Service manual for SAF axles and Suspension Assemblies

Edition 8/2002

SAF Service

Manufacturer.....

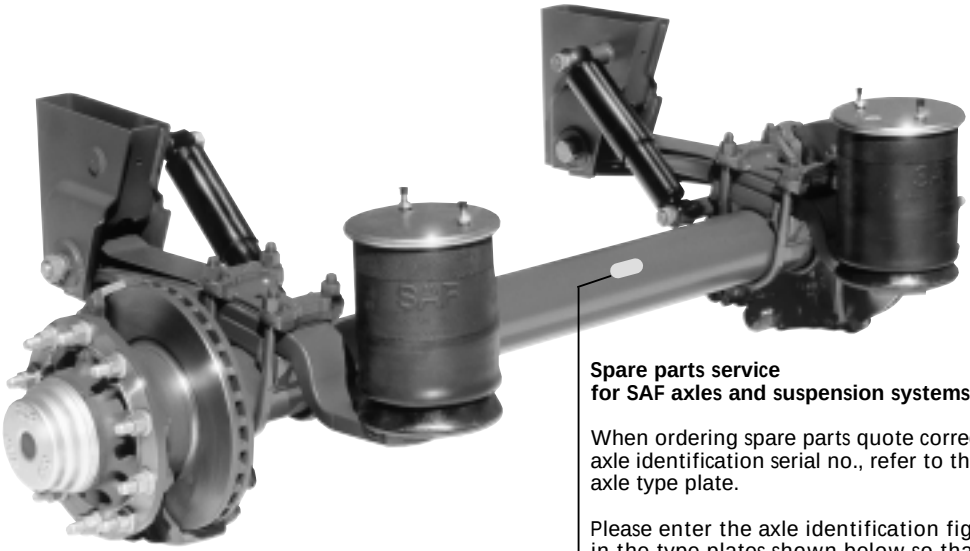
Address.....

Body type.....

Chassis no.....

Year of manufacture.....

Registration, date-in-service.....

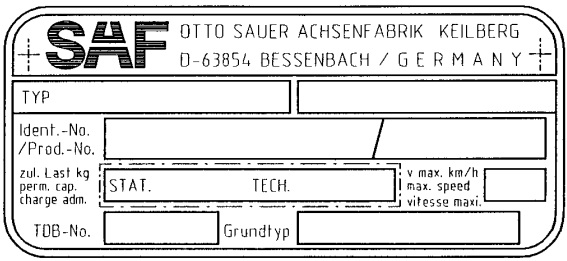


Spare parts service
for SAF axles and suspension systems

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

Please enter the axle identification figures in the type plates shown below so that correct specification are available when required.

Type plate for axle beam assembly



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for SAF axles and suspension units

1. Instructions and tips for vehicle operation

In order to maintain the operation and road safety of the vehicle, the maintenance operations prescribed by SAF must be carried out regularly at the specified intervals (see "Maintenance instructions").

Furthermore, ensure that

1.1 the disc brake is not overheated due to continuous operation as otherwise irreparable damage to the surrounding components – in particular the wheel bearings – cannot be ruled out. This can impair the operational and road safety of the vehicle and represent a serious hazard for man and machine.

1.2 the compatibility of the brakes on the truck-trailer combination is checked. For reliable braking and uniform brake lining wear, the brake systems of the two vehicles must be matched to one another before starting operation

1.3 the parking brake is not applied immediately when the brakes are hot as the resulting different stress fields can damage the brake discs

1.4 the drum brakes are not overheated as this will result in a dangerous reduction in braking efficiency

1.5 the maximum permissible axle loads and speeds are not exceeded

1.6 the cargo is evenly distributed over the loading area and safely secured

1.7 on vehicles with air suspension, the air bags are always fully pressurised before starting a journey

1.8 the prescribed wheel rims and tyre sizes are employed

1.9 the tyres have the prescribed inflation pressure

1.10 your driving style is matched to the road conditions

1.11 axle supports are used when loading/unloading construction machinery

1.12 the use of auxiliary trailer braking facilities (trailer underrun brake) is not permitted.

2. Vehicle safety

2.1 The daily check of the vehicle for road safety before starting a journey is the responsibility of the driver.

2.2 Modifications to the suspension and braking system are strictly forbidden.

2.3 Compliance with the specified permissible axle loads, specifications in the vehicle operating permit, vehicle inspection intervals and the regular maintenance intervals is the responsibility of the vehicle owner.

2.4 We strongly recommend fitting only SAF approved replacement parts and spare parts which are covered by SAF product liability. These products have been thoroughly tested by SAF for safety, functionability and suitability. Fitting of these parts guarantees not only safety on the roads but satisfies the legal operational requirements. SAF is not in a position to judge whether those products from other companies represent a safety risk for SAF axles and systems.

3. Warranty

3.1 Warranty claims will only be accepted as long as the operating and maintenance instructions have been complied with and if SAF approved spare parts have been fitted.

3.2 Warranty claims must be reported to SAF before starting the work.

3.3 The warranty period is 12 months after the vehicle registration date or after the start of operation of the vehicle.

4. Service and spare parts

A close-knit service network of SAF partner companies is at your disposal for technical advice on SAF axles and suspension systems as well as for supplying approved SAF spare parts (see back cover or brochure "SAF service stations").

In case of repair we strongly recommend fitting only SAF original parts for those reasons mentioned in point 2.4.

SAF axles and suspension units are subject to continuous further development; the data and drawings contained in the manual may therefore differ from the details given in the operating permit.

10114GB Edition 0802

for SK RS / RZ 9042 / 11242 axles and suspension units

(steering axle see p. 30-33)

Service schedule		After first 5,000 km or	Periodic checks		
	Mileage intervals >		every 30,000 km	every 90,000 km	every 150,000 km
whichever comes first	Time intervals >	after first month	every 3 months	every 6 months	every 12 months
Mechanical check					
Note: Torque check wheel nuts after the first 50 km and 150 km (and after every wheel removal).					
Torque check all nuts and bolts to recommended setting.		●			●
Hub end-float adjustment not required. Pack wheel bearings with fresh grease after 500,000 km or 50 months, whichever comes first. Check condition of taper roller bearings and replace, if necessary.					
Lubricate camshaft bearings after every brake lining replacement, however, at least every 12 months.					
Visual inspection for wear/damage					
Check suspension components for wear, fluid leakage and damage Check brake linings for wear **Check camshafts for free movement** Check slack adjusters for correct function Check braking system for leaks (brake applied) Check air suspension for air leaks Check air suspension bellows for damage Check piston surface for contamination and clean, if necessary Check parabolic springs for damage, scoring and corrosion Check self steering axle for correct function Check tyre wear and tracking (if required)		●	●		
Safety inspection					
Check wheel brakes for correct adjustment Check service brake and hand brake efficiency		●	●		
Check truck-trailer combination for brake compatibility Check service brake pressure to manufacturer's recommendation		●			●
Check air suspension for correct ride height. With 2 levelling valves, the max. permissible bellows pressure difference (LH to RH vehicle side) is 0.2 bar.		●	●		

Special service conditions

Vehicles with long standing periods:	service at specified time intervals
Vehicles used under extreme conditions:	service at suitably reduced intervals

Warranty claims will only be accepted as long as the operating and maintenance instructions have been complied with and if SAF approved spare parts have been fitted.

for SK RS / RZ 9042 / 11242 axles

Hub end-float setting. Lubricant.

Hub end-float adjustment is not required.

Pack wheel bearings with fresh grease after 500,000 km or 50 month, whichever comes first.

Check condition of taper roller bearings and replace, if necessary.

Replace O-ring (39) and fit the wheel cap.

After brake relining, lubricate camshaft bearings whilst rotating the camshaft through 360° several times.

Do not disassemble the wheel bearing assembly.

Use a vacuum cleaner to remove brake dust.

Never use pressurised cleaning devices or cleaning fluids on the brake drum and hub.

Clean stub axle and apply fresh SAF fitting paste.

Lubricant specification:

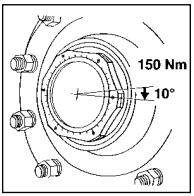
Wheel bearings:
SAF parts no. 4 387 0011 05

Camshaft:
SAF parts no. 4 387 0011 05

Stub axle:
SAF parts no. 4 387 0015 06
SAF fitting paste

Brake anchor bracket ball:
SAF parts no. 4 387 0007 00
Copper paste

Hub nut tightening



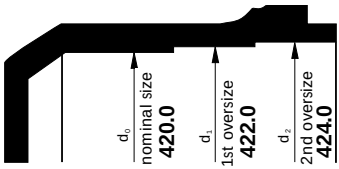
LH direction of travel - LH thread.

RH direction of travel - RH thread.

Pretighten to 150 Nm whilst rotating drum.

For final torque, continue tightening through one more scale line (10 °).

Hub nuts with LH threads are marked with a groove milled into the hex outside.



BRAKE type SNK 420

Max. permissible turned brake drum bore: 424.0 mm
Brake drum bore with max. permissible wear: 425.0 mm
SAF approved brake linings: BERAL 1541, BREMSKERL 6386
Turn new brake linings to brake drum bore dimension + 0.3 mm.
When renewing rivets, observe the manufacturer's instructions regarding the brake lining.

Brake size	SAF parts no, brake lining	Brake drum / brake lining refacing stages in mm			Brake linings	Rivets	DIN 7338 rivet
		Nominal size	1st oversize	2nd oversize	number per axle		
SNK 420		d_0-420.0	d_1-422.0	d_2-424.0			
x 180	1 057 0060 00 1 057 0061 00	20.6 20.0	21.6 21.0	22.6 22.0	4	64	B 8 x 15
x 200	1 057 0066 00 1 057 0067 00	20.6 20.0	21.6 21.0	22.6 22.0			

Assembly tools 9042 / 11242	**SAF parts no.**
Hub nut spanner	1 012 0024 00
Brake shoe clamping device	3 349 1001 00
Brake drum fixing flanges	3 434 1040 01
Wheel bearing inserter	3 434 1043 00

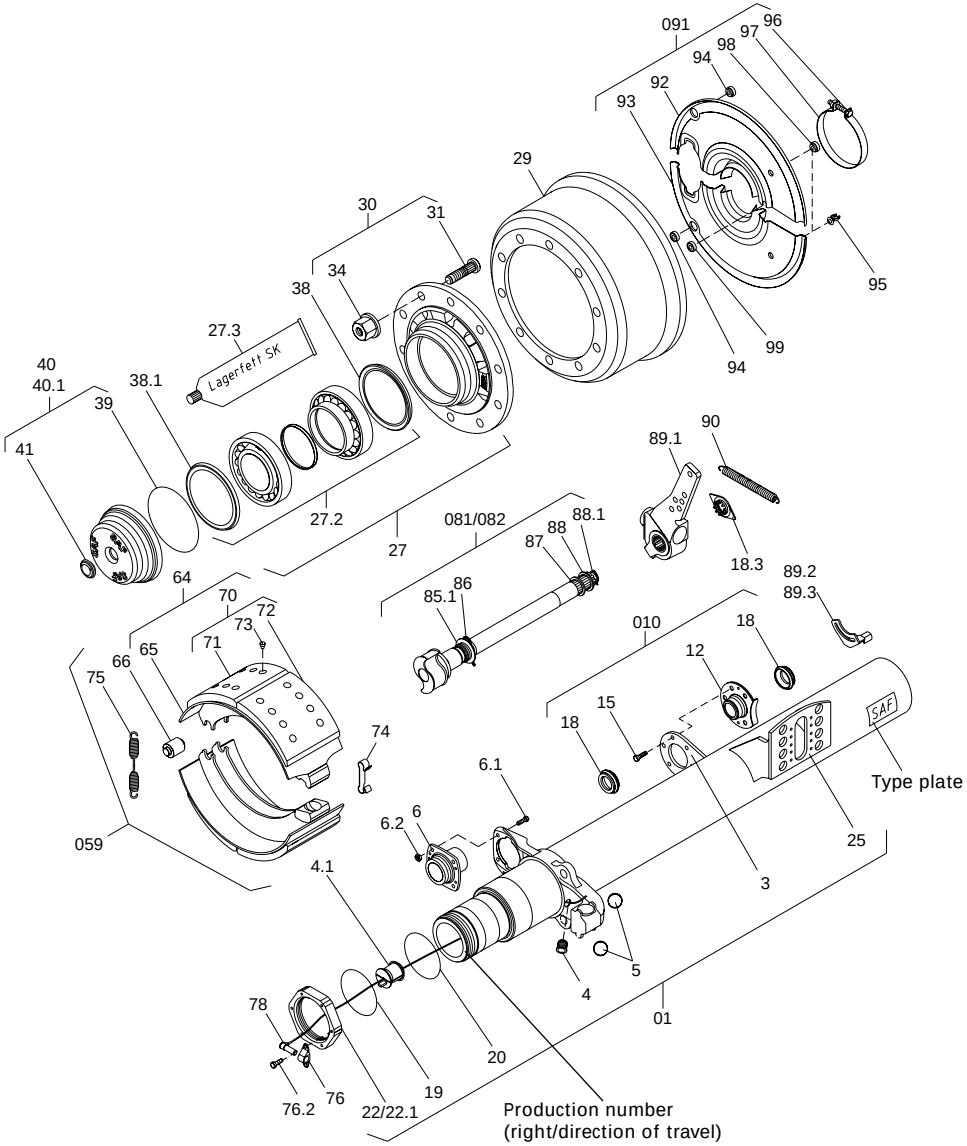
Exploded view of SK RS / RZ 9042 / 11242 axle assembly
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24/700 Nm
M 22/650 Nm
M 20/500 Nm

Shock absorber:
M 24/400 Nm



SK RS / RZ 9042 / 11242

Item	Parts designation
01	**Axle beam assembly** including items 3 - 6, 010, 19, 22 - 22.1, 25
3	Spherical mounting plate
4	Protection plug
4.1	Protection plug (axle tube)
5	Ball
6	Camshaft bearing, brake carrier side
6.1	Riffle bolt
6.2	Hex nut
010	**Camshaft bearing assembly,** linkage adjustment side including items 12, 15, 18
12	Camshaft bearing
15	Hex bolt
18	Bellows
18.3	Brake lining wear gauge
19	O-ring - Hub nut
20	O-ring - Stub axle
22	Hub nut, RH thread
22.1	Hub nut, LH thread
25	Brake cylinder support
27	Hub unit, complete with item 27.2
27.2	Repair kit including items 27.3, 38 - 39
27.3	Bearing grease
29	Brake drum
30	**Wheel bolt assembly** including items 31 - 34
31	Riffle bolt
34	Wheel nut
38	Inner seal ring
38.1	Outer seal ring
39	O-ring - Hub cap
40	Hub cap, complete with items 39, 41
40.1	Hub cap, complete with pole wheel and items 39 - 41
41	Plug
059	**Brake assembly** including items 64, 74 - 75
64	**Brake shoe assembly** including items 65, 71 - 73
65	Brake shoe with item 66
66	Cam roller
70	**Lining service group** including items 71, 72, 73
71	Brake lining, cam roller side
72	Brake lining, ball side
73	Rivet
74	Spring clip
75	Return spring
	with ABS
76	Bracket sensor
76.2	Hex bolt
78	ABS sensor
081	**Camshaft assembly (LH)** including items 18.3, 85.1 - 88.1
082	**Camshaft assembly (RH)** including items 18.3, 85.1 - 88.1
85.1	Disc spring
86	Spring clip
87	Washer
88	Washer
88.1	Spring clip
	with automatic adjustment
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
091	**Dust cover assembly** including items 92 - 98, 99
92	Dust cover, RH
93	Dust cover, LH
94	Plug
95	Cable clamp
96	Hex bolt
97	Clamp
98	Plug
99	Rubber grommet, ABS

