

# SAF-HOLLAND Service manual for Axles Types

**KRZ 16242  
and mechanical Suspensions  
Type VRZ 48**

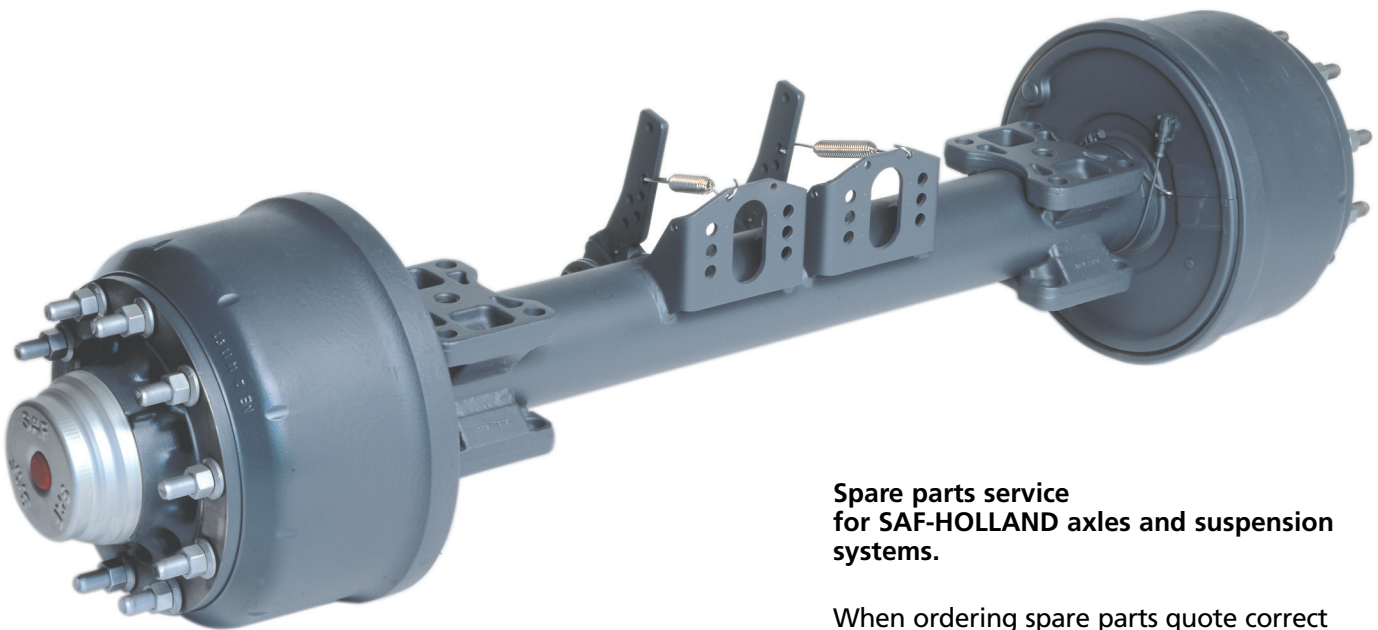


Edition 03/2007



# Vehicle information

Manufacturer:	.....
Address:	.....
Body type	.....
Chassis no	.....
Year of manufacture:	.....
Registration, date-in-service	.....



**Spare parts service  
for SAF-HOLLAND 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 plate shown below so  
that correct specifications are available  
when required.

## Type plate

---



---



---



---



---



---

SAF-HOLLAND GMBH D-63856 BESENBACH · GERMANY		
Version <b>KRZ16242</b>	Serial No. <b>341 06 2 002</b>	
Type <b>SNK420X200</b>	Ident No. <b>146 16 30 2 68 0</b>	
Test Report <b>0718</b>	Perm axle cap. stat. <b>16000 kg</b>	
	V max. <b>105 km/h</b>	
 AN 1280397		 SN 341062002

# Contents

This manual is intended for the technical workshop personnel responsible for maintenance and repair.

	Page
Axle identification .....	2
General safety instructions .....	4-5
Notes .....	22

## Axle Type KRZ 16242

Maintenance instructions .....	6-7
Spare part illustrations / list of spare parts .....	8-9
Brake automatic slack-adjuster .....	10-11

## Mechanical Suspensions Type VRZ 48

Maintenance instructions .....	12
Spare part illustrations / list of spare parts .....	13-14
Torque setting .....	15
Installation Instructions for mechanical Suspensions Type VB .....	16-17
Important Information .....	18
Axle alignment check and adjustment .....	19
Suspension installation, trailer slope .....	20

## General information

Installation instruction for mechanical suspensions .....	21
Bolt / Nut torque values .....	23

The item numbers indicated are given only for identification and to distinguish between different versions.

Use the part numbers from the valid spare parts documents for identification of spare parts.

SAF-HOLLAND axles and suspension units are subject to continuous further development; the data and drawings contained in the manual may therefore vary in details.

The contents of the manual does not constitute the basis for a legal claim.

Reprinting, reproduction or translation in whole or in part is not permitted.

The issue of this publication invalidates all earlier maintenance and repair manuals.

# General safety instructions

Please observe the following safety instructions in order to maintain the operational and road safety of your SAF-HOLLAND axles and suspension systems:

1. The wheel contact surfaces between the wheel disc and wheel hub and the wheel nut contact surface at the wheel disc must not be additionally painted. The contact surfaces must be clean, smooth and free from grease. Failure to observe this may result in the wheel coming loose. Any additional instructions of the wheel manufacturer must also be observed.
2. Only the wheel and tyre sizes approved by the trailer builder may be used. The tyres must always have the specified inflation pressure.
3. The brake systems of the tractor and the trailer/semi-trailer must be synchronised by means of a tractor/trailer brake synchronisation not later than 5,000 km after the initial start of operation of the trailer/semi-trailer in order to ensure a safe and uniform braking behaviour and uniform brake pad wear. Tractor/trailer brake synchronisations should be carried out by appropriately qualified and equipped brake workshops.

The use of an additional braking system, such as a trailer anti-jackknife brake is forbidden by law on vehicles with type approval after January 1999.

4. Before starting a journey, ensure that the maximum permissible axle load is not exceeded and that the load is distributed equally and uniformly.
5. On trailers with air suspension, ensure that the air bags are completely filled with air before starting the journey. Incompletely filled air bags may result in damage to axles, suspension, frame and superstructure and impair road safety.
6. Ensure that the brakes are not overheated by continuous operation.

With drum brakes, overheating can result in a hazardous deterioration in the braking efficiency.

With disc brakes, overheating can result in damage to surrounding components – in particular the wheel bearings. This can result in a significant deterioration in road safety, e.g. failure of wheel bearings.

7. The parking brake must not be immediately applied when the brakes are hot, as the brake discs and brake drums may be damaged by different stress fields during cooling.
8. Use the supports provided when loading and unloading in order to avoid damage to the axle.
9. Observe the operating recommendation of the trailer builder for off-road operation of the installed axles and suspension systems.

The SAF-HOLLAND definition of OFF-ROAD means driving on non-asphalted / non-concreted routes, such as e.g. gravel roads, agricultural and forestry tracks, on construction sites and in gravel pits.

