SCANIA

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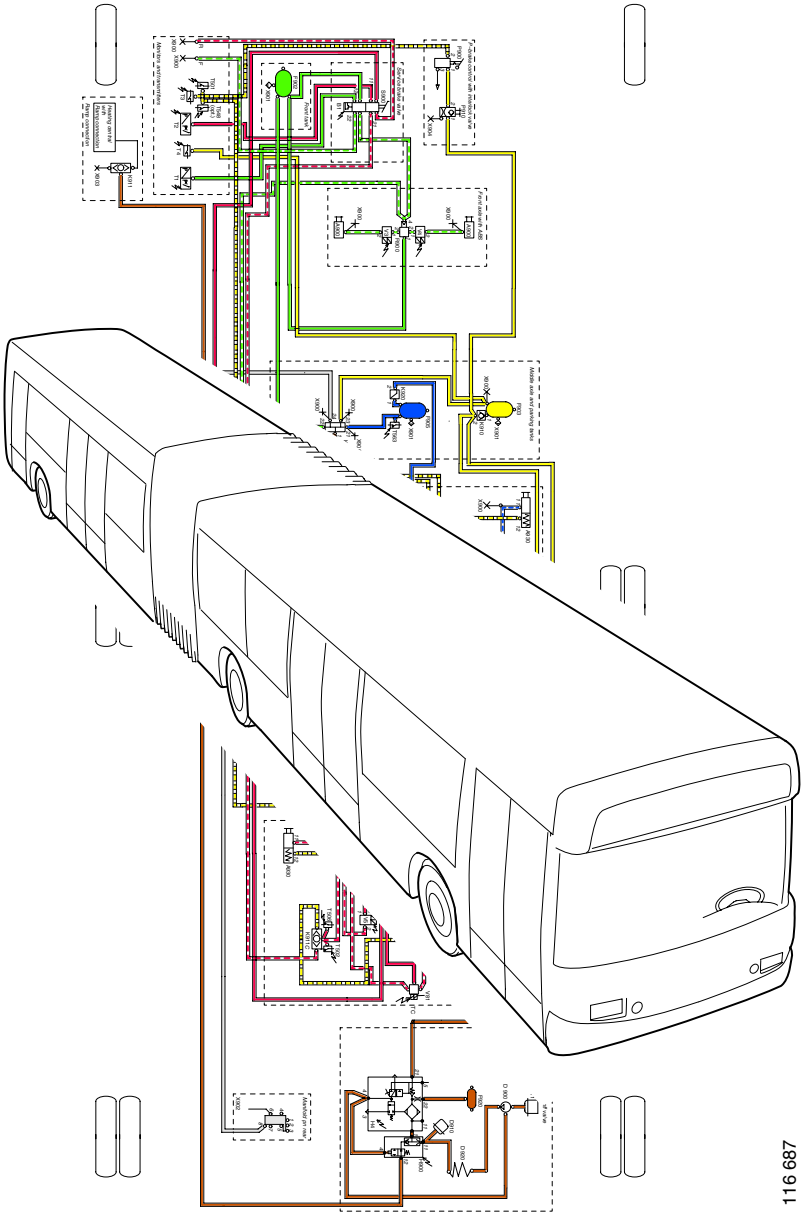
Issue 2 **en**

Brake system, bus

Function description



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Contents

General

This system description applies to those brake systems fitted to series 4 buses.

The diagrams in this booklet are included to explain the function of the systems. More diagrams, adapted for each bus type, are available in the Workshop manual group 10.

The layout of this booklet is different from the previous issue. If you have any comments regarding this booklet, refer to "Workshop information, Feedback" under group 00.

System design

The buses in series 4 are of modular construction. The compressed air installations are the same for each module, even if they are fitted to different bus types.

The brakes are direct acting compressed air brakes divided into several circuits. The service brake is a two circuit system, where the front and the rear circuit are separated but are operated together. On 6x2 and 6x2/2 the tag/centre axle is a separate circuit that is controlled by the front circuit and the rear circuit. There is also a parking brake circuit.

The circuits are divided into a supply section and a control section. The supply section stores and supplies compressed air to controls and valves. The valves regulate the compressed air to those components that apply the brakes.

In such cases where the compressed air components are connected electrically, they have the same designations as in the wiring diagram.

The pipes in the brake system are mostly plastic pipes. Steel pipes are used where the pipes concerned may be exposed to excessive wear or heat. Rubber hoses are used for connections requiring good flexibility, e.g. between frame and axles.

The mountings for the compressed air tanks vary between buses, depending on the coachbuilder, in order to utilize the maximum amount of available space.

The equipment fitted to the bus depends on legal requirements and the needs of the customer.

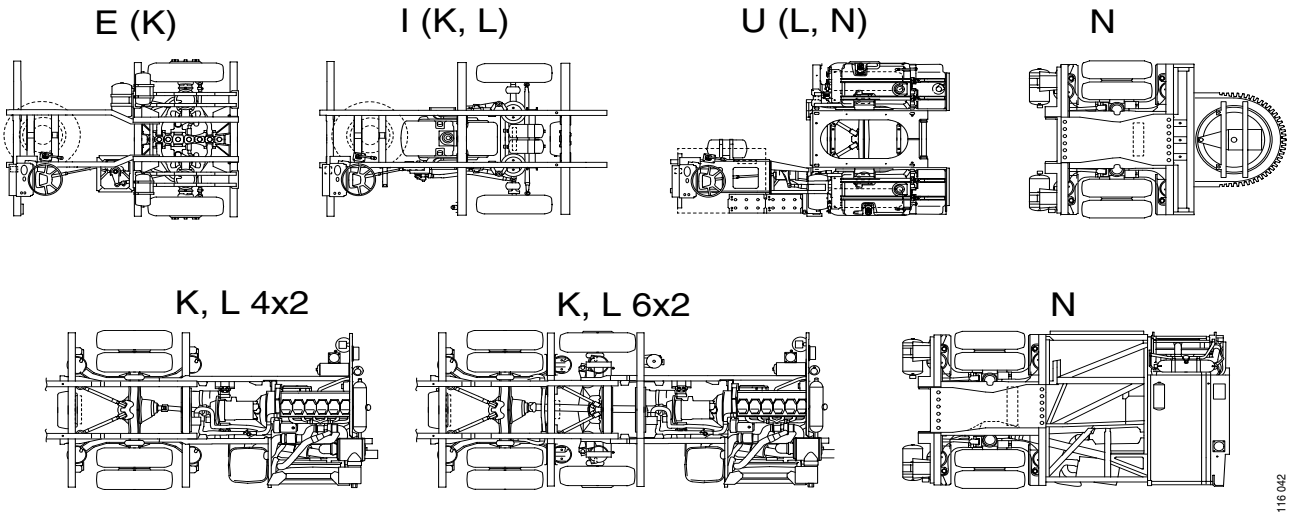
The wheel brake components, e.g.brake slack adjusters, eccentric shafts, brake shoes, brake linings, brake drums and valves are not described in this booklet. Refer to the component booklet for each circuit.

For exhaust brake and auxiliary brake, refer to the Workshop manual group 10.

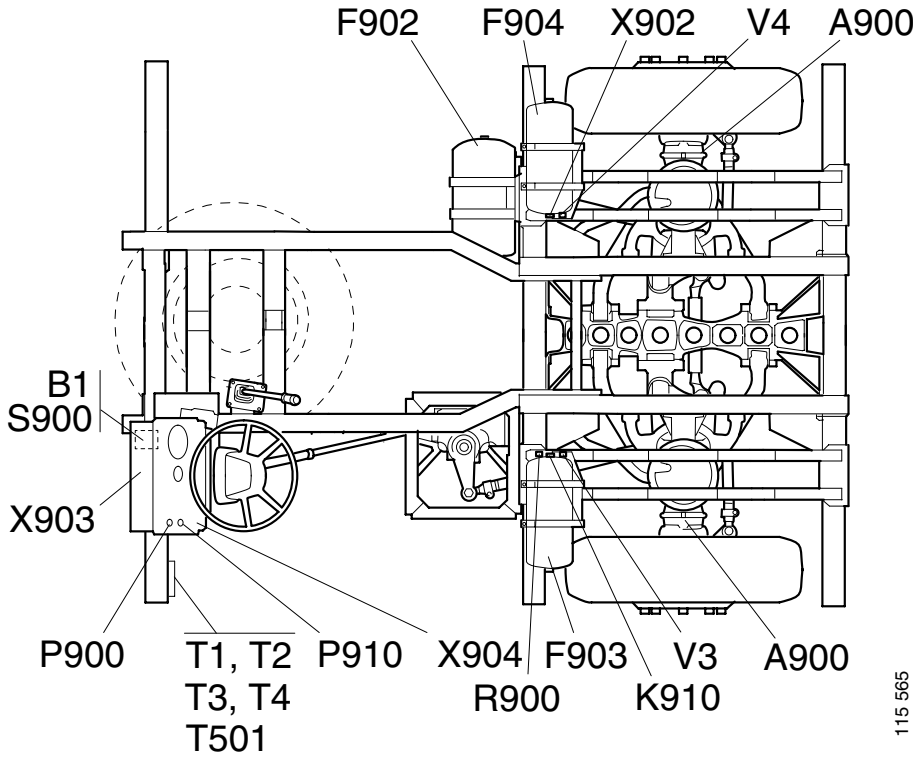
Location of components

General

Component locations can vary depending on the coachbuilder.



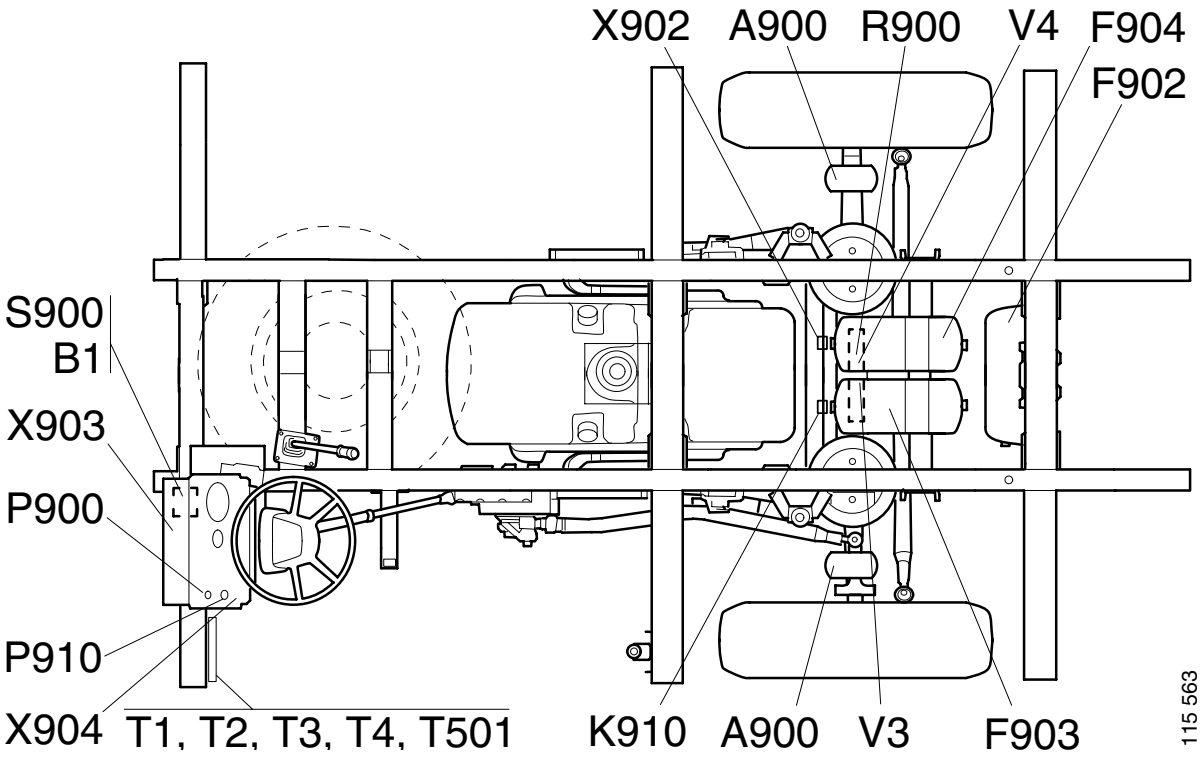
Front section, E class (K)



A900	*Brake chamber*	*T1*	*Pressure sensor with low-pressure monitor, front circuit*
B1	*Brake light switch*	*T2*	*Pressure sensor with low-pressure monitor, rear circuit*
F902	*Air tank, front circuit*	*T3*	*Low-pressure monitor, 6 bar, parking circuit, control section*
F903	*Air tank, parking circuit*	*T4*	*Low-pressure monitor, 5 bar, parking circuit, supply section*
F904	*Air tank, other equipment*	*T501*	*Pressure monitor for EK/NBS 0.8 bar*
K910	*Check valve*	*V3*	*ABS control valve, front axle, left hand side (axle 1)*
P900	*Manual control valve, parking brake*	*V4*	*ABS control valve, front axle, right hand side (axle 1)*
P910	*Interlock valve*	*X902*	*Manifold fitting**
R900	*Relay valve*	*X903*	*Filler nipple, compressed air system*
S900	*Service brake valve*	*X904*	*Filler nipple, parking circuit*

*At the front there is yet another manifold fitting X902 that is finally positioned by the coachbuilder.

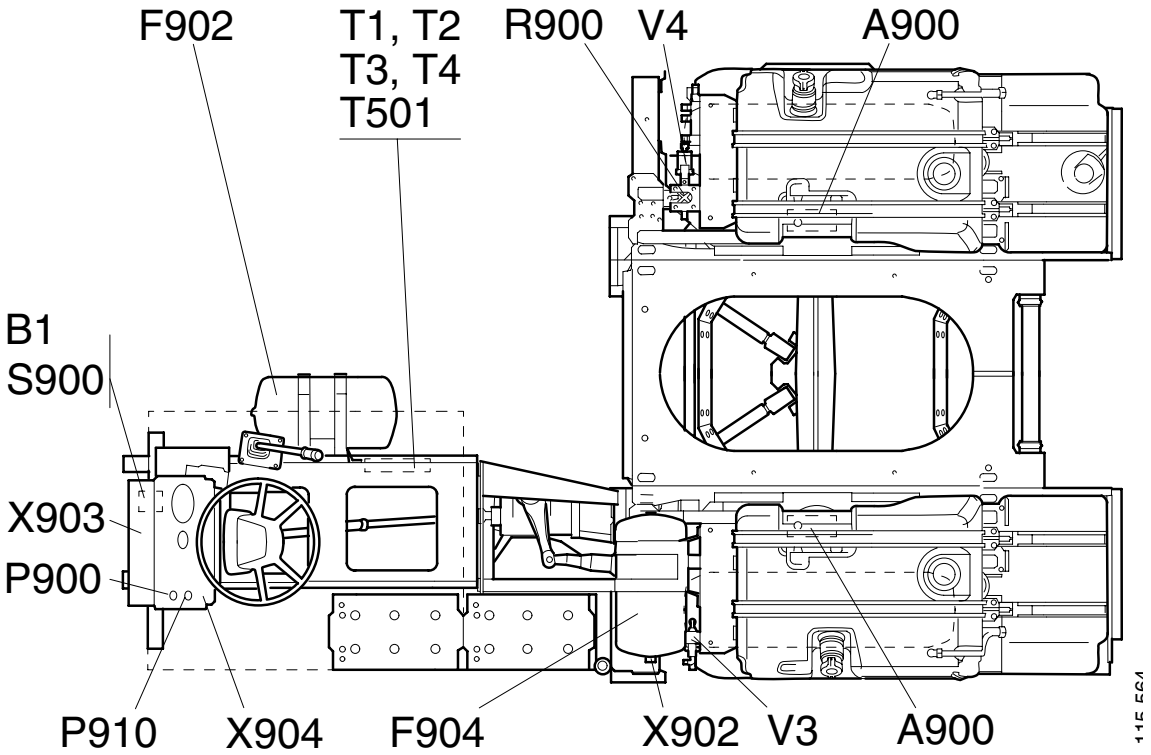
Front section, I class (K, L)



A900	*Brake chamber*	*T1*	*Pressure sensor with low-pressure monitor, front circuit*
B1	*Brake lamp switch*	*T2*	*Pressure sensor with low-pressure monitor, rear circuit*
F902	*Air tank, front circuit*	*T3*	*Low-pressure monitor, 6 bar, parking circuit, control section*
F903	*Air tank, parking circuit*	*T4*	*Low-pressure monitor, 5 bar, parking circuit, supply section*
F904	*Air tank, other equipment*	*T501*	*Pressure monitor for EK/NBS 0.8 bar*
K910	*Check valve*	*V3*	*ABS control valve, front axle, left hand side (axle 1)*
P900	*Manual control valve, parking brake*	*V4*	*ABS control valve, front axle, right hand side (axle 1)*
P910	*Interlock valve*	*X902*	*Manifold fitting**
R900	*Relay valve*	*X903*	*Filler nipple, compressed air system*
S900	*Service brake valve*	*X904*	*Filler nipple, parking circuit*

*At the front there is yet another manifold fitting (X902) that is finally positioned by the coachbuilder.

