



Service Instructions and Maintenance Booklet

Axes / Axle Aggregates

3t-7.5t rigid axles (Version 2.0)

<http://www.gfa-germany.de>



General Hints:

This maintenance regulation is valid exclusively for GFA axes and GFA aggregates for an axle load up to 7.5t. It is an element and prerequisite of our warranty condition.

For preservation of full warranty, preparedness as well as traffic safety and reliability we attach great importance to the correct implementation of the following maintenance instructions in the given intervals.

To ensure the validity of our operating license for the GFA-axes and GFA aggregates, it is important to use original GFA spare parts or GFA authorized spare parts only.

The remedying, replacement of worn components and the maintenance service must be implemented by a qualified workshop.

All products and services of GFA apply exclusively to our general terms and conditions. Deviations require our agreement. You can download this and other current documents from our website.

Operating instructions:

Before each journey the driver must ensure that the brake and air system is operational. With an air suspension system driving is allowed only in driving position. The air suspension bellows mustn't show any fold, even after fast discharge or crane lifting.

Changes of the instructions can be subject to modification. Old maintenance regulations lose their validity after the implementation of a new version. Please check information on our website regularly or ask our salespeople in this matter – Thank you!

With the acquisition of an axle or aggregate by GFA you will always get the latest free copy of this booklet that belongs to the particular axle or vehicle (If you order a tandem, you also get the respective booklet). Please store this booklet as evidence with your other documents in a safe place.

Warranty (Prerequisites)

- The legal commitment for warranty only exists, if on the one hand the operating rules and maintenance instructions were verifiably met and on the other hand original spare parts by GFA were used and installed. Furthermore warranty cases have to be reported directly after occurrence so that decisions regarding rectification can be met.
- Claims concerning warranty must be reported and confirmed by us before the implementation of a possible or necessary repair. Retroactive expenditures cannot be asserted.
- In case of a (possible) warranty we need some information about the operator or owner of the trailer for processing and approval activities. Please fill out the corresponding Request for Warranty before you get in contact with us or send us the filled out proof of maintenance (p. 12-13). You can send us the documents by fax (03621 / 7303 – 50) or by mail. There is also the possibility to hand in the documents when taking over the car, so that we have your data beforehand.
- The period of warranty, unless otherwise agreed, is 12 months beginning from the date of delivery. The warranty is subject to legal regulations, and relates exclusively to the German law. On principle, we deliver according to our general terms and conditions. Deviations require our written agreement.

On the basis of continuous development, changes of technical details and their illustrations are possible anytime.

Required documents can be either ordered via our sales department or downloaded from our website (please pay attention to the latest version number).

<http://www.gfa-germany.de>

Service Availability:

Weekdays: +49 (0) 3621 / 7303 – 0

E-mail for service: info@gfa-germany.de



Operating Rules

For preservation of traffic safety and reliability you have to carry out the required maintenance regularly and in time, according to maintenance instructions. You always have to guide a corresponding proof (p. 11-13).

Moreover you have to ensure, that the legal regulations for traffic are complied with, in particular the following:

- you aren't allowed to
 - overstep the axle load and speed from the data sheet
 - place the load unilaterally or unfavorable
- you have to assure, that
 - the vehicle suspension is intact, completely and undamaged
 - you use only rims and tire sizes according to the data of the vehicle manufacturer
 - the tires are without damages and have the required air pressure
 - the driving style is always adjusted to the road conditions
 - always appropriate support devices are used for charge/discharge
 - the brakes never get overheated, because it reduces the retardation
 - the parking brake won't get immediately actuated, if the brake is overheated, because the brake drums can get damaged caused of different areas of conflict (cracking)
 - you carry out a brake tuning of load pull (machine carriage trailer)
- You have to tune the air pressure system of both vehicles before commissioning, so that there is a safe and uniform braking behavior.
- When using combined or TriStop brake cylinders you have to check before driving, whether the system is completely ventilated to prevent tearing out the brake cylinder out of the baseplate. In this connection perhaps you need some appropriate reinforcing plates (depends on the brake cylinder) additionally, that have to be adequately dimensioned (at least 6 mm x base area) or you use optional accessory by GFA.

Please ask us in individual cases or if anything is unclear.

Legal Regulations (Excerpt)

- Before driving you have to check the traffic safety of your vehicle and the aggregates. This belongs to the normal duties of the driver.
- Changes on the undercarriage or the brake system aren't allowed.
- The vehicle operator is responsible to observe the permitted axle loads and the legal vehicle inspections as well as the regular maintenance.
- The approval can get vitiated, if no original GFA spare parts will replaced or the maintenance service wasn't carried out during repair.

