

**PDK Transmission Diagnosis, Symptoms and Repair Procedures (43/10)**



**Information**

This Technical Information replaces the TI dated May 15, 2014.

**Changes/additions** compared to the previous Technical Information: The fault code P17E0 was added in section 1.3 - Overview of fault memory entries for gear selection.



**Information**

This Technical Information replaces the TI dated May 24, 2012.

**Changes/additions** compared to the previous Technical Information:

New PDK Diagnostic Flow Charts dated 03/2014.

Vehicle Type: **Panamera S/Panamera 4S/Panamera Turbo**

Model Year: **As of 2010 up to 2016**

Equipment: Porsche Doppelkupplung (PDK) – I-no. 250

Concerns: **PDK transmission/control unit for PDK transmission**

Information: **Procedure and repair measures in the event of complaints relating to PDK:**

- Gearbox emergency operation/other warning messages
- Fault memory entries in the fault memory of the PDK control unit
- Leaks on the PDK transmission
- Complaints relating to comfort
- Complaints relating to noises

**This Technical Information is divided into the following sections:**

- ⇒ *Technical Information '373000 1 - Procedure and repair measures in the event of fault entries in the fault memory of the PDK control unit'*
- ⇒ *Technical Information '373000 2 - Repair measures in the event of leaks on the PDK transmission'*
- ⇒ *Technical Information '373000 3 - Remedial action and repair measures in the event of complaints relating to comfort and noise'*
- ⇒ *Technical Information '373000 4 - Procedure in the event of noises on the PDK transmission'*



### Information

- **Always create a Vehicle Analysis Log (VAL) before starting any measures** ⇒ *Workshop Manual 'OX03IN Creating Vehicle Analysis Log (VAL)'*.
- When evaluating faults, also bear in mind the **detailed information contained or stored in the relevant fault code** (measured values, etc.).
- Make sure the **version** of the **9900 - PIWIS Tester III** software you are using is the **latest version**.
- If **components are replaced**: Return components to the **Porsche** and document all measures in PIWIS/PQIS.



### Information

#### Information on PDK calibration and engine torque loss adaptation

##### Engine torque loss adaptation

Engine torque loss adaptation must always be performed **before** calibrating PDK. Engine torque loss adaptation is also required **after** carrying out **control unit programming** (DME/PDK – with or without part replacement).

##### Conditions/procedure for engine torque loss adaptation:

- Engine temperature is at least 176° F. (80° C.) (read out the temperature from the PDK control unit by selecting "Actual values/Input signals" > "CAN input signals - Engine temperature").
- All loads switched off.
- PDK selector lever in position P.
- Allow engine to run at idle speed for 3 minutes with air conditioning switched off.
- Then allow engine to run at idle speed for 3 minutes with air conditioning switched on.
- Switch off ignition and wait 15 seconds (adaptation values are stored).

##### PDK calibration

Essentially, PDK calibration is required only **after replacing parts** (of the PDK control unit, hydraulic switch unit, PDK transmission) or if you are **expressly** instructed to do so during troubleshooting.

PDK calibration can be started by selecting the PDK control unit under > "Maintenance/repairs" >> "Calibration (complete process)" using PIWIS Tester II. Shift travel, hydraulics and clutches are calibrated during calibration.

It is not possible to perform a "minor" calibration routine ("Calibration without previous part replacement") – which you may be familiar with from the Boxster, Cayman and Carrera sports cars – on the Panamera.

**Engine torque loss adaptation** must always be performed **before** carrying out calibration.

The preconditions for engine torque loss adaptation and PDK calibration are summarised again in the following overview:

Activity (What was done?)	Engine torque loss adaptation required	PDK calibration required*
PDK control unit re-programmed (without previous part replacement)	Yes	No**
PDK control unit replaced	Yes	Yes
Hydraulic switch unit replaced	Yes	Yes
PDK transmission replaced	Yes	Yes
* Engine torque loss adaptation must <b>always</b> be performed before carrying out PDK calibration.		
** Exception: There are other faults present and calibration is <b>expressly</b> recommended in order to correct these faults.		

**1 - Procedure and repair measures in the event of fault entries in the fault memory of the PDK control unit**

Work Procedure: 1 **Procedure and repair measures in the event of fault entries in the fault memory of the PDK control unit.**

The required procedure for correcting faults for the groups of fault memory entries listed below is described using flow charts.

A separate **flow chart** is used for each of the fault groups specified below.



