

WC05 - Reworking Engine Wire Harness (Workshop Campaign)

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

Model Year: **As of 2010 up to 2011**

Equipment: Vehicles with emissions concept ULEV2 (I-no. 164) or LEV2 (I-no. 162)

Concerns: **Wire harness for engine**

Revision 1: July 12, 2012, the Damage Code was changed to WC05 066 000 2.

Information: This is to inform you of a voluntary Workshop Campaign on the above-mentioned vehicles. There is the possibility that moisture can get into the ground splice connections in the wire harness for the engine. As a result, ground splice connections can become corroded over the service life of the vehicles. This can cause signal faults in the oil pressure, oil level and oil temperature sensors, and therefore cause the Check Engine warning light to be activated.

Action Required: Replace the ground splice connections in the engine wire harness on the affected vehicles with sealed ground splice connections.

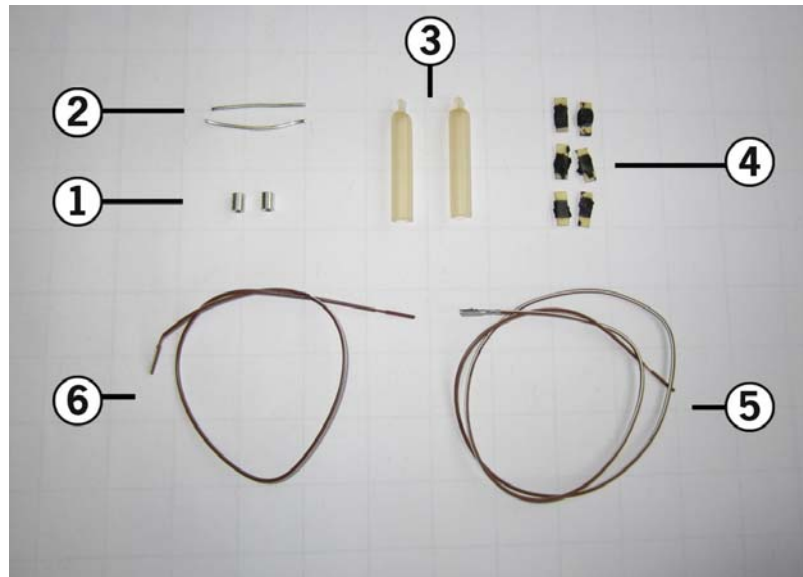
Affected Vehicles: The VIN(s) can be checked by using PIWIS Vehicle Information link to verify if the campaign affects the vehicle. This Campaign is scope specific to the VIN! Failure to verify in PIWIS may result in an improper repair.

Parts Info: **DO NOT PLACE ORDER FOR PARTS! PARTS WILL BE AUTOMATICALLY ALLOCATED ON JUNE 11, 2012.**

- N .906.661.01 ⇒ Tie-wrap 1 ea.
- 000.043.207.84 ⇒ Repair kit "Wiring harness for engine, ground strap" 1 ea.

The "Wiring harness for engine" repair kit includes the following individual components:

- BDM clips (crimping sleeves) ⇒ *Repair kit -1-*
- Soldering tin ⇒ *Repair kit -2-*
- End caps ⇒ *Repair kit -3-*
- Hot-melt adhesive ⇒ *Repair kit -4-*
- Long ground strap (one end stripped, one end with a pin crimped on) ⇒ *Repair kit -5-*
- Short ground strap (both ends stripped) ⇒ *Repair kit -6-*



Repair kit

Materials: ... ⇒ Fabric tape, approx. 15 mm wide (commercially available) Length: 1,000 mm*

* The WWS Warranty system will automatically add into the "Miscellaneous item" section (sublet) of the claim after the claim has been submitted.