Off-road operation of SAF-HOLLAND axles and suspension systems not designed for the purpose may result in damage and hence to an impairment of road safety.

10. SAF-HOLLAND axles and suspension systems require continuous care, service and maintenance in order to maintain operational and road safety and to be able to recognise natural wear and defects in good time.

The daily inspection of the trailer for road safety before starting the journey is one of the driver's obligations.

SAF-HOLLAND recommends that at least the inspections and maintenance operations described on page 6 should be carried out.

We recommend the use of SAF-HOLLAND original spare parts.

A close-knit service network of SAF-HOLLAND partner companies is available for the technical support of the axles and suspension systems and for the supply of SAF-HOLLAND original spare parts (see rear cover or on the Internet under <http://www.safholland.com>).

Updates will be published as necessary on the Internet under [www.safholland.com](http://www.safholland.com)

# General safety instructions

- The tightening torque settings for the suspension system components must be checked within the first day of operation comencing for the trailer (semi-trailer) / tipper.
- **Caution:** After every wheel change, always retighten the wheel nuts to the prescribed torque after 50 km and again after 150 km.
- Check the brake lining thickness at regular intervals.
- Carry out general visual inspections of the brakes, tyres and all suspension components at regular intervals and check for proper attachment, wear, leaks, corrosion and damage.
- Carry out regular visual inspections of the wheel bearing unit for grease leaks and axial clearance. Wheel bearing grease change, see page 7.
- Regularly check the camshaft for smooth return and the slack adjuster for proper function.
- Lubricate the camshaft at regular intervals.
- Inspect the brake drum for wear\* and cracking at every brake lining change. Minimum wear limits\*, see page 7.
- Replace the brake shoe return springs at every brake lining change.
- On all units, check that the bolts of the U-brackets are tightened to the prescribed torques.
- Carry out a general safety check in accordance with the statutory provisions.
- We recommend the use of SAF-HOLLAND original spare parts.


\* We recommend that a general safety check is carried out when the minimum wear limit is reached.

# Maintenance instructions

## for Axles Type KRZ 16242

for suspensions refer to separate maintenance chart

Service schedule	Mileage intervals >	After first 5 000 km or	Periodic checks		
			every 15 000 km	every 90 000 km	every 150 000 km
whichever comes first	Time intervals >	After first month	every month	every 6 months	every 12 months

 <b>Mechanical check</b>				
<b>Attention:</b> Torque check wheel nuts after the first 50 km and 150 km (repeat also after every wheel removal).	●			
Torque check all nuts and bolts to recommended setting.	●		●	
Check and adjust hub end-float (if required).	●		●	
Pack hub bearings with fresh grease (also after every brake lining replacement, check hub bearing wear).				●
Lubricate camshaft bearing bushes.	●	●		
Lubricate suspension components, follow to individual suspension type maintenance instructions.	●	●		

## Visual inspection for wear / damage

Check suspension components for wear and damage				
Check brake linings for wear				
<b>Check camshafts for free rotation</b>				
Check slack adjusters for correct function	●	●		
Check air brake system for leaks (brake applied)				
Check leaf springs for damage, scoring and corrosion				
Check tyres for uneven wear and axles for correct tracking do readjustment if necessary				

## Safety inspection

Check brake lining to drum clearance for correct adjustment readjust clearance if necessary.	●	●		
Check service brake and parking brake for performance.				
Check truck-trailer combination for compatibility of service brake pressure.	●			●
Check service brake pressure to manufacturer's specification. Adjust LSV output pressure, if found incorrect setting.				
Check suspension ride height in laden condition if excessive trailer slope is obvious consult trailer manufacturer repeat check of trailer slope after every tractor interchanging.	●			

## Special service conditions

Vehicles with long standing periods:	service at specified time intervals
Vehicles used under extreme conditions:	service at suitably reduced intervals
e.g.: Trailer operating in continuous multi-shifts or in off-road construction sites.	

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

# Maintenance instructions

## for Axles Type KRZ 16242

### Hub end-float setting

- 1) Whilst strongly torquing the axle nut (22), rotate the hub assembly, until a rotational resistance is felt.
- 2) Loosen the axle nut (22) by  $> 30^\circ$  until next hole.
- 3) Install the hub puller and move the hub assembly strongly outward.
- 4) Check axle nut torque (60 Nm).
- 5) Verify the hub bearing end-float, using a dial indicator (see photo).
- 5a) Attach the magnetic base to the spindle end with the dial stem touching to the hub face.
- 5b) Read the figures on the dial whilst manually moving the hub in / outward, using a strong bar.
- 6) The bearing adjustment should provide an axial clearance of 0.05 to 0.15 mm.
- 7) Tighten or release the axle nut accordingly to obtain the required setting.
- 8) Do a final check by rotating the hub assembly. Hub must move feely.
- 9) Repeat the adjustment if necessary.
- 10) Insert the split pin to secure the hub nut.
- 11) Seal the hub cap thread with a sealing compound or a sealing tape before assembly.

**Lubricant specification:** Wheel bearings:  
Part no. 5 387 0011 05

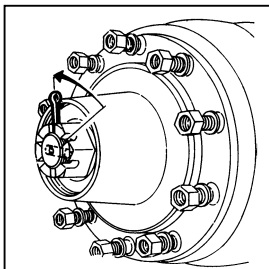
Camshaft:  
Part no. 5 387 0011 05

Stub axle:  
Part no. 5 387 0021 01  
Fitting paste

Brake anchor bracket ball:  
Part no. 5 387 0014 01  
Copper paste

**Never mix different types or grades of grease!**

### Hub nut tightening



After brake relining, lubricate the camshaft shoes whilst rotating the camshaft several times.

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 fitting paste.



424.0 mm  
425.0 mm  
SAF 396

### BRAKE type SNK 420

Brake drum diameter max. limit for remachining:

Brake drum diameter max. limit of wear:

Brake linings approved by SAF-HOLLAND:

Machine new brake lining surface to brake drum diameter + 0.3 mm.

When relining brakes, fit cam-side and anchor-side lining following the instructions provided with the replacement kit.

