

SERVICE INFORMATION

Trucks

Diagnostic Trouble Codes

OBD2013 - OBD2015

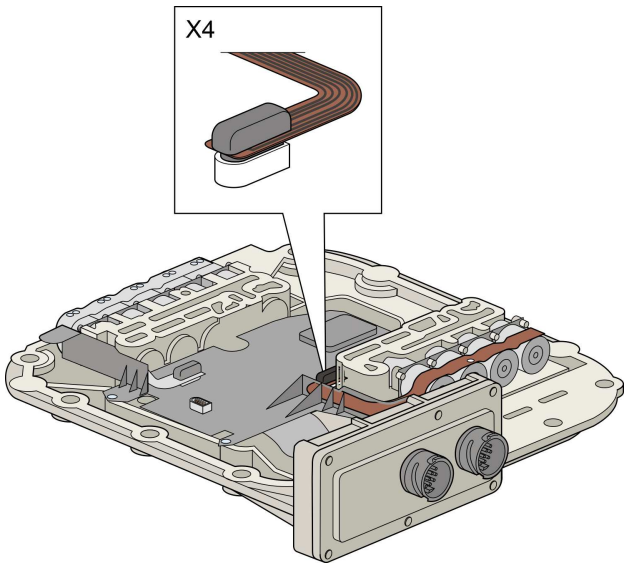
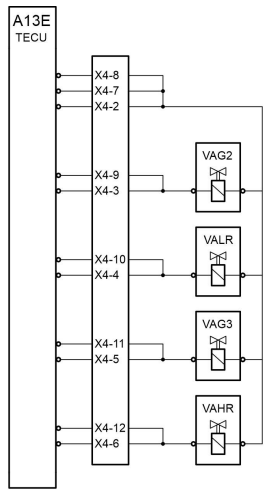
CHU / CXU



Malfunction	1
TECU P106D - 17, Gear 3 Valve (VAG3)	1
TECU P106E - 17, solenoid valves, power take off	3

Malfunction

TECU P106D - 17, Gear 3 Valve (VAG3)

Solenoid valve assembly .	Schematics:
 <p style="text-align: right; margin-top: 10px;">T3160747</p>	 <p style="margin-top: 10px;"> X4:8/X4:7/X4:2 - VAG2 / VALR/ VAG3/ VAHR(Ground wire) X4:9/X4:3 - VAG2(Signal wire) X4:10/X4:4 - VALR(Signal wire) X4:11/X4:5 - VAG3(Signal wire) X4:12/X4:6 - VAHR(Signal wire) </p> <p style="text-align: right; margin-top: 10px;">T3160748</p>

Fault type	Condition for Fault	Observable Symptoms	Possible cause
P106D FTB 17	Short circuit to battery voltage.	<ul style="list-style-type: none"> • The solenoid valve can not be activated • Gears missing • Incorrect gear selection 	<ul style="list-style-type: none"> • Solenoid valve assembly (VAG3). • Gearbox control unit (TECU).

Important information:

The gearbox must be removed from the vehicle before the control housing can be removed

Remove the gearbox
 For more information, see Impact:

Reference to service information
 Gearbox, remove (Impact operation: 4311-01-01-01(43170-01))

Remove the control housing:


For more information, see Impact:

Reference to service information
 Control housing, remove (Impact operation: 4329-01-01-01(43222-01))

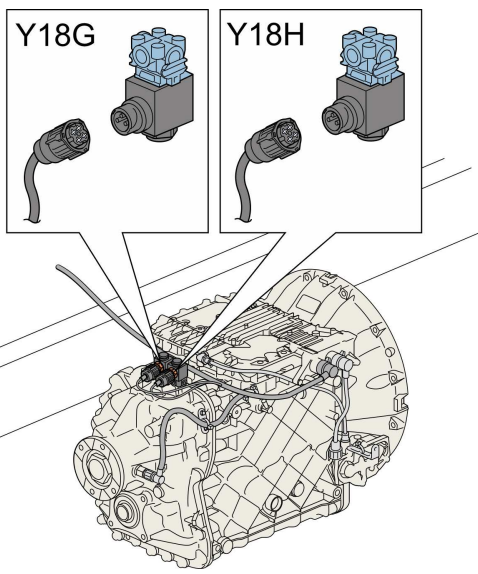
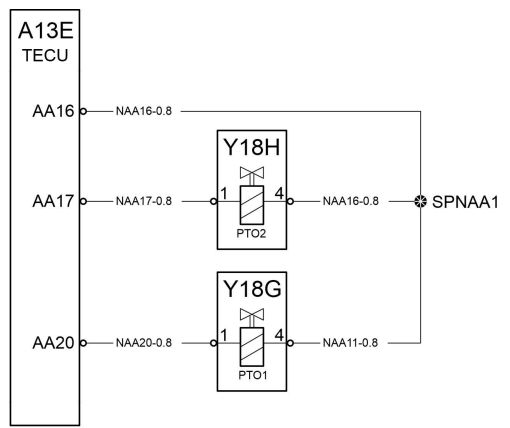
Connector check:

Purpose:	Action:	Evaluation:
Check connector X4 .	<ul style="list-style-type: none"> • Check that the connectors are properly connected and locked into position • Disconnect and check the component connector. • Inspect pins and terminals for oxidations or corrosion. • Ensure that the pins and terminals are locked into the connectors and that they are not pushed back out of the sockets. • Check the pins and terminal are not damaged (which can cause poor connection). 	None.

