LIEBHERR

LICCON job planner

Operating instructions

BAL No.: 99500-03-02

Serial No.	
Date	

ORIGINAL OPERATING MANUAL

The operating manual is part of the crane!

It must always be available within reach!

The regulations for crane operation must be observed!

Foreword

General

This crane has been built according to the present level of technology and recognized safety technical regulations. Despite that, dangers to body and life for the user and/or third persons or damage to the crane and /or other material assets can occur.

This crane may only be used in flawless technical condition and according to its mission as well as with constant awareness of safety and dangers. Any problems, which could affect safety must be fixed immediately.

Modifications on the crane may only be made with written approval by Liebherr-Werk Ehingen GmbH.

Operating instructions

These operating instructions are intended to put you in a position to operate the crane safely and utilize the reliable usage options that it provides. The instructions also provide information about the function of important components and systems.

Certain expressions are used in these operating instructions. In order to avoid misunderstandings, the same expressions should always be used.

These operating instructions have been translated to be best of one's knowledge. Liebherr-Werk Ehingen GmbH assumes no liability for translation errors. The German version of the operating instructions is solely applicable for factual accuracy. If you find any errors or if any misunderstandings arise when reading these operating instructions, please contact Liebherr-Werk Ehingen GmbH immediately.

DANGER
Risk of accidents if crane is not operated correctly!
▶ Only qualified and trained expert personnel are permitted to work on this crane.

The operating instructions and on-site regulations and specifications (such as accident prevention regulations) must be followed.

Using these operating instructions:
– **makes it easier** to become familiar with the crane
– **avoids** problems due to improper operation

Observing these operating instructions:
– **increases** reliability in use
– **extends** the service life of your crane
– **reduces** repair costs and downtime

Always keep these operating instructions handy in the driver's or crane cab.

The operating instructions belong with the crane!

Only operate the crane if you are well familiarized with the equipment, and always follow these operating instructions.

If you have received additional information about the crane from us, such as technical information bulletins, then this information must also be followed and kept with the operating instructions.

If there is anything in the operating instructions or the individual chapters that you do not understand, please contact us before starting the relevant work.

The information and illustrations contained in these operating instructions may not be copied or distributed, nor used for competitive purposes. All rights are expressly reserved in accordance with copyright laws.

All accident prevention guidelines, operating instructions, etc. are based on destined use of the crane.

Destined use

The destined use of the crane consists solely in vertical lifting and lowering of free and non-adhered loads, whose weight and center of gravity are known.

To do so, a hook or hook block approved by Liebherr must be reeved on the hoist rope and it may only be operated within the permissible crane configurations.

Driving with the crane, with or without an attached load is only permissible if a corresponding driving or load chart is available. The crane configurations intended for it and the safety conditions must be observed according to the corresponding operating instructions.

Any other use or any other exceeding utilization is **not** destined use.

Part of destined use is also adherence of required safety regulations, conditions, preconditions, crane configurations and working steps as noted in the crane documentation (operating instructions, load chart, job planer).

The manufacturer is **not** liable for damages, which are caused by non-destined use or improper use of the crane. Any associated risk it is carried solely by the owner, the operator and the user of the crane.

Non-destined use

Non-destined use is:
– Working outside the permissible crane configurations according to the load chart
– Working outside the permissible projection radii and slewing ranges according to the load chart
– Selecting load values, which do not correspond to the actual crane configuration
– Selecting LMB-Codes, which do not match the actual crane configuration
– Working with bypassed load moment limiter or bypassed hoist limit switch
– Increasing the projection radius of the lifted load after a LMB shut off, for example by diagonally pulling the load
– Using the support pressure display as a safety function against tipping over
– Using equipment or attachment parts which are not approved for the crane
– Using the crane at sports and recreational events, especially for 'Bungee' jumps
– Driving on a public road in non-permissible driving condition (axle load, dimension)
– Driving with the equipment in place in a non-permissible driving condition
– Pushing, pulling or lifting loads with the leveling regulation, the sliding beams or the support cylinders
– Pushing, pulling or lifting loads by actuating the slewing gear, the luffing gear or the telescoping gear
– Ripping stuck objects loose with the crane
– Utilizing the crane for a longer period of time for material handling tasks
– Releasing the crane suddenly (grapple or dumping operation)
– Putting the crane into service when the weight of the load, which is suspended load on the crane, is changed, for example by filling a container suspended on the load hook

The crane may **not** be used for:
– attaching a stuck load for which the weight and center of gravity are not known and which has been released first, for example with a cutting torch
– letting persons drive along outside the driver's cab
– transporting personnel in the crane cab while driving
– transporting personnel with the lifting equipment and on the load
– transporting personnel with containers (cherry pickers), if no written approval of the corresponding job safety board has been issued
– transporting loads on the chassis
– two hook operation without auxiliary equipment
– extended material handling operation

The operating instructions must be read and used by all persons who are involved in use, operation, assembly and maintenance of the crane.

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Warnings

The following terms that are used in these operating instructions "Note", "CAUTION", "WARNING" and "DANGER" are intended to point out certain **important rules of conduct** to all persons who work with the crane.

Note:

The term "Note" is used to draw attention to certain matters.

CAUTION:

The term "CAUTION" is used to provide a warning about potential damage to property or minor personal injury.

WARNING:

The term "WARNING" is used to provide a warning about potentially serious personal injury.

DANGER:

The term "DANGER" is use to provide a warning about life-threatening hazards.

Safety equipment

Special attention must be paid to the safety equipment built into the crane. The functionality of the safety equipment must be monitored at all times. The crane must not be operated if the safety equipment is not working or not working correctly.

Your motto must always be:

!Safety first!

The crane has been built in accordance with the applicable crane operation and driving regulations and has been approved by the relevant authorities.

Attachment and spare parts

DANGER
Danger to life if original attachment parts are **not** used!
If the crane is operated with attachment parts, which are **not** original, then the crane can fail and cause fatal accidents!
Crane components can be damaged!
▶ Operate the crane only with original attachment parts!
▶ Crane operation with attachment parts, which do **not** belong to the crane is prohibited!

DANGER
The crane permit and the manufacturer's warranty will become void!
If originally installed parts are modified, manipulated or replaced (e.g. removal of parts, installation of non-original parts), both the crane permit as well as the manufacturer's warranty will become void.
▶ Do not modify original parts.
▶ Do not remove original parts.
▶ Always use Liebherr original spare parts.

Definition of directional data

Forward driving means driving with the driver's cab on the front.

Reverse driving means driving with the tail lights of the chassis on the front.

Front, **rear**, **right**, **left** on the **crane** refer to the condition, that the driver's cab and the boom point in the same direction. Front is always in direction of the driver's cab.

Front, **rear**, **right**, **left** in the **driver's cab** refer to the crane chassis. The driver's cab is always in the front.

Front, **rear**, **right**, **left** in the **crane operator's cab** refer to the superstructure. Front is always in direction of the boom.

Customer request

Customer-specific equipment is marked with *****.

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1 General

With the **LICCON job planer**, **LIEBHERR** offers his customers the possibility to effectively plan crane applications. The development of this extensive software package for planning, simulation and documentation of crane applications was made possible after the data acquisition of all possible operating conditions for each mobile crane has been structured and formatted for computer processing by construction and work preparation to manufacturing to crane delivery. The software has been especially configured and archived for each mobile crane. This results in the multitude of possibilities of the LICCON job planer. To ensure realistic planning, the program must contain the same data, which has been saved in the LICCON for each individual crane. For all LIEBHERR cranes, crane specific data disks are available.

2 Warranty

The user knows, that the program and the documentation can contain errors. According to the latest technology it is impossible to make a program completely free of errors. The warranty is restricted exclusively to the remedy of material errors. The warranty period is 6 months from the day of delivery. The warranty becomes void when the user makes or allows changed to the delivered item without approval by LIEBHERR.

3 Liability

LIEBHERR is not liable for lost earnings, missing savings, immediate and / or subsequent damage of any kind as well as loss of data. These limitations of liability apply not only for damages, which as based on intent, gross negligence or lack of promised features.

4 Trademark rights

LIEBHERR asserts the copyright to the job planer program as well as the documentation; in this regard, LIEBHERR reserves all rights. A patent or utility patent test has not been made. Even though all efforts have been made to ensure the correctness and completeness of the data in this manual, errors may exist. Suggestions for improvements as well as proposals are welcome.

5 Contact address

If you have any questions or problems with the job planer, or if you would like to forward any suggestions, please contact your sales representative or contact

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16.10 Performance description

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1 Job planer, general

The job planer consists of several modules, which are managed in a menu program.

2 Load capacity program

The program replaces the chart manual. It is used to show the load charts and operating modes, whereby the graphic illustrations are identical with the configuration views on the LICCON monitor in the crane operator's cab.

3 Automatic crane selection

Via the automatic crane selection, enter the load case parameters load, radius and lifting height, to automatically search for a suitable crane. The program is able to search according to various criteria for the optimum crane for this load case (for example smallest ballast, shortest accessory, etc.). The results of the crane selection are then available in the planer, so that the load case with all selected cranes can be simulated directly on the computer or on the LICCON monitor 3 in the crane operator's cab.

4 Planer program

The program makes it possible to move a simplified, but scale crane model on a grid. The program recognizes 2 operating modes: the synchronous mode and the simulation mode.

In the synchronous mode, the crane is continuously shown with the configuration and operating data, which are transmitted by the monitored LICCON system.

In the simulation mode, the crane can be simulated in all movements. The job site can be drawn in and labelled via the drawing functions.

In both modes, the most important parameters, such as radius, maximum load, etc. are shown constantly. In addition, you have access at any time to the support forces and the limited required derrick ballasts.

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16.15 Program control

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Fig.102468

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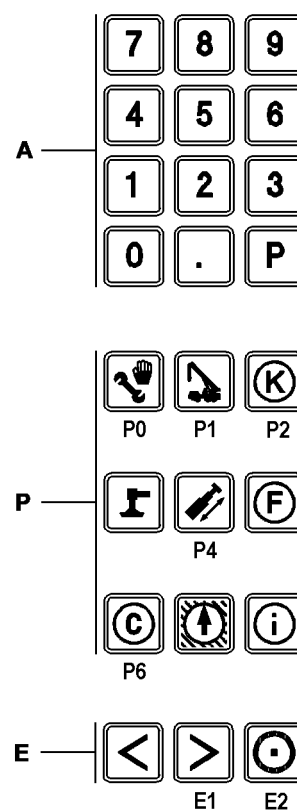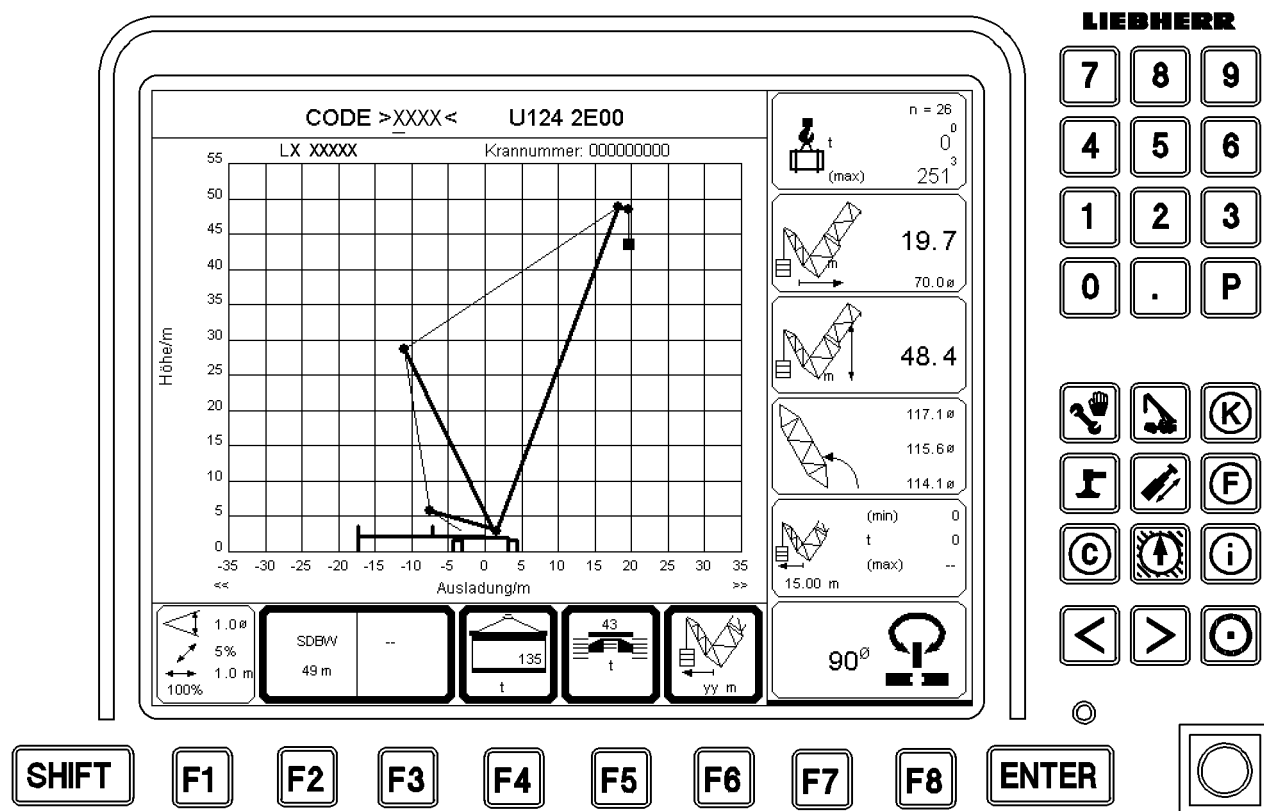
1 Operating the program

All programs of the job planer are designed symbol oriented and can be intuitively operated with the mouse. The mouse buttons are normally designed in such a way that the **left** button corresponds to the **RETURN** key or **increases** and the **right** button corresponds to the **ESC** key or **decreases**.

1.1 Key assignment on the BSE monitor

F1 Function key
  • Master switch / bypass

F2 Function key
  • set next configuration condition
    Main boom (HA)

  SHIFT and **F2**
  • set previous configuration condition

F3 Function key
  • set next configuration condition
    Accessory (ZUB)

  SHIFT and **F3**
  • set previous configuration condition

F4 Function key
  • set next configuration condition
    Ballast (B)

  SHIFT and **F4**
  • set previous configuration condition

F5 Function key
  • set next configuration condition
    Support (A)

  SHIFT and **F5**
  • set previous configuration condition

F6 Function key
  • set next configuration condition
    Slewing range (D)

  SHIFT and **F6**
  • set previous configuration condition

F7 Function key
  • Reeving when reconfiguring or resetting

F8 Function key
  • Ok for reconfiguring or resetting

  ENTER
  • OK in dialog boxes for value entry
  • Changing over the operating view display to 2nd panel

  < >
  • turn superstructure

  E Monitor brightness adjustment
  • **E3** and **E2**: Brightness adjustment

  A Number input field
  • for actual load
  • for pulled derrick ballast
  • for incline - chassis

P0 Simulation mode
  • Start

P1 Synchronous mode
  • Start

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P2 K-key
- Pull derrick ballast in

P4 Initial values
- everything on initial values

P6 Delete number entry
- for actual load
- for pulled derrick ballast
- for incline - chassis

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16.17 Program start

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1 Program start

After booting up the job planer monitor on the crane, the planer program starts automatically, loads the last saved crane configuration and moves into the synchronous mode.
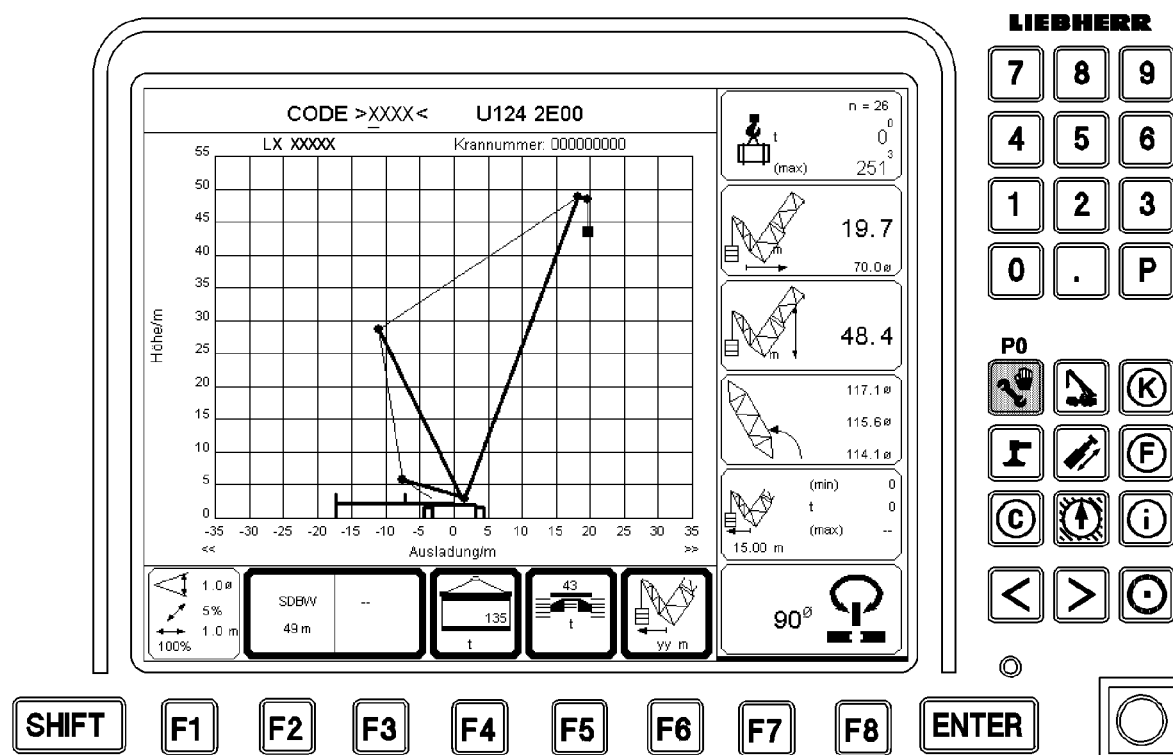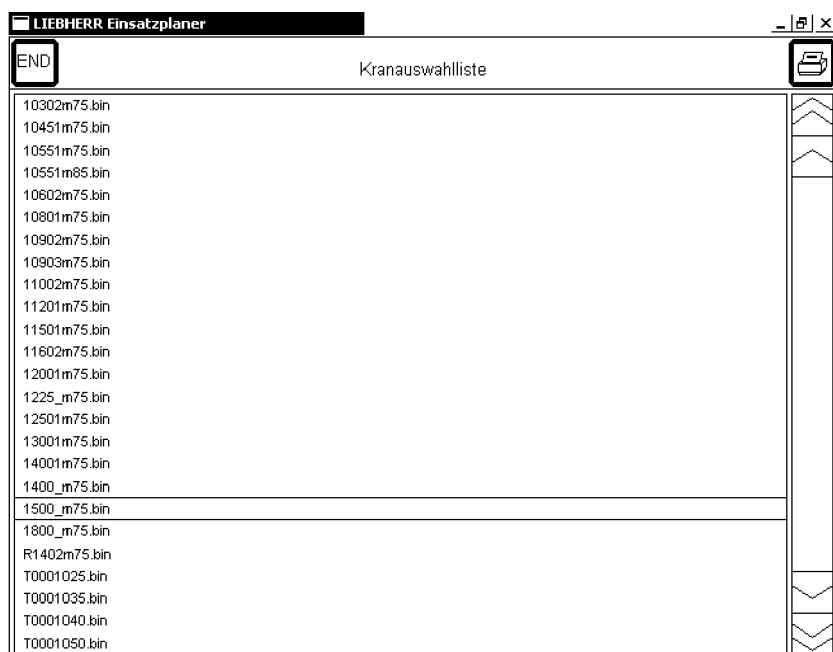

Fig.102467

> **Note**
> ▶ After the initial installation of the job planer on the monitor, the planer program does not have any data for the last saved crane configuration. In this case, the planer program makes the crane available for manual selection.

