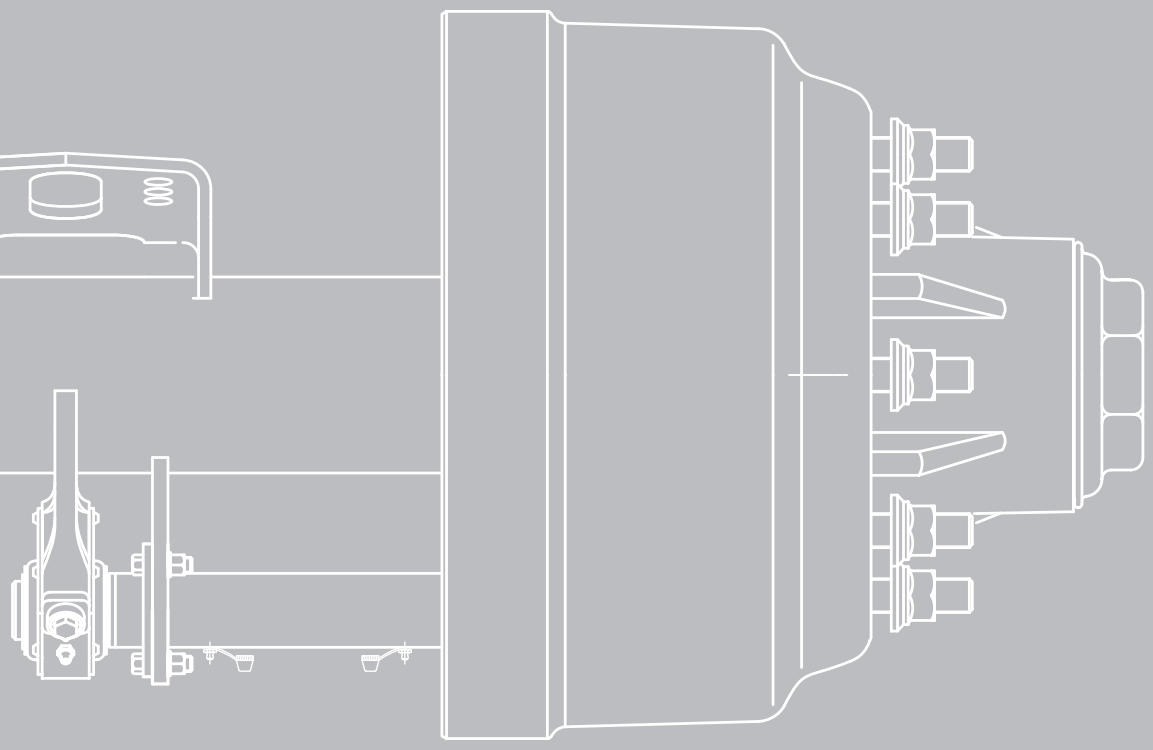
Maintenance Manual

Kedi drum brake axles



SH-34 REV D

SAF Holland
Engineering Your Road to Success

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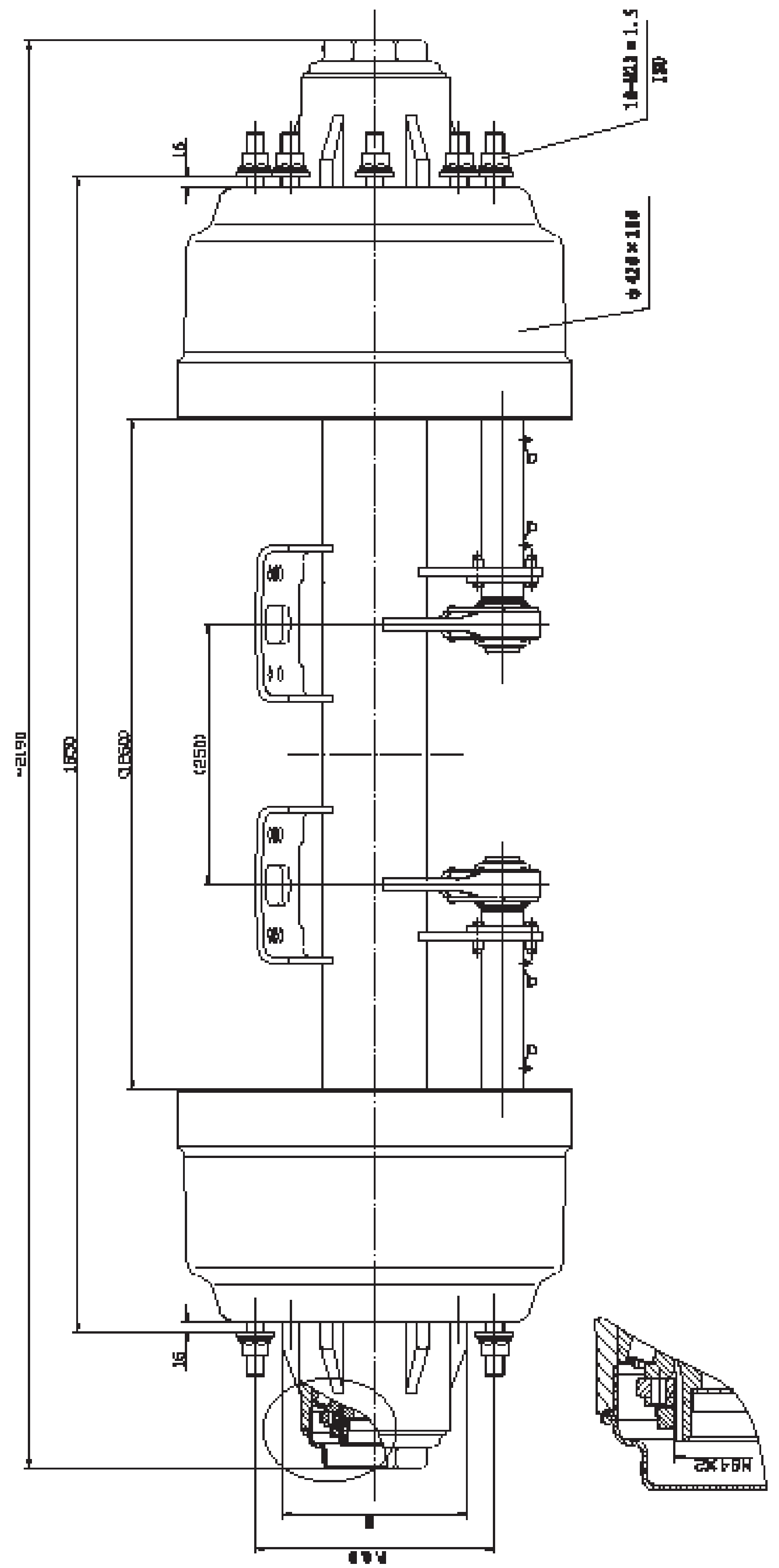
Warranty

1 year warranty period from the date of installation. Warranty covers the axle free from defects in material and workmanship under normal use and service.

The warranty is void with respect to any product which has been altered in any way from its manufactured condition, such as intentional modification, accident, corrosion, misuse failure to provide necessary and reasonable maintenance and is exclusive of normal wear. The sole responsibility of SAF-HOLLAND under this warranty is limited to repairing or replacing at the factory any part or parts which are returned, with transportation charges prepaid, and are found to be defective to the satisfaction of SAF-HOLLAND. Written authorization from SAF-HOLLAND must be obtained prior to returning any part or parts. No charges for transportation or for labour performed on SAF-HOLLAND products by unauthorized persons will be allowed under this warranty. SAF-HOLLAND shall not be liable, in any event, for proximate, incidental, consequential or other damages, including but not limited to damages for loss of production or injury to persons or property arising out of any breach of this warranty. Hubodometer must be fitted to each trailer to ensure warranty is valid. If not fitted the warranty is null and void. 1st 5,000km service must be conducted to ensure warranty is valid. Records will be compared to inspection and preventative maintenance manual to ensure accuracy. THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE EXTENDING BEYOND THAT SET FORTH ABOVE. SAF-HOLLAND reserves the right, without prior notice, to change specifications and dimensions as designs are altered and/or improved. Options and features other than those shown may be provided.

