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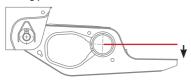


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Underslung IU

Air bag position is below centreline of axle beam



MODUL Series - Underslung

Trailing arm below the axle



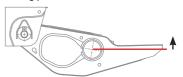
Axle Serial Numbers

SAF-HOLLAND GMEH D-ALESS RESSENBACH - DER	MANY SH Holland	
Version 59-4218	Serul No. 11 09 307 0137	
Type SNK4218-11S	Joent No. 147 95 02 2 58 3	0
Test Nepurt 0381	Herm, andé tap stor. 9000 kg	U
Made in Germany	V max. 105 km/h	
111 AV 333528	5N 11093070137	

Axle identification tag

Overslung IO

Air bag position is above centreline of axle beam



MODUL Series - Overslung Trailing arm above the axle



Spindle Nuts

Left hand spindle has left hand thread Right hand spindle has right hand thread



Right hand side of axle spindle

Ride Height Check

SAF-HOLLAND Group

INTRA Series

Trailing Arm Type	Hanger Pivot Height BH	Pedestal Height H	Nominal Ride Height F	Ride Height Range	Standard Shock Part #	RFS Shock Part #	Standard Airbag
IU25	200mm	5mm	250mm	230-270mm	2376007900	2376507000	SAF 2619V (300mm)
IU28	200mm	50mm	280mm	260-300mm	2376007900	2376507000	SAF 2619V (300mm)
IU30	250mm	50mm	300mm	280-320mm	2376008000	2376507100	SAF 2619V (300mm)
1035	200mm	5mm	355mm	335-375mm	2376008000	2376507100	SAF 2619V (300mm)
1037	250mm	5mm	375mm	355-395mm	2376008000	2376507100	SAF 2619V (300mm)
1042	300mm	50mm	425mm	405-455mm	2376008000	2376507100	SAF 2619V (300mm)
1047	350mm	100mm	475mm	455-495mm	2376008000	2376507100	SAF 2619V (300mm)

MODUL Series

Air Suspension Series U/ E29 Ride Height Chart

Model	Hanger Pivot HT(BH)	Air Spring Ped. HT(H)	Nominal Ride HT(F)	Ride Height Range	Standard Shock	RFS Shock (Optional)	Standard Air Spring Type & Dia
U20/2500 E29	250	5	200	170-220	2376003100	2376503100	SAF 2618V (300mm)
U22/2504 E29	250	40	220	190-240	2376003100	2376503100	SAF 2618V (300mm)
U25/2907 E29	290	70	255	225-275	2376003100	2376503100	SAF 2618V (300mm)
U27/2910 E29	290	100	270	240-290	2376003100	2376503100	SAF 2618V (300mm)
U30/3510 E29	355	100	300	270-320	2376003100	2376503100 7	SAF 2618V (300mm)
U33/3516 E29	355	160	330	300-350	2376003100	2376503100	SAF 2618V (300mm)



MODUL Series

Air Suspension Series M/ E29 Ride Height Chart

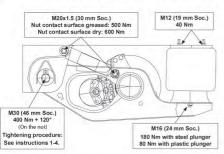
Model	Hanger Pivot HT(BH)	Air Spring Ped. HT(H)	Nominal Ride HT(F)	Ride Height Range	Standard Shock	RFS Shock (Optional)	Standard Air Spring Type & Dia
M36/2500 E29	250	5	365	345-385	2376002600	2376502600	SAF 2618V (300mm)
M38/2504 E29	250	40	385	365-405	2376002600	2376502600	SAF 2618V (300mm)
M40/2904 E29	290	40	400	380-420	2376002600	2376502600	SAF 2618V (300mm)
M42/2907 E29	290	70	420	400-440	2376002600	2376502600	SAF 2618V (300mm)



INTRADISC / INTRADRUM SUSPENSION MAINTENANCE



TORQUE SETTINGS AND PROCEDURES - STEEL HANGERS



The First Service Provider is responsible for the shock absorber bolts and axle spindle nuts re-torque/marking for the regular visual inspection as required in the "Repair and Maintenance Manual".



