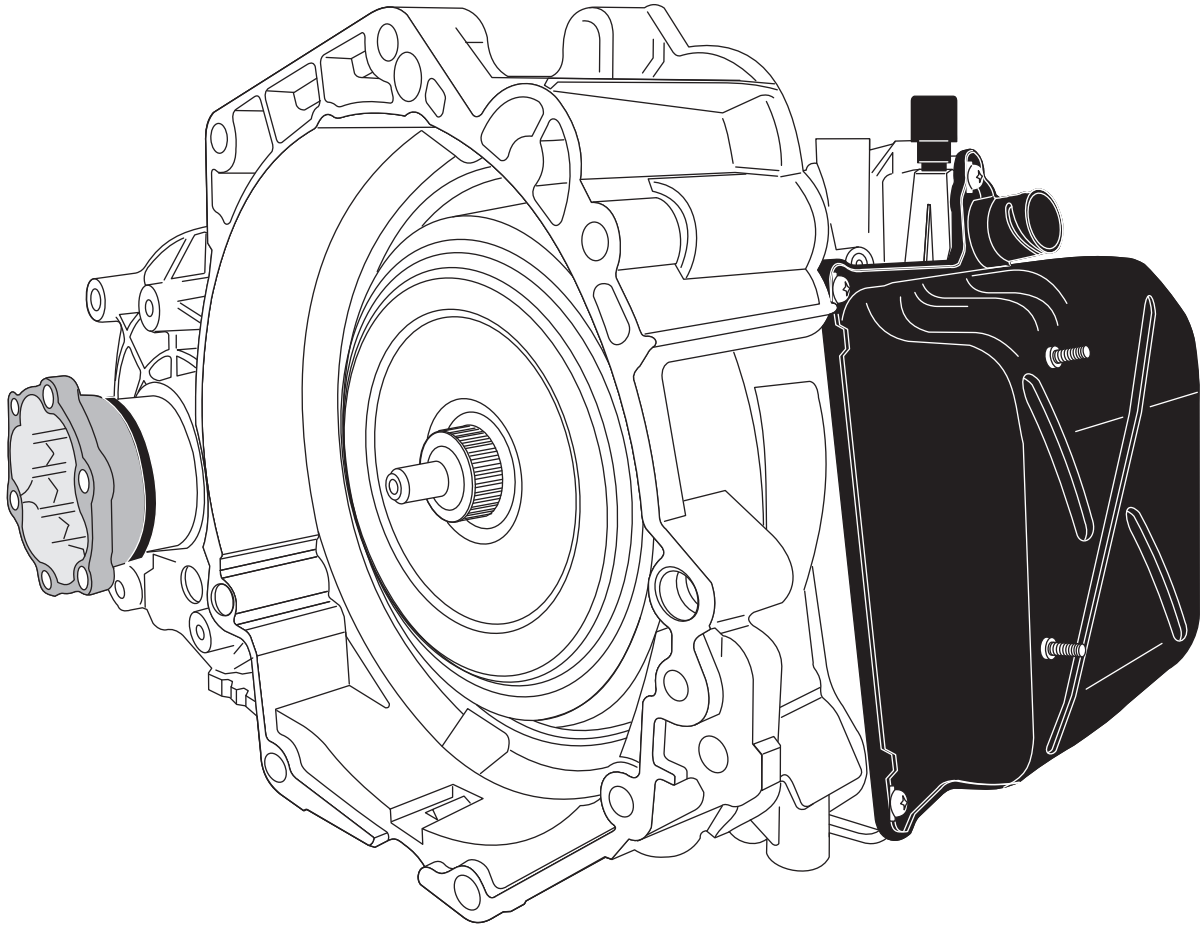
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ATSG Technical Service Information