Product specifications - Axle

- Brake XEM 420x180mm
- Outboard drum
- Brake chambers centres 250mm;
- Brake lining MB21;
- Track 1850mm
- Standard wheel fixing 10x285PCD, M22x1.5 stud; other options 10x335PCD & 5 spoke;
- Beam size 127x16mm;
- Auto slack adjusters 152.5mm (6”) - standard (Multi and manual hole optional)
- S-cam tubes - standard
- Bearing HM518445/10
- 4 piece hub nut securing system (procedure attached)
- ABS ready with 100 teeth pole wheel - standard
- Weight: 364 kg
- Parallel Spindle



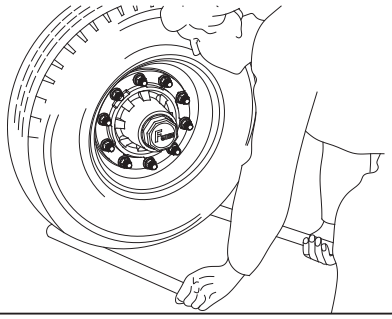
Axle Type	(kg) Max. capacity	Total Length	Track	Centre Distance Of Brake Chamber	Axle Tube	Brake	Stud	P.C.D	H	Recommended Wheel	Bearing
K13ESTTns	13,000	2190	1850	250	ϕ127×16	ϕ420×180	10-M22×1.5 ISO	ϕ285.75	ϕ220	7.5-20	HM518445/10

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 checking, 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. Please note that it is necessary to use the steel base plates with a thickness of over 15mm, lift the tires off the ground, insert two pries between the wheel and the ground, and check whether the bearing can rotate normally ***(Figure 1)***.

Figure 1

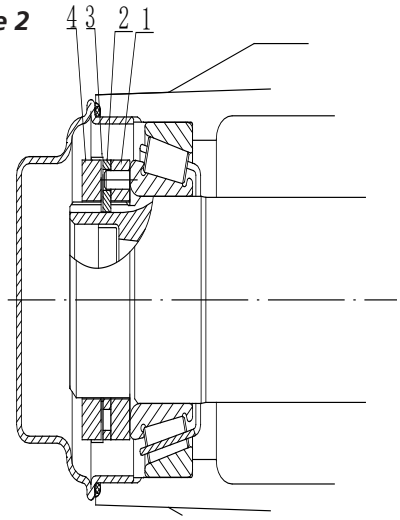


Bearing Clearance Adjustment

Improper bearing clearance adjustment will directly affect the service life of the axle. If the clearance is too small, the bearing will be quickly heated and burnt during operation. If the clearance is too large, contact between the bearing rollers and the inner and outer races will be greatly reduced, and only a small number of rollers bear the full load as a result, inner and outer race ways will be damaged quickly. Therefore, appropriate adjustment of bearing clearance is essential to the use of the axle.

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.

Figure 2



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

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

TAPERED ROLLER BEARING ADJUSTMENT PROCEDURE
RP-618

Step 1: Lubricate the tapered roller bearing with clean axle lubricant of the same type used in the axle sump or hub assembly.
NOTE: Never use an impact wrench when tightening or loosening lug nuts or bolts during the procedure.