**Information**

**You will find the flow charts under the heading “3730 – Flow charts of PDK fault codes (970)” in the information medium TI – Technical Information releases, main group 3 – Transmission.**

In addition to the flow charts, Guided Fault Finding in PIWIS Tester II must always be used during troubleshooting for existing fault memory entries. In some cases, you are directed to the required guided fault finding from the flow charts. The procedure for required electric testing is stored only under Guided Fault Finding in PIWIS Tester III.

Sequence for correcting faults if various fault entries from various fault groups are present:

- 1) Electrical faults
- 2) Sensor faults/software faults
- 3) Gear selection faults

Fault correction for **complaints relating to comfort and noise** must only be carried out after the faults listed above (if present) have been found and corrected.

**1.1 Electrical faults**

Electrical faults include all fault memory entries relating to fault type

- Short circuit to ground
- Short circuit to B+
- Shunt
- Open circuit
- Incorrect voltage (operating limit, undervoltage, overvoltage)

.

Correct faults as shown in **Flow chart EF – Electrical faults**.

#### 1.2 **Sensor faults/software faults**

“Sensor faults” include all fault memory entries relating to the components

- Distance sensor
- Speed sensor
- Pressure sensor
- Temperature sensor

.

Correct faults as shown in **Flow chart SF0 – SF5**.

#### **Overview of fault memory entries for distance sensor (Flow chart SF1)**

- P1731 ... to P1734: Distance sensor information/shift rod faults (outside of validity range)

#### **Overview of fault memory entries for speed sensor (Flow chart SF2)**

- P0730: Transmission monitoring symptom - incorrect gear ratio
- P1743: Plausibility of transmission input shaft speed sensor clutch 1
- P1744: Plausibility of transmission input shaft speed sensor clutch 2
- P1745: Input shaft overspeed

#### **Overview of fault memory entries for pressure sensor (Flow chart SF3)**

- P0841, P0846 and P0871: Pressure sensor fault (measured value implausible)
- P17B1 and P17B2: Clutch fault (activation pressure implausible)
- P17B3 and P17B4: Clutch valve fault (valve pressure stays too high mechanically during overlap switching after quick filling)
- P17BB ... to P17BE: Clutch fault (clutch cannot be opened)

#### **Overview of fault memory entries for temperature sensor (Flow chart SF4)**

- P0711: Transmission temperature sensor implausible
- P172D: Transmission temperature sensor gradient fault
- P17F0 to P17F2: Transmission overtemperature

#### **Overview of fault memory entries for software faults (Flow chart SF5)**

- P0602: PDK control unit not programmed
- P0603 ... to P605: PDK control unit, internal fault
- P0614: Data status does not match engine
- P0702: PDK control unit, internal fault
- P1715: PDK control unit, internal fault
- P1749: PDK control unit, variant coding invalid
- P174B: PDK control unit, interchange detected
- P174C: BIN file does not match software version
- P174E: EEPROM content at system start incorrect/implausible
- P186F ... to P1872: PDK control unit, internal fault (electric synchronisation data, shift rod compensation, clutches and hydraulics)
- P1897, P189A, P189C, P189D: PDK control unit, internal fault (software monitoring)
- P18A0 ... to P18B5: PDK control unit, internal fault (software monitoring)
- P18D0: Clutch, BIN file implausible
- Uxxxx: CAN fault

1.3 **Overview of fault memory entries for gear selection**

- P17D0 ... to 17D9: Hydraulic gear selection, system fault
- P1779, P177A ... to P177F: Synchroniaation fault – gear cannot be disengaged (disengagement block)

Other fault entries relating to the fault memory entries specified above that can be entered in the fault memory of the PDK control unit.

- P18B4: PDK control unit, internal fault (software monitoring) with fault type \$36/\$37/\$38
- **P17E0** (new information): Hydraulic emergency hold function cannot be cancelled due to mechanical blockage. The fault can also be caused by a leak in the clutch if the expected pressure is not reached.

Correct faults as shown in **Flow chart GS**.

**2 - Repair measures in the event of leaks on the PDK transmission**



**Information**

**General information on how to deal with leaks on the PDK transmission**

The exact site of the leak must be determined in order to be able to define the required repair measures. If this is not possible at first, carry out the following steps one after the other:

- Clean the transmission
- Perform a test drive
- Check the transmission for leaks and find the leak.

Once you have found the leak, carry out the required repair measures in accordance with the following overview.

Once you have repaired the leak, always check the transmission fluid level and correct it if necessary ⇒ *Workshop Manual '370235 Checking and topping up ATF'*.