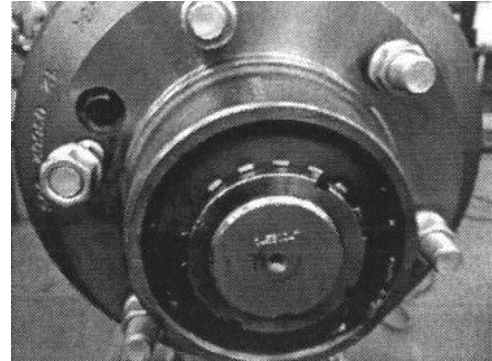
Adjusting of Wheel Bearing Play:

During tighten the axle nut you turn the wheel hub till you perceive a slight rotational resistance (so called zeroing).

Turn the axle nut 1/12 turns back till next possibility of securing.

The axle nut will secured with the associated securing metal plate.

Pull back the wheel hub slightly towards outer bearing with the wheel hub pullers.



You have to check the run of the wheel bearing and the side play (wheel play at most 0.05 mm).

The wheel must let be turned without any resistance and you mustn't perceive side play (otherwise correct the setting).

Wheel Bearing Grease – Specification

When replacing the wheel bearings and/or renewal of the lubrication for example as part of maintenance you must use grease for rolling bearings, that were hydrolyzed with lithium and have EP-additives (see table below).

Type of Grease for Rolling Bearings	RB 323006	VB/RB 503008	VB/RB 553010	RB 753016	RD 603334 RD 753334
	Grease Quantity [in grams]				
Quality:					
Cerrifol G-LFP3 Red (Respectively 100% comparable!)	250	400	400	550	550
NLGI-Consistency 2 Worked Penetration 280 Operating Temperature -30° to 130°C Dropping Point 185°C					
	Data each wheel hub! (both Wheel Bearings and Hubcap) Greases of rolling bearings mustn't mixed among themselves!				

Maintenance service have to get taken through a specialized workshop!

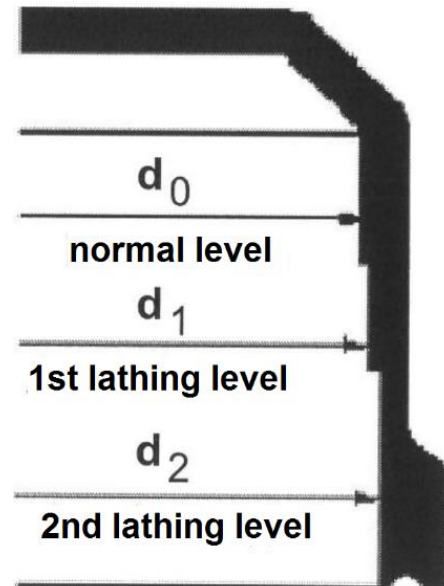
Brake drum – Repair Steps and permissible Brake Linings

Brake drum – Repair Steps

Working have to take through by a specialized workshop.

Hint:

Only when using original GFA spare parts you get warranty claim!



	Brake Diameter type RB 3006 and RB 503008, RB 553010	Brake Diameter 300 RB 753016
Maximal allowed Brake Drum lathe Diameter	303,0 mm	303,0 mm
Maximal allowed Brake Drum wear Diameter	304,0 mm	304,8 mm
GFA – decontrolled Brake Linings	NB 403 / tec 465 BERAL 1541 / Cosid 410	tec 465 Cosid 410

While exchange of brake linings the new brake linings have to get lathed to the diameter of the brake drum (tolerance range +0.3/-0.0 mm).

Brake Size	Lathing Steps of the Brake Drum			Number each Axle	
	Normal Level d_0	1 st Step d_1	2 nd Step d_2	Brake Lining	Rivet
300 x 60	300	302	303	4	48 / B8x15
300 x 80	300	302	303	4	48 / B8x15
300 x 100	300	302	303	4	64 / B8x15

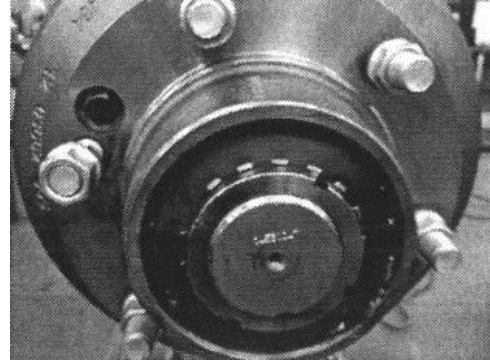
Adjusting of Wheel Bearing Play:

During tighten the axle nut you turn the wheel hub till you perceive a slight rotational resistance (so called zeroing).

