This guide is intended for you, the ROAD HAULAGE PROFESSIONAL.

It outlines the essential recommendations for use and maintenance of the system to ensure operation in optimum conditions of safety.

This guide describes normal conditions of use. If you want additional explanations concerning the contents of the guide or any particular conditions of use of this vehicle, please get in touch with us.

Please keep this booklet in a safe place.

ENGLISH

BENALU

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All illustrations and photos are non-contractual and simply offer examples.

For you, the road haulage professional, this guide provides you with information that will enable you to operate your vehicle in optimum conditions of safety.

By devoting just a few moments to reading this document, you will be able to make full use of the main functions of your vehicle.

Your equipment is designed for quick and easy maintenance. By strictly following the maintenance instructions, you will guarantee the reliability and optimum operation of your vehicle.

The checks preceded by this symbol are to be carried out by the driver.

The maintenance operations and checks preceded by this symbol are to be carried out in a specialised workshop.

Refer to the section concerned.

Refer to the system manufacturer's manual: running gear, landing gear, various mechanisms.

Please contact us for any additional information you may require (refer to the list of BENALU approved points and services).

This guide deals with the main options and the possible variants. You only need to look at those dealing with the equipment of your vehicle.

Important information or instructions are placed between two vertical grey bars. They must be followed scrupulously

Keep this guide with the vehicle's on-board documents.

ENGLISH

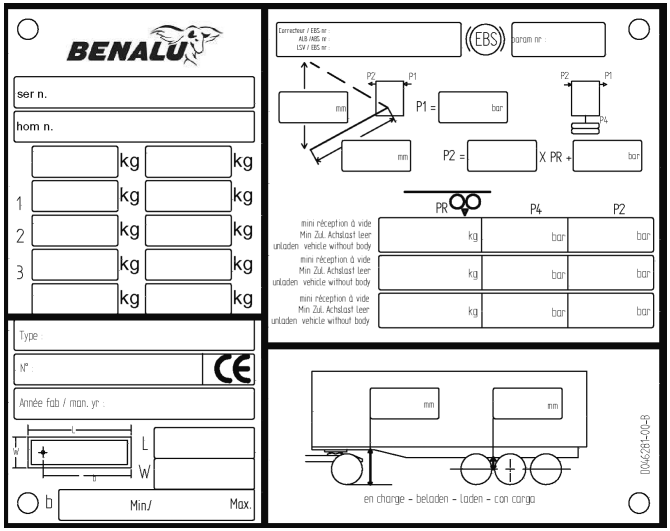
CONTENTS

ENGLISH

VEHICLE IDENTIFICATION - Marking - Location

RUNNING GEAR IDENTIFICATION PLATE

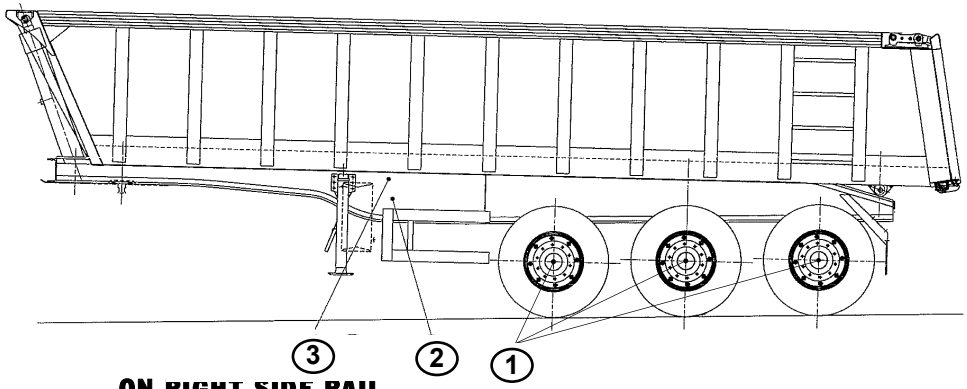
(1)



(2)

(3) VH1_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

17 character serial N° shown on the registration document

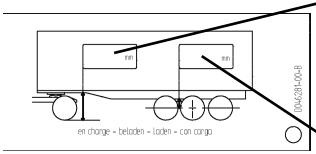


ON RIGHT SIDE-RAIL

VEHICLE IDENTIFICATION - Marking - Contents

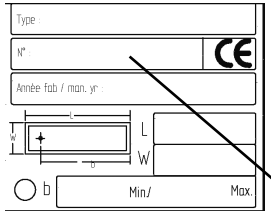
RUNNING GEAR IDENTIFICATION PLATE

This plate secured to each of the axles is specific to the brand installed. It gives the axle and brake laden capacity and its approval number. It also gives the axle serial number.
THIS INFORMATION MUST BE USED WHEN OBTAINING SPARES.



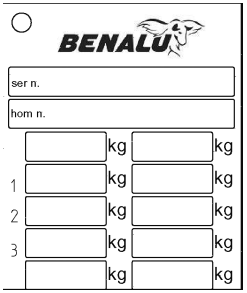
This area gives the laden coupling height for which the vehicle is designed.
Check that the tractor used is compatible with this height.

If pneumatic suspension is used, this value gives its setting height.



The CE certification area gives information about the type of equipment and its year of manufacture.

It gives a factory manufacturing number to be specified in any correspondence concerning this vehicle.



The "weight and dimensions" plate gives information concerning the geometry of the vehicle.

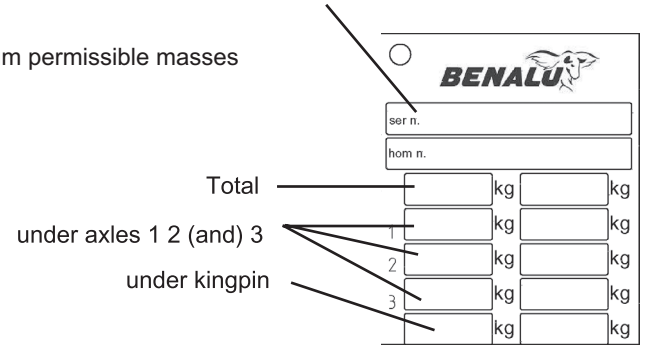
VEHICLE IDENTIFICATION - Marking - Contents

The Manufacturer's Plate comprises:

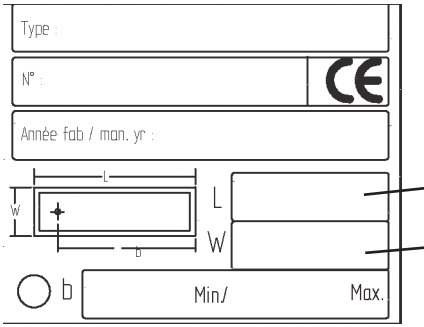
The 17 character serial number shown on the vehicle's registration document

Type approval number complying with 2007/46 CE Directive

Vehicule maximum permissible masses



Vehicles registered in countries applying directive 96/53EC use a plate which only comprises the first weight column, as well as the overall length from kingpin to rear and the width.



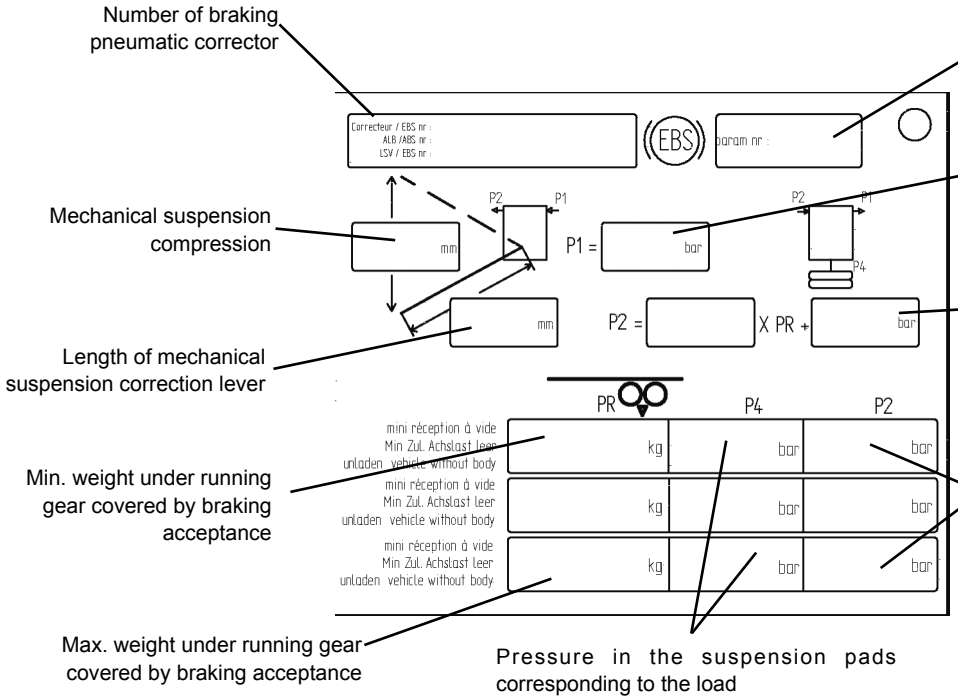
L: Maximum overall length from kingpin to rear or overall length from pintle eye to rear

W: maximum width

ENGLISH

VEHICLE IDENTIFICATION - Marking - Contents

The corrector area comprises:



ENGLISH

FIRST USE - Marking after body to chassis mounting

If, following delivery to our factories, the vehicle receives a body or additional equipment, it is essential to ensure that when you receive the vehicle, the new load and unladen pressure values have been marked on the plate (fig. 8.1) by the bodywork assembler or equipment installer.

CAUTION: This is made mandatory by amended EC decree 71-320 of 1971 and must be carried out in accordance with the "Directives for body mounting of semi-trailers, trailers and running gear - instructions for body mounting shops"
Contact the manufacturer.

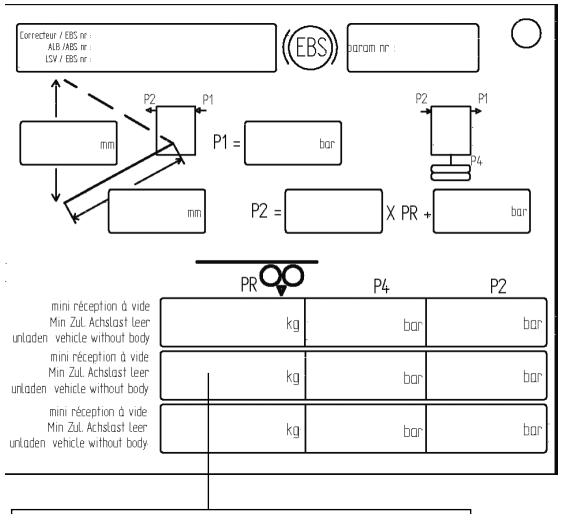


Fig. 8.1

Line 2 to be completed after body mounting or addition of equipment.

Vehicle identification

USER IDENTIFICATION

Fleet N°: . . . . . .

Registration N°: . . . . . .