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

for SK RS / RZ 9037 / 11037 axles and suspension units

(steering axle see p. 34-35)

Service schedule			After first 5,000 km or	Periodic checks		
	Mileage intervals	>		every 30,000 km	every 90,000 km	every 150,000 km
whichever comes first	Time intervals	>	after first month	every 3 months	every 6 months	every 12 months
Mechanical check						
Note: Torque check wheel nuts after the first 50 km and 150 km (and after every wheel removal).						
Torque check all nuts and bolts to recommended setting.			●			●
Hub end-float adjustment not required. Pack wheel bearings with fresh grease after 500,000 km or 50 months, whichever comes first. Check condition of taper roller bearings and replace, if necessary.						
Lubricate camshaft bearings after every brake lining replacement, however, at least every 12 months.						
Visual inspection for wear/damage						
Check suspension components for wear, fluid leakage and damage Check brake linings for wear **Check camshafts for free movement** Check slack adjusters for correct function Check braking system for leaks (brake applied) Check air suspension for air leaks Check air suspension bellows for damage Check piston surface for contamination and clean, if necessary Check parabolic springs for damage, scoring and corrosion Check self steering axle for correct function Check tyre wear and tracking (if required)			●	●		
Safety inspection						
Check wheel brakes for correct adjustment Check service brake and hand brake efficiency			●	●		
Check truck-trailer combination for brake compatibility Check service brake pressure to manufacturer's recommendation			●			●
Check air suspension for correct ride height. With 2 levelling valves, the max. permissible bellows pressure difference (LH to RH vehicle side) is 0.2 bar.			●	●		

Special service conditions

Vehicles with long standing periods:	service at specified time intervals
Vehicles used under extreme conditions:	service at suitably reduced intervals

Warranty claims will only be accepted as long as the operating and maintenance instructions have been complied with and if SAF approved spare parts have been fitted.

for SK RS / RZ 9037 / 11037 axles

Hub end-float setting. Lubricant.

Hub end-float adjustment is not required.

Pack wheel bearings with fresh grease after 500,000 km or 50 month, whichever comes first.

Check condition of taper roller bearings and replace, if necessary.

Replace O-ring (39) and fit the wheel cap.

After brake relining, lubricate camshaft bearings whilst rotating the camshaft through 360° several times.

Do not disassemble the wheel bearing assembly.

Use a vacuum cleaner to remove brake dust.

Never use pressurised cleaning devices or cleaning fluids on the brake drum and hub.

Clean stub axle and apply fresh SAF fitting paste.

Lubricant specification:

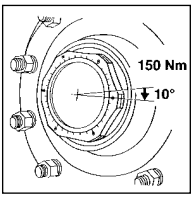
Wheel bearings:
SAF parts no. 4 387 0011 05

Camshaft:
SAF parts no. 4 387 0011 05

Stub axle:
SAF parts no. 4 387 0015 06
SAF fitting paste

Brake anchor bracket ball:
SAF parts no. 4 387 0007 00
Copper paste

Hub nut tightening



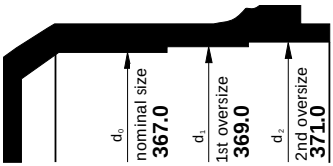
LH direction of travel - LH thread.

RH direction of travel - RH thread.

Pretighten to 150 Nm whilst rotating drum.

For final torque, continue tightening through one more scale line (10 °).

Hub nuts with LH threads are marked with a groove milled into the hex outside.



BRAKE type SNK 367

Max. permissible turned brake drum bore: 371.0 mm
Brake drum bore with max. permissible wear: 372.0 mm
SAF approved brake linings: BERAL 1561, BREMSKERL 6386

Turn new brake linings to brake drum bore dimension + 0.3 mm.
When renewing rivets, observe the manufacturer's instructions regarding the brake lining.

Brake size	SAF parts no. brake lining	Brake drum / brake lining refacing stages in mm			Brake linings	Rivets	DIN 7338 rivet
		Nominal size	1st oversize	2nd oversize	number per axle		
SNK 367		d_0-367.0	d_1-369.0	d_2-371.0			
x 180	1 057 0068 00 1 057 0069 00	21.1 20.5	22.1 21.5	23.1 22.5	4	64	B 8 x 15
x 200	1 057 0070 00 1 057 0071 00	21.1 20.5	22.1 21.5	23.1 22.5			

Assembly tools 9037 / 11037	**SAF parts no.**
Hub nut spanner	1 012 0024 00
Brake shoe clamping device	3 349 1001 00
Brake drum fixing flanges	3 434 1040 01
Wheel bearing inserter	3 434 1059 00
Puller for MS bushing	1 434 1056 00
Bushing tool for MS bushing	1 434 1055 00

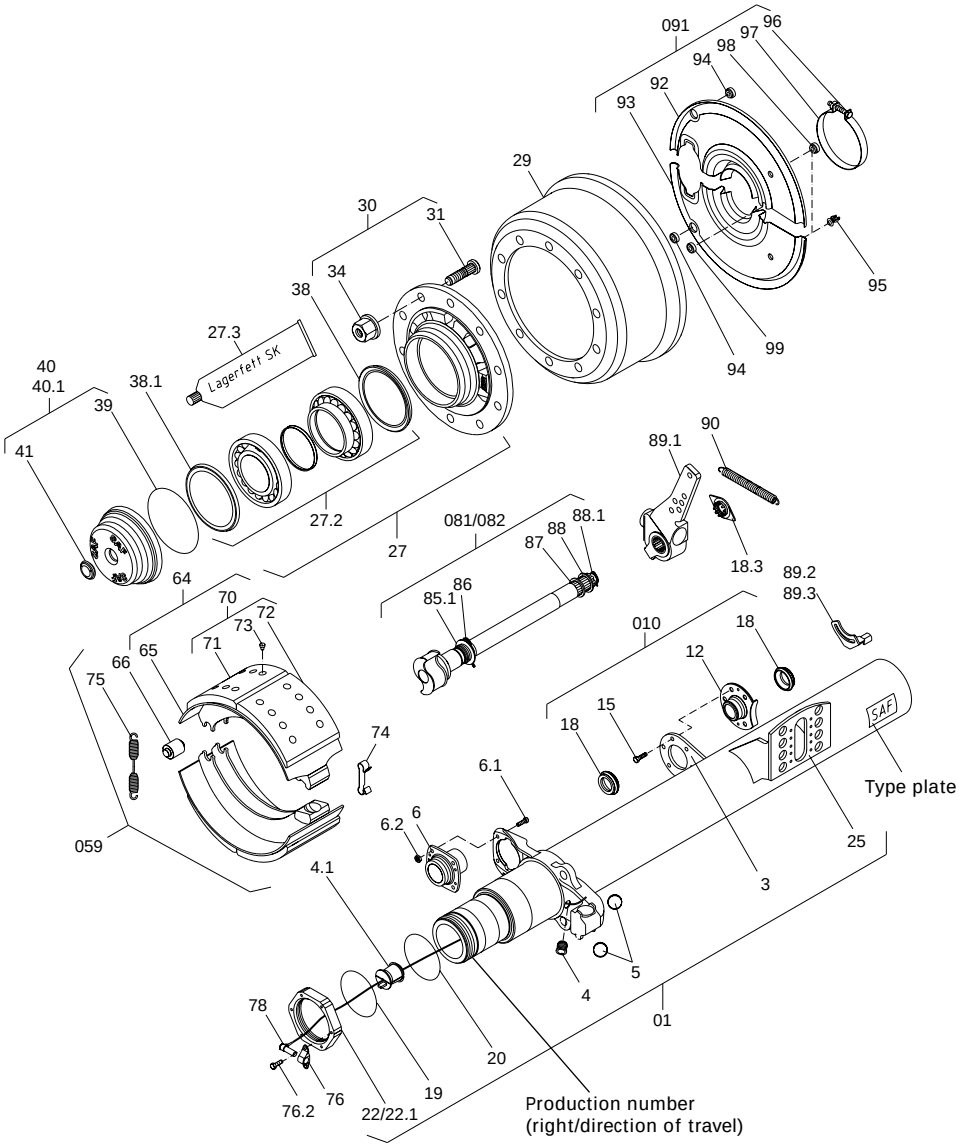
Exploded view of SK RS / RZ 9037 / 11037 axle assembly
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24/700 Nm
M 22/650 Nm
M 20/500 Nm

Shock absorber:
M 24/400 Nm



SK RS / RZ 9037 / 11037

Item	Parts designation
01	**Axle beam assembly** including items 3 - 6, 010, 19, 22 - 22.1, 25
3	Spherical mounting plate
4	Protection plug
4.1	Protection plug (axle tube)
5	Ball
6	Camshaft bearing, brake carrier side
6.1	Riffle bolt
6.2	Hex nut
010	**Camshaft bearing assembly,** linkage adjustment side including items 12, 15, 18
12	Camshaft bearing
15	Hex bolt
18	Bellows
18.3	Brake lining wear gauge
19	O-ring - Hub nut
20	O-ring - Stub axle
22	Hub nut, RH thread
22.1	Hub nut, LH thread
25	Brake cylinder support
27	Hub unit, complete with item 27.2
27.2	Repair kit including items 27.3, 38 - 39
27.3	Bearing grease
29	Brake drum
30	**Wheel bolt assembly** including items 31 - 34
31	Riffle bolt
34	Wheel nut
38	Inner seal ring
38.1	Outer seal ring
39	O-ring - Hub cap
40	Hub cap, complete with items 39, 41
40.1	Hub cap, complete with pole wheel and items 39 - 41
41	Plug
059	**Brake assembly** including items 64, 74 - 75
64	**Brake shoe assembly** including items 65, 71 - 73
65	Brake shoe with item 66
66	Cam roller
70	**Lining service group** including items 71, 72, 73
71	Brake lining, cam roller side
72	Brake lining, ball side
73	Rivet
74	Spring clip
75	Return spring
	with ABS
76	Bracket sensor
76.2	Hex bolt
78	ABS sensor
081	**Camshaft assembly (LH)** including items 18.3, 85.1 - 88.1
082	**Camshaft assembly (RH)** including items 18.3, 85.1 - 88.1
85.1	Disc spring
86	Spring clip
87	Washer
88	Washer
88.1	Spring clip
	with automatic adjustment
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
091	**Dust cover assembly** including items 92 - 98, 99
92	Dust cover, RH
93	Dust cover, LH
94	Plug
95	Cable clamp
96	Hex bolt
97	Clamp
98	Plug
99	Rubber grommet, ABS

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

for SAF SK RS / RZ 9030 / 11030 / RZ 12030 axles and suspension units (steering axle see p. 36-37)

Service schedule		After first 5,000 km or	Periodic checks		
Whichever comes first	Mileage intervals >		every 30,000 km	every 90,000 km	every 150,000 km
	Time intervals >	after first month	every 3 months	every 6 months	every 12 months
Mechanical check					
Note: Torque check wheel nuts after the first 50 km and 150 km (and after every wheel removal).					
Torque check all nuts and bolts to recommended setting.		●			●
Check and adjust hub end-float (if required). Pack wheel bearings with fresh grease after 300,000 km or 36 month, whichever comes first. Check condition of taper roller bearings and replace, if necessary.				●	
Lubricate camshaft bearings after every brake lining replacement, however, at least every 12 months.					●
Visual inspection for wear/damage					
Check suspension components for wear, fluid leakage and damage Check brake linings for wear **Check camshafts for free movement** Check slack adjusters for correct function Check braking system for leaks (brake applied) Check air suspension for air leaks Check air suspension bellows for damage Check piston surface for contamination and clean, if necessary Check parabolic springs for damage, scoring and corrosion Check self steering axle for correct function Check tyre wear and tracking (if required)		●	●		
Safety inspection					
Check wheel brakes for correct adjustment Check service brake and hand brake efficiency		●	●		
Check truck-trailer combination for brake compatibility Check service brake pressure to manufacturer's recommendation		●			●
Check air suspension for correct ride height. With 2 levelling valves, the max. permissible bellows pressure difference (LH to RH vehicle side) is 0.2 bar.		●	●		

Special service conditions

Vehicles with long standing periods:	service at specified time intervals
Vehicles used under extreme conditions:	service at suitably reduced intervals

Warranty claims will only be accepted as long as the operating and maintenance instructions have been complied with and if SAF approved spare parts have been fitted.

for SK RS / RZ 9030 / 11030 / RZ 12030 axles

Hub end-float setting

Tighten hub nut (22) to a torque of 150 Nm at the same time rotating the hub and drum.

Locate the locking collar (23) onto the dowel on the hub nut noting the position of the dowel in relation to the collar. Remove the collar and turn the hub nut 2 1/2 holes anti-clockwise. Reverse the collar and re-locate it onto the repositioned hub nut dowel. Fit the lock nut (24) and tighten using a torque of 400 Nm.

Check whether the hub rotates freely and without excessive end-float (adjust if necessary).

Replace O-ring (39) and fit the wheel cap.

Lubricant specification:

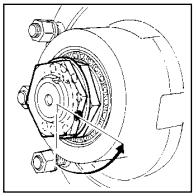
Wheel bearings:
SAF parts no. 4 387 0011 05

Camshaft:
SAF parts no. 4 387 0011 05

Stub axle:
SAF parts no. 4 387 0015 06
SAF fitting paste

Brake anchor bracket ball:
SAF parts no. 4 387 0007 00
Copper paste

Hub nut tightening



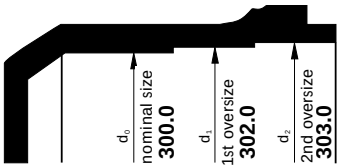
After brake relining, lubricate camshaft bearings whilst rotating the camshaft through 360° several times.

Do not disassemble the wheel bearing assembly.

Use a vacuum cleaner to remove brake dust.

Never use pressurised cleaning devices or cleaning fluids on the brake drum and hub.

Clean stub axle and apply fresh SAF fitting paste.



Brake type SNK 300

Max. permissible turned brake drum bore: 373.0 mm
Brake drum bore with max. permissible wear: 304.0 mm
SAF approved brake linings: BERAL 1541, BREMSKERL 6386

Turn new brake linings to brake drum bore dimension + 0.3 mm.
When renewing rivets, observe the manufacturer's instructions regarding the brake lining.