Work Procedure: 2 **Repair measures in the event of leaks on the PDK transmission**

Item	Description	Possible cause(s)	Remedial action
1	Leak in the <b>side shaft and connecting shaft area</b> ⇒ <i>Figure 1 -item 1-</i>	O-ring on connecting shaft damaged	Replace O-ring on connecting shaft (Part No. 999.701.640.xx). For instructions on removing and installing the connecting shaft, see ⇒ <i>Workshop Manual '373419 Removing and installing Porsche Doppelkupplung (PDK)'</i> .
2	Leak between <b>transmission housing and side shaft</b> ⇒ <i>Figure 1 -item 2-</i>	Radial shaft seal damaged	Replace radial shaft seal (Part No. 970.302.885.xx) ⇒ <i>Workshop Manual '387055 Replacing sealing ring for output shaft'</i>
3	Leak around the <b>oil cooler connections</b> ⇒ <i>Figure 1 -item 3-</i>	O-rings on oil lines for oil cooler damaged	Replace O-rings (Part No. 999.707.647.xx) on the oil lines. For details, see ⇒ <i>Workshop Manual '386219 Removing and installing line for ATF cooling'</i> .
		Oil line for oil cooler damaged	Replace oil line (Part No. 970.307.082.xx) ⇒ <i>Workshop Manual '386219 Removing and installing line for ATF cooling'</i> .
4	Leak between <b>distributor housing and transmission housing</b> ⇒ <i>Figure 1 -item 4-</i>  The exact site of the leak must be located. It is important to be sure that the leak is actually between the distributor housing and transmission housing and that the transmission fluid that is found is not coming	Housing screw(s) loose	Replace PDK transmission ⇒ <i>Workshop Manual '373455 Replacing Porsche Doppelkupplung (PDK)'</i> .
		Seal damaged	

	from leaks on other components (e.g. on the connecting shaft).		
5	Leak in the <b>output shaft/output flange area</b> ⇒ <i>Figure 1-item 5-</i>	Radial shaft seal for output shaft damaged	Replace radial shaft seal (Part No. 970.321.807.xx) ⇒ <i>Workshop Manual '387055 Replacing sealing ring for output shaft'</i> .
6	Leak between <b>transmission housing and clutch bell-housing</b> ⇒ <i>Figure 1-item 6-</i>  The exact site of the leak must be located. It is important to be sure that the leak is actually between the transmission housing and clutch bell-housing and that the transmission fluid that is found is not coming from leaks on other components.	Housing screw(s) loose	Replace PDK transmission ⇒ <i>Workshop Manual '373455 Replacing Porsche Doppelkupplung (PDK)'</i> .
		Seal damaged	
7	Leak around the <b>bearing pins</b> ⇒ <i>Figure 1-item 7-</i>	Bearing pins loose	Replace PDK transmission ⇒ <i>Workshop Manual '373455 Replacing Porsche Doppelkupplung (PDK)'</i> .
		Seal on bearing pins damaged	
8	Leak around the <b>threaded joint on the half shell for reverse gear</b> ⇒ <i>Figure 1-item 8-</i>	Threaded joint loose	Replace PDK transmission ⇒ <i>Workshop Manual '373455 Replacing Porsche Doppelkupplung (PDK)'</i> .
		Seal damaged	
9	Leak around the <b>screw plug</b> ⇒ <i>Figure 1-item 9-</i>	Screw plug loose	Replace screw plug (Part No. 970.321.871.xx). <b>Tightening torque 10 Nm (7.5ftlb.) +/-0.5 Nm (+/-0.5ftlb.)</b>
		Seal damaged	

