

# Instruction manual

## Slagkraft Cranes

SC40 / SC45 / SC70 / SC85 / SC160



Read through the entire instruction manual before operating!



English translation of the Swedish

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# 1 FOREWORD

This instruction manual contains the information you need to know in order to operate and maintain the crane in the best possible way. Read the contents thoroughly before you start to use the crane and carefully follow the instructions provided. This gives the best prerequisites for prolonged trouble-free functionality and provides good operating economy.

The spare parts catalogue is included as a separate part of the instruction manual and can include more model types than those taken up in the instruction manual.

We are striving continually to improve our products, and reserve the right to make design alterations without the obligation to implement these changes on outer boom cranes already delivered. Data and equipment are also subject to change without prior notice. The same applies for maintenance and other maintenance measures.

Cranab reserves the right to change the content of directions, instructions and data without prior notice.

## National safety regulations

In addition to the recommendations in this manual, each nation (state) has its own safety regulations. The same applies to traffic legislation. You are obliged to follow national provisions, if the recommendations in this manual deviate from the regulations of your country.

## Warning – pay attention!

This symbol is used in different parts of the manual together with a warning text. Failure to observe these instructions can result in danger of death or risk of personal injury. Carefully read through the summary chapter “Safety instructions” before starting work with the outer boom crane.



## 2 GENERAL DESCRIPTION

The instruction manual provides information on the following crane models from manufacturing number X4001.

SC40, SC45, SC70, SC85, SC160

### Identification

Please refer to separate instruction manuals for instructions concerning mounted attachments, e.g. horizontal and vertical flails.

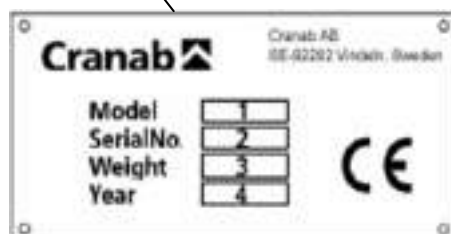
### Identification plate

There is an identification plate on the crane with data about the crane model, serial number and year of manufacture.

SLEWING MOTOR HOUSING

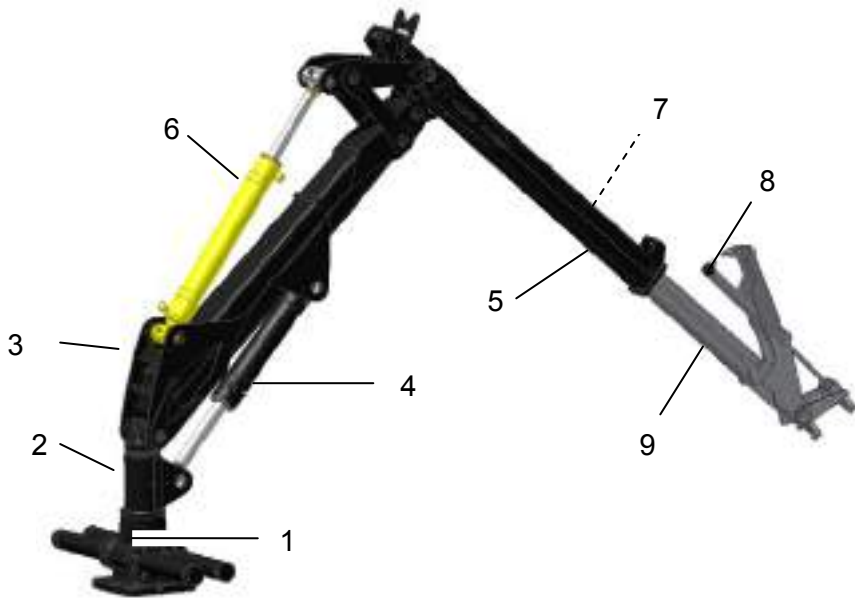


- 1 Model
- 2 Serial number
- 3 Weight
- 4 Year of manufacture



## Description

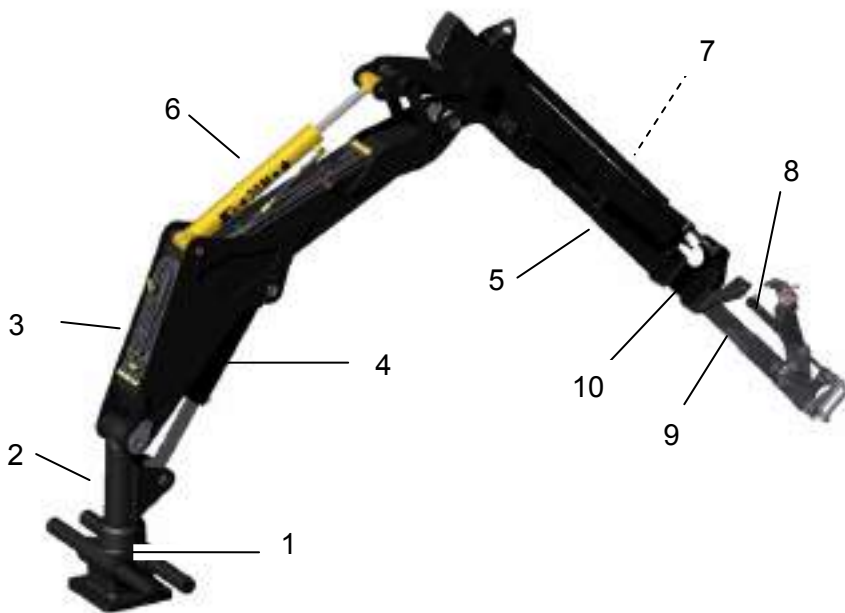
Shown below are the main parts of the crane. Figure 1 shows crane SC70, which is also representative of the models SC40, SC45 and SC85. Figure 2 shows crane SC160.



### SC40 SC45 SC70 SC85

1. Slewing motor
2. Pillar
3. Main boom
4. Lift cylinder
5. Outer boom
6. Outer boom cylinder
7. Telescopic cylinder
8. Tilt cylinder
9. Telescopic boom

Figure 1



### SC160

1. Slewing motor
2. Pillar
3. Main boom
4. Lift cylinder
5. Outer boom
6. Outer boom cylinder
7. Telescopic cylinder
8. Tilt cylinder
9. Inner boom
10. Intermediate boom

Figure 2

# 3 SAFETY INSTRUCTIONS AND OPERATING INSTRUCTIONS

## General safety regulations

The content of this chapter is a summary of the regulations that must always be followed when working with the crane. However, these regulations do not release crane operators from observing statutory or other applicable national regulations regarding traffic safety and occupational safety areas.

Safety regulations that apply for different types of workplaces and regulations according to road traffic legislation must always be observed.

Using the crane requires knowledge of its functions and the applicable safety instructions.

Any additional equipment to that supplied or recommended must be approved by Cranab.

It is important to know the risks when using hot work processes (such as grinding, welding, sawing/cutting) on products painted with polyurethane colours. If heated above 200°C, dangerous amounts of isocyanates may be released, and this will require personal protective equipment, and that the place of work has a ventilation system that works well. All work with isocyanates is regulated in national work environment directives.

You may find more information about this at:

International:

[www.isopa.org](http://www.isopa.org),

ISOPA [http://en.wikipedia.org/w/index.php?title=ISOPA&action=edit&redlink=1http://en.wikipedia.org/wiki/Isocyanate\\_-\\_cite\\_note-3](http://en.wikipedia.org/w/index.php?title=ISOPA&action=edit&redlink=1http://en.wikipedia.org/wiki/Isocyanate_-_cite_note-3) the European Diisocyanate and Polyol Producers Association

For Sweden:

- The Swedish Work Environment Authority regulations on thermosetting polymers, AFS 2005:18, phone: +46.8 730 90 00
- The pamphlet "Isocyanater är farliga" (Isocyanates are Dangerous) from the Swedish Work Environment Authority, phone: +46.8 730 90 00
- The book "Härdplaster" (Thermosetting Polymers) from Prevent, phone: +46.8.402 02 20

We can also supply data sheets on the paint in question on our web site [www.cranab.se](http://www.cranab.se) or from the Cranab Quality & Environmental section, phone: +46.933.135 00.



## Actions during operation

- It is forbidden to remain within the crane's safety zone during operation.
- It is prohibited to operate the crane in the vicinity of electrical power lines.
- Never leave the driver's cab when the engine is running.
- **The minimum** distance from live power lines must be less than 5 m.
- The operator should regularly check for abnormal noise and leakage while operating. Any faults discovered must be rectified before continued operation, in order to avoid personal injuries or damage to property.
- Never leave the cab when the engine is running.



## Actions after operation

- Always park the crane in its parking position.

If the crane has to be parked overnight, for example, the crane must be secured against unintentional movements. The parking position is with the base package resting on the ground and the crane tool on the ground. The surface must be flat and secure.

