Operating Instructions
KMK 3045

Crane Identification Number:

10.09.1993

2 085 924 en

1.2 Contents

In **Section 1** you will find a **general drawing** of the truck crane with the terms used for the main assembly groups. A short technical description explains how the most important units work.
The locations of identification markings on the truck crane and its removable parts are indicated.
There is a conversion table in this section for converting metric units into US units and vice versa.

We have placed particular emphasis on describing **how to use the crane safely**. This advice on driving and working with the truck crane is given in **Section 2**, together with general notes on safety.

Section 3 contains the operating instructions for **driving the truck crane**. This section gives a description of the transport condition, preparing to drive the truck crane, and driving.

Section 4 describes **operation of the crane** starting with preparation of the job on the site and including rigging and unrigging the crane.

In **Section 5** you will find the instructions for **working with the two-stage swing-away lattice extension** (optional equipment). Assembly, operation, removal and transportation are described here.

Section 6 gives information on the action which the crane operator can take to **rectify malfunctions**. All troubleshooting activities and corrective action other than that which is described in this section should only be carried out by properly qualified personnel with the required training.

The **technical data** of the truck crane are listed in **Section 7**.

Please refer to the **Maintenance Manual** for information on **care and maintenance** of your truck crane. The information given in the maintenance manual does not cover parts manufactured by our suppliers (e.g. engine, gearbox), for which separate manuals are supplied.

Even if you are completely familiar with your KMK 3045 and can operate it without difficulty you will need to consult the lifting capacity tables frequently.

The lifting capacity tables contain the **lifting capacities, hook heights and SLI codes** for your truck crane, depending on how it is rigged.

Electric, hydraulic and compressed-air circuit diagrams are supplied with each copy of the operating instructions in addition to extra operating instructions for the diesel engine and automatic gearbox. A maintenance booklet with the identification card for the diesel engine is also supplied with your crane.

10.09.93

1.6 Technical description of the truck crane

1.6.1 Carrier

All drive units, the axle lines, the suspension system, steering, driver's cab, hydraulic pumps, outriggers and ball bearing slewing rim for slewing the crane superstructure are bolted to the carrier.

Driver's cab

The two-man cab is of lightweight design. It is tipped forwards for engine maintenance work.

The driver's cab is heated via a heat exchanger by the engine coolant. An additional water heating system (optional equipment) can be provided for preheating the engine and heating the driver's cab.

Drive units

The truck crane is driven by a water-cooled Mercedes-Benz diesel engine.

The third axle line is driven via a converter power shift gear with integrated transfer case. The first axle line can be driven when required. The transverse differentials can be blocked pneumatically in the driven axle lines.

Engine and gearbox cooling system

The fan wheel in the cooling water circuit for the diesel engine is driven hydraulically by a vane-type motor. The first pump of the fourfold gear pump driven by the vehicle engine serves the fan drive. The temperature of the cooling water is regulated by a thermostat.

There is a second cooling circuit for the converter oil. The fan wheel is driven by a gearwheel motor. The fourth pump of the fourfold gear pump serves the fan drive. The temperature is regulated by a thermostat.

Steering

The steering gear is connected mechanically to the first and second axle lines. The dual-circuit hydraulic steering system assists steering with the aid of hydraulic cylinders on all steered axle lines.

To move the crane it can also be steered from the crane operator's cab with the aid of the servostat on the superstructure. Steering is switched over to steering from the operator's cab or from the driver's cab with the aid of coupled switch-over cocks.

The second and third pumps of a fourfold gear pump flanged to the vehicle's engine serve both steering circuits. If the gear pump should fail, a radial-piston pump on the transfer case supplies a stand-by steering circuit with oil as long as the vehicle is moving.

10.09.93

2.2 Accident prevention

The manufacturer accepts no liability for accidents which occur when using truck crane KMK 3045 due to non-compliance by the user with laws, regulations, requirements and rules governing the use of mobile boom cranes.

Truck crane KMK 3045 is designed to be used at temperatures of between –15°F and +105°F. It may only be operated within this temperature range.

The manufacturer accepts no liability for accidents which occur as a result of the truck crane being operated outside this temperature range.

10.09.93

2.4.7 Safe distance from electric cables

Always keep a safe distance from electric cables in the working area of the truck crane. This is particularly important if there are overhead cables in the danger area which have not been disconnected or covered by an electrician.

Danger: **Danger – electric shocks!**

Observe the regulations in the country in which you are working regarding the distance which has to be kept from overhead cables

If despite due care you have touched a cable with the crane:

- keep calm;
- do not leave the crane operator's cab;
- warn all persons outside to stay where they are and not to touch the crane;
- move the crane out of the danger area.
- if you have to get out of the crane you must on no account be touching the crane when you step onto the ground, so do not climb down from the crane operator's cab, jump!

2.4.8 Earthing (grounding) the truck crane and load

The truck crane can become charged with static electricity. This is particularly likely if the truck crane is equipped with outrigger pads made of synthetic material or if the outrigger pads are packed with material which does not conduct electricity (e.g. wooden planks).
The load can become charged with static electricity even if the truck crane is earthed (grounded). This is particularly likely if the hook block has sheaves made of a synthetic material and lifting tackle made of a non-conductive material is used (e.g. synthetic or Manila hemp ropes, etc.).

Danger: **Danger – electric shocks!**

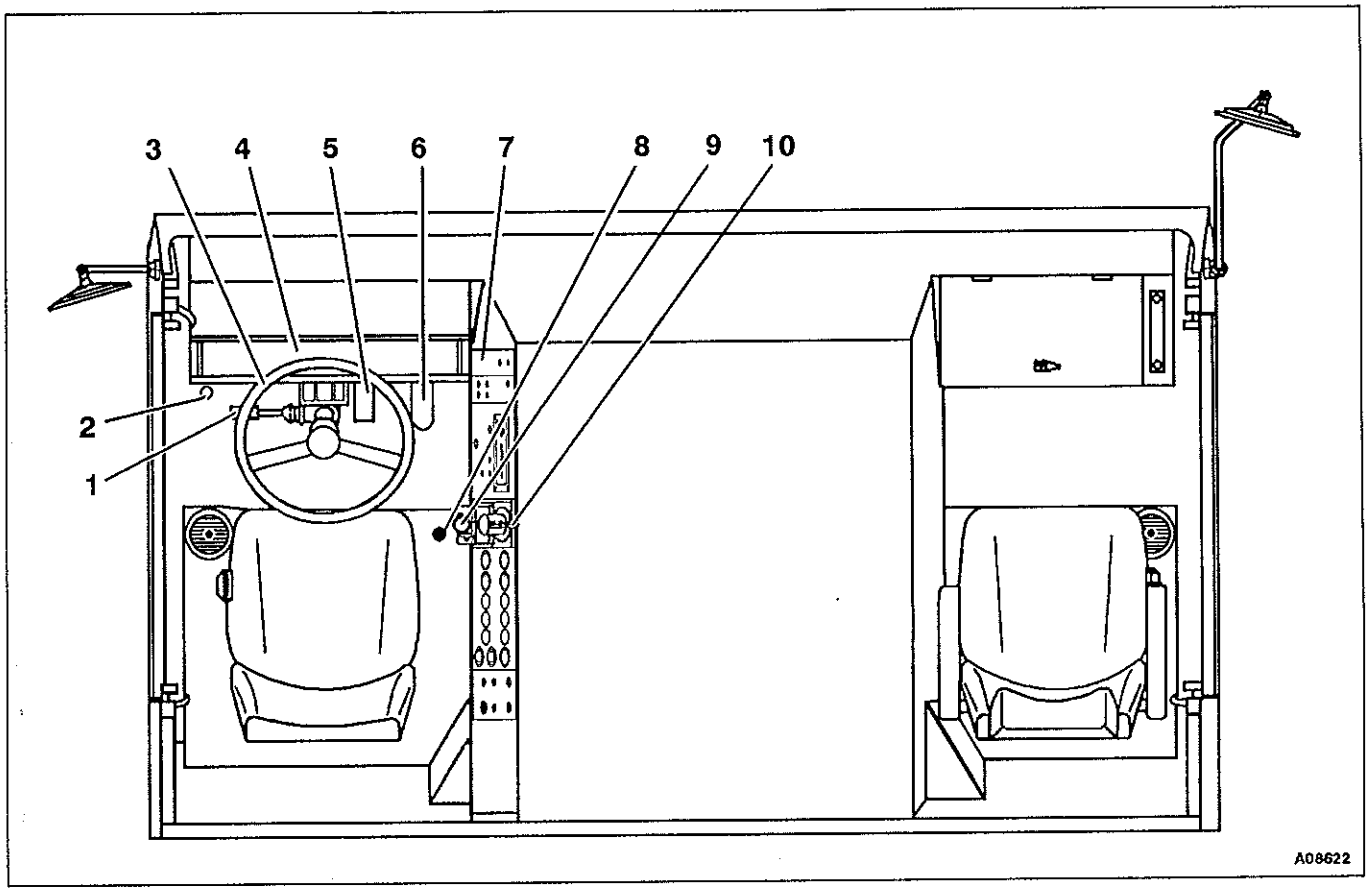
Earth (ground) the truck crane and load:
– near powerful transmitters (broadcasting transmitters, radio stations, etc.)
– near high-frequency switchgears
– when thunderstorms are approaching.

