

eco-TRAILER

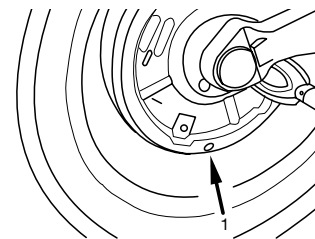
OWNER'S MANUAL



Trailer	Model / Part #	Serial # / VIN
Hitch	48.	
Axle 1	46.	
Axle 2	46.	
Axle 3	46.	
	Maximum Gross Trailer Weight	<input type="text"/> Kg
	Maximum Nose Weight	<input type="text"/> 150 Kg

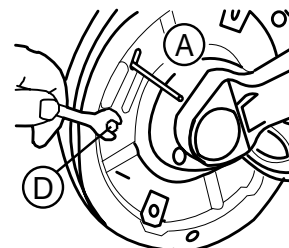
BRAKES

- ▶ Check brake lining wear - every 5,000 km
- ▶ Brake lining wear is dependent on the style of driving. Careful driving saves brake linings and tyres. As soon as a brake lining has been worn to a thickness of 2 mm, the brake shoe must be replaced. Stiff or stretched brake springs, the coils of which are no longer closed tightly together, must also be replaced.
- ▶ Brake shoe assemblies must be replaced as a set for each axle.
- ▶ For a visual check, remove the plug (arrow) from the brake backplate.

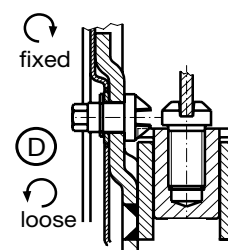


RE-ADJUSTMENT OF THE BRAKE SYSTEM

- ▶ Wheel brake - every 2,000 to 3,000 kms of travel.
- ▶ Jack up the trailer. Release the towing equipment, handbrake lever and brake linkage (free from tension).
- ▶ Lock the reversing cam of the wheel brake from outside by means of a locking pin (A) and insert pin through the hole in the backplate (D).
- ▶ With an 8 mm spanner, turn adjuster until the wheel locks in the forward direction of travel.
- ▶ Activate parking brake several times to centralise the brake shoes.
- ▶ Turn the hex adjuster anti-clockwise until wheel is running free in forward direction of travel (approx. 2 full turns).
- ▶ With parking brake activated, check equaliser bar is at right angles to brake rod. It may be necessary to re-adjust brakes or adjust length of brake cables (screw clevis in/out as required).
- ▶ To test, partially apply parking brakes and check for similar brake torque on all wheels (in forward direction of travel).
- ▶ Remove 4 mm locking pin from reversing cam.



left and right
wheel side



AXLE MAINTENANCE INSTRUCTIONS

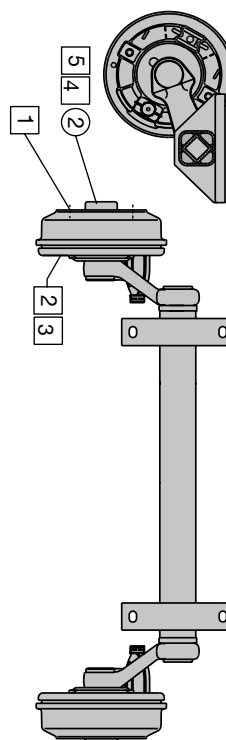
The following installation, operating and maintenance instructions relate to BPW rubber suspension axles. They are a constituent part of the warranty conditions.

Completion of the maintenance work in accordance with the prescribed intervals is essential in order to maintain the operating safety and roadworthiness of the vehicle.

The correction of any defects found, or the replacement of any worn parts, should be carried out by a BPW accredited service workshop unless the vehicle user has at his disposal appropriately skilled in-company employees and the necessary workshop facilities. It is strongly recommended that only original BPW components are used. Our warranty becomes null and void if spare parts other than original BPW parts are used.

