



Operating Instruction

Operating Instructions for COBRA trailers built from 2002

Congratulations on your purchase of a COBRA trailer. We are sure you will enjoy it a lot. We prepared this booklet to enable you to obtain maximum use and longevity for your trailer. Please read this booklet carefully through at least once and take special note of the technical details.

Before they go into production, our products undergo the most stringent testing and during production are subject to frequent quality control checks. To maintain the quality and function of your trailer, we recommend only using original replacement parts. The buyer loses all rights of claim when the product is altered through use of other than original parts. We reserve the right to make technical and visual changes.



Ordering of spare parts

To expedite a correct spare part order, please state type, model and chassis number of the trailer and also the make of the axles, brakes and coupling.

Or search and order the part in our shop on <http://www.cobratrailer.com/> ,Shop'.



Operating Instruction

Service and Warranty Conditions	Page 3 - 4
1. Safety	
1.1 Symbols	Page 5
1.2. Proper Use	Page 5
1.3 Safety-conscious operation	Page 5
1.4 Organizational Measures	Page 6
1.5 Maintenance and Repair	Page 6
1.6 Safety during maintenance and assembly works	Page 6
1.7 Mounting works on the chassis	Page 6
2. Signage	Page 6
3. Operation	
3.1 Controls before driving	Page 7
3.2 Coupling of the trailer	Page 7
3.3 Disconnecting the trailer	Page 7
4. Loading	
4.1 Nose weight	Page 8
4.2 Loading and unloading	Page 8
4.3 Load	Page 8
4.4 Securing of loads and Adjustment	Page 8
4.5. Securing of fixtures in empty trailer (empty run)	Page 8
5. Operation of the units	
5.1 Hand brake	Page 9
5.2 Overrun brake	Page 9
5.3 Axles	Page 9
5.4 Tyres	Page 10
5.5 Changing of a wheel	Page 10
5.6 Spare wheel	Page 10
6. Brakes	
6.1 General	Page 11
6.2 Readjustment of ALKO wheel brakes	Page 11
6.3 Brake pads	Page 11
6.4 Security notes for brake systems	Page 15
7. Electrical system	
7.1 Connector assignment 7-pin	Page 12
7.2 Connector assignment 13-pin	Page 12
8. Accessories	
8.1 Swing down supports stands (crank supports)	Page 12
9. Support and maintenance	
9.1 Galvanized parts	Page 13
9.2 Aluminium	Page 13
9.3 Fibreglas Parts	Page 13
9.4 Operating the Clamshell	Page 13
9.5 Fittings and fixtures for glider	Page 13
10. Lubrication plan	
10.1 Overrun system	Page 14
10.2 Bell crank lever	Page 14
10.3 Drawbar bolt for V-drawbar with fifth wheel trailer	Page 14
10.4 Joints, compensation scales, Bowden cables	Page 14
10.5 Ball-head coupling	Page 14
11. General	
11.1 Driving	Page 15
11.2 Braking behaviour	Page 15
11.3 Use in winter and rain	Page 15
11.4 Speed limit	Page 15
11.5 Tyres	Page 15
Inspections	Page 16
Replacement of Lift arms / Spare Parts	Page 17



Operating Instruction

From the initial day of purchase on, the Spindelberger GmbH warrants the new COBRA trailer for a period of two years when it is properly used and when the maintenance and inspection provisions are complied with. This warranty applies to the territory of the Federal Republic of Germany; moreover, this warranty does not affect the legal claims from the warranty law.

The warranty includes:

Replacement, or at the manufacturer's discretion, repair of the construction or material defect and provided that the trailer was used for its intended purpose and within its defined limits.

Any repair or replacement carried out under the stated conditions does not extend the warranty period.

Conditions:

Servicing in accordance with the instructions contained in this booklet must have been carried out.

For repair works a use of original replacement parts is compulsory.

Any repair must be carried out by an accredited COBRA agent.

For warranty claims, defects mustn't arise from:

- Non-compliance with the instructions contained in this booklet.
- Use of the trailer for other than its intended purpose or from the user's inexperience.
- Arbitrary changes of the trailer and/or attachments, which are not authorized by Spindelberger GmbH, are not covered by this warranty.

No defects are:

Each trailer is a handicraft product. Despite the greatest diligence, small and superficial scratches might occur during assembly, which do not interfere with the proper use.