10.09.93

3 Driving

10.09.1993

3.2 Driver's cab on carrier



1 Multipurpose switch

2 Exhaust brake switch

3 Steering wheel with adjustable steering column

4 Front instrument panel

5 Service brake pedal

6 Accelerator

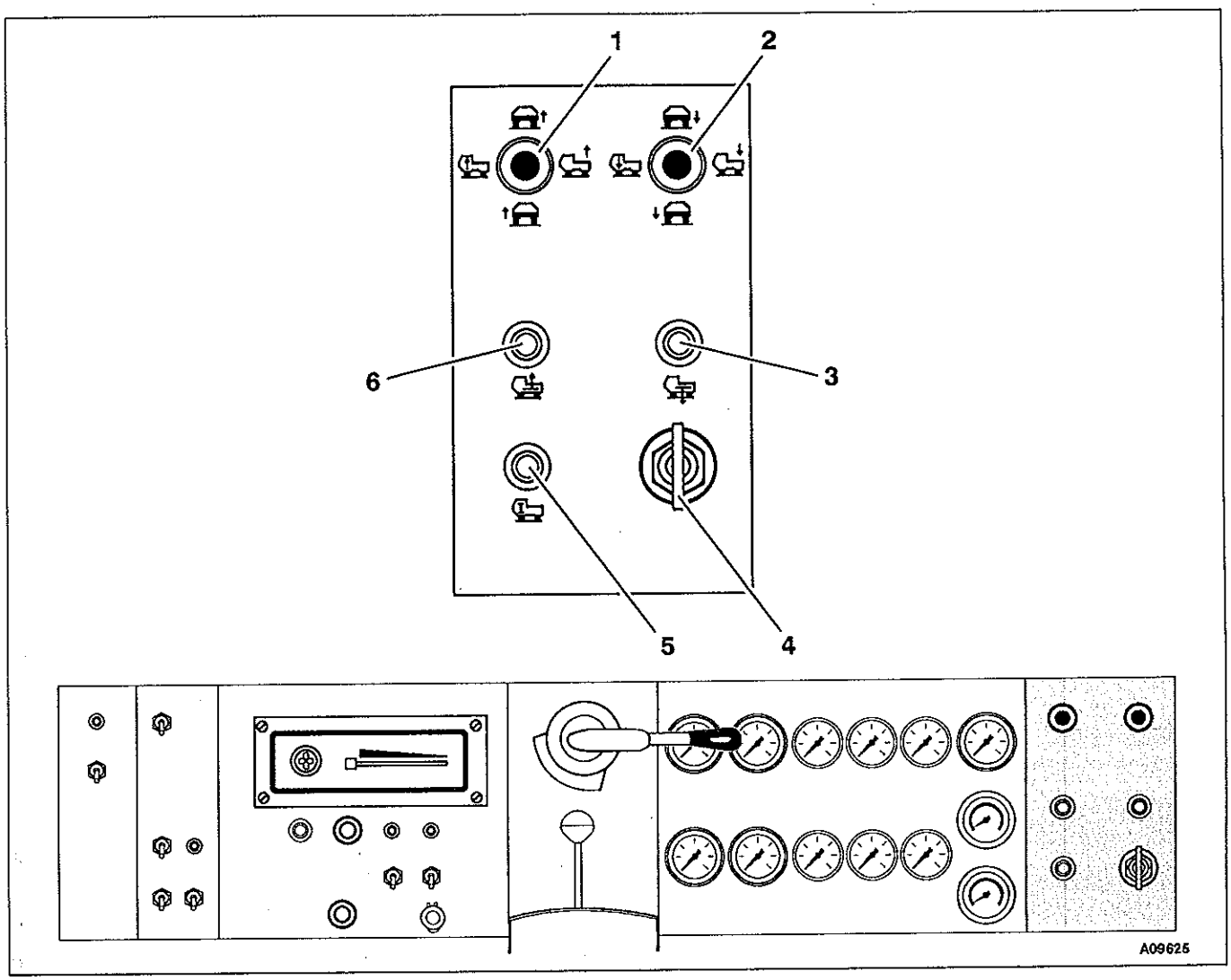
7 Side instrument panel

8 Pull-knob for heating

9 Gear lever

10 Parking brake valve

10.09.93



1 Joystick "carrier level adjustment system – raise vehicle"

2 Joystick "carrier level adjustment system – lower vehicle"

3 Push button "lower vehicle"

4 Key-operated switch

5 Illuminated push button "on-the-road level"

6 Push button "raise vehicle"

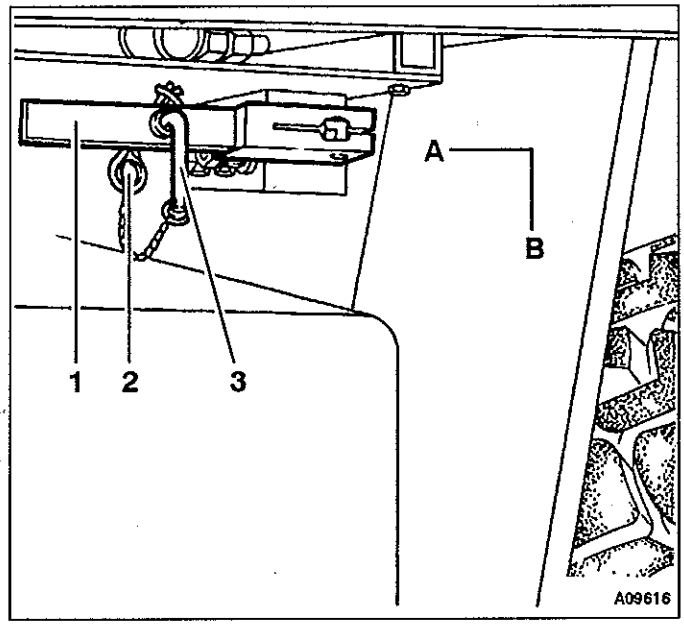
The key-operated switch (**4**) is not only used to activate the carrier level adjustment system.

– When it has been actuated only gears **1**, **2**, **1R** and **2R** can be selected.

– In addition the transverse differential locks, the first axle line drive and longitudinal rocking between the first and second axle lines can be activated.

10.09.93

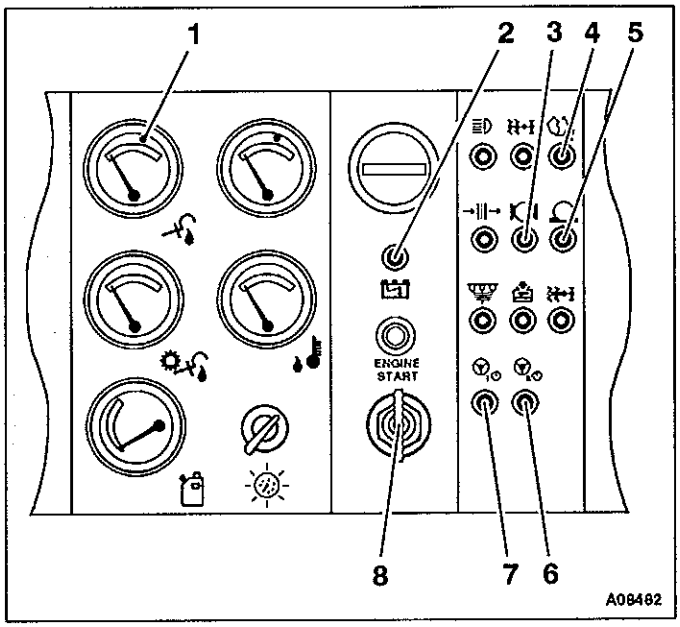
3.4.10 Moving the lever for changing the driving mode to position "steering from carrier"



- Move lever (**1**) for changing over the steering to position **A** = "steering from the carrier".
- Secure the lever (**1**) in this position with the pin (**3**) and the retaining pin (**2**).

10.09.93

3.4.16 Switching on the ignition



- Push the ignition key (**8**) as far as it will go into the combined lighting and ignition switch and turn it to position **1**.

The following indicator lamps must be on:

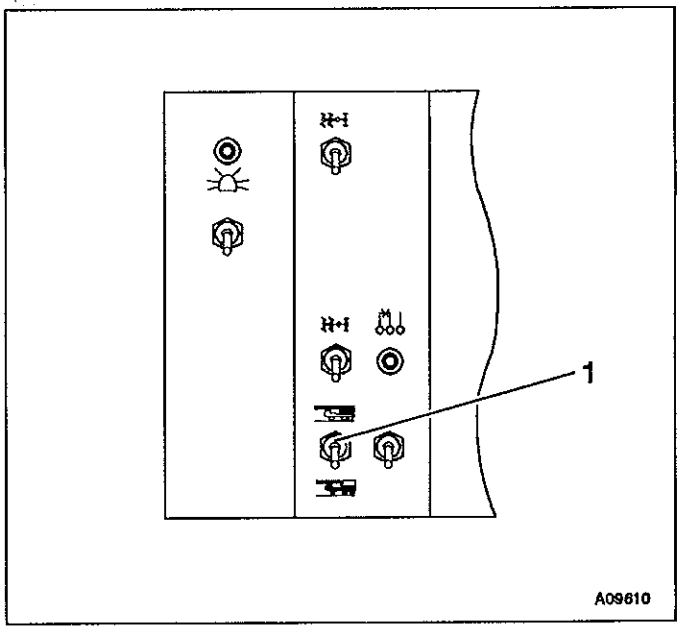
Engine oil pressure (**1**, on oil pressure gauge), charge indicator lamp (**2**), parking brake (**5**), steering circuits I (**7**) and II (**6**).

If the pressure in the brake circuits has dropped below approx. 5 bar (73 psi), indicator lamp (**3**) is also on.