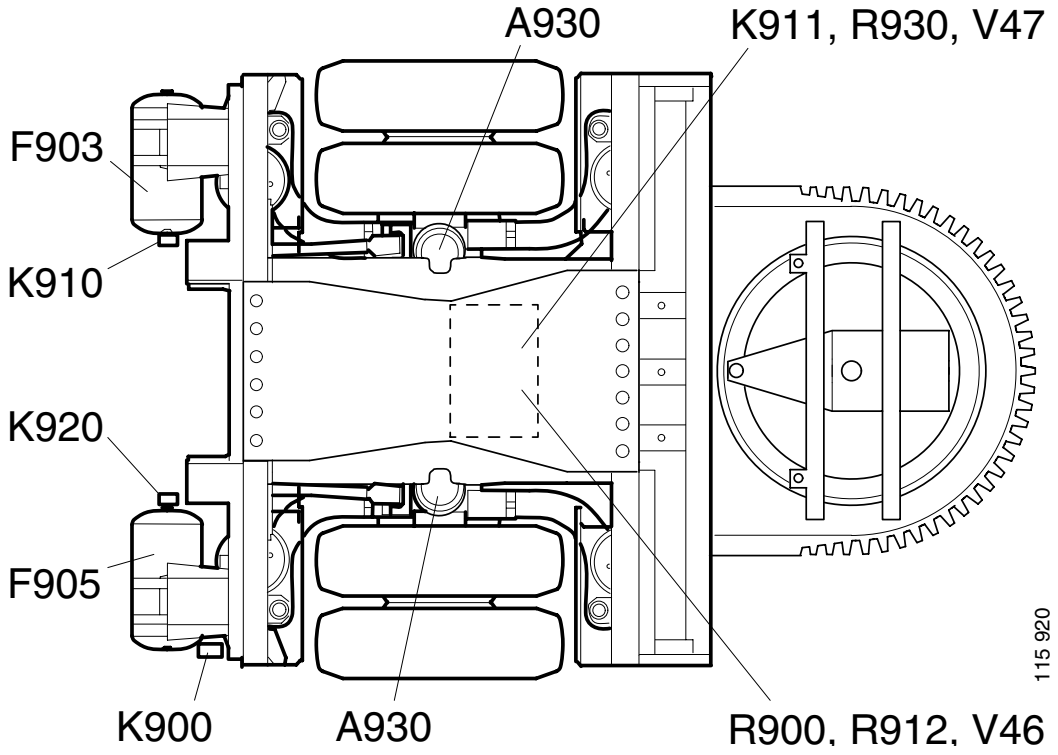
Front section, U class (L, N)



A900	*Brake chamber*	*T2*	*Pressure sensor with low-pressure monitor, rear circuit*
B1	*Brake lamp switch*	*T3*	*Low-pressure monitor, 6 bar, parking circuit, control section*
F902	*Air tank, front circuit*	*T4*	*Low-pressure monitor, 5 bar, parking circuit, supply section*
F904	*Air tank, other equipment*	*T501*	*Pressure monitor for EK/NBS 0.8 bar*
P900	*Manual control valve, parking brake*	*V3*	*ABS control valve, front axle, left hand side (axle 1)*
P910	*Interlock valve*	*V4*	*ABS control valve, front axle, right hand side (axle 1)*
R900	*Relay valve*	*X902*	*Manifold fitting**
S900	*Service brake valve*	*X903*	*Filler nipple, compressed air system*
T1	*Pressure sensor with low-pressure monitor, front circuit*	*X904*	*Filler nipple, parking circuit*

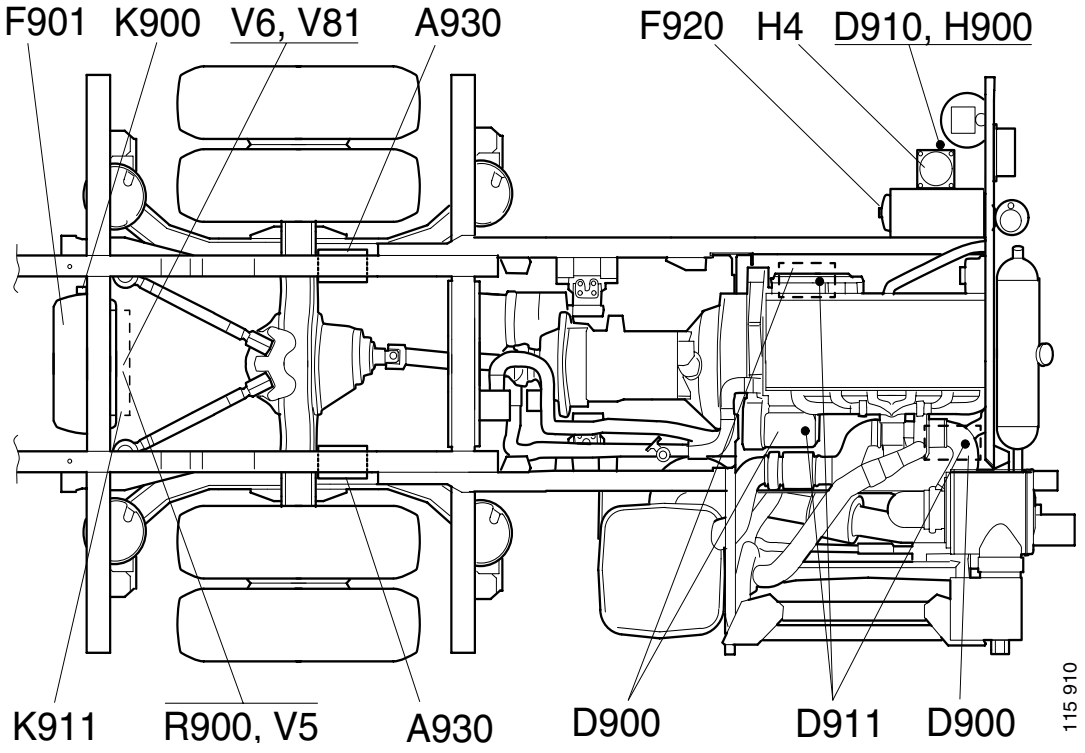
*At the front there is yet another manifold fitting (X902) that is finally positioned by the coachbuilder.

Centre axle section N



A930	*Spring brake chamber*	*K920*	*Pressure limiting valve*
F903	*Air tank, parking circuit*	*R900*	*Relay valve*
F905	*Air tank, centre axle circuit*	*R912*	*Relay valve, two control inlets*
K900	*Four circuit protection valve*	*R930*	*Quick release valve*
K910	*Check valve*	*V46*	*ABS control valve, centre axle, left hand side (axle 3)*
K911	*Double check valve*	*V47*	*ABS control valve, centre axle, right hand side (axle 3)*

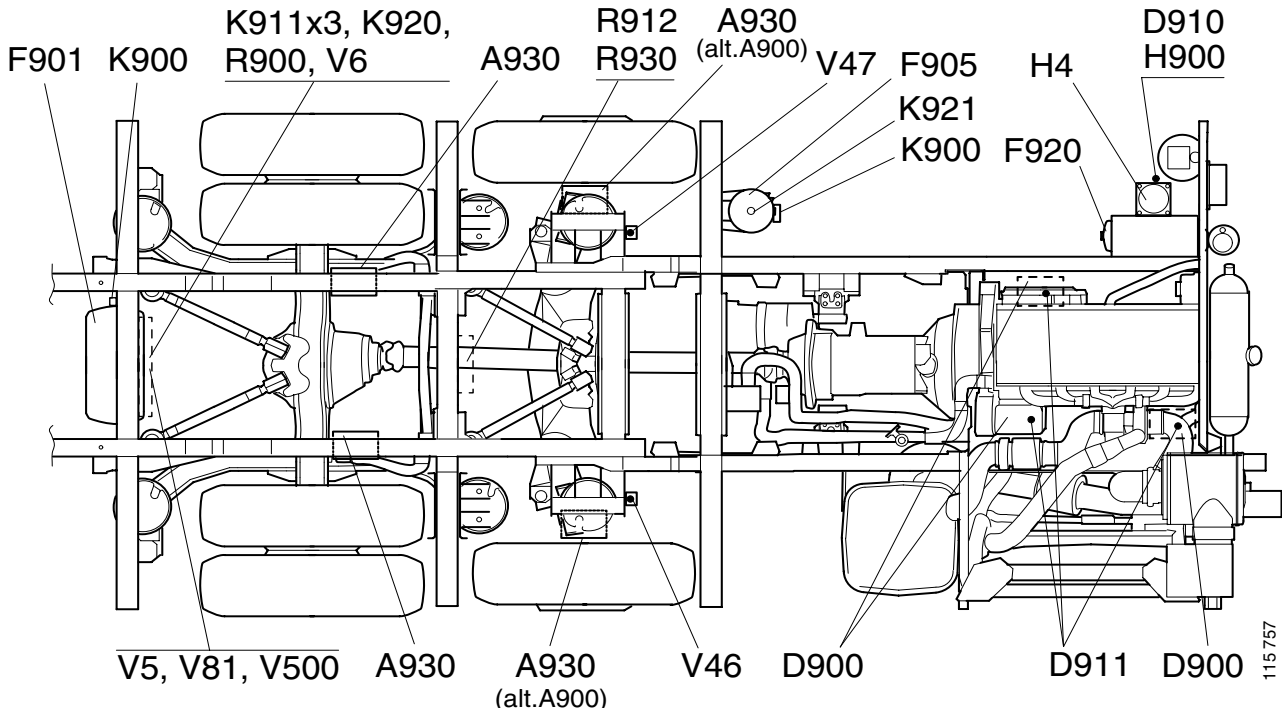
Rear section K, L 4x2



A930	*Spring brake chamber*	*H900 (opt.)*	*Shut-off valve, external air supply*
D900	*Compressor**	*K900*	*Four circuit protection valve*
D910	*Safety valve, 14.3 bar*	*K911*	*Double check valve*
D911	*Safety valve, 19 bar**	*R900*	*Relay valve*
F901	*Air tank, rear circuit*	*V5*	*ABS control valve, rear axle, left hand side (axle 2)*
F920	*Recharging tank, air dryer*	*V6*	*ABS control valve, rear axle, right hand side (axle 2)*
H4	*Air dryer with pressure monitor*	*V81*	*TC Solenoid valve*

**There are several compressor locations, depending on the engine type.*

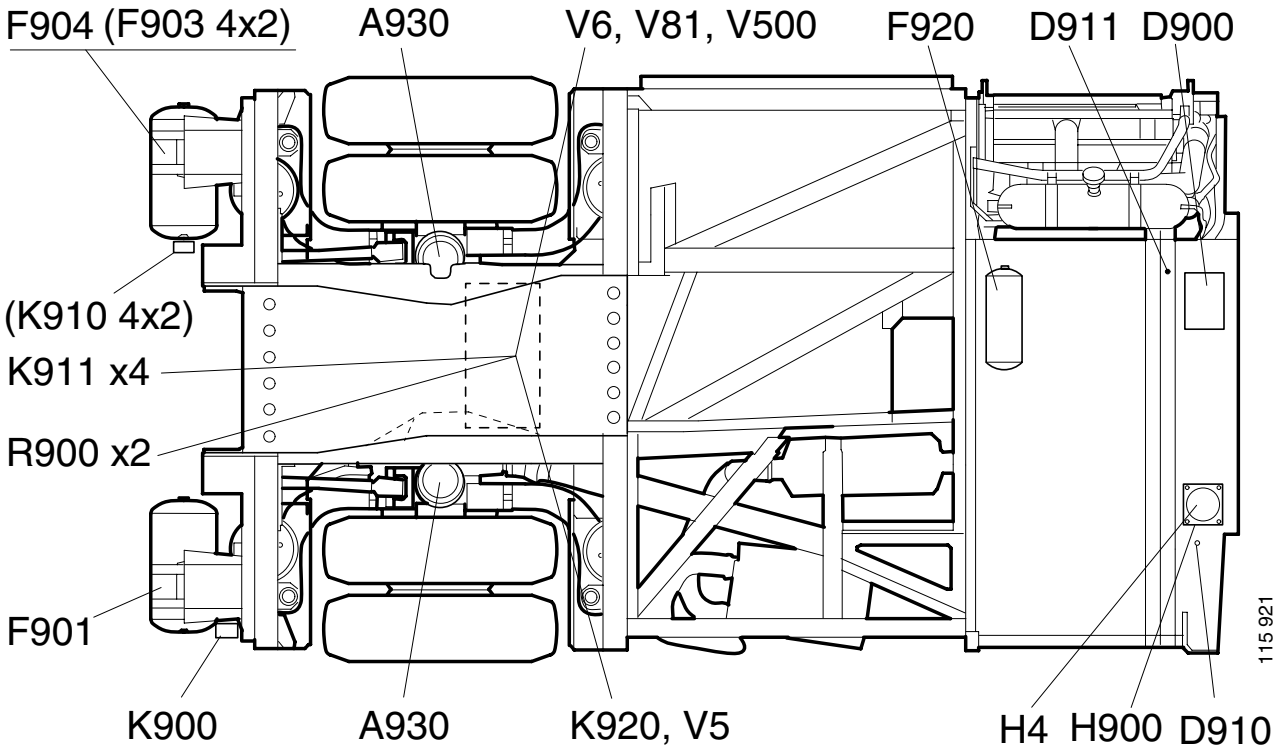
Rear section K, L 6x2



A900	*Brake chamber*	*K920*	*Pressure limiting valve*
A930	*Spring brake chamber*	*K921*	*Pressure limiting valve 8.0 bar*
D900	*Compressor**	*R900*	*Relay valve*
D910	*Safety valve, 14.3 bar*	*R912*	*Relay valve, two control inlets*
D911	*Safety valve, 19 bar**	*R930*	*Quick release valve*
F901	*Air tank, rear circuit*	*V5*	*ABS control valve, rear axle, left hand side (axle 2)*
F905	*Air tank, tag axle circuit*	*V6*	*ABS control valve, rear axle, right hand side (axle 2)*
F920	*Recharging tank, air dryer*	*V46*	*ABS control valve, tag axle, left hand side (axle 3)*
H4	*Air dryer with pressure monitor*	*V47*	*ABS control valve, tag axle, right hand side (axle 3)*
H900 (opt.)	*Shut-off valve, external air supply*	*V81*	*TC Solenoid valve*
K900	*Four circuit protection valve*	*V500*	*Solenoid valve, bus stop brake*
K911	*Double check valve*		

**There are several compressor locations, depending on the engine type.*

Rear section N



A930	*Spring brake chamber*
D900	*Compressor*
D910	*Safety valve, 14.3 bar*
D911	*Safety valve, 19 bar*
F901	*Air tank, rear circuit*
F903	*Air tank, parking circuit*
F904	*Air tank, other equipment*
F920	*Recharging tank, air dryer*
H4	*Air dryer with pressure monitor*
H900 (opt.)	*Shut-off valve, external air supply*
K900	*Four circuit protection valve*
K910	*Check valve*
K911	*Double check valve*
K920	*Pressure limiting valve*
R900	*Relay valve*
V5	*ABS control valve, rear axle, left hand side (axle 2)*
V6	*ABS control valve, rear axle, right hand side (axle 2)*
V81	*TC Solenoid valve*
V500	*Solenoid valve, bus stop brake*

System description 4x2, 6x2, 6x2/2

Contents

Note: The text and illustrations in this section describe the route of the compressed air and the main components that are part of each circuit. The air connections shown on each component are not precise, they simply show that the air passes through that component. For a more detailed description, refer to the compressed air circuit diagrams and/or the component booklet for the circuit in question.

System description, supply circuit

Supply circuit

The compressor 1 is driven by the timing gear.

Safety valve 2 is located on the outlet of the compressor; it opens at 19 bar if the line is blocked.

Safety valve 3 is located on the inlet of the air dryer; it opens if the system pressure exceeds 14.3 bar.

Buses that are slowly charged with compressed air must have a shut-off valve 4. If there is no shut-off valve fitted on a bus that is slowly charged with air, the air leaks out through the drain valve on the air dryer, when the pressure exceeds the relief pressure.

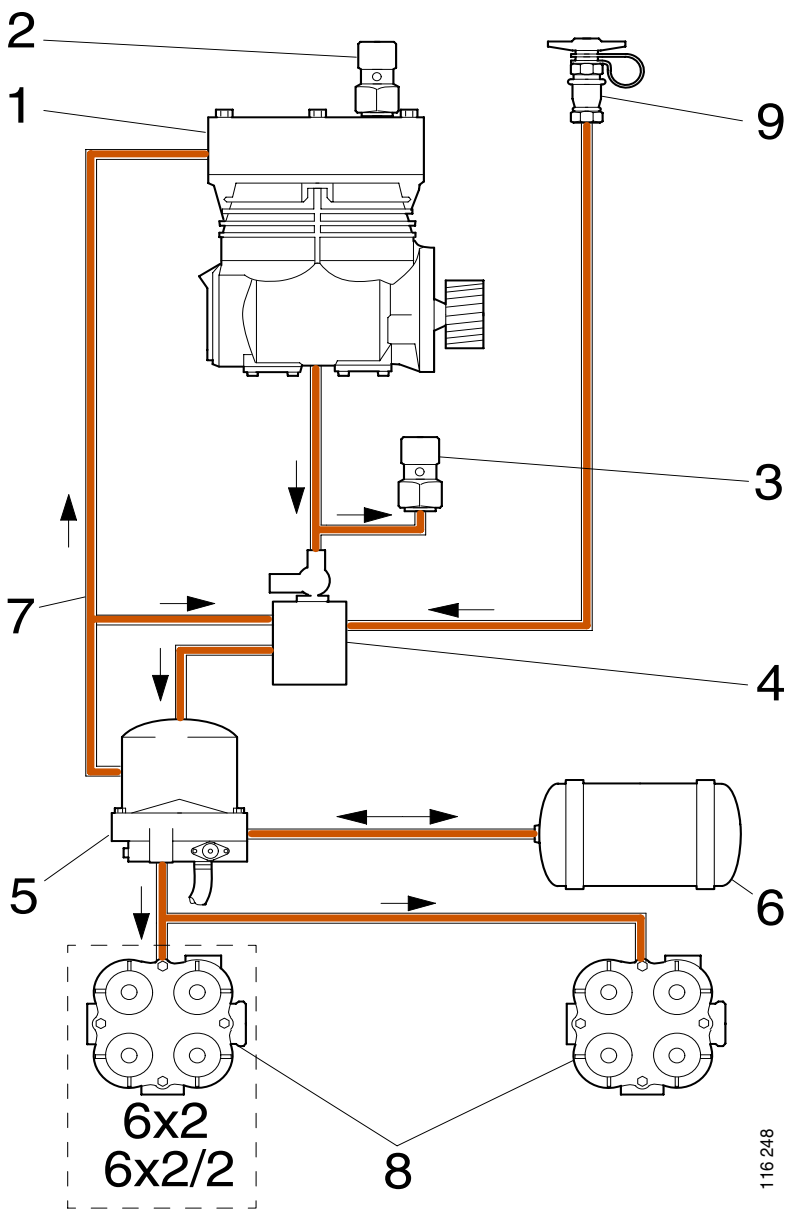
In the air dryer 5 there is a desiccant that absorbs water. During every relief period the drain valve in the bottom of the air dryer opens and any water that has collected drains away. At the same time, the air dryer 5 is regenerated by the air from tank 6. A heating element in the bottom of the air dryer prevents the water in the drain valve from freezing.