The used wood is either coated with plastic or phenol resin. UV-radiation and climatic influences might have bleaching effects. Despite the most varied finishing and processing types, wood remains a natural material and is thus subject to a natural, climate-dependent dilatation and/or shrinking which might result in twisting. Natural wood grains and unevenness are typical for a natural material and can manifest themselves on the surface. For wood components a production tolerance in the thickness of +/- 1.5mm is defined. Deviations within this range cannot be objected to. Moreover, the polyester components are not absolutely colourfast; here too, there might be deviations due to UV or climatic influences.

Stress cracks in the surface (capillary cracks), due to the production processes can not be avoided. These capillary cracks do not influence the stability and/or use of the trailer.

Also rubber mats are subject to a certain, production-conditioned shrinking process, so that thickness tolerances of +/- 1mm must be accepted. Moreover, since rubber parts age in general as a result of UV-influences, there might also be crack formations or bleaching effects on the surface.

In general, trailers are not isolated, therefore temperature variations might lead to formations of condensation water in the saddle chambers under the soft cover and aluminium or polyester covers. In this case ventilate sufficiently to avoid a formation of mould. Moreover, trailers are not absolutely water-proof. Water entries on the doors, lids and windows are possible despite using rubber seals and the most diligent workmanship.



Operating Instruction

The warranty expires:

- If the operating, maintenance and inspection instructions are not complied with,
- In the event of technical alterations of the trailer,
- In the event of arbitrary extensions or attachments, not authorized by COBRA,
- When the trailer is overloaded or not used properly,
- When other than original COBRA replacement parts are used,
- When the safety information on the trailer is not complied with,
- When the servicing intervals, also for components mounted by COBRA such as axle, brake, overrun system, hydraulic units etc. are not complied with,
- In the event of a inappropriate surface treatment of the materials used,
- In the event of a continued use of the trailer even if defects are known and notified and a further use has been forbidden by the manufacturer until completion of the repair works,
- In the event of a further use of the trailer when defects are known, which makes a repair impossible

The warranty does not cover:

- Costs for regular trailer maintenance
- Costs, attributable to normal wear and tear or problems caused through lack of trailer usage
- Defects, arising from an improper treatment of the trailer
- Defects, arising from a use of other than original COBRA replacement parts
- Repairs not carried out by an authorized COBRA agent.

Operating Instruction

1. Safety

1.1. Symbols

Symbol "Operational Safety"



Indicated every time, when there is a danger to life or health.

It is particularly important to comply with those instructions. Next to the safety and accident prevention regulations, indicated in this booklet, the locally applicable provisions of the road traffic regulations, the road traffic licensing regulations and the accident prevention regulation for vehicles must be complied with.

Symbol "Attention"

Attention

Indicated every time, when an improper operation might lead to damages of the vehicle.

Symbol "Maintenance"



Added to all maintenance provisions, ensuring a smooth and trouble-free use of the vehicle.

1.2. Proper Use



The vehicle may only be operated according to the provisions in the operating instructions.

It may only be used when it is technically in a sound condition.

It may only be used by experienced users, who have read and understood these operating instructions.

Prior to each start the trailer must be checked for road and operational safety.

Moreover, the trailer must be authorized for a use on public roads and insured according to the provisions of the road traffic regulations.

Working methods, restricting the safety of the trailer must strictly be omitted.

All walls and locks must be closed and secured while driving.

The trailer may only be used for its intended purpose.

The safety and road traffic regulations of the countries concerned apply to the use of the trailer.

1.3. Safety-conscious use

Read these operating instructions carefully before using the trailer.

Always be aware of the safety and risks. Inform your interlocutor on failures and defects of the trailer.

Do not use the vehicle until the failures and defects are remedied for.

Comply with the allowed axle loads, nose weights and gross weights.

Always adapt the driving mode to the road and weather conditions – respect climatic influences such as side winds, etc.

Not allowed is:

Excess of the allowable gross weight (see technical specifications, type plate).

Transport of persons.



Operating Instruction

1.4. Organizational measures

Ensure that these operating instructions are always available. Ensure that only experienced drivers use the vehicle. Check at regular intervals whether the vehicle is used safely and risk consciously. Keep these operating instructions carefully and hand them out to the buyer in the event of a resale of the trailer.

1.5. Maintenance and repair



Maintenance and repair works shall only be carried by authorized agents. Only original COBRA replacement parts shall be used for repair.

