

## 23. Fuel system

### General

<b>Fuel tank</b>		<b>'90</b>	<b>'91-</b>
Total capacity	litres	48	60
Reserve capacity	litres	5	5
Fuel filler cap (grey) with pressure relief valve, B18U/B20F			

### B16/18/20. CO-percentage, idle speed (hot engine)

Engine type	CO%*		Idle speed	
	adjusting	checking	r/s	r/min
B16F	not adjustable	0.2-1.0	14.2-15.8	850-950
B18K,K(D)	1.5±0.2	0.5-2.5	13.3-15	800-900
B18KP, KP(D)	1.5±0.2	0.5-2.0	12.5-15	750-900
B18KP, KP(D), Airco	1.5±0.2	1-2.5	15.4-16.2	925-975
B18E,ES,E(D)	1	0.5-2	12.5-14.1	750-850
B18F	0.6	0.4-0.8	11.7-12.5	700-750
B18EP	1.2	1.0-1.4	13.3-15	800-900
B18EP + EVAP system	1.2	0.8-3.0	13.3-15	800-900
B18FP	not adjustable	0.4-1.2	14.2-15.8	850-950
B18U	not adjustable	0.3-1.1	14.2-15.8	850-950
B18U(M)**	1.5	1.0-1.5	12-13.8	730-830
B18FT, B18FTM	0.7±0.1	0.4-1.0	12.8-15	800-900
B20F	not adjustable	0.2-1.0	12-13.8	730-830
B20F(M)**	1.5	1.0-1.5	12-13.8	730-830

- Engines within the check values need no further adjustment, providing the engine is running satisfactorily. Read out the fault codes.
- Adjustments should be made with the air-conditioning and the engine cooling fan switched off.
- The Pulsair system (if fitted) should be disconnected and blanked off.
- **B18U, B18F/FT, B20F**: unplug the connector for the Lambda sensor (if fitted) and measure ahead of the catalytic converter.
- **B18U, B20F**: erase the fault codes (owing to the unplugged connector).
- **B16F, B18FP**: leave the connector on the Lambda sensor and measure ahead of the catalytic converter.

\*\* Adjust with special tool 951-2019

### D19T. Smoke content, idling speed (hot engine)

Engine	Smoke content		Idling speed	Max. engine speed
	When adjusting	When checking	r/s (r/min)	r/s (r/min)
D19T	1.45m <sup>3</sup> :45%	2m <sup>3</sup> :55%	13.8±0.5 (825±25)	80-83 (4800-5000)

## Carburettor (K and KP engines)

<b>Solex Cisac 28-34 Z10 REP...</b> . . .	<b>900</b>	<b>995</b>	<b>958</b>
Fitted on . . . . .	<b>B18KP(D)*</b>	<b>B18KP(D)*</b>	<b>B18K(D)</b>
	1st/2nd stage	1st/2nd stage	1st/2nd stage
Venturi inside diameter . . . . . mm	20/27	20/27	20/27
Main jet (fuel) $\pm$ 2.5 . . . . .	97.5/140	97.5/135	100/132.5
Main jet (air) $\pm$ 5 . . . . .	Z175/EZ155	Z180/EZ155	Z175/EZ155
Idle jet (fuel) . . . . .	40-46/47-53	37-43/47-53	40-46/47-53
Idle jet (air) . . . . .	190/70	165/70	190/70
Accelerator pump injector . . . . .	35/35	35/35	35/35
Accelerator pump cam . . . . . no.	36	36	25
Throttle valve opening in relation to choke	26° $\pm$ 30'		
Needle valve diameter . . . . . mm	1.8		
Float weight (without bronze bush) . . . . . g	6.0-6.2		
Float height (measured with gasket) . . . . . mm	33-37		
Mechanical air valve, float chamber ventilation . . . . . mm	2-3		
Electrical air valve, float chamber ventilation:			
- engages at (ambient temperature) . . . °C	70		
- disengages at . . . . . °C	63 (or three minutes after starting the engine)		

\*REP900 up to chassis no. -106042 (LHD) and chassis no. -103819 (RHD)  
 REP995 from chassis no. 106043- (LHD) and chassis no. 103820- (RHD)

### Carburettor air cooling (by engine cooling fan or auxiliary cooling fan under the battery)

(Only operates after switching off ignition.)