COMPANY STAMP

BENALU IDENTIFICATION

Refer to the information on the identification plates.

References to be mentioned in any correspondence or telephone communications concerning your vehicle.

CC : **ST :**

IDENTIFICATION N°:

The vehicle was built in accordance with the regulations in force. Replacing original equipment manufacturer parts by parts from other sources may lead to non-compliance with the requirements of the regulations and invalidate our warranty.

Only the manufacturer's original spare parts can guarantee that the original quality of your vehicle will be maintained. This quality was achieved through extremely stringent design and manufacturing processes. Manufacturer spare parts are available from the BENALU network. They are approved by the manufacturer and guarantee performance and reliability for your trailer or semi-trailer.

Washing the vehicle

For washing the vehicle, please read the instructions on the self adhesive "CLEANING INSTRUCTIONS" label (Fig. 10.1).

In general, avoid using a high-pressure cleaning system on water-sensitive items:

- brakes (drums, brake levers, calipers, disks),
- brake valve,
- electrical components (lights, harnesses),
- landing gear,
- hydro-electric unit, sheeting motors and any mechanisms in general.

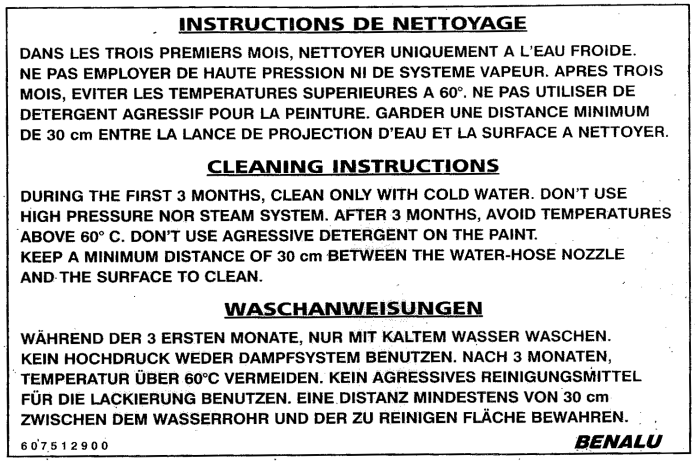


Fig. 10.1

NEVER SPLASH WATER ONTO HOT BRAKES AFTER THE VEHICLE HAS BEEN IN USE. LEAVE HOT PARTS TO COOL DOWN BEFORE CLEANING AS THERE COULD BE A RISK OF CRACKING.

AFTER THE FIRST 100 KILOMETRES:

- Check that the wheel nuts are tight.

AFTER THE FIRST 5,000 KILOMETRES:

HAVE THE FOLLOWING CHECKED:

- the tightness of the drawbar and equalizer beam shaft nuts (mechanical suspension),
- the tightness of the air cushion attachment nuts (upper mounting - pneumatic suspension),
- the tightness of the air cushion attachment nuts (lower mounting - pneumatic suspension)
- the tightness of the shock absorber attachment nuts (pneumatic suspension),
- the tightness of the suspension brackets,
- the tightness of the accessory mounting screws (spare wheel support, toolbox, planks box, pallet holder, etc.),
- the tightness of the knuckle pin and bolted coupling plate attachment screws,
- the tightness of the pintle eye attaching screws in the order stipulated on the (trailer) instruction plate,
- axle alignment,
- tractor air pressure at the "automatic" coupling head (red). This must be between 6.5 and 8.5 bar for satisfactory braking in accordance with the regulations,
- the tightness of the yoke pin and jack bearing.

In general, follow the instructions in the specific guides for the running gear, landing gear, sheeting mechanisms, etc.

NOTE: the main tightening torque values are given at the end of the document..

ENGLISH

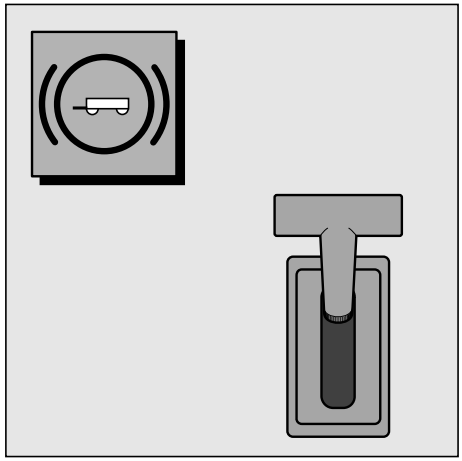
SAFETY INSTRUCTIONS - Before each departure

BEFORE EACH DEPARTURE, WITH VEHICLE COUPLED:

- Check that you are in possession of the vehicle's **on-board documents**.
- Coupling: Check that the **coupling system** is correctly locked ("coupling semi-trailer to tractor" or "coupling trailer to truck").
- Landing gear: Check that the two **landing gears** are raised ("Landing gear").
- Wheels: Check the **tyre pressure** and **the tightness of the wheel nuts** ("tightening torques").
- Signalling: Check the correct operation and as applicable the cleanness of the **electrical devices** ("Electricity, lighting and signalling").
- Bodywork: Check that all body elements are in place - doors and side boards closed and secured, tarpaulin secured, etc.
- Suspension: Wait until the pneumatic suspension is in the **"road" position**. Check that the "Raising/Lowering" device is in the "road" position (pneumatic suspension).
- Braking: Run a **brake test** and **purge the air tanks**, if manual purging is required, in order to remove any condensation and any traces of oil if there is a manual purge valve.
- Parking brake: Check that it is **completely released**. For the spring brake actuators "Brake pneumatic control".
- Check **braking effectiveness** before exceeding a speed of 30 km/h.
- Check that the fire extinguisher is in place.

- Pay attention to any bridges, underpasses and tree branches which could damage the upper part of your vehicle.

Fig. 13-1



CAUTION: If your tractor is equipped with a trailer brake (Fig. 13.1) only use it when absolutely necessary. Over-use or inappropriate use of this brake could lead to very rapid wear of your towed vehicle brake linings, or even overheating which could result in tyre burst or the vehicle catching fire.

- Use engine braking whenever possible, or the exhaust retarder, or the tractor electric or hydrodynamic retarder, to prevent overheating of the brakes.

SAFETY INSTRUCTIONS - loading

LOADING 

- Observe the maximum load limits under running gear and kingpin.

  Refer to the values marked on the manufacturer's plate (see VEHICLE IDENTIFICATION - Marking - Contents chapter).

  IN NO CASE EXCEED THE VEHICLE MAXIMUM PERMISSIBLE MASSES.

- The load must be evenly distributed and correspond to the purpose for which the vehicle is designed.

  CAUTION: In the absence of any particular specifications leading to a special construction, the vehicles are designed to carry loads that are evenly distributed in terms of weight over the entire loading surface area.

  CONCENTRATED LOADS ARE NOT ALLOWED.

  If in doubt, please contact us.

  For dump bodies, see the dumper vehicles guide.

It is up to the transporter to choose the appropriate vehicle, the securing method and protections in accordance with the highway code.

However, you must check that the consignor has loaded the vehicle correctly.

If you feel that it is incorrect, and depending on the seriousness, it is up to you to refuse to take to the road or to ask for a modification.

The regulations for the transport of hazardous materials set specific rules which are not included in this guide.

Driving behaviour should also be adapted to the nature of the load.

SAFETY INSTRUCTIONS - Vehicle access

To access the dump body or platform loading zone, use appropriate means of access to prevent falling.

A ladder or stepladder must be used.

Your vehicle may be equipped with a ladder under the body or a retractable rear stepladder if you do not have the appropriate means of access.

Optional equipment (Fig. 16-1).

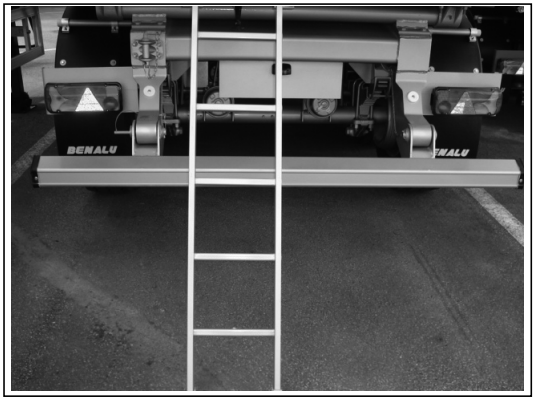


Fig. 16-1

Fig. 17-1

In the absence of any particular signposting, the speed of your vehicle is limited by the highway code of the relevant country.

THE SPEED DISKS AT THE REAR OF THE VEHICLE ,WHICH ARE MANDATORY IN SOME COUNTRIES, RECALL THESE SPEEDS (Fig. 17-1: example of France).

SAFETY INSTRUCTIONS - Coupling the semi-trailer to the tractor

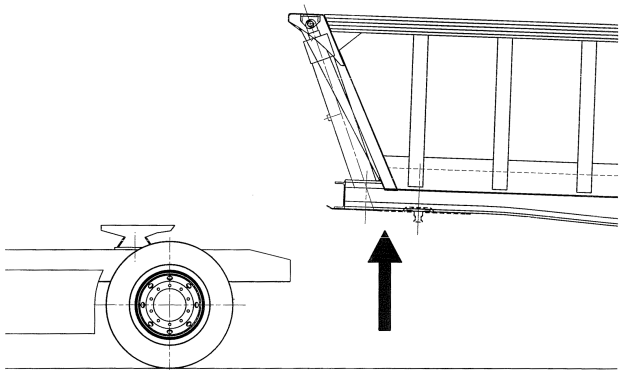


Fig. 18-1

The performance of the running gear (braking, suspension, tyres) depends on the correct position of the semi-trailer in relation to the ground. Follow the laden coupling height (Fig. 18-1) which varies according to the type of vehicle and is mentioned on the plate fixed to the vehicle (Fig. 18-2).

If this height is not strictly followed, BENALU declines all and any liability for any resulting consequences or damage. Contact us for information on ensuring the conformity of your articulated assembly.

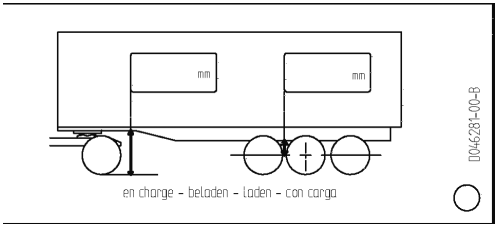
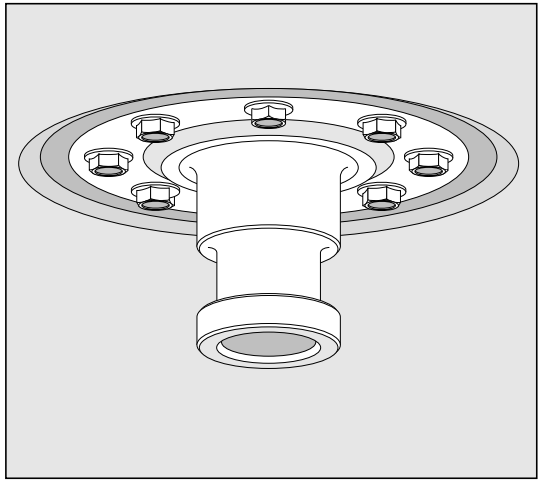


Fig. 18-2

SAFETY INSTRUCTIONS - Coupling the semi-trailer to the tractor

Fig. 19-1



1. Before coupling, check (fig. 19-1)

- the state and attachment of the upper coupler, it should show no signs of damage, deformation or compression,
- the state and attachment of the yoke pin,
- that the layer of grease on the upper coupler, yoke pin, fifth wheel plate is sufficient and free of all foreign bodies, to ensure perfect coupling of the tractor to the semi-trailer, without causing any damage,
- that the upper coupler, yoke pin and fifth wheel plate are abundantly lubricated.