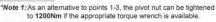
- 1*. Pre-tighten to : 400 Nm.
- Use torque wrench with socket size of 46mm. *Torque must be applied to the nut.
- 2*. Mark the angle of 120° (two flats) for the final tightening.



3*. Perform the final tightening of 120° (two flats)

Use impact wrench or extend lever to 2.5 m. Hold hexagon bolt head to prevent it from turning during the final tightening.

4. Clearly mark with counterpunch and line marker relative position of the bolt, nut and hanger after the final tightening for the future visual inspections (to be easily visible)!



*Note 2: The pivot connection MUST be marked by the OEM, otherwise there will be no warranty.

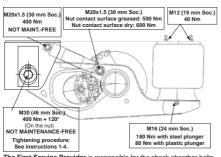
Warranty on SAF Intradisc/Intradrum suspension would be void if the prescribed maintenance procedures were not performed as per "Repair and Maintenance Manual". If the Manual has not been delivered with the trailer, please call SAF-HOLLAND - Customer Service on 03 9971 7900.



INTRADISC / INTRADRUM SUSPENSION MAINTENANCE

TORQUE SETTINGS AND PROCEDURES - ALLOY HANGERS





The First Service Provider is responsible for the shock absorber bolts and axle spindle nuts re-torque/marking for the regular visual inspection as required in the "Repair and Maintenance Manual".



1*. Pre-tighten to : 400 Nm.

Use torque wrench with socket size of 46mm. *Torque must be applied to the nut.



2*. Mark the angle of 120° (two flats) for the final tightening.



Alternatively pivot bolt can be tightened to 1200Nm if the appropriate torque wrench is available.



3*. Perform the final tightening of 120° (two flats) Use impact wrench or extend lever to 2.5 m. Hold hexagon bolt head to prevent it from turning during the final tightening.

4. Clearly mark with counterpunch and line marker relative position of the bolt, nut and hanger after the final tightening for the future visual inspections (to be easily visible)!

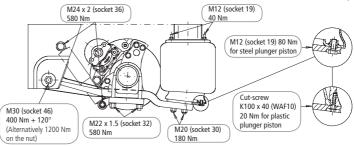
*Note 1: As an alternative to points 1-3, the pivot nut can be tightened to 1200Nm if the appropriate torque wrench is available.

*Note 2:The pivot connection MUST be marked by the OEM, otherwise there will be no warranty.

Warranty on SAF Intradisc/Intradrum suspension would be void if the prescribed maintenance procedures were not performed as per "Repair and Maintenance Manual". If the Manual has not been delivered with the trailer, please call SAF-HOLLAND - Customer Service on (03) 9971 7900

Torque Specification For MODUL Suspension





Tightening procedure

- 1. Faces of the HD bearing bush must be free from oil and grease.
- Install the suspension arm bearing parts as shown in the repair and maintenance manual.
- 3. Adjust the vehicle to ride height (Refer page 5)
- 4. Pretighten the nuts M30/WAF46 to 400 Nm using a torque wrench.
- Align the marks on the alignment washers, hexagon head bolt and nut over one corner of the nut.
- Tighten the nut a further 120° (2 nut corners), holding the bolt head to prevent the bolt from turning with the nut. Alternatively 12 Nm.
- 7. Perform a visual check. Correct the turn angle, if necessary.
- Make marks with a centrepunch on the alignment washers, hexagon head bolt and nut in a line after completing the tightening procedure.

Attention!

- Threads are not to be oiled or greased!
- Thrust plate for steel hanger brackets are maintenance free
- All contact surfaces of the suspension arm and shock absorber bolts must not be coated with primer or paints over the existing primer coating (Coat thickness max 45 µm)