Fig.199653

After manual selection of the crane and the crane configuration, the planer program moves into the simulation mode. This can be recognized by the blue background. The planer program is ended by clicking on the END button and saves the last set crane configuration. When the monitor is turned on again, the planer program is started in the synchronous mode.

In the synchronous mode, the planer program continuously gets configuration and operating mode data for the currently erected crane and shows it accordingly.

The planer program can only be ended in the simulation mode by clicking the END button. The monitor moves into the menu program. From here, the load capacity, planer and automatic crane selection programs can be started. Move the cursor on one of the menu fields below the corresponding program title. Simply click to start the program.

Clicking the END button in the menu program has no effect.

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16.20 Menu program

16.20 Menu program

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1 Program selection
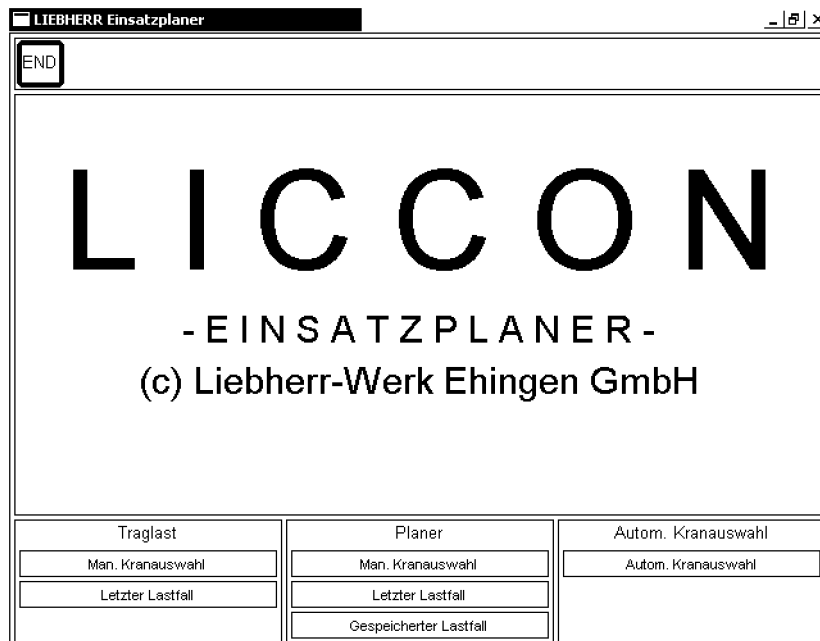
Fig.199648

From here, the load capacity, planer and automatic crane selection programs can be started. To do so, move the cursor on one of the menu fields below the corresponding program title. Simply click to start the program.

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16.30 Automatic crane selection

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1 Automatic crane selection - Operation

The following basic functions are available for the automatic crane selection:
– Continue automatic crane selection: Click the OK button.
– Discontinue automatic crane selection: Click the END button.

2 Automatic crane selection - Program start

2.1 Starting the automatic crane selection
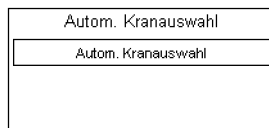
Fig.199649

▶ Click with the mouse on the already marked preselection.

Result:
– The automatic crane selection starts.
– The following screen is shown:
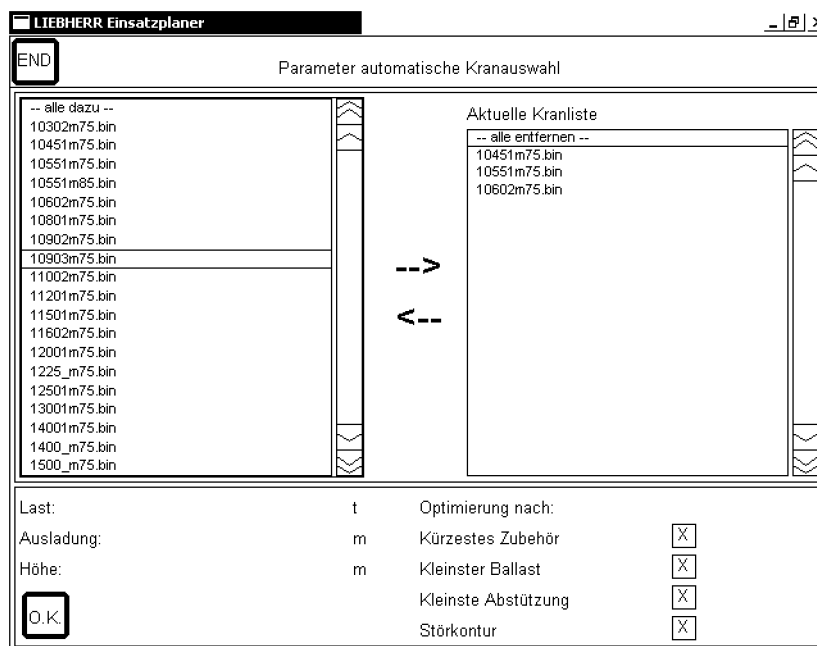
Fig.199650

To continue the automatic crane selection, you must supply data, which cranes are to be edited, which load case and which optimization are present.

▶ Follow additional steps.

3 Crane list

3.1 Editing crane list

▶ With the mouse, double click on a crane in the left window.

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Result:
– The crane is taken over into the current crane list.

▶ With the mouse, double click on a crane in the right window.

Result:
– The crane is removed from the current crane list.

4 Load case

4.1 Entering load case data

▶ Enter the corresponding values for load, radius and height into the preassigned field.

5 Optimization parameter

For a load case, there are often several configuration conditions, which can apply. For that reason, there is the possibility to control the program via optimization parameters. These optimization switches can also be combined, so that, for example, only configuration conditions with shortest accessories and smallest ballast are searched for.

The crane selection is generally only meaningful if all options are marked. For that reason, this condition is already preallocated.

5.1 Selecting parameter "Shortest accessory"

▶ Mark option.

Result:
– The program suggests only configuration conditions with the shortest accessory or without any accessory.
– The program filters out all other conditions, with which this load case could still be operated.

▶ Do **not** mark option.

Result:
– The program searches all configuration conditions and suggests them.

5.2 Selecting parameter "Smallest ballast"

▶ Mark option.

Result:
– The program suggests only the configuration conditions with the smallest ballast.
– The program filters out all other conditions, with which this load case could still be operated.

▶ Do **not** mark option.

Result:
– The program searches all configuration conditions and suggests them.

5.3 Selecting parameter "Smallest support"

▶ Mark option.

Result:
– The program suggests only the configuration conditions with the smallest support.
– The program filters out all other conditions, with which this load case could still be operated.

▶ Do **not** mark option.

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Result:
– The program searches all configuration conditions and suggests them.

5.4 Selecting parameter "Problem contour"

Make sure that you have first entered a problem contour in the job planer.

▶ Mark option.

Result:
– The program considers the problem contour.
– The program checks if a collision with the problem contour is applicable. Booms, jibs, guy brackets, guy ropes and ballast of the crane are taken into consideration.

6 Automatic crane selection - Program end

6.1 Ending automatic crane selection

▶ With the mouse, click on the OK button.

Result:
– The automatic crane selection is completed.
– The crane selection can take some time, depending on the computer power and number of machines. The following status window appears during the automatic selection program:

Fig.199651

During the crane selection, a list of all configuration conditions is written for each machine. You can check this list at the end of the program run or print it out. You can check this list at the end of the program run or print it out. It is also available to you at any time in the planer.

▶ Abort the current crane selection: Click on the END button.

Result:
– The current crane selection is aborted.
– Any cranes found to this point are available in the result list.

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ⓘ **Note**
Start the planer program.
▶ When you start the planer program directly after the automatic crane selection, then the first crane found for your load case is automatically entered and set to the required position. You can select another configuration condition in the planer program.

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16.40 Load capacity program

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1 Load capacity program, general

The load capacity program makes it possible to check the load charts, which belong to a crane. The graphic view is largely identical to the graphic view in the LICCON system. Since the program uses the same data, which are also stored in the LICCON, only those configuration conditions can be set, which are also programmed in the corresponding crane.

2 Load capacity program - Start

2.1 Selecting the crane manually

```
┌─────────────────────────────┐
│          Traglast           │
├─────────────────────────────┤
│      Man. Kranauswahl       │
├─────────────────────────────┤
│       Letzter Lastfall      │
└─────────────────────────────┘
```

Fig.199652

▶ Click with the mouse on the already marked preselection "Man. crane selection".

Result:
– All available machines, for which data is available to you are listed in one window.
– The following screen is shown:

LIEBHERR Einsatzplaner	_	🗗	✕
END	Kranauswahlliste		🖨

```
10302m75.bin
10451m75.bin
10551m75.bin
10551m85.bin
10602m75.bin
10801m75.bin
10902m75.bin
10903m75.bin
11002m75.bin
11201m75.bin
11501m75.bin
11602m75.bin
12001m75.bin
1225_m75.bin
12501m75.bin
13001m75.bin
14001m75.bin
1400_m75.bin
1500_m75.bin
1800_m75.bin
R1402m75.bin
T0001025.bin
T0001035.bin
T0001040.bin
T0001050.bin
```
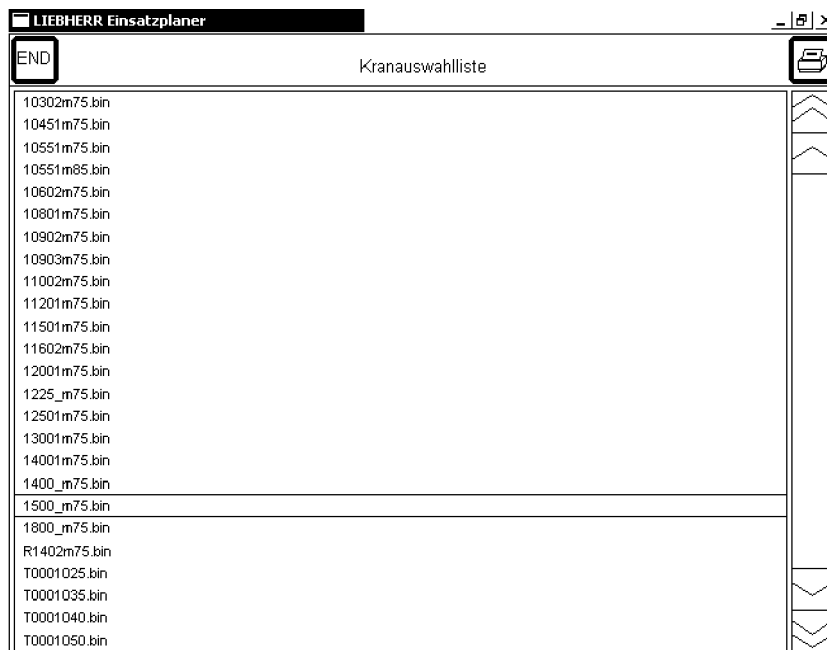
Fig.199653

▶ With the mouse, double click on a desired crane in the window.

Result:
– The manual crane selection is started and the selected crane is loaded.

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2.2 Selecting last load case

```
┌─────────────────────────────────┐
│            Traglast             │
│ ┌─────────────────────────────┐ │
│ │      Man. Kranauswahl       │ │
│ ├─────────────────────────────┤ │
│ │       Letzter Lastfall      │ │
│ └─────────────────────────────┘ │
│                                 │
└─────────────────────────────────┘
```

Fig.199652

▶ Click with the mouse on the already marked preselection "Last load case".

Result:
– The last crane, which was used, is being loaded.

ⓘ **Note**

▶ When leaving the program, the last displayed chart with all settings is saved. When you select the chart program again via "Last load case", then the last condition is automatically reset. The last crane and the chart which had been used are also reset at the start of the job planer program. This makes it possible to change between the two modules without having to set the chart.

3 Load capacity program - Operation

3.1 Showing the chart values

m	CODE >1670<				B216 A815.1(4)		
	16.1	26.5	36.9	42.1	47.3	16.1	26.5
22.0	44.5						
24.0	43.0	38.5					
26.0	41.5	38.0	29.7	25.0			
28.0	40.0	37.0	28.9	24.2	20.1		
30.0	38.5	36.5	28.2	23.4	19.6		
32.0	37.5	35.5	27.5	22.8	19.1	39.0	
34.0	36.0	35.0	26.9	22.1	18.6	37.5	
36.0	35.0	34.0	26.3	21.5	17.9	36.5	34.0
38.0	34.0	33.0	25.7	20.9	17.3	35.5	33.0
n	*4*	*4*	*3*	*2*	*2*	*4*	*3*
xx	83.0	83.0	83.0	83.0	83.0	75.0	75.0
1 (3)	<<						>>
1	0+	46+	92+	92+	92+	0+	46+
2	0+	46+	92+	92+	92+	0+	46+
3	0+	0+	0+	46+	92+	0+	0+
%							

⌄⌄	xxø T 50m	N 56m	165.0 t	10.0 x 9.6 m	360°	n 1x	O.K.
F1	F2	F3	F4	F5	F6	F7	F8

Fig.199654

The chart values for each extension condition in relation to the radius are shown.

For each column, the extension condition of the individual telescoping sections is given in percentages. The percentage data, which is marked with a + , shows that this telescoping section must be pinned.

In the line, which is marked with *n*, the reeving is given, which is necessary to lift the maximum load which can occur in this load chart column.

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3.2 Controlling the status and icon bar
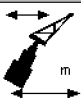
⬈ m	16.1	26.5	36.9	42.1	47.3	16.1	26.5
22.0	44.5						
24.0	43.0	38.5					
26.0	41.5	38.0	29.7	25.0			
28.0	40.0	37.0	28.9	24.2	20.1		
30.0	38.5	36.5	28.2	23.4	19.6		
32.0	37.5	35.5	27.5	22.8	19.1	39.0	
34.0	36.0	35.0	26.9	22.1	18.6	37.5	

Fig.199655

On the upper edge of the screen is a status bar, in which the currently set chart and the short code is faded in.

▶ Move the mouse pointer in the line.

Result:
– An additional icon bar appears, where the actions can be carried out. These actions are listed as follows.

`[END]` ▶ Click on the icon.

Result:
– The chart program is ended.

`[>?<]` ▶ Click on the icon.

Result:
– An overview of all charts, which are programmed for this crane is shown. See paragraph "Crane configuration with the aid of the operating mode overview".

`[🖨]` ▶ Click on the icon.

Result:
– The current contents of the screen is printed out on the connected printer.

`[?]` ▶ Click on the icon.

Result:
– The help text or the short instructions for the program are issued.

3.3 Operating the LICCON icon bar

xx	83.0	83.0	83.0	83.0	83.0	75.0	75.0
1 (3)	<<						>>
1	0+	46+	92+	92+	92+	0+	46+
2	0+	46+	92+	92+	92+	0+	46+
3	0+	0+	0+	46+	92+	0+	0+
%							

Fig.199660

In the lower area is the bar with the LICCON icons. A function key is assigned to each icon. The icons show the currently set operating mode. The meaning of the individual icons or function keys F1 – F7 is explained in the "Crane configuration" paragraph.

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▶ Click on the icon.

Result:

– Vertical paging in the chart. If the chart is not completely visible on the screen, then you can page in the chart in direction of the larger radii with the F1 key or by clicking on the corresponding icon.
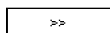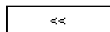
▶ Click on the icon.

Result:

– Horizontal paging in the chart. If the chart is not completely visible on the screen, then you can page the chart to the left or right by clicking on the corresponding icon.
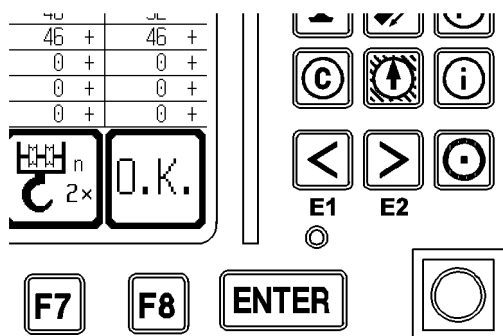
Fig.199752

If a load chart consists of more than 7 columns, it cannot be fully displayed because of the size of the monitor.

As supporting information, the currently selected column number and the number of columns in the table are shown. Example: 48 (96) corresponds to 48 of 96 columns.

The marking arrows in the first or the seventh field indicate that there are further chart columns to the left or right of the displayed chart.

They can be shown by pressing the corresponding key.

▶ With the mouse, click on the "E1" key or the "E2" key.

Result:

– The additional columns are shown.

