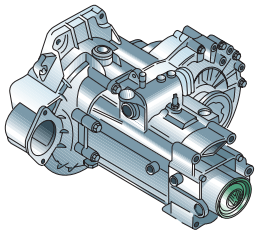
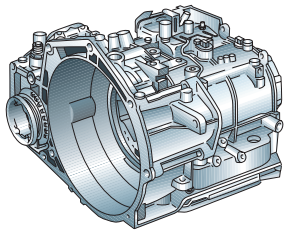
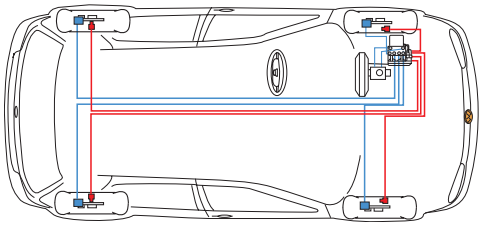
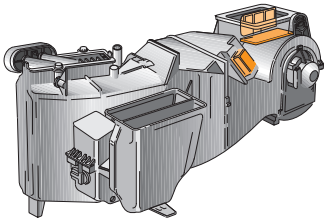
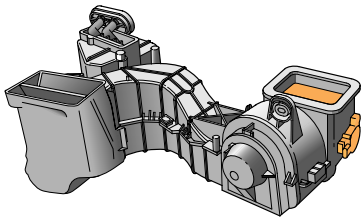
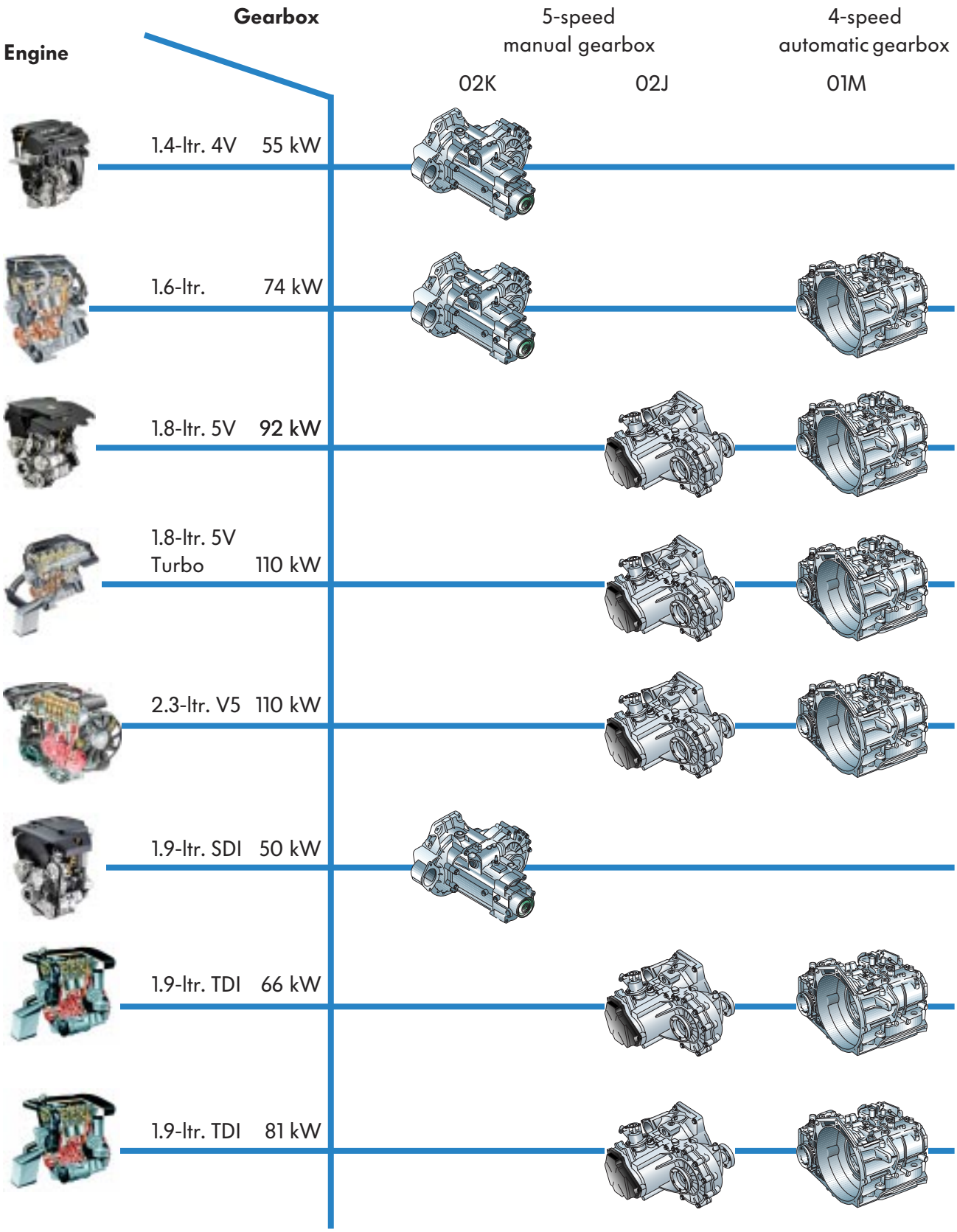
Technical platform

Like the Audi A3 and the Skoda Octavia,
the new Golf is based on the A-platform.
The platform components are therefore almost
identical from a technical aspect.

Engines	  
Running gear	  
Braking system	  
Electrical system	  
Heating/ air-conditioning system	  

Engine-gearbox combinations



Engines

German emissions standard

In Germany, a new emissions standard has been in force since July 1997. This standard, referred to as Emission Stage D3, specifies lower emission limits.

Customers driving a vehicle which meets this emissions standard are eligible for government tax benefits.

The table below shows the relationships between the engines and the D3 emissions standard as well as EU II.