Brake size	SAF parts no, brake lining	Brake drum/brake lining refacing stages in mm			Brake linings	Rivets	DIN 7338 rivet
		Nominal size	1st oversize	2nd oversize	number per axle		
SNK 300		d_0-300.0	d_1-302.0	d_2-303.0			
x 150	1 057 0034 00 1 057 0033 00	15.5 16.5	16.7 17.7	17.1 18.1	4 4	64	B 8 x 15
x 200	1 057 0025 00 1 057 0024 00	15.5 16.5	16.7 17.7	17.1 18.1	4 4		

Assembly tools 9030 / 11030 / 12030	**SAF parts no.**
Hub nut spanner	2 012 0023 00
Hub puller	3 301 0010 00 or 4 434 3822 00
Wheel bearing/oil seal inserter	3 434 1014 00
Mounting drifter for wheel bearing	3 434 3308 00
Inserter for MS bushing	1 434 1055 00
Puller for MS bushing	1 434 1056 00
Clamping rings for brake drum clamping flanges	3 434 1060 00

Exploded view of SK RS / RZ 9030 / 11030 / RZ 12030 axle assembly

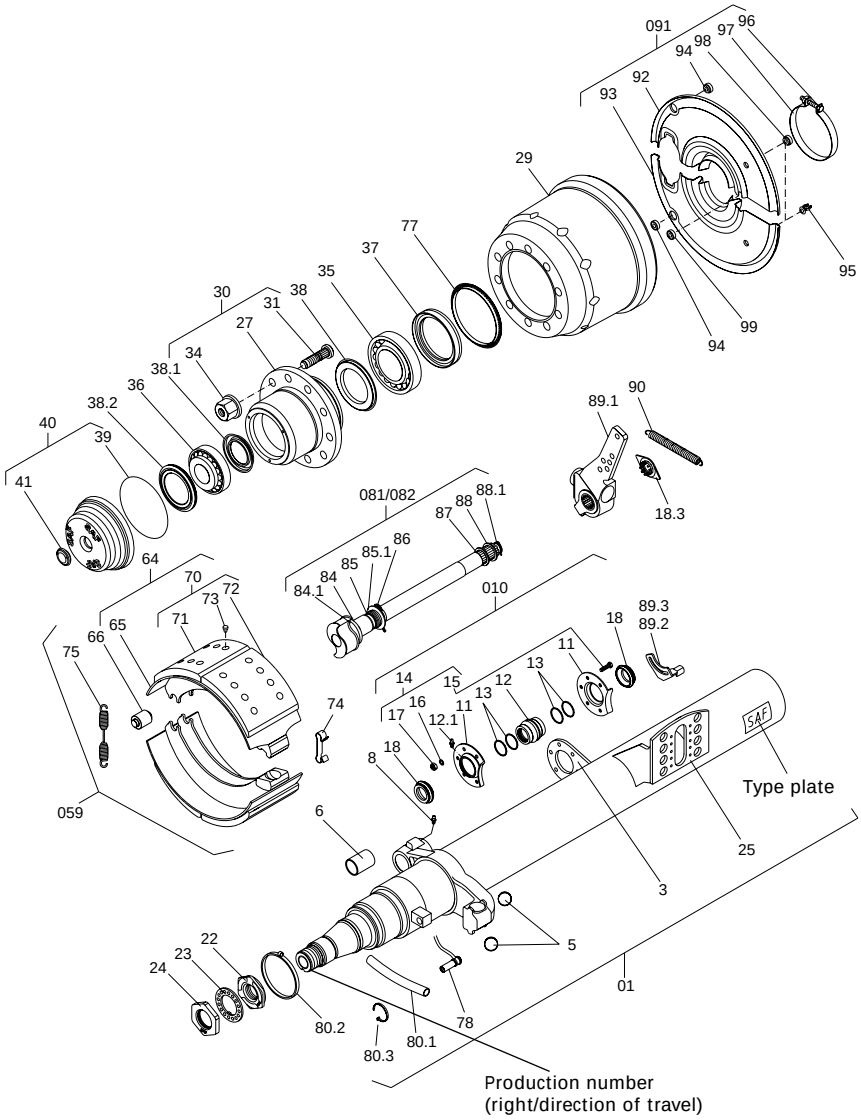
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24/700 Nm
M 22/650 Nm
M 20/500 Nm

Shock absorber:
M 24/400 Nm



SK RS / RZ 9030 / 11030 / RZ 12030

Item	Parts designation
01	**Axle beam assembly** including items 3 - 8, 010, 22,
3	Spherical mounting plate
5	Ball
6	Bearing bush
8	Grease nipple
010	**Camshaft bearing assembly** including items 11 - 13, 14, 18
11	Spherical bush housing
12	Spherical bearing bush
12.1	Grease nipple
13	O-ring
14	**Hex bolt assembly** including items 15 - 17
15	Hex bolt
16	Spring washer
17	Hex nut
18	Bellows
18.3	Brake lining wear gauge
22	Hub nut with dowel
23	Circlip
24	Locknut
25	Brake cylinder support
27	Hub unit
29	Brake drum
30	**Wheel bolt assembly** including items 31 - 34
31	Riffle bolt
34	Wheel nut with pressure plate
35	Tapper roller bearing
36	Tapper roller bearing
37	Grease seal
38	Inner seal ring
38.1	Protective ring
38.2	Outer seal ring
39	O-ring
40	Hub cap, complete with items 39, 41
41	Plug
059	**Brake assembly** including items 64, 74 - 75
64	**Brake shoe assembly** including items 65, 71 - 73
65	Brake shoe with item 66
66	Cam roller
70	**Brake lining set** including items 71, 72, 73
71	Brake lining, cam roller side
72	Brake lining, ball side
73	Rivet
74	Spring clip
75	Return spring
	with ABS
77	Exciter
78	ABS sensor
80.1	Protective hose
80.2	Clamp
80.3	Clamp
081	**Camshaft assembly (RH)** including items 18.3, 84 - 88.1
082	**Camshaft assembly (LH)** including items 18.3, 84 - 88.1
84	O-ring
84.1	Spacer ring
85	Seal ring
85.1	Disc spring
86	Spring clip
87	Washer
88	Washer
88.1	Spring clip
	with automatic adjustment
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
091	**Dust cover assembly** including items 92 - 99
92	Dust cover, RH
93	Dust cover, LH
94	Plug
95	Cable clamp
96	Hex bolt
97	Clamp
98	Plug
99	Rubber grommet, ABS

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

for SAF SK RS / RZ 12242 axles and suspension units

(steering axle see p. 30-33)

Service schedule			After first 5,000 km or	Periodic checks		
	Mileage intervals	>		every 30,000 km	every 90,000 km	every 150,000 km
Whichever comes first	Time intervals	>	after first month	every 3 months	every 6 months	every 12 months
Mechanical check						
Note: Torque check wheel nuts after the first 50 km and 150 km (and after every wheel removal).						
Torque check all nuts and bolts to recommended setting.			●			●
Check and adjust hub end-float (if required). Pack wheel bearings with fresh grease after 300,000 km or 36 month, whichever comes first. Check condition of taper roller bearings and replace, if necessary.					●	
Lubricate camshaft bearings after every brake lining replacement, however, at least every 12 months.						
Visual inspection for wear/damage						
Check suspension components for wear, fluid leakage and damage Check brake linings for wear **Check camshafts for free movement** Check slack adjusters for correct function Check braking system for leaks (brake applied) Check air suspension for air leaks Check air suspension bellows for damage Check piston surface for contamination and clean, if necessary Check parabolic springs for damage, scoring and corrosion Check self steering axle for correct function Check tyre wear and tracking (if required)			●	●		
Safety inspection						
Check wheel brakes for correct adjustment Check service brake and hand brake efficiency			●	●		
Check truck-trailer combination for brake compatibility Check service brake pressure to manufacturer's recommendation			●			●
Check air suspension for correct ride height. With 2 levelling valves, the max. permissible bellows pressure difference (LH to RH vehicle side) is 0.2 bar.			●	●		

Special service conditions

Vehicles with long standing periods:	service at specified time intervals
Vehicles used under extreme conditions:	service at suitably reduced intervals

Warranty claims will only be accepted as long as the operating and maintenance instructions have been complied with and if SAF approved spare parts have been fitted.

for SK RS / RZ 12242 axles

Hub end-float setting

Tighten hub nut (22) to a torque of 150 Nm at the same time rotating the hub and drum.

Locate the locking collar (23) onto the dowel on the hub nut noting the position of the dowel in relation to the collar. Remove the collar and turn the hub nut 2 1/2 holes anti-clockwise. Reverse the collar and re-locate it onto the repositioned hub nut dowel. Fit the lock nut (24) and tighten using a torque of 400 Nm.

Check whether the hub rotates freely and without excessive end-float (adjust if necessary).

Replace O-ring (39) and fit the wheel cap.

Lubricant specification:

Wheel bearings:
SAF parts no. 4 387 0011 05

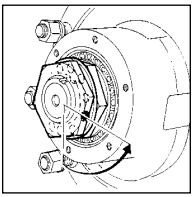
Camshaft:
SAF parts no. 4 387 0011 05

Stub axle:
SAF parts no. 4 387 0015 06
SAF fitting paste

Brake anchor bracket ball:
SAF parts no. 4 387 0007 00
Copper paste

Never mix different types or grades of grease!

Hub nut tightening



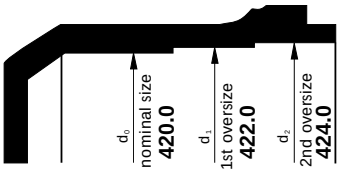
After brake relining, lubricate camshaft bearings whilst rotating the camshaft through 360° several times.

Do not disassemble the wheel bearing assembly.

Use a vacuum cleaner to remove brake dust.

Never use pressurised cleaning devices or cleaning fluids on the brake drum and hub.

Clean stub axle and apply fresh SAF fitting paste paste.



Brake type SNK 420

Max. permissible turned brake drum bore: 424.0 mm
Brake drum bore with max. permissible wear: 425.0 mm
SAF approved brake linings: BERAL 1541, BREMSKERL 6386

Turn new brake linings to brake drum bore dimension + 0.3 mm.
When renewing rivets, observe the manufacturer's instructions regarding the brake lining.

Brake size	SAF parts no. brake lining	Brake drum / brake lining refacing stages in mm			Brake linings	Rivets	DIN 7338 rivet
		Nominal size	1st oversize	2nd oversize	number per axle		
SNK 420		d_0-420.0	d_1-422.0	d_2-424.0			
x 180	1 057 0060 00 1 057 0061 00	20.6 20.0	21.6 21.0	22.6 22.0	4	64	B 8 x 15
x 200	1 057 0066 00 1 057 0067 00	20.6 20.0	21.6 21.0	22.6 22.0			

Assembly tools 12242	**SAF parts no.**
Hub nut spanner	2 012 0023 00
Hub puller	3 301 0010 00
Universal puller for wheel hub	4 434 3822 00
Bearing inner race	4 434 3820 00
Wheel bearing/oil seal inserter	3 434 3320 00
Sealing ring inserter	3 434 1036 00
Brake shoe clamping device	3 349 1001 00

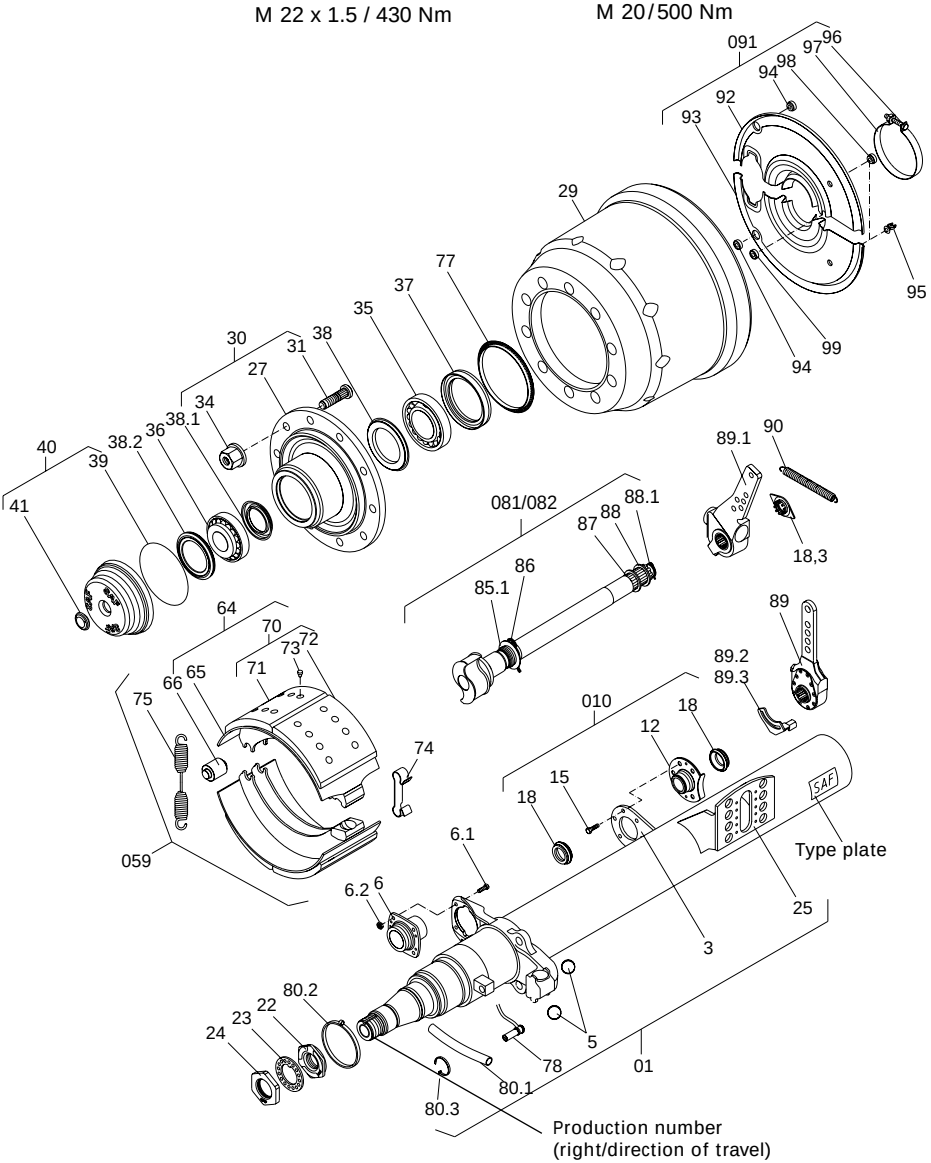
Exploded view of SK RS / RZ 12242 axle assembly
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 2 / 430 Nm
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24/700 Nm
M 22/650 Nm
M 20/500 Nm

