



The present document was valid at the time of print. A later version may be available online

## WM 272219 Removing and installing three-phase generator - Cayenne Tur...

### Tools

Designation	Type	Number	Description
repair kit for wiring harnesses	Special tool	NR.155-1	
repair kit for Cayenne wiring harnesses	Special tool	NR.155-2	

dkirby  
dkirby@jplv.net  
May 14, 2015

### Technical values

Location	Description	Type	Basic value	Tolerance 1	Tolerance 2
B + lead to three-phase generator M8	Item -7-	Tightening torque	11 ftlb.		
Fastening screws, three-phase generator to engine M8	Item -5 and 6-	Tightening torque	17 ftlb.		
Fastening screw, holder for three-phase generator leads M6	Item -2-	Tightening torque	7.5 ftlb.		
Fastening screw, coolant connection to three-phase generator M6	Item -3 and 4-	Tightening torque	7.5 ftlb.		
Fastening screw, ground lead to three-phase generator M8	Item -1-	Tightening torque	15 ftlb.		
Fastening screw, impact bracket to three-phase generator M8	Item -8-	Tightening torque	17 ftlb.		

### Preliminary work

### Preliminary work

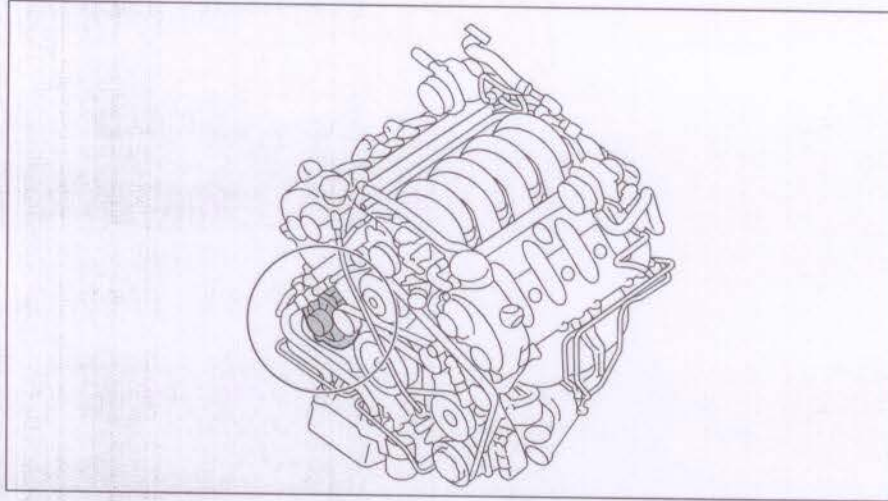
1. Before the three-phase generator can be removed, the battery must be disconnected and the terminal covered. → 90 *Work instructions after disconnecting the battery*
2. Remove right wheel housing liner → 505619 *Removing and installing front wheel housing liner - chapter on "removing"*
3. Remove right air cleaner housing. → 242519 *Removing and installing air cleaner housing - chapter on "removing"*
4. Remove engine guard. → 108019 *Removing and installing engine guard - chapter on "removing"*
5. Drain coolant . → 193817 *Draining and topping up with coolant (includes bleeding) - chapter on "draining"*
6. Detach lock mount, move it to the service position → 503809 *Detaching and fastening lock mount (service position) - chapter on "detaching"*
7. Remove drive belt. → 137819 *Removing and installing drive belt - chapter on "removing"*

### Removing the three-phase generator



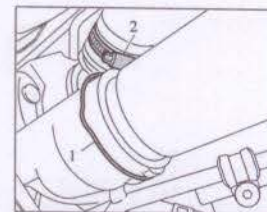
#### Information

- *When the engine is being cleaned with high-pressure cleaning equipment, make sure that the high pressure blast is not directed directly onto the three-phase generator (risk of bearing damage).*



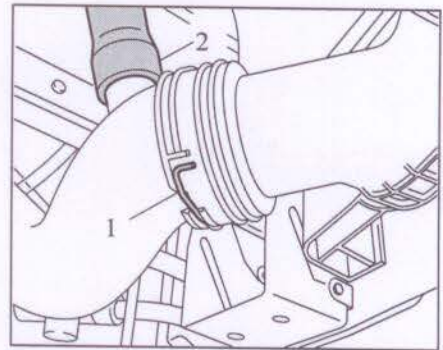
*Overview of three-phase generator*

1. Release hose connection on the turbocharger. To do this, pull out locking spring -1- on the turbocharger flange. Then undo hose clamp -2- of the pressure pipe on the turbocharger.



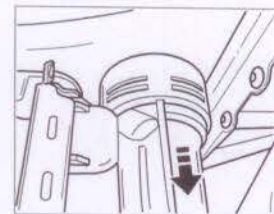
*Releasing hose connection on the turbocharger*

2. Disconnect the connection on the charge air cooler. To do this, remove locking clip -1- and pull off the line. Line -2- of the ambient air valve must also be disconnected on the right-hand side of the vehicle. To do this, remove the spring band clamp and pull off the line.



