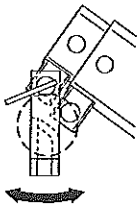
Grab

Special load lug

Warning! Connecting links unsuited for the grab and/or crane may cause damages to the grab and/or crane and loss of warranty. Consequently the load may fall down. This creates an acute risk of fatality for the operator and others.

Some of the load lifting gear and ancillary equipment require the use of special PALFINGER hardware. More detailed information about the PALFINGER special load lug is available at all PALFINGER partners.



Warning! Do not use the grab for pulling (out), dragging, pressing, hitting, excavating, etc. This will cause damages to crane, grab or rotator.

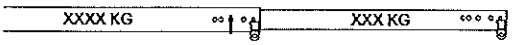
Use grabs exclusively to move bulk materials (sand, gravel, soil, etc.). For operation and assembly of grab and rotator refer to the relevant operating instructions.

Mechanical extension booms

Danger! If extensions are overloaded with the lifting power of the crane, the load may fall down. This creates an acute risk of fatality for the operator and others.

After pulling out the manual extension you can read the maximum load capacity on both sides. The maximum load capacity is also printed on the identification plate of the manual extension. This may not be exceeded, even if the manual extension has been fully pushed in and secured.

Information! Loads that are heavier than the maximum load capacity of the manual extension boom must be attached to the last hydraulic extension boom.

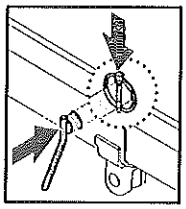


The maximum load capacity of the manual extensions must be written on both sides of the extension by the installer. If this specification is missing, contact your PALFINGER partner.

Pulling out/pushing in mechanical manual extensions

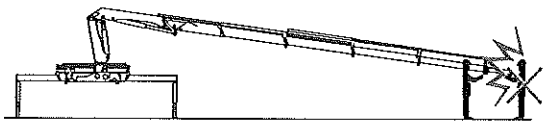
Danger! Always secure mechanical manual extensions properly. Inadequately securing manual extensions, or failing to secure them, is grossly negligent. This creates an acute risk of fatal injury.

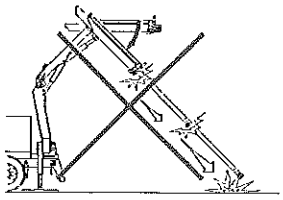
Manual extension booms that are extended/retracted must be properly secured using original PALFINGER connection pins and linch pins.



Danger! People standing in front of the crane boom while the manual extension booms are extended are in acute danger to life.

The operator must stand to the side of the boom system when extending or retracting the manual extension boom.





- Make sure that all manual extension booms are secured properly.
- Move the load arm to the set-up position.
- Turn off the crane.
- Remove the linch pin from the connecting pin, pull out connecting pin.
- Pull out the manual extension boom to the securing position.
- Put in the connection pin and secure it with the linch pin.
- Turn on the crane.

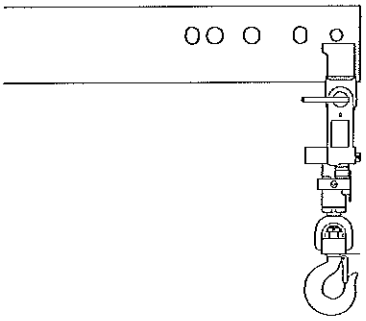
Overload protection system for manual boom extensions

In the EU and certain other countries, manual extension booms must only be operated with an overload protection system, which includes a sensor unit between the load lug and the hook.

Danger! The sensor unit must not be overloaded. This creates an acute risk of fatality for the operator and others.

Do not use sensor units on hydraulic extension booms.

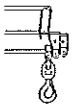
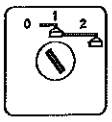
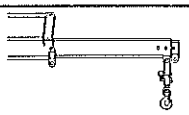
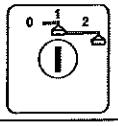
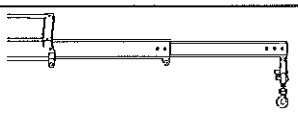
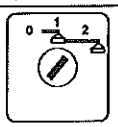
Maximum capacity 2,000 kg (4,400 lbs).



Operating modes can be set up on the mode selector switch:

Warning! **If the position of the operating mode selector switch doesn't match the installation status, the extension or the sensor unit may get overloaded. The load may fall down. This creates an acute risk of fatality for the operator and others.**

Use the sensor unit only in the correct mechanical extensions and in accordance with the chosen operation mode.

Extension/s	Hook	Sensor unit	Operating mode selector switch
All retracted.	On the last hydraulic extension boom. 	Must not be used.	
First extension extended.	Must not be used.		
Both extensions extended.	Must not be used.		

Attaching the sensor unit:

- Turn off the crane.
- Remove the crane hook.
- Attach the sensor unit to the correct extension.
- Plug in the connecting cable.
- Set the operation mode selector switch to the number of extensions pulled out.
- Turn on the crane.

Removing the sensor unit:

- Turn off the crane.
- Set the operation mode selector switch to 0.
- Disconnect the cable.
- Remove the sensor unit from the extension and store it properly.
- Attach the crane hook to the last hydraulic extension boom.
- Turn on the crane.

Additional crane equipment

Remote control

Refer to remote control operating instructions.

High stand/top seat

Danger! When the high stand / top seat is used for

- working above the driver's cab;
- carrying out any works, repairs or manipulations on the crane

there is risk of crushing!

- Use the high stand / top seat only for working on and near the vehicle platform.

Danger! If operating levers are moved while entering or exiting the operating station there is acute risk of fatal injury.

- Don't move any operating levers when entering or exiting the operating station.
- Keep handles and platforms free of any dirt, oil, ice and snow (if necessary clean them before stepping on to them).
- After entering the high stand / top seat place the existing guard rails properly.

Information! Climbing aids must provide three point contact while entering and leaving the operating station (installer).

Use the equipment provided (ladder, telescopic rail, handles) when entering or leaving the high stand / top seat.

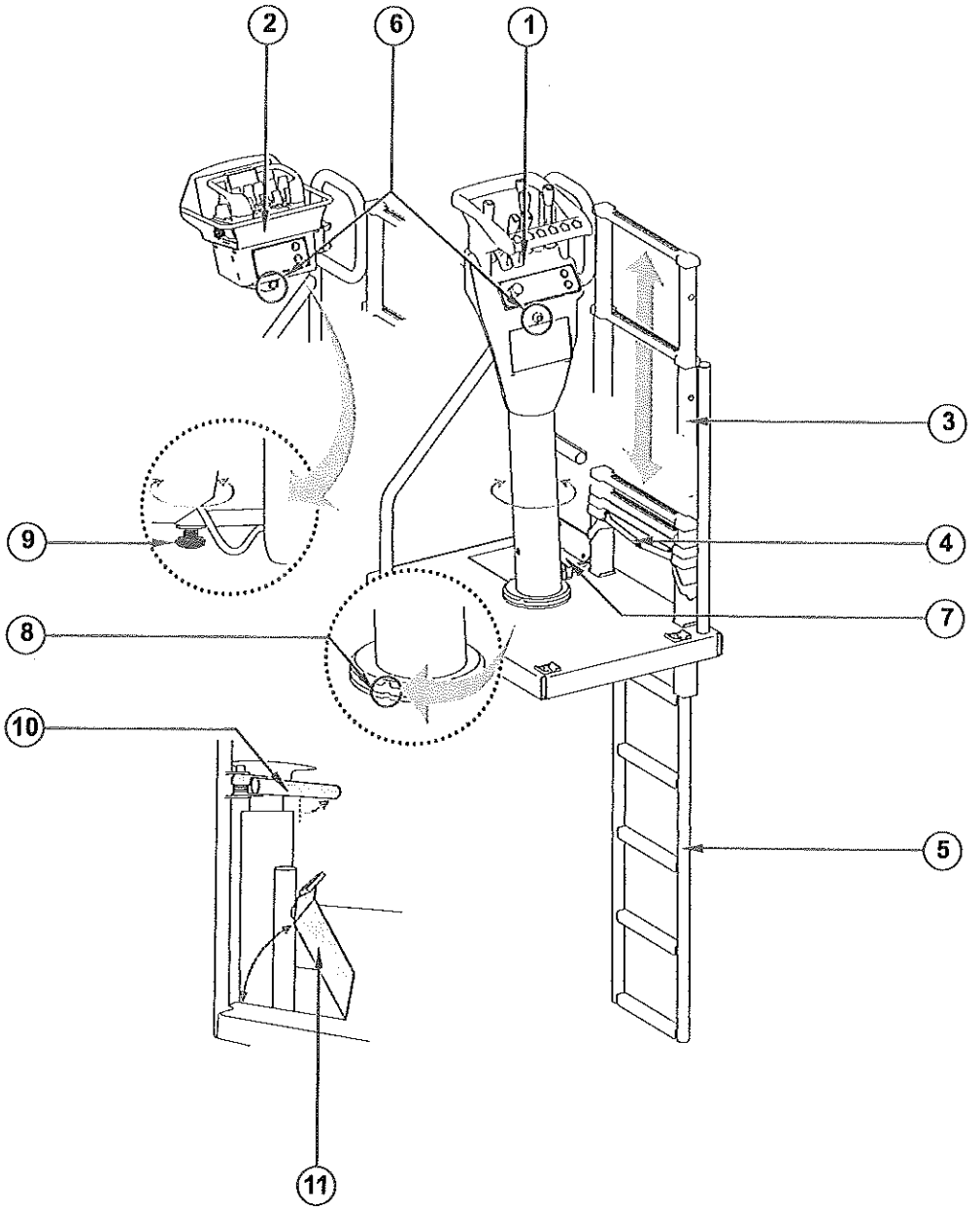
Information! Keep the required minimum distances to all crushing points (refer to chapter 2 "Safety and Health Standards", "Danger of getting crushed").

Information! When working from the raised stand / raised seat there must be enough clearance between operator and load. For safe work make sure to keep a sufficient safety distance to a possibly swinging load and the moving crane.

Danger! There is acute danger to life for operators and others if minimum distances and safety distances are not kept.

Warning! Before folding the crane lower the guard rails (telescopic rails). Otherwise parts may get damaged.

High stand components



1. High stand operator console

Can swivel to the side

2. Remote holder

Holder for remote control, can swivel to the side

3. Guard rails

Installing the guard rails: Pull them out until they lock.

Danger! If the guard rails are not completely pulled and locked they may fall back down. There is then risk of falling and hence risk of fatality for the operator and others.

4. Guard rails unlocking mechanism

Retracting the guard rails: Press up the unlocking mechanism on the bottom and push the guard rails from the top fully down to the bottom. Never reach between the guard rails' cross bars.

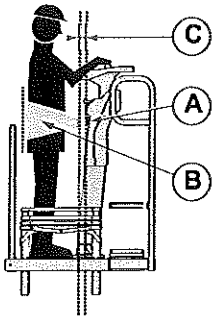
Warning! If the operator reaches with his finger between the cross bars while moving the rails down they could get squashed.

5. Climbing aid

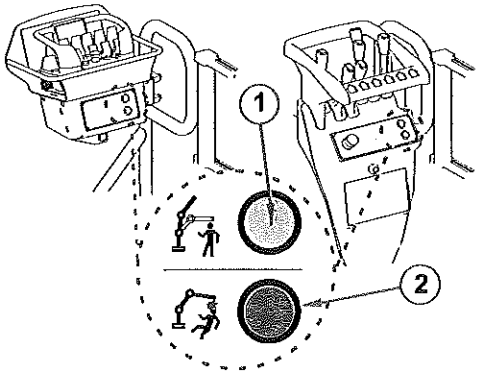
Optionally available.

6. Distance sensor / control lamps

Ensure the operator's safety and prevent crushing.



A = distance sensor
B = Distance sensor coverage
C = Distance sensor's blind region => Minimum distance from operator to distance sensor = 7cm.



1 = Green control lamp, safety equipment enabled.
2 = Red control lamp, safety equipment disabled.

- No operator on high stand: Red control lamp is on.
  Slew angle restriction and main boom monitoring systems are disabled.
- Operator within the distance sensor's coverage: Green control lamp is on. Slew angle restriction and main boom monitoring systems are enabled.
- The high stand's area is protected by the safety equipment. The crane may be operated from the high stand.

Information! The crane may only be operated from the high stand if the green control lamp is on.

Getting outside the coverage at the high stand:

- Operator falls below or exceeds the distance sensor's coverage. Safety equipment is disabled.
- Red control lamp is on, stop operating the crane from the high stand. To resume crane operation on the high stand the operator must step into the distance sensor's coverage.
- Check whether the green control lamp is on. If not, exit the high stand immediately! Contact your PALFINGER partner!

DANGER **Danger!** If you continue to operate the crane from the high stand although the red control lamp is on, this presents risk of crushing and even fatal injury for the operator and others.

7. Pedal for tilting the operator console

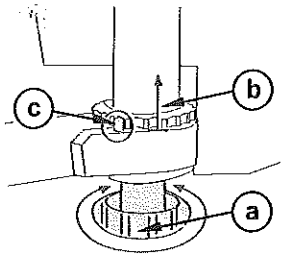
The operator may tilt the operator console into a perfect working position. Do not touch any operating elements while doing so.

Information! While the crane is being operated or transported the operator console must be firmly secured!

8. Fitting grooves for operator console

When folding the crane to the vehicle's width turn the operator console until the grooves match.

9. Clamping screw for tilting the remote holder



Tilting the remote holder:

- Loosen the clamping screw (a) slightly.
- Lift the remote holder (b) above the safety pin.
- Turn the remote holder to the desired position and snap it in the safety pin.
- Fix the remote holder using the clamping screw (a).

Information! **While the crane is being operated or transported the remote holder must be firmly secured!**

10. Fall protection device in stabilizer area

Can be moved inwards in case of tiltable stabilizer cylinders.

11. Foot board

Can be moved upwards in case of tiltable stabilizer cylinders.

Fly jib

Refer to operating instructions of the fly jib.

Workman basket

Refer to operating instructions of the workman basket.

CHAPTER 7

Preparing for crane operation

In this chapter

Use for intended purpose / limits of the device

Danger! Improper use endangers people and causes damages to the crane and loss of warranty and liability.

Use the crane only within the load limits shown on the load capacity chart to lift, move, carry and set down loads.

It is allowed to:

- Load/unload your own vehicle or another vehicle;
- Lift and move loads up to or down from large heights;
- Lift and move loads below ground level;
- Lift loads up to a specific height and hold them in this height for assembly works (e.g. rafters, steel girders, etc.)
- Occasional grab application for lifting and moving bulk materials such as loose sand, gravel etc.

For crane categorization see "Technical Description" in Chapter 13. Only use the crane for its correct purpose.

If the operating instructions of any ancillary equipment or instructions prepared by the operating company allow other use (for instance excavating or diagonal pull), which contradict these operating instructions, then the crane's operating instructions shall have priority.

It is not allowed:

- To use the device for other purposes than the ones specified above;
- To use the device for logging and scrap application;
- To push against obstacles or loads;
- To pull, to pull things loose, any diagonal pull;
- Abrupt release of boom system load;
- To attach loads to other positions on the crane than the intended ones;
- Any excavating work with a grab (refer to ***chapter 6 – Grab***).
- To transport persons.
  Exceptions: Transporting persons in the PALFINGER workman basket, only on specially equipped cranes. National laws, regulations and standards must be complied with.

Note! Matching workman baskets are available from all PALFINGER partners.

Watch out for faults before and during operation

DANGER **Danger!** Observe all equipment for damage and malfunctions during operation. If damage or malfunctions are found during operation and operation is not stopped immediately, there is an acute risk of fatal injury to the operators and others.

If the following damage or faults are found on the unit, auxiliary equipment, load-bearing equipment or vehicle, do not start operation or stop operation immediately and contact your PALFINGER partner:

- Lack of lubrication.
- Damage to or cracks in components/weld seams.
- Unserviceable bearings.
- Damage to the hydraulic system (leakage, unusually high temperatures etc.).
- Unserviceable equipment.
- Loose threaded connections.
- Insufficiently secured pins.
- Hose winding malfunctions in the hose drum or the hose tray.
- Abnormal noises.
- Unusually quick or slow working movements.
- Failure of the control system.
- Operating levers are difficult to operate and/or do not return to neutral position.
- Poor rope guidance, rope run out off the guide pulleys and / or guide rollers.
- Damaged winch components such as deflection and/or guide pulleys.
- Damaged rope.

Restarting the unit is only allowed after corrective measures have been taken and safe operation is guaranteed again.

Operating stands, steps and platforms

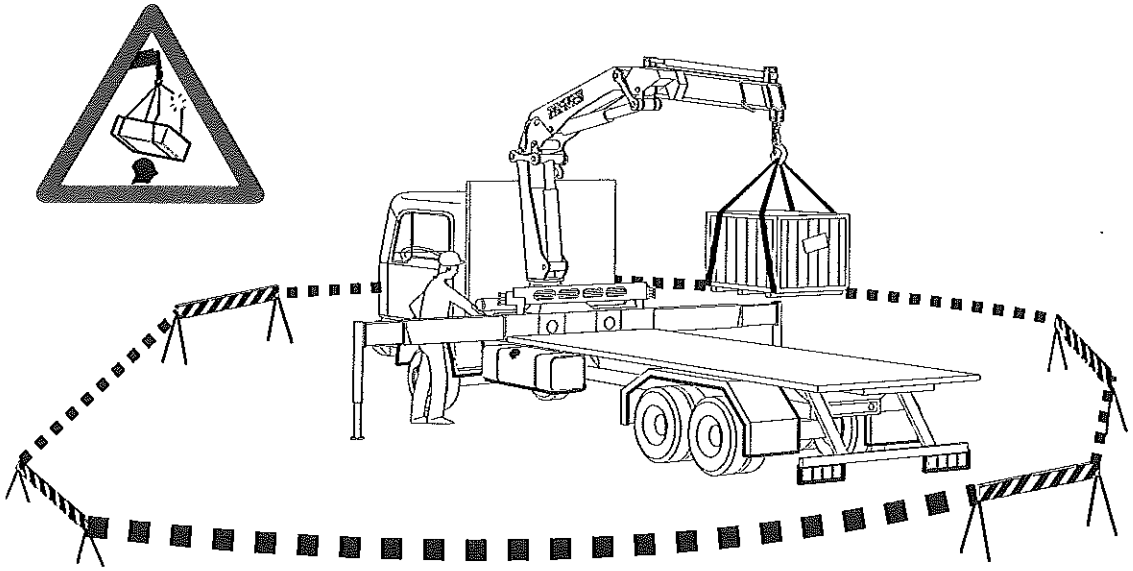
WARNING **Warning!** Soiled, icy, snow-covered signs, operating elements, operating stands, steps and platforms increase the risk of accidents. There is then an acute risk of fatality for the operator and others.

Operating elements, operating stands, steps, platforms etc. must be free of snow, ice, soiling (oil, grease etc.). Operating symbols, information and warning signs must be recognizable. No objects must be left on operating stands, steps, platforms etc.

Working range

Danger!There is acute danger to life for operators and others in the entire working range of the crane (slewing range and under suspended loads). Allowing bystanders in the working range is grossly negligent.

- The operator must have full view of the crane movements and the loading/unloading point. If this is impossible the operator must be aided by a qualified signaller.
- Plan in sufficient clearance for crane operation and support. Crane movements may not be obstructed by lines, masts, trees, buildings or other objects.
- The entire working range of the crane is a danger zone.
- No other work may be carried out within the working range.
- Streets, path ways, bicycle lanes or sidewalks etc. that cross the working area must be blocked during the entire crane operation.



- The entire working range must be lit during twilight or darkness so that the work can be carried out safely.

Starting the crane

- Park the vehicle as close as possible to the loading place.

Information! Working at shorter outreach generally increases the crane lifetime.

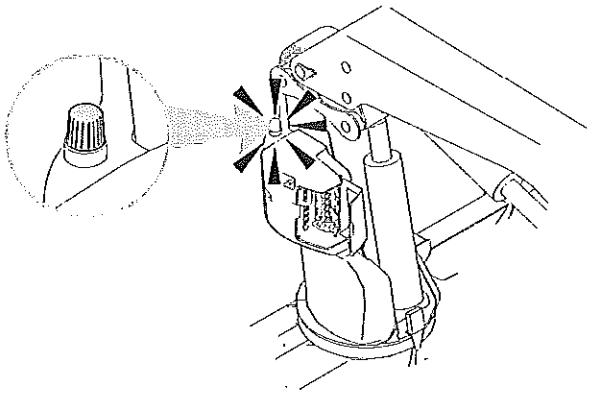
- Engage the parking brake.
- Air suspension axles must be inactive during crane operation.
- Engage the PTO at idle and then select correct engine speed.
- Only one person shall operate the crane at a time.

At ambient temperatures below freezing point

- Let the pump run for a few minutes before operating any crane function.

Additionally in remote control mode

Information! When the key switch is set to remote control mode, a green warning light starts flashing (see picture). This indicates any third persons that the crane may start to move any time.



Supporting the vehicle

Danger! If the vehicle is not properly supported it may tip over. Working without proper support if prohibited. This creates an acute risk of fatal injury.

The crane must not be moved in working position until the vehicle has been properly supported.

Danger! If the additional support of a vehicle is not extended the vehicle may tip over. This creates an acute risk of fatal injury.

If the vehicle is equipped with additional supports, they must be extended as described below. The vehicle is only stable with the supports fully extended (crane support and additional support if present).

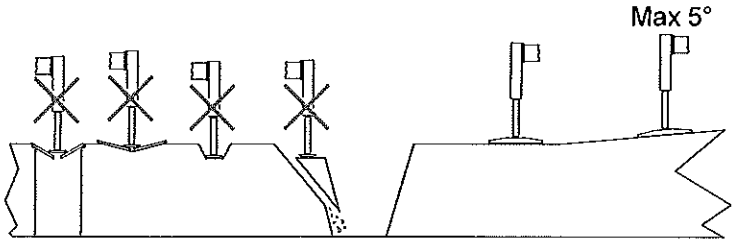
All safety notes of chapter 2 shall be observed.

Ground condition

Check the floor for the following:

- Stability.
- Cavities (manhole covers, pipelines, etc.).
- Sufficient distance to any drop offs, holes, ditches, etc.
- Ground inclination 5° maximum in all directions.

Increase the support area according to the supporting surface conditions (refer to table) or find a suitable supporting surface.



Ground pressure

Ground pressure by support jacks max. 400 N/cm² (58 psi).

Permissible ground pressure under DIN 1054	
Heaped up soil, that was not stabilized artificially.	0 - 10 N/cm² (0-14.5 psi)
Asphalt	20 N/cm² (29 psi)
Grown, obviously untouched soil.	
1. Mud, turf, marsh	0 N/cm² (0 psi)
2. Incohesive soils:	
Fine to medium sand	15 N/cm² (21.75 psi)
Coarse sand to gravel	20 N/cm² (29 psi)
Stabilized crushed stone	25 N/cm² (36.25 psi)
3. Cohesive soils:	
Pappy	0 N/cm² (0 psi)
Soft	4 N/cm² (5.8 psi)
Stiff	10 N/cm² (14.5 psi)
Semisolid	20 N/cm² (29 psi)
Hard (solid)	30 N/cm² (43.5 psi)
4. Rock:	
Weathered	100 N/cm² (145 psi)

Determining necessary support area (use metric or imperial consistently):

$$\text{Support area A [cm}^2\text{ or in}^2\text{]} = \frac{\text{Supporting force F (N or lbs)}}{\text{Load capacity of the soil [N/cm}^2\text{ or psi]}}$$

The supporting force values are specified in chapter 13, "Technical Sheets".

Note! High-quality supporting pads are available from all PALFINGER partners.

Operating station support

Danger! If the movement ranges of the supports are not completely in view of the operator there is an acute risk of accident and danger to life.

When supporting the crane choose an operating station from where you may view the complete support movement range. Always keep moving supports in view. No persons and objects are allowed to be in the movement area of the outrigger beam / stabilizer cylinders.

If the crane support can be operated using the remote control, there is an operating switch on both sides of the crane (on the operating station) . This prevents the stabilizer outrigger beam on the opposite side that is out of view from being operated.

The operating switch enables the "Extend stabilizer outrigger beam" function for the respective side for 30 seconds. If the stabilizer outrigger beams have not been extended to the full width during the 30 seconds, the procedure can be repeated.

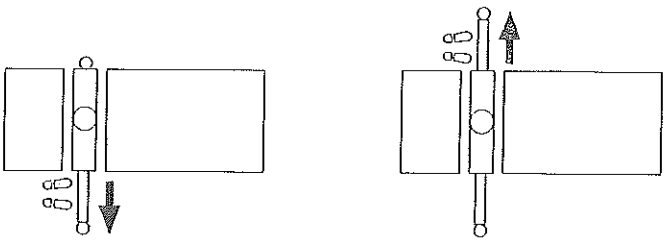
Danger! If the operator is not far enough away from the stabilizer outrigger beam that is being moved, there is an acute risk of crushing and therefore a risk of fatal injury.

Keep a safe distance away from the moving stabilizer outrigger beam (see Chapter 2 "Required minimum distances").

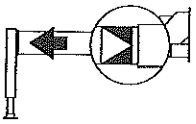
The "Retract stabilizer outrigger beam", "Stabilizer outrigger beam up/down" functions can be operated without using the operating switch.

Supports, general

The outrigger beams and stabilizer cylinders need to be operated separately on both sides. Change the operating station.



Fully extend the outrigger beams (mark must be visible).



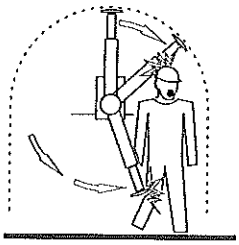
If your crane is equipped with a stability control system refer to chapter 5, 'Safety equipment'.

Move tiltable stabilizer cylinders into their position only after extending the outrigger beam.

The safety distance must be observed.

Danger! If the operator or others are in the slew range of the stabilizer cylinder there is acute danger of life for them.

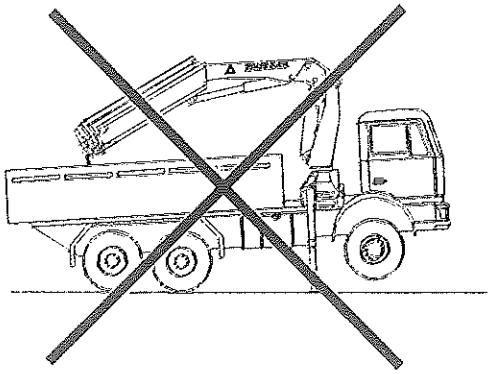
Neither the operator nor bystanders are allowed to step in the slew range of the stabilizer cylinder.



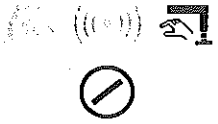
Danger! The crane stabilizers are designed for absorbing only the load moment! If the vehicle is lifted completely during crane operation, the crane support can fail.

Extend all stabilizers until they have firm ground contact.

Do not lift the vehicle, this overloads the support and reduces the braking effect.



If your crane is equipped with stability control or remote control, set the key switch to support operation (exception with remote controlled stabilizer outrigger beams).

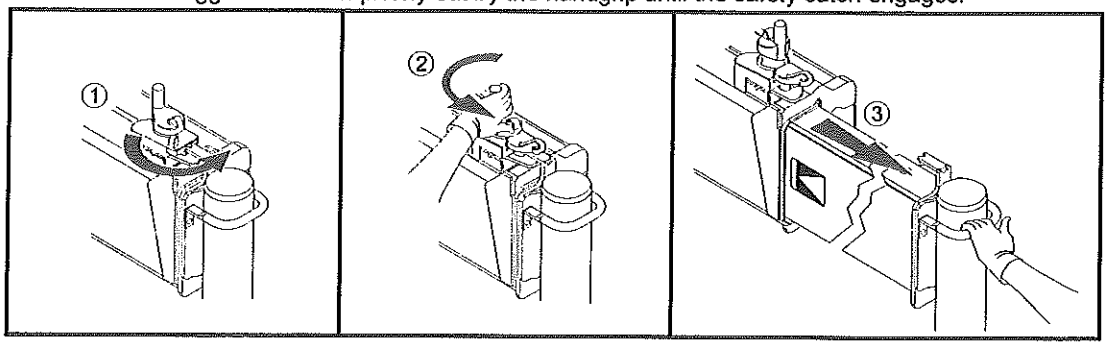


The key position illustrated here is an example and may differ depending on crane model.