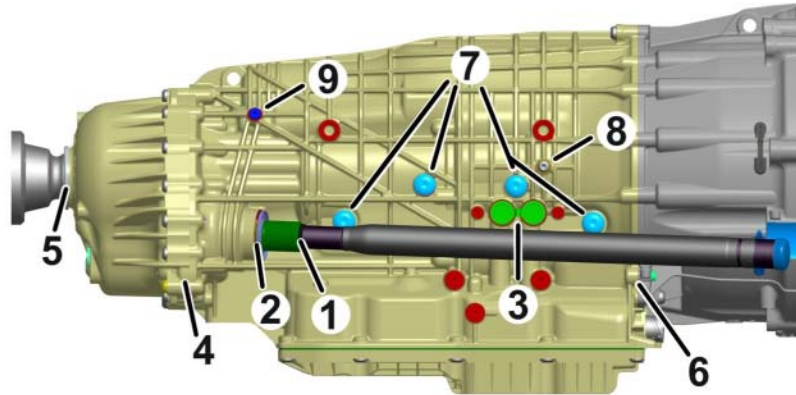


Figure 1

10	Leak around the <b>selector shaft/parking lock</b> ⇒ <i>Figure 2 -item 10-</i>	Radial shaft seal for selector shaft damaged	Replace radial shaft seal (Part No. 970.324.805.xx) ⇒ <i>Workshop Manual '373355 Replacing sealing ring for selector shaft'.</i>
11	Leak between <b>oil pan and transmission housing</b> ⇒ <i>Figure 2 -item 11-</i>	Oil pan seal damaged	Replace complete oil pan (Part No. 970.321.025.xx) ⇒ <i>Workshop Manual '375519 Removing and installing ATF pan'.</i>  If aluminium screws are used to secure the oil pan to the transmission housing, replace these with steel screws (Part No. 970.321.809.xx).

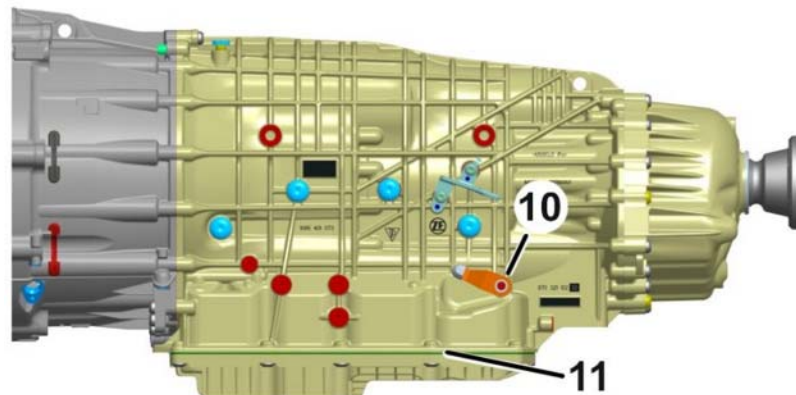
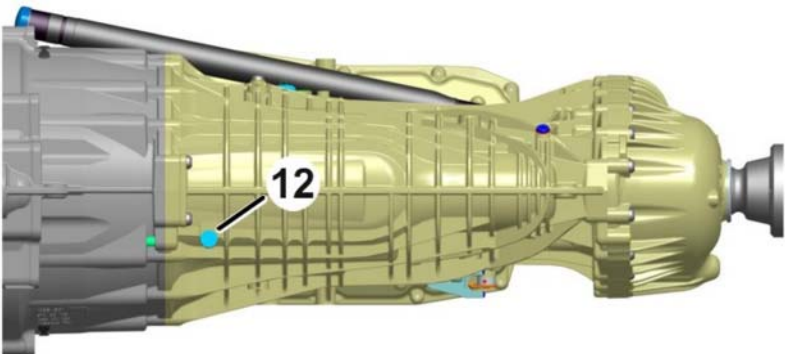


Figure 2



12	Oil leak from the <b>bleeder</b> ⇒ <i>Figure 3-item 12-</i>	Oil over-filled	Check the transmission oil level and top up if necessary ⇒ <i>Workshop Manual '370235 Checking and topping up ATF'</i> .
		Insufficient defoamer in transmission fluid	Change transmission fluid ⇒ <i>Workshop Manual '370255 Changing ATF'</i>
		Instructions on container (shake) not followed when changing fluid	
		Bleeder defective	Replace bleeder (Part No. 970.321.205.xx) and bleeder cap (Part No. 9G1.321.215.xx).
 <p><i>Figure 3</i></p>			
13	Leak around the <b>screw plug</b> ⇒ <i>Figure 4-item 13-</i>	Screw loose	Replace screw plug (Part No. 970.321.871.xx). <b>Tightening torque 10 Nm (7.5ftlb.) +/-0.5 Nm (+/-0.5ftlb.)</b>
		Seal damaged	
14	Leak around the <b>screw plugs</b> ⇒ <i>Figure 4-item 14-</i>	Screw loose	Replace screw plug(s) (Part No. 970.321.813.xx).
		Seal damaged	
15	Leak around the <b>oil pan</b> ⇒ <i>Figure 4-item 15-</i>	Oil pan screws loose Oil pan seal damaged	Replace complete oil pan (Part No. 970.321.025.xx) ⇒ <i>Workshop Manual '375519 Removing and installing ATF pan'</i>  If aluminium screws are used to secure the oil pan to the transmission housing, replace these with steel screws (Part No. 970.321.809.xx).

