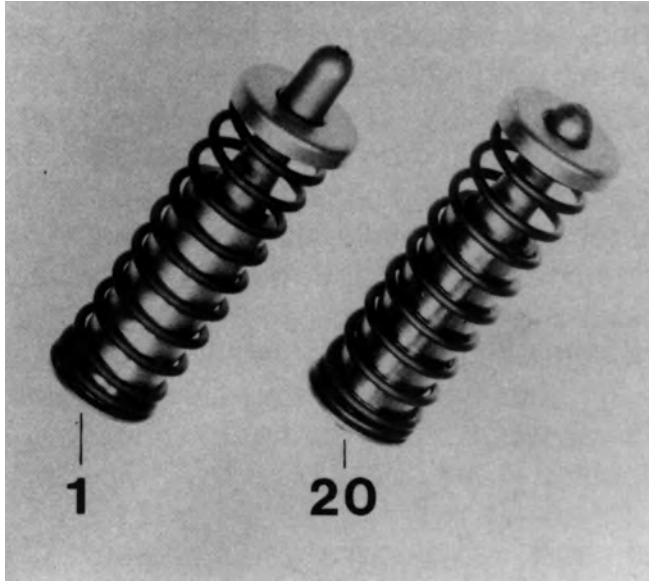
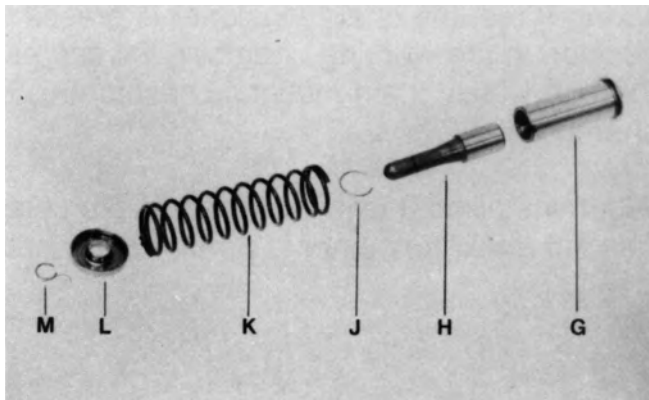


Chain Tensioners



1 - Chain tensioner, left
20 - Chain tensioner, right

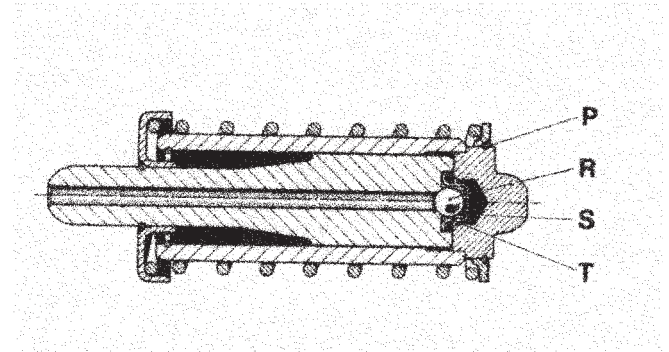


G - Housing (cylinder)
H - Piston
J - Circlip
K - Spring
L - Spring retainer
M - Circlip

Chain tensioners have the task of cushioning the vibration of timing chains. They work with help of hydraulic cushioning and a return spring, and are connected direct in the camshaft housing oil supply circuit.

Chain tensioners are each held in position by a cover bolted on the chain housing. Oil is supplied to the left chain tensioner by a piston, whereby the oil reaches the working chamber of the chain tensioner through a check valve located in the piston.

The right chain tensioner is supplied with oil via the housing. The check valve, consisting of a valve ball, valve spring and valve cage, is located in the housing.



P - Circlip
R - Valve ball
S - Valve Spring
T - Valve cage

The check valve opens with a pressure of 0.2 bar. The piston of the chain tensioner has an axially ground surface on the cylindrical section, 3 mm wide for the left side and approximately 1 mm wide for the right side. Oil can escape out of the working chamber through a leak gap produced in this manner and by the play between the piston and housing, through which the cushioning degree is determined.

The chain tensioner is pressed apart and the chain is tensioned, if the force during operation of the engine, which the chain exerts on the chain tensioner, is less than the oil pressure plus chain force. If chain forces are greater than the oil pressure plus spring force, the chain tensioner is pressed together or the piston is moved against the oil cushion in the working chamber. Oil can escape via the leak gap and piston/housing clearance, through which chain motion is cushioned. The leak gap also guarantees bleeding of the working chamber

When installing it is important to make sure that the chain tensioner piston always faces up. The left chain tensioner is 8 mm longer because of the design.

Notes:
