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WM 975219 Removing and installing wire harness for engine

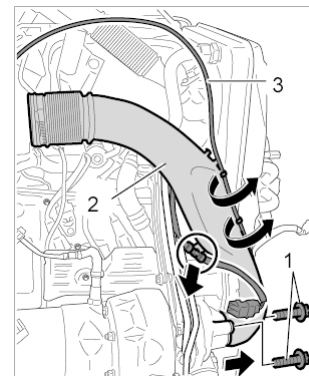
Technical values

Location	Description	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screw securing cable duct to engine housing	-Z-	Tightening torque	10 Nm (7.5 ftlb.)		
Fastening screw securing cable duct to engine housing	-Z-	Tightening torque	10 Nm (7.5 ftlb.)		
Fastening screw securing ground to engine housing		Tightening torque	10 Nm (7.5 ftlb.)		
Fastening screw securing ground to engine housing		Tightening torque	10 Nm (7.5 ftlb.)		
Fastening screw securing oil tank to engine housing	-2-	Tightening torque	23 Nm (17 ftlb.)		
Fastening screw securing intake pipe to turbocharger	-1-	Tightening torque	10 Nm (7.5 ftlb.)		

Preliminary work

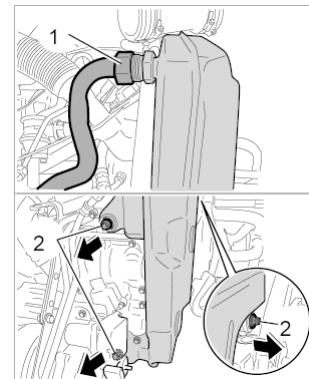
Preliminary work for wire harness for engine

1. Disconnect battery. → *271000 Work instructions after disconnecting the battery*
2. Remove engine. → *100119 Removing and installing engine - section on "Removing"*
3. Remove drive belt. → *137819 Removing and installing drive belt - section on "Removing"*
4. Remove the generator. → *272219 Removing and installing generator - section on "Removing"*
5. Remove air-conditioning compressor. → *873419 Removing and installing air-conditioning compressor - section on "Removing"*
6. Remove throttle valve. → *24421900 Removing and installing throttle housing - section on "Removing"*
7. Remove the two intake pipes at the sides.



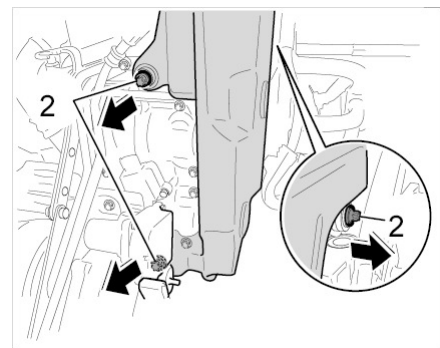
Removing intake pipes

- 7.1. Unscrew the fastening screws **-1-** on the intake pipe.
- 7.2. Pull the cable holder out of the intake pipe **-2-** and unclip the vacuum line **-3-** on the intake pipe.
- 7.3. Pull the intake pipe **-2-** out of the charger.
8. Remove intake-air distributor. → 24461900 *Removing and installing intake-air distributor - section on "Removing"*
9. Counter the upper fastening nut **-1-** for the oil line on the oil tank and unscrew it.