Tools:

- Cable repair kit Nr.155-1 Pos.1 (NR.155-1 Pos. 1 is found in Cartool Kit supplied as PNA 721 043 003 00)
- Press-out tool set Nr.155-3 (NR.155-3 is included in sets with part numbers PNA 721 040 and PNA 721 041)
- Heat gun Nr.155-1 Pos.2 (NR.155-1 Pos. 2 is found in Cartool Kit supplied as PNA 721 003 00)
- Spoon strainer Nr.155-1 Pos.4 (NR.155-1 Pos. 4 is found in Cartool Kit supplied as PNA 721 043 003 00)
- Torque wrench Nr.90 Pos.3 (NR.90 Pos.3 - should be available at your dealership but as an alternative, may use tool 9768)
- Commercially available soldering iron
- Commercially available needle-nose pliers

Work Procedure: See Attachment "A".

Administrative Procedure: See Attachment "B"

Attachment "A": **Work Procedure**

- 1 Disconnect the battery ⇒ *Workshop Manual '2X00IN Work instructions after disconnecting the battery'*.
- 2 Ensure that you have easy access to the DME control unit.
 - 2.1 Remove cowl panel cover ⇒ *Workshop Manual '508719 Removing and installing cowl panel cover - section on "Removing"*.
 - 2.2 Release relay carrier in the plenum panel ⇒ *Workshop Manual '978309 Loosening and securing relay carrier'*.
- 3 Expose main wire harness.
 - 3.1 Release locking mechanism for the upper connector on the DME control unit ⇒ *Figure 1 -1-* (⇒ *Figure 1 -arrow-*) and pull the connector off the DME control unit.
 - 3.2 Loosen both retaining clips ⇒ *Figure 1 -2-* for the main wire harness ⇒ *Figure 1 -3-* at the plenum panel.
 - 3.3 Remove line clip ⇒ *Figure 1 -4-* underneath the relay carrier.

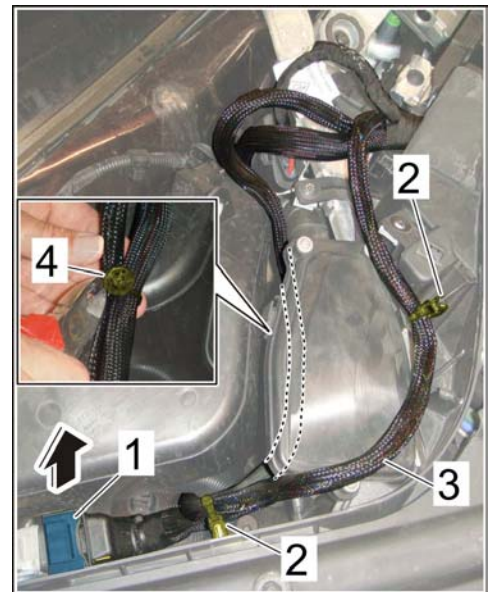


Figure 1

- 4 Disassemble connector housing of the connector for the DME control unit.
 - 4.1 Remove tie-wrap ⇒ *Figure 2 -1-* and fabric tape ⇒ *Figure 2 -2-* from the three wire harnesses for the connector.
 - 4.2 Slide the cover of the connector ⇒ *Figure 2 -3-* forward using a screwdriver ⇒ *Figure 2 -arrow-* and remove it.

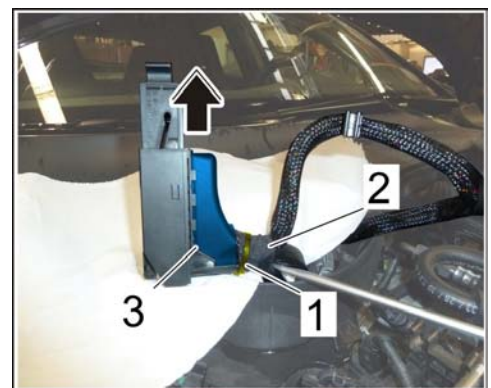


Figure 2

- 4.3 Use a screwdriver to pull the locking mechanism on the plug-in contacts \Rightarrow *Figure 3-1*- completely out of the connector housing \Rightarrow *Figure 3-2*- (\Rightarrow *Figure 3-arrow*-).