Brake size	Part no. brake lining / rivet kit	Brake drum / brake lining refacing stages in mm			Brake linings number per axle	Rivets	DIN 7338 rivet
		size	1st oversize	2nd oversize			
SNK 420		$d_0$ -420.0	$d_1$ -422.0	$d_2$ -424.0			
x 200	3 057 3966 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15

### Assembly tools

#### Axle types

Hub nut spanner and cap spanner  
Hub puller  
Universal hub puller  
Brake shoe clamping device  
Camshaft bushing tool  
Camshaft bushing tool

#### Part no. 16242

1 012 0013 00  
3 301 0007 01  
4 434 3822 00  
3 349 1001 00  
1 434 1056 00  
1 434 1055 00

## Exploded view of Axles Types

KRZ 16242

## Torque wrench settings

Use a 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:

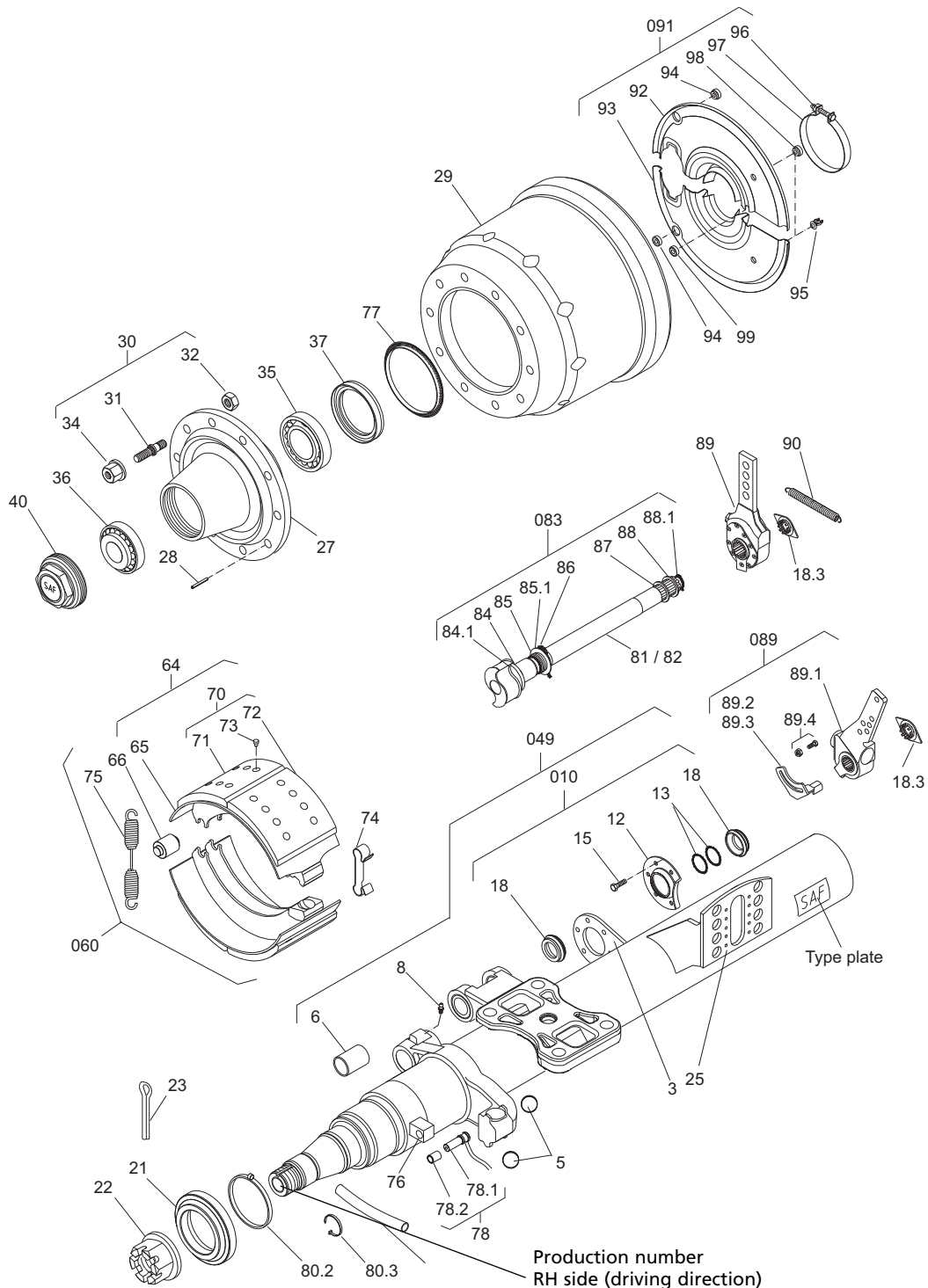
M 22 x 2/430 Nm

M 22 x 1.5/430 Nm

TRILEX-Spoked wheels fixing:

Tyre 20"+24"

M 20/350 Nm





# List of spare parts

## KRZ 16242

Item	Parts designation	Item	Parts designation
01	<b>Axle beam cpl.</b>	73	Packaging unit rivet
2	Spring seat	74	Retaining clamp
3	Mounting plate	75	Return spring
5	Anchor ball	76	Sensor support
6	Cam bronze bush	77	Exciter gear ABV
8	Grease nipple	78	ABV kit incl. Renolit Paste including items 78.1 and 78.2
010	<b>Camshaft bush +fixg.Kit</b> including items 12-18	78.1	Sensor
12	Camshaft bush unit	78.2	Locating sleeve
15	Srew self locking	80.1	Cable protect. hose
18	Rubber collar	80.2	Band clamp
18.3	Wear indicator	80.3	Fastenes ring
21	Wear sleeve	81	<b>Camshaft LH</b>
22	Hub nut	82	<b>Camshaft RH</b>
23	Split pin	83	R:S. Camshaft including items 84-88.1 and 18.3
25	Bracket brake chamber	84	O-ring
27	Hub including item 28	84.1	Spacer ring PA
28	Locating pin	85	Seal ring
29	Brake drum	85.1	Spring washer
30	<b>Wheel bolt+nut Kit</b> including items 31-34	86	Clip
31	Wheel bolt	87	Washer
32	Nut self locking	88	Washer
34	Wheel nut MZ	88.1	Clip
35	Hub bearing	089	Auto-Slack adjuster kit including items 89.1-89.3 and 18.3
36	Hub bearing	89.1	Auto-Slack adjuster
37	Hub sealring	89.2	Anchor bracket LH
40	Hub Cap	89.3	Anchor bracket RH
049	<b>Camshaft bushing repair kit</b> including items 6-8, 010, 18.3, 84-88.1, 90	90	Pull-off spring
060	<b>Brake Kit</b> including items 64, 74, 75	091	<b>Dust cover pair</b> including items 92-95 and 98-99
64	Brake shoe assy. incl. lining	92	Dust cover LH
65	Brake shoe including item 66	93	Dust cover RH
66	Cam-roller	94	Plug lining insp.
070	<b>Brake lining kit</b> including items 71-73	95	Cable clip
71	Brake lining	96	Screw
72	Brake lining	97	Band clamp
		98	Plug
		99	Plug