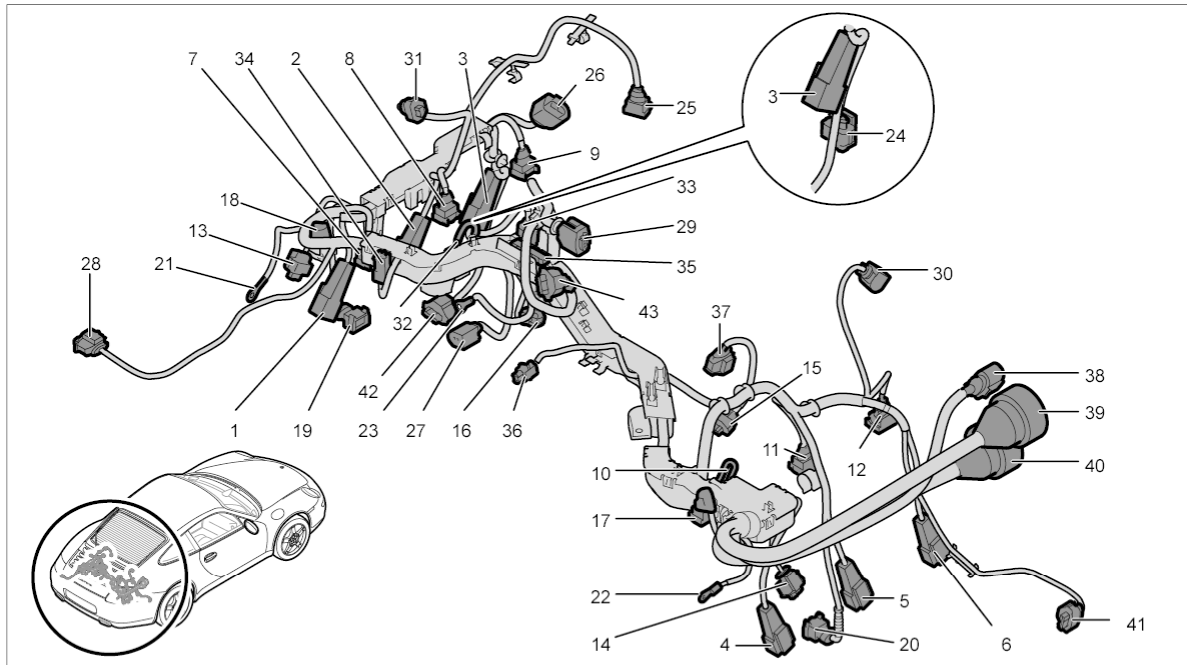
Loosening fastening screws on oil tank

10. Unscrew the three fastening screws **-2-** for the oil tank. Do not remove oil tank



Loosening oil tank at the engine

Removing wire harness for engine**Removing wire harness for engine**

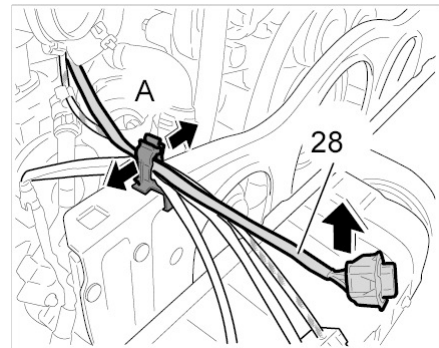


Installation position

- 01 – 03** - Ignition coil on cylinder bank 1 - 3
- 04 – 06** - Ignition coil on cylinder bank 4 - 6
- 07 – 09** - Fuel injector 1 - 3
- 10 – 12** - Fuel injector 4 - 6
- 13 – 14** - Camshaft sensor
- 15 – 16** - Knock sensor
- 17 – 18** - Camshaft adjuster
- 19 – 20** - Valve lift adjuster
- 21 – 22** - Ground
- 23** - Generator terminal 30
- 24** - Speed sender
- 25** - Ambient air valve
- 26** - Secondary air blower
- 27** - Generator
- 28** - Exhaust temperature sensor

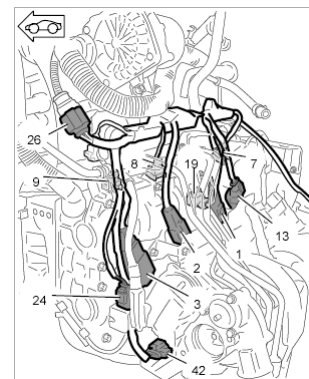
- 29 - Throttle valve
- 30 - Oil-level sensor
- 31 - Tank vent
- 32 - Water temperature sensor
- 33 - Water pump
- 34 - Starter terminal 50
- 35 - Air-conditioning compressor
- 36 - Engine compartment temperature
- 37 - Oil-pressure sender with temperature sensor
- 38 – 40 - Engine/rear end connection point
- 41 – 42 - VTG adjuster
- 43 - Boost-pressure sensor

1. Open the retaining clip **-A-** on the engine and take out the exhaust temperature sensor line **-28-** .



Removing exhaust temperature sensor line

2. Release connectors from engine wire harness on the left side and pull them off.

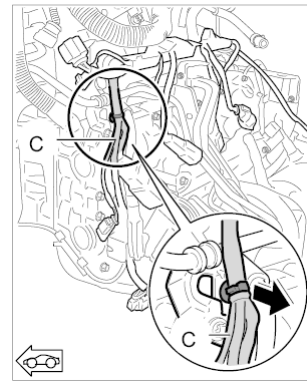


Releasing and disconnecting connectors for engine wire harness

2.1. Release and disconnect connectors **-42, 24, 3, 2, 1, 19, 13, 9, 8, 7-** one after the other.

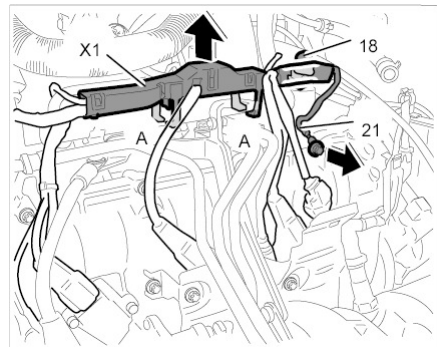
2.2. The plug connection **-26-** is already disconnected when the intake system is removed.

3. Unclip branch of line **-C-** to speed sender from the holder.



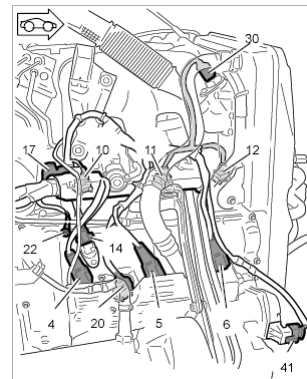
Unclipping speed sender line

4. Remove connector, ground strap for cylinder 1 - 3 and the cable duct.



Removing connector, ground and cable duct

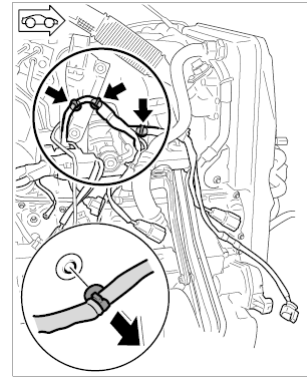
- 4.1. Release and disconnect connector **-18-** .
 - 4.2. Unscrew fastening screw **-21-** for the ground connection.
 - 4.3. Unclip cable duct **-X1-** from the fuel gallery.
5. Release connectors from engine wire harness on the right side and pull them off.



Releasing and disconnecting connectors for engine wire harness

- 5.1. Release and disconnect connectors **-41, 6, 5, 20, 14, 4, 12, 11, 10, 17, 30-** one after the other.
- 5.2. Unscrew fastening screw **-22-** for the ground connection.

6. Unclip wire harness at two places on the oil-fill pipe holder and at one place on the intake pipe.



Unclipping wire harness

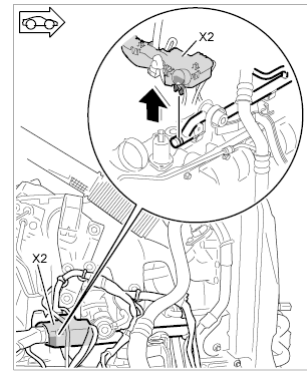
7. Unclip wire harness at two places on the fuel gallery 4 - 6.



Unclipping wire harness

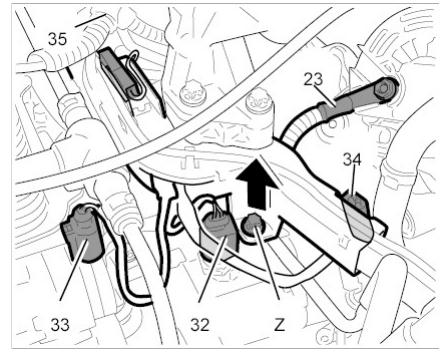
- 7.1. The line on the intake pipe is already unclipped when the intake pipe is removed.

8. Unclip cable duct -X2- from the fuel gallery.



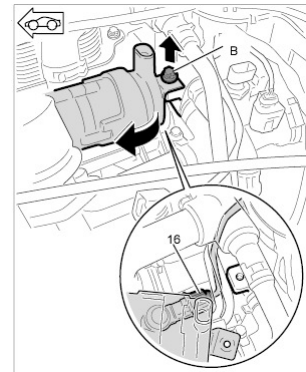
Unclipping cable duct

9. Unscrew fastening screw on cable duct, then release and disconnect connectors.



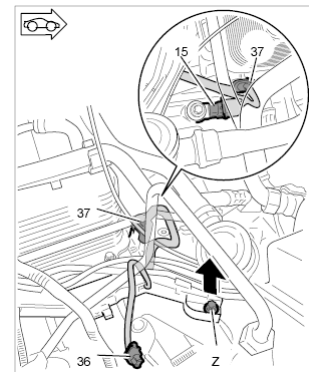
Unscrewing fastening screw on cable duct and releasing connectors

- 9.1. Release and disconnect connectors **-34, 32, 33-** one after the other.
- 9.2. The plug connection for the air-conditioning compressor **-35-** is already disconnected when the air-conditioning compressor is removed.
- 9.3. Unscrew fastening screw **-Z-** for the cable duct.
- 9.4. Fastening nut for B+ line on the generator **-23-** is already removed when the generator is removed.
- 10. Unscrew fastening screw **-B-** for the water pump and lift the water pump to the side.



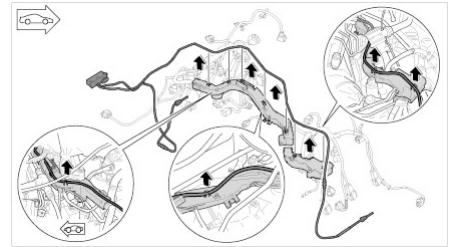
Loosening water pump and disconnecting connector for knock sensor

- 10.1. Release and disconnect connector for the knock sensor **-16-** .
- 11. Unscrew fastening screw for cable duct (near the heat exchanger), then release and disconnect the connectors.



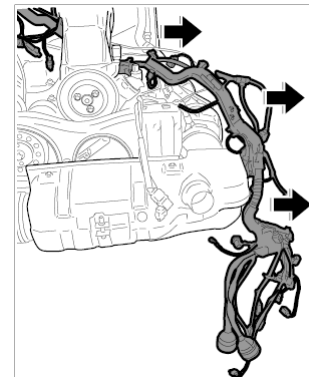
Unscrewing fastening screw for cable duct and releasing connectors

- 11.1. Unscrew fastening screw **-Z-** for the cable duct.
- 11.2. Release and disconnect connectors **-37, 15-** one after the other.
- 11.3. The plug connection **-36-** for the engine compartment sensor is already disconnected when the air-conditioning compressor is removed.
12. Unclip line for exhaust temperature sensor from the cable duct for the engine wire harness.



Unclipping line for temperature sensor

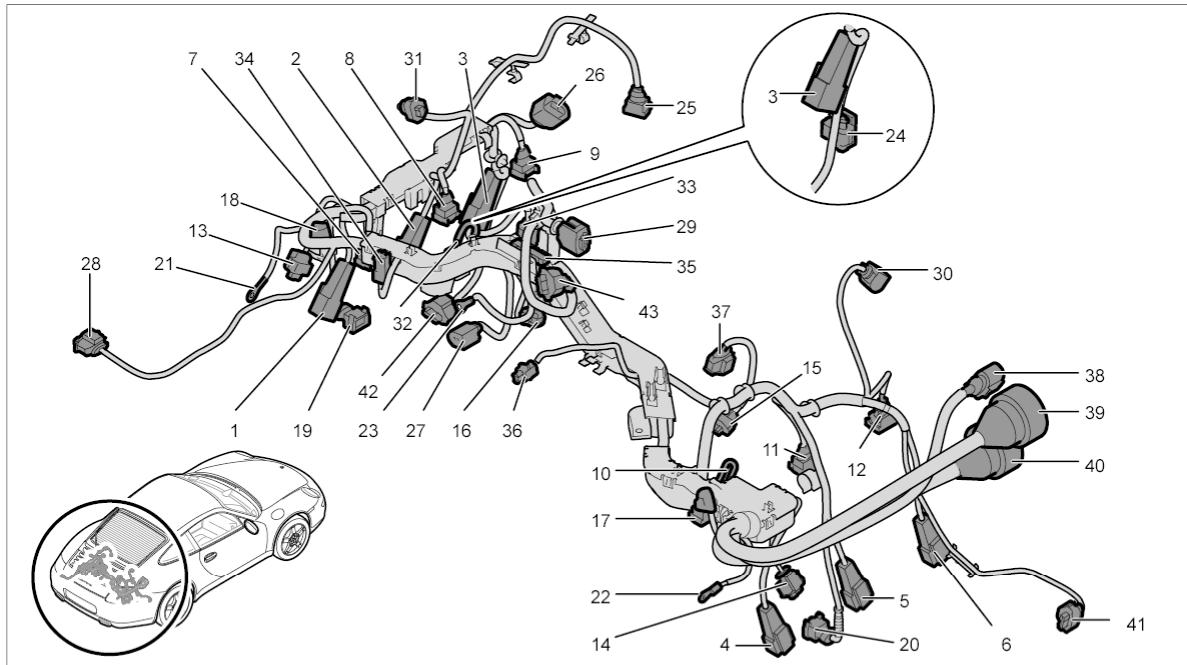
13. Pull engine wire harness to the right out of the engine and remove it.