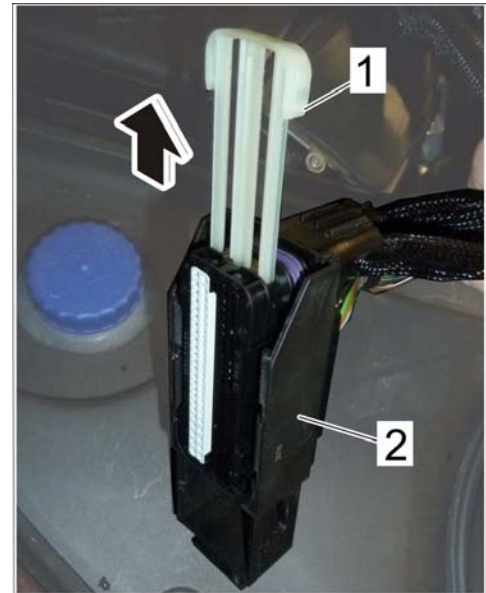


Figure 3

- 5 Expose main wire harness lines.
- 5.1 Pull protective sleeve \Rightarrow *Figure 4-1*- on the middle wire harness \Rightarrow *Figure 4-arrow A*- on the connector for the DME control unit back as far as possible \Rightarrow *Figure 4-arrow B*- and fix it in place with fabric tape \Rightarrow *Figure 4-2*-.

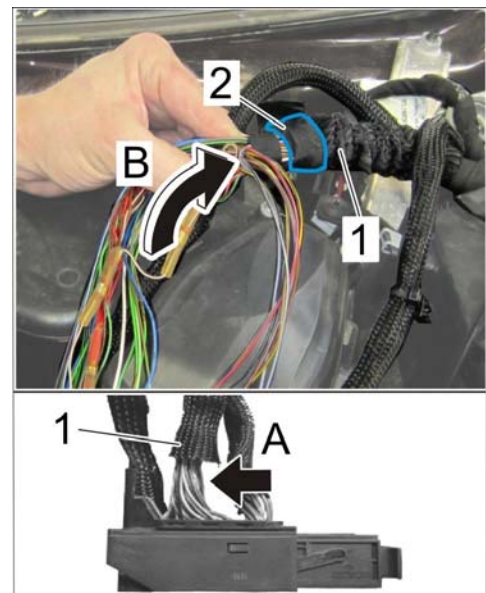


Figure 4

- 5.2 Unpin the ground strap (brown/white, **pin 42** ⇒ *Figure 5 -arrow-* from the connector for the DME control unit using the press-out tool set Nr.155-3 .



Information

There are two ground splice connections in the unpinned line. These splice connections are referred to below as “splice connection 1” (⇒ *Figure 6 -item 1-*) and “splice connection 2” (⇒ *Figure 6 -item 2-*).

The splice connection of the red line (5 V sensor line) will not be reworked.



Figure 5

- 6 Disconnect lines.
 - 6.1 Cut the lines **after** splice connection 1 ⇒ *Figure 6 -1-* as close as possible to the shrink-fit tubing ⇒ *Figure 6 -3-*.
 - 6.2 Cut the lines **after** splice **connection 2** ⇒ *Figure 6 -2-* as close as possible to the shrink-fit tubing ⇒ *Figure 6 -3-*.



Information

Extra care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.

The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the repair kit for wire harnesses NR.155-1 .

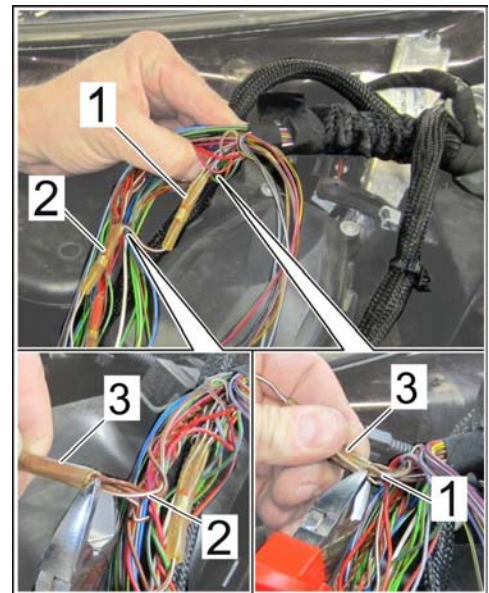


Figure 6



Information

The **ground straps in the repair kit** have different lengths, are stripped differently and have different contacts:

