



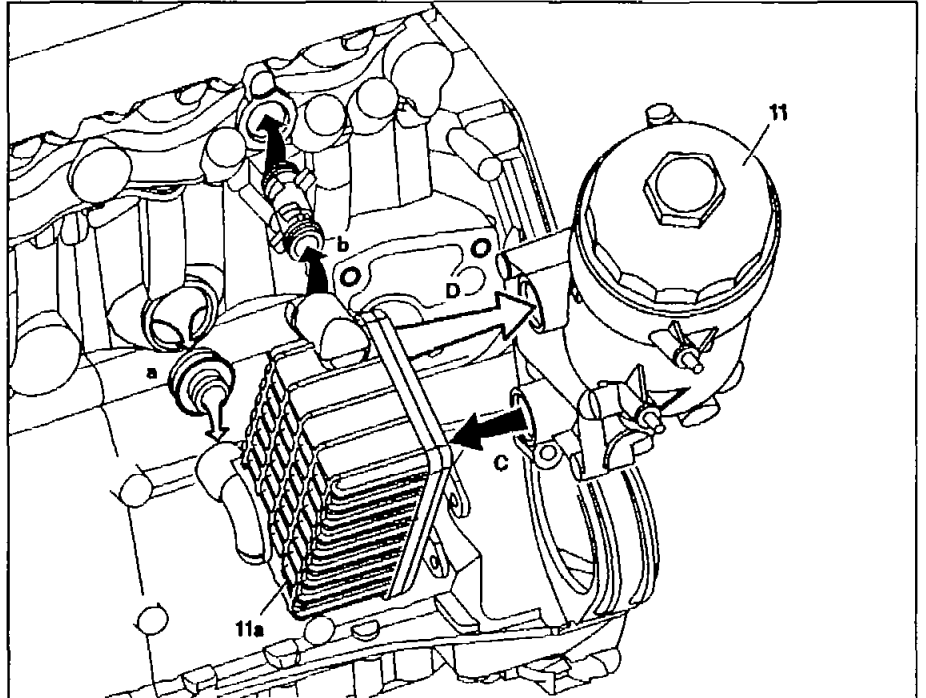
ENGINE 601, 602, 603 (except, 602.982)

GF	Engine oil circuit function		GF18.00-P-0001A GF18.00-P-0001A
GF	Oil pressure circuit function		GF18.00-P-1000A GF18.00-P-1000A
GF	Oil return flow function		GF18.00-P-1001A GF18.00-P-1001A
GF	Turbocharger oil circuit function	Engine 602.96, 603.96	GF18.00-P-1002A GF18.00-P-1002A
GF	Oil-water heat exchanger position/function	Engine 601 in model 202.120	GF18.00-P-1104A GF18.00-P-1104A
GF	Oil-water heat exchanger position	Engine 601 in model 202.120	GF18.00-P-1104-01A GF18.00-P-0999A/2
GF	Oil spray nozzles position/function		GF18.00-P-1105A GF18.00-P-1105A
GF	Oil spray nozzles position	Engine 602.96, 603.96, 603.97	GF18.00-P-1105-01A GF18.00-P-0999A/2
GF	Oil spray nozzles function	Engine 602.96, 603.96, 603.97	GF18.00-P-1105-04A GF18.00-P-0999A/3
GF	Engine oil circuit as-built configuration	Engine 601.91, 603.91 without exhaust gas recirculation Engine 601.91, 602.91, 603.91 with exhaust gas recirculation Engine 602.96, 603.96, 603.97	GF18.00-P-1106A GF18.00-P-1106A GF18.00-P-1106C GF18.00-P-1106C
GF	Engine oil return flow construction state description	Engine 601 Engine 602 (except 602.982), 603	GF18.00-P-1107A GF18.00-P-1107A GF18.00-P-1107B GF18.00-P-1107B
GF	Oil pressure relief valve position/function		GF18.10-P-1101A GF18.10-P-1101A
GF	Oil overpressure valve position		GF18.10-P-1101-01A GF18.00-P-0999A/4
GF	Oil filter position/task/design/function		GF18.20-P-1101A GF18.20-P-1101A
GF	Oil filter position		GF18.20-P-1101-01A GF18.00-P-0999A/4
GF	Oil filter design		GF18.20-P-1101-03A GF18.00-P-0999A/5
GF	Oil filter function		GF18.20-P-1101-04A GF18.00-P-0999A/6
GF	Oil filter bypass valve position/function		GF18.20-P-1102A GF18.20-P-1102A
GF	Oil filter bypass valve position		GF18.20-P-1102-01A GF18.00-P-0999A/6
GF	Oil filter bypass valve function		GF18.20-P-1102-04A GF18.00-P-0999A/7