Turn the axle nut 1/12 turn back till next possibility of securing.

The axle nut will secured with the associated splint pin.

Pull back the wheel hub slightly towards outer bearing with the wheel hub pullers. Caulk the thread of the hubcap.



You have to check the run of the wheel bearing and the side play.

The wheel must be turned without any resistance and you mustn't perceive side play at the rim (otherwise correct the setting).

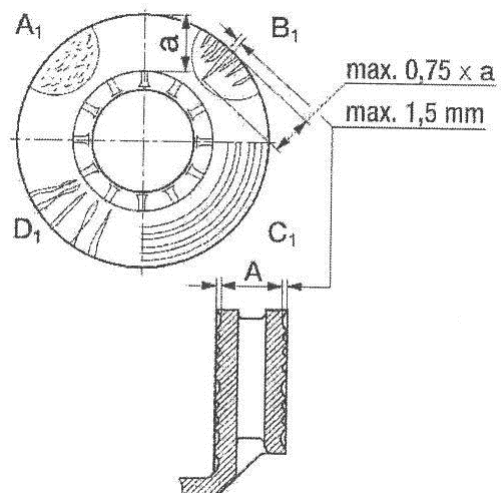
Wear Control (Brake Disc and Linings)

You have to check the thickness of the brake disc and the linings in regular intervals, at least every 3 months respectively according to the maintenance schedule. You have to exchange the brake linings at the latest with a minimum thickness of 2-3 mm.

The minimum thickness of the brake disc is 28 mm (measured at its thinnest point) and mustn't fall below in any case. You can lathe the disc only after appearing of severe striations. In this case you have to exchange the brake linings. But if the thickness of the brake disc is less than 30 mm at this time, you have to exchange this one, too.

During each inspection, especially during lining replacement, you have to check the brake disc for seizing marks or cracks!

- A1 partial mesh cracks are permitted
- B1 isolated, to center running cracks till 1.5 mm (width and depth) are permitted
- C1 irregularities on the disc surface till 1.5 mm are permitted
- D1 throughout cracks are inadmissible
- a width of friction surface



Brake linings have to get exchanged at the whole axle!

Continuation – 17.5” Disc Brake

Grease of Wheel Bearing – Specification

When replacing the wheel bearings and/or renewal of the lubrication for example as part of maintenance you must use grease for rolling bearings, that were hydrolyzed with lithium and have EP-additives (see table below).

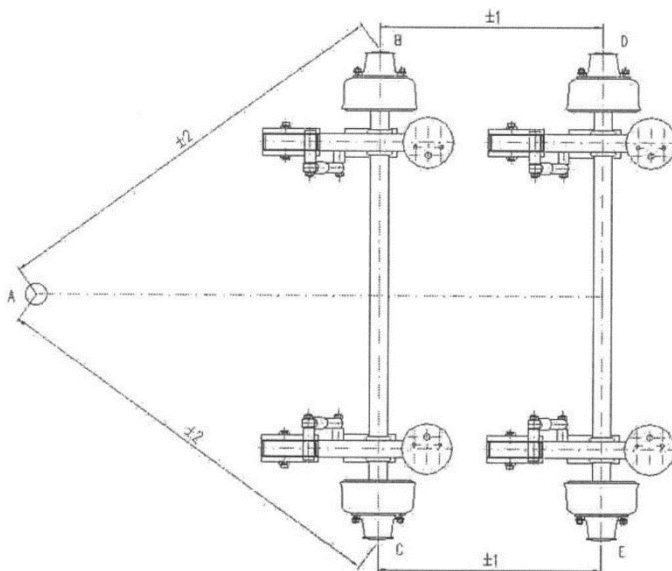
Type of Grease for Rolling Bearings	Grease Quantity		Tightening Torque	
	RD 603334 RD 753334		Brake Disc	Brake Caliper
Quality: Cerrifol G-LFP3 Red (Respectively 100% comparable!)	400 [quantity in grams]		8 screws M12 x 1.5 x 65 12,9 DIN 912	6 screws M16 x 1.5 x 40 10,9 DIN 912
NLGI-Consistency 2 Worked Penetration 280 Operating Temperature -30° to 130°C Dropping Point 185°C			100 ⁺²⁰ Nm	260 ⁺²⁰ Nm
Data each wheel hub! (Hub Interior, both Wheel Bearings and Hubcap)				
Greases of rolling bearings mustn't mixed among themselves!				

More Information and Hints for pneumatic 17.5” disc brake you can also see in the service instructions of the Knorr-brake system for utility vehicles for disc brakes [www.Knorr-Bremse.de].