THE DSG 02E
DIRECT SHIFT GEARBOX

Technician Guide

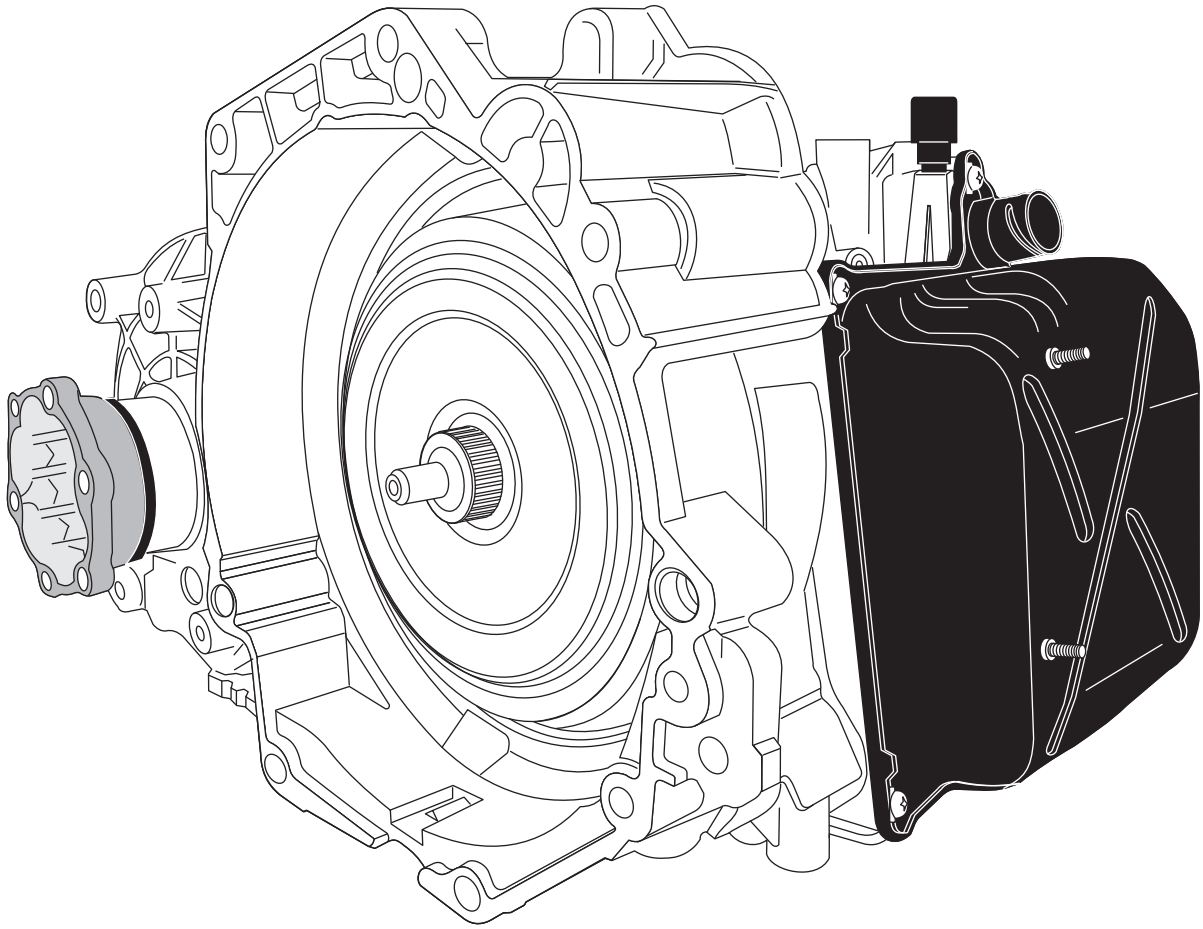


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Automatic Transmission Service Group

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THE DSG 02E
DIRECT SHIFT GEARBOX



The Direct Shift Gear box 02E by Volkswagen is a Front Wheel Drive (FWD) six speed and reverse double wet multi-clutch manual transmission that is shifted automatically by use of Mechatronic technology, Hill Hold and Creep Regulation strategies.

Normal Drive and Sport modes can be selected by the driver with a Tiptronic shift option available in some models that utilize shift paddles within the steering wheel.

In the event of a fault, there is an emergency mode that will allow either 1st and 3rd, or 2nd only depending on the location of the fault.

The unit weighs approximately 94 to 109 kg with a maximum torque of 350 Nm depending on engine and uses 7.2 liters of DSG oil G052-182.

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THE DSG 02E
DIRECT SHIFT GEARBOX

When the transmission is removed from the vehicle, a dual mass flywheel mounted to the crank is seen rather than a typical clutch and pressure plate assembly. In the front of the transmission there is a shaft that both pilots and splines into this dual mass flywheel (figures 1 and 2). This shaft is lugged to the K1/K2 clutch drum assembly.