4 Crane configuration

4.1 Crane configuration with the LICCON icon bar

▶ See chapter "Job planer program".

4.2 Configuring the crane with the LMB code

▶ Enter the LMB code directly via the alpha-numeric keys (0...9).
▶ Confirm by clicking OK or F8.

Result:

– The chart is set and the load chart values are shown.

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4.3 Crane configuration with the aid of the operating mode overview

▶ Click on the icon.

Result:

– An overview of all charts, which are programmed for this crane is shown. See chapter "Job planer program".

5 Crane and configuration change

5.1 Changing the crane

▶ Click on the icon.

Result:

– Another crane can be selected directly without having to leave the program.

5.2 Changing configuration

▶ Click on the icon.

Result:

– Another configuration can be selected directly without having to leave the program.

6 Load capacity program - End

6.1 Ending the load capacity program

▶ Click on the icon.

Result:

– The load capacity program is ended.

Empty page!

LIEBHERR

16.50 Planner program

Fig.195219

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1 Planner program, general

The planner program makes it possible to plan crane applications under realistic conditions. The graphic view is largely identical to the graphic view in the LICCON system. Since the program uses the same data, which are also stored in the LICCON, only those configuration conditions can be set, which are also programmed in the corresponding crane.

The planner program can be operated in 2 different modes: in the synchronous mode and in the simulation mode. One can switch back and forth as desired between the two modes.

The simulation mode can be recognized by the blue background. The program works the same as on the PC: with the mouse, all operating parameters, such as superstructure slewing angle, boom angle, accessory angle, radius of derrick ballast, reeving, actual load and pulled derrick ballast can be set. A jobsite can be drawn and length or distance measurements can be made. The graphic view can be changed as desired from view from above, frontal view and ground pressure view. The crane configuration (operating mode and configuration condition) can be changed. The planner program can be ended (the menu program subsequently appears).

The synchronous mode can be recognized by the white background. In synchronous mode, the program continuously determines the current crane configuration and the current operating data, such as superstructure slewing angle, boom angle, accessory angle, radius of derrick ballast, reeving, actual load and pulled derrick ballast. These values cannot be changed with the mouse. Additional functions, such as displaying the list of all operating modes, drawing the job site, drawing the interference outline, turning the chassis, displaying the list of all solutions for the automatic load case search and ending the program are also deactivated.

Note
- ▶ When the job planner is in STOP status, then the use of the data is not permissible. Any data used anyway always are within the responsibility of the user. In any case, the instructions, notes and conditions in the Crane operating instructions must be followed.
- ▶ When the equipment of the real crane (telescopic boom support, Y-A frame, auxiliary jib ...) do not match the equipment, which the LICCON job planner accepts, then the use of the data is not permissible.

1.1 Switching from synchronous mode to the simulation mode

Press the GREEN SET UP SCREEN BUTTON to switch the planner program into the simulation mode.

1.2 Switching from simulation mode to the synchronous mode

Press the GREEN OPERATING SCREEN BUTTON to switch the planner program into the synchronous mode.

2 Planner program - Start

When the job planner monitor is turned on, the planner program starts automatically and moves into the synchronous mode, see chapter 16.20.

Now you can switch between the synchronous mode and the simulation mode, as desired.

The following points for manual program start refer to the fact that the planner program had been ended and that one is in the menu program.

2.1 Selecting the crane manually

▶ See "Load capacity program" chapter.

2.2 Selecting the last load case

▶ See "Load capacity program" chapter.

2.3 Selecting a saved load case

```
┌─────────────────────────────┐
│            Planer           │
├─────────────────────────────┤
│      Man. Kranauswahl       │
├─────────────────────────────┤
│       Letzter Lastfall      │
├─────────────────────────────┤
│    Gespeicherter Lastfall   │
└─────────────────────────────┘
```

Fig.199664

▶ Click with the mouse on the already marked preselection "Saved load case".
▶ With the mouse, click on the desired load case.

Result:

– The last load case is loaded for further processing.

3 Planner program - Operation

The following surfaces are shown in the planner program:
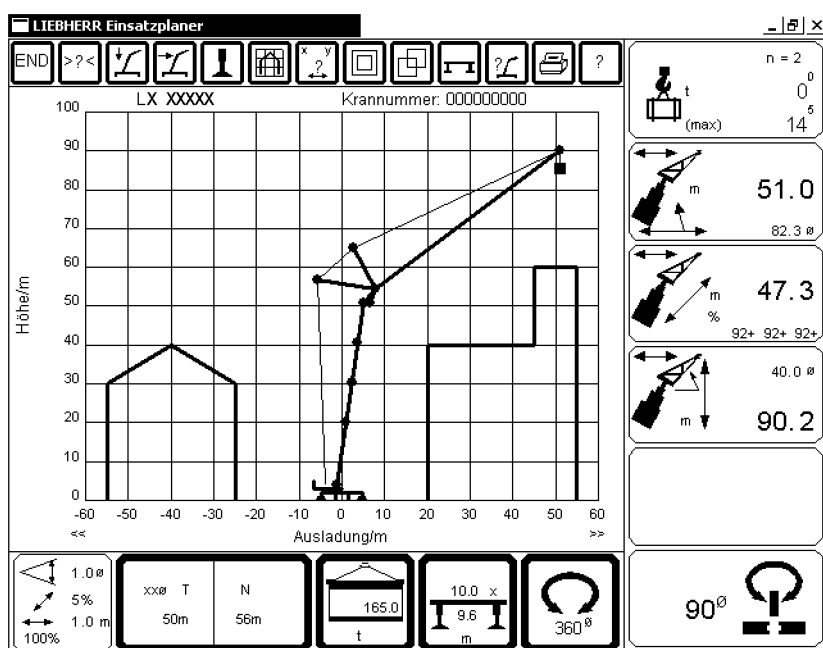
Fig.199665: Example LTM

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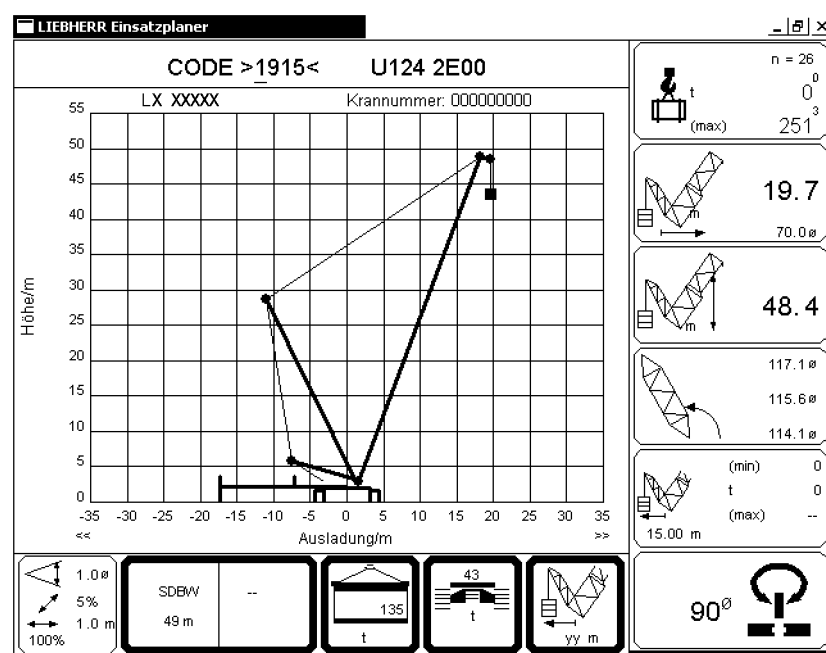
Fig.199666: Example LR

3.1 Controlling the status and icon bar
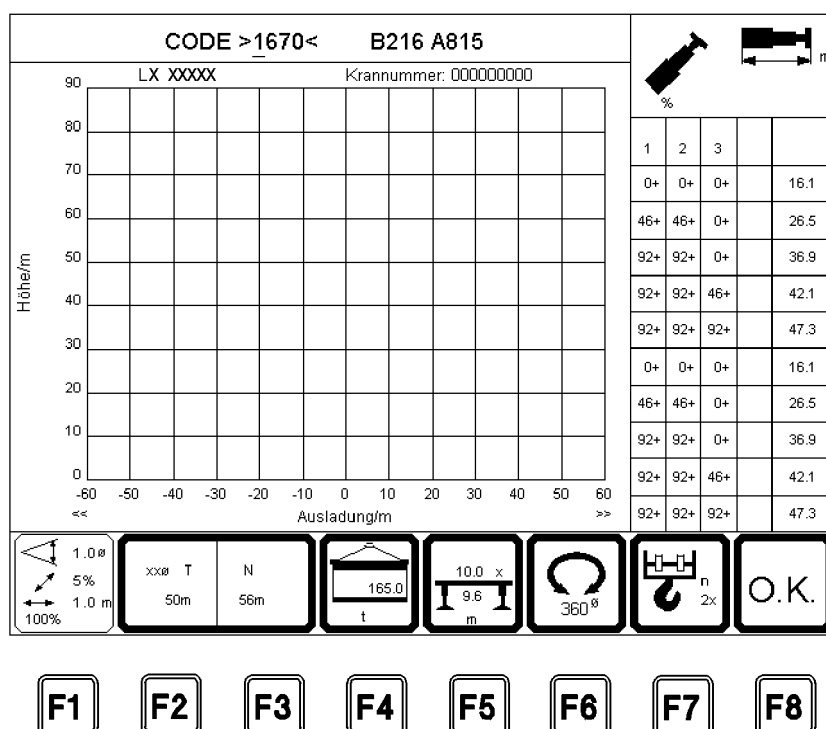
Fig.199667

On the upper edge of the screen is a status bar, in which the currently set chart and the short code is faded in.

▶ Move the mouse pointer in the line.

Result:

–   An additional icon bar appears, where the actions can be carried out. Depending on which view you are in, in the 2D view or in the support force view, some individual functions may not be carried out.

– The possible actions are listed as follows.

End the program.

▶ Click on the icon.

Result:

– The 2D planner ends.

Show operating modes.

▶ Click on the icon.

Result:

– An overview of all charts, which are programmed for this crane is shown.

Turn on overhead view.

▶ Click on the icon.

Result:

– The program changes to overhead view.

Turn on frontal view.

▶ Click on the icon.

Result:

– The program changes to frontal view.

Turn on support force view.

▶ Click on the icon.

Result:

– The program changes to support force view.

Draw buildings and interference outline.

▶ Click with the left mouse button on this icon.

Result:

– You have reached the drawing section of the program.

▶ Click with the right mouse button on this icon.

Result:

– You have reached the input mode for the interference outline.

▶ Enter the coordinates of the outline via the keyboard or with the mouse.

Result:

– When leaving the program, the outline is saved and remains until another outline is entered.

Turn on the measuring mode.

▶ Click on the icon.

Result:

– You can turn the measuring mode on and off.
– When the measuring mode is turned on, the coordinates, where the mouse pointer is, are faded in on the lower right. The distances can also be measured from the crane view.

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Increase / decrease zoom section.

▶ Click with the left mouse button on the icon.

Result:

– You can define a new section via two opposite points.

▶ Click with the right mouse button on the icon.

Result:

– You can increase or decrease the displayed view by a certain factor.

Move the pan section.

▶ Click on the icon.

Result:

– You are moving the current pan section.

Turn the chassis.

▶ Click on the icon.

Result:

– You are turning the chassis.

Select the crane.

▶ Click on the icon.

Result:

– You get a list of configuration conditions, which where determined at the automatic crane selection.
– By clicking one of these lines, the corresponding crane is read into the planner program and is automatically set to the determined position.

Printing the screen.

▶ Click on the icon.

Result:

– The current contents of the screen is printed out on the connected printer.

Showing help text.

▶ Click on the icon.

Result:

– The help text or the short instructions for the program are issued.

3.2 Operating the LICCON icon bar

In the lower area, there is the bar with LICCON icons, to each of them is a function key assigned to. These icons show the currently set operating mode. The meaning of the individual icons or function keys F1 – F7 is explained in the "Crane configuration" paragraph.

▶ See "Crane configuration" section.

3.3 Controlling the operating icon bar

On the right edge of the screen is the operating icon bar, where the operating icons are displayed during crane simulation. Within the icons, the current operating data is shown. The icons depend on the set operating mode and correspond to the icons in the LICCON.

3.3.1 Operating the icons

▶ Move the mouse pointer in an icon area.

Result:

– In most cases, the mouse pointer changes its shape and shows that a function can be carried out at this point.
– These functions are listed as follows.

3.3.2 Set Max load / actual load
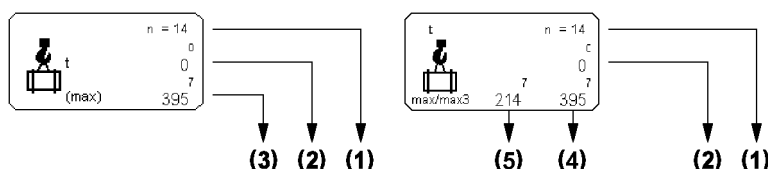
Fig.103192

1	Reeving	**4**	Maximum load capacity at optimum derrick ballast
2	Actual load	**5**	Maximum load capacity at current derrick ballast
3	Maximum load capacity		

Displays in the right half of the icon:

– **1 Reeving**
Required reeving to lift the maximum occurring load in the set load column

---

Note

▶ If the crane is configured for hoist winch parallel operation, then the reeving is shown as follows: **n = |14|**

Note

▶ By clicking with the left or the right mouse button on the reeving display, it can be increased or decreased.

– **2 Actual load**
Actual load (should include total weight including hook block and fastening equipment) for your load case; the numbers in front of the comma are written in large type and the first number after the comma is written in small type
– **3 Maximum load capacity**
Maximum load capacity, which the crane can lift according to the set chart and reeving in the current position; the digits in front of the comma are written in large numbers and the first digit after the comma is written in a small number

– **4 Maximum load capacity at optimum derrick ballast**
Display of maximum load capacity at optimum derrick ballast, which the crane can lift when the optimum derrick ballast is placed (display on machines with derrick ballast)

Note

▶ From a certain pulled derrick ballast, this displayed maximum load capacity is the same as the maximum possible load capacity. If additional derrick ballast is placed anyway, the load capacity will not be further increased. This certain pulled derrick ballast is described as "optimum derrick ballast".

– **5 Maximum load capacity at current derrick ballast**
Display of maximum load capacity, which the crane can lift with the currently pulled derrick ballast (display on machines with derrick ballast)

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<table>
<tr><td>(i)</td><td>**Note**
▶ From a certain pulled derrick ballast, this displayed maximum load capacity is the same as the maximum possible load capacity. If additional derrick ballast is placed anyway, the load capacity will not be further increased.</td></tr>
</table>

▶ With the left mouse button, click in the right half of the icon on actual load **2**.

▶ In the input window, enter the value of the actual load, which consists of the total weight including hook block and tackle.

▶ With the left mouse button, click in the left half of the icon.

Result:

– The hoist rope is raised.

▶ With the right mouse button, click in the left half of the icon.

Result:

– The hoist rope is lowered.

3.3.3 Changing the radius

During crane operation, the LMB on the crane must ensure that the entire radius range can be actuated as specified in the chart. It must function with as well as without load. In addition, in reality, the boom is subject to a deflection, which cannot be shown in the 2D job planner. Especially when taking up a load in the largest possible radius and at load release in the smallest possible radius, the boom can reach a radius due to deflection which is no longer reported in the chart. The LMB on the crane is able to move from the non-reported range back into the reported radius range. The 2D planner in the job planner can also set the non-reported radius ranges as simulator of the LMB. Since the job planner cannot show deflection, the user has the impression the crane could not be operated fully in the non-reported radius ranges.
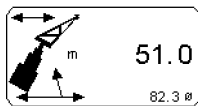
Fig.199678

The radius display, measured from the center of the slewing ring, and the current tele angle are shown in the icon.

▶ Click with the left mouse button on the icon.

Result:

– You can increase the radius.

▶ Click with the right mouse button on the icon.

Result:

– You can decrease the radius.

<table>
<tr><td>(i)</td><td>**Note**
▶ The 2D planner in the job planner allows radii in the simulation which are less or more than the radii shown in the chart.
▶ Planning may not draw upon the data (boom angle, radius), which lead to these lower or higher radii. For crane operation, only the radii are assured, which are specified in the chart.</td></tr>
</table>

3.3.4 Changing the pulley head height
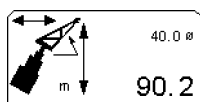
Fig.199679

The current pulley head height is shown in the icon. If there is any moveable accessory in the set operating mode, the accessory angle is also faded in. On cranes with telescoping jib, the current length is also shown in the icon in % (compare tele length).

▶ Click with the left mouse button on the icon.

Result:

– You can increase the pulley head height.

▶ Click with the right mouse button on the icon.

Result:

– You can decrease the pulley head height.

3.3.5 Changing the tele length
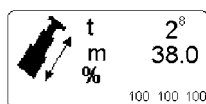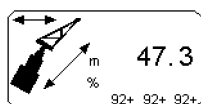
Fig.113001

The current extension condition of the telescopic sections is shown in the icon. The individual tele percentages as well as the absolute length in meters are shown. In addition, on LICCON 2 cranes the load capacity is shown, which can be lifted when sliding the telescopes.

▶ Click with the left mouse button on the icon.

Result:

– You can increase the tele length.

▶ Click with the right mouse button on the icon.

Result:

– You can decrease the tele length.

3.3.6 Derrick ballast and derrick ballast radius

Note
▶ This display is only applicable for cranes with derrick option.

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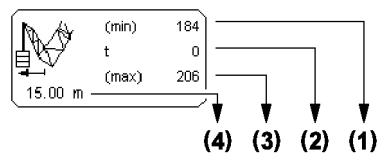
Derrick ballast

Fig.199682

1 Minimum required derrick ballast

2 Pulled derrick ballast

3 Maximum derrick ballast for suspended condition

4 Actual derrick ballast radius

Minimum required derrick ballast

The minimum required derrick ballast **1** refers to the current position of the crane and the current load.

> **Note**
> ▶ The minimum required derrick ballast is shown in square brackets, when it exceeds the value of the maximum derrick ballast for the suspended condition.
> ▶ In this condition, the crane cannot be operated!
> ▶ The crane shuts off before this position is reached!