Removing wire harness from engine

Installing wire harness for engine

Installing wire harness for engine

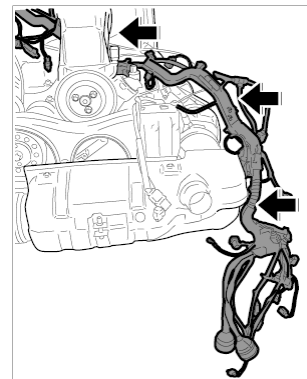


Installation position

- 01 – 03** - Ignition coil on cylinder bank 1 - 3
- 04 – 06** - Ignition coil on cylinder bank 4 - 6
- 07 – 09** - Fuel injector 1 - 3
- 10 – 12** - Fuel injector 4 - 6
- 13 – 14** - Camshaft sensor
- 15 – 16** - Knock sensor
- 17 – 18** - Camshaft adjuster
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- 21 – 22** - Ground
- 23** - Generator terminal 30
- 24** - Speed sender
- 25** - Ambient air valve
- 26** - Secondary air blower
- 27** - Generator
- 28** - Exhaust temperature sensor

- 29 - Throttle valve
- 30 - Oil-level sensor
- 31 - Tank vent
- 32 - Water temperature sensor
- 33 - Water pump
- 34 - Starter terminal 50
- 35 - Air-conditioning compressor
- 36 - Engine compartment temperature
- 37 - Oil-pressure sender with temperature sensor
- 38 – 40 - Engine/rear end connection point
- 41 – 42 - VTG adjuster
- 43 - Boost-pressure sensor

1. Slide engine wire harness onto the engine from the right and position it.



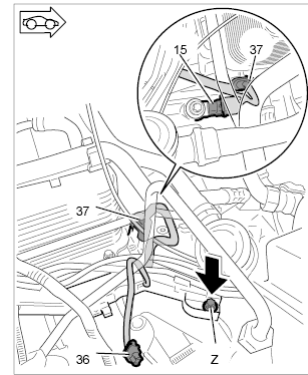
Positioning wire harness on engine

2. Lay line for exhaust temperature sensor on the cable duct for the engine wire harness and clip it in.



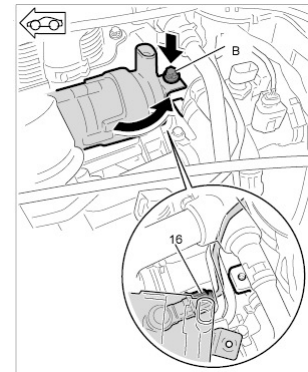
Laying line for exhaust temperature sensor

3. Screw in fastening screw for cable duct and connect connectors.



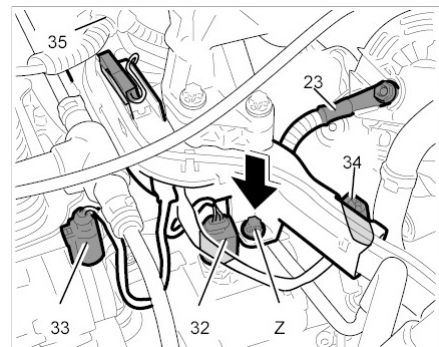
Securing cable duct and connecting connectors

- 3.1. Insert connectors **-15, 37-** one after the other until the connectors engage securely.
- 3.2. Screw in fastening screw **-Z-** for the cable duct. → **Tightening torque: 10 Nm (7.5 ftlb.)**
- 4. Insert connector for the knock sensor **-16-** until the connector engages securely.