Shock absorber:
M 24/400 Nm



SK RS / RZ 12242

Item	Parts designation
01	**Axle beam assembly** including items 3, 5,
3	Spherical mounting plate
5	Ball
6	Camshaft bearing, brake carrier side
6.1	Riffle bolt
6.2	Hex nut
010	**Camshaft bearing assembly,** linkage adjustment side including items 12, 15, 18
12	Camshaft bearing
15	Hex bolt
18	Bellows
18.3	Brake lining wear gauge
22	Hub nut with dowel
23	Circlip
24	Locknut
25	Brake cylinder support
27	Hub unit
29	Brake drum
30	**Wheel bolt assembly** including items 31 - 34
31	Riffle bolt
34	Wheel nut with pressure plate
35	Taper roller bearing
36	Taper roller bearing
37	Grease seal
38	Inner seal ring
38.1	Protective ring
38.2	Outer seal ring
39	O-ring
40	Hub cap, complete with items 39, 41
41	Plug
059	**Brake assembly** including items 64, 74 - 75
64	**Brake shoe assemlby** including items 65, 71 - 73
65	Brake shoe with item 66
66	Cam roller

Item	Parts designation
70	**Lining service group** including items 71, 72, 73
71	Brake lining, cam roller side
72	Brake lining, ball side
73	Rivet
74	Spring clip
75	Return spring
	with ABS
77	Exciter
78	ABS sensor
80.1	Protective hose
80.2	Clamp
80.3	Clamp
081	**Camshaft assembly (RH)** including items 18.3, 85.1 - 88.1
082	**Camshaft assembly (LH)** including items 18.3, 85.1 - 88.1
85.1	Disc spring
86	Spring clip
87	Washer
88	Washer
88.1	Spring clip
89	Mechanical slack adjuster
	with automatic adjustment
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
091	**Dust cover assembly** including items 92 - 99
92	Dust cover, RH
93	Dust cover, LH
94	Plug
95	Cable clamp
96	Hex bolt
97	Clamp
98	Plug
99	Rubber grommet, ABS

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

for K RS / RZ 14242 / 16242 axles

Service schedule		After first 5,000 km or	Periodic checks		
Whichever comes first — Mileage intervals >			every 30,000 km	every 90,000 km	every 150,000 km
Whichever comes first — Time intervals >		after first month	every 3 months	every 6 months	every 12 months
Mechanical check					
Note: Torque check wheel nuts after the first 50 km and 150 km (and after every wheel removal).					
Torque check all nuts and bolts to recommended setting.		●		●	
Check and adjust hub end-float (if required).				●	
Lubricate camshaft bearings after every brake lining replacement, however, at least every 12 months.					
Pack wheel bearings with fresh grease (also after every brake lining replacement, check wheel bearing wear).					●
Visual inspection for wear / damage					
Check suspension components for wear, fluid leakage and damage Check brake linings for wear **Check camshafts for free movement** Check slack adjusters for correct function Check braking system for leaks (brake applied) Check air suspension for air leaks Check air suspension bellows for damage Check piston surface for contamination and clean, if necessary Check parabolic springs for damage, scoring and corrosion Check self steering axle for correct function Check tyre wear and tracking (if required)		●	●		
Safety inspection					
Check wheel brakes for correct adjustment Check service brake and hand brake efficiency		●	●		
Check truck-trailer combination for brake compatibility Check service brake pressure to manufacturer's recommendation		●			●
Check air suspension for correct ride height. With 2 levelling valves, the max. permissible bellows pressure difference (LH to RH vehicle side) is 0.2 bar.		●	●		

Special service conditions

Vehicles with long standing periods:	service at specified time intervals
Vehicles used under extreme conditions:	service at suitably reduced intervals

Warranty claims will only be accepted as long as the operating and maintenance instructions have been complied with and if SAF approved spare parts have been fitted.

for K RS / RZ 14242 / 16242 axles

Hub end-float setting

Tighten hub nut while at the same time turning the hub until slight resistance is felt.

Now slacken the hub nut by 1/12 of a turn until the next locking position is reached. Secure with split pin.

Insert hub puller and pull hub back against outer bearing.

Pack hub cap thread with grease and refit hub cap.

Check whether the hub rotates freely and without excessive end-float (adjust if necessary).

Lubricant specification:

Wheel bearings:
SAF parts no. 4 387 0011 05

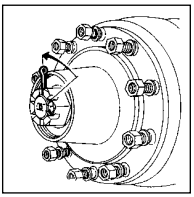
Camshaft:
SAF parts no. 4 387 0011 05

Stub axle:
SAF parts no. 4 387 0015 06
SAF fitting paste

Brake anchor bracket ball:
SAF parts no. 4 387 0007 00
Copper paste

Never mix different types or grades of grease!

Hub nut tightening



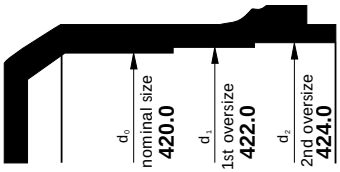
After brake relining, lubricate camshaft bearings whilst rotating the camshaft through 360° several times.

Do not disassemble the wheel bearing assembly.

Use a vacuum cleaner to remove brake dust.

Never use pressurised cleaning devices or cleaning fluids on the brake drum and hub.

Clean stub axle and apply fresh SAF fitting paste.



Brake type SNK 420

Max. permissible turned brake drum bore: 424.0 mm
Brake drum bore with max. permissible wear: 425.0 mm
SAF approved brake linings: BERAL 1541, BREMSKERL 6386
Turn new brake linings to brake drum bore dimension + 0.3 mm.
When renewing rivets, observe the manufacturer's instructions regarding the brake lining.

Brake size	SAF parts no. brake lining	Brake drum / brake lining refacing stages in mm			Brake linings	Rivets	DIN 7338 rivet
		Nominal size	1st oversize	2nd oversize	number per axle		
SNK 420		d_0-420.0	d_1-422.0	d_2-424.0			
x 180	1 057 0060 00 1 057 0061 00	20.6 20.0	21.6 21.0	22.6 22.0	4	64	B 8 x 15
x 200	1 057 0066 00 1 057 0067 00	20.6 20.0	21.6 21.0	22.6 22.0			

Assembly tools	**SAF parts no.**	
Axle types	**14242**	**16242**
Hub nut spanner	1 012 0011 01	1 012 0013 00
Hub puller	3 301 0006 02	3 301 0007 01
Universal puller for wheel hub	4 434 3822 00	4 434 3822 00
Bearing inner race	4 434 3815 00	4 434 3816 00
Wheel bearing/oil seal inserter	3 434 3300 00	3 434 3301 00
Brake shoe clamping device	3 349 1001 00	3 349 1001 00
Puller for MS bushing Ø 46 mm	1 434 1056 00	1 434 1056 00
Bushing tool Ø 50/46 mm and Ø 42/38 mm	1 434 1055 00	1 434 1055 00

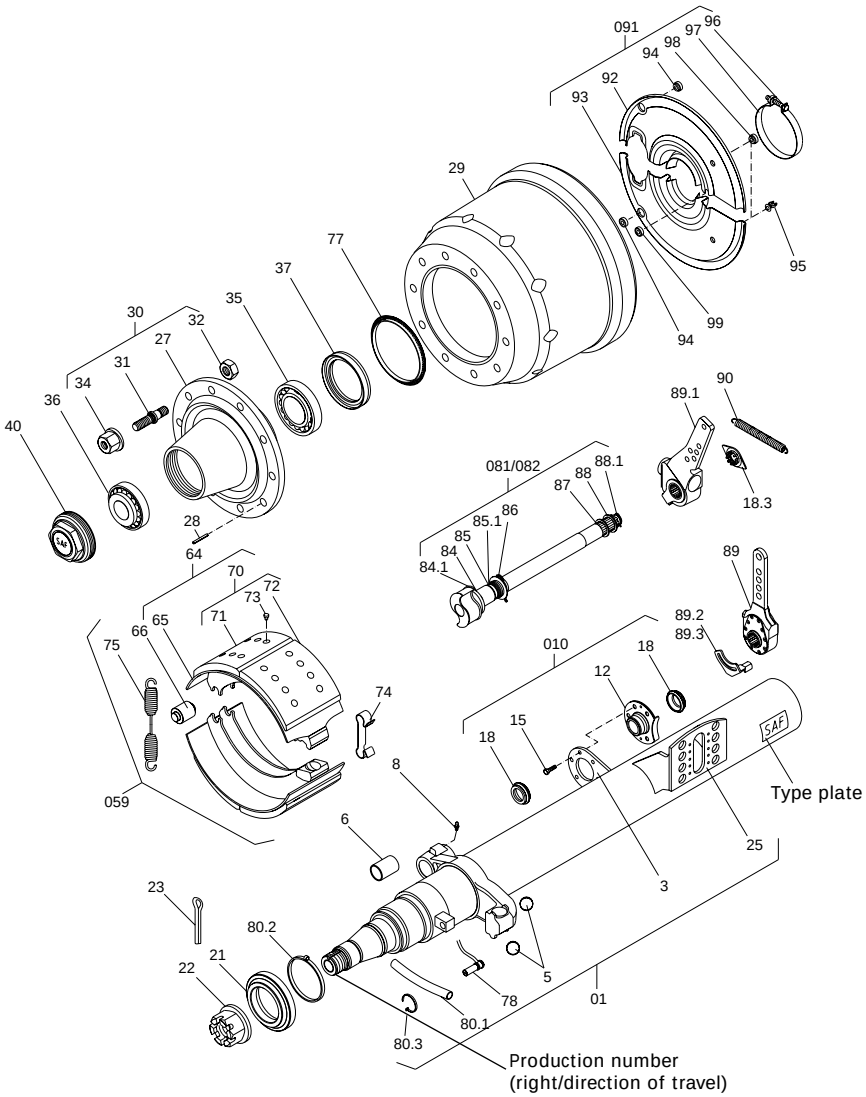
Exploded view of K RS / RZ 14242 / 16242 axle assembly
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 2 / 430 Nm
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24 / 700 Nm
M 22 / 650 Nm
M 20 / 500 Nm

Shock absorber:
M 24 / 400 Nm



K RS / RZ 14242 / 16242

Item	Parts designation
01	**Axle beam assembly** including items 3, 5, 6, 8
3	Spherical mounting plate
5	Ball
6	Bearing bush
8	Grease nipple
010	**Camshaft bearing assembly,** linkage adjustment side including items 12, 15, 18
12	Camshaft bearing
15	Hex bolt
18	Bellows
18.3	Brake lining wear gauge
21	Thrust washer
22	Hub nut
23	Splint pin
25	Brake cylinder support
27	Hub unit
28	Grooved pin
29	Brake drum
30	**Wheel bolt assembly** including items 31 - 34
31	Wheel bolt
32	Hex nut
34	Wheel nut with pressure plate
35	Taper roller bearing
36	Taper roller bearing
37	Grease seal
40	Hub cap
059	**Brake assembly** including items 64, 74 - 75
64	**Brake shoe assembly** including items 65, 71 - 73
65	Brake shoe with item 66
66	Cam roller
70	**Lining service group** including items 71, 72, 73
71	Brake lining, cam roller side
72	Brake lining, ball side
73	Rivet
74	Spring clip
75	Return spring
	with ABS
77	Exciter
78	ABS sensor
80.1	Protective hose
80.2	Clamp
80.3	Clamp
081	**Camshaft assembly (RH)** including items 18.3, 84 - 88.1
082	**Camshaft assembly (LH)** including items 18.3, 84 - 88.1
84	O-ring
84.1	Spacer ring
85	Seal ring
85.1	Disc spring
86	Spring clip
87	Washer
88	Washer
88.1	Spring clip
89	Mechanical slack adjuster
	with automatic adjustment
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
091	**Dust cover assembly** including items 92 - 99
92	Dust cover, RH
93	Dust cover, LH
94	Plug
95	Cable clamp
96	Hex bolt
97	Clamp
98	Plug
99	Rubber grommet, ABS

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

for SAF Disc brakes, axle types SK RS / RZ 9022 K / 11222 K (22.5“) and 9019 K / 11019 K (19.5“)

Service schedule		after first 5,000 km	Periodic checks	
	Mileage intervals >		every 30,000 km	every 150,000 km
Whichever comes first	Time intervals >	after first month	every 3 months	every 12 months
Mechanical check				
Note: Torque check wheel nuts after the first 50 km and 150 km (and after every wheel removal).				
Torque check all nuts and bolts to recommended setting.		●		●
Hub end-float adjustment not required. Pack wheel bearings with fresh grease after 500,000 km or 50 months, whichever comes first. Check condition of taper roller bearings and replace, if necessary.				
Visual inspection for wear / damage				
Check suspension components for wear, fluid leakage and damage				
Check brake linings for wear **(Inspect all rubber sealing elements on the brake calliper when replacing brake linings)**				
Check brake system for leaks (operate brakes)				
Check air suspension system for leaks		●	●	
Check air bag for damage				
Clean piston surface, if soiled				
Check parabolic springs for corrosion and damage				
Check self steering axle for correct function				
Check tyre wear and track widths, if required				
Safety inspection				
Check wheel brakes for correct adjustment Check service brake and hand brake efficiency		●	●	
Check truck-trailer combination for brake compatibility Check service brake pressure to manufacturer’s recommendation		●		●
Check air suspension for correct ride height. With 2 levelling valves, the max. permissible bellows pressure difference (LH to RH vehicle side) is 0.2 bar.		●	●	

Special service conditions

Vehicles with long standing periods:	service at specified time intervals
Vehicles used under extreme conditions:	service at suitably reduced intervals

Warranty claims will only be accepted as long as the operating and maintenance instructions have been complied with and if SAF approved spare parts have been fitted.

for SK RS / RZ 9022 K / 11222 K (22.5“) and 9019 K / 11019 K (19.5“) axles

Hub end float setting, lubricant

Hub end float adjustment is not necessary.

Replace wheel bearing grease after 500,000 km or 50 months, whichever comes first.

Check condition of taper roller bearings at grease change and replace, if necessary.

Replace O-ring (39) and fit the wheel cap.

After brake relining, observe the following points:

Inspect the seals on the brake calliper. Do not dismantle the wheel bearing assembly. Never use high-pressure cleaners or cleaning fluids on the brake disc or wheel hub.

Clean stub axle of any old grease and apply fresh SAF fitting paste.

Lubricant specification:

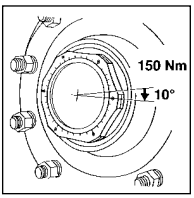
Wheel bearings:
SAF parts no. 4 387 0011 05

Tappet boots and brass bushes:
SAF parts no. 4 387 0016 00

Rubber guide bush (70.3):
SAF parts no. 4 387 0017 01

Stub axle:
SAF parts no. 4 387 0015 06
SAF fitting paste

Hub nut tightening



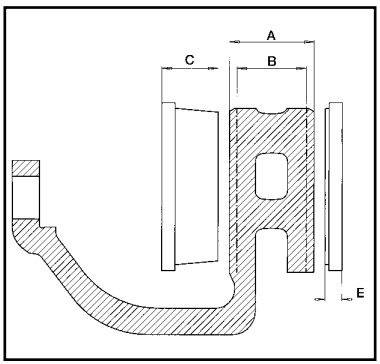
LH direction of travel - LH thread.

RH direction of travel - RH thread.

Pretighten to 150 Nm whilst rotating wheel hub and disc.

For final torque, continue tightening through one more scale line (10 °).

Hub nuts with LH threads are marked with a groove milled into the hex outside.