The control pressure for the relief mechanism in the compressor and the shut-off valve is routed via air line 7.

The four-circuit protection valve 8 has an integrated circuit priority function, which ensures that the parking circuit will not be charged until the front and rear circuits have reached emergency brake pressure. If any of the circuits suffer an abnormally large pressure drop, the supply to that circuit is closed and the valve supplies reduced pressure to the other circuits. On 6x2 buses there are five different circuits and on 6x2/2 buses there are six different circuits. These are therefore equipped with two four-circuit protection valves. The function is the same as when there is only one four-circuit protection valve.

Note: External air charging should only be carried out through the filler nipple 9 which is connected to the air dryer. This is to ensure that any externally supplied air is also dried.

4x2, 6x2, 6x2/2



1 *D900 Compressor*
2 *D911 Safety valve, 19 bar*
3 *D910 Safety valve, 14.3 bar*
4 *H900 (opt.) Shut-off valve, external air supply*
5 *H4 Air dryer with pressure monitor*
6 *F920 Air tank, air dryer*
7 *Air line for control pressure*
8 *K900 Four-circuit protection valve*
9 *X903 Filler nipple, compressed air system*

System description, front circuit

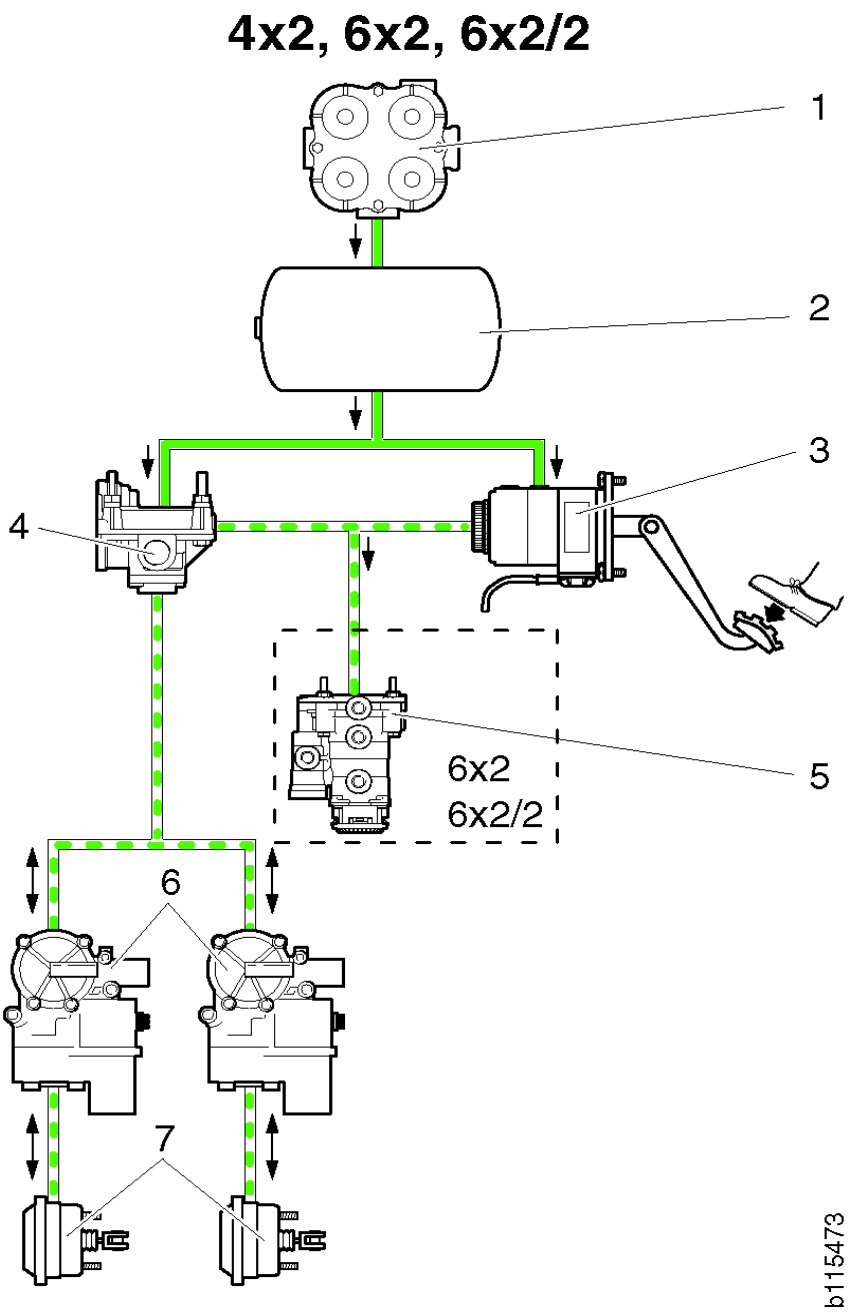
Supply section

Air is routed from the four-circuit protection valve 1 to the front circuit tank 2. From there, the air is routed to the relay valve 4 and to the service brake valve 3.

Control section

When the brake pedal is depressed, air is routed to relay valve 4 and to relay valve 5 for the tag axle/centre axle 6x2 & 6x2/2.

Relay valve 4 opens and releases the air via the ABS control valves 6 and on to the brake chambers 7 that apply the brakes. When the brake pedal is released, the air is released from the brake chambers through relay valve 4.



1 *K900 Four-circuit protection valve*

2 *F902 Air tank, front circuit*

3 *S900 Service brake valve*

4 *R900 Relay valve*

5 *R912 Relay valve, two control inlets (to tag axle/centre axle)*

6 *V3/V4 ABS control valve, front axle*

7 *A900 Brake chamber*

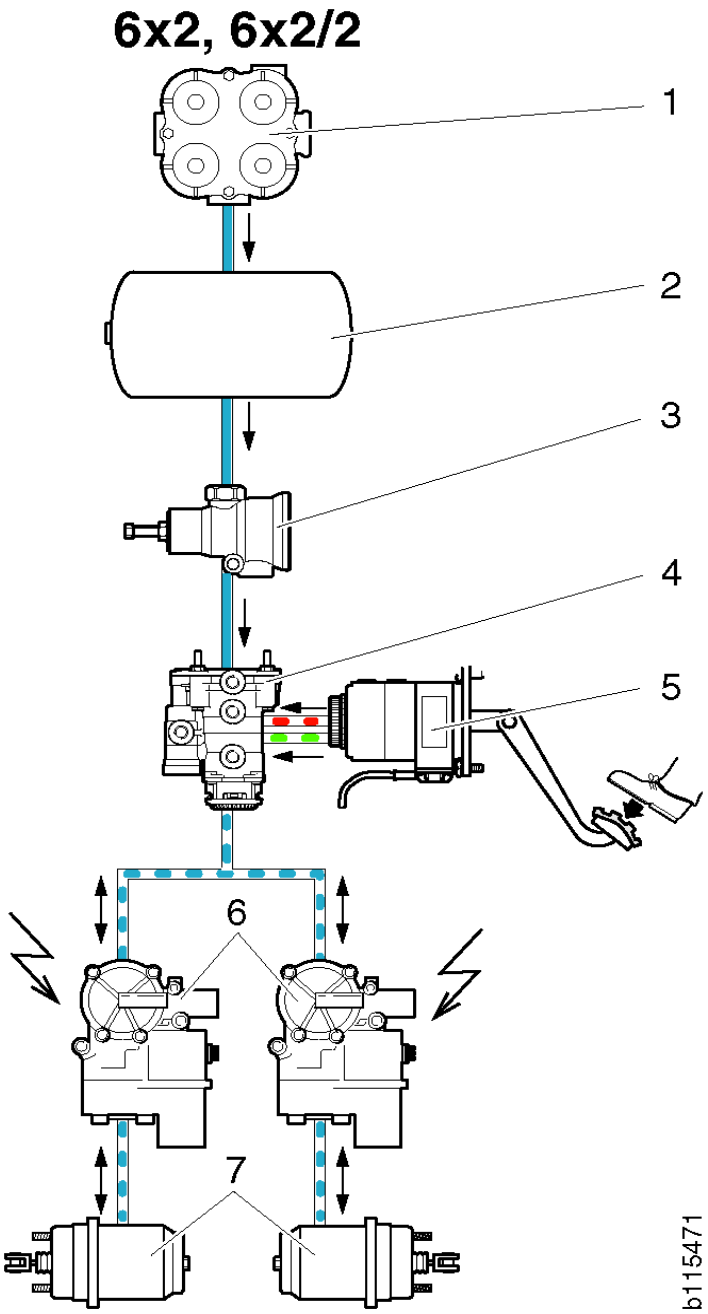
System description, tag axle/centre axle circuit

Supply section

Air is routed from the four-circuit protection valve 1 to the tag axle/centre axle circuit tank 2. The air is then routed via the pressure limiting valve 3 to the relay valve 4.

Control section

When the service brake valve 5 is depressed the air is routed from the front circuit and the rear circuit to relay valve 4, which opens and releases the air via the ABS control valves 6 to the brake chambers 7 which apply the brakes. When the brake pedal is released the brake chambers are purged of air through relay valve 4.



1 *K900 Four-circuit protection valve*

2 *F905 Air tank, tag axle circuit*

3 *K920 Pressure limiting valve*

4 *R912 Relay valve, two control inlets*

5 *S900 Service brake valve*

6 *V46, V47 ABS control valve, tag/centre axle*

7 *A930 Spring brake chamber, or A900 Brake chamber*

System description, rear circuit

Supply section

Air is routed from the four-circuit protection valve 1 to the rear circuit tank 2. From there, the air is routed to the relay valve 8, to the solenoid valve 3 and to the service brake valve 4.

Control section 4x2, 6x2

When the service brake valve 4 is depressed, the air is routed on to relay valve 6 for the tag axle and via the double check valve 7 to the relay valve 8.

Relay valve 8 opens and releases the air via the ABS control valves 11 to the diaphragm section of the spring brake chambers 12 which apply the brakes. When the brake pedal is released the service brake section of the spring brake chambers is purged of air through relay valve 8.

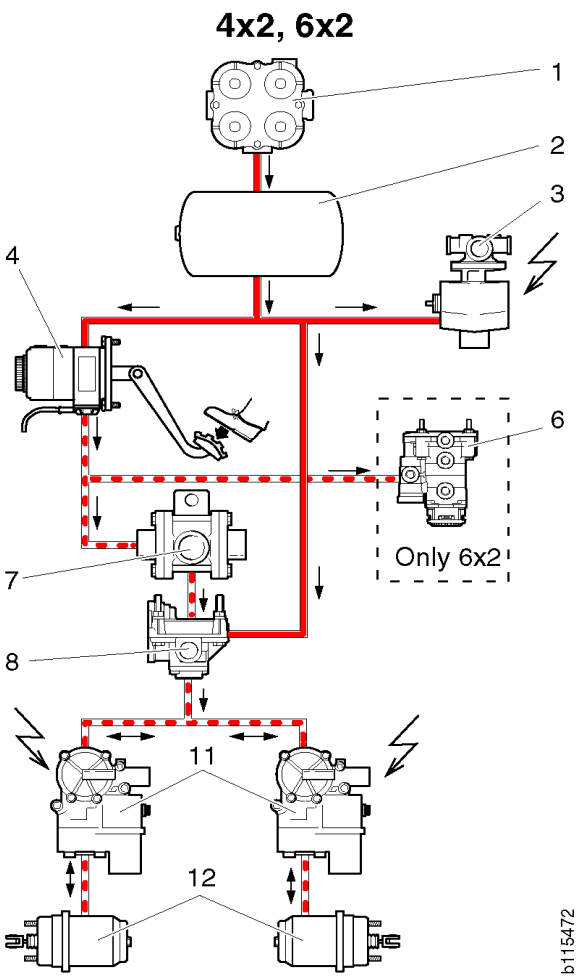
If the bus is not equipped with TC or BSB, the double check valve 7 is not fitted; instead, the air is routed directly to relay valve 8.

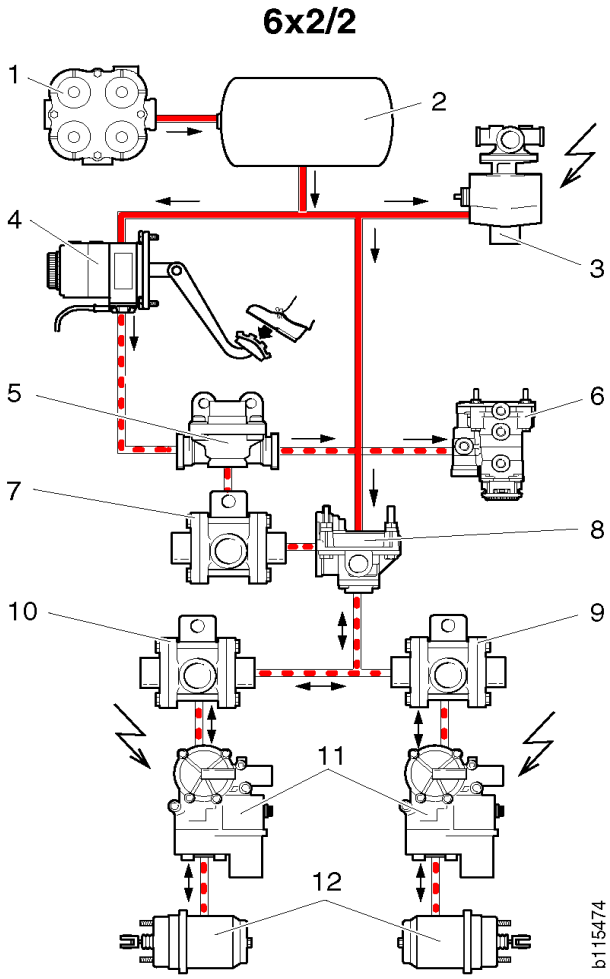
Control section 6x2/2

When the service brake valve 4 is depressed, the air is routed on to quick exhaust valve 5; from there the air is routed, partly to relay valve 6 for the centre axle, and partly via the double check valve 7 to relay valve 8.

Relay valve 8 opens and releases the air via the ABS control valves 11 to the spring brake chambers 12 which apply the brakes. When the brake pedal is released, the service brake section of the spring brake chambers is purged of air through relay valve 8.

If the bus is not equipped with TC or BSB, the double check valve 7 is not fitted; instead, the air is routed directly to the relay valve 8.





1 *K900 Four-circuit protection valve*
2 *F901 Air tank, rear circuit*
3 *V81 TC Solenoid valve*
4 *S900 Service brake valve*
5 *R930 Quick release valve*
6 *R912 Relay valve, two control inlets (to tag axle/centre axle)*
7 *K911 Double check valve*
8 *R900 Relay valve*
9 *K911 Double check valve*
10 *K911 Double check valve*
11 *V5*, V6 *ABS control valve, rear axle*
12 *A930 Spring brake chamber*

System description, parking brake circuit

Parking brake circuit 4x2

Supply section 4x2

Air is routed from the four-circuit protection valve 1 to the parking circuit tank 2. From there, the air is routed via the check valve 3 to the relay valve 8 and to the manual control valve 6.

In certain markets, interlock valve 4 is fitted, which prevents the parking brake from releasing during the charging period. When the system pressure exceeds approx. 4 bar, the interlock valve opens by the interlock valve button being pushed in by the pressure. The interlock valve closes automatically if the parking brake circuit pressure drops below 3.4 bar.

On interlock valve 4 is a filler nipple 5 that can be used to release the parking brake for short periods. If interlock valve 4 is not fitted, the filler nipple 5 is fitted separately. If the parking brake must be released for a longer period e.g.when towing, loosen the release bolt on the spring brake unit.