Engine	Engine code	Gearbox	Emission Stage		Measures	Engine management
			D3	EU II		
1.4-ltr. 55kW	AHW	manual		x		Magneti Marelli 4AV
	AKQ	manual	x		Primary catalytic converter	
1.6-ltr. 74kW	AEH	manual	x		Software update	Simos 2
		automatic		x		
	AKL	automatic	x		Two primary catalytic converters	
1.8-ltr. 92kW	AGN	manual	x		Software update	Bosch Motronic 3.8.5
		automatic		x		
1.8-ltr. 110kW	AGU	manual	x		Software update Trimetallic catalytic converter	Bosch Motronic 3.8.3
		automatic				
2.3-ltr. 110kW	AGZ	manual	x		Secondary air injection	Bosch Motronic 3.8.3
		automatic				
1.9-ltr. SDI 50kW	AGP	manual		x		Bosch Electronic Diesel Control
1.9-ltr. TDI 66kW	ALH	manual	x		Variable turbine geometry Enlarged oxidation catalytic converter Cooler for exhaust gas recirculation (auto gearbox only)	Bosch Electronic Diesel Control
		automatic				
	AGR	manual		x		
		automatic				
1.9-ltr. TDI 81kW	AHF	manual		x		Bosch Electronic Diesel Control
		automatic				

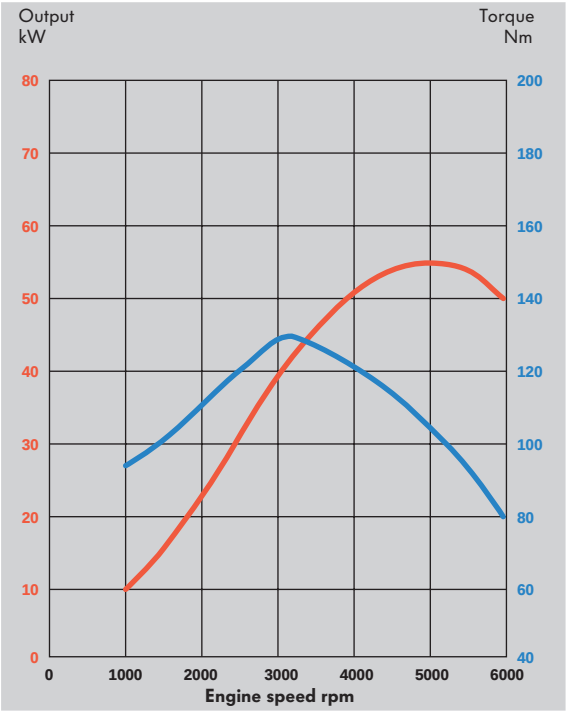
1.4-ltr. 4V engine (55 kW)

SSP 200/054

The 1.4-ltr. 4V engine is a new development and has the following special features:

- Aluminium engine block
- Static high-voltage distributor

You can find more detailed information on this engine in Self-Study Programme No. 196.



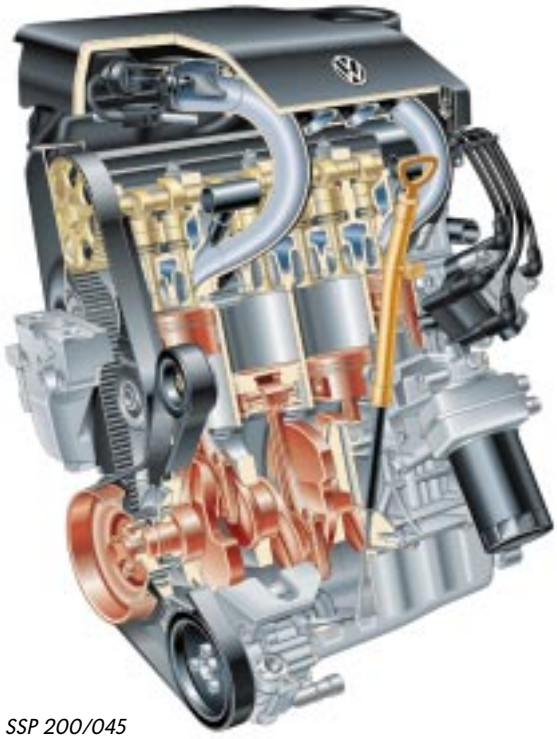
SSP 200/053

Displacement:	1390 cm^3
Compression ratio:	10.5 : 1
Output:	55 kW at 5000 rpm
Torque:	128 Nm at 3300 rpm
Engine management:	Magneti Marelli 4AV
Fuel:	Premium unleaded (95 RON)

The engine may also be run on regular unleaded fuel (91 RON), but with reduced max. power.

Engines

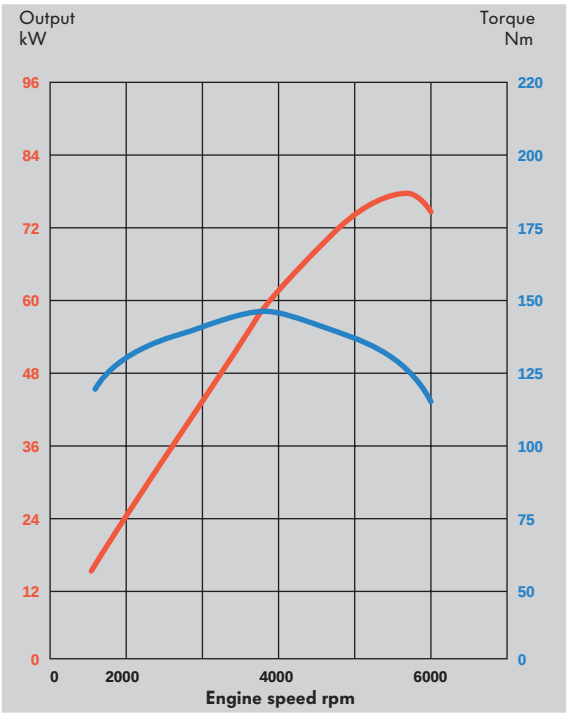
1.6-ltr. engine (74 kW)



SSP 200/045

The 1.6-ltr. 4-cylinder in-line engine has the following special features:

- Aluminium engine block with internal vent pipe
- Press-fitted cast iron cylinders
- Plastic twin-path intake manifold
- Static high-voltage distributor
- Pressure switch for power steering
- Clutch pedal switch



SSP 200/046

Displacement:	1595 cm^3
Compression ratio:	10.2 : 1
Output:	74 kW at 5600 rpm
Torque:	145 Nm at 3800 rpm
Engine management:	Simos 2
Fuel:	Premium unleaded (95 RON)

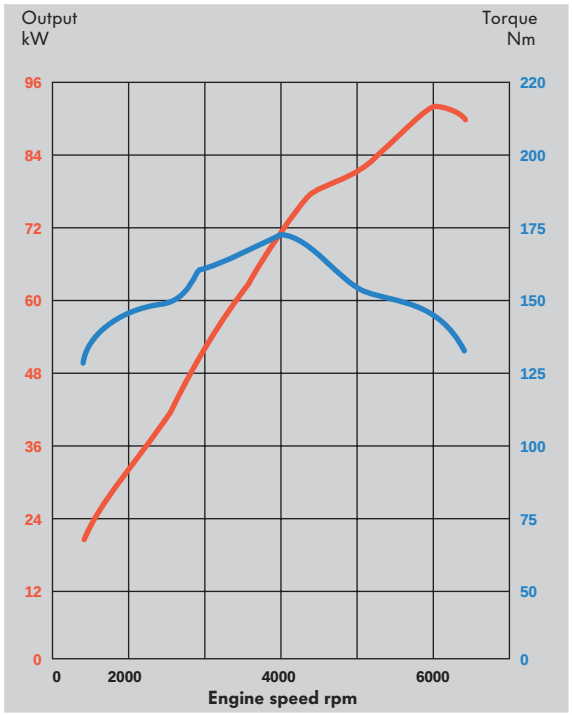
The engine may also be run on regular unleaded fuel (91 RON), but with reduced max. power.