Stabilizer outrigger

Manually extendable

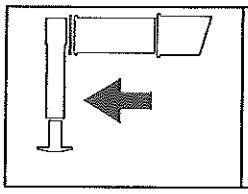
1. Open the secondary lock.
2. Turn the primary lock handle to the stop.
3. Pull the outrigger beam completely out by the handgrip until the safety catch engages.

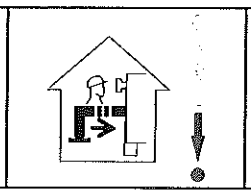


DANGER **Danger! An unlocked outrigger beam creates a high risk of accident and danger to life.**

4. Check whether the safety catch has engaged by attempting to move the outrigger beam in and out.

Hydraulically extendable





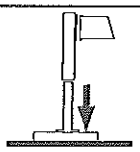
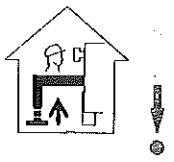
Extend outrigger beam completely.

Crane with hydraulically tiltable stabilizer cylinders:

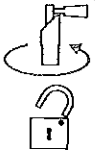
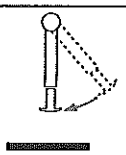
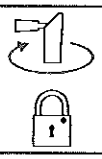
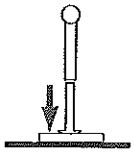
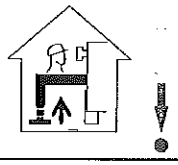
- Before extending the outrigger beam briefly press the function "Retract stabilizer cylinders" until the stabilizer cylinder is unlocked.

Stabilizer cylinder

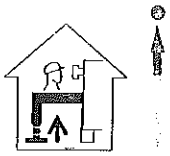
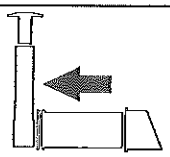
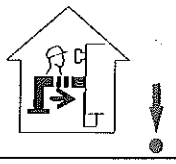
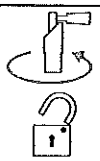
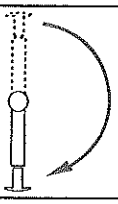
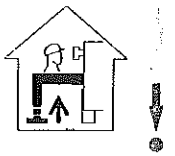
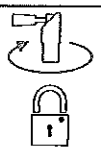
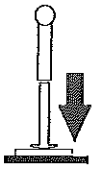
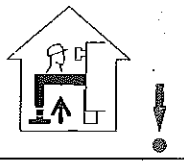
Rigid

		Extend the stabilizer cylinder until it has firm ground contact.

Manually tiltable

Moving the tiltable stabilizer cylinders in supporting position:		
		Firmly hold the stabilizer cylinder. Open latch lever.
		Slew stabilizer cylinder carefully into support position.
When the stabilizer cylinder is in supporting position:		
		Close latch lever and make sure it is in the locked position.
		Extend the stabilizer cylinder until it has firm ground contact.

Hydraulically tiltable

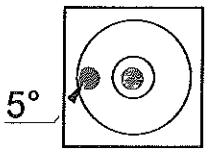
		Briefly press the function "Retract stabilizer cylinders" until the stabilizer cylinder is unlocked.
		Extend the hydraulic outrigger beams completely.
		Open latch lever of stabilizer cylinder.
		Activate the function "Extend stabilizer cylinder" and tilt it down carefully and slowly.
		Close latch lever and make sure it is in the locked position.
		Extend the stabilizer until it has firm ground contact.

Vehicle inclination

Only after having supported and levelled the vehicle properly it is allowed to operate the crane.

Declination indicator

Every crane support control station has a declination indicator.



When the air bubble is in the middle, the vehicle is levelled.
When the air bubble is between the two circles, the vehicle inclination is between 0° and 5°.

Work up to 60° boom position

Level the vehicle as horizontal as possible, however within 3° inclination.

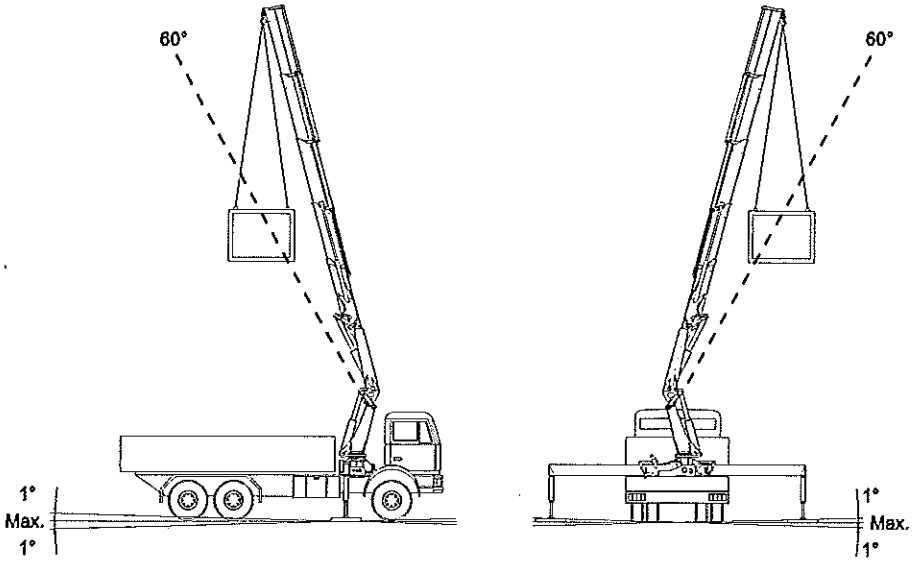
Working above 60° boom position

(refer to chapter 8, "Crane working position").

Level the vehicle exactly. The air bubble is in the inner circle.

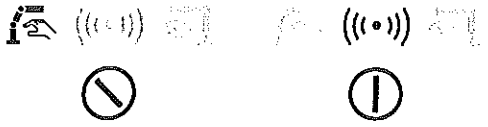
Danger! Vehicle inclination of more than 1° reduces the guide function of the extension booms and leads to side loading of the boom system. There is an acute danger of accident.

Vehicle inclination must not exceed 1° in any direction.



Unfolding the crane

If your crane is equipped with a key switch, it must be set to either manual operation or remote control.



Prerequisites for unfolding the crane

Danger! If the manual extension booms are not properly pinned and secured, they will slide out of the extension booms when unfolding the crane. This creates an acute risk of fatality for the operator and others.

- Extension booms are pinned and secured.
- Vehicle is properly supported.
- No bystanders or obstacles are in the movement range of the crane.

Danger! Not maintaining the minimum distances creates an acute risk of fatality for the operator and others.

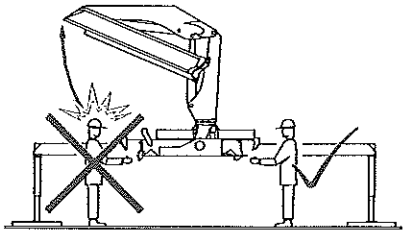
- The operator must have full view of all crane movements.

All safety notes of chapter 2 shall be observed.

Ground control

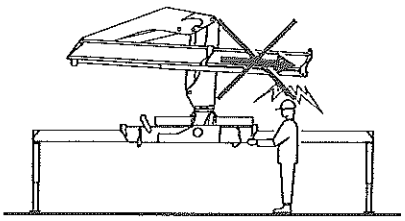
Danger! If the crane is unfolded from the wrong operator station the boom causes acute danger to the operator's life.

Unfold the crane from the operator station opposite the boom support.



Danger! Extending the extension booms before the main boom is in nearly vertical position causes acute risk of fatality for the operator.

Only extend the extension booms when the main boom has been raised to a near-vertical position. Refer to ***"Unfolding the crane"***.



Remote control

Danger! When the operator is in the folding/unfolding area of the crane there is an acute risk of fatal injury.

- Choose a position outside the danger zone of the crane.

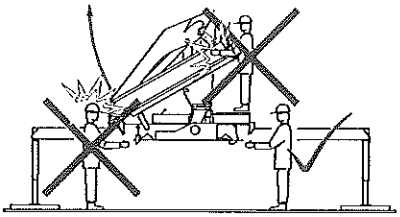
Top seat

Move the boom into working position from the top seat.

High stand

Danger! There is an acute risk of fatal injury because of the lowering or slewing boom system.

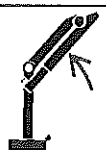
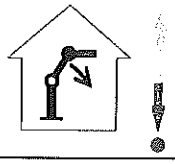
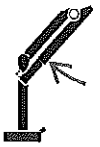
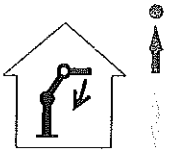
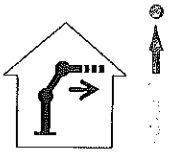
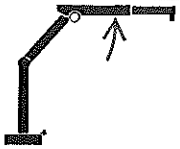
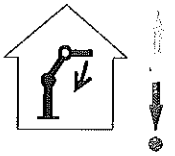
Unfold the crane from the ground operator station opposite the boom support.



Unfolding the crane

Danger! There is acute danger to life for operators and others, and device and auxiliary components may get damaged if the steps are not carried out in the given order.

Always carry out the steps in the correct order.

		Lift the main boom 60° to 70° (if equipped with fly jib 70° to 80°).
		Fold the outer boom completely.
		Move extension boom out of suspension eye.
		Unfold the outer boom.

- The crane is ready for operation.

For cranes with fly jib system refer to the fly jib operating instructions.

For attachment of ancillary equipment (rope winch, grab, etc.) see chapter 6.

Daily function check of control systems

Carry out the function check without load and with all extension booms retracted.

Emergency cut-off function check

Danger! If the crane doesn't stop after pressing the emergency cut-off button or if other crane movements are still possible there is acute danger to life.

Working with a defective emergency cut-off button is grossly negligent. Do not operate the crane and contact a PALFINGER service partner.

- Operate any crane function. The crane must move perfectly in all directions.
- Press the emergency cut-off button while the crane is moving. The crane must come to a stop.
- Again, operate any crane function.
  The crane must not move.
- Release the emergency cut-off button; The crane should move perfectly in all directions.

Refer also to ***chapter 5, "Emergency cut-off button"***.

Paltronic 50 Function Check

Danger! If the overload protection system doesn't respond, continuing to operate the crane creates an acute danger to life.

Operating a crane with defective overload protection system is grossly negligent. Do not operate the crane and contact a PALFINGER service partner.

For checking the Paltronic 50 function it is necessary to simulate an overload situation (see also OLP function).

- Raise the main boom completely at a medium speed.
- When it is completely raised, continue pressing the operating lever and watch the capacity indicator.

The system should report a (simulated) overlaod situation. All crane movements that may increase the load moment must be inoperable.

- Press the OLP button.
- Lower the main boom.

The crane is ready for operation.

OSK function check

Danger! If the overload protection system doesn't respond, continuing to operate the crane creates an acute danger to life.

Operating a crane with defective overload protection system is grossly negligent. Do not operate the crane and contact a PALFINGER service partner.

For checking the OSK function it is necessary to simulate an overload situation (refer to OSK overload protection system)

- Raise the main boom completely at a medium speed.

Push all hand levers that increase the load moment back into neutral position.

The following crane movements should then be blocked:

Main boom	Lower
Outer boom	Lift/lower
Extension boom	Extend

- Press the lever Retract extension booms and . .
- . . . lower the main boom until the levers (operating levers) are released.

The crane is ready for operation.

CHAPTER 8

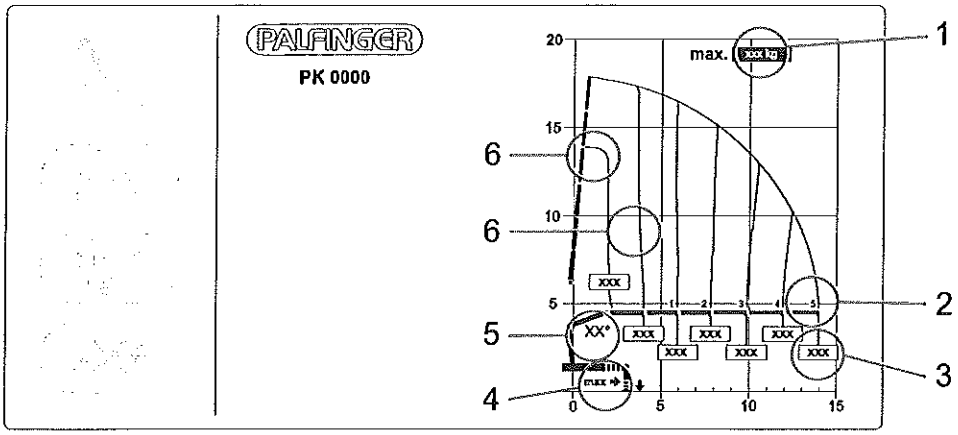
Crane operation

In this chapter

Load limits

Danger! Exceeding the permissible ranges, load capacities and/or maximum load may affect the vehicle stability and/or cause the crane components to break; it is therefore prohibited. This represents an acute danger to life for the operator and others.

Load capacity label:



1. Maximum load capacity of the crane.
2. Number of extended extension booms.
3. Maximum load capacities at the respective ranges.
4. Note: Displayed loads only with fully deployed crane supports.
5. Optimum boom position.
6. Operating range limit for specified load.

For load capacity chart refer to chapter 13, "Technical Description".

If required by national regulations and laws the installer should enclose load capacity charts for additional load ranges (stability control) in chapter 13.

Working position of the crane

Load capacity, component wear, and working life of the crane are among others dependent on the working position.

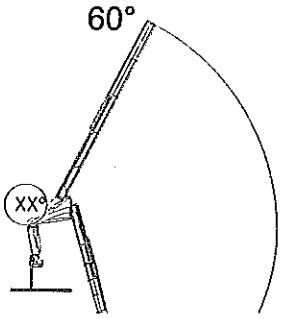
In adverse working positions:

- the bearings, joints and crane components are under higher stress and therefore wear out quicker;
- the specified load may not be reached;
- the component wear increases.

The crane must always be in an optimum working position for the task at hand.

Working range

Optimum working range:



XX° = optimum angle of main boom (between 15° and 30°, dependent on crane type).

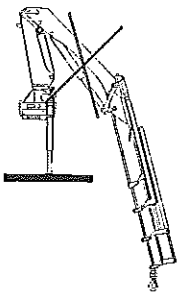
Refer to load capacity chart attached to the crane.

The optimum angle is reached when the lift cylinder is vertical to the main boom or the linkage system (depending on the crane model).

Lower range limit:

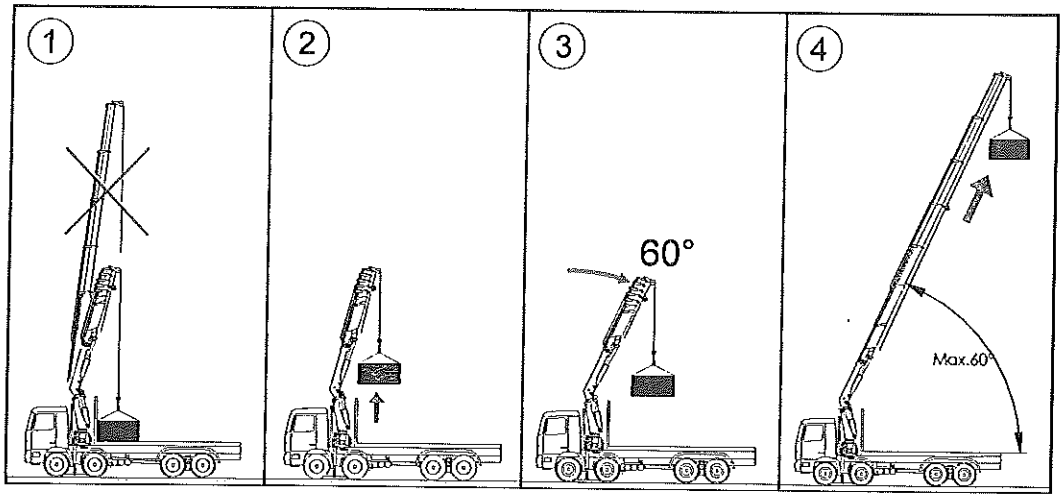
DANGER **Danger!** Any working position with main boom completely lowered is prohibited. In this position the crane may be overloaded. Consequently the load may fall down. This creates an acute risk of fatality for the operator and others.

Avoid to position the main boom near the lower limit stop. If the main boom is completely lowered, the overload protection system is unable to act. Always use the outer boom to carry out work in this range.



Load handling close to the crane using rope winch or long lifting gear

- Lift the load with the extension booms as far as possible retracted (1, 2).
- Lower the load arm to 60°.
- If necessary extend the hydraulic extension booms.



Upper limit range:

Boom system between 60° and 80°

- Working with boom system higher than 60° is only allowed when the outrigger beams are fully extended.

DANGER **Danger! At a boom position higher than 60°**

- abrupt crane movements;
- overstretching of outer boom or fly jib boom

can lead to excessive deflection of the boom system (to side and/or rear).

Consequently the load may fall down. This creates an acute risk of fatality for the operator and others.

When working above 60°, pay particular attention to the stated load limits.

Increasing the lift angle and height may result in side loading of the boom system. The overload protection system is unable to monitor this type of loading.

Therefore pay particular attention to

- working within the range shown in the load capacity chart;
- not overstretching the outer boom and/or fly jib;
- smooth crane operation.

Boom position higher than 80°:

DANGER **Danger! At a boom position higher than 80°side loading and/or backwards loading may occur because of outer boom being overstretched. Consequently the load may fall down. This creates an acute risk of fatality for the operator and others.**

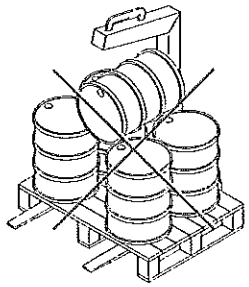
Working with loads in an operating range over 80° is prohibited.

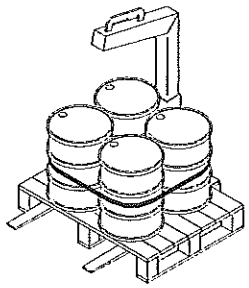
Refer also to chapter 5, "Steep position monitoring" and "Geometry monitoring".

Loads

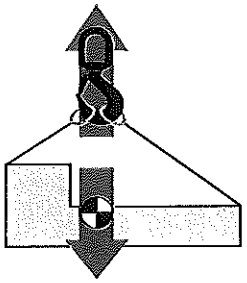
Before loading/unloading

- Observe special instructions about load handling and/or lifting gear (e.g. lifting points, center of gravity, orientation, etc.)
- Secure the load.





- The weight of the load must be known. If information about the weight is not available, it has to be calculated or estimated.
- Make sure the load is free to move and not anchored, iced or otherwise attached to the ground.
- Before lifting, remove ice or snow from the load. Wet or icy loads may slip off.
- Lift the load only above its center of gravity.



Working with loads

Danger! There is acute danger to life for operators and others in the entire working range of the crane.

- Notes in chapter 7 "Working range" shall be observed.
- Every time before moving the crane, make sure that there are no persons in the working range of the crane.
- Stop moving the crane immediately when a person steps into the working range. Restart crane operation only after all persons have left the working range.

Local regulations regarding loading crane operation shall be observed.

All safety notes of chapter 2 shall be observed.

- Before starting to work with the crane the operator has to plan the operation (lift plan).
- Any assistants, signallers and bystanders must be informed about the planned operation.
- The operator must have full view of the crane, the load and their paths at all times.
- If any part of the crane or load path is out of the operator's view it is necessary to involve a signaller.
- Working with a signaller:
  - Operator and signaller must be familiar with locally understood signals.
  - The signaller must be clearly identified. Only one signaller can give signals at a time to the operator.
- The operator must not be otherwise occupied while operating the crane (e.g. making phone calls, . . .).
- In the case of remote control operation the operator is not allowed to give the handset away.
- It may become necessary to relocate or retract the stabilizer cylinders to prevent overloading the stabilizers during loading/unloading. Relocating the stabilizers is only allowed:
  - Without load.
  - With extension booms retracted.
  - With the load arm secured on the vehicle platform or in transport position.

Attaching / detaching loads

- Position the boom as required. Stop the crane movements.

DANGER **Danger! When the load is attached or detached by the operator while the crane is still in operation this creates**

- through unauthorized crane operation,
- by unintended actuation of control equipment on the operator station or handset of the remote control

acute danger to life for the operator and others.

Load attached/detached by assistants:

- Assistant may enter the crane's danger zone only after the operator has given permission.
- Attach/detach the loads with permission from the operator only when the crane has stopped completely.
- The assistant must leave the working area when attaching/detaching is completed.

After the assistant has left the danger zone, crane movements may be carried out again.

Load attached/detached by the operator:

In order to attach or detach the load, the operator may need to enter the working area.

- Turn off the crane on the crane at the respective operator station.
- Attach / detach the load.
- Exit the working area.
- Turn on the crane.

Lifting/moving loads

WARNING **Warning! If loads, load lifting gear or ancillary equipment contact the boom system they may be damaged.**

Load, load lifting gear or ancillary equipment must not contact the boom system. Minimum distance between all crane components and load 0.5m.

Danger! If controls are unintentionally operated with the load and/or crane components, there is an acute risk of fatal injury to the operator and others.

During all crane operations, maintain an adequate distance between the load, crane components and controls.

Danger! Abrupt crane movements can make the load swing. Consequently the load may fall down. This creates an acute risk of fatality for the operator and others.

Carry out all crane movements smoothly.

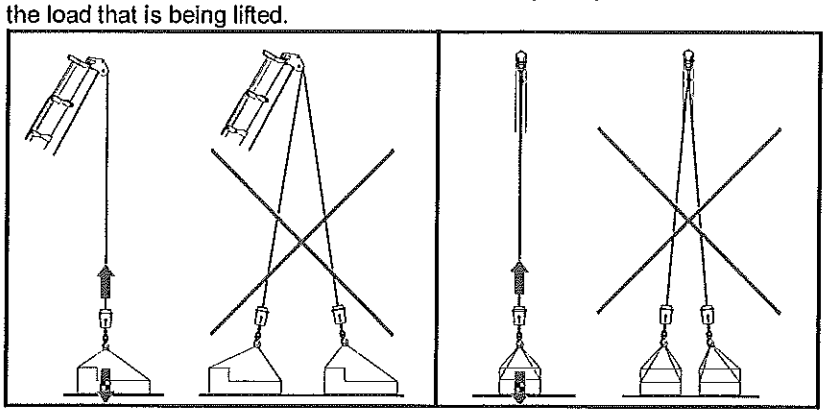
- Grasp the operating lever of the crane function firmly.
- Press the lever slowly until the crane responds.
- Monitor the overload capacity indicator (refer to chapter 5, "Overload display").
- If the yellow range is reached, reduce the working speed.
- Lift the load a little and check whether it is correctly attached and stays in the intended position.

Danger! If loads are not lifted from directly below the pulley head in rope winch operation:

- the load may swing uncontrollably;
- the rope, the pulley head and the pulley can be damaged;
- the rope may run out off the roller of the pulley head;
- the rope may break;

The load may fall down. There is then an acute risk of fatality for the operator and others.

- If a rope winch is used, the pulley head must always be positioned above the centre of gravity of the load that is being lifted.



- Move the lifted load so that it does not swing.
- When the load turns or swings:
  - Crane movements are not allowed until the load has stopped moving.
- Load/boom system must not hit any obstacles.
- Moving the lever further will cause the crane to move faster.

DANGER **Danger!** Operating crane functions at full working speed to the cylinder stop:

- increases the wear of components and reduces the life of the crane;
- the load may fall down.

This creates an acute risk of fatality for the operator and others.

- It is prohibited to operate crane functions (with/without load) at full speed to the cylinder stop.

DANGER **Danger! Releasing the operating levers suddenly can cause the load to swing uncontrollably. Consequently the load may fall down. This creates an acute risk of fatality for the operator and others.**

- Finish crane movements slowly and smoothly by releasing the operating levers carefully.
- It is possible to operate several crane functions at a time.
  This may reduce the speed of the already actuated crane movements.

WARNING **Warning! If several crane functions are used at a time and one or more are stopped, the remaining active function(s) may increase in speed.**

- If crane functions are used simultaneously (combined crane movements create a different load path), reduce the speed of the individual functions accordingly.

In case of emergency

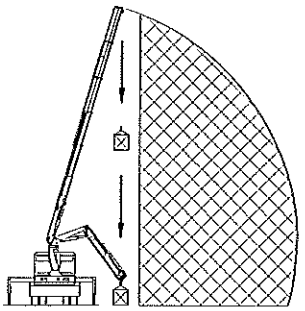
In case of emergency stop all crane movements immediately (refer to chapter 5, ***"Emergency cut-off button"***).

Lowering the load

DANGER **Danger! In cranes without overload protection system, the load lowers uncontrollably when the permissible load moment is exceeded.**

Refer to chapter 5, "Capacity indicator".

Don't increase the outreach when lowering the load.



If you increase the outreach when lowering the load, the load may lower uncontrollably.

Monitor the capacity indicator.

Landing the load

- The landing area must be free of obstacles.
- Don't land the load on ice or snow.
- Don't land the load on drop offs, bumps, slopes, holes, ditches, etc.
- Land the load only on solid level ground; if necessary use suitable blocks or boards.
- When the load is put down, the load on the main boom must not be relieved suddenly.

Warning! If the load on the main boom is relieved suddenly, bulk materials are emptied quickly (grab application) or the load is put down quickly with the cable winch, the main boom may snap upwards. Always put loads down slowly.

- Before detaching the load lifting gear make sure the load sits properly and stable.

Work interruptions

If it is necessary to leave the crane unattended:

- Land the load.
- Secure the boom system.
- Turn off the crane.
- Secure the crane against unauthorized use.

Resuming work

- If crane has been left unattended, check whether the crane has been tampered with before resuming crane operation. Ensure secure crane operation.

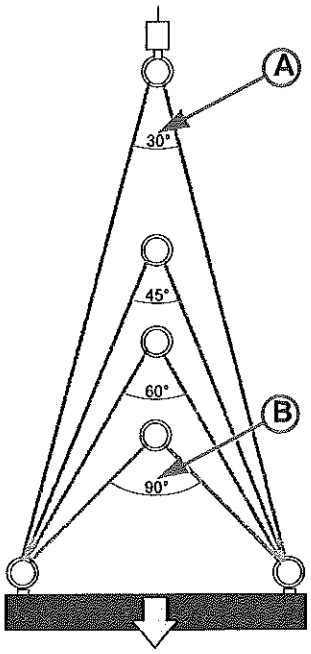
If the crane has been tampered with by unauthorized persons:

- (Refer to chapter 7 "Preparing for crane operation"). Carry out all function checks described in chapter 7.

In devices with remote control it is additionally necessary to:

- check that the appropriate device control panel (control handset) is used (as indicated) before resuming crane operation.

Loading of the rope



Moving a load at the lower angle (A) places less load on the rope than moving it at the larger angle (B). This protects the rope.

Higher load on the rope (B) puts strain on the rope and causes quicker wear.

CHAPTER 9

Ending operation

In this chapter

Folding the crane into transport position

All safety notes of chapter 2 shall be observed.

Prerequisites for folding the crane

- Extension booms are retracted, pinned and secured.
- No bystanders or obstacles are in the movement range of the crane.
- Ancillary equipment is secured or removed and securely stored, refer to chapter 6.
- Lift the main boom 60° to 70° (if equipped with fly jib 70° to 80°, refer to fly jib operating instructions, section 'Moving the crane with fly jib in transport position').

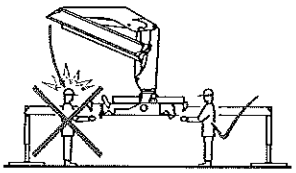
The operator must have full view of all crane movements.

Fold the crane in transport position always from the ground operator station opposite the boom support.

Ground control

Danger! If the crane is being folded from the wrong operator station the boom causes acute danger to the operator's life.

Fold in the crane from the operator station opposite the boom support.



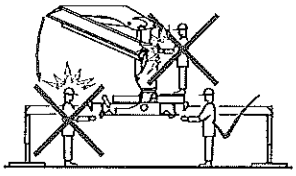
Top seat

Fold the crane from the top seat.