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

### **Automatic slack adjuster Type HALDEX**

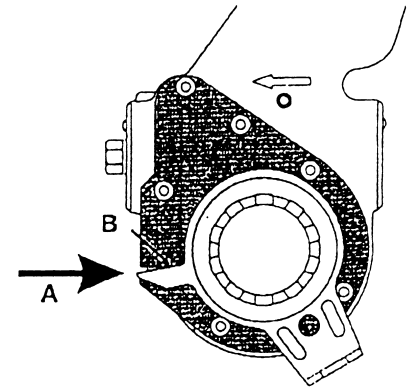
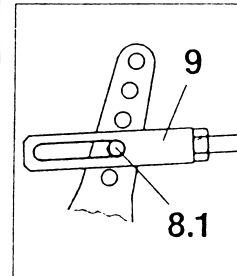
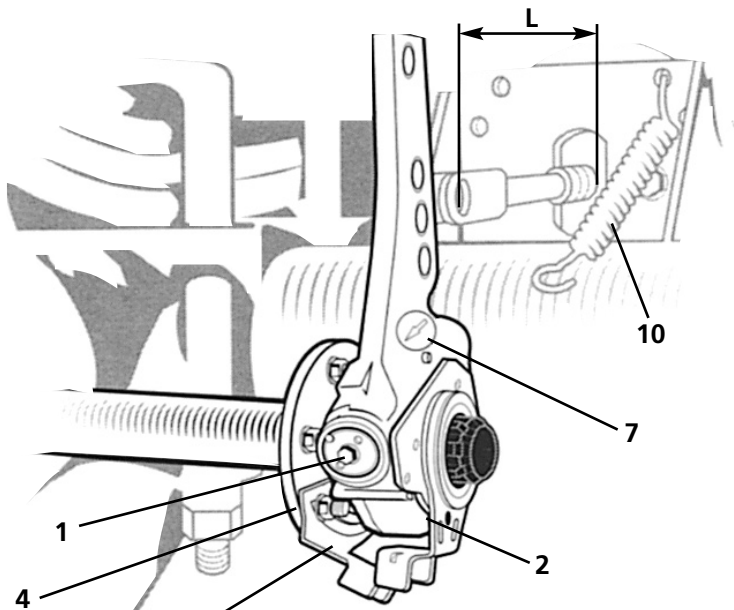
When interchanging from a manual to an automatic slack adjuster, make sure that you fit replacement adjuster in accordance with type approval by SAF-HOLLAND for your specific axle type.

Changes to the adjuster arm length are not permissible.

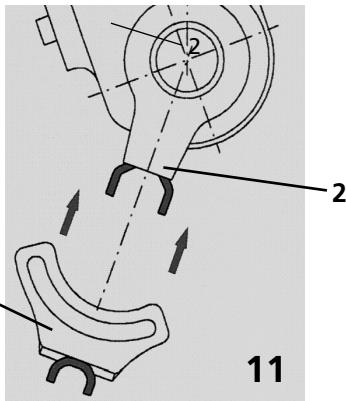
**NOTE: The installation of an incorrect type of automatic slack adjuster will result in critical effect of serious overheating the brakes.**

**References regarding automatic slack adjuster to SAF-HOLLAND axles types are available from your SAF-HOLLAND service partner.**

## Automatic slack adjuster – Type HALDEX



When correctly installed, the Tip of arrow B must match notch A in the control unit.



- Set cams and brake shoes to released position.
- Observe the correct push rod length "L" as indicated in the SAF-HOLLAND 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 hole in the slack adjuster (8.1) coincides with the hole 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 together.
- 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 functioning 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.

# Maintenance instructions

## Mechanical Suspensions Type VRZ 48

for axles refer to separate maintenance chart

Service schedule	Mileage intervals	After first 5 000 km or	Periodic checks		
			every 15 000 km	every 90 000 km	every 150 000 km
whichever comes first	Time intervals >	After first month	every month	every 6 months	every 12 months
<b> Mechanical check</b>					
Torque check all nuts and bolts to recommended setting. Follow exploded view items.		●		●	
Lubricate rocker-arm shaft bushes.		●	●		

## Visual inspection for wear / damage

Check suspension components for wear and damage.	●	●		
--	---	---	--	--

## Safety inspection

Check suspension ride height in laden condition if excessive trailer slope is obvious, consult trailer manufacturer. Repeat check also after every tractor interchanging.	●			
--	---	--	--	--

## Special service conditions

Vehicles with long standing periods: service at specified time intervals  
 Vehicles used under extreme conditions: service at suitably reduced intervals  
 e.g.: Trailer operating in continuous multi-shifts or in off-road constructions sites.

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

## Mechanical Suspensions Type VRZ 48

### Bronze bushing rocker shaft

#### Tri-axle suspension

Assembly of Tri-axle suspension are basically the same components as for the tandem suspension. Repeat check maintenance instructions by similar procedure for the Tri-axle suspension components.



# List of spare parts

## Mechanical Suspensions Type VRZ 48

Item	Parts designation	Item	Parts designation
103	Hanger bracket RH	126	Rigit torque arm
103.1	Hanger bracket LH	126.1	Rigit torque arm kit
104	Hanger bracket	127	Threat adjuster
105	Top sliding plate	128	Torque arm end LH thrt.
106	Side sliding plate	129	Torque arm end RH thrt.
107	Spacer sleeve	130	Bolt
107.1	Spacer sleeve	131	Lock nut
108	Bolt	133	Rubber bush
109	Lock nut	135	Bolt
110	Bolt	135.1	Bolt
110.1	Bolt	135.2	Bolt
111	Nut	137	Lock nut
112	Hanger bracket LH	201	Multi-leaf spring
n.i.	Hanger bracket RH	203	Mounting plate
113	Hanger bracket kit LH	205	U-Bolt
113.1	Hanger bracket kit RH	207	Nut
114	Equaliser assy		
116	Side sliding plate		
<b>118</b>	<b>Rocker shaft kit</b>		
	incl. items 119-123.1		
119	Equaliser shaft		
120	Bronce bush		
120.1	Spacer washer		
121	Washer		
122	Lock nut		
123.1	Grease nipple		
<b>124</b>	<b>Rigit torque arm kit front</b>		
	incl. items 126, 133-135.1 and 137		
<b>124.1</b>	<b>Rigit torque arm kit</b>		
	incl. items 126, 133-135, 135.2 and 137		
<b>125</b>	<b>Adjust. torque arm kit</b>		
	incl. items 127-131, 133-135.1 and 137		
<b>125.1</b>	<b>Adjust. torque arm kit</b>		
	incl. items 127-131, 133-135, 135.2 and 137		