Initial Adjusting Nut Torque	Initial Back Off	Final Adjusting Nut Torque	Back Off		Final Back Off	Jam Nut Torque		Acceptable End Play
			Axle Type	Threads Per Inch		Nut Size	Torque Specifications	
Step 2	**Step 3**	**Step 4**	**Step 5**		**Step 6**	**Step 7**		**Step 8**
200 lbf●ft (271N●m) While Rotating Wheel	One Full Turn	50 lbf●ft (68 N●m) While Rotating Wheels	Steer (Front) Non-Drive	12	1/6 Turn *	Install Cotter Pin to Lock Axle Nut in Position		0.001" - 0.005" (.025 - .127 mm)
				18	1/4 Turn *			
				14	1/2 Turn *	Less Than 2 5/8" (66.7 mm)	200-300 lbf●ft (271-407N●m)	
				18				
			Drive	12	1/4 Turn *	Dowel Type Washer	300-400 lbf●ft (407-542 N●m)	As Measured Per Procedure With Dial Indicator
				16		Tang Type Washer **	200-275 ibf●ft (271-373 N●m)	
			Trailer	12	1/4 Turn *	Less Than 2 5/8" (66.7mm)	300-400 lbf●ft (407-542 N●m)	
				16				

* If dowel pin and washer (or washer tang and nut flat) are not aligned, remove the washer, turn it over and reinstall. If required, loosen the inner (adjusting) nut just enough for alignment.

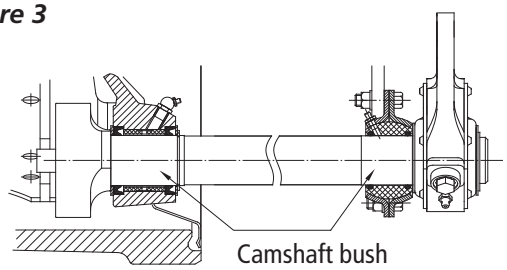
** Bendable type washer lock only: Secure nuts by bending one wheel nut washer tang over the inner and outer nut. Bend the tangs over the closest flat perpendicular to the tang.

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 or 30,000 km and before operation if the trailer has not been in use for an extended period.. Charge with grease until fresh grease can be seen around the greasing nipple and discharging around the cam. ***(Figure 3***).

Figure 3

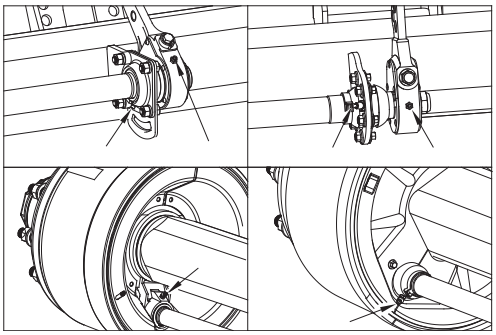


Camshaft bush lubricating points

Brake slack adjuster

The maximum lubricating interval should not exceed 30,000 kilometres ***(Figure 4***).

Figure 4



Replacing wheel hub bearing seal

Inspect and replace the grease and oil seal every 150,000 kilometres, every year, or every time brake lining replacement or bearing reassembly occurs.

When replacing bearing grease, make sure to firstly thoroughly clean the bearing and the sealing element (wash with diesel de-greaser), 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.

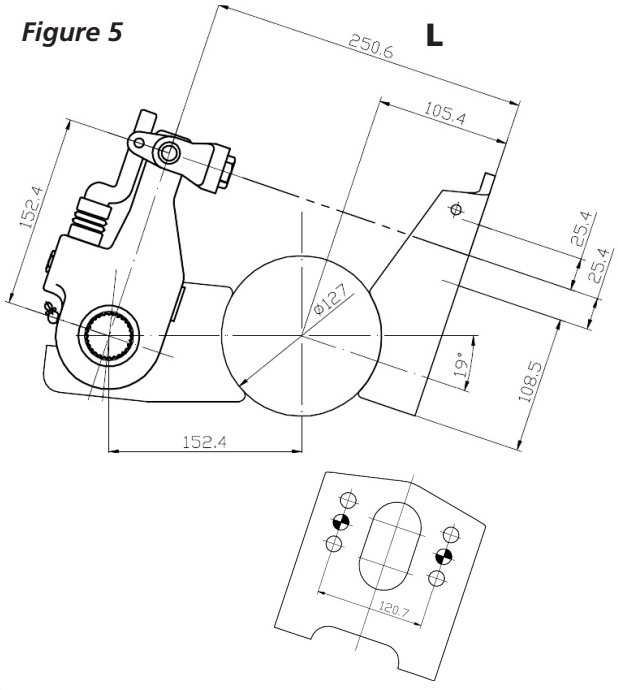
1. ⚠ If the vehicle is driven under adverse conditions, lubricating frequency should be increased and maintenance interval should be shortened.
2. Composite lithium based grease with a temperature of -30°~180° should be used. Mobil XHP222 axle grease specifically used by SAF-HOLLAND is recommended.
3. Never mix greases of different brands!