Danger:

Warning light (**4**) for the driver's cab locking system must not be on. If this warning light is on the driver's cab is not locked in the basic position and **accidents will occur.** Lower the driver's cab (please see Section 6.1.5 "Tipping system for the driver's cab", p. 6 - 9).

3.4.17 Changing the switch for changing the driving mode to position "operation from carrier"



- Press toggle switch (**1**) down into position "operation from carrier".

Danger:

Never change the position of this switch while you are driving, **otherwise accidents will occur.**
The accelerator in the driver's cab only works when "operation from carrier" is activated.

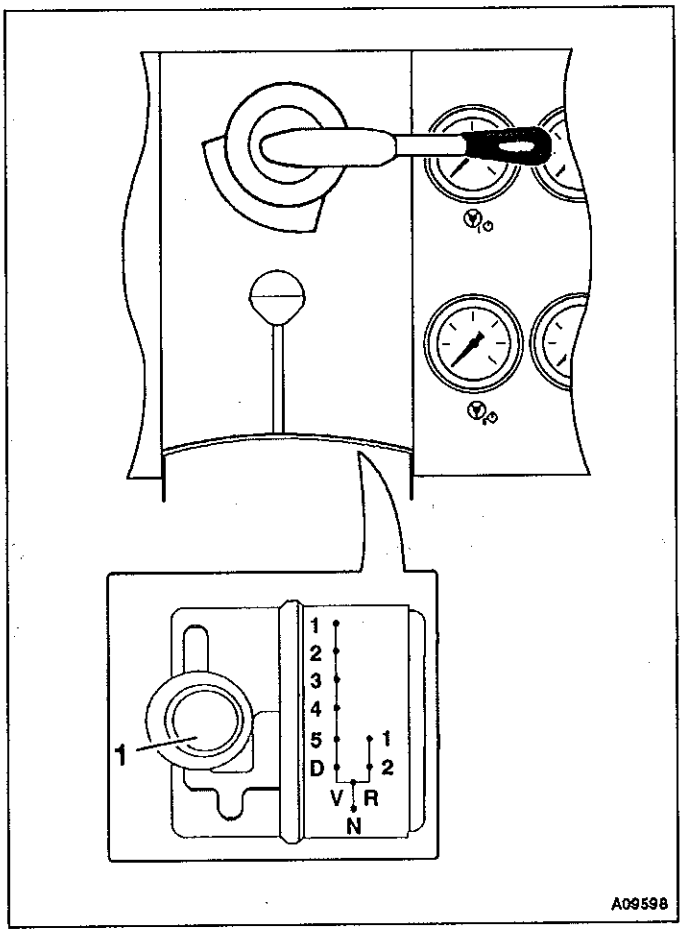
10.09.93

3.5 During the journey

3.5.1 Testing the brakes

As soon as you have started to drive, test both the service brakes and parking brake.

3.5.2 Gears ranges of the automatic gearbox



The different gear ranges of the automatic gearbox are selected with the gear lever (**1**).

N = neutral

The engine can only be started in neutral. When in neutral the parking brake or service brake must be on to prevent the crane from rolling.

D (drive) = normal automatic gear range

In position D the gearbox automatically selects the suitable forward gear from third to sixth gear. The gearbox always starts in third gear and automatically changes up or down via the hydraulic torque converter. In all forward gears and all gear ranges the converter is cut out (overridden) when a sufficient number of revolutions and travelling speed have been reached so that power transmission from the engine to the gearbox is purely mechanical. The gearbox selects the appropriate gear and the right moment to change gear from the travelling speed, the position of the accelerator and the load condition.

Danger: On downhill stretches a speed of 70 km/h (43.5 mph) must not be exceeded, **otherwise accidents will occur.**

10.09.93

3.6 After each journey

3.6.1 Stopping the vehicle

Putting on the parking brake

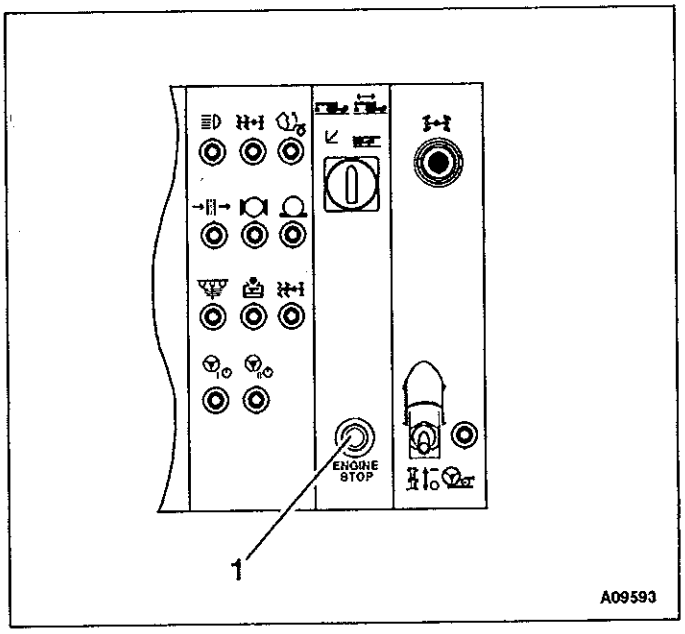
- Stop the vehicle with the service brake. When the vehicle is stationary put on the parking brake.

Changing into neutral

- Move the gear lever to neutral **N**.

Turning off the engine

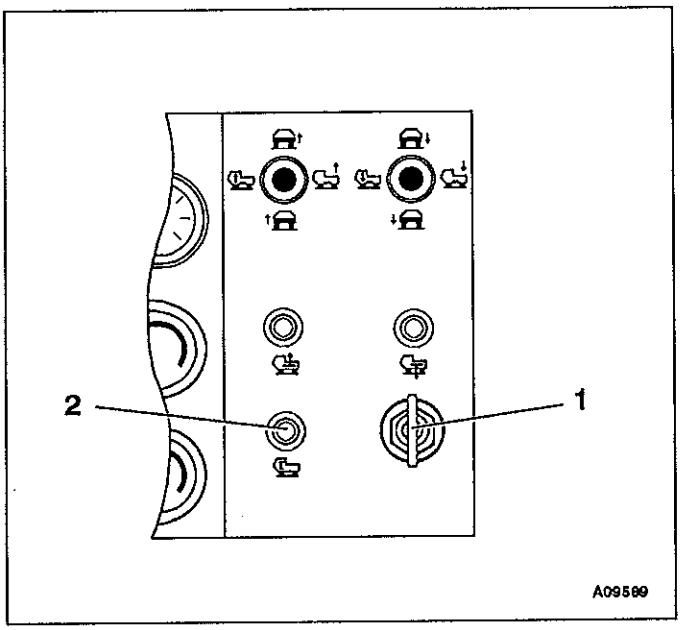
- If the temperature of the coolant is very high, e.g. following long uphill stretches, let the engine continue to run for 1 to 2 minutes at a higher idling speed before turning it off.



- To stop the engine press push button (**1**) "stop engine".

10.09.98

Switching off the level adjustment system



- Turn key switch (**1**) to the right until it disengages and remove the key.

Caution:

Always switch the level adjustment system off again when the level has been changed unless you want to continue driving the crane on the site immediately afterwards with the first front axle line driven, with the transverse differentials locked, or with longitudinal rocking activated.

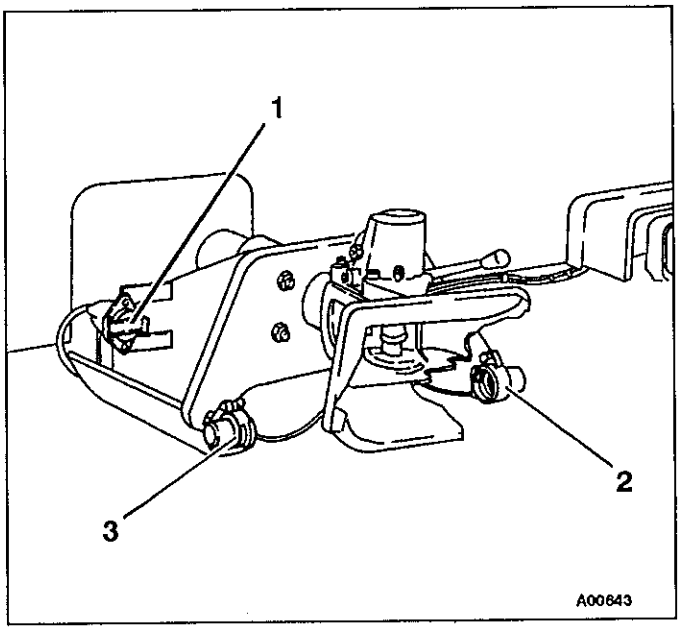
Setting the carrier level adjustment system to "on-the-road"

- Drive the truck crane onto level ground.
- Turn the wheels to the straight-ahead position.
- Switch on the key switch for the carrier level adjustment system.
- With the vehicle stationary or rolling and with the engine running at a speed of between 1000 and 1300 min^{-1}, press the light push button (**2**) until the light on the button goes out.
- Switch off the carrier level adjustment system and remove the key.