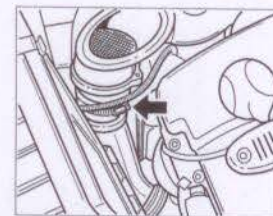
*Disconnecting the connection on the charge air cooler*

3. Remove coolant hose at the bottom right of the radiator. To do this, pull out the retaining clip on the coolant neck and remove the hose **-arrow-**. Then reconnect the retaining clip.



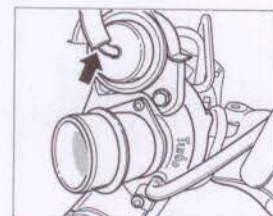
*Removing coolant hose at the bottom right of the radiator*

4. Disconnect the electrical plug of the air flow sensor. Release the hose clamp **-arrow-** on the underside of the air flow sensor and remove the intake bracket with the air valve module upwards.



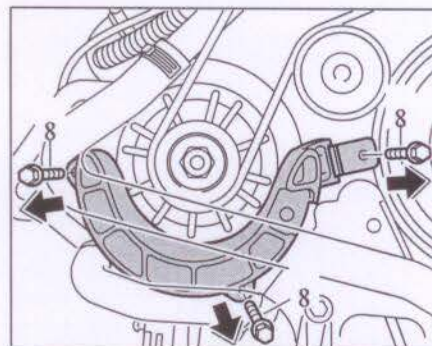
*Releasing the hose clamp on the underside of the air flow sensor*

5. Remove hose **-arrow-** from the control box of the bypass valve. If hose is tight, carefully lever off with a screwdriver.



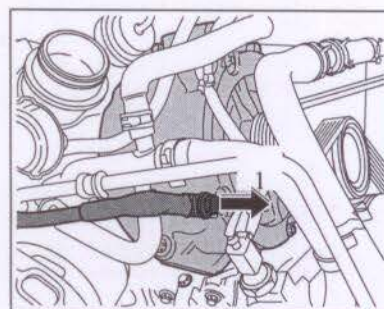
*Removing hose from the control box of the bypass valve*

6. Unscrew the three fastening screws -8- for the impact bracket and remove the impact bracket.



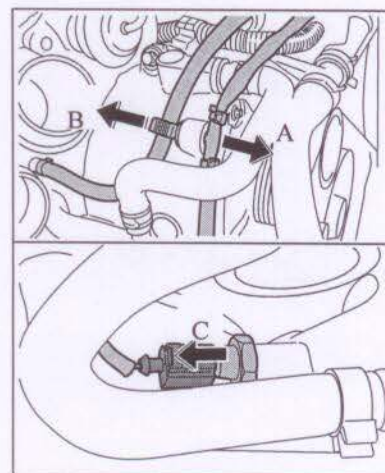
Unscrewing fastening screws for the impact bracket

7. Unscrew ground lead fastening screw -1- and remove ground lead.



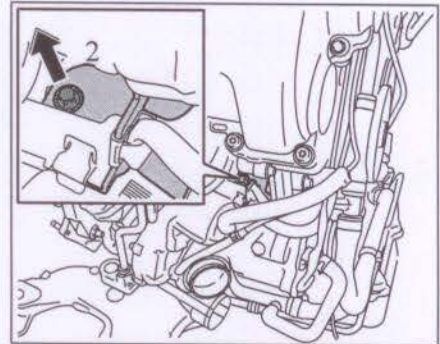
Unscrewing ground lead fastening screw

8. Unclip line to oil pressure switch and oil-level sensor using a release lever -A- .



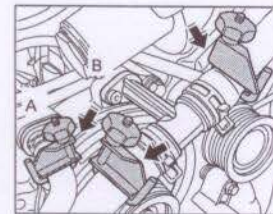
Unclipping line to oil pressure switch and oil-level sensor

9. Unclip the pressure pipe **-Arrow B-**.
10. Release plug on the oil pressure switch and pull it off **-Arrow C-**.
11. Unscrew fastening screw **-2-** of holder for three-phase generator leads.