Engages at (coolant temperature) . . . . °C	90
Disengages at . . . . . °C	83

### Air supply

Type of system . . . . .	thermostatic
Control range . . . . . °C	26 - 36

### Fuel pump

Type . . . . .	Sofabex M8736
Delivery pressure, measured at same height as pump at 16.6 r/s . . . . . kPa(Bar)	16-28 (0.16 - 0.28)

### Choke vacuum cylinder

Capacity . . . . . cc	125
Retarded choke opening . . . . . sec	$\pm$ 5

### Carburettor base pre-heating

Type . . . . .	PTC
Current consumption at 20°C . . . . . A	$\pm$ 1

Fuel injection (E, F, FT, EP/FP and U engines)

<b>Fuel pump</b>	<b>B18E</b>	<b>B16,B18F EP/FP,FT(M)</b>	<b>B18U</b>	<b>B20F</b>
Colour of pump body/marks	black	white/yellow	white/purple	white/yellow
Delivery pressure, measured at same height as pump:				
Line pressure kPa(Bar)	250 (2.5)	350 (3.5)	100 (1.0)	300 (3)
Residual pressure kPa	230-240	330-340	85-90	285-290
Current consumption at line pressure A	-	7.4	1.5	6.8
Delivery at line pressure litres/hour	120	120	92	130

**Injection system**

	<b>B20F,B18U</b>			
	<b>B16-18EP/FP</b>	<b>B18E/S</b>	<b>B18F</b>	<b>B18FT(M)</b>
Make	Siemens	Siemens	Bosch	Bosch
Type	Fenix 3B	Fenix 1 or 3.2	LH-Jetr. 2.2	LH-Jetr. 2.2

	<b>B16F</b>					
	<b>B18EP/FP</b>	<b>B18E/S</b>	<b>B18F</b>	<b>B18FT</b>	<b>B18U</b>	<b>B20F</b>
Injectors						
Colour code	black	grey	blue	brown	blue	blue
Resistance 20°C Ohms	14	2-3	16-17	16-17	1.1-1.5	15
Potential difference across the terminals at idling speed:						
when starting =mV	800	120	600	600	250	850
cold engine =mV	800	100	350	350	150	950
hot engine =mV	500	50 - 60	280	280	90	680

**Air supply**

	<b>B18U</b>	
Type of system	wax thermostat	bimetal
Operates at	full load	part load
Control range °C	approx. 28	approx. 40

**Inlet air temperature sensor**

	<b>Fenix 1</b>	<b>others</b>
Type	PTC	NTC
Resistance at 20°C Ohms	290 ± 20	2500 ± 300

**CO-potentiometer**

	<b>B18E, B18EP</b>
Resistance kOhms	0.3 - 11

**Air pressure sensor**

	<b>B16F, B18E, B18EP/FP, B18U,B20F</b>
Resistance kOhms	1.3
Voltage across A and B V	1.6-5 dependent upon engine depression

**Flywheel sensor**

Resistance at 20°C Ohms	220 ± 60
-------------------------	----------

**Coolant temperature sensor**

**injection/ignition**

	<b>Fenix 1</b>	<b>Others</b>
Type	PTC	NTC
Resistance at 20°C Ohms	290 ± 20	2500 ± 300

**Sensor, injector cooling B18FT**

**CH-567600 (480)**  
**CH-205700 (440,460)**

Engages at	°C	105±2
Disengages at	°C	100±2

**Idle speed regulating valve**

Resistance	Ohms	44
Measure on regulating valve between pins		3 - 5

**B16F, B20F B18**

<b>B18EP/FP</b>	<b>F,FT</b>	<b>B18U</b>
8	20	n/a
1 - 2	3 - 5	1 - 2

	<b>B20F</b>	
<b>Throttle valve housing</b>	<b>B16F</b>	<b>B18EP/FP</b>
Type	Solex	Solex
Diameter(s)	55/32/45*	55

<b>B18E</b>	<b>B18F</b>	<b>B18FT</b>	<b>B18U</b>
Weber	DVG	DVG/Solex	Bosch
32-36	36-36	45	38

\* From model year '92/'93/'94-

**Throttle valve shut-off switch**

Type		
Resistance across terminals	Ohms	2 - 18
Accelerator pedal released/depressed	Ohms	0/∞