ZI9-19W INTEGRAL Axle Torque Chart					
Part	Application	Torque Specifications			
SAF Specific Axle Spindle Nut M75 x 1.5	Compact Bearing System	Left-hand thread located on the left-hand side of the axle. Right-hand thread located on the right-hand side of the axle. The axle nut with a left-handed thread can be identified by a circular groove. 1. Pre-torque with a size 85 mm socket to 150 Nm. 2. Rotate the head unit slowly by 5 revolutions. 3. Tighten axle spindle nut to final a torque of 900 Nm. Max. Permissible end play of the hub unit is shown in page 19.			
SAF Specific INTEGRAL Bolt M14 x 1.5	Rotor - Hub	Torque all ten bolts in a criss-cross pattern. 1. Pre-torque to 50 Nm. 2. For final torque tighten by an additional 120 degree turn.			
SAF Specific Calliper Bolt M18 x 1.5	Calliper - Spider	Torque bolts from inner bolts to outer bolts 1. Pre-torque to 120 Nm. 2. Final torque from inner bolts to outer bolts to 450 +/- 30 Nm.			
SAF Specific Brake Chamber Nut 5/8-11 UNC Nylock or M16 x 1.5"	Brake Chamber	Pre-torque both chamber nuts to 80-100 Nm For final torque tighten both chamber nuts to 180-210 Nm.			



Z9-4218 Axle Torque	Chart	
Part	Application	Torque Specifications
SAF Specific Axle Spindle Nut M75 x 1.5	Compact Bearing System	Left-hand thread located on the left-hand side of the axle. Right-hand thread located on the right-hand side of the axle. The axle nut with a left-handed thread can be identified by a circular groove. 1. Pre-torque with a size 85 mm socket to 150 Nm. 2. Rotate the head unit slowly by 5 revolutions. 3. Tighten axle spindle nut to final a torque of 900 Nm. Max. Permissible end play of the hub unit is shown in page
SK RZ 9019 Axle Tor	que Chart	
Part	Application	Torque Specifications
Spindle nut		Left-hand thread is located on the left-hand side of the direction of travel and can be identified by a circular grooved hub nut and spindle. Right-hand thread located on the right-hand side of the direction of travel, can be identified by an axle serial number on spindle. 1. Pre-torque to 200 Nm while rotating wheel hub. 2. Rotate the head unit slowly at least 5 revolutions. 3. Tighten the axle spindle nut to a final torque of 900 Nm. Alternatively the nut hub could be tightened to 900 Nm whilst rotating the hub and rotor.
Spring brake chamber 2 hex. nuts M16 x 1.5	Brake Chamber	210 Nm
Brake calliper mounting on axle M16 x 1.5 x 55	Calliper - mounting	290 Nm
Guide pin bolts	Brake Calliper	340 +/- 20 Nm
Brake pad retainer clamp	Brake pad	30 +/- 15 Nm
Wheel nuts M22		600 Nm



Tyre changing on fully loaded trailer with INTRA axle. Jack positioning points.









Suspension 1st Service Procedure



NOTE: In House (Company) safety rules and regulations are to be followed at all times.

- Safely place trailer on pit.
- 2. Ensure wheel chocks are secured preventing movement.
- 3. Ensure brakes are released.
- 4. Check hubbo for operation. Record kilometres travelled.**
- 5. Check ride height and adjust if necessary.
- **6**. Check torque of all 3D pivot bolts & mark.
- 7. Check torque of all shocker bolts & mark.
- 8. Check torque of all top & bottom airbag bolts.
- 9. Check torque of all brake booster mounting bolts.
- 10. On Integral disc suspensions only-check torque on all rotor bolts.
- 11. Jack front axle according to SAF-HOLLAND specifications.
- 12. Perform steps 14-18 on LHS and RHS hubs.
- 13. Rotate hubs check for noisy hubs record findings.
- 14. Perform wheel rock test on all hubs record findings.
- **15.** Inspect hubs for grease escape record findings.
- 16. Torque spindle nut according to SAF-HOLLAND specifications.
- 17. Mark hub nut and date 1st service on inner spindle.
- 18. Lower jack from front axle, repeat process (steps 12 to 18) on subsequent axles.
- 19. On Intra drum suspensions only–check & grease all S-Cam & slack adjusters.

WARNING: Do not perform final torques of bolts unless the trailer is at the correct ride height. Failure to do so can introduce premature wear and failure.



1st Scheduled Service after first 5,000 km or first month in service.