High stand

Danger!There is an acute risk of fatal injury because of the lowering or slewing boom system.

Fold in the crane from the operator station opposite the boom support.



Crane with remote control

Danger! When the operator is in the folding/unfolding area of the crane there is an acute risk of fatal injury.

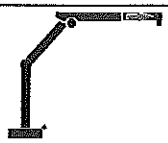
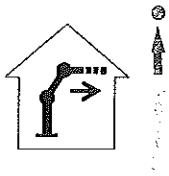
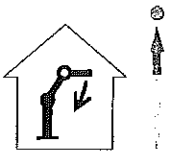
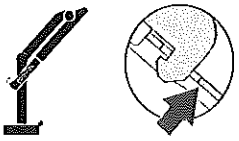
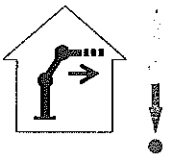
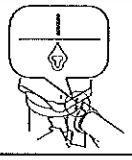
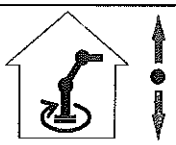
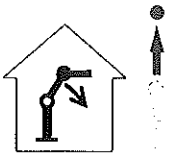
- Choose a position outside the danger zone of the crane.

Note! Starting position to fold the crane: Lift the main boom 60° to 70° (if equipped with fly jib 70° to 80°), outer boom is horizontal, extension booms retracted.

Danger! There is acute danger to life for operators and others, and device and auxiliary components may get damaged if the steps are not carried out in the given order.

Always carry out the steps in the correct order.

Folding the crane

		Extend the extension booms about 50 cm (20").
		Fold the outer boom completely.
		Retract the hydraulic extension booms The suspension eye on the first extension boom must be above the catch.
		Slew the crane until the folding arrow and the mark on the crane column and the base are aligned (set-down position).
		Lower the main boom. The boom system rests in the intended support on the base.

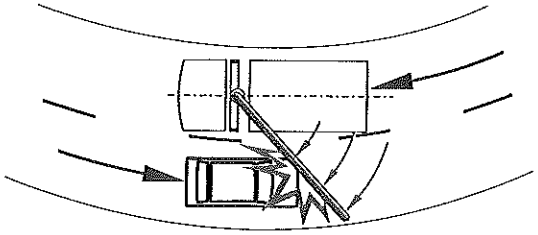
For cranes with fly jib refer to the operating instructions for the fly jib.

For cranes with rope winch see chapter 6, "Rope winch".

Resting the boom on the vehicle platform or boom support

Danger! If the boom system is not secured against any side movements this creates an acute danger to life of all road users.
Not knowing the vehicle's total height and not observing the clearance heights creates an acute risk of fatal injury.

Secure the boom system sufficiently against side movements.



When the boom rests on the vehicle platform the vehicle's total height may change.

Information! If the crane is equipped with a transport position indicator, monitor the signal.

Retracting the stabilizers

Danger! If the load arm is not in transport position while retracting the supports the vehicle may tip over. This creates an acute risk of fatal injury.

Retract the supports only when the boom system is in transport position.

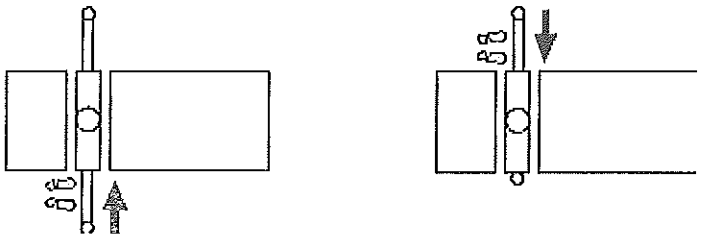
If the vehicle is equipped with additional supports, they also must be retracted.

All safety notes of chapter 2 shall be observed.

Danger! If the movement ranges of the supports are not completely in view of the operator there is an acute risk of accident and danger to life.

When retracting the stabilizer outriggers and cylinders choose an operating station from where you may view the complete support movement range. Always keep moving supports in view. No persons and objects are allowed to be in the movement area of the outrigger beam / stabilizer cylinders.

The outrigger beams and stabilizer cylinders need to be operated separately on both sides. Change the operating station.



Danger! Incompletely retracted and/or unsecured stabilizer cylinders and outrigger beams create an acute risk of fatality for the operator and others.

Inadequate or lack of securing of stabilizer cylinders and/or outrigger beams is prohibited. There is an acute risk of fatality for the operator and others.

Always retract the stabilizer cylinders completely.

Tilt all tiltable stabilizer cylinders and lock and secure them properly.

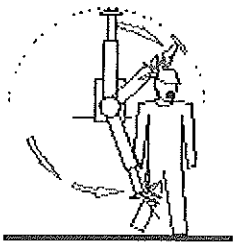
Danger! If the tiltable stabilizers are not locked while the support outriggers are being moved in, they start tilting up.

- If you don't keep a sufficiently safe distance to the supports while controlling them,
- if the operator, others or objects are in the slew range of the stabilizer cylinder,

there is a high risk of injury or even fatality for the operator and others.

- Tiltable stabilizers MUST be locked while the stabilizer outriggers are being moved in.
- The safety distance must be observed.

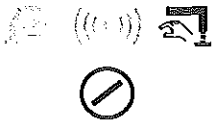
Neither the operator nor bystanders are allowed to step in the slew range of the stabilizer cylinder.



Push in all manual outrigger beams completely, lock and secure them.

Retract the hydraulic outrigger beams completely.

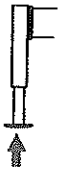
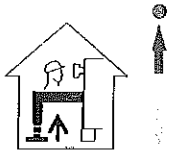
If your crane is equipped with stability control or remote control, set the key switch to support operation (exception with remote controlled stabilizer outrigger beams).



The key position illustrated here is an example and may differ depending on crane model.

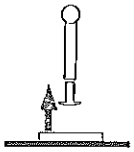
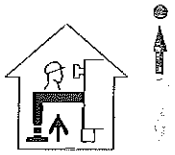
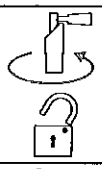
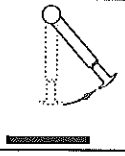
Stabilizer cylinder

Rigid

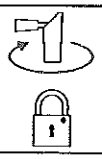
		Retract the stabilizer cylinders completely.

Manually tiltable

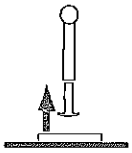
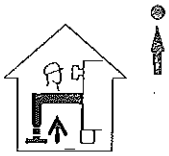
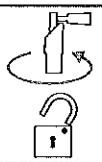
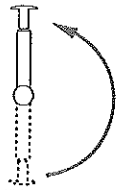
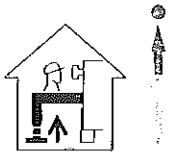
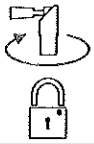
Retract the tiltable stabilizer cylinders in transport position:

		Retract the stabilizer cylinders completely.
		Open latch lever of stabilizer cylinder.
		Pivot stabilizer cylinder into transport position.

When the stabilizer cylinder is in transport position:

		Close latch lever and make sure it is in the locked position.

Hydraulically tiltable

		Retract the stabilizer cylinders until the outrigger beams are unloaded.
		Open latch lever of stabilizer cylinder.
		Operate the function "Retract stabilizer cylinder" and tilt the cylinder up carefully and slowly.
		Close latch lever and make sure it is in the locked position.

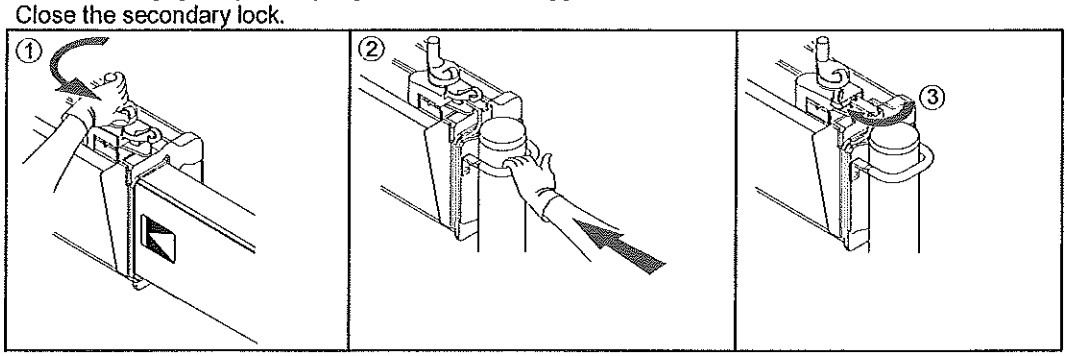
Stow supporting pads away in the correct way.

Stabilizer outrigger

Pushing in manually

Stabilizer cylinders must be completely retracted and in transport position.

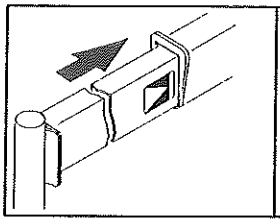
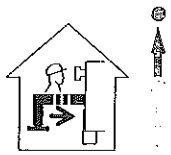
1. Turn the primary lock handle to the stop.
2. Push the outrigger beam completely in; until the primary lock engages. Check whether the safety catch has engaged by attempting to move the outrigger beam in and out.
3. Close the secondary lock.



Danger! An unlocked outrigger beam creates a high risk of accident and danger to life.

4. Check whether the beam locks have engaged properly by attempting to move the outrigger beams in and out.

Retracting hydraulically

		Retract the outrigger beams completely.

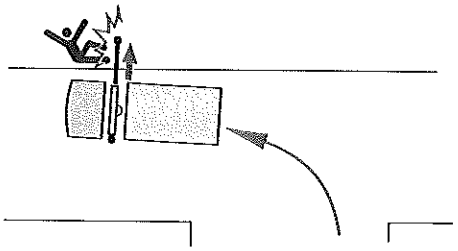
After finishing all crane movements

- Turn off the crane.
- Secure the crane against unauthorized use.

Before driving

Danger! Incompletely retracted stabilizer cylinders create an acute risk of fatality for the operator and others.

Starting to drive without securing the crane and supports properly is prohibited.



Therefore every time before starting to drive check that:

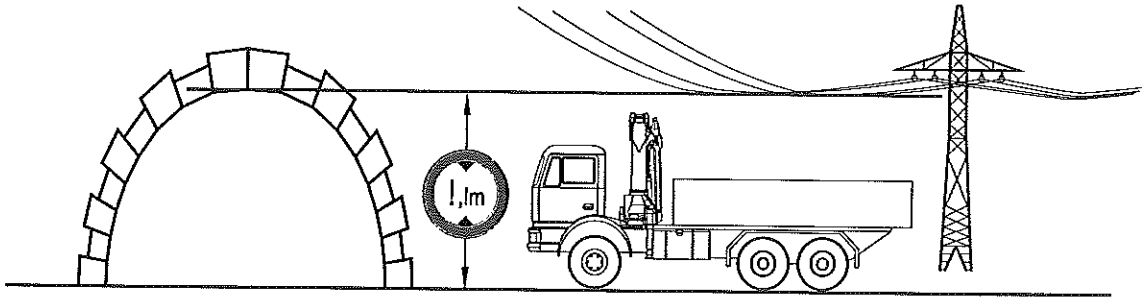
- the crane has not been tampered with by unauthorized persons;
- the outrigger beams and stabilizer cylinders are completely retracted and properly secured;
- the crane (hydraulic pump) is off;
- the crane is secured for transport and side movement is not possible.

Danger! Any winch components, load fixing gear, etc. protruding over the vehicle width create an acute danger of accident and danger of life.

- Remove any winch components, load lifting gear, lifting devices, ancillary equipment, etc. that protrude over the vehicle width in transport position or are loose or unsecured and store them before starting to drive.
- The load must be properly secured according to the local regulations and laws.

The driver must know the total height, total width, axle loads and gross vehicle weight (including crane, ancillary equipment and load) and act accordingly (refer to chapter 5 "Monitoring the transport position").

Information! If the crane is equipped with a transport position indicator, monitor the signal.



CHAPTER 10

Maintenance

In this chapter

General

Reliability, safety and service life of an equipment item are extremely dependent on maintenance and servicing. Maintenance and service are therefore not a recommendation - the company operating the equipment must carry out the work (or have it carried out by a third party).

The company operating the equipment must ensure that all maintenance work is carried out in compliance with these operating instructions and national law.

No costs will be accepted by PALFINGER for damage to the equipment or accidents caused by failure to carry out maintenance work or service work properly, or by non-compliance with national law.

When replacing device components during repair or warranty use exclusively PALFINGER spare parts. Any damages to the device or accidents because of different parts are not covered by the liability of PALFINGER.

Information! Absolutely comply with the PALFINGER maintenance guidelines and intervals. Non-compliance results in loss of any warranty and liability.

	Arranged by	Executed by
Maintenance	Operating company	Operating company / operator / PALFINGER partner
Service	Operating company	PALFINGER partner

Refer also to chapter 2 "Safety for individuals".

Information! Use the consumables recommended by PALFINGER. PALFINGER will not assume liability for any damages caused by applying wrong consumables.

Use only original PALFINGER lubricants or lubricants that correspond with the lubricant specification given in this chapter.

Replacing hydraulic components

WARNING **Warning!** Despite pressure relief in the hydraulic system there might still be residual pressure. While opening the hydraulic system there is danger to the operator and others due to the residual pressure and/or hot hydraulic oil.

If it is necessary to replace hydraulic components contact your PALFINGER service center.

Relieving the pressure of the hydraulic system:

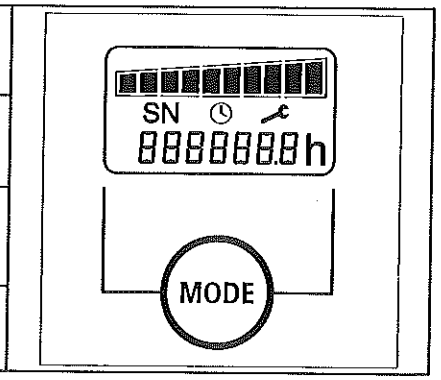
- The unit must be switched off and the lower supply disconnected.
- Operate all operating levers in both switching positions several times.

The pressure in the hydraulic system is relieved apart from possible residual pressure.

Operating hours counter

The operating hours counter has three display modes with one mode selection button.

	Total operating hours.
	Operating hours until next service.
SN	Serial number of unit.
	"Mode" selection button.

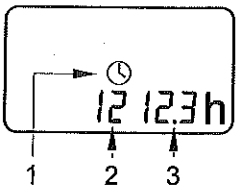


When turning the crane on the counter starts. The last used mode is displayed.

Pressing the MODE button changes between "Total operating hours" to "Operating hours until next service". By pressing and holding the MODE button for longer than 5 seconds, the serial number is displayed.

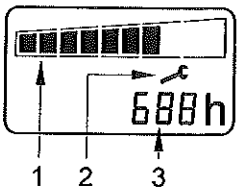
Mode - Total operating hours

Is indicated by the clock symbol (1) and shows the total operating hours (2) of the unit.
When the hour counter is counting, the decimal point (3) flashes.



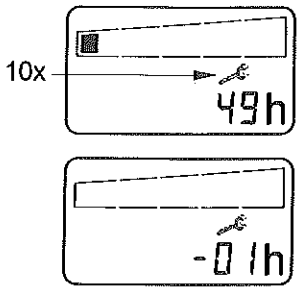
Mode - Operating hours until next service.

Is indicated by the wrench symbol (2).
A service interval has 1000 hours. The hour counter counts down from 1000.
The operating hours until the next service are shown in a bar graph with ten segments (1) and as remaining hours (3).



Wrench symbol:

- Flashes ten times when turning the crane on, if the time until next service is less than 50 hours.
- Flashes permanently when turning the crane on if the service interval has expired. The counter counts up from 0 with a minus (-) sign, showing the exceeded service time.



After servicing the PALFINGER service center resets the service interval to 1000 hours.

Maintenance

Maintenance and servicing recommendations in these operating instructions are of general nature and apply to several PALFINGER products.

Maintenance has to be carried out after every 50 operating hours. However, the maintenance intervals depend also on application, duty cycle and environmental conditions. Road salt, sand, etc. are especially aggressive and speed up corrosion and wear. Therefore maintenance may be required in even shorter intervals.

Maintenance and service may only be carried out while the unit is out of operation (hydraulic and electric power turned off).

Correct order of maintenance tasks

1. Clean the unit thoroughly.
2. Visual inspection.
3. Lubricate the unit.

Information! Have only qualified personnel carry out maintenance.

Cleaning

Information! Thorough cleaning increases the reliability and the service life of the unit.

Use only environmentally friendly, pH neutral and skin-friendly cleaning agents. This protects the environment and avoids oxidations on the unit.

Clean the device only in suitable places (oil separator).

Do not use abrasive rags, brushes, etc.

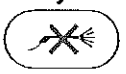
Cleaning procedure

Warning! Wet or damp electric parts may cause short circuits in the electronic system or other malfunctions of the unit.

Carry out cleaning work only when the unit is turned off.

Using high-pressure cleaning equipment:

Warning! Failure to comply with the following steps may result in damage to the unit.

- The operating instructions of the high-pressure cleaning equipment shall be observed.
- Never exceed the water temperature / cleaning agent temperature of 60° C.
- Always ensure that there is sufficient distance between the nozzle and the unit.
-  Never point the water jet directly at:
  - electric and electronic parts (water penetration);
  - plastic parts (deformation, breakage);
  - bearings or bearing points (forces dirt into and lubricant out of the bearing);
  - signs (can become detached or unrecognizable).

Visual inspection

Danger! Missing equipment, damage, cracks on crane components, ancillary equipment or load lifting gear creates an acute risk of fatality to the operator and others.

Information! Determine the cause of any damage to prevent reoccurrence.
Replace any missing, worn out or damaged components immediately.

Check the crane and its attached parts as follows: 

Fasteners and other hardware

- Check completeness and function of bolts, screws, pins and locking devices; check pins for any deformation and sufficient security (e. g. linch pins).
- Tighten any loose bolts/nuts to appropriate torque specification. Contact a PALFINGER partner for additional information as needed.

Immediately replace any missing or inoperative hardware.

Steel parts

- Cracks on components, specifically on welds and bending edges;
- Deformations;
- Corrosion;

Hydraulic system

- Entire hydraulic system (fittings, pipes, hoses, valves, cylinders, etc.) for leaking or loose connections;
- Hydraulic pipes for deformations and cracks;
- Hoses for cuts, abrasions, cracks, porosity, etc.;
- Cable/hose protection for incompleteness and damage, etc.;
- Hydraulic fluid level (unsupported and in transport position);
- Absence of load-holding valve seals.

Electric system

- Cables for cuts, abrasions, cracks, etc.;
- Cable/hose protection for incompleteness and damage, etc.;
- Sockets, switches, display elements, sensors for improper attachment, damage, etc.

Rope winch components

Refer also to chapter 13, "Technical Description".

- Intermediate rollers for completeness and correct attachment.
- Pulley head, lower load block for functionality and correct attachment.
- All rope pulleys for damage, ease of movement and wear.

Visual inspection of rope

Refer also to chapter 6, "Rope winch".

Danger! Damaged ropes can break during rope winch operation. There is an acute danger of accident.

Unwind the rope while keeping it tight and check for:

- Contamination;
- Insufficient lubrication;
- Corrosion;
- Damaged rope clamps;
- Broken strands, broken wires, grinding points, abrasion, bird caging, constrictions, necking, kinks etc.

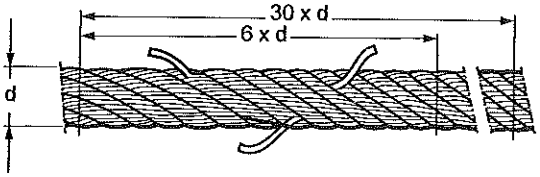
Rope discarding:

If a rope is so damaged that it can be no longer used it must be discarded.

The rope must be discarded if a defined number of broken wires can be detected in the outer braid strands.

Check the rope in the location where the most damage has occurred.

Controlled length	Number of visible wire breaks
6 x rope diameter	5
30 x rope diameter	10



In the case of permanent deformations such as worn or flat spots, bird caging, kinks, necking (rope diameter reduced by more than 10%), etc. the rope must also be discarded.

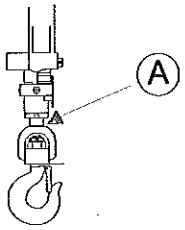
Rewind the rope under tension.

Labels

Check for legibility and completeness.

Check the load lifting gear

- Hooks for cracks, deformations and wear.
- Sensor unit of manual extension booms for cracks, deformation, leaks and wear. Mark (A) must not be visible.
- Safety latch for proper function.



Check of control equipment

Refer to ***"Daily function check of the control systems" chapter 7.***

Machine lubrication

Lubricant specification

Information! PALFINGER recommends using biodegradable grease. Do not mix incompatible lubricants.

Even biodegradable grease must not be released into the environment.

Lubricants must be free of solids. Do not use graphite lubricant.

WARNING **Warning!** Use of incorrect lubricants, failure to follow maintenance intervals or lack of lubrication may cause damage to the unit and increase repair cost and downtime.

Grease:
Available from most PALFINGER partners according to national guidelines under
Order no. EZ982 – 5 kg (11 lbs.) can
Order no. EZ1432 – 50 kg (110 lbs.) barrel

Technical data		Tested according to
Structure	smooth	
Consistency (NLGI)	2	DIN 51818
Indication code	KP2K-35	DIN 51502
Dropping point °C	150	ISO 2176
Worked penetration	265/295 1/10 mm	ISO 2137
Oxidation stability 100h/100°C	max. 0.2bar	DIN 51808
Basic oil viscosity at 40° C	> 80 mm²/s	
Behaviour in water	Assessment level 0/90	DIN 51807-1

Teflon® spray:
Available from most PALFINGER partners according to national guidelines under
Order no. EZ2807

Information! The extension booms are maintenance free. If unexpected problems occur during operation such as chatter or creaking, use only **PALFINGER** Teflon® spray on the slide surfaces.

Rope grease:
Available from most PALFINGER partners according to national guidelines under
Order no. W100084145

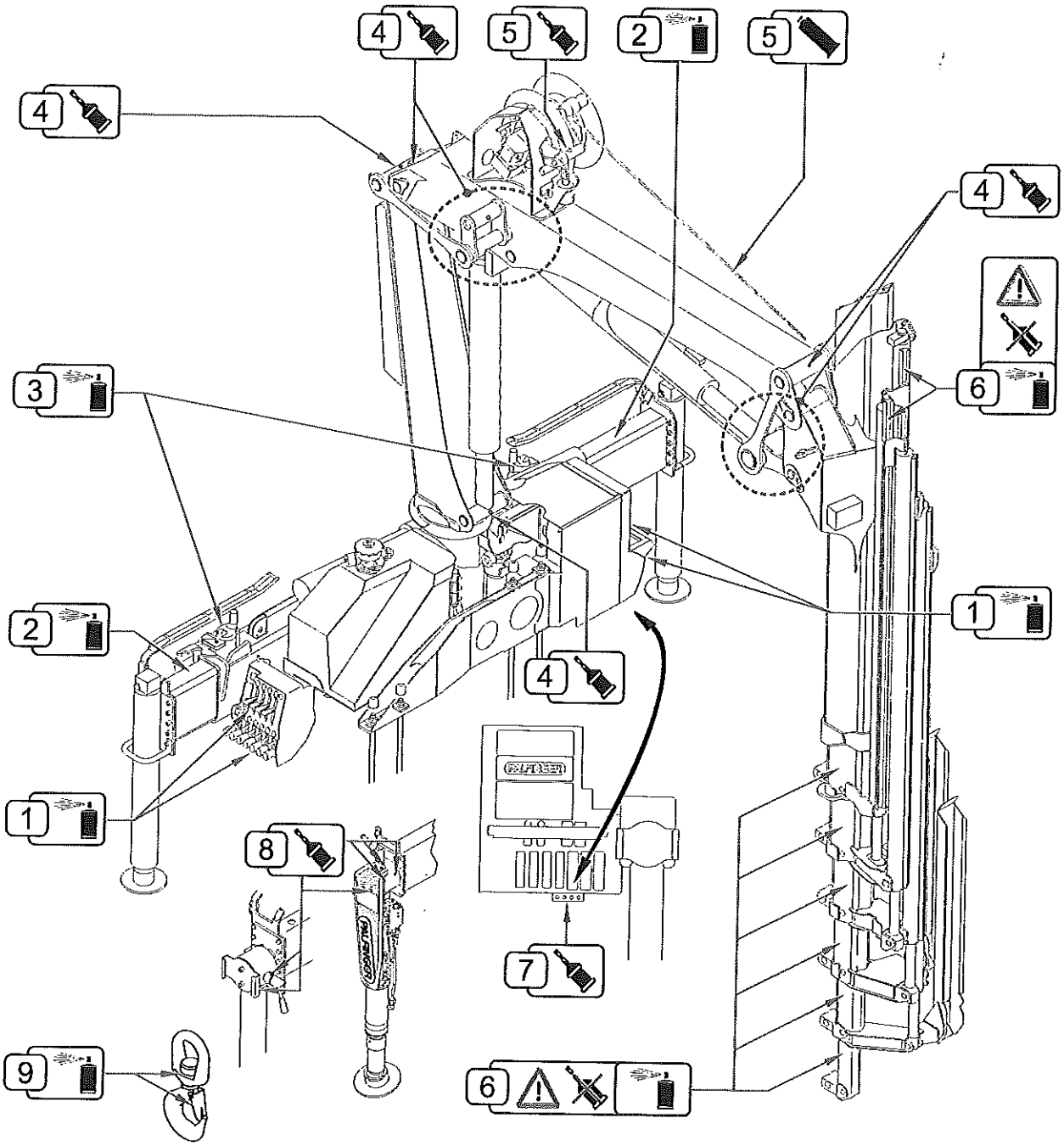
Maintenance symbols

Rope grease	
Teflon® spray	
Grease	
Greasing prohibited(*)	

The illustrated crane is an example and shows components which may be optional on your unit, depending on model and version.

1 Operating levers, control rods.
2 Outrigger beam slide surface.
3 Interlock.
4 Pin bushings.
5 Rope winch (end layer limiting pivot arm, rope).
6 Jordal rails, hydraulic extension booms, extensions.*
7 Crane column bearing, slewing rack.
8 Tiltable stabilizer cylinder pivot, cam lock.
9 Hook.

(*) Lubrication points indicated by this symbol must never be lubricated with grease; this may worsen the slip and antifriction properties. If lubricating is necessary (chattering, creaking), only use PALFINGER or PALFINGER approved Teflon® spray.


4
5
2
5
4
3
6
2
1
4
1
8
7
9
6

Lubrication

DANGER **Danger! Unintended crane movement during lubrication creates an acute risk of fatality for the operator and others.**

Therefore turn off the crane every time before lubricating.

Grease nipples must take grease easily. Replace any damaged or seized grease nipples. If it is impossible to press in grease even after replacing the nipple, contact your PALFINGER partner.

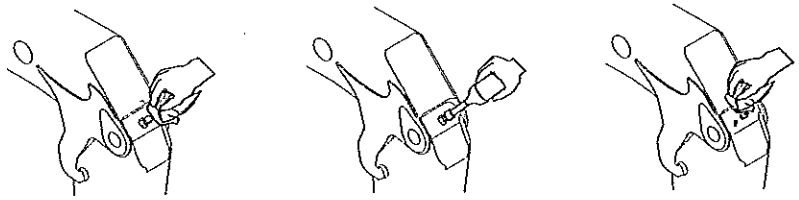
Lubricating:

WARNING **Warning! Dirt in the bearing may cause damage to the unit and increase repair cost and downtime.**

- Remove all old, dirty grease and other contamination from the lubricating point. Otherwise dirt in old grease will be pressed into the bearing point.
- Press the grease into the bearing point.
- Move the components. This distributes the grease in the bearing.
- Press more grease into the grease nipple.
- Repeat this until fresh grease begins to come out of the bearing point.

WARNING **Warning! Excess grease at lubricating points and bearing points increase the risk of accident and are a danger to the environment.**

- After lubricating remove any excess grease.
- Do not use excess grease again.
- Dispose of excess grease in accordance with the applicable national legislation!