1.8-ltr. 5V engine (92 kW)

SSP 200/061

The 1.8-ltr. 4-cylinder in-line engine with five valves per cylinder has the following special features:

- Variable valve timing
- Plastic twin-path intake manifold
- Static high-voltage distributor
- Hot film air mass meter with reverse flow detection
- Pressure switch for power steering
- Clutch pedal switch



SSP 200/055

Displacement:	1781 cm^3
Compression ratio:	10.3 : 1
Output:	92 kW at 6000 rpm
Torque:	170 Nm at 4200 rpm
Engine management:	Motronic 3.8.5
Fuel:	Premium unleaded (95 RON)

The engine may also be run on regular unleaded fuel (91 RON), but with reduced max. power.

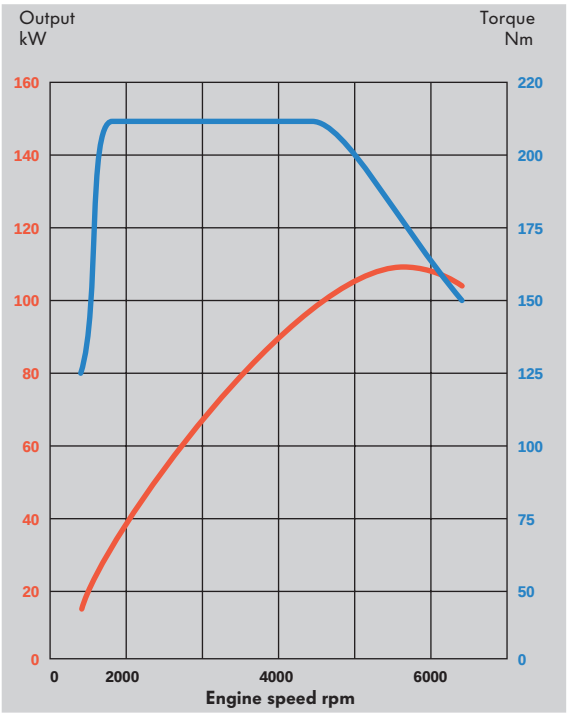
Engines

1.8-ltr. 5V turbo engine (110 kW)

SSP 200/062

The 1.8-ltr. 4-cylinder in-line engine with five valves per cylinder and turbocharger has the following special features:

- Static high-voltage distributor with individual ignition coils
- Pressure switch for power steering
- Clutch pedal switch

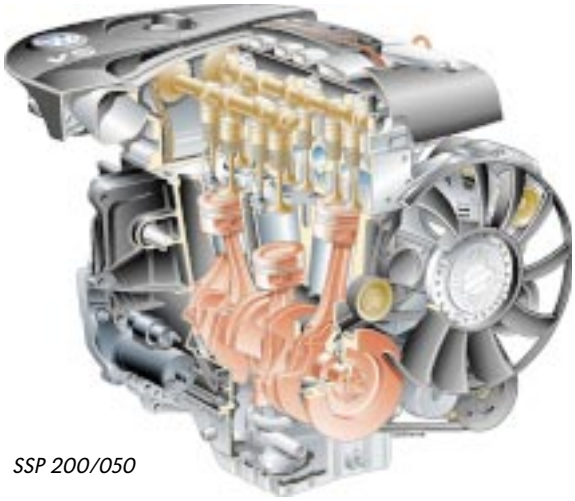


SSP 200/063

Displacement:	1781 cm^3
Compression ratio:	9.5 : 1
Output:	110 kW at 5700 rpm
Torque:	210 Nm at 1750 rpm
Engine management:	Motronic 3.8.3
Fuel:	Premium unleaded (95 RON)

The engine may also be run on regular unleaded fuel (91 RON), but with reduced max. power.

2.3-ltr. V5 engine (110 kW)

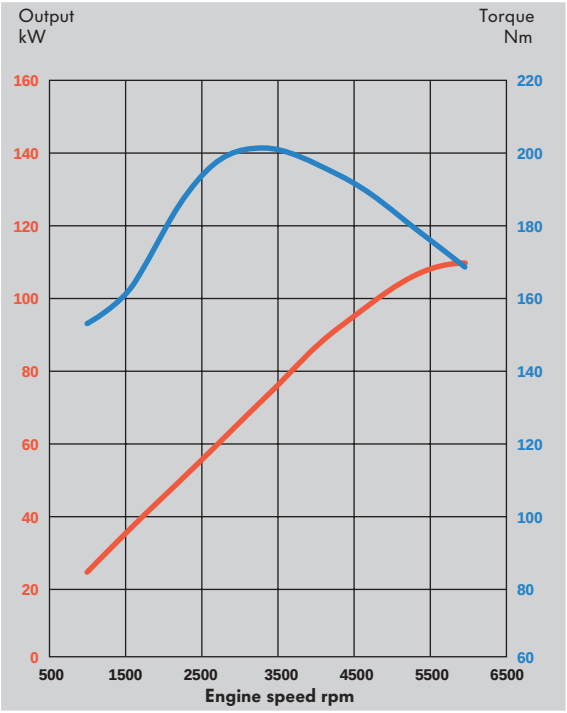


SSP 200/050

The 2.3-ltr. 5-cylinder V-engine is a derivative of the VR6 engine in terms of its design. It has the following special features:

- Twin-path intake manifold
- Hot film air mass meter with reverse flow detection
- Static high-voltage distributor with 5 individual ignition coils
- Pressure switch for power steering
- Clutch pedal switch

The construction and function of this engine are described in Self-Study Programme No. 195.



SSP 200/052

Displacement:	2326 cm^3
Compression ratio:	10.0 : 1
Output:	110 kW at 6000 rpm
Torque:	205 Nm at 3200 rpm
Engine management:	Motronic 3.8.3
Fuel:	Premium unleaded (95 RON)

The engine may also be run on regular unleaded fuel (91 RON), but with reduced max. power.