Additional extensions or alterations of the trailer are only allowed when authorized by the producer.

Other provisions that must be complied with: Safety and accident prevention regulations, country specific provisions, rules and guidelines.

1.6. Safety during maintenance and assembly works



Changes, alterations and processes, influencing the safety of the trailer and its operators are forbidden.

Only Original-COBRA-replacement parts may be used for maintenance works.

The mounting of wheels requires sufficient knowledge and appropriate mounting tools.

Mounting works may only be executed by trained personnel.

1.7. Mounting works on the chassis

No additional holes may be drilled and no existing holes on the chassis may be bored up.

In the event of welding or sanding works close to plastic lines and hydraulic tubes, the necessary protective measures (covering, disassembly) must be taken.

2. Signage



All information and identification plates attached to the vehicle must always be clearly readable. Damaged and illegible plates must be replaced.

Identification plate:

The identification plate contains the allowed nose weight, allowed axle loads, overall weight, type designation and chassis number.

The chassis number is punched in the chassis.



Operating Instruction

3. Operation

Prior to using the trailer, the operating instructions must be read and understood by the operator. For technical questions, please refer to your specialized COBRA workshops. Before driving check the vehicle for road safety

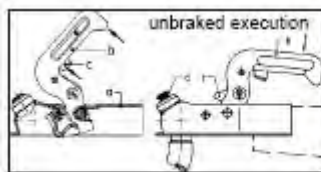
3.1 Controls before driving

- a) Correct air pressure in the tyres
- b) Check lighting system for damages and operability
- c) Even distribution and safety of the load
- d) Complete locking of the draw bar

3.2 Coupling of the trailer

The trailer is connected to the towing vehicle by means of the ball-head coupling.

- 3.2.1 Release safety catch (c) by squeezing against the locking grip (b) pull upwards and forwards (coupling opened).
- 3.2.2 Bring the open coupling over the ball-head tow bar, push down on the locking grip to mate
- 3.2.3 The coupling will close with a light downwards pressure.
- 3.2.4 The electrical system is connected by plugging the trailer's plug into the towing vehicle's socket.
- 3.2.5 Before driving, check to ensure the lighting is functioning correctly.
- 3.2.6 On braked trailers connect the safety cable for the emergency disconnect brake (see diagram below, pos.1).



On trailers with jockey wheels turn the jockey wheel fully upwards and/or on models with jockey wheel and clamp, push the jockey wheel in the clamp fully upwards. In doing so ensure that the jockey wheel will not foul the brake connection rod. Remove possible wheel chocks and disengage the parking brake.

Attention

Driving with engaged brakes results in brake and tyre damages and dangerous driving behaviour of the trailer.

3.3. Disconnecting the trailer

Before disconnecting the trailer protect it by means of the hand brake and/or wheel chocks against unintended rolling away.

- 3.3.1 Turn the jockey wheel downwards until the trailer in the ball-headed coupling is relieved.
- 3.3.2 Remove the electrical plug and insert it into the holder provided.
- 3.3.3 On braked trailers, remove the emergency brake cable
- 3.3.4 Through release of the safety catch and simultaneous lifting of the locking grip, separate the trailer coupling from the vehicle tow bar. Be aware of possible load shifting during this operation.
- 3.3.5 When disconnecting the trailer on steep roads remember that the trailer runs away in unbraked condition. Thus, you must protect unbraked trailers against unintended rolling away with brake blocks under the wheels - original COBRA wheel chocks would suit perfectly for this purpose. With braked trailers engage the hand brake.



Anti-theft device

A trailer is easily stolen. Therefore we recommend the purchase of an original ALKO coupling lock and/or a locking shoe to prevent the ball-head coupling from opening, an effective anti-theft device.

Operating Instruction

4. Loading

When loading the trailer do not exceed the allowable gross weight. Ensure an even loading complying with the allowable nose weight.

4.1 Nose weight

4.1.1 The nose weight must amount to at least 4 % of the gross weight of the trailer, more than 50 kg are not necessary. A slightly higher nose weight in compliance with the maximum allowed nose weight of the trailer and/or the towing vehicle is generally an advantage. The indications can be found in the respective vehicle documents.

4.1.2 Since single-axle trailers are designed such that the centre of gravity is slightly in front of the axle, ensure that the trailer is loaded evenly. In case of doubts, the load of the trailer can be slightly higher in the front area.