LUBRICATION AND MAINTENANCE WORK

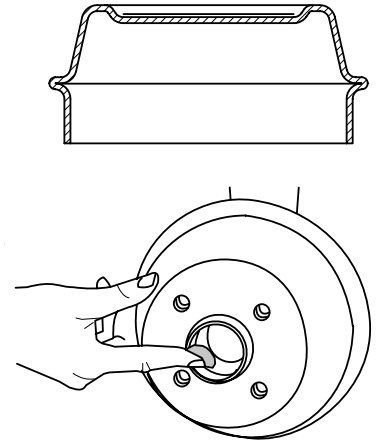
Lubrication maintenance work	Initially	After 500 km	Every 2,000 - 3,000 km or annually	Every 5,000 km or annually	After 2 years
Change wheel hub bearing grease (does not apply to compact bearings). Maintenance work				◆	
1. Check wheel bolts for firm seating.	◆				
2. Check brake play. If necessary, re-adjust.	◆		◆		
3. Check brake lining wear.				◆	
4. Check lateral play of wheel bearing. If necessary, re-adjust:					
Compact bearings				◆	
Conventional bearings		◆	◆		
5. Check hub caps for firm seating. - check tyres for uneven wear			◆	◆	



AXLE MAINTENANCE INSTRUCTIONS - BEARINGS

TAPER ROLLER BEARINGS

- ▶ Axles fitted with taper roller bearings are recognisable by a tapered type hub cap.
- ▶ Remove wheels and wheel hubs. Mark dismantled wheel hubs and bearing races so that their identity is not mistaken during re-assembly.
- ▶ Clean wheel hubs thoroughly inside and outside. Completely remove any grease.
- ▶ Clean taper roller bearings and seals (using diesel oil) and check for re-useability.
- ▶ Work BPW special longlife grease ECO Li91 into the cavities between the taper roller and cage.
Smear grease into the hub's outer bearing race.
- ▶ Fill the hub caps $\frac{3}{4}$ full with grease.
- ▶ Fit wheel hubs, adjust the bearing play and refit the hub caps.



CHECK LATERAL PLAY OF WHEEL BEARING - if necessary, re-adjust.

Jack up the trailer, release brakes. Turn wheels manually and rock. If any bearing play is noticeable, adjust the bearings.

CONVENTIONAL TAPER ROLLER BEARINGS

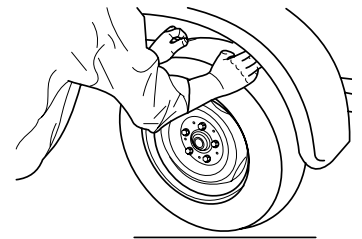
After the first run under load conditions, then every 2,000 - 3,000 kms -

Taper roller bearings are recognisable by the conical profile of the rollers.

Lever off hub cap. Remove split pin from axle nut and tighten so that rotation of the wheel is slightly braked.

Turn back the axle nut to the next possible split pin and bend ends slightly outwards. Check wheel rotation, refit hub cap.

IMPORTANT - The grease in the hub and bearing must not be contaminated with dirt during this work!



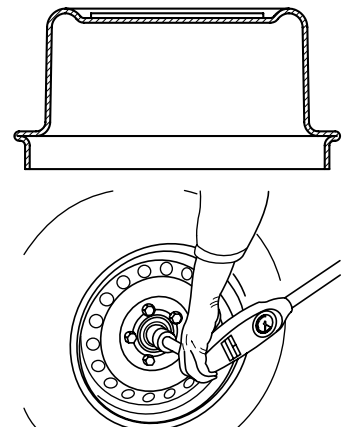
COMPACT BEARINGS - every two years.

Compact bearings are recognisable by their cylindrical cap shape.

Compact bearings comply with the latest durability requirements. They are maintenance-free due to permanent lubrication and are designed for high mileages. The brakes are accessible more easily.

With the ECO hub system (up to manufacture in 6/97) the entire bearing system with hub can simply be pulled off the axle stub with the integrated axle nut and re-installed.