<b>B18E</b>	<b>B18F</b>	<b>B18U</b>
Bosch	Bosch	Bosch
2 - 18	2 - 18	3 - 4
0/∞	0/∞	0/∞

**Throttle valve position sensor**

- Idling speed indication:

Resistance across terminals		4 - 6	4 - 6	-
Accelerator pedal released/depressed	Ohms	0 / ∞	-/-	-

- Acceleration/full load signal:

Resistance across terminals		1 - 3	1 - 3	1 - 4
Accelerator pedal released/depressed ± Ohms		3500/300	1000/2500	1600/4800

- Throttle valve position:

Resistance across terminals		2 - 3	2 - 3	2 - 4
Accelerator pedal released/depressed ± Ohms		500 / 3700	2500/1000	4400/1200

**B16F/B20F**

<b>B18FT(M)</b>	<b>B18EP/FP</b>	<b>B18U</b>
-----------------	-----------------	-------------

**Air mass meter**

Resistance between terminals:		
2 and 6 (basic setting)	Ohms	382 ± 5
6 and 7	Ohms	2.7
1 and 6	Ohms	0 - 1000

**B18F,FT,FTM****Oxygen sensor (if fitted)**

Pre-heating resistor:

cold sensor unit (20°)	Ohms	3
Hot sensor unit (350°)	Ohms	13
Voltage at oxygen sensor	V	0.1-0.9

## Fuel injection system - D19T

<b>Fuel injection pump</b>		
Make .....	'94 Roto Diesel	'95- Roto Diesel
Type .....	DPCR8443B721B	F8QLT01 F8QLT02 (Airco)
Injection timing .....	12° BTDC	12° BTDC
(adjustment data shown on pump $\pm 0.02$ mm)		
<b>Post-ignition control</b>		
Operation .....	'94 switches at 60°C	'95- NTC sensor via ECU
Resistance at 20°C .....	-	2500
Location .....	in coolant hose	thermostat housing
<b>Fuel injectors</b>		
Make .....	'94 CAV Roto Diesel	'95- CAV Roto Diesel
Type .....	END 45DC6878C	RMD 4SD6878D
Opening pressure, reference value when adjusting / checking .....	13-13.5 (130-135)	13-13.5 (130-135)
Maximum permissible pressure difference between the injectors .....	0.8 (8)	0.8 (8)
<b>Glow plugs</b>		
Current consumption .....	A	15 after 8 sec (max. 3 minutes)
<b>Microswitches on fuel injection pump</b>		
Glow plug .....	D19T 204	<8 mm; 0 ohms. >12 mm; infinity
EGR .....		not adjustable
<b>D19T 206/266</b>		
Glow plug/EGR .....		not adjustable
<b>Electromagnetic injection advance (on the fuel injection pump)</b>		
Resistance .....	ohms	8

## Tightening torques

The tightening torques specified here apply to oiled bolts and nuts; degreased (washed) components must be oiled before fitting,

### All engines

	Nm
Temperature sensors in cylinder head	20
Oil level sensor	22
Oil pressure sensor	35
Oil pressure sensor, adaptor	45
Oil temperature sensor	25
Fuel pump	14
Carburettor	14
Knock sensor, nut	20
Knock sensor, stud	10
Oxygen sensor*	50
SPI unit, B18U	9
Injector, B18U	6
Air inlet header	9
Bleedscrew in hose	13
Flywheel sensor	8
Distributor cap	5
Filler neck, nut	30
Nut, filler pipe neck/fuel tank	50
Nut, fuel pipe/fuel distribution manifold	23
Nut, fuel filter	22
Union connection, filter	35

### D19T engine

Glow plugs	22
Injectors in cylinder head	70
Injectors, upper-lower section	10 + 22°
Fuel pump attachment	20
Fuel pump gear wheel	50
Flange, fuel pump gear wheel	20
Fuel injector lines, union nuts	25
Solenoid shut-off valve, stop device	20
Sleeve and nut assembly	
pump drive socket, (left-hand thread) '95-	70
Measuring tool plug, fuel injection pump, '95-	10

\* Smear bolt packing compound (Part No. 1161035-9) on the entire length of the screw thread.