Audi Q5 hybrid quattro

The Q5 hybrid quattro is designed as a parallel hybrid – a convincingly efficient concept. Its electric motor generates 33 kW and is located directly behind the combustion engine, a 2.0 TFSI developing 155 kW (211 hp). Both drives can be disengaged by means of a clutch according to complex control logic. They transfer their power to a heavily modified eight-speed tiptronic that does not include a torque converter. The disc-shaped electric motor occupies the space previously occupied by the torque converter.

The Audi Q5 hybrid quattro produces a combined total of 180 kW (245 hp) and 480 Nm (354.03 lb-ft) of torque, enough for sporty performance. Its average consumption of approximately 7.0 liters of fuel per 100 km (33.60 US mpg) corresponds to CO_2 emissions of around 160 grams/km (257.50 g/mile).** In electric mode the sporty hybrid SUV can drive emission-free for up to three kilometers (1.86 miles) at 60 km/h (37.28 mph), and can reach a top speed of 100 km/h (62.14 mph).

The electric motor supports the TFSI when accelerating strongly, and acts briefly as a generator to recover energy during braking. The Audi Q5 hybrid quattro can also be powered by the combustion engine alone, in addition to hybrid mode operation. The hybrid manager controlling the interplay of the drives makes sure that the TFSI temporarily has a greater load in the low rev range than is required for the drive – the load point is shifted to a higher range, and efficiency improves. The excess torque benefits the electric motor, which now serves as a generator and recharges the battery.

The driver of the Q5 hybrid quattro can choose between three driving modes. Special displays provide status information about the hybrid system. The air conditioning compressor and the power steering have been converted to electric drive. The brake servo also uses an electric vacuum pump.

The high proportion of electric driving achieved by the Audi Q5 hybrid quattro can be attributed primarily to the sophisticated battery cooling system. The lithium-ion battery, which stores 1.3 kWh of usable energy and weighs only 38 kilograms (83.78 lb), is located beneath the cargo compartment floor. Two cooling circuits largely maintain the battery within a temperature window that allows it to exploit its full potential. The first circuit uses temperate air from the vehicle interior. The second, designed for higher temperatures, is coupled to the air conditioning system and has its own evaporator.

Another highlight of the Q5 hybrid quattro is the power electronics module, which converts

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the direct current of the battery into three-phase current for the electric motor. Situated in the engine compartment, it is compact and lightweight. Altogether, the hybrid technology weighs in at less than 130 kilograms (286.60 lb). The powertrain of the Q5 hybrid quattro is also suitable for use in other Audi models with longitudinally mounted engines.

**Figures depend on the tires/wheels used.

Status: 2011

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