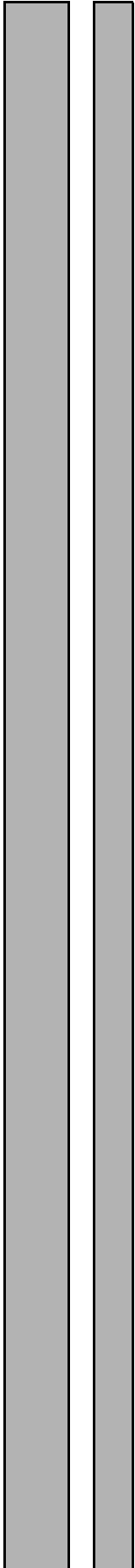


SCANIA

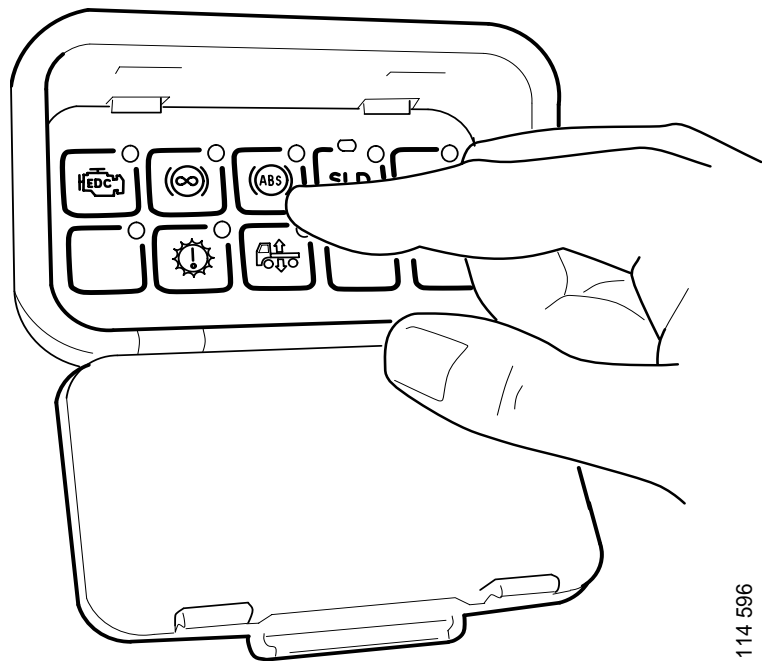
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Issue 1 en



EBS

Troubleshooting with the diagnostic lamp



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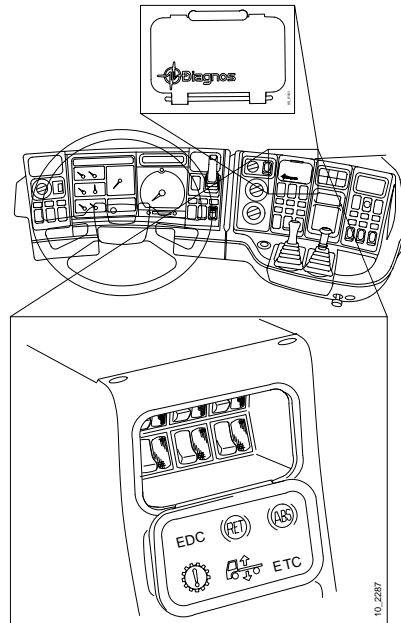
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Troubleshooting with the diagnostic lamp

General

Diagnostic panel

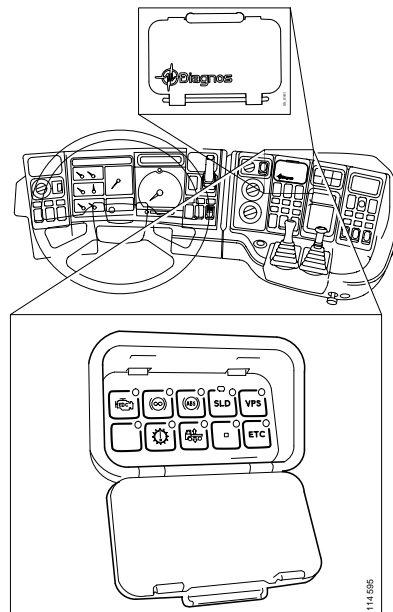
A system for troubleshooting/diagnosis is integrated into EBS. The diagnostic panel is located in the instrument panel and consists of a button to activate and clear the diagnostic function memory and a diagnostic lamp for flash codes.



Diagnostic panel, generation 1

Diagnostic memory function

A maximum of 15 fault codes can be stored. If a 16th fault occurs, it will replace the one that was stored first. The fault code stored first (the oldest one) is displayed first. All stored fault codes are deleted when the memory is cleared.



Diagnostic panel, generation 2

Clearing fault codes

- 1 Switch off the starting voltage.
- 2 Press the diagnostic button.
- 3 Turn on the starting voltage and keep the diagnostic button depressed for at least 2 seconds.

Driving with output tester

If fitted on the vehicle, the TC function must be disengaged when driving with the output tester.

Activate the diagnostic button for 5 seconds.
Starting voltage must be turned on.

The output tester function will be disengaged if the starting voltage is turned off or the wheels on the front axle reach a speed of over 8 km/h.

Troubleshooting

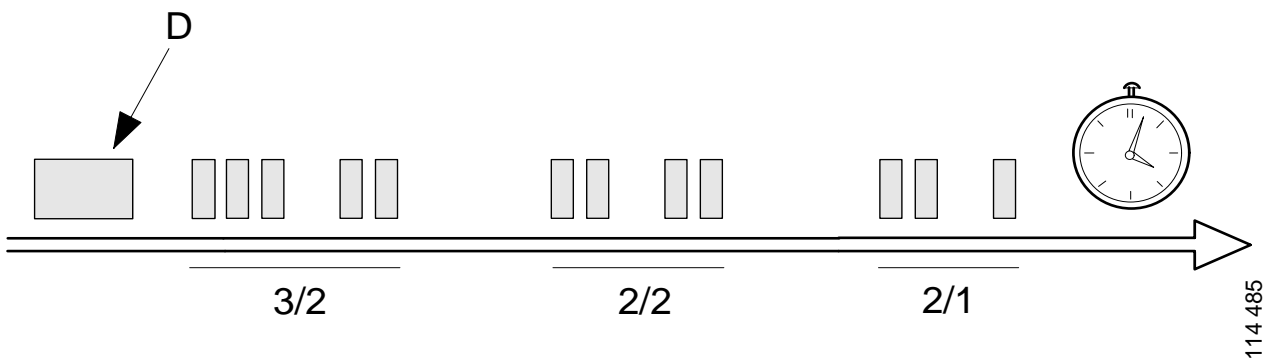
The EBS flash code does not have a configuration code.

The button must be pressed for at least 2 seconds to retrieve any flash codes. The power must be turned on with the starter key.

The diagnostic lamp is then off for 1.5 seconds before starting to flash. The different series of flashes are separated by a distinct pause.

A sequence of flash codes always ends with a completion code of 2 plus 1 flashes. This code indicates that there are no more codes present.

Diagnostic flashes must be read while the vehicle is stationary.



D = Diagnostic switch pressed for 2 seconds

Flash code 3/2 = First stored fault code

Flash code 2/2 = Second stored fault code

Flash code 2/1 = No fault

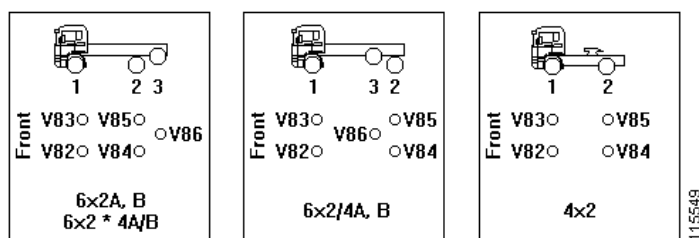
Description of flash code functions

Flash codes for control modules have identical flash code messages. Under each flash code message there is a table stating to which location and to which control module the flash code applies.

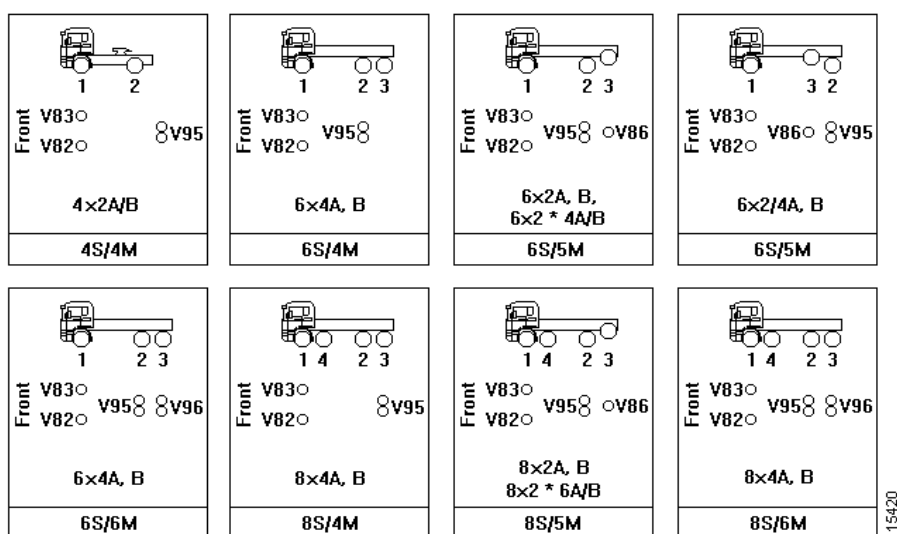
Note: The list of flash codes, to be published, applies to all system issues.

Axle configurations

The following illustrations show the locations of the various axles and control modules.



EBS 2.0 and EBS 2.1



EBS 2.2

Flash codes

Flash code: 2/1

Fault:

No fault.

Cause:

Remarks:

Action:

Flash code: 2/2

Fault:

Internal fault in the control unit.

Cause:

Self-test interrupted or data processing fault.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 2/3**Fault:**

Internal fault in the control unit.

Cause:

Self-test interrupted or data processing fault.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 2/4

Fault:

Internal fault in the control unit.

Cause:

Self-test interrupted or data processing fault.
Internal fault in the control unit.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 2/5**Fault:**

Internal fault in the control unit.

Cause:

Self-test interrupted or data processing fault.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 2/6

Fault:

Internal fault in control unit.

Cause:

Check sum error in the EEPROM.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Reprogram the control unit. If the fault recurs after reprogramming, the control unit should be renewed. This should also be done if the fault recurs during normal driving.

Flash code: 2/9

Fault:

Internal fault in the control unit.

Cause:

Self-test interrupted or data processing fault.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 2/10**Fault:**

Internal fault in the control unit.

Cause:

Self-test interrupted or data processing fault.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 2/11

Fault:

Internal fault in the control unit.

Cause:

Incorrect wheel compensation value.

Remarks:

The vehicle has no ABS function. ABS lamps are on.

Action:

Clear the fault memory and reprogram the control unit. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 2/12**Fault:**

Incorrect service brake valve characteristic.

Cause:

Check sum error in the EEPROM.

Remarks:

ABS warning lamp is on.

Action:

Reprogram the control unit. If the fault recurs after reprogramming, the control unit should be renewed. This should also be done if the fault recurs during normal driving.

Flash code: 2/13

Fault:

Internal fault in the control unit.

Cause:

Software not compatible.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Reprogram the control unit. If the fault recurs after reprogramming, the control unit should be renewed. This should also be done if the fault recurs during normal driving.

Flash code: 2/14

Fault:

Internal fault in the control unit.

Cause:

Self-test interrupted or data processing fault.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. If the fault code recurs after the fault memory has been cleared, the control unit should be renewed. This is also recommended if the fault recurs during normal driving.

Flash code: 3/2**Fault:**

Pedal position sensor voltage level too low or too high.

Cause:

The voltage between pins B-2 and B-3 of the control unit is out of range.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode. This fault code can also be generated if the earth connections, pin A-10 (GND) and pin A-12 (GND_MO), have different voltages. The cable may be shorted to +24 V or to earth.

Action:

Check the 5 V cable to the pedal position sensor in D39 (pin B-2).

Check the connections to earth. Take a voltage reading between pins B-2 and B-3 of the control unit. The voltage should be between 4.55 V and 5.45 V. Check the control unit's connection to earth, pin A-12.

Flash code: 3/3

Fault:

Incorrect signal from pedal position sensor in service brake valve.

Cause:

The control unit has sensed that the signal from the pedal position sensor is out of range.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Check cables and connections between the control unit and potentiometer. Measure the resistance of the potentiometer in the service brake valve. Measure the power supply at the control unit. Check for open circuit or short circuit.

Permitted potentiometer resistance: Between pin 2 and pin 1: 4.2 kohms - 7.5 kohms.
Between pin 3 and pin 1: 4.9 kohms - 2.1 kohms.

Permitted voltage range in the potentiometer signal, measured at the control unit: Between pin B-7 and pin B-3 (SM1): 0,3.

V - 4.5 V. Between pin B-4 and pin B-3 (SM2): 0.3 -> 4.5 V.

Note: The connector must be detached from the service brake valve when measuring.

Flash code: 3/5**Fault:**

Incorrect signal from load-sensing pressure sensor in air bellows.

Cause:

The voltage between pins F-2 and F-1 of the control module is out of range.

Remarks:

ABS warning lamp is on. The system does not use the load-sensing function but operates at an axle pressure of approx. 8 tons.

Action:

Check the cables and connectors between the control module and the load-sensing pressure sensor in air bellows (T46). Check for open circuit or short circuit.

Permitted voltage from load-sensing pressure sensor in air bellows between pin F-2 and pin F-1 on control module: 0.3 V -> 4.7 V.

Flash code: 4/4

Fault:

Incorrect feedback signal (response signal) from the driver stage of the wear warning lamp (W18).

Cause:

Lamp defective, fault in driver stage for warning lamp W18 or open-circuit in the cable to the lamp.

Remarks:

The EBS function is not affected by this fault. The control unit nonetheless continuously attempts to activate the ABS warning lamp.

Action:

Clear the fault memory. Check the lamp. Check the wiring for an open circuit or shorting to earth or +24 V. If the fault recurs after the memory has been cleared, the control unit should be renewed.

Flash code: 4/5**Fault:**

Incorrect feedback signal (response signal) from the driver stage of the ABS warning lamp W8.

Cause:

Lamp defective, fault in driver stage for warning lamp W8 or open-circuit in the cable to the lamp.

Remarks:

The EBS function is not affected by this fault. The control unit nonetheless continuously attempts to activate the ABS warning lamp. The warning lamp for low brake pressure is on.

Action:

Clear the fault memory. Check the lamp. Check the wiring for an open circuit or shorting to earth or +24 V. If the fault recurs after the memory has been cleared and there are no faults in the wiring, the control unit should be renewed.

Flash code: 4/6

Fault:

Incorrect feedback signal (response signal) from the driver stage for the red warning lamp for low brake pressure.

Cause:

Short-circuit to +24 volt or fault in driver stage for the red warning lamp for low brake pressure or an open circuit in the cable to the lamp.

Remarks:

The EBS function is not affected by this fault. The control unit nonetheless continuously attempts to activate the central warning lamp. Yellow ABS warning lamp is on.

Action:

Clear the fault memory. Check the wiring for a short to +24 V. If the fault recurs after the memory has been cleared and there is no short-circuit, the control unit should be renewed.

Flash code: 4/7**Fault:**

Should not occur on Scania vehicles.

Cause:

Should not occur on Scania vehicles.

Remarks:

Should not occur on Scania vehicles.

Action:

Should not occur on Scania vehicles.

Flash code: 4/8

Fault:

Short circuit in any of the control unit driver stages for control modules.

Cause:

Fault in the driver stage for the control modules or an open-circuit in the cable to one of the control modules.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on. The system operates in backup mode.

Action:

Clear the fault memory. Check the wiring for an open circuit or shorting to earth or +24 V. If the fault recurs after the memory has been cleared, the control unit should be renewed.

Flash code: 6/1**Fault:**

Response time too long for signal between EBS and retarder.

Cause:

The EBS control unit has detected that the retarder control unit has not responded to the CAN signal within the specified time.

Remarks:

ABS warning lamp is on. The system is operative, but without engine control function.

Action:

Check for open or short circuit in the CAN cable between EBS and the retarder control unit.

Check the retarder control unit for normal operation.

Flash code: 6/6

Fault:

Response time too long for signal between EBS and EDC.

Cause:

The EBS control unit has detected that the EDC control unit has not responded to the CAN signal within the specified time.

Remarks:

ABS warning lamp is on. The system is operative, but without engine control function.

Action:

Check for open or short circuit in the CAN cable between the EBS and the EDC control unit.

Check the EDC control unit for normal operation.

Flash code: 7/1, 8/1, 9/1, 10/1, 11/1

Fault:

Fault in ABS sensor/pulse wheel or wiring.

Flash code	Location
7/1	Left-hand wheel, axle 1
8/1	Right-hand wheel, axle 4
9/1	Left-hand wheel, axle 2
10/1	Right-hand wheel, axle 3
11/1	Left-hand wheel, axle 3.

Cause:

The control unit has detected that signals from the wheel sensor are missing at speeds above 18 km/h or that the signal from the wheel sensor exceeds 40 km/h when no speed is recorded by any other wheel sensor.

Remarks:

ABS warning lamp is on. The TC function is disengaged. The signal from the wheel sensor is recorded in the control module which then sends it to the control unit.

Note: All wheels must be turning (including those on axle 3) in order for the ABS lamp to go out.

Action:

Check the fault codes after driving.

If a fault code recurs after it has been cleared:

Check cables and connections between the control module and wheel sensor. Measure the wheel sensor resistance. Resistance should be 950 -1930 ohm.

Flash code: 7/2, 8/2, 9/2, 10/2, 11/2, 12/2

Fault:

Fault in ABS sensor/pulse wheel or wiring.

Flash code	Location
7/2	Left-hand wheel, axle 4
8/2	Right-hand wheel, axle 1
9/2	Left-hand wheel, axle 3.
10/2	Right-hand wheel, axle 2
11/2	Right-hand wheel, axle 3
12/2	Right-hand wheel, axle 3

Cause:

The control unit has detected that signals from the wheel sensor are missing at speeds above 18 km/h or that the signal from the wheel sensor exceeds 40 km/h when no speed is recorded by any other wheel sensor.

Remarks:

ABS warning lamp is on. The TC function is disengaged. The signal from the wheel sensor is recorded in the control module which then sends it to the control unit.

Note: All wheels must be turning (including those on axle 3) in order for the ABS lamp to go out.

Action:

Check the fault codes after driving.

If a fault code recurs after it has been cleared:

Check cables and connections between the control module and wheel sensor. Measure the wheel sensor resistance. Resistance should be 950 -1930 ohm.