The K1/K2 assembly is not visibly seen at first as it is sealed by a molded cover (similar to a 45RFE) held into the case by an outer snap ring (figure 3).

The K1/K2 clutches are 2 wet multi-clutch stack-ups which are used to drive 2 separate input shafts. These clutches are slipped on and off between shifts which require constant cooling. This molded cover is used to seal clutch cooling oil that passes through the drum.

When the molded cover is removed the K1/K2 clutch drum assembly becomes visible. The drum cover that splines into the flywheel is held into the K1/K2 drum assembly with an outer snap ring. After the snap ring is removed the cover can be lifted off the drum housing.

In the center of the drum assembly is a pump shaft (figure 4) which is driven by the drum cover which means that both the K1/K2 clutch housing and pump shaft are always driven at engine speed.

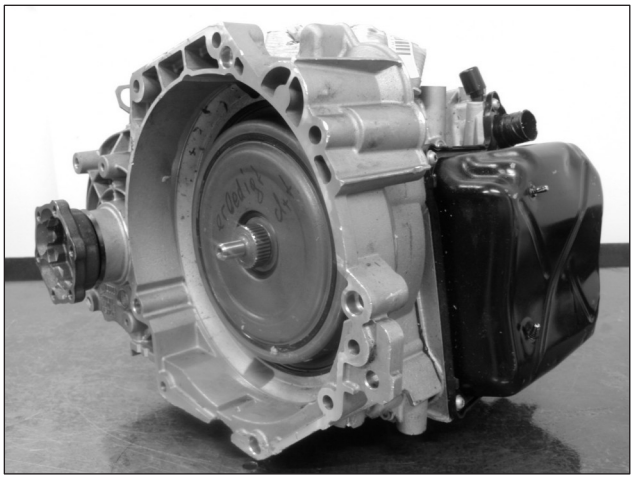


Figure 1



Figure 2

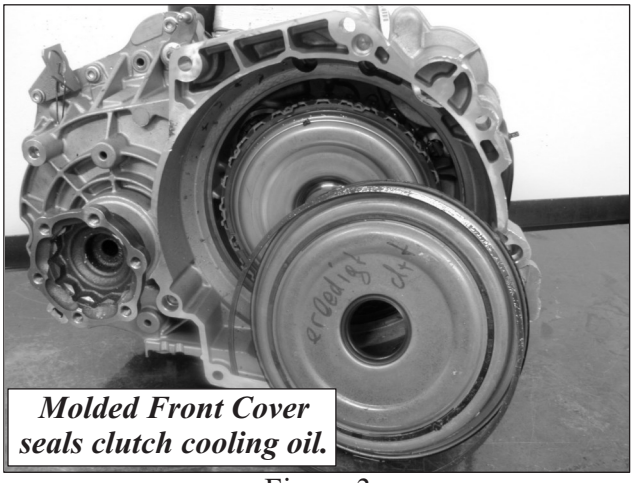


Figure 3

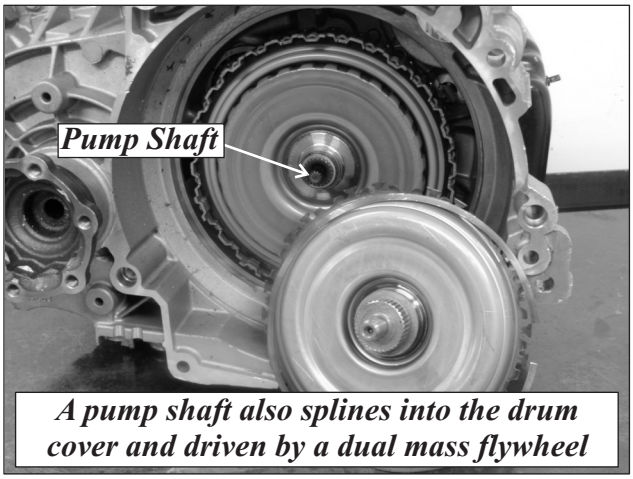


Figure 4

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THE DSG 02E
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Figure 5