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

# Torque settings

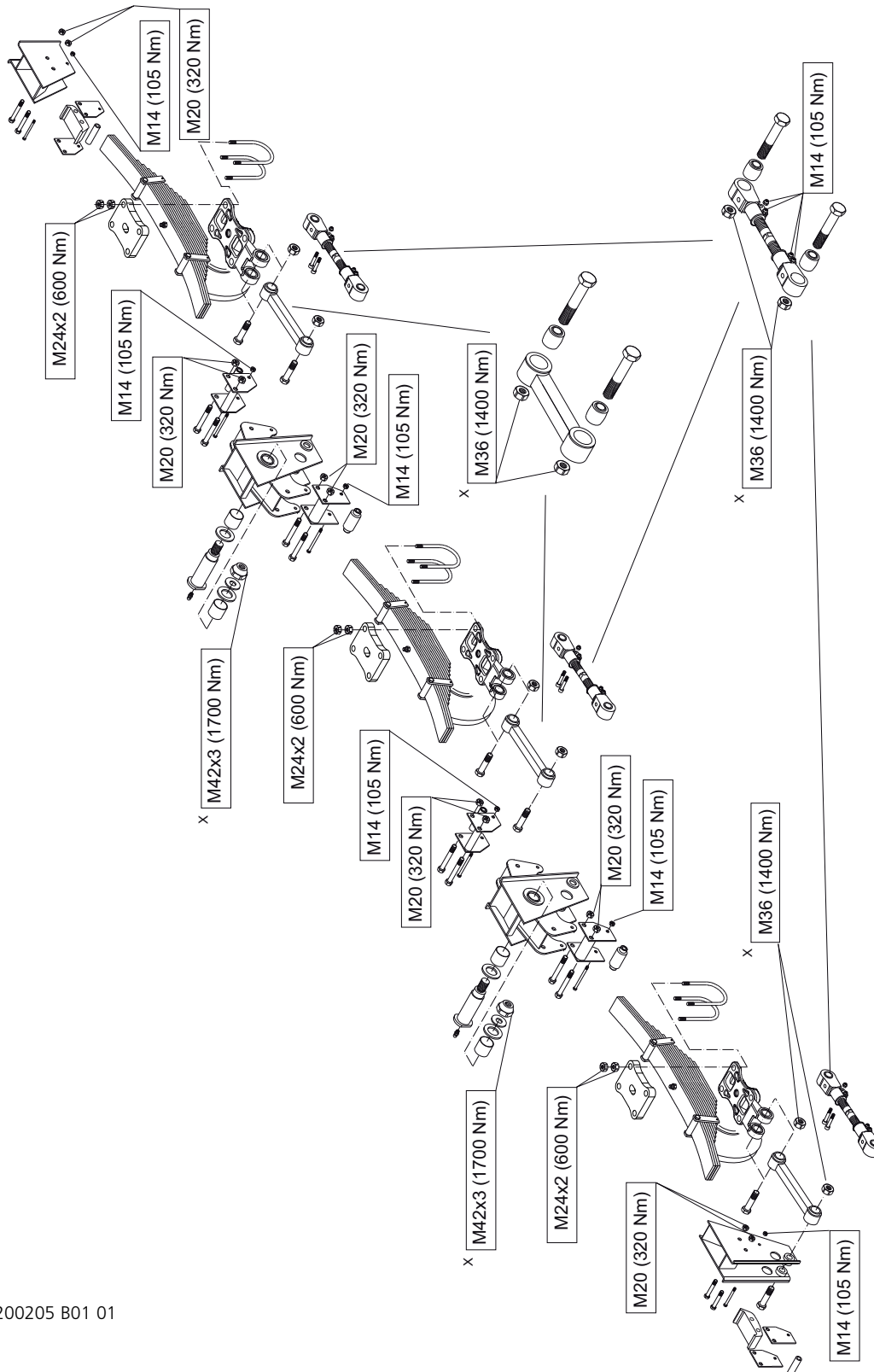
## Mechanical Suspensions Type VRZ 48

### Bronze bushing rocker shaft

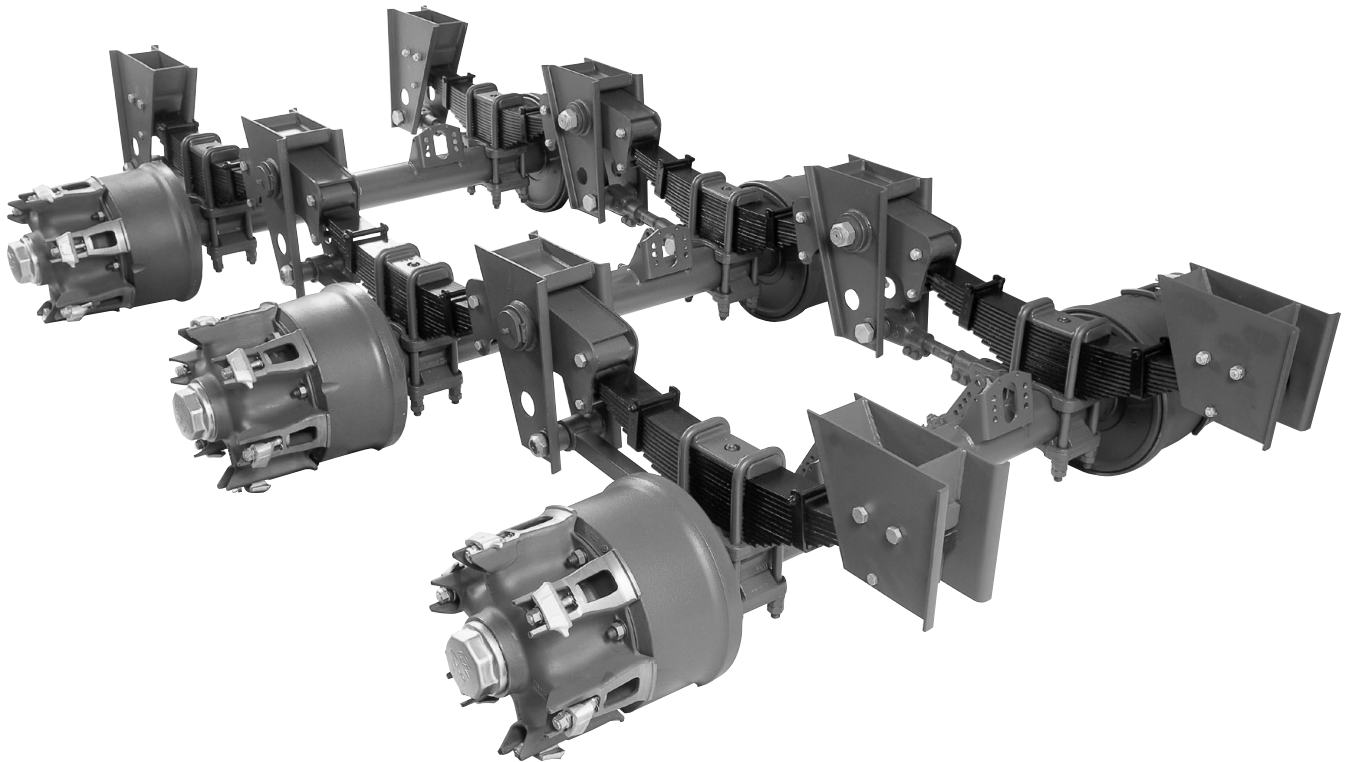
Use a torque wrench. The use of impact wrenches is not accepted.

#### Tri-axle suspension

Assembly of Tri-axle suspension are basically the same components as for the tandem suspension. Repeat check maintenance instructions by similar procedure for the Tri-axle suspension components.