10.09.93

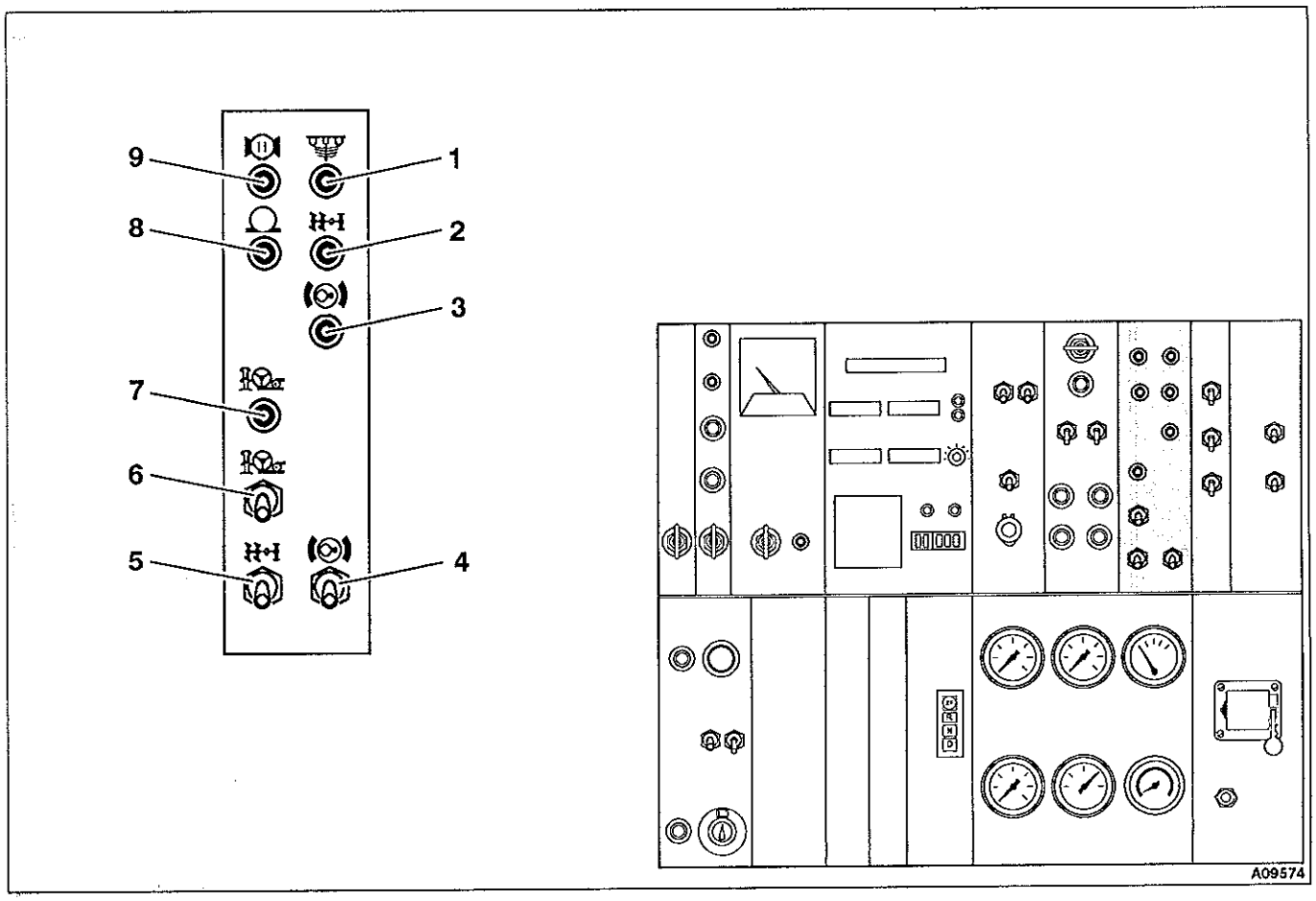
3.9 Towing a trailer

There is a towbar coupling on the back of the chassis for towing a trailer.



- Place the multi-pole plug of the trailer into the socket (**1**).
- Connect the trailer brake-line to the coupling head (yellow) on the carrier (**3**).
- Connect the compressed-air supply line of the trailer to the compressed-air supply coupling head (red) on the carrier (**2**).

10.09.93



1 Indicator lamp "suspension locking system"

2 Indicator lamp "activation of the first axle line"

3 Indicator lamp "permanent brake for slewing gear"

4 Toggle switch "permanent brake for slewing gear"

5 Toggle switch "activation of the first axle line"

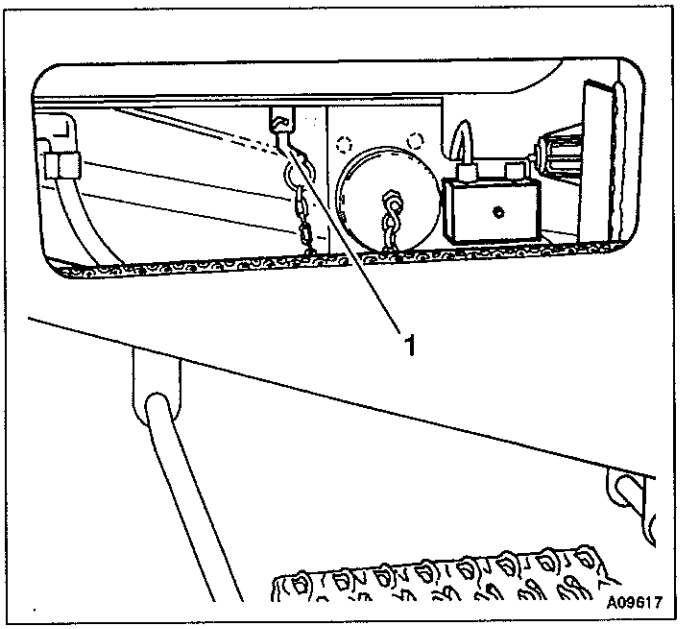
6 Toggle switch "steering lock for third axle line"

7 Indicator lamp "steering lock for third axle line"

8 Indicator lamp "parking brake"

9 Warning light "system pressure of service brake, circuit II"

10.09.93



- Switch on the battery master switch (**1**).

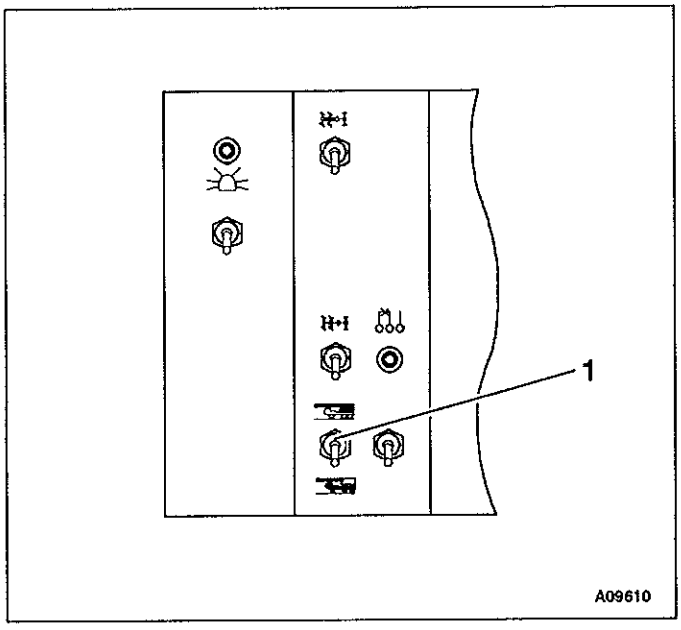
The battery master switch is under the battery box. It is reached through the top step under the left-hand door of the driver's cab.

4.2.4 Preparations in the driver's cab on the carrier

- Check that a 24-hour recording disc is placed in the trip recorder (please see Section 3.4.15 "Placing a recording disk in the trip recorder", p. 3 - 33).
- If the engine is not running, switch on the ignition (please see Section 3.4.16 "Switching on the ignition", p. 3 - 37).

Note: The engine can also be started and stopped from the crane operator's cab on the superstructure. The ignition has to be switched on in the driver's cab on the carrier for this.

- Put on the parking brake.
- Move the gear lever to neutral **N**.



- Switch over to operation from the superstructure.

  Press toggle switch (**1**) up for this into position "operation from superstructure".

10.09.93

- Before the crane is used you must check that it is exactly level. This is done by raising the boom to a steep angle and lowering the hook down to the ground. The hook must always hang along the central axis when the superstructure is slewed in different directions.

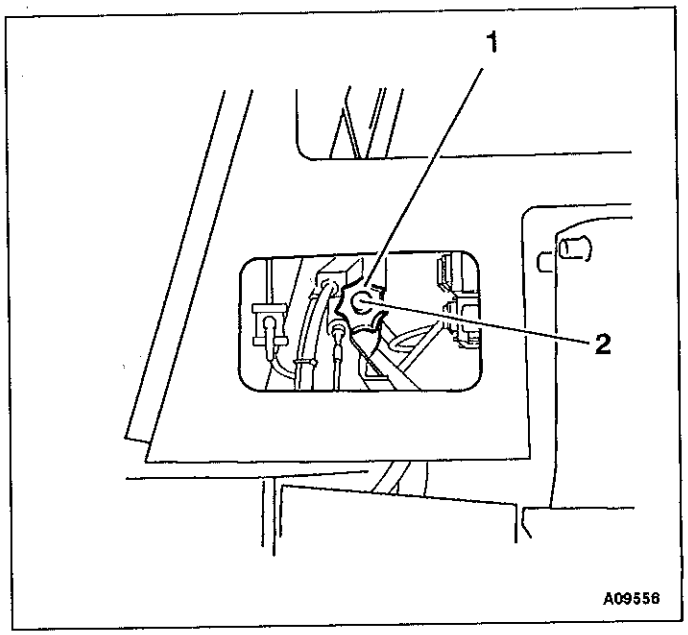
- During crane operation the spirit level must be checked repeatedly. If there is a change in the level you must find out why immediately and the crane must be levelled again.