Short ground strap ⇒ Line between the first and second splice connection, both ends stripped (referred to below as “short line”)

Long ground strap ⇒ Line between the second splice connection and the DME control unit (pin 42), one end stripped, the other end with a pin crimped on (referred to below as “long line”)

- 7 Make a new splice connection of **splice 1**.
- 7.1 Shorten the lines you have cut to the same length and strip them.
- 7.2 Slide the stripped lines ⇒ *Figure 7-1- with the additional short line from the repair kit* (⇒ *Figure 7-2-*) into a BDM clip ⇒ *Figure 7-3-*.
- Make sure that all strands are contained in the BDM clip and are sticking out by about 2 mm (⇒ *Figure 7 -inset-*).
- 7.3 Crimp the BDM clip ⇒ *Figure 7-3-* using hand crimping pliers.

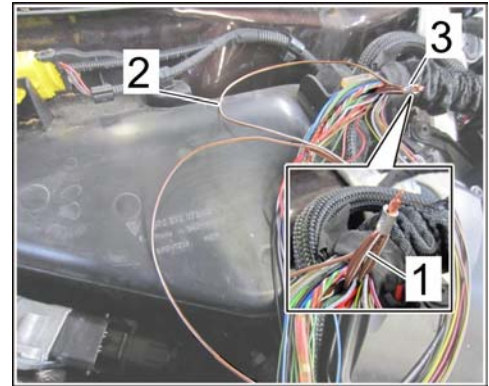


Figure 7

- 8 Make a new splice connection of **splice 2**.
- 8.1 Shorten the lines you have cut to the same length and strip them.
- 8.2 Slide the stripped lines ⇒ *Figure 8-1-* together **with the new line from splice 1** (⇒ *Figure 8-2-*) **and the long line (for pin 42) from the repair kit** ⇒ *Figure 8-3-* into a BDM clip ⇒ *Figure 8-4-*.
- Make sure that all strands are contained in the BDM clip and are sticking out by about 2 mm (⇒ *Figure 8 -inset-*).
- 8.3 Crimp the BDM clip ⇒ *Figure 8-4-* using hand crimping pliers.

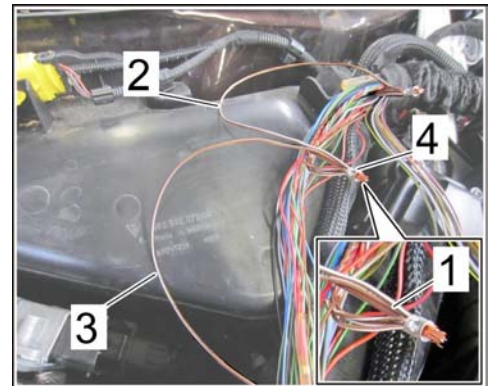


Figure 8

⚠ CAUTION

Hot components

- Risk of burns
- ⇒ Let hot components cool down.
- ⇒ Wear personal protective gear.

- 9 Solder the splice connections.
 - 9.1 Switch on the soldering iron and set a temperature of **Temperature 662°F.°C (350° C.)**.
 - 9.2 At both splice connections ⇒ *Figure 9 -1 and 2-*, solder the strands that are sticking out of both BDM clips ⇒ *Figure 9 -3-* using the soldering tin contained in the repair kit ⇒ *Figure 9 -arrow-*.

Make sure that the soldering tin does not leak out on the opposite side of the BDM clip.

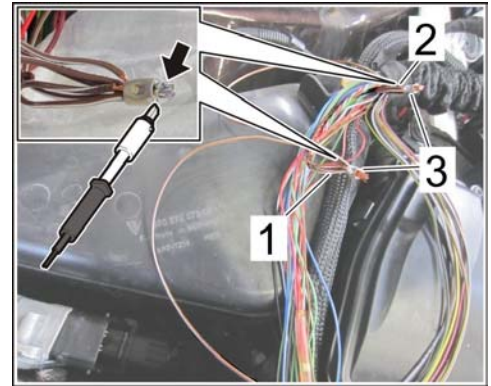


Figure 9

- 10 Seal the splice connections with additional adhesive and end caps.
 - 10.1 Open up splice connection lines ⇒ *Figure 10 -1-* as shown ⇒ *Figure 10 -arrows-*.
 - 10.2 Pull off backing sheet on two pieces of additional adhesive ⇒ *Figure 10 -2-* and position between the splice connection lines.

