MFC
Mounting Truck part

The information in these instructions was up to date when it was printed. VBG reserves the right to make technical changes without prior notice.

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2015-04-07
38-216105i

General

Mounting instructions

VBG's instructions

All directives and instructions should be kept in the vehicle for future service and maintenance.

The coupling has a high-quality corrosion protection as a result of ED treatment, and a finish with a very high resistance to abrasion. VBG recommends that the coupling should not be repainted, otherwise there is a risk of inferior functionality and obscuring important information.

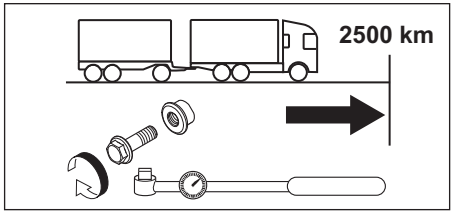
Identify all parts before installation. Installation should be carried out carefully and professionally. Follow the instructions.

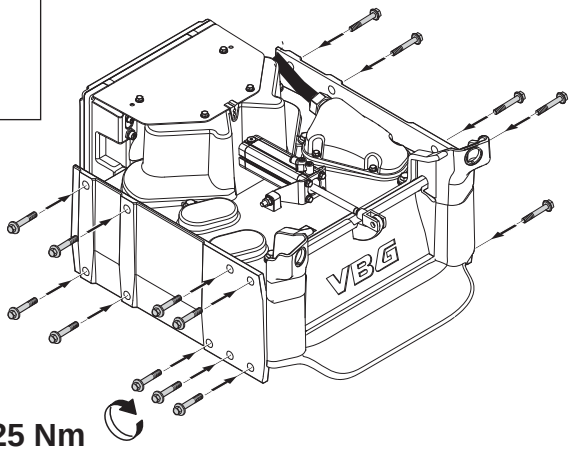
The text by a WARNING symbol indicates the risk of damage if the instructions in the warning are not followed.

Never touch the connector terminals on the coupling part if the current has not been disconnected since this can cause short circuiting.

Disconnect the power and air supply on the vehicle before working on the coupling!

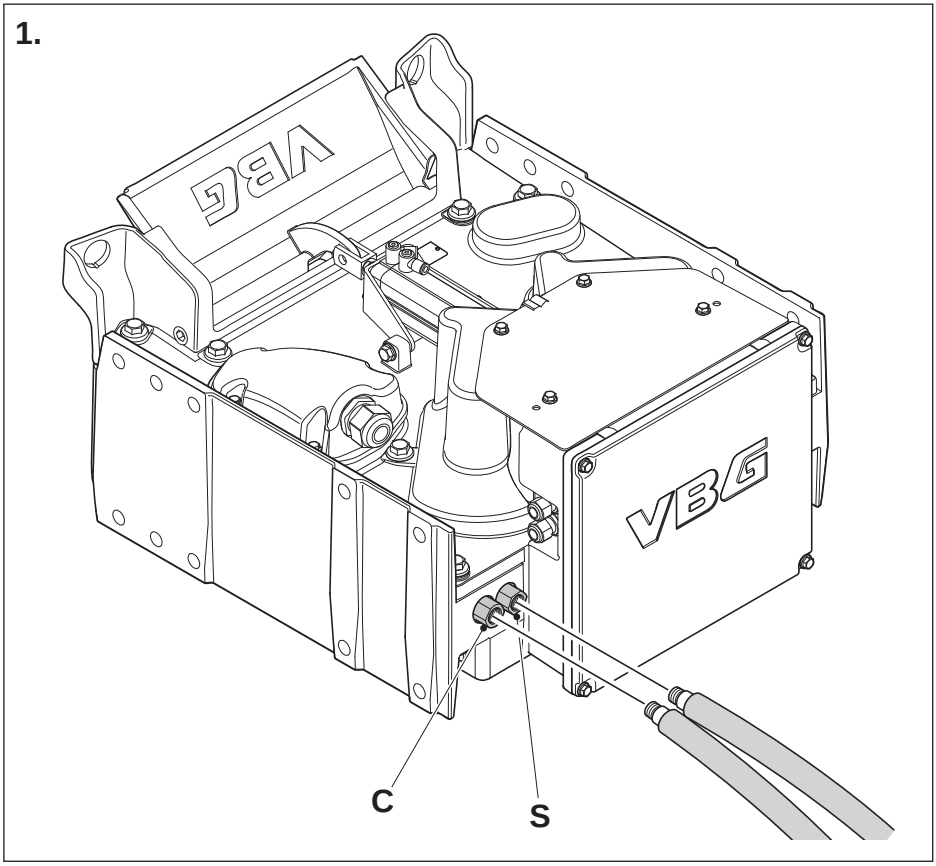
It is prohibited to wash the inside of the coupling with high-pressure jets.





125 Nm

M14, 8.8

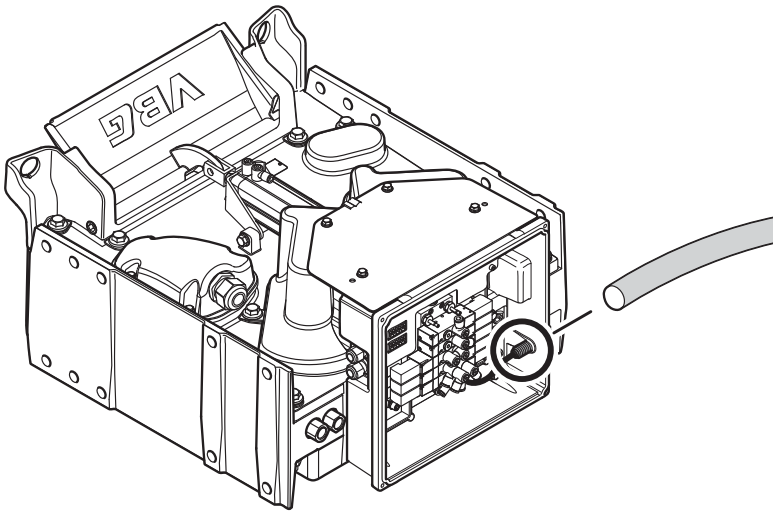


1. Connect the air to the coupling. Thread M16x1.5.

S=Supply connected to the truck's air tank system.
C= Control connected to the truck's brake system.

Connection of supply air

1.

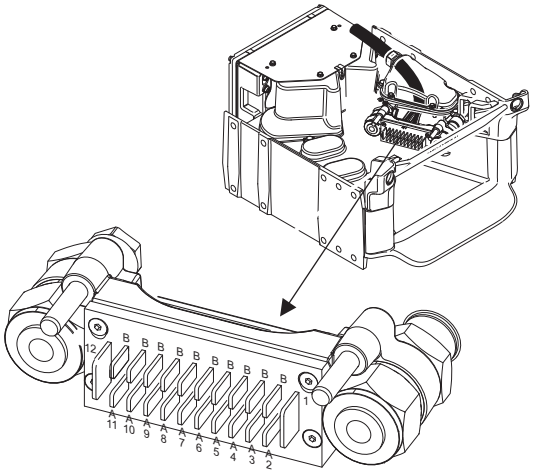


1. Connect the supply line from the truck outlet for extra air consumption, line 6/4.
Always follow the truck manufacturer's instructions.
Working pressure 6-8 bar.

Max permitted pressure: 8 bar

Wiring diagram for power plug

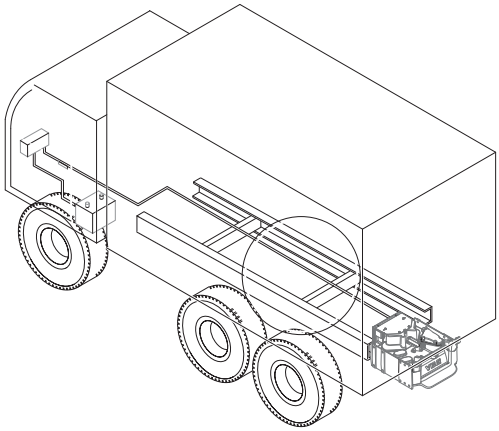
1.



1. Connect the power cables as per the description. Numbers inside brackets indicate the number on the pin in the vehicle's ABS/EBS connector.

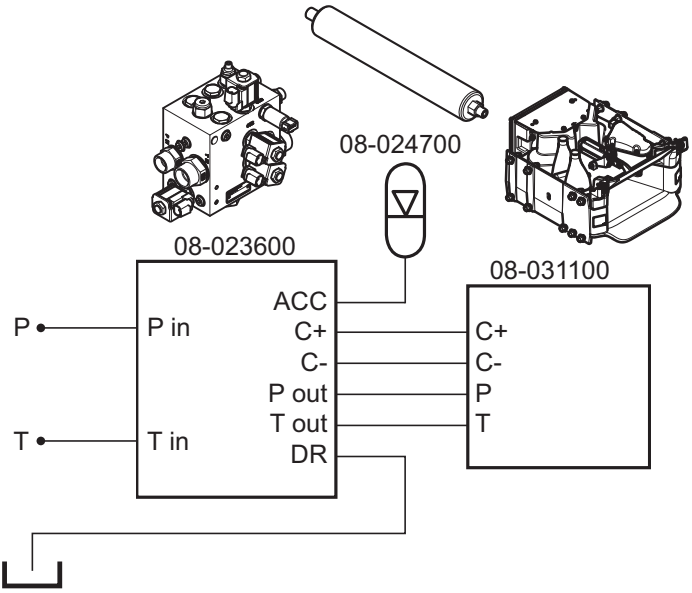
Terminal	Cable No.	Cable Colour	Function
1	1	black	Minus - connected to minus solenoid valve, ABS, EBS (4)
2a	2	white	Left direction indicator
2b	2	black	Plus solenoid valve, ABS, EBS (1)
3a	3	white	Right direction indicator
3b	3	black	Plus electronics, ABS, EBS (2)
4a	4	white	Brake light
4b	4	black	Minus electronics, ABS, EBS (3)
5a	5	white	Left rear light, number plate light, position light, marking light
5b	5	black	Warning device, ABS, EBS (5)
6a	6	white	Right rear light, number plate light, position light, marking light
6b	6	black	Reversing light
7a	7	white	(Fog tail light)
7b	7	black	
8a	8	white	
8b	8	black	
9a	9	white	
9b	9	black	Trailer info
10a	10	white	CANH, EBS (6)
10b	10	black	CANL, EBS (7)
11a	11	white	
11b	11	black	Trailer info
12	12	black	Power supply +

1.