- · Ensure hub nut torque setting is correct.
- Check hub assembly for noise, end play and excessive grease leakage from seals.
- Mark spindle and nut with paint pen for further visual inspections.
- Ensure pivot bolt connections are at the correct torque setting.
- Ensure shock-absorber bolts upper and lower are at the correct torque setting.
- Ensure calliper, brake booster and air spring bolts are at the correct torque settings.
- Check rotor mounting bolts at 200Nm.
- * Note refer to page 12 for procedure

NOTE: If the vehicle is driven under adverse conditions, lubricating frequency should be increased and the maintenance interval should be shortened.



Every 30,000 km or 3 Months whichever occurs first.

- Inspect hub assembly for noise, end play and excessive grease leakage from seals.
- Check spindle nut for correct torque setting. This can also be done with a visual inspection, only if spindle and nut were marked during the 5000 km service.
- · Inspect brake pad thickness.
- Inspection of all brake air lines and fittings for leaks.
- Inspect disc brake rotors for excessive cracks.
- Check tyre pressures.
- Inspect shock absorbers for leaking only.
- Inspect suspension for correct ride height setting, adjust if required. (Refer to page 4)

NOTE: If the vehicle is driven under adverse conditions, lubricating frequency should be increased and the maintenance interval should be shortened.



Every 150,000 km or 12 months whichever occurs first.

- Check torque setting of spindle nut.
- Check hub assembly for noise, end play and for excessive grease leakage from seals.
- · Check all suspension bolts for correct torque setting.
- Check pivot bushes for excessive movement. (Refer to maintenance and repair manual for specifications /tolerances on 3D bush movement).
- Perform general annual inspection (brakes, air bags and tyres).

NOTE: If the vehicle is driven under adverse conditions, lubricating frequency should be increased and the maintenance interval should be shortened.



1st Scheduled Service after first 5,000 km or first month in service

- Ensure hub torque setting is correct.
- Check hub assembly for noise, end play and excessive grease leakage from seals.
- Mark spindle and nut with paint pen for further visual inspections.
- Ensure pivot bolt connections are at the correct torque setting.
- Ensure shock absorber bolts upper and lower are at the correct torque setting.
- Ensure brake booster and air spring bolts are at the correct torque settings.
- · Grease all cam bushes
- * Note refer to page 12 for procedure

NOTE: If the vehicle is driven under adverse conditions, lubricating frequency should be increased and maintenance interval should be shortened.



Every 30,000 km or 3 Months whichever occurs first.

- Inspect hub assembly for noise, end play and excessive grease leakage from seals.
- Check spindle nut for correct torque setting. This can also be done with a visual inspection, only if spindle and nut were marked during the 5000km service.
- · Inspect brake lining thickness at regular intervals.
- Inspection of all brake air lines and fittings for leaks.
- Inspect brake drum for excessive cracks.
- Check tyre pressures at regular intervals.
- Inspect shock absorbers for leaking only.
- Inspect camshafts for free movement.
- Grease all cam bushes
- Inspect suspension for correct ride height setting, adjust if required. (Refer to page 4)

NOTE: If the vehicle is driven under adverse conditions, lubricating frequency should be increased and maintenance interval should be shortened.

SAF INTRADRUM Maintenance Intervals



Every 150,000 km or 12 months whichever occurs first.

- · Check torque setting of spindle nut.
- Check hub assembly for noise, end play and for excessive grease leakage from seals.
- Check all suspension bolts for correct torque setting.
- Check pivot bushes for excessive movement. (Refer to maintenance and repair manual for specifications
 /tolerances on 3D bush movement).
- · Perform general annual inspection (brakes, air bags and tyres).

NOTE: If the vehicle is driven under adverse conditions, lubricating frequency should be increased and maintenance interval should be shortened.

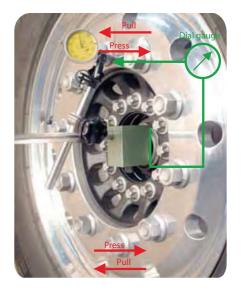


End Play Check

- 1. Raise the wheel. Do not remove the wheel!
- 2. Carefully remove the wheel cap.
- 3. Check that the axle nut is tightened to the torque specification for the axle model.
- **4.** Position the magnetic foot of the dial gauge as shown on the right.
 - Surface must be cleaned before.
- 5. By alternately pulling and pressing (first pull at the top an press at the bottom, then pull at the bottom and press at the top), rock the wheel and read off the travel on the dial gauge.