Verification:

 CAUTION		
<p>There is no communication with the vehicle. This is not the actual verification procedure. Information shown is the condition(s) how to verify the repair when connected to the vehicle.</p>		
Purpose:	Action:	Evaluation:
Verification.	<ul style="list-style-type: none"> • Ignition key in OFF position. • Wait 5 seconds. • Ignition key in ON position. • Wait 1 minute(s) and continue verification by reading out fault codes.. 	<ul style="list-style-type: none"> • If the DTC is not set during the verification the fault may be corrected • The status of the diagnostic process in the control unit can not be tested without communication with the vehicle. • The DTC may appear later when the vehicle has been returned to service.

TECU P106E - 17, solenoid valves, power take off

 <p style="text-align: center; font-size: small;">T3160745</p>	<p>Schematics:</p>  <p style="font-size: small;">A13E.AA:16 - Y18GH:4 Ground wire A13E.AA:17 - Y18H:1 Control wire A13E.AA:20 - Y18G:1 Control wire</p> <p style="text-align: right; font-size: small;">T3160746</p>
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Fault type	Condition for Fault	Observable Symptoms	Possible cause
P106E FTB 17	Short circuit to higher voltage: AA:20.	<ul style="list-style-type: none"> The solenoid valve is activated The power take-off (PTO) can not be deactivated Rough gear shift 	<ul style="list-style-type: none"> Solenoid valve, power take-off 1. Connector. Wiring harness. Gearbox control unit (TECU).

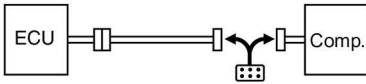
Visual wiring harness check — Y18G, Y18H, AA:

Purpose:	Action:	Evaluation:
Check the wiring harness.	Visually check that wiring harness is not damaged.	None.

Connector check:

Purpose:	Action:	Evaluation:
Check connector AA .	<ul style="list-style-type: none"> Check that the connectors are properly connected and locked into position Disconnect and check the component connector. Inspect pins and terminals for oxidations or corrosion. Ensure that the pins and terminals are locked into the connectors and that they are not pushed back out of the sockets. Check the pins and terminal are not damaged (which can cause poor connection). Carefully insert the correct test pin from special tool 9990008 and verify that pin connections are in good condition. 	None.

Voltage measurement:

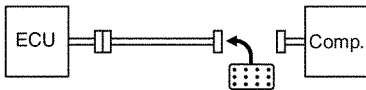


Measurement	Key position	Measurement points		Reference Value	Measured value	Other (Special Tool PN)
		Breakout box	Wiring diagram			
Check component function	ON	20 — 16	A13E.AA.Pin 20 — A13E.AA.Pin 16	V= 300 mV – 700 mV		9990041, 9998699,999- 0061/62

After executing the Voltage measurement if the result Select Pass value :

Continue the next step

Resistance measurement



Measurement	Key position	Measurement points		Expected Value	Measured value	Other (Special Tool PN)
		Breakout box	Wiring diagram			
Check for short circuit to higher voltage	OFF	18 — 20	A13E.AA.Pin 20 — A13E.AA.Pin 18	R ≥ 500 KΩ		9990061/62, 9998699, 9990041

After executing the Resistance measurement if the result Select Pass value :

Continue the next step

Connect TECHTOOL to the vehicle and run the **1700-08-03-39 Program control unit - Reload software** programming operation.

Connect TECHTOOL to the vehicle and run the **4320-07-03-01 Gearbox, clutch, engagement point** celebration operation.

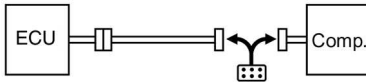
After executing the Voltage measurement if the result Select fail value :

Continue the next step

Connector check:


Purpose:	Action:	Evaluation:
Check connector Y18G & Y18H .	<ul style="list-style-type: none"> • Check that the connectors are properly connected and locked into position • Disconnect and check the component connector. • Inspect pins and terminals for oxidations or corrosion. • Ensure that the pins and terminals are locked into the connectors and that they are not pushed back out of the sockets. • Check the pins and terminal are not damaged (which can cause poor connection). • Carefully insert the correct test pin from special tool 9990008 and verify that pin connections are in good condition. 	None.

Voltage measurement:



Measurement	Key position	Measurement points		Reference Value	Measured value	Other (Special Tool PN)
		Breakout box	Wiring diagram			
Check component function	ON	1—4	Y18G.Pin 1 — Y18G.Pin 4	V= 300 mV – 700 mV		88890039

Verification:

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Purpose:	Action:	Evaluation:
Verification.	<ul style="list-style-type: none"> • Ignition key in OFF position. • Wait 5 seconds. • Ignition key in ON position. • Wait 1 minute(s) and continue verification by reading out fault codes.. 	<ul style="list-style-type: none"> • If the DTC is not set during the verification the fault may be corrected • The status of the diagnostic process in the control unit can not be tested without communication with the vehicle. • The DTC may appear later when the vehicle has been returned to service.



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