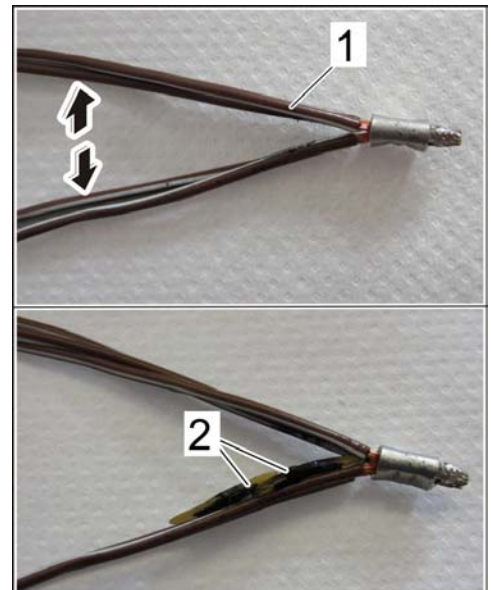


Figure 10

- 10.3 Slide end cap \Rightarrow *Figure 11 -1-* over the splice connection \Rightarrow *Figure 11 -2-* and additional adhesive \Rightarrow *Figure 11 -3-*.
- 10.4 Using the heat gun with spoon strainer attached, carefully fuse the end cap \Rightarrow *Figure 11 -1-* and additional adhesive \Rightarrow *Figure 11 -3-* with the splice connection until adhesive emerges all the way around \Rightarrow *Figure 11 -arrow-*. **Temperature** 266° F. (130° C.) +/- 50° F. (10° C.)

**Information**

Stop heating the additional adhesive as soon as it turns to liquid and emerges over the edges of the shrink-fit tubing.

- 10.5 Repeat the process on splice connection 2.
- 11 Insert new line from splice connection 2 into the connector for the DME control unit at **PIN 42** (\Rightarrow *Figure 12 -arrow-*) until the contact engages securely.

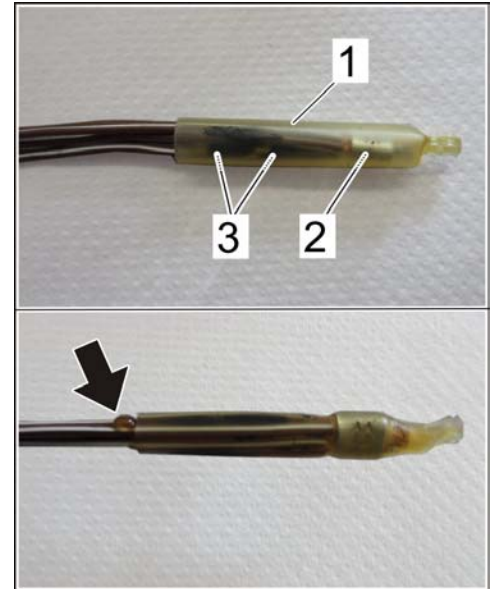


Figure 11

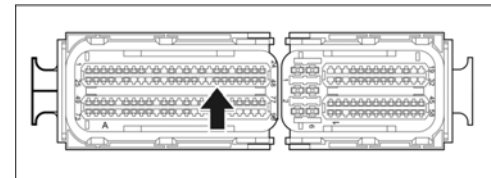


Figure 12

- 12 Slide the locking mechanism for the plug-in contacts \Rightarrow *Figure 13 -1-* completely into the connector housing \Rightarrow *Figure 13 -2-* (\Rightarrow *Figure 13 -arrow-*).