Flash code: 7/3, 8/3, 9/3, 10/3, 11/3, 12/3**Fault:**

Incorrect voltage to wear sensor.

Flash code	Cause
7/3	Single control module, axles 1 and 4 left-hand side
8/3	Single control module, axles 1 and 4 right-hand side
9/3	Double control module, axle 2 left-hand side
10/3	Double control module, axle 2 right-hand side
11/3	Double control module, axle 3 left-hand side, single control module, tag axle
12/3	Double control module, axle 3 right-hand side

Cause:

Short-circuit or open-circuit.

Remarks:

Warning lamp for brake pad wear is on.

The signal from the wear sensors is recorded in the control module which then sends the signal to the control unit.

Action:

1. Check the cables and connections between the control module and wear sensor.
2. Take a voltage reading (between pins 1 and 4 of the control module). The voltage should be 5 +/-0.45 volts. Use a multimeter with recording function to take the voltage reading.

**Flash code: 7/4 ,8/4, 9/4, 10/4,
11/4, 12/4**

Fault:

Internal fault in the control module or fault in the air supply to the control module.

Flash code	Control module
7/4	Single control module, axles 1 and 4 left-hand side
8/4	Single control module, axles 1 and 4 right-hand side
9/4	Double control module, axle 2 left-hand side
10/4	Double control module, axle 2 right-hand side
11/4	Double control module, axle 3 left-hand side, single control module, tag axle
12/4	Double control module, axle 3 right-hand side

Cause:

Implausible value from the pressure sensor in the control module.

Remarks:

The warning lamps for ABS and low brake pressure are on. The control module is disengaged by the control unit and braking of both wheels on the axle concerned is carried out by the pneumatic brake system via the back-up circuit.

In addition, the ABS, the TC functions and the load-sensing system become inoperative.

Action:

Check the compressed air lines to the control module.

Check the control module for normal operation.

Clear the fault code memory. If the fault recurs, renew the control module.

**Flash code: 7/5, 8/5, 9/5, 10/5,
11/5, 12/5**

Fault:

No CAN signal from control module.

Flash code	Control module
7/5	Single control module, axles 1 and 4 left-hand side
8/5	Single control module, axles 1 and 4 right-hand side
9/5	Double control module, axle 2 left-hand side
10/5	Double control module, axle 2 right-hand side
11/5	Double control module, axle 3 left-hand side, single control module, tag axle
12/5	Double control module, axle 3 right-hand side

Cause:

The control unit cannot contact the control module via the CAN brake cables.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on.

The control modules are connected via their own CAN cables, which are separate from the other CAN cables.

The control module is disengaged by the control unit and braking of both wheels on the axle concerned is carried out by the pneumatic brake system via the back-up circuit. In addition, the ABS and TC functions and the load-sensing system become inoperative.

Action:

Check the CAN, earth and power cables to the control module. Check the connections between the control unit and control module.

**Flash code: 7/6, 8/6, 9/6, 10/6,
11/6, 12/6**

Fault:

The control module is not compatible with the control unit.

Flash code	Control module
7/6	Single control module, axles 1 and 4 left-hand side
8/6	Single control module, axles 1 and 4 right-hand side
9/6	Double control module, axle 2 left-hand side
10/6	Double control module, axle 2 right-hand side
11/6	Double control module, axle 3 left-hand side, single control module, tag axle
12/6	Double control module, axle 3 right-hand side

Cause:

The software in the control module is not compatible with the software in the control unit.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on.

The control module is disengaged by the control unit and braking of both wheels on the axle concerned is carried out by the pneumatic brake system via the back-up circuit. In addition, the ABS and TC functions and the load-sensing system become inoperative.

Action:

Either replace the control module with one that is compatible with the control unit in the vehicle or replace the control unit with one that is compatible with the control modules in the vehicle.

Flash code: 7/7, 8/7, 9/7, 10/7, 11/7, 12/7**Fault:**

The control module cannot send the requested pressure to the brake chamber.

Flash code	Control module
7/7	Single control module, axles 1 and 4 left-hand side
8/7	Single control module, axles 1 and 4 right-hand side
9/7	Double control module, axle 2 left-hand side
10/7	Double control module, axle 2 right-hand side
11/7	Double control module, axle 3 left-hand side, single control module, tag axle
12/7	Double control module, axle 3 right-hand side

Cause:

The control module has attempted to send the requested pressure to the brake cylinder for some time, but has been unsuccessful.

(In order for the flash code to be generated, the requested pressure must be below 4 bar).

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on.

This fault code will be prevented if the control unit senses that the low-pressure indicator indicates low supply pressure.

The control module is disconnected by the control unit and braking of the wheel is carried out by the pneumatic brake system via the backup circuit. In addition, the ABS and TC functions and the load-sensing system become inoperative.

Action:

1. Check that brake pressure in the front and rear circuits is normal.
2. Check the supply line to the control module.
3. Check the control module for normal operation.
4. Check the low-pressure indicator.
5. Check the cable between the low-pressure indicator and the control unit.

Note: The value from the control modules' pressure sensors can be read out using Scania Diagnos.

**Flash code: 7/8, 8/8, 9/8, 10/8,
11/8, 12/8**

Fault:

Internal fault in the control module.

Flash code	Control module
7/8	Single control module, axles 1 and 4 left-hand side
8/8	Single control module, axles 1 and 4 right-hand side
9/8	Double control module, axle 2 left-hand side
10/8	Double control module, axle 2 right-hand side
11/8	Double control module, axle 3 left-hand side, single control module, tag axle
12/8	Double control module, axle 3 right-hand side

Cause:

Automatic self-test in the control module failed.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on.

The control module is disengaged by the control unit and braking of both wheels on the axle concerned is carried out by the pneumatic brake system via the back-up circuit. In addition, the ABS and TC functions and the load-sensing system become inoperative.

Action:

Clear the fault code memory. If the fault code recurs after it has been cleared, the control module must be renewed.

**Flash code: 7/9, 8/9, 9/9, 10/9,
11/9****Fault:**

The rolling circumference differs too much from that of the other wheels.

Flash code	Location
7/9	Left-hand wheel, axle 1
8/9	Right-hand wheel, axle 4
9/9	Left-hand wheel, axle 2
10/9	Right-hand wheel, axle 3
11/9	Left-hand wheel, axle 3.

Cause:

The control unit has sensed that the rolling circumference differs from the mean value for the other wheels by more than 9%.

The rolling circumference differs too much from that of the other wheels.

Remarks:

ABS warning lamp is on.

The TC function becomes inoperative. ABS control becomes inoperative on this wheel.

Action:

Check the tyre sizes on front and rear axles and change any tyres that are not of the right size.

Flash code: 7/10, 8/10, 9/10, 10/10, 11/10, 12/10

Fault:

The rolling circumference differs too much from that of the other wheels.

Flash code	Location
7/10	Left-hand wheel, axle 4
8/10	Right-hand wheel, axle 1
9/10	Left-hand wheel, axle 3
10/10	Right-hand wheel, axle 2
11/10	Right-hand wheel, axle 3
12/10	Right-hand wheel, axle 3

Cause:

The control unit has sensed that the rolling circumference differs from the mean value for the other wheels by more than 9%.

Remarks:

ABS warning lamp is on.

The TC function becomes inoperative. ABS control becomes inoperative on this wheel.

Action:

Check the tyre sizes on front and rear axles and change any tyres that are not of the right size.

Flash code: 9/11, 10/11

Fault:

Incorrect signal from load-sensing pressure sensor in air bellows.

Cause:

The voltage between pins F-1 and F-4 of the double control module is out of range.

Remarks:

ABS warning lamp is on. The system does not use the load-sensing function but operates at full axle pressure.

Action:

Check the cables and connectors between the control module and the load-sensing pressure sensor in air bellows (T46). Check for open circuit or short circuit.

Permitted voltage to load-sensing pressure sensor in air bellows between pin F-1 and pin F4 on double control module: 4.55 V -> 5.45 V.

Flash code: 7/12, 9/12, 11/12**Fault:**

Pressure difference between control modules.

Flash code	Location
7/12	Shaft 1
9/12	Shaft 2
11/12	Shaft 3

Cause:

If a pressure difference > 0.8 bar occurs for more than 3 seconds between the control modules.

The current pressure values can be obtained by using Scania Diagnos.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on.

The system enters backup mode for axle.

Action:

Check the pressure of each control module.

Renew the defective control module.

**Flash code: 7/13, 8/13, 9/13, 10/13,
11/13, 12/13****Fault:**

Automatic pulse test in the control module failed.

Flash code	Control module
7/13	Single control module, axles 1 and 4 left-hand side
8/13	Single control module, axles 1 and 4 right-hand side
9/13	Double control module, axle 2 left-hand side
10/13	Double control module, axle 2 right-hand side
11/13	Double control module, axle 3 left-hand side, single control module, tag axle
12/13	Double control module, axle 3 right-hand side

Cause:

The control module has sensed a residual pressure of more than 0.8 bar during the pulse test.

Remarks:

The warning lamp for low brake pressure is on.

The fault code is generated when the pulse test, which starts automatically when the ignition is switched on, leaves a residual pressure of more than 0.8 bar. This may occur when an air line is blocked or if the control module is defective.

Action:

1. Check that the air can pass freely through the air lines to the control module.
2. Check the control module for normal operation.
3. Renew the control module.

Flash code: 7/14, 8/14, 9/14, 10/14, 11/14, 12/14

Fault:

Internal fault in the control module or fault in the air supply to the control module.

Flash code	Control module
7/14	Single control module, axles 1 and 4 left-hand side
8/14	Single control module, axles 1 and 4 right-hand side
9/14	Double control module, axle 2 left-hand side
10/14	Double control module, axle 2 right-hand side
11/14	Double control module, axle 3 left-hand side, single control module, tag axle
12/14	Double control module, axle 3 right-hand side

Cause:

1. The fault occurs if the compressed air lines are closed or dirty.
2. Defective service brake valve.
3. Internal fault in the control module.

Remarks:

The ABS warning lamp and the lamp for low brake pressure are on.

The control module is disengaged by the control unit and braking of both wheels on the axle concerned is carried out by the pneumatic brake system via the back-up circuit. In addition, the ABS and TC functions and the load-sensing system become inoperative.

Action:

1. Check the pressure in port 4 (backup circuit).
2. Check that the air can pass freely through the air lines to the control module.
3. Check the control module for normal operation.
4. Renew the control module.

Flash code: 13/1

Fault:

Internal fault in trailer control module to trailer.

Cause:

Remarks:

ABS warning lamp is on.

EBS function without limitations in the vehicle.
Trailer control module is supplied with voltage.

Action:

Clear fault codes.

Renew the trailer control module if the fault code recurs.

Flash code: 13/2**Fault:**

Internal fault in the trailer control module.

Cause:**Remarks:**

ABS warning lamp is on.

EBS function without limitations in the vehicle.
Trailer control module is supplied with voltage.

Action:

Clear fault codes.

Renew the trailer control module if the fault code recurs.

Flash code: 13/4

Fault:

Incorrect pressure value in trailer control module

Cause:

The trailer control module has recorded an implausible value from the pressure sensor when braking.

Remarks:

ABS warning lamp is on.

EBS function without limitations in the vehicle. The control module is not supplied with voltage.

Action:

Clear fault codes.

Renew the trailer control module if the fault code recurs.

Check the compressed air lines to the trailer control module.

Check the trailer control module for normal operation; when the service brake is not applied, the reading from the pressure sensor should be 0 bar.

This value can be read out using Scania Diagnos.

Flash code: 13/5**Fault:**

No CAN signal from the trailer control module.

Cause:**Remarks:**

ABS warning lamp is on.

EBS function without limitations in the vehicle.
The trailer control module is not supplied with voltage.

Action:

Clear fault codes.

Renew the trailer control module if the fault code recurs.

Flash code: 13/6

Fault:

The software in the control unit is not compatible with the trailer control module.

Cause:

Remarks:

ABS warning lamp is on.

EBS function without limitations in the vehicle.
The trailer control module is not supplied with voltage.

Action:

Replace the control unit or trailer control module with a unit containing the correct software.

Flash code: 13/7**Fault:**

Internal fault in the trailer control module.

Cause:

The module has not recorded a sufficiently high air pressure for a long period. A pressure of <4 bar indicates a fault.

Remarks:

The current pressure is read out using Scania Diagnos 2.

ABS warning lamp is on.

EBS function without limitations in the vehicle. The trailer control module is not supplied with voltage.

Action:

Check the function of the trailer control module.

Check the compressed air supply to the trailer control module.

Renew the trailer control module if the fault persists.

Flash code: 13/8

Fault:

Internal fault in the trailer control module.

Cause:

Remarks:

ABS warning lamp is on.

EBS function without limitations in the vehicle.
The trailer control module is not supplied with voltage.

Action:

Clear the fault code.

Check the cables for the trailer control module power supply and earth.

Check the cables for the trailer control module CAN communication.

Flash code: 13/9**Fault:**

Internal fault in the trailer control module.

Cause:**Remarks:**

ABS warning lamp is on.

EBS function without limitations in the vehicle.
The trailer control module is not supplied with voltage.

Action:

Clear the fault code.

Check the cables for the trailer control module power supply and earth.

Check the cables for the trailer control module CAN communication.

Flash code: 13/12

Fault:

The system has recorded a too high pressure difference between the trailer control module and the axle control module.

Cause:

The system has recorded a too high pressure difference between the trailer control module and the concerned control unit in the axle control module.

The pressure difference has been >1.2 bar for more than 2.5 seconds.

Remarks:

ABS warning lamp is on.

EBS function without limitations in the vehicle. The trailer control module is not supplied with voltage.

Action:

Check the function of the trailer control module.

Check the compressed air supply to the trailer control module.

Renew the trailer control module if the fault persists.

Flash code 15/10**Fault:**

Interruption in CAN signal to EDC and Retarder.

Cause:

There has been an interruption in the CAN signal between EBS, EDC and Retarder.

Remarks:

ABS warning lamp is on. The system is operative, but without engine control function.

Action:

Check for open or short circuit in the CAN cables between EBS and EDC.

Flash code 15/11**Fault:**

Response time too long for CAN signal between EBS and EDC.

Cause:

The EBS control unit has detected that the EDC control unit has not responded to the CAN signal within the specified time.

Remarks:

ABS warning lamp is on. The system is operative, but without engine control function.

Action:

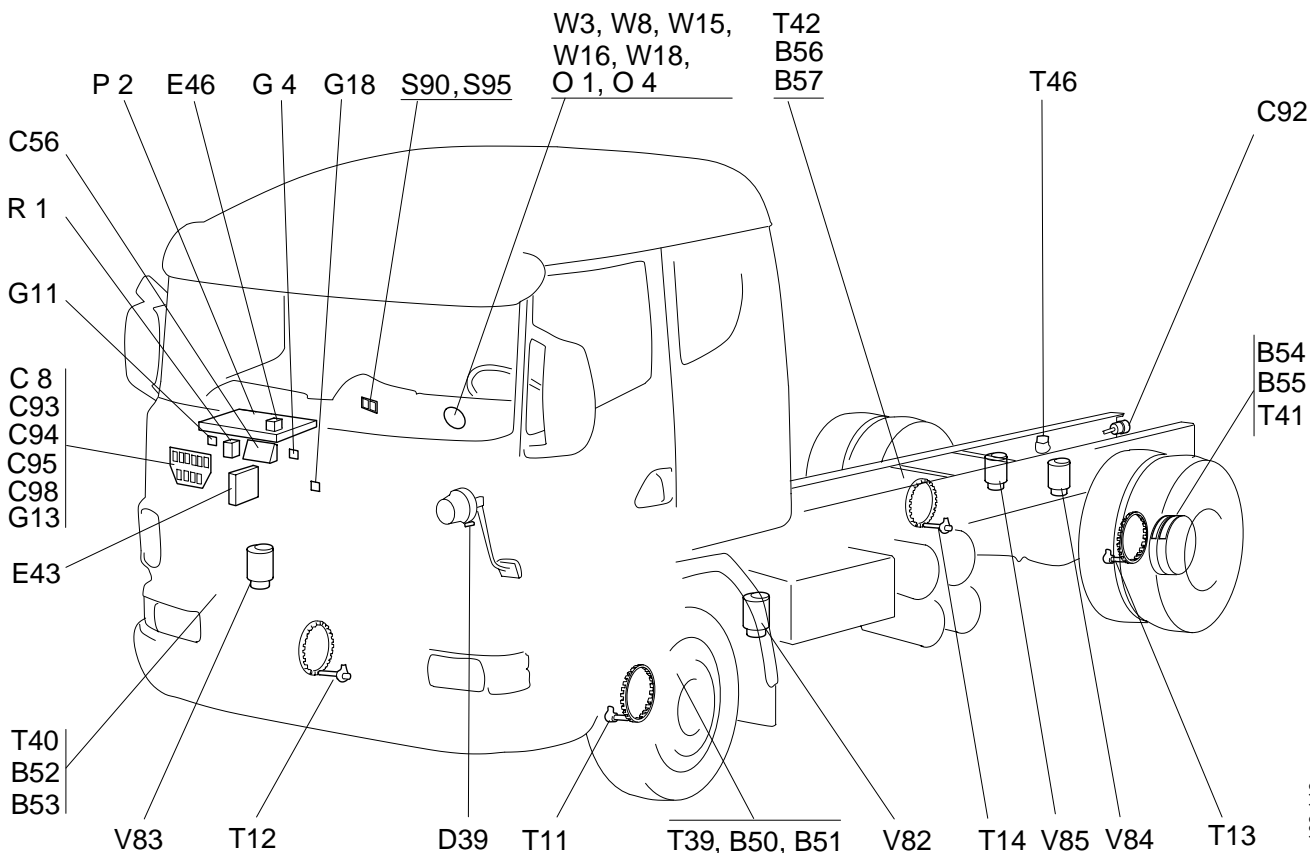
Check for open or short circuit in the CAN cable between EBS and EDC. Check the EDC control unit for normal operation.