## Safety regulations for inspection, service and repair

- Inspection, service and repair work may only be carried out by individuals who have knowledge of the crane's operation and the applicable safety instructions.
- No maintenance or repair work is to be carried out unless the engine is stopped.
- The hydraulic system must be shut down when the crane is being serviced or repaired.
- Place the unit on a secure surface and offload the hydraulic cylinders before the hydraulic couplings are disconnected.
- There must be a free area of 20 metres around the crane when testing its operation. Only the operator may remain in this area while operations are tested.
- If required, always use a work platform when working on the crane.
- Always use a hard hat, protective goggles, gloves, protective shoes and any other necessary protection if the work requires.

## Safety markings

Decals with a yellow background provide information on the factors that can cause risk of damage.

Stickers must be kept clean and must be easily-visible. Damaged or illegible stickers must be replaced. New stickers can be ordered from your dealer.

# 4 MAINTENANCE AND INSPECTION

## General

Upon delivery, the crane has been tested with regard to operation and performance. In order for the crane to function in a satisfactory manner, it must receive regular service and maintenance. The instructions in this chapter and in the crane maintenance schedule must therefore be followed closely.



Make a habit of inspecting the crane daily, with regard to safety and function.

Daily checks, lubrication and simple repairs can be carried out by the operator. More complex repairs and adjustments should be carried out by the dealer's service organisation. Any faults discovered must be rectified before continued operation, in order to avoid personal injuries or damage to property. If, during a daily inspection, there is any doubt on what action to take, the dealer/service provider should be contacted for assessment. See also Chapter 6 Maintenance Schedule.

Pivot pin fasteners, flange joints, slewing motor mounting and hydraulic motor mountings are all important points that must be checked carefully during the inspection. Particularly important tightening torques are stated under the heading Bolted Joints.

Replace damaged hydraulic hoses and couplings. Always offload the hydraulic cylinders before disconnecting hydraulic couplings. To avoid confusion and incorrect order when re-connecting, the hydraulic hoses must be marked before disconnecting. NOTE! When fitting new hoses, the threads on the hose coupling must be lubricated.

After working on the hydraulic system, it must be bled before the crane is put into operation.

Always carry out regular lubrication according to the lubrication chart.

Only personnel trained in the operation of the crane may carry out service work. Service and maintenance must be carried out in accordance with the manufacturer's recommendations. The following applies for maintenance work:

- Observe the safety instructions issued by the base machine manufacturer, including that the machine must be parked on a flat surface during servicing, wheels must be chocked if necessary, etc.
- All lifting devices must conform to national regulations for lifting equipment.
- Avoid climbing on the machine. Instead, use the machine's ladders, which are fitted with anti-slip protection. Approved platforms should be used during maintenance for all work at height.
- Oils and grease are hazardous to health. Protect your skin with gloves and other appropriate clothing. Protect your eyes with protective glasses.

- When cleaning using compressed air or water: Note the risks of splashing particles and chemicals! Wear protective gloves and tight fitting protective glasses.
- Avoid breathing the fumes from hydraulic oil, especially hot oil. Wash skin exposed to oil spillage. Change any clothes stained with oil.
- Never wear jewellery or loose clothing/objects while working.
- When starting after changing the hydraulic oil, air in the hydraulic system can result in crane movement that is difficult to control. Check that no one is present in the crane's risk zone.
- Note the risks that hydraulic hoses, electrical wiring, etc. can be damaged when drilling, welding, etc. Always check hoses and wiring after repair work. Follow the manufacturer's instructions during welding.
- Inspection and maintenance work performed correctly can also involve risks. Consequently, demand training, the correct tools, any lifting devices, etc., necessary for the task. Replace substandard tools and other equipment that do not meet demands.
- A first aid box with suitable supplies should be available and kept well stocked.
- There must be fire extinguishers throughout the workplace, plus personnel who can use them.

## Daily checks

Check the following before starting and operating

- Possible visible leakage.
- Hoses (not loose or worn).
- The crane must be free from dirt.

## Assembly

Any additional equipment to that recommended by Cranab must be approved by Cranab.

- The crane must only be assembled on the base machine which meets the requirements of the hydraulic system, in accordance with the specifications in the section Technical Data.

## Offloading the hydraulic system



- Release the pressure prior to maintenance of the hydraulic system. Under high pressure, hoses can break, leakages and careless opening of connections can cause serious physical damage.
- Pressure adjustment should be performed by authorised personnel.

## Welding



During any repairs of the crane, when it is necessary to use welding, action must be taken by the dealer or on the dealer's authority. Also follow the manufacturer's guidelines for welding. The following action should be taken during welding work on the crane:

- Check that fire-fighting equipment is available.
- Clean around the weld area to eliminate any risk of fire.
- The earth cable connected to the welding current must not go over any bearing.
- Place the return cable as close to the weld area as possible.

## Cleaning

When cleaning, bearings, gaskets, electrical cable insulation, etc. can be damaged, even at low pressure and low temperatures. Exercise great care when using a high pressure washer.

## Waste

Use a collection tray when changing the hydraulic oil. Waste such as hydraulic oil, hoses and the like should also be set aside for recycling and destruction.

## Hydraulic system

The hydraulic system, to which the crane is connected, must under all circumstances be fitted with effective return oil filters.

The filters are to be replaced first after 25 operating hours, then at least after every 250 hours of operation, or according to the vehicle manufacturer's instructions if shorter intervals are stated.

Follow the machine manufacturer's instructions regarding filter replacement.

The hydraulic oil is to be replaced after every 500 hours or annually or according to the vehicle manufacturer's recommendations, if the vehicle's ordinary hydraulic system is used.

Check that the air filter on the hydraulic tank is not clogged and that water cannot enter.

Remember that a clean hydraulic system always guarantees the best operating reliability. Always keep the workplace clean when working on the hydraulic system. Cotton waste or other fluffy material must not be used for cleaning.



Air in the hydraulic system can cause a diesel effect. A gas ignition in a cylinder can cause considerable personal injury and material damage.

Carefully bleed the hydraulic system after working it by carefully running each cylinder to its end positions. Allow the insert pressure relief valves to work against the overflow for a few seconds at each end position. Extra care should be taken when running the slewing functions. Should the vehicle lean, the crane arm can swing out uncontrolled if the slewing cylinders are not filled with oil.

## Starting

Observe the following before the crane is put into operation for the first time:

- Lubricate the crane and ensure that the slewing motor is filled with oil to the prescribed level.
- Bleed the hydraulic system, test each operation carefully to its respective end position. Repeat the cycle several times for each operation. Extra care should be taken when running the slewing functions. Should the vehicle lean, the crane arm can swing out uncontrolled if the slewing cylinders are not filled with oil.
- Check that the hoses between the crane and crane valve, as well as the hoses between the nose of the crane and hydraulic motor, run freely and smoothly.
- Top up the hydraulic oil as necessary.

## Warning

### Power lines



Note that there is an accident risk when working with a crane near power lines. Even whilst it is in operation, the crane and its protruding parts may constitute a risk factor.



### Crushing hazard



Be aware of the risk of crushing from certain machine parts. This applies both to your safety and the safety of others, both during operation and maintenance.

### Crane



**No-one may be present under the crane.**



### Crane operation

- Ensure that the levers are placed in the correct sequence.
- Operate the crane with soft movements. This gives greater precision during operation and less wear and tear on equipment.

## Personal protection equipment



Use protection equipment (helmet, protective shoes, gloves, protective glasses, etc.) required for the task. Gloves are needed to protect the skin, for example against hazardous oils and fats.

## Spare parts

Always state the crane's serial number when ordering spare parts and with contact with your dealer. Only use Cranab original parts (see spare parts list).

## Checking the hydraulic oil pressure

All repairs to the hydraulic system and adjustment of pressure must be carried out by authorised service personnel.

## Services chart

This summarises the crane's service intervals, based on the number of operational hours. When you carry out a certain interval service, the shorter operating period services will also be carried out. For example: A 250 hours service will also include a 50 hours service.

### Daily

Other daily checkpoints

- No visible oil leakage.
- The crane must be free from dirt and oil. This reduces the risk of fire, and is also easier to detect damaged or worn parts.
- Slewing motor, oil level.
- Pipes and hoses, not loose or worn.
- Check that there are no screws missing.

### 25 hours

- Slewing motor upper bearing, lubricate.

### 250 hours

- Replace the slewing motor oil at 250 hours, then at 1000 hours.
- Outer boom, slide blocks. Check for wear and tear.

## 500 hours

- Bolted joints specific/general, tighten.
- Pivot pin locks, tighten.

## Visual inspection

Together with a check of the pivot pin locks, a visual check of the crane's condition must also be carried out. Specifically check for cracks, wear, deformation/dents, etc.

## 1000 hours

- Replace the slewing motor oil at 250 hours, then at 1000 hours.

## Bolted joints

When tightening torque-tightened bolted joints, they should always be loosened 1/4 turn before being torque tightened.