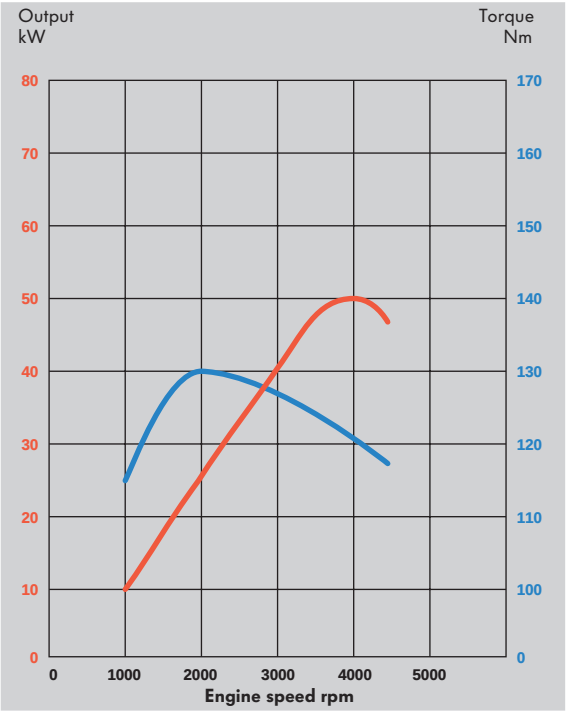
Engines

1.9-ltr. SDI engine (50 kW)

SSP 200/065

The 1.9-ltr. 4-cylinder in-line engine is a naturally aspirated diesel with direct injection. It has the following special features:

- Two-stage EGR valve
- Electrically controlled intake manifold flap
- Preset injection pump with adjustable rib belt wheel
- Vertical oil filter

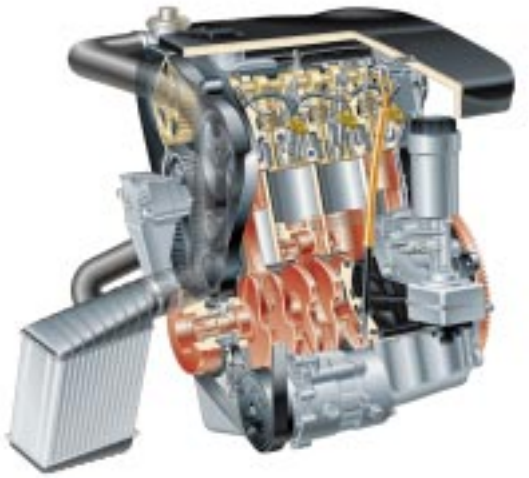


SSP 200/059

Displacement:	1896 cm^3
Compression ratio:	19.5 : 1
Output:	50 kW at 4000 rpm
Torque:	130 Nm at 2200 rpm
Mixture preparation	Direct injection with electronically controlled distributor injection pump
Fuel:	45 CN diesel

The engine may also be run on biodiesel.

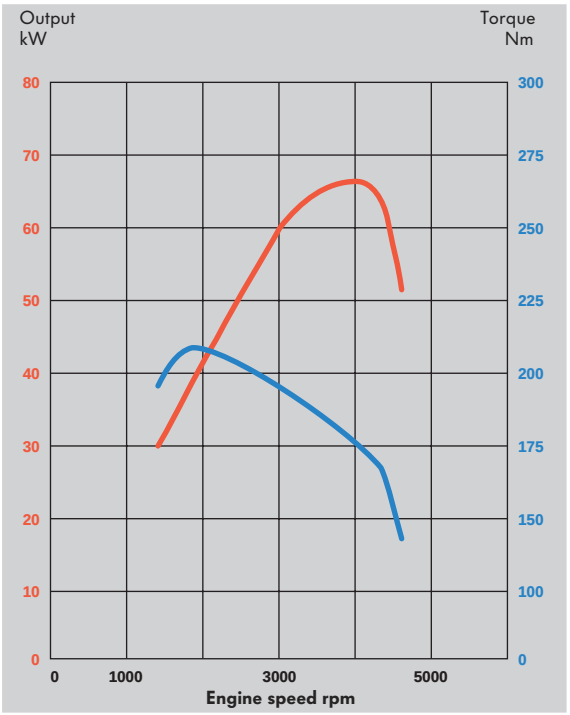
1.9-ltr. TDI engine (66 kW)



SSP 200/051

The 1.9-ltr. turbocharged diesel engine with intercooler has the following special features:

- Preset injection pump with adjustable rib belt wheel
- Lightweight valve gear
- Vertical oil filter with replaceable paper insert
- Intake manifold flap



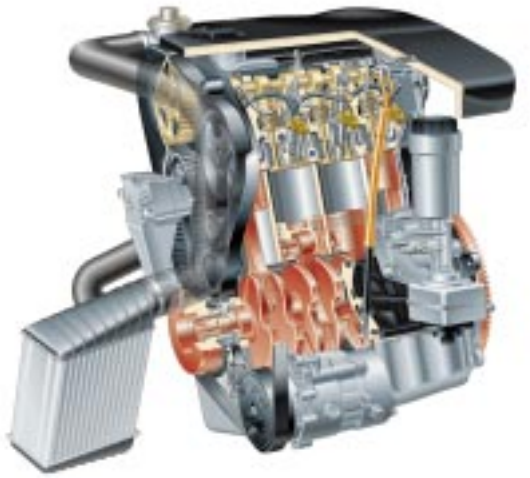
SSP 200/057

Displacement:	1896 cm^3
Compression ratio:	19.5 : 1
Output:	66 kW at 3750 rpm
Torque:	210 Nm at 1900 rpm
Mixture preparation	Direct injection with electronically controlled distributor injection pump
Fuel:	45 CN diesel

The engine may also be run on biodiesel.

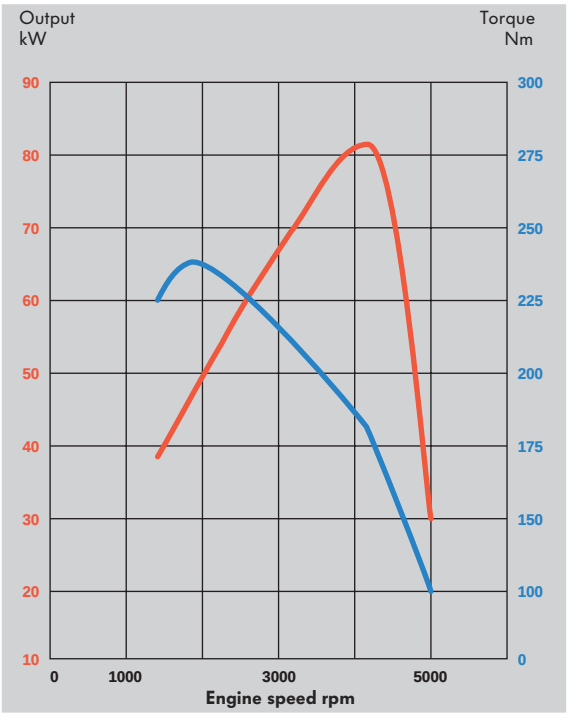
Engines

1.9-ltr. TDI Engine (81 kW)



SSP 200/051

This 1.9-ltr. TDI engine has a higher power output than the 1.9-ltr. TDI engine developing 66 kW because of its variable turbine geometry.