# Installation Instructions for mechanical Suspensions Type VB



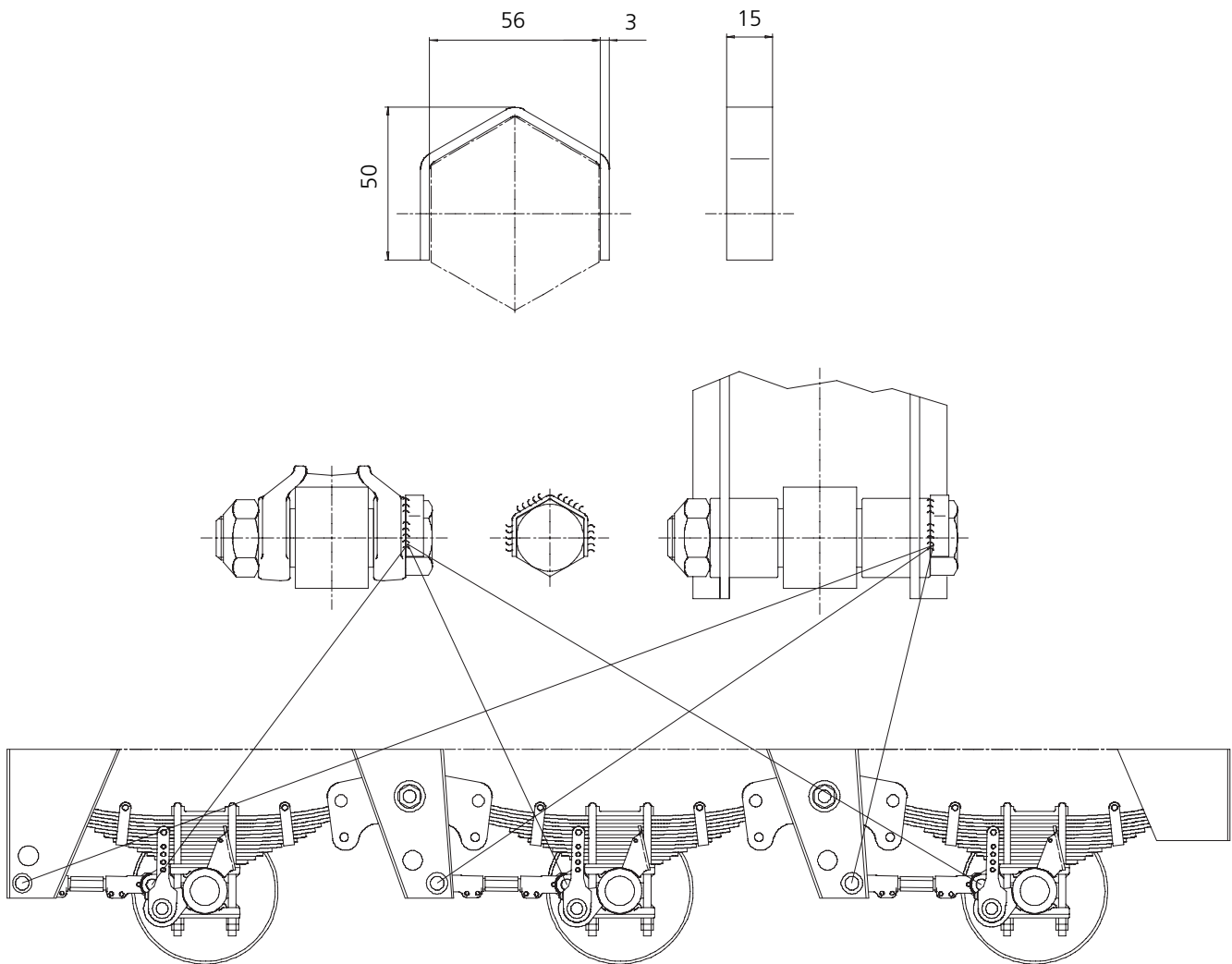
- Mechanical Suspensions Type VB are suspension assemblies which are balanced mechanically using rocker arm equalizers. They are equipped with parabolic springs or multiple leaf springs. Mechanical Suspensions Type VB are used for both single-axle suspension and for Tandem-axle and Tri-axle suspension. In view of the mechanical equalization, it is essential that these mechanical Suspensions Type VB are installed horizontally, i.e. they must be installed in preloaded condition so that the arms are positioned horizontally. The axles of mechanical Suspensions Type VB are guided in longitudinal direction by torque arms and transversely to the body by the springs which are permanently attached to the axle and guided in equalizers or hanger brackets.
- The longitudinal guiding of the axles with the torque arms means that the axles are shifted in longitudinal direction during the equalizing movement. This necessitates a dimensionally precise installation, particularly of the middle axle.
- When the chassis is tilted backwards, the hanger brackets of the mechanical Suspensions Type VB must be positioned and welded on – observing the centre of gravity – in accordance with the dimensions shown in the mechanical Suspension Type VB drawing.
- With triple-axle mechanical Suspensions Type VB, the starting point for the mechanical Suspensions Type VB installation is the middle-axle. The specified distance between the middle hanger brackets (with equalizer arm) relative to one another must be exactly maintained (tolerances  $\pm 2$  mm). This distance corresponds to the wheelbase of the mechanical Suspensions Type VB.
- Starting from the middle hanger brackets, position and weld on the front and rear hanger brackets.
- The front and middle hanger brackets must be braced with adequately dimensioned cross-reinforcement gussets so that the transverse forces can be transmitted from the axle via the hanger brackets into the chassis.



- In order to be able to fit expedient cross-reinforcement, these hanger brackets should have through-holes suitable for taking a tube with a diameter of 60.3 mm or 63.5 mm, depending on the mechanical Suspensions Type VB model. The wall thickness of this tube must be selected to suit the load, whereby a maximum of 10 mm is sufficient. These tubes must be welded to the hanger brackets. They must be braced diagonally to the body in order to transmit the lateral forces into the chassis.
- The rear hanger brackets must be braced to the chassis with gusset plates.
- The vehicle chassis must be designed in such a way that the forces transmitted from the mechanical Suspensions Type VB can also be passed into the longitudinal members and distributed.
- It is expedient to provide a cross member in the chassis above each hanger brackets. The cross member should be welded to the diagonal brace or the gusset plates.
- In case of narrow longitudinal members, intermediate plates should be welded between the hanger brackets and the lower flanges of the longitudinal members. On the outside, the upper and lower flanges of the longitudinal members should be joined with ribs or pockets to prevent relative movements.
- All welding seams must be adequately dimensioned. Weld run end-craters are not accepted.
- For axle alignment, follow to axle alignment instructions.

## Important Information

Retaining mounts for torque arm clamping bolt of  
mechanical Suspension unit VB 48,000 kg,  
Ident-No.: 1 345 3002 00



## Axle alignment check and adjustment

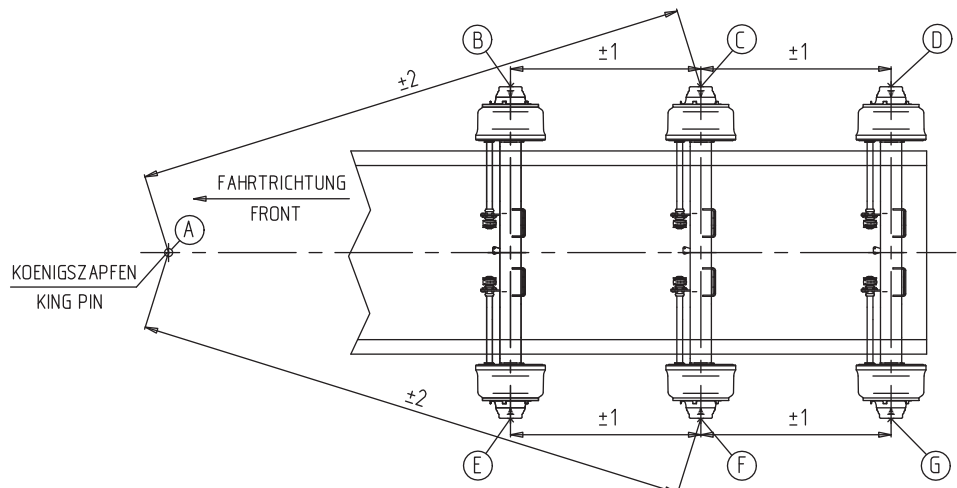
### General:

To compensate for manufacturing tolerances it is necessary to check and possibly correct the tracking. The maximum permissible error (tolerances) on the tracking figures is as per the information from the tyre manufacturers. The maximum possible wheelbase correction per axle is  $\pm 6$  mm.