	<p><b>All-wheel drive vehicles only:</b> <b>Traces/drops of oil</b> around the oil pan</p>	<p>O-ring on the <b>connecting shaft</b> may be damaged</p>	<p>Perform a visual inspection to see if the traces/drops of oil are caused by a damaged O-ring on the connecting shaft.</p> <p>If <b>they are</b>: Replace O-ring on connecting shaft (Part No. 999.701.640.xx). For instructions on removing and installing the connecting shaft, see ⇒ <i>Workshop Manual '373419 Removing and installing Porsche Doppelkupplung (PDK)'</i></p> <p>If <b>not</b>: Replace the complete oil pan (Part No. 970.321.025.xx) ⇒ <i>Workshop Manual '375519 Removing and installing ATF pan'</i> If aluminium screws are used to secure the oil pan to the transmission housing, replace these with steel screws (Part No. 970.321.809.xx).</p>
16	<p>Leak around the <b>oil drain plug</b> ⇒ <i>Figure 4 -item 16-</i></p>	<p>Oil drain plug loose Seal damaged</p>	<p>Replace plug with sealing ring (Part No. 970.321.825.00) <b>Tightening torque 15 Nm (11ftlb.) +3 Nm (+2 ftlb.)</b></p> <p>See also ⇒ <i>Workshop Manual '370255 Changing ATF'</i>.</p>

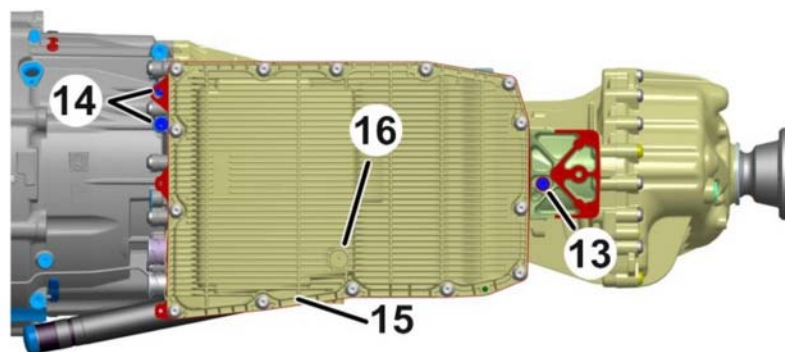
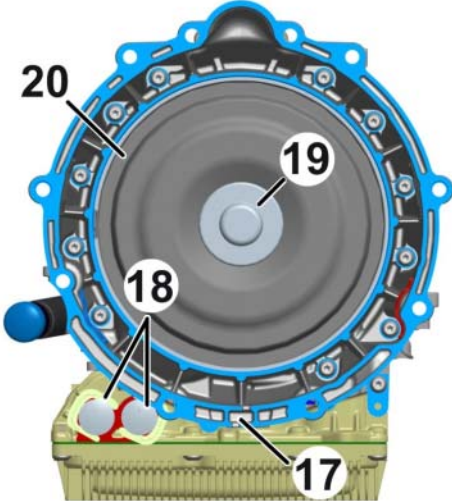
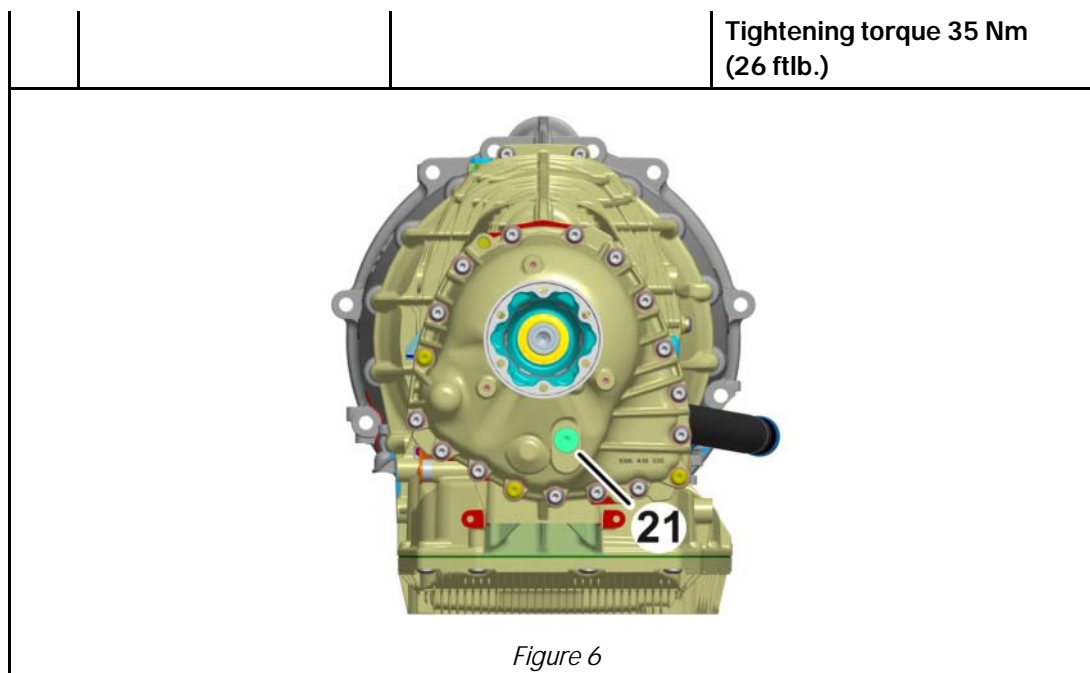