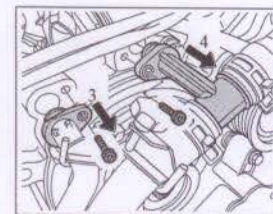
*Unscrewing fastening screw of holder for three-phase generator leads*

12. Seal the coolant hoses **-A and B-** with a hose clamp to prevent them from leaking.



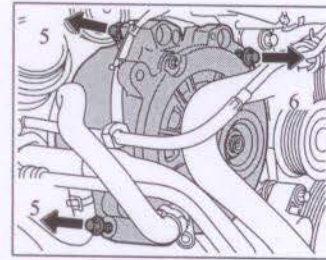
*Sealing coolant hoses with a hose clamp*

13. Unscrew fastening screws **-3 and 4-** of coolant connections.



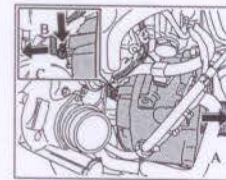
*Unscrewing fastening screws of coolant connections*

14. Unscrew the fastening screws **-5 und 6-** and support the three-phase generator with your hand.



Unscrewing fastening screws of three-phase generator

15. Pull three-phase generator forwards **-Arrow A-**.



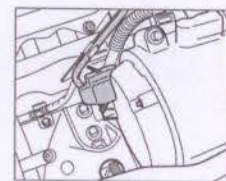
Pulling three-phase generator forwards and pulling off plug



**Information**

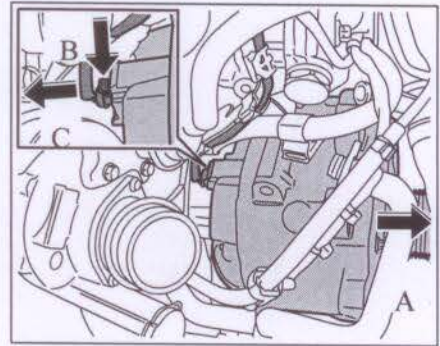
- If the protective cap cannot be removed, use a knife to carefully cut it off the three-phase generator. Make sure that the plug connection and the electrical lead are not damaged and that there is no more than minimal damage to the protective cap.

16. Pull off the protective cap for the electrical plug connection from the receptacle on the three-phase generator.



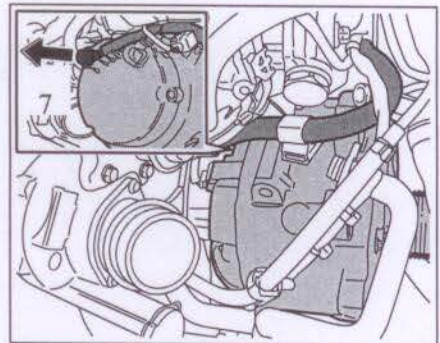
Pulling off protective cap for electrical plug connection on three-phase generator

17. Release **-Arrow B-** and pull off **-Arrow C-** plug.



*Pulling three-phase generator forwards and pulling off plug*

18. Unscrew fastening nut -7- and remove B+ lead.



*Unscrewing fastening nut for B + lead*

19. Remove the three-phase generator through the opening - wheel housing liner with air-cleaner box removed.

### Installing the three-phase generator

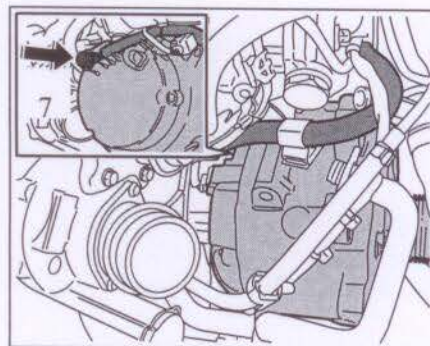
1. Insert the three-phase generator through the opening - wheel housing liner with air-cleaner box removed - and position it on the engine.



#### Information

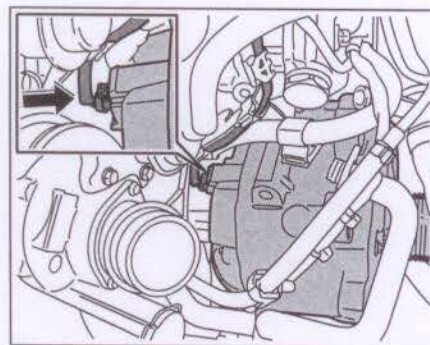
- *When tightening the B+ lead, make sure that no leads are trapped between the three-phase generator and the engine.*
2. Tighten electrical B+ lead with fastening nut -7- . → **Tightening torque: 11 ftlb.** To do this, pull the generator forward and position it so it cannot move when the B+ lead is tightened.