Faults without flash codes

Type of fault	Warning lamp
Connection to trailer in 1-conductor mode	Yellow
ECU not connected to cable harness	Yellow+red
No power to EBS system	Red
Control signal from trailer interface	Red
Low or high voltage	Yellow+red

Electrical system EBS 2.0

Electrical components, location



103 113

Electrical components, EBS 2.0

Component No.	Component description		Circuit
B50/B51	Brake pad wear wire	Axle 1 LH	6
B52/53	Brake pad wear wire	Axle 1 RH	42
B54/55	Brake pad wear wire	axle 2 LH	56
B56/57	Brake pad wear wire	Axle 2 RH	92
C8	Connector		161
C56	Terminal block	For CAN and diagnosis	138
C92	Connector	Trailer socket for ABS	169
C93	Connector		14, 34,
C94	Connector		64, 84, 103
C95	Connector		172
C98	Connector		113
D39	Potentiometer	Service brake valve	109
E43	Control unit	EBS	
E46	Trailer sensing unit		159

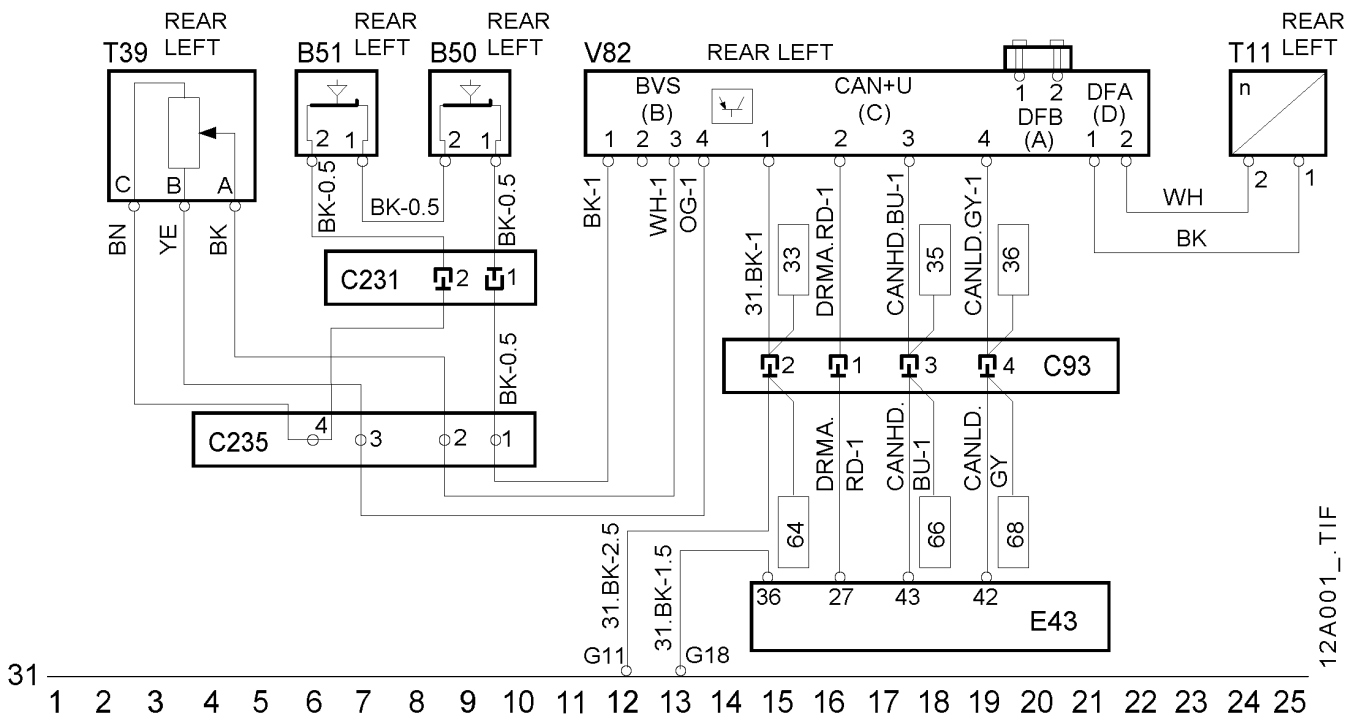
Component No.	Component description	Circuit
G4	Ground terminal	118, 130
G11	Ground terminal	11
G13	Ground terminal	150, 172
G18	Ground terminal	13,
O1	Instrument cluster	151
P2	Central electric unit	
R1	Flasher relay	165
S90	Switch	TC OFFROAD
S95	Switch	Diagnosis
T11	Wheel sensor	Axle 1 LH
T12	Wheel sensor	Axle 1 RH
T13	Wheel sensor	Axle 2 LH
T14	Wheel sensor	Axle 2 RH
T46	Pressure sensor	103
T39	Wear sensor	Axle 1 LH
T40	Wear sensor	Axle 1 RH
T41	Wear sensor	Axle 2 LH
T42	Wear sensor	Axle 2 RH
V82	Control module	Axle 1 LH
V83	Control module	Axle 1 RH
V84	Control module	Axle 2 LH
V85	Control module	Axle 2 RH
W3	Warning lamp	TC
W8	Warning lamp	ABS/truck
W15	Warning lamp	ABS/trailer
W18	Information lamp	Brake pad wear

Wiring diagrams, EBS 2.0

Circuits

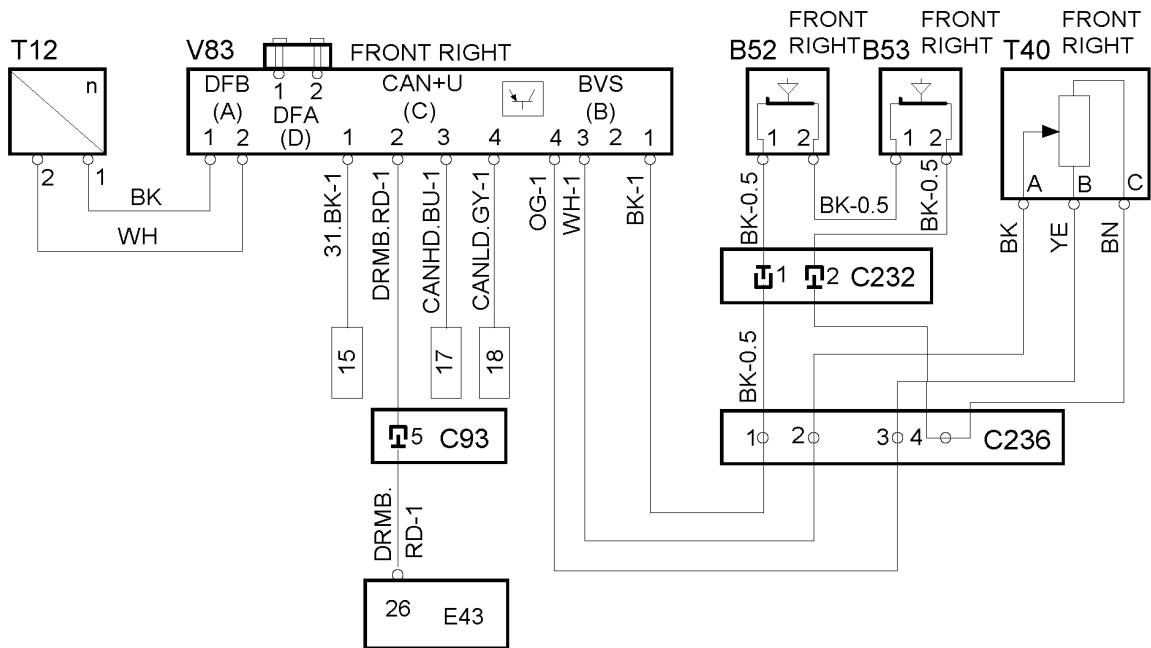
Circuit paths 1 - 25

P2



Circuit paths 26 - 50

P2

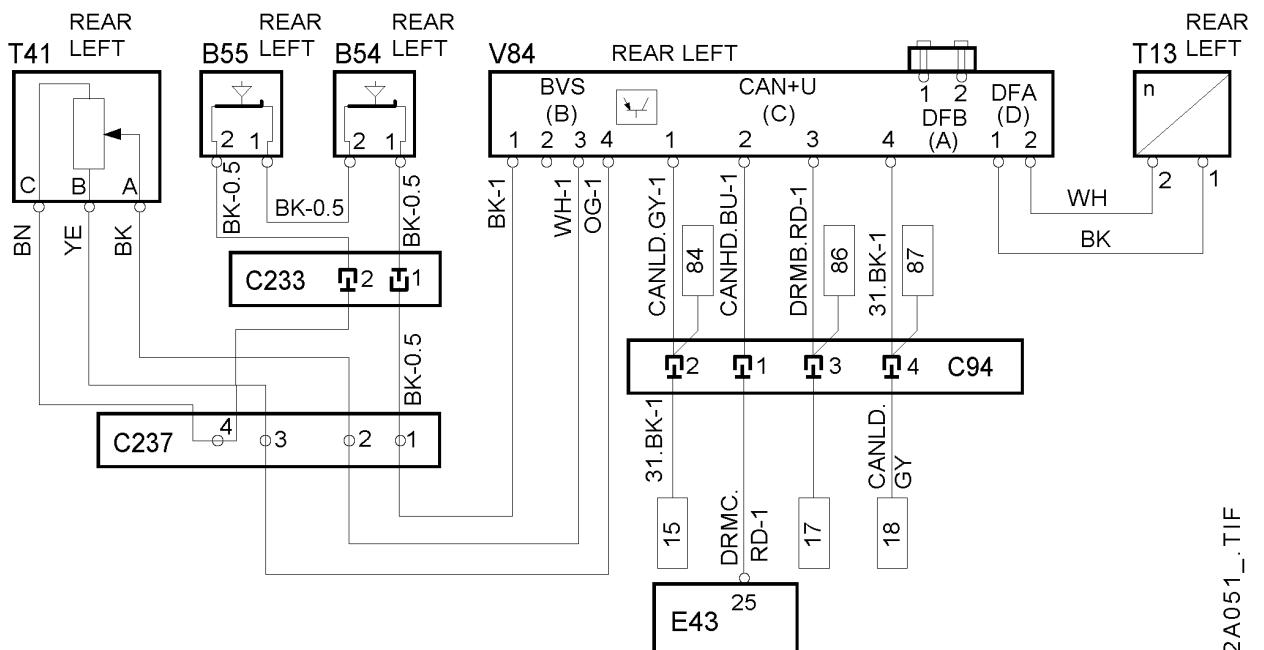


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Circuit paths 51 - 75

P2

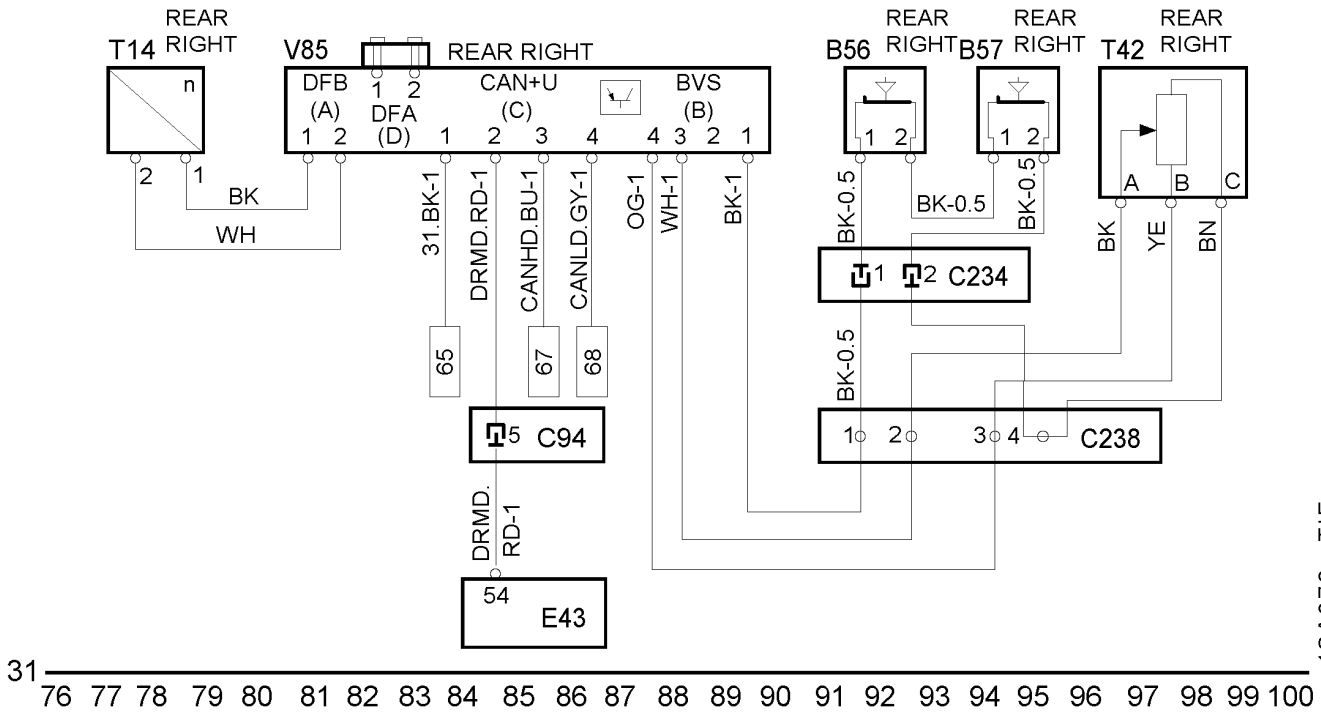


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Circuit paths 76 - 100

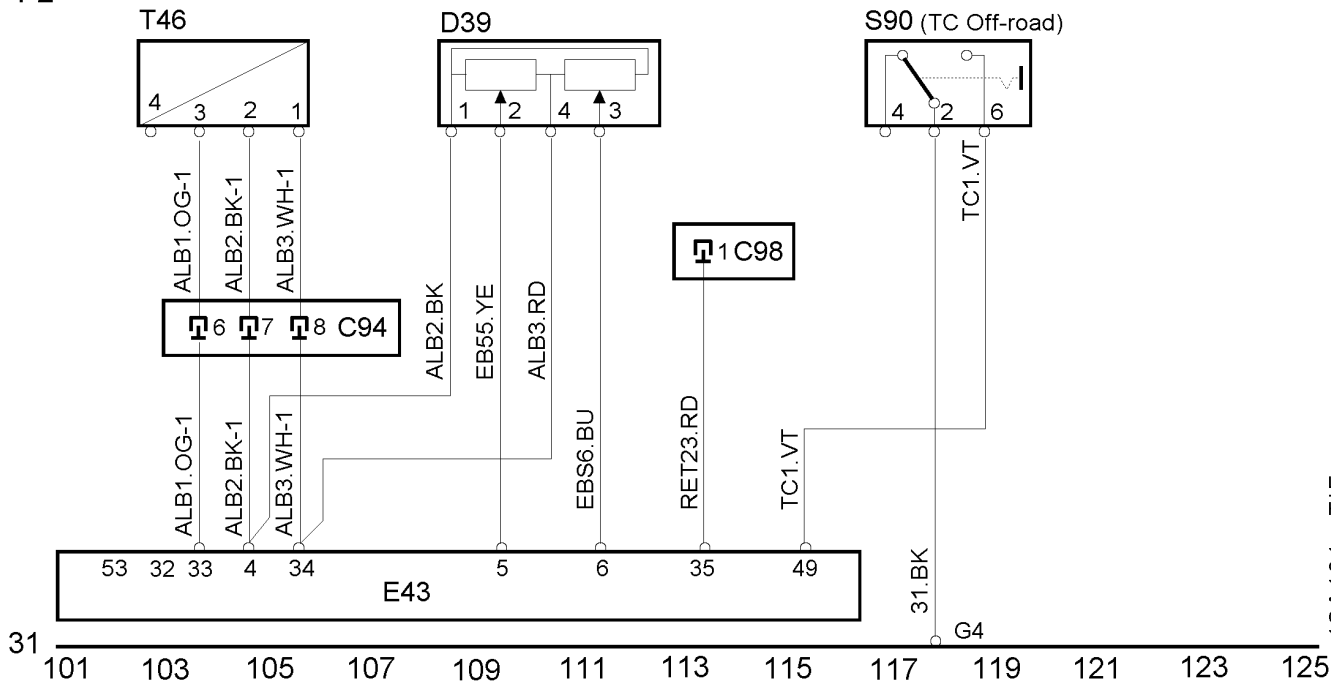
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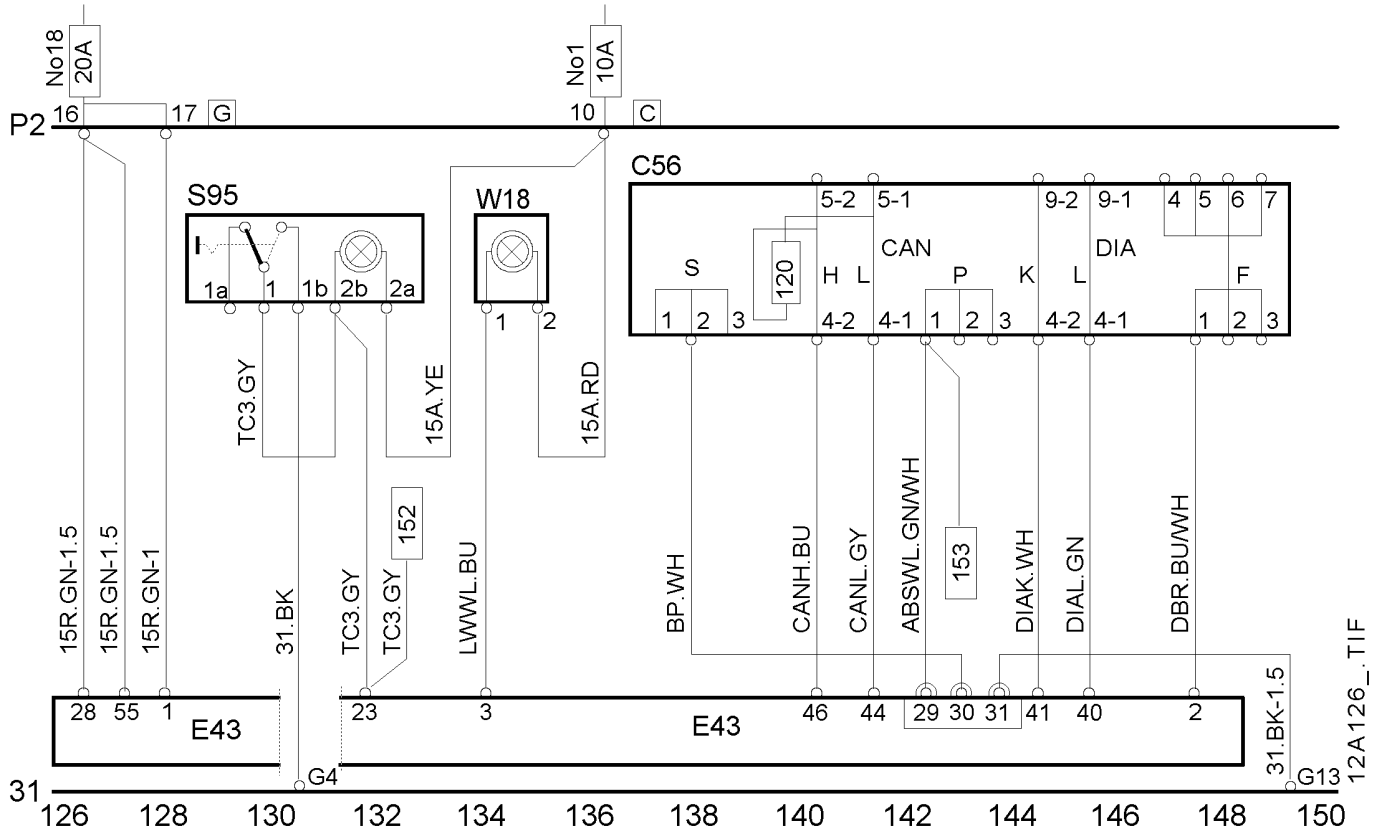
Circuit paths 101 - 125