Manual control valve

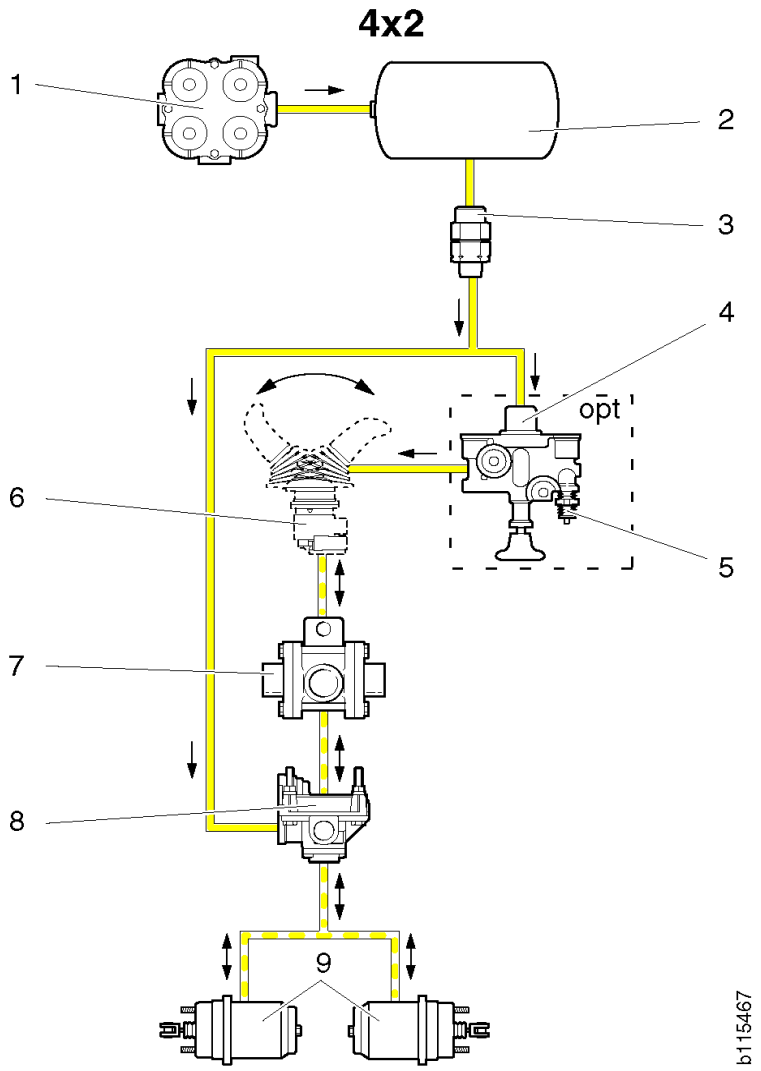
The manual control valve 6 has two positions.

1 Drive position

Air flows through the manual control valve 6 and via double check valve 7 to the relay valve 8. The relay valves open and release compressed air to the spring brake chambers 9 and the brakes are released.

2 Parking position

The manual control valve 6 is pulled back over a shoulder and remains in that position. The manual control valve 6 relieves the air lines to the relay valve 8, which then relieves the air lines to the spring brake chambers 9 and the spring applies the brakes. When the manual control valve 6 is pulled, the air line to the relay valve is relieved proportionally, depending on how much the lever is pulled towards the parking position. In this way, the manual control valve can also be used for emergency braking.



1 *K900 Four-circuit protection valve*
2 *F903 Air tank, parking circuit*
3 *K910 Check valve*
4 *P910 Interlock valve*
5 *X904 Filler nipple, parking circuit*
6 *P900 Manual control valve, parking brake*
7 *K911 Double check valve*
8 *R900 Relay valve*
9 *A930 Spring brake chamber*

Parking brake circuit 6x2

Supply section 6x2

Air is routed from the four-circuit protection valve 1 to the parking circuit tank 2. The air is then routed via the check valve 3 to the relay valve 9 and to the manual control valve 6.

In certain markets, interlock valve 4 is fitted, which prevents the parking brake from releasing during the charging period. When the system pressure exceeds approximately 4 bar, the interlock valve opens by the interlock valve button being pushed in by the pressure. The interlock valve closes automatically if the parking brake circuit pressure drops below 3.4 bar.

On interlock valve 4 is a filler nipple 5 that can be used to release the parking brake for short periods. If interlock valve 4 is not fitted, the filler nipple 5 is fitted separately. If the parking brake must be released for a longer period e.g.when towing, loosen the release bolt on the spring brake unit.

Manual control valve

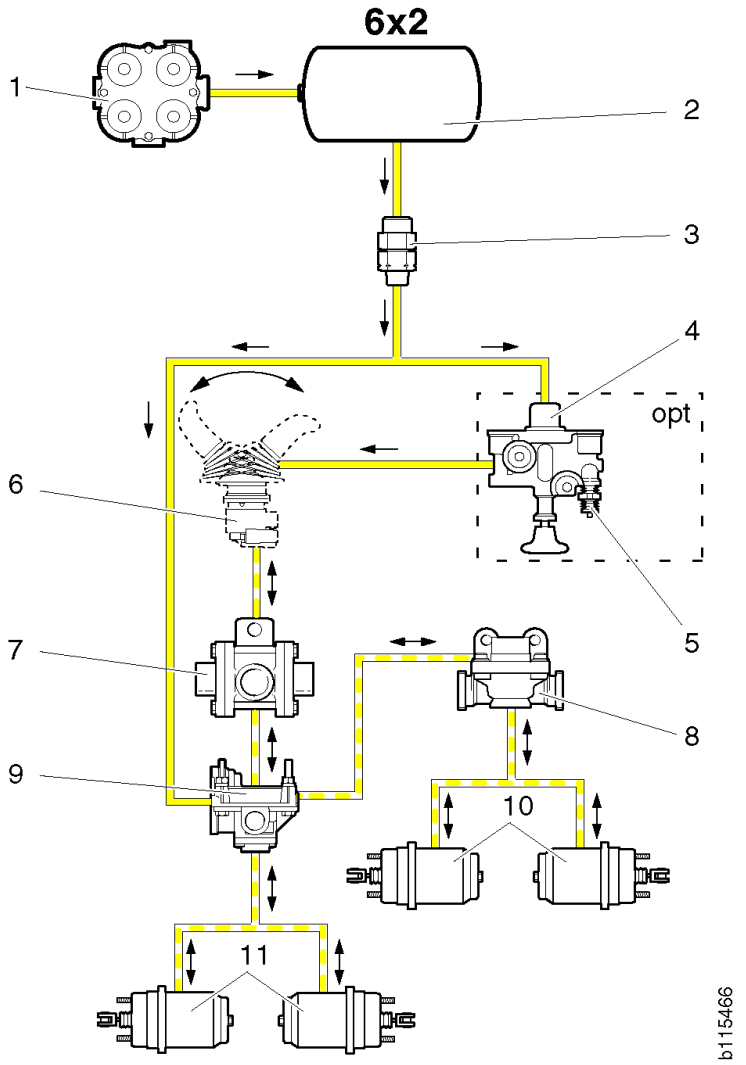
The manual control valve 6 has two positions.

1 Drive position

Air flows through the manual control valve 6 and via double check valve 7 to the relay valve 9. The relay valve opens and releases compressed air to the quick release valve 8 and then on to the spring brake chambers 10 and 11, which release the brakes.

2 Parking position

The manual control valve 6 is pulled back over a shoulder and remains in that position. The manual control valve 6 relieves the air lines to relay valve 9, which then relieves the air lines to the spring brake chambers 11 and apply the brakes, and to quick release valve 8, which relieves the air lines to the spring brake chambers 10 and the spring applies the brakes. When the manual control valve 6 is pulled, the air line to the relay valve is relieved proportionally, depending on how much the lever is pulled towards the parking position. In this way, the manual control valve can also be used for emergency braking.



1 *K900 Four-circuit protection valve*
2 *F903 Air tank, parking circuit*
3 *K910 Check valve*
4 *P910 Interlock valve*
5 *X904 Filler nipple, parking circuit*
6 *P900 Manual control valve, parking brake*
7 *K911 Double check valve*
8 *R930 Quick release valve*
9 *R900 Relay valve*
10 *A930 Spring brake chamber*
11 *A930 Spring brake chamber*

Parking brake circuit 6x2/2

Supply section 6x2/2

Air is routed from the four-circuit protection valve 1 to the parking circuit tank 2. From there, the air is routed via the check valve 3 to the relay valves 7 and 11 and to the manual control valve 6.

In certain markets, interlock valve 4 is fitted, which prevents the parking brake from releasing during the charging period. The interlock valve opens when the system pressure exceeds approximately 4 bar and depresses the interlock valve button. The interlock valve closes automatically if the parking brake circuit pressure drops below 3.4 bar.

On interlock valve 4 is a filler nipple 5 that can be used to release the parking brake for short periods. If interlock valve 4 is not fitted, the filler nipple 5 is fitted separately. If the parking brake must be released for a longer period e.g.when towing, loosen the release bolt on the spring brake unit.

Manual control valve

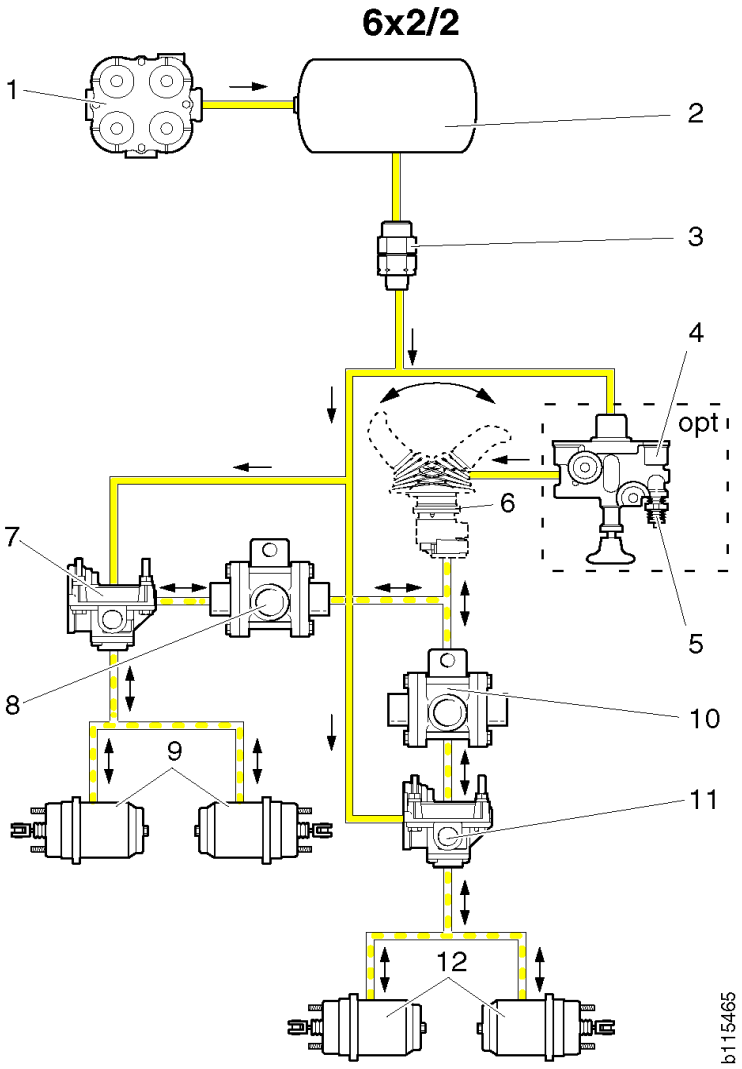
The manual control valve 6 has two positions.

1 Drive position

Air flows through the manual control valve 6 and via double check valves 8 and 10 to the relay valves 7 and 11. The relay valves open and release compressed air to the spring brake chambers 9 and 12 and the brakes are released.

2 Parking position

The manual control valve 6 is pulled back over a shoulder and remains in that position. The manual control valve 6 relieves the air line to the relay valves 7 and 11, which then relieve the air lines to the spring brake chambers 9 and 12, and the spring applies the brakes. When the manual control valve 6 is pulled, the air line to the relay valves is relieved proportionally, depending on how much the lever is pulled towards the parking position. In this way the manual control valve can also be used for emergency braking.



1	*K900 Four-circuit protection valve*	7	*R900 Relay valve*
2	*F903 Air tank, parking circuit*	8	*K911 Double check valve*
3	*K910 Check valve*	9	*A930 Spring brake chamber*
4	*P910 Interlock valve*	10	*K911 Double check valve*
5	*X904 Filler nipple, parking circuit*	11	*R900 Relay valve*
6	*P900 Manual control valve, parking brake*	12	*A930 Spring brake chamber*

System description, TC (Traction Control)

TC 4x2 & 6x2 (Wabco D)

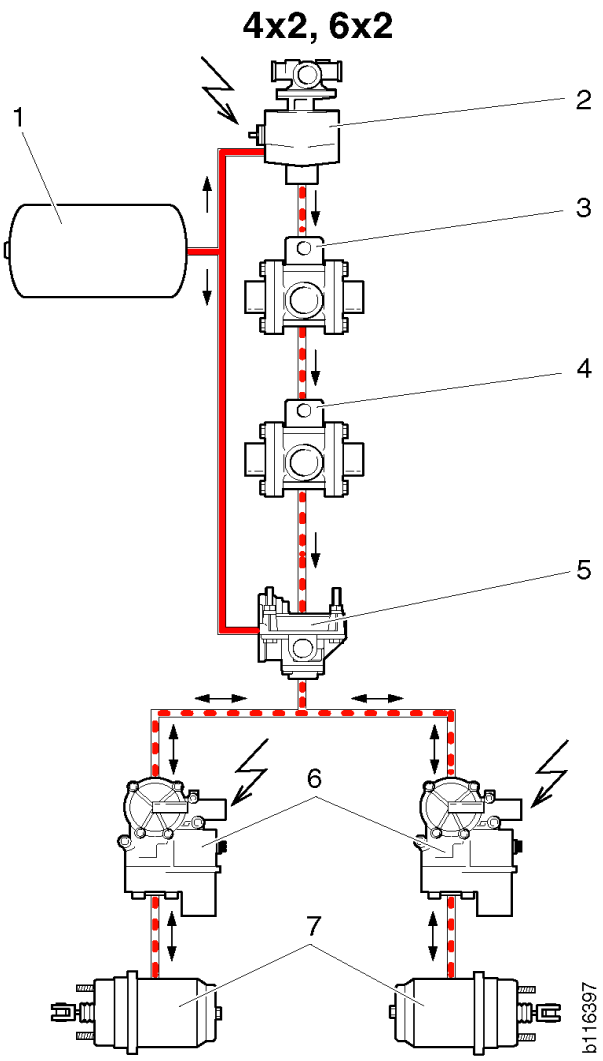
During TC brake control, solenoid valve 2 receives a voltage and opens, allowing air to pass to double check valve 3 for the BSB circuit and on to double check valve 4 for the rear circuit.

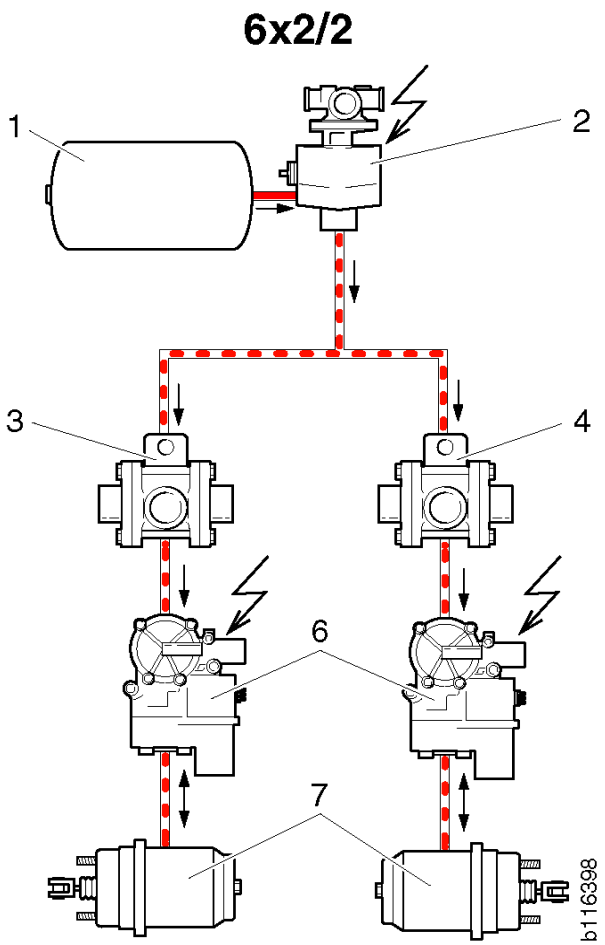
The air is routed to relay valve 5, which opens fully. Control of the brake pressure then occurs via the ABS control valves 6 to the service brake section 7 of the spring brake chambers. At road speeds exceeding approx. 40 km/h, brake control ceases and engine control takes over.

TC 6x2/2 (Wabco C3)

During TC brake control, solenoid valve 2 receives a voltage and opens, allowing air to pass to the double check valves 3 and 4 for the rear circuit.

Control of the brake pressure then occurs via the ABS control valves 6 to the service brake section 7 of the spring brake chambers.