 GF	Oil pressure sensor position/function	Engine 601 (except 601.913), 602 (except 602.982), 603	GF18.40-P-1101A GF18.40-P-1101A
 GF	Oil pressure sensor position	Engine 601 (except 601.913), 602 (except 602.982), 603	GF18.40-P-1101-01A GF18.00-P-0999A/7

GF18.00-P-1104-01A	Oil-water heat exchanger position		
--------------------	-----------------------------------	--	--

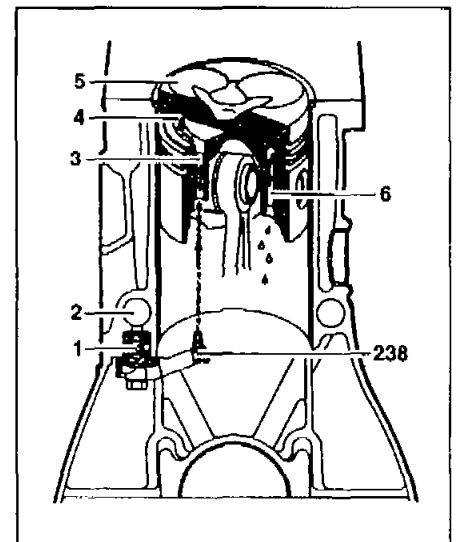
The oil-water heat exchanger (11a) is bolted to the oil filter housing.



P18.00-0215-06

GF18.00-P-1105-01A	Oil spray nozzles position		
--------------------	----------------------------	--	--

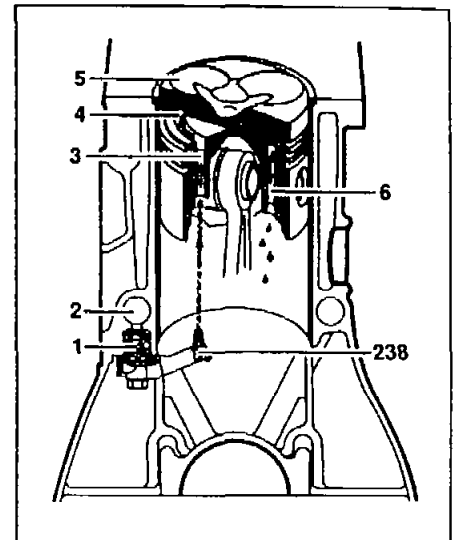
The oil spray nozzles (1) are installed in the connecting galleries to the main oil gallery (2) in the crankcase.



P18.00-0398-02



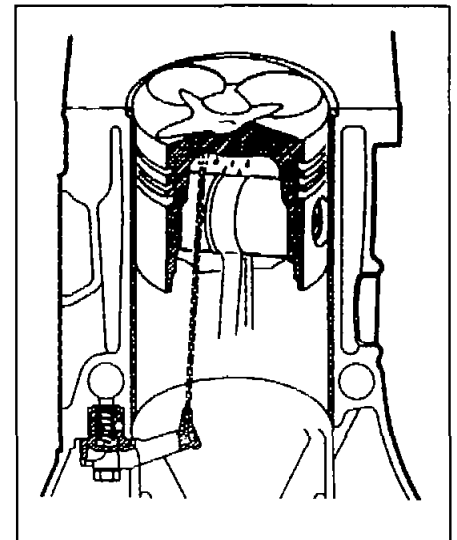
From an engine oil pressure of 1.5 bar the valve (1) opens and allows the engine oil to flow along the passage from the main oil gallery (2) through the oil spray nozzle (238) to the nozzle drilling (3) in the piston crown. The engine oil spray out of the nozzle bore strikes the feed drilling (4) in the piston crown. The engine oil is distributed in the piston crown by an annular drilling (4) and flows back to the oil pan through the return flow drilling (6). As it flows through the piston crown, the engine oil absorbs heat and thus cools the piston (5). The valve (1) seals off the passage to the oil spray nozzle if the oil pressure drops, no later that at an engine oil pressure of 1 bar.