P2

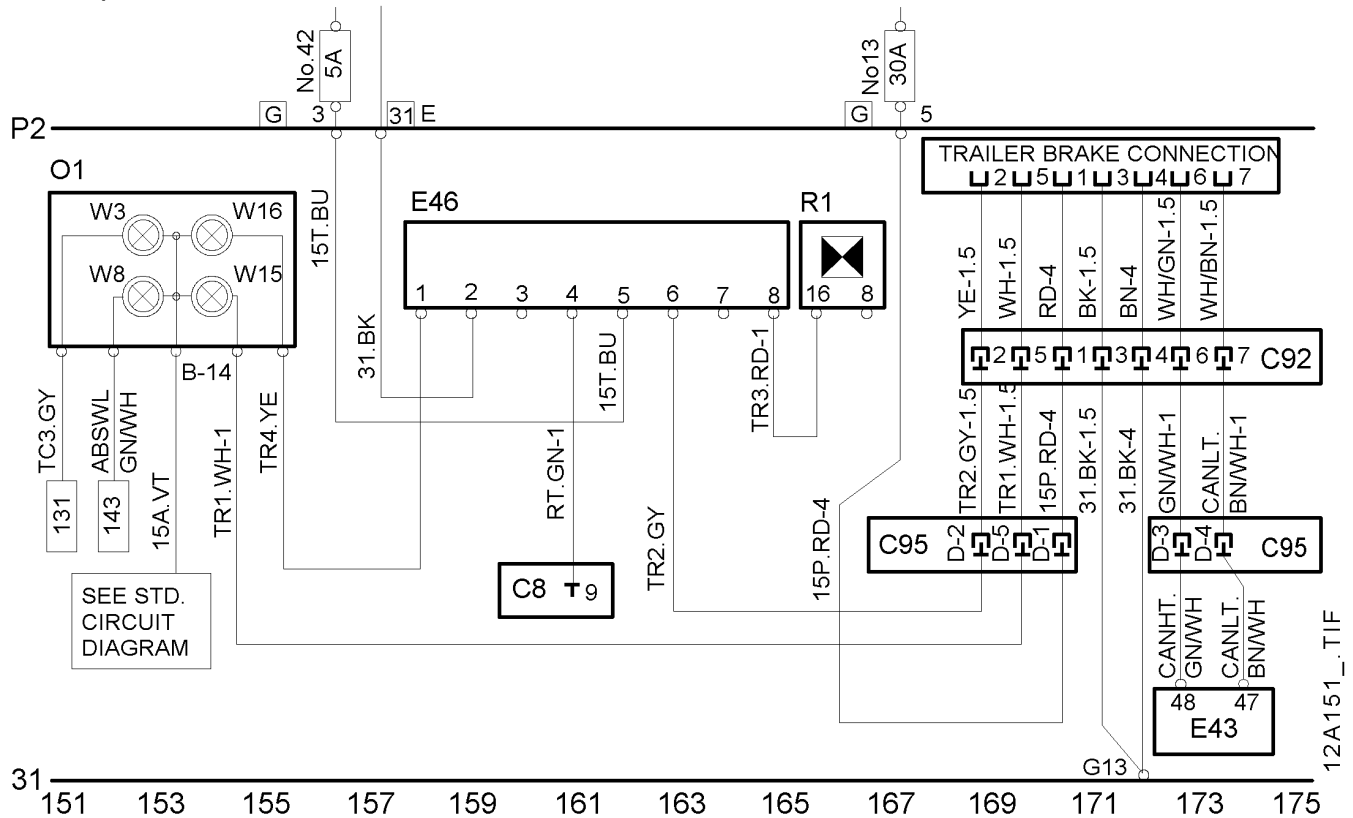


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Circuit paths 126 - 150

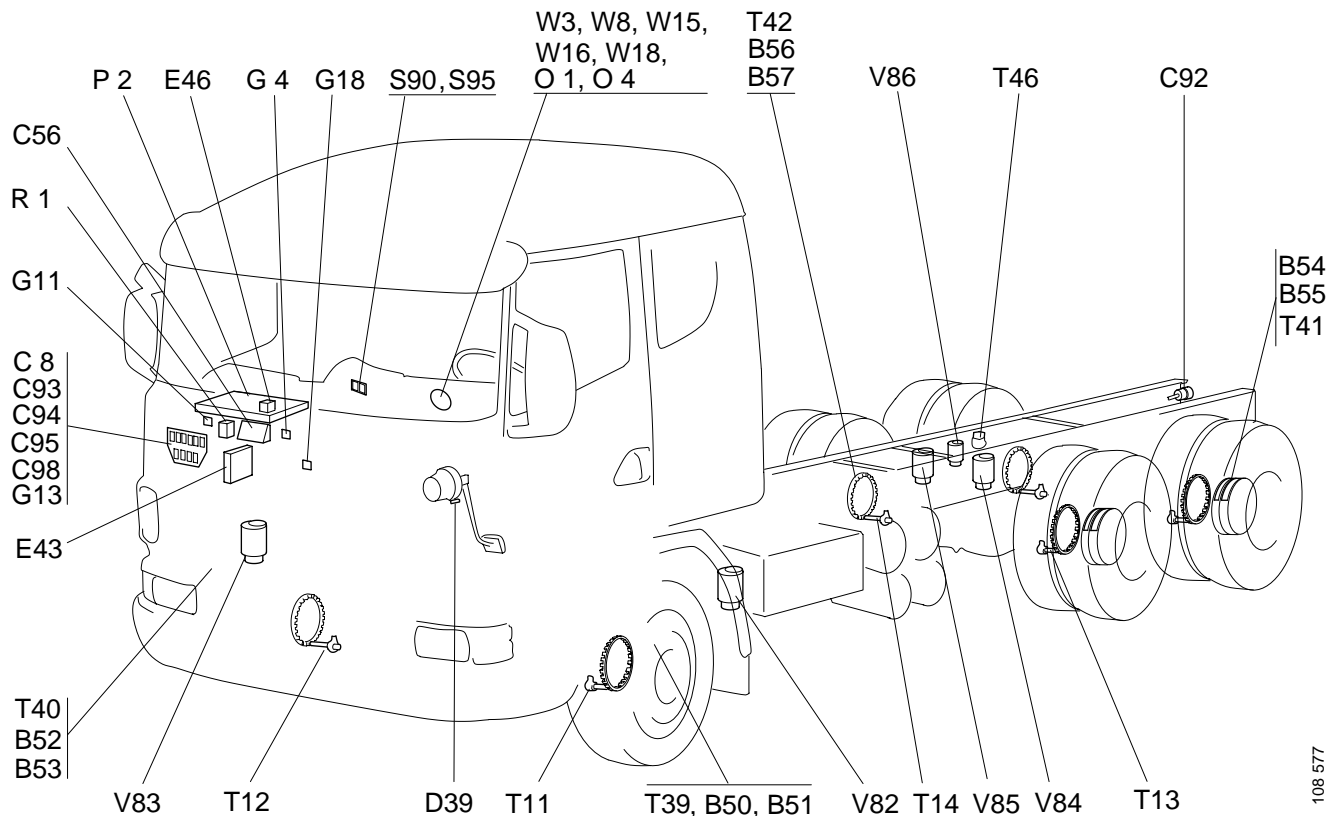


Circuit paths 151 - 175



Electrical system EBS 2.1

Electrical components, location



Electrical components in EBS

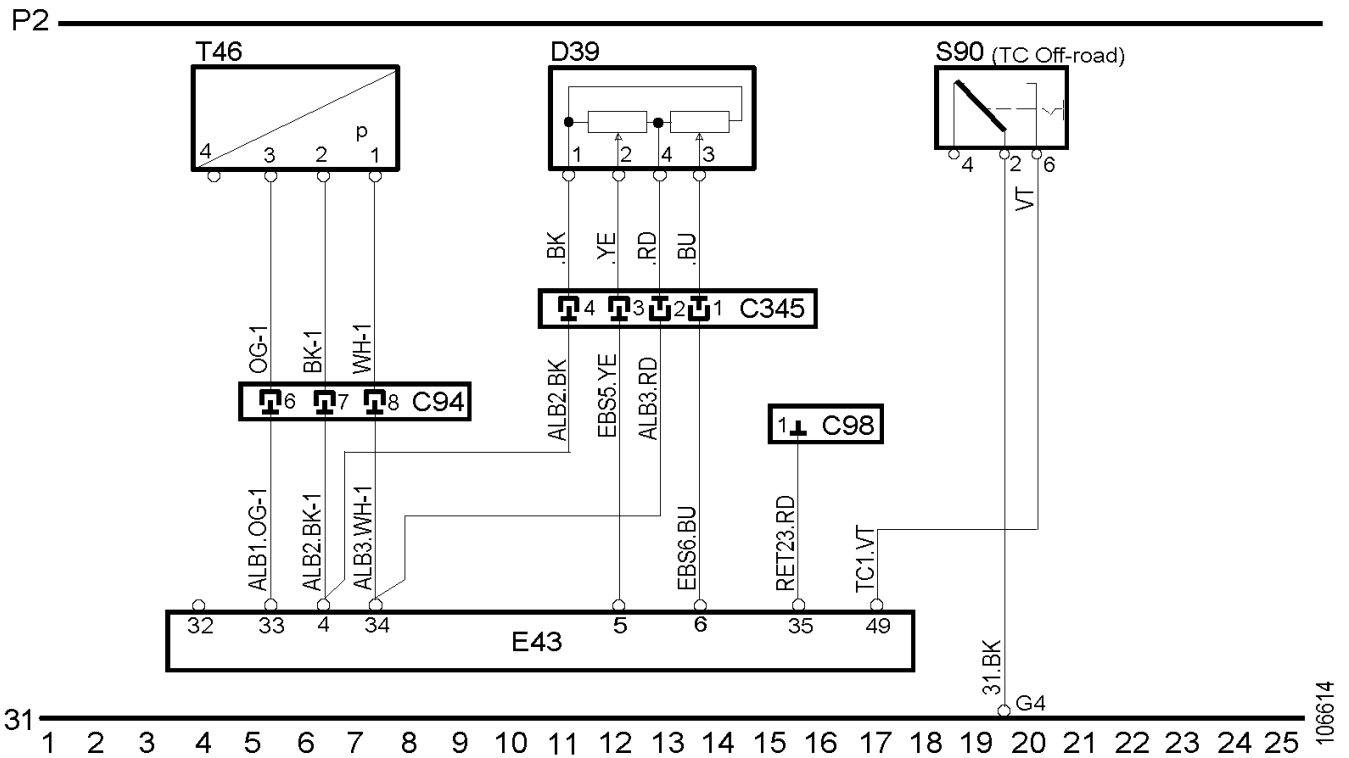
Component No.	Component description		Circuit path
B50/51	Brake pad wear wire	Axle 1 LH	82
B52/53	Brake pad wear wire	Axle 1 RH	116
B54/55	Brake pad wear wire	Axle 2 LH	135
B56/57	Brake pad wear wire	Axle 2 RH	166
B64/65	Brake pad wear wire	Axle 3 LH	210
B66/67	Brake pad wear wire	Axle 3 RH	194
C8	Connector		60
C56	Junction block	For CAN and diagnosis	40
C92	Connector	Trailer socket for ABS	68
C93	Connector		90, 108
C94	Connector		5, 140, 158, 182
C95	Connector		68, 73
C98	Connector		15
D39	Potentiometer	Service brake valve	12
E43	Control unit	EBS	

Component No.	Component description		Circuit path
E46	Electronic unit	Trailer sensing	60
G4	Ground terminal		19, 31
G11	Ground terminal		88
G13	Ground terminal		49, 72
G18	Ground terminal		89
O1	Instrument cluster		53
R1	Flasher relay		66
S90	Switch	TC Off Road	20
S95	Brake pad wear	Flash diagnosis	31
T11	Wheel sensor	Axle 1 LH	97
T12	Wheel sensor	Axle 1 RH	103
T13	Wheel sensor	Axle 2 LH	147
T14	Wheel sensor	Axle 2 RH	154
T28	Wheel sensor	Axle 3 LH	219
T30	Wheel sensor	Axle 3 RH	178
T39	Wear sensor	Axle 1 LH	79
T40	Wear sensor	Axle 1 RH	122
T41	Wear sensor	Axle 2 LH	128
T42	Wear sensor	Axle 2 RH	172
T46	Pressure sensor	air suspension, rear	6
T51	Wear sensor	Axle 3 LH	207
T52	Wear sensor	Axle 3 RH	197
V82	Control module	Axle 1 LH	90
V83	Control module	Axle 1 RH	107
V84	Control module	Axle 2 LH	137
V85	Control module	Axle 2 RH	156
V86	Control module	Axle 3	180
W3	Warning lamp	TC	53
W8	Warning lamp	ABS/truck	53
W15	Warning lamp	ABS/trailer	55
W18	Warning lamp	Brake pad wear	36

