LUBERIGHT®

Instructions for Use

Computerised Manual Lubrication System

LUBERIGHT®

Contents

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1 INTRODUCTION

1.1 Description

LubeRight® is a computerised manual lubrication system which offers the following advantages over traditional manual lubrication:

- It enables an exact dosage to each lubrication point, according to the recommendations of the bearing manufacturers. An integrated measuring device logs every amount of grease being fed to the lubrication point.
- It verifies each dosage for every lubrication point.
- It tracks historical lubrication activity for individual lubrication points.

All lubrication points are equipped with a transponder. The chip holds a unique identification number which is read by the grease meter. The grease meter displays the name of the lubrication point and how much grease it is planned for. All grease amounts applied are registered and, at the end of the day, when the information is transferred from the grease meter to a PC, all forgotten lubrication points will show up. All performed lubrication will be stored in the PC with information on when and how much.

1.2 Components

1.2.1 Grease Meter

Art. no. 0102510

Digital grease meter with antenna for communication with lubrication nipples. The grease meter has a contact for connection to a PC.

Data

Max. pressure	70 MPa
Grease connection	int. ISO-G1/8
Weight	0.86 kg
Hose length	400 mm
Flow range	0 – 1,000 cm^3/min
Accuracy	+/- 3% up to 30 MPa
Protection	IP54
Temp. range	-20 °C to +40 °C

The grease meter is equipped with a total counter. The grease meter can be calibrated and can show the grease amounts in cm^3, gram, oz., or fl. oz.
Normally it displays the next lubrication point, how many that are done, and how many are left to do.
The display of the grease meter is equipped with a backlight for use in dark working environments.

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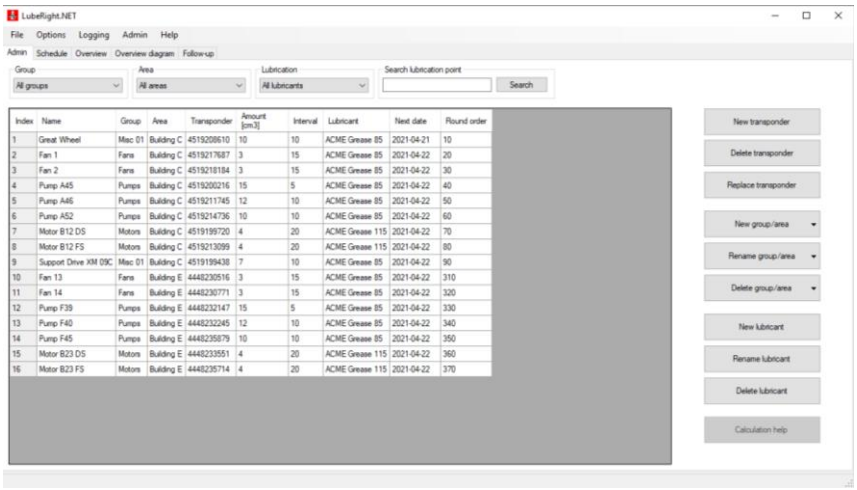
1.2.2 Computer Program



Art. No. 0102531

The computer program is used to plan and follow up lubrication.

1.2.3 Lubrication Nipple with Transponder

Art. No. 0102397

The transponder has a unique number that the grease meter identifies.

Lubrication nipple, stiffening plate and locking ring in acid proof steel, transponder in epoxy.

Type of lubrication nipple is in accordance with DIN71412

Connection thread:	ISO-G1/8
Temperature range:	-40 °C to +85 °C
Protection:	IP66
Weight:	20 g

2 USE

The LubeRight system consists of two main parts, the grease meter, and a PC-based administration program. This chapter describes how the entire LubeRight system should be used and how the grease meter and computer program work together.

2.1 LubeRight Software

2.1.1 Program Settings

When the program is started for the first time, three settings should be considered.

2.1.1.1 Years of lubrication data

The program shows lubrication for the next 1, 2, or 3 years, depending on this setting. Unless you have a lubrication point that has an interval longer than a year, we recommend the use of 1 year. The program extends the schedule with a week for each week that passes.

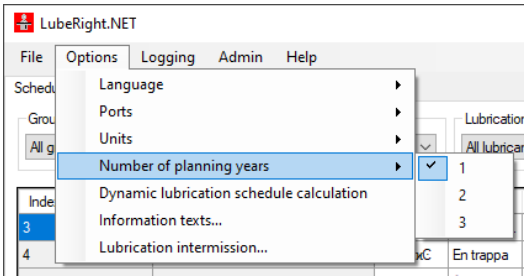


Figure 1, Choice of number of planning years

2.1.1.2 Language

The program has some language alternatives beside English.