With axles manufactured after 6/97, first dismantle the axle nut. The brake drum with the compact bearing can then be removed from the axle stub.



Tightening torques:

AF 32 M = 280 Nm

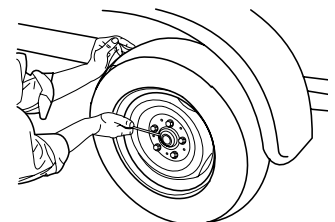
AF 41 M = 330 Nm

(no bearing play adjustment)

If noticeable bearing play is felt, the compact bearings should be replaced.

Check hub caps for firm seating - every 2,000 - 3,000 kms

Check for firm seating with a screwdriver.



- ▶ Wheels tyres used are:

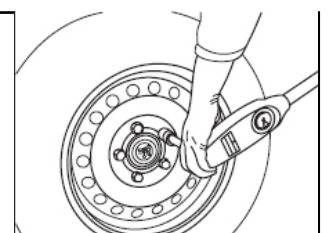
155/70R12C (90 PSI).

- ▶ Check wheel bolts for firm seating :

After the first run under load conditions, likewise after each wheel change.

Tighten wheels bolts crosswise using a torque wrench to the correct tightening torque (below).

M12 x 1.5 bolt 90-100 Nm 19 mm A/F socket size



Tightening sequence



4 wheel studs



5 wheel studs

BPW HITCH MAINTENANCE

LUBRICATION AND MAINTENANCE WORK

Lubrication and Maintenance work	Initially	Prior to each run	After 500 km	Every 5,000 km or annually	ZAF
					Every 10,000 - 12,000 km or annually
Function test					
<ul style="list-style-type: none"> ◇ Check coupling. ◇ Apply the handbrake lever and check the linkage. ◇ Check height adjustment facility. 		<ul style="list-style-type: none"> ◇ ◇ ◇ 			
Lubrication					
<ul style="list-style-type: none"> <input type="radio"/> Lubricate the coupling head. <input type="radio"/> Drawbar bearings at the housing of the overrun hitch. <input type="radio"/> Oil or grease brake lever. <input type="radio"/> Oil or grease moving parts such as bolts and joints. <input type="radio"/> Grease sliding points on the height-adjusting device. <ul style="list-style-type: none"> - grease bearing - oil threaded parts 	<ul style="list-style-type: none"> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> 			<ul style="list-style-type: none"> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> 	<ul style="list-style-type: none"> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Maintenance Work					
<ul style="list-style-type: none"> <input type="checkbox"/> Check height adjusting facility. <input type="checkbox"/> Check drawbar, handbrake lever, spring actuator, reversing lever linkage and all movable parts for ease of movement. <input type="checkbox"/> Check safety cable for damage. <input type="checkbox"/> Check bowden cable on height-adjustable connection devices for damage. <input type="checkbox"/> Overrun hitch function check. <input type="checkbox"/> Check permitted vertical play. <input type="checkbox"/> Check screw connection of ball hitch or drawbar. 	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> 		<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> 	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

FUNCTION TEST

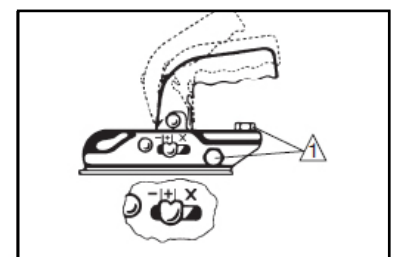
1. Check coupling head

Prior to each run:

Check coupling head for wear and correct operation.

Check the wear indicator (use within the "+" range only).

Check the coupling head fastenings (see item 1) at regular intervals for firm seating.



Safety coupling ISC

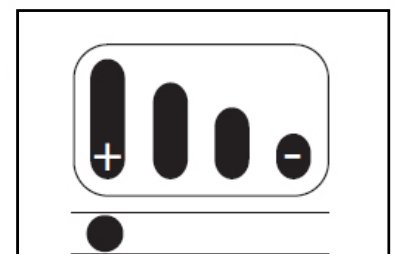
Checking the stabilising facility:

The function of the friction facility can be checked after coupling and activating the stabilising facility.