Wiring diagrams

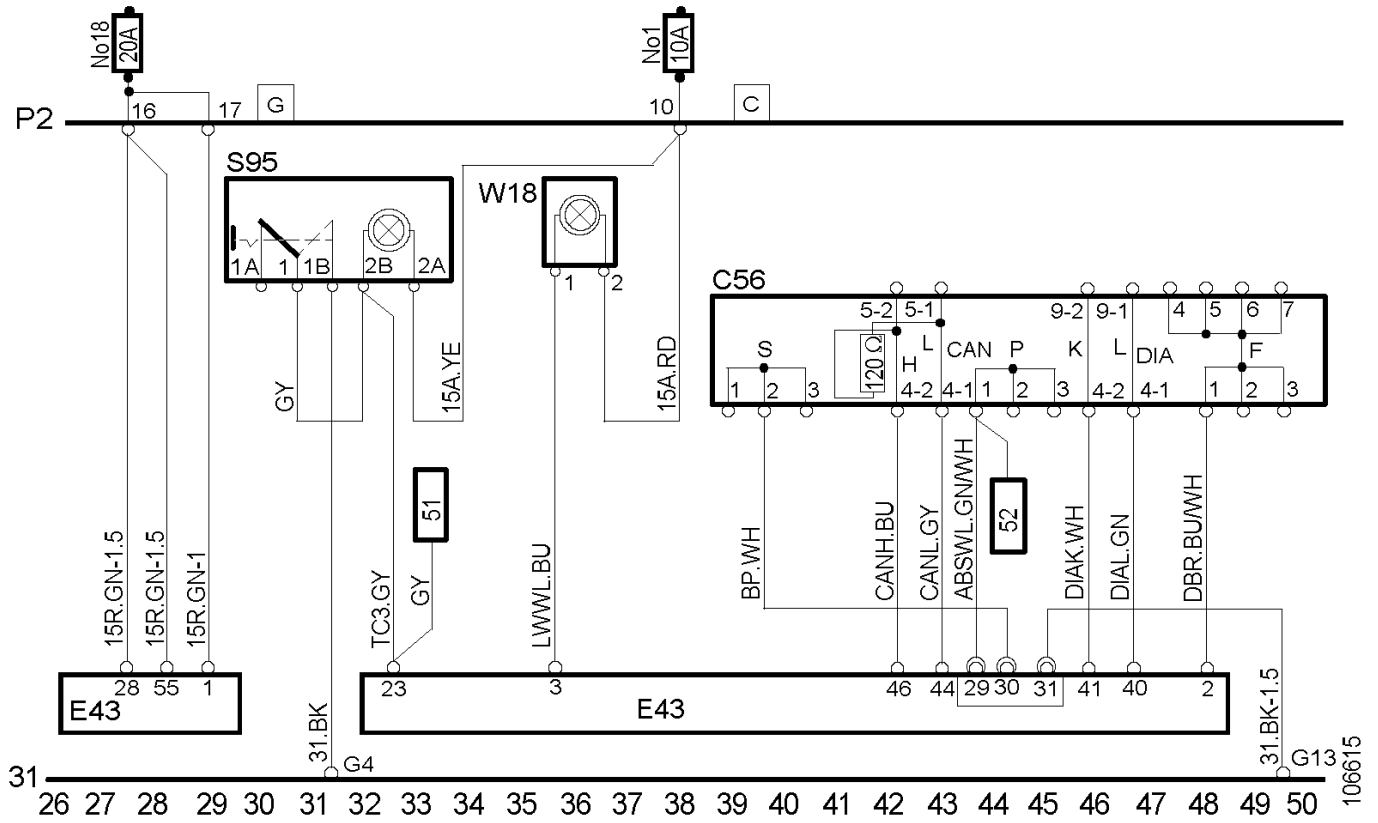
Circuit paths, EBS 2.1

Circuit paths 1 - 25

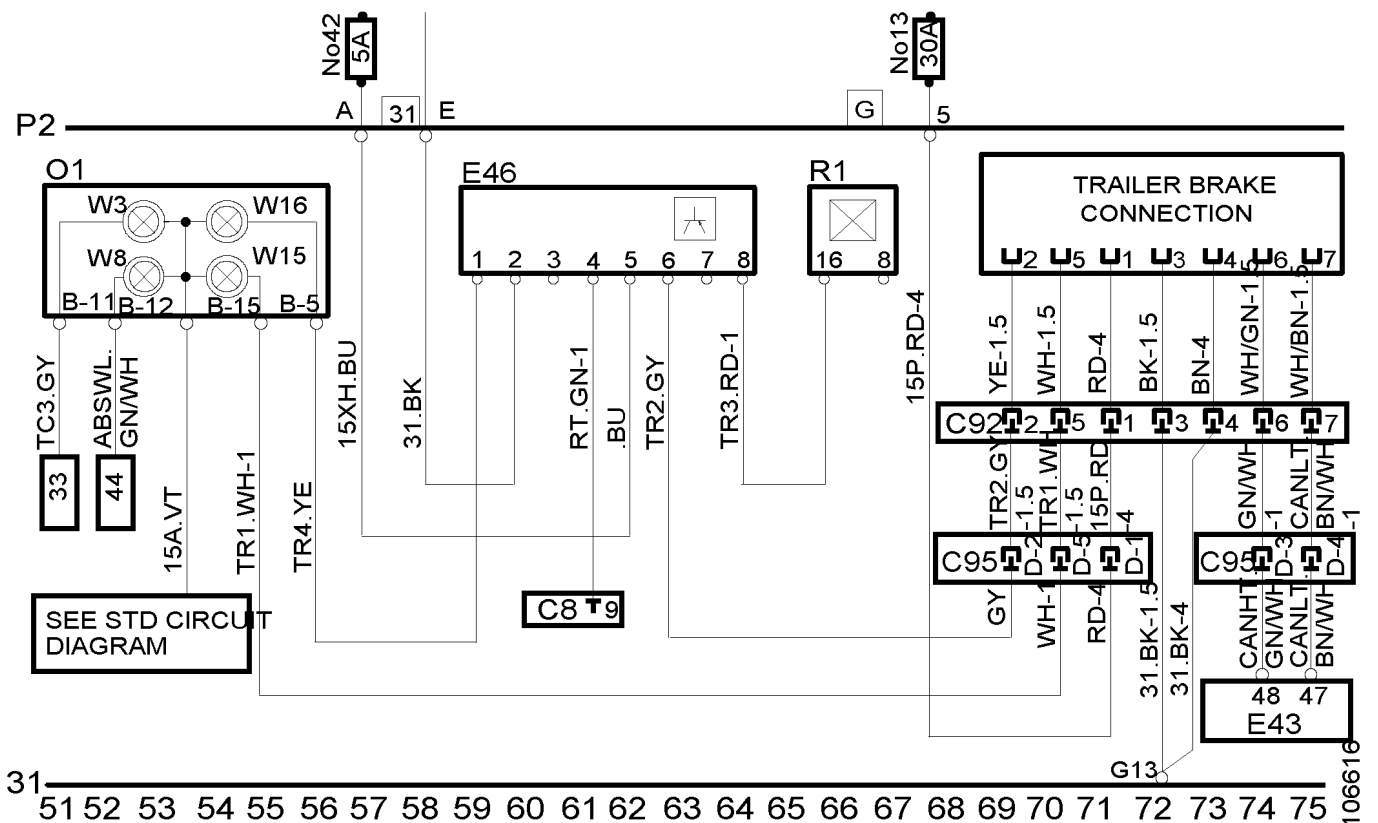


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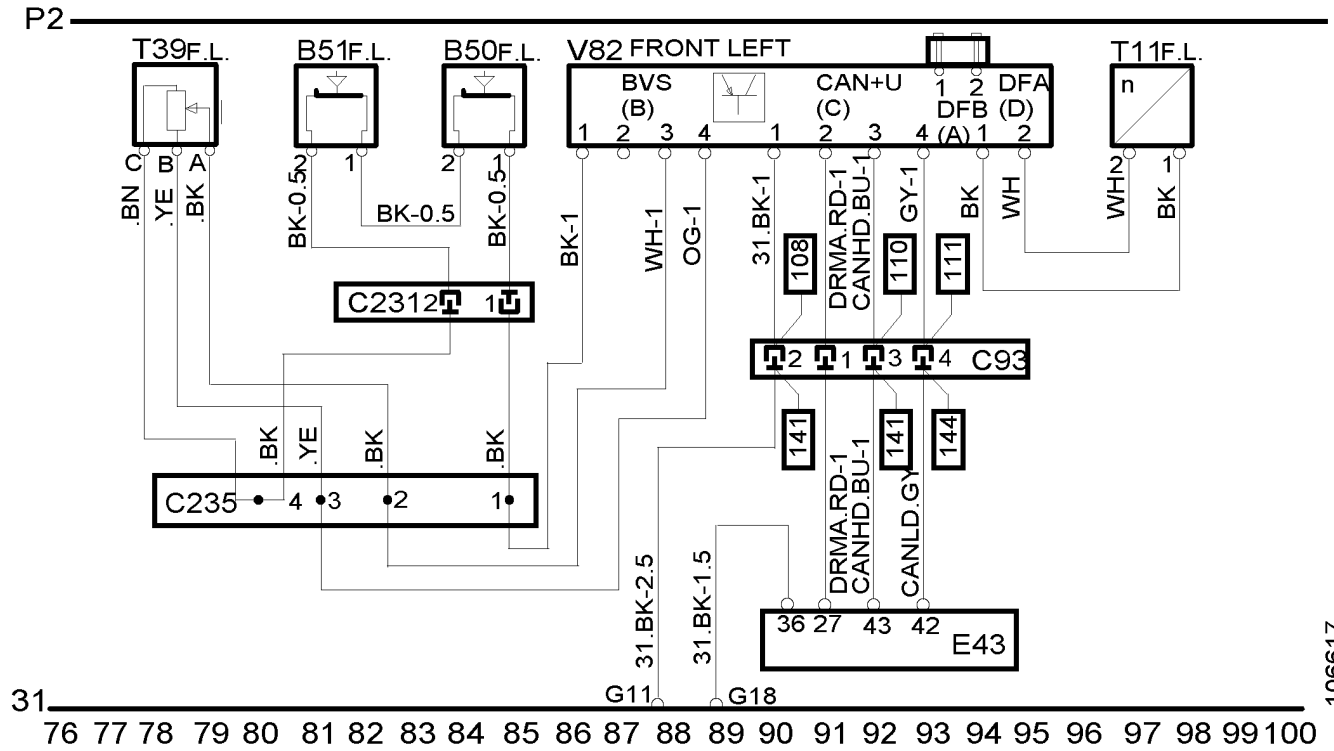
Circuit paths 26 - 50



Circuit paths 51 - 75

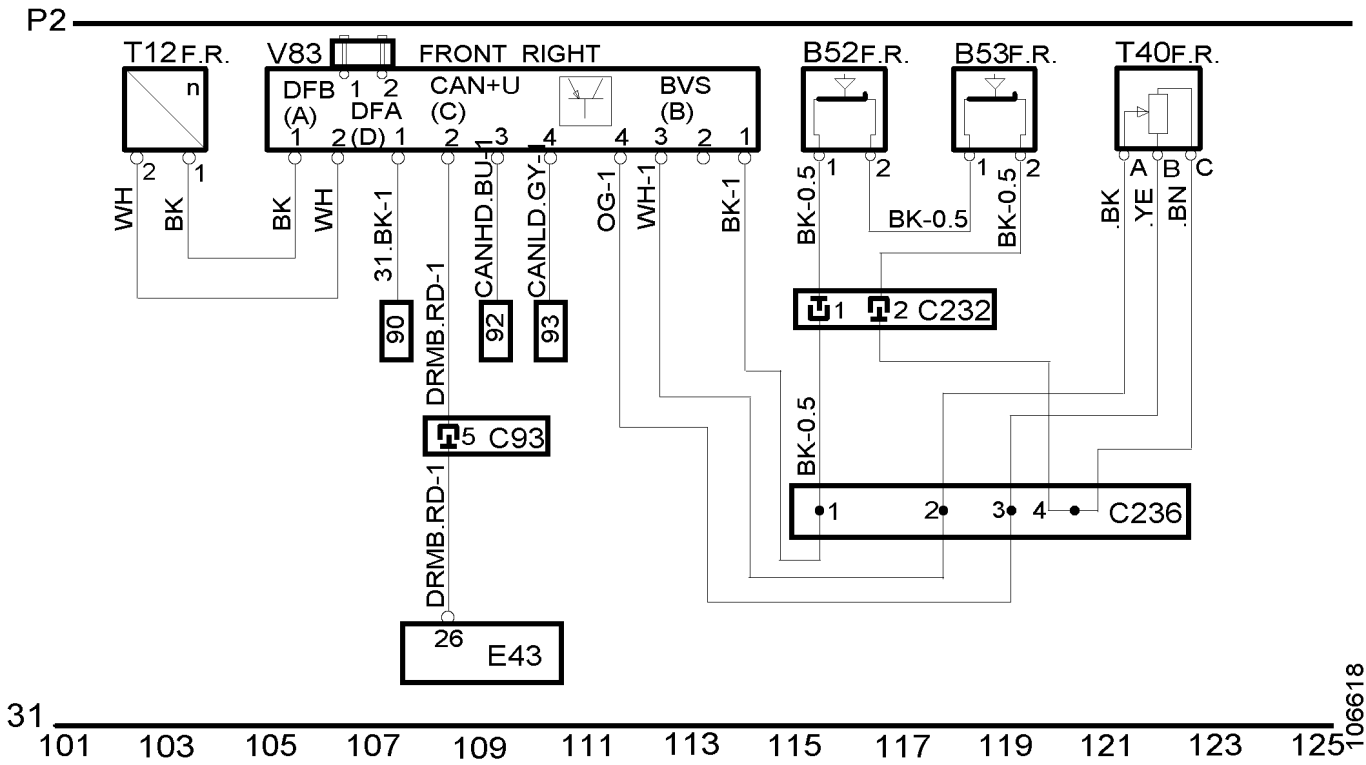


Circuit paths 76 - 100



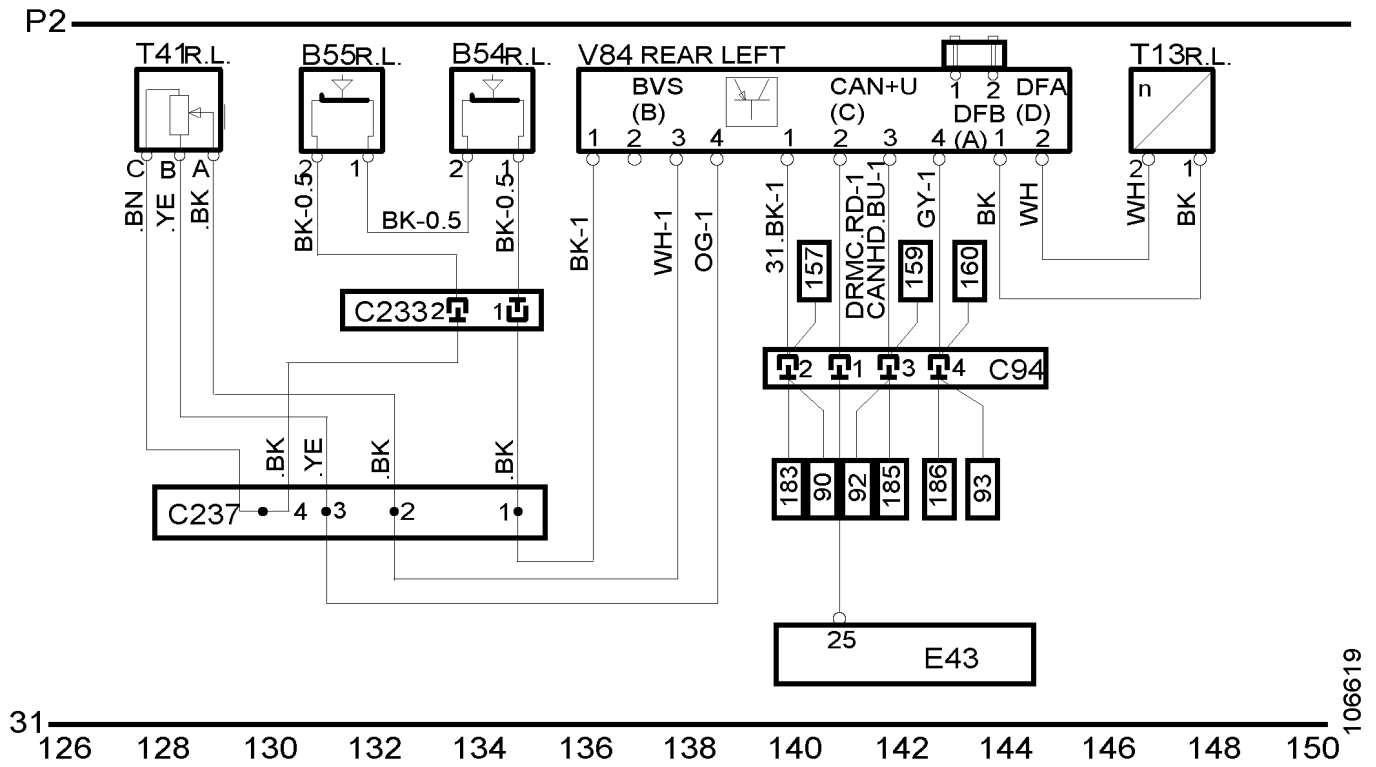
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Circuit paths 101 - 125

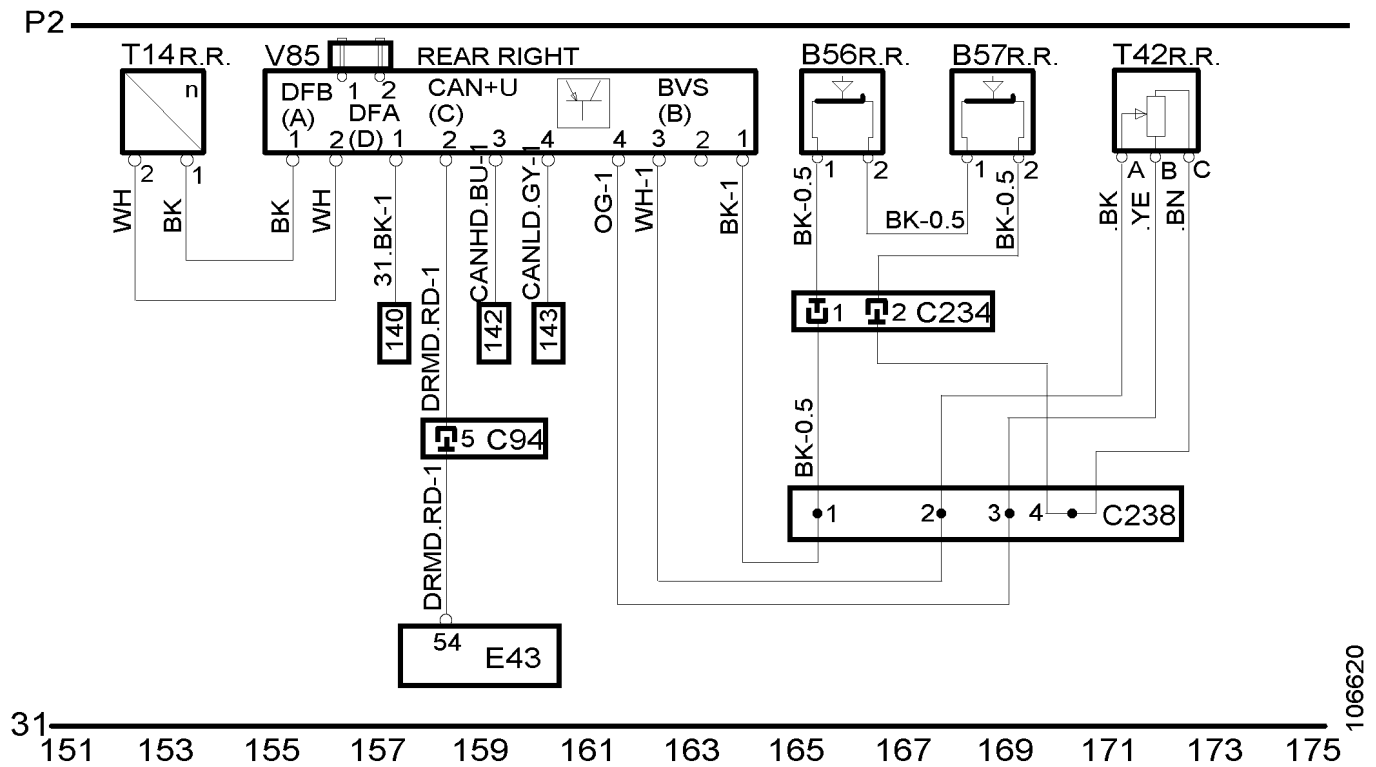


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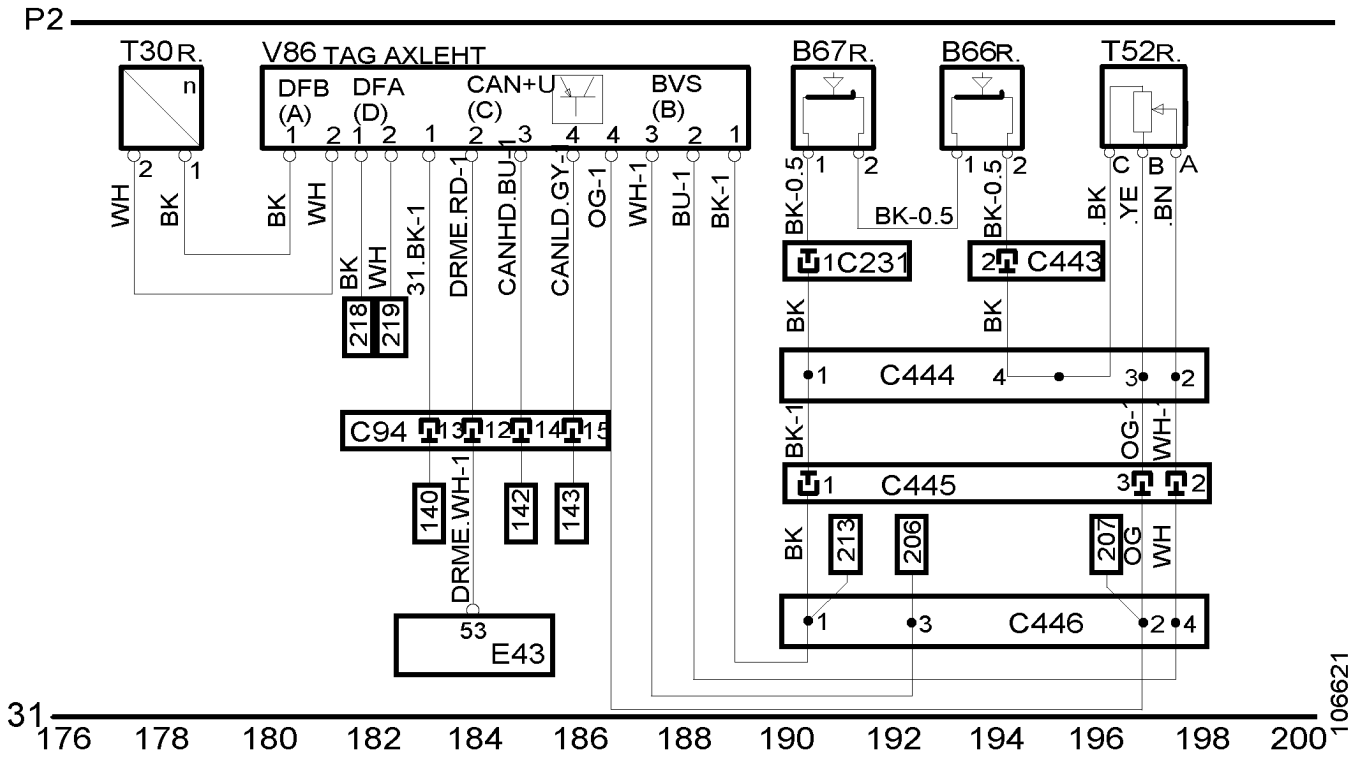
Circuit paths 126 - 150