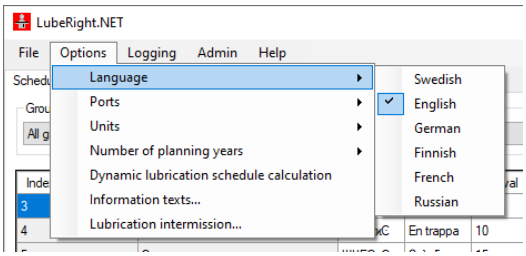


Figure 2, Available languages

2.1.1.3 Dynamic or static

Default, and recommended, is static, where the schedule is centred around keeping lubrications together. This way the operator has the same planned route each time. The other way the next lubrication of a lubrication point is based on when the last performed lubrication was successfully performed.

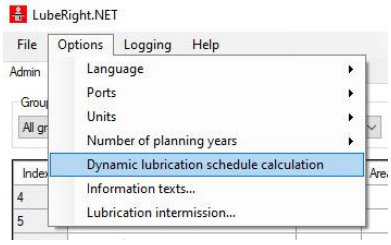


Figure 3, Dynamic lubrication

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2.1.1.4 Units

There are four units to choose from: cm³, fl. oz., gram, and oz.
Since the grease meter measure volume, the mass is calculated from the measured volume. We use the density of 0.87 g/cm³ (54 lb/ft³) to calculate the mass.

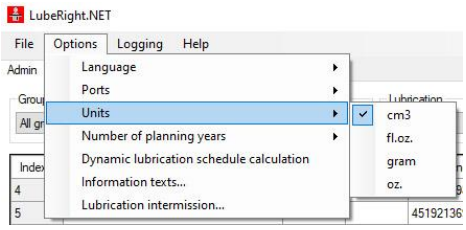

Figure 4, Units to choose from

2.1.2 User Interface

The user interface of the LubeRight program consists of five different tabs. The first tab is Administration, which may be hidden, where lubrication points are administered and new ones installed. The second tab is Schedule, where normally this week's lubrications are displayed, and lubrication data is transferred between the grease meter and the PC program. The third tab is Overview, which contains all lubrication data both planned and done. The fourth tab is Overview diagram, which is a clear visual display over what is left to do and what is done, current or coming week. The fifth tab is Follow-up, which is for structured historical follow-up what is done.

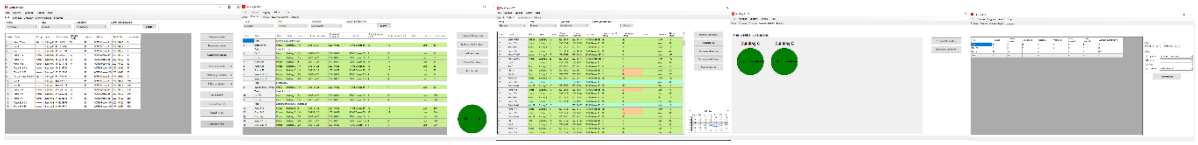

Figure 5, The five tabs that provide different functionality

2.1.3 Administration

In Administration, the lubrication points are set up and the lubricant quantities are specified, along with lubrication intervals and other data for the lubrication points.

Figure 6, Unlocking administrator tab

The Administration tab is locked behind a password (it is "luberight" at delivery). To unlock the tab, see figure 6. To have it always unlocked, set the new password to nothing. Change password is under Admin when it is unlocked.

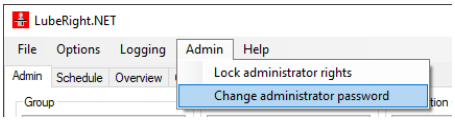

Figure 7, Changing administrator password

The Administration tab consists of a grid in which all lubrication point data is presented, ten buttons for various tasks and functions for searching for lubrication points and sorting lubrication points in predetermined lubrication groups.