Figure 6

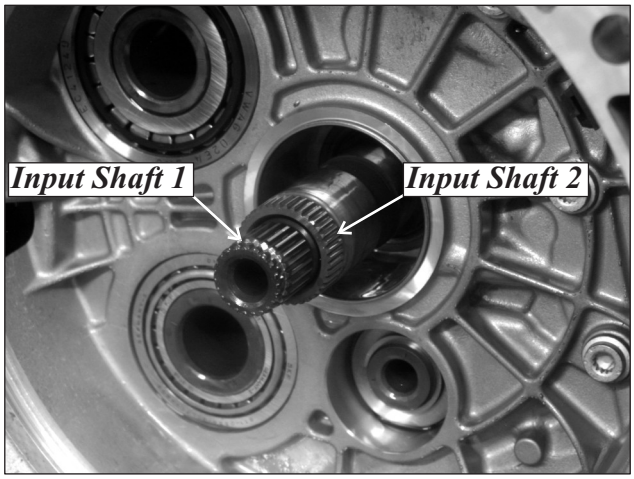


Figure 7

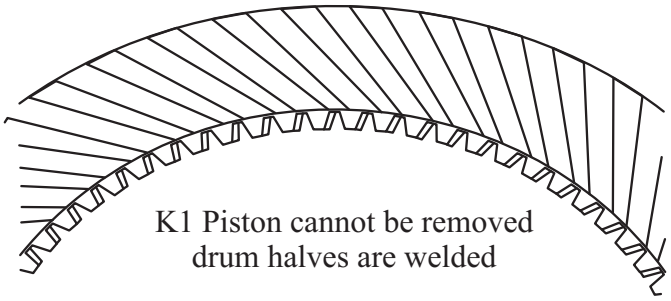
Remove the K1/K2 clutch drum assembly by first removing the center snap ring as seen in figures 5 and remove the drum assembly and pump shaft (figure 6).

With the drum removed, two input shafts can be observed (figure 7). The longest shaft is called "Input Shaft # 1" and it splines to the K1 clutch hub while the shorter shaft is called "Input Shaft # 2" and it splines to the K2 clutch hub.(figure 8).

The two clutches and shafts operate the following:

The K1 clutch drives Input Shaft 1 providing 1st, 3rd, 5th and reverse gears.

The K2 clutch (directional sensitive friction plates) drives Input Shaft 2 providing 2nd, 4th and 6th gears.



CAUTION: The K-2 Clutch friction plates are directional and must be installed with the grooves facing counterclockwise, as shown above.

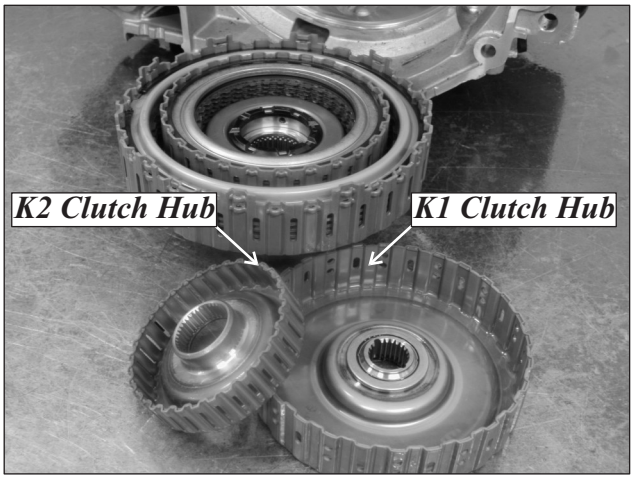


Figure 8

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THE DSG 02E
DIRECT SHIFT GEARBOX

With the side pan removed, it can be seen that he DSG 02E transmission uses Mechatronic technology (figure 9). *A detailed look at each of the solenoids will be discussed later in this handout.*

Before removing the Mechatronic assembly, unplug the connector as shown in figure 10 and release the ribbon wire from its holder.

Only the 9 black head torx bolts (#30) need to be removed to separate the Mechatronics assembly from the case. It is recommended that you give a sharp tap to the bolt heads to break the lock as the torx pocket rounds (or strips) out easily (figure 11).