Strength Class (according to ISO 898 / 1)

| Thread M | Increase | Torque 8.8 [Nm] | Torque 10.9 [Nm] | Torque 12.9 [Nm] |
|----------|----------|-----------------|------------------|------------------|
| 8        | 1.25     | 20 Nm           | 28 Nm            | 40 Nm            |
| 10       | 1.50     | 40              | 56               | 79               |
| 12       | 1.75     | 70              | 98               | 136              |
| 14       | 2.0      | 110             | 155              | 217              |
| 16       | 2.0      | 170             | 238              | 333              |
| 18       | 2.5      | 236             | 332              | 463              |
| 20       | 2.5      | 331             | 465              | 649              |
| 22       | 2.5      | 445             | 626              | 874              |
| 24       | 3.0      | 572             | 804              | 1,120            |
| 27       | 3.0      | 826             | 1,161            | 1,620            |
| 30       | 3,5      | 1,127           | 1,582            | 2,210            |

## Pivot pin locks

Check the self-locking axle nuts after every 500 hours.

In respect of turning stop screws for pivot pins, it is recommended to consult the instructions for general bolted joints.

## General tightening torque

Other bolted joints must be tightened after every **500** hours, using the below torque.

The tightening torque is in respect of lubricated bolted joints. If "**Nordlock**" locking washers are used, the tightening torque must be increased by 20%.

## Oils, lubrication grease



**NOTE! DO NOT ALLOW OIL TO FLOW ONTO THE GROUND DURING OIL CHANGES.**

Do not discard oil near the sea or waterways.

If large amounts of oil are spilled, the rescue service or an oil cleaning company should be contacted. Drawn off oil should be sent for reclamation.

### BE AWARE OF THE ENVIRONMENT!

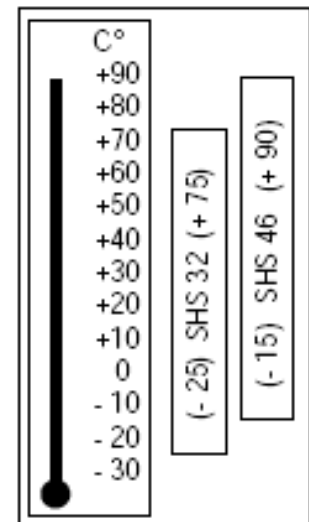
#### Hydraulic oils

Great demands are made on hydraulic oil, which is the component that transmits power in a hydraulic system, so that the hydraulic system produces the best possible degree of efficiency and service life. Oil primarily intended for equipment to be used outdoors should work within a wide temperature area. Oil should contain additives that counteract oxidation, corrosion and frothing, improve film strength and reduce the viscosity's dependence on temperature.

We recommend oils that fulfil the requirements of the Swedish Standard for hydraulic oils SS 155434.

The temperature range corresponds to the range for kinematic viscosity of 1500 - 10 mm<sup>2</sup>/s (= cSt) for the standardised hydraulic oils SHS, ISO VG 32 and SHS, ISO VG 46 as detailed in the accompanying diagram.

NOTE! Some pump or component suppliers can place other requirements on hydraulic oil than shown above. Check therefore that the desired hydraulic oil is approved before it is put into use.



#### Hydraulic oil

To make the correct choice of hydraulic oil and grease, please refer to the machine operation and maintenance instructions.

#### Lubrication

Carry out regular visual inspections to ensure a functioning lubrication of all functions. A fresh ring of grease at the lubrication points indicates a functioning lubrication point.

#### Slewing motor

The slewing motor's lower bearing and gearing both work in an oil bath. Check the oil level daily. The base plate is equipped with a plug for oil drainage. The hypoid oil SAE 80/W90 should be used following filling. The level and filling hose is located at the neck of the slewing motor between the slewing cylinders. There is a ventilation



nipple located on the opposite side to compensate for any level variations in the slewing motor housing. This function must not be blocked.

The slewing motor's slewing speed must not be changed without special consent. Note that the oil should be changed for the first time after 250 hours of operation. Then after 1000 hours or annually.

## Check the oil level

### Check the oil level daily

- When checking, the machine must be on a flat surface.
- The level should be in the middle of the level window.

### Oil change

The first oil change should be carried out after 250 hours, then after 1000 hours.

- The machine must be on a flat surface.
- Bend down and open the plug in the draining hose, or open the draining plug in the slewing motor's base plate. Collect the oil in a collection tray.
- Screw the plug back in.
- Bend the draining hose and fill with new oil through the draining hose until the level is in the middle of the level window, or fill it with new oil through the filling hole in the neck of the slewing motor.
- See the list of approved oils in the previous chapter *Oils, lubrication grease*.
- Spilled oil must be sent for reclamation.

| Service location    | Volume      | Oil             |
|---------------------|-------------|-----------------|
| Slewing motor SC40  | 2.6 litres  | API GL-5 80W/90 |
| Slewing motor SC45  | 2.6 litres  | API GL-5 80W/90 |
| Slewing motor SC70  | 6.2 litres  | API GL-5 80W/90 |
| Slewing motor SC85  | 6.2 litres  | API GL-5 80W/90 |
| Slewing motor SC160 | 11.0 litres | API GL-5 80W/90 |

## Lubrication

The upper slide bearing on the slewing motor must be lubricated after 25 hours. A suitable amount of grease is obtained after around 3–4 pump strokes using a lever grease gun.

## Boom system

The crane's boom system must be visually inspected every month for deformation, wear in bearings and static bearing seatings.

## Telescopic boom

### Lubrication

In order to maintain the system function, it is of utmost importance during service work, to ensure that all measures are carried out in accordance with the instructions below.

### Hoses

The hydraulic hoses have a somewhat bent shape during the production process. During assembly, where several hoses are to be fitted together, the direction of this bend must be the same for all hoses. When tightening hose connections, the hoses must not be twisted. Stop all twisting movement!

The size of the hose, its quality and length is adapted to each hydraulic function. These specifications may not be changed.

Check that the hoses are free to move and that no creases occur during movement of the crane.

### Telescopic boom



NOTE! During service or repair work, the telescopic boom/s must be locked or must be on a flat surface.

The telescopic boom is mounted in the outer boom using slide blocks. Normal wear results in play between the booms' bearing points and these must be checked regularly. Play exceeding 2 mm on the front edge of the booms must be rectified. Contact your service provider.

### Inspection and adjustment of the slide blocks

Slide blocks on the side of the telescopic boom/s must be checked and adjusted as indicated below.

- Extend the telescopic boom/s approx. 0.5 metres.
- Lower the joint onto the ground to offload the crane.
- Press the telescopic boom/s sideways using a crowbar.
- Measure the play between the slide plate and telescopic boom using a feeler gauge; the play should be 0.5 - 1.0 mm.
- Adjust the play by placing shims between the slide block holder and the slide blocks.

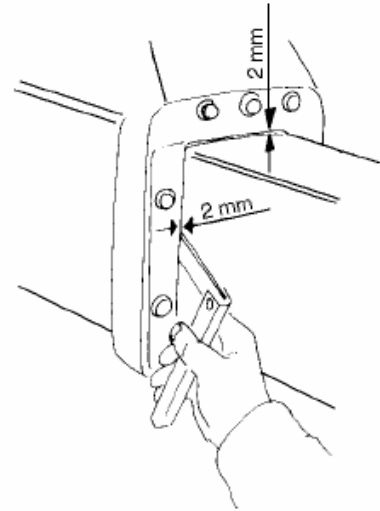
Warning! Adjust both sides equally in order to ensure that the telescopic booms run in parallel.

Slide blocks on the side of the telescopic boom/s must be checked and adjusted as indicated below:

- Extend the telescopic boom/s approx. 1 metre.
- Measure the play between the slide plates and the upper side of the telescopic boom using a feeler gauge; the play should be 0 - 0.5 mm.
- Adjust the play by placing shims between the slide block holder and the slide blocks.
- Checking wear on the inner of the telescopic boom can be checked when the booms are completely drawn in.
- Run in the booms to their innermost positions.
- Open the protective cover at the rear of the outer boom.
- Press the telescopic booms vertically and horizontally with a crowbar.
- Measure the play between the slide blocks and the telescopic boom with a feeler gauge.

The telescopic booms' rear slide blocks can not be adjusted or replaced without first dismantling the booms.

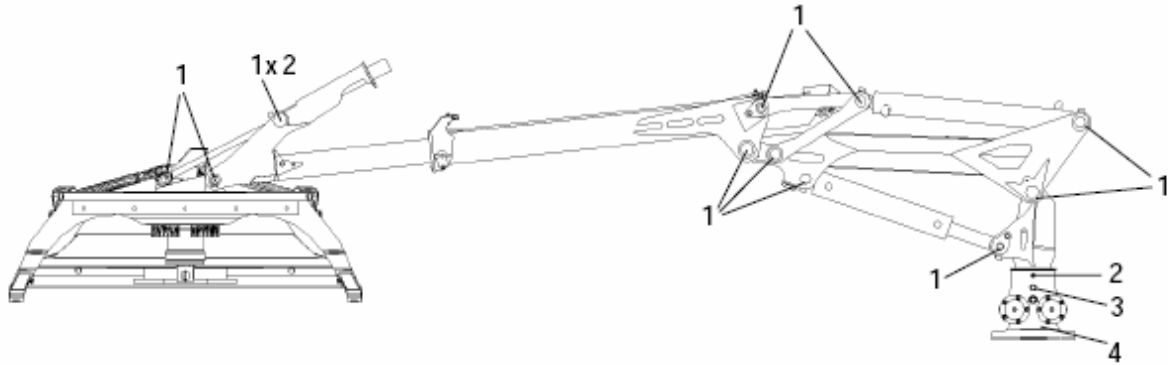
Play that exceeds 2 mm in one of the measurement points must be repaired. Contact your service workshop to rectify this.