SAFETY INSTRUCTIONS - Coupling the semi-trailer to the tractor

2. *Spring brake actuators*

The vehicle is equipped with spring brake actuators (Fig. 20-1), see instruction plate fixed to the chassis (Fig. 20-2).

Fig. 20-1

Vehicle coupled:

- to apply vehicle brakes: pull the button (Fig. 20-2).
- to release vehicle brakes: push the button (Fig. 20-2).

With spring brake actuators the parking brake is applied only by the action of the internal spring. Refer to the "Pneumatic brake control" paragraph for a description of how the spring brake actuators work.

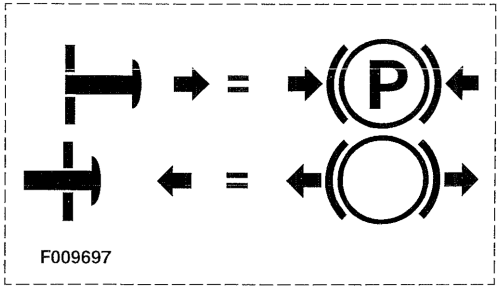


Fig. 20-2

SAFETY INSTRUCTIONS - Coupling the semi-trailer to the tractor

Fig. 21-1

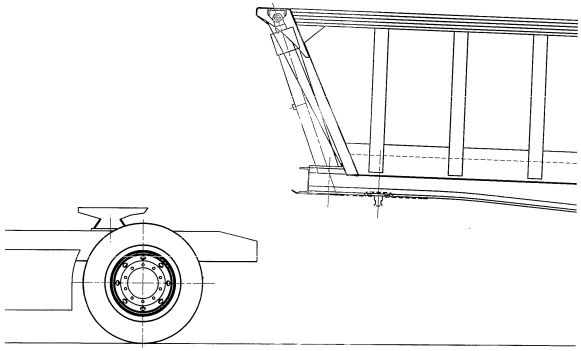


Fig. 21-2

3. Ensure that the upper coupler is at the correct height in relation to the fifth wheel.

If necessary, use the landing gear to raise or lower the front of the semi-trailer until the correct position is obtained (Fig. 21-1 and 21-2).

4. Slowly reverse the tractor in a straight line until the semi-trailer upper coupler contacts the fifth wheel plate.

5. Gently and gradually accelerate by engaging the clutch so that the fifth wheel slides smoothly under the upper coupler and the yoke pin gently contacts the jaws, which automatically lock under the force of the impact.

ENGLISH

SAFETY INSTRUCTIONS - Coupling the semi-trailer to the tractor

CAUTION - DANGER: With the semi-trailer braked with the parking brake, make sure that the yoke pin is correctly locked: engage 1st gear and simultaneously let out the clutch while gently pressing the accelerator. The driver will feel considerable resistance to movement by the articulated assembly.

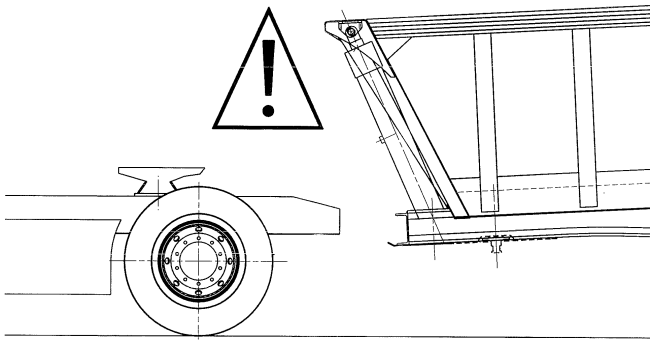


Fig. 22-1

This check should confirm that the yoke pin is correctly engaged in the fifth wheel jaws, thus preventing unwanted separation of the semi-trailer (Fig. 22-1) during operation, which would lead to significant damage to the equipment and a serious accident.

6. Completely raise the landing gear to ensure maximum ground clearance (Fig. 22-2).

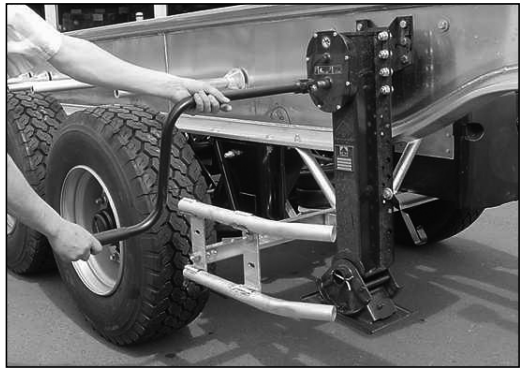


Fig. 22-2

Fig. 23-1

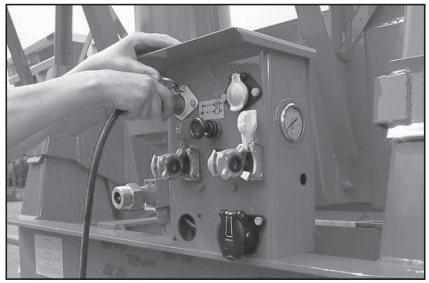


Fig. 23-2

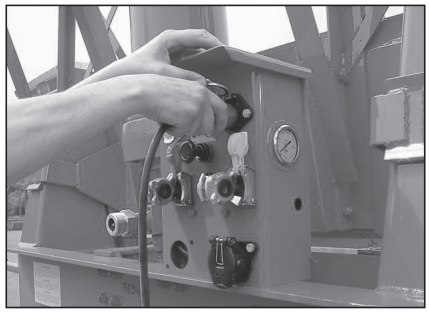
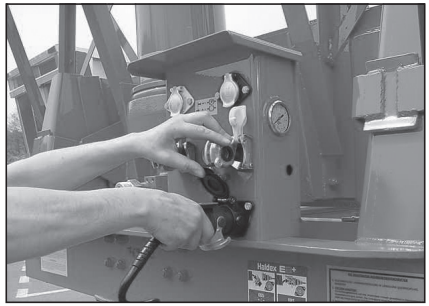


Fig. 23-3



7. Raccorder les circuits électriquesConnecting the electrical systems

Ensure that the cables and the tractor and semi-trailer connectors are in good condition.

- 24N or 15-pin socket (Fig. 23-1),
- 24S or 15-pin socket (Fig. 23-2),
- ABS ISO 7638 socket (Fig. 23-3),
- ISO 12098 15 pin plug (Fig. 23-4).

Fig. 23-4

SAFETY INSTRUCTIONS - Coupling the semi-trailer to the tractor

8. Connecting the brake lines

Ensure that the brake lines are correctly connected.

Line head connections::
- Red: automatic (Fig. 24-1),
- Yellow: direct (Fig. 24-2).

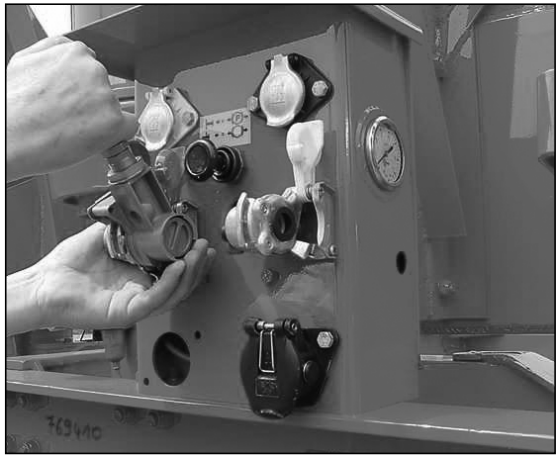


Fig. 24-1

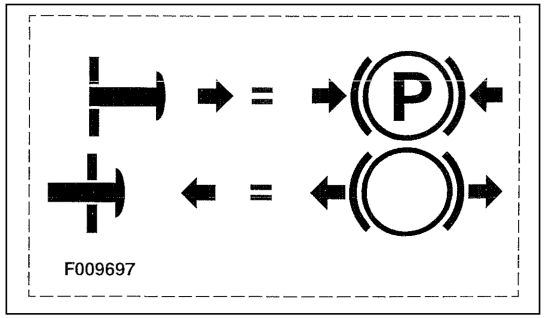
Fig. 24-2

9. Loosening the parking brake

CAUTION: Before leaving, check that the brakes and electrical devices are working properly;

Do not leave if the pressure in the brake circuit has not reached a value of between 6.5 and 8.6 bar.

Fig. 25-1



1. Spring brake actuators

Before disconnecting the brake lines, actuate the parking brake system in accordance with the instructions on the plate (Fig. 25-1).

Fig. 25-2

2. Disconnect the electrical systems (Fig. 25-2)

SAFETY INSTRUCTIONS - Uncoupling the semi-trailer

3. Disconnect the brake lines (Fig. 26-1)

This operation will activate the automatic brake.

4. Lower the landing gear ("Landing gear")

First use high speed and then, when the wheels or pads touch the ground, switch to low speed for raising the semi-trailer.
If the ground is loose, place a wide chock under the wheels or pads of each landing gear to avoid it sinking into the ground.

5. Unlock the fifth wheel to release the yoke pin.

6. Slowly disengage the tractor from the semi-trailer.

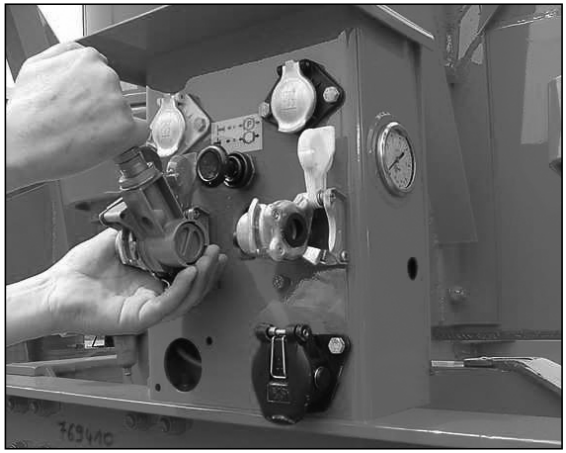
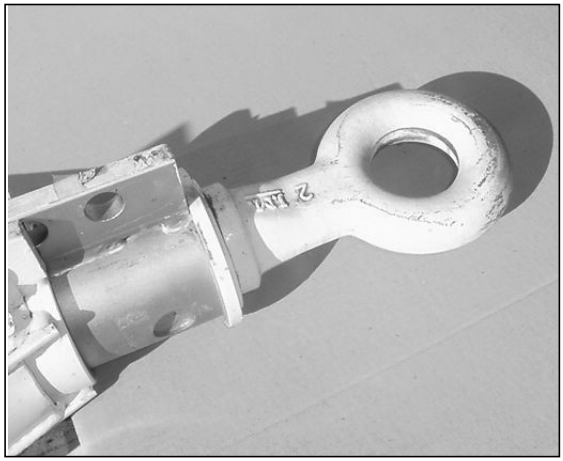


Fig. 26-1

CAUTION: To allow easy and safe uncoupling, align the tractor in the axis of the semi-trailer. It is advisable to uncouple the semi-trailer on flat, firm ground.