Grease all lubricating points on the unit.

DANGER **Danger! If lubricant gets into your eyes, rinse with fresh water immediately and consult a doctor or a hospital! If lubricant comes into contact with the skin, clean surface of skin with fresh water.**

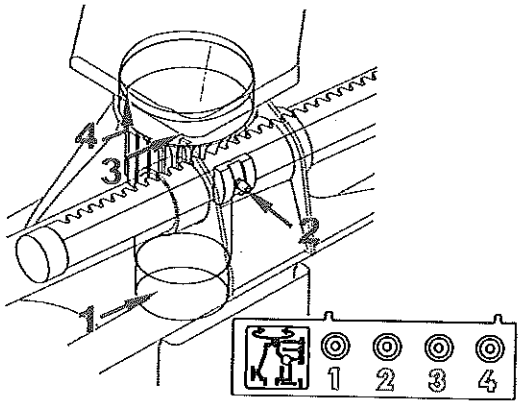
Column bearing

- Raise the main boom completely.
- Press sufficient grease in all lubrication points (1, 3, 4).
- Slew to the left and right until reaching the rotation stops.
- Press sufficient grease in all lubrication points in 60° intervals over the whole slew range, slew the crane to the left and right until grease escapes evenly round the column bearing.

Slewing rack

Information! Grease will not be visible on the slewing rack even after greasing sufficiently.

- Press in sufficient lubricant at the slewing rack (2).
- Slew the crane completely around its axis and repeat the procedure twice.



Extension system

The extension system requires no maintenance and is fitted with sliders, which have self-lubricating properties and suffer only very minor wear. Following the running in period, the extension system – if used under normal operating conditions – requires no regular lubrication. During the running in period the sliding layer builds up from the initial lubrication. It can sometimes be necessary to spray in some Palfinger Teflon® Spray to assist the build-up of this layer. It is also possible that in process blank spots may arise on the gliding surface.

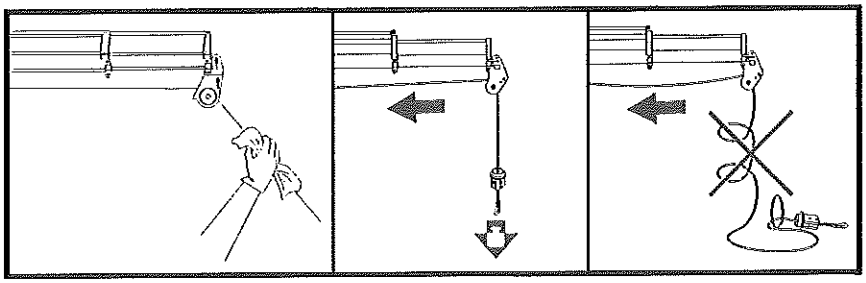
Prior to any relatively long periods of downtime, any blank spots should be protected from corrosion using Palfinger Teflon® Spray.

When being used in an abrasive or corrosive environment (spreader vehicle, heavily soiled, etc .) regular cleaning and subsequent treatment with Palfinger Teflon® Spray may be necessary.

Rope grease

Warning! Sticking out strands can cause severe hand injuries when you lubricate the rope.

Therefore always wear appropriate gloves when lubricating the rope.



- Wind off the rope while tightening it.
- Apply rope grease over the entire rope length using a cloth or brush.
- Rewind the rope under tension.

Hydraulic oil change, filter change

Hydraulic oil filter

The hydraulic system is equipped with various filters,

including:

high pressure filter, return filter and air filter (at tank).

Information! Always replace all filters together.

Initial filter change must be done after the first 50 operating hours.

Filters then must be replaced after every 1000 operating hours or once per year, whichever comes first.

Hydraulic oil change, hydraulic oil maintenance

Hydraulic oil change

Hydraulic oil needs to be changed after every 1000 operating hours or once every year.

Information! Oil maintenance on a yearly basis significantly increases the oil change intervals.

For the operating company this means cost saving and also a reduced quantity of discarded oil and therefore a less pollution.

Have oil maintenance carried out by a PALFINGER partner on a yearly basis.

Hydraulic oil maintenance

Oil maintenance includes the following actions:

- Oil filtration.
- Water separation.
- Check of oil purity.
- Change of high pressure filter.

Hydraulic oil

Note! PALFINGER recommends the use of biodegradable oil. Even biodegradable oil must not be released into the environment.

Required characteristics

Hydraulic oil	Operating temperature
Synthetic ester (biologically degradable):	approx. -30 to +80 °C (-22 °F to +176 °F)
Mineral oil (biologically degradable):	approx. -30 to +80 °C (-22 °F to +176 °F)

Use either synthetic ester (biologically degradable) or mineral oil (not biologically degradable).

The hydraulic fluid has a working range of between -30° and 80°C (-22°F and +176F), depending on the outside temperature.

The ideal operating temperature of the hydraulic fluid is between + 30 and + 60°C (+86°F and +140°F).

Always read off hydraulic fluid temperature after using the crane.

If this temperature range is exceeded frequently, please contact a PALFINGER service partner.

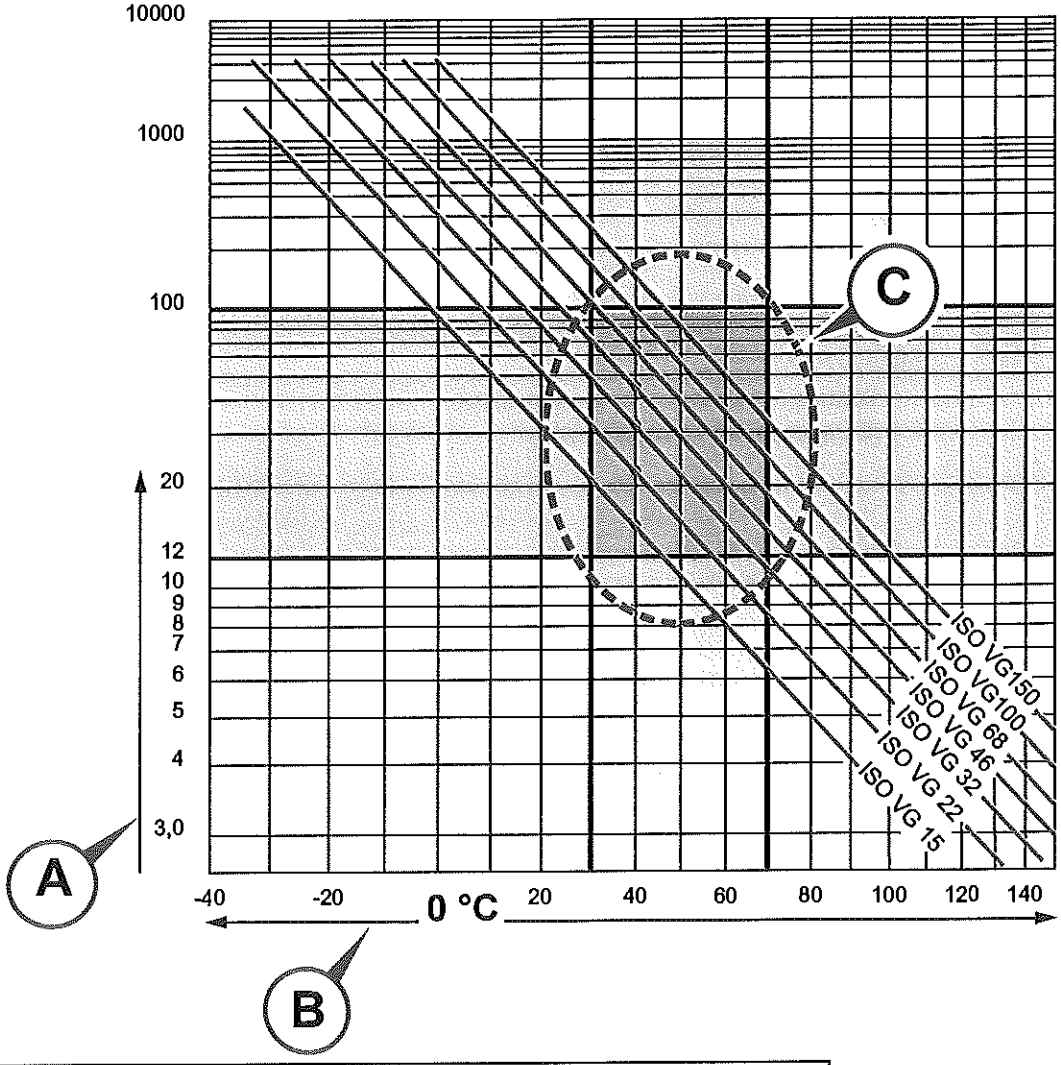
Recommended characteristics

- Favorable viscosity/temperature behavior.
- Good thermal and mechanical properties;
- Considerable ageing resistance.
- Good corrosion protection;
- Sufficient cold flow behavior.
- Good air separation capability.
- Excellent foam behavior;
- Does not attack seals and hydraulic hoses.

Limits for oil selection

Please pay attention to the temperature dependence of the viscosity when choosing an oil.

Note! Please contact the PALFINGER partner when selecting the recommended hydraulic oils and oil filters.



A	Viscosity mm²/s or cSt
B	ISO reference temperature in °Celsius
C	Recommended range

High temperature range:	10 cSt
Cold start limit:	1000 cSt
Purity class:	15/12 (in accordance with ISO 4406)

Mixing capability

Note! Hydraulic oils are not intermixable. Hydraulic oils must not be mixed with other fluids.

Reasons for not mixing different oils:

- Reduces service life.
- Mixtures of synthetic esters and mineral oils are no longer biodegradable.
- etc.

Paint repair

Information! Repair paint damage immediately. Protect the unit against corrosion.

- Prepare (grind and clean) damaged areas.
- Prime and paint damaged areas.

CHAPTER 11

Service

In this chapter

General

Information! All service work must be carried out by PALFINGER service partners. Non-compliance results in loss of any warranty and liability.

Time left until next service - refer to Operating hours counter.

The operating company must arrange a service when the operating hour counter indicates it. For further information, please refer to service manual (supplied with crane).

Keep all service records. Every service and repair must be recorded in the service manual and signed or stamped by a PALFINGER service partner.

Preparing for service:

- Clean the device (refer to 'Cleaning' in chapter 10).
- Make a visual check (refer to 'Visual inspection' in chapter 10).

Threaded fasteners

Danger! Loose, damaged or over-tightened threaded connections can break under load. This creates an acute risk of fatality to the operator and others.

Note! Tighten bolts only using a torque wrench and by applying the prescribed torque.

ISO bolt torques in Nm (ft.lbs): (not oiled or greased)		
Bolts:	DIN EN ISO 4762, 4014	
Nuts:	DIN EN ISO 4032	
Washers:	DIN EN ISO 7090	
Bolt thread:	Stability: 8.8	Stability: 10.9
M 8	23 (17)	30 (23)
M 10	46 (34)	60 (45)
M 12	79 (58)	100 (74)
M 14	125 (92)	165 (122)
M 16	195 (144)	245 (181)
M 18	280 (207)	345 (255)
M 20	390 (288)	480 (355)
M 22	525 (388)	655 (484)
M 24	660 (487)	830 (613)

Tightening torques for Bride screws in Nm (ft.lbs): (uncoated - lightly oiled) (coated - not oiled or greased)	
Bolt thread:	Stability: 8.8
M 16 x 1.5	120 (89)
Bolt thread:	Material: C40
M 20 x 1.5	140 (103)
Bolt thread:	Material: 42 Cr Mo 4v
M 20 x 1.5	210 (155)
M 24 x 1.5	450 (332)
M 30 x 1.5	900 (644)
M 33 x 1.5	1220 (890)
M 36 x 1.5	1550 (1143)
M 42 x 1.5	2500 (1844)
M 48 x 1.5	3700 (2729)

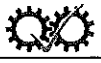
Service symbols

Functional check	
Change	
Visual inspection	
Check bolts for tightness	
Teflon® spray	
Grease	
Rope grease	

Initial servicing after 50 operating hours

Description	Activity
Oil filter package	
Slewing cylinder	
Hydraulic fluid level (unsupported and in transport position)	
Tighten hydraulic lines / hoses, screw joints	
Crane base fixing	

After every 1000 operating hours or once every year

Description	Activity
Oil filter package - hydraulic oil	
Slewing cylinder	
Crane base fixing	
Hydraulic lines / hoses, screw joints	
Rope winch limit switch	
Rope winch transmission oil	
Remote control	
All control equipment	
Central lubrication	
Ancillary equipment	
Pump performance – speed	
Operating levers, control rods	
Lifting gear	
Crane column bearing clearance: see training documentation.	

Every 6 years

Description	Activity
Hydraulic hoses	

Hook and shackle

Hook and shackle inspections done by a PALFINGER partner have to comply with national regulations and be carried out in intervals of 12 months maximum.

Danger! If hooks are used that have not been sufficiently maintained or are damaged or worn, there is an acute risk of accidents and therefore risk of fatal injury to the operators and others.

Clean the hook and shackle before inspection so that they are free of any oil, dirt and rust. All cleaning methods that do not affect the basic material are allowed.

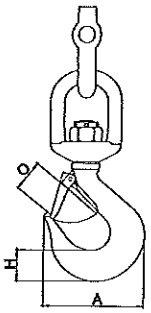
The following points must be checked at regular intervals:

- Castle nut locking feature;
- Hook block.
- Safety latch;
- Bearing

Check for:

- cuts, notches, grooves, cracks, heavy corrosion, discoloration by heat or other effects.
- Indications of hook widening, i.e. noticeable increase in mouth opening size (O) or other deformation. The increase in the mouth opening (O) must not exceed 10% of the nominal value. The safety latch must engage properly. The hook thickness H must not reduce by more than 10% of the nominal dimension.
- The relevant technical information sheet with number DTZ002 is available from PALFINGER service partners.

In the event of hook damage, deformation or wear, take the hook out of service immediately.



Protective hoses

During servicing, check protective hoses, covers etc. and replace damaged and missing parts.

Repairs

- Damages to the unit must be repaired immediately by a PALFINGER partner.
- Repairs have to be recorded in the service manual.
- If a repair is not carried out by a PALFINGER partner warranty will become void.

Lowering rate

The lowering rate must not exceed 0.2 % of the outreach per minute.

CHAPTER 12

Decommissioning and disposal

In this chapter

Decommissioning and disposal guidelines

Properly disassemble the unit.

WARNING **Warning! Improper disassembly can cause an increased danger of accident.**

- Contact your PALFINGER partner for proper disassembly of the unit.
- Disassemble the unit into single parts according to the instructions of your PALFINGER partner.

Disposal

WARNING **Warning! Clean all oily and greasy parts before disposal. Oil and grease must not be released into the environment.**

Comply with the locally applicable laws when disposing of the unit's single parts and consumables.

- Clean all oily and greasy parts.
- Dispose of the components according to their nature (steel, plastic, electric and electronic parts, etc.).
- Dispose of all consumables - even biodegradable ones - in an environmentally friendly way.
- Contact your PALFINGER partner regarding the purchase of a new unit.

Index

CHAPTER 13

Technical description

Max. Hubmoment: *Lifting moment:* Couple de levage:	64.7 kNm (6.6 mt) (47750 ft.lbs)
Max. Hubkraft: *Max. lifting capacity:* Capacite maxi de levage:	3300 kg (7270 lbs)
Max. hydraulische Reichweite: *Max. hydraulic outreach:* Portee hydraulique maximale:	11.2 m (36' 9")
Schwenkbereich: *Slewing angle:* Angle de rotation:	400°
Schwenkmoment: *Slewing torque:* Couple de rotation:	7.8 kNm (0.8 mt) (5790 ft.lbs)
Betriebsdruck: *Operating pressure:* Pression d' utilisation:	35 MPa (350 bar) (5075 psi)
Fördermenge der Pumpe: *Pump capacity:* Debit de pompe:	30 – 40 l/min (7.9 – 10.6 US gal./min)

Hydr. Ausschübe: *Hydr. boom extensions:* Extensions hydrauliques:	1()	2(A)	3(B)	4(C)
Max. Reichweite: *Max. outreach:* Max. portee:	5.4 m (17' 9")	7.4 m (24' 3")	9.3 m (30' 6")	11.2 m (36' 9")
+V1			11.3 m (37' 1")	12.8 m (42' 0")
+V2			12.9 m (42' 4")	

Alle Gewichtsangaben ohne Aufbauzubehör,Zusatzgeräte und Öl.
All weights given without assembly accessory,additional devices and oil.
Tous les poids sans huile ni accessoire de montage ni appareils accessoires

Krangewicht (R1,STZS): *Crane weight (R1,STZS):* Poids grue (R1,STZS):	779 kg (1717 lbs)	854 kg (1883 lbs)	926 kg (2041 lbs)	987 kg (2176 lbs)
+2/4	815 kg (1797 lbs)	902 kg (1989 lbs)	986 kg (2174 lbs)	1059 kg (2335 lbs)
+V1			953 kg (2101 lbs)	1079 kg (2379 lbs)
+V2			973 kg (2145 lbs)	

Gewicht +V ohne 2/4
Weight +V without 2/4
Poids +V sans 2/4

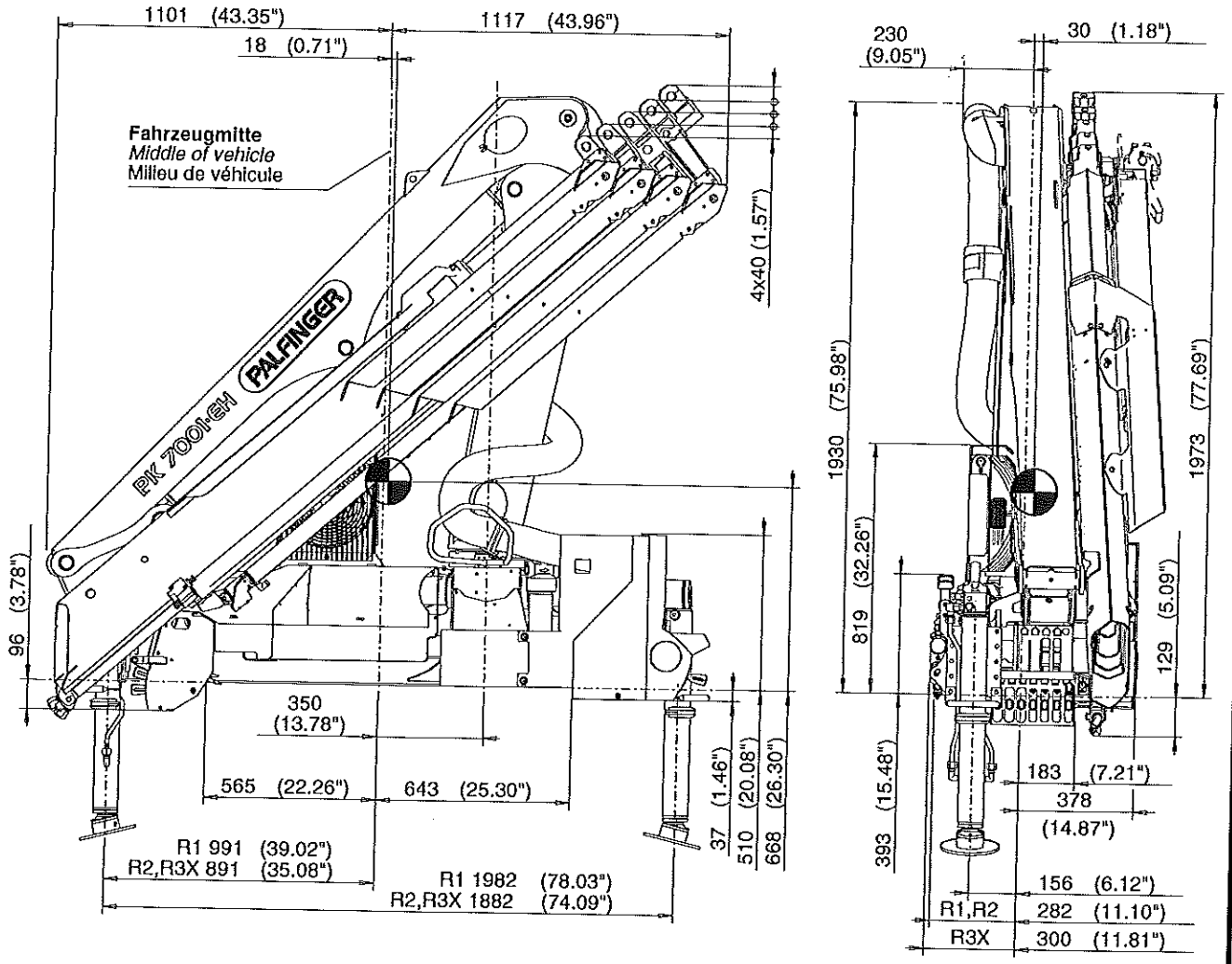
PALFINGER CRANE

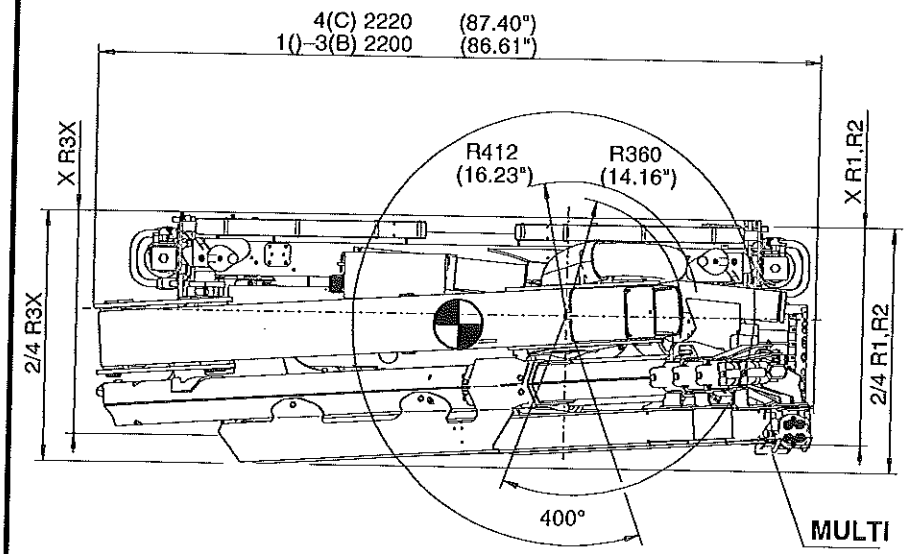
Modell (S104-EK-A) *Model* Type

PK 7001-EH

Transportstellung – FL
Transport position – FL
Position de transport – FL

DTS104SHB/03		
Kapitel	*Chapter*	Chapitre
0200		
Seite	*Page*	Page
08/2008		
Ausgabe	*Edition*	Edition





HYA	R1,R2 STZS3,STZY3		R3X STZS3,STZY3	
	X	2/4	X	2/4
1()-4(C)	660 mm (25.98")	745 mm (29.33")	678 mm (26.69")	762 mm (30.00")

PK 7001-EH C 4 R1 STZS3

PALFINGER CRANE

Modell (S104-EK-A) *Model* Type

PK 7001-EH

Transportstellung – VBH 173

Transport position – VBH 173

Position de transport – VBH 173

DTS104SHB/03		
Kapitel	*Chapter*	Chapitre
0300		
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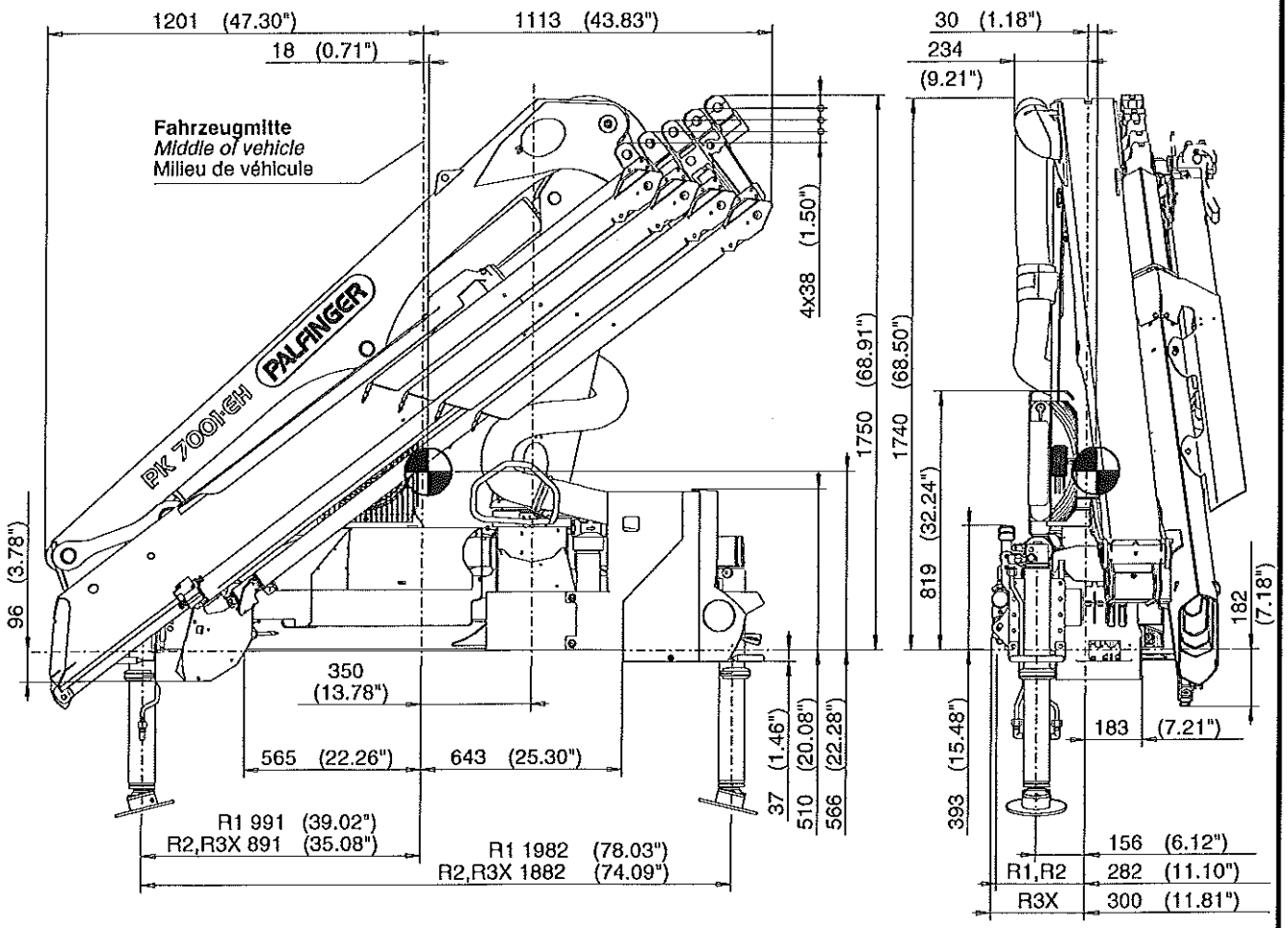
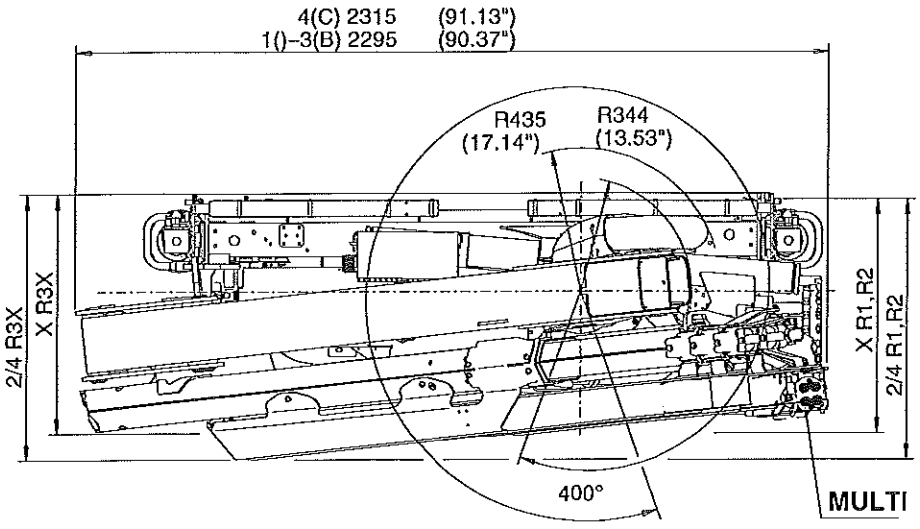
08/2008		
Ausgabe	*Edition*	Edition