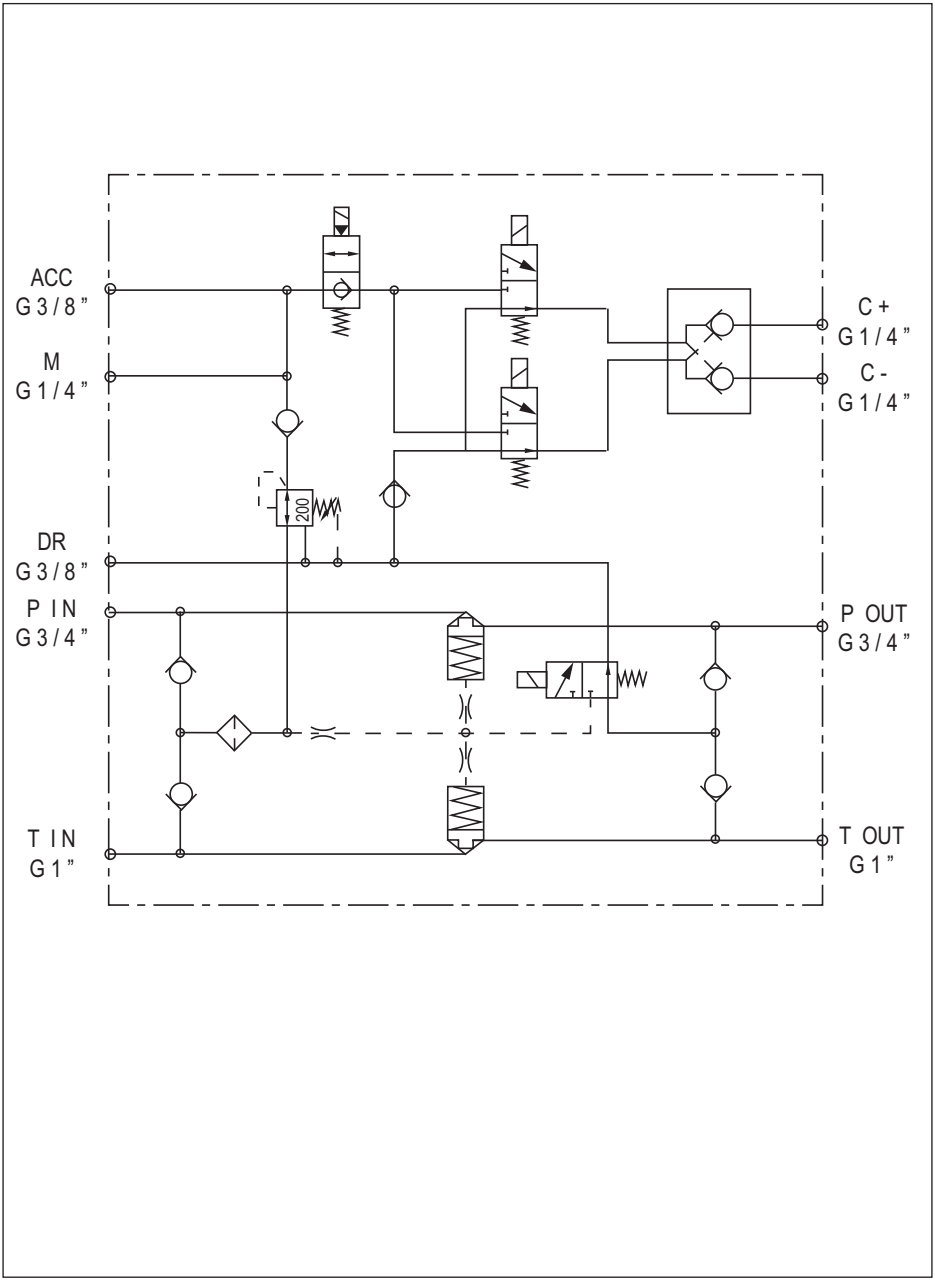


1. Fit the valve plate in the truck frame in a protected place with good access to its hydraulic connections and contacts. Fit the accumulator in the truck frame.

2.



2. Connect hydraulic hoses to valve plate, accumulator according to wiring diagram.


ACC
G 3 / 8 ”
M
G 1 / 4 ”
DR
G 3 / 8 ”
P IN
G 3 / 4 ”
T IN
G 1 ”
C +
G 1 / 4 ”
C -
G 1 / 4 ”
P OUT
G 3 / 4 ”
T OUT
G 1 ”
200

P and T are the hydraulic connections to be transferred to the trailer.

Different installation cases for MFC Hydraulics.

- P - Constant pressure
  T - Drainage to tank.
- P alternates between pressure and drainage
  T alternates simultaneously conversely between drainage and pressure
- P and T alternate between pressure and drainage independent of each other. Both connections can thus be used individually, in parallel or jointly in order to allow a greater flow

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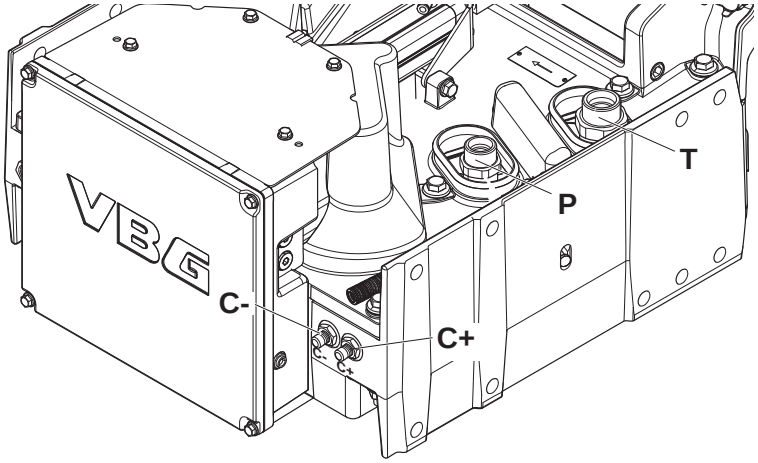
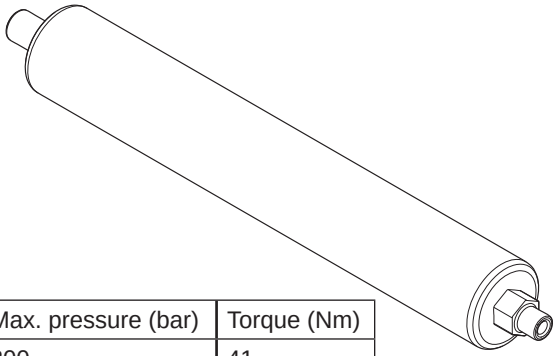


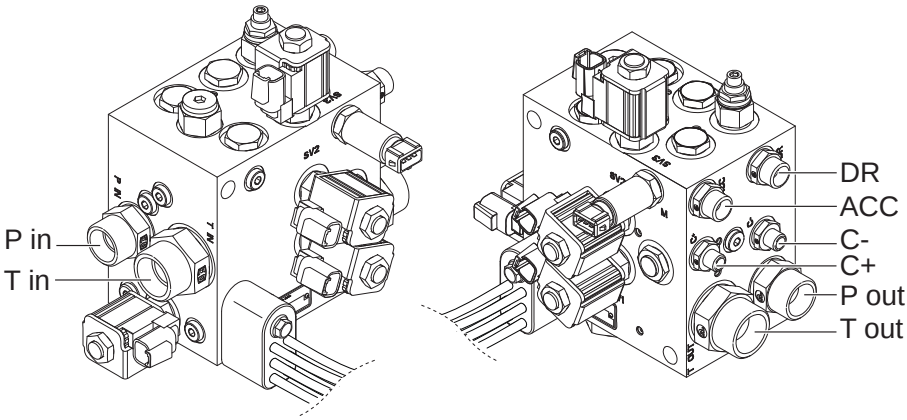
	Connection	Max. pressure (bar)	Torque (Nm)
C+	M12x1,5 24° cone	200	23
C-	M12x1,5 24° cone	200	23
P	M30x2 24° cone	250	116
T	M36x2 24° cone	200	133