SAFETY INSTRUCTIONS - Coupling the trailer to the straight truck

Fig. 27-1



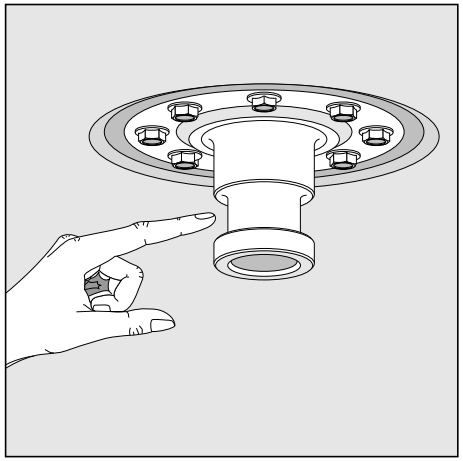
CAUTION: Check that the resulting coupling is in conformity with the regulations in force with regard to weight, dimensions and braking, etc.

- Ensure that the pintle eye on the hitch tongue corresponds to the type of hook on the straight truck: BNA dia. 68, ISO dia. 50, DIN dia. 40 (fig. 27-1).
- Check that the length of the hitch tongue is compatible with the rear overhang of the straight truck.
- Check that the trailer is braked either by the parking brake or by the spring brake actuators.
- Raise the straight truck's underride guard.
- Ensure that the hook and pintle eye are clean and free of any foreign bodies.
- Position the hitch tongue eye at the same height as the tractor coupling hook using the support leg, the helper spring or the tractor's "raising/lowering" device.
- Check that the tractor hook is in the unlocked position.
- Slowly reverse the truck until the hook engages in the pintle eye.
- Ensure that the hook is correctly locked.
- Carry out a traction test.
- Connect the brake and electrical lines.
- Raise and stow the front and rear support legs.
- Release the trailer brake if a manual parking brake is used. Remove any wheel chocks. Ensure that no contact is possible between the hitch tongue and the rear of the straight truck during 90° turning situations on horizontal ground.

SAFETY INSTRUCTIONS - Uncoupling the trailer

- Brake the trailer, use the parking brake or the pneumatic control of the spring brake actuators, or position the wheel chocks.
- Fold out and deploy all the front and rear support legs if the trailer is equipped with them. The trailer "raising/lowering" device may be used to make it easier to position the rear legs. If the ground is loose, place a wide chock under the pads of each leg.
- Disconnect the electrical and pneumatic supply lines from the trailer, place them on the appropriate supports.
- Unlock the straight truck hook, adjust the hook height if necessary with the straight truck's "raising/lowering" device to make uncoupling easier.
- Slowly drive the straight truck forwards until the trailer hitch tongue is completely clear of the straight truck's rear overhang.
- Lower and lock down the straight truck's underride guard if the truck is to be used on its own.

Fig. 29-1



OPERATION

The yoke pin (Fig. 29-1) locks in place in the tractor's fifth wheel. The active part is topped by a collar which is attached by special screws to a support integral with the upper coupler. The important role played by this safety device means that it must be designed and manufactured with the greatest care: use of special steels, heat treatments, strict checks.

2" yoke pin
- nominal diameter : 50,8 mm
- minimum worn diameter : 49 mm

3"1/2 yoke pin
- nominal diameter : 88,9 mm
- minimum worn diameter : 85,9 mm

No yoke pin repairs are allowed. It must be replaced when the minimum worn diameter is reached at any point on the pin.

Replace all special screws each time the yoke pin is removed or replaced.

OPERATION - Pintle eye

OPERATION

The trailers can be equipped with three types of pintle eyes:
BNA, ISO or DIN
BNA eye (outside diameter of ring: 68 mm)

- nominal diameter : 42 mm
- min. worn diameter : 40,5 mm

ISO eye

- nominal diameter : 50 mm
- min. worn diameter : 51,5 mm

DIN eye

- nominal diameter : 40 mm
- min. worn diameter : 41,5 mm

A wear ring, which may be replaced, can be fitted to the ISO and DIN eyes (Fig. 30-1).

No repair of the pintle eye is allowed. It must be replaced when the minimum worn diameter is reached at any point on the eye.
Similarly, on the hitch tongues, no repairs such as heating, straightening or modification are allowed. Any tongue which is deformed must be replaced.
Replace all special attachment screws each time the eye is removed or replaced.

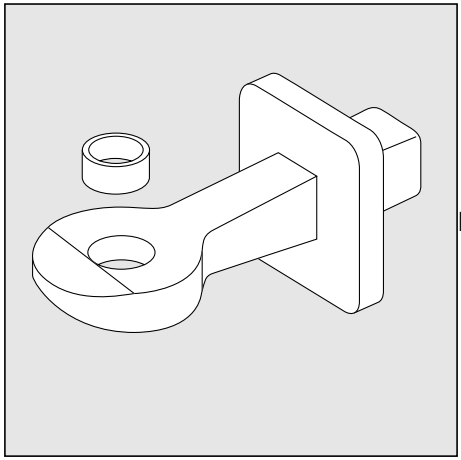


Fig. 30-1

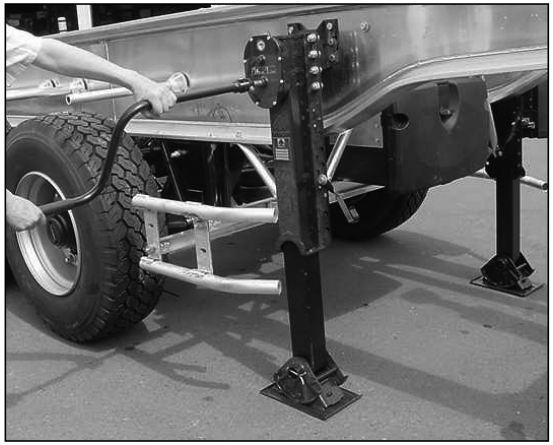


Fig. 31-1

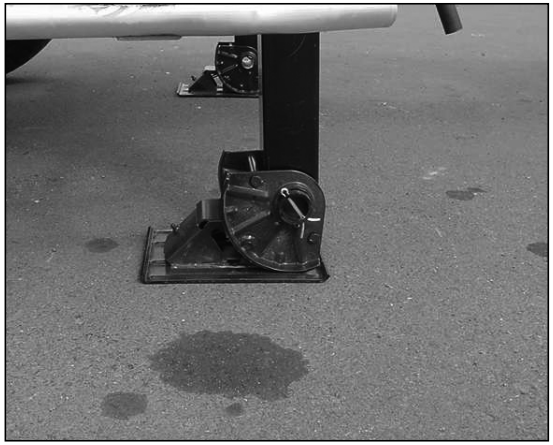


Fig. 31-2

OPERATION

Immobilise the semi-trailer at coupling and uncoupling to prevent any abnormal stresses on the landing gear legs.

The drive shaft controlled by the crank handle is used to raise (clockwise rotation) or lower (counter clockwise rotation) the landing gear legs via a two-speed mechanism (Fig. 31-1).

Pneumatic suspension vehicles are equipped with landing gear legs with compensating pads enabling the vehicle to be moved longitudinally following prolonged uncoupling. These feet also compensate for slight unevenness in the ground (Fig. 31-2).

.

OPERATION - Landing gears

OPERATION (Cont.)

- **High Speed**: crank handle in the fully pulled position ① (Fig. 32-1)
  Use this position either to lower the landing gear legs rapidly for uncoupling, until contact with the ground, or to raise them, with the vehicle again coupled.
  The movement is direct from the control shaft to the bevel drive gears.
- **Low Speed**: crank handle in the fully pushed position ② (Fig. 32-1)
  Use this position to slightly raise the semi-trailer once the wheels or pads have touched the ground, to facilitate uncoupling by taking the load off the tractor springs.
  The movement is transmitted via a demultiplication system.
  A plate on the landing gear summarises operation.

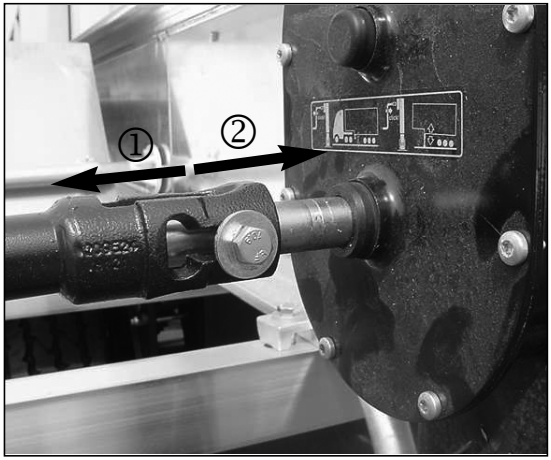


Fig. 32-1

COMPLY WITH THE LANDING GEAR MANUFACTURER'S INSTRUCTIONS

Fig. 33-1

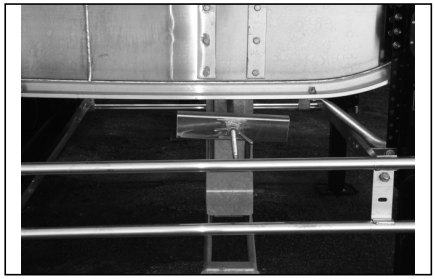


Fig. 33-2

Depending on the type of vehicle, several types of spare wheel holder can be fitted.
- basket wheel holder (Fig. 33-1)
- vertical wheel holder (Fig. 33-2),
- wheel holder between landing gear legs (Fig. 33-3)
- winch type wheel holder (Fig. 33-4).

In any case, take all necessary precautions when removing the spare wheel to stop it falling out suddenly.

Attachments and safety devices must be used to prevent any parts falling off onto the public highway.

To access the spare wheel, remove the underride guard if necessary using a wheel brace.

Fig. 33-3

Fig. 33-4

OPERATION - Pare choc

The vehicle is equipped with a bumper conforming to current European regulations.

The rear bumper is subject to approval and the approval number is marked on the section facing the right hand support in the direction of travel (Fig. 34-1). In all correspondence concerning your vehicle or when ordering spare parts, please specify this reference.

Fig. 34-1

No modifications must be made to the bumper, as this would invalidate the model qualification.