P18.00-0398-02

Naturally aspirated engine and engine 603.970 (turbo) up to 08/95

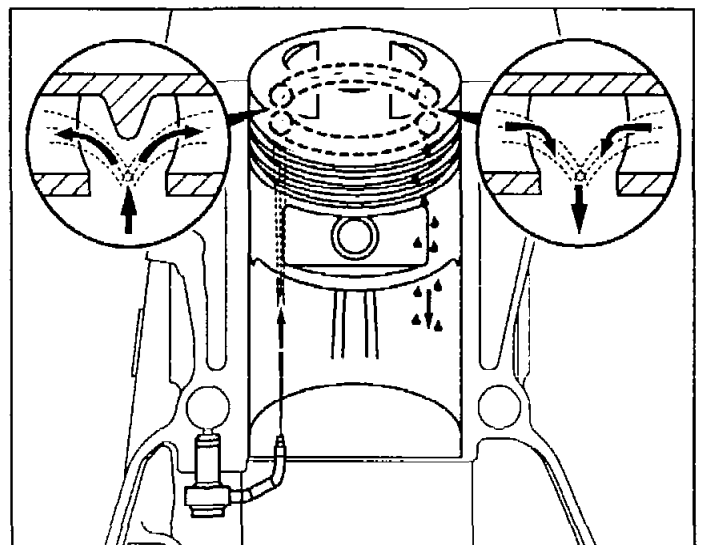
On naturally aspirated engines the oil spray from the nozzle drilling strikes the piston crown and thus cools the piston.



P18.00-0399-02

Engine 603.970/971 as of 09/95

The engine oil is injected through the oil spray nozzle into a semi-cooling gallery, the oil is distributed to both sides and then flows off on the opposite side.

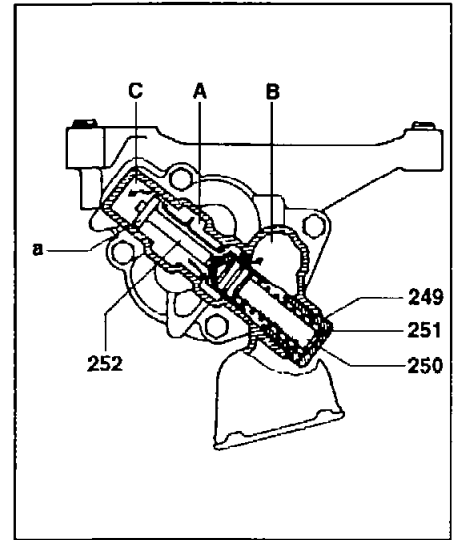


P03.00-0284-11

GF18.10-P-1101-01A

Oil overpressure valve position

The oil overpressure valve is installed in the oil pump.

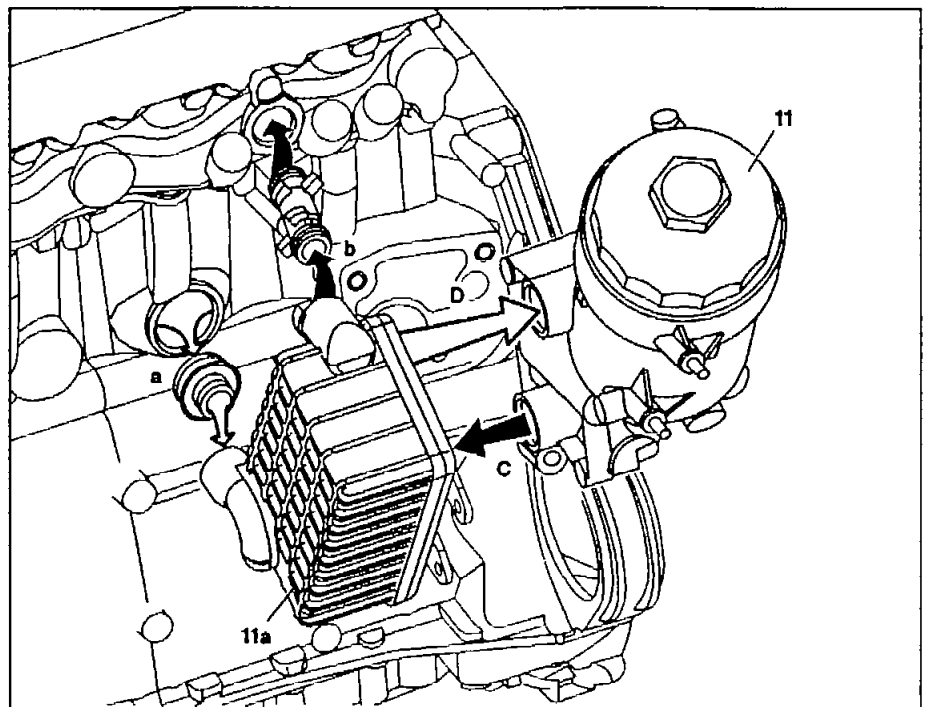


P18.10-0252-02

GF18.20-P-1101-01A

Oil filter position

The oil filter housing (11) is located at the rear left of the engine.