Operating the outriggers from the carrier.

Danger:

You can only extend the outrigger beams on the side on which you are standing. The outrigger beams on the left-hand side of the vehicle are operated from the left-hand control box and those on the right-hand side of the vehicle from the right-hand control box. You must be able to watch the movement of the beams **otherwise accidents may occur**.

Note: The outrigger cylinders can be operated individually, in pairs or all together from either control box.



- Start the engine and set the engine speed to 1000 to 1300 min^{-1}. The manual throttle (1) is on the left-hand side of the carrier. Access is through the steps between the cab door and front outrigger beam.
  Press the unlocking button (**2**) and pull or turn out the manual throttle to increase the speed of the engine.

10.09.93

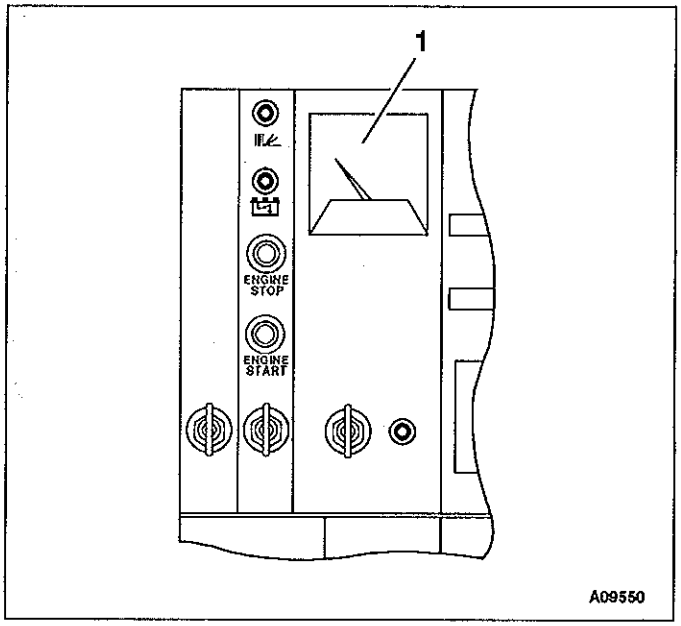
4.4.3 Wind

Strong winds can overload the truck crane (please see Section 2.4.11 "Effect of wind on crane operations", p. 2 - 15).

Obtain information on the wind speeds to be expected on the site. Do not forget that wind speeds near the ground are often considerably lower than at the level of the boom. Furthermore, wind speed can change rapidly, especially when there are gusts. Maximum permissible wind speeds are listed in the lifting capacity tables.

Anemometer (optional equipment)

As part of the optional equipment an anemometer can be provided for measuring wind speeds. Please make sure that this is moved to the tip of the boom equipment which you are using (i.e. when a boom extension is fitted or removed).



- Check the wind speed continually on the anemometer (**1**) while you are working with the crane.

Maximum permissible wind load

The maximum wind surface of the load must not be greater than approx. 4.8 ft^2 per 1000 lbs of lifting capacity (please see Section 2.4.11 "Effect of wind on crane operations", p. 2 - 15).

4.4.4 Hand signals

If you are unable to see the load all the time during crane operation you must work with a banksman.

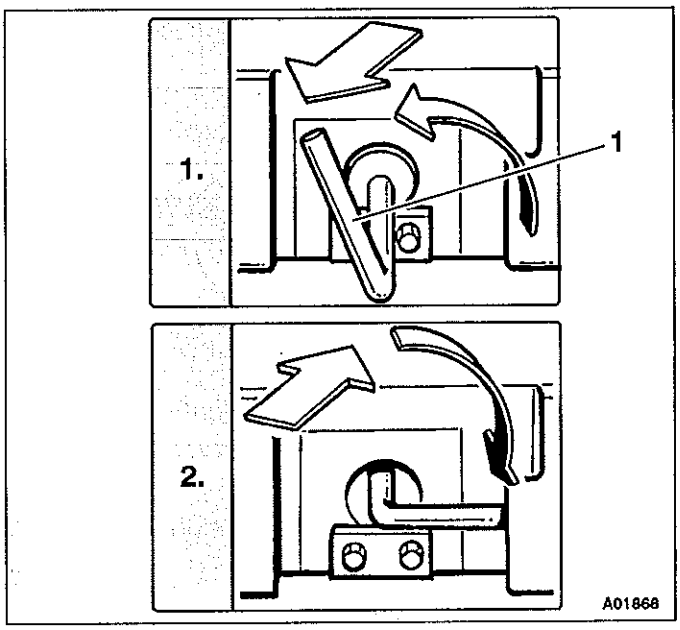
If you do not use walkie-talkies the banksman must understand the standard hand signals (please see Section 2.4.4 "Hand signals for the banksman", p. 2 - 9).

10.09.93

Locking/releasing the counterweight sections

Caution:

If the counterweight is attached to the turntable, the ladder supplied with the truck crane must be used for inserting and removing the locking pins and for operating the controls on the counterweight.
Place the ladder on the ground and rest it against the counterweight. Please note: if the ladder is not used accidents may occur.



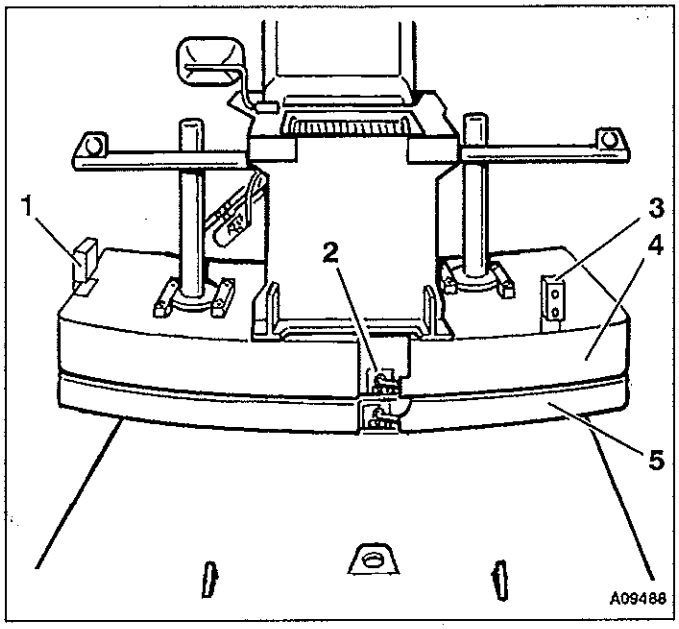
The counterweight sections are locked together with the locking pins (**1**).

There are three locking pins in each counterweight section, including the section which is attached to the superstructure.

1. Unlocking the counterweight:
Before a counterweight section is stacked on the carrier and before it can be removed all the locking pins are pulled out of the section as far as they will go.

2. Locking the counterweight:
When all the required counterweight sections have been stacked on the carrier the locking pins are pushed back in as far as they will go. The grip on each locking pin is then moved to the horizontal position. The grips must lie in the pockets to secure the pins.

10.09.93



- Remove the pin locking the turntable.

- Raise counterweight sections (**5**) with the top push button on one of the two control boxes (**1**) or (**3**) far enough to allow them to be connected to counterweight section (**4**).

- Push the three locking pins (**2**) in as far as they will go and secure them by turning the handles.

10.09.93

Status messages

Collective error	Individual fault	Fault (countermeasures)
a	1	Operating mode not authorized (check set operating mode and actual operating mode)
	2	Operating mode selector switch faulty (must be repaired)
	7	Reeving mode (enter reeving condition)
	8	Impermissible operating mode (cf. fault a1)
d	1	Data transmitter hydr. pressure ring area in derricking cylinder
	2	Data transmitter telescope boom angle
	3	Data transmitter lenght telescope sections II and III
	5	Data transmitter hydr. pressure piston area in derricking cylinder
	6	Data transmitter length telescope section I (faults d1 - d6: repair necessary)
e	1	Incorrect telescope section lengths (check selected operating mode and actual operating mode)
	2	Radius (raise boom)
f	1	Boom angle (raise boom)

Message	Cause
L	Overload (reduce load moment)
M	Shutdown (leave shutdown range and reset/repair SLI)
N	Warning (shutdown level reached)

When message **L** appears all movements which increase the load moment are stopped and movements can only be carried out in the opposite directions.

Stopped movements	Permitted movements
Hoist - raising	Hoist - lowering
Lowering the boom	Raising the boom
Extending telescope sections	Retracting telescope sections

The message **M** appears automatically with all of the collective error messages **a** to **f** and with message **L**.

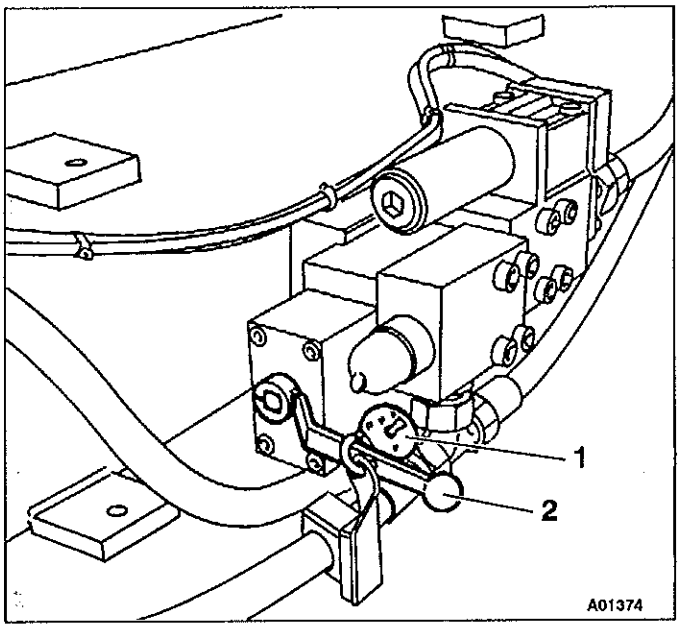
Danger:

When any error message appears crane operation must be stopped immediately, **otherwise accidents will occur.**
Repairs to the SLI may only be carried out by qualified personnel who have been given special training.