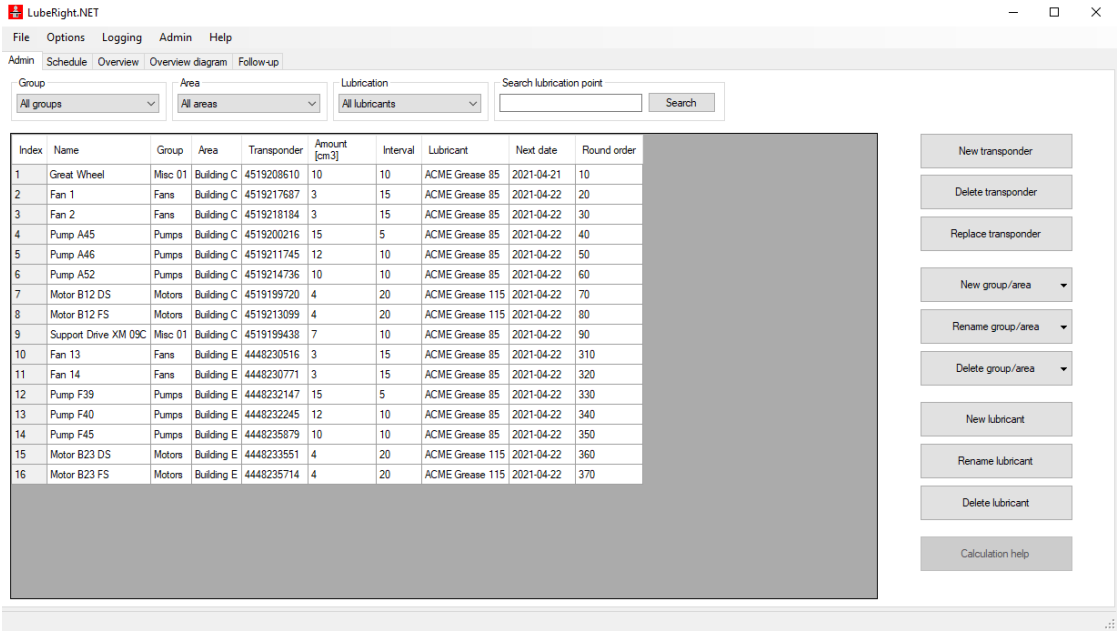

Figure 8, Administration

Index Each lubrication point is given an index number on registration. The number cannot be changed and is used mainly to number the transponders in connection with registration so that the right transponder is placed on the right lubrication point.
Double-click on it to see Overview for that lubrication point.

Name The lubrication point's name is specified here.
This is changed by clicking the box and entering an appropriate name.

Group The group to which the lubrication point belongs.
This is changed by clicking the box and selecting the appropriate group from the list.

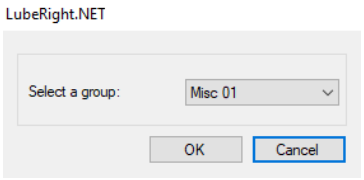

Figure 9, Group selection

How to enter a new group is explained in section 2.1.3.1.

Area What area the lubrication point is located in.
This is changed by clicking the box and selecting the right area from list.
How to enter a new area is explained in section 2.1.3.1.

Transponder Each transponder's unique identification number. The number cannot be changed.

Amount The amount of lubricant to be supplied to the lubrication point each time lubrication takes place. The unit is selected under the Options menu, see section 2.1.1.4.
This is changed by clicking the box and entering the appropriate amount.
When specifying a value of -1 instead of a positive value, any lubricant amount is accepted. +0 is shown on the display in the grease meter for this lubrication point.

Interval How often the lubrication point is to be lubricated. It is specified in weekdays. The program uses a five-day week, Saturdays and Sundays are not used for lubrication. If a lubrication point is to be lubricated once a month, then an interval of 20 days is to be entered (4 weeks x 5 days = 20 days). When you click the box to change the interval, you also must specify the date of the first lubrication.

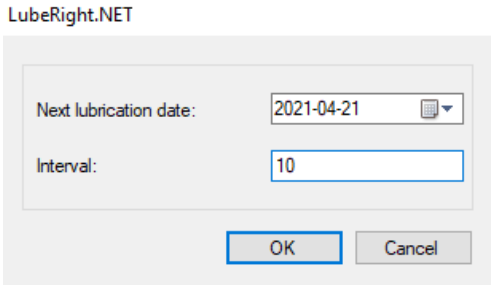

Figure 10, Changing the interval

Lubricant The lubrication point's lubricant.
This is changed by clicking the box and selecting the appropriate lubricant from the list.