The nameplate attached to the operating lever shows a triangle marked with +/- signs parallel to the slot in the lever which runs in the direction of travel.

The ball-head hitch is factory set so that the head of a pin visible in the slot lies between the triangle and the side marked with the + sign.

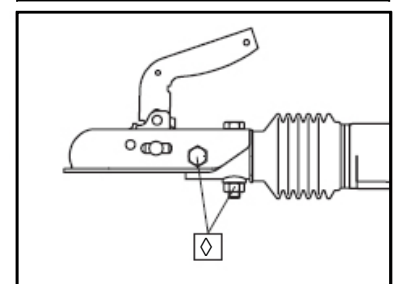
For versions with green and red wear indicators, showing red requires new friction pads or the ball dimension is less than 50mm.



◇ Check screw connection of ball hitch or drawbar

Every 5,000 kilometers or annually.

After the tightening torques have been checked, the function of the hitch must be checked by opening and closing the hitch.



Brake lever (2)

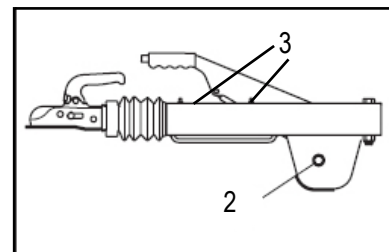
Initially, every 5,000 km.

For ZAF-2 every 10,000 - 12,000 km annually.

Check brake lever for ease of movement.

If fitted, apply BPW ECO-Li 91 grease via the grease nipple until fresh grease can be seen emerging from the bush.

If grease nipples are not fitted then apply oil to the reversing lever bush.



Draw tube (3)

Apply BPW ECO-Li 91 grease via the grease nipples.

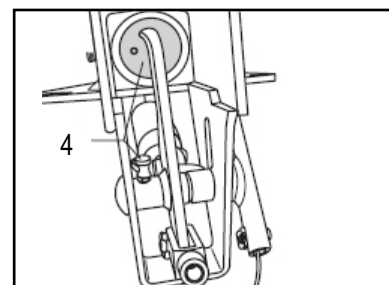
ZAF version (5)

Lubricate the contact surface between the brake lever and the drawbar end plate.

BREAKAWAY CABLE

This cable is a safety critical item and forms part of the EC Certification of the hitch assembly.

Only genuine BPW Breakaway cables comply to the given standard.

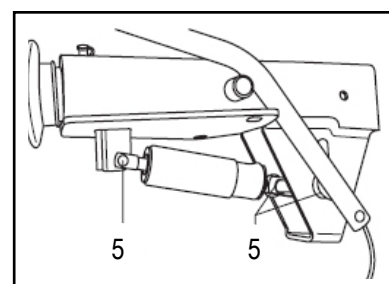


Lubricate all moving parts and pivot pins at the overrun hitch (4)

Initially, every 5,000 km.

For ZAF-2 every 10,000 - 12,000 km annually.

All moving parts of drawbar, handbrake lever, spring actuator, reversing lever, linkages etc., to be oiled or greased as required.



Lubrication work

Lubricate the coupling head

At regular intervals

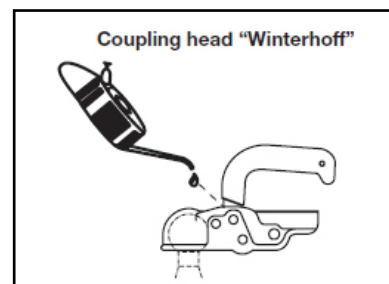
For ZAF-2 every 10,000 - 12,000 km or annually.

Oil ball hitch at regular intervals at the specified locations and moving parts.

Grease the contact surface of the ball of the towing vehicle.

CAUTION:

If safety couplings are used (e.g. ISC) the towing ball/hitch connection must be free of grease and oil.