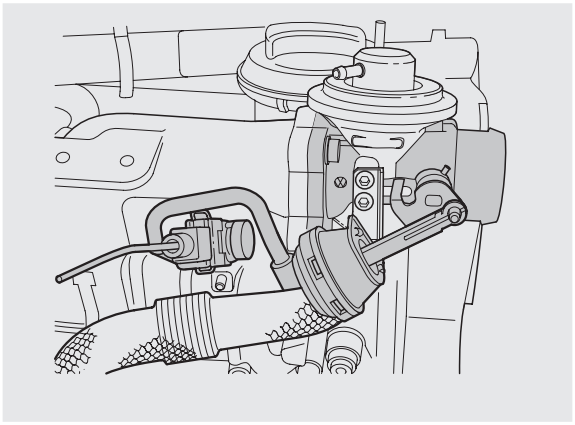
SSP 200/058

Displacement:	1896 cm^3
Compression ratio:	19.5 : 1
Output:	81 kW at 4150 rpm
Torque:	235 Nm at 1900 rpm
Mixture preparation	Direct injection with electronically controlled distributor injection pump
Fuel:	45 CN diesel

The engine may also be run on biodiesel.

The intake manifold flap

In the 1.9-ltr. TDI engine, a flap is integrated in the intake manifold. This flap stops engine vibrations when it is turned off.



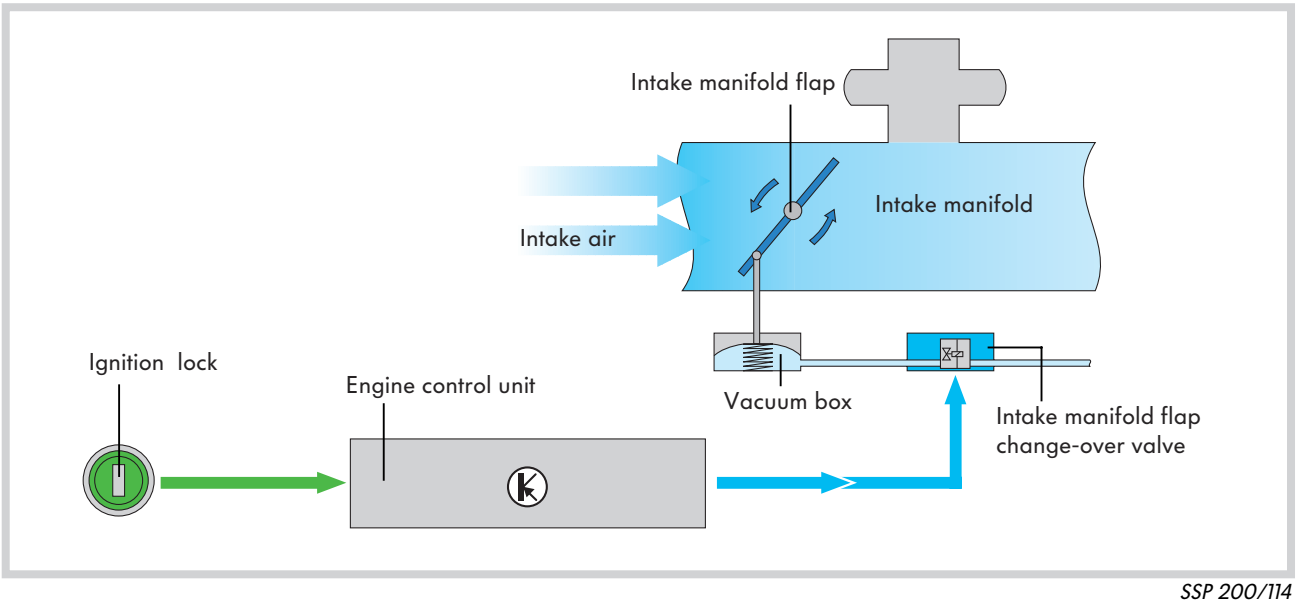
SSP 200/113

Diesel engines have a high compression ratio. They tend to vibrate when turned off due to the high compression pressure of the intake air.

The intake manifold flap shuts off the air supply when the engine is switched off. This minimises the quantity of air compressed and ensures the engine runs out smoothly.

This is how it works:

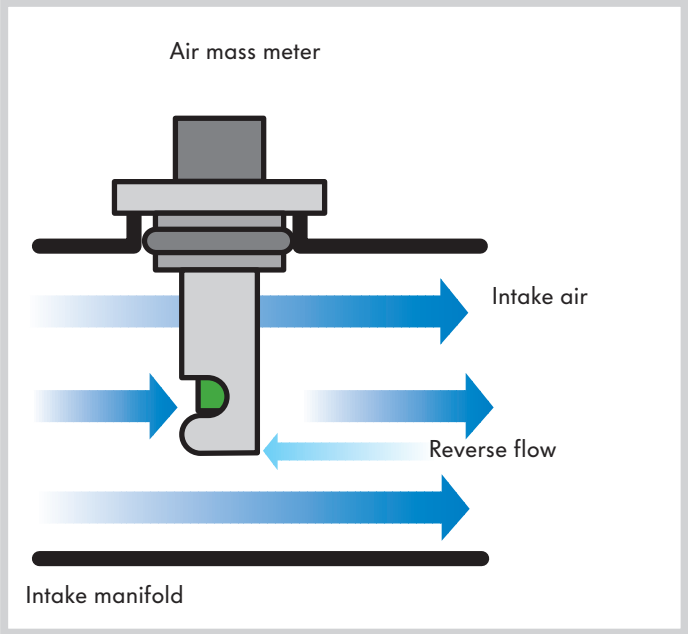
When the engine turned off, the engine control unit sends a signal to the intake manifold flap change-over valve. The change-over valve then switches the partial pressure for the vacuum box, and the vacuum box closes the intake manifold flap.