Figure 4

17	<p>Leak around the <b>clutch bell-housing</b> ⇒ <i>Figure 5 -item 17-</i></p> <p>The <b>exact site</b> of the leak must be found.</p>	Apparent preservative grease leak	<p>Check whether the leaking fluid is preservative grease or oil.</p> <p>If preservative grease is leaking out, no further action is required.</p>
		Engine leaking	Find and repair leaks on the engine.
		Radial shaft seal on coupling hub damaged	<p>Replace radial shaft seal (Part No. 9G1.116.807.xx) ⇒ <i>Workshop Manual '386955 Replacing sealing ring for Porsche Doppelkupplung'</i></p>
		<p>O-ring on clutch cover damaged</p> <p>It is important to be sure that the leak is <b>actually</b> on the clutch cover and is not due to an apparent leak caused by preservative grease on the clutch cover.</p>	<p>Replace PDK transmission ⇒ <i>Workshop Manual '373455 Replacing Porsche Doppelkupplung (PDK)'</i>.</p>
18	<p>Leak around the <b>connectors</b> for the hydraulic switch unit and sensor unit ⇒ <i>Figure 5 -item 18-</i></p> <p>– Outer connector: Wire harness for hydraulic switch unit</p> <p>– Inner connector: PDK sensor unit</p>	O-rings on connectors damaged	<p><b>Outer connector leaking:</b> Replace wire harness for hydraulic switch unit (Part No. 970.317.615.xx).</p> <p><b>Inner connector leaking:</b> Replace PDK sensor unit (Part No. 970.317.085.xx).</p> <p>For instructions, see ⇒ <i>Workshop Manual '381819 Removing and installing wire harness in transmission'</i>.</p>
19	<p>Leak around <b>PDK shaft seal</b> ⇒ <i>Figure 5 -item 19-</i></p> <p>The <b>exact site</b> of the leak must be found.</p>	Radial shaft seal on coupling hub damaged	<p>Replace radial shaft seal (Part No. 9G1.116.807.xx) ⇒ <i>Workshop Manual '386955 Replacing sealing ring for Porsche Doppelkupplung'</i></p>

20	<p>Leak around the <b>clutch cover</b> ⇒ <i>Figure 5 -item 20-</i></p> <p>The <b>exact site</b> of the leak must be found.</p> <p>It is important to be sure that the leak is <b>actually</b> on the clutch cover and is not due to an apparent leak caused by preservative grease on the clutch cover (see 17).</p>	O-ring on clutch cover damaged.	Replace PDK transmission ⇒ <i>Workshop Manual '373455 Replacing Porsche Doppelkupplung (PDK)'</i> .
 <p><i>Figure 5</i></p>			
21	<p>Leak around the <b>oil filler screw</b> ⇒ <i>Figure 6 -item 21-</i></p>	<p>Oil filler screw loose</p> <p>Sealing ring on oil filler screw damaged</p>	<p>Check the oil level and correct it if necessary. Then replace the oil filler screw with a sealing ring (Part No. 970.321.805.xx) ⇒ <i>Workshop Manual '370235 Checking and topping up ATF'</i>.</p>



### 3 - Remedial action and repair measures in the event of complaints relating to comfort and noise

Work Procedure: 3 **Remedial action and repair measures in the event of complaints relating to comfort (gearshift and drive-off quality).**

- 3.1 Create and save the Vehicle Analysis Log (VAL) using the PIWIS Tester.
- 3.2 Find and correct any faults that are present in other control units (DME, PSM, air conditioning, etc.).
- 3.3 Check oil level in PDK transmission and correct it if necessary ⇒ *Workshop Manual '370235 Checking and topping up ATF'*.
- 3.4 Teach the throttle valve using the PIWIS Tester:  
Select PIWIS Tester > DME control unit >> "Maintenance/repairs" menu >>> menu item "Adaptations" >>>> "Throttle valve adaptation" function. Follow the instructions on the PIWIS Tester.
- 3.5 Perform engine torque loss adaptation.