> **Note**
> ▶ The minimum required derrick ballast is shown with horizontal dashes, if no minimum required derrick ballast can be calculated.

This is the case when:
- the determined load bearing capacity is smaller or equal to zero
- for various crane models (for example: LR11250/LR11350) the current load is larger than the load bearing capacity at maximum derrick ballast (**max3**)

Maximum derrick ballast

For the current position of the crane and the current load, this maximum ballast may be placed in order not to fall below the minimum force **F1**$_{min}$.

> **Note**
> ▶ If this is not observed, the crane can topple to the rear!

If this maximum derrick ballast is exceeded, a warning is issued via the Caution icon.
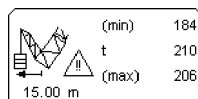
Fig.199683

Pulled derrick ballast

For the suspended ballast and the ballast trailer, one differentiates between placed and pulled ballast. The pulled ballast may never be larger than the placed ballast. On the real crane, the size of the ballast is set via cylinders.

> **Note**
> ▶ For the job planner, the size of the placed ballast is not relevant, only the size of the pulled ballast.

A suspended ballast is outlined in the following examples. For a ballast trailer the conclusions are applicable equally.

If the derrick ballast is suspended, then the placed ballast is equal to a pulled ballast.
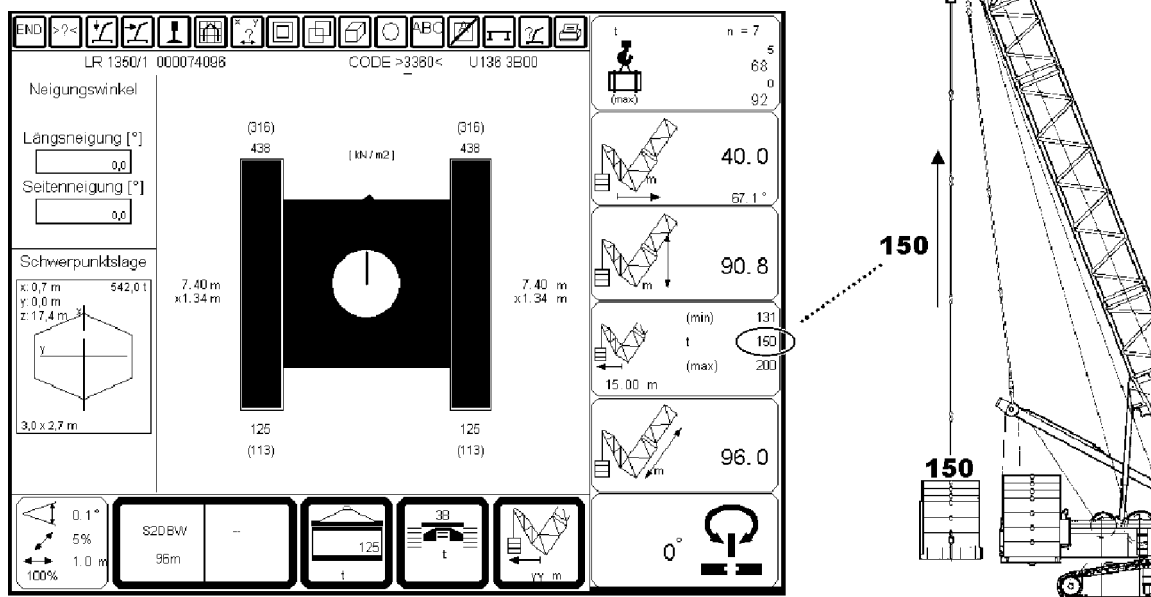
Fig.113003

If the ballast is laying on the ground, then the placed derrick ballast is divided into the pulled derrick ballast and the derrick ballast laying on the ground.

Fig.113004

LIEBHERR
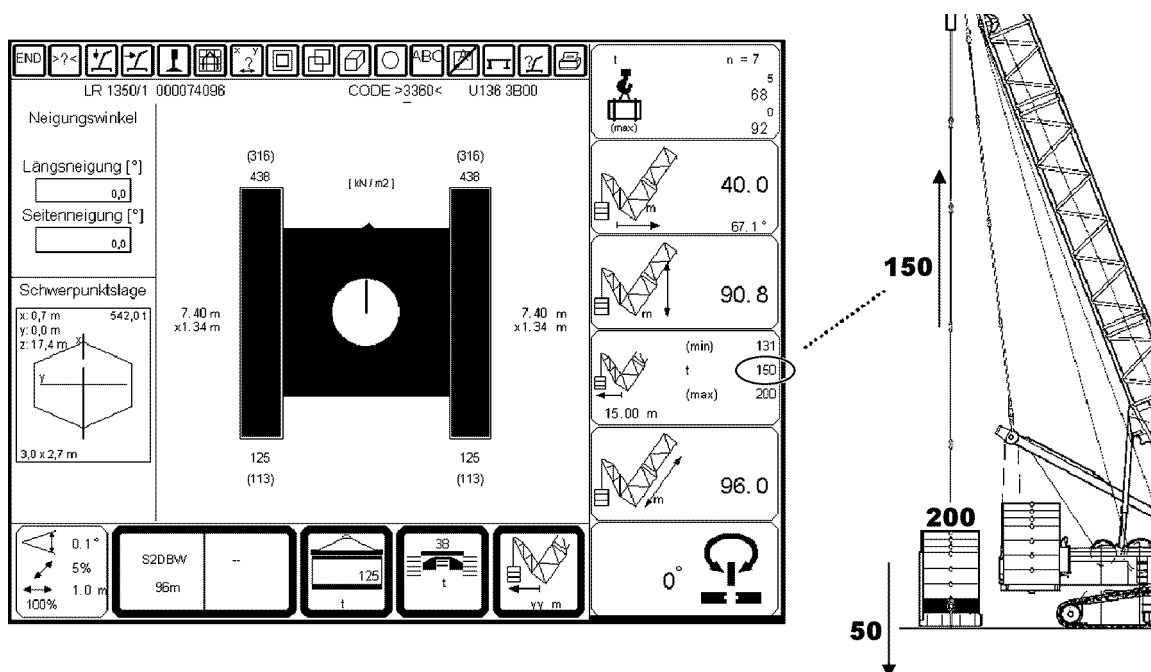
ⓘ **Note**
▶ If the entered pulled derrick ballast falls below the minimum derrick ballast to be pulled, then a shut off of the crane movements occurs in the job planner, which is marked by the STOP icon in the maximum / actual load icon.
▶ If the entered pulled derrick ballast exceeds the maximum derrick ballast to be pulled, a warning is issued for it in the job planner program via the CAUTION icon and it is not turned off. Contrary to the job planner, the LICCON control turns certain crane movements off. If the exceedance is larger than a certain calculated value, then a notice is additionally issued only in the crawler pressure view in the form of **F1=0, B/BW=123.4 t**

To avoid a sag of the guying between derrick and A-bracket and thus a toppling of the crane, the force in this guying may not drop to zero. The force in this guying is described as F1.

To avoid a sag of the guying, the job planner determines a pulled derrick ballast, from where the F1-force has the value of 0. This calculated value is called GDB_{labile}.

When the entered pulled derrick ballast is within the min / max limits, then the force F1 is larger than 0.
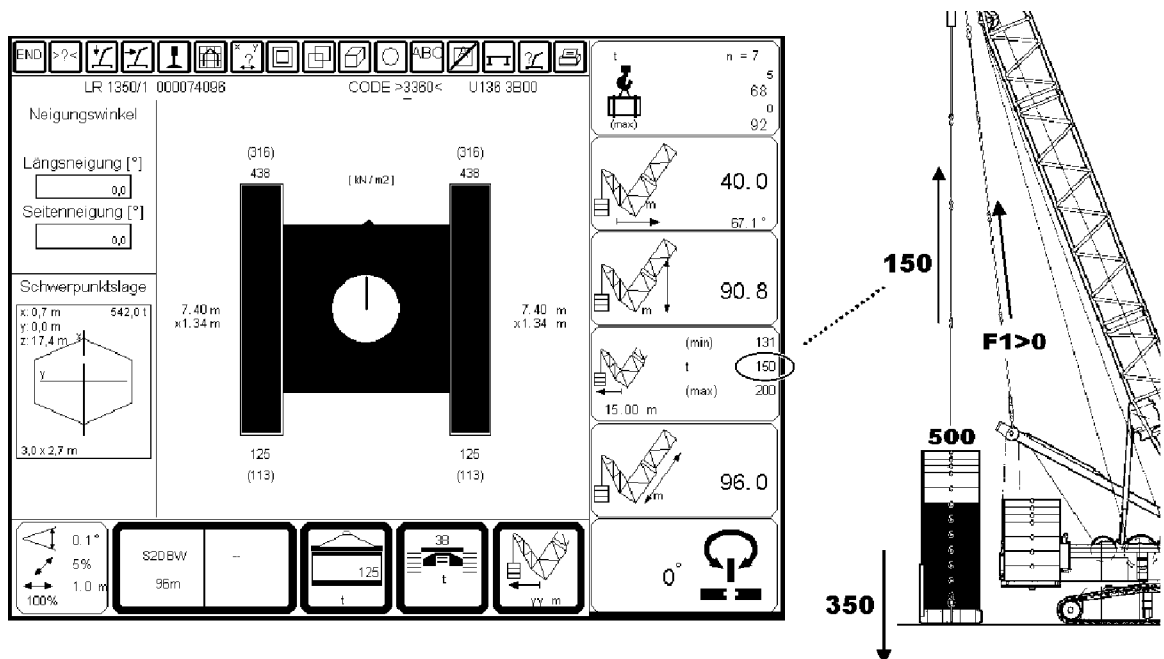
Fig.113005

When the entered pulled derrick ballast is larger than the maximum derrick ballast to be pulled, but still smaller than GDB_{labile}, then the job planner shows a CAUTION icon.

When the entered pulled derrick ballast is larger than the maximum derrick ballast to be pulled and also larger than GDB_{labile}, then the job planner shows a CAUTION icon and additionally in the crawler pressure view a text in the form of "F1=0, B/BW=123.4 t". This text shows that in the job planner the force F1 has the value 0 from the calculated pulled derrick ballast of 123.4 t. In this case the job planner takes the calculated value GDB_{labile} for the force calculation in its crane model (support forces, ground pressures, ...), not the entered pulled derrick ballast.

LIEBHERR
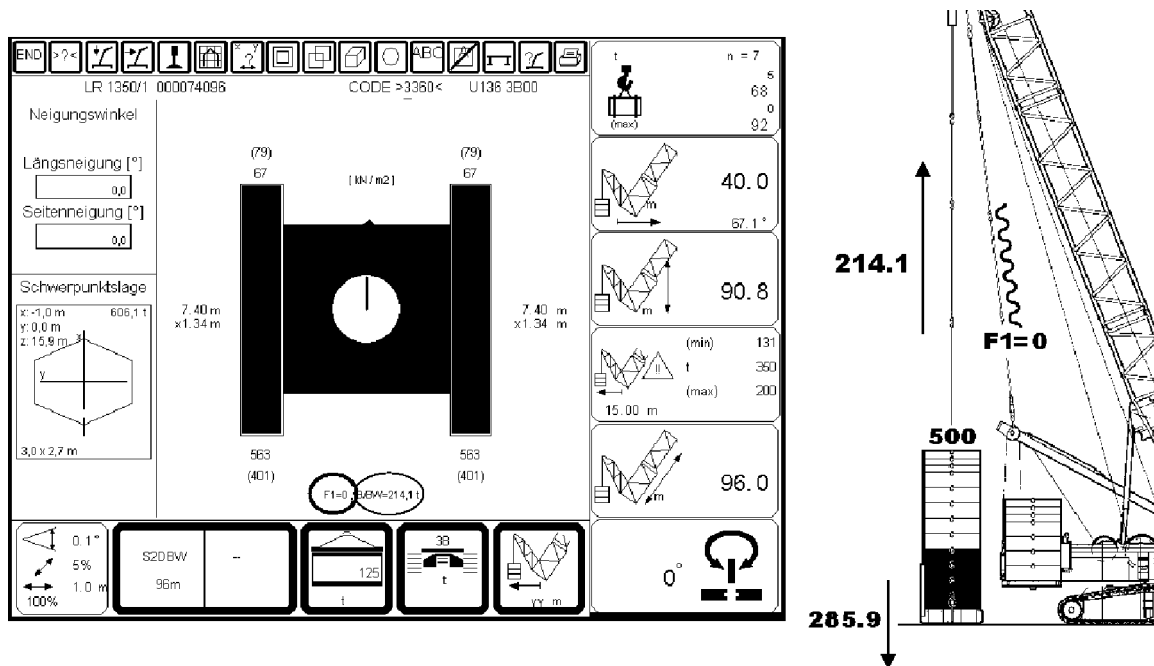
Fig.113006

> **Note**
> ▶ If the installed suspended ballast is set on the ground, then turning and "driving the crawler" is no longer possible on the real crane. If the installed ballast trailer is set on the ground, then simultaneous turning and "driving the crawler" is no longer possible on the real crane.

Derrick ballast radius

One of these icons is shown in operating modes with suspended ballast or ballast trailer:
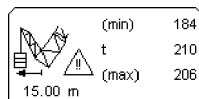
Fig.199683

If this icon is shown, the derrick ballast radius is directly visible. If the mouse cursor is moved into the left half of the icon and it changes its shape, then the derrick ballast radius can be increased or decreased with the left or the right mouse button.
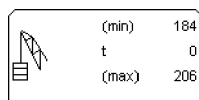
Fig.103194

If no derrick ballast radius display is shown in the icon, then the derrick ballast radius is shown in the derrick ballast icon in the LICCON icon bar.

3.3.7 Derrick angle

This display is only applicable for cranes with derrick option.

LIEBHERR
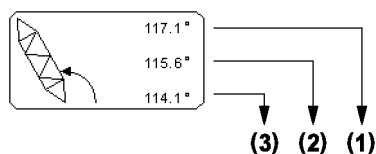
Fig.199684

1   Derrick operation maximum angle   **3**   Derrick operation minimum angle
2   Derrick angle - actual current value

The current actual angle **2** of the derrick angle is automatically positioned in the center between the minimum and maximum value and cannot be reset.

This icon is shown for all derrick operating modes.

▶

3.3.8 Changing the turntable lock
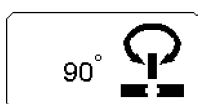
Fig.199685

In the icon, the status of the **turntable lock** and the current angle of the turntable in relation to 0° to the rear is shown. Depending on which chart is set, the locking pin is shown accordingly.

▶ Click on the icon.

Result:

– The status is changed.

3.4 Controlling the second operating icon bar

Fig.199686

LIEBHERR
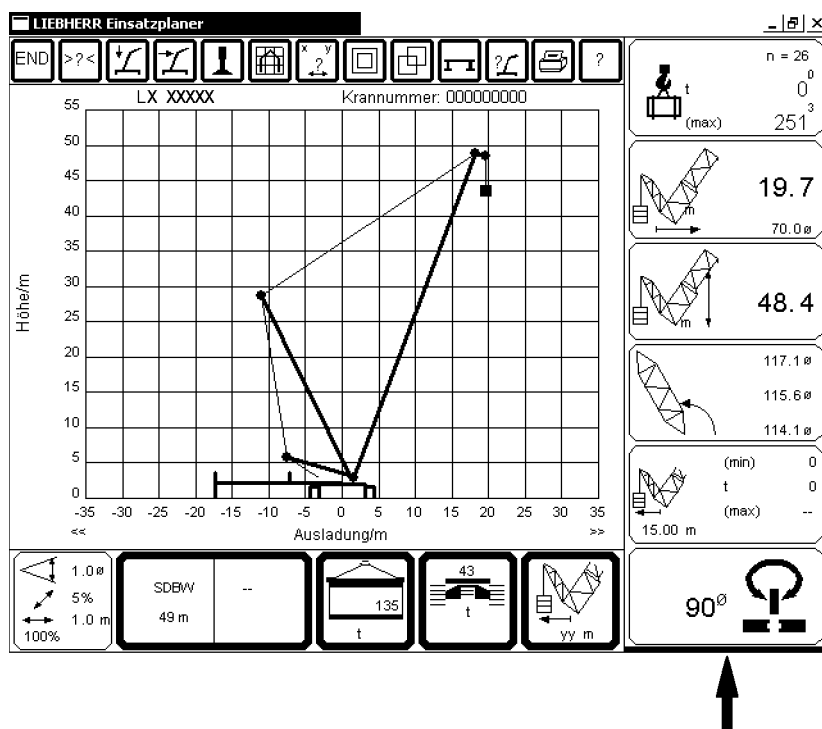
If the lower edge of the operating icon bar is displayed thicker for the currently loaded crane, then it is possible to change the icon bar over to a second icon bar.

▶ Move the mouse pointer to this thicker edge and click with the left mouse button.

Result:

– The system changes to the second icon bar.
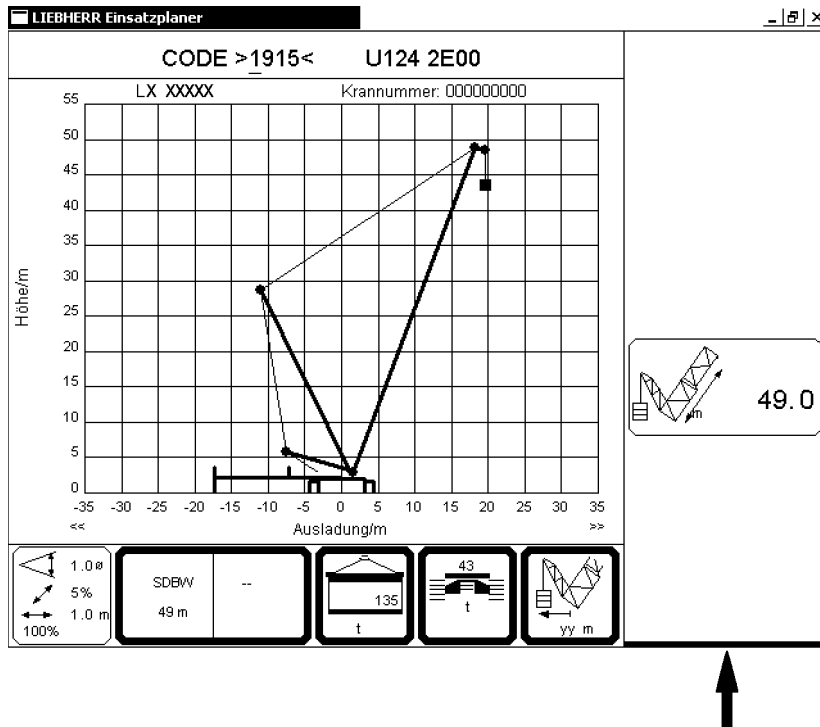
Fig.199687

▶ Move the mouse pointer in an operating icon.