SSP 200/114

The hot-film air mass meter with reverse flow detection

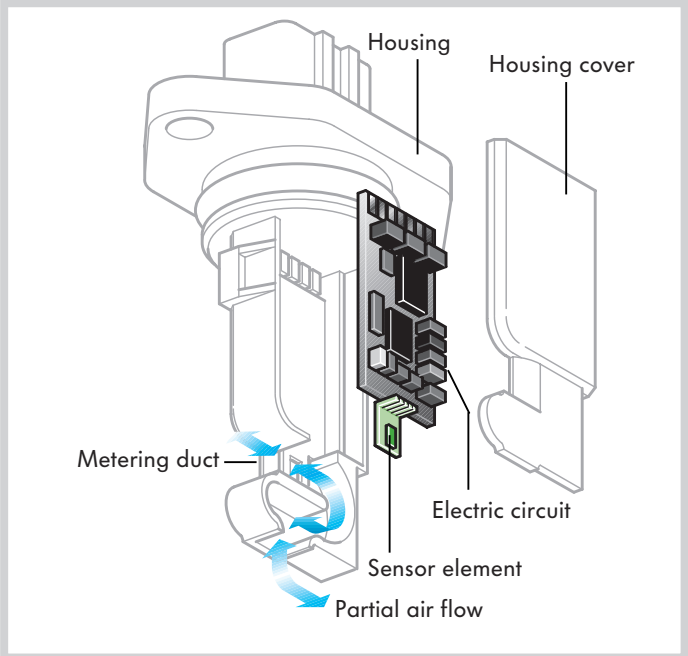
Some engines have a hot-film air mass meter with reverse flow detection. An optimal mixture composition is essential for low exhaust emissions and high engine power output, both of which are heavily dependent on metering the intake air mass accurately.
The opening and closing action of the valves produces a reverse flow in the intake air mass inside the intake manifold. The hot-film air mass meter with reverse flow detection detects the returning air mass. It then generates a signal and sends it to the engine control unit. This ensures highly accurate air mass metering.



SSP 200/098

The design

The electric circuit and the sensor element of the air mass meter are accommodated in a compact plastic housing.
Located at the bottom end of the housing is a metering duct into which the sensor element protrudes. The metering duct extracts part of the intake and return air flows and routes this partial flow past the sensor element. The signal which the sensor element generates is processed by the electric circuit and sent to the engine control unit.



SSP 200/099

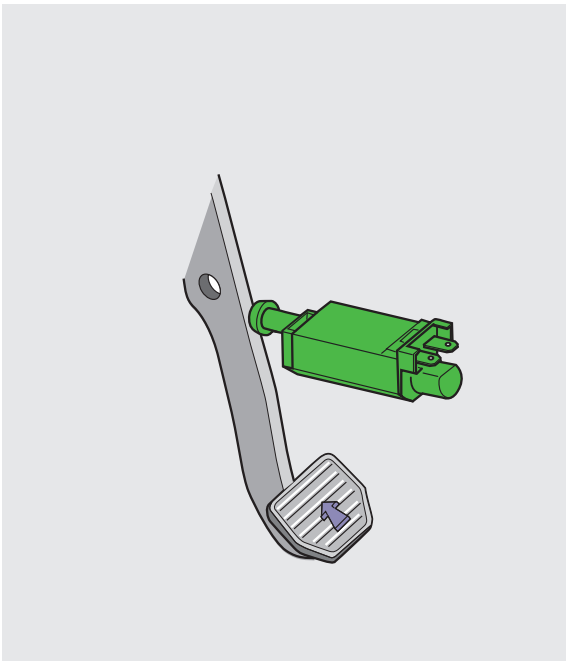
You can find detailed information in Self-Study Programme No. 195.

The clutch pedal switch

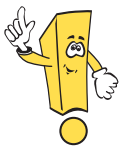
is located at the foot controls. It supplies the "Clutch operated" signal to the engine control unit.

Signal utilisation when clutch is operated:

- In vehicles equipped with a TDI or SDI engine, the quantity of fuel injected is reduced. This prevents engine vibrations when a gearshift is performed.
- In vehicles with a cruise control system, the cruise control function is disabled.



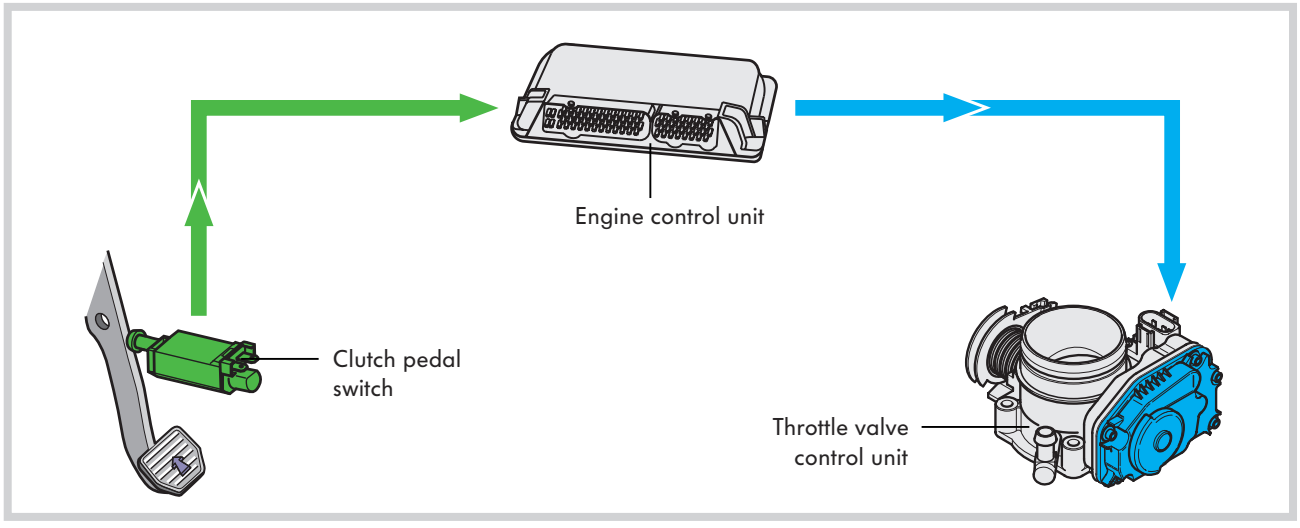
SSP 200/096



In petrol-engined vehicles (upwards of 74 kW), the throttle closing damper function is disabled.

This is how it works:

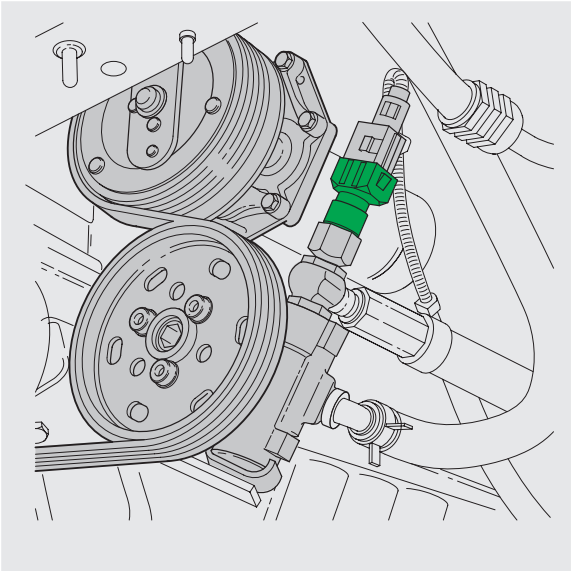
The clutch pedal switch informs the engine control unit when the clutch is operated. The engine control unit then disables the throttle closing damper function.
The throttle valve closes more quickly and this prevents a short-term increase in revs caused by excess air.