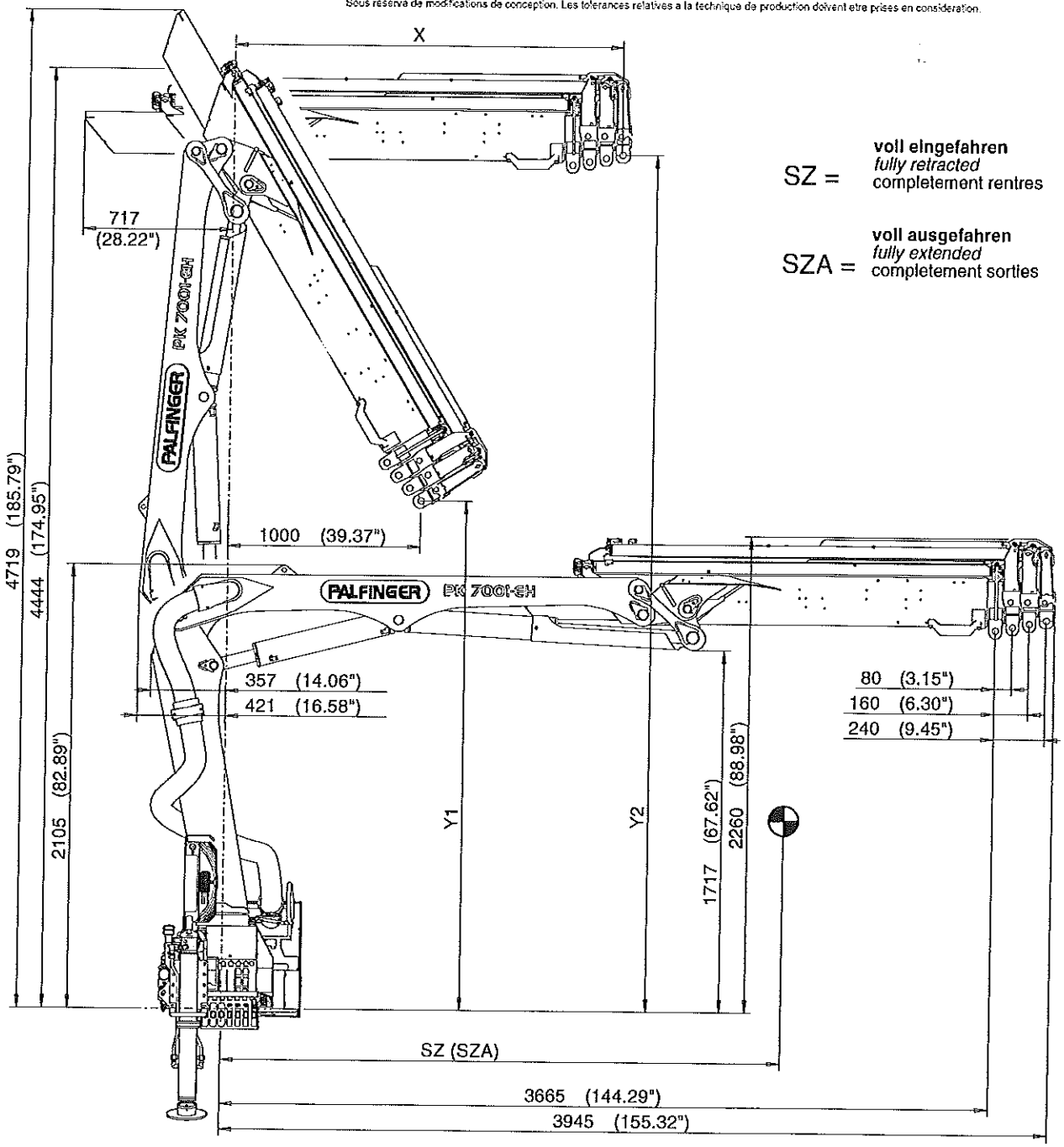


HYA	R1,R2 STZS3,STZY3		R3X STZS3,STZY3	
	X	2/4	X	2/4
1()-4(C)	710 mm (27.95")	790 mm (31.10")	728 mm (28.66")	808 mm (31.81")

PK 7001-EH C 4 R1 STZS3 VBH 173

Arbeitsstellungen
Working positions
Position de travail

Konstruktionsänderungen vorbehalten, fertigungstechn. Toleranzen müssen berücksichtigt werden.
Subject to change, production tolerances have to be taken into account.
Sous reserve de modifications de conception. Les tolerances relatives a la technique de production doivent etre prises en consideration.

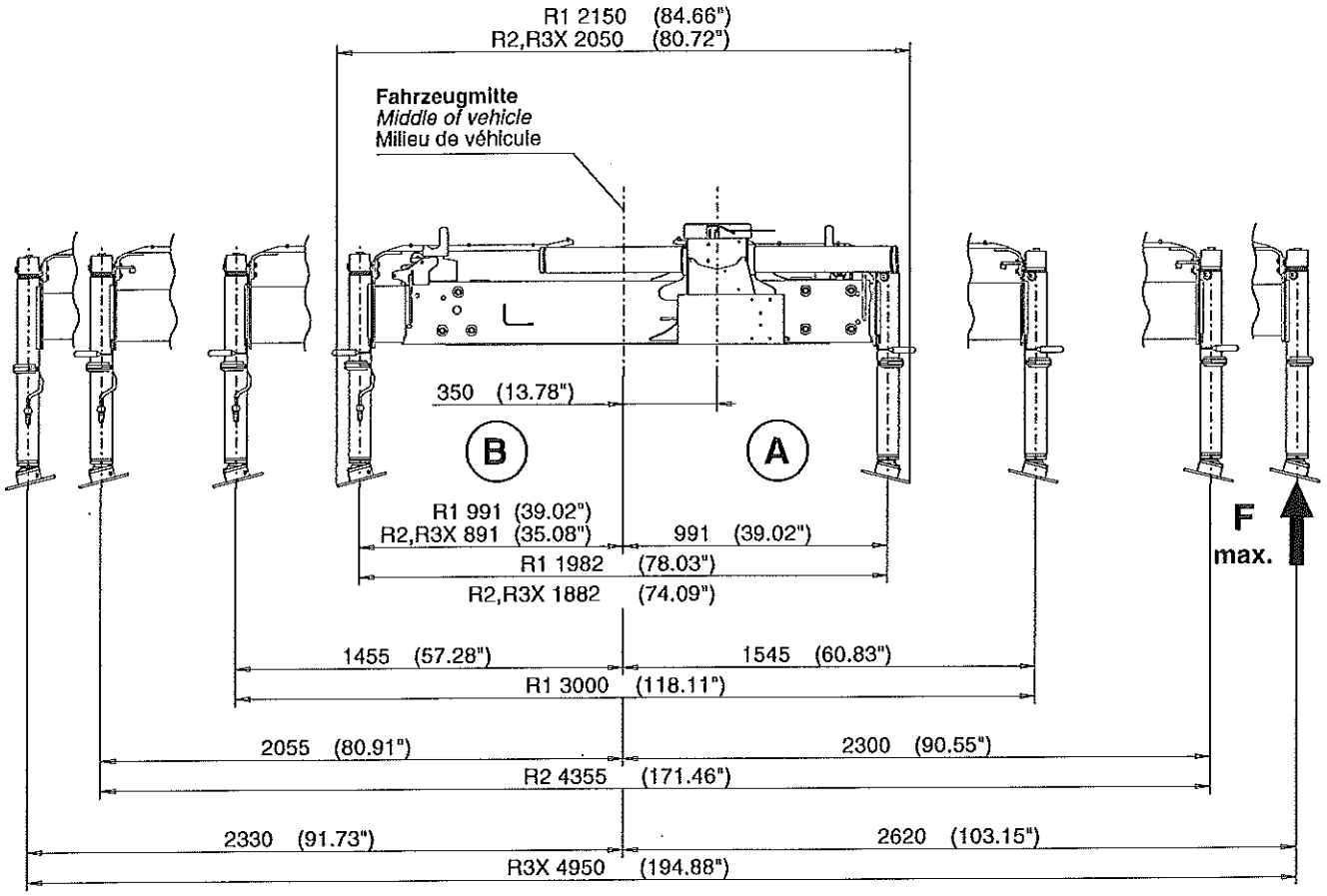


SZ = **voll eingefahren**
fully retracted
completement rentres

SZA = **voll ausgefahren**
fully extended
completement sorties

	hydraulische Ausschübe *hydraulic extensions* extensions hydrauliques			
	1()	**2(A)**	**3(B)**	**4(C)**
X	1618 mm (63.70")	1698 mm (66.85")	1778 mm (70.00")	1858 mm (73.15")
Y1	2765 mm (108.86")	2665 mm (104.92")	2565 mm (100.98")	2470 mm (97.24")
Y2	4008 mm (157.80")	4021 mm (158.31")	4039 mm (159.02")	4053 mm (159.57")
SZ	663 mm (26.10")	839 mm (33.03")	986 mm (38.82")	1099 mm (43.27")
SZA	826 mm (32.52")	1275 mm (50.20")	1783 mm (70.20")	2276 mm (89.61")

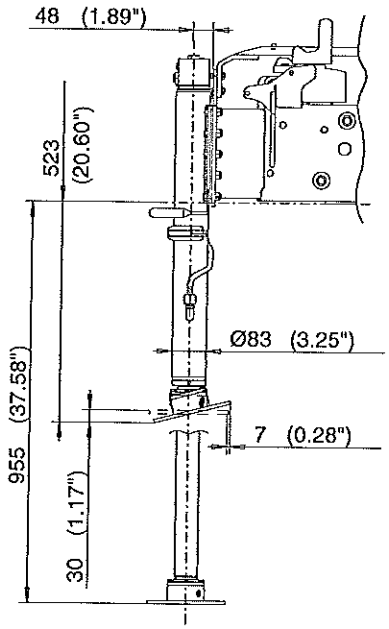
Abstützung – Ausleger
Support – outrigger beam
Support – extension laterale



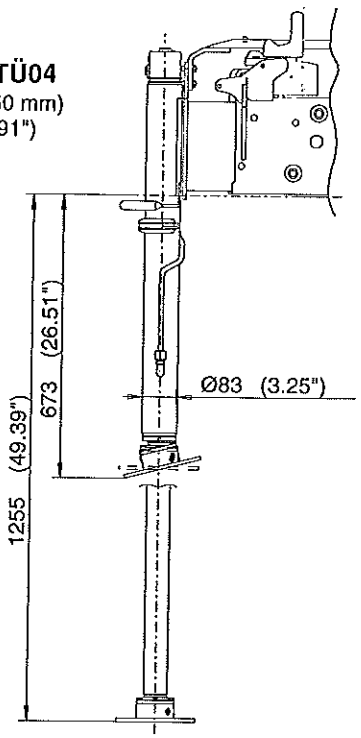
	Gewicht: Kransockel,Steuerventil,Abstützung,Öltank *Weight: base,conrol valve,support,oil tank* Poids: socle,distributeur de commande,support,réservoir a huile		Stützkraft *Stabilizer force* Support force	
Ausführung: *Type:* Version:	**STZS3**	**STZY3**	**F max.** Ⓐ	**F max.** Ⓑ
R1	344 kg (758 lbs)	364 kg (802 lbs)	57.0 kN (12810 lbs)	57.0 kN (12810 lbs)
R2	383 kg (844 lbs)	403 kg (888 lbs)	39.0 kN (8760 lbs)	39.0 kN (8760 lbs)
R3X	439 kg (968 lbs)	459 kg (1012 lbs)	34.0 kN (7640 lbs)	34.0 kN (7640 lbs)

Abstützung – Abstützzylinder
Support – stabilizer ram
Support – stabilisateur

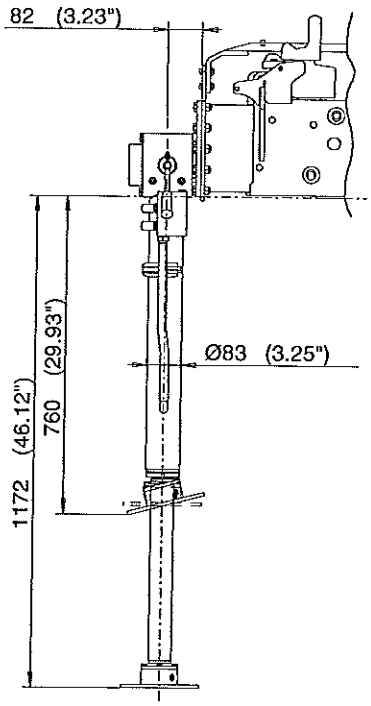
STZS3

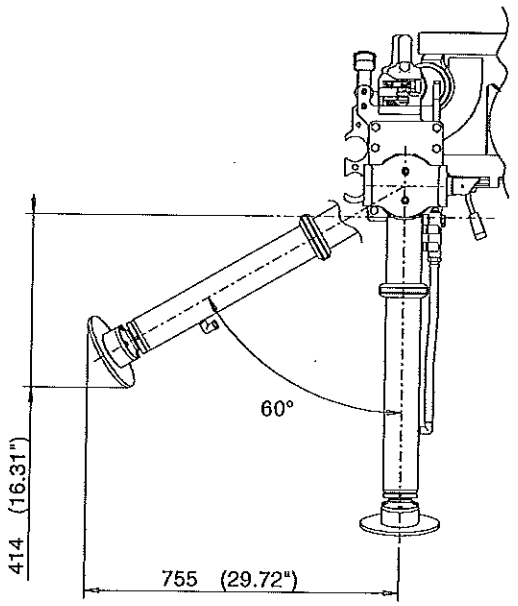


STÜ04
(+150 mm)
(+5.91")

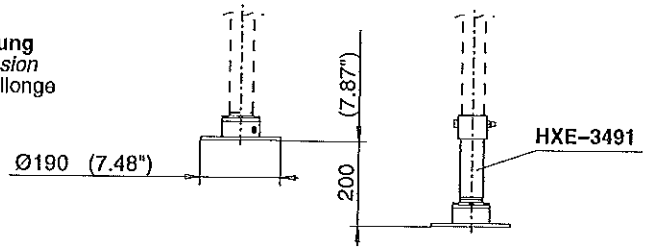


STZY3





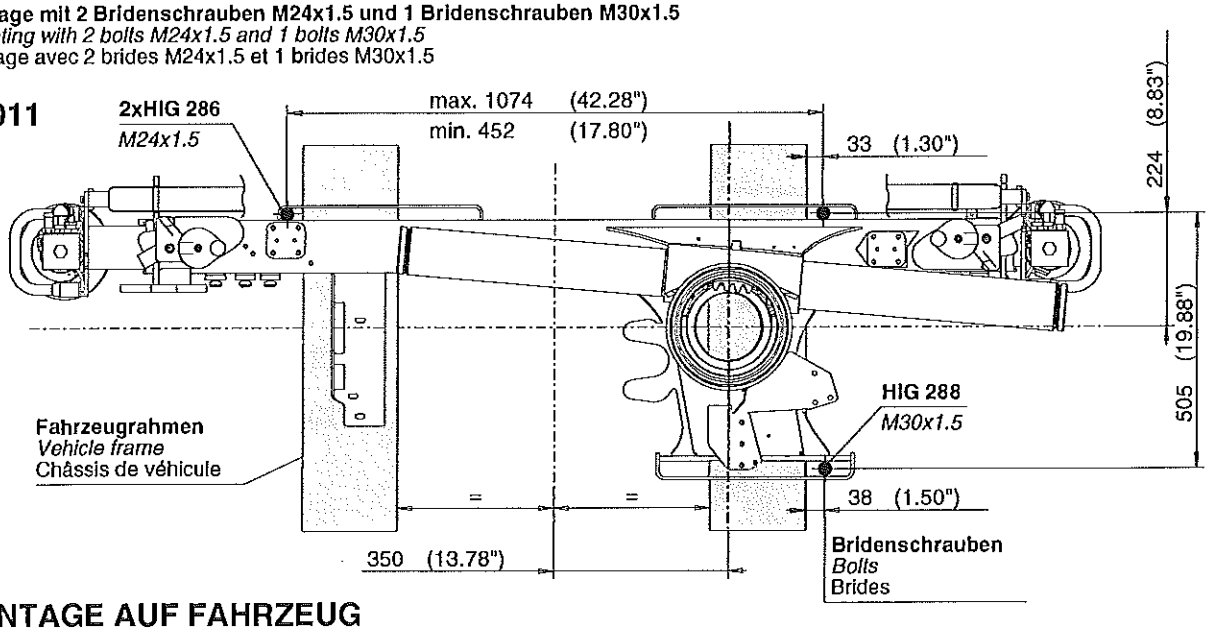
STT=Stützteller-Verlängerung
STT=Stabilizer plates-Extension
STT=Plateau de support-Rallonge



Anordnung der Bridenschrauben
Location of mounting bolts
Arrangement de brides

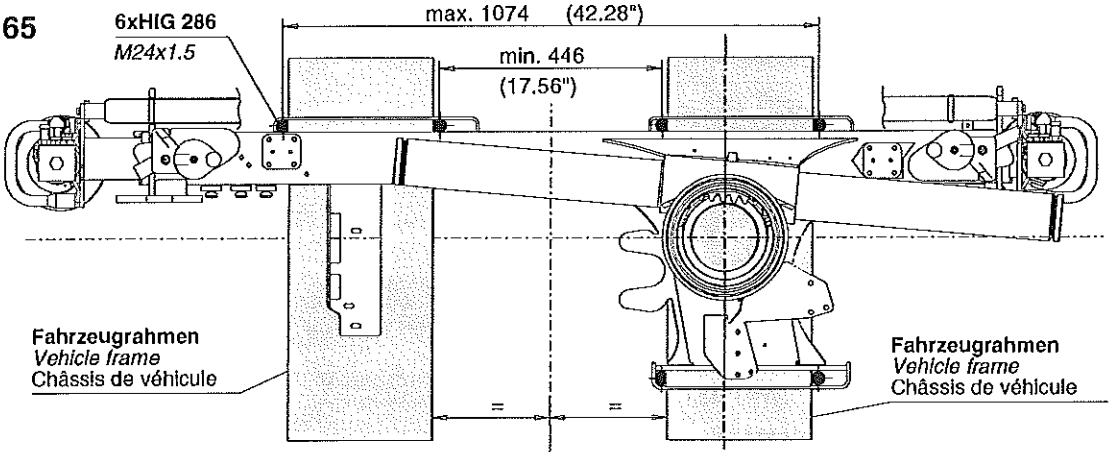
Montage mit 2 Bridenschrauben M24x1.5 und 1 Bridenschrauben M30x1.5
Mounting with 2 bolts M24x1.5 and 1 bolts M30x1.5
Montage avec 2 brides M24x1.5 et 1 brides M30x1.5

UZ011



MONTAGE AUF FAHRZEUG
MOUNTING ON VEHICLE
MONTAGE A VÉHICULE

UZ165

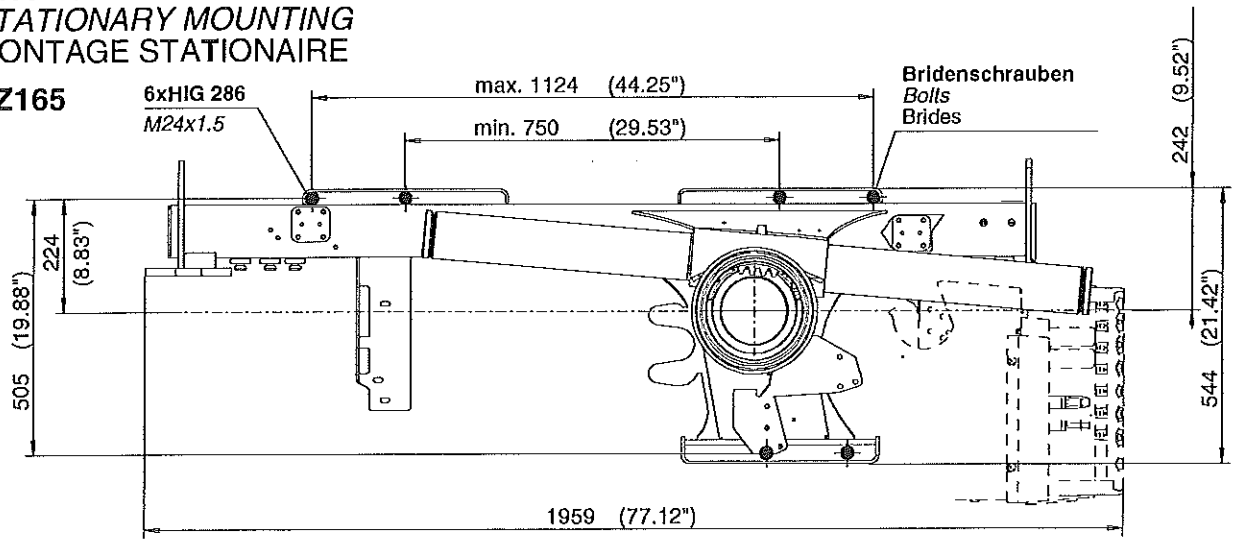


Montage mit 6 Bridenschrauben M24x1.5
Mounting with 6 bolts M24x1.5
Montage avec 6 brides M24x1.5

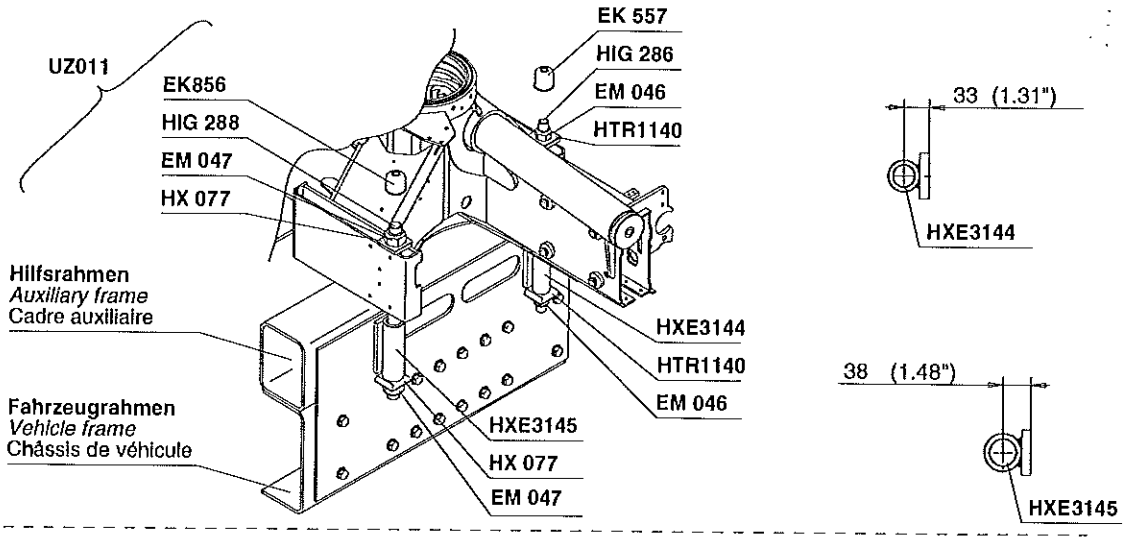
Fahrzeugmitte
Middle of vehicle
Milieu de véhicule

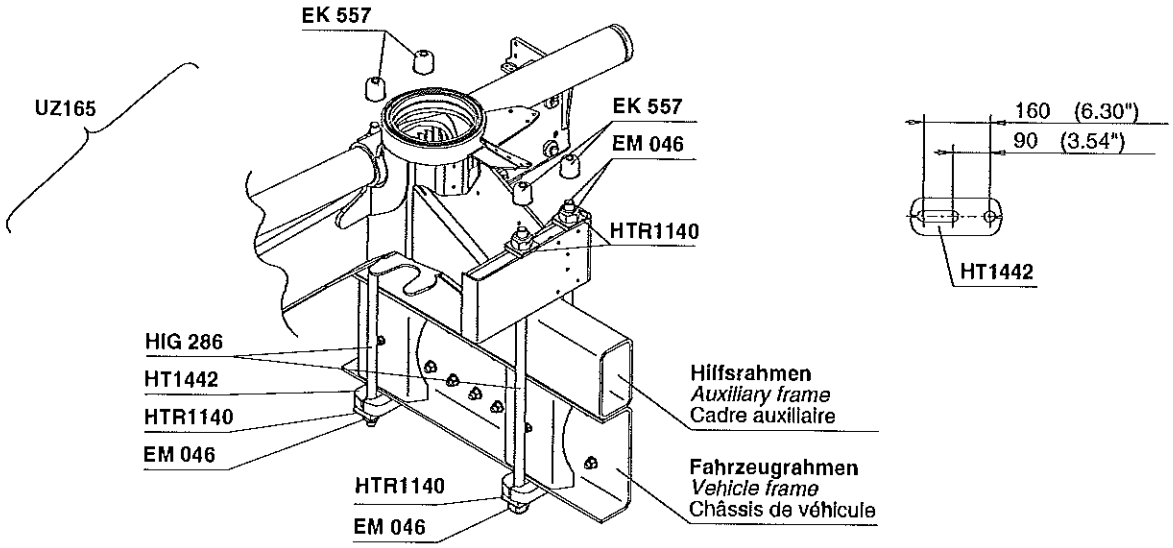
STATIONÄRMONTAGE
STATIONARY MOUNTING
MONTAGE STATIONAIRE

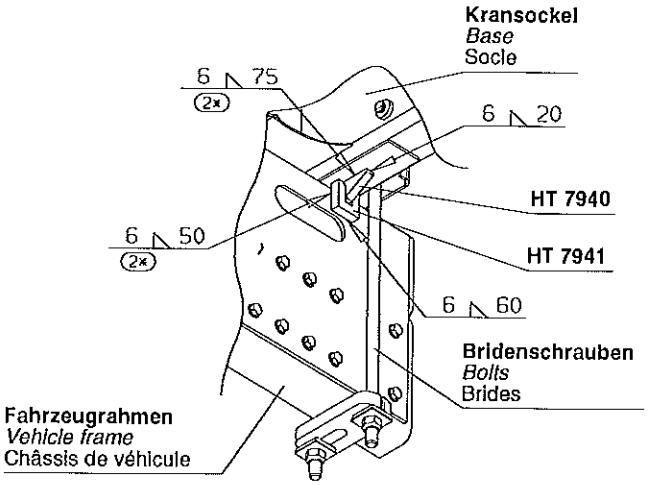
UZ165



Montage mit 6 Bridenschrauben M24x1.5
Mounting with 6 bolts M24x1.5
Montage avec 6 brides M24x1.5







Bridenschrauben *Bolts* Brides	d	l	Werkstoff *Work material* Matériel	Anzugsmoment *Tightening torque* Couple de serrage
HIG 286	M24x1.5	1000 mm (39.37")	42 Cr Mo 4 V	450 Nm
HIG 288	M30x1.5	1000 mm (39.37")	42 Cr Mo 4 V	900 Nm

PALFINGER CRANE

(S104-EK-A)

Modell / *Model* / Type

PK 7001-EH

PK 7001-EH ()

Traglastdiagramm
Lifting capacity diagram
Diagramme de capacit

DTS104SHB/04		
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0100		
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07/2010		
Ausgabe	*Edition*	Edition