Maintenance and Repairs at GFA Air Suspension Aggregates until 7.5t

- You aren't allowed to put the welding mass pol on axle components or on the trailing arm to avoid bearing damage.
- Trailing arms mustn't get welded. When welding on other components, you must protect the trailing arms against welding beads, electrodes as well as welding guns.
- Necessarily you must protect the air suspension bellows against heat, welding beads and welding splashes during welding.

Adjust the Toe In of the Aggregates



A later correction of the toe in can be carried out via the adjustment in the handlebar screwing. If necessary, you can loosen the screwed compound (M30) of the handlebar integration. This can be regulated on both sides by twisting the eccentric bushings at the external hexagon. After correct align of the axes you have to pull in the screwed compound compellingly with the required tightening torque.

A = tow point; B – E = axis center; Adjustment of the toe in and tolerances

Designation	Thread	Strength class	Tightening torque
Threaded stud (roll bellows)	M12	8.8	75 - 80 Nm
Piston base plate – handlebar (roll bellows)	M16	8.8	170 - 190 Nm
Piston base plate – roll bellows bottom	M12	8.8	20 - 30 Nm
Shock absorber pin	M22 x 1,5	8.8	300 - 350 Nm
Round bride	M20 x 1,5	8.8	350 – 400 Nm
Handlebar bolts	M30	8.8	550 – 600 Nm

The pretightening can be effected side by side. But the tightening of the spring clips have to carried out crosswise! You have to replace the used locknuts with new nuts after each dismantling!

Tightening torques for screwed compounds

Hint:

These tightening torques are only valid, if there is given no other data in the data sheet or in the maintenance conditions.

The benchmarks count for the tightening of screwed compounds with a torque wrench (thread slightly oiled!). Impact wrenches aren't allowed!

THREAD		MATERIAL QUALITY		
		8.8	10.9	12.9
M8 / M8 x 1	SW 13	25 / 27	35 / 38	41 / 45
M10 / M10 x 1	SW 17/16	49 / 52	69 / 73	83 / 88
M12 / M12 x 1.5	SW 19/18	86 / 90	120 / 125	145 / 150
M14 / M14 x 1.5	SW 22/21	135 / 150	190 / 210	230 / 250
M16 / M16 x 1.5	SW 24	210 / 225	300 / 315	355 / 380
M18 / M18 x 1.5	SW 27	300 / 325	405 / 460	485 / 550
M20 / M20 x 1.5	SW 30	410 / 460	580 / 640	690 / 770
M22 / M22 x 1.5	SW 32	550 / 610	780 / 860	930 / 1050
M24 / M24 x 2	SW 36	710 / 780	1000 / 1100	1200 / 1300
M27 / M27 x 2	SW 41	1050 / 1150	1500 / 1600	1800 / 1950
M30 / M30 x 2	SW 46	1450 / 1600	2000 / 2250	2400 / 2700

Wheel Attachment:	Unit / Value (Nm)
-Bolt Centering	
M18 x 1.5	270
M20 x 1.5	350
M22 x 1.5	430
-Middle Centering	
M18 x 1.5	350
M20 x 1.5	420
M22 x 1.5	600

Maintenance Intervals and Maintenance

Kind and Extent	Regular, every...			
	Single 5.000 km or 1 month	30.000 km or 3 months	60.000 km or 6 months	100.000 km or 12 months
Maintenance:				
After 50 km and after 160 km compellingly torque tightening according to prescribed data, same after each wheel change	x	x	x	x
Tighten up all screwed compounds according to prescribed data	x		x	x
Check of wheel bearing play, possibly new adjustment or replacement	x		x	x
Smearing of smudges (camshaft, slack adjusters)	x	x	x	x
Renewing of wheel bearing grease (same during each exchange of brake linings), check wheel bearings for wear and replace if necessary				x
check tire pressure and set to value prescribed	x	x	x	x
Visual Inspection				
Check components of undercarriage for wear, tightness and damage, replace if necessary	x	x	x	x
Check wear of brake linings and replace if necessary	x	x	x	x
Check camshaft and slack adjusters for smooth return and replace if necessary	x	x	x	x
Check brake system for tightness (press brake), let repair damage immediately	x	x	x	x
Check Air suspension system for tightness, check air suspension bellows for damages and clean them, replace if necessary	x	x	x	x
Check springs for damages and corrosion, replace if necessary	x	x	x	x
Check tire wear, control axle alignment	x	x	x	x
Safety Check				
Check wheel brake for correct setting, check service and parking brake for braking effect	x	x	x	x
Check respectively carry out load pull tuning (brake system) between pulling vehicle and trailer	x			x
Check brake system and air suspension system according to the data of the vehicle manufacturer	x	x	x	x
For vehicles with extreme operating conditions the maintenance intervals have to reduce accordingly! The vehicles have to maintain by mileage (km) respectively with less mileage by time intervals!				