08-024700

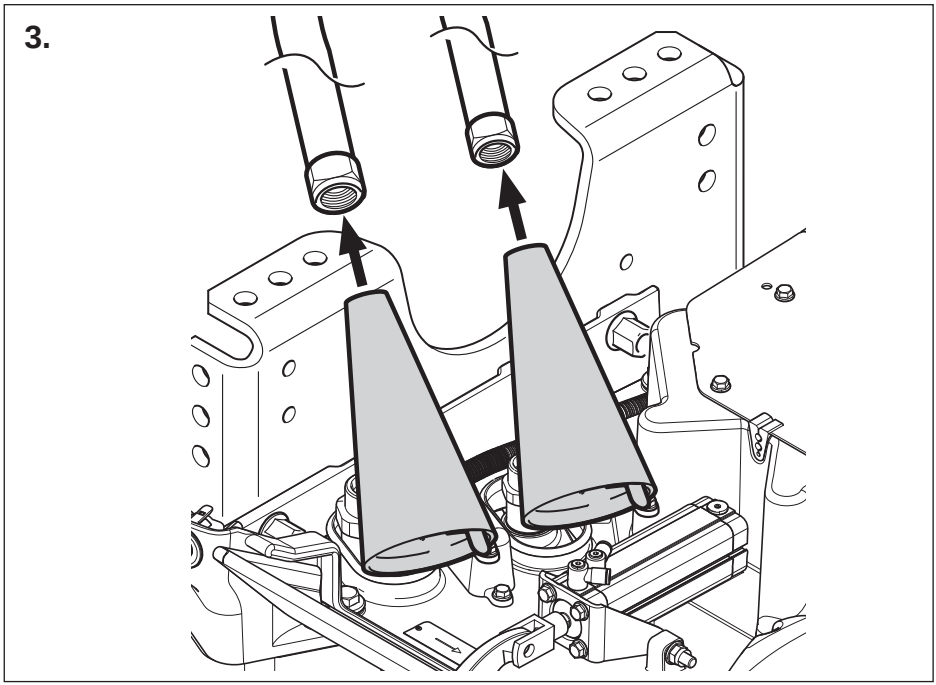


	Connection	Max. pressure (bar)	Torque (Nm)
ACC	M18x1,5 24° cone	200	41

08-023600



	Connection	Max. pressure (bar)	Torque (Nm)
C+	M12x1,5 24° cone	200	23
C-	M12x1,5 24° cone	200	23
ACC	M18x1,5 24° cone	200	41
DR	M18x1,5 24° cone	200	41
P in	M30x2 24° cone	250	116
P out	M30x2 24° cone	250	116
T in	M36x2 24° cone	200	133
T out	M36x2 24° cone	200	133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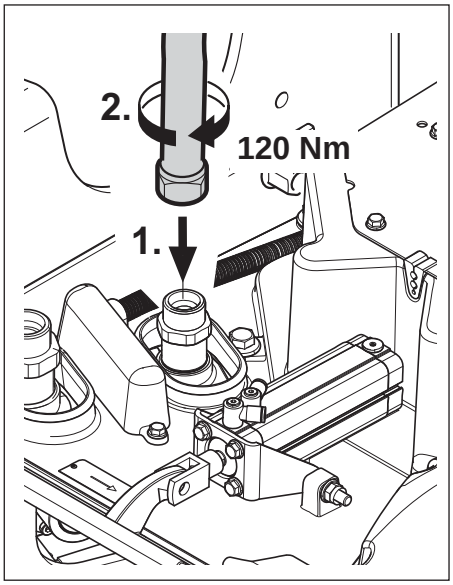
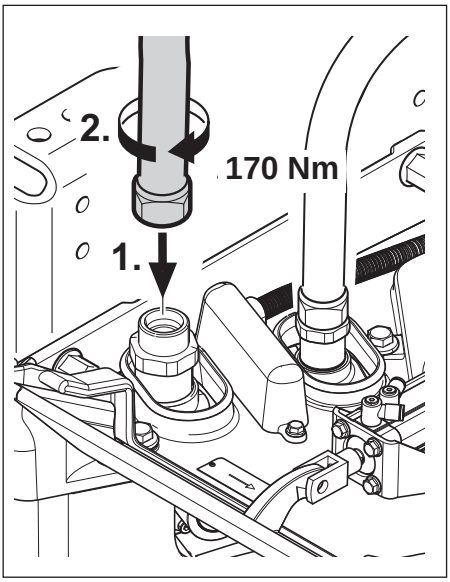
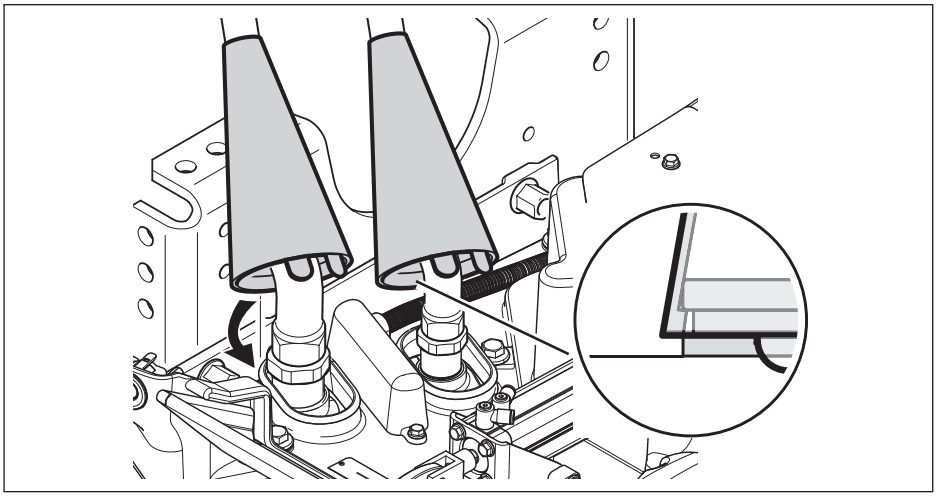
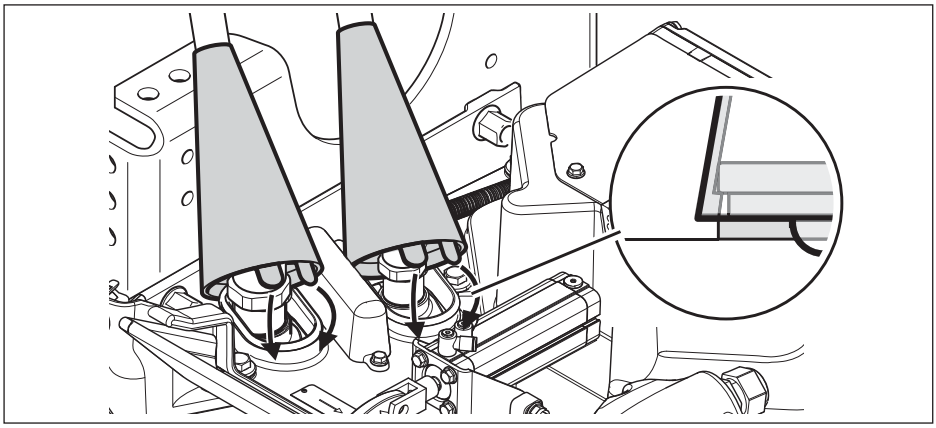
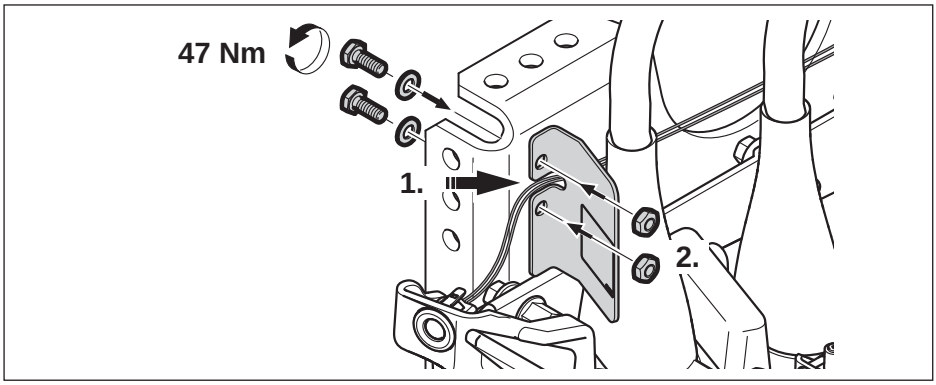

2.
120 Nm
1.

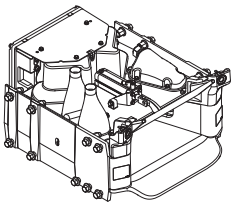

2.
170 Nm
1.

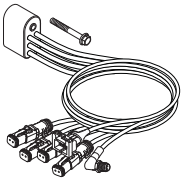


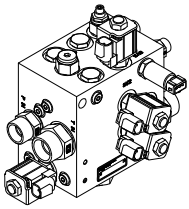



47 Nm
1.
2.

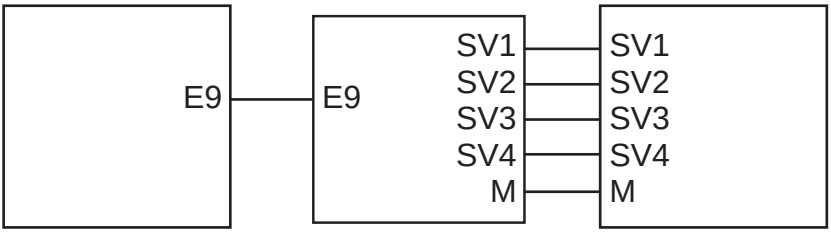
4.

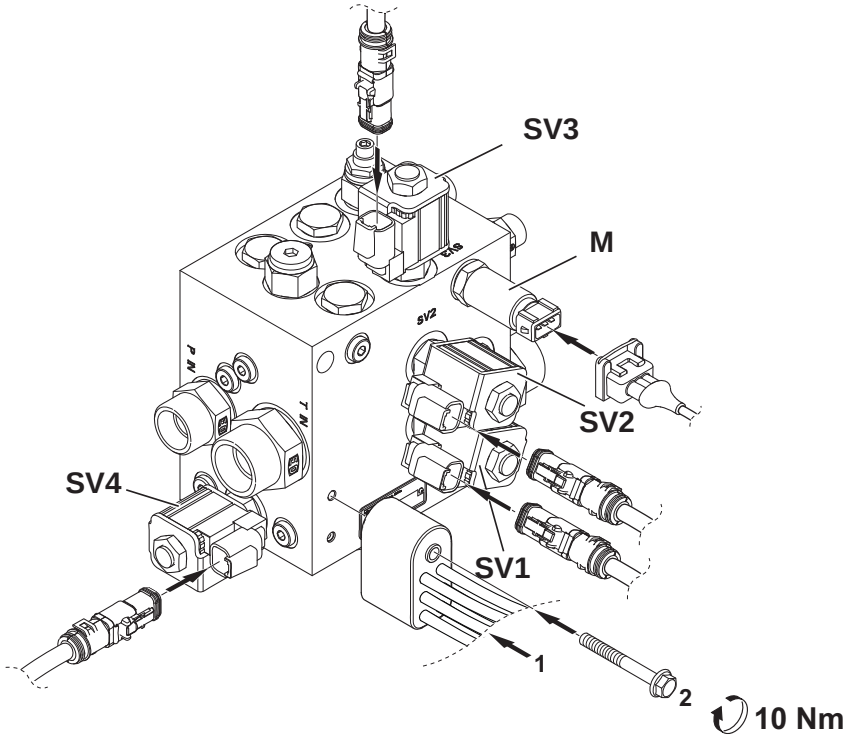






08-031100 **28-038300** **08-023600**





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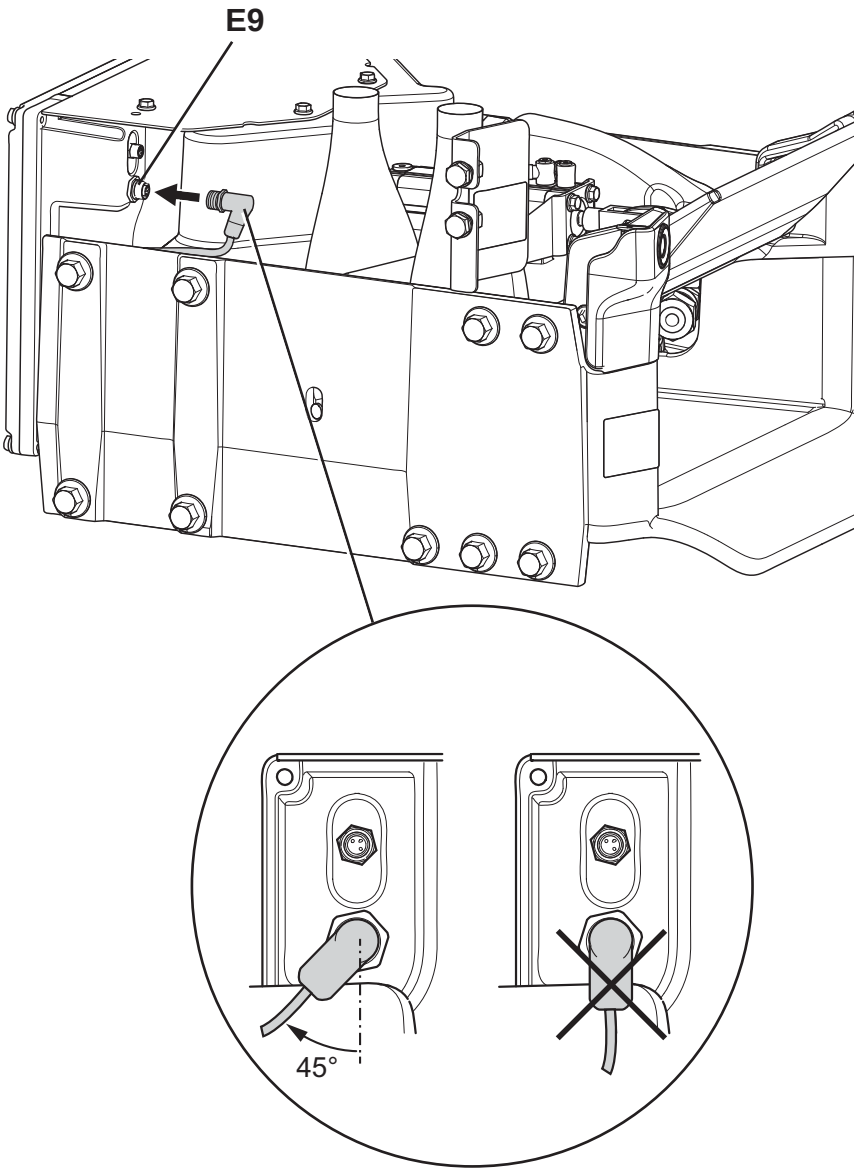
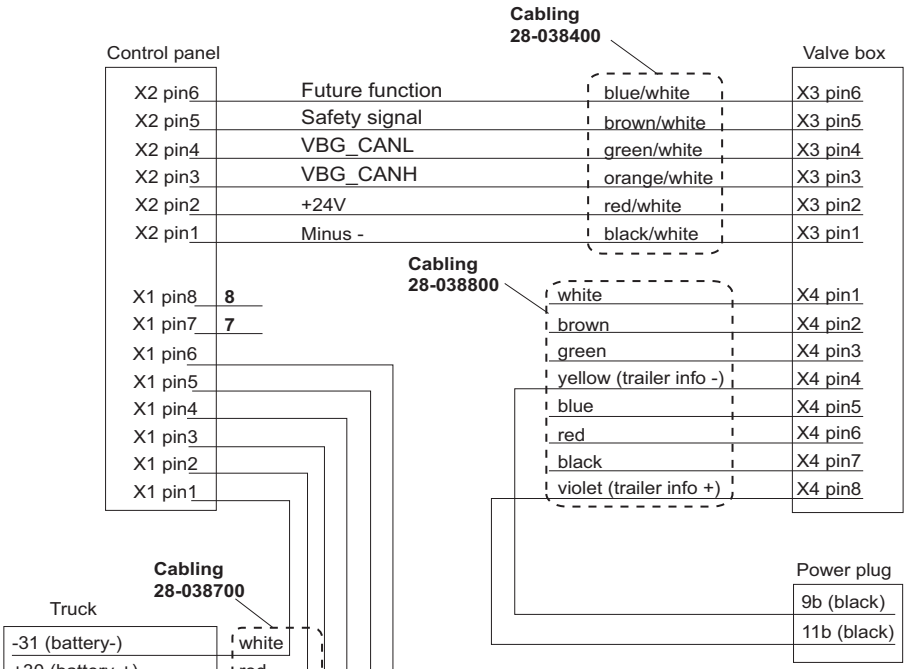