**Conditions/procedure for engine torque loss adaptation:**

- Engine temperature is at least 176° F. (80° C.) (read out the temperature from the PDK control unit by selecting "Actual values/Input signals" > "CAN input signals - Engine temperature").
- All loads switched off.
- PDK selector lever in position P.
- Allow engine to run at idle speed for 3 minutes with air conditioning switched off.

- Then allow engine to run at idle speed for 3 minutes with air conditioning switched on.
- Switch off ignition and wait 15 seconds (adaptation values are stored).

3.6 Create and save the Vehicle Analysis Log (VAL) using the PIWIS Tester.

3.7 **Perform adaptation drive.**



#### **Driver steers off course during adaptation drive**

- **Increased risk of accidents**
  - **Danger to other people on the roads**
- ⇒ **Get another person to accompany the driver and give him the relevant instructions for carrying out the adaptation drive.**
- ⇒ **Only drive the vehicle to achieve the rpm and speed ranges required for the adaptation drive in accordance with road traffic regulations and if the road, weather and traffic conditions are conducive to such driving.**

Observe and meet the following conditions for the adaptation drive:

- Transmission fluid temperature is **> 140° F. (60° C.)** (read out the temperature from the PDK control unit by selecting "Actual values/Input signals" > "CAN output signals – Transmission sump temperature").
- Perform adaptation drive on a level stretch of road.
- Once the transmission fluid temperature is **> 140° F. (60° C.)**, switch off the engine and ignition and wait **at least 20 seconds**.
- Switch on ignition, wait **at least three seconds** and then start the engine.
- After you have switched the ignition off and then on again, there should be **no error messages** displayed in the instrument cluster.
- Perform adaptation drive in **shift programme "M"**.

3.7.1 Start the adaptation drive, accelerate to rev range **1,000 – 1,200 rpm** in **5th gear** and maintain this range for **two minutes**.

3.7.2 Then **change gear several times** (in any target gear) and **switch between traction and overrun mode** while driving in the selected gears.

3.7.3 Then, change to **5th gear** again and repeat steps **3.7.1** to **3.7.3** **twice**. The procedure must be done **three times** in total.

3.7.4 Continue the adaptation drive, accelerate to rpm range **1,000 – 1,200 rpm** in **6th gear** and maintain this range for **two minutes**.

3.7.5 Then **change gear several times** (in any target gear) and **switch between traction and overrun mode** while driving in the selected gears.

3.7.6 Then, change to **6th gear** again and repeat steps **3.7.4** to **3.7.6** **twice**. (The procedure must be carried out **three times** in total.)

- 3.7.7 Stop the vehicle, switch off the engine and ignition and wait **at least 20 seconds**.
- 3.7.8 Switch on ignition, wait **at least three seconds** and then start the engine.  
There should be no error messages displayed in the instrument cluster.
- 3.7.9 Carry out adaptation drive **once** more as described in steps **3.7.1** to **3.7.6** .
- 3.7.10 Stop the vehicle, switch off the engine and ignition and wait **at least 20 seconds**.
- 3.7.11 Switch on ignition, wait **at least three seconds** and then start the engine.  
There should be no error messages displayed in the instrument cluster.
- 3.7.12 Continue the adaptation drive, accelerate to rev range **2,000 – 2,500 rpm** in **5th gear** and maintain this range for **two minutes**.
- 3.7.13 Then **change gear several times** (in any target gear) and **switch between traction and overrun mode** while driving in the selected gears.
- 3.7.14 Then, change to **5th gear** again and repeat steps **3.7.12** to **3.7.14 twice**. The procedure must be carried out **three times** in total.
- 3.7.15 Continue the adaptation drive, accelerate to rev range **2,000 – 2,500 rpm** in **6th gear** and maintain this range for **two minutes**.
- 3.7.16 Then **change gear several times** (in any target gear) and **switch between traction and overrun mode** while driving in the selected gears.
- 3.7.17 Then, change to **6th gear** again and repeat steps **3.7.15** to **3.7.17 twice**. (The procedure must be carried out **three times** in total.)
- 3.7.18 Stop the vehicle, switch off the engine and ignition and wait **at least 20 seconds**.
- 3.7.19 Switch on ignition, wait **at least three seconds** and then start the engine.  
There should be no error messages displayed in the instrument cluster.
- 3.7.20 Carry out adaptation drive **once** more as described in steps **3.7.12** to **3.7.17** .
- 3.7.21 Stop the vehicle, switch off the engine and ignition and wait **at least 20 seconds**.
- 3.7.22 Switch on ignition, wait **at least three seconds** and then start the engine.
- 3.7.23 End the adaptation drive.
- 3.7.24 Create and save the Vehicle Analysis Log (VAL) using the PIWIS Tester.
- 3.7.25 Leave the vehicle overnight if necessary and evaluate it again with regard to gearshift/drive-off quality the next day.
- If the vehicle checks out OK with regard to gearshift/drive-off quality ⇒ End of remedial action.
  - If the vehicle does not show any improvement with regard to gearshift/drive-off quality, please contact PCNA to find out what to do next.