In traffic and in the case of fold-away or retractable systems, the system must be mechanically locked in the down position using the special locking system.

SELF-ADHESIVE LABELS RECALL THESE INSTRUCTIONS (Fig. 34-2).

Fig. 34-2

In the case of a pneumatically controlled bumper, the bar must be raised before dumping operations, to prevent the jack cylinder rods from being damaged by chipping.

In the case of the hydraulically controlled Pommier bumper, refer to the specific operating instructions and the safety instructions recalled on the self-adhesive labels.

Fig. 35-1

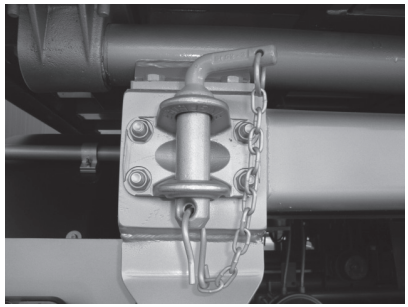


Fig. 35-2

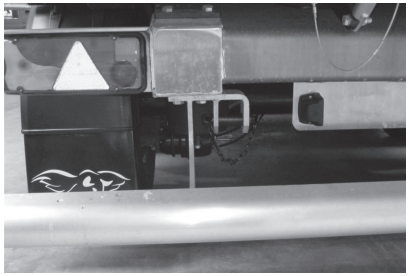


Fig. 35-3

- Towing clevis
  This optional equipment (Fig. 35-1 and Fig. 35-2) is not approved as a means of towing for use on the public highway and carries no acceptance number conforming to directive 94/20.

If used, make sure that no-one is present within the operating clearance distance.
It must therefore never be used on the public highway.
Avoid sudden traction movements.

- Mudguards
  This mandatory equipment (barring waiver see note), is approved and complies with European directive 91/226.
  The installation should in no case be modified. The anti-spray flap carries a CE marking. This marking should be specified whenever ordering parts (Fig. 35-3).

NOTE:
Mudguards are incompatible with semi-trailers equipped with a dump body of less than 9.7m and straight trucks equipped with a dump body of less than 7.5 m long. this equipment is not mandatory in these two cases.

OPERATION - Axles

All the axles carry an identification place situated next to the centre of the axle body or on the suspension arm. This plate gives the following information:

1. Désignation de l'essieu.
Axle designation.
2. Type d'essieu homologué.
Max load approved for brakes per axle.
3. Charge maxi homologuée des freins par essieu.
Max load approved for brakes per axle.
4. Type de frein homologué.
Brake type approved.
5. Numéro d'homologation TÜV, RDW ou autre.
TÜV, RDW approval number or other.
6. Charge maxi techniquement admissible à l'essieu.
Max load technique admissible to the axle.
7. Vitesse maxi de l'essieu.
Max speed of axle.
8. Numéro de série de l'essieu
Axle serial number

In the case of disk brakes, the brake caliper carried an identification plate, which gives the following information:
1. Brake type
2. Brake serial number

SEE SPECIFIC RUNNING GEAR MANUAL

Fig. 37-1

Your vehicle is equipped in the factory with tyres of appropriate dimensions, with particular load and speed characteristics.

Wheel nut tightening order, see Fig. 37-1.

Wheel nut tightening torque, see running gear manufacturer's instructions.

CAUTION - DANGER: different sized tyres must not be fitted.

Any change in dimensions affects braking performance and conformity with the regulations in force.

The load and speed characteristics must comply with those of the original fit.

If in doubt, please consult us.

OPERATION - Wheel axles and tyres

For monitoring vehicle servicing, an odometer can be mounted in the hub end-cap (Fig. 38-1).

Fig. 38-1

CAUTION: never weld, drill or grind an axle or its supports.

Never connect a ground connector to a running gear element for welding work on the vehicle, as this could irrevocably damage the bearings.

Your vehicle's braking system requires careful and thorough servicing.

The safety of the vehicle user and of other road users is dependent on this.

As manufacturer, we cannot be held liable for any failure to comply with basic servicing rules.

- external visual indicators provide information on the degree of brake lining wear.

see running gear manufacturer's manual.

⚠ In no case modify the point of attachment of the spring brake actuator yokes on the brake levers and never replace the braking receivers by models different from the original fit models.
Brake parts must be replaced with OEM parts (linings, drums, disks). Using parts of unknown origin may impair braking performance and lead to the vehicle no longer being in conformity with the regulations in force.

⚠ In any correspondence and in order to obtain original parts, please refer to the running gear numbers and marking plates.

⚠ All maintenance work on safety-related items such as running gear, brakes or braking circuit must be carried out in a specialist workshop.

Generally speaking, it is essential to refer to the running gear manufacturer's manual for the necessary information specific to each brand.

OPERATION - Brake circuit

When coupling the semi-trailer (see coupling paragraph), the good condition of the electrical and pneumatic hoses must be checked.

Particular attention must b paid to the condition of the ABS/EBS cable (Fig. 40-1):

- check that there are no signs of nicks or cuts (Fig. 40-2),
- check the condition of the connectors at each end (Fig. 40-3),
- check that the tractor and semi-trailer sockets are neither damaged nor oxidised (Fig. 40-4).

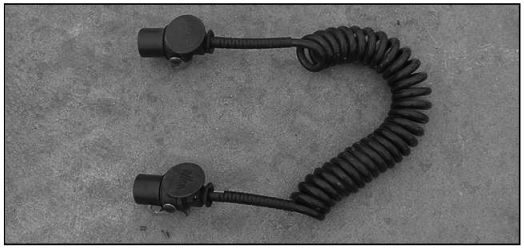


Fig. 40-1

Fig. 40-2

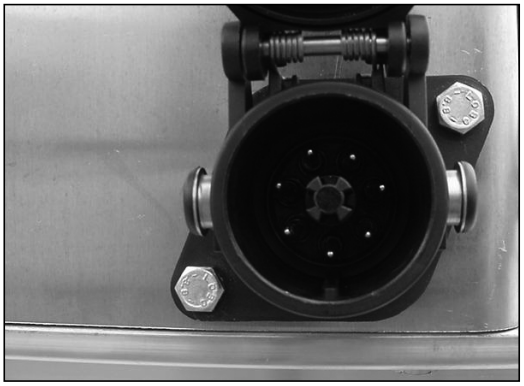


Fig. 40-4

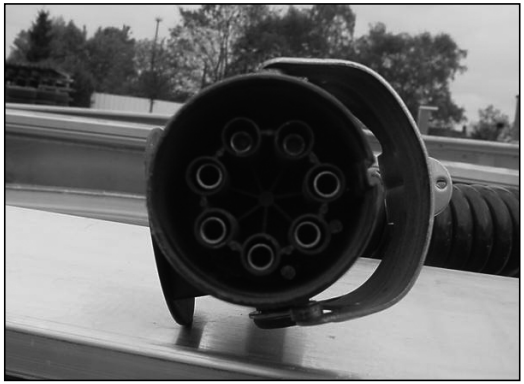
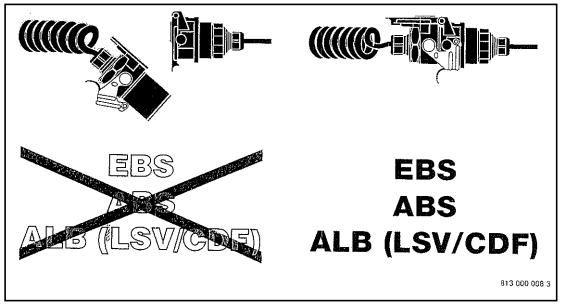


Fig. 40-3

Fig. 41-1



If your semi-trailer is equipped with an electronic control braking system, driving without having connected the ABS/EBS cable is prohibited. A label recalls this instruction at the front of the vehicle (Fig. 41-1).

Any failure to abide by this requirement, as marked on the label, would lead to loss of the anti-blocking function and the pressure corrector function linked to the load, braking would then operate in degraded mode.

Whatever the vehicle load, the braking pressure in this case is MAXIMUM. IN THIS CASE WE COULD THEN NO LONGER GUARANTEE THE BRAKING SYSTEM COMPONENTS OR THE TYRES.

When the tractor ignition is switched on with the cable connected, the ABS/EBS lamp on the dashboard comes on and goes out.

If the lamp remains lit, check the condition and connection of the connecting cable. If the problem persists, run an ABS/EBS system diagnostic in a specialised workshop.

OPERATION - Brake circuit

In recent years, the appearance of braking circuits with ABS/EBS incorporating relays has improved the response times of these systems.

Mandatory installation of automatic brake clearance compensation systems has also improved reaction times.

In the case of disk brakes, the brake actuation pressure is usually 0.20 b or less.

This is why we recommend a usual setting of: 0.4 b maximum in the case of drum brakes and 0.2 b maximum or even nil for a disk brake installation.

Caution: failure to abide by these instructions will lead to unequal braking, overheating and premature wear of the drawn vehicle brakes.

We can offer no warranty for the braking installation components in this case.

In general, depending on the operating conditions and at least once a year:

- inspect the condition of the pneumatic hoses, couplings and attachments
- check for leaks with soapy water or appropriate product,
- clean the line filters integrated into the coupling heads or located behind them,
- never attempt to disassemble the circuit components or brake actuators,

Fig. 43-1 : manual drain valve

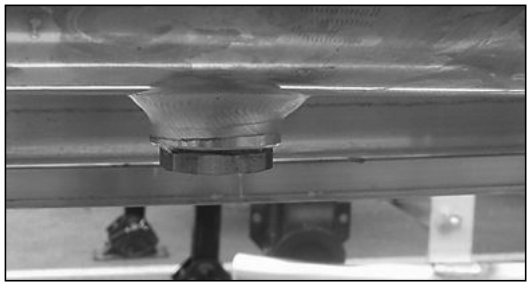


Fig. 43-2 : automatic drain valve

- if the tank(s) are fitted with manual drain valves (Fig. 43-1) open them regularly to remove all water.

The spring brake actuators for the parking brake comprise springs compressed to a load of several hundred kilos. Any disassembly of these components is strictly forbidden.
In order to prevent any possible risks, the braking circuit, suspension and running gear must be inspected with the vehicle unladen, to avoid any problems related to elements under pressure: piping, suspension pads.
In the event of any prolonged intervention, depressurise any pressurised elements, drain the tanks, lower any auxiliary lift axles.

OPERATION - Brake circuit

Disk brake pad wear

Refer to the manufacturer's manual

Optional installation

The vehicle is equipped with an installation alerting the user to any brake pad wear.

Each caliper is equipped with a pad wear sensor.

The sensors are connected to a specific harness communicating with the semi-trailer EBS braking system.

When the EBS system detects an anomaly, the ABS/EBS lamp on the dashboard lights up when the tractor vehicle ignition is switched on. Depending on the EBS type or brand, the lighting cycle may vary in terms of number of flashes or continuous lighting.

In any case, a specialised workshop must be used.
Risk of impaired braking performance.
Risk of brake disk damage.

This additional optional equipment allows lifting of an axle when the load so allows (unladen or partly laden).