Installation & adjustment of automatic slack adjusters

Brake chambers

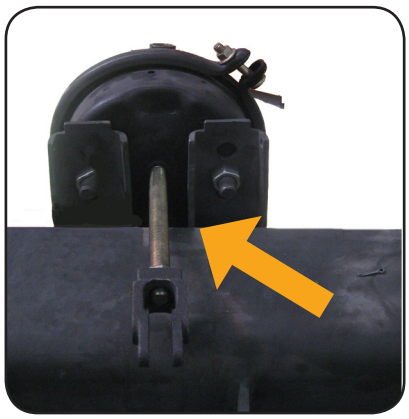
- Observe the correct piston rod length "L" as given in figure 5.(250.6mm).
- Install brake chambers as per manufacturers recommendations.
- Grease the camshaft.
- Install the slack adjuster on the camshaft if required.

Figure 5



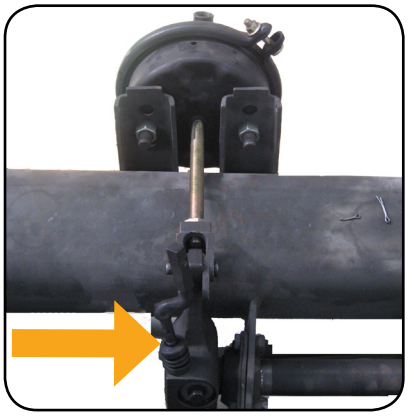
Auto Slack Adjustment Procedure

Step 1



Ensure booster is installed as per manufacturers recommendations

Step 2



Pull out the rod on the Auto Slack Adjuster.

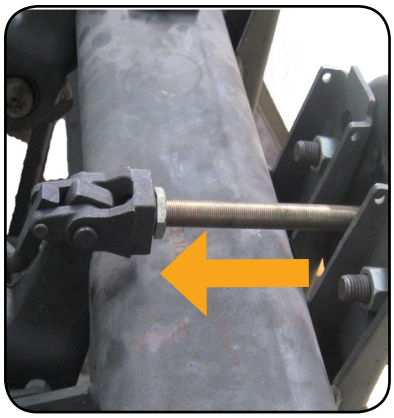
Step 3

Adjust the clearance of the brake lining by turning adjusting screw in a clockwise direction until the brake lining is in contact with the brake drum.

Step 4

Then back off adjusting screw by 3/4 turn.