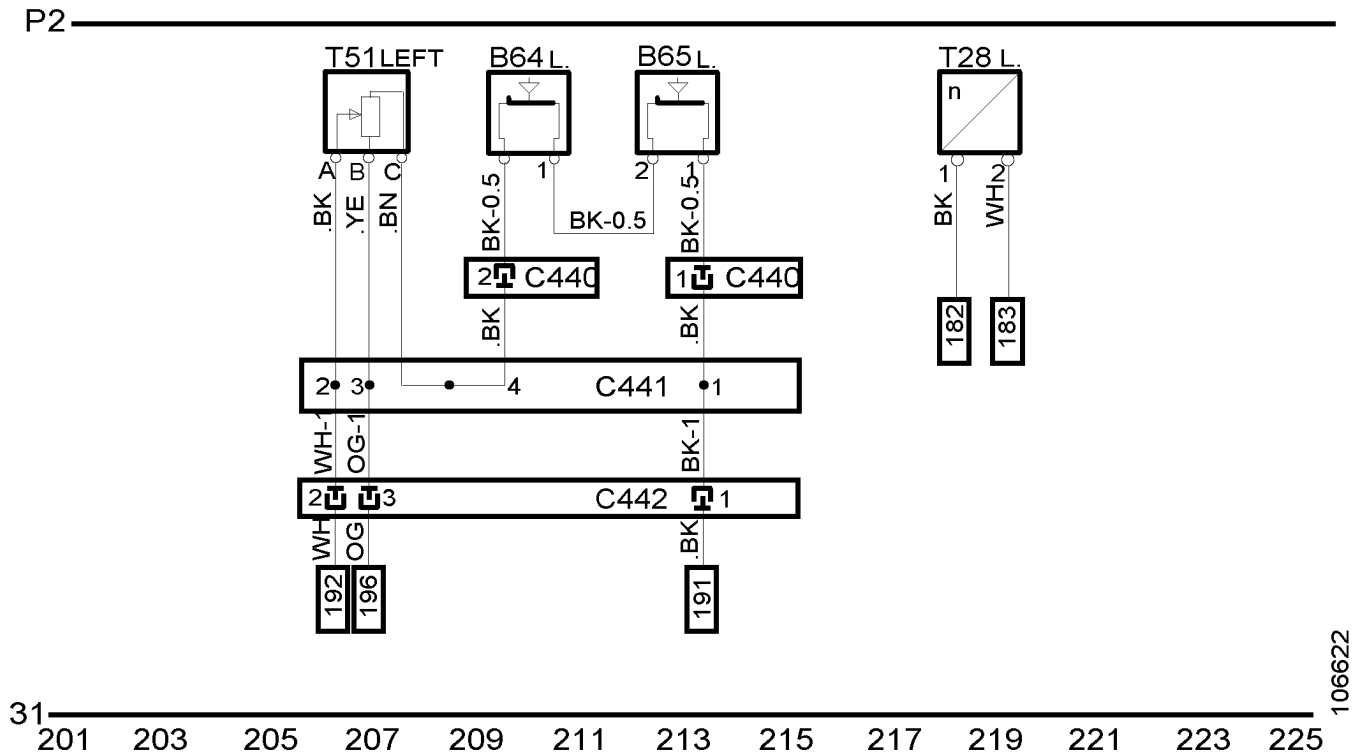
Circuit paths 151 - 175



Circuit paths 176 - 200

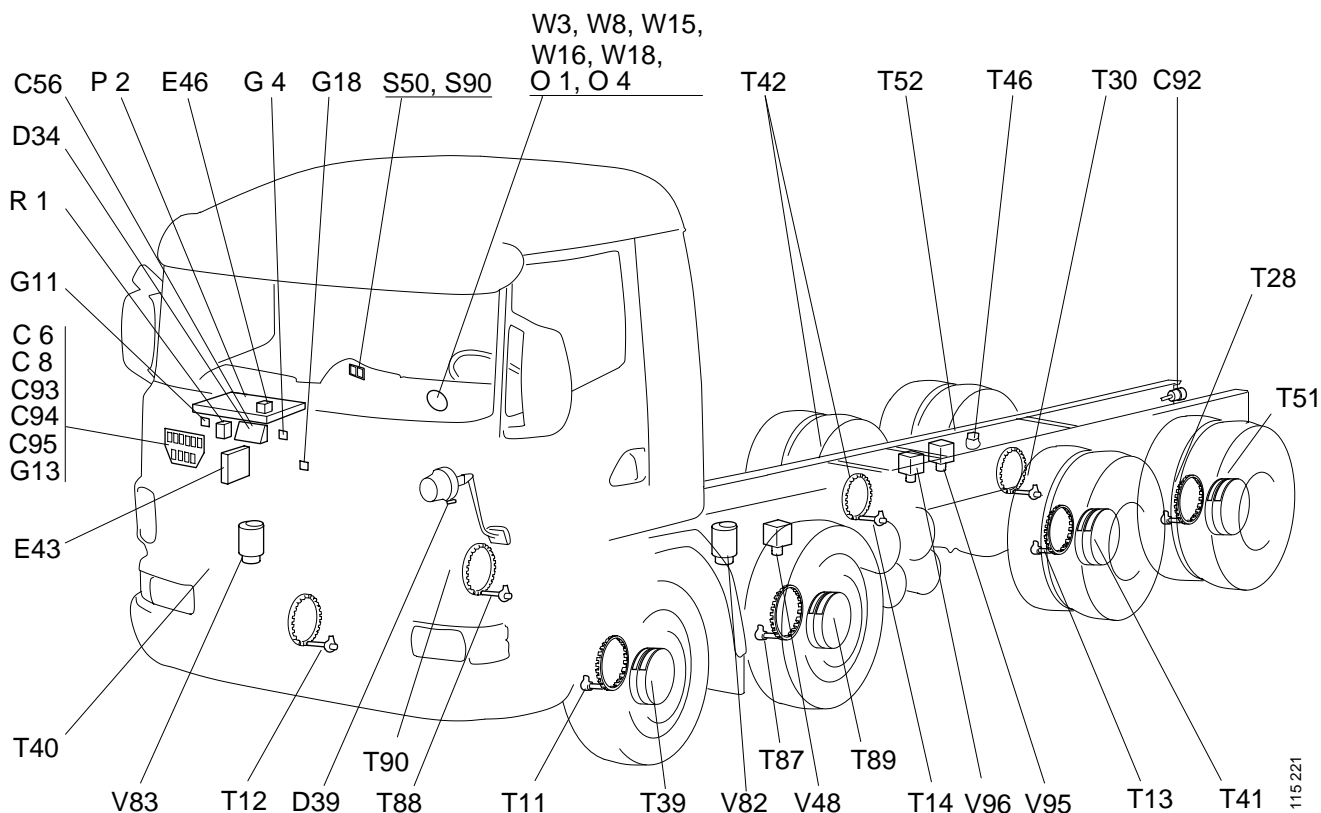


Circuit paths 201 - 225



Electrical system EBS 2.2

Electrical components, location



115221

Electrical components in EBS

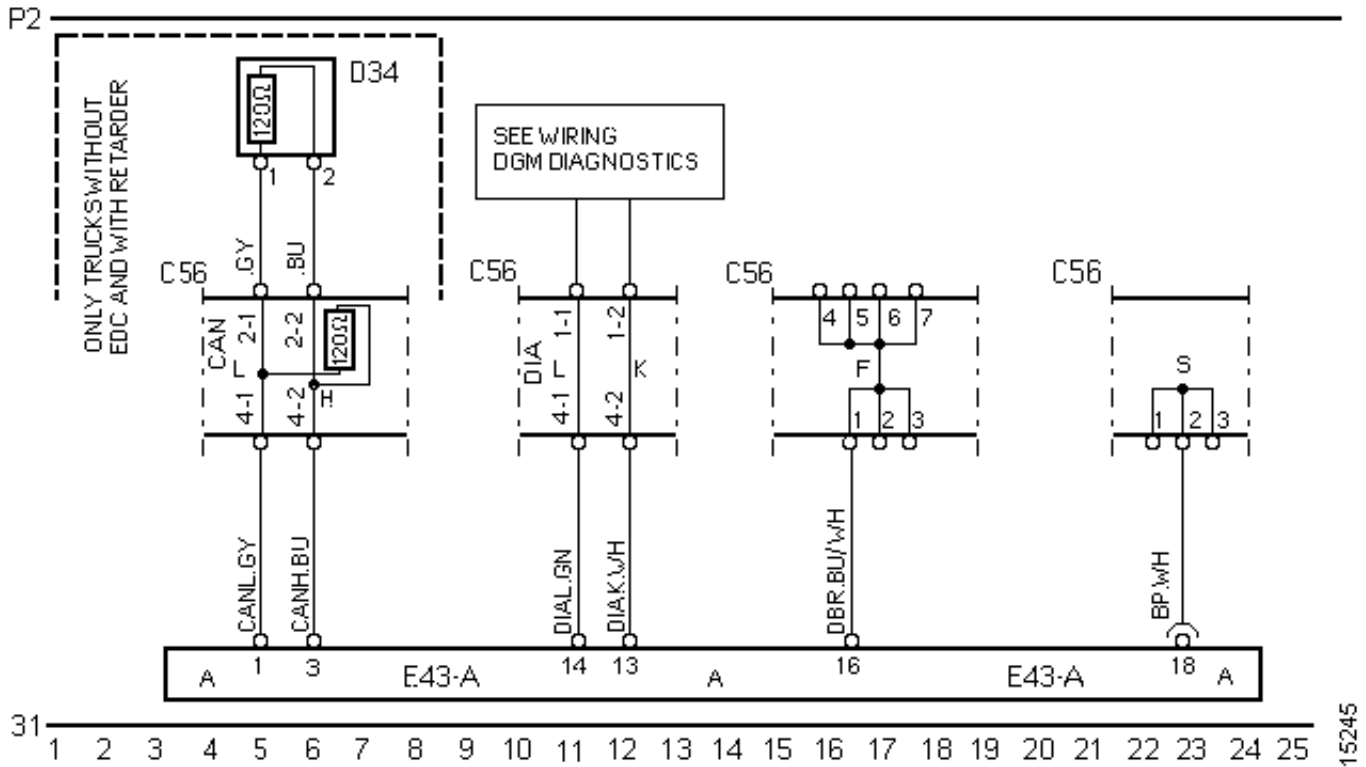
Component No.	Component description	Circuit
C6	Connector	49
C8	Connector	78
C56	Junction block	For CAN and diagnosis 4, 10, 14, 22, 27, 33, 38
C92	Connector	Trailer socket for ABS 106
C93	Connector	120, 126, 138, 301, 328
C94	Connector	163, 178, 213, 238, 278
C95	Connector	106
D34	Resistor	5
D39	Potentiometer	Service brake valve 53
E43	Control unit	EBS
E46	Electronic unit	Trailer sensing 84
G4	Ground terminal	61
G13	Ground terminal	
G18	Ground terminal	95

Component No.	Component description	Circuit
O1	Instrument cluster	96
R1	Flasher relay	80
S50	Switch	Diagnosis
S90	Switch	TC Off
T11	Wheel sensor	Axle 1 LH
T12	Wheel sensor	Axle 1 RH
T13	Wheel sensor	Axle 2 LH
T14	Wheel sensor	Axle 2 RH
T28	Wheel sensor	Axle 3 LH
T30	Wheel sensor	Axle 3 RH
T39	Wear sensor	Axle 1 LH
T40	Wear sensor	Axle 1 RH
T41	Wear sensor	Axle 2 LH
T42	Wear sensor	Axle 2 RH
T46	Pressure sensor	Air suspension, rear
T51	Wear sensor	Axle 3 LH
T52	Wear sensor	Axle 3 RH
T87	Wheel sensor	Axle 4 LH
T88	Wheel sensor	Axle 4 RH
T89	Wear sensor	Axle 4 LH
T90	Wear sensor	Axle 4 RH
V48	Trailer control module	121
V82	Control module	Axles 1 and 4 LH
V83	Control module	Axles 1 and 4 RH
V86	Control module	Tag axle
V95	Control module	Axles 2 and 3
V96	Control module	Axle 3
W3	Warning lamp	TC
W8	Warning lamp	ABS/truck
W15	Warning lamp	ABS/trailer
W18	Warning lamp	Brake pad wear