- **Operation of the basic system**

  Lifting: lifting is automatic :

  - if the load so allows, the axle is lifted,
  - at the moment of loading, the axle descends automatically as soon as the nominal capacity of the axle or axles remaining on the ground is exceeded.
  - at unloading, the axle rises automatically.

- **Assistance with starting**

  The vehicle is equipped with an optional start assistance system controlled by the semi-trailer EBS electronic braking.

  This device enables the axle to be raised while laden to facilitate starting on slippery ground or for manoeuvring.

  This is made possible provided that the speed does not exceed 30 km/h and the overload on the axles remaining on the ground does not exceed 30%. These parameters are managed by the EBS.

OPERATION - Axle lifting

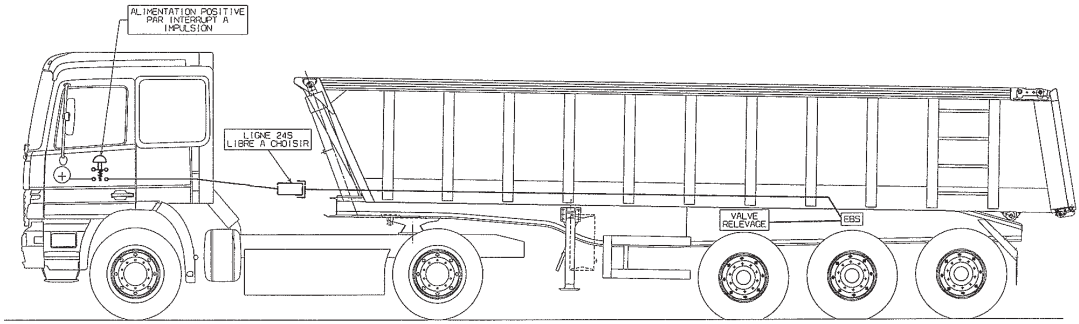
ENGLISH

- **System operation**

  As the lifting circuit is controlled by the EBS, the ABS/EBS cable must be connected and tractor ignition must be on.
  In these conditions, axle lifting functions in the same way as the basic system described earlier.
  To raise the axle when laden, a positive pulse must be sent on the standby wire on the coupling head support.
  To do this, install a pulse switch in the tractor cab and connect it to a free line on the tractor 24S connector (Fig. 46-1).
  The wires on the semi-trailer are to be connected to the line chosen in connector 24S.
  It should be noted that during this operation, the ground clearance of the auxiliary lift axle is very small owing to the compression of the tyres and suspension of the axles remaining on the ground.
  In the case of traffic with a MGW of 44 tons, 30% of eligible load may be exceeded.
  In this case, the pneumatic system should transfer the excess load on the front axle which will remain on the ground. The system is working by load shedding.

- **Traction help**

  As far as the traction help is concerned and according to the equipment fitted on the semi-trailer different electrical beams may be fitted:
  In all cases, the positive pulse is sent to the conducting wire on which the instruction label is stuck.
  All other wires remain unused.
  - With this equipement the lift axle can be lowered in unloaded condition by maintaining the switch during more than 5 seconds.



Cable pour commande d'aide au demarrage Raccordement voir Notice d'utilisation Générale P45 & 46

Fig. 46-1

This optional equipment enables you to vary the suspension height, for docking or alignment with a height other than the running height.

Operation

Before doing anything, make sure that there is nobody in the immediate vicinity of the vehicle. Check that there is no risk of interference with a nearby structure: wall, finisher, etc.

Push and turn the lever clockwise to deflate the suspension and counter clockwise to inflate it (Fig. 47-1).

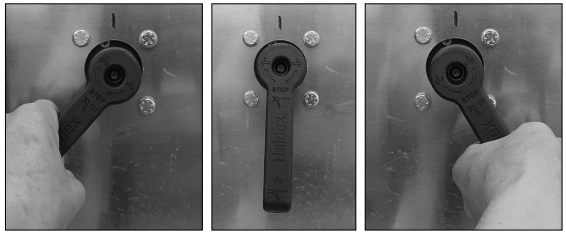


Fig. 47-1

When the lever is released, the vehicle remains in the position in which it was placed.

Before restarting, return the raise and lower valve to the road position by pulling the lever and wait for the suspension to reach its normal height.

A solenoid powered from the ABS or EBS will automatically eject the handle when a speed of 15 km/h is exceeded, which will prevent running with an over-inflated or under-inflated suspension (Fig. 47-2).

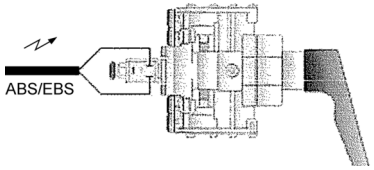


Fig. 47-2

OPERATION - Load indicator pressure gauge

Fig. 48-1

This optional equipment enables you to make an approximate evaluation of the weight under the running gear (Fig. 48-1).

As the pressure on the suspension pads is proportional to the load, the pressure gauge gives you a relative pressure.

The corrector plate gives the correspondence between the load and these values.

Caution: the load under the kingpin is not considered.
This equipment in no case obviates the need for weighing on a weighbridge.

Your vehicle is equipped with a stability aid system.

The system offers electronic assistance with maintaining and controlling stability when the towed vehicle is subjected to excessive lateral acceleration. It automatically applies braking on certain wheels and thus helps reduce the possibility of the towed vehicle tipping over. IT CANNOT HOWEVER PREVENT TIPPING, and should be considered an aid to good driving.

The system uses a lateral accelerometer to determine the behaviour of the vehicle in bends. Its main action is to trigger short braking phases, even below a level at which tipping over could occur.

The system cannot rewrite the laws of physics.

In any case, your driving should be appropriate to the road, load and vehicle conditions.

OPERATION - Tyre inflating System.

- **Vehicle equipped with a ATIS by PSI inflating system**

  Before doing any work please neutralize the system by closing the stop valve (Fig. 50-1).

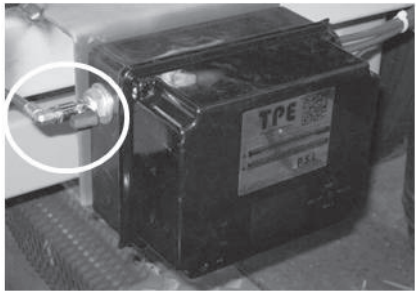


Fig. 50-1

- **System Check**

  Disconnect alll hoses from the wheels on the side of knurled connections only (Fig.50-2).

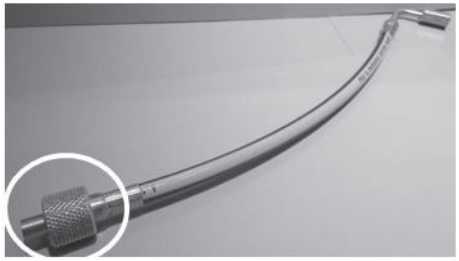


Fig. 50-2

Start the system with a minimum pressure of 5.5 b in the trailer air tanks.
The pressure should stabilize at the set pressure (usually 9 b) and the pump stops. If the pump continues to run, a leak may come from the rotary joint (Fig. 51-1) by the hub caps, or from the stator screwes into the axle spindle (Fig. 51-2) or from the axle air feeding elbows (Fig. 51-3).

Fig.51-1

Fig.51-2

Fig.51-3

Reconnect the wheel hoses one by one. If the pump starts to operate, a lack of air or a flat tire on the reconnected wheels is detected. Repair the punctures.

IMPORTANT NOTES: The rotary joint is tightened by hand. Excessive clamping causes a needle breakage.
CAUTION: There are seals lenght 150 mm (61317-06-S) and lenght 90 mm (S-31317-03), do not use one for the other.
The hose clamping on knurled side is made by hand (possibly using a clamp to align with the valve).
The hose must a harmonious mouth into the inside of the rim (Fig. 51-1).
When the indicator light on the front left of the trailer lights, the pump is in operation.
CAUTION: The pump is equipped with a micro leak allowing it intermittent operation (about every 10 or 15 minutes) to avoid seizure.

OPERATION - Tyre inflating System.

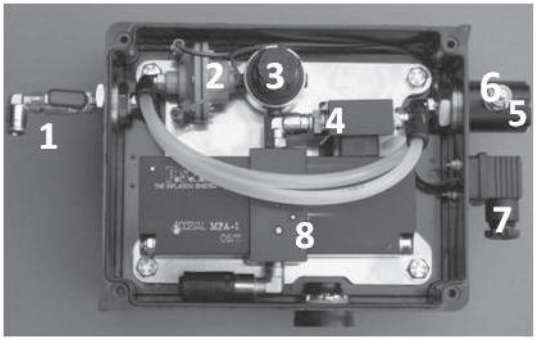
ENGLISH

The automatic tire inflation systems ATIS uses the trailers compressed air to inflate a tire that loses air pressure. The automatic tire inflating system delivers air into the tire, even when driving.

An indicator light mounted on the trailer lights to indicate the loss of pressure and the operation of the system. A non return valve, located in the hose connected to the valve protects each tire in case of loss of air pressure during operation of a punctured tire.

A pressure protection valve located inside the «Control Box» betwween the valve and the air tank, can maintain sufficient pressure for proper operation of the brakes and suspension. If the pressure in the air tank of the trailer is less than 5.5 b, the protection valve gives priority to operation of the brakes and suspension.

The design of the pump allows an autonomous operation by balancing pistons, no energy is required. Natural leakage is also so that the pump runs occasionally and avoid blocking by seizing.



1. Imput ON/OFF valve
2. Solenoid
3. Pressure regulator
4. Protection valve
5. x3 output
6. Vent
7. Electrical plug
8. Pump balance

Fig.52-1

Unless otherwise requested, all the electrical installations operate on 24 V DC.

Caution: never use an AC power source.

The electrical equipment is in conformity with the European regulations and directives in force.

The electricity supply is via 24N (ISO 1185) (Fig.53-1) and 24S (ISO 3731) (Fig.53-2) sockets.

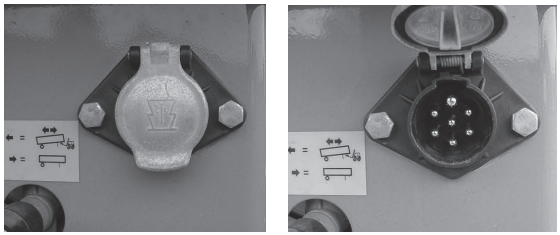


Fig.53-1

The 24N socketcan be identified by its black baseplate and its solid ground pin.

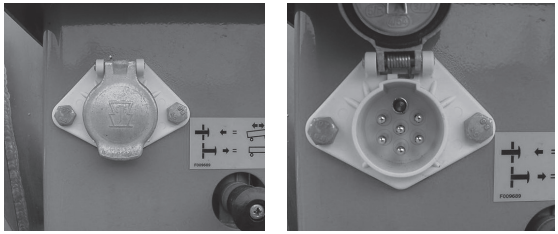
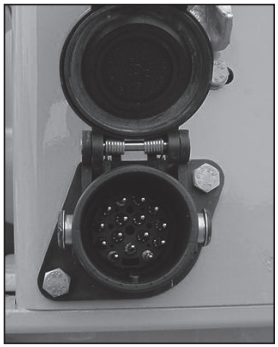


Fig.53-2

The 24S socketcan be identified by its white baseplate and its hollow ground pin.