1 *F901 Air tank, rear circuit*
2 *V81 TC Solenoid valve*
3 *K911 Double check valve*
4 *K911 Double check valve*
5 *R900 Relay valve*
6 V5, V6 *ABS control valve, driving axle*
7 *A930 Spring brake chamber*

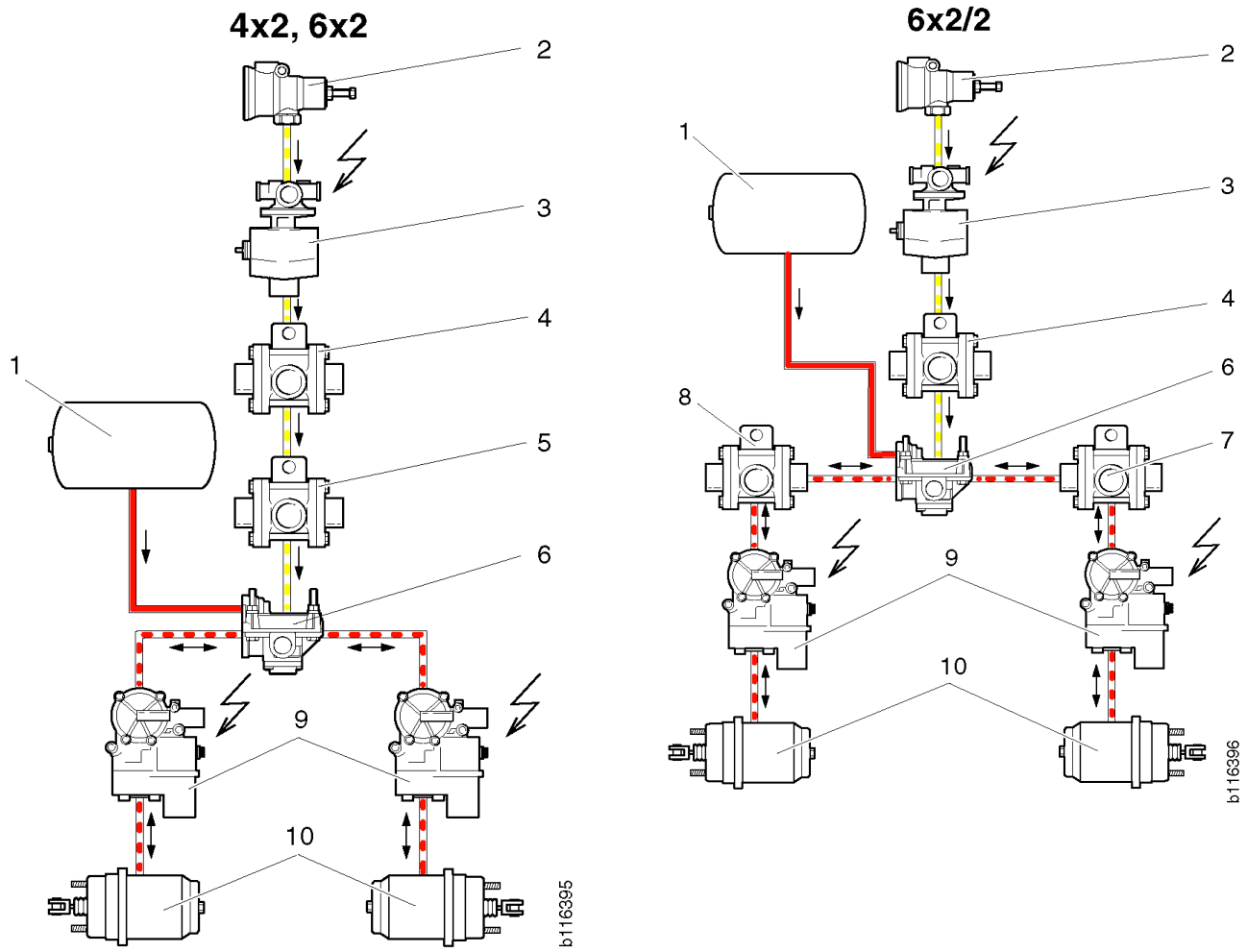
System description, BSB (Bus Stop Brake)

BSB 4x2 & 6x2

The bus stop brake solenoid valve is activated with a reduced pressure from the pressure limiting valve 2 if a door is opened. The door(s) influencing the bus stop brake vary, depending on the type of vehicle. It then allows air to pass to the double check valve 4 for the TC circuit and then on to the double check valve 5 for the rear circuit. The air is then routed to the relay valve 6, which opens and allows air to pass via the ABS control valves 9 to the service brake section of the spring brake chambers 10 which apply the brakes.

BSB 6x2/2

The bus stop brake solenoid valve is activated by a reduced pressure from the pressure limiting valve 2 if a door is opened. The door(s) influencing the bus stop brake vary, depending on the type of vehicle. It then allows air to pass to the double check valve 4 for the BSB circuit and then on to the relay valve 6, which opens and releases air via the double check valves 7 and 8 for the rear circuit to the ABS control valves 9 and on to the service brake section of the spring brake chambers 10 which apply the brakes.



1 *F903 Air tank, parking circuit*
2 *K920 Pressure limiting valve*
3 *V500 Solenoid valve, bus stop brake*
4 *K911 Double check valve*
5 *K911 Double check valve*
6 *R900 Relay valve*
7 *K911 Double check valve*
8 *K911 Double check valve*
9 *V5*, V6 *ABS control valve, driving axle*
10 *A930 Spring brake chamber*

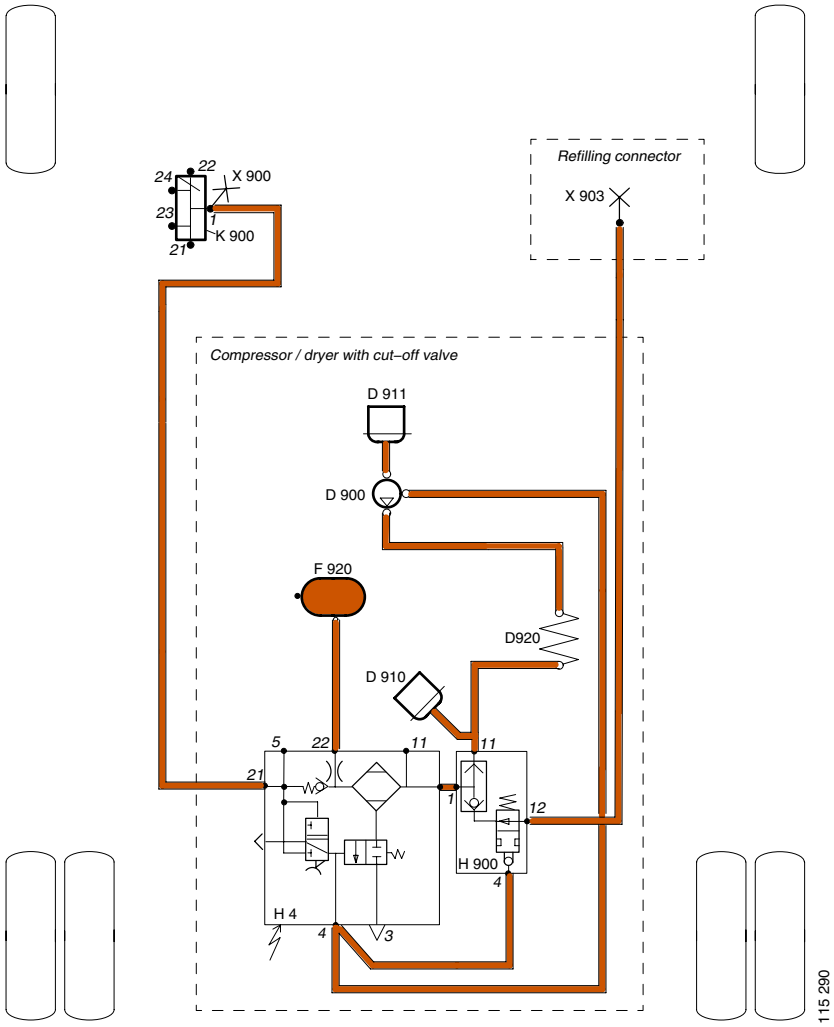
Compressed air circuit diagrams 4x2, 6x2, 6x2/2

Contents

For the overall diagram, refer to the separate booklet.

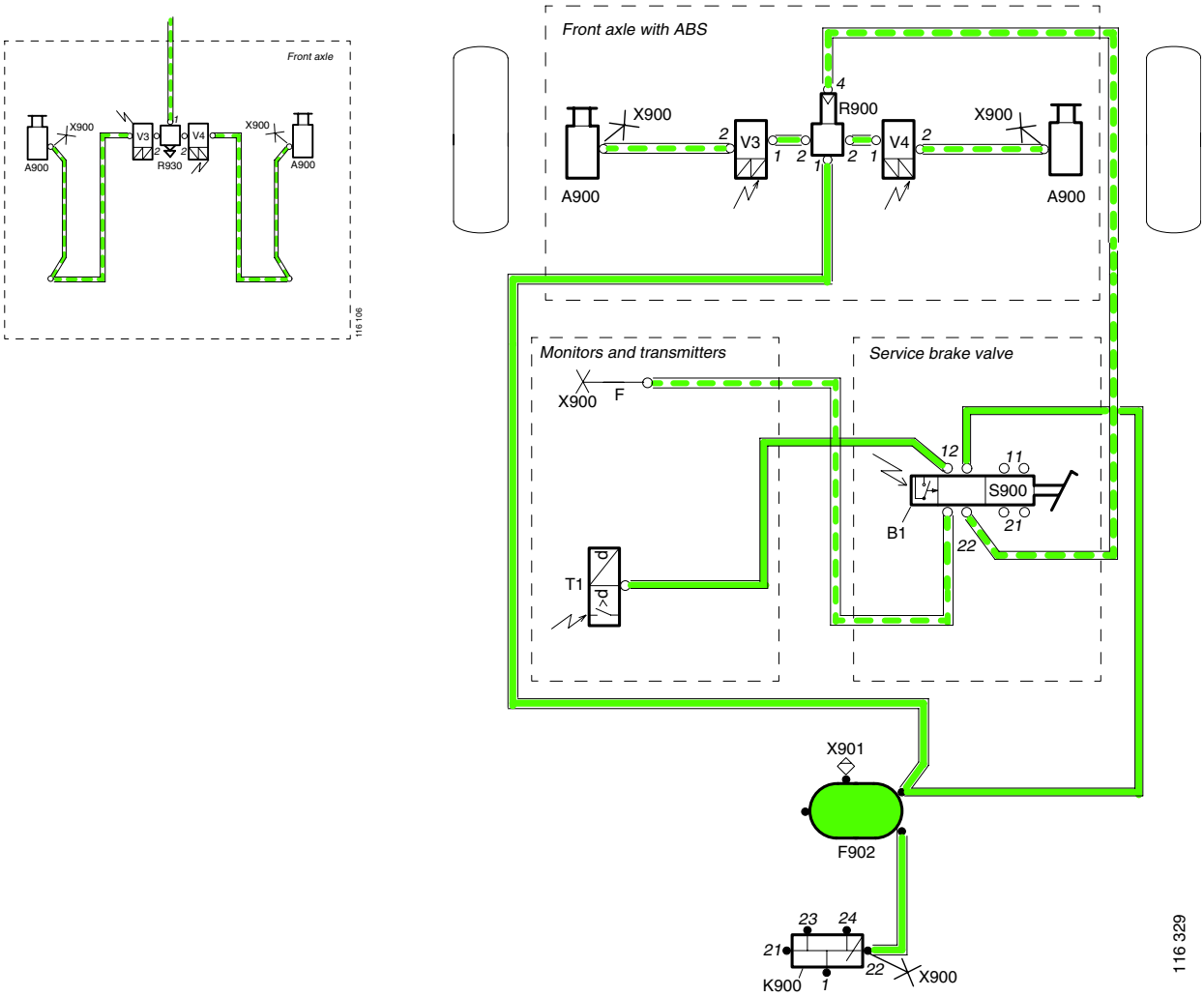
- Overall diagram 4x2, refer to group 10
- Overall diagram 6x2, refer to group 10
- Overall diagram 6x2/2, refer to group 10

Supply circuit 4x2



D900	*Compressor*	*H4*	*Air dryer with pressure monitor*
D910	*Safety valve, 14.3 bar*	*H900 (opt.)*	*Shut-off valve, external air supply*
D911	*Safety valve, 19 bar*	*K900*	*Four-circuit protection valve*
D920	*Cooling coil*	*X900*	*Test connection*
F920	*Air tank, air dryer*	*X903*	*Filler nipple, compressed air system*

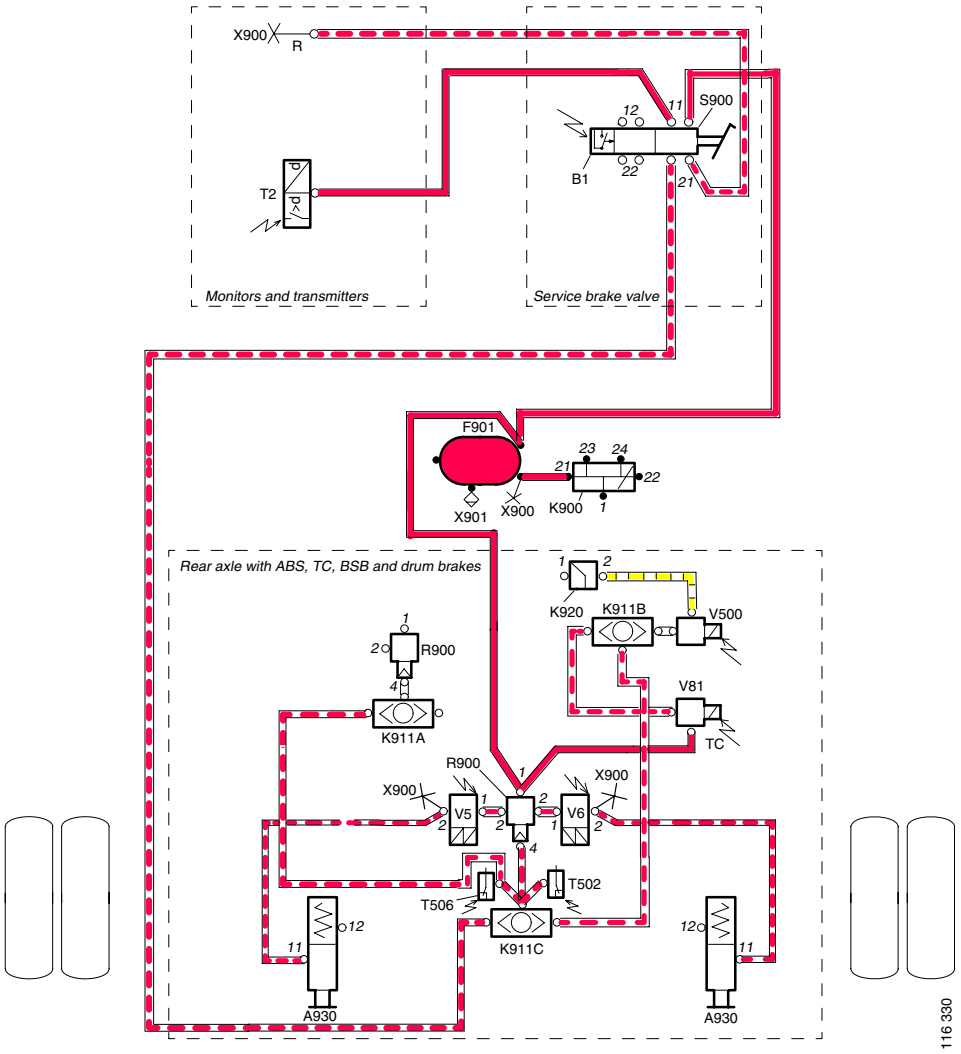
Front circuit 4x2



Earlier buses in the 4 series were equipped with quick exhaust valve R930 for the front circuit instead of relay valve R900. Relay valve R900 was introduced from chassis number 1832230