Step 5

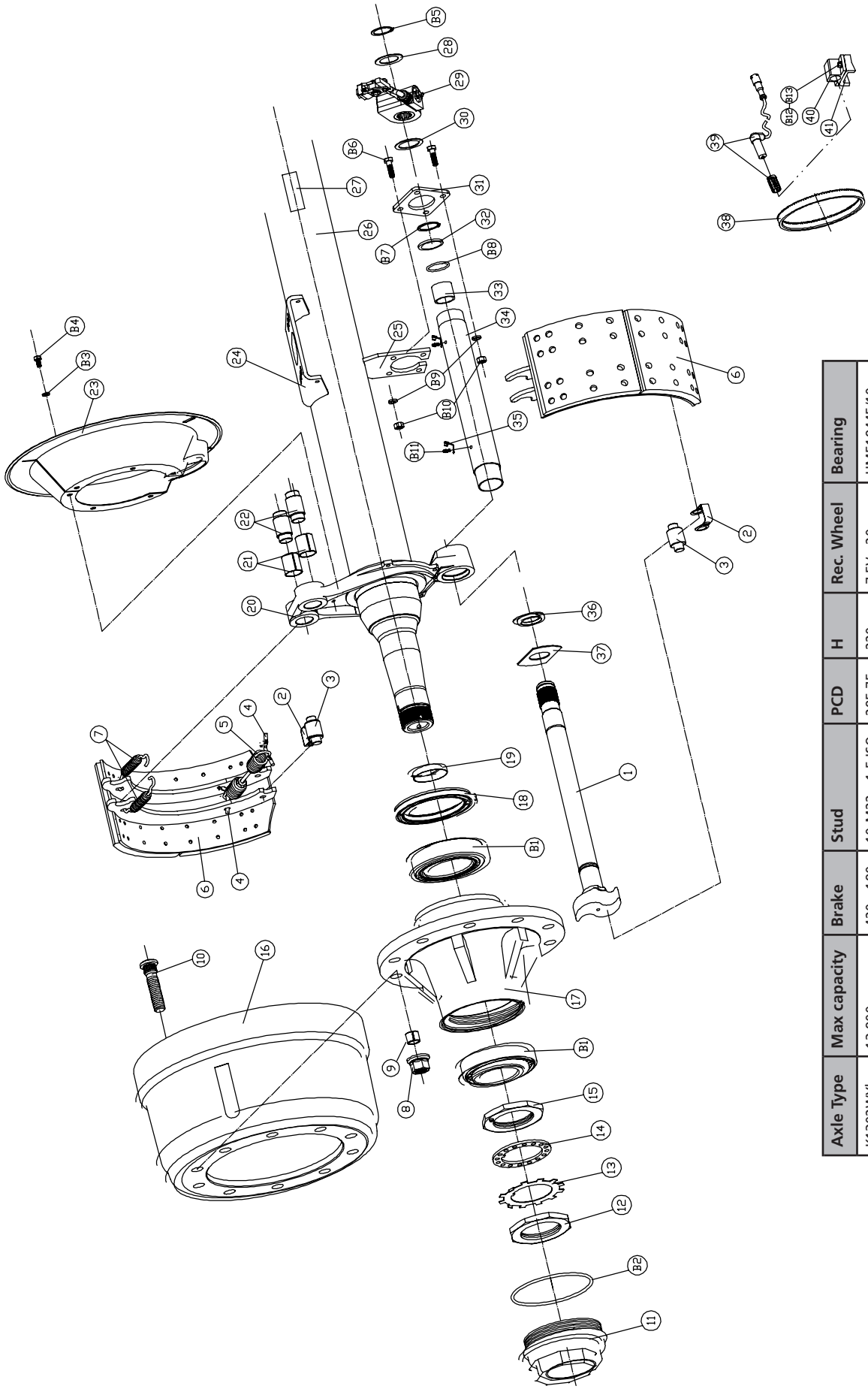


Push in rod and connect to booster clevis

Kedi axle

			PERIODIC CHECK		
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					
Attention: Torque check wheel nuts after the first 50km and 150km to recommended torque setting, also after 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 bearing and replace, if necessary.		•	•	•	
Pack wheel bearing with fresh grease after 150,000 km or 12 months, whichever comes first					•
Lubricate camshaft bearings after every brake lining replacement. or if vehicle is returning to operation after an extended period without use (3 months).			•		•

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



Axle Type	Max capacity	Brake	Stud	PCD	H	Rec. Wheel	Bearing
K1302WYha	13,800	420 x 180	10-M22 x 1.5 ISO	285.75	220	7.5V - 20	HM518445/10