1.



1. Wiring diagram.

7 FMS CAN-High
8 FMS CAN-Low

Pin 7 and 8 can be used by other product for CAN-bus connection.

2. Signals from the truck's electrical system

A) The table below shows the signals that need to be connected to the truck's electrical system. The colours and cable areas refer to the standard cable "Truck signals cable", which is included in "Installation kit MFC".

Signal	Colour	Function	Max Power supply	Area	Fuse
-31	White	Battery -	---	1.5 mm²	---
+30	Red	Battery +	4A	1.5 mm²	10A
+15	Orange	Ignition key	10mA	0.75 mm²	---
Zero speed signal	Brown	+24V for stationary vehicle	10mA	0.75 mm²	---
FMS CANH	Yellow		---	0.75 mm²	---
FMS CANL	Green		---	0.75 mm²	---

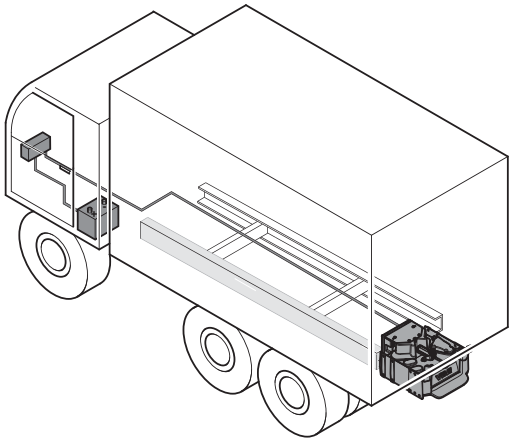
B) The coupling must receive the truck's wheel-based speed via CAN to function. This information is collected from the truck's CAN bus for bodybuilders (often called FMS CAN or SAE J1939).

The coupling must only be connected to a CAN bus specially intended for bodybuilders.

The coupling must receive a Zero speed signal from the truck. The signal must be 0 V when the speed is higher than 3 km/h and +24 V when the speed is less than 1 km/h.

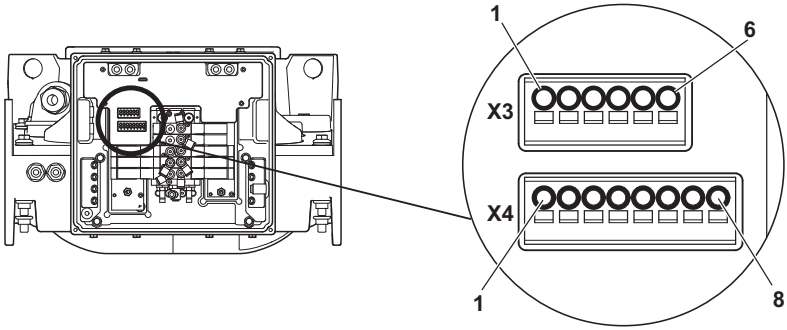
The recommended settings are:
On (+24V) when the speed is < 1 km/h.
Off (0V) when the speed is > 2 km/h.

3.



3. The cables should be routed along the truck frame as per the truck manufacturer's instructions.

4.



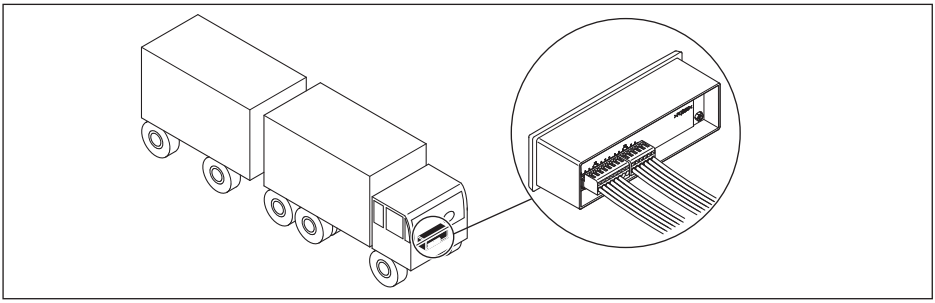
Contact X3 (6 pole)

Terminal	Cable	Function
1	black/white	Minus -
2	red/white	24V +
3	orange/white	VBG_CANH
4	green/white	VBG_CANL
5	brown/white	Safety signal
6	blue/white	Future function

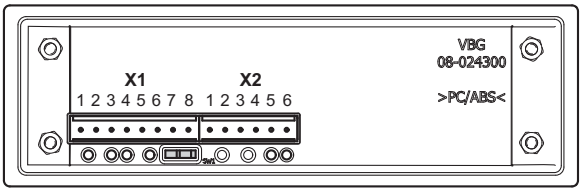
Contact X4 (8 pole)

Terminal	Cable	Function
1	white	
2	brown	
3	green	
4	yellow	Trailer info
5	blue	
6	red	
7	black	
8	violet	Trailer info

4. Connect the cables as per figure. Stripping length 10 mm.



5a.



X1 for connection between truck and control panel

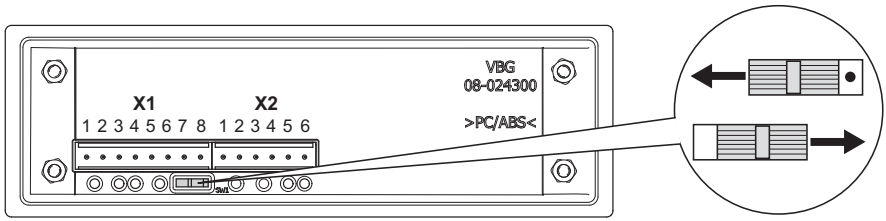
Terminal	Cable	Function
Pin1	white	-31 (battery-)
Pin2	red	+30 (battery+)
Pin3	orange	+15 (ignition key)
Pin4	brown	Zero speed signal
Pin5	yellow	FMS CAN-High input (CAN High from truck)
Pin6	green	FMS CAN-Low input (CAN Low from truck) - green
Pin7		FMS CAN-High output (can be used by other product for CAN-bus connection)
Pin8		FMS CAN-Low output (can be used by other product for CAN-bus connection)

X2 for connection between control panel and valve box

Terminal	Cable	Function
Pin1	black/white	Minus -, power supply to valve box
Pin2	red/white	+24V power supply to valve box
Pin3	orange/white	VBG_CANH
Pin4	green/white	VBG_CANL
Pin5	brown/white	Safety signal
Pin6	blue/white	Future function

5a. Connect the cables as per figure. Stripping length 10 mm.

5b.



5b.

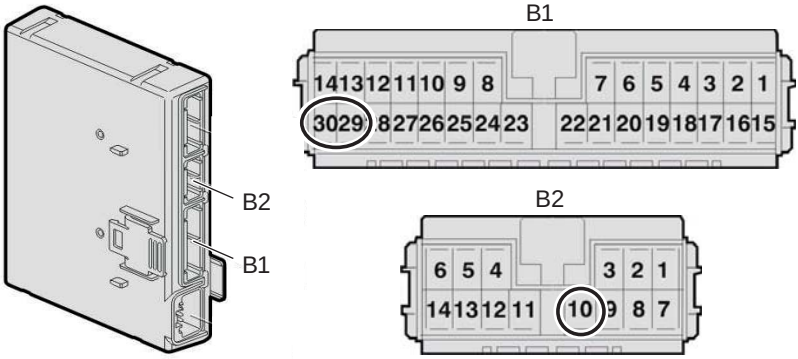
When Pin 7 and 8 in terminal **X1** *are not* used the termination resistance must be connected.

When Pin 7 and 8 in terminal **X1** are used the termination resistance must be disconnected.

Pin 7 and 8 can be used by other product for CAN-bus connection.

Volvo FH4/FM4 - Guide cable, examplel

1.