### Inspection conditions:

The tracking must be checked with the vehicle unladen. In case of air suspension the vehicle must be set to ride height.

### Permissible values:

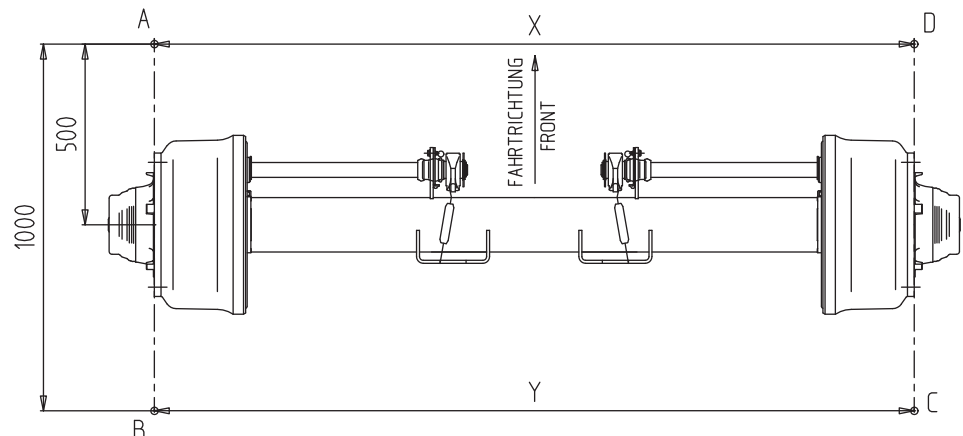


### Procedure:

Determine the diagonal dimensions **A - C** and **A - F** for the middle axle (reference axle) by comparison measurements, note attention to tolerances ( $\pm 2$  mm)

Check wheelbase dimensions **B - C** and **E - F** for front axle as well as **C - D** and **F - G** for rear axle and correct if necessary, note attention to tolerances ( $\pm 1.0$  mm).

### Toe-in:



### Permissible values for rigid axle:

Toe-in:  $+0$  to  $+12'$  = max.  $+3.5$  mm/m (example:  $Y - X = 0$  mm to  $+3.5$  mm)

Camber:  $\pm 12'$  =  $\pm 3.5$  mm/m

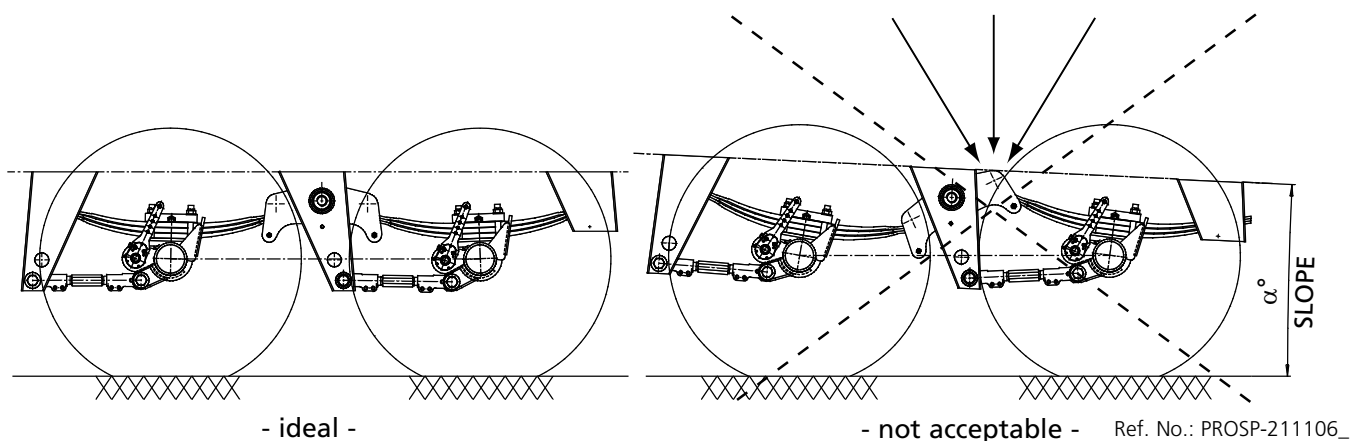
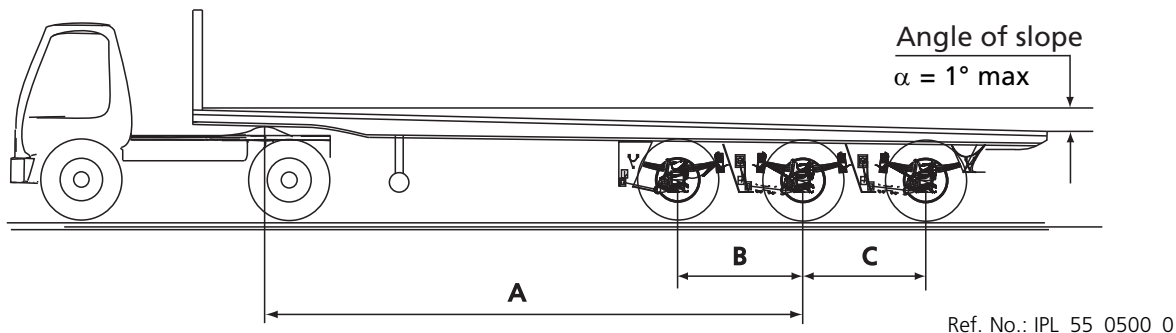
Measuring the axle geometry: difference between the distances **AC - BD** =  $<3$  mm

**SAF-HOLLAND axles must not have toe-out.**

### Notes:

1. To avoid tyre wear, we recommend having the tracking checked regularly.
2. We recommend the use of an optical instrument for checking the tracking.
3. The only valid reference points for the alignment are the centres on the middle hub cap or the middle of the axle stub end.
4. Possible reasons for errors in the tracking are:
  - Loose U-bolt
  - Wear on the spring fixing
  - Deformation of the axle unit as a result of improper use

## Suspension installation, trailer slope



All installations must be in accordance with the SAF-HOLLAND instructions 52 98 00 5498C, see next page.

## Trailer slope

Particular attention must be paid to the trailer platform slope in laden condition.