Ball hitch / towing eye	Drawbar	Tightening torque
Ball hitch with sheet metal housing	Tubular drawbar without spacer bushes	45 - 50 Nm
	Tubular drawbar with spacer bushes or drawbar made from round steel rod	60 - 70 Nm
Ball hitch with a cast steel body	Tubular drawbar without spacer bushes	60 - 70 Nm
	Tubular drawbar with spacer bushes or drawbar made from round steel rod	80 - 90 Nm
Towing eye (DIN, NATO, etc)	Tubular drawbar	80 - 90 Nm
WS 3000 ball hitch	Round tube 46 - 50 mm	Horizontal 75 - 80 Nm
	Round tube 51 - 65 mm	Vertical 60 - 65 Nm 90 - 100 Nm



Our Spirit lets you move



iSC

BPW ANTI-SNAKING COUPLING

Where safety meets stylish design

ADDED SAFETY AND SECURITY FOR TRAILERS UP TO 3500 KG

- * Outstanding stability control in sway and pitch
- * Better driving comfort
- * No dirty grease on towball
- * All operations can be carried out using only one hand
 - Hitching and unhitching
 - Deploying and retracting stabiliser
- * Compact design
- * Low weight
- * Indicators for correct hitching and friction pad wear
- * Replaceable friction pads
- * Uses standard towball



REPLACEMENT FRICTION PADS



Easy to fit



Simply 'click' into position



Robstop Plus 3000 Hitch Lock

Awarded Gold Standard rating by the British Testing Body, Sold Secure, and listed as an approved product for trailer insurance reductions.

ROBSTOP BPW HITCH LOCK Gold standard security



iSC with Robstop Plus 3000



Robstop 3500

CONTACT ECO-TRAILER FOR ALL GENUINE BPW SPARE PARTS

Handling (Operation)

Coupling and uncoupling

Note: The handle of the ball hitch and the handbrake lever must not be used as a manoeuvring aid. There is a risk of damage to the internal components!

The coupling head (ball-head hitch) on your BPW chassis is design-tested. The maximum load supported at the coupling point must be complied with. Lower the jockey wheel to the ground. Reverse the towing vehicle up to the trailer or (if the trailer is small) move the trailer to the coupling point.

Locking Coupling



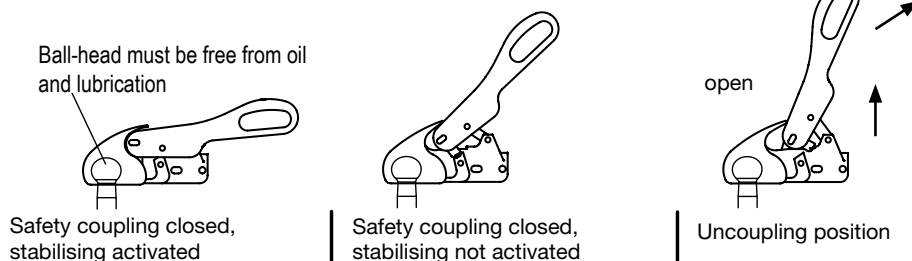
Coupling

- ▶ Mount open ball-head hitch on the ball and press downwards until the operating lever is horizontal to the ball-head hitch.
- ▶ Connect the breakaway cable and electrical plug to the towing vehicle.
- ▶ Wind up the jockey wheel fully and secure by firmly clamping it. Release parking brake before setting off.
- ▶ Visual check: the ball-head should no longer be visible in the coupled condition.

Uncoupling

- ▶ Lower the jockey wheel down. Disconnect breakaway cable and electrical plug.
- ▶ If fitted, press the operating knob on the parking brake and apply the parking brake with a force of 600 N (60 kg). Open the ball-head hitch by swinging the operating lever in the direction of travel and lift up off the ball.
- ▶ Secure the trailer with chocks.