4.1.3 Overloading the trailer in the rear area can have negative effects on the nose weight (nose weight too low) and thus also on the driving behaviour – skidding danger!!

Attention

4.1.4 The nose weight can be easily controlled by means of a scale. Place the scale directly under the coupling head. Use a bar or a log wood, which is placed under the coupling head on the scale and cut it such that the trailer is placed horizontally. A wooden plate placed as support on the scale, distributes the pressure on the scale evenly

4.2 Loading and unloading

The loading of each glider type in a trailer is individual. Please ask the Glider manufacturer or representative



4.2.1 For the loading and unloading the trailer should be coupled to a towing vehicle.

4.2.2 The loading and unloading of single-axle trailers without towing vehicle is only possible with prop-stands (accessories) since the trailer can easily tilt backwards during loading - Risk of injury!

4.3 Load

4.3.1 Always ensure an even and positive (never only on one side or unfavourable) distribution of the load on the platform.

4.3.1 Load, protruding the sides, is not considered as complying with the intended purpose and any damage resulting therefrom is not covered by the producer's liability.

4.4 Securing of loads

4.4.1 The load must always comply with the traffic regulations and with the VDI-standard. Lash it tightly and safely to the vehicle and/or secure it by other means, which are appropriate for the respective load.

4.4.2 All sides and catches must be kept closed and secured while driving.

4.4.3 To secure the glider, COBRA trailers are equipped with all necessary fittings / fixtures.

4.4.4 On trailers with soft cover on frame the load must be secured correspondingly, since the soft cover on frame does not sufficiently secure the load.

4.4.5 Likewise, the load inside box vans must be secured. COBRA offers many options for this purpose.

Attention

4.4.6 We recommend the COBRA lashing tracks (Pos.2) with ratch to secure the fuselage (accessories or standard).

4.4.7 We deliver the trailer with preadjusted fittings and fixtures for the glider. Prior to the first ride a fine adjustment is required by the owner / user.

4.5. Securing of fixtures in empty trailer (empty run)

4.5.1 On an empty run the fittings / fixtures from the aileron holder (opening part) and wingtips must be closed

The wing- and fuselage holders should be fasten with appropriate fasteners (e.g. Grendel bar, fuselage strap).

Operating Instruction

5.1. Hand brake (only for braked models)

5.1.1 Hand brake with gas spring – spring brake

On these models the hand brake lever must only be pulled over the dead-point; the gas spring will clamp the brake and keep it clamped. To disconnect the brake, clamp it a little more and keep the knob in the lever pushed.

Push the hand brake lever downwards to the front over the dead centre.



5.2 Overrun brake

5.2.1 All braked trailers are equipped with a Rückmatik brake system and except the lubrication of the overrun piston and the bell crank lever additional maintenance is not required.



5.2.2 Lubricate the overrun piston every 5,000 km or once per year with multi-purpose grease (see lubrication plan point 10.1).

5.3 Axles

5.3.1 All COBRA trailers are equipped with maintenance-free rubber torsion beam axles with the exception of some of the horse trailer models. Possible repairs of the axle may only be carried out by the producer.

Attention

5.3.2 Welding works on the axle tubes are forbidden, since this might lead to damages of the rubber springs, resulting in a loss of the damping and suspension properties, which will have negative effects on driving behaviour and safety.



5.3.3 After 2,000 km or 6 months check the axial play of the boss bearing. To do this, jack up the trailer, disconnect the brake lines and ensure the wheels turn smoothly on the axle without resistance.

5.3.4 ALKO EURO Axles are equipped with maintenance free compact bearings

If necessary, adjust the axial play of the wheel bearing

- Remove the decoration and the wheel-hub cap.
- Remove the split-pin from the castellated wheel nut.
- Tighten the nut while spinning the wheel until a resistance is felt. If possible use a torque wrench (50 Nm).
- Turn the castellated nut 1/12 of a turn (30°, see diagram 1) then turn back to the next pin alignment position.

Axial play to 0.05 mm is acceptable.

Attention

Overtightening will cause bearing damage

- Check grease for quantity and condition, top-off or renew, if necessary
- Grease type for wheel bearings: Multi-purpose grease DIN 51825 KTA3K
- Replace wheel hub caps

Operating Instruction

5.4 Tyres

5.4.1 Air pressure

Different types of tyres require different tyre pressures for optimal performance and minimum wear.