Konstruktionsänderungen vorbehalten, fertigungstechn. Toleranzen müssen berücksichtigt werden.
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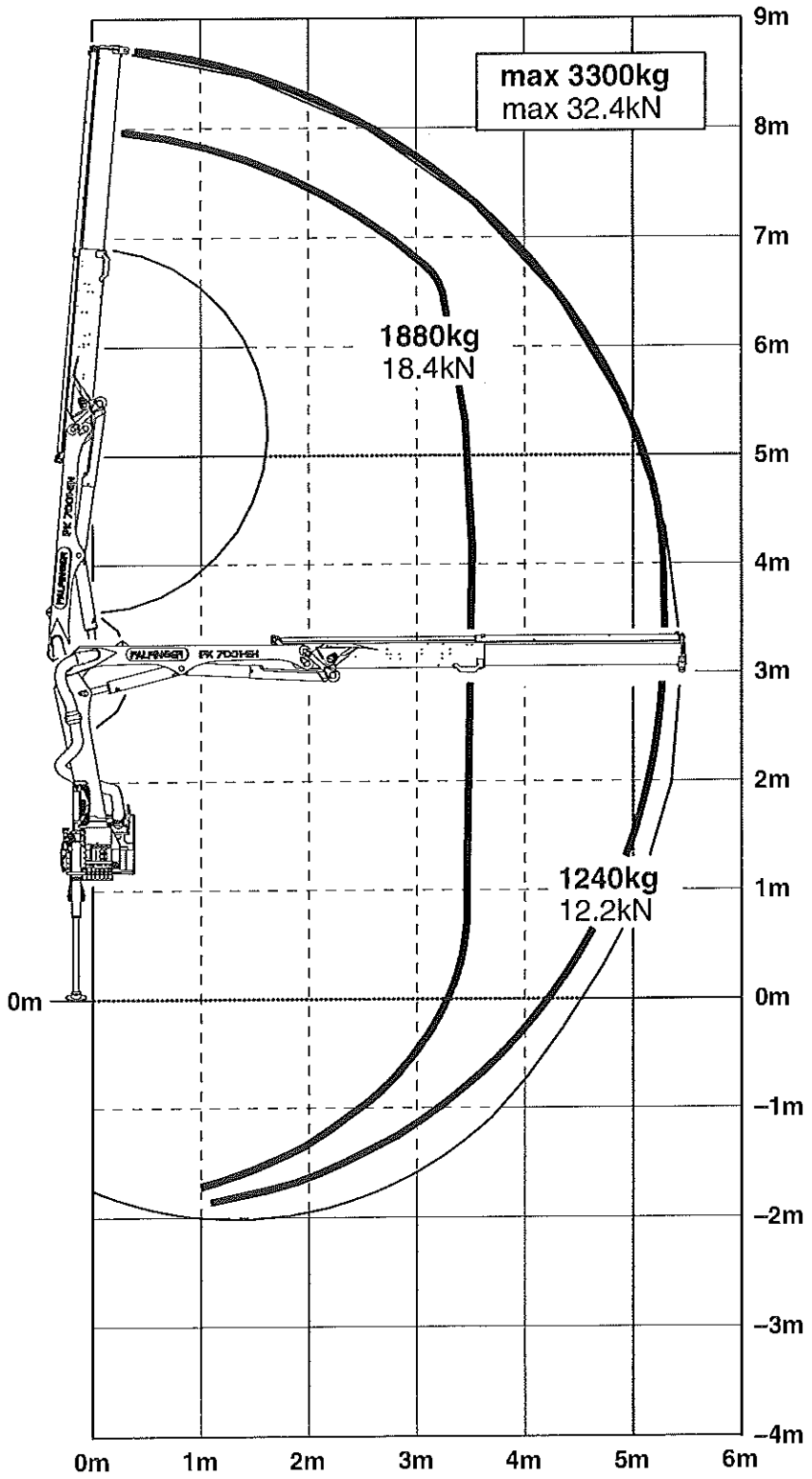

Krandarstellung symbolisch, Angaben bei 20° Hauptarmstellung & Lastarm horizontal
Symbolic crane figure, indications at 20° main boom position & load arm in horizontal position
Représentation symbolique de la grue, indication avec angle de premier bras 20° et extensions an position horizontale

Einstufung: HC1 HD4/B3 nach EN12999
Classification: HC1 HD4/B3 in EN12999
Classement: HC1 HD4/B3 en mesure EN12999

PALFINGER CRANE

Modell (S104-EK-A) *Model* Type

PK 7001-EH

PK 7001-EH A

Traglastdiagramm
Lifting capacity diagram
Diagramme de capacit

DTS104SHB/04
Kapitel *Chapter* Chapitre

0200
Seite *Page* Page

07/2010
Ausgabe *Edition* Edition

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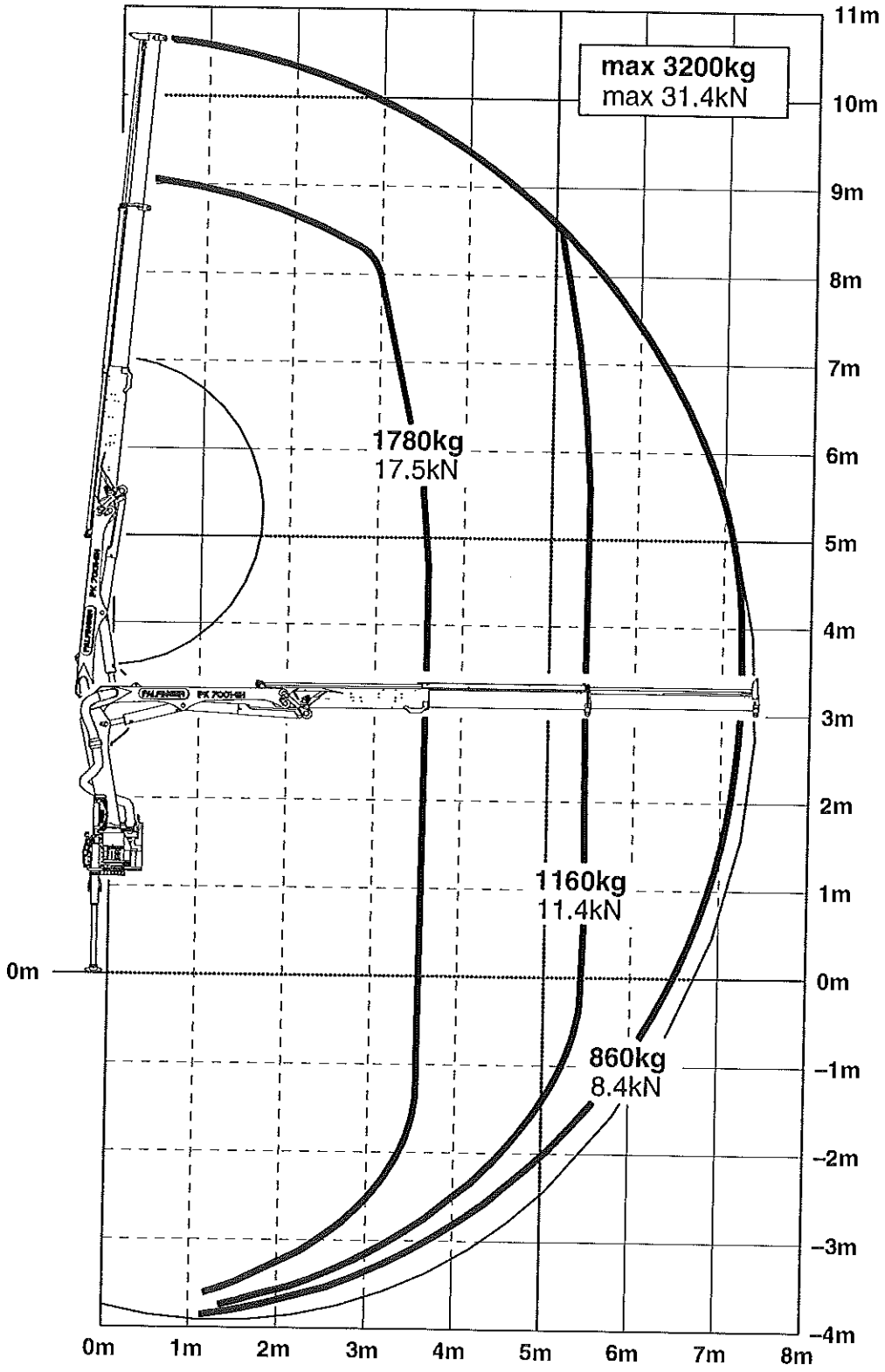

Krandarstellung symbolisch, Angaben bei 20° Hauptarmstellung & Lastarm horizontal
Symbolic crane figure, indications at 20° main boom position & load arm in horizontal position
Représentation symbolique de la grue, indication avec angle de premier bras 20° et extensions en position horizontale

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Classement: HC1 HD4/B3 en mesure EN12999

PALFINGER CRANE

(S104-EK-A)
Modell *Model* Type

PK 7001-EH

PK 7001-EH B

Traglastdiagramm
Lifting capacity diagram
Diagramme de capacit

DTS104SHB/04		
Kapitel	*Chapter*	Chapitre
0300		
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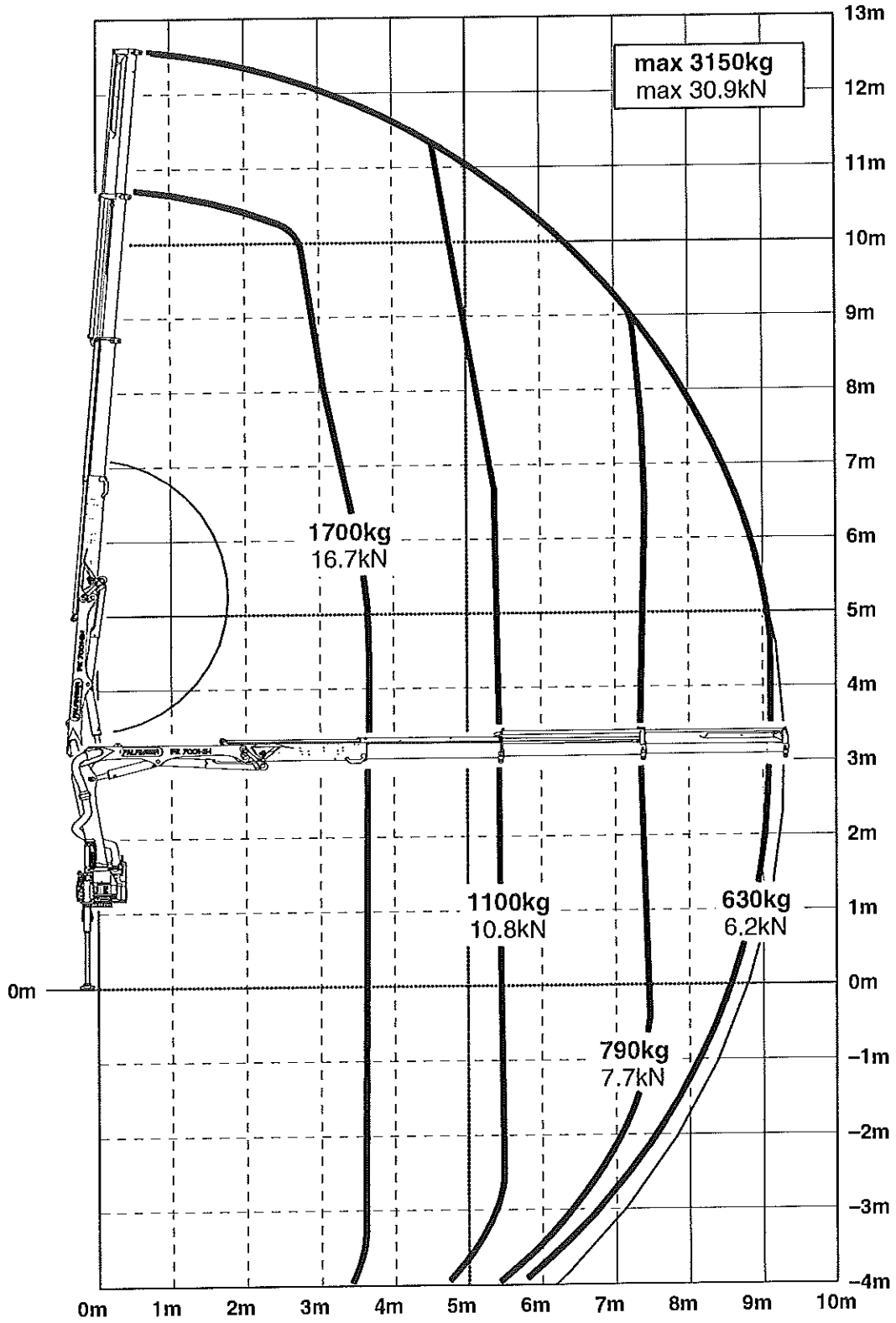

Krandarstellung symbolisch, Angaben bei 20° Hauptarmstellung & Lastarm horizontal
Symbolic crane figure, indications at 20° main boom position & load arm in horizontal position
Représentation symbolique de la grue, indication avec angle de premier bras 20° et extensions an position horizontale

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Classification: HC1 HD4/B3 in EN12999
Classement: HC1 HD4/B3 en mesure EN12999

PALFINGER CRANE

(S104-EK-A)
Modell *Model* Type

PK 7001-EH

PK 7001-EH C

Traglastdiagramm
Lifting capacity diagram
Diagramme de capacit

DTS104SHB/04		
Kapitel	*Chapter*	Chapitre
0400		
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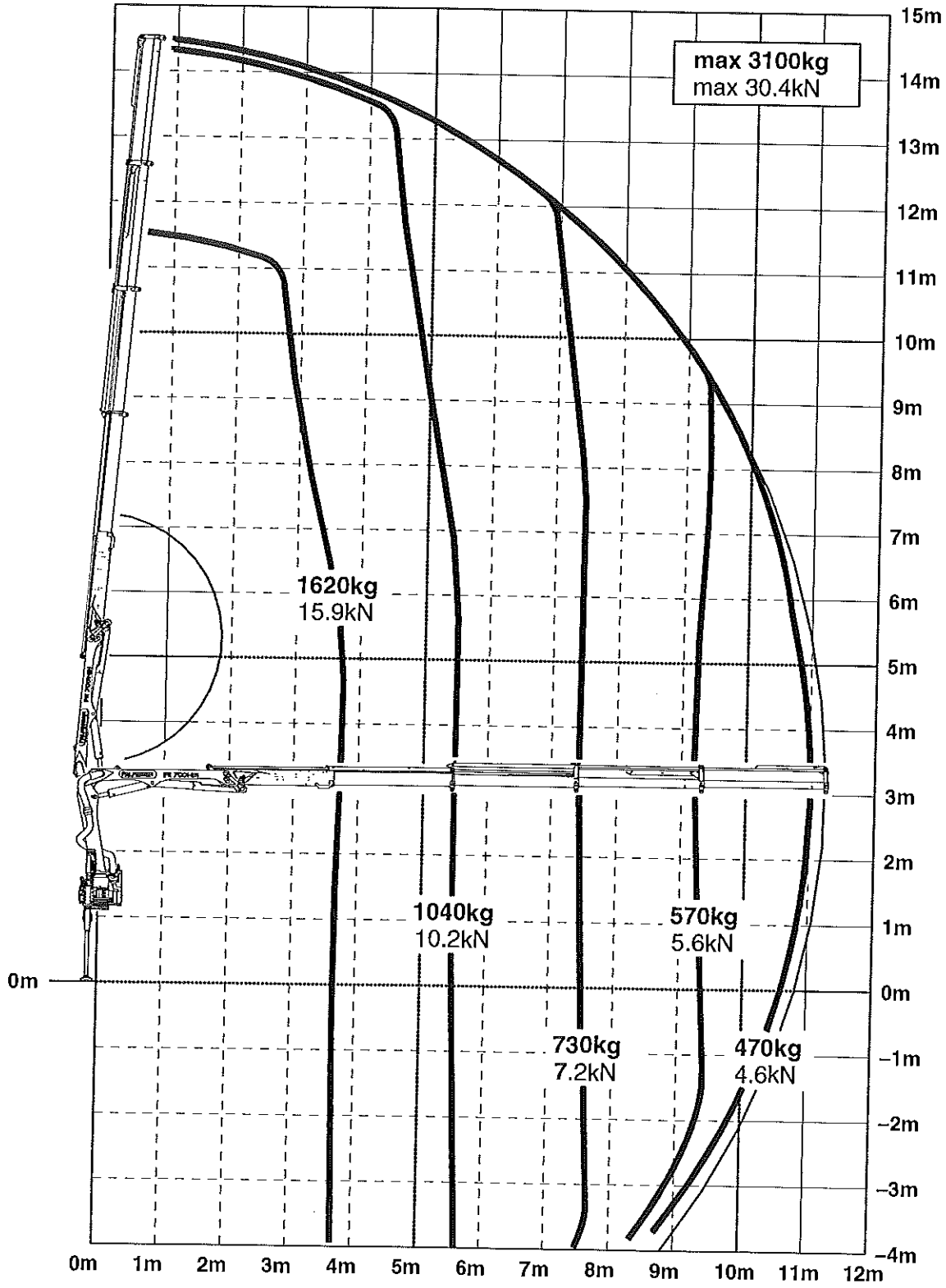

Krandarstellung symbolisch, Angaben bei 20° Hauptarmstellung & Lastarm horizontal
Symbolic crane figure, indications at 20° main boom position & load arm in horizontal position
Représentation symbolique de la grue, indication avec angle de premier bras 20° et extensions en position horizontale

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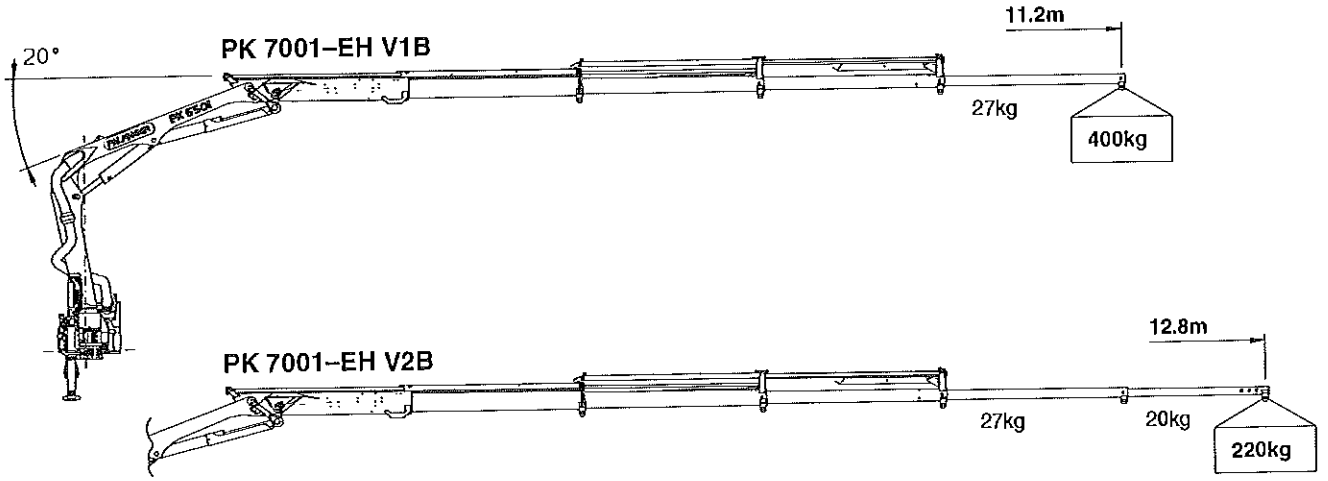

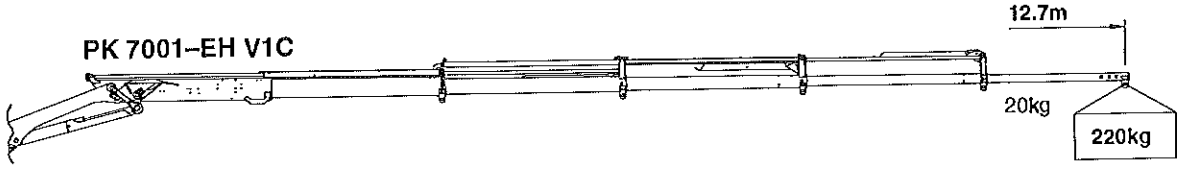

Einstufung: HC1 HD4/B3 nach EN12999
Classification: HC1 HD4/B3 in EN12999
Classement: HC1 HD4/B3 en mesure EN12999

PALFINGER CRANE

(S104-EK-A)

Modell / *Model* / Type

PK 7001-EH

Gewichte und Schwerpunkte
Weights and centers of gravity
Poids et centres de gravite

Modell *Model* Type	Gewicht Armsystem *Weight of boom system* Poid de bras de charge	SZ	SZA
PK 7001-EH ()	335 kg 3.29 kN (739 lbs)	1747 mm (68.78")	2126 mm (83.70")
PK 7001-EH A	410 kg 4.02 kN (904 lbs)	1916 mm (75.43")	2824 mm (111.18")
PK 7001-EH B	482 kg 4.73 kN (1063 lbs)	2037 mm (80.20")	3568 mm (140.47")
+V1B	509 kg 4.99 kN (1122 lbs)	2079 mm (81.85")	3922 mm (154.41")
+V2B	529 kg 5.19 kN (1166 lbs)	2119 mm (83.43")	4058 mm (159.76")
PK 7001-EH C	543 kg 5.33 kN (1197 lbs)	2123 mm (83.58")	4263 mm (167.84")
+V1C	563 kg 5.52 kN (1241 lbs)	2159 mm (85.00")	4536 mm (178.58")

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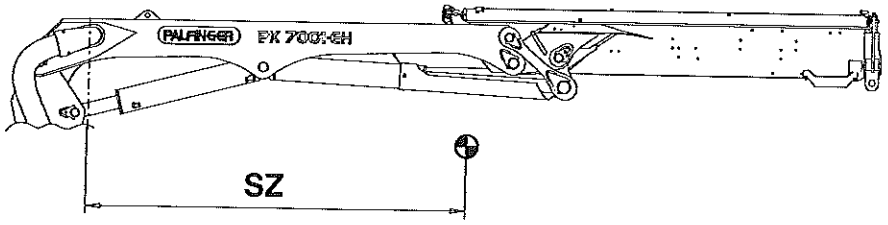
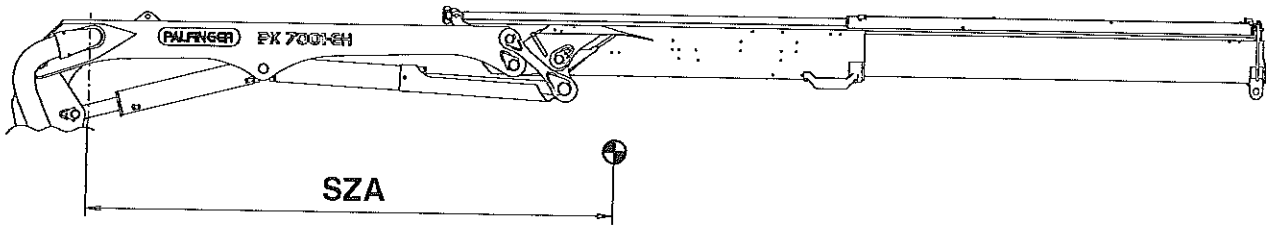


voll eingefahren
fully retracted
completement rentres



voll ausgefahren
fully extended
completement sorties

Gewicht: Kransockel,Kransäule
Weight: base,column
Poids: socle,colonne

Ausführung: *Type:* Version:	STZS3	STZY3
R1	444 kg 4.36 kN (979 lbs)	464 kg 4.55 kN (1023 lbs)
R2	483 kg 4.74 kN (1065 lbs)	503 kg 4.93 kN (1109 lbs)
R3X	539 kg 5.29 kN (1188 lbs)	559 kg 5.48 kN (1232 lbs)

Weitere Angaben siehe Technische Informationsblätter 03
For further information see technical informations 03
Plus amples donees voire le feuille information techniques 03

Gerätebezeichnung
Descripton
Designation d' appareil

1 **Öltank** *Oil tank* Réservoir
2 **Absperrhahn** *Shut–off cock* Robinet d' arret
3 **Hydraulikpumpe** *Hydraulic pump* Pompe hydraulique
4 **Hochdruckfilter** *High pressure filter* Filtre haute pression
5 **Steuerventil – Kran** *Control valve – crane* Distributeur de commande – grue
6 **Not–Aus Ventil** *Emergency cut–off valve* Soupape d' arret d' urgence
7 **Prüfverschraubung** *Dial gauge connection* Porte montre compar.
8 **Steuerventil – Abstützung** *Control valve – stabil.* Distributeur de commande – stabil.
9 **Ölkühler** *Oil cooler* Refrigerant d' huile
10 **Rücklauffilter** *Return oil filter* Filtre retour
11 **Entsperrb. Rückschlagventil** *Pilot controlled check valve* Pilote soupape de retenue
12 **Abstützzylinder** *Stabilizer ram* Stabilisateur
13 **Vorspannventil** *Pre tension valve* Soupape pre tension
14 **Ausfahrzylinder** *Stabilizer extension ram* Verin d' extension–stabilisateur
15 **Drosselrückschlagventil** *One way restrictor* Restricteur une direction
16 **Doppeltwirkendes Lasthalteventil** *Double–acting holding valve* Double clapets anti retour pilotes
17 **Schwenkwerk** *Slewing system* Dispositif de pivotement
18 **Lasthalteventil** *Load holding valve* Soupape pilote
19 **Hubzylinder** *Lifting cylinder* Verin de levage
20 **Druckaufnehmer** *Pressure transducer* Amortisseurs de pression
21 **Knickzylinder** *Outer boom ram* Verin deuxieme bras
22 **Schubzylinder I** *Boom extension ram I* Verin d'extension I
23 **Schubzylinder II** *Boom extension ram II* Verin d'extension II
24 **Schubzylinder III** *Boom extension ram III* Verin d'extension III
25 **Schubzylinder IV** *Boom extension ram IV* Verin d'extension IV
26 **Folgesteuerungsventil** *Sequence valve* Soupape a suivre
27 **Schnellkupplung** *Quick–coupling* Raccord rapide

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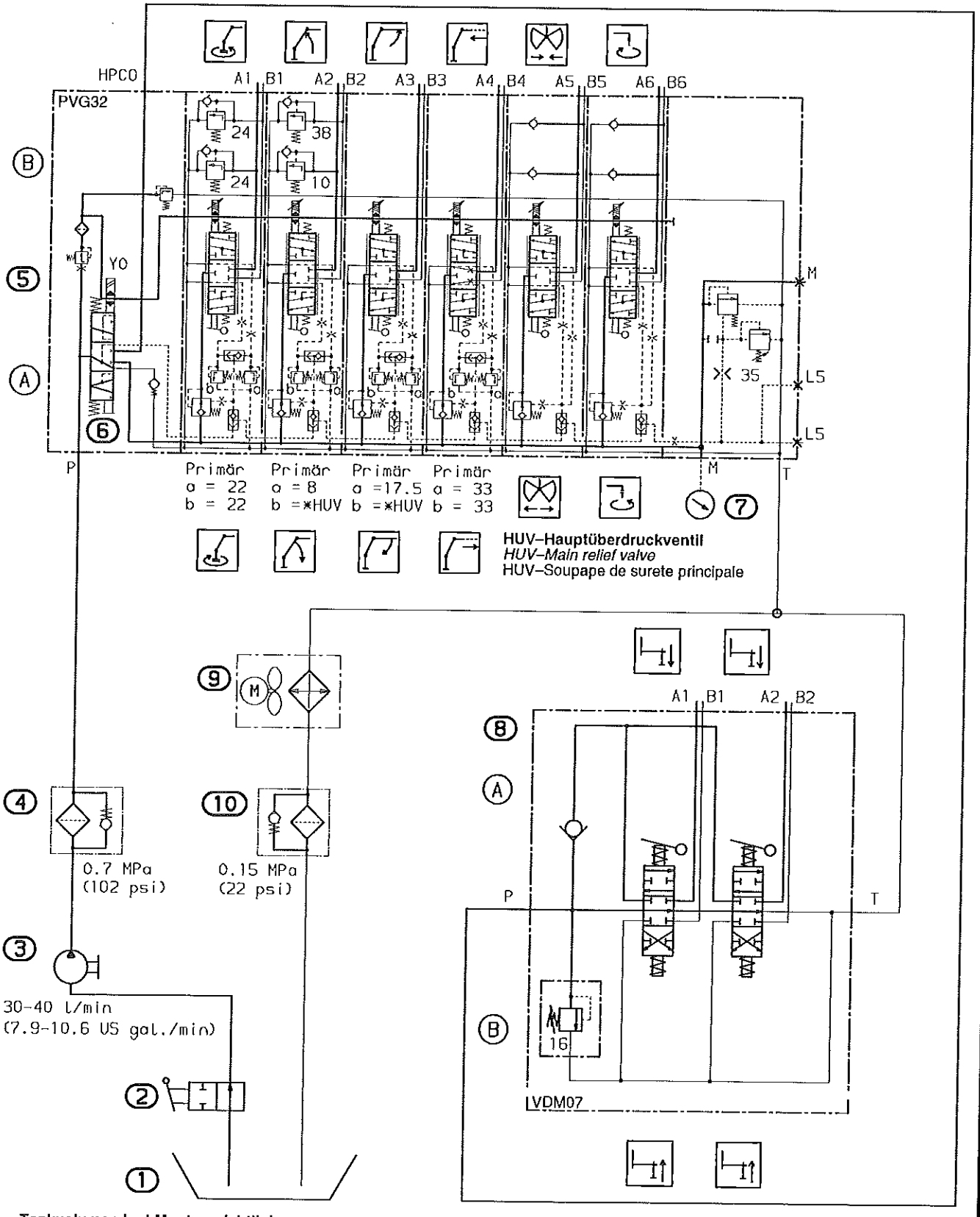