Wiring diagrams

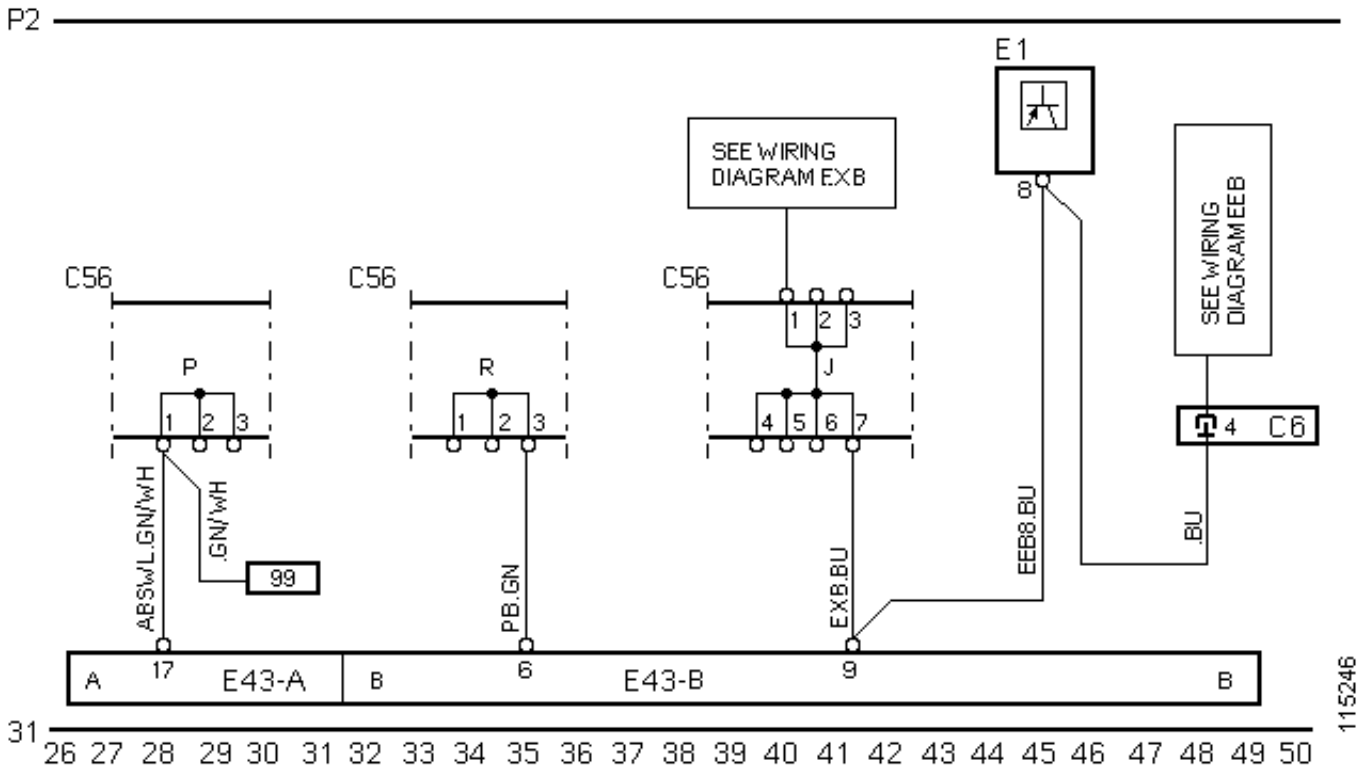
Circuit paths, EBS 2.2

Circuit paths 1 - 25

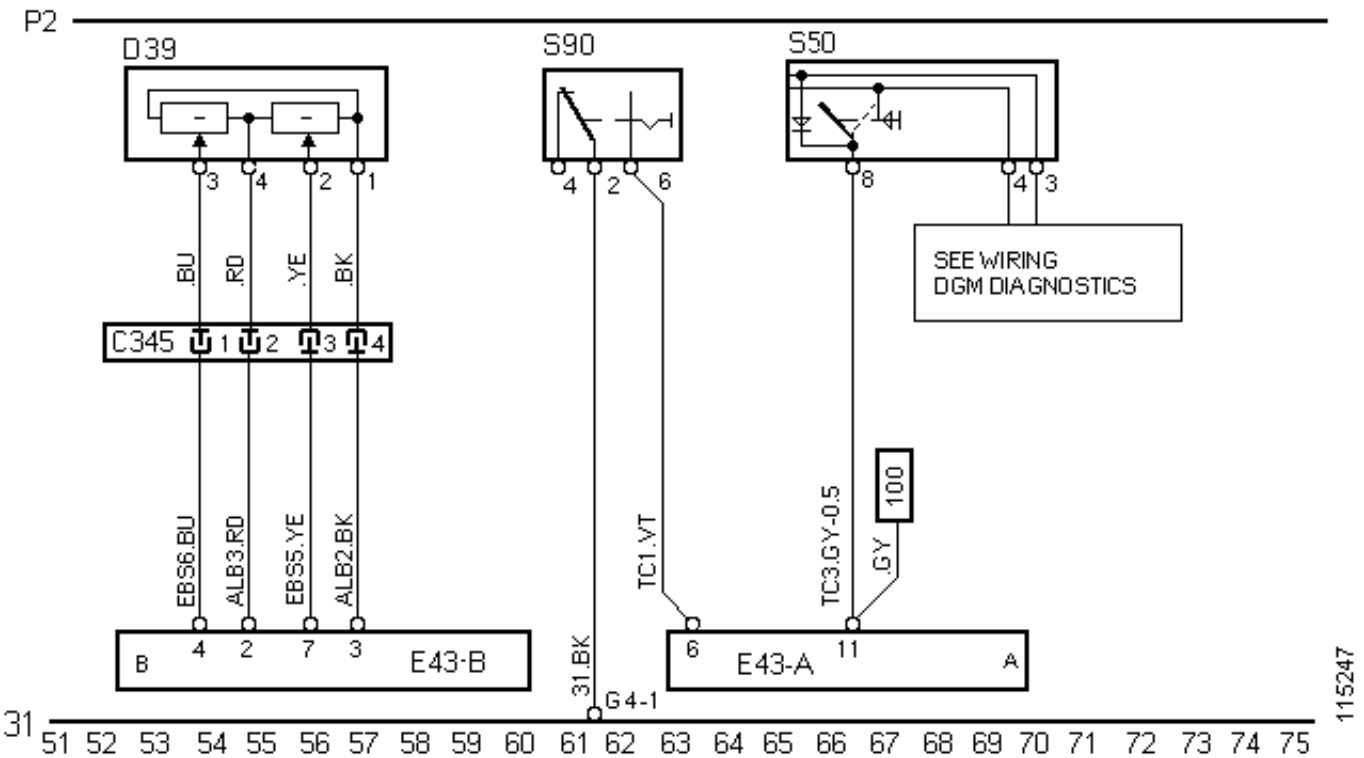


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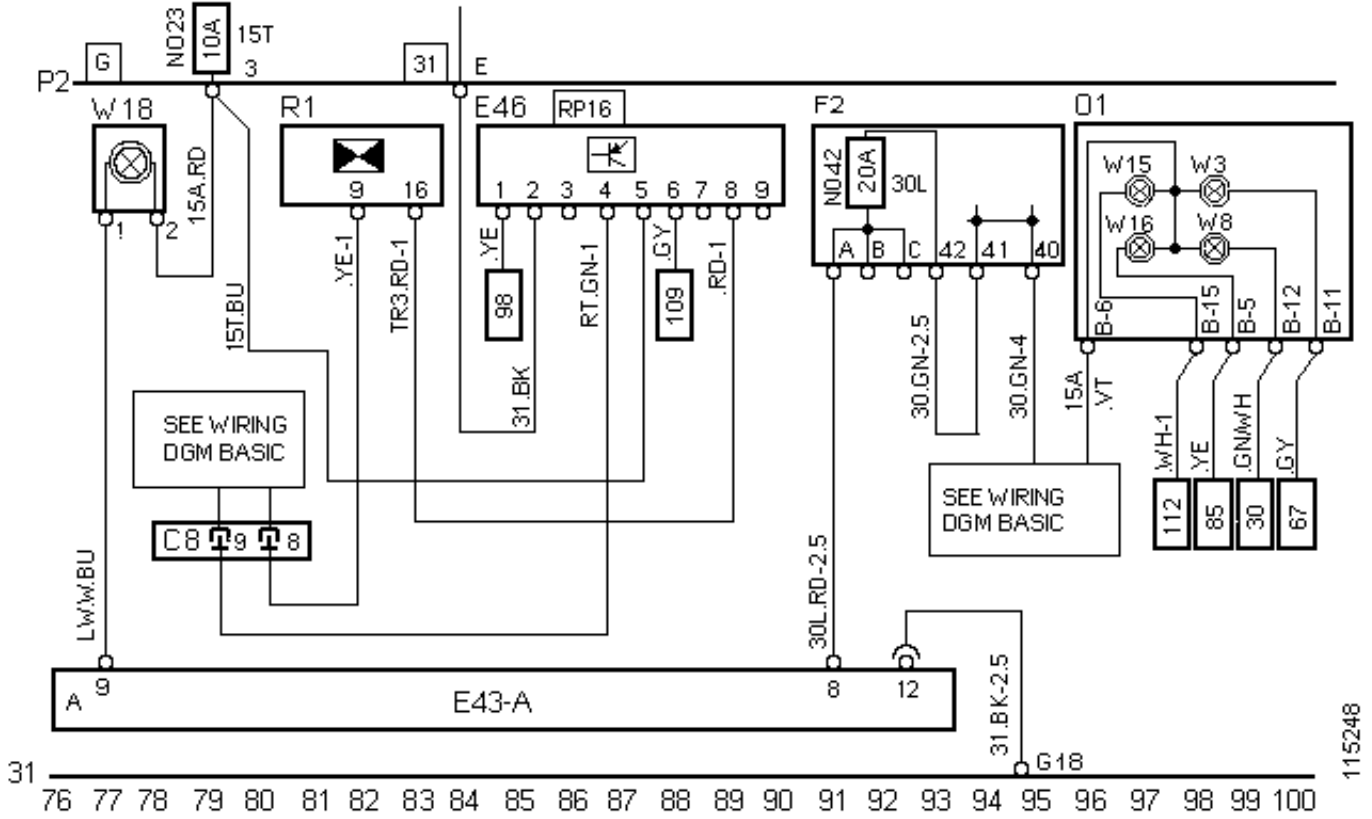
Circuit paths 26 - 50



Circuit paths 51 - 75

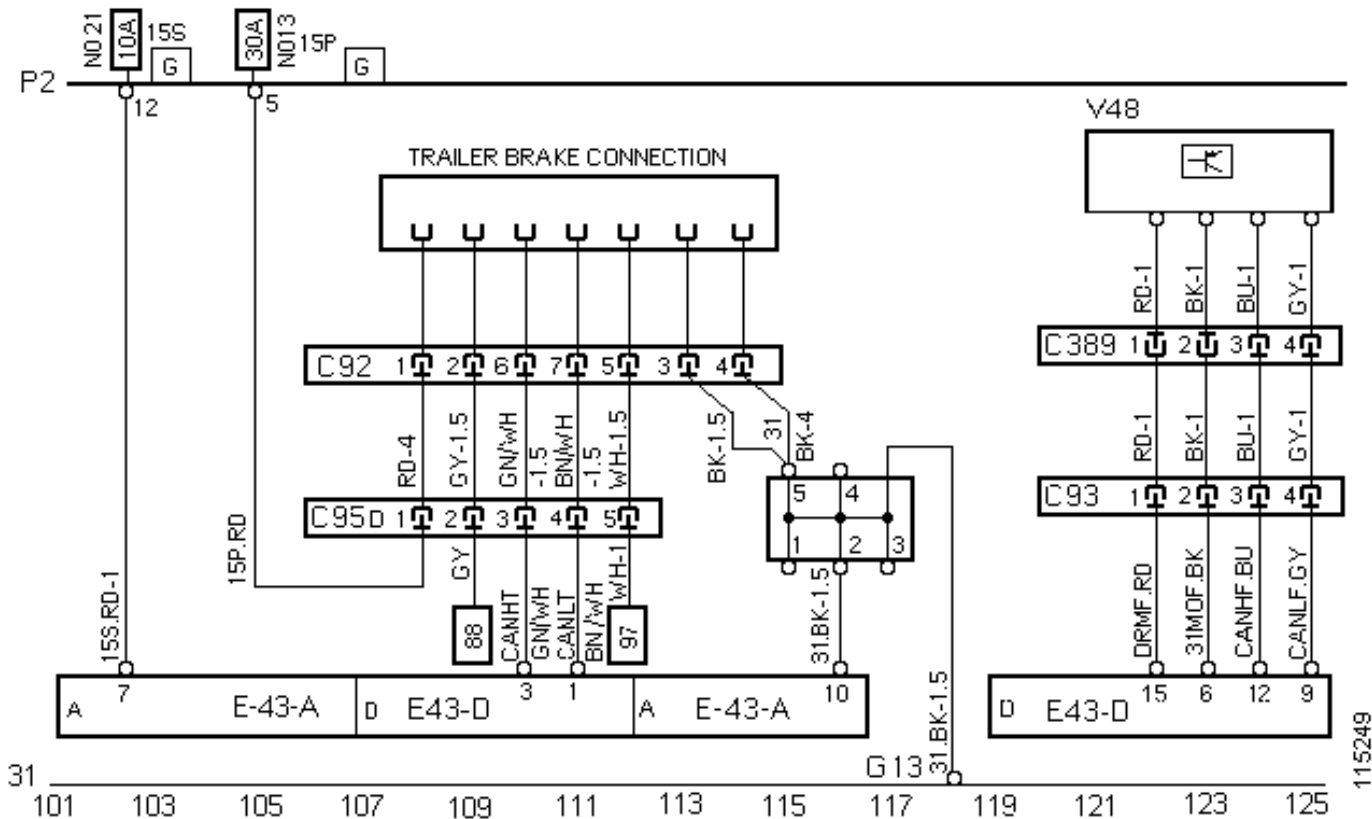


Circuit paths 76 - 100



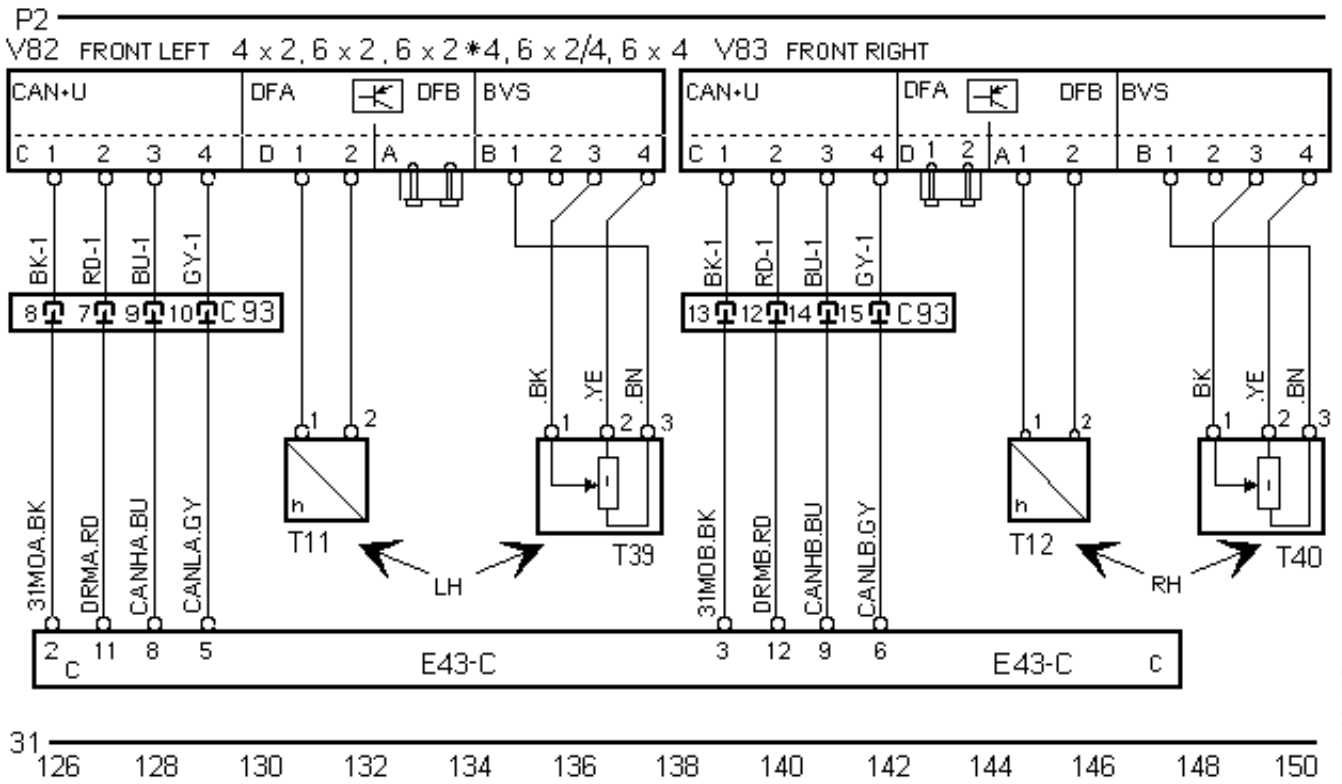
115248

Circuit paths 101 - 125

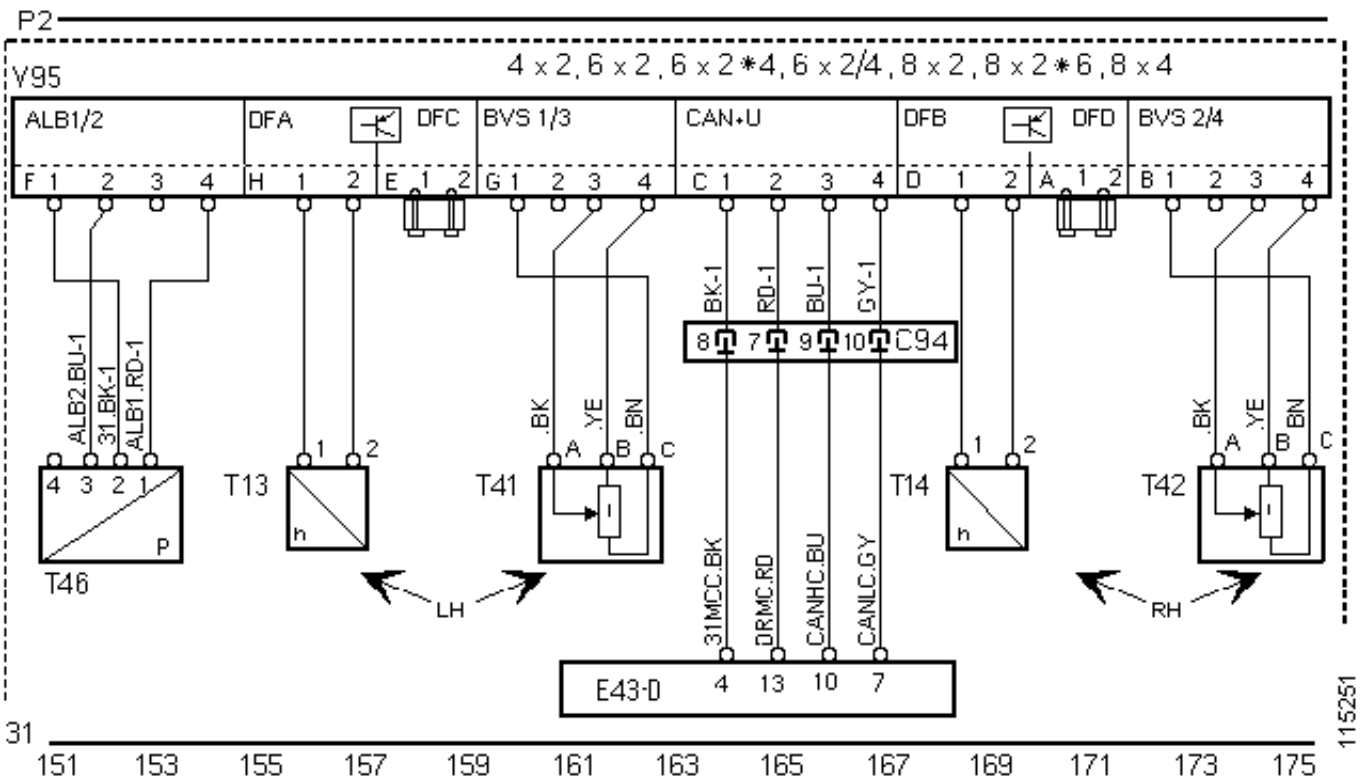


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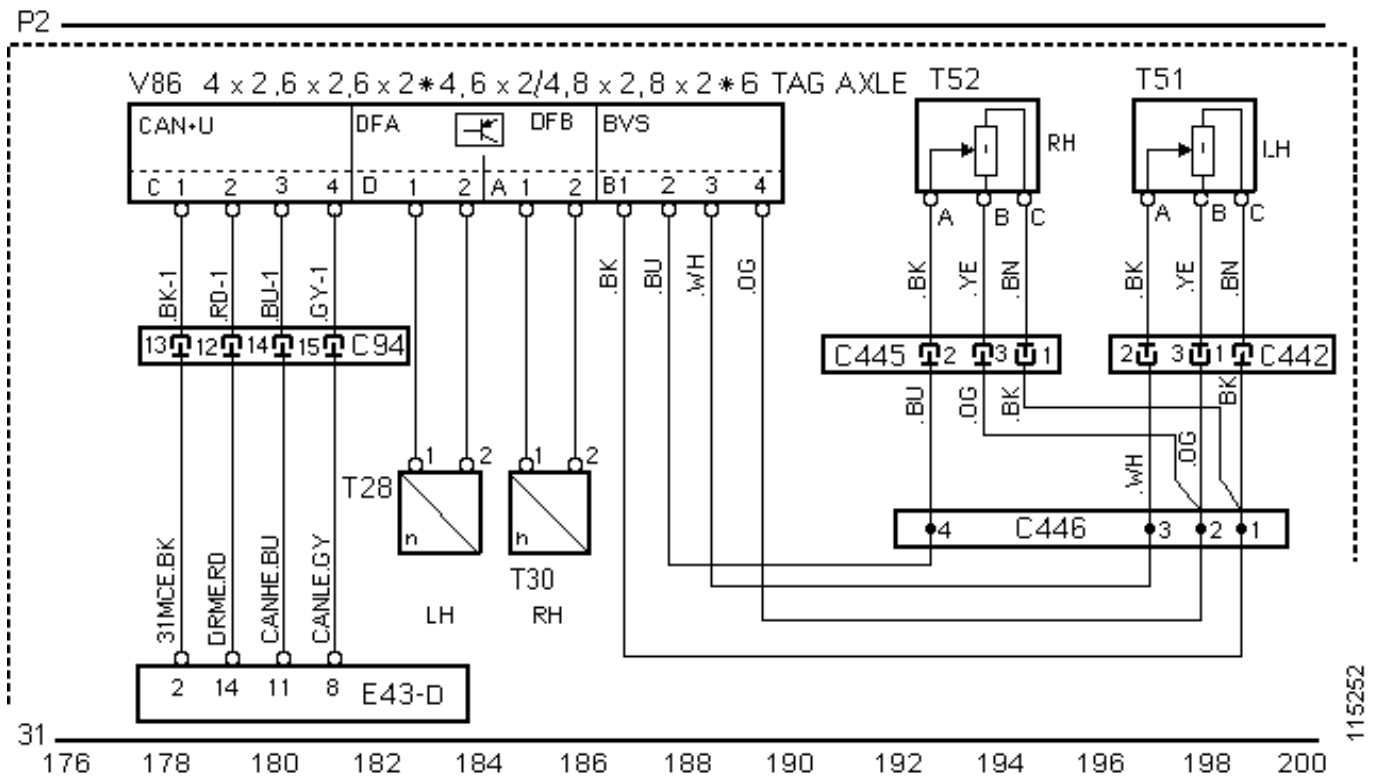
Circuit paths 126 - 150