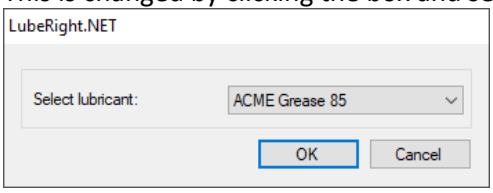

Figure 11, Lubricant selection

How to enter a new lubricant is explained in section 2.1.3.4.

Next date Shows the date when the lubrication point shall be lubricated next time.

Round order This number determines the order in which the lubrication points are sorted in the lubrication schedule, i.e., the order in which the lubrication points are to be lubricated.
Letters cannot be used.
Initial zeros are ignored by the program.
Using steps of ten is recommended since you then can enter new lubrication points between two old ones without having to renumber the whole series.

2.1.3.1 Add a New Group or New Area

When lubrication data is transferred to the grease meter, you can choose just to transfer a selection. Of course, all lubrication points must have the same lubricant as the one loaded in the grease gun. The selection can be further narrowed by group and/or area.
To add a new group, press the "New group/area" button and select "Group". The dialog box shown in Figure 12 below is then opened.

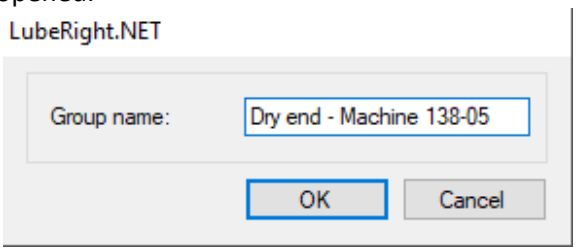

Figure 12, Add new group

Enter the new group name and press "OK", or "Cancel" to cancel.
For area it is identical except the choice of "Area" under "New group/area".

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2.1.3.2 Rename a Group or Area

To rename a group, press the “Rename group/area” button and select “Group”. The dialog box shown in Figure 13 below is then opened.

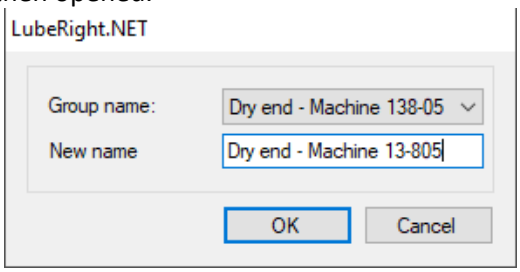

Figure 13, Rename a group

Choose the group to rename and enter the new name and press “OK”, or “Cancel” to cancel.
For an area it is identical except the choice of “Area” under “Rename group/area” button.

2.1.3.3 Delete a Group or Area

To remove a group, press the “Delete group/area” button and select “Group”. The dialog box shown in Figure 14 below is then opened.

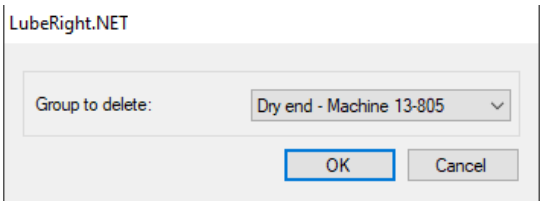

Figure 14, Remove group

Select the group you want to remove and press “OK”, or “Cancel” to cancel.
For an area it is identical except the choice of “Area” under “Delete group/area”.

2.1.3.4 Add a New Lubricant

Press the “New lubricant” button to add a new lubricant. The dialog box shown in Figure 15 below is then opened.

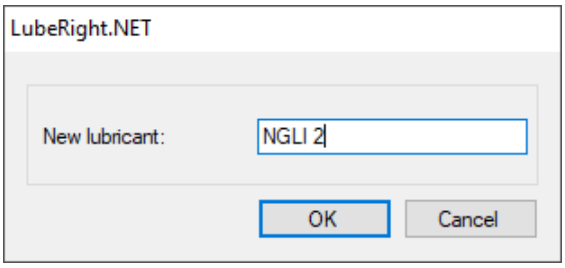

Figure 15, Add lubricant

Enter the new lubricant’s name and press “OK”, or “Cancel” to cancel.

2.1.3.5 Delete a Lubricant

Press the “Delete lubricant” button to remove a lubricant. The dialog box shown in Figure 16 below is then opened.