Rotate the wheel several times before each measurement!

NOTE: If the end play is more than 0.25 mm (250 μ m) the hub unit must be replaced or adjusted.





Grease Escape Test (Unitised Bearings) Increased grease escape:

Indicator:

Bearing seal is fully covered with grease

NOTE: There may be a small amount of grease on the lower edge of the seal. This is normal and does not indicate grease leakage.







Wheel Bearing Noise Test

- 1. Raise the wheel. Do not remove the wheel!
- 2. Carefully remove the wheel cap.
- **3.** Check that the axle nut is tightened to the torque specification.
- Rotate the wheel in both directions (fast and slow).
- If the bearing feels rough and/or a "grinding" noise is heard, the hub unit must be replaced.

NOTE: Noise can also be caused by the brakes.

Before replacing the hub unit, confirm
by removing the brake pads and repeat
the bearing noise test.



Shock Absorbers Inspection



Misting

Misting is the process whereby very small amounts of shock fluid evaporate at high operating temperatures through the upper seal of the shock.

- This is normal

Leaking Shock Absorber

Leaking Shock Absorber will show clear signs of fluid leaking in streams from the upper seal. As illustrated in the above photo.

- Shocker needs to be replaced.







KEDI Axle

	10			PERIODIC CHEC	K
MAINTENANCE INTERVALS WHICHEVER COMES FIRST	DISTANCE INTERVALS>	AFTER FIRST 5,000 KM OR	EVERY 30,000KM	EVERY 90,000KM	EVERY 150,000KM
	TIME INTERVALS >	AFTER FIRST MONTH	EVERY 3 MONTHS	EVERY 6 MONTHS	EVERY 12 MONTHS
MECHANICAL CHECK	The state of the state of				
Attention: Check torque of whe	el nuts after the first 100km to the	recommended torqu	ue setting, also a	fter any removal	of the wheel.
Torque check all nuts and bolts	to recommended setting.				
Check and adjust hub end-float	(if required).				
Check condition of taper roller l	bearing and replace, if necessary.				
Pack wheel bearing with fresh of months, whichever comes first	grease after 150,000 km or 12				
Lubricate camshaft bearings aft	er every brake lining replacement.				

KEDI MODUL Maintenance Intervals



Axle Lubrication Brake camshaft bearing

Near the S cam and spline of camshaft, there is camshaft bushing and spherical bearing inside of the camshaft bracket. Add grease to it every three months (before drive it again after it is not used for a long time). Fill grease in until new grease spills out around the nipple (Figure 2).

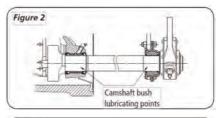
Brake slack adjuster

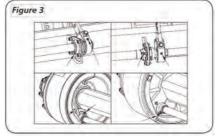
Add lubricant grease every three months until new grease spills out around the nipple. The maximum lubricating interval should not exceed 30,000 kilometres (Figure 3).

Replacing wheel hub bearing seal

Inspect and replace grease and oil seal every 150,000 kilometres or 12 months or every time after replacing the brake lining or reassembling the bearing.

When replacing bearing grease, make sure to firstly thoroughly clean the bearing and the sealing element and check whether these parts can be reused. Clean the wheel hub cavity and wheel hub cap cavity, and then fill grease into it. The space between bearing rollers must be fully filled with grease.





- If the vehicle is driven under adverse conditions, lubricating frequency should be increased and maintenance interval should be shortened.
- 2. Composite lithium based grease with a temperature of -30°~180° should be used.
- Never use mixed greases of different types!



Axle maintenance

Check the working conditions of the wheel hub bearing

Once every six months, check the working conditions of the wheel hub bearing. When check, it is necessary to lift the axle to the height where the wheels are lifted from the ground. Use a jack to support the axle against the position near the leaf spring or the crossbeam.

Lift the tires off the ground and check whether the bearing can rotate normally.

Bearing Clearance Adjustment

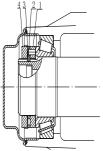
When performing first service after initial driving of 5,000 km, or after every 90,000 kilometres of normal driving, bearing clearance adjustment must be carried out.