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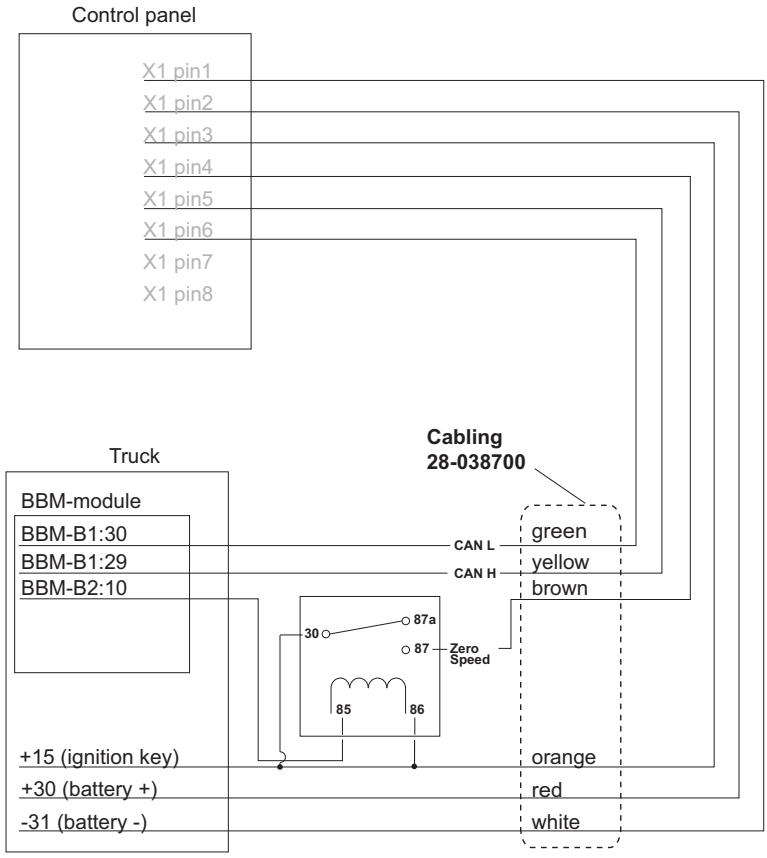


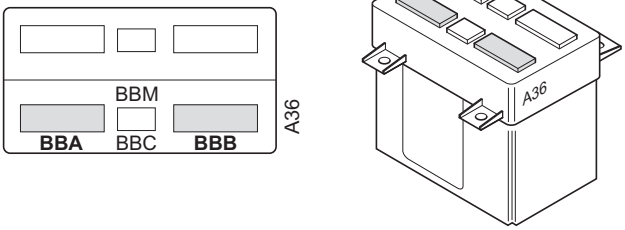
3. Configuration to Zero-speed signal

Parameter	Setting	Description
P1B5N[0]	2 km/h	Vehicle speed output threshold
P1B5O[0]	1 km/h	Vehicle speed output hysteresis
P1B4Q[0]	1=Speed signal active below selected value	Vehicle speed output inverted

Configuration to CAN-Bus

Parameter	Setting	Description
P1BNY	2= Network Enabled	Enables bodybuilder CAN network

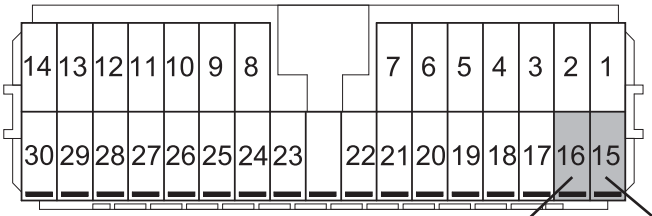
1.



1. Connection of BBM-module.

2a.

Connector **BBA**, terminal output

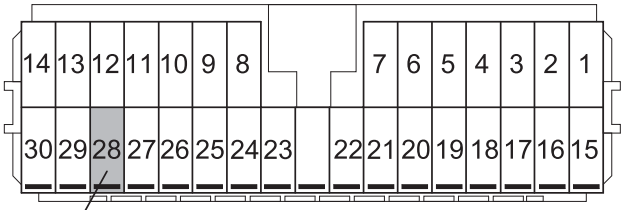


CANL - (green connector)
connected to BBA pos 16

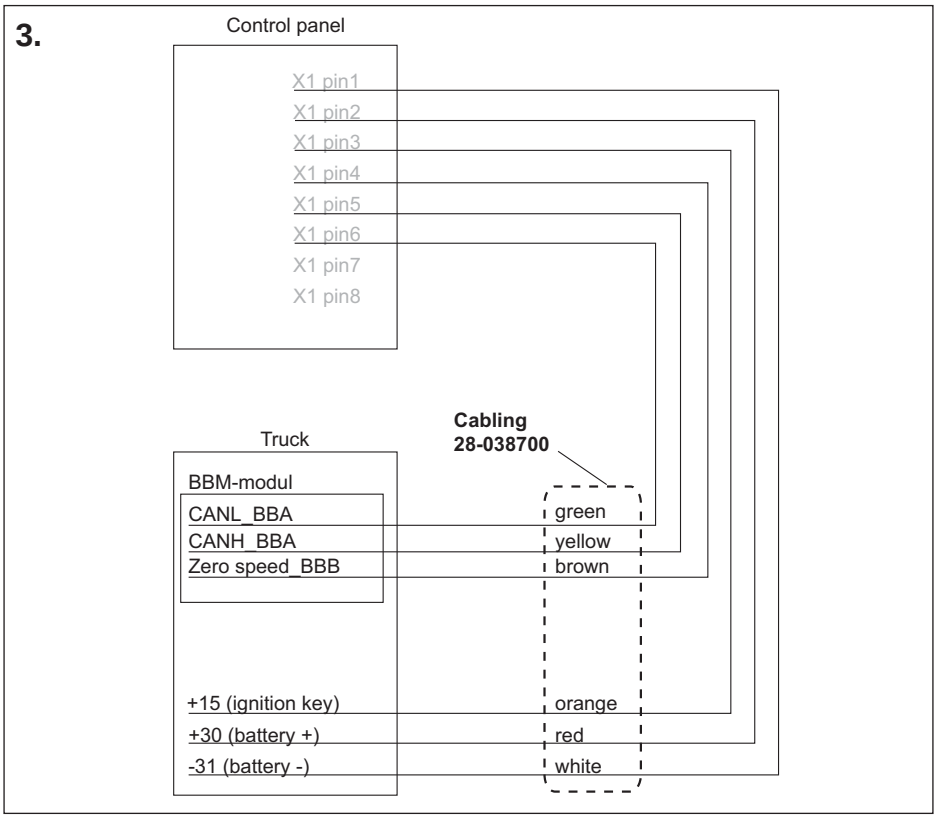
CANH - (yellow connector)
connected to BBA pos 15

2b.

Connector **BBB**, terminal output



ZeroSpeed - (brown connector)
connected to BBB pos 28



3. Wiring diagram for Volvo BBM-module.

4. Programming BBM-module.

Make parameter setting as below.

Parameter settings under menu **Vehicle:**

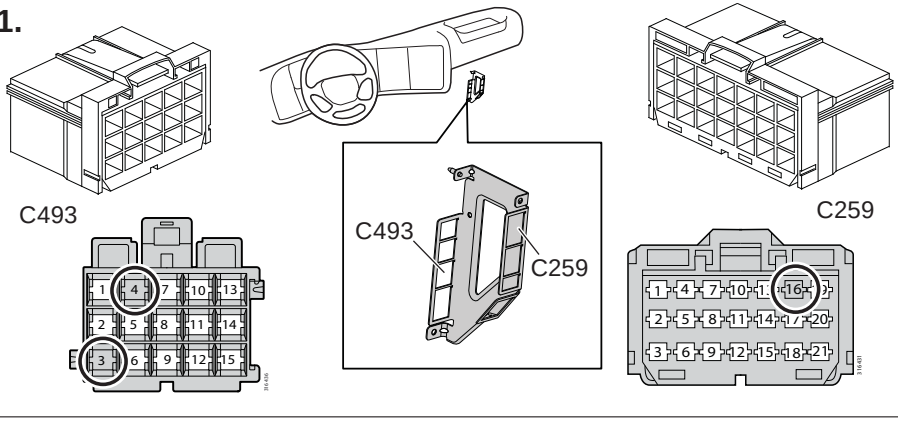
Parameter	Setting	Description
GT	Vehicle speed as digital output	BBB pos 28 set to digital output
LV	1 km/h	Speed setting
SD	Yes	Inverts signal

Parameter settings under menu **PTO:**

Parameter	Setting	Description
AET	Yes	Activates CAN output
AEU	No	
SD	Yes	

Scania with BCI- control unit - Guide Cable, example

1.



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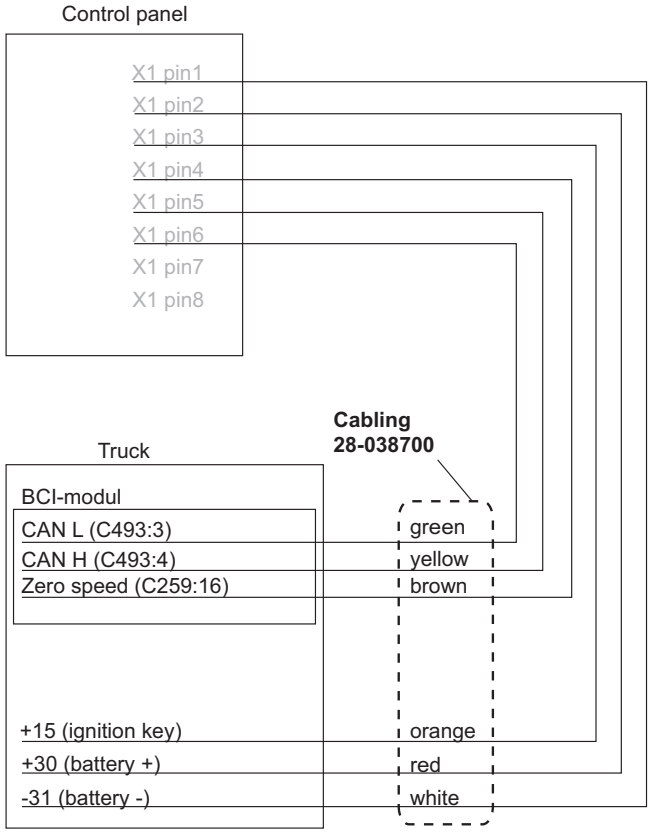
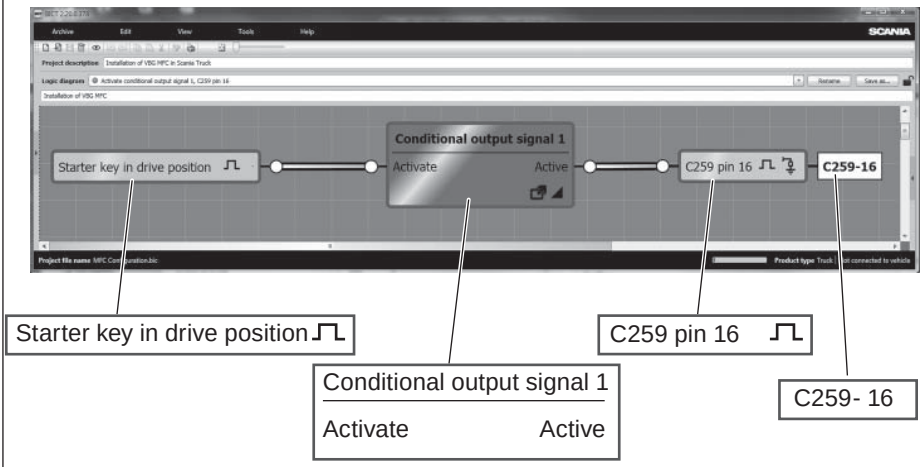


3. Programming in BICT



4. Configuration in SPD3

Conditional output signal 1

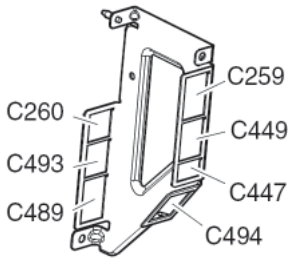
Description	**Setting**
Upper vehicle speed limit for permitted activation	1 km/h
Upper vehicle speed limit for deactivation	2 km/h

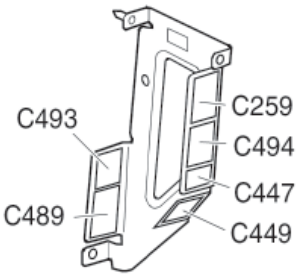
Other bodywork-related parameters

Description	**Setting**
CAN communication with bodywork	All

Other bodywork-related parameters	
Selecting the EXT switch	Spring-loaded
CAN communication with bodywork	All

1.