Inspired Safety Coupling



Coupling:

Place the open ball-head hitch on the ball-head of the towing vehicle (grease-free). If pressed simultaneously downwards - usually the support load is sufficient - the ball-head is closed automatically and locked securely. The stabilising device is activated by moving the operating lever down to the stop, i.e. opposite to the direction of travel. In doing so the spring element is tensioned, thus generating via the friction pads, the contact pressure onto the ball-head of the coupling. Connect the breakaway cable and electrical plug to the towing vehicle.

Raise the jockey wheel fully upwards and secure. Release parking brake before setting off.

VISUAL CHECK - the ball-head should no longer be visible in the coupled condition.

Noises may occur during driving as a result of the friction between the friction pads and the ball hitch. However, these noises do not have any effect on the function of the trailer ball hitch.

Uncoupling:

Lower the jockey wheel down.

Disconnect breakaway cable and electrical plug. If fitted, press the operating knob on the parking brake and apply the parking brake with a force of 600 N (60 kg). Lift the operating lever to the fully opened position. Lift the safety coupling. Secure the trailer with chocks.

IMPORTANT OPERATING INSTRUCTIONS

ALWAYS comply to the basic principles

NEVER OVERLOAD!

- ▶ No overloading of the vehicles in excess of the permissible total weight.
- ▶ Avoid over-stressing of the hitch or suspension system. Avoid subjecting the axles to any impacts or jolting. Adapt your driving speed to the road conditions and the load condition of the trailer. This applies particularly when negotiating bends.
- ▶ No one-sided loading. The load should be stowed over the axle and as low as possible.
- ▶ Ensure that wheels and tyres are not overloaded.
- ▶ Protect the brakes against overheating on long downhill stretches, such as mountain passes in the Alps, by taking breaks in driving.
- ▶ Always use the maximum possible drawbar load. The upper limit is the lowest value for the drawbar load on the type plates of the trailer coupling on the towing vehicle, the trailer or overrun hitch.
- ▶ Only use the jacking points provided by the vehicle manufacturer.
IMPORTANT: Make sure the jack is secure (danger of tipping-over or crushing).

OPERATING INSTRUCTIONS WHICH SHOULD ALSO BE ADHERED TO BY THE DRIVER

- ▶ Do not leave the handbrake on for long periods of time.
- ▶ The handbrake, when in good working order, will retard the trailer by 18%. When parking on steep slopes it is highly recommended that wheel chocks are used.

Inspections prior to each run:

- ▶ Tyre pressure and tyre condition.
- ▶ Wheel fastening.
- ▶ Functioning of lighting and the braking systems.
- ▶ Raise and secure the jockey wheel. The jockey wheel should be parallel to the direction of travel at all times.
- ▶ Inspect the hitch. The coupling must fully enclose the ball-head and be locked.
- ▶ Secure the breakaway cable to the towing vehicle.
- ▶ Release parking brake.

GENERAL TRAILER MAINTENANCE

- ▶ It is advisable, periodically, to check drawbar pivot bolts (tilt bed models) and all bolts/nuts on your trailer.
- ▶ During winter months, we strongly recommend that you wash off any evidence of road salt from your trailer as this can discolour and harm galvanized finish.

PROCUREMENT OF SPARE PARTS:

The code and type numbers of the axle and hitch components enable us to quickly determine your exact spares requirements when ordering from us. It is therefore recommended that you enter the dates as shown on the type plate in the following table so that it is readily available when required.

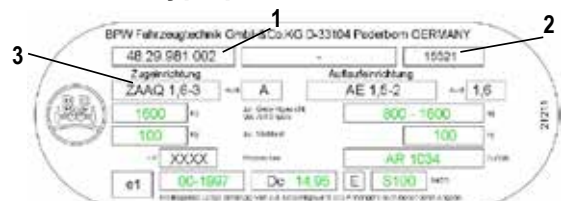
The type plate is located on the axle tube or on the housing of the towing equipment and couplings.

Technical data on axles and brakes

Axle type plate



Overrun hitch type plate



KEY: 1 = Part number 2 = Serial number 3 = Product type

Eco-Trailer • Nunthorpe • Middlesbrough • TS7 0PF

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February 2016