Result:

– In most cases, the mouse pointer changes its shape and shows which function can be carried out at this point.

▶ With the mouse, click on the desired icon and carry out the action.
   or
   Move the mouse pointer to the lower edge and click with the left mouse button.

Result:

– You get back to the first operating icon bar.

4 Crane configuration

4.1 Crane configuration with the LICCON icon bar

4.1.1 Operating the LICCON icon bar

The crane configuration is carried out via the function keys or by clicking with the mouse on the corresponding icon.

The function keys F2 to F8 should be viewed in connection with the icons shown in the lower area of the screen. These icons differ for cranes with standard or crawler chassis and for cranes with or without derrick option.

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▶ Click with the **left** mouse button.
or
Press the corresponding **function key**.

Result:

– Paging forward.

▶ Click with the **right** mouse button.
or
Press the **Shift** key and the corresponding **function key**.

Result:

– Paging back.

ⓘ **Note**
Foot note in an icon!
▶ The crane operator must check the TLT manual for additional conditions (for example specified minimum ballast).

4.1.2 Function key F2

Set the main boom.

```
┌─────────┐
│  42 m   │
│         │
│    T    │
└─────────┘
```
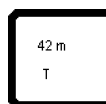
Fig.199688: Example telescopic boom

```
┌─────────┐
│ xx° SDBW│
│         │
│   91m   │
└─────────┘
```

Fig.199689: Example heavy lattice boom (with derrick and ballast trailer)

▶ Press the function key.

Result:

– You can set the main boom.

4.1.3 Function key F3

Set the auxiliary equipment.

```
┌─────────┐
│    W    │
│         │
│   56m   │
└─────────┘
```

Fig.199690

▶ Press the function key.

Result:

– You can set the auxiliary equipment.

4.1.4 Function key F4

Set the counterweight.

Fig.199691

▶ Press the function key.

Result:

– You can set the counterweight.

4.1.5 Function key F5

Set the support base.

The function key F5 offers different functions:
– Setting the support base on mobile cranes.
– Setting the left support base for different support options on mobile cranes.
– Setting the support base and / or the central ballast on crawler cranes.

Fig.199692: The crane is standing on wheels
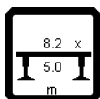
Fig.199693: The crane is standing on supports

▶ Press the function key.

Result:

– You can set the support base for the mobile crane.
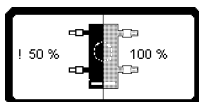
Fig.199694: Varying support

▶ Press the function key.

Result:

– You can set the **left** support base.
– The crane can be supported differently regarding the right and the left side. See paragraph "Function key F6".
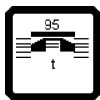
Fig.199695: The crane is standing on crawler with data for central ballast

▶ Press the function key.

Result:
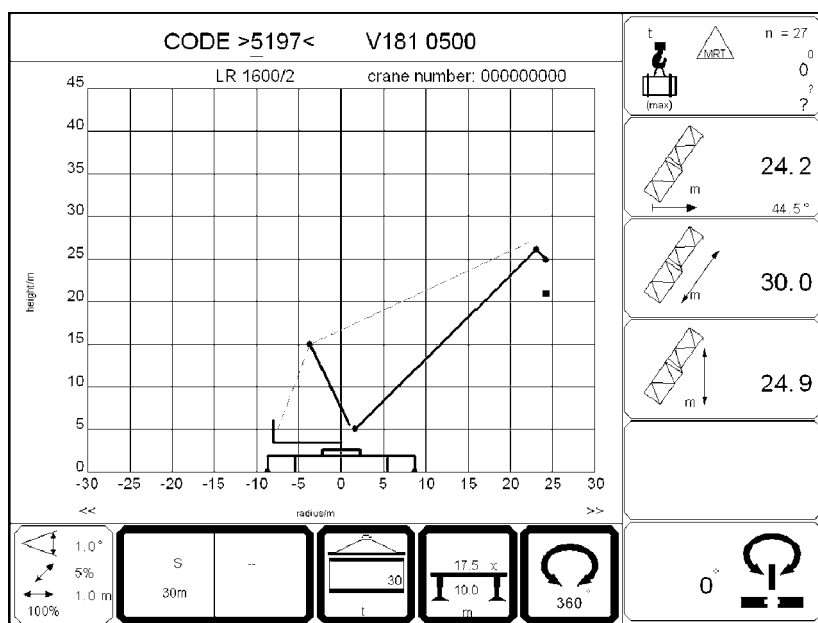
– You can set the central ballast.

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> **Note**
> ▶ If the crane is equipped with crawlers and supports, then it can be set with the aid of the MRT sec-
> tion either to crawler or supports, if the job planner permits with the set chart. The MRT selection
> appears as soon as a function key is pressed or the crane configuration is changed.

> **Note**
> ▶ Carry out MRT settings, see section "MRT settings"!

▶

4.1.6 Function key F6

Set the slewing range.

The function key F6 offers different functions:
– Setting the slewing range
– Setting the right support base for different support options on mobile cranes.
– Setting the derrick ballast radius, for operating modes with derrick ballast, for which there are load
charts with different derrick ballast radii.

Fig.199700: Slewing range 360°

▶ Press the function key.

Result:

– You can change the slewing range.

Fig.199701: Slewing range 0°

▶ Press the function key.

Result:

– You can change the slewing range. The boom is set to the rear in lengthwise direction.

Fig.199702: Derrick ballast has fixed value

▶ Press the function key.

Result:

– The derrick ballast radius is set to the displayed value.
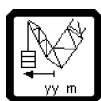
Fig.199703

▶ Press the function key.

Result:

– The derrick ballast radius can be adjusted. See paragraph "Setting derrick ballast and adjusting derrick ballast".
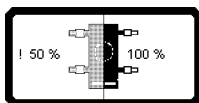
Fig.199704: Varying support

▶ Press the function key.

Result:

– You can set the **right** support base.
– The crane can be supported differently regarding the right and the left side. See paragraph "Function key F5".

4.1.7 Function key F7

Function key F7: Show reeving number "n" during configuration.
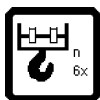
Fig.199705

▶ Press function key.

Result:

– You can change the reeving number "n".

4.1.8 Function key F8

Confirm configuration.

Fig.199698

When the desired configuration is set:
▶ Press function key.

Result:

– The current setting is taken over.

4.2 MRT settings

Fig.112930

If the crane is equipped with crawlers and supports, then it can be set with the aid of the MRT section either to crawler or supports, if the job planner permits with the set chart, to evaluate the respective ground or support pressures.

Fig.113251

> **Note**
> ▶ If one of these icons appears, then a MRT selection is also possible.
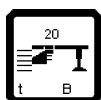
Fig.113252

> **Note**
> ▶ If this icon appears, the MRT selection is already preset to the respective value in the icon (see respective chart).

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4.2.1 Making MRT settings
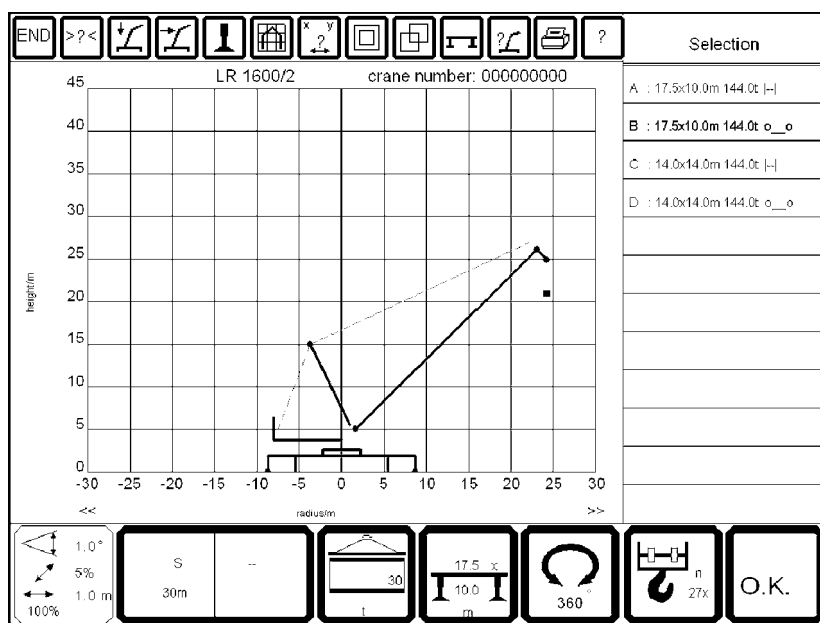
Fig.112931

(i) Note
▶ When the crane is configured via the function keys in the LICCON icon bar, then the MRT settings must be made according to the following chart overview to finalize.

When the crane is configured:
▶ Select Code (see MRT chart overview) according to the required crane condition in the MRT selection: Move the mouse pointer into the desired column and click with the left mouse button.

Result:

– Instead of the MRT selection, the operating icon bar appears.

(i) Note
▶ If the MRT selection is to be changed in the set crane configuration, proceed according to the following description.

▶ Press any function key (F1 to F7) in the LICCON icon bar to change the crane configuration.

Result:

– A MRT selection appears corresponding to the changed crane configuration.

▶ Press the same function key again to reset the original crane configuration.

Result:

– The MRT selection appears corresponding to the reset crane configuration.

When the crane configuration has been completed:
▶ Select Code (see MRT chart overview) according to the required crane condition in the MRT selection: Move the mouse pointer into the desired column and click with the left mouse button.

Result:

– Instead of the MRT selection, the operating icon bar appears.

Fig.113253

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(i) **Note**
▶ Depending if the crane is on crawler or supports, when pressing the icon Support force view **100** the support pressure view or the crawler pressure view is shown.
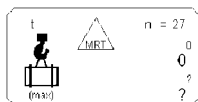
Fig.112932

(i) **Note**
▶ If the MRT Caution icon appears, instead of the maximum load, a „?" is shown in the load operation data field.

▶

4.2.2 MRT chart overview

The following charts offer an overview relating to crane type for various MRT setting possibilities.

Chart for LTR11200

Code	Crawler installed	Support installed	Support base	Crane is standing on
A	Narrow track	Yes	10.5 m x 10.0 m	Supports
B	Narrow track	Yes	10.5 m x 10.0 m	Crawler
C	Narrow track	Yes	13.0 m x 13.0 m	Supports
D	Narrow track	Yes	13.0 m x 13.0 m	Crawler

Chart for LR1600/2-W

Code	Crawler installed	Support installed	Support base	Crane is standing on
A	Narrow track	Yes	17.5 m x 10.0 m	Supports
B	Narrow track	Yes	17.5 m x 10.0 m	Crawler
C	Narrow track	Yes	14.0 m x 14.0 m	Supports
D	Narrow track	Yes	14.0 m x 14.0 m	Crawler

Chart for LR1400/2 and LR1400/2-W

Code	Crawler installed	Support installed	Support base	Crane is standing on
A	Narrow track	Yes	11.5 m x 11.5 m	Supports
B	Narrow track	Yes	11.5 m x 11.5 m	Crawler
C	Narrow track	Yes	3.6 m x 15.4 m	Supports
D	Narrow track	Yes	3.6 m x 15.4 m	Crawler
E	Standard	Yes	11.5 m x 11.5 m	
F	Standard	Yes	11.5 m x 11.5 m	

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Code	Crawler installed	Support installed	Support base	Crane is standing on
G	Standard	Yes	3.6 m x 15.4 m	
H	Standard	Yes	3.6 m x 15.4 m	
I	Standard	No	—	

Chart for LR1750

Code	Central ballast	Crawler installed	Support installed	Crane is standing on	Miscellaneous
A	95 t / 45 t / 20 t	Yes	No	Crawler 9.1 m x 8.8 m x 1.5 m	
B	20 t	Yes	Yes	Crawler 9.1 m x 8.8 m x 1.5 m	
C	0 t	No	Yes	Support 12.6 m x 12.6 m	
D	20 t	Yes	Yes	Support 13.0 m x 13.0 m	
	110 t	No	Yes	Support 12.6 m x 12.6 m	
E	0 t	No	Yes	Support 16.0 m x 10.5 m	Load to the side
F	0 t	No	Yes	Support 16.0 m x 10.5 m	Load 360°
G	20 t	Yes	Yes	Support 16.0 m x 12.0 m	Load to the side
H	20 t	Yes	Yes	Support 16.0 m x 12.0 m	Load 360°

4.3 Configuring the crane with the LMB code

▶ Enter the LMB code directly via the alpha-numeric keys (0...9).
▶ With the mouse, click in the OK field or confirm with F8.

Result:

– The chart is set and the load chart values are shown.

4.4 Crane configuration with the aid of the operating mode overview

>?<

▶ Click on the icon.

Result:

– An overview of all charts, which are programmed for this crane is shown.

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Krannummer: 000000000   Krantyp: LX XXXXX

Hauptausleger	Zubehör	Ballast	Abstützung Zentralbal.	Drehber. B.-Wagen	Code
xxø T 50m B216A315	N 56m	60.0	10.0x9.6	360 ø	1677
xxø T 50m B216A415	N 56m	75.0	10.0x9.6	360 ø	1676
xxø T 50m B216A515	N 56m	90.0	10.0x9.6	360 ø	1675
xxø T 50m B216A715	N 56m	105.0	10.0x9.6	360 ø	1674
xxø T 50m B216A815	N 56m	135.0	10.0x9.6	360 ø	1672
xxø T 50m B216A016	N 56m	165.0	10.0x9.6	360 ø	1670
xxø T 50m B216A116	N 63m	30.0	10.0x9.6	360 ø	1689
xxø T 50m B216A216	N 63m	45.0	10.0x9.6	360 ø	1688
xxø T 50m B216A316	N 63m	60.0	10.0x9.6	360 ø	1687
xxø T 50m B216A416	N 63m	75.0	10.0x9.6	360 ø	1686
xxø T 50m B216A516	N 63m	90.0	10.0x9.6	360 ø	1685
xxø T 50m	N 63m	105.0	10.0x9.6	360 ø	1684

Fig.199707

For paging, all lines, which contain a valid equipment configuration, are highlighted in color.

▶ Double click on the active line.

Result:

– The active line is directly taken over into the chart program. This equipment configuration is automatically set and the corresponding chart value is shown.

4.5 Setting tele conditions

1	2	3		%
0+	46+	92+		31.7
92+	92+	0+		36.9
92+	46+	46+		36.9
46+	92+	46+		36.9
0+	92+	92+		36.9
92+	92+	46+		42.1
46+	92+	92+		42.1
92+	92+	92+		47.3
100+	100+	100+		50.0
100-	100-	100-		50.0

O.K.

Fig.199708

If you have set this chart, then a menu for all available discrete tele lengths is shown. Within this menu, you can move with the arrow keys or move the roll bar in the upper area with the left or right mouse button or select the tele length directly with the left mouse button. When paging in these lines,

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the reeving is automatically updated to a value which is required to lift the maximum load which can occur in this load chart.

▶ With the left mouse button, select a tele length and confirm with RETURN.

5 Crane and configuration change

5.1 Changing the crane

KRN

▶ Click on the icon.

Result:

– Another crane can be selected directly without having to leave the program.

5.2 Changing configuration

KNF

▶ Click on the icon.

Result:

– Another configuration can be selected directly without having to leave the program.

6 Simulation

During simulation, you can emulate the crane in all movements on the screen. The planner uses a scale crane model for display, which can be moved on a coordinate grid. The grid is calculated in such a ways that the crane is shown in maximum size. If the crane does no longer fit into the current grid, for example by telescoping out, then the system is automatically adjusted to the new dimensions. Only for telescoping in, the grid is not readjusted. All crane movements can be carried out with the mouse. The individual functions are explained in detail as follows.

6.1 Crane functions

6.1.1 Entering actual load
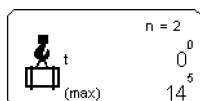
Fig.199709

In the icon for the actual load, a load to be lifted can be preset. In this value, the load weight and the weight of the hook block should be taken into account.

▶ With the left mouse button, click in the right half of the icon.

Result:

– The following window appears:

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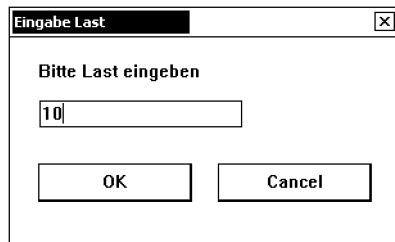
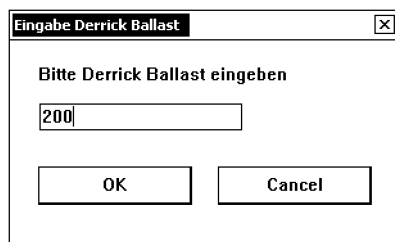*Fig.199710*

The entry can be aborted with ESC or the right mouse button.

▶ Enter a value larger than 0 and confirm with OK.

Result:

– The load input is evaluated by the load moment limiter and stops luffing up or down in case of overload.

The length of the hoist rope is drawn with the hook block, so that the load can be attached on the end of the rope. Depending on the set actual load, the corresponding hook block is automatically selected, to be able to simulate the hoist limit switch.

▶ With the left mouse button, click in the left half of the icon.

Result:

– The hoist rope is raised.

▶ With the left mouse button, click in the right half of the icon.

Result:

– The hoist rope is lowered.

6.1.2 Luffing the main boom
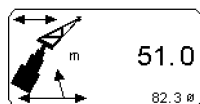
Fig.199678

The luffing procedure is carried out with the currently set step width. Luffing up and down is automatically stopped if a LMB Stop occurs, either due to overload or exceeding of the angle. For this reason, the load moment limiter (LMB) from the LICCON is simulated in the planner. If a stop occurs, then this is shown with a red STOP icon. The LMB can be turned on or off at any time via the F1 key or by clicking the mouse button in the step symbol (100 %).