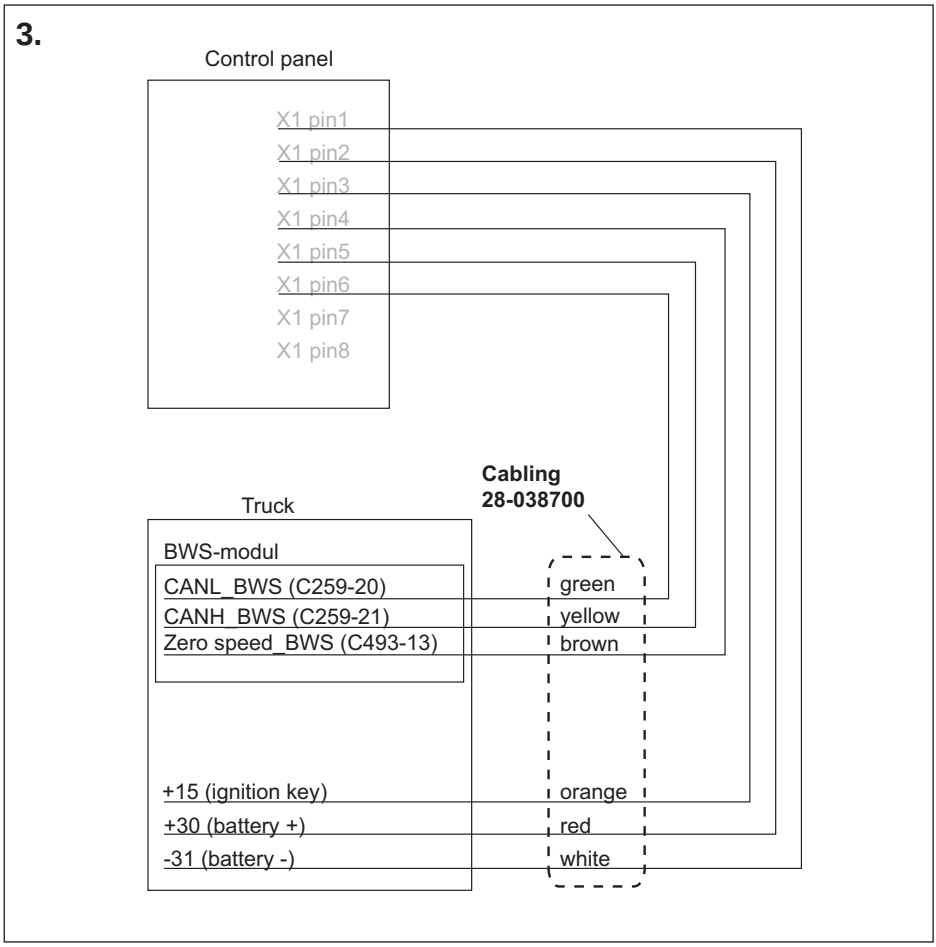
1. Connector BBA and BBB, terminal output.
CANH - (yellow connector) connected to C259-21.
CANL - (green connector) connected to C259-20.
ZeroSpeed - (brown connector) connected to C493-13.

Activate the zero speed signal (C493-13) by connecting ignition current (+15) to C260-5.

2. Programming BWS-module.

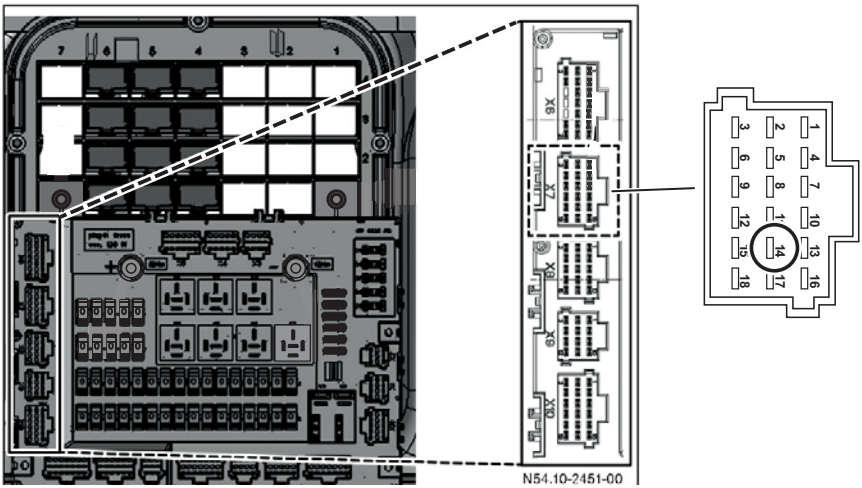
For MFC to function correctly the BWS-module must be correctly configured. Use the program Scania Diagnos/Programmer (SDP3). Make parameter settings as below.

Parameter	**Value**	
Other	**Possible**	**Required**
CAN-communication	Except J1939 All	J1939 or All
Other equipment is power output		
Other equipmentOther, Except	Other, Except	Other
Activation signal for other equipment	Active high, Active low, External CAN	Active high
Manual or automatic activation, other equipment	Manual, Automatic Driving position	Driving position
Upper vehicle speed limit for activation, other equipment		1 km/h
Upper vehicle speed limit for deactivation, other equipment		2 km/h

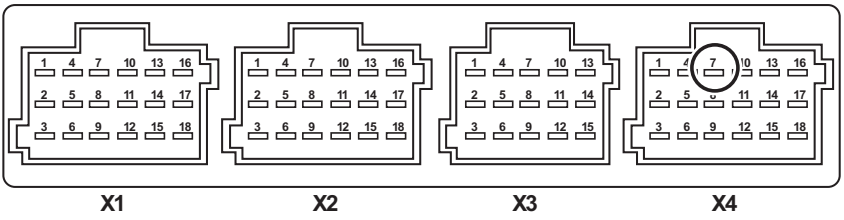


3. Wiring diagram for Scania BWS-module.

1. **Alt A, A7 SAM-module**



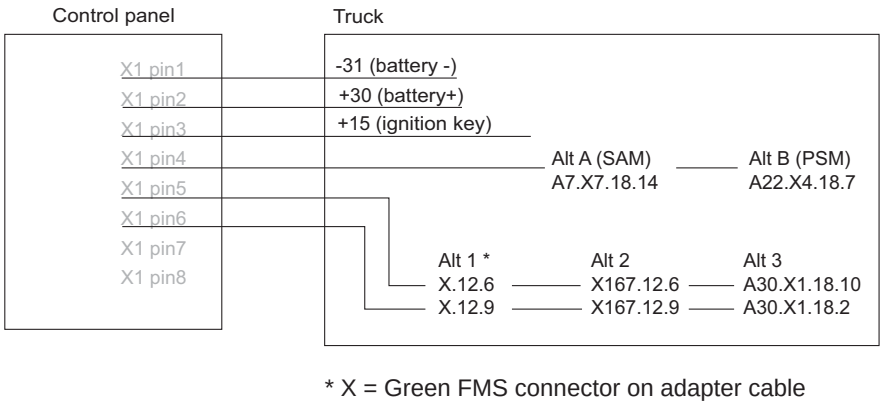
1. **Alt B, A22 PSM-module**



Zero speed signal can be connected either to the SAM module (Alt A) or the PSM module (Alt B), the bodybuilder makes the choice.

Connection of the CAN signal can be made in various locations depending on whether or not the FleetBoard computer is installed in the vehicle.
If FleetBoard is installed in the vehicle (Alt 1), one of the following adapter cables needs to be obtained and installed. (A 03 540 49 05, A 03 540 50 05)
If FleetBoard is not installed in the vehicle (Alt 2 and 3), the connection is adapted according to existing connections.

2.



* X = Green FMS connector on adapter cable

3. Configuration of zero speed signal

Alternative A connection to SAM module

Parameter	Setting	Description
X7.14-900.020	YES	Vehicle's-CAN-bus-event
X7.14-900.030	Speed	Designation
X7.14-900.040	Limiting value fallen below	Operator
X7.14-900.050	2 (km/h)	Limiting value
X7.14-900.060	1 (km/h)	Hysteresis
X7.14-900.070	NO	Activation in event of signal dropout

Alternative B connection to SAM module

Parameter	Setting	Description
400.010	Speed	Designation
400.020	Limiting value fallen below	Operator
400.030	2 (km/h)	Limiting value
400.035	1 (km/h)	Hysteresis
400.040	NO	Activation in event of signal dropout
400.050	YES	Activation of output

4. Configuration of CAN-Bus

Connection according to alternative 1

The FMS Router function in FleetBoard must be activated. This is done remotely from the central organisation for FleetBoard in Germany.

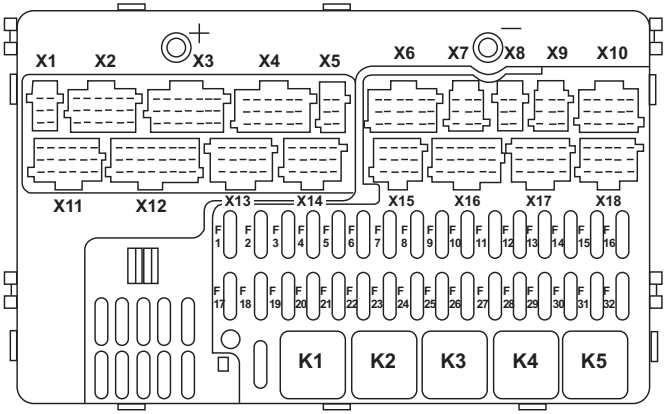
Connection according to alternative 2 and 3

- In CGW under “Adjustments -> Coding -> Vehicle configuration” check the value “043 FleetBoard” and set this if required as “Not Installed”.
- In CGW under “Adjustments -> Coding -> Vehicle configuration” the value “541 Telematics platform” must be set as “FMS”.
- Transfer the vehicle’s equipment and control unit list from CGW in ICUC under “Programmings”.
- Check the value “000 FleetBoard” in the digital tachograph under “Adjustments -> Coding” and set this if required as “NOT INSTALLED” (only for Stoneridge).
- Check the value “001 Telematics CAN Bus” in the digital tachograph under “Adjustments -> Coding” and set this if required as “Low-Speed-CAN-Bus.

Mercedes - Guide cable, example

The truck speed must be taken from the truck's CAN-bus. This can be done in different ways.

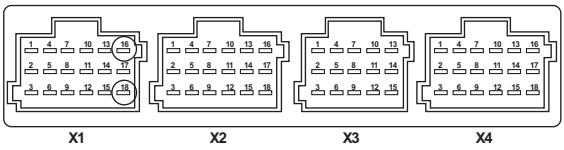
1.