NOTE!
Failure to observe these instructions may result in an accident risk! Worn brake linings or excessively worn brake discs result in a reduction in the braking efficiency or in a complete failure of the brake system.

Brake type	Thickness of brake disc “A”	Wear limit of brake disc “B”	Thickness of linings “C”	Lining wear “E”	Disc diameter in mm	No. of brake pads per axle
SB7 22.5“	45	≤37	30	11	430	4
SB6 19.5“	45	≤37	30	11	377	4

Item No.		Tightening torque (Nm)	Spanner size (W.A.F.)	Hexagon outside	Hexagon inside
70.6 + 70.7	Guide bearing on brake calliper 2 hex. socket head screws M16 x 1.5 - 10,9	290	14	–	X
	Diaphragm/combination cylinder 2 hex. nuts M16 x 1.5	210	24	X	–
	Brake calliper mounting on axle body M16 x 1.5 x 55	290	24	X	–

Assembly tools	**SAF parts no.**
Hub nut spanner	1 012 0024 00
Puller for wheel hub	4 434 3822 00
Lever for wheel hub	1 434 1041 00

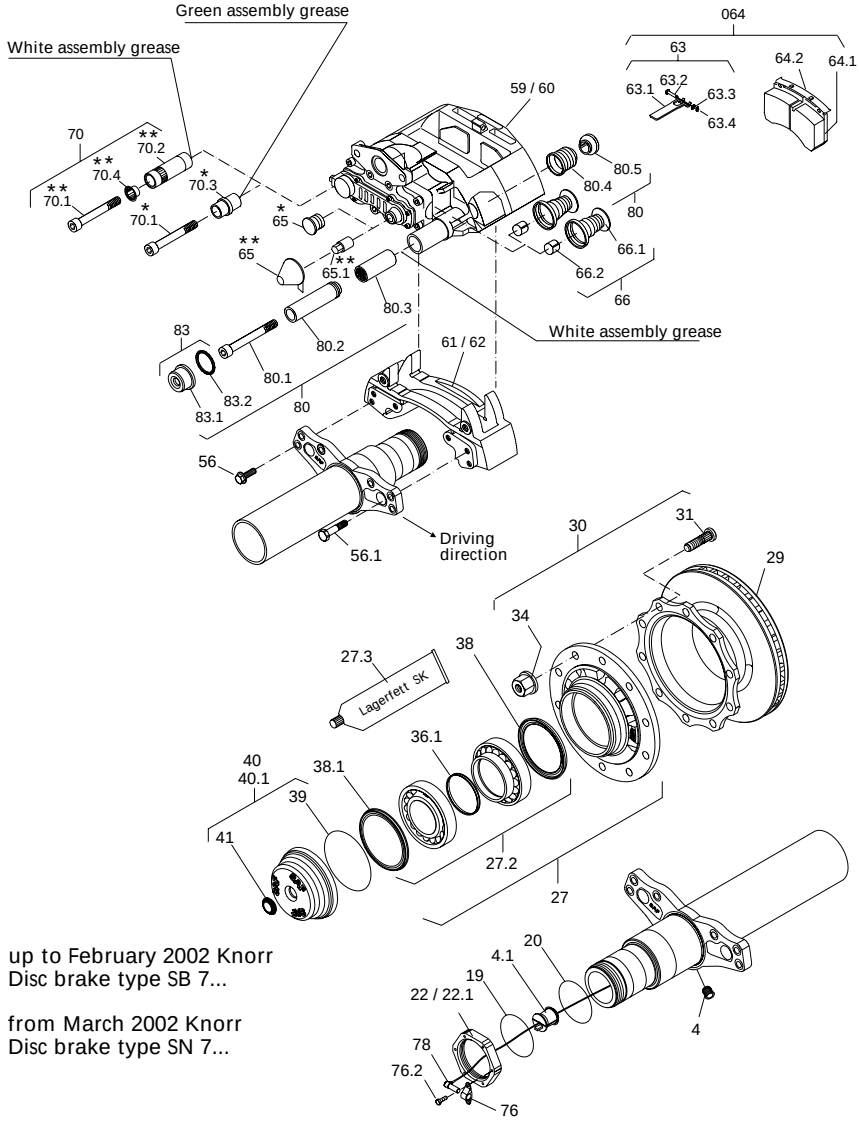
Exploded view of SK RS / RZ 9022 K / 11222 K / 9019 K / 11019 K Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 22/650 Nm

Shock absorber:
M 24/400 Nm



* up to February 2002 Knorr Disc brake type SB 7...

** from March 2002 Knorr Disc brake type SN 7...

SK RS / RZ 9022 K / 11222 K / 9019 K / 11019 K

Item	Parts designation
01	**Axle beam assembly**
4	Protective plug ABS
4.1	Protective plug axle tube
19	O-ring
20	O-ring
22	Axle nut, RH
22.1	Axle nut, LH
27	**Wheel hub unit, complete including item 27.2**
27.2	Wheel bearing repair kit including items 27.3, 38 - 38.1
27.3	Bearing grease
29	Brake disc
30	**Wheel bolt assembly** including items 31 - 34 Bush 1 095 1040 00 not included
31	Wheel bolt
34	Wheel bolt nut
38	Seal ring
38.1	Seal ring
39	O-ring
40	**Wheel cap** including items 39, 41
40.1	Wheel cap with pole wheel
41	Plug
56	Hex bolt
56.1	Shoulder bolt

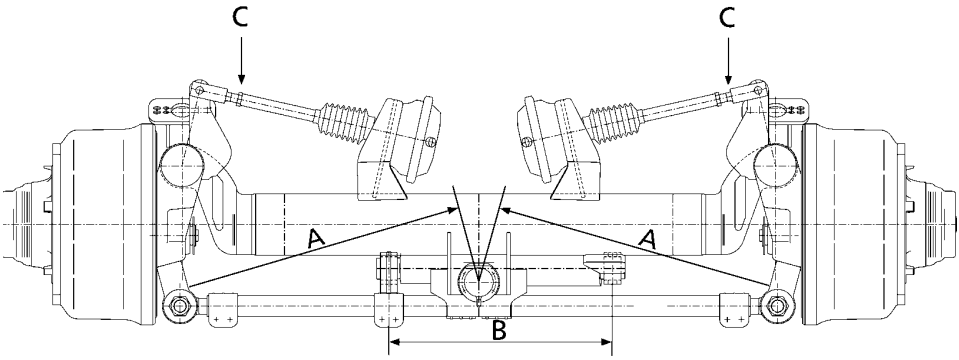
Item	Parts designation
59/60	**Brake calliper assembly** including items 61/62, 65, 66, 70, 81
064	Brake pad set including items 63, 64.1, 64.2
66	Tappet with boot including items 66.1 - 66.2
70	**Guide pin group** including items 70.1 - 70.4
	with ABS
76	Bracket sensor
76.2	Hex bolt
78	ABS sensor
80	**Guide pin group (folding bellows)** including items 80.1 - 80.3, 82
81	**Guide pin group (steel cap)** including items 80.4 - 80.5, 81.1 - 81.2, 83
	This guide pin group 81 should, where possible, be used for repairs.
	Important: Check the sliding action of the calliper housing for free movement over the total range, with pads removed.

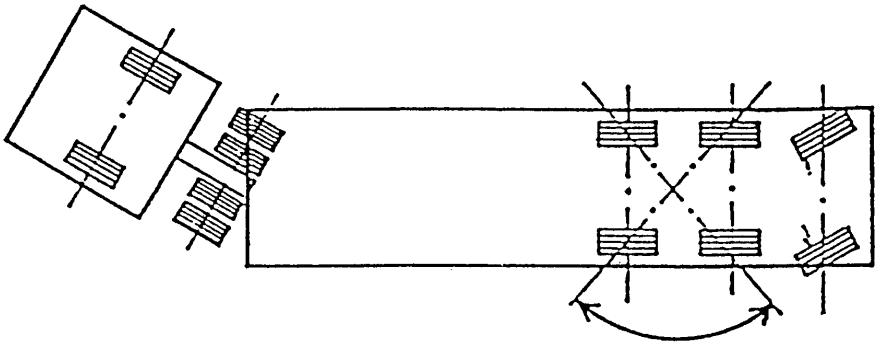
Repair kits for SAF disc brakes SK RS / RZ 9022 K / 11222 K / 9019 K / 11019 K

The following repair kits are available:

Designation	Content (Item No.)
AT brake calliper, RH	incl. pads
AT brake calliper, LH	incl. pads
AT brake calliper, RH	without pads
AT brake calliper, LH	without pads
Brake calliper carrier with guide kit, RH	61, 70, 81
Brake calliper carrier with guide kit, LH	62, 70, 81
Guide pin group (folding bellows)	80
Guide pin group (steel cap)	81
Guide pin group	70
Tappet with boot	66.1, 66.2
Brake pad retainer kit (per axle)	064
Cap for clearence adjuster (4 caps SB 7...)	65*
Cap for clearence adjuster (4 caps SN 7...)	65**, 65.1**

All kits available only as complete sets!


C
C
A
A
B



- Adjust dimension “A” to the same length on both sides.
  Watch toe-in (approx. 4.0 mm).
- Set dimension “B” to a length of 537 mm. The reversing lock must be engaged.
- Check seat of piston rods in stabilizing cylinders, applying stabilizing pressure (min. 2 bar). If there is any play, adjust “C”.
- When working on the tracking of the vehicle, stabilising pressure must be applied to the cylinders and the air suspension must be adjusted to the correct height.
- Tighten all bolts to the specified torque, securing nuts with split pins.

Attention:

Make sure there is no load on the axle when lubricating the steering knuckle bearing.

Grease the first time after 1 month, then every 6 months.

LEAD systems have no stabilizing cylinders (530).
Adjustment dimension “B” of the LEAD damper at 537 mm, when engaged in the straight-line position for the trailing steering-axle and the reversing-block.

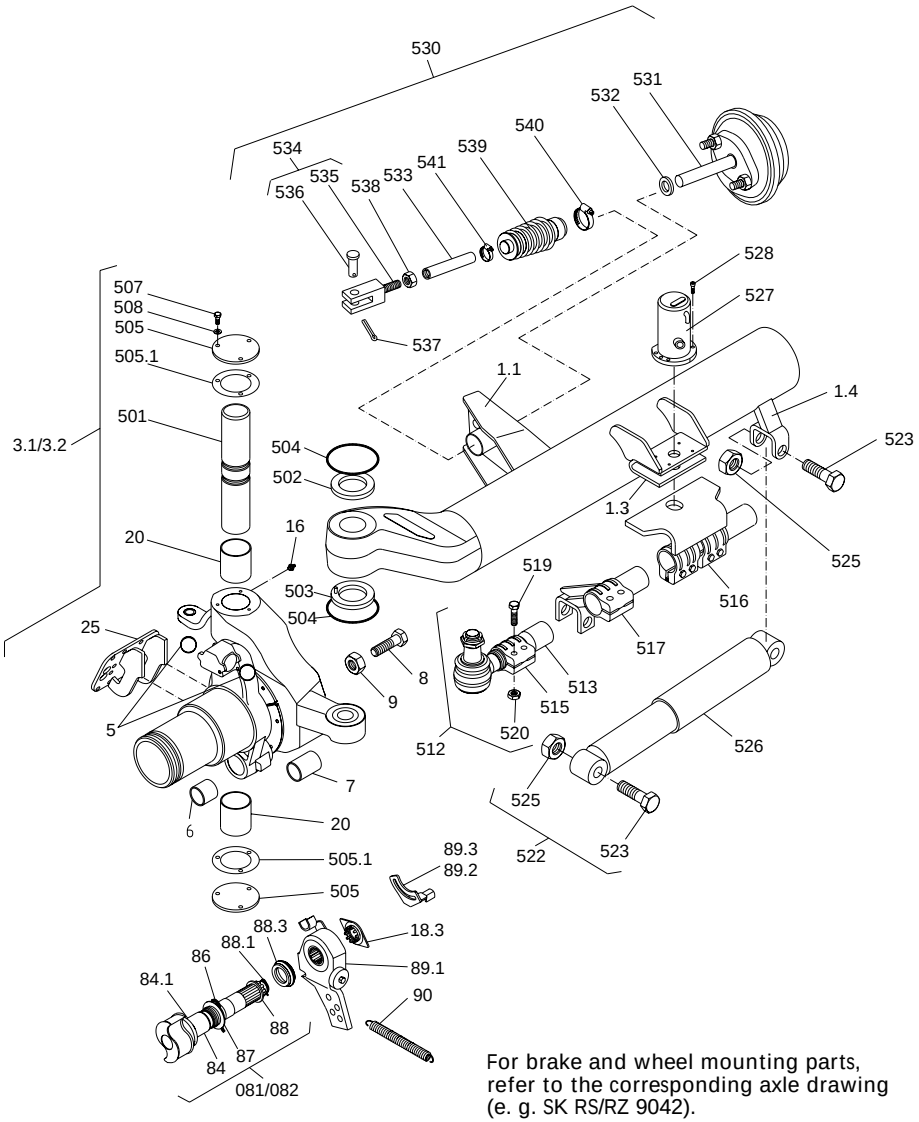
Exploded view of SK RLS 9042 / 11242
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24/700 Nm
M 22/650 Nm

Shock absorber:
M 24/400 Nm



For brake and wheel mounting parts, refer to the corresponding axle drawing (e. g. SK RS/RZ 9042).

SK RLS 9042 / 11242

Item	Parts designation
01	**Axle beam assembly** including items 1.1 - 1.4
1.1	Mounting bracket LH
1.2	Mounting bracket RH
1.3	Reversing lock, complete
1.4	Damper connection
3.1	**Steering knuckle assembly, LH** including items 4 - 9, 16 - 17, 19 - 20, 22.1, 25, 501 - 506
3.2	**Steering knuckle assembly, RH** including items 4 - 9, 16 - 17, 19 - 20, 22, 25, 501 - 506
4	Bush
5	Ball
6	Bearing bush
7	Bearing bush
8	Hex bolt
9	Hex nut
16	Grease nipple
17	Grease nipple
18.3	Brake lining wear gauge
20	Bearing bush
25	Mounting bracket
66	Cam roller
81	**Camshaft assembly (RH)** including items 18.3, 84 - 88.3
82	**Camshaft assembly (LH)** including items 18.3, 84 - 88.3
84	O-ring
84.1	Spacer ring
86	Lock ring
87	Washer
88	Washer
88.1	Spring clip
88.3	Bellows
	with automatic adjustment
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
501	Pivot pin
502	Pressure plate, top
503	Pressure plate, bottom
504	O-ring
505	Cover plate
505.1	Gasket
506	**Bolt kit** including items 507 - 508
507	Hex bolt
508	Spring washer
512	**Tie-rod assembly** including items 513 - 515, 518
513	Tie-rod tube
514	Ball joint, LH Ball joint, RH
515	Clamp
516	Clamping plate
517	Clamping fork
518	**Bolt kit** including items 519 - 520
519	Hex bolt
520	Lock nut
522	**Bolt kit** including items 523, 525
523	Hex bolt
525	Lock nut
526	Steering damper
527	Blocking cylinder
528	Cylinder screw
530	**Steering control differential** including items 531 - 533, 534, 538 - 541
531	Membrane cylinder
532	Bevelled washer
533	Push rod
534	**Yoke assembly** including items 535 - 537
535	Yoke
536	Clevis pin
537	Split pin
538	Hex nut
539	Bellows
540	Clamp
541	Clamp

Trailing steering axle with LEAD system. (LEAD = damping effect as a function of steering lock angle). Steering stabilization is effected via the steering damper, i.e. item 530 (Steering control differential) is no longer required. Adjustment dimension “B” of the LEAD damper at 537 mm, when engaged in the straight-line position for the trailing steering-axle.