Care must be taken when separating the Mechatronic assembly from the case as the back side of it has a lengthy double output speed sensor pickup that could be damaged (figure 12). ***Do not use that sensor extension as a handle to move the Mechatronic assembly around. It breaks quite easily.***

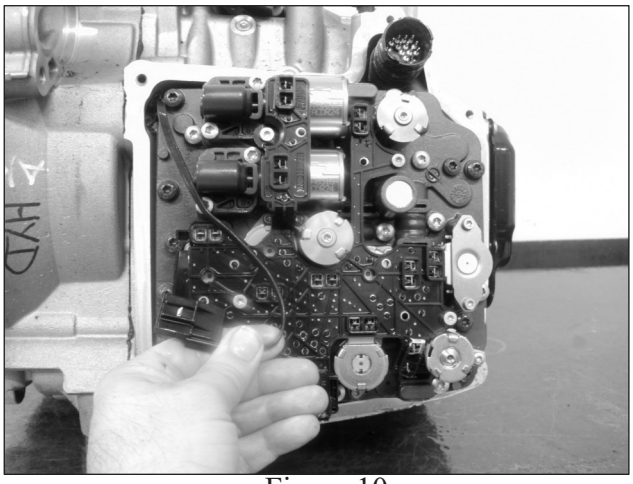


Figure 10

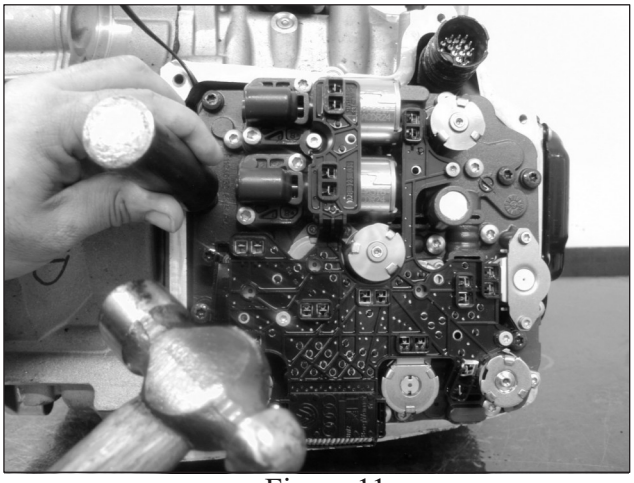


Figure 11

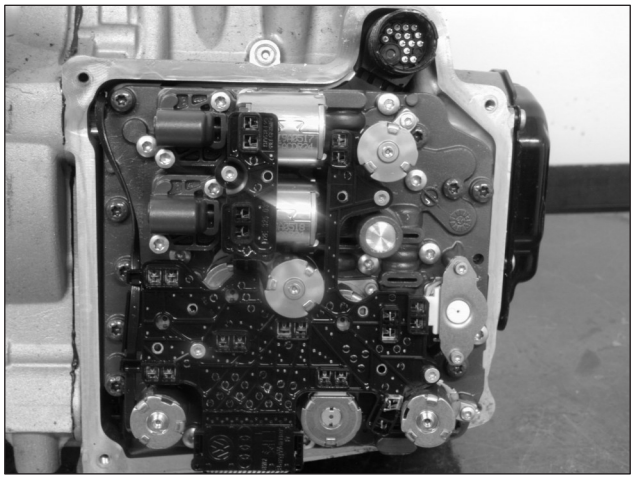


Figure 9

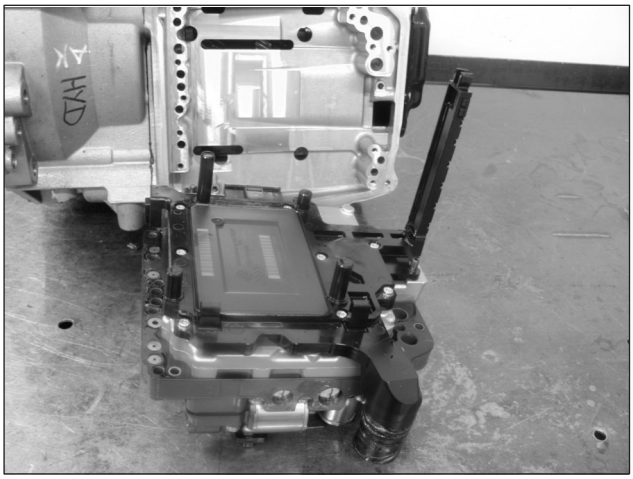


Figure 12

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