin for tension lever bearing	100
Dowel screw for tension lever bearing	100

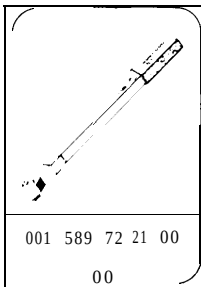
Poly V-belt dimensions

Engine	Poly V-belt layout Poly V-belt length in mm		
	A [1])	B	C
602	–	2030	2100
603	–	2080	2145 (2120) [2])

[1]) Uo to 09 85
[2]) Engine 603 970

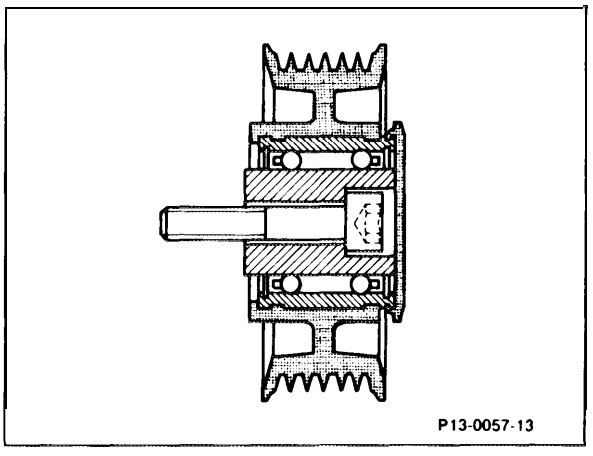
Special tools





Note

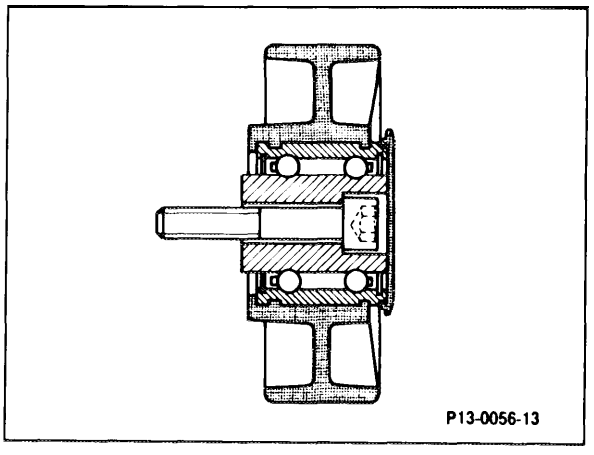
Idler pulleys on vehicles without power steering have grooves for the ribs of the poly V-belt in the running surface.

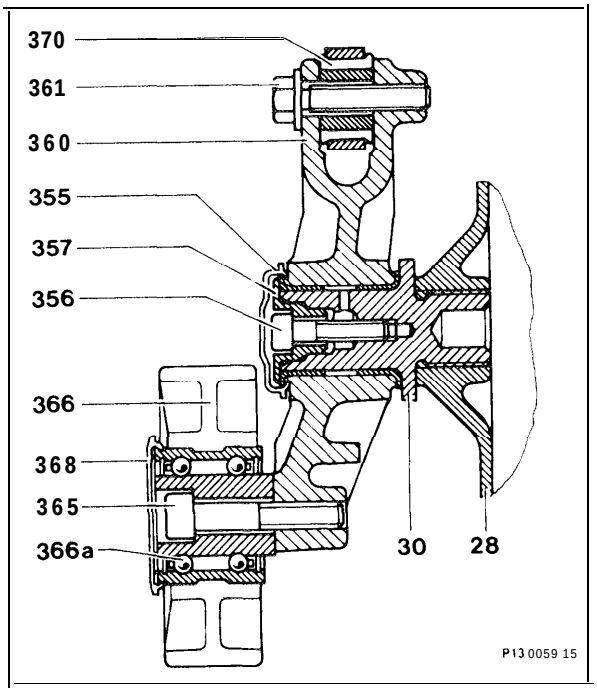


Idler pulleys have flat running surfaces.

Color marking of tension spring:

Vehicles with power steering pump, blue.





Tension lever (2nd design)
28 Timing case cover
30a Dowel screw
360 Tension lever
362 Angular contact ball bearing
363 Washer
368 Sealing cap

Production breakpoint: **09/85**

Model	Engine	Engine end No. Manual transmission	Automatic transmission	Vehicle identification end No. A	F
124.133 124.193	603.962	-	000016	from start of production	
126.125	603.961	-	000114	from start of production	
201.126	602.911	005966	001372	253369	156861

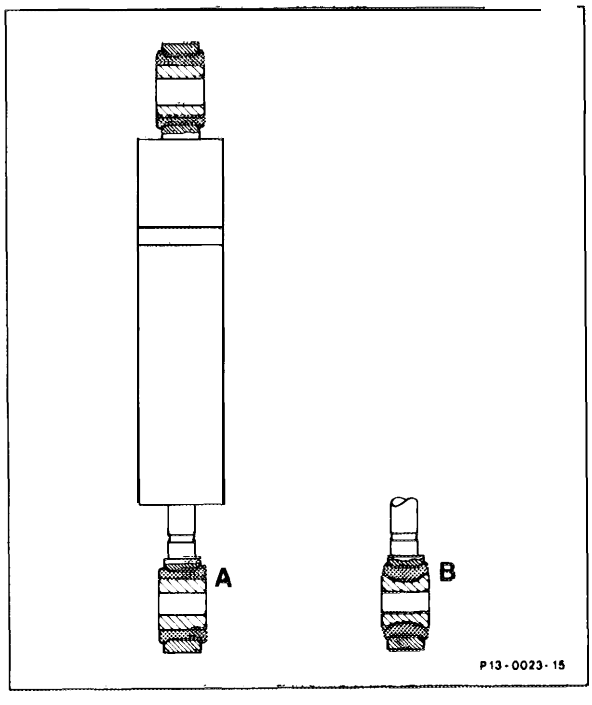
* not recorded

Engine 602
Single-acting damper for belt tensioner, previously double-acting.

Production breakpoint: 05/86

Model	Engine	Engine end No.		Vehicle identification end No.	
		Manual transmission	Automatic transmission	A	F
201.126	602.911	020242	005061	306516	237404

Between 07 89 and 09 89 and from 06 90 the dampers for the tensioner have vulcanized lower rubber bearings.



A Pressed-on rubber bearing
B Vulcanized rubber bearing

Production breakpoint: 06/90

Model	Engine	Engine end No.		Vehicle identification end No.	
		Manual transmission	Automatic transmission	A	F
124.128	602.962	004646	005752	*	*
124.133 124.193	603.960	–	027696	*	*
126.135	603.970	–	000878	*	*
201.126	602.911	092299	017772	*	*
201.128	602.961	002615	008097	*	*

* not recorded

Since 03 90 fixing bolts for the power steering pump have been hot galvanized, previously phosphated, for Improved surface protection.