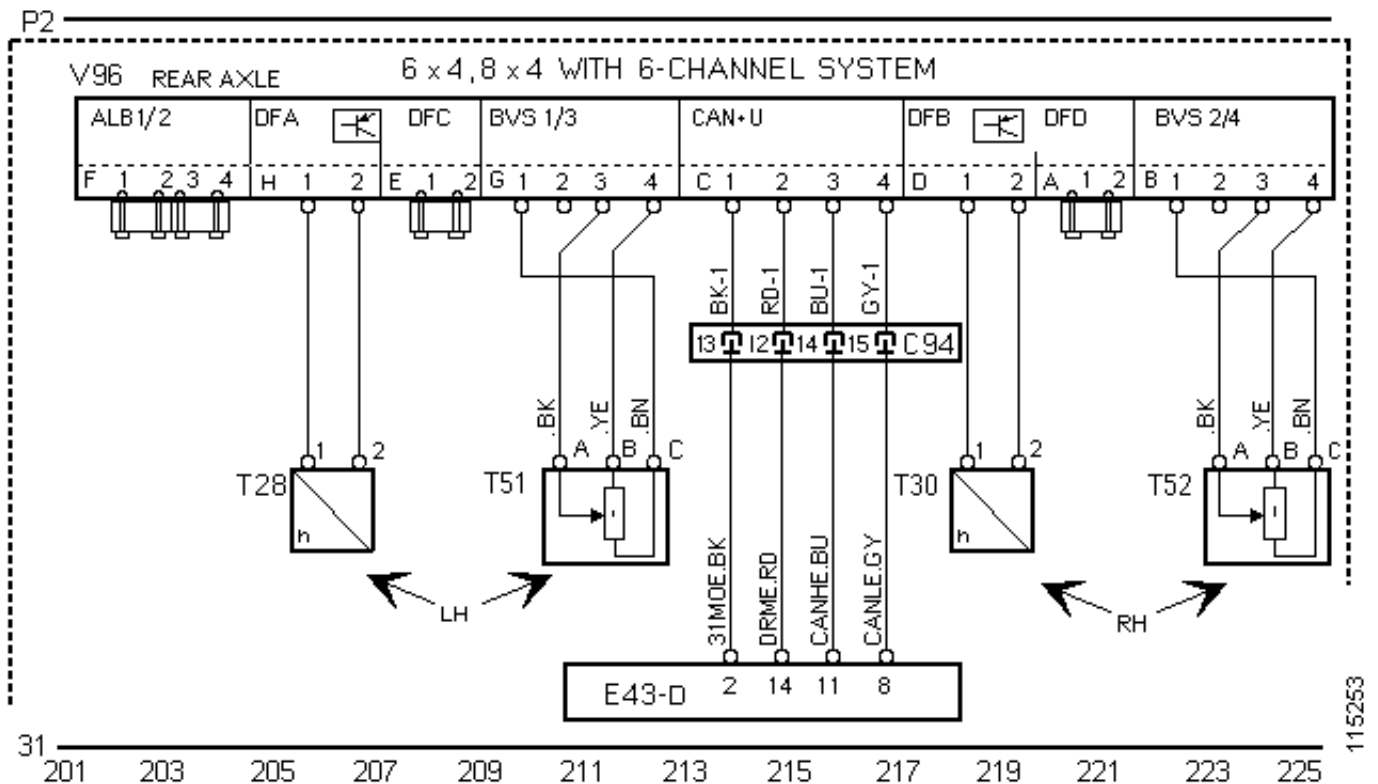
Circuit paths 151 - 175



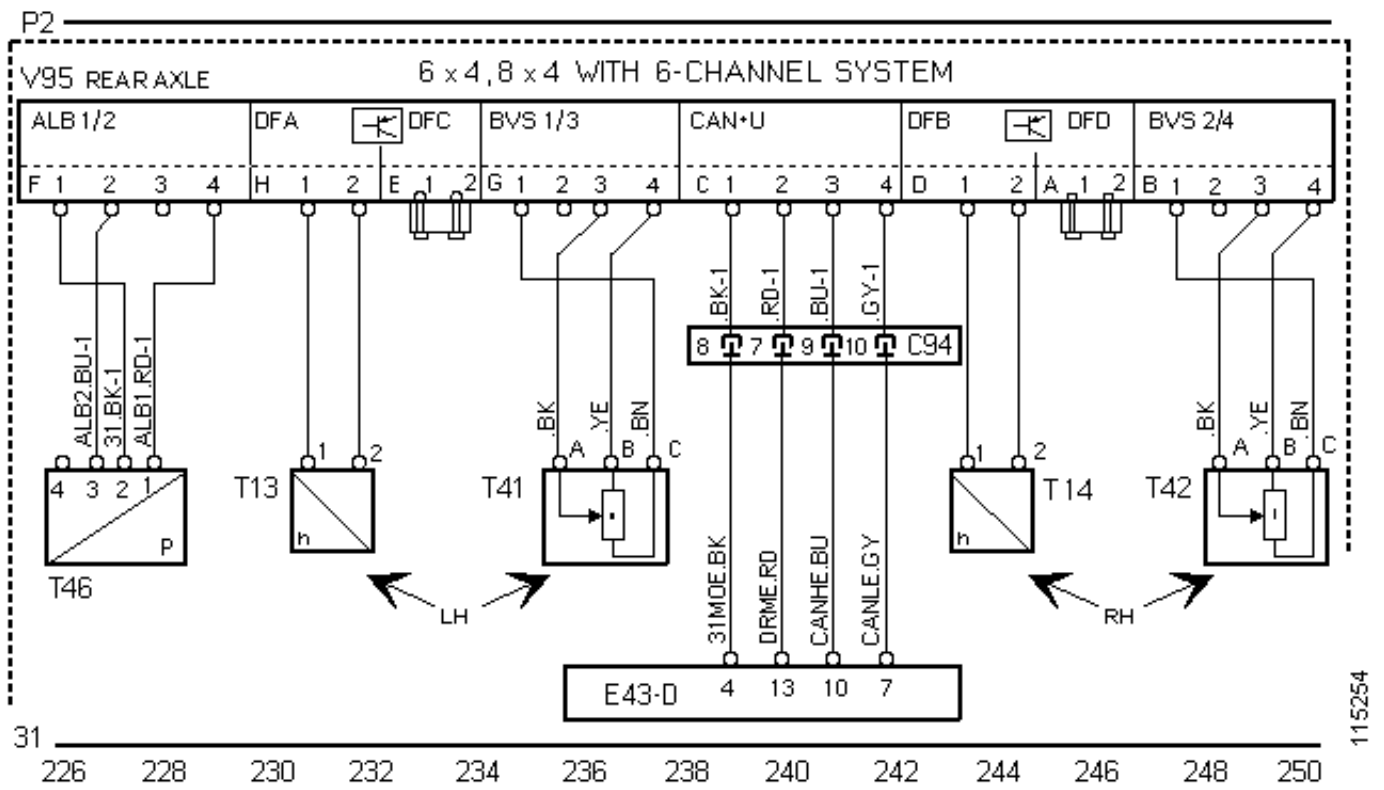
Circuit paths 176 - 200



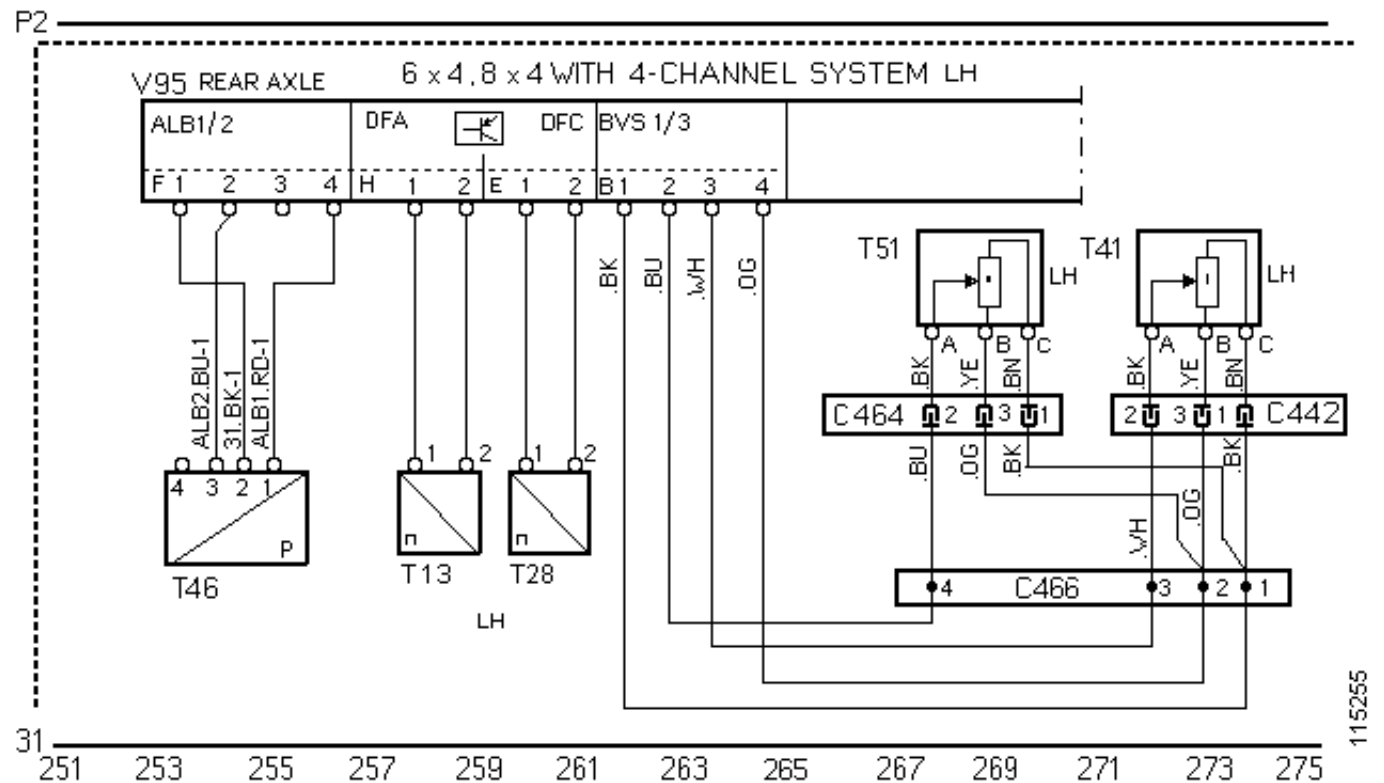
Circuit paths 201 - 225



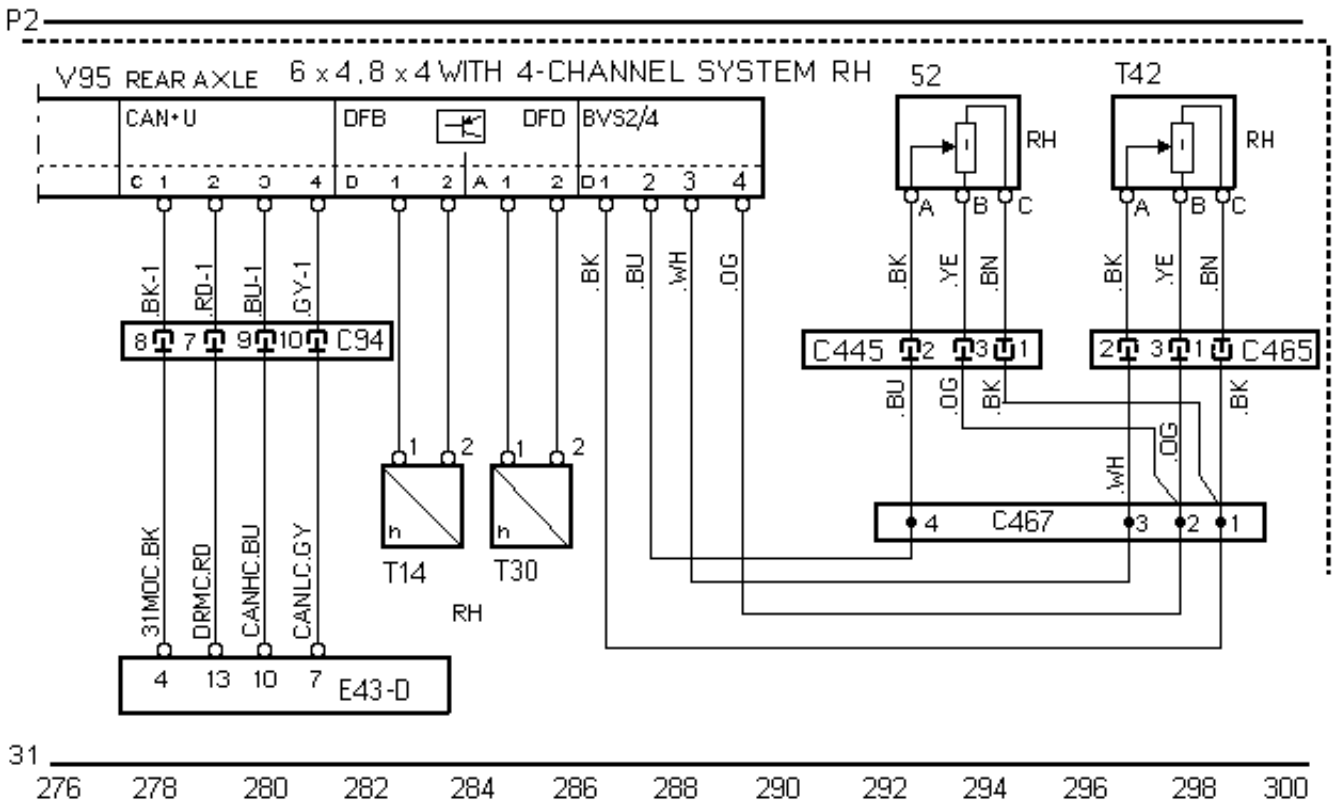
Circuit paths 226 - 250



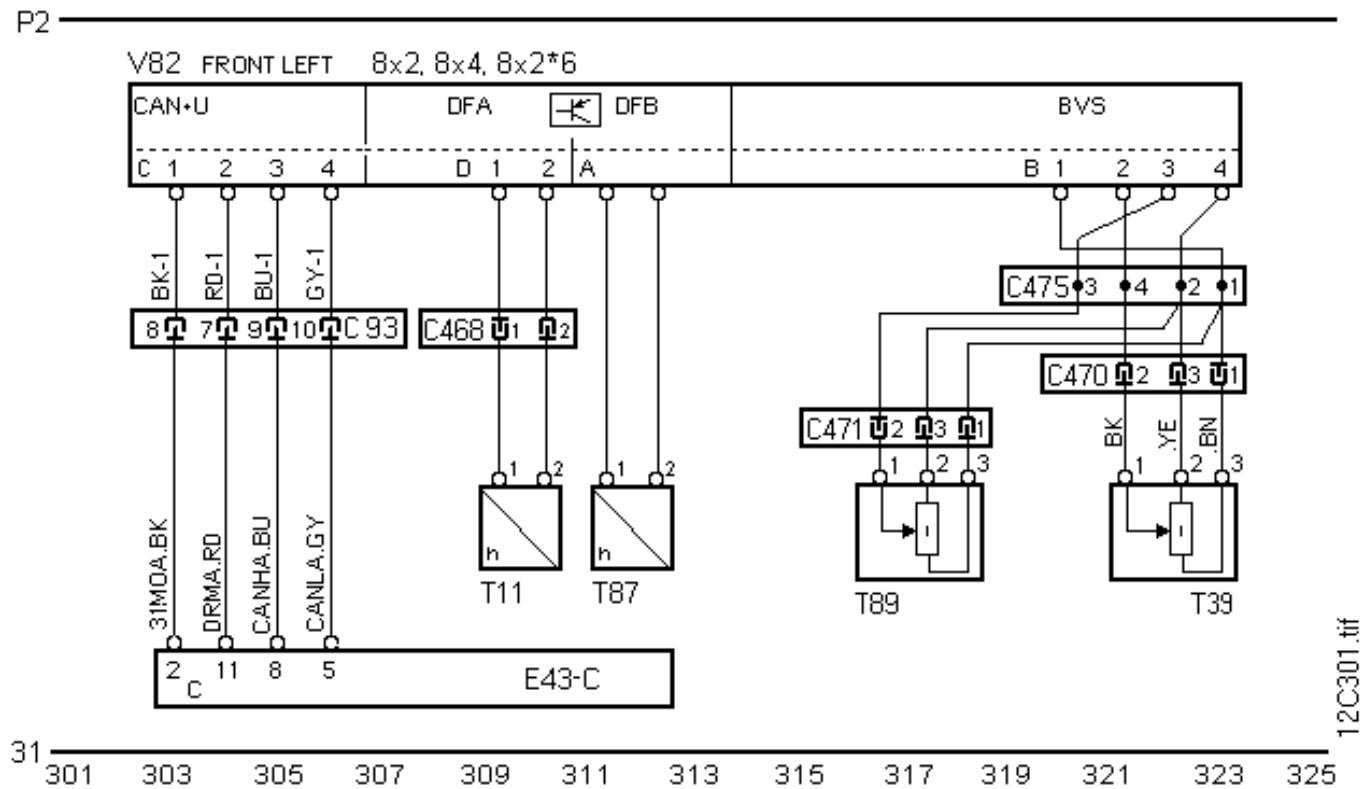
Circuit paths 251 - 276



Circuit paths 276 - 300

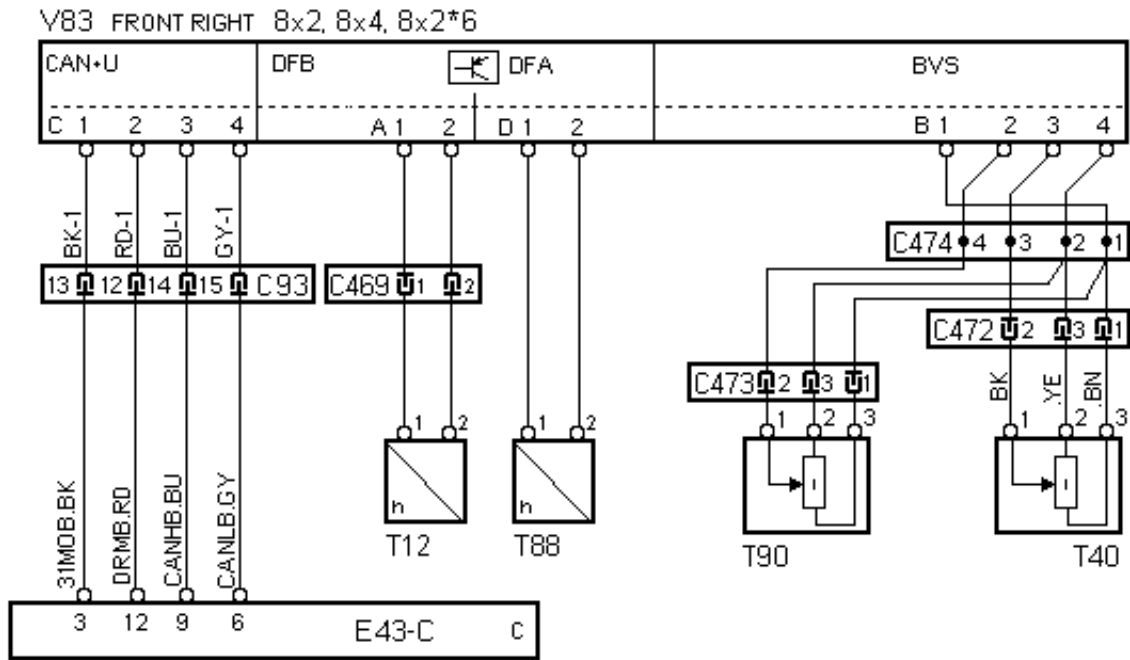


Circuit paths 301 - 325



Circuit paths 326 - 350

P2



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31

326 328 330 332 334 336 338 340 342 344 346 348 350