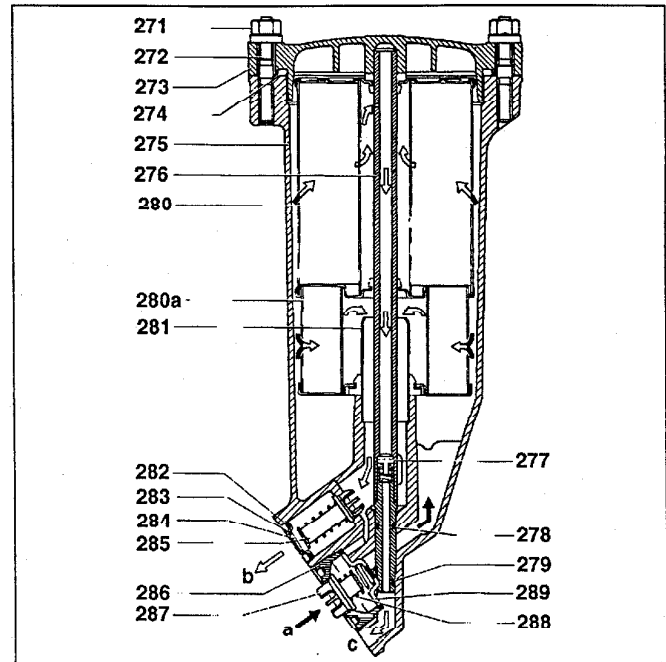


P18.00-0215-06



Oil filter without air-oil cooler connections

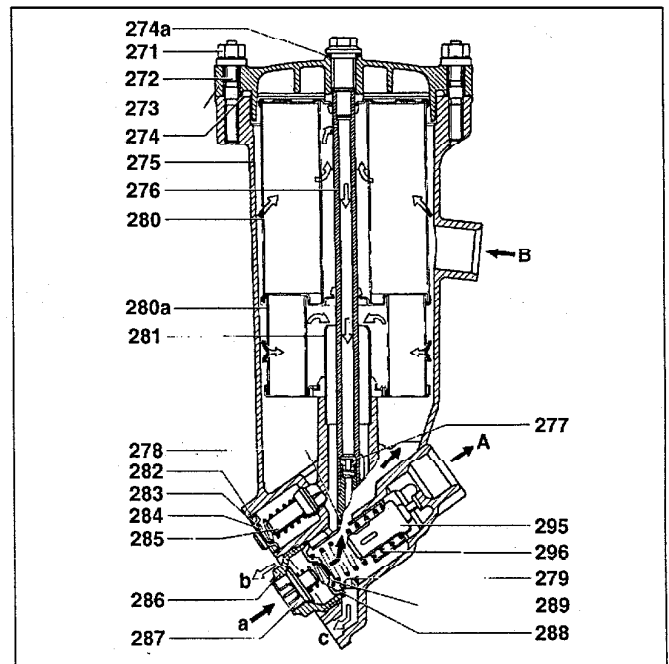
271	Nut M 8
272	Stud bolt M 8
273	Cover
274	O-ring
275	Oil filter housing
276	Return flow pipe
277	Check valve
278	O-ring
279	O-ring
280	Oil filter element
280a	Full-flow filter
281	Stand pipe
282	Circlip
283	Spring washer
284	Spring
285	Valve cone bypass valve
286	Valve seat return flow check valve
287	Valve cone return flow check valve
288	Compression spring
289	Dished spring



P18.00-0403-12

Oil filter with air-oil cooler connections

271	Nut M 8
272	Stud bolt M 8
273	Cover
274	O-ring
275	Oil filter housing
276	Return flow pipe
277	Check valve
278,279	O-ring
280	Oil filter element
280a	Full-flow filter
281	Stand pipe
282	Circlip
283	Dished washer
284	Spring
285	Valve cone bypass valve
286	Valve seat return flow check valve
287	Valve cone return flow check valve
288	Compression spring
289	Dished washer
295	Thermostat
296	Spring
A	Unfiltered oil to air-oil cooler
B	Unfiltered oil from air-oil cooler
a	To oil filter
b	To bearing points
c	To oil pan



P18.00-0402-12

GF18.20-P-1101-04A	Oil filter function		
--------------------	---------------------	--	--

The oil flows from the feed gallery (a) through the return flow check valve (286, 287) into the oil filter housing and flows directly into the oil filter element (280). It flows through the oil filter element and along the stand pipe (281) and the gallery (b) to the main oil gallery and onto the bearing points.