Tankvolumen laut Montagerichtlinie
Tank volume according to installation manual
Le volume du réservoir conformement notice de montage

1 MPa = 10 bar = 145 psi

Alle Drücke = MPa
Unit in pressure = MPa
Unite de pression = MPa

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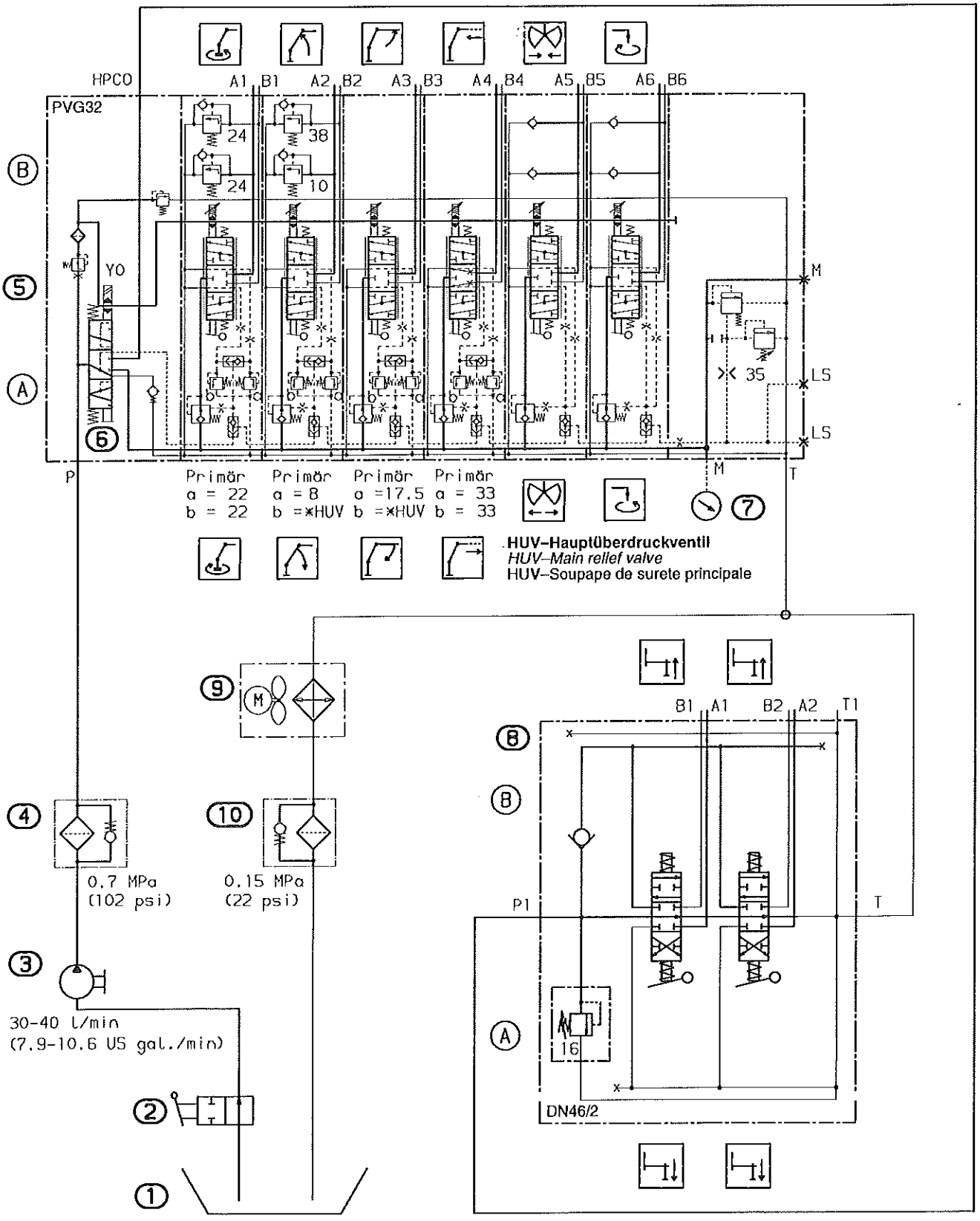

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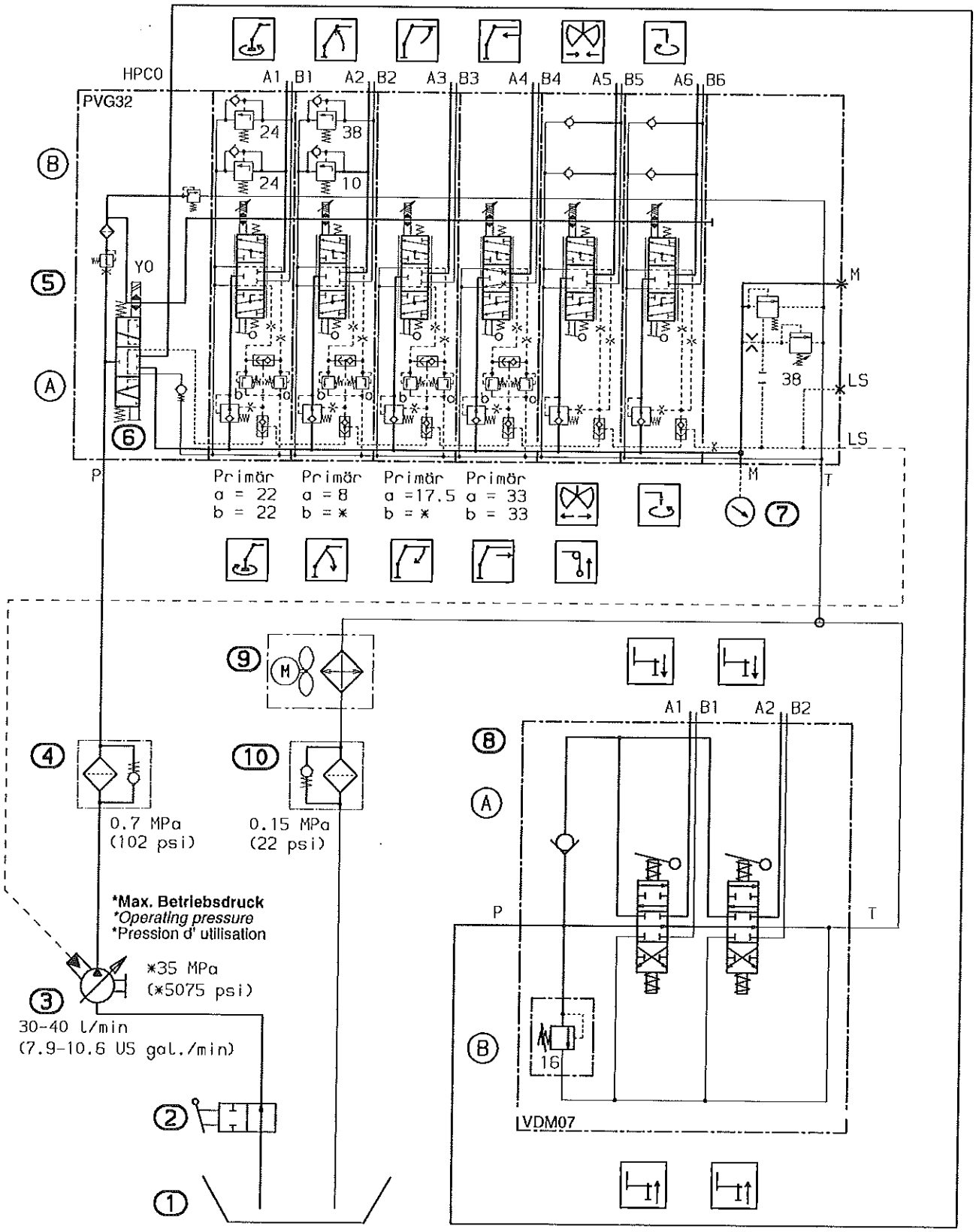

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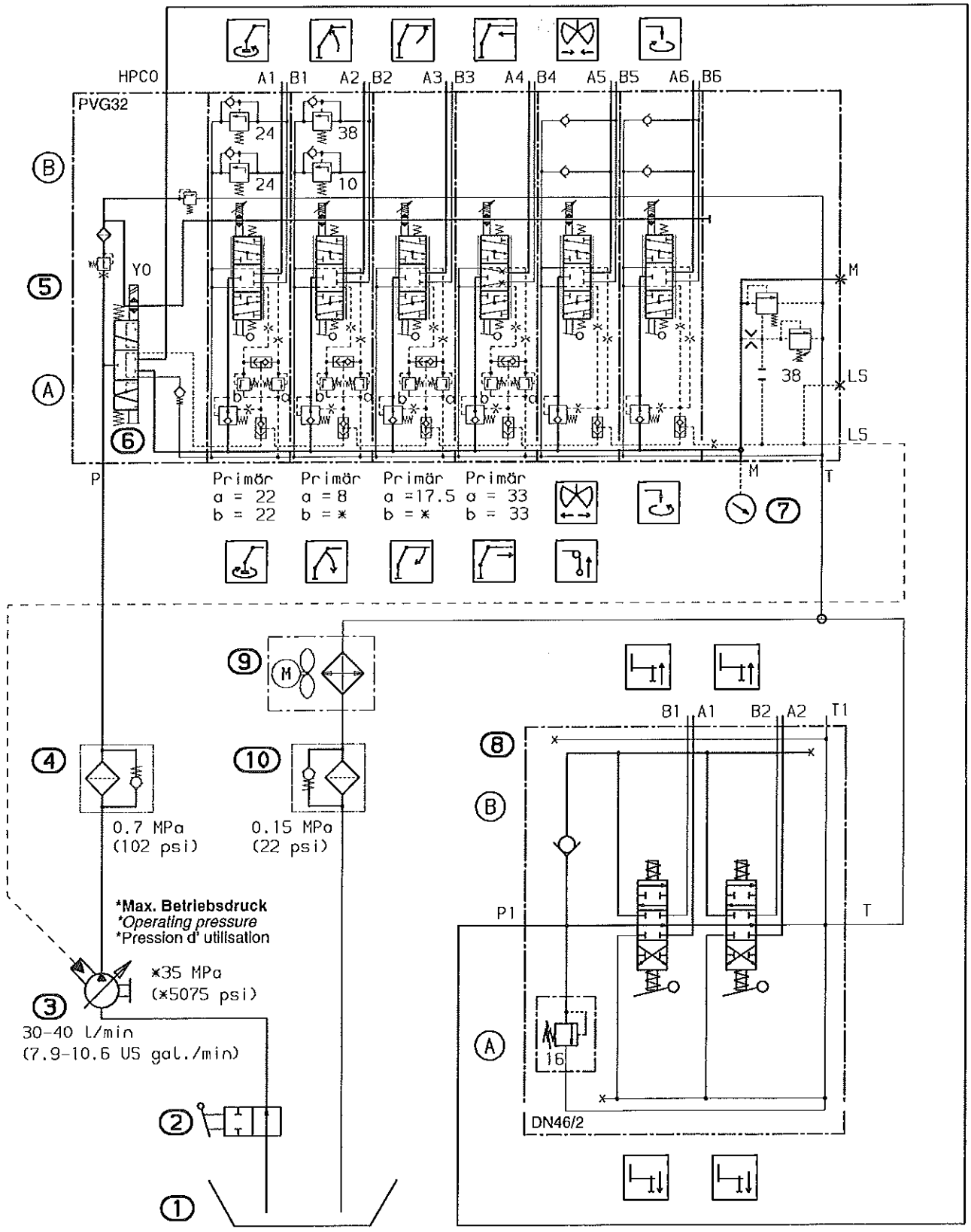

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Tank volume according to installation manual
Le volume du réservoir conformement notice de montage

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Kranabstützung – R1,R2
Crane support – R1,R2
Support de grue – R1,R2

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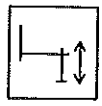
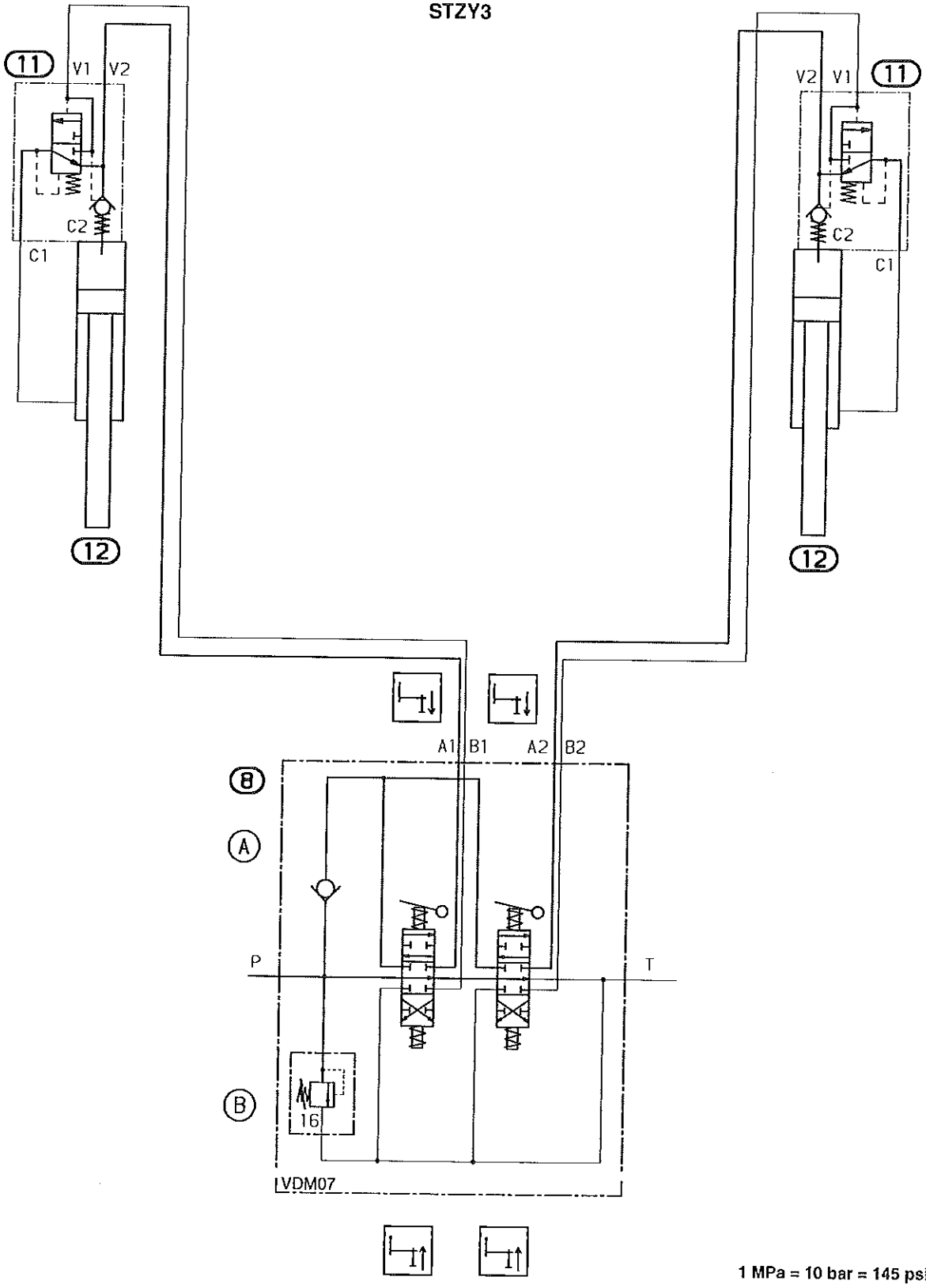