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

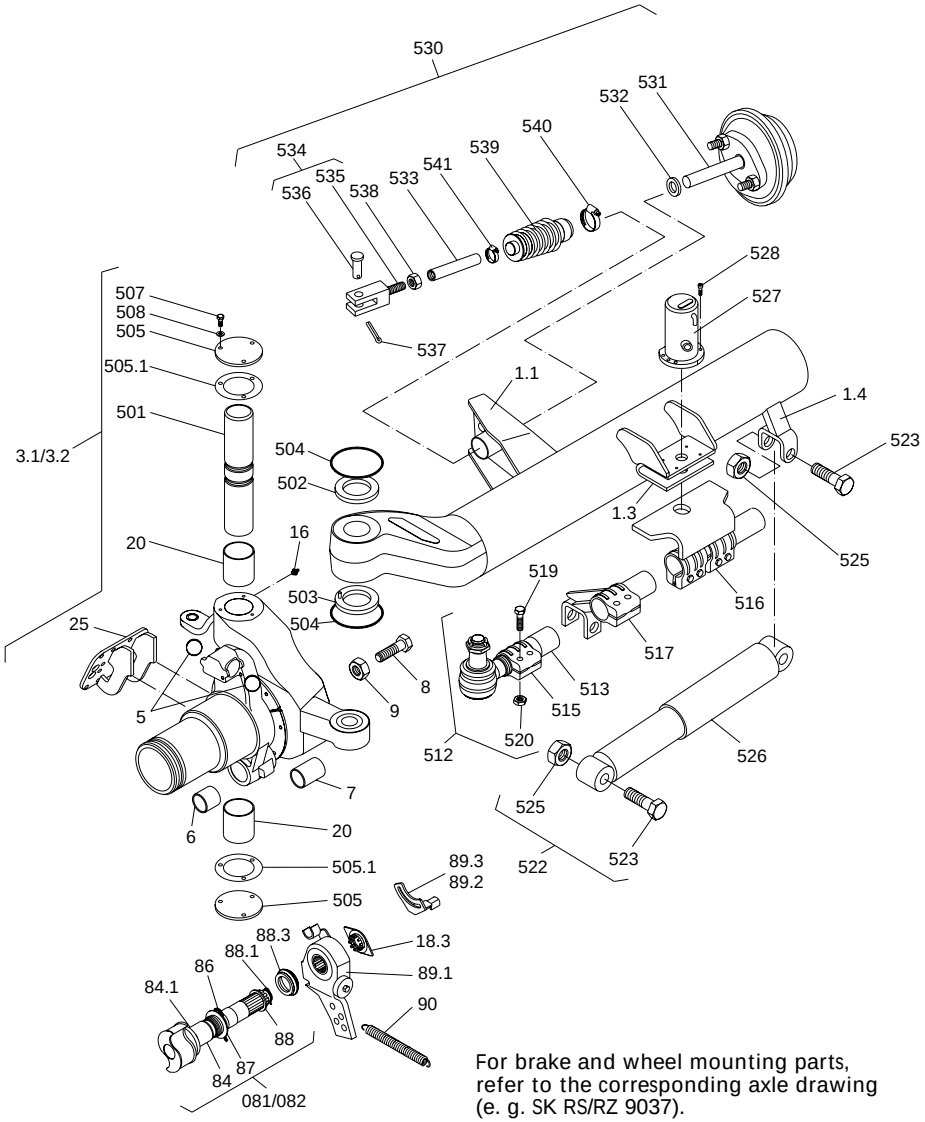
Exploded view SK RLZ 9037 / 11037 axle assembly
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24/700 Nm
M 22/650 Nm

Shock absorber:
M 24/400 Nm



For brake and wheel mounting parts, refer to the corresponding axle drawing (e. g. SK RS/RZ 9037).

SK RLZ 9037 / 11037

Item	Parts designation
01	**Axle beam assembly** including items 1.1 - 1.3
1.1	Mounting bracket LH
1.2	Mounting bracket RH
1.3	Reversing lock, complete
1.4	Damper connection
3.1	**Steering knuckle assembly, LH** including items 4 - 9, 16 - 20, 22.1, 25, 501 - 506
3.2	**Steering knuckle assembly, RH** including items 4 - 9, 16 - 20, 22, 25, 501 - 506
4	Bush
5	Ball
6	Bearing bush
7	Bearing bush
8	Hex bolt
9	Hex nut
16	Grease nipple
17	Grease nipple
18.3	Brake lining wear gauge
25	Mounting bracket, LH Mounting bracket, RH
81	**Camshaft assembly (RH)** including items 18.3, 84 - 88.3
82	**Camshaft assembly (LH)** including items 18.3, 84 - 88.3
84	O-ring
84.1	Spacer ring
86	Circlip
87	Washer
88	Washer
88.1	Spring clip
88.3	Bellows

Item	Parts designation
	<u>with automatic adjustment</u>
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
501	Pivot pin
502	Pressure plate, top
503	Pressure plate, bottom
504	O-ring
505	Cover plate
505.1	Gasket
506	**Bolt kit** including items 507 - 508
507	Hex bolt
508	Spring washer
512	**Tie-rod assembly** including items 513 - 515, 518
513	Tie-rod tube
514	Ball joint, LH Ball joint, RH
515	Clamp
516	Clamping plate
518	**Bolt kit** including items 519 - 520
519	Hex bolt
520	Hex nut
527	Blocking cylinder
528	Cylinder screw
530	**Steering control differential** including items 531 - 533, 534, 538 - 541
531	Membrane cylinder
532	Bevelled washer
533	Push rod including items 535 - 537

Item	Parts designation
534	**Yoke assembly** including items 535 - 537
535	Yoke
536	Clevis pin
537	Splint pin
538	Hex nut
539	Bellows
540	Clamp
541	Clamp

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

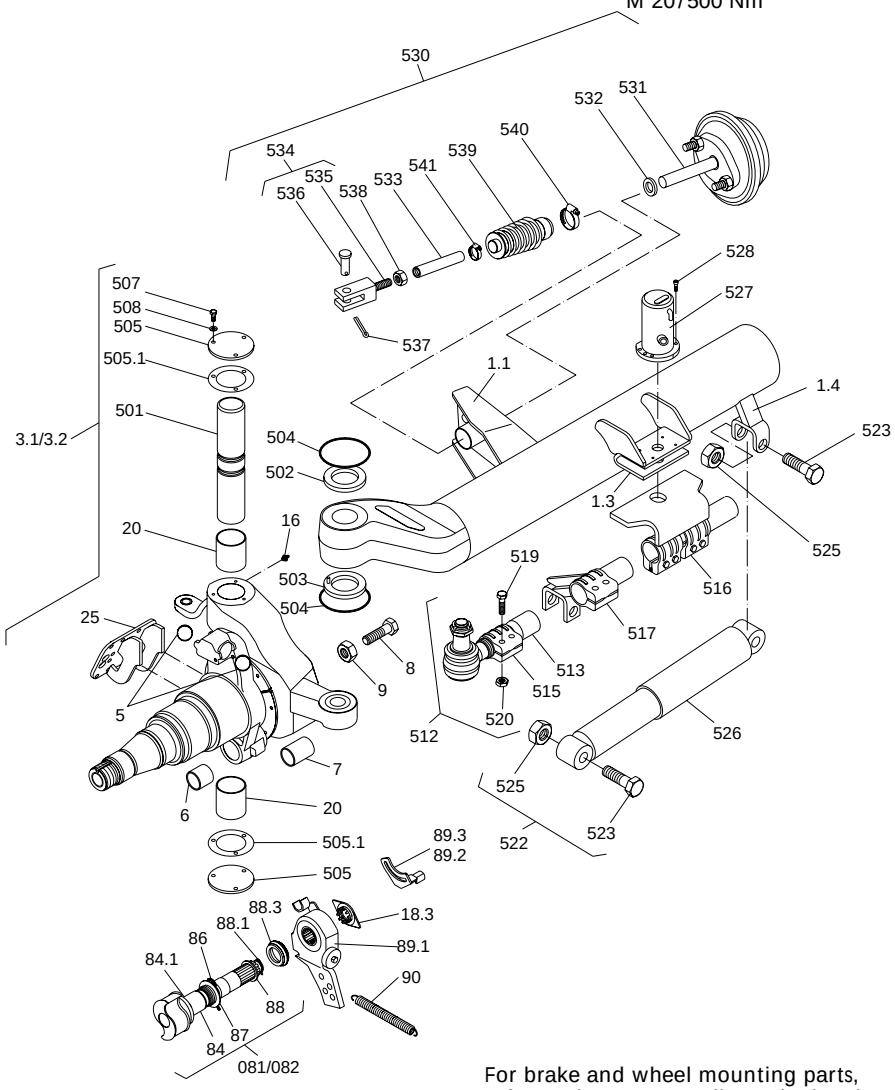
Exploded view SK RLZ 9030 / 11030 axle assembly
Torque wrench settings

Use torque wrench.
The use of impact wrenches is not accepted.

Wheel nuts:
Spigot-hub-centred fixing:
M 22 x 1.5 / 600 Nm
Bolt-centred fixing:
M 22 x 1.5 / 430 Nm

U-bolts:
(diagonally in three stages)
M 24/700 Nm
M 22/650 Nm
M 20/500 Nm

Shock absorber:
M 24/400 Nm



For brake and wheel mounting parts, refer to the corresponding axle drawing (e. g. SK RS/RZ 9030).

SK RLZ 9030 / 11030

Item	Parts designation
01	**Axle beam assembly** including items 1.1 - 1.3
1.1	Mounting bracket, LH
1.2	Mounting bracket, RH
1.3	Reversing lock, complete
1.4	Damper connection
3.1	**Steering knuckle assembly LH** including items 4 - 9, 16 - 20, 22.1, 25, 501 - 506
3.2	**Steering knuckle assembly RH** including items 4 - 9, 16 - 20, 22, 25, 501 - 506
4	Bush
5	Ball
6	Bearing bush
7	Bearing bush
8	Hex bolt
9	Hex nut
16	Grease nipple
17	Grease nipple
18.3	Brake lining wear gauge
25	Mounting bracket, LH Mounting bracket, RH
81	**Camshaft assembly (RH)** including items 18.3, 84 - 88.3
82	**Camshaft assembly (LH)** including items 18.3, 84 - 88.3
84	O-ring
84.1	Spacer ring
86	Lock ring
87	Washer
88	Washer
88.1	Spring clip
88.3	Bellows

Item	Parts designation
	<u>with automatic adjustment</u>
89.1	Automatic slack adjuster
89.2	Anchor plate, RH
89.3	Anchor plate, LH
90	Return spring
501	Pivot pin
502	Pressure plate, top
503	Pressure plate, bottom
504	O-ring
505	Cover plate
505.1	Gasket
506	**Bolt kit** including items 507 - 508
507	Hex bolt
508	Spring washer
512	**Tie-rod assembly** including items 513 - 515, 518
513	Tie-rod tube
514	Ball joint, LH Ball joint, RH
515	Clamp
516	Clamping plate
518	**Bolt kit** mit Teilen 519 - 520
519	Hex bolt
520	Lock nut
527	Blocking cylinder
528	Cylinder screw
530	**Steering control differential** including items 531 - 533, 534, 538 - 541
531	Membrane cylinder
532	Bevelled washer
533	Push rod

Item	Parts designation
534	**Yoke assembly** including items 535 - 537
535	Yoke
536	Clevis pin
537	Splint pin
538	Hex nut
539	Bellows
540	Clamp
541	Clamp

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

Air Suspension Series M

Torque wrench settings

Refer to appropriate axle type maintenance chart for more detailed maintenance instructions.

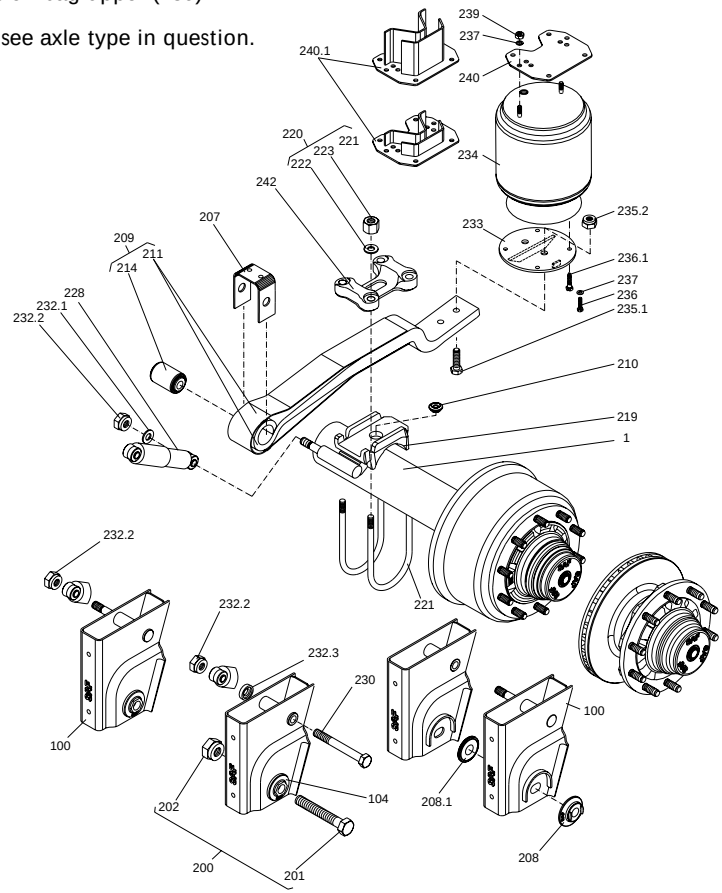
Maximum adjustment of hanger bracket using eccentric bush (208): ± 6 mm

Tightening directions:
Tighten spring seat and shock absorber fixings at the ride height. Parts are ready to be assembled – the threads must not be oiled or greased!

Pivot clamping bolt assembly
Torque – tightening procedure Pre-tighten to 400 Nm + final tightening torque 120° (see page 44)
120° rotation (2 flats of the nut)

Shock absorber fixing (232.2):	400 Nm
Air bag hexagon head bolt (steel immersion piston 236):	80 Nm
Air bag self-tapping bolt (plastic immersion piston 236.1):	20 Nm
Air bag mounting bolt (235.2):	180 Nm
Air suspension bag upper (239):	40 Nm

U-bracket, see axle type in question.