Connecting knock sensor and securing water pump

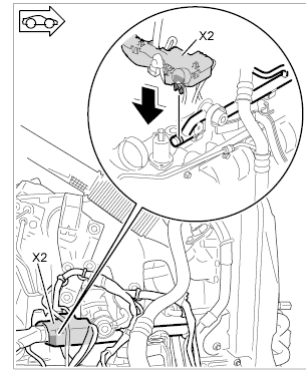
- 4.1. Position the water pump and secure it with the fastening screw **-B-** .
- 5. Screw in fastening screw for cable duct and connect connectors.



Securing cable duct and connecting connectors

- 5.1. Insert connectors **-33, 32, 34-** one after the other until the connectors engage securely.
- 5.2. Screw in fastening screw **-Z-** for the cable duct. → **Tightening torque: 10 Nm (7.5 ftlb.)**

6. Clip in cable duct -X2- on the fuel gallery.



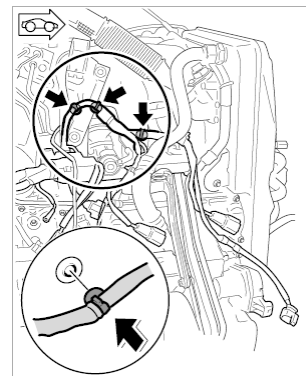
Clipping in cable duct

7. Clip wire harness in at two places on the fuel gallery 4 - 6.



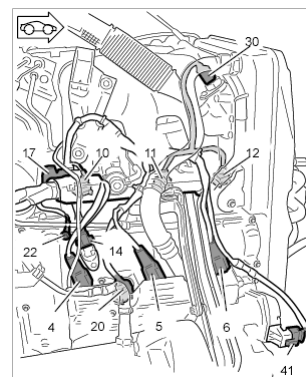
Clipping in wire harness on the fuel gallery

8. Clip in wire harness at two places on the oil-fill pipe holder and at one place on the intake pipe.



Clipping in wire harness

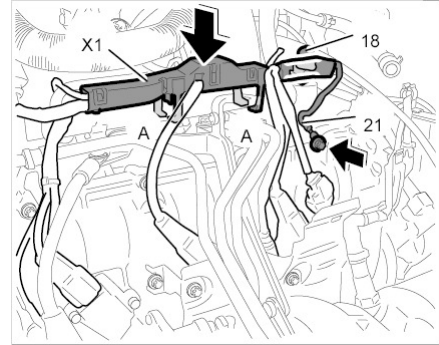
9. Connect connectors for engine wire harness on the right side until the connectors engage securely.



Connecting connectors for engine

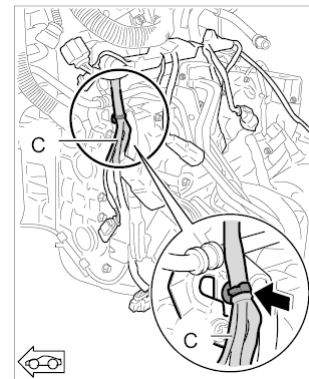
wire harness

- 9.1. Connect connectors **-30, 17, 10, 11, 12, 4, 14, 20, 5, 6, 41-** one after the other until they engage securely.
- 9.2. Position ground connection **-22-** on the engine housing and secure with the fastening screw. → **Tightening torque: 10 Nm (7.5 ftlb.)**
10. Install connector, ground strap for cylinder 1 - 3 and the cable duct.



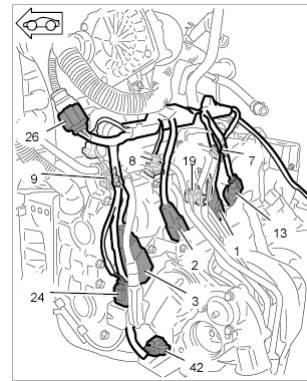
Installing connector, ground and cable duct

- 10.1. Connect connector **-18-** until it engages securely.
- 10.2. Position ground connection **-21-** on engine housing and secure with the fastening screw. → **Tightening torque: 10 Nm (7.5 ftlb.)**
- 10.3. Clip in cable duct **-X1-** on the fuel gallery 1 – 3.
11. Clip branch of line **-C-** to speed sender into the holder.