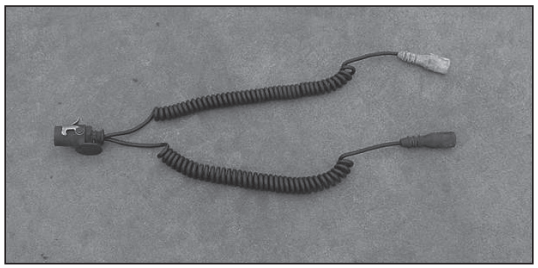
OPERATION - Electric circuit

(Fig. 54-1).



(Fig. 54-2).

On request, the vehicle can be equipped with a 15-pin socket (ISO 12098) in place of the 24N and 24S sockets (Fig. 54-1 and 54-2). Optional adapters enable tractor vehicles equipped with 15-pin sockets to be connected to semi-trailers equipped with 2x7 pin sockets and vice-versa (Fig. 54-3).



(Fig. 54-3).

Pin-out

- 24N socket (ISO 1185) Fig.55-1.

Terminal N°	Wire colour	assignment
1	White	Ground
2	Black	Left tail and max. width marker light + licence plate light
3	Yellow	Left turn indicator light
4	Red	Brake ligh
5	Green	Right turn indicator light
6	Brown	Right tail and max. width marker light + licence plate light
7	Blue	Braking control for trailer

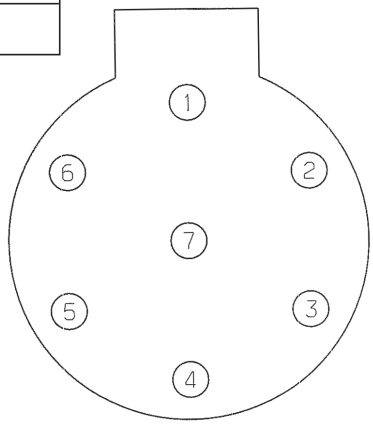


Fig.55-1

OPERATION - Electric circuit

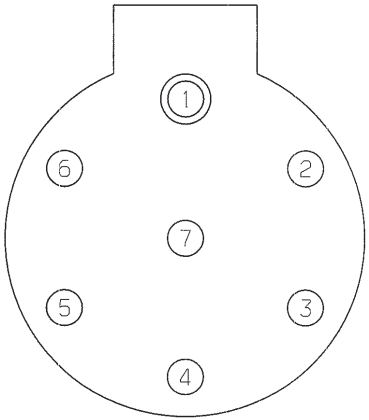


Fig. 56-1

Pin-out
- 24S socket (ISO 3731) Fig. 56-1

Terminal N°	Wire colour	assignment
1	White	Ground
2	Black	Not assigned
3	Yellow	Reversing light
4	Red	Post ignition +24V power
5	Green	Grounding control
6	Brown	Additional +24V supply
7	Blue	Rear fog-light

Pin-out

- 15-pin socket (ISO 12098)(Fig.57-1)

Terminal N°	Wire colour	assignment
1	Yellow	Left turn indicator light
2	Green	Right turn indicator light
3	Blue	Rear fog-light
4	White	Ground
5	Black	Left tail and max. width marker light + licence plate light
6	Brown	Right tail and max. width marker light + licence plate light
7	Red	Brake lights
8	Pink	Reversing light
9	Orange	+24V power supply
10	Grey	Brake pad wear sensor
11	White/black	Electrically released spring brake
12	White/blue	Auxiliary lift axle
13	White/red	Data line ground
14	White/green	Can H
15	White/brown	Can L

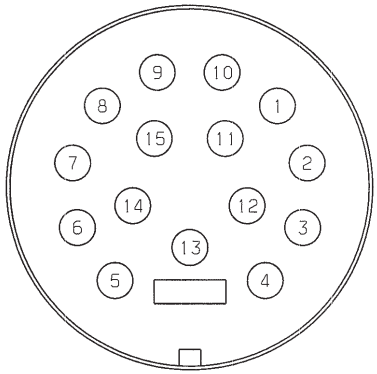


Fig.57-1

pins not currently used

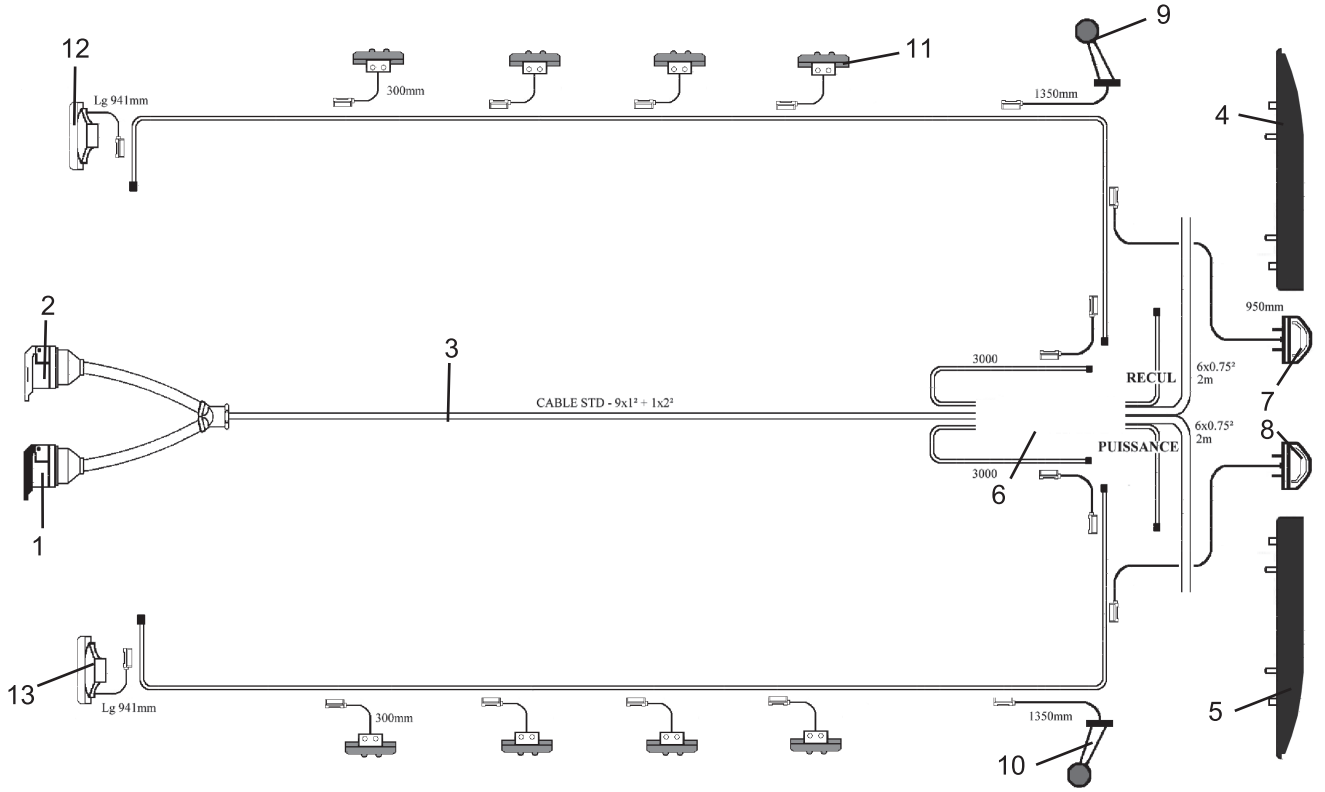
OPERATION - Electric circuit

ENGLISH

Electrical power of the functions		Colour of the function
- turn indicator	21 W	yellow
- brake light	21 W	red
- tail light		red
- reversing light		white
- licence plate light		white
- side marker lights	5W or LED	orange
- additional rear working light		orange
- rear fog-light		red
- front sidelight		white
- Max. width lights		red

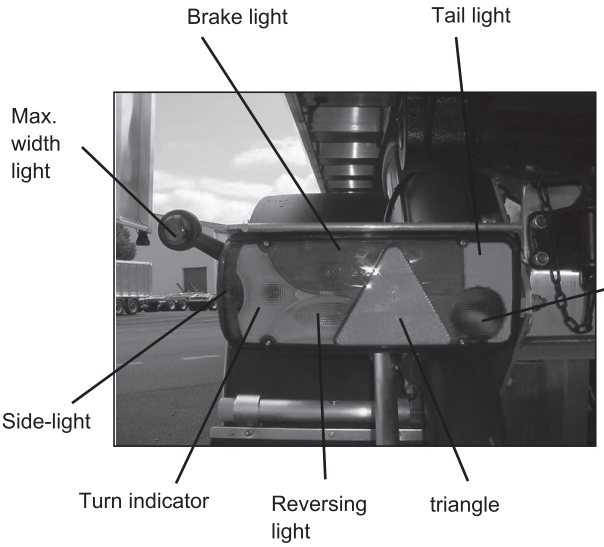
IF LIGHT BULBS ARE REPLACED, SELECT THE RIGHT POWER LEVEL.
IF COMPONENTS ARE CHANGED, USE ORIGINAL EQUIPMENT PARTS.
THE FUNCTION COLOURS ARE REGULATED.

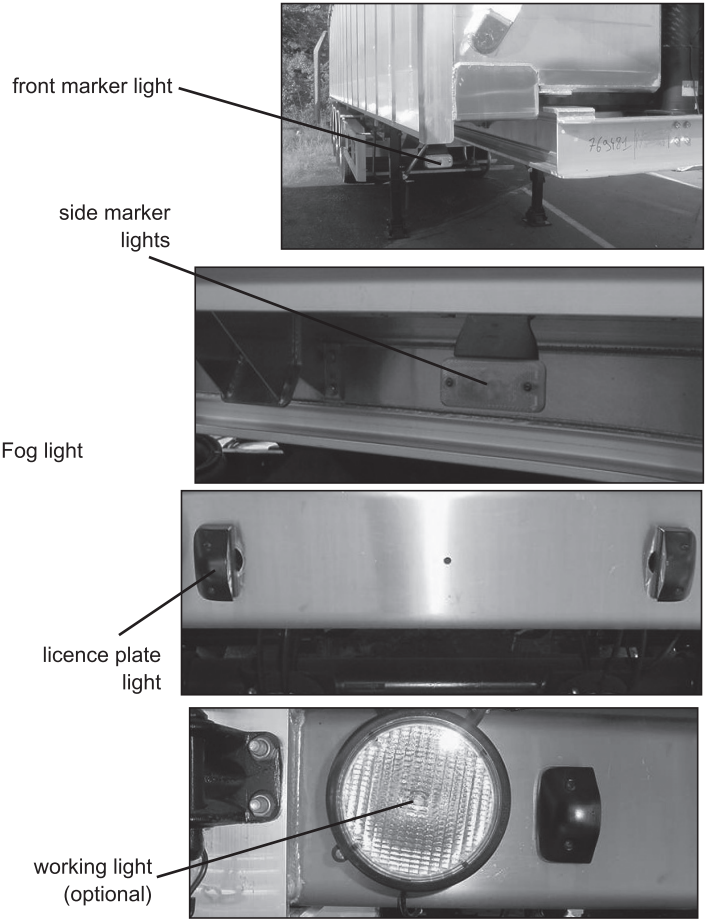
1: 24N socket
2: 24S socket
3: 10-conductor extension
4: right tail-light
5: left tail-light
6: rear extension
7: right licence plate light
8: left licence plate light
9: Right rear max. width light
10: Left rear max. width light
11: side marker lights
12: Right front max. width light
13: Left front max. width light



OPERATION - Electric circuit

Location of functions





The manufacturer reserves the right to change the lighting model.