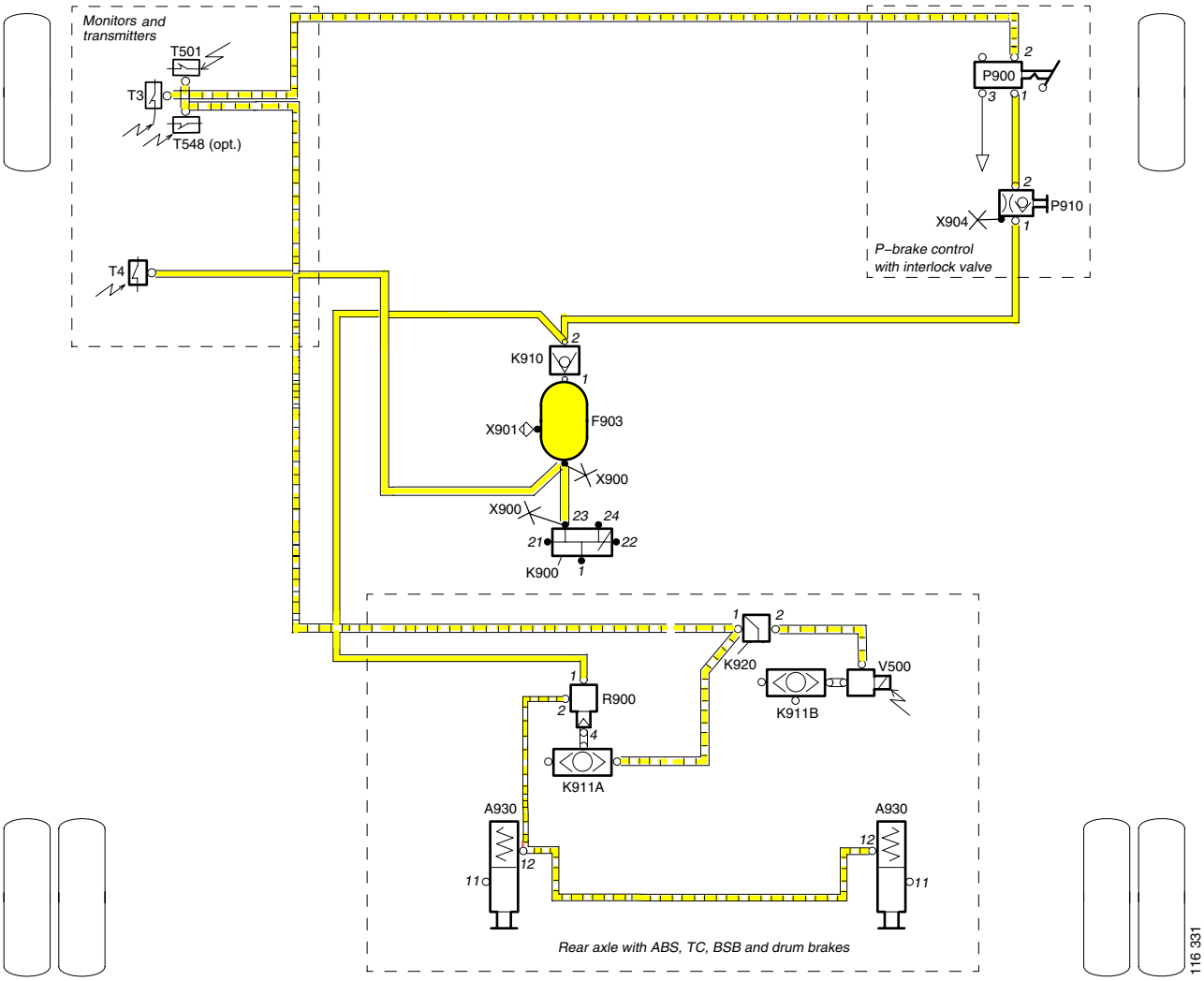
A900	*Brake chamber*	*T1*	*Pressure sensor with low-pressure monitor, front circuit*
B1	*Brake light switch*	*V3*	*ABS control valve, front axle, left hand side (axle 1)*
F902	*Air tank, front circuit*	*V4*	*ABS control valve, front axle, right hand side (axle 1)*
K900	*Four-circuit protection valve*	*X900*	*Test connection*
R900	*Relay valve*	*X901*	*Drain valve*
S900	*Service brake valve*		

Rear circuit 4x2



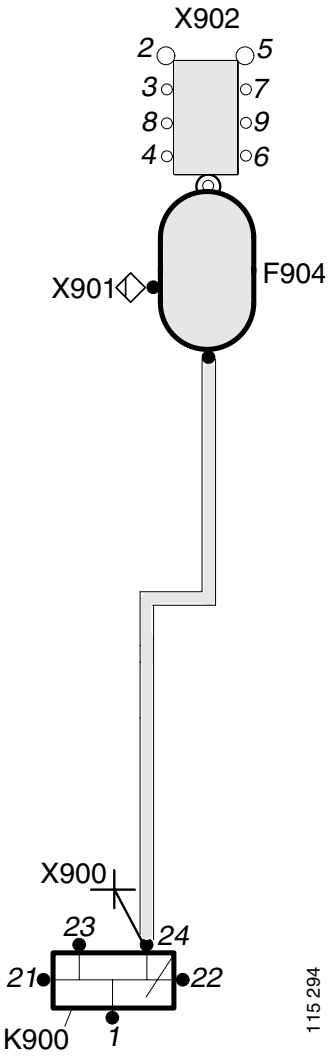
A930	*Spring brake chamber*
B1	*Brake light switch*
F901	*Air tank, rear circuit*
K900	*Four-circuit protection valve*
K911	*Double check valve*
R900	*Relay valve*
S900	*Service brake valve*
T2	*Pressure sensor with low-pressure monitor, rear circuit*
T502	*Monitor for bus stop brake*
T506	*Monitor for EK/NBS*
V5	*ABS control valve, rear axle, left hand side (axle 2)*
V6	*ABS control valve, rear axle, right hand side (axle 2)*
V81	*TC Solenoid valve*
X900	*Test connection*
X901	*Drain valve*

Parking brake circuit 4x2



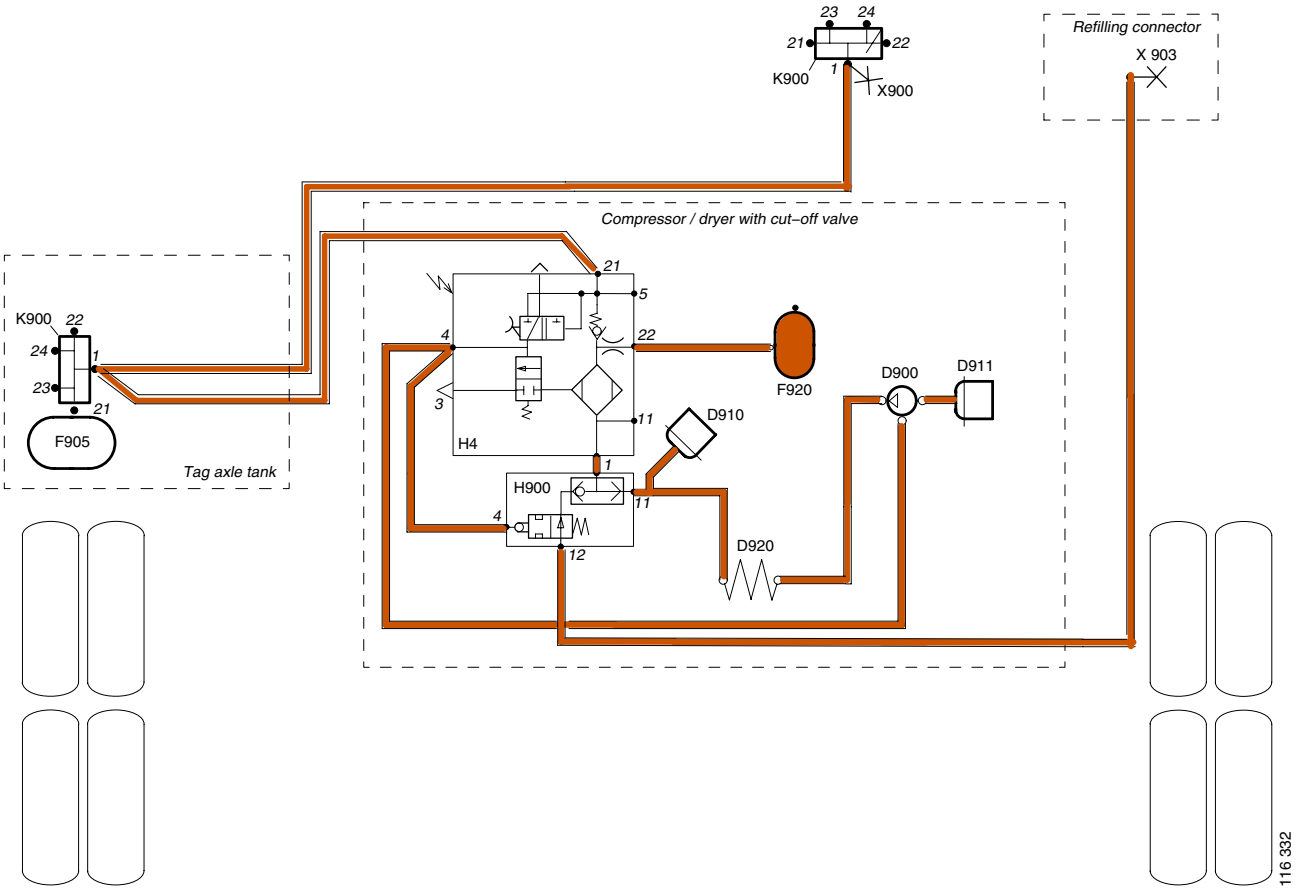
A930	*Spring brake chamber*
F903	*Air tank, parking circuit*
K900	*Four-circuit protection valve*
K910	*Check valve*
K911	*Double check valve*
K920	*Pressure limiting valve*
P900	*Manual control valve, parking brake*
P910	*Interlock valve*
R900	*Relay valve*
T3	*Low-pressure monitor, 6 bar, parking circuit control section*
T4	*Low-pressure monitor, 5 bar, parking circuit supply section*
T501	*Pressure monitor for EK/NBS 0.8 bar*
T548 (opt.)	*Monitor for parking brake (driver gate alarm)*
V500	*Solenoid valve, bus stop brake*
X900	*Test connection*
X901	*Drain valve*
X904	*Filler nipple, parking circuit*

Air supply, other users 4x2



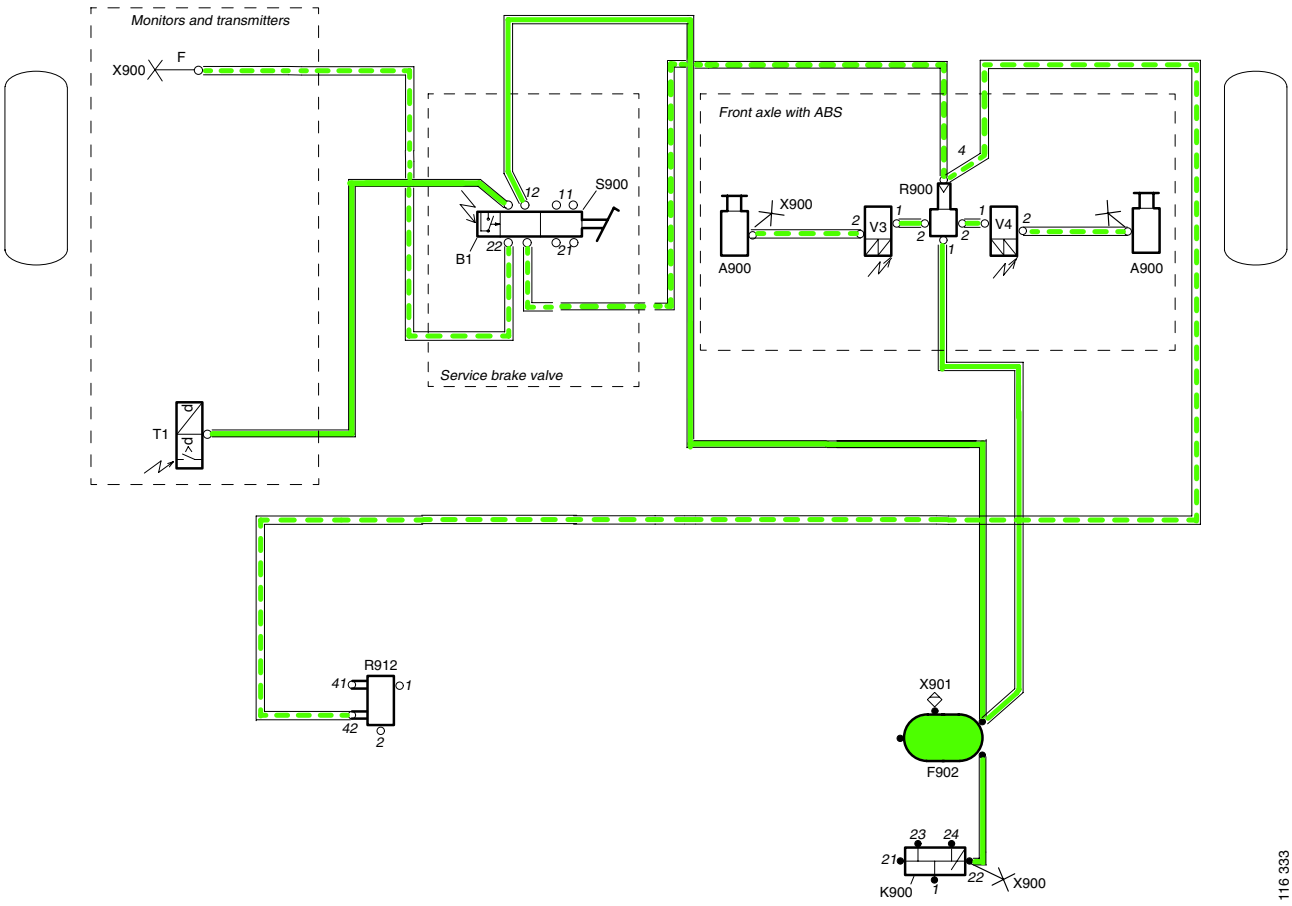
F904	*Air tank, other equipment*	*X901*	*Drain valve*
K900	*Four-circuit protection valve*	*X902*	*Manifold fitting*
X900	*Test connection*		

Supply circuit 6x2



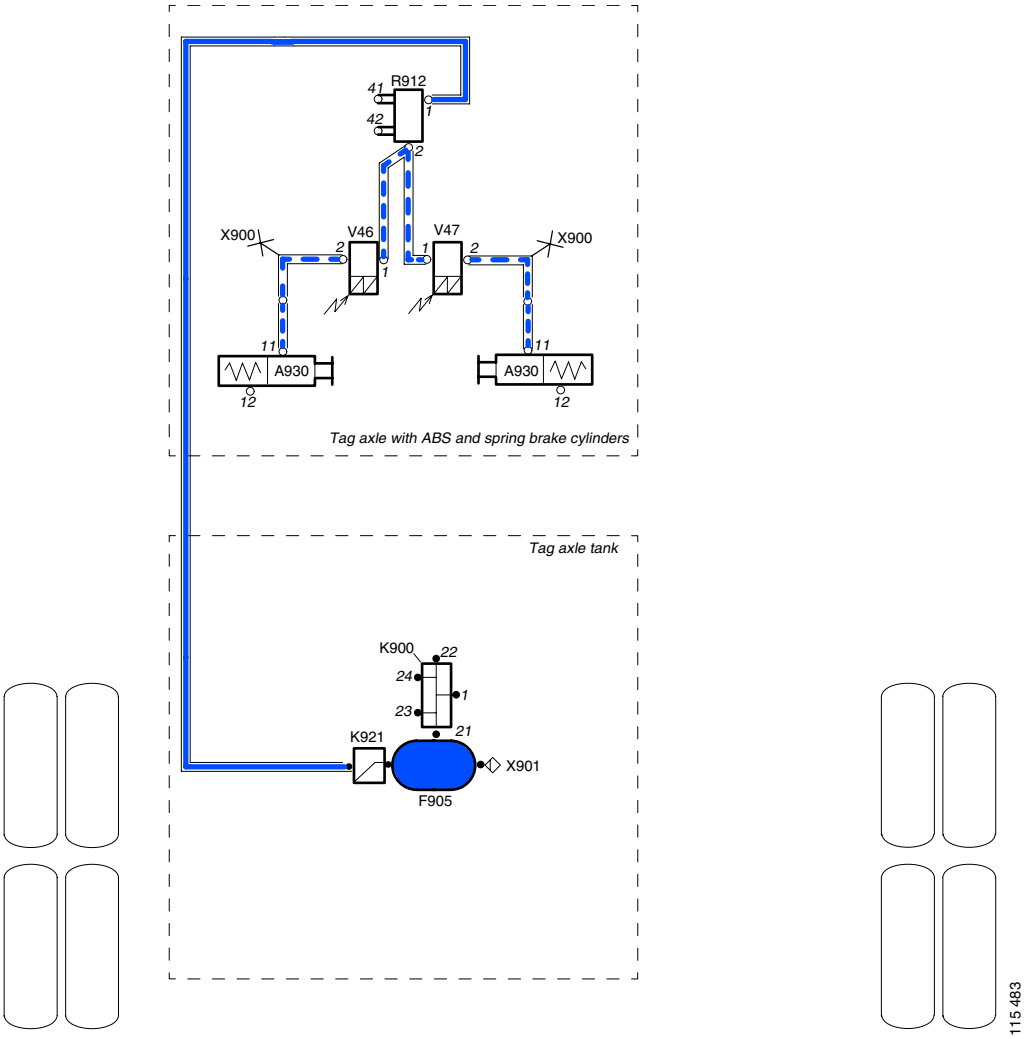
D900	*Compressor*	*H4*	*Air dryer with pressure monitor*
D910	*Safety valve, 14.3 bar*	*H900 (opt.)*	*Shut-off valve, external air supply*
D911	*Safety valve, 19 bar*	*K900*	*Four-circuit protection valve*
D920	*Cooling coil*	*X900*	*Test connection*
F920	*Air tank, air dryer*	*X903*	*Filler nipple, compressed air system*