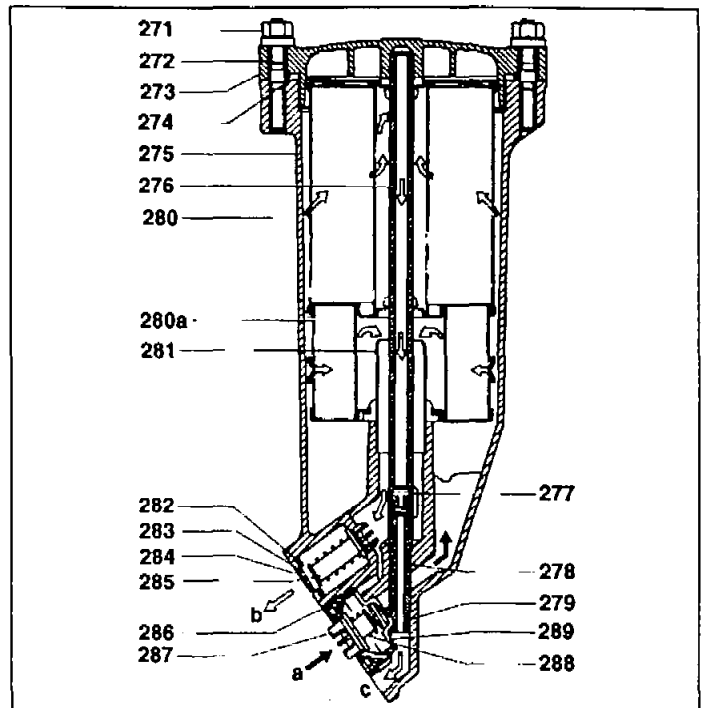
The finely filtered oil flows through the return flow pipe (276) and the gallery (c) to the oil pan.

A rubber seal is provided in the oil filter element (280) in order to separate the full-flow and bypass flow.

When changing the oil filter element, unscrew the cap (273) and pull it up slightly.

When this is done, the return flow pipes (276) attached to the cover opens a passage which connects the galleries (b) and (c) to each other. The oil in the oil filter flows back through the gallery (c) into the oil pan.

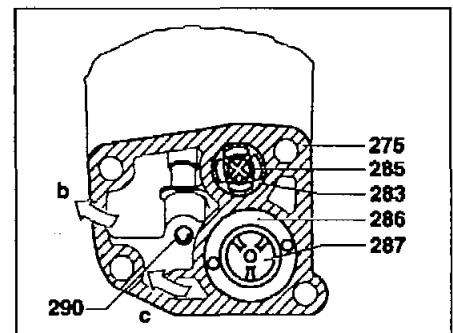
The return flow pipe is fitted to engines 601, 602 and in engine 603 - 1st version as of 02/92; this return flow pipe can be unscrewed when changing the oil to facilitate removing the oil filter cover.



P18.00-0403-12

GF18.20-P-1102-01A	Oil filter bypass valve position		
--------------------	----------------------------------	--	--

The oil filter bypass valve (285) is installed in the oil filter housing (275).



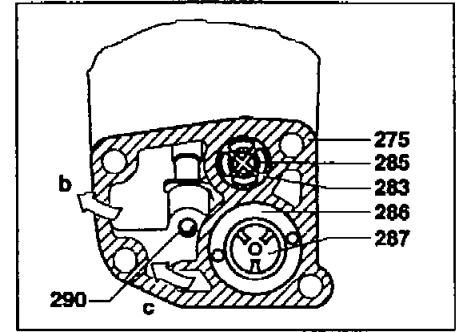
P18.20-0254-01



GF18.20-P-1102-04A

Oil filter bypass valve function

As the soiling of the filter element increases, the lubricating points of the engine are supplied with less and less oil and the pressure in the oil filter rises. Once the oil filter element is so severely polluted that the oil pressure is 2 bar above the pressure of the oil supplied by the pump, the bypass valve (285) opens. As a result, the unfiltered oil flows directly from the oil pan to the lubrication points, by bypassing the filter element.

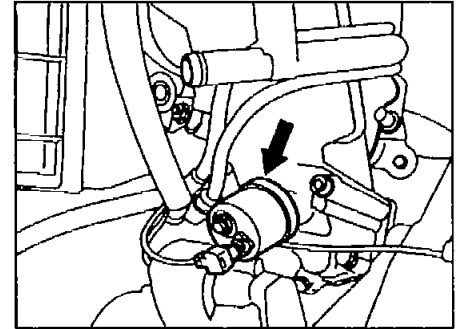


P18.20-0254-01

GF18.40-P-1101-01A

Oil pressure sensor position

The oil pressure sensor (arrow) is bolted to the oil filter housing.



P18.00-0404-01