Air Suspension Series M

Item	Parts designation
1	**Axle assembly**
100	**Front hanger bracket**
104	Spigot flange
200	**Hex bolt assembly** including items 201, 202
201	Hex bolt M30
202	Lock nut M30
207	U-Profiles
208	Eccentric bush
208.1	Thrust washer
209	**Trailing arm spring assembly** including items 211, 214
210	Thrust block
211	Retainer plate
214	Bearing bush HD
219	Spring seat
220	**U-bolt kit** including items 221 - 223
221	U-bolt
222	Washer
223	Hex nut
228	Shock absorber
230	Hex bolts
232.1	Washer
232.2	Hex nut
232.3	U-washer
233	Mounting plate
234	Air bellows
235.1	Hex bolt
235.2	Lock nut
236	Hex bolt
236.1	Self-tapping screw
237	Spring washer
239	Hex nut
240	Mounting plate
240.1	Air suspension mounting bracket
242	Clamping plate

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

Air Suspension – Series O

Torque wrench settings

Refer to appropriate axle type maintenance chart for more detailed maintenance instructions.

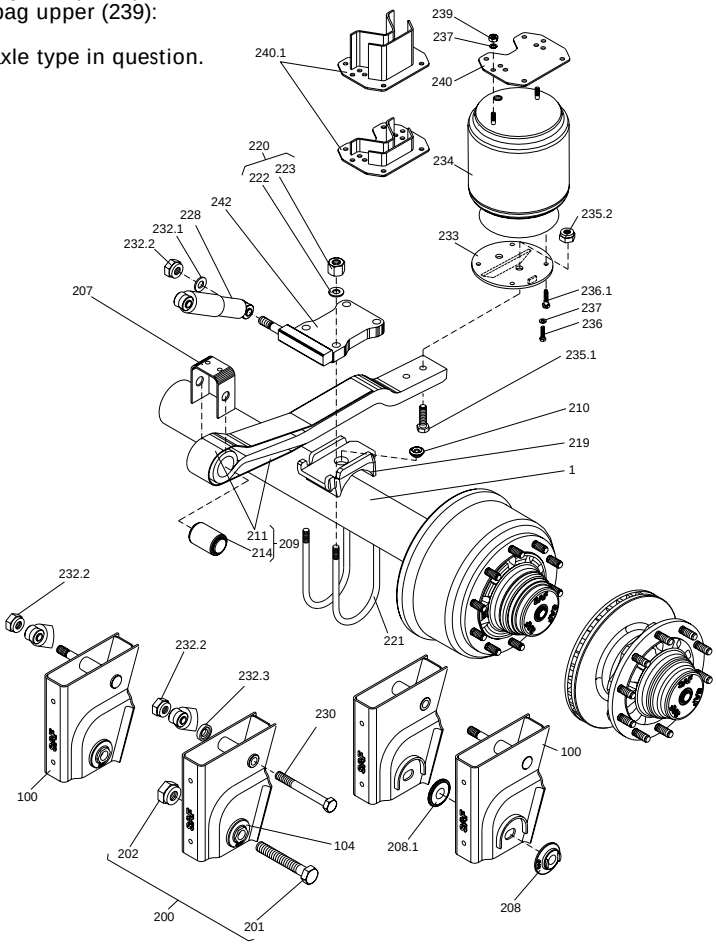
Maximum adjustment of hanger bracket using eccentric bush (208): ± 6 mm

Tightening directions:
Tighten spring seat and shock absorber fixings at the ride height. Parts are ready to be assembled – the threads must not be oiled or greased!

Pivot clamping bolt assembly
Torque – tightening procedure Pre-tighten to 400 Nm + final tightening torque 120° (see page 44)
120° rotation (2 flats of the nut)

Shock absorber fixing (232.2):	400 Nm
Air bag hexagon head bolt (steel immersion piston 236):	80 Nm
Air bag self-tapping bolt (plastic immersion piston 236.1):	20 Nm
Air bag mounting bolt (235.2):	180 Nm
Air suspension bag upper (239):	40 Nm

U-bracket, see axle type in question.



Air Suspension – Series O

Item	Parts designation
1	**Axle assembly**
100	**Front hanger bracket**
104	Spigot flange
200	**Hex bolt assembly** including items 201, 202
201	Hex bolt M30
202	Lock nut M30
207	U-Profiles
208	Eccentric bush
208.1	Thrust washer
209	**Trailing arm spring assembly** including items 211, 214
210	Thrust block
211	Retainer plate
214	Bearing bush HD
219	Spring seat
220	**U-bolt kit** including items 221 - 223
221	U-bolt
222	Washer
223	Hex nut
228	Shock absorber
230	Hex bolts
232.1	Washer
232.2	Hex nut
232.3	U-washer
233	Mounting plate
234	Air bellows
235.1	Hex bolt
235.2	Lock nut
236	Hex bolt
236.1	Self-tapping screw
237	Spring washer
239	Hex nut
240	Mounting plate
240.1	Air suspension mounting bracket
242	Clamping plate

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

Air Suspension – Series U

Torque wrench settings

Refer to appropriate axle type maintenance chart for more detailed maintenance instructions.

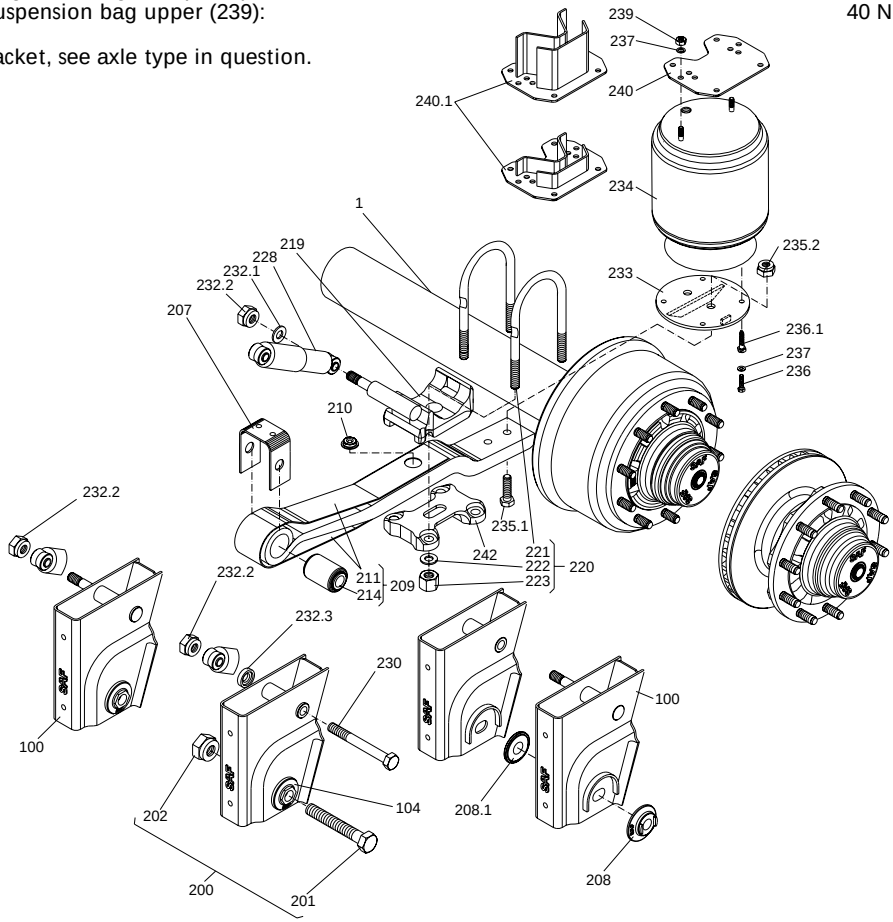
Maximum adjustment of hanger bracket using eccentric bush (208): ± 6 mm

Tightening directions:
Tighten spring seat and shock absorber fixings at the ride height. Parts are ready to be assembled – the threads must not be oiled or greased!

Pivot clamping bolt assembly
Torque – tightening procedure Pre-tighten to 400 Nm + final tightening torque 120° (see page 44)
120° rotation (2 flats of the nut)

Shock absorber fixing (232.2):	400 Nm
Air bag hexagon head bolt (steel immersion piston 236):	80 Nm
Air bag self-tapping bolt (plastic immersion piston 236.1):	20 Nm
Air bag mounting bolt (235.2):	180 Nm
Air suspension bag upper (239):	40 Nm

U-bracket, see axle type in question.



Air Suspension – Series U

Item	Parts designation
1	**Axle assembly**
100	**Front hanger bracket**
104	Spigot flange
200	**Hex bolt assembly** including items 201, 202
201	Hex bolt M30
202	Lock nut M30
207	U-Profiles
208	Eccentric bush
208.1	Thrust washer
209	**Trailing arm spring assembly** including items 211, 214
210	Thrust block
211	Retainer plate
214	Bearing bush HD
219	Spring seat
220	**U-bolt kit** including items 221 - 223
221	U-bolt
222	Washer
223	Hex nut
228	Shock absorber
230	Hex bolts
232.1	Washer
232.2	Hex nut
232.3	U-washer
233	Mounting plate
234	Air bellows
235.1	Hex bolt
235.2	Lock nut
236	Hex bolt
236.1	Self-tapping screw
237	Spring washer
239	Hex nut
240	Mounting plate
240.1	Air suspension mounting bracket
242	Clamping plate

When ordering spare parts quote correct axle identification serial no., refer to the axle type plate.

Pivot clamping bolt assembly - tightening instruction

For spring brackets made of steel the bearing screw connections require no maintenance. Further adjustments are not necessary. Torque control setting is equal to 1200 Nm.

For spring brackets made of aluminium the bearing screw connections should be checked i.e. adjusted in 6 months intervals. Torque control setting is equal to 1200 Nm.

REPAIR

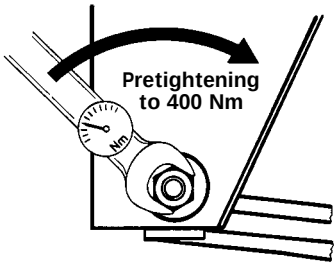
It may be necessary, e.g. during repair work, to undo the pivot clamping bolt assembly. In this case, the following combined torque/angle tightening method must be used for reassembly:

Preparatory steps:

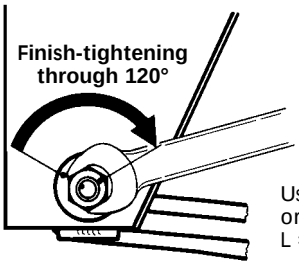
- Carefully clean all mating surfaces of pivot HD bush from oil and grease to prevent damage to rubber joints.
- Assemble pivot clamping bolt assembly as shown in the drawing.
- Adjust ride height according to vehicle manufacturer's specifications.

AIR SPRING

1. **Pretightening torque**
   Use a torque wrench for pretightening the lock nut to 400 Nm (width across flats: 46).



2. **Angle tightening to final torque**
   Continue turning nut through 120° (two flats). Correctly following this procedure means no further tightening will be necessary.



Use an impact wrench or extend lever to L = 2.5 m

Apply marking and inspect visually

Air suspension - adjusting the ride height

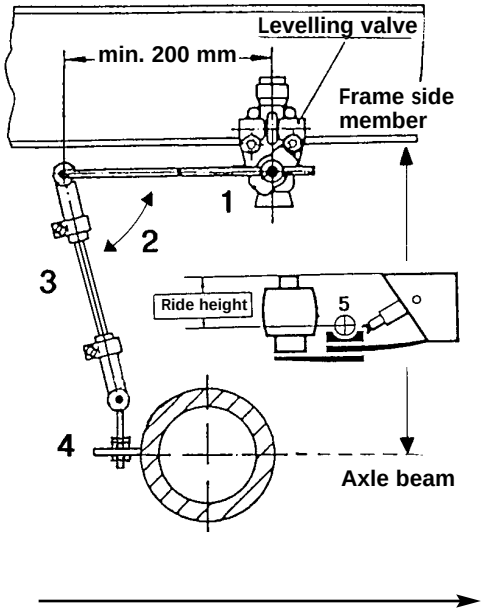
Adjust ride height according to vehicle manufacturer's specifications.

Changes are not permissible because they can lead to damage to axle components.

The ride height is the distance between the axle beam centre and the lower frame edge.

Set the angle (2) between the valve lever (1) and link rod (3) so that the valve lever does not reverse at maximum air bellows extension.

Adjust the ride height using the setting screw (4).



NOTE:
Park vehicle on a flat surface.

Release hand brake.

Do not use wedges to keep the axle assembly in position for ride height adjustment

Fill compressed air system to cut-off pressure.

NOTE:

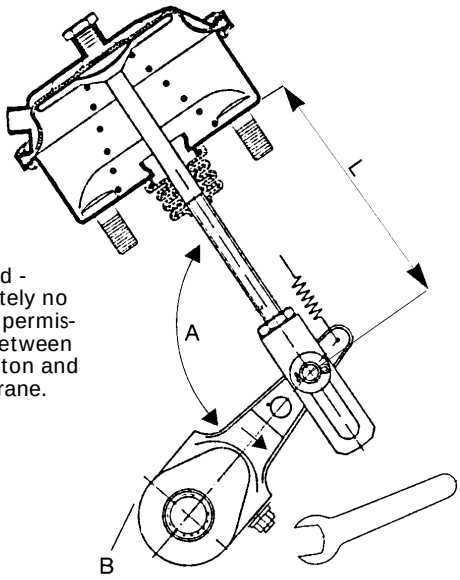
In the case of air suspensions with two valves for individual control on either vehicle side,
it is essential that both sides are adjusted to the same ride height.

Use two manometers for this purpose.
The difference in pressure between the LH and RH bellows must not exceed 0.2 bar.

Braking system - checking and adjustment

S-cam brakes with manual slack adjusters

Due to normal brake drum and brake lining wear, the wheel brakes must be regularly adjusted in order to maintain the full brake cylinder stroke. To ensure maximum brake efficiency, the clearance between brake lining and drum must be kept to an absolute minimum. To determine this clearance, check the brake cylinder stroke while full pressure is applied to the service brake. If the path at the yoke end measures more than 2/3 of the maximum cylinder stroke then the brake must be adjusted without delay. With a correctly adjusted brake, it should be impossible to move the piston rod by hand more than 15 mm.



No-load - absolutely no play is permissible between the piston and membrane.

Adjusting screw (width across flats 19 mm)

1 

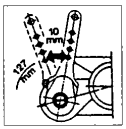
Turn adjusting screw to the right until...

2 

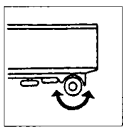
... the brake shoes fit closely to the brake drum.

3 

Turn adjusting screw to the left, until ...

4 

...the no-load stroke at the slack adjuster (at 127 mm) is approx. 10 - 15 mm long.

5 

The wheel must rotate freely with no grating noise.

Special instructions for automatic slack adjusters are given on the following pages.

A = At 1/2 stroke, the angle must not exceed 90°.
B = On full brake application, the slack adjuster and axle beam must not come in contact with each other.
L = Inspect piston rod according to technical specification.