10.09.93

4.5.12 Raising/lowering the boom (derricking)

Caution: When the crane is operated the stop cock on the derricking cylinder has to be shut and secured with a padlock, **otherwise accidents may occur.**



The handle (**2**) must be to the side and secured with a padlock (**1**).

The angle of the main boom can be varied between –2.6° and +84° from the horizontal by raising or lowering it.

Caution: It is strictly forbidden to raise loads by raising the boom as the SLI does not then function and the **crane may overturn.**
When a load is suspended from the hook, raising the boom reduces the load moment. However, if a load which is too heavy is lifted in this way, it is the raising movement itself which increases the load moment. This movement is not stopped, however, by the SLI.

If certain loads and main boom lengths are exceeded the SLI shuts down the movement "lowering the boom" before the boom is in horizontal position. When a boom extension is installed this shutdown takes place at an earlier stage.

The main boom can be lowered to the horizontal position provided the required counterweight has been installed:

– With a 21 200-lbs counterweight when the boom has two telescope sections extended.

– With a counterweight of at least 13 200 lbs when the boom has one telescope section extended.

10.09.93

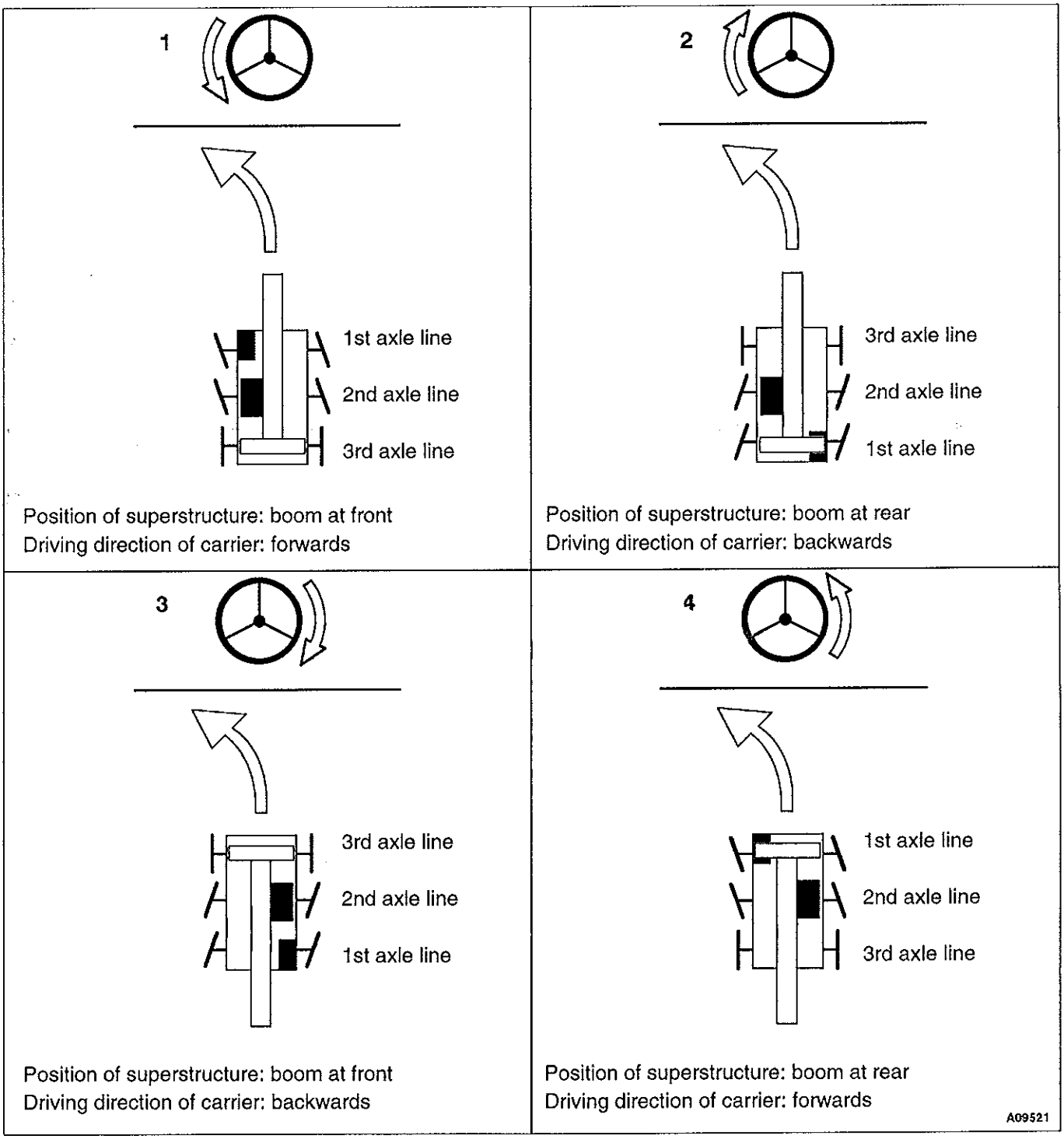
Caution: The boom may not be lowered to the horizontal position when three telescope sections are extended.

When the truck crane is steered from the crane operator's cab the first and second axle lines are steered with the steering wheel. When the steering lock is disengaged the third axle line is steered with the toggle switch behind the control lever "main hoist/derricking gear".

Steering the first and second axle lines

Caution:

When the first and second axle lines are steered with the steering wheel in the crane operator's cab – regardless of the position of the superstructure and crane operator's cab – the wheels always react in such a way that the truck crane turns in the direction in which you turn the steering wheel.



10.09.93

- Unlock the suspension and set the suspension system to the correct level for driving on roads (please see Section 3.7.4 "Carrier level adjustment system", p. 3 - 65).
- Check in the driver's cab that the steering lock is engaged; if the indicator lamp for the steering lock of the third axle line is on, engage the steering lock (please see Section 3.8.3 "Engaging the steering lock", p. 3 - 75).
- Turn off the vehicle engine.
- Remove the ignition key in the driver's cab.
- The battery master switch remains switched on.

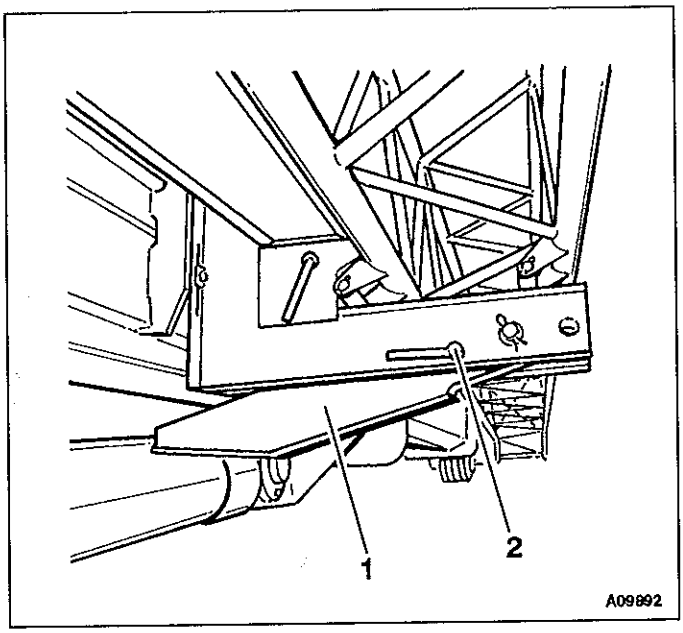
10.09.93

If the hook block is to remain reeved on the main boom:

- If the hook block remains reeved on the main boom the lifting limit switch weight stays suspended from the lifting limit switch.

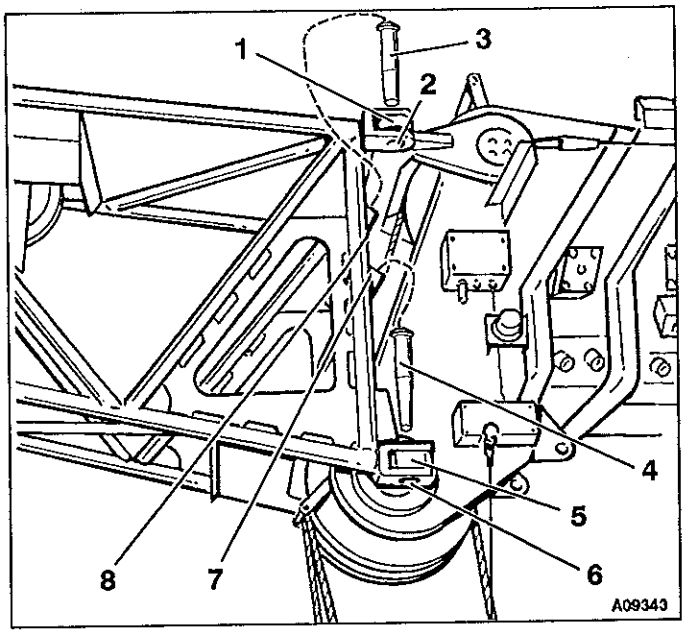
5.1.3 Installing the 25-ft lattice extension on the main boom

When the 25-ft lattice extension section is used the 16.5-ft section stays bolted to the side of the non-telescoping section of the main boom.