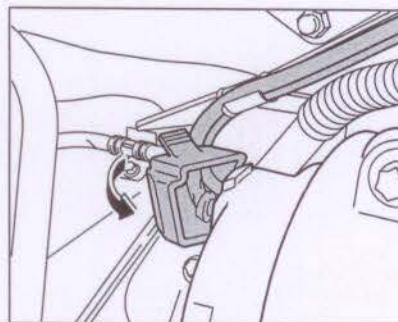
*Tightening fastening nut for B + lead*

3. Push plug onto the generator **-arrow-** until it clicks into place.



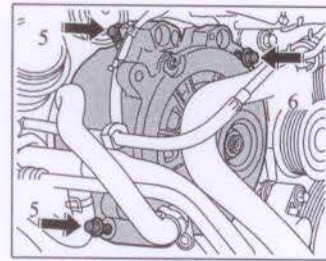
*Pushing plug onto the generator*

4. Position the protective cover and press into place. Ensure that it fits securely and is sealed against moisture.



*Pushing on protective cap for electrical plug connection on three-phase generator*

5. Move three-phase generator into the mounting position.



*Tightening screws for fastening three-phase generator*

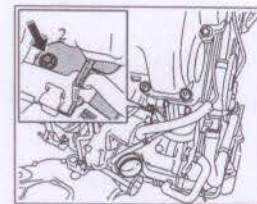
6. Screw in fastening screws in the order **-6 und 5-** .
7. Tighten fastening screws in the order **-6 und 5-** . → **Tightening torque: 17 ftlb.**



**Information**

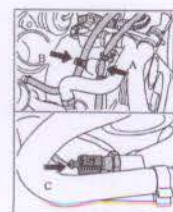
Additional assembly operations must be performed if installing a new three-phase generator.  
 → 272219 *Removing and installing three-phase generator - Cayenne Turbo (type M48/50) - chapter on "completing"*

8. Additional assembly operations must be performed if installing a new three-phase generator.
9. Secure the holder with generator leads to the three-phase generator using the fastening screw **-2-** . → **Tightening torque: 7.5 ftlb.**



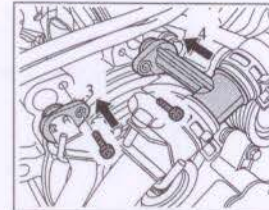
*Securing holder with generator leads to the three-phase generator*

10. Clip in line to oil pressure switch and oil-level sensor **-Arrow A-** .



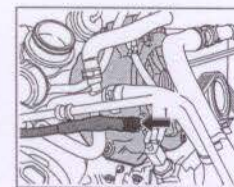
*Clipping in line to oil pressure switch and oil-level sensor*

11. Clip in the pressure pipe **-Arrow B-** .
12. Push plug onto the oil pressure switch until it clicks into place **-Arrow C-** .
13. Push in coolant connections on the three-phase generator and secure with fastening screws **-3 and 4-** .  
→ **Tightening torque: 7.5 ftlb.**



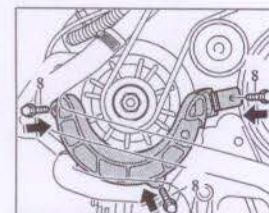
*Securing coolant connections to three-phase generator*

14. Remove hose clamps on the coolant hoses.
15. Secure ground lead to the three-phase generator with the fastening screw **-1-** . → **Tightening torque: 15 ftlb.**



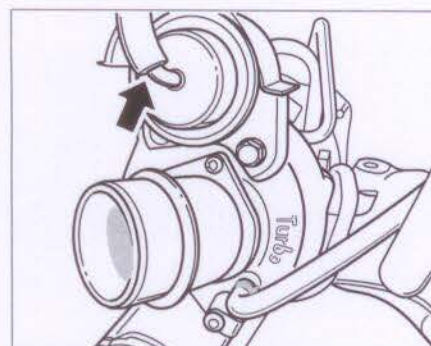
*Tightening screw for fastening ground lead to the three-phase generator*

16. Position the impact bracket and secure with the fastening screws **-8-** . → **Tightening torque: 17 ftlb.**



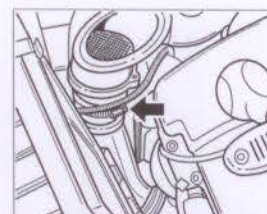
*Tightening fastening screws for the impact bracket*

17. Attach hose **-arrow-** to the control box of the bypass valve.



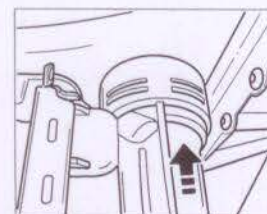
Attaching hose to the control box of the bypass valve

18. Insert the intake bracket with ambient air valve from above. Fasten the hose clamp **-arrow-** on the underside of the air flow sensor. Connect the electrical plug of the air flow sensor.



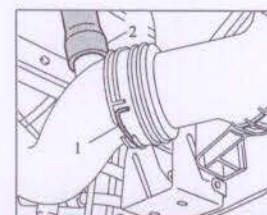
Fastening the hose clamp on the underside of the air flow sensor.

19. Push on the coolant line. The securing clip of the flange must audibly engage.



Fit coolant hose at the bottom right of the radiator

20. Connect the hose line to the charge air cooler. Ensure that locking clip **-1-** is mounted correctly. Then connect the line to the ambient air valve **-2-** and fit the spring-band clamp.



Connecting the connection on the charge air cooler

21.