Automatic slack adjuster Type HALDEX

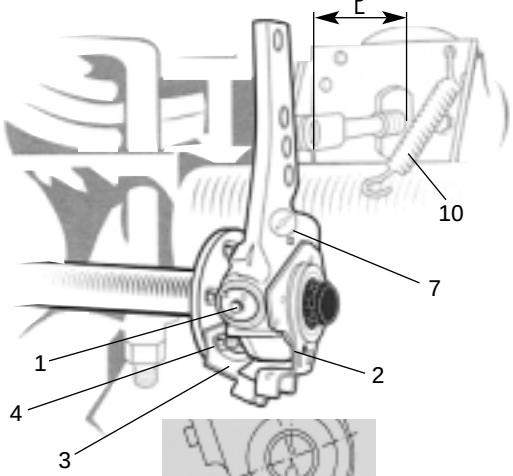
When interchanging from a manual to an automatic slack adjuster, make sure that you fitt replacement adjuster in accordance with type approval by SAF for your specific axle type.

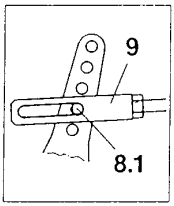
Changes to the adjuster arm length are not permissible.

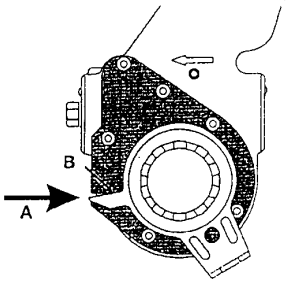
NOTE: The installation of an incorrect type of automatic slack adjuster will result in critical effect of serious overheating the brakes.

References regarding automatic slack adjuster to SAF axles types are available from your SAF service partner at request (see back cover).

Automatic slack adjuster - adjustment Type HALDEX







- Set cams and brake shoes to released position.
- Observe the correct push rod length "L" as indicated in the SAF specifications.
- **Membrane brake chamber**
  Before installing the automatic slack adjuster, ensure that the brake chamber push rod is in released position.
- By contrast, **spring brake chambers** must be under full operating pressure (min. 6 bar).

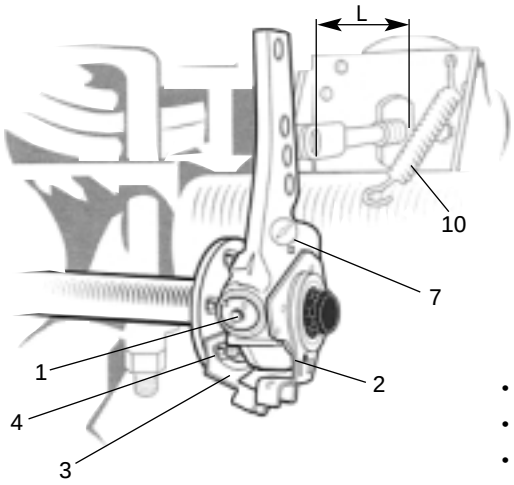
IMPORTANT: If this is not maintained properly, the basic setting will be wrong, with critical effect of overheating the brakes.

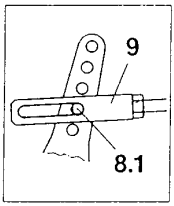
- Grease the camshaft.
- Install anchor bracket (3), being sure to use two fixing bolts (4), do not yet tighten the bolts.
- Install the slack adjuster on the camshaft.
- The arrow (7) points in the braking direction.
- Turn adjusting screw (1) until the bore in the slack adjuster (8.1) coincides with the bore in the clevis end (9) (see drawing).
- Grease split pin (8) and secure.
- Install return spring (10).
- Move the control arm (2) in the direction of the arrow (operating direction of slack adjuster) up to its end position "A" **without** applying excessive force.
- When control arm (2) is in its end position "A", tighten the fixing bolts (4).
- For the anchor bracket mounting (11), ensure that the 2 U-profiles engage firmly togehter.
- Fit slack adjuster retaining clip on camshaft.
- Axial clearance: Adjust 0.5 - 2 mm using shims.
- Adjust running clearance between brake lining and drum by turning adjusting screw (1) in clockwise direction until the lining fits smoothly against the drum. Then back off adjusting screw (1) by 3/4 turn.
  Do not use impact wrenches!

FUNCTION CHECK

- If the self adjuster is functionning correctly, then a minimum torque of 18 Nm must be felt and a grating noise must be heard when adjusting screw (1) is backed off.
- Operate the footbrake several times. Check whether the brake drum rotates freely, check the lining clearance and repeat adjustment procedure if necessary.

Automatic slack adjuster - adjustment Type S-ABA





- Set cams and brake shoes to released position.
- Observe the correct push rod length "L" as indicated in the SAF specifications.
- **Membrane brake chamber**
  Before installing the automatic slack adjuster, ensure that the brake chamber push rod is in released position.
- By contrast, **spring brake chambers** must be under full operating pressure (min. 6 bar).

  IMPORTANT: If this is not maintained properly, the basic setting will be wrong, with critical effect of overheating the brakes.
- Grease the camshaft.
- Install anchor bracket (3), being sure to use two fixing bolts (4), do not yet tighten the bolts.
- Install the slack adjuster on the camshaft.
- The arrow (7) points in the braking direction.
- Turn adjusting screw (1) until the bore in the slack adjuster (8.1) coincides with the bore in the clevis end (9) (see drawing).
- For the fixed point mounting, ensure that the 2 U-profiles engage firmly inside one another.
- Grease split pin (8) and secure.
- Install return spring (10).

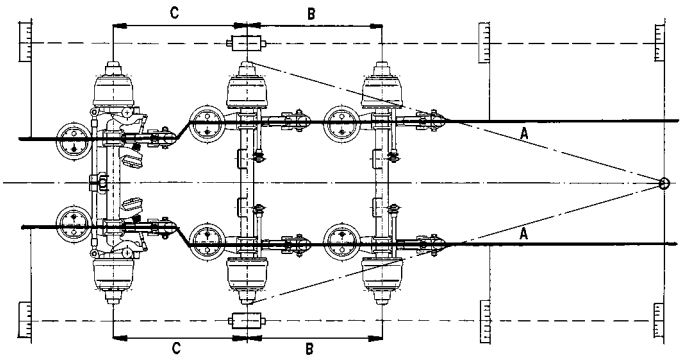
- Mount slack adjuster on camshaft.
- Axial clearance: Adjust 0.5 - 2 mm using shims.
- Adjust control arm.
- Possible adjustment range for control lever position (slack adjuster) up to its end position **without** applying excessive force.

- Adjust running clearance between brake lining and drum by turning adjusting screw (1) in clockwise direction until the lining fits smoothly against the drum. Then back off adjusting screw (1) by 3/4 turn.
  Do not use impact wrenches!

FUNCTION CHECK

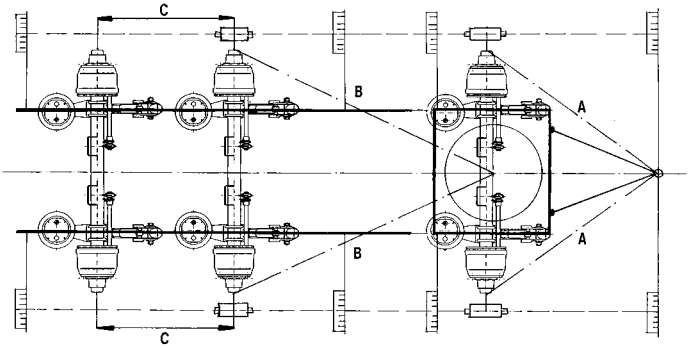
- If the self adjuster is functionning correctly, then a minimum torque of 18 Nm must be felt and a grating noise must be heard when adjusting screw (1) is backed off.
- Operate the footbrake several times. Check whether the brake drum rotates freely, check the lining clearance and repeat adjustment procedure if necessary.

For axle alignment, the air suspension ride height must be adjusted to the values specified by SAF.



Semi-trailers with trailing steering axle
Distance A, B, C max. permissible deviation 1.0 mm
Toe setting ± 12' = ± 3.0 mm/m Camber ± 12'
(values apply to unloaded vehicle)

In the case of self steering axles the stabilizing chambers must be pressurised to 2.0 bar.
Total toe-in 4.0 mm/m.

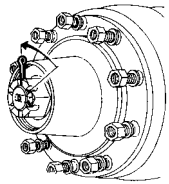


Trailer
Distance A, B, C max. permissible deviation 1.0 mm
Toe setting ± 12' = ± 3.0 mm/m Camber ± 12'
(values apply to unloaded vehicle).

The max. permissible deviation values for axle aligment are according to the tyre manufacture specifications.
To avoid excessive tyre wear we recommend having the alignment checked at regular intervals.
Deviations may be caused by:

- loose U-bolts
- spring guide bearing wear
- deformation of axle assembly components due to improper use

The relevant reference point for alignment is the hub cap centre or stub axle centre.



A

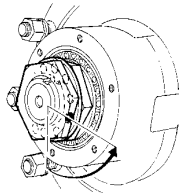
A Axle types K 14242 / 16242

Tighten hub nut while at the same time turning the hub until slight resistance is felt.

Now slacken the hub nut by 1/12 of a turn until the next locking position is reached.
Secure with split pin.

Using hub puller, pull hub back against outer bearing.

Check whether the hub rotates freely and without excessive end-float (adjust if necessary).
Pack hub cap thread with grease and refit hub cap, tightening it to 400 Nm.



B

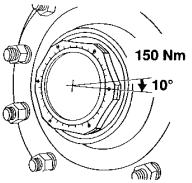
B Axle type SK 12242

Tighten hub nut to a torque of 150 Nm at the same time rotating the hub and drum.

Locate the locking collar onto the dowel on the hub nut noting the position of the dowel in relation to the collar. Remove the collar and turn the hub nut 2 1/2 holes anti-clockwise.
Reverse the collar and re-locate it onto the repositioned hub nut dowel. Fit the lock nut and tighten using a torque of 400 Nm.

Check whether the hub rotates freely and without excessive end-float (adjust if necessary).

Replace gasket and fit hub cap.



C

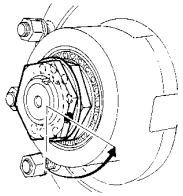
C Axle types SK 9042, SK 9037, SK 9022 K, 11222 K, 9019 K, 11019 K

Hub end-float adjustment is not required.

Tighten hub nut (140 wrench) in the
LH direction of travel - LH thread;
RH direction of travel - RH thread.

Pretighten to 150 Nm whilst rotating drum.

For final torque, continue tightening through one more 10° dividing line.



D

D Axle types SK 9030 / 11030

Tighten hub nut to a torque of 150 Nm at the same time rotating the hub and drum.

Locate the locking collar onto the dowel on the hub nut noting the position of the dowel in relation to the collar. Remove the collar and turn the hub nut 2 1/2 holes anti-clockwise.
Reverse the collar and re-locate it onto the repositioned hub nut dowel. Fit the lock nut and tighten using a torque of 400 Nm.

Check whether the hub rotates freely and without excessive end-float (adjust if necessary).

The following tightening torques are only valid if no other values are given in the axle maintenance chart.

Torque wrenches settings, impact wrench not permissible.

Thread	W.A.F.	Material 8,8	10,9	12,9
M 8	W.A.F. 13	25	35	41
M 8 x 1		27	38	45
M 10	W.A.F. 17 / 16	49	69	83
M 10 x 1		52	73	88
M 12	W.A.F. 19 / 18	86	120	145
M 12 x 15		90	125	150
M 14	W.A.F. 22 / 21	135	190	230
M 14 x 1,5		150	210	250
M 16	W.A.F. 24	210	300	355
M 16 x 1,5		225	315	380
M 18	W.A.F. 27	300	405	485
M 18 x 1,5		325	460	550
M 20	W.A.F. 30	410	580	690
M 20 x 1,5		460	640	770
M 22	W.A.F. 32	550	780	930
M 22 x 1,5		610	860	1050
M 24	W.A.F. 36	710	1000	1200
M 24 x 2		780	1100	1300
M 27	W.A.F. 41	1050	1500	1800
M 27 x 2		1150	1600	1950
M 30	W.A.F. 46	1450	2000	2400
M 30 x 2		1600	2250	2700
M 36 x 2	W.A.F. 55	2450	3450	4150

Wheel fixing:
Wheels see appropriate axle maintenance chart.

TRILEX wheels	M 18	270 - 300 Nm
	M 20	320 - 350 Nm

SAF

Vertretungen / Agents / Concessionnaires

Service-Stationen / Service Stations / Points

Service

Australia	HDTE-Heavy Duty Transport Equipment Pty. Ltd.	(0061) 3 - 93690856
Austria	SAF Hering-Rad Ges.m.b.H.	(0043) 2236 - 646500
Belarus	SAF Representative Office	(00375) 17 - 2849092
Belgium	SAF Benelux B.V.	(0031) (0) 342 - 497889
Bulgaria	SAF Trade Bulgarien OOD	(00359) 58 - 22491
Chile	Union Tecnica Automotriz S.A.C.	(0056) 2 - 62348 51
Czech Republic	SAF Trade, spol. s.r.o.	(00420) 632 - 557188
Denmark	Transport-Komponenter A/S	(0045) 75520080
Egypt	Egyptian Co. for Trading & Construction	(0020) 2 - 2152309
Finland	Oy Arne Stara AB	(00358) 67818750
France	SAF France S.A.	(0033) 1 - 30880900
Germany	Otto Sauer Achsenfabrik Keilberg KG	(0049) 06095 - 301 - 0
Great Britain	I.M.S. Ltd.	(0044) 1509 - 600185
Hungary	L.V. Technik Kft.	(0036) 76 - 493507
Iceland	Stilling	(00354) 5 - 889797
Israel	M.N. Systems Ltd.	(00972) 9 - 8626030
Italy	SAF Italia S.r.l.	(0039) 045 - 8250560
Malaysia	Quality Trailer Components	(0060) 3 - 61858292
Netherland	SAF Benelux B.V.	(0031) (0) 342 - 497889
New Zealand	Transpecs Ltd.	(0064) 9 - 9807300
Norway	MoRek a.s.	(0047) 67063500
Peoples Republic of China	Jinan SAF Axle Co. Ltd.	(0086) 531 - 8 8733 61-889
Poland	SAF POLSKA Sp.z.o.o.	(0048) 672 16 65 60/70
Portugal	Suspartes Lda.	(00351) 21 - 2134710
Romania	S.C. SAF TRADE RO S.R.L.	(0040) 68 - 258830
Russia	SAF-INTCOM	(007) 095 - 5799400
Republic of Slovakia	SAF Trade spol s.r.o.	(00421) 38 - 7601834
Slovenia	Otto Sauer Achsenfabrik Keilberg KG	(00386) 530 - 29213
Spain	SAF Otto Sauer Achsenfabrik Espana S.L.	(0034) 93 - 8468111
Sweden	Trailax AB	(0046) 36 - 169700
Switzerland	Willy Erny AG	(0041) 52 - 3372121
Turkey	INTERMOBIL A.S.	(0090) 212 - 285 43 64/65 (0090) 212 - 286 26 90/91
Yugoslavia	SAF Representative Office	(00381) 13520427

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