1. Connection to CAN-bus.

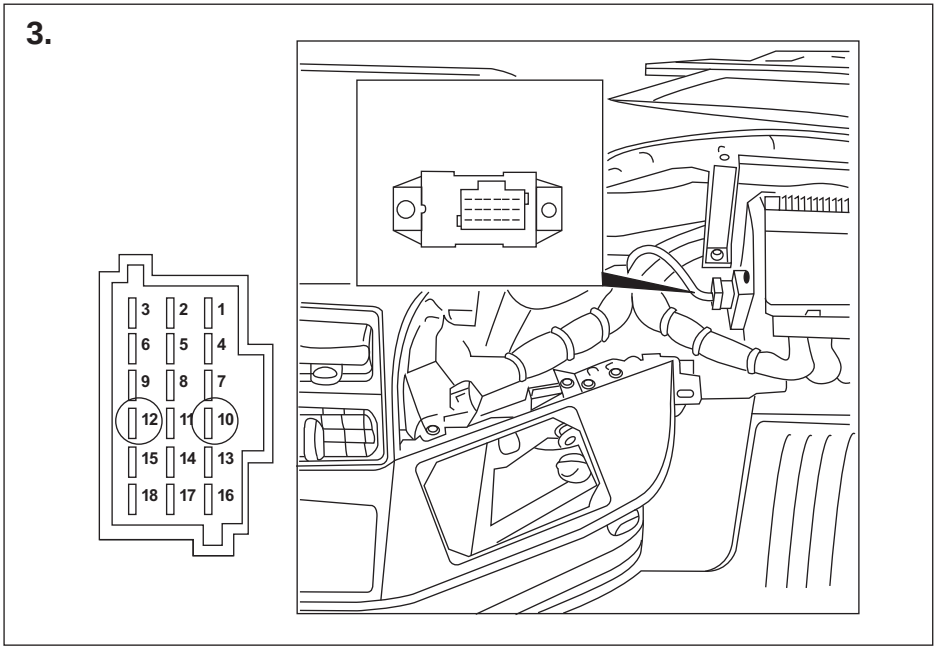
The CAN-speed is taken from the truck's basic module by setting parameter 1525 to "Yes".
Connections:
X5-6/5: FMS CAN-Low (green connector)
X5-6/2: FMS CAN-High (yellow connector)

2.



2. Connection to CAN-bus.

The CAN-speed is taken from the truck's PSM-control unit by activating the parameter 900.520.
ACTROS 1 (950.### - 954.###)
ATEGO (970.### - 976.###, 374.4##, 950.5##, 954.6##, 958.0##)
AXOR (940.### - 944.###, 374.6##, 375.3##, 950.5## - 954.6##, 958.2##, 958.4##)
ECONIC (957.###):
X1-18/16 FMS CAN-Low (green connector)
X1-18/18 FMS CAN-High (yellow connector



3. Connection to CAN-bus.

The CAN-speed is taken from the truck's Z3-contact.

Connections:
X1 18-12 FMS CAN-Low (green connector)
X1 18-10 FMS CAN-High (yellow connector)

4. Connection to Zero-speed signal.

The Zero-speed signal can be taken from the truck at two different places.

Alternative no. 1:
The Zero-speed signal can be taken from the truck's basic module by making the following setting.

-Enter under the following menu in the program "Stardiagnos":

Basic module->Control device adjustments->Parameters for bodybuilder manufacturer->Speed output (X12 21/17)

Configure this speed output as: Speed indicator signal 'ZERO'

Connection:
X12 21/17 (brown connector)

Alternative no. 2:
The Zero-speed signal can also be taken from the truck's PSM control device by making the following configuration.

Parameter	Function	Setting
400.10	Designation (terminal X4 18/9) Speed indicator signal	'ZERO'
400.20	Invertion of the result (terminal X4 18/9)	NO
400.30	Activation of signal loss (terminal X4 18/9)	NO
400.40	Threshold value (terminal X4 18/9)	0
400.50	Activation of output (terminal X4 18/9)	YES

Connection:
X4 18/9 (brown connector)

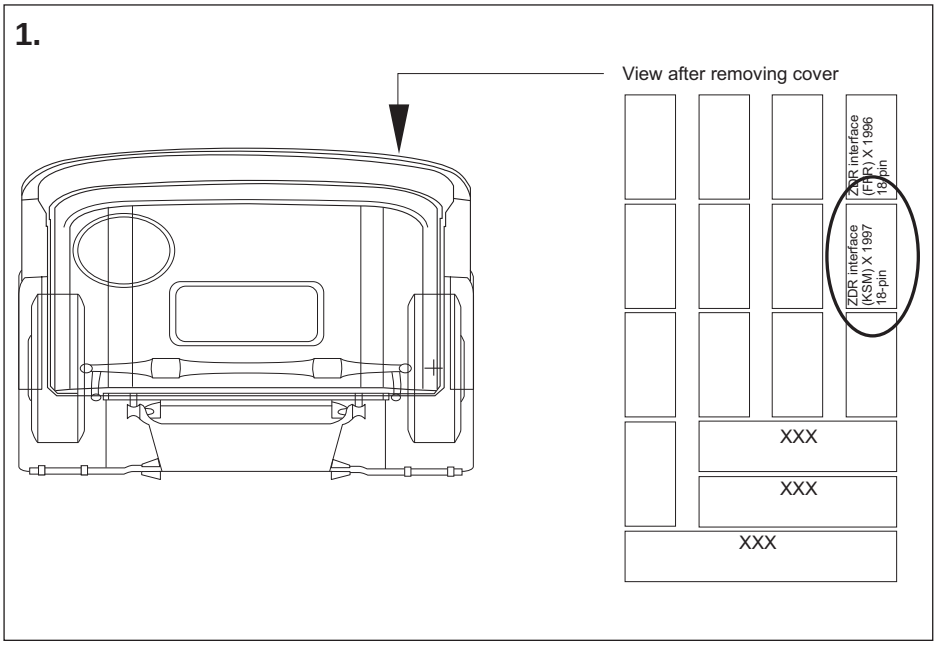
If the output on the PSM control unit is used for the Zero-speed signal this output may need to be loaded with an external relay to avoid an error indication in the truck.

MAN - Guide cable, example

The truck speed must be taken from the truck's CAN-bus. The truck must then be fitted with the following options:

- KSM-module step 1.
- Function parameter 81-25890-0444 alternatively
  function parameter 81-25890-1111 together with 81-25890-2202.
- Function parameter 81-25890-7154.

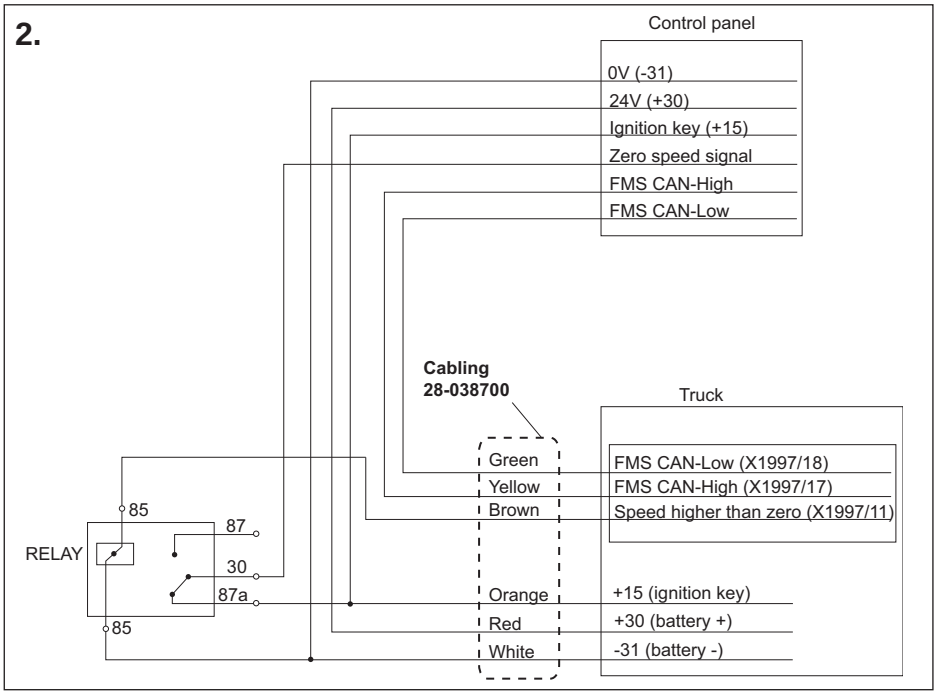
The function parameters must be ordered separately if they have not already been installed at the factory.



1. Connection to CAN-bus.

The CAN-speed is taken from the truck's X1997 contact.

Connection:
FMS CAN-Low - X1997/pin 18 (green connector)
FMS CAN-High - X1997/pin 17 (yellow connector)



2. Connection to Zero-speed signal.

The zero-speed signal is created from a “Speed-higher-than-zero-signal”, which is inverted (reverse function) with the help of a relay.

Connection:
X1997/pin 11 (brown connector) Signal “Speed-higher-than-zero”

Installation material:
1. Fuse holder: 81-25435-0907
   Fuse holder: 81-25435-0690
2. Relay holder: 81-25475-0117
3. Lugs (6): 07-91201-2904
4. Relay, Hella part no: 4RD 007 903-00

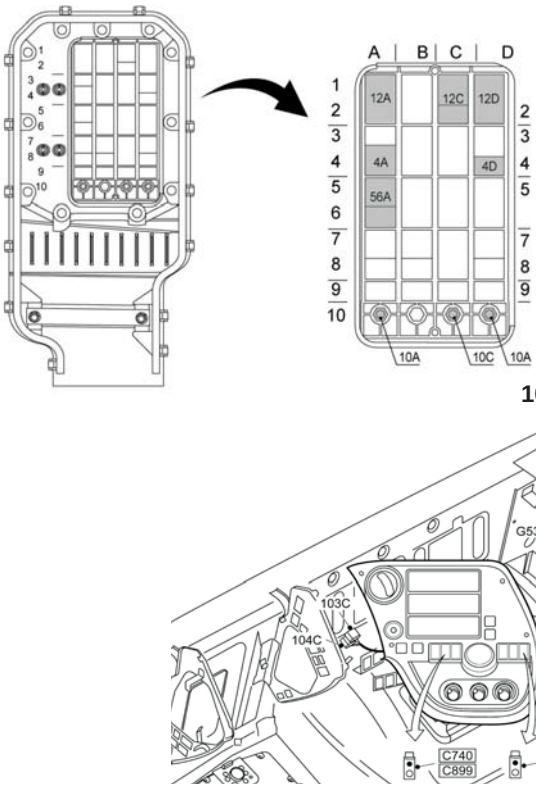
Configuration:
The signal “Speed-higher-than-zero” can be collected from the truck via the following configuration.
1. Set the parameter “Speed limit 1_lower” to 1 km/h.
2. Download the parameter to the truck.
3. Set the parameter “Speed limit 1_upper” to 2 km/h.
4. Download the parameter to the truck.
5. Set so that the parameter “Speed limit 1” controls the outlet “Hs5” - X1997/11.

DAF XF

The truck's speed signal must be taken from the truck's CAN bus. The truck must then be fitted with the following options:

- Software J1939.