- Fold the run-up rail (**1**) outwards. To do this remove the retaining pin from pin (**2**) and remove the pin, holding the free end of the run up rail with your hand so that it does not fold downwards.

27.06.93



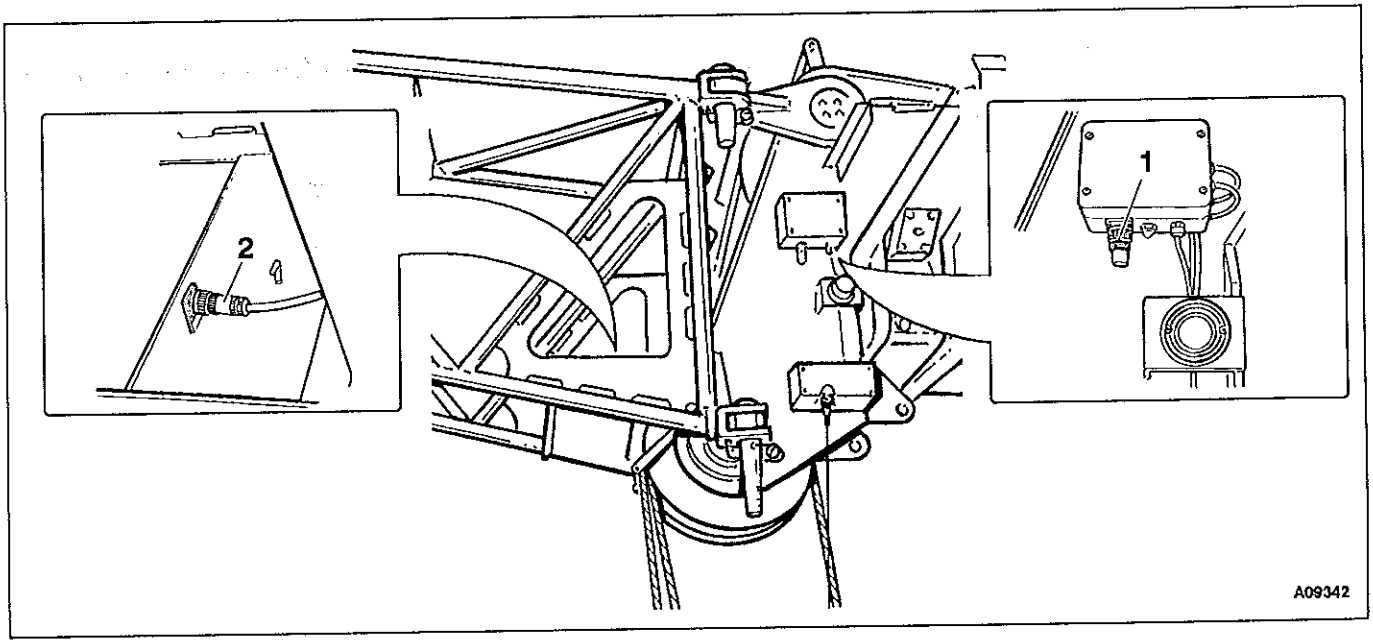
- Move the 25-ft lattice extension together with the 16.5-ft lattice extension in front of the main boom using the guide rope.
  Bores (**2**) and (**6**) on the foot of the lattice extension must be aligned with bearing points (**1**) and (**5**) on the main boom.

Note: To turn the two-stage lattice extension you can tilt the truck crane using the outrigger cylinders and incline the boom slightly so that it is no longer exactly horizontal.

- Remove the two pins (**3**) and (**4**) from the holders (**7**) and (**8**).

- Insert first the upper pin (**3**) and then the lower pin (**4**) into the bearing points between the 25-ft lattice extension and telescope section III. Secure the pins with retaining pins.

Note: The longer pin (**4**) should be inserted into the lower bearing point.



- Unscrew the short-circuit plug (**1**) from the socket on the distribution box on the main boom.

- Unscrew the plug (**2**) from the dummy socket at the foot of the 25-ft lattice extension.

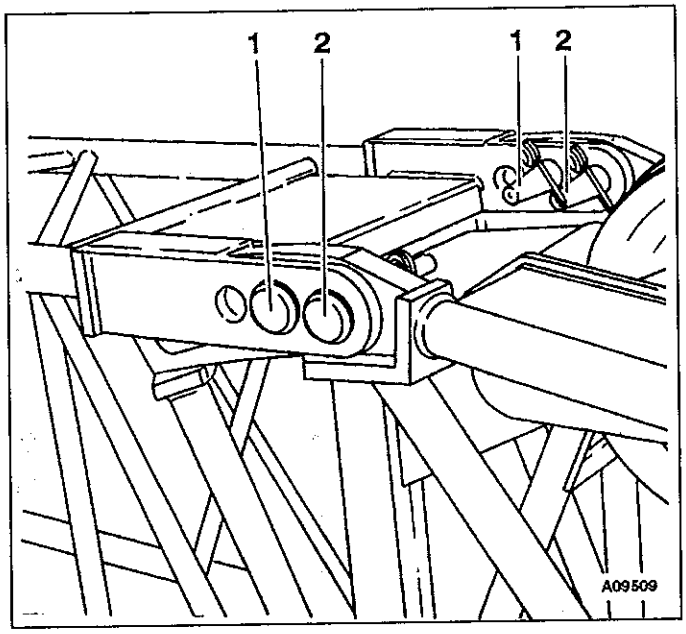
27.06.93

Setting 16° inclination with mounting plates (optional equipment)

Note: The lattice extension should be fitted with mounting plates if you intend to work with the extension at an angle of 30° immediately before or after working in the 16° position.

Caution: Only fit mounting plates marked with the same serial number as your crane, **otherwise breakdowns and damage will occur.**

Danger: The mounting plates may only be fitted in the 16° position.
If the mounting plates are fitted at any other angle than 16° incorrect installation may lead to a situation where the inclination of the two-stage swing-away lattice extension is greater than that permitted in the lifting capacity tables and **the crane may overturn.**



- Remove the pins (**2**) on each side of the lattice extension. If the weight of the lattice extension is supported correctly on the ground the pins can be taken out of the bores.
The other pins (**1**) stay in the bores.

Danger: If the lattice extension is not resting on the ground it is difficult to remove the pins from the bores. The top section of the lattice extension will also drop onto the ground, and **accidents may occur.**

27.06.93

- Raise the main boom until the head sheave is just off the ground.
- Fully retract the telescope sections of the main boom.
- Switch off the SLI override system and release the SLI.
- Return the truck crane to the horizontal position with the outriggers.
- Carry out the steps described in Section 5.1.3 or 5.1.4 in reverse order to fold the lattice extension sections against the main boom.
- Check that the two-stage swing-away lattice extension is in the correct transport condition (please see Section 5.1.9 "Checking the transport condition", p. 5 - 37).

Moving the lattice extension from the 16° position with mounting plates (optional equipment) to the 0° position

Before the lattice extension is folded against the non-telescoping section of the main boom you must return it to the 0° position with the derricking cylinder.

Tilt the truck crane with the outrigger cylinders so that the head sheave of the lattice extension is closer to the ground.
This can be done by retracting the rear and extending the front outrigger cylinders. The head sheave of the lattice extension or two-stage lattice extension must not touch the ground.

Caution: The wheels must not touch the ground at any point while the truck crane is being tilted, **otherwise the truck crane may overturn.**

- Extend telescope section I depending on the room available. Ensure that the head sheave of the lattice extension or two-stage swing-away lattice extension does not touch the ground while the telescope section is being extended. Keep the head sheave of the lattice extension a maximum of approx. 1.5 ft from the ground. If necessary raise the main boom slightly.

Note: To extend telescope sections the SLI has to be overridden.

Caution: The main boom may not be extended to a length of more than 57.1 ft (telescope section I), **otherwise the crane may overturn.**

- Place a board under the top of the lattice extension to prevent the head sheave from being damaged.
- Lower the main boom until the head sheave on the lattice extension or two-stage lattice extension is on the ground.

27.06.93

If you wish to work in the two-hook mode using the single-sheave boom top and main boom, i.e. with the load suspended from the hook block operated by the main hoist and from the boom hook operated by the auxiliary hoist, extreme care must be taken.

Caution: **Two-hook operation is not protected by the SLI.**

The SLI only covers operation with one hook, i.e. it reacts as if there were only one load on the hook. It does not differentiate between the loads on the separate lifting tackle. Two-hook operation can lead to the crane being overloaded and overturning.

Caution: Keep the acceleration forces as small as possible when the hoists are run in the two-hook mode.

The load may only be lifted and lowered very slowly.

Further information on working with two hooks is given in Section 4.5.9 "Main hoist", p. 4 - 69 under the sub-heading "Working with two hooks".

The normal functions "lifting", "lowering", "slewing" and "derricking" are carried out in the same way as when working with the main boom.

Combined functions when working in the two-hook mode are restricted to the following:

- Main hoist and auxiliary hoist combined with slewing
- Main hoist combined with slewing and raising/lowering the boom or extending/retracting telescope sections
- Auxiliary hoist combined with slewing

Note: When working in the two-hook mode the auxiliary hoist cannot be run at the same time as extending/retracting telescope sections or raising/lowering the boom.

27.06.93

6.1.4 Changing the tyres

If you have a puncture when driving:

- Stop the vehicle, paying close attention to the traffic behind.