5.4.2 Air pressure table – **Check the air pressure regularly**

Tire size	tire pressure (max.) [bar]	Load index	Rim Size
165/80 R13	2,4; (3)	83	4J-5,5J x 13
175/70 R13	2,6; (3)	82	4,5J-6J x 13
185/70 R13	2,5; (3)	86	4,5J-6J x 13
155 R13 C (8PR)	3,7 ; (4,5)	88	4J-5J x 13
175/70 R14	2,6 ; (3)	84	4,5J-6J x 14
185 R14 C (8PR)	4,3; (4,5)	102	5J-6J x 14
185/65 R14 Reinforced	3, (3,4)	93	5J-6,5J x 14
195/65 R14	2,6; (3)	89	5,5J-7J x 14
195/70 R14	2,6; (3)	91	5J-6,5J x 14
195/70 R14 Reinforced	3,1; (3,4)	96	5J-6,5J x 14
195 R14 C	4,3; (4,5)	106	5J-6J x 14
205 R14 C	4,3; (4,5)	109	5,5J-6,5J x 14
195/65 R15	2,6; (3)	91	5,5J-7J x 15

5.4.3 If the trailer will not be used for a long period, raise it on blocks (smaller trailers may be stood on the end). This prevents static load, which can cause deformation of the tyre.

5.4.4 Only experienced personnel may repair tyres.

5.4.5 According to the road traffic licensing regulations, tyres must have a minimum profile depth of at least 1.6 mm at each point of the tyre. Wear markings, distributed evenly around the perimeter of the tyre inform you on the condition of your tyres. Replace worn tyres immediately.

5.4.6 Trailer tyres must be changed if they are older than 6 years



5.5 Changing of a wheel



5.5.1 Secure the trailer against rolling away. We recommend the COBRA hydr. lift jack.

5.5.2 It is forbidden to stay under the lifted vehicle without additional and appropriate support.

5.5.3 Turn the wheel nuts cross-wise with a torque wrench to the prescribed torque

Wrench width Thread Tightening torque

Attention

17 bzw. 19 mm M 12 x 1,5	80 - 90 Nm
19 mm M 14 x 1,5	110 - 120 Nm
24 mm M 18 x 1,5	270 - 280 Nm

After driving the trailer for 50 km, check the wheel nuts of the changed wheel with a torque wrench and tighten, if necessary

5.6 Spare wheel

5.6.1 COBRA offers for each trailer model the appropriate spare wheel as accessory. It can be mounted to the trailer with the help of a bracket (not available for all models) and/or transported loosely.

5.6.2 Spare wheels, which are older than 2 years are no longer suited for a permanent use as running wheel and must be dismantled after their use but they can still be used as spare wheel.

Operating Instruction

6 Brakes

6.1 General

All braked COBRA trailers are equipped with a 2- and/or 4-wheel overrun brake system with automatic reverse and do not require additional maintenance. Any maintenance and adjustment works of the brake system shall only be carried out by experienced personnel. After every 5,000 kilometres or every 12 months adjust the brake pads to compensate for wear by readjusting the brake shoes.

When readjusting the brakes, find out which type of axles is integrated into your trailer.

COBRA uses axles of the producer AL-KO.

6.2 Readjustment of the Alko wheel brakes

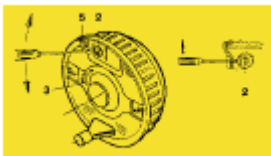
6.2.1 Jack-up the trailer and disconnect the brake lines.



6.2.2 Turn the adjustment screw, while turning the wheel with a screw driver until the brake drum can no longer be turned.

6.2.3 Then, turn back the set screw until the brake drum turns free in a forward direction.

6.2.4 Check for equal braking action of all wheel brakes of the trailer and, if necessary, re-adjust as described above.



6.2.5 Adjustments may only be made using the adjustment screws of the wheel brake, **never on the turn buckle or Bowden rod yoke.**

See more detailed information on: <http://www.cobratrailer.com> ,Manuals'

6.3 Brake pads



Every 5,000 km and/or every 12 months adjust the brake pads to compensate for wear.

The wear of brake pads depends on the driving behaviour. Driving carefully and considerably avoids tyre and brake pads wear.