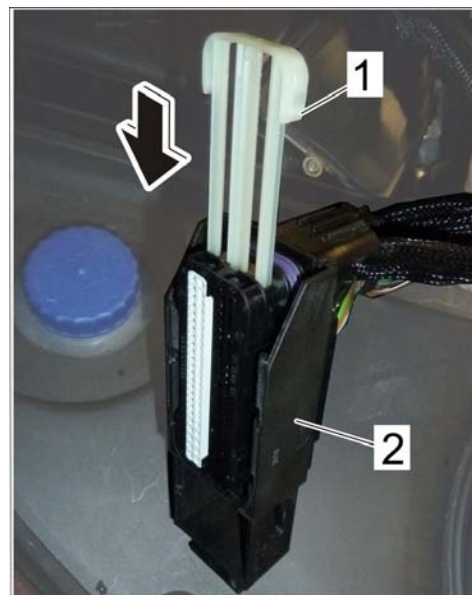


Figure 13

- 13 Wrap all lines ⇒ *Figure 14 -1-* with fabric tape ⇒ *Figure 14 -2-* and then pull the protective sleeve on the wire harness ⇒ *Figure 14 -3-* back into its original shape ⇒ *Figure 14 -arrow-*.

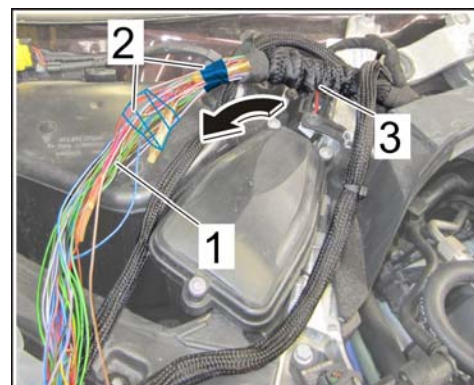


Figure 14

- 14 Assemble the connector housing for the DME control unit.



Information

When fitting the connector cover, make sure not to trap, squash or shear off individual lines.

- 14.1 Fix the ends of the three protective sleeves in place in front of the connector using fabric tape ⇒ *Figure 15 -1-* and a tie-wrap ⇒ *Figure 15 -2-*.
- 14.2 Slide on connector cover ⇒ *Figure 15 -3-* and engage it securely ⇒ *Figure 15 -arrow-*.

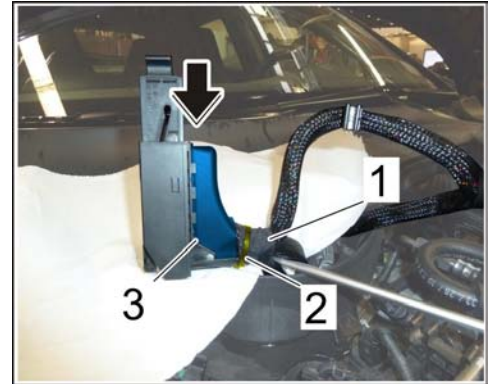


Figure 15

- 15 Secure main wire harness and connect it to the DME control unit.

- 15.1 Route main wire harness under the relay carrier and secure it with a tie-wrap ⇒ *Figure 16 -1-*.
- 15.2 Plug in main wire harness connector ⇒ *Figure 16 -3-* on the DME control unit and close the latch ⇒ *Figure 16 -arrow-*.
- 15.3 Secure the main wire harness ⇒ *Figure 16 -2-* at the plenum panel with the two retaining clips ⇒ *Figure 16 -4-*.