SSP200/115

Pressure switch for power steering

This is located on the vane pump. It informs the engine control unit when the vane pump is under a heavy load.



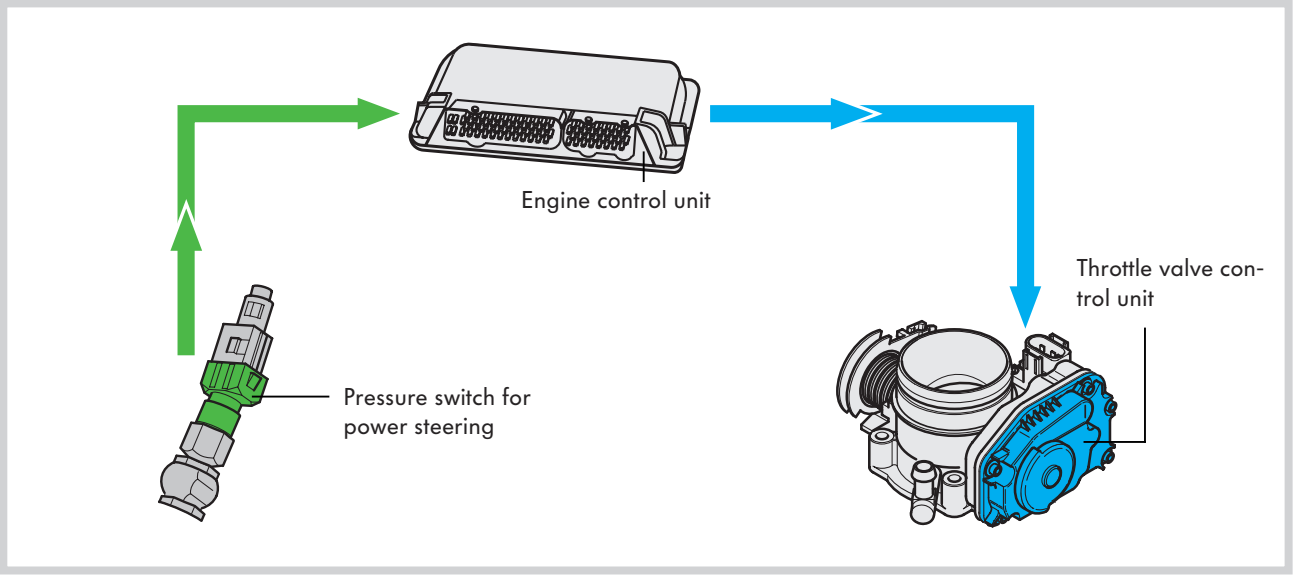
SSP 200/095

The vane pump is driven by the engine by the ribbed V-belt.
At full steering lock the vane pump is required to produce a high pressure. A greater load is also placed on the engine, and idling speed may drop sharply. Using the signal sent by the pressure switch, the engine control unit is able to recognise the engine load state in good time and adjust the engine idling speed accordingly.

This is how it works:

The pressure switch for the power steering informs the engine control unit when there is a high pressure inside the vane pump.

The engine control unit activates the throttle valve positioner which opens the throttle valve by a certain angle. Engine idling speed is maintained.

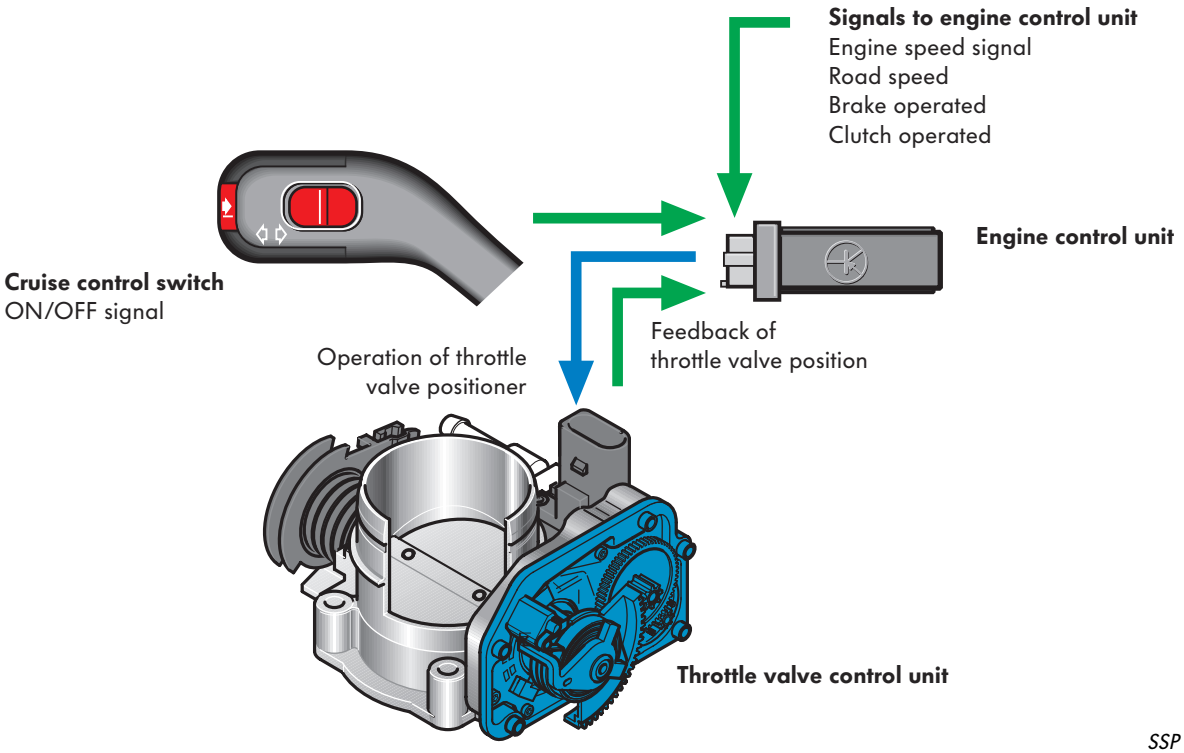


SSP 200/118

Cruise control system

This controls the road speed according to the driver's wishes without the driver actually having to operate the accelerator pedal. The cruise control system (CCS) was previously controlled by an independent control unit and the throttle valve was actuated by a vacuum box.

The cruise control system is now controlled by the engine control unit. The throttle valve is actuated by the throttle valve control unit.