Permissible trailer slope under load  $\alpha = 1^\circ \text{ max}$

In the laden condition the equalizer should be always in the horizontal working level, to provide free articulation into the full front / rear equalizer working range.

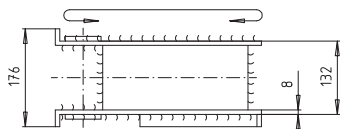
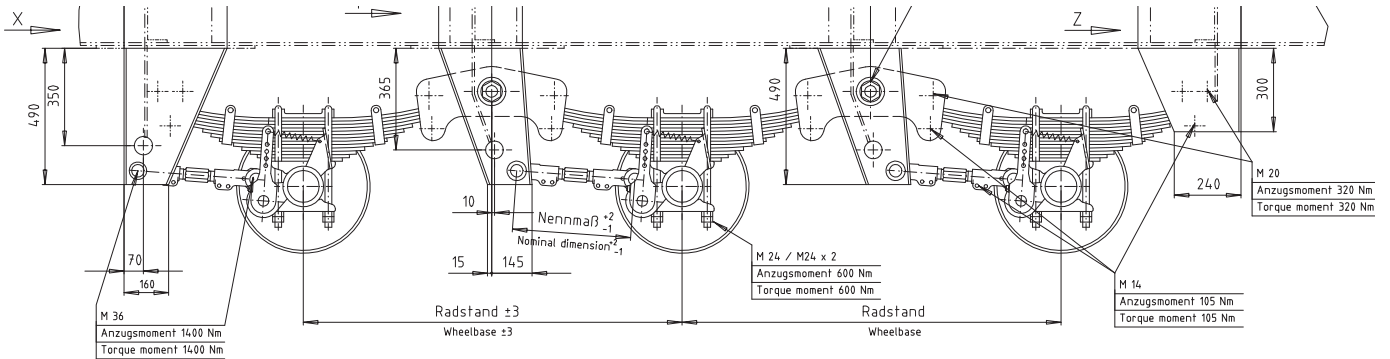
When trailer operating with an excessive equalizer tilt, the suspension will not properly compensate various axle loads, especially not under uneven road conditions.

This excessive tilt will have limited equalizing movements causing the equalizer to strike the chassis frame with result of critical effect of exceeding the 2. and 3. axle capacities, and subsequent damage of the suspension components.

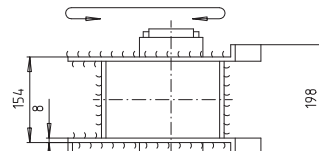
Therefore it is imperative to consult the trailer manufacturer, when in laden condition excessive trailer slope is obvious.

Repeat check trailer slope always after every tractor interchanging.

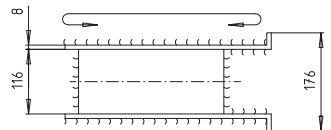
## Installation instruction for mechanical suspensions



Schweißnähte 7  
Einbrandkerben und  
Endkrater nicht zulässig.  
Welding seams 7  
Heat notches and arc craters  
are not permitted.

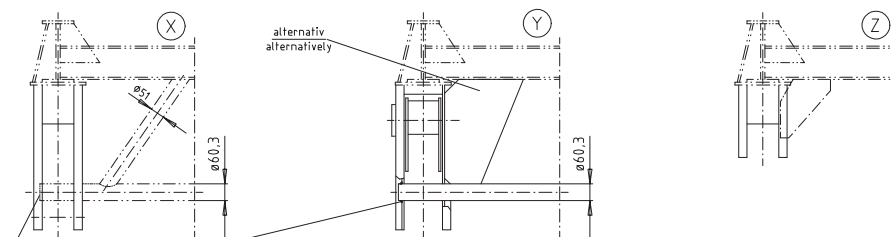


Schweißnähte 7  
Einbrandkerben und  
Endkrater nicht zulässig.  
Welding seams 7  
Heat notches and arc craters  
are not permitted.



Schweißnähte 7  
Einbrandkerben und  
Endkrater nicht zulässig.  
Welding seams 7  
Heat notches and arc craters  
are not permitted.

The front and middle hanger brackets must be braced with adequately dimensioned so that the transversal forces can be transmitted from the axle via the hanger




Nur Außen verschweißen!  
Weld only on the outside!



# Bolt / Nut torque values

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

# Soforthilfe im Pannenfall

# NonStopService 24

## Support in the case of service

- Im Servicefall wählen Sie bitte **immer** die Rufnummer Ihres **Heimatlandes**.
- In the case of service please **always** dial the number of your **own country**.

Inland home country		Vom Ausland from abroad
03 62 27 23 21	(A)	+43 3 62 27 23 21
0 59 33 07 07	(B)	+32 59 33 07 07
+30 21 09 40 19 80	(BG)	+30 21 09 40 19 80
+386 26 16 58 35	(BIH)	+386 26 16 58 35
0 19 08 64 90	(CH)	+41 19 08 64 90
2 61 10 45 06	(CZ)	+42 02 61 10 45 06
0800 72 37 37 84 / 0 73 33 80 81 58	(D)	00800 72 37 37 84 / +49 73 33 80 81 58
75 72 74 74	(DK)	+45 75 72 74 74
9 02 18 19 92	(E)	+34 9 13 82 68 41
697 91 96	(EST)	+372 697 91 96
03 88 72 06 43	(F)	+3 33 88 72 06 43
0 93 51 31 33	(FIN)	+35 8 93 51 31 33
+41 19 08 64 90	(FL)	+41 19 08 64 90
0 87 02 42 02 37	(GB)	+44 87 02 42 02 37
21 09 40 19 80	(GR)	+30 21 09 40 19 80
061 43 901 02	(H)	+36 1 43 901 02
+386 26 16 58 35	(HR)	+386 26 16 58 35
02 66 16 55 74	(I)	+39 02 66 16 55 74
+44 87 02 42 02 37	(IRL)	+44 87 02 42 02 37
+32 59 33 07 07	(L)	+32 59 33 07 07
+372 697 91 96	(LT)	+372 697 91 96
+372 697 91 96	(LV)	+372 697 91 96
+33 3 88 72 06 43	(MC)	+33 3 88 72 06 43
+386 26 16 58 35	(MK)	+386 26 16 58 35
+45 75 72 74 74	(N)	+45 75 72 74 74
+32 59 33 07 07	(NL)	+32 59 33 07 07
+34 9 13 82 68 41	(P)	+34 9 13 82 68 41
06 18 31 98 70	(PL)	+48 6 18 31 98 70
02 12 50 02 60	(RO)	+40 2 12 50 02 60
+39 02 66 16 55 74	(RSM)	+39 02 66 16 55 74
+45 75 72 74 74	(S)	+45 75 72 74 74
+42 02 61 10 45 06	(SK)	+42 02 61 10 45 06
0 26 16 58 35	(SLO)	+386 26 16 58 35
0 21 22 75 13 21	(TR)	+90 21 22 75 13 21
+386 26 16 58 35	(YU)	+386 26 16 58 35

[www.safholland.com](http://www.safholland.com)