#### 4 - Procedure in the event of noises on the PDK transmission

##### 4 Procedure in the event of noises on the PDK transmission.

If a complaint is received in relation to noises from the PDK transmission, please complete the following steps initially:

- 4.1 Create and save the Vehicle Analysis Log (VAL) using the PIWIS Tester.
- 4.2 Find and correct any faults that are present in other control units (DME, PSM, air conditioning, etc.).
- 4.3 Check to see if the noise is actually coming from the transmission.

Also check other possible noise sources, such as:

- Engine (e.g. adjacent damping parts)
- Rear-axle differential
- Wheels, wheel bearings
- Cardan shaft bearing
- Power-steering pump

- 4.4 Check the oil level in the PDK transmission and correct it if necessary ⇒ *Workshop Manual '370235 Checking and topping up ATF'*.
- 4.5 If the data version of the PDK control unit is not up-to-date, re-program the PDK control unit. To do this, select "Programming" > "Automatic programming" in the PDK control unit using the PIWIS Tester and confirm with •>>".  
The name of the control unit to be programmed (in this case: PDK) as well as the data record to be programmed and the Porsche part number and status will be displayed.  
If "not current" is displayed in the status display, re-program the PDK control unit. If the data record is already up-to-date ("current" in the status display), there is no need to program the PDK control unit.
- 4.6 Teach the throttle valve using the PIWIS Tester:  
Select PIWIS Tester II > DME control unit >> "Maintenance/repairs" menu >>> menu item "Adaptations" >>>> "Throttle valve adaptation" function. Follow the instructions on the PIWIS Tester.
- 4.7 Perform engine torque loss adaptation.

##### **Conditions/procedure for engine torque loss adaptation:**

- Engine temperature is at least 176° F. (80° C.) (read out the temperature from the PDK control unit by selecting "Actual values/input signals" > "CAN input signals - Engine temperature").
- All loads switched off.
- PDK selector lever in position P.
- Allow engine to run at idle speed for 3 minutes with air conditioning switched off.
- Then allow engine to run at idle speed for 3 minutes with air conditioning switched on.
- Switch off ignition and wait 15 seconds (adaptation values are stored).



#### 4.8 Perform a test drive.

If, after carrying out tests and/or correcting faults, the vehicle still has definite symptoms in relation to transmission noises, please document the information specified below in PWIS/PQIS:

- Create and save a sound file of the noise
- Provide a detailed description of the noise (e.g. rattling, grinding, whining, whistling, singing, ...)
- In which rpm range does the noise occur?
- In which drive and shift program does the noise occur (D, M, Sport, Sport Plus)?
- In which gear does the noise occur?
- At what speed does the noise occur?
- In which load condition does the noise occur (acceleration, deceleration, partial load, full load)?
- In which operating state does the noise occur (cold, warm)?
- Who noticed the noise (customer, workshop)?
- What work has already been done?
- How do comparable vehicles behave?

Contact Porsche to find out what to do next.

- References:
- ⇒ *Workshop Manual '0X03IN Creating Vehicle Analysis Log (VAL)'*
  - ⇒ *Workshop Manual '370235 Checking and topping up ATF'*
  - ⇒ *Workshop Manual '370255 Changing ATF'*
  - ⇒ *Workshop Manual '373019 Removing and installing transmission control unit (PDK)'*
  - ⇒ *Workshop Manual '373055 Replacing transmission control unit (PDK)'*
  - ⇒ *Workshop Manual '373419 Removing and installing Porsche Doppelkupplung (PDK)'*
  - ⇒ *Workshop Manual '373455 Replacing Porsche Doppelkupplung (PDK)'*
  - ⇒ *Workshop Manual '375519 Removing and installing ATF pan'*
  - ⇒ *Workshop Manual '387055 Replacing sealing ring for output shaft'*

⇒ Workshop Manual '387719 Removing and installing hydraulic control unit'

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