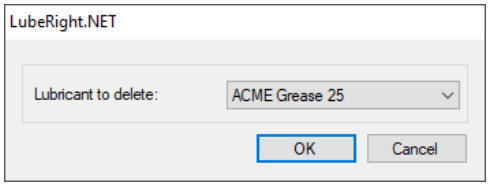

Figure 16, Remove lubricant

Select the lubricant you want to remove and press “OK”, or “Cancel” to cancel.

2.1.3.6 Search for Lubrication Points

To search for a lubrication point, enter part of the name of the lubrication point in the search box and press the “Find” button. The lubrication point or points matching your search will be highlighted.

2.1.3.7 Installation of a New Lubrication Point

When a new lubrication point (i.e., a new transponder) is installed in the computer program, the grease meter must be connected to the PC.

Figure 17, Connecting the communication cable

Connect the grease meter to a free USB port on the PC.

Press the on button on the grease meter, the left button. When connected to the PC the text “PC CONNECTED” is displayed as shown in Figure 18 below.

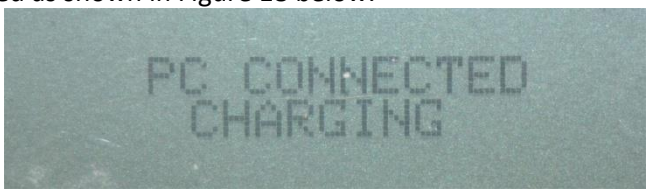

Figure 18, “PC CONNECTED” is displayed during communication with the computer program

Press the “New transponder” button. The dialog box shown in Figure 19 with the text “Waiting for transponder” is then opened, which means that the system is waiting for the user to place the transponder to be registered against the grease meter’s lubrication connection or press “Cancel” to cancel.

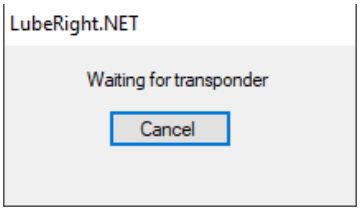

Figure 19, Waiting for incoming transponder ID

If the program cannot communicate with the grease meter, the dialog shown in Figure 20 below is displayed. In this case, check that the grease meter is properly connected to the PC and turned on.

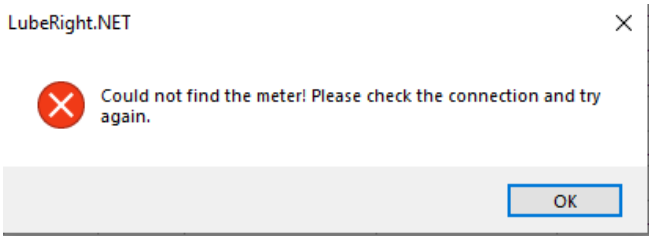

Figure 20, Communication error

If the system has read a transponder, the dialog box below is opened (Figure 21).

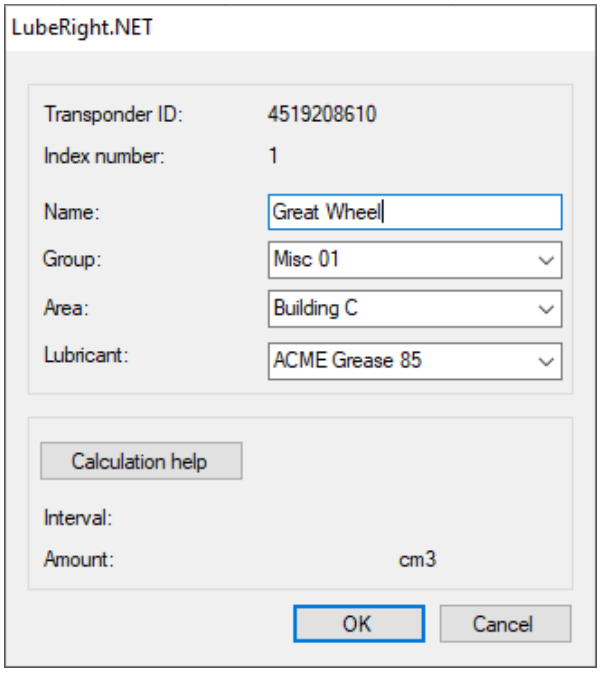

Figure 21, Properties of lubrication point

In this dialog box, the user should enter information on the name of the lubrication point, the group to which it belongs and the lubricant. Then press OK. The lubrication point is then added to the list of lubrication points and you can subsequently add the lubricant quantity, lubrication interval and round order.

If you need help calculating the lubricant quantity, press the “Calculation help” button. A dialog box