▶ With the left mouse button, click in the radius icon.

Result:

– The main boom is luffed up.

▶ With the right mouse button, click in the radius icon.

Result:

– The main mast is luffed down.

6.1.3 Telescoping
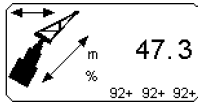
Fig.199680

The telescopic boom can be telescoped in and out by clicking in the tele length icon. Differentiation is made between free telescoping and telescoping to discrete tele lengths.

Discrete telescoping:
– If you click in the center of the icon, then the telescopic boom is generally set to the next discrete extension condition.
 The reeving is automatically corrected to a value, which makes it possible to lift the maximum load in the corresponding load chart.

Stepless telescoping:
– If technically possible or if an appropriate telescopable chart is set, then it can be telescoped in or out by clicking the corresponding tele percentage value for this telescope with the selected step width. Coupled telescopes are synchronously extended according to the telescoping system in use.

▶ Click with the left mouse button in the icon.

Result:

– The telescopic boom is telescoped in.

▶ Click with the right mouse button in the icon.

Result:

– The telescopic boom is telescoped out.

6.1.4 Luffing the accessory
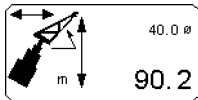
Fig.199679

If there is a moveable accessory for the set operating mode, then it can be moved in the icon for the pulley head height.

Regarding the load moment limiter, the same applies as for the telescopic boom.

For cranes with telescoping jib, the accessory with the set percentage step can be telescoped in (left mouse button) or out (right mouse button) by clicking the length data.

▶ Click with the left mouse button in the icon.

Result:

– The accessory is luffed up.

▶ Click with the right mouse button in the icon.

Result:

– The accessory is luffed down.

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6.1.5 Setting the derrick ballast and adjusting the derrick ballast
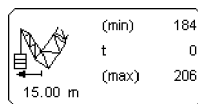
Fig.199711

Within this icon, two different actions can be carried out.

▶ With the left mouse button, click in the **right half of the icon**.

Result:

– The following window opens:

Fig.199712

Note
▶ The entered value corresponds on cranes **with** the value shown in "display pulled derrick ballast" on the LICCON system, operating view monitor 1.
▶ The entered value corresponds on cranes **without** the "display pulled derrick ballast" on the LIC-CON system, operating view monitor 1 to the attached ballast, which corresponds mainly to ballast plates and ballast pallet.

▶ Enter pulled derrick ballast.

Result:

– The accessory is luffed down.

▶ With the left mouse button, click in the **left half of the icon**.

Result:

– The derrick ballast radius is increased according to the set step width.

▶ With the right mouse button, click in the **left half of the icon**.

Result:

– The derrick ballast radius is decreased according to the set step width.

Note
▶ For operating mode without adjustment possibility of the derrick ballast radius, only the pulled derrick ballast value can be entered in the right half of the icon!

Note
Foot note in an icon!
▶ The crane operator must check the TLT manual for additional conditions (for example specified minimum ballast).
▶ A possibly available suspended ballast guide must be taken into account with half of its weight.

Note

Relevant for LR 1400/2 with suspended ballast without guide frame!

The displayed derrick angle is fixed with the displayed derrick ballast radius in the crane as well as in the job planner, as if the derrick ballast is freely suspended. The static stipulates that the suspended ballast is held with guy ropes on the nominal radius (9 m or 11 m) and the derrick angle is increased in such a way that the radius of the derrick head is within 9.1 m to 9.5 m or within 11.1 m to 11.5 m. This ensures that the guy ropes are safely tensioned.

In order to obtain a valid, maximum load in the job planner, the derrick ballast radius must also be in this window (for example 9.1 m to 9.5 m). It is recommended to set the smallest possible derrick ballast radius (for example: 9.1 m). The reason for this is that for the calculation of the derrick ballast, for example at: 9.1 m derrick ballast radius, the derrick ballast is too small by 1 %. At 9.5 m, however, the derrick ballast is by 5 % smaller than the actual value. The same must be taken into consideration for the radius 11.1 m to 11.5 m. The interfering edge of the derrick ballast must be determined by setting the derrick ballast exactly on the derrick ballast nominal value of 9.0 m or 11.0 m.

▶ The above mentioned notes must be observed and adhered to!

6.1.6 LMB STOP

During the crane simulation, a LMB STOP can occur, which can be shown by two different STOP icons within the max / actual load icon.

Note

If a LMB STOP is shown, then the limit of safe crane operation is reached. In case of continued (not permissible) crane operation within the LMB STOP condition with the aid of the bypass of the LMB shut off (100 %), an impact on the material properties or tipping over of the crane cannot be excluded. This cannot be simulated by the job planner. Calculated values within the LMB STOP condition are only theoretical values.

▶ Do **not** include these theoretical values in the planning or crane operation!

Stop
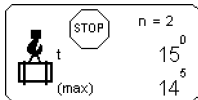
Fig.199713

Possible reasons for the Stop icon:

– Actual load is larger than maximum load from load chart.
– Current reeving is smaller than required reeving.
– For derrick ballast: Pulled derrick ballast is smaller than minimum derrick ballast.

▶ Remedy cause of LMB Stop.

95 % Stop
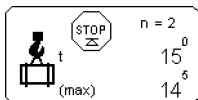
Fig.199714

Due to the interpolation of the maximum load, on operating modes with jib, it can happen that the maximum load carrying capacity is reduced when luffing up the main boom. If the current load exceeds 95 % of the maximum load carrying capacity, then a shut off of this movement occurs.

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▶ Luff the main boom down.
or
Luff up the jib.
or
Bypass the LMB shut off (100 % icon).

Result:

– The 95 % stop condition is over.

6.1.7 Changing step widths
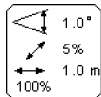
Fig.199715

In the icon on the lower left edge of the screen, the step widths for the various actions are shown.

In this icon, the various step widths are shown, with which the crane movements can be carried out.

The angle icon stands for the step width for luffing the tele and accessory up or down as well as for turning the superstructure.

The percentage data is used as input for telescoping.

The meter input is used as step width for moving the building outline.

The 100 % icon stands for the load moment limiter (LMB).

▶ Click with the left mouse button in these icons.

Result:

– The values are increased.

▶ Click with the right mouse button in these icons.

Result:

– The values are decreased.

6.1.8 Turning the LMB on / off
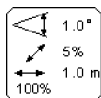
Fig.199715

Due to exceeding the angle or overload, the LMB becomes active and does not allow further crane movements. Another click in this icon reactivates the LMB.

▶ Click with the left mouse button on the 100 % icon.

Result:

– The LMB is bypassed.
– The 100 % icon is shown crossed out.

▶ Click again with the left mouse button on the 100 % icon.

Result:

– The LMB is activated.

6.2 Planning functions

6.2.1 Showing operating modes

▶ Click on the icon.

Result:

– An overview of all charts, which are programmed for this crane is shown. See paragraph "Crane configuration with the aid of the operating mode overview".

6.2.2 Receiving 2D view from above

▶ Click on the icon.

Result:

– The program changes to 2D view from above. The following screen is shown:
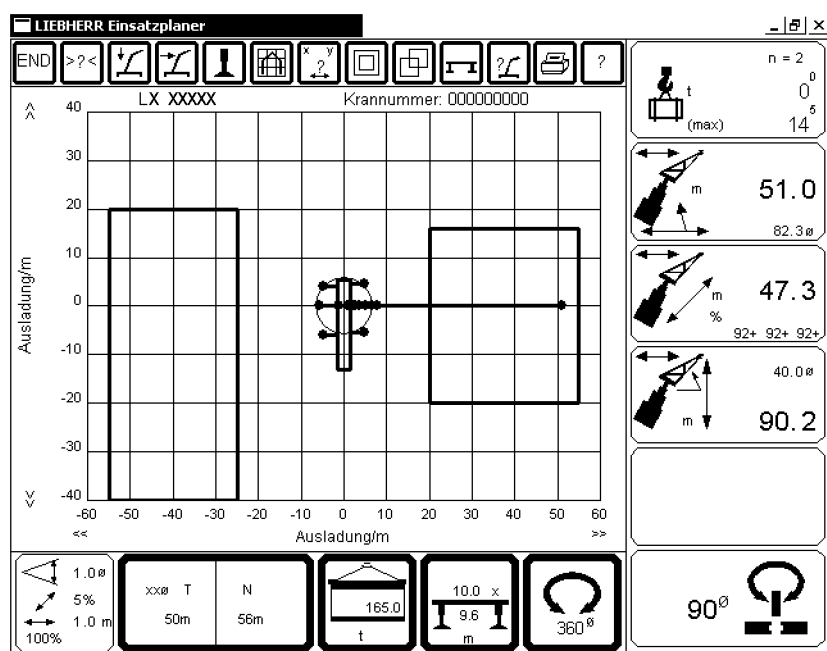
Fig.199716

6.2.3 Receiving 2D frontal view

▶ Click on the icon.

Result:

– The program changes to 2D frontal view. The following screen is shown:

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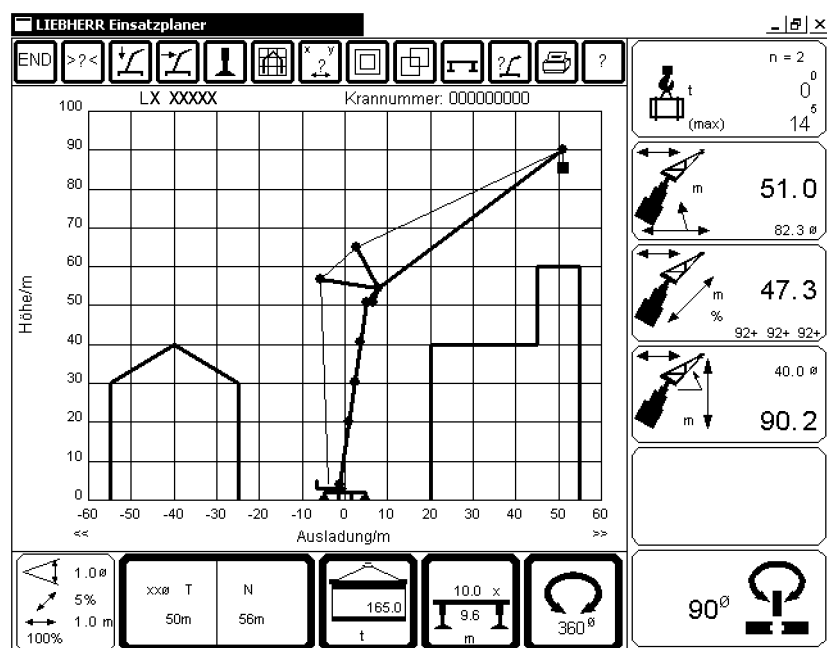
Fig.199665

6.2.4 Calculating support force

For the calculation of the support forces, it is assumed that the crane is positioned on a level, evenly solid ground and that it is evenly supported!

If the crane is equipped with derrick ballast, then it is further assumed that the pulled derrick ballast is within the displayed min / max range. Since no dynamic influences can be taken into consideration in the job planner (for example deflection, wind, crane movements), a corresponding safety addition of 5 % has been taken into account for the calculation.

Note
▶ Please note that the calculated support forces are only theoretical values, which are exact only under certain conditions and prerequisites.

▶ Click on the icon.

Result:

– The program changes to support force view. The following view appears:
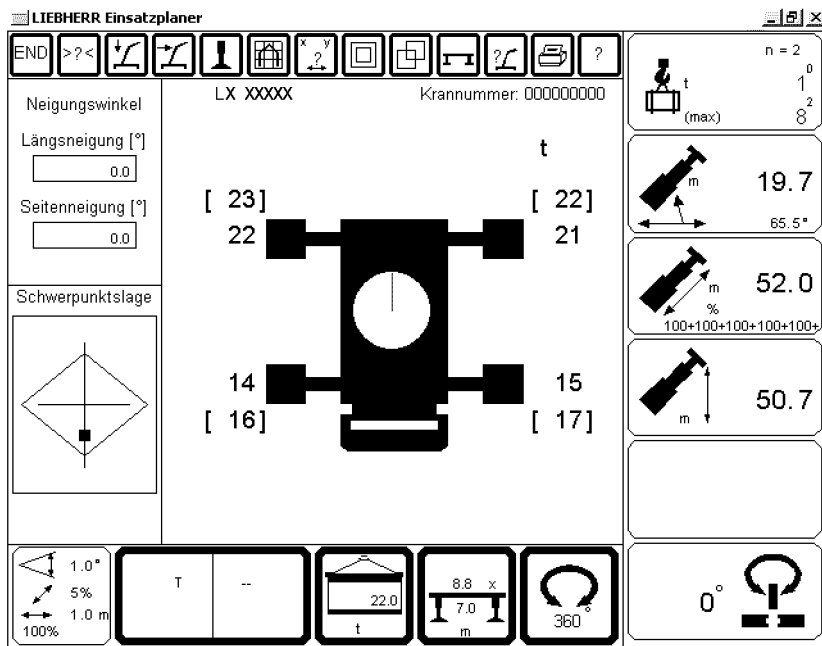
Fig.199717

The current support forces are noted on the individual supports. The value in brackets show the maximum occurring values, which could occur during a full 360° rotation of the superstructure. In the lower right icon, the current superstructure angle is shown in relation to 0° to the rear.

Note
The displayed value on one support describes the selective force, which occurs on this support. It must be noted that this support force does **not** relate to a certain surface (1 m²).
▶ For ground pressure calculation, the support force must therefore be converted to the corresponding surface of a ground plate!

▶ With the left or right mouse button, turn the superstructure within the icon.
Result:

– The superstructure is being turned and the support forces are continuously updated. All crane movements can also be carried out in the support force view, whereby the effects on the support forces become immediately visible.

6.2.5 Calculating ground pressure (only for crawler chassis)

For the calculation of ground pressure, it is assumed that the crane is positioned on a level, evenly solid ground and that it is evenly supported!

In addition, it is also assumed that the pulled derrick ballast is within the shown min / max range. Since no dynamic influences are considered in the job planner (such as deflection, wind, crane movements), the actual ground pressures can significantly deviate from the values calculated in the job planner, depending on the severity of the external influences. When driving without a load, the ground pressure can be higher than the maximum ground pressures in operation with a load.

Note
▶ Please note that the calculated support forces are only theoretical values, which are exact only under certain conditions and prerequisites.

▶ Click on the icon.

Result:

– The program changes to ground pressure calculation. The following view appears:

LIEBHERR
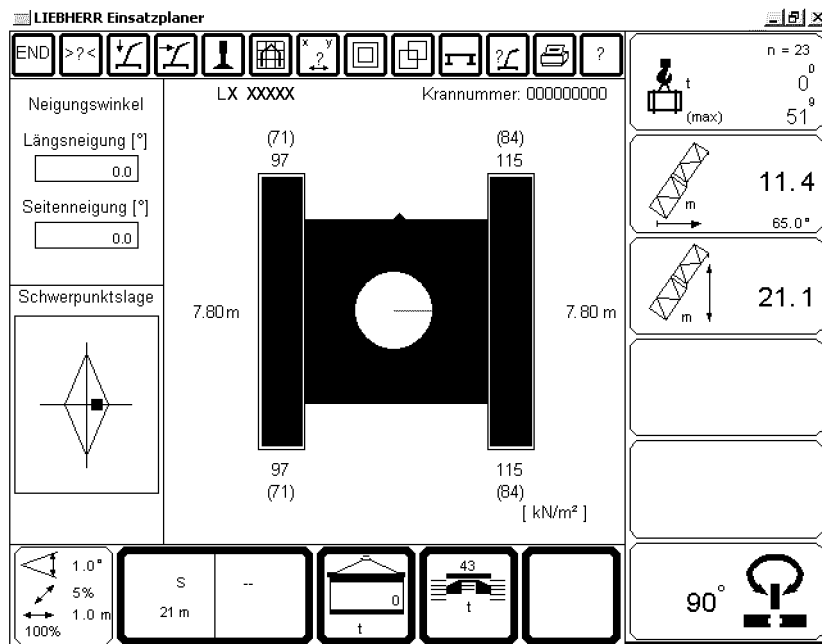
Fig.199718

In the left column appears the display of the center of gravity. See the following paragraph "Display of center of gravity".

This value shows the placement length of the crawler chain on hard surface.

The values **without parenthesis** show the ground pressure in [kN/m²] on **hard** ground. The values **in parenthesis** show the ground pressure in [kN/m²] on **soft** ground.

The following view clarifies the placement surfaces on hard and soft ground:
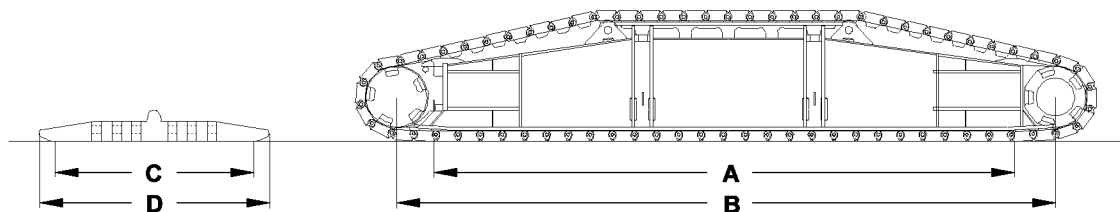
Fig.199719

Hard ground: Placement length A x placement width C

Soft ground: Placement length B x placement width D

In the lower right of the monitor, the current superstructure angle is shown in relation to 0° to the front.

▶ With the left or right mouse button, turn the superstructure within the icon.

Result:

– The superstructure is being turned and the ground pressures are continuously updated. All crane movements can also be carried out in the ground pressure view, whereby the effects on the ground pressures become immediately visible.

6.2.6 Display of center of gravity

ⓘ **Note**
The following conditions for the validity of the given core surface must be observed.
▶ Driving the crane with the equipment in place may only be carried out without a load on the hook, without suspended ballast and without ballast trailer, only with turntable ballast.
▶ The simulation is valid for wind velocity 0.
▶ The ground must be able to absorb the ground forces and pressures which will occur! The occurring output forces in lengthwise and crosswise direction when driving through slopes must be especially observed.
▶ While driving and for the transfer from support to crawler (and reverse), the turntable must be aligned parallel to the crawler carriers. The permissible deviation is ±5°.
▶ While driving, the supports are - if possible- to be held on as large as possible, square support surface, whereby the support plates should be directly above the ground.
▶ Incline changes must be made evenly and continuously; no edges!
▶ It must be ensured that the center of gravity is within the core surface, before, during and after an incline change.