Procedure for adjusting bearing clearance and tightening of wheel end nut for Kedi axle

- 1- Adjusting Axle Nut (Figure 1);
- 2- Adjusting Washer (Figure 1);
- 3- Stop Washer (Figure 1);
- 4- Axle Lock Nut (Figure 1).

Bearing Clearance adjustment

- 1. Torque axle adjusting nut (Item 1) to 271 Nm while rotating the wheel.
- 2. Back the axle adjusting nut off one full turn.
- 3. Torque the axle adjusting nut to 68Nm while rotating the wheel.
- 4. Back the axle adjusting nut off 1/4 turn.
- 5. Install the adjusting washer (Item 2). The Figure 1 inner tooth of the adjusting washer should be put into the spindle groove, making sure the pin of the adjusting axle nut and adjusting washer align. If not, turn over the adjusting washer and install. If required, loosen the axle adjusting nut (only a small amount) to achieve alignment.
- **6.** Install the tab washer (Item 3). The inner tooth should be put into the spindle groove.
- **7.** Fit to axle lock nut (Item 4) and torque to 10-540 Nm. Bend two symmetrical outer tabs of the tab washer (Item 3) to secure the axle lock nut.
- **8.** Verify the bearing setting with a dial indicator to ensure a 0.025 0.127 mm End Play setting.



Warranty Conditions



Within the SAF-HOLLAND warranty period. Refer to the Warranty Certificate for a product. A summary of the warranty conditions are as follows:

	Shock Absorber	
Highway Application	Wheel Bearings	1,000,000 km or 6 Years
uilluses whhicerion	Pivot Bush	the second secon
	Axle Beam	1,000,000 km or 6 Years on Structural and Manufacturing defects only
	Shock Absorber	
Sec. Actions	Wheel Bearings	500,000 km or 3 Years
Off-Road Application	Pivot Bush	
	Axie Beam	\$00,000 km or 3 Years on Structural and Manufacturing defects only
L. C. L. C.	Brake Caliper	2 years
road Application/ Off-	Disc Rotor	2 Years
road Application	All other components	12 months
Brake balance between 1	Fruck and Trailer must not o	er as Indicated on the VIN plate exceed ± 2 PSI, and must be check on a regular basis
MODUL Series with Pro	e-Set Bearings	
Highway Application	Wheel Bearings	1,000,000 km or 6 Years

MODUL Series with Pr	re-Set Bearings

Highway Application	Wheel Bearings	1,000,000 km or 6 Years
Off-Road Application	Wheel Bearings	500,000 km or 3 Years
Highway Application/ Off-	All other components	12 Months Warranty
	Axle Beam	5 Years Warranty on Structural and Manufacturing defects only
road Application	Brake Caliper	2 years
	Disc Rotor	2 Years
	All other components	12 months

Brake balance between Truck and Trailer must not exceed ± 2 PSI, and must be check on a regular basis

MODUL Series with Kedi Axle

Highway Application/ Off	All Suspension and Axle Components	12 Months Warranty	
	Axie Beam		

· Brake balance between Truck and Trailer must not exceed ± 2 PSI, and must be clieck on a regular basis



☐ Failure not due to normal wear and tear.
☐ Installed and commissioned according to the Manufacturer's installation manual.
☐ Maintained at regular intervals in accordance with the Manufacturer's recommendation. Note: 1 st 5,000 kilometre service is mandatory for the warranty to be valid.
☐ Use of genuine replacement parts, including brake pads.
☐ Not operated once the defect was known.
□ Free of any unauthorized modifications or alterations (including tampering with security seals). Any modifications or alterations must be authorised by SAF-Holland Technical Service Manager before implementing.
The failure is NOT covered by warranty if the following conditions are applicable:
☐ Outside of warranty terms & conditions.
☐ Failure due to normal wear and tear.
□ Damage resulting from misuse or abuse including incorrect application.
☐ Damage resulting from incorrect installation. Installation NOT as defined in Manufacturer's literature.
☐ Incorrectly maintained or repaired. 1 st 5,000 kilometre service is mandatory for the warranty period to be valid.
☐ Use of non genuine parts including brake pads.
☐ Unauthorised modification or alteration.
☐ Operated after defect was known.

Branch locations and contact information

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