Once the brake pads are down to about 1 mm thickness, replace them. In addition to that, replace slackened or overstretched brake wire springs, in which the coils are no longer positioned properly on top of each other or which are damaged. The thickness of the brake pads can be checked by a visual inspection on the aperture (picture above - Pos. 5). Brake pads may only be replaced by experienced technicians.



6.4 Security notes for brake systems

To avoid braking problems, test the proper functioning of the trailer brake in connection with the towing vehicle regularly by test brake actions. These test brake actions must be made especially then, when you change the towing vehicle. Make regular visual inspections of the braking system by observing the following criteria:

6.4.1 Guidances, Bowden wires and Bowden rod yokes mustn't be damaged or corroded.

6.4.2 Dust sleeves and seals mustn't be damaged externally.



6.4.3 Joints on Bowden rod yokes and rods must be duly secured and smooth running. Moreover, those components mustn't be rejected.

6.4.4 Bowden cables must be guided properly and without visible damages.

6.4.5 Control brake pads and adhere to required minimum thickness.

6.4.5 When changing the brake pads always control the wheel bearings for wear and damages



Operating Instruction

All COBRA trailers are equipped as standard with safety lighting and 13 pin plug. This safety lighting contains indicators, rear lights, brake light, fog light and the licence plate light.

If the towing vehicle is equipped with a 7 pole socket the electrical connection to the trailer can be made with an adapter (accessories).

Prior to driving check the functioning of the lighting system!

Damaged lights can be replaced after unscrewing the light cover. Remember to use the prescribed power (Watt) for the individual lights.

7. Wiring

COBRA offers a reversing light as standard with the 13 pin socket

7.1 Wiring 7 pin

Indicator left	1	L	yellow
Fog light	2	54g	blue
Ground	3	31	white
Indicator right	4	R	green
Light right	5	58R	brown
Brake lights	6	54	red
Light left	7	58L	black

7.2 Wiring 13 pin

reversing light	8	grey
constant plus	9	brown / blue
loading connect - battery	10	brown / red
--	11	
--	12	
Ground for 9-12	13	black / white



Do not connect the two ground wires.

8. Accessories

8.1 Crank Supports

To give the necessary stability when loading the trailer, COBRA offers flanged crank supports to the frame.



8.1.1 Working Position (1)

For loading and unloading the supports are turned using the supplied crank downwards, until they touch the ground.

On soft ground use e.g. an appropriately sized plank.



8.1.2 Servicing crank support

The supports need depending on use or once a year, cleaning and grease on the spindle

8.1.3 General: crank supports are provided only for the support of the trailer. They are not allowed as jack for changing tyres or similar. The static load carrying capacity is 800 kg depending on the angle of attack.

8.1.4 Crank the supports up before driving.

Operating Instruction

9. Support and maintenance

9.1 Galvanized parts

Galvanized parts need time to oxidise before they offer an effective protection against rust. The galvanisation only realises its full potential when the metal becomes dull looking. Galvanisation can be attacked by acids and other chemicals. For these reasons the trailer should always be rinsed off with a pressure washer after use on salted roads or after transportation of fertilisers or other acidic substances. In these cases rinsing off should always be carried out whether the parts are freshly galvanised or already oxidised. We also recommend treating the galvanised parts occasionally with a commercial anticorrosion product.

9.2 Aluminium

All aluminium components are made from extruded aluminium and are thus almost maintenance-free and can be cleaned with a pressure washer. To remove strong staining and maintain the brilliance of the aluminium, we recommend a soft cover cleaner. The Aluminum Top has a powder coat paint

9.3 fiberglass parts



The GRP - shell consists of reinforced fiberglass with a different design. The outer layer is a gel coat paint RAL 9010. This requires regular maintenance. Trailers should be polished once in a year with a good car or better boat wax.

Don't park the trailer under bushes or trees. The tannic acid from falling leaves and the juice of floating trees in spring harms and discolored every paint!

9.4 operating the clamshell (upper part)



The clamshell is kept by the front hinges and the gas pressure lift arm. Closed it is secured with the rear clamping locks. The open top is to secure by inserting the enclosed spring pin through the hole in the lift arm Panel against accidental closing.

Secure pin on the lift arm.



Change regularly the grease on the lift arm tubes

The hinges are screwed together with front handles.

Attention

Caution: When replacing the front handles the gas springs must be free of pressure, because otherwise the shell will be pushed forward.