Front circuit 6x2



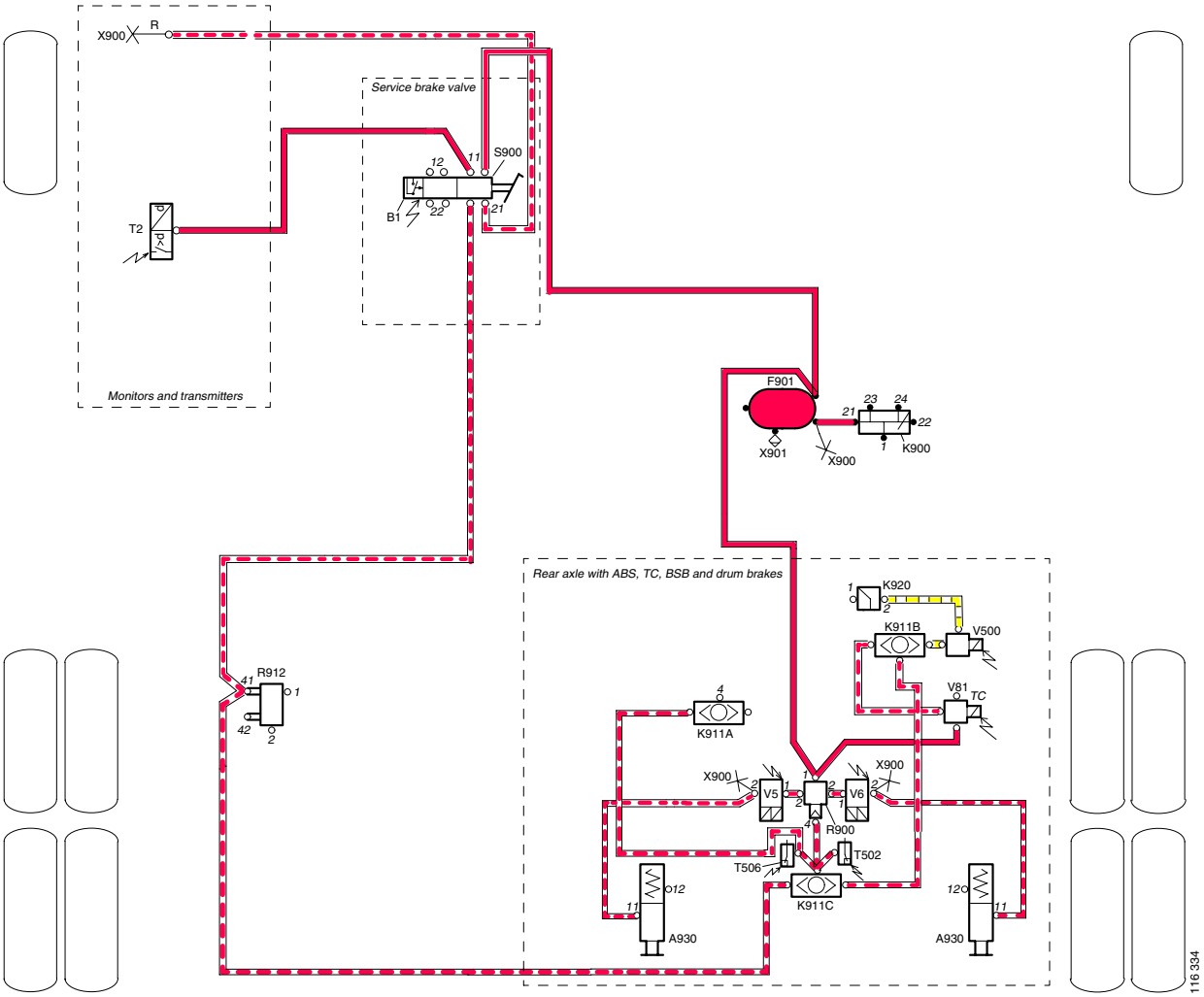
A900	*Brake chamber*	*S900*	*Service brake valve*
B1	*Brake light switch*	*T1*	*Pressure sensor with low-pressure monitor, front circuit*
F902	*Air tank, front circuit*	*V3*	*ABS control valve, front axle, left hand side (axle 1)*
K900	*Four-circuit protection valve*	*V4*	*ABS control valve, front axle, right hand side (axle 1)*
R900	*Relay valve*	*X900*	*Test connection*
R912	*Relay valve, two control inlets*	*X901*	*Drain valve*

Tag axle circuit 6x2



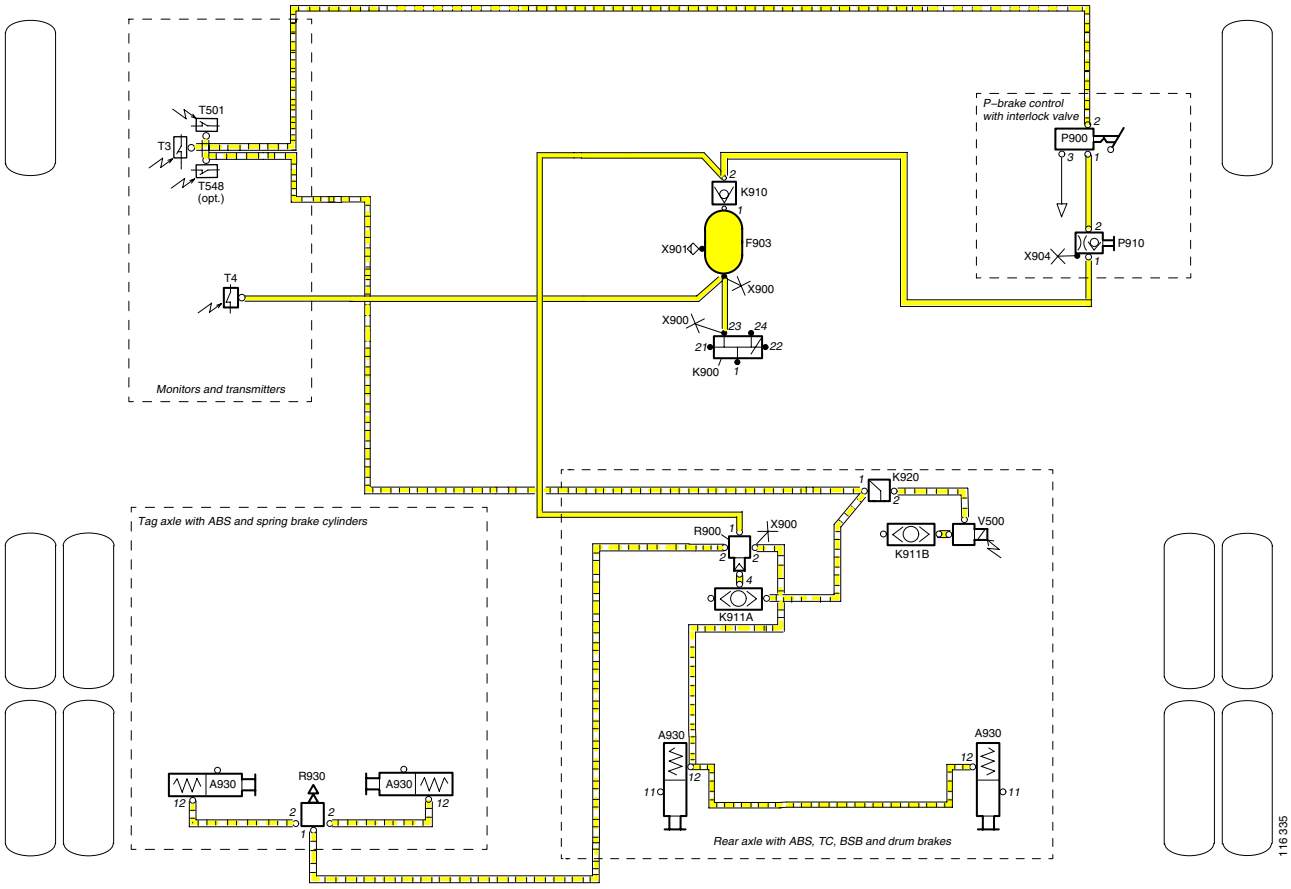
A930	*Spring brake chamber*	*V46*	*ABS control valve, tag axle, left hand side (axle 3)*
F905	*Air tank, tag axle circuit*	*V47*	*ABS control valve, tag axle, right hand side (axle 3)*
K900	*Four-circuit protection valve*	*X900*	*Test connection*
K921	*Pressure limiting valve, 8.0 bar*	*X901*	*Drain valve*
R912	*Relay valve, two control inlets*		

Rear circuit 6x2



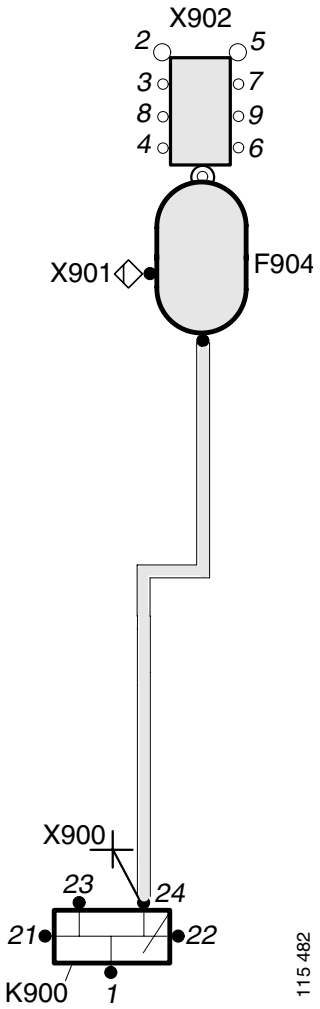
A930	*Spring brake chamber*
B1	*Brake light switch*
F901	*Air tank, rear circuit*
K900	*Four-circuit protection valve*
K911	*Double check valve*
K920	*Pressure limiting valve*
R900	*Relay valve*
R912	*Relay valve, two control inlets*
S900	*Service brake valve*
T2	*Pressure sensor with low-pressure monitor, rear circuit*
T502	*Monitor for bus stop brake*
T506	*Monitor for EK/NBS*
V5	*ABS control valve, rear axle, left hand side (axle 2)*
V6	*ABS control valve, rear axle, right hand side (axle 2)*
V81	*TC Solenoid valve*
V500	*Solenoid valve, bus stop brake*
X900	*Test connection*
X901	*Drain valve*

Parking brake circuit 6x2



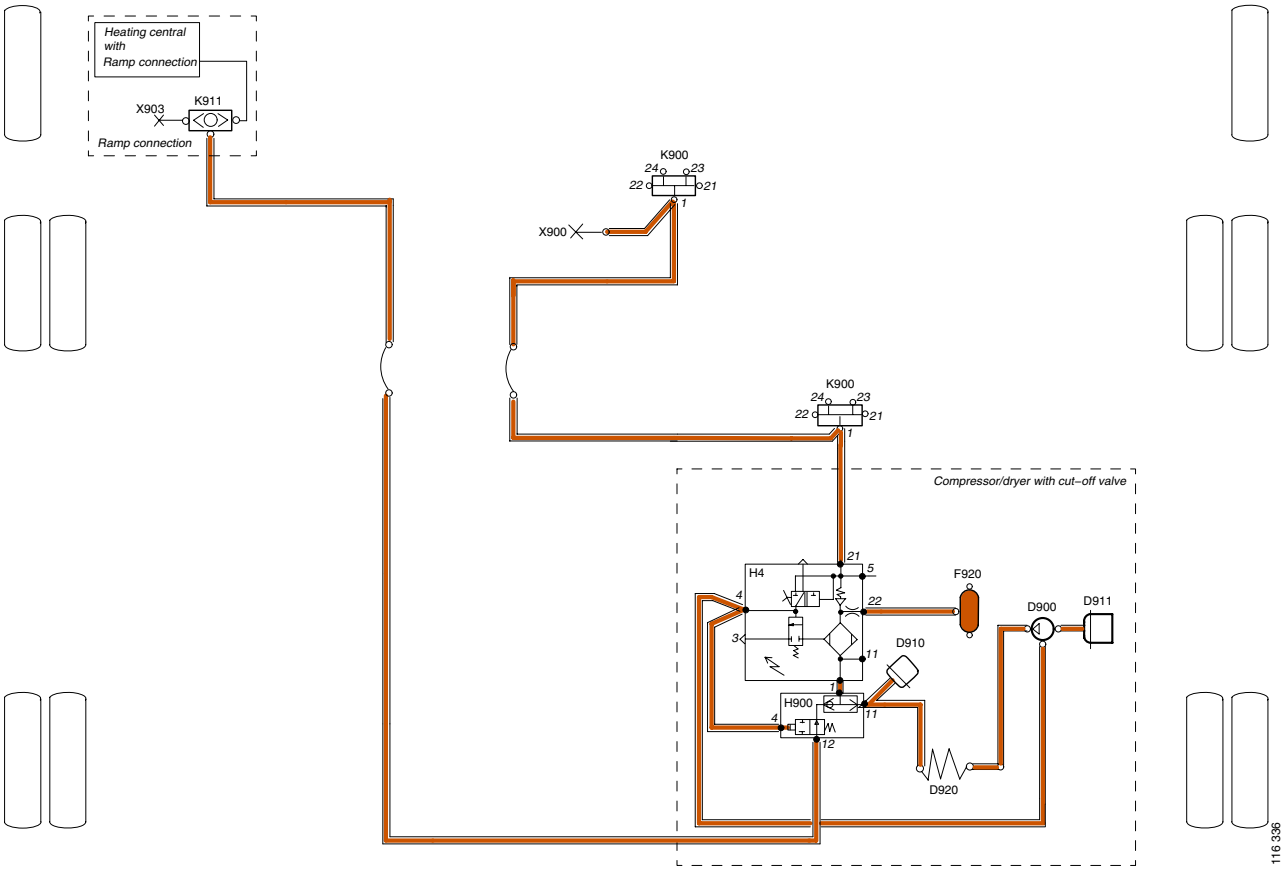
A930	*Spring brake chamber*	*R930*	*Quick release valve*
F903	*Air tank, parking circuit*	*T3*	*Low-pressure monitor, 6 bar, parking circuit, control section*
K900	*Four-circuit protection valve*	*T4*	*Low-pressure monitor, 5 bar, parking circuit, supply section*
K910	*Check valve*	*T501*	*Pressure monitor for EK/NBS, 0.8 bar*
K911	*Double check valve*	*T548*	*Monitor for parking brake (driver gate alarm)*
K920	*Pressure limiting valve*	*V500*	*Solenoid valve, bus stop brake*
P900	*Manual control valve, parking brake*	*X900*	*Test connection*
P910	*Interlock valve*	*X901*	*Drain valve*
R900	*Relay valve*	*X904*	*Filler nipple, parking circuit*

Air supply, other users 6x2



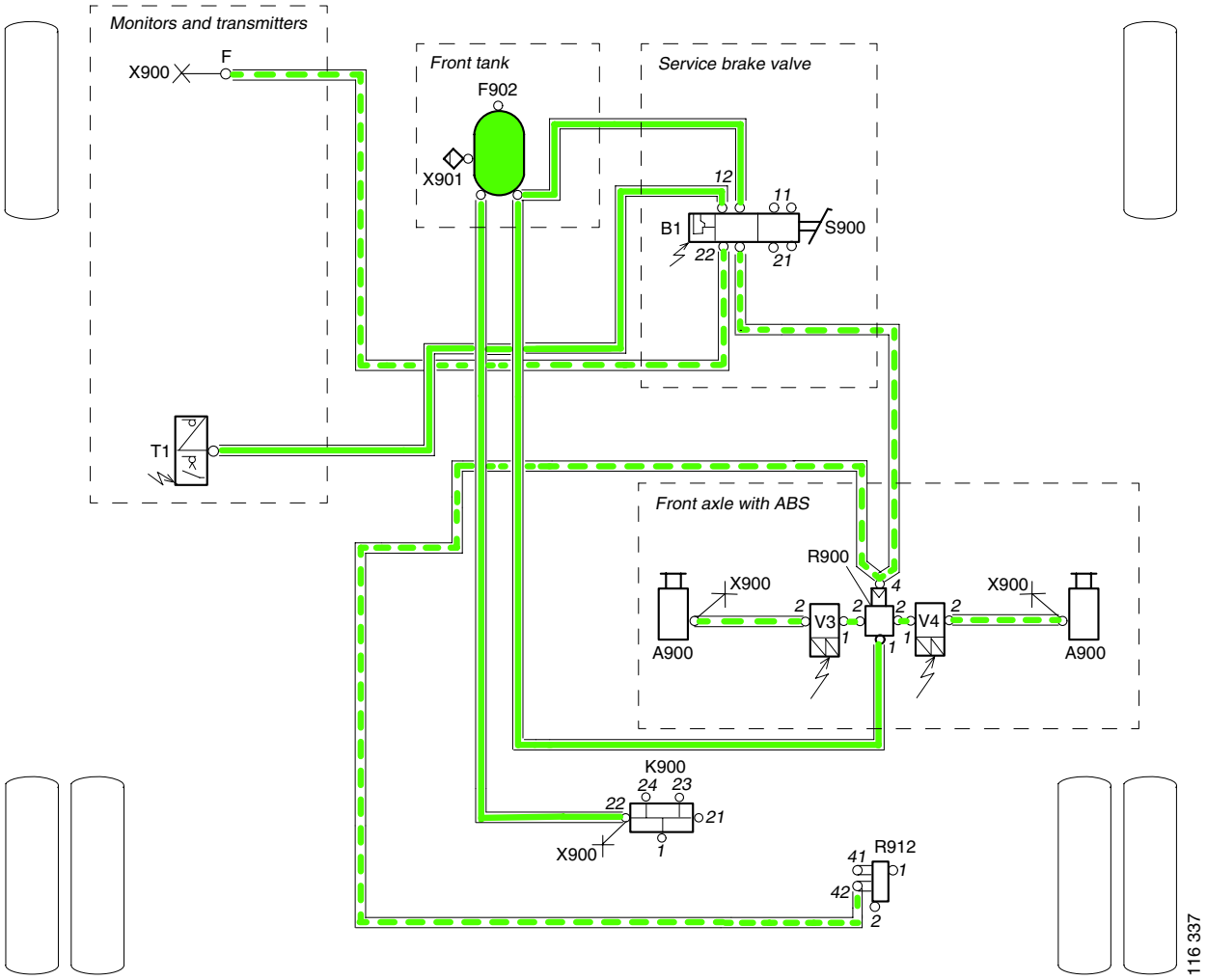
F904	*Air tank, other equipment*	*X901*	*Drain valve*
K900	*Four-circuit protection valve*	*X902*	*Manifold fitting*
X900	*Test connection*		