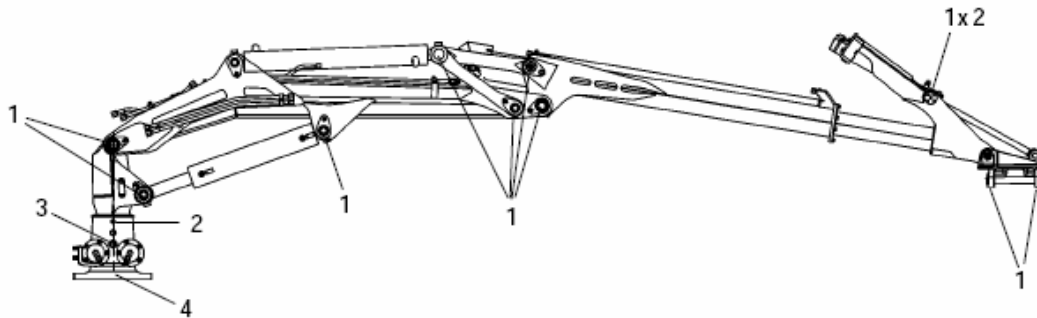
# 5 LUBRICATION CHART

## Lubrication chart SC40 and SC45

### SC40



### SC45



| Figure No | Description                                  | No of lubrication points | Frequency  |
|-----------|--|--------------------------|------------|
| 1         | Pivot pins and links on the crane boom.      | 15                       | 25 hours   |
| 2         | Slewing motor's upper bearing.               | 2                        | 25 hours   |
| 3         | Slewing motor; Level and filling plug.       | Oil volume 2.6 l         | 1000 hours |
| 4         | Drain plug for the oil in the slewing motor. |                          |            |

Use a fully filling grease appropriate for heavy loaded and/or shock-loaded bearings. Temperature range -30 – +110 °C .Penetration 265 – 295. NLGI2.

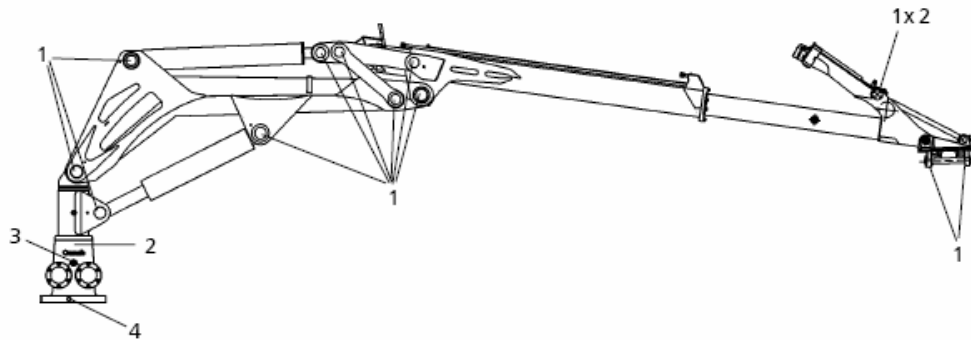
Hypoid oil according to API: GL-5, MIL-L-2105 C, SAE 80W/90. The oil must be emptied for the first time after 250 hours' operation. Then at intervals according to the chart.



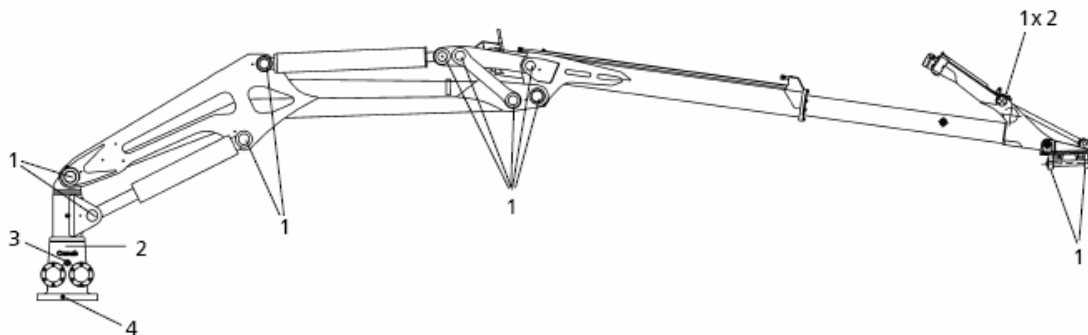
**NOTE! Lubricate carefully before commissioning a new crane. Should the lubrication ducts in e.g. a pivot pin become blocked so that the grease will not go in, immediately stop all further operation! Cover the pivot pin and unscrew the grease nipple. Then clean the lubrication hole in the axle. Then lubricate according to the lubrication chart. A turning stop for a pivot pin must always function.**

# Lubrication chart SC70 and SC85

## SC70



## SC85



| Figure No | Description                                  | No of lubrication points | Frequency  |
|-----------|--|--------------------------|------------|
| 1         | Pivot pins and links on the crane boom.      | 16                       | 25 hours   |
| 2         | Slewing motor's upper bearing.               | 2                        | 25 hours   |
| 3         | Slewing motor; Level and filling plug.       | Oil volume 6.2 l         | 1000 hours |
| 4         | Drain plug for the oil in the slewing motor. |                          |            |

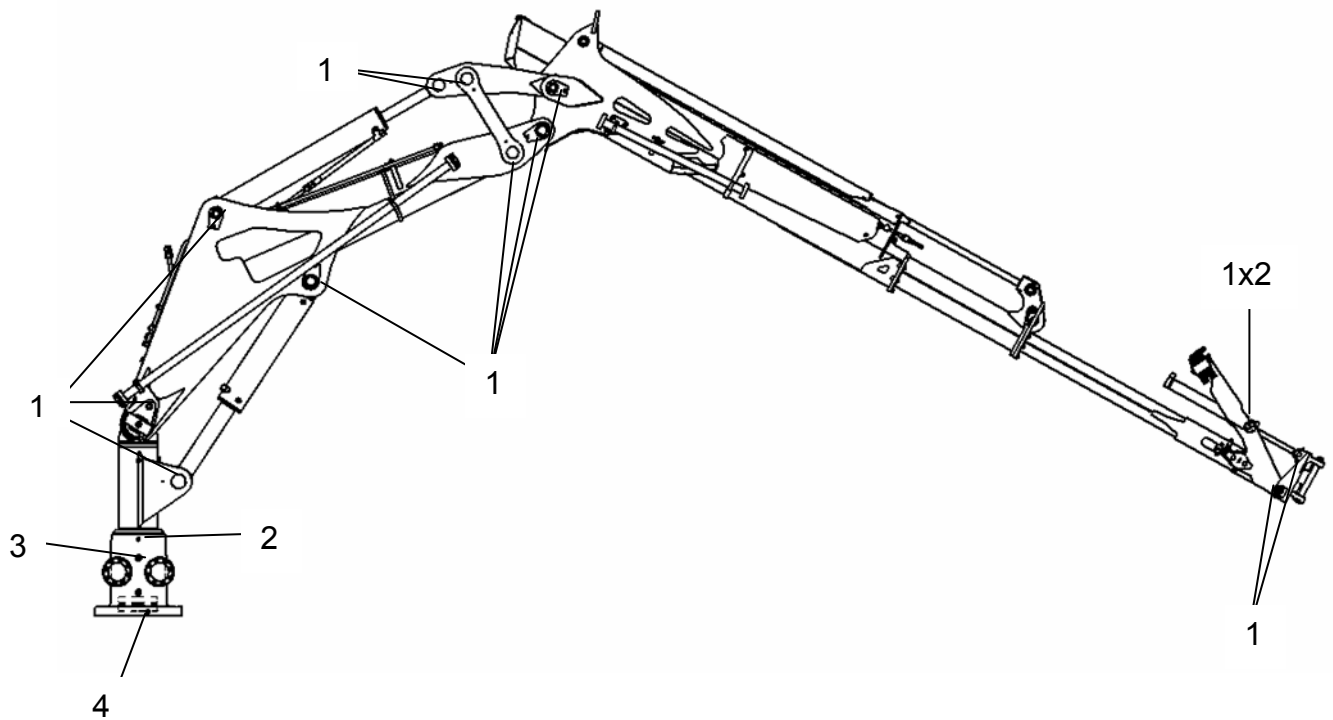
Use a fully filling grease appropriate for heavy loaded and/or shock-loaded bearings. Temperature range -30 – +110°C. Penetration 265 – 295. NLGI2.