Driving with an open clamshell is not allowed.
The trailer top must be closed after rigging the glider

9.5 Fittings and fixtures for the glider

All fittings and fixtures for the aircraft should be checked periodically for cracks and deformation depending on the intensity of use.



Operating Instruction

10. Lubrication plan

Use the standard multi-purpose grease according to DIN 51825 KTA 3K for all lubrication points

10.1 Overrun system (braked trailers)

The lubrication points of the overrun system are identical for tube drawbars und V-drawbars. Grease both nipples every 5,000 km and/or once per year.



10.2 Bell crank lever parking brake (COBRA)

There is a grease nipple at the bottom side at the bell crank lever of the parking brake. Grease the nipple every 5,000 km and/or once per year.

10.3 Drawbar bolt for V-drawbar on fifth wheel trailers

Both nipples (4) of the drawbar support on the centre pivot plate must also be greased every 5,000 km, and/or once per year.

10.4 Joints, compensation scales, Bowden cables on the brake

Grease these components and/or lubricate them and control them for smooth running.

10.5 Ball head coupling

Clean the ball head coupling regularly. Lubricate the ball adapter, the joints and bearing points regularly on the position marked with the symbol „oil can“ and grease them on the locations marked with a „grease press“. Check the coupling for smooth running and wear



Operating Instruction

11 . General

11 .1 Driving

11.1.1. The faster the speed, the worse the driving stability of rigs; therefore don't drive with the maximum speed under unfavourable street, weather and wind conditions. Use all trailers carefully on inclines.

11.1.2 When the roads are slippery remember that the driving stability and the braking action are restricted through a reduced adhesion of the tyres.

11.1.3 When driving backwards with the trailer, the driver must ensure that he doesn't risk the safety of other road users and shall be instructed by an expert, if necessary.

11.1.4 When driving with long trailers and with fifth wheel trailers remember the turn radius and the tailing after in turns. Remember, moreover, not to turn-in too much when switching to avoid a collision of the trailer with the towing vehicle.

It is forbidden to stay between the towing vehicle and the trailer.

11 .2 Braking behaviour

11.2.1 Since a trailer rig provides another braking behaviour than an individual passenger car, untrained drivers should make a couple of careful brake tests on appropriate terrain.

11.2.2 Please, remember as well that the braking distance of a trailer rig is longer than the one of an individual towing vehicle and that the braking distance is greater when the towing vehicle is loaded.

11.2.3 The ABS-system does not control the overrun system in the trailer; therefore you must brake early enough! Brake trailers with overrun systems first smoothly to avoid a blocking of the wheels of the trailer and then slow down speedily.

11 .3 Use in winter and rain

11.3.1 If trailers are parked outside, remember that after snow and rainfall, the snow and rain can collect on the roof which might freeze in winter time. Before driving remove water, ice and snow from the roof to avoid any accident danger for the following cars and passengers.

11 .4 Speed limit

11.4.1 When driving the trailers comply with the local speed limits.

11.4.2 When driving abroad comply with the local speed limits for trailer rigs

11 .5 Tyres

11.5.1 For all COBRA trailers new, high-quality tyres are used that are in general designed for a speed of 120 km/h or higher. The production date on the tyre must conform to the production date of the trailer.

When the tyres are stored correctly a tyre of up to four years from the production date can be accounted as new tyre and is fully covered by the warranty of the tyre producer.

11.5.2 Comply with the local minimum profile depths.

11.5.3 If the trailer is not used very often, remember that tyres age faster through weather influences such as direct sunlight. Therefore, control them regularly.



Operating Instruction

Inspections

1. Delivery inspection

Vehicle component	Control	To be carried out
Braking system	Braking action	Inspect, adjust, if necessary
Tyres	Air pressure	Inspect, adjust, if necessary
Lighting	Lights	Inspect, replace, if necessary

2. Inspection, not later than after 1,000 km after delivery

Vehicle component	Control	To be carried out
Braking system	Braking action	Inspect, adjust, if necessary
Tyres	Air pressure	Inspect, adjust, if necessary
Build-up (trailer top)	Bolted connections	Inspect, retighten, if necessary
Lighting		Control, repair, if necessary
Wheel bearing	Play	Inspect, adjust, if necessary
Grease		Inspect, replace, if necessary