The order of 20 January 2000 concerning the fitting of fire extinguishers in goods transport vehicles states that an articulated assembly (tractor and semi-trailer) must carry an external fire extinguisher (Fig. 61-1).

This is why the extinguisher and its compartment are standard on all vehicles. Nonetheless, if the tractor is equipped with a 2kg extinguisher inside the cab and a 6kg extinguisher on the outside, you will not need an extinguisher on the semi-trailer.

The extinguisher does not have to be on the semi-trailer. It can be placed on the tractor, given that an extinguisher is not mandatory on an uncoupled semi-trailer.

Fig.61-1

The extinguisher requires periodic inspection and refilling. Comply with the dates marked on it.

WARRANTY

ENGLISH

BENALU S.A.S. WARRANTY CLAUSES
(hereinafter referred to as the "manufacturer")

Unless otherwise specified, the following is expressly agreed between the buyer and BENALU S.A.S.

1. Scope and duration of the warranty

1.1 New equipment manufactured by **BENALU S.A.S.** is guaranteed against all material and manufacturing defects for a period of 12 months from the day of handover by the manufacturer of the documents allowing registration or, if there is no registration, no later than the 3rd month following the date marked on the factory delivery note.

This warranty ceases in the event of resale of the equipment..

1.2 This warranty, for a period of 12 months, exclusively covers replacement of parts recognised to be defective by the manufacturer or its duly authorised representative or, as chosen by the manufacturer, repair thereof, to the express exclusion of all related expenses and the costs and consequences of immobilisation of the equipment.

1.3 Replacement or repair of parts under the warranty may not have the effect of extending said warranty. It must be carried out in the manufacturer's premises or in workshops approved by it.

No part will be replaced or repaired under the warranty without prior approval from the manufacturer or its representative.

1.4 The manufacturer's liability is expressly limited to the warranty defined, provided that the defect invoking the manufacturer's warranty is declared to the vendor within a maximum of 10 days from the moment at which the buyer was or should have been aware of it.

1.5 Recourse to the warranty can in no case justify late payment.

2. Paint warranty

2.1 The paint warranty is an anti-corrosion warranty applicable to corrosion in excess of degree of rusting R2-clause 8 of the European rusting scale.

2.2 The following are excluded:

- vehicles delivered with paint primer,
- damage resulting from:
  - o modification of the coating system,
  - o impacts, friction, chipping, plate deformation of accidental origin,
  - o the action of acids, bases, solvents or all other products liable to lead to premature ageing of the paint, and any abnormal use in general.

3. Warranty of vehicle components produced by another manufacturer

3.1 The vehicle accessories bearing the brand of another manufacturer are only guaranteed within the scope of the vendor's recourse against its supplier.

3.2 If the manufacturer delivers sub-assemblies such as under-frame, road equipment, dolly, bodywork elements, etc. used in the composition of vehicles which are not manufactured by itself, the above warranty only applies to the parts of these subassemblies recognised as being defective, without the manufacturer being liable for any design, manufacturing or assembly defect in the road assembly or a defect in parts which are not a part of the sub-assembly sold by itself.

4. Warranty exclusions

4.1 The warranty does not cover:

all servicing, verification, startup and periodic inspections,

tyres,

normal wear and tear on "wearing" parts such as: springs, brake linings, drums and disks, articulated parts, floor, tarpaulin, light bulbs, various accessories,

damage which could result from inappropriate use of the vehicle such as:

- overload, even temporary,
- incorrect load distribution,
- inadequate load tie-down,
- excessive speed,
- running in abnormal conditions,
- user inexperience,
- damage due to bad weather,
- prolonged storage,
- road accident.

the cost of removing and installing equipment or accessories which are not part of the manufacturer's original fit,

the cost of calling out the buyer's personnel or manufacturer's breakdown repair personnel,

carriage and customs clearance costs,

new parts sold by the manufacturer or its representatives if they are intended for installation on a vehicle which is no longer under warranty.

4.2 In the event of late delivery of equipment or repair under the warranty, the buyer may not claim any loan of replacement equipment by the manufacturer during the period of immobilisation.

5. Revocation of warranty

5.1 The warranty will be revoked for any vehicle that has been modified or disassembled, even in part, outside the workshops of the manufacturer or its authorised representatives, without its prior written approval, or on which the parts fitted by the manufacturer have been replaced by parts from another source.

CAUTION: Any welding, grinding, drilling or heating of the side rails, chassis or any other structure is in particular strictly prohibited. A self-adhesive label recalls this prohibition (Fig. 65-1).

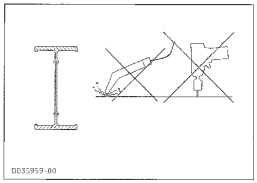


Fig. 65-1

5.2 The warranty will be revoked for any equipment on which adapted items or bodywork have been mounted or which were produced without taking account of the manufacturer's production characteristics.

5.3 The warranty will be revoked in the event of modification of the settings or failure to comply with the servicing recommendations of this guide.

6. Servicing requirements

The equipment overhaul and servicing requirements contained in the servicing documents handed over at delivery determine application of the warranty and must be executed under the responsibility of the buyer. The buyer will check that it is in possession of these documents. If not, it will contact the vendor in order to obtain them. If no request for them is received within 8 days from the date of taking possession of the vehicle, the buyer will be deemed to have received them.

7. Manufacturer's information

The kerb weight information given by the manufacturer is approximate and not binding upon it. It may not give rise to any compensation claim.

TIGHTENING TORQUE

For the running gear tightening torques, refer to the running gear manufacturer's manual.

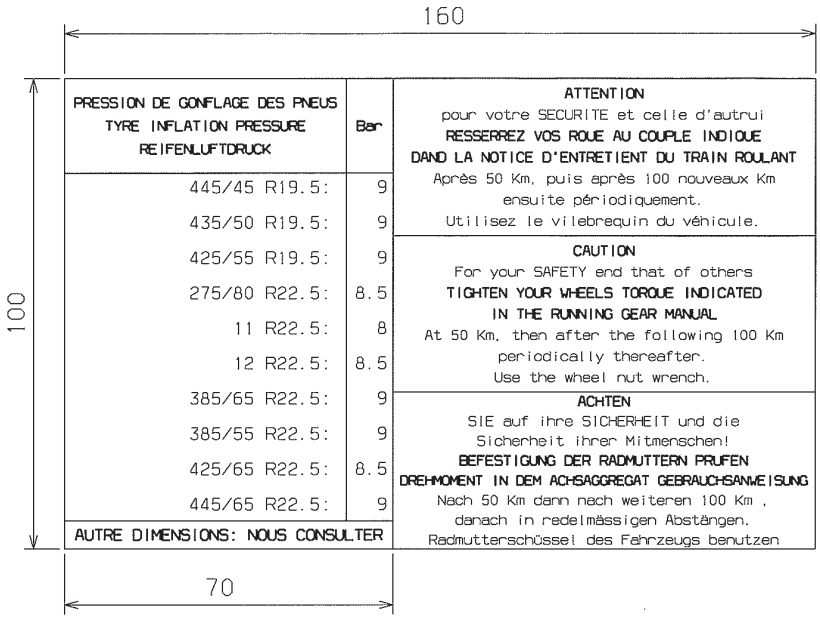
For tightening torques concerning the vehicle function, refer to the relevant additional manual:
- Dumper body
- Tanker
- Moving floor vans

Main tightening torques

Item	Dimension	Torque Nm
suspension bracket	M16	180
upper coupler (nut)	M12	70
kingpin	M14	190
landing gear legs	M14	180
landing gear tie-rods	M16	180
brake couplings	M22x150	80
	M16x150	45
	M12x150	25

In general:
- the pressure is measured cold, with the vehicle having been stationary for several hours,
- the pressure must be checked at regular intervals,
- the pressure increases when the vehicle is running,
- never deflate a hot tyre.

A self-adhesive label reminds you of the main tyre pressures (Fig. 67-1).
For all other special dimensions, please contact us.



PRESSION DE GONFLAGE DES PNEUS TYRE INFLATION PRESSURE REIFENLUFTDRUCK	Bar
445/45 R19.5:	9
435/50 R19.5:	9
425/55 R19.5:	9
275/80 R22.5:	8.5
11 R22.5:	8
12 R22.5:	8.5
385/65 R22.5:	9
385/55 R22.5:	9
425/65 R22.5:	8.5
445/65 R22.5:	9
AUTRE DIMENSIONS: NOUS CONSULTER	

ATTENTION
pour votre SECURITE et celle d'autrui
RESSERREZ VOS ROUE AU COUPLE INDIQUE
DANS LA NOTICE D'ENTRETIENT DU TRAIN ROULANT
Après 50 Km, puis après 100 nouveaux Km
ensuite périodiquement.
Utilisez le vilebrequin du véhicule.

CAUTION
For your SAFETY and that of others
TIGHTEN YOUR WHEELS TORQUE INDICATED
IN THE RUNNING GEAR MANUAL
At 50 Km, then after the following 100 Km
periodically thereafter.
Use the wheel nut wrench.

ACHTEN
SIE auf ihre SICHERHEIT und die
Sicherheit ihrer Mitmenschen!
BEFESTIGUNG DER RADMUTTERN PRUFEN
DREHMOMENT IN DEM ACHSAGGREGAT GEBRAUCHSANWEISUNG
Nach 50 Km dann nach weiteren 100 Km ,
danach in redelmässigen Abständen.
Radmutterschüssel des Fahrzeugs benutzen

Fig. 67-1

WARRANTY AND SERVICING

Repair log

Dealer's stamp		Dealer's stamp	
Date: _____	km: _____	Date: _____	km: _____
Type of work done:		Type of work done:	

N.B.: Must be filled out by the repair shop

Repair log

Dealer's stamp		Dealer's stamp	
Date: _____	km: _____	Date: _____	km: _____
Type of work done:		Type of work done:	

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Date: _____	km: _____	Date: _____	km: _____
Type of work done:		Type of work done:	

N.B.: Must be filled out by the repair shop

NOTES:

ENGLISH

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