Hypoid oil according to API: GL-5, MIL-L-2105 C, SAE 80W/90. The oil must be emptied **for the first time after 250 hours'** operation. Then at intervals according to the chart.








**NOTE!** Lubricate carefully before commissioning a new crane. Should the lubrication ducts in e.g. a pivot pin become blocked so that the grease will not go in, immediately stop all further operation! Cover the pivot pin and unscrew the grease nipple. Then clean the lubrication hole in the axle. Then lubricate according to the lubrication chart. A turning stop for a pivot pin must always function.


# Lubrication chart SC160



| Figure No | Description | No of lubrication points | Frequency |
|-----------|-------------|--------------------------|-----------|
|-----------|-------------|--------------------------|-----------|

|   |   |  |                   |            |
|---|---|--|-------------------|------------|
|  | 1 | Pivot pins and links on the crane boom.      | 16                | 25 hours   |
|  | 2 | Slewing motor's upper bearing.               | 2                 | 25 hours   |
|  | 3 | Slewing motor; Level and filling plug.       | Oil volume 11.0 l | 1000 hours |
|  | 4 | Drain plug for the oil in the slewing motor. |                   |            |

 Use a fully filling grease appropriate for heavy loaded and/or shock-loaded bearings. Temperature range -30 – +110°C. Penetration 265 – 295. NLGI2.

 Hypoid oil according to API: GL-5, MIL-L-2105 C, SAE 80W/90. The oil must be emptied for the first time after 250 hours' operation. Then at intervals according to the chart.



**NOTE!** Lubricate carefully before commissioning a new crane. Should the lubrication ducts in e.g. a pivot pin become blocked so that the grease will not go in, immediately stop all further operation! Cover the pivot pin and unscrew the grease nipple. Then clean the lubrication hole in the axle. Then lubricate according to the lubrication chart. A turning stop for a pivot pin must always function.

# 6 MAINTENANCE CHART

| <p>This table is a compilation of the service and maintenance measures described earlier. It is extremely important for the function of the crane and operating reliability that maintenance measures are carried out. Checks and measures are to be documented in the crane's maintenance log.</p> <p> <b>■ Checks and remedial action can be carried out by the operator</b><br/> <b>▲ Checks and remedial action are to be carried out by qualified personnel. Qualified personnel are those individuals approved by Cranab or Cranab's dealers.</b> </p>   | FREQUENCY |          |           |           |            | Remarks |
|--|-----------|----------|-----------|-----------|------------|---------|
|  | Daily     | 25 hours | 250 hours | 500 hours | 1000 hours |         |
| <b>General</b>   |           |          |           |           |            |         |
| Look out for visible defects.....  | ■         |          |           |           |            |         |
| Check that there is no oil leakage.....  | ■         |          |           |           |            |         |
| Replace the high pressure filter.....  |           |          | ■         |           |            | •       |
| Replace the return oil filter.....   |           |          | ■         |           |            | •       |
| Change the hydraulic oil.....  |           |          |           | ■         |            |         |
| Checking the function of the hydraulic system.....   |           |          |           | ▲         |            |         |
| Check that all prescribed signs are fitted and are readable.....   |           | ■        |           |           |            |         |
| Check the crane's pivot fasteners.....   |           | ■        |           |           |            |         |
| Lubricate the crane according to the lubrication chart.....  |           | ■        |           |           |            |         |
| <b>Boom system</b>   |           |          |           |           |            |         |
| Washing and visual inspection of load-bearing parts on the crane with regard to deformation.....   |           |          | ▲         |           |            |         |
| Check of static and dynamic bearing seatings.....  |           |          | ▲         |           |            |         |
| Check for wear to telescopic booms' slide blocks.....  |           |          | ■         |           |            |         |
| <b>Slewing motor</b>   |           |          |           |           |            |         |
| Check the tightening torque of the slewing motor mounting.....   |           |          | ■         |           |            |         |
| Check the oil level in the slewing motor.....  | ■         |          |           |           |            |         |
| Change the oil in the slewing motor.....   |           |          |           |           | ■          | ••      |
| Check of static and dynamic bearing seatings.....  |           |          | ▲         |           |            |         |
| Check the pillar.....  |           |          |           |           | ▲          |         |
| <p><b>If the crane has been exposed to damage caused, for example, by the environment or by an accident, it should be taken out of service until an inspection has been made.</b></p> <ul style="list-style-type: none"> <li>• The action is carried out for the first time after 25 hours of operation, then at intervals according to the chart. NOTE! The vehicle manufacturer may recommend other periods for replacement intervals. If this is the case, follow their recommendations</li> <li>•• The action is carried out for the first time after 250 hours of operation, then at intervals according to the chart.</li> </ul> |           |          |           |           |            |         |

# 7 DISMANTLING

The crane is designed and manufactured to be used for many years. If the crane is taken out of use and dismantled entirely or partly, the oil must be drained and collected. When dismantling, the crane must be placed so that it cannot fall.

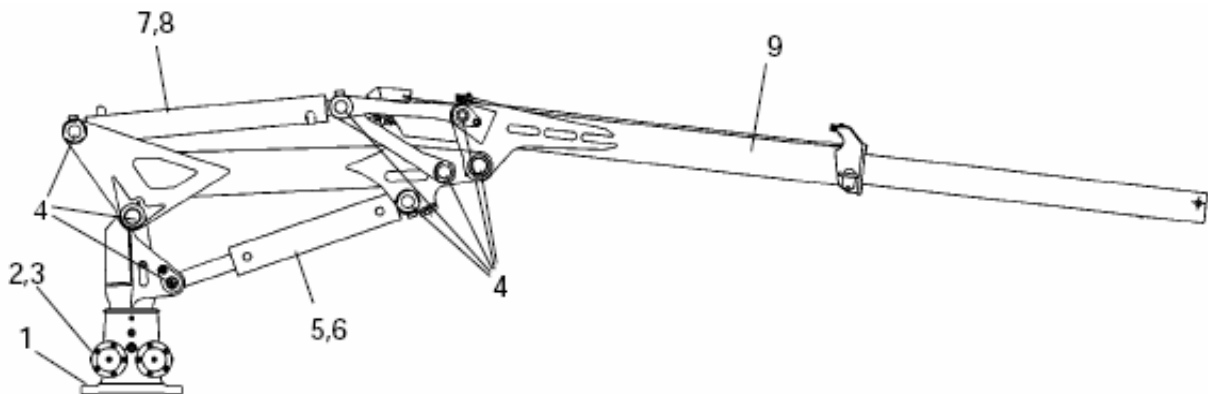


# 8 TIGHTENING TORQUE

## SC40

| Pos                        | Description             | Torque   | Thread size | Remarks |
|----------------------------|-------------------------|----------|-------------|---------|
| <b>Slewing motor</b>       |                         |          |             |         |
| 1.                         | Bolts for slew housing  | 705 Nm   | M 24        |         |
| 2.                         | Bolts for pistons       | 220 Nm   | M 16        | 12.9    |
| 3.                         | Bolts for cylinder tube | 138 Nm   | M 12        | 12.9    |
| <b>Pivot pins</b>          |                         |          |             |         |
| 4.                         | Locking bolts for pins  | 90 Nm    | M 12        |         |
| <b>Lift cylinder</b>       |                         |          |             |         |
| 5.                         | Piston                  | 900 Nm   |             |         |
| 6.                         | Pin nut                 | 1,000 Nm | M10         |         |
| <b>Outer boom cylinder</b> |                         |          |             |         |
| 7.                         | Piston                  | 1,100 Nm |             |         |
| 8.                         | Top nut                 | 1,100 Nm | M10         |         |
| <b>Telescopic cylinder</b> |                         |          |             |         |
| 9.                         | Piston                  | 150 Nm   |             |         |