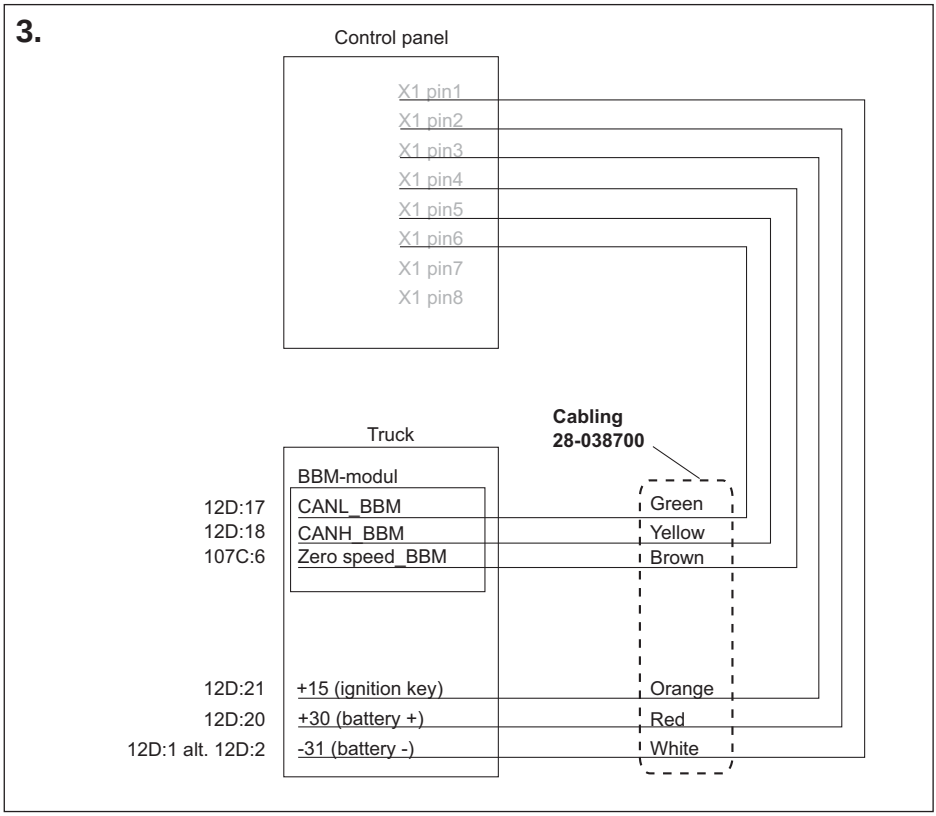
1.



2. Connector 12D, terminal output..

CANH – (yellow connector) connected to 12D position 18
CANL – (green connector) connected to 12D position 17
ZeroSpeed – (brown connector) connected to position 107C:6

Ensure that 107C:6 is connected to the truck control unit VIC-2 pin B24.



3. Wiring diagram for DAF BBM-module.

4. Programming BBM-module.

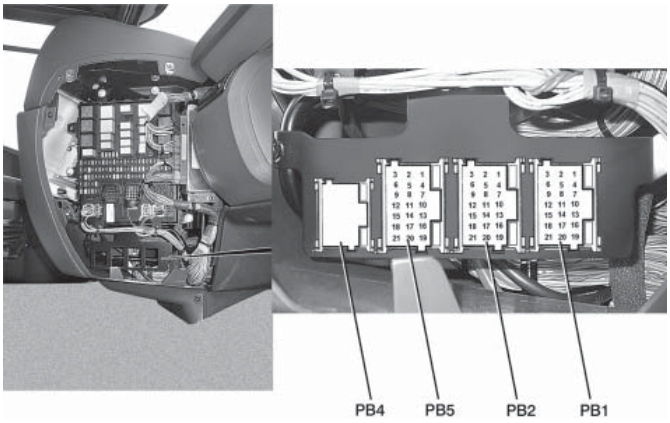
Make parameter settings as below via DAVIE.

Configuration

Parameter must be changed in VIC-2 under Customer parameters.
Parameter 1-27 must be set to 1 km/h, which then gives 24 V up to 1 km/h and 0 V from 2 km/h and faster.

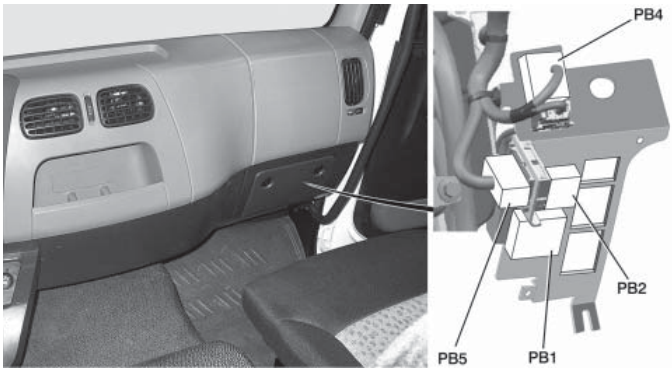
Renault Magnum DXI

1a.



Renault Premium DXI, Kerax DXI, Midlum DXI

1b.

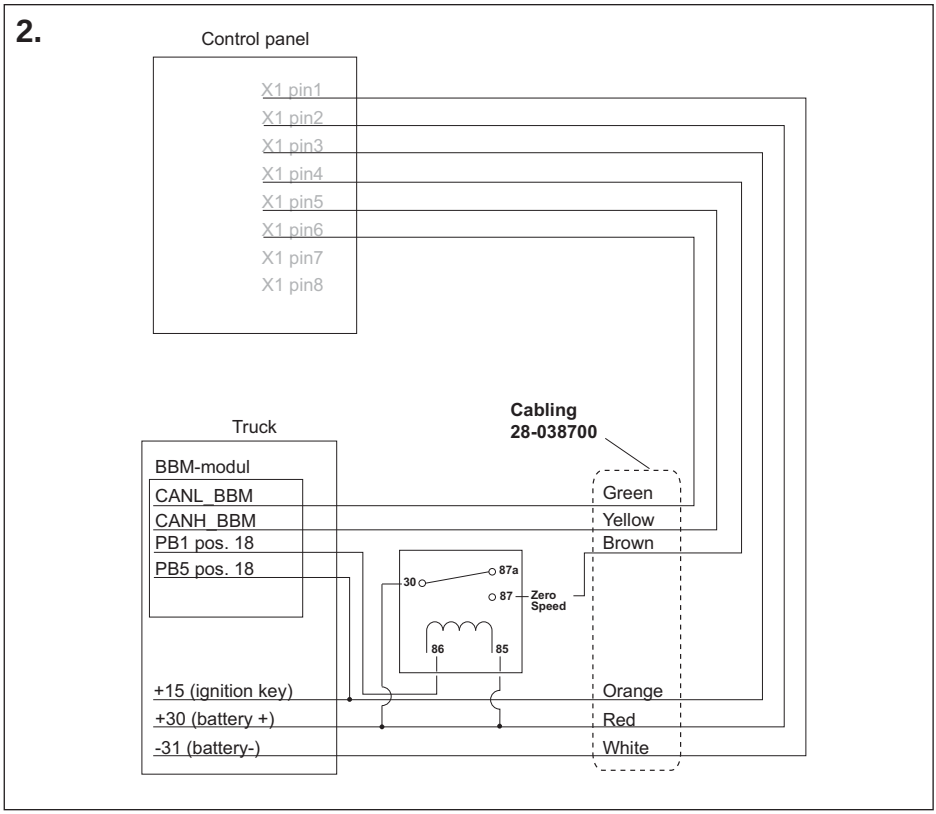


1a-b.

Connector PB1 and PB5, terminal output.

CANH - (yellow connector) connected to PB5 pos. 21.
CANL - (green connector) connected PB5 pos. 20.
ZeroSpeed - (brown connector) mounted and connected to relay pos. 87.

Activate CAN, +15 connected to PB5 pos. 18.



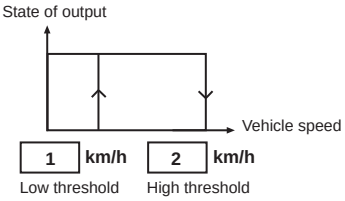
2. Wiring diagram for Renault BBM-module.

3. Programming BBM-module.

Make parameter settings as below via Renault Bodybuilder tool.

Configuration of parameters

- Low speed output speed threshold
- Activate the vehicle speed threshold output, yes
- Inverse the output, no

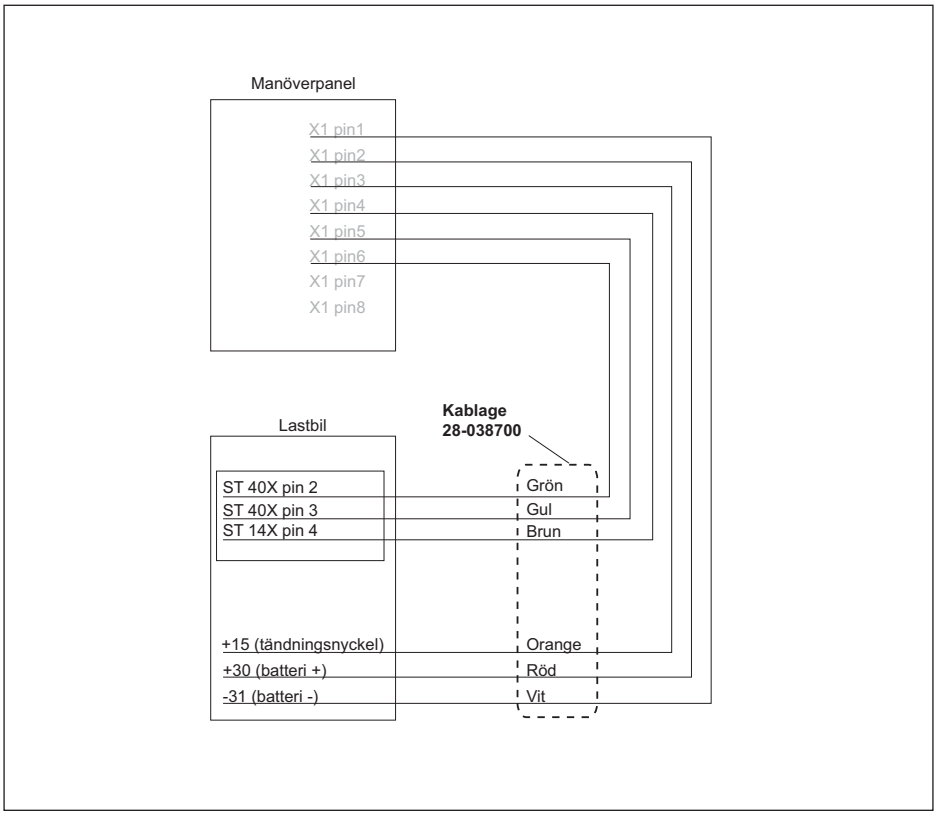


Bodybuilder CAN configuration

- Transmission of CCVS

Iveco - Guide cable, example

1. CANH - (yellow connector) connected to blue connector ST 40X, pin 3.
CANL - (green connector) connected to blue connector ST 40X, pin 2.
ZeroSpeed - (brown connector) connected to blue connector ST 14A, pin 4.



1. Wiring diagram for Iveco.

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