Kedi Parts Listing

No.	Part No.		Quantity for each Axle (7.5T)
1	K131011013L/R	Camshaft (10 splines, Left / Right)	2
2	K131020101	Retainer Roller	4
3	K131030101	Brake Shoe Roller	4
4	K131040101	Pin Return Spring	4
5	K131050101	Heavy Duty Return Spring	2
6	K131060101-K	Brake Shoe Assembly 420*180mm (M1821 Carlisle Brake Lining)	4
7	K131070101	Anchor Pin Spring	4
8	K131080101	Flange Nut M22*1.5	20
9	K131270101	Bush	4
10	K131100205	Wheel Stud M22*1.5*125	20
11	K131140124 1-A	Blank Hub Cap	2
12	K131120302	Axle Locknut	2
13	K131110301	Stop Washer	2
14	K131110201	Adjusting Washer	2
15	K131120301	Adjusting Nut	2
16	K131161302	Brake Drum	2
17	K131151302AWP	Hub	2
18	K131170101	Hub Seal (φ108)	2
19	K131130101	Axle Stop Cover	2
20	K131200103	Brake Spider	2
21	K131190101	Spider Supporting Bush	4
22	K131180101	Spider Supporting Roller	4
23	K131210101	Dust Cover	2
24	K131250202	Air Chamber Bracket	2
25	K131260205	Camshaft Bracket Retainer I	2
26	K1313210	Axle Beam	1
27	K131230205	Nameplate	1
28	K131290101	Washer φ38.5	2
29	K13CB211 04	Stemco Auto Slack	2
29	K132175030600	Manual Slack	2
29	K131301011	Auto Slack Adjuster (10 splines)	2
30	K131290102	Washer φ41.7	4
31	K131470102	Camshaft Bracket Retainer II	2
32	K131290106	Cam Tube Washer	2
33	K131320302	Camshaft Bush	4
34	K131480102	Cam Tube	2
35	K131220101	Lubrication Fitting Cover	4
36	K131170201	Camshaft Oil Seal	2
37	K131290201	Long Washer	2
B1	K13B1D1001	Bearing HM51 B44510	4
B2	K13B1D3001	O Ring φ150*5.3	2
B3	K134502018	Spring Washer 8	12
B4	K13B1D5001	Stud M8*16	12
B5	K13B1D8001	Circlip 38	2
B6	K13B1D5002	Stud M10*30	8
B7	K13B1D8002	Circlip 42	2
B8	K13B1D3002	O Ring φ39.7*3.55	2
B9	K13B1D4002	Spring Washer 10	8
B10	K13B1D7001	Nut M10	8
B11	K13B1D6006	Lubrication Fitting M6	4
38	K134502021	Pole Ring	2
39	K134502022	ABS Sensor	2
40	K134502016	ABS Bracket	2
41	K134502023	ABS Bottom Bracket	2
B12	K13B1D5004	Stud M6*12	4
B13	K13B1D4003	Spring Washer 6	4

ORIGINAL PARTS

SAF 's history begins in 1881 in a village forge in Germany with the invention of a new plough. The family business soon starts building steel axles for agricultural vehicles, and under the name Otto Sauer Achsenfabrik (SAF) develops into one of the leading manufacturers of trailer axles and suspension systems in Europe.

A safety coupling between plough and horse team can be found at the beginning of Holland's history. The Safety Release Clevis Company was founded in South Dakota, USA , in 1910. After its move to Holland, Michigan, the company emerges as one of the largest supplier companies to the commercial vehicles industry under the name The Holland Hitch Company.

The merger of the two companies to form SAF-HOLLAND in 2006 creates one of the leading global suppliers of high-quality components and services for the commercial vehicle industry. Alongside axle and suspension systems for trailers and semi-trailers, the product range also includes kingpins and landing gear as well as fifth wheels for tractors, air suspensions, coupling products and numerous other components for buses and trucks.

Today SAF -HOLLAND is represented on all continents and distributes its products and services worldwide under the brand names SAF and HOLLAND. It can boast of an extensive distribution network with global service and dealer locations.

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