SSP 200/097

This is how it works:

Switching the cruise control system ON tells the engine control unit to maintain the current road speed. The engine control unit then activates the electric motor of the throttle valve gear and actuates the throttle valve according to the vehicle's current speed.
To regulate the cruising speed, the engine control unit requires the sensor signals shown in the diagram above.

You can find detailed information in Self-Study Programme No. 195.

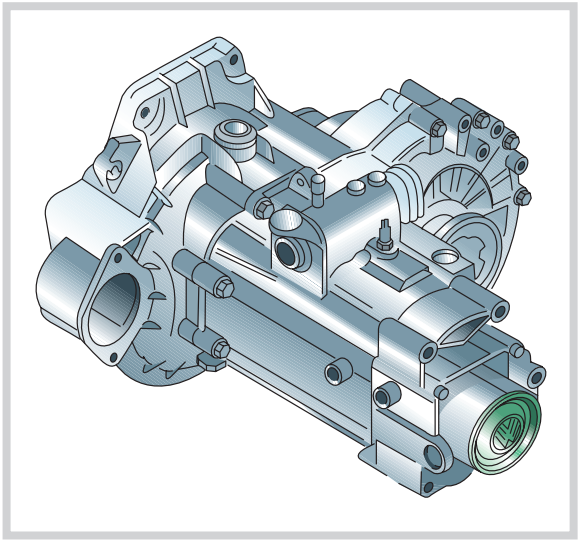
Power transmission

The gearbox

Two manual gearboxes and one automatic gearbox are used in the new Golf.
All gearboxes have a pendulum support and are attached to the engine oil sump by bolts. This reduces the transmission of vibrations from the engine-gearbox assembly to the body.
The manual gearboxes have hydraulic clutch control.

5-speed manual gearbox 02K

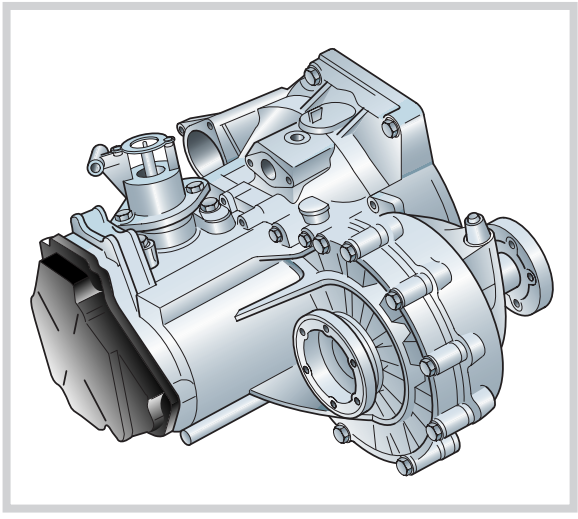
is an advanced development of the 5-speed manual gearbox 020.



SSP 200/070

5-speed manual gearbox 02J

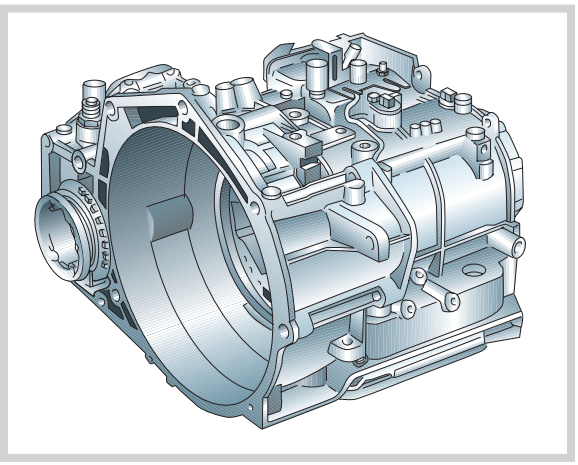
is an advanced development of the 5-speed manual gearbox 02A.



SSP 200/071

The 4-speed automatic gearbox 01M

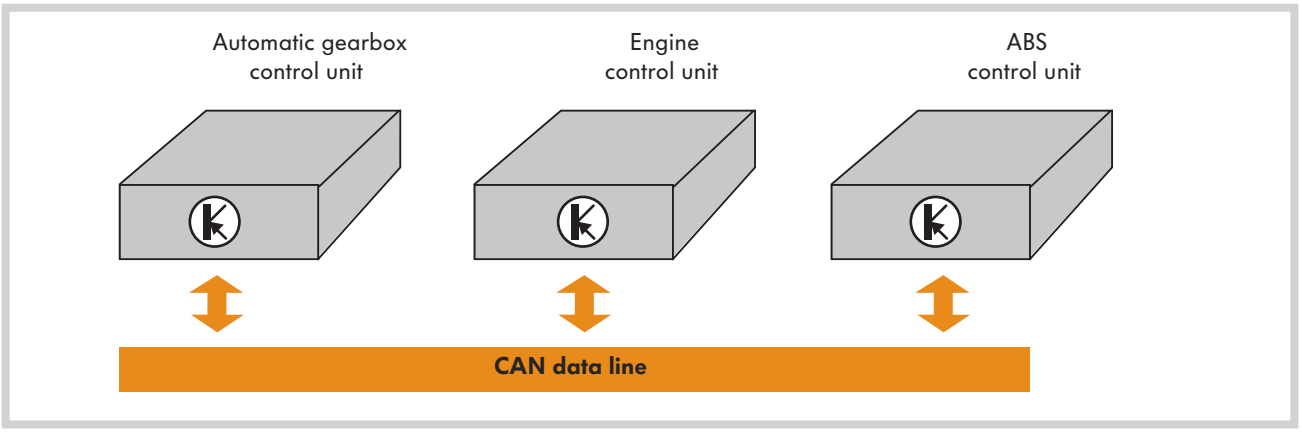
This is now networked with a CAN databus. Final drive is via two tripod roller joint shafts.



SSP 200/072

CAN databus

In the new Golf, the engine control unit, automatic gearbox control unit and ABS control unit are linked by CAN data lines.

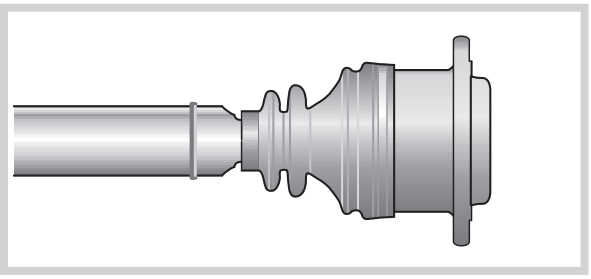


SSP 200/106

You can find detailed information on the CAN databus in Self-Study Programme No. 186.

Tripod roller joint shafts

The tripod roller joint shafts prevent vibrations and noise from being transmitted from the engine-gearbox assembly to the body.



SSP 200/124