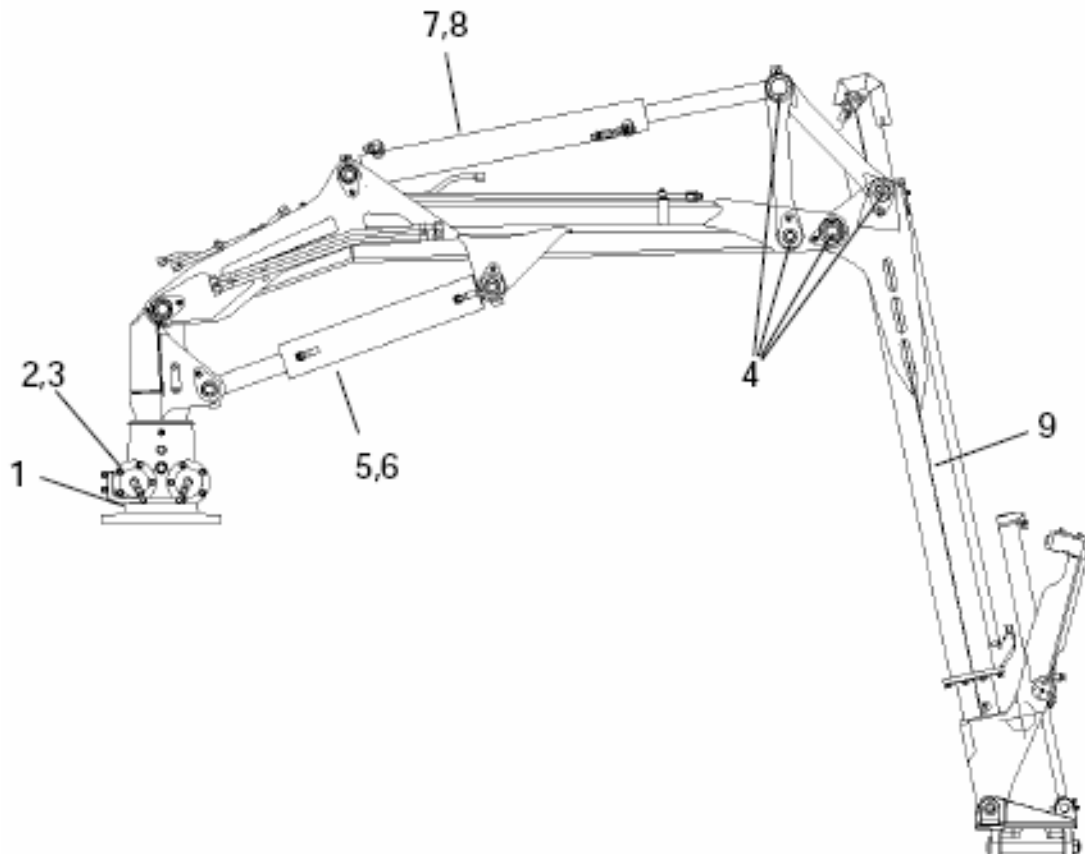
The tightening torque applies to screws of Strength Class 8.8, unless otherwise stated, and with oiled threads. Tightening torque in kpm is obtained by dividing the torque in Nm by 10.



# SC45

| Pos                        | Description             | Torque   | Thread size | Remarks |
|----------------------------|-------------------------|----------|-------------|---------|
| <b>Slewing motor</b>       |                         |          |             |         |
| 1.                         | Bolts for slew housing  | 705 Nm   | M 24        |         |
| 2.                         | Bolts for pistons       | 220 Nm   | M 16        | 12.9    |
| 3.                         | Bolts for cylinder tube | 138 Nm   | M 12        | 12.9    |
| <b>Pivot pins</b>          |                         |          |             |         |
| 4.                         | Locking bolts for pins  | 90 Nm    | M 12        |         |
| <b>Lift cylinder</b>       |                         |          |             |         |
| 5.                         | Piston                  | 900 Nm   |             |         |
| 6.                         | Pin nut                 | 1,000 Nm | M10         |         |
| <b>Outer boom cylinder</b> |                         |          |             |         |
| 7.                         | Piston                  | 1,100 Nm |             |         |
| 8.                         | Top nut                 | 1,100 Nm | M10         |         |
| <b>Telescopic cylinder</b> |                         |          |             |         |
| 9.                         | Piston                  | 150 Nm   |             |         |

The tightening torque applies to screws of Strength Class 8.8, unless otherwise stated, and with oiled threads. Tightening torque in kpm is obtained by dividing the torque in Nm by 10.

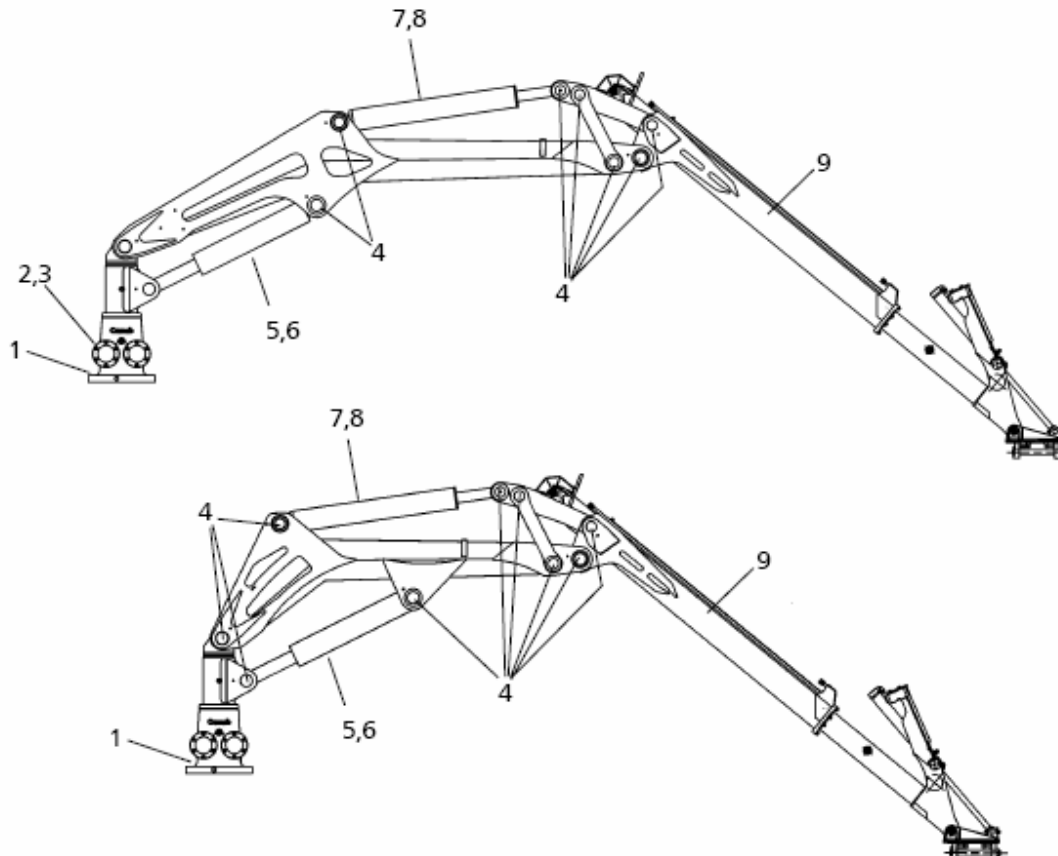


# SC70 and SC85

| Pos                        | Description             | Torque   | Thread size | Remarks |
|----------------------------|-------------------------|----------|-------------|---------|
| <b>Slewing motor</b>       |                         |          |             |         |
| 1.                         | Bolts for slew housing  | 1,100 Nm | M 24        | 12.9*   |
| 2.                         | Bolts for pistons       | 220 Nm   | M 16        | 12.9    |
| 3.                         | Bolts for cylinder tube | 138 Nm   | M 12        | 12.9    |
| <b>Pivot pins</b>          |                         |          |             |         |
| 4.                         | Locking bolts for pins  | 90 Nm    | M 12        |         |
| <b>Lift cylinder</b>       |                         |          |             |         |
| 5.                         | Piston                  | 1,000 Nm |             |         |
| 6.                         | Pin nut                 | 1,000 Nm | M10         |         |
| <b>Outer boom cylinder</b> |                         |          |             |         |
| 7.                         | Piston                  | 800 Nm   |             |         |
| 8.                         | Top nut                 | 1,100 Nm | M10         |         |
| <b>Telescopic cylinder</b> |                         |          |             |         |
| 9.                         | Piston                  | 180 Nm   |             |         |

\* The bolted joint needs washers with a minimum hardness of 200 Brinell.

The tightening torque applies to screws of Strength Class 8.8, unless otherwise stated, and with oiled threads. Tightening torque in kpm is obtained by dividing the torque in Nm by 10.