Clipping in speed sender line

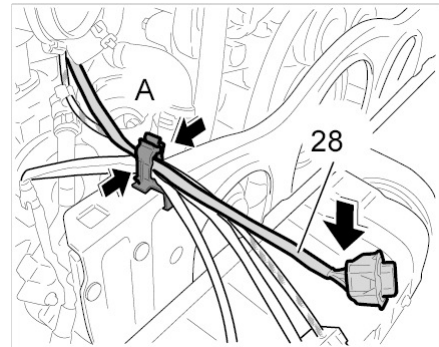
12. Connect connectors for engine wire harness on the left side – cylinder 4 - 6 – until they engage securely.



Connecting connectors for engine wire harness

12.1. Connect connectors -7, 8, 9, 13, 19, 1, 2, 3, 24, 42- one after the other until they engage securely.

13. Lay line for exhaust temperature sensor -28- into the retaining clip -A- and close the clip.

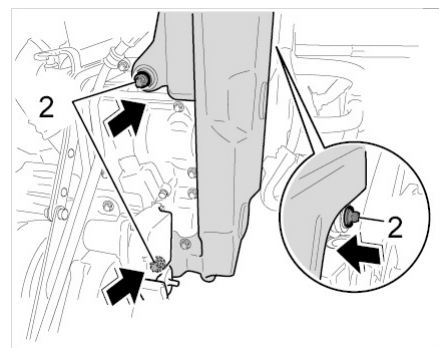


Laying line for exhaust temperature sensor

Subsequent work

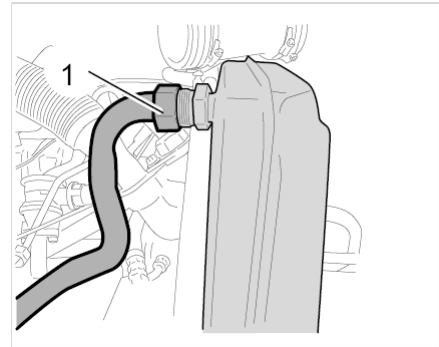
Subsequent work for wire harness for engine

1. Secure the oil tank to the engine with the three fastening screws -2- . → **Tightening torque: 23 Nm (17 ftlb.)**



Securing oil tank to engine

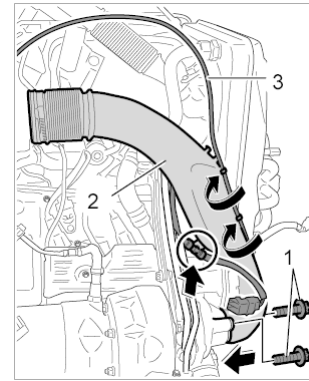
2. Position fastening nut -1- for oil line on the oil tank and screw on securely while countering at the same time.



Securing oil line to oil tank

3. Install intake-air distributor. → *24461900 Removing and installing intake-air distributor - section on "Installing"*

4. Install the two intake pipes at the sides.



Installing intake pipes

4.1. Slide intake pipe onto the charger.

4.2. Screw in fastening screws **-1-** for the intake pipe. → **Tightening torque: 10 Nm (7.5 ftlb.)**

4.3. Clip in the cable clip on the intake pipe **-2-** and the vacuum line **-3-** on the intake pipe.

5. Install throttle valve. → *24421900 Removing and installing throttle housing - section on "Installing"*

6. Install air-conditioning compressor. → *873419 Removing and installing air-conditioning compressor - section on "Installing"*

7. Install the generator. → *272219 Removing and installing generator - section on "Installing"*

8. Install drive belt. → *137819 Removing and installing drive belt - section on "Installing"*

9. Install engine. → *100119 Removing and installing engine - section on "Installing"*

10. Connect the battery and carry out work instructions after disconnecting the battery. → *271000 Work instructions after disconnecting the battery*

Model year as of 2007

C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99