STZS3
STZY3

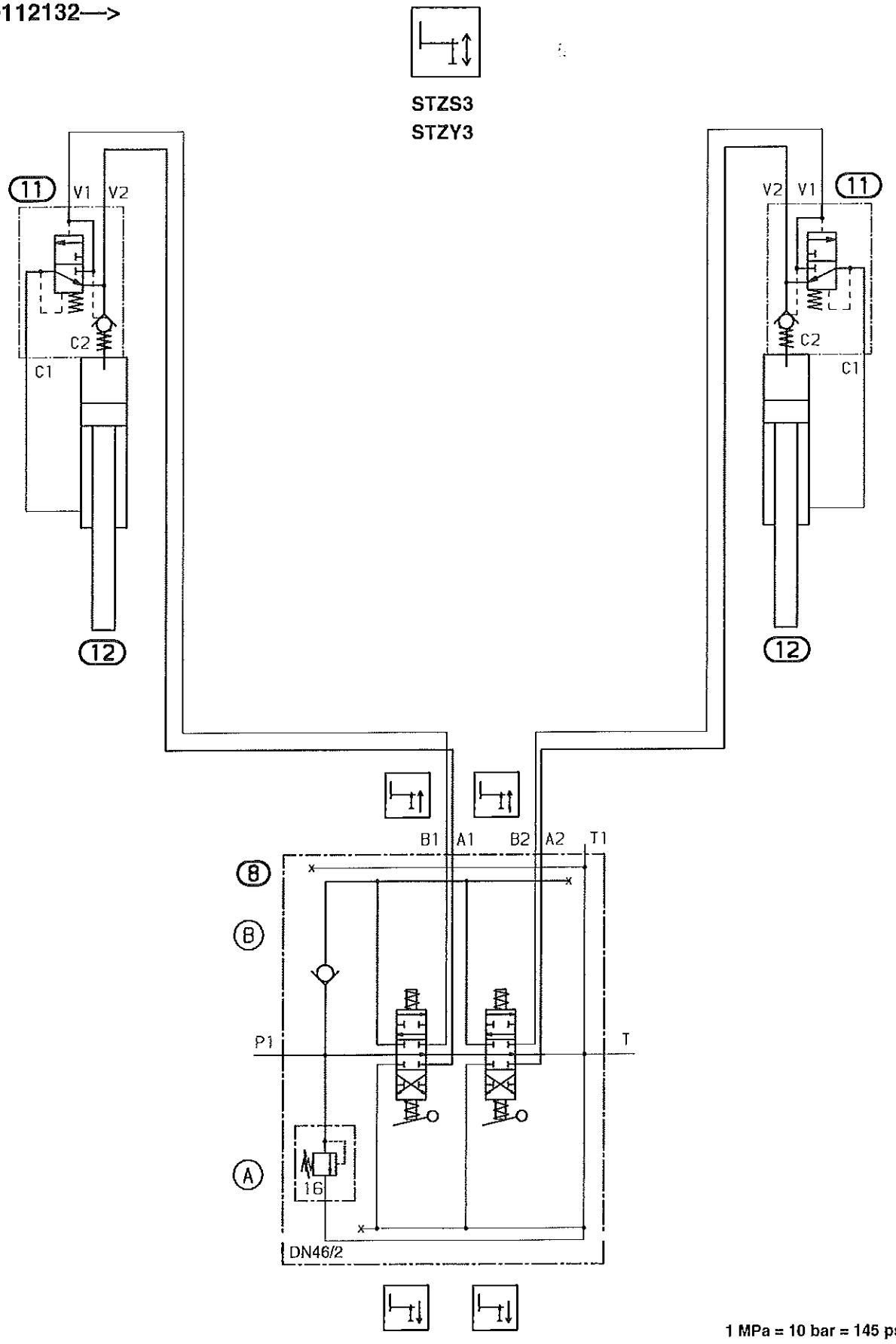


1 MPa = 10 bar = 145 psi

Alle Drücke = MPa
Unit in pressure = MPa
Unite de pression = MPa

Kranabstützung – R1,R2
Crane support – R1,R2
Support de grue – R1,R2

100112132—>

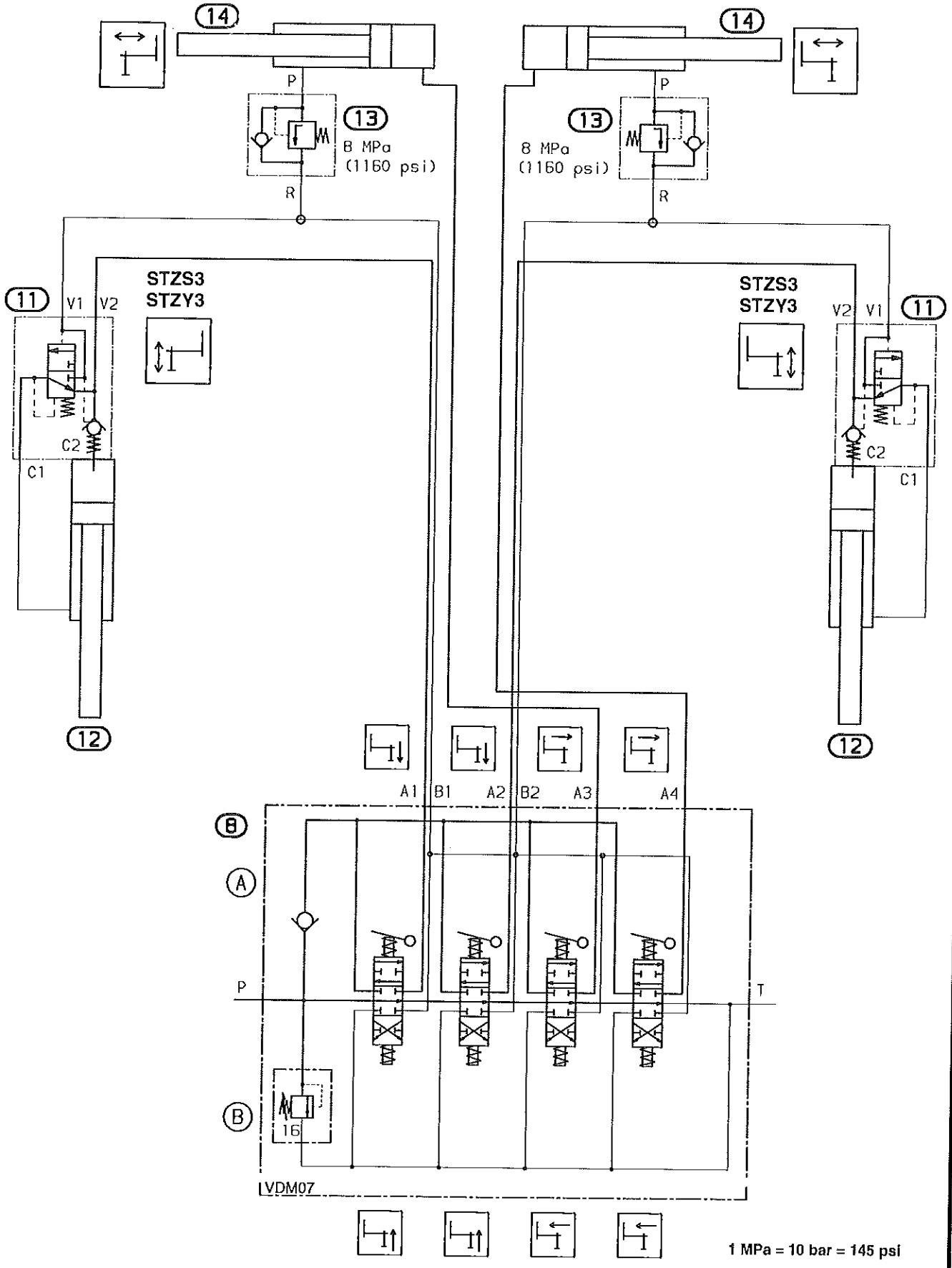


1 MPa = 10 bar = 145 psi

Alle Drücke = MPa
Unit in pressure = MPa
Unite de pression = MPa

Kranabstützung – R3X
Crane support – R3X
Support de grue – R3X

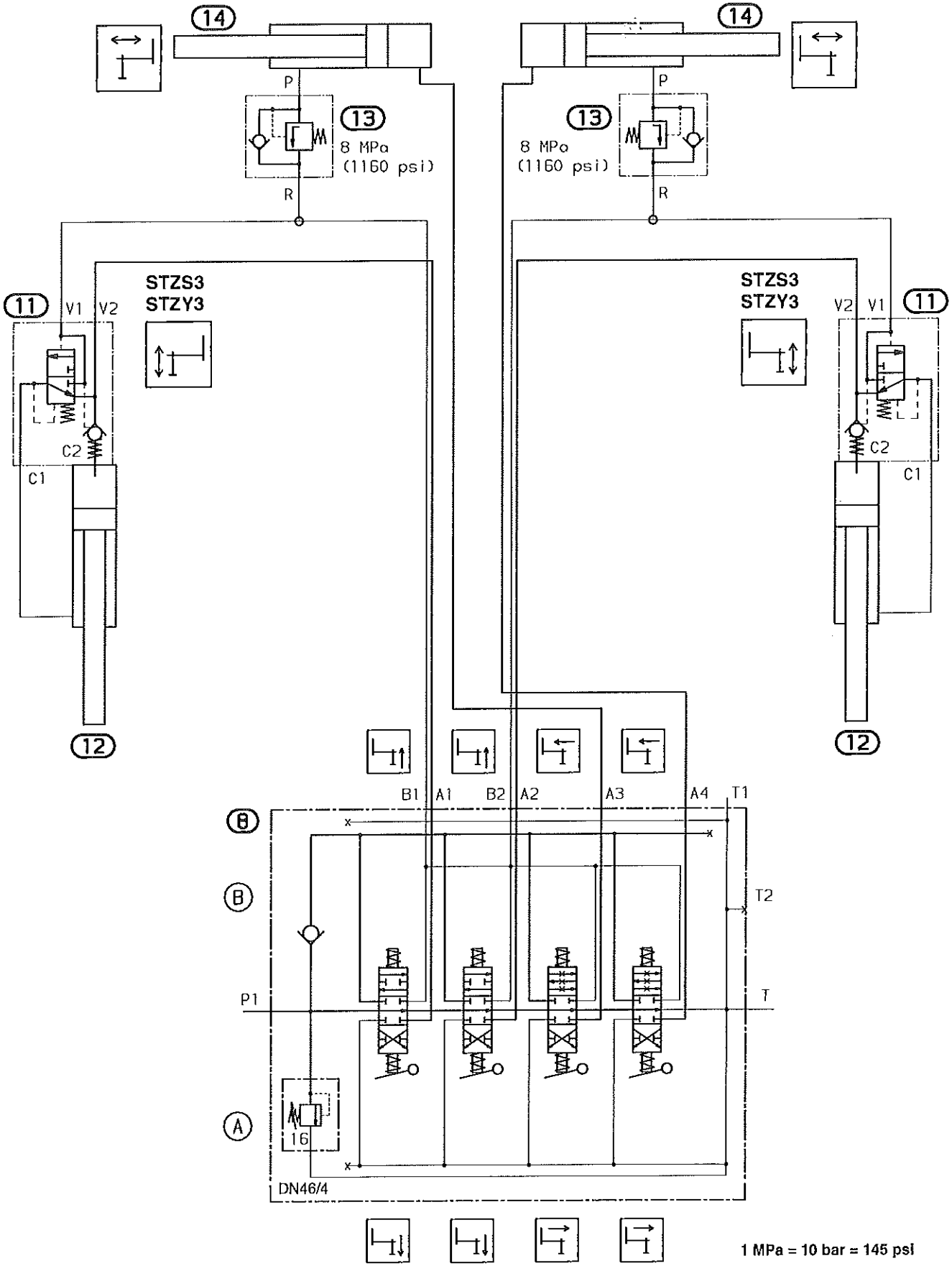
—>100112131



1 MPa = 10 bar = 145 psi

Alle Drücke = MPa
Unit in pressure = MPa
Unite de pression = MPa

100112132—>



1 MPa = 10 bar = 145 psi

Alle Drücke = MPa
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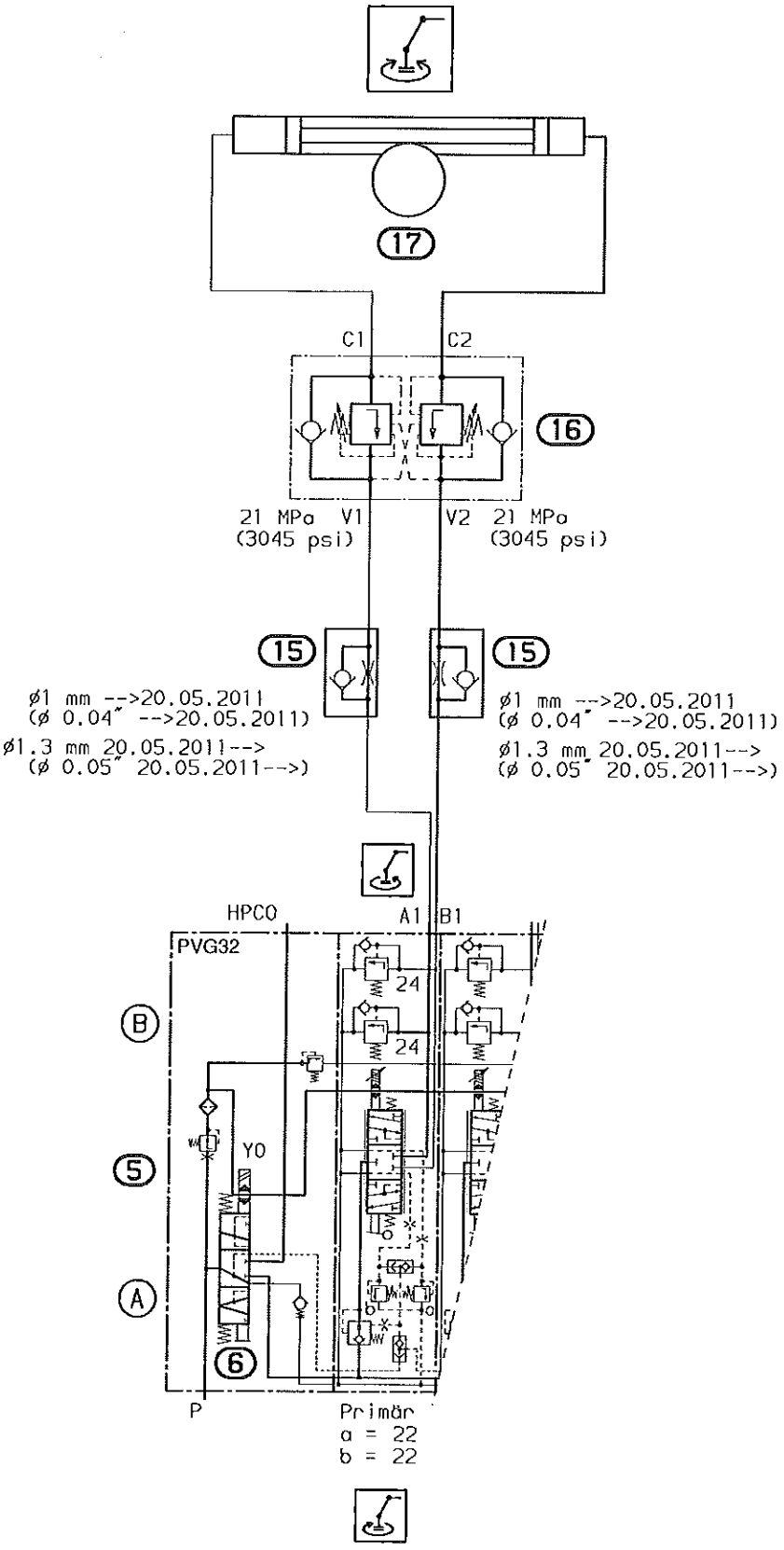
Unite de pression = MPa



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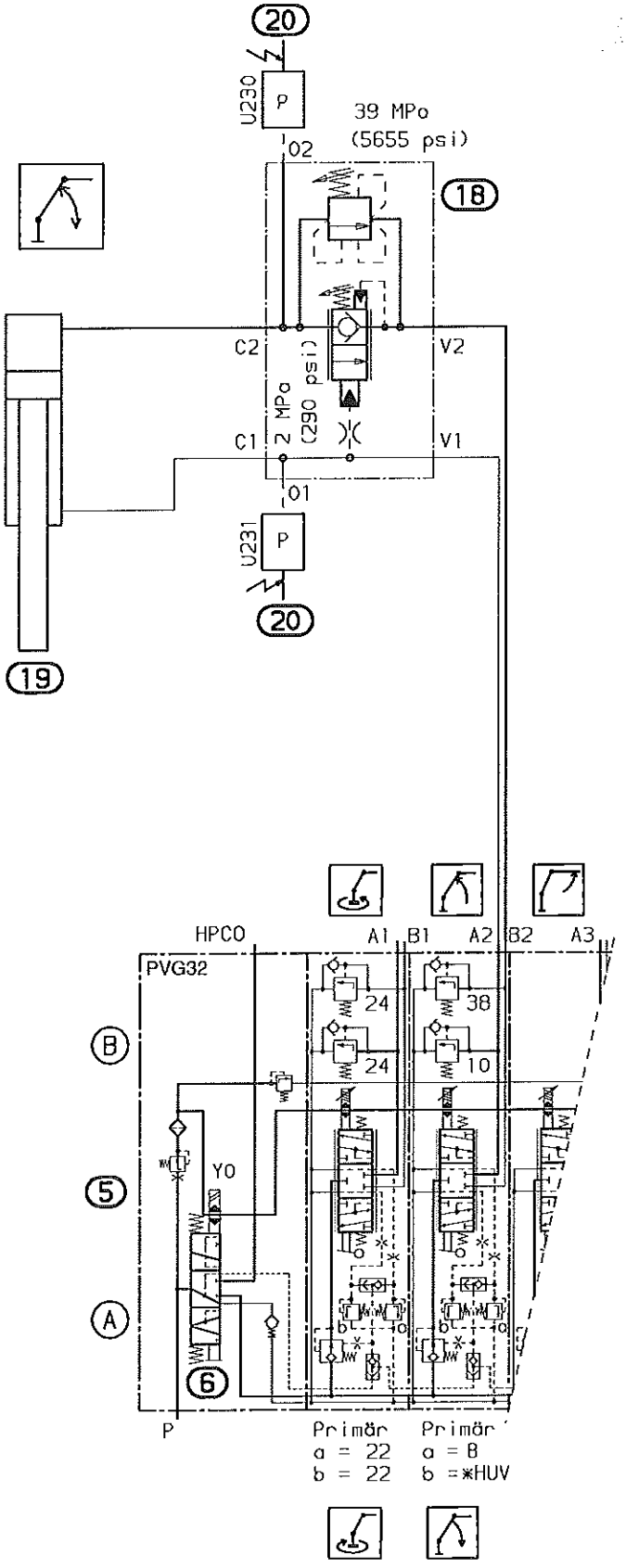

1 MPa = 10 bar = 145 psi

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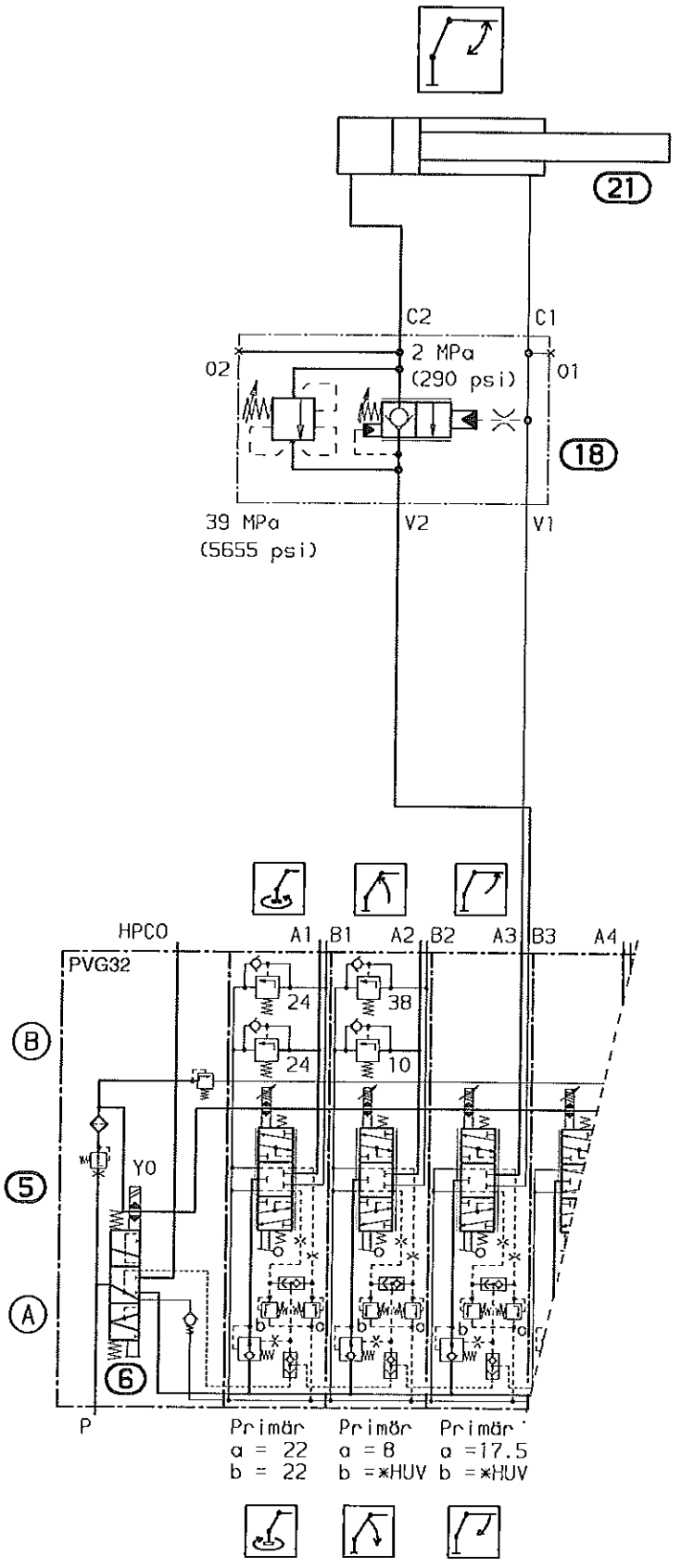

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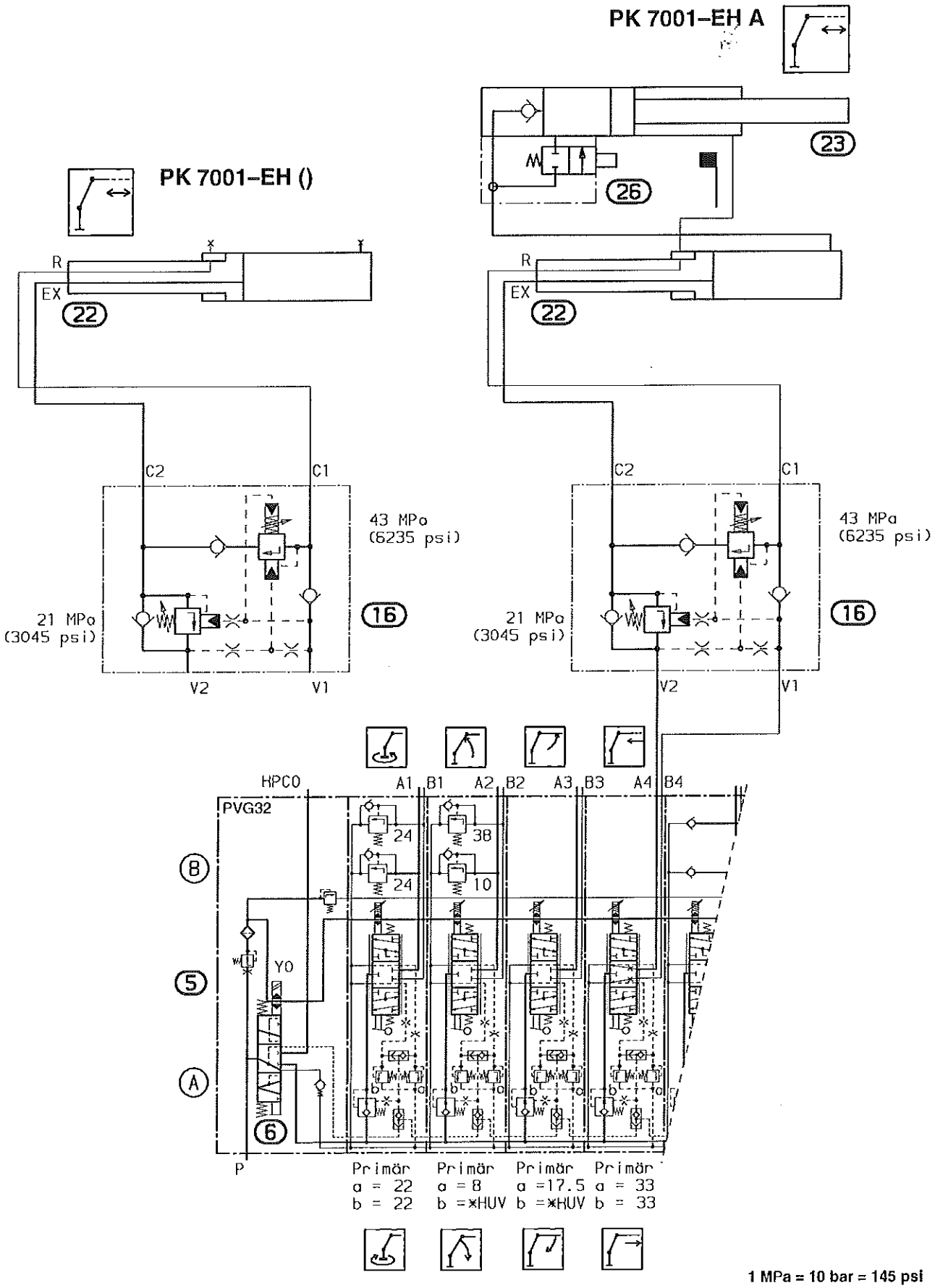
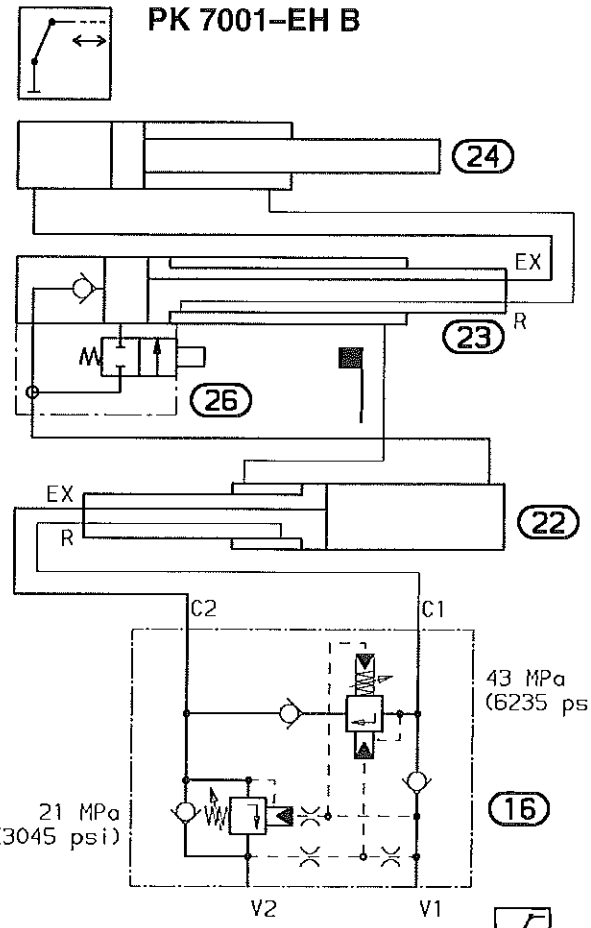


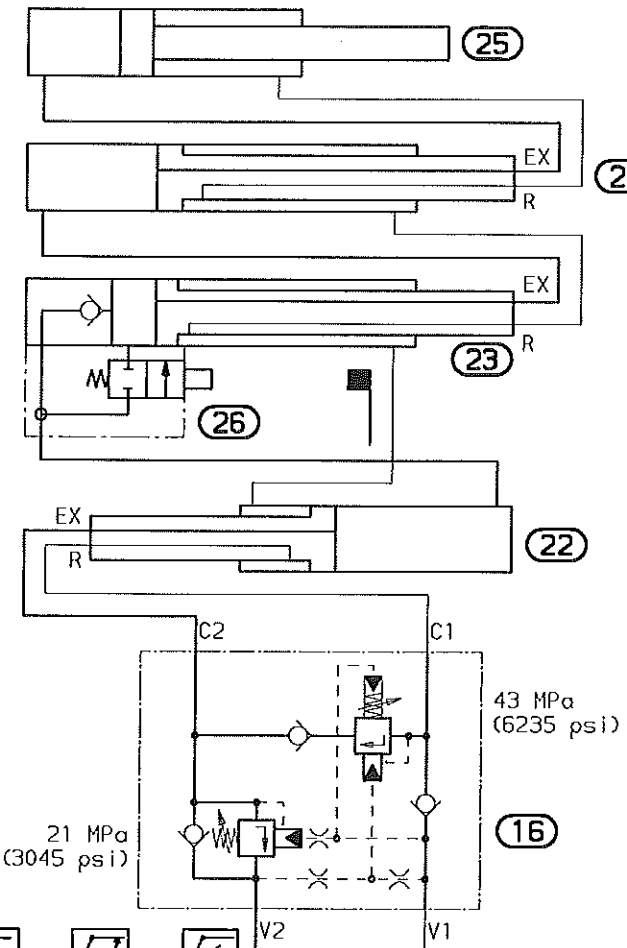
1 MPa = 10 bar = 145 psi

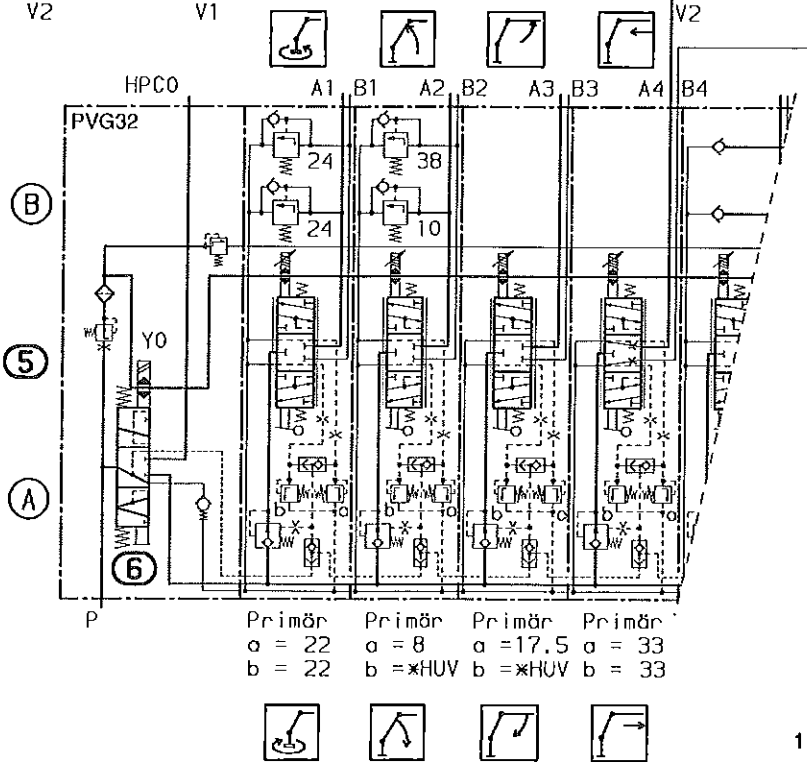
Alle Drücke = MPa
Unit in pressure = MPa
Unite de pression = MPa

PK 7001-EH B



PK 7001-EH C





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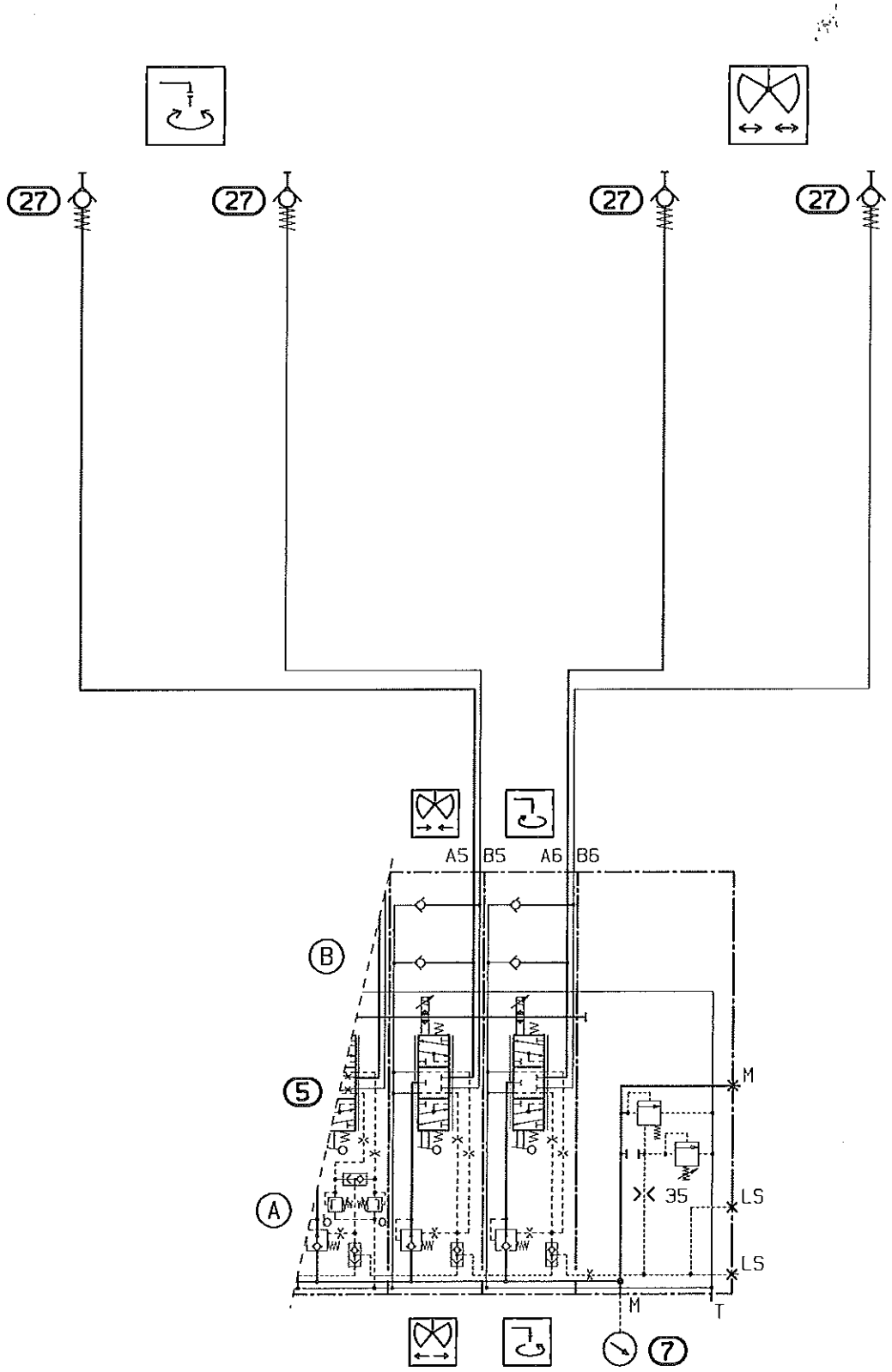

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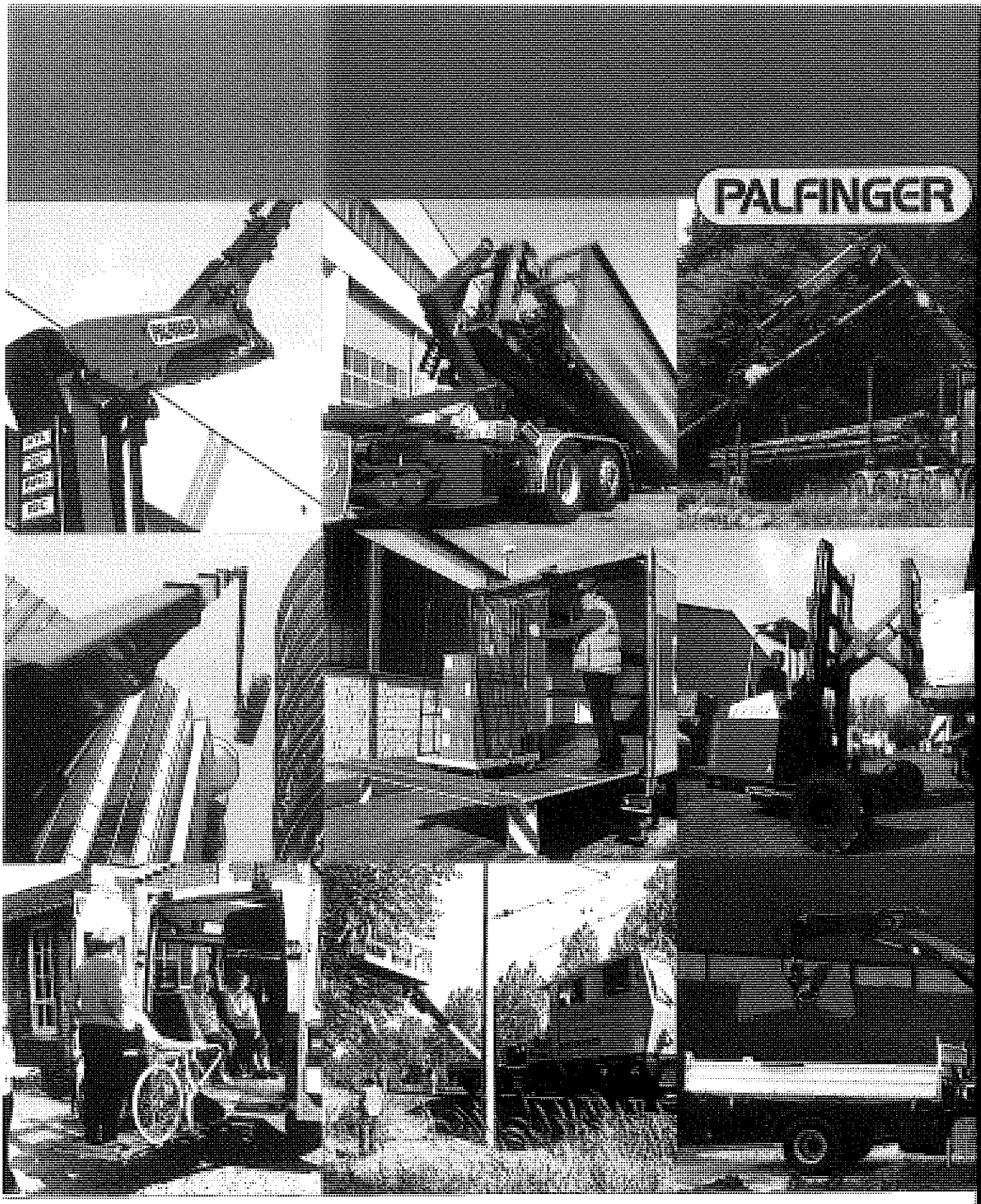

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