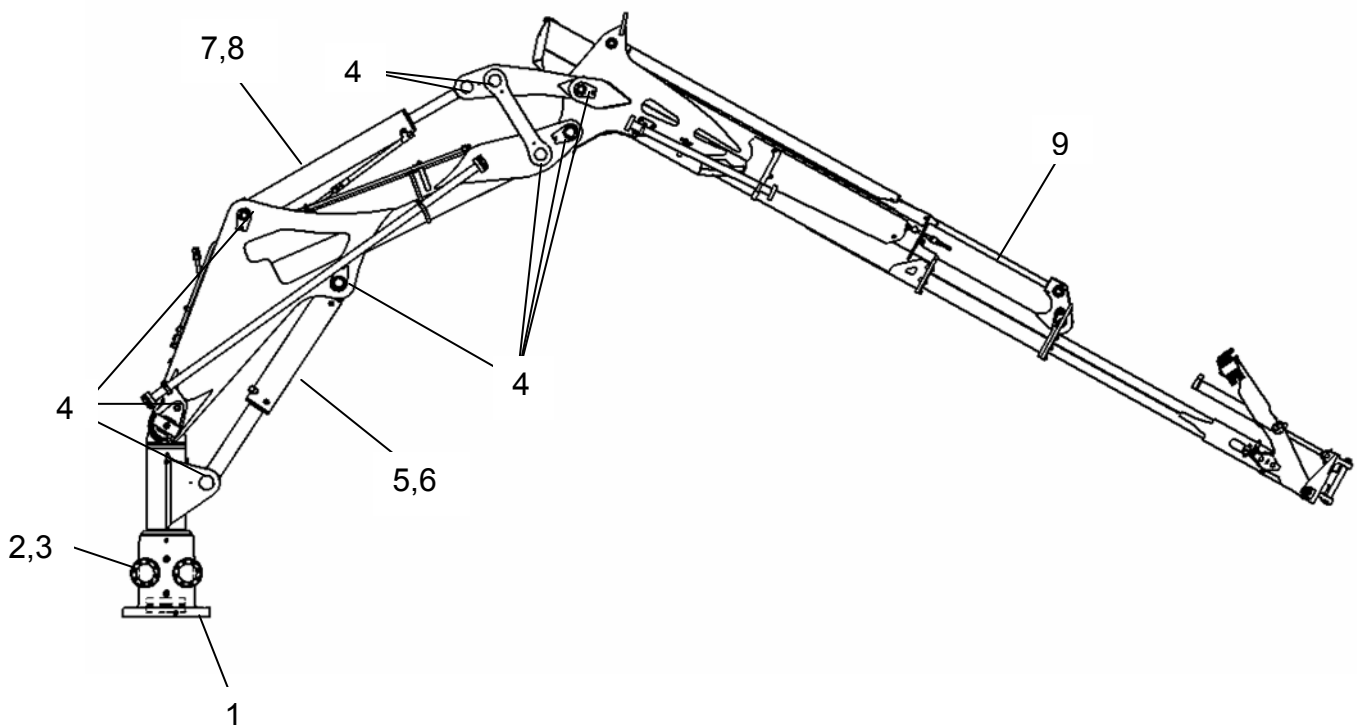


# SC160

| Pos                        | Description             | Torque   | Thread size | Remarks |
|----------------------------|-------------------------|----------|-------------|---------|
| <b>Slewing motor</b>       |                         |          |             |         |
| 1.                         | Bolts for slew housing  | 1,100 Nm | M 24        | 12.9*   |
| 2.                         | Bolts for pistons       | 220 Nm   | M 16        | 12.9    |
| 3.                         | Bolts for cylinder tube | 154 Nm   | M 12        | 12.9    |
| <b>Pivot pins</b>          |                         |          |             |         |
| 4.                         | Locking bolts for pins  | 90 Nm    | M 12        |         |
| <b>Lift cylinder</b>       |                         |          |             |         |
| 5.                         | Piston                  | 1,800 Nm |             |         |
| 6.                         | Pin nut                 | 1,800 Nm | M10         |         |
| <b>Outer boom cylinder</b> |                         |          |             |         |
| 7.                         | Piston                  | 1,800 Nm |             |         |
| 8.                         | Top nut                 | 1,800 Nm | M10         |         |
| <b>Telescopic cylinder</b> |                         |          |             |         |
| 9.                         | Piston                  | 350 Nm   |             |         |

\* The bolted joint needs washers with a minimum hardness of 200 Brinell.

The tightening torque applies to screws of Strength Class 8.8, unless otherwise stated, and with oiled threads. Tightening torque in kpm is obtained by dividing the torque in Nm by 10.



# 9 EU DECLARATION OF CONFORMITY



Dokument id: 470 1871-R1  
Ursprungsdatum: 2009-12-21  
Revision 1, Revisionsdatum: 2010-05-19  
Sida / Page 1 (4)

SE

## EG-Föräkrän om överensstämmelse

Enligt EG's maskindirektiv 2006/42/EG (AFS 2008:3)  
Cranab AB, försäkrar härmed att maskin:

Modell: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87. Från och med tillverkningsår 2010

- Får inte tas i bruk förrän den maskin eller anläggning som den ska ingå i överensstämmer med kraven i EG's maskindirektiv.
- Är tillverkad i överensstämmelse med RÅDETS DIREKTIV av den 2009-12-29 angående inbördes närmaste medlemsstaternas lagstiftning rörande maskiner, 2006/42/EG, med särskilda hänvisningar till direktivets annex 1 om väsentliga hälso- och säkerhetskrav i samband med konstruktion och tillverkning av maskiner, kompletterat med aktuella tillägg.
- Är tillverkad i överensstämmelse med harmoniserande standarden EN ISO 12100-1, -2.
- Är tillverkad i överensstämmelse med nationell standard IKH 4.30.01.

GB

## EU Declaration of Conformity

In accordance with the EU Machinery Directive 2006/42/EG (AFS 2008:3)  
Cranab AB, declares under sole responsibility that the machine:

Model: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87 From the year of manufacture 2010

- Must not be used until the machine or installation it is to be integrated into corresponds with the demands set out in the EU Machinery Directive.
- Is manufactured in conformity with the COUNCIL'S DIRECTIVE of 2009-12-29 regarding the harmonization of the legislation of member states concerning machines, 2006/42/EC, with particular reference to directive annex 1 concerning essential health and safety requirements in connection with the design and manufacture of machines, supplemented with the current annex.
- Is manufactured in conformity with the harmonizing standards EN ISO 12100-1, -2.
- Is manufactured in conformity with the national standard IKH 4.30.01.

DE

## EU-Konformitätserklärung

Gemäß der Richtlinie für Maschinen 2006/42/EG (AFS 2008:3)  
Cranab AB versichert hiermit, dass die Maschine:

Modell: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87 ab Baujahr 2010

- erst in Betrieb genommen werden darf, wenn die Maschine oder Anlage, deren Teil sie ist, mit den Anforderungen in der EG-Richtlinie für Maschinen übereinstimmt.
- in Übereinstimmung mit der RICHTLINIE DES RATES vom 2009-12-29 zur Annäherung der Rechtsvorschriften der Mitgliedstaaten über Maschinen, 2006/42/EG, hergestellt wurde, mit besonderem Hinweis auf Anhang 1 der Richtlinie über grundlegende Sicherheits- und Gesundheitsanforderungen bei Konzipierung und Bau von Maschinen, einschließlich der aktuellen Ergänzungen;
- in Übereinstimmung mit der harmonisierenden Norm EN ISO 12100-1, -2 hergestellt wurde;
- in Übereinstimmung mit der nationalen Norm IKH 4.30.01 hergestellt wurde.

FI

## EU-vaatimusten mukaisuusvakuutus

EU:n kone-direktiivin 2006/42/EY (AFS 2008:3), mukaisesti  
Cranab AB vakuuttaa täten seuraavasti:

Modelli: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87 alkaen valmistusvuodesta 2010

- Koneella ei saa ottaa käyttöön, ennen kuin pääkone tai -laitte, johon se liitetään, vastaa EU:n kone-direktiivin määräyksiä.
- Koneen valmistuksessa on huomioitu NEUVOSTON DIREKTIIVI, annettu 2009-12-29, jäsenvaltioiden kanta koskevan lainsäädännön lähentämisestä, 2006/42/EY, erityisesti konin direktiivin liitteeseen 1 olennaisista terveys- ja turvallisuusvaatimuksista koneiden suunnittelussa ja valmistuksessa, asiaankuuluvien lisäyksin täydennettynä.
- Kone on valmistettu yhdenmukaistetun standardin EN ISO 12100-1, -2 mukaisesti.
- Kone on valmistettu kansallisen standardin IKH 4.30.01 mukaisesti.

ES

## Declaración CE de conformidad

Según la Directiva CE sobre máquinas 2006/42/CE (AFS 2008:3)  
Cranab AB, garantiza por la presente que la máquina:

Modelo: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87 A partir del año de fabricación 2010

- No debe utilizarse hasta que la máquina o la instalación de la que va a formar parte cumplan con los requisitos de la Directiva CE sobre máquinas.
- Está fabricada de acuerdo con la DIRECTIVA DEL CONSEJO del 2009-12-29 relativa a la aproximación de las legislaciones de los Estados miembros sobre máquinas, 2006/42/CE, con especial referencia al Anexo 1 de la directiva sobre requisitos fundamentales de salud y seguridad durante la construcción y fabricación de máquinas, completada con los suplementos pertinentes.
- Se fabrica de acuerdo con las normas armonizadas EN ISO 12100-1, -2.
- Se fabrica de acuerdo con la norma nacional IKH 4.30.01.

**IT****Dichiarazione di conformità CE**ai sensi della direttiva macchine 2006/42/CE (AFS 2006:3)  
Cranab AB certifica con la presente che la macchina:**Modello: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87** A partire dall'anno di produzione 2010

- non deve essere messa in funzione finché la macchina o l'impianto di cui costituirà una parte non saranno dichiarati conformi alla direttiva macchine CE;
- è prodotta in conformità alla direttiva 2006/42/CE del Parlamento europeo e del Consiglio del 2009-12-29 concernente il ravvicinamento delle legislazioni degli Stati membri relative alle macchine, con particolare riguardo all'allegato I sui requisiti essenziali ai fini della sicurezza e della tutela della salute da rispettare in sede di progettazione e produzione, e successive modifiche e integrazioni;
- è prodotta in conformità alle norme armonizzate EN ISO 12100-1, -2;
- è prodotta in conformità alla norma svedese IKH 4.30.01.

**FR****Déclaration de conformité CE**Conformément à la directive 2006/42/CE (AFS 2006:3) de la CE sur les Machines.  
La société Cranab AB certifie par la présente que la machine :**Modèle : FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87** À partir de l'année de fabrication 2010

- Ne peut être mise en service avant que la machine ou l'installation dans laquelle elle doit être incluse ne soit conforme aux dispositions de la directive Machines de la CE.
- Est fabriquée en conformité avec la DIRECTIVE DU CONSEIL du 2009-12-29 concernant le rapprochement des législations des États Membres relatives aux machines, 2006/42/CE, avec références particulières à l'annexe 1 de la Directive concernant les exigences essentielles de santé et de sécurité liées à la conception et à la construction des machines, complétée par les amendements applicables.
- Est fabriquée en conformité avec la norme harmonisante EN ISO 12100-1, -2.
- Est fabriquée en conformité avec la norme nationale IKH 4.30.01.

**PG****Certificado EU de conformidad**Segundo a directiva de utilização de máquinas da 2006/42/CE (AFS 2006:3)  
Cranab AB, assegura por esta, que a máquina:**Modelo: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC, 125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87** A partir do ano de fabrico 2010

- Não pode entrar em serviço antes que a máquina ou instalação de que vai fazer parte esteja conforme com os requisitos constantes nas directivas de utilização de máquinas da EU.
- Está fabricada em conformidade com a DIRECTIVA DO CONSELHO de 2009-12-29 relativa à aproximação dos Estados membros respeitantes às máquinas, 2006/42/CE, com referências especiais ao anexo 1 da directiva, sobre exigências especiais de segurança e de saúde relativas à concepção e à construção de máquinas, completada com anexos actuais.
- Está fabricada em conformidade com a norma harmonizada EN ISO 12100-1, -2.
- Está fabricada em conformidade com a norma nacional IKH 4.30.01.

**NO****EU-samsvarserklæring**Iht. EUs maskindirektiv 2006/42/EG (AFS 2006:3)  
Cranab AB forsikrer herved at maskin:**Modell: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87.** Fra og med produksjonsår 2010

- Skal ikke tas i bruk før maskin eller anlegg som den skal inngå i er i samsvar med kravene i EUs maskindirektiv.
- Er produsert i overensstemmelse med RÅDETS DIREKTIV av 29. desember 2009 angående innbyrdes tilnærming til medlemslandenes lovgivning når det gjelder maskiner, 2006/42/EF, med spesifikke henvisninger til direktivets annekse 1 om vesentlige helse- og sikkerhetskrav i forbindelse med konstruksjon og produksjon av maskiner, komplettert med aktuelle tillegg.
- Er produsert i samsvar med den harmoniserende standarden EN ISO 12100-1, -2.
- Er produsert i overensstemmelse med nasjonal standard IKH 4.30.01.

**DA****EF-Overensstemmelseserklæring**I henhold til maskindirektivet 2006/42/EF (AFS 2008:3)  
Cranab AB erklærer hermed at maskinen:**Model: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87. Fra og med produktionsår 2010**

- Ikke må tages i brug før den maskine eller det anlæg som den skal indgå i, er i overensstemmelse med kravene i EF's maskindirektiv.
- Er fremstillet i overensstemmelse med RÅDETS DIREKTIV af 2009-12-29 om indbyrdes tilnærmelse af medlemsstaternes lovgivning om maskiner, 2006/42/EF, med særlig henvisning til direktivets bilag 1 om sundheds- sikkerhedsmæssige krav i forbindelse med konstruktion og produktion af maskiner, kompletteret med aktuelle tilføjelser.
- Er fremstillet i overensstemmelse med den harmoniserede standard EN ISO 12100-1, -2.
- Er fremstillet i overensstemmelse med den nationale standard IKH 4.30.01.

**ET****EÜ vastavusavaldus**Vastavalt EÜ masinadirektiivile 2006/42/EÜ (AFS 2008:3)  
kinnitab Cranab AB käesolevaga, et masin:**Model: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87. alates tootmisaaastast 2010**

- ei tohi olla kasutuses enne, kui see masin või seade, mille külge ta kuulub, vastab EÜ masinadirektiivi nõuetele.
- on toodetud vastavuses NÕUKOGU DIREKTIIVILE 29.12.2009, mis puudutab liikmesriikide masina-alaste seadusaktide omavahelist ühilduvust, 2006/42/EÜ, seadjuures pöörates erilist tähelepanu direktiivi lisale 1 olulistest tervise- ja ohutusnõuetest masinate konstrueerimise ja tootmise käigus, ja selle täiendustele.
- on toodetud vastavuses ohustatud standardile EN ISO 12100-1, -2.
- on toodetud vastavuses riiklikele standardile IKH 4.30.01.

**LV****EK atbilstības deklarācija**Saskaņā ar EK Mašīnu direktīvu 2006/42/EK (AFS 2008:3)  
Cranab AB ar šo apliecinā, ka mašīna:**Modeļi: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87. no 2010 gada ar**

- var tikt nodota ekspluatācijā tikai tad, ja mašīna vai iekārta, kurā šī mašīna ietilpst, atbilst EK Mašīnu direktīvas prasībām;
- ir izgatavota saskaņā ar 2009/12/29 PADOMES DIREKTĪVU 2006/42/EK par dalībvalstu tiesību aktu saskaņošanu attiecībā uz mašīnām, ar īpašu atsauci uz Direktīvas 1. pielikumu par būtiskām drošības un veselības aizsardzības prasībām attiecībā uz mašīnu projektēšanu un būvēšanu, tai skaitā ar jaunākajiem papildinājumiem;
- ir izgatavota atbilstoši saskaņotajam standartam EN ISO 12100-1, -2;
- ir izgatavota atbilstīgi valsts standartam IKH 4.30.01.

**HU****EK-megfelelőségi nyilatkozat**A 2006/42/EK gépekről szóló irányelv (svéd AFS 2008:3) értelmében,  
a Cranab AB az alábbi gépekre a következőket nyilatkozza:**Modell: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87. A 2010-és gyártási évtől és az kezdve.**

- Tilos használatba venni őket, amíg azok a gépek vagy berendezések, amelyeknek részét képezik, meg nem felelnek a gépekről szóló EK-irányelv követelményeinek.
- Gyártások megfelel a tagállamok gépekre vonatkozó jogszabályainak kölcsönös közelítéséről szóló, 2009.12.29-én elfogadott TANÁCSI IRÁNYELVNEK, valamint a 2006/42/EK irányelvnek, külön utalással az irányelv I. mellékletében a tervezésre és gyártásra előírt lényeges egészségvédelmi és biztonsági követelményekre, hatályos pótlásokkal kiegészítve.
- Az EN ISO 12100-1, -2. sz. harmonizált szabványnak megfelelően készültek.
- Az IKH 4.30.01. sz. nemzeti szabványnak megfelelően készültek.

**PL****Deklaracja zgodności WE**Zgodnie z dyrektywą maszynową WE nr 2006/42/WE (AFS 2008:3)  
firma Cranab AB oświadcza niniejszym, że maszyna:**Model: FC45, FC53, FC65, FC80, FC92, FC106, FC115, FC125, FC155, HC35, HC155, HC185, SC40, SC45, SC70, SC85, SC160, TC87. Poczynając od roku produkcji 2010**

- Nie może zostać oddana do eksploatacji, zanim maszyna lub instalacja, w skład której będzie wchodzić, nie będzie zgodna z wymaganiami dyrektywy maszynowej WE.
- Została wyprodukowana zgodnie z dyrektywą Rady 2006/42/WE z dnia 29 grudnia 2009 roku w sprawie zbliżenia ustawodawstw Państw Członkowskich odnoszących się do maszyn, ze szczególnym uwzględnieniem załącznika I do dyrektywy zawierającego zasadnicze wymagania w zakresie ochrony zdrowia i bezpieczeństwa odnoszące się do projektowania i wykonywania maszyn, uzupełnionego o aktualne dodatki.
- Została wykonana zgodnie z normą zharmonizowaną EN ISO 12100-1, -2.
- Została wykonana zgodnie z normą krajową KH 4.30.01.

Ort / Location / Ort / Paikkakunta / Lugar / Luogo / Lieu / Localidade: Vindeln  
Datum / Date / Datum / Päiväys / Fecha / Data / Date / Data: 2010-05-19

Underskrift / Signed / Unterschrift / Allekirjoitus / Firma / Firma / Signature / Assinatura:

  
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