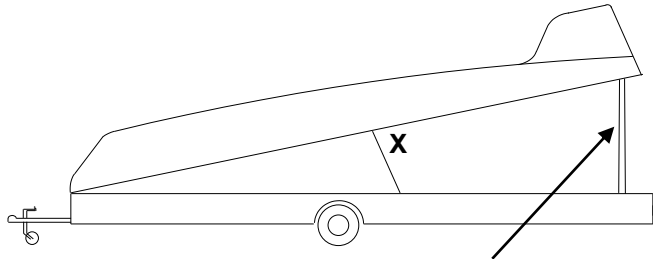
Vehicle component	Control	To be carried out
Braking system	Braking action	Inspect, adjust, if necessary
Tyres	Air pressure	Inspect, adjust, if necessary
Lighting	Lights	Inspect, replace, if necessary

3. Other inspections, no later than every 5,000 km and/or at the latest 1/2 year after the last inspection

Vehicle component	Control	To be carried out
Braking system	Brake pads	Inspect, replace, if necessary
Braking mechanism		Control, repair, if necessary
Sliding points braking mechanism		Grease
Overrun system		Grease
Play		Inspect, adjust, if necessary
Brake		Adjust
Wheel bearing	Bearing	Inspect, replace, if necessary
Seals		Inspect, replace, if necessary
Grease		Inspect, replace, if necessary
Play		Adjust
Axles	Damages	Visual control, repair, if necessary
Fixings / Fixtures		Control, repair, if necessary
Tyres	Damages	Visual control, replace, if necessary
Obsolescence		Inspect, replace, if necessary
Profile		Measure depth, at least 1.6 mm
True running		Inspect, balance, if necessary
Air pressure		Inspect, adjust, if necessary
Drawbar/ overrun system	Bolted connections	Inspect, replace, if necessary
Build-up (trailer top)	Bolted connections	Inspect, retighten, if necessary
Damages/ corrosion		Inspect, correct, if necessary
Electrical equipment	Connectors, cables, lights	Inspect, correct, if necessary
Reverse lights, reverse lamps	Connectors, cables, lights	Inspect, correct, if necessary

Operating Instruction

10.7 Changing of Lift-arms (gas struts)



- Open the trailer and use stands to hold it open. Secure these stands. Check the safety of the stands.
- Make sure that the top is fully opened by shaking on the lift arms. You can hear the eyes of the gas struts shaking on the bolt.
- Remove the carpet of the top attachment. Remove the small guide on the lower attachment by using a philips screwdriver.
- Remove the carpet on the telescope around the nut.
- Bottom: Open the security bolt with a philips screwdriver. Open the nut by using a pin-spanner (or a pin and a hammer, or a pair of pliers).
- Open the top bolt with two 13 mm spanners. Remove the telescope arm. It is easy when the stands are in the right position to hold the trailers top in the right height. By difficultis move the stands until you reach the correct height.

Assemble the new struts in the opposite way as described above.

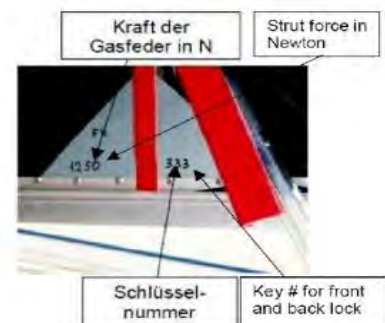
Spare parts

To expedite a correct spare part order, please state type, model and chassis number of the trailer and also the make of the axles, brakes and coupling.

Or search and order the part in our shop on <http://www.cobratrailer.com/> ,Shop'.

For replacement of gas struts and / or trailer keys you can find the information on the gusset plate inside the trailer.

X is the Force in N (Inside on the right hand triangular Aluminum plate)





Operating Instruction

For all trailers the original manuals of the individual manufacturers are supplied with the vehicle documents. These are for the operation, maintenance and care.

Further information on www.cobratrailer.com ,Manuals'

Alfred Spindelberger Fahrzeugtechnik GmbH
Paul-Heidelberg-Straße 11
D-34295 Edermünde-Grifte
Fon +49 (0) 5665 / 7044
Fax +49 (0) 5665 / 7725

info@cobratrailer.com
www.cobratrailer.com

Geschäftsführer: Alfred Spindelberger
Sitz: Edermünde / Grifte
Eingetragen beim Amtsgericht Fritzlar HRB 8271
UST.-ID-Nr.: DE 200803614

No liability for mistakes or printing errors.
Subject to technical changes. Printed in Germany.