Supply circuit 6x2/2



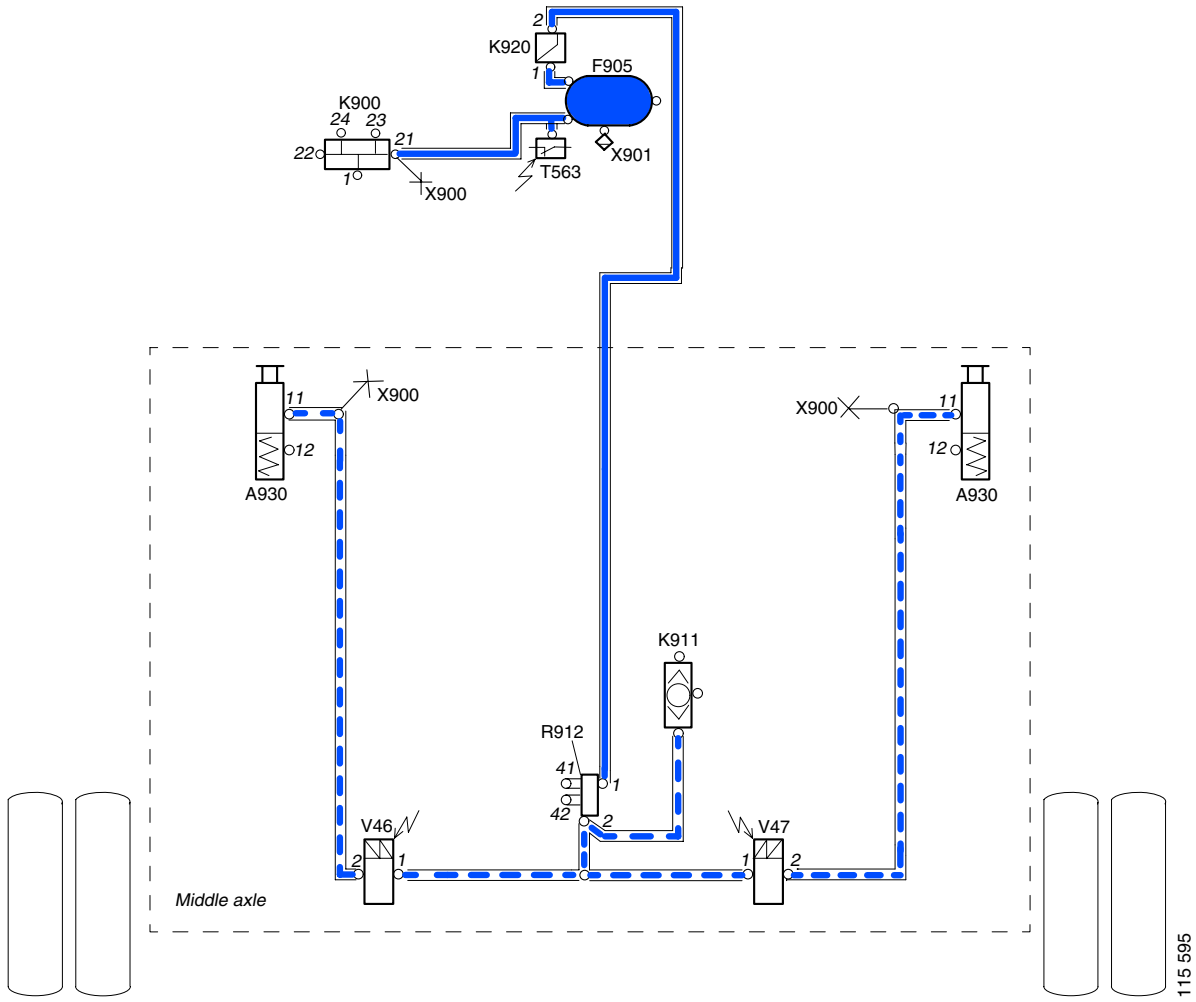
D900	*Compressor*
D910	*Safety valve, 14.3 bar*
D911	*Safety valve, 19 bar*
D920	*Cooling coil*
F920	*Air tank, air dryer*
H4	*Air dryer with pressure monitor*
H900 (opt.)	*Valve for slow air charging, parked vehicle*
K900	*Four-circuit protection valve*
K911	*Double check valve*
X900	*Test connection*
X903	*Filler nipple, compressed air system*

Front circuit 6x2/2



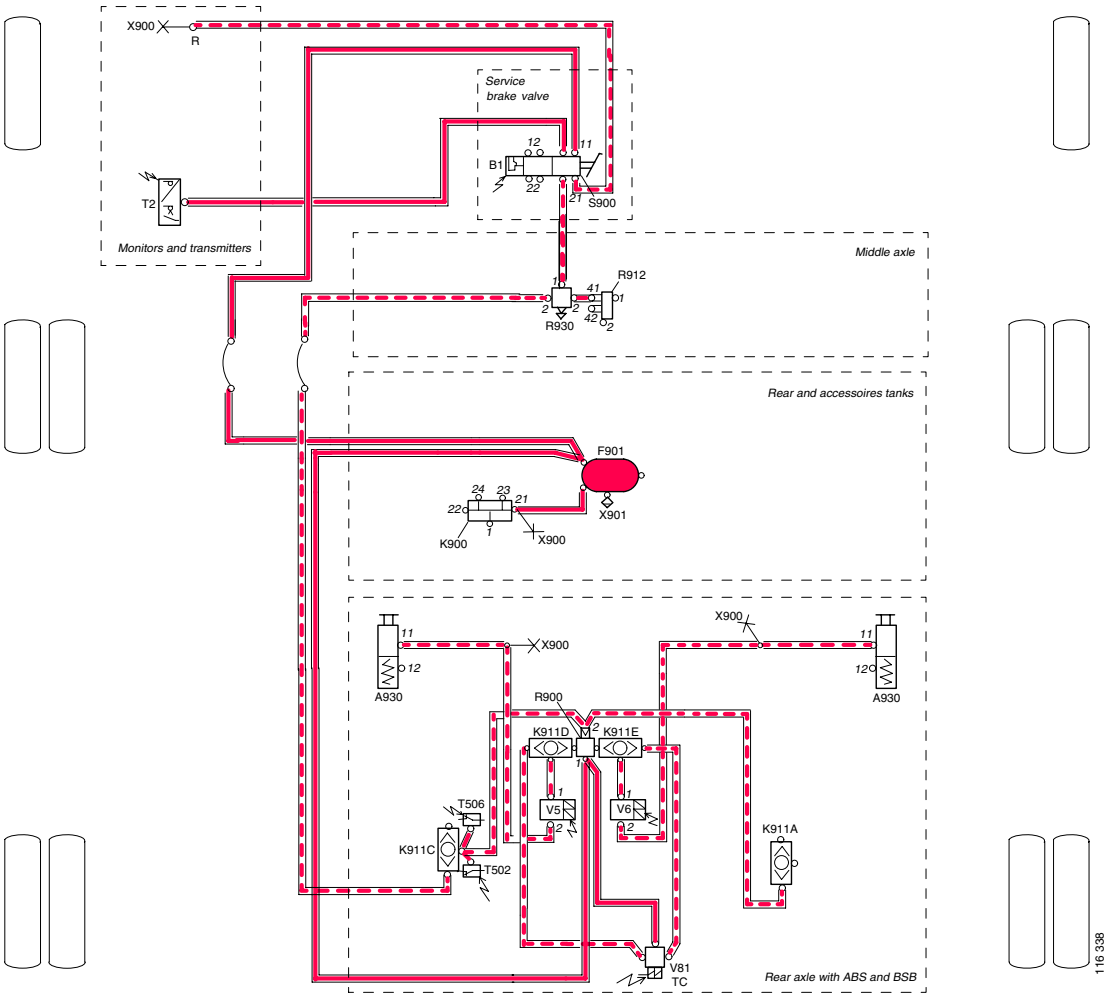
A900	*Brake chamber*	*S900*	*Service brake valve*
B1	*Brake light switch*	*T1*	*Pressure sensor with low-pressure monitor, front circuit*
F902	*Air tank, front circuit*	*V3*	*ABS control valve, front axle, left hand side (axle 1)*
K900	*Four-circuit protection valve*	*V4*	*ABS control valve, front axle, right hand side (axle 1)*
R900	*Relay valve*	*X900*	*Test connection*
R912	*Relay valve, two control inlets*	*X901*	*Drain valve*

Centre axle circuit 6x2/2



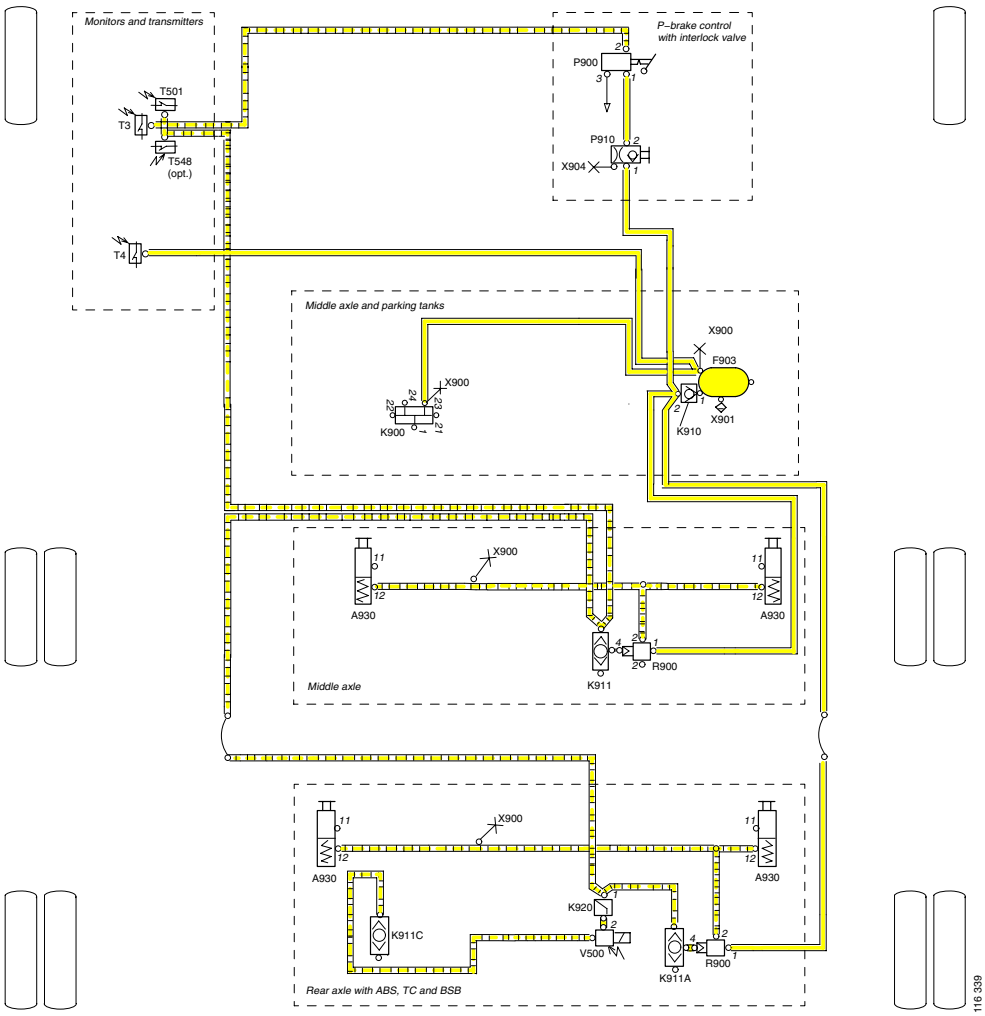
A930	*Spring brake chamber*
F905	*Air tank, centre axle circuit*
K900	*Four-circuit protection valve*
K911	*Double check valve*
K920	*Pressure limiting valve*
R900	*Relay valve*
R912	*Relay valve, two control inlets*
T563	*Brake pressure monitor, centre axle*
V46	*ABS control valve, centre axle, left hand side (axle 3)*
V47	*ABS control valve, centre axle, right hand side (axle 3)*
X900	*Test connection*
X901	*Drain valve*

Rear circuit 6x2/2



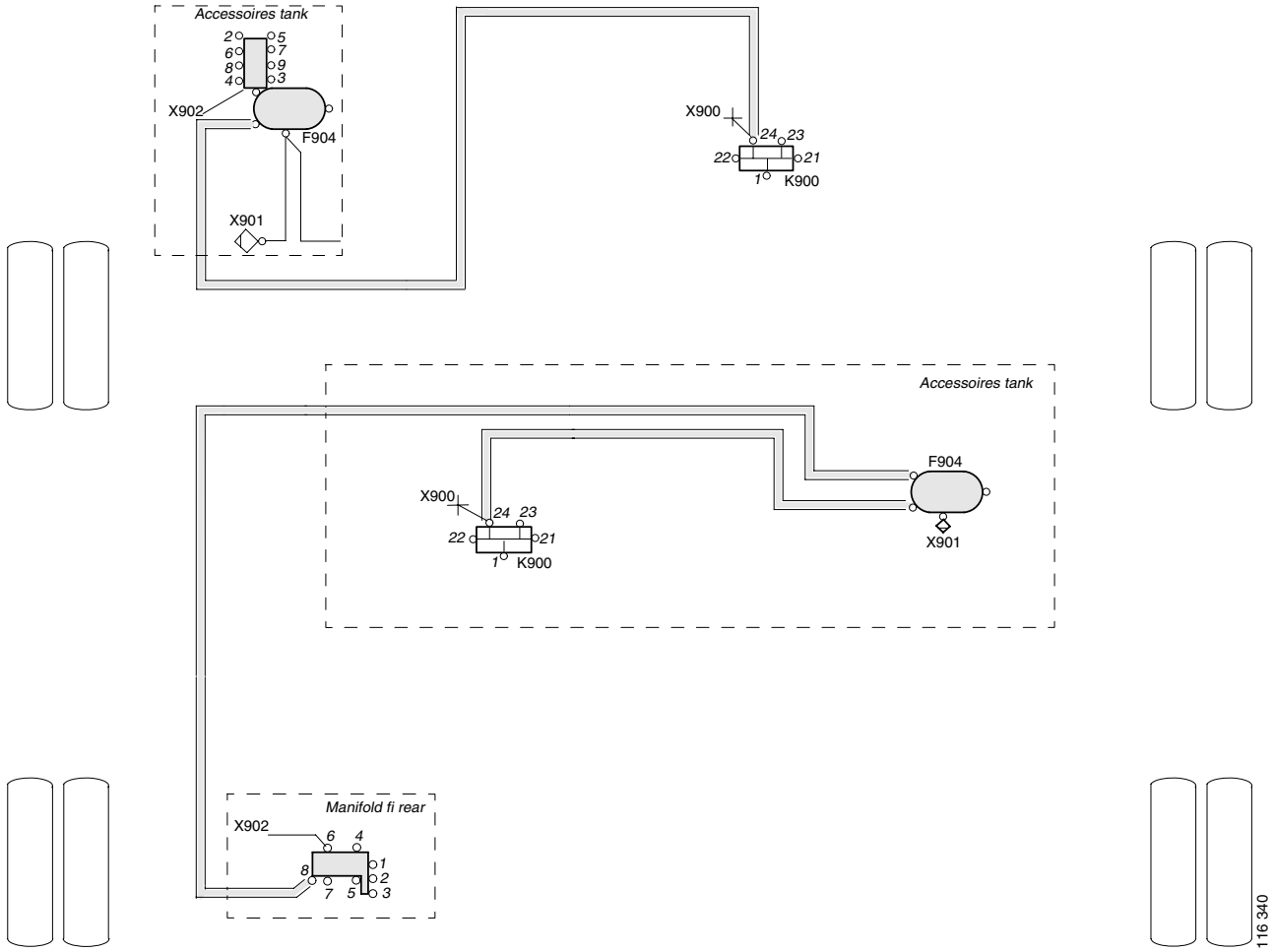
A930	*Spring brake chamber*
B1	*Brake light switch*
F901	*Air tank, rear circuit*
K900	*Four-circuit protection valve*
K911	*Double check valve*
R900	*Relay valve*
R912	*Relay valve, two control inlets*
S900	*Service brake valve*
T2	*Pressure sensor with low-pressure monitor, rear circuit*
T502	*Monitor for bus stop brake*
T506	*Monitor for EK/NBS*
V5	*ABS control valve, rear axle, left hand side (axle 2)*
V6	*ABS control valve, rear axle, right hand side (axle 2)*
V81	*TC Solenoid valve*
X900	*Test connection*
X901	*Drain valve*

Parking brake circuit 6x2/2



A930	*Spring brake chamber*	*T3*	*Low-pressure monitor, 6 bar, parking circuit, control section*
F903	*Air tank, parking circuit*	*T4*	*Low-pressure monitor, 5 bar, parking circuit, supply section*
K900	*Four-circuit protection valve*	*T501*	*Pressure monitor for EK/NBS 0.8 bar*
K910	*Check valve*	*T548 (opt.)*	*Monitor for parking brake (driver gate alarm)*
K911	*Double check valve*	*V500*	*Solenoid valve, bus stop brake*
K920	*Pressure limiting valve*	*X900*	*Test connection*
P900	*Manual control valve, parking brake*	*X901*	*Drain valve*
P910	*Interlock valve*	*X904*	*Filler nipple, parking circuit*
R900	*Relay valve*		

Air supply, other consumers 6x2/2



F904 Air tank, other equipment
K900 Four-circuit protection valve
X900 Test connection
X901 Drain valve
X902 Manifold fitting