Usage Proof

(Must be filled out by the vehicle manufacturer before delivery!)

Confirmation of the vehicle manufacturer

Manufacturer of the vehicle:

Vehicle Identification Number:

Axle number: 1.

 2.

Accomplished Work on the axles / changes to the axles respectively mounting of additional units:

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The vehicle was subjected to a quality control / final inspection concerning the accomplished work / changes at vehicle manufacturers / by the vehicle manufacturer.

Please check the relevant box:

- No defects / errors were detected.
- Work / executions were carried out in accordance to the current GFA Guidelines.
- Special permit – in deviation of the specification sheet – was obtained by GFA. Approval number:
from:
- Operating instructions, maintenance booklet / regulations for work / changes carried out respectively mounted aggregates were inserted to the vehicle.

Stamp of the vehicle manufacturer

Date

Signature



Maintenance (Minimum Scope / see also page 11)

Scope of Work	- Single - 5.000 km	3 months or 30.000 km	6 months or 60.000 km
screwed compounds checked and tightened with required tightening torque	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
grease the smudges (camshafts, slack adjusters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wheel bearing play checked, replaced if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wheel bearing grease replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wheel bearing replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
components of undercarriage checked for wear, tightness and damage, replaced if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
air suspension bellows checked, replaced if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
brake system checked for tightness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
service and parking brake checked for braking effect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tire wear / brake lining wear checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
axle alignment and brake lining checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
residual brake pad thickness (degree):			
1st axle, left [mm]			
1st axle, right [mm]			
2nd axle, left [mm]			
2nd axle, right [mm]			
wheel bearing grease brand			
mileage [km]			
repair order number			

Date / Signature

Stamp / Workshop

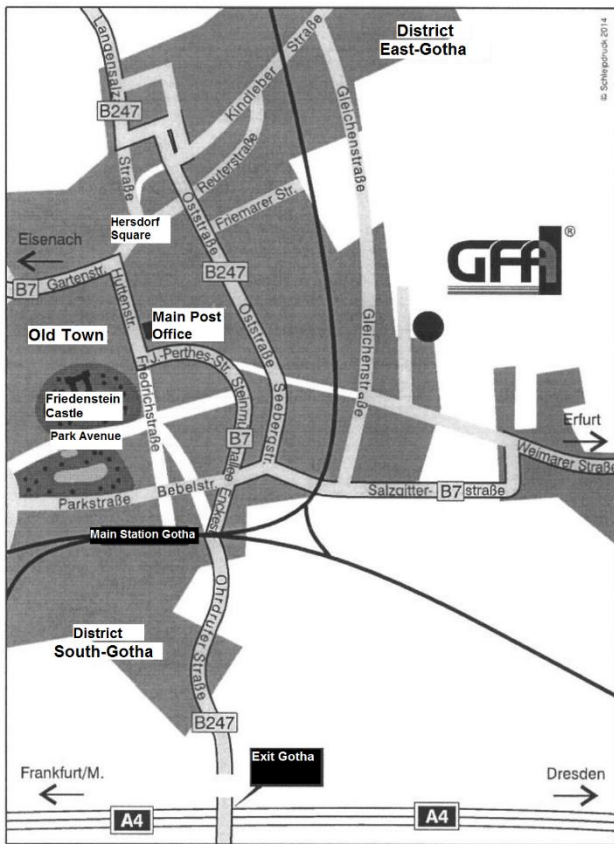
Maintenance (Minimum Scope / see also page 11)

Scope of Work	1 st year or 100.000 km	2 nd year or 200.000 km	3 rd year or 300.000 km	4 th year or 400.000 km	5 th year or 500.000 km
screwed compounds checked and tightened with required tightening torque	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
grease the smudges (camshafts, slack adjusters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wheel bearing play checked, replaced if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wheel bearing grease replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wheel bearing replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
components of undercarriage checked for wear, tightness and damage, replaced if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
air suspension bellows checked, replaced if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
brake system checked for tightness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
service and parking brake checked for braking effect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tire wear / brake lining wear checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
axle alignment and brake lining checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
residual brake pad thickness (degree):					
1 st axle, left [mm]					
1 st axle, right [mm]					
2 nd axle, left [mm]					
2 nd axle, right [mm]					
wheel bearing grease brand					
mileage [km]					
repair order number					

Date / Signature

Stamp /
Workshop

● ● ● *always on the move with us*



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