Danger: The steering wheel can be expected to jolt. Hold the steering wheel with both hands, **otherwise accidents will occur.**

- Select as flat an area as possible for the tyre change. Select an area in which the vehicle causes as least obstruction to traffic as possible and does not expose you to any danger while changing the tyre.

- Cordon off the vehicle and the breakdown area (please see Section 6.1.1 "Procedures in case of malfunctions", p. 6 - 1).

Danger: Changing the wheel without suitable lifting equipment for the spare wheel is dangerous. **Take care that accidents do not occur.**
If possible, only change the wheel with the help of an assistant.

Note: If your truck crane is equipped with a towbar coupling the spare wheel cannot be carried in the usual position at the back of the truck crane.

Removing the wheel

- Engage the parking brake.

- Lock the suspension.

- Using the outriggers, lift the truck crane until the wheel which has to be changed is just off the ground.

- Unscrew the wheel nuts and remove the pressure plates.

- Pull the wheel off the wheel bolts, jiggling it if necessary. Ensure that you do not damage the wheel bolts as you do so.

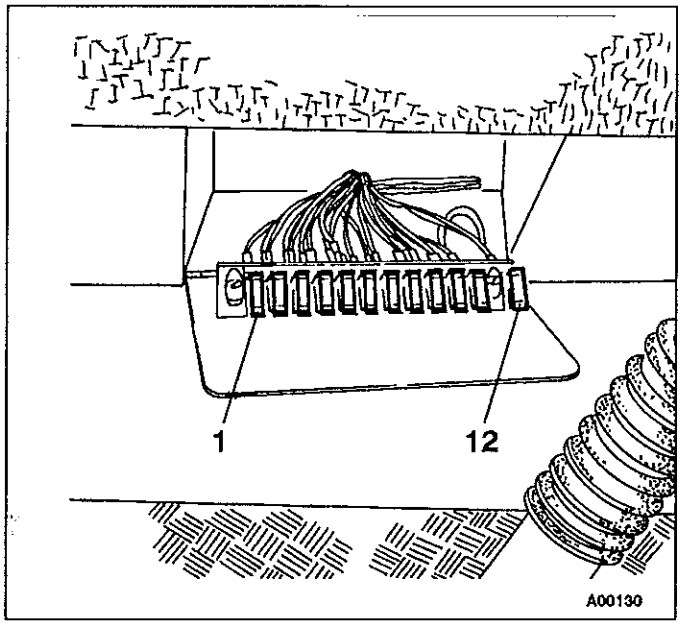
Danger: If the wheel slips off the hub, step back quickly. **Take care that accidents do not occur.**

10.09.93

Fuses

Danger: **Risk of fire.** Never repair a blown fuse with a nail, wire or silver paper. Always replace fuses which have blown with fuses which are the same size.

Fuse group F1 (on the left-hand side of the steering column)



Fuse No.	Size	Function
1	8 A	Spare
2	8 A	Stop lamps, Ceiling lights
3	8 A	Voltage divider for radio
4	8 A	Parking light - left
5	8 A	Parking light - right
6	8 A	Tail light - left
7	8 A	Tail light - right
8	8 A	Instrument lighting
9	8 A	Left headlight - full beam
10	8 A	Right headlight - full beam, Rear fog lamp
11	8 A	Left headlight - dipped
12	8 A	Right headlight - dipped

10.09.93

6.1.16 Malfunctions – carrier level adjustment system

Malfunction	Cause	Action
Carrier level adjustment system not working	Key switch for carrier level adjustment system switched off	Switch on key switch, see Section 3.4.19.
	Gear lever not in neutral position	Move gear lever to neutral (**N**).
	Suspension lock engaged	Disengage suspension lock, see Section 3.4.18.
	Compressed-air system not filled sufficiently	Let the engine run in neutral. Circuit No. 4 is filled approx. 10 min. after the indicator lamp for the brake circuits has gone out. Secondary consumers can be operated afterwards, see Section 3.4.26.
	PTO switched off	Switch on PTO.
	Fuse F2/9 UW or F2/12 UW (carrier) blown	Check fuses and replace if necessary, see Section 6.1.7.

10.09.93

6.2.6 Malfunctions – auxiliary hoist

Malfunction	Cause	Action
Auxiliary hoist not functioning or malfunctioning (lifting, lowering or fast speed not functioning)	Auxiliary hoist not switched on	Switch on auxiliary hoist, see Section 4.5.10.
	Fuse F1/6 OW or F1/7 OW (superstructure) blown	Check fuses and replace if necessary, see Section 6.2.2.
	PTO cannot be switched on, fuse F2/10 UW (carrier) blown	Check fuse and replace if necessary, see Section 6.1.7.
Auxiliary hoist – lowering not functioning (Also check all causes in Section "Auxiliary hoist not functioning")	Lowering limit switch triggered	Leave shutdown range, lift with auxiliary hoist.
	Fuse F1/7 OW (superstructure) blown	Check fuse and replace if necessary, see Section 6.2.2.
Auxiliary hoist – lifting not functioning (Also check all causes in Section "Auxiliary hoist not functioning")	Lifting limit switch triggered (warning light on)	Leave shutdown range, lower with auxiliary hoist.
	Fuse F1/7 OW or F1/8 OW (superstructure) blown	Check fuses and replace if necessary, see Section 6.2.2.
	SLI shutdown (warning light on)	Leave shutdown range, see Section 4.5.6.
Auxiliary hoist – fast speed not functioning (Also check all causes in Section "Auxiliary hoist not functioning")	Two-hook operation activated	De-activate two-hook operation, see Section 4.5.10.
	One of the two control levers is out of place	Move both levers to central position.

10.09.93

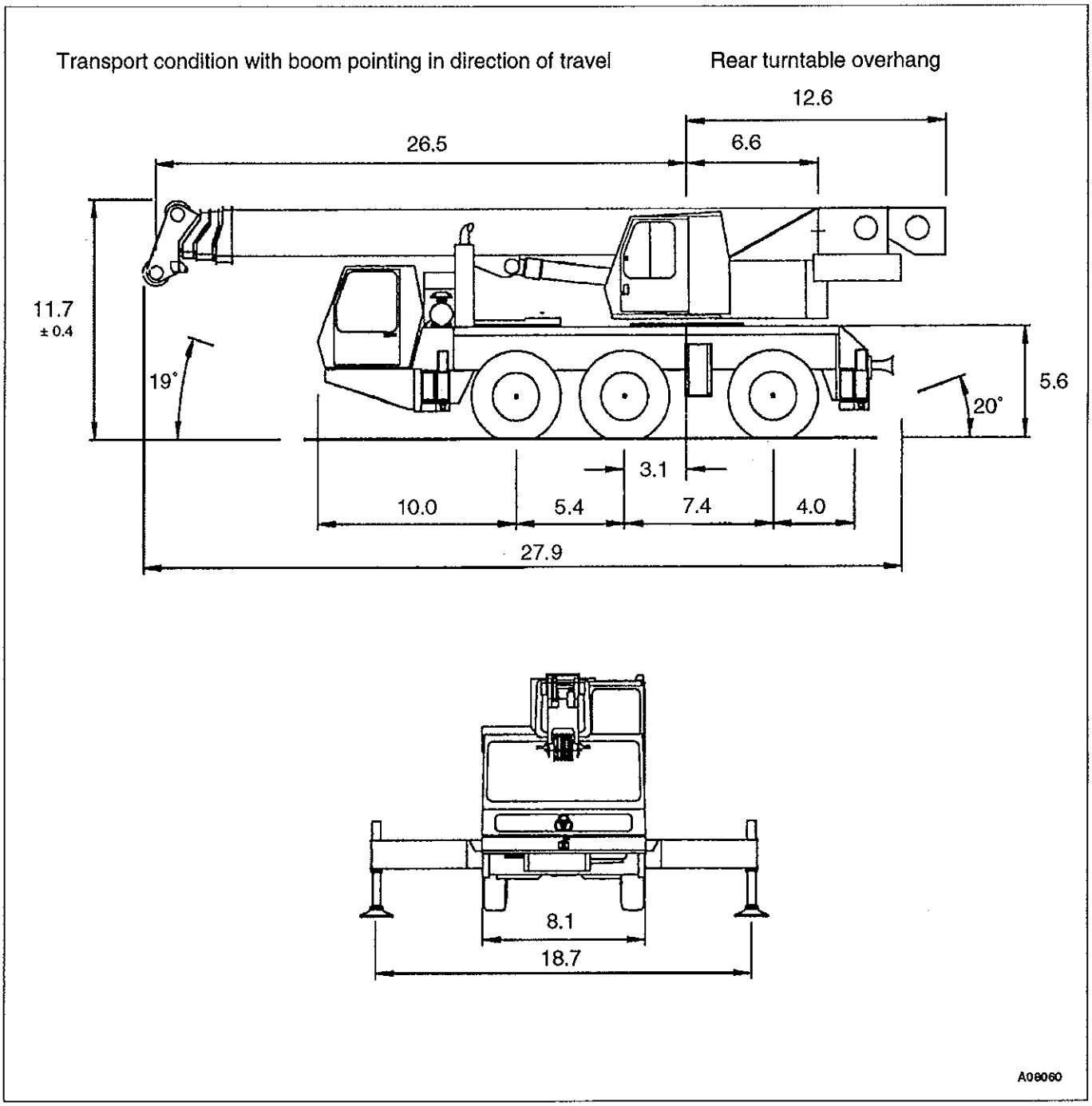
7 Technical data

KRUPP TRUCK CRANE KMK 3045

Max. lifting capacity: 99 000 lbs (at 85%)

7.1 Dimensions

7.1.1 Truck crane



10.09.93