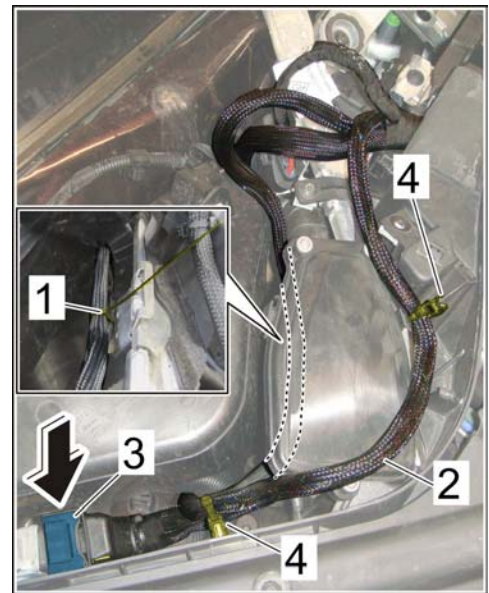


Figure 16

- 16 Secure relay carrier in the plenum panel ⇒ *Workshop Manual '978309 Loosening and securing relay carrier'*.
- 17 Install cowl panel cover ⇒ *Workshop Manual '508719 Removing and installing cowl panel cover - section on "Installing"*.
- 18 Connect the battery ⇒ *Workshop Manual '2X00IN Work instructions after disconnecting the battery'*.
- 19 Read out and erase fault memory.
- 19.1 Preliminary work.
- 19.1.1 Connect a battery charger with a current rating of **at least 40 A** to the jump-start terminals in the engine compartment.

- 19.1.2 Switch on ignition using the **original vehicle key**. For vehicles with "Porsche Entry & Drive", do this by replacing the control panel in the ignition lock with the original vehicle key if necessary.
- 19.1.3 PIWIS Tester II 9818 must be connected to the vehicle communication module (VCI) via the **USB cable**. Then, connect the communication module to the vehicle and switch on the PIWIS Tester.
- 19.1.4 On the PIWIS Tester start screen, call up the ⇒ **'Diagnostics'** menu and select vehicle type "Panamera".

The diagnostic application is then started and the control unit selection screen is populated.

- 19.2 In the control unit selection screen (⇒ 'Overview' menu), press **(F7)** to call up the Additional menu.
- 19.3 Select the function ⇒ **'Read all fault memories and erase if required'** and press **(>>)** to confirm .
- 19.4 Once you have read out the fault memories, delete the fault memory entries by pressing **(F8)** .
- 19.5 Press **(F12)** ("Yes") in response to the question as to whether you really want to delete all fault memory entries.

The faults stored in the fault memories of the various control units are deleted.



Information

If control units are found to have faults which cannot be erased, these faults must be located and corrected. This work **cannot** be invoiced under the workshop campaign number.

- 19.6 Once you have erased the fault memories, select the ⇒ **'Overview'** menu and press **(<<)** to return to the control unit selection screen .
- 19.7 Subsequent work.
 - 19.7.1 Switch off the ignition.
 - 19.7.2 Disconnect the PIWIS Tester from the vehicle.
 - 19.7.3 On vehicles with Porsche "Entry & Drive", replace the original vehicle key in the ignition lock with the plastic key fob if it was previously removed at the start of this procedure.
 - 19.7.4 Switch off and disconnect the battery charger.

- 20 Enter the workshop campaign in the Warranty and Maintenance booklet.

Attachment "B": **Administrative Procedure** - Workshop Campaign WC05

Warranty claims should be submitted via WWS/PQIS.

Note: Open campaigns can be checked by using the PIWIS Vehicle Information link. Labor, parts, and sublet will be automatically inserted when Technician is selected in WWS/PQIS.

Scope: **Reworking wire harness for engine**

Working Time:

Reworking wire harness for engine

Labor time: **140 TU**

- Includes:
- Disconnecting and connecting battery
 - Removing and installing cowl panel cover
 - Loosening and securing relay carrier
 - Reworking both ground splice connections
 - Connecting and disconnecting battery charger
 - Reading out and erasing fault memory

Parts Required:

DO NOT PLACE ORDER FOR PARTS! PARTS WILL BE AUTOMATICALLY ALLOCATED ON JUNE 11, 2012.

000.043.207.84	Repair kit "Wiring harness for engine, ground strap"	1 ea.
N .906.661.01	Tie-wrap	1 ea.
WC050000001 *	Accessories	1 ea.* (For warranty invoicing only)

* The WWS Warranty system will automatically add into the "Miscellaneous item" section (sublet) of the claim after the claim has been submitted.

Invoicing: ⇒ Damage code WC05 066 000 2

- References:
- ⇒ *Workshop Manual '2X00IN Work instructions after disconnecting the battery'*
 - ⇒ *Workshop Manual '508719 Removing and installing cowl panel cover'*
 - ⇒ *Workshop Manual '978309 Loosening and securing relay carrier'*

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