ⓘ **Note**
▶ For driving the crane and therefore also for the planning with the LICCON job planner, the conditions in the operating instructions are applicable.

ⓘ **Note**
▶ Driving the crane and therefore also the planning with the LICCON job planner is only permissible if this is also explicitly allowed in the operating instructions for the corresponding crane.

This display shows the display of the center of gravity when driving the crawler crane without a load.

Fig.199720

If the center of gravity is within the core surface (center of gravity marked green), then the crane on crawlers may be driven.

If the center of gravity is outside the core surface (center of gravity marked red), then the crane on crawlers may not be driven.

In this display of the center of gravity it is also possible to take a slope, on which the crane is standing or driving into account. To do so, the crane can be inclined in lengthwise as well as crosswise direction, by setting the corresponding incline angle.

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Note
▶ The incline angles can be entered only for crawler cranes (installed on crawlers and / or support). For tele cranes, the display of the center of gravity is only for informational purposes and is marked with the value 0°.

▶ With the mouse, click on the corresponding angle display.

Result:

– The following dialog fields open:

Eingabe Neigungswinkel   ☒

Eingabe Neigungswinkel quer zur
Fahrtrichtung
2

OK   Cancel
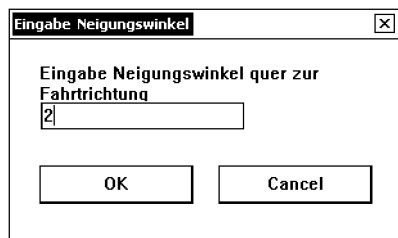
Fig.199721: Dialog field input incline angle

The max. adjustable side incline is ± 4.5°
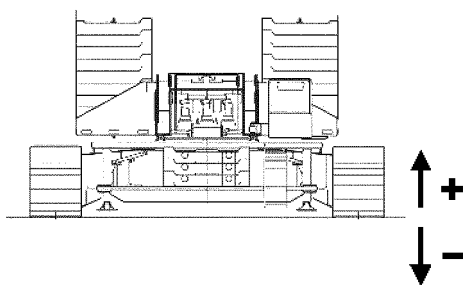
Fig.199723

▶ Adjust side incline.

Eingabe Neigungswinkel   ☒

Eingabe Neigungswinkel in
Fahrtrichtung
5

OK   Cancel
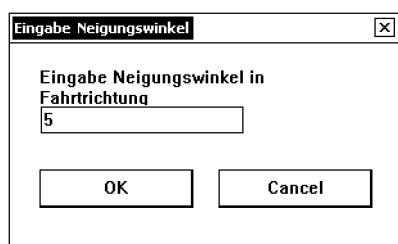
Fig.199722

The max. adjustable length incline is ± 10°

LIEBHERR
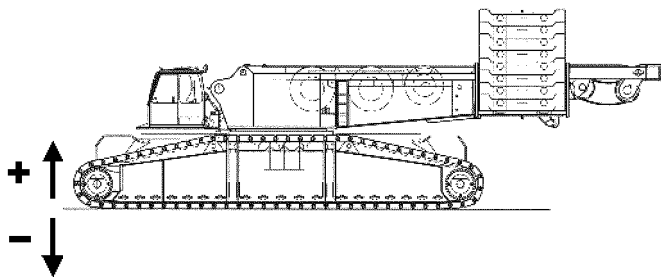
Fig.199724

▶ Adjust length incline.
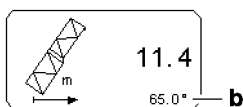
Fig.199725

ⓘ **Note**
▶ The displayed tele angle in the crane and in the LICCON job planner always refers to the horizontal, regardless if the crane is standing on level ground or on an incline.

ⓘ **Note**
▶ The main boom angle is not automatically modified by entering the longitudinal / lateral incline! This must be reset manually, if necessary. If accessories are installed, then the accessory angle must also be reset.

In the side view of the LICCON job planner, after entering the longitudinal / lateral incline, no optical change of the crane is made.

However, in the support pressure view, the center of gravity of the chassis, the turntable as well as the turntable ballast and the derrick ballast is calculated and modified by the longitudinal / lateral incline. The boom angle / accessory angle and the derrick angle remain on the set angles, which are given regarding the horizontal, as shown in the operating data fields (BDF). The boom angle / accessory angles must now also be manually reset, if necessary.

Fig.199726

LWE/99500-03-02/en
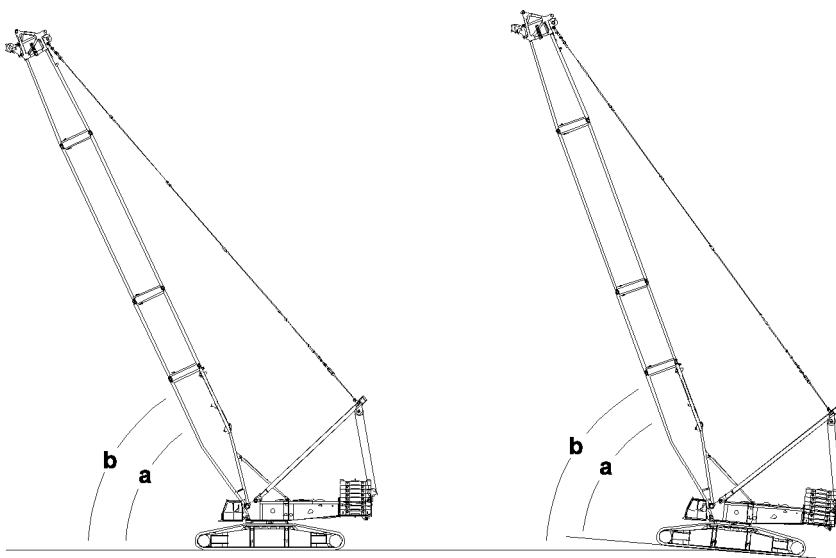
The displayed boom angle **b** results from the boom angle in reference to the chassis / crawler **a** and the angle of the incline.

If the boom is in direction of the incline, then the boom angles in reference to the chassis / crawler **a** and incline angle are added.

If the boom is in direction of the decline, then the boom angles in reference to the chassis / crawler **a** and decline angle are subtracted.

When driving the crane without a load, the displayed values for tele angle, radius, pulley head height and load capacity depend on the longitudinal and lateral incline of the crane. The following chart shows the display elements and the conditions, when these elements are shown normally or gray.

Note
▶ The following two charts are only valid for **LR 1600/2–W**, when a load chart for driving on narrow track crawler is set, otherwise the next chart is valid.

Note
▶ The values shown in gray may only be used for the planning if the load charts for the ground incline are available.

Element	L smaller / same 0.3° and L larger / same -0.3° and Q smaller / same 0.3° and Q larger / same -0.3°		L larger 0.3° or L smaller -0.3° or Q larger 0.3° or Q smaller -0.3°	
	D In range -5°to +5° to the rear or front	D Not in range -5°to +5° to the rear or front	D In range -5°to +5° to the rear or front	D Not in range -5°to +5° to the rear or front
Tele angle	Normal		Normal	Gray
Radius	Normal		Normal	Gray
Pulley head height	Normal		Normal	Gray

D = slewing angle superstructure / chassis; L = length incline; Q = cross incline

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Element	L smaller / same 2° and L larger / same -2° and Q smaller / same 2° and Q larger / same -2°		L larger 2° or L smaller -2° or Q larger 2° or Q smaller -2°	
	D In range -5°to +5° to the rear or front	**D** Not in range -5°to +5° to the rear or front	**D** In range -5°to +5° to the rear or front	**D** Not in range -5°to +5° to the rear or front
Load	Normal	"0t"	"?"	"?"
⚠ ‼	No	No	Yes	No
STOP	No	Yes	No	Yes

D = slewing angle superstructure / chassis; L = length incline; Q = cross incline

ℹ **Note**
▶ This chart is valid for all other **LR** und **LTR** cranes.

Element	L smaller / same 0.3° and L larger / same -0.3° and Q smaller / same 0.3° and Q larger / same -0.3°		L larger 0.3° or L smaller -0.3° or Q larger 0.3° or Q smaller -0.3°	
			D In range -5°to +5° to the rear or front	**D** Not in range -5°to +5° to the rear or front
Tele angle	Normal		Normal	Gray
Radius	Normal		Normal	Gray
Pulley head height	Normal		Normal	Gray

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LWE/J99500-03-02/en

Element	L smaller / same 0.3° and L larger / same -0.3° and Q smaller / same 0.3° and Q larger / same -0.3°	L larger 0.3° or L smaller -0.3° or Q larger 0.3° or Q smaller -0.3°	
		D In range -5°to +5° to the rear or front	**D** Not in range -5°to +5° to the rear or front
Load	Normal	Gray	Gray
⚠ ‼	No	No	No
🛑 STOP	No	No	No

D = slewing angle superstructure / chassis; L = length incline; Q = cross incline

▶ Use only correct values for the planning!

6.2.7 Drawing interference outline

▶ Click on the icon.

Result:

– You are in the drawing section of the program and the following view appears:

Fig.199728

LIEBHERR
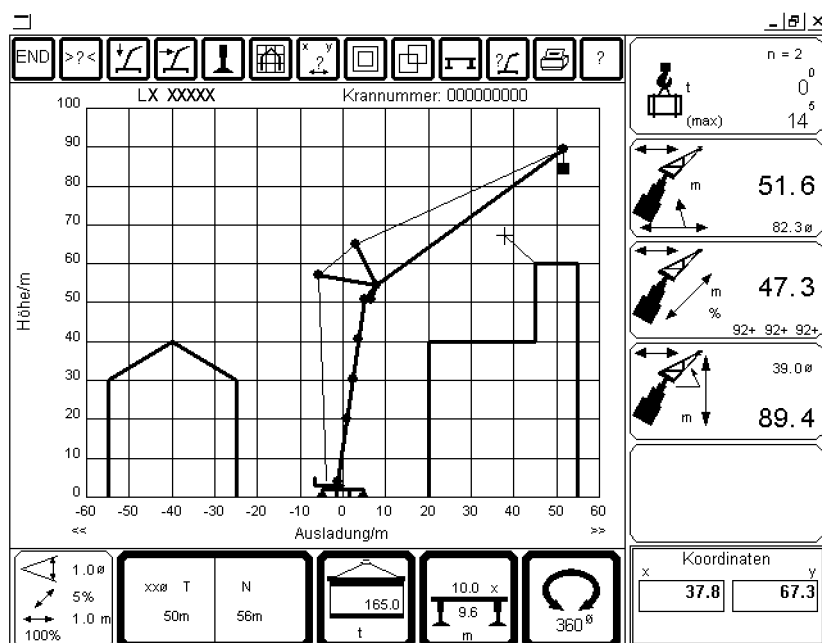
The planner makes it possible for you to draw an interference outline in the crane view, which is taken into account for the automatic crane selection. It is possible to draw a traverse with the mouse or by entering the coordinates.

▶ With the right mouse button, click on the corresponding icon in the status and symbol line.
▶ Move the mouse to the starting point of the outline.
▶ To mark the first point: Click on the left mouse button.
▶ To set additional points: Move the mouse to all the following points and click the left mouse button each time.
▶ To leave the drawing mode: Press the right mouse button or the ESC key.

Alternatively, you can also draw the outline via entering the coordinates.

▶ Enter all coordinates and confirm each entry with the RETURN key.

Result:

– The outline is saved when leaving the program and is available when called up again. It remains until a new outline is entered.

▶ To delete the outline: Activate the function and then press the ESC key.

6.2.8 Blending in the coordinates

▶ Click on the icon.

Result:

– You are in the measuring mode.

In addition to the current operating data, the coordinates can also be blended in.

▶ Move the mouse pointer within the drawing range.

Result:

– In the icon on the lower right, the mouse pointer coordinates are blended in. The displayed coordinates refer to the center of the slewing ring. The coordinates are only shown when a mouse is connected to the system.

6.2.9 Measuring distances

▶ Click on the icon.

Result:

– You are in the measuring section of the program and the following view appears:

LWE/99500-03-02/en
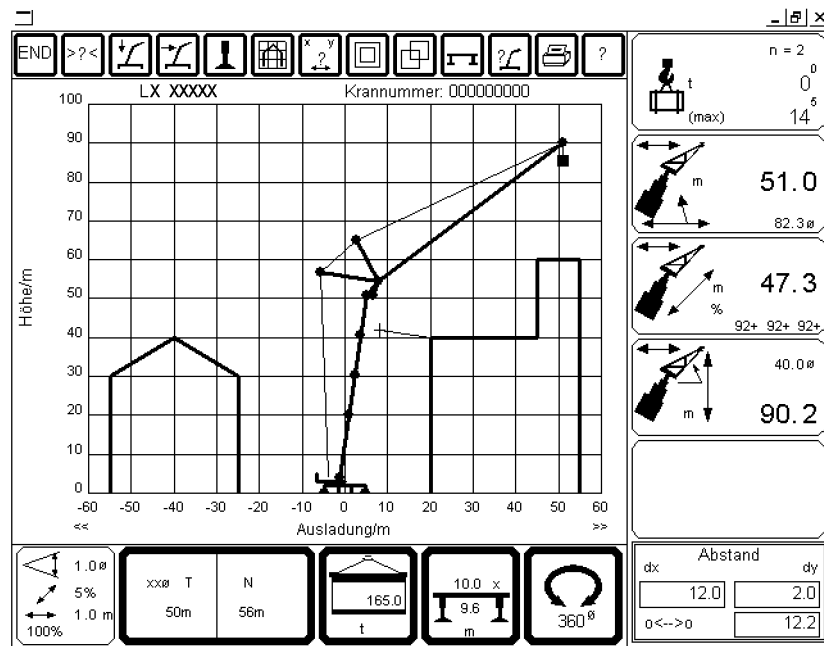
Fig.199729

▶ Click with the left mouse button on the starting point.

▶ Pull the mouse to the final point and click again.

Result:

– Shown now in the coordinate window are the relative distance in x- and y- direction and the direct distance between the two points. The display remains until a new measurement is made with the left mouse button or until you abort the measuring procedure with the right key.

▶ To start a new measurement: Click with the left mouse button on the starting point.

▶ To abort the measuring procedure: Click with the right mouse button.

6.2.10 Increasing or decreasing zoom section

▶ Click on the icon.

Result:

– The following screen is shown:

LIEBHERR
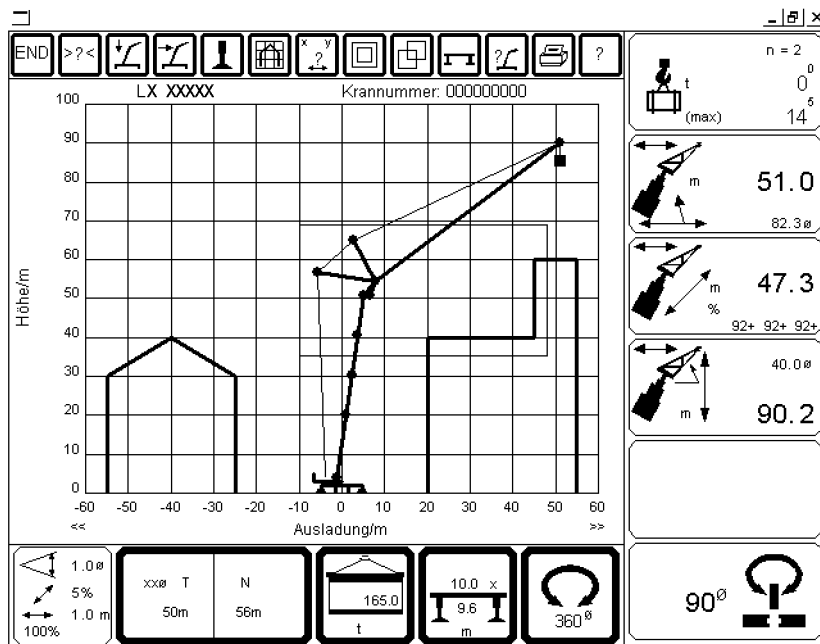
Fig.199730

▶ To assign a new screen section in the drawing area interactively with the mouse: Click with the left mouse button on the zoom icon.

Result:

– After you have clicked on the first point of the section with the left mouse button, the second point of the section "hangs" on the mouse cursor.

▶ Position the second point accordingly and confirm with the left mouse button.
▶ To abort the function: Click with the right mouse button.

The screen section can be increased or decreased by a certain factor to the center of the drawing area. With a factor larger than 1, the section is increased, with a factor between 0 and 1, it is decreased.

▶ Click with the right mouse button in the zoom icon.

Result:

– The following screen is shown:

LIEBHERR
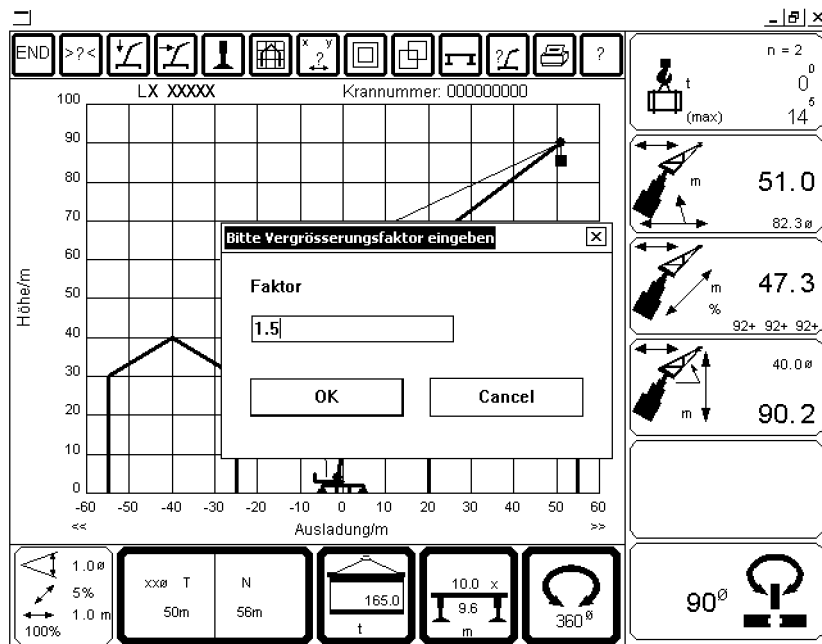
Fig.199731

▶ Enter the factor in the window on the screen.
▶ To abort the function: Press the right mouse button or the ESC key.
▶ To correct an incorrect entry: With the BACKSPACE key, move the input cursor to the left to the corresponding point.

6.2.11 Moving the pan section

▶ Click on the icon.

Result:

– The following screen is shown:
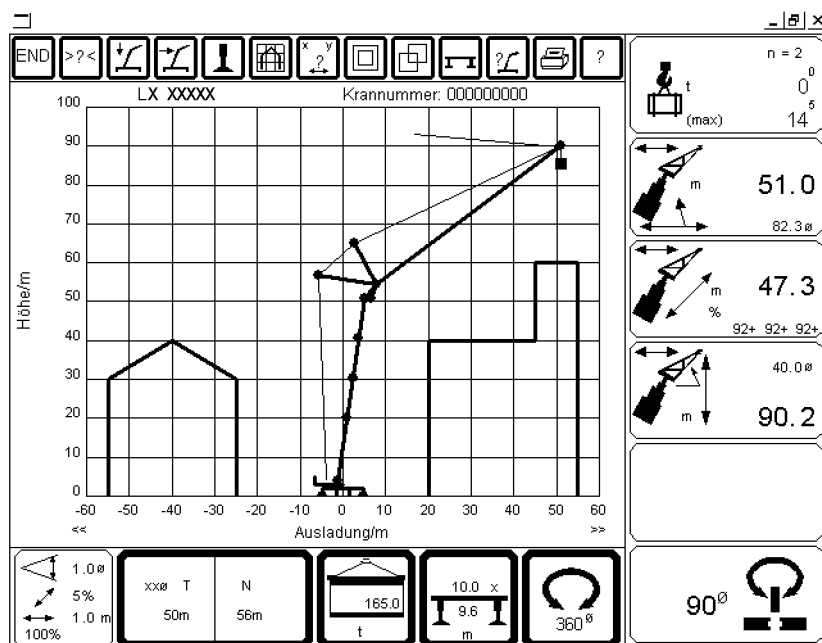
Fig.199732

▶ To determine the "movement path": Click with the left mouse button one after the other on two points in the drawing area.

Result:

– The following screen is shown:
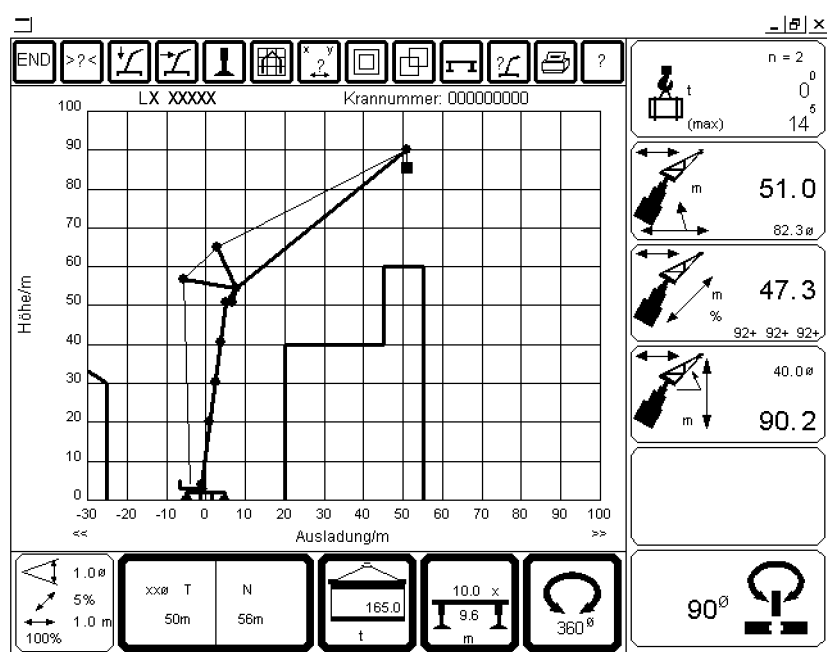
Fig.199733

▶ To abort the function: Press the right mouse button.

6.2.12 Turning the chassis

▶ Click on the icon.

Result:

– The following screen is shown:

Fig.199734

LIEBHERR
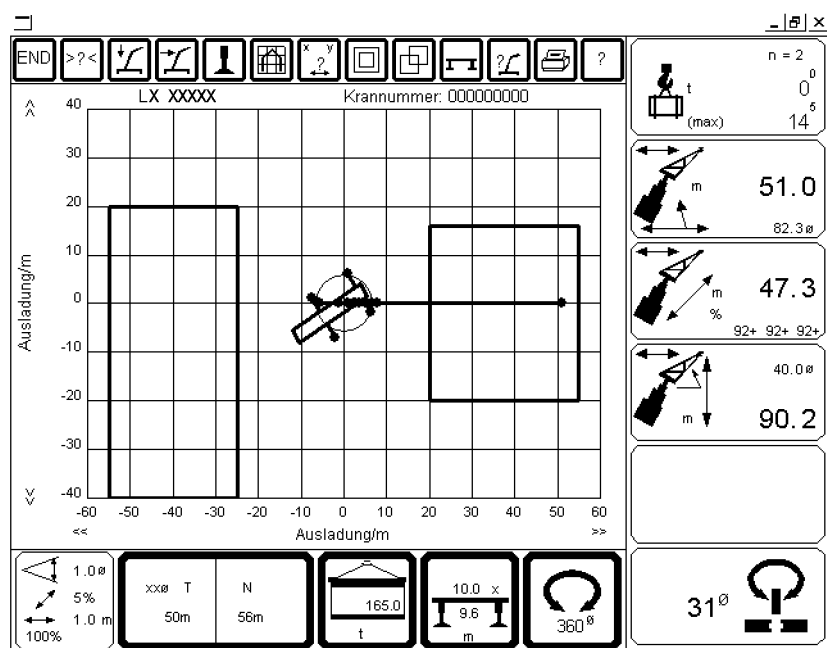
With the left mouse button, turn the chassis in counterclockwise direction, with the right mouse button in clockwise direction.

▶ To turn the chassis around the center of the slewing ring: With the left or right mouse button, click on the corresponding icon in the status and symbol line.

Result:

– The position of the superstructure remains so that the superstructure angle changes (in the icon on the lower right hand side).

6.2.13 Calling up crane selection list

▶ Click on the icon.

Result:

– You receive the results of the automatic crane selection. A list of all machines and configuration conditions is shown, which were found by the crane selection program for the given load case.

▶ Select a line with the cursor buttons or with the mouse and confirm with the left mouse button or the RETURN key.

Result:

– The selected crane is automatically input into the 2D planner and is set to the position, which is required for this load case.
– This way, you can select the optimum crane from several possible machines for a certain load case.

6.2.14 Positioning the crane automatically

Note
▶ If certain functions are active, the automatic positioning cannot be carried out, since the mouse buttons are in use otherwise.

▶ Click with the right mouse button within the drawing area.

Result:

– You automatically erect the crane and bring it into a position with valid load capacity values. This function is run through for every new input crane to ensure a proper position, from which the simulation can be carried out.

6.2.15 Recalculating drawing area

During the simulation, the coordinate system is always calculated in such a way that the crane can be shown in maximum size. When the crane does no longer fully fit into the drawing range, then it is automatically rescaled when telescoping out. When telescoping in, the automatic scaling function is suppressed.

Note
▶ If certain functions are active, the automatic recalculation of the drawing area cannot be carried out, since the mouse buttons are in use otherwise.

▶ To resize the view manually to the optimum size: Click with the left mouse button within the drawing area.

6.2.16 Stopping the program

END ▶ Click on the icon.

Result:

– The program is terminated. When ending the program, the last condition is saved, so that you can continue the next time at the same point without having to reselect the crane.

6.3 Drawing functions

6.3.1 Drawing and deleting line(s) / buildings

In this program section, you can draw complex buildings in frontal view and view from above or lines. You also can delete the lines again.

▶ Click with the left mouse button on the icon.

Result:

– The following screen is shown:
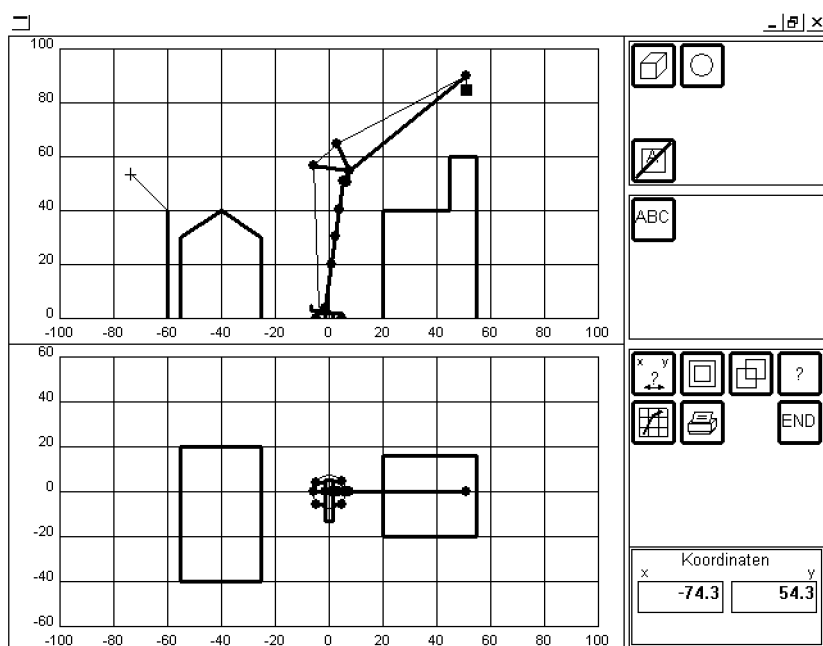
Fig.199736

▶ With the left mouse button, click in the desired view.

Result:

– The mouse movement range is then limited to this view.

▶ Move the mouse to the starting point of the traverse line.
▶ To set the first point: Click with the left mouse button.
▶ Mark all additional points of the traverse line the same way.
▶ To end the entry: Press the ESC key or the right mouse button.

Result:

– The mouse pointer jumps automatically into the opposite view. There a horizontal line is shown, which reaches from the minimum to the maximum point of the earlier entered traverse line.

▶ Click with the left mouse button on the line.

Result:

– The second points of the rectangle "hangs" on the mouse pointer.

▶ Position the point with the mouse and click with the left mouse button on the desired location.

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▶ To abort the function: Click with the right mouse button.

If you only want to draw one line or a traverse line without the corresponding opposite view, switch to full view.

▶ With the right mouse button, click in the corresponding view.

Alternatively, the entry of the individual point coordinates can also be made via the keyboard.

▶ Confirm each entry of the point coordinates with the RETURN key.
▶ To **delete** the individual lines: Click with the right mouse button in the icon.
▶ Position the mouse pointer on the line.
▶ Click with the left mouse button.

Result:

– If you positioned the mouse pointer correctly, this line disappears automatically when drawn again.

The two functions remain active until you abort them finally with the right mouse button. Therefore you can draw or delete as long as desired without having to restart the function each time.

▶ Click with the right mouse button.

Result:

– The two functions are ended.

6.3.2 Drawing and deleting a circular arc

▶ Click with the left mouse button on the icon.

Result:

– The following screen is shown:
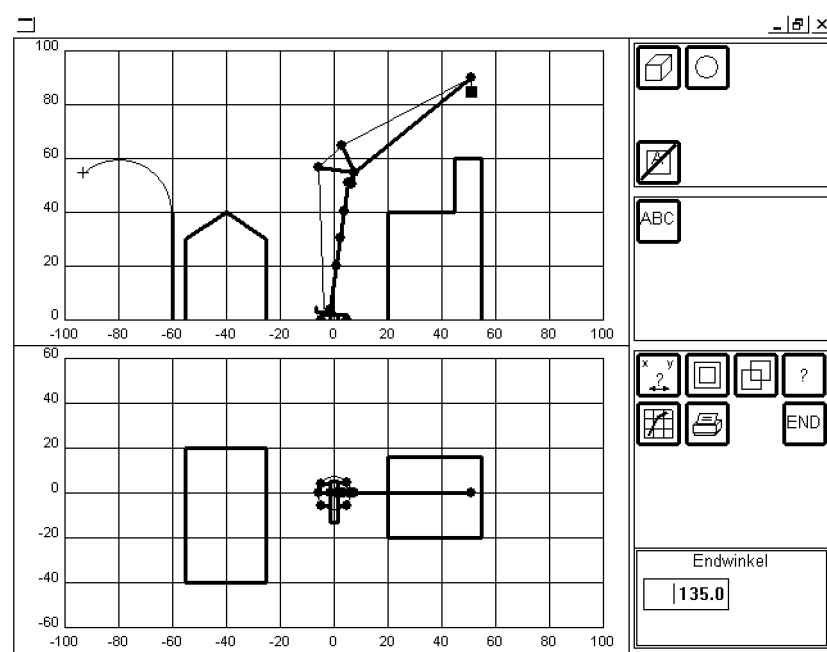
Fig.199738

▶ With the left mouse button, click in the desired view.

Result:

– The mouse movement range is then limited to this view.

▶ Move the mouse to the center point of the circle or the circular arc.
▶ To set the point: Click with the left mouse button.

▶ With the next point, determine the radius of the circle or the circular arc.

The following angle data is defined starting from the horizontal (0°) towards clockwise direction.

▶ To draw a circular arc: Enter the starting and the end angle.
▶ To draw a circle: Enter the starting angle = 0° and end angle = 360° .
▶ To end the entry: Press the ESC key or the right mouse button.

Alternatively, the entry of the individual points or angles can also be made via the keyboard.

▶ Confirm each entry with the RETURN key.
▶ To **delete** the individual circles or circular arcs: Click with the right mouse button in the icon.
▶ Position the mouse pointer on the circle or circular arc.
▶ Click with the left mouse button.

Result:

– If you positioned the mouse pointer correctly, this circle or circular arc disappears automatically when drawn again.

The two functions remain active until you abort them finally with the right mouse button. Therefore you can draw or delete as long as desired without having to restart the function each time.

▶ Click with the right mouse button.

Result:

– The two functions are ended.

6.3.3 Writing and deleting text

▶ Click with the left mouse button on the icon.

▶ With the left mouse button, click in the desired view.

Result:

– The mouse movement range is then limited to this view.

▶ Move the mouse to the reference point of the text (lower left).
▶ To set the point: Click with the left mouse button.

Result:

– The following screen is shown:

Fig.199740

▶ With the next point, determine the text angle.

Result:

– The following screen is shown:

Fig.199741

▶ Determine the text size.

Result:

– The following screen is shown:

LIEBHERR
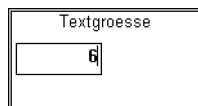
Fig.199742

Now you can enter the text of max. 40 letters in a window:
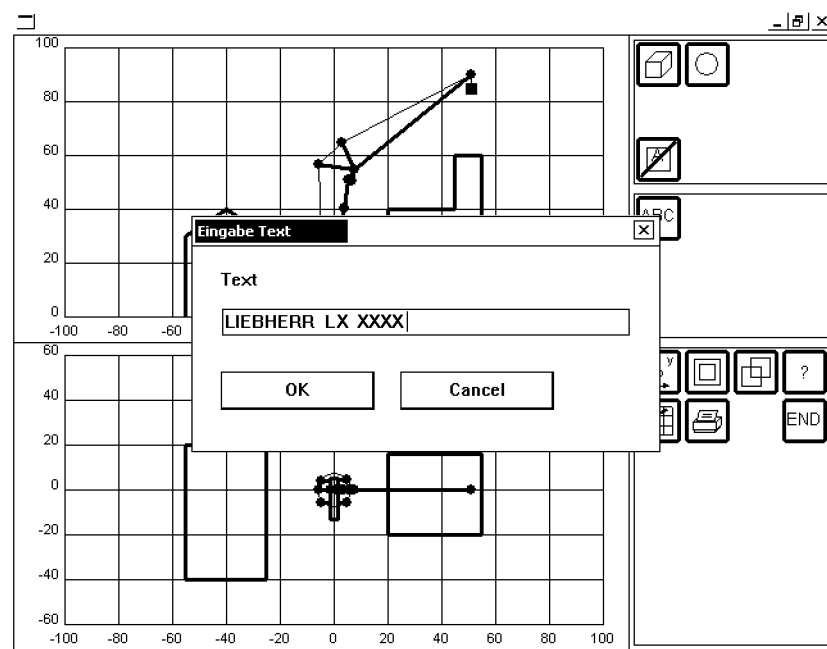
Fig.199743

▶ Enter the text.
▶ To abort the entry: Press the right mouse button.

Alternatively, the entry of the individual points or angles can also be made via the keyboard.

▶ Confirm each entry with the RETURN key.
▶ To **delete** the text: Click with the right mouse button in the icon.
▶ Position the mouse pointer on the text.
▶ Click with the left mouse button.

Result:

– If you positioned the mouse pointer correctly, the text disappears automatically when reentering it again.

The two functions remain active until you abort them finally with the right mouse button. Therefore you can draw or delete as long as desired without having to restart the function each time.

▶ Click with the right mouse button.

Result:

– The two functions are ended.

6.3.4 Deleting everything

▶ Click on the icon.

Result:

– You delete all drawing elements.

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6.3.5 Recalculating the view again

Note
▶ If certain functions are active, the automatic recalculation of the design area cannot be carried out, since the mouse buttons are in use otherwise.

The design area is changed via the zoom and pan function. You can set the view manually to the optimum size so that all drawing objects in this view are visible.

▶ With the left mouse button, click in the corresponding view.

6.3.6 Returning to the simulation

▶ Click on the icon.

Result:

– You enter the program area for the crane simulation.

7 Planner program end

7.1 Ending the planner program

When you end the planner program, you have the opportunity to save all entered settings and drawn buildings. You can name the file yourself to be able to return to this case at any time.

▶ Click on the icon.

Result:

– The program is terminated.
– The program asks if the load case is to be saved.

▶ Enter a file name.
▶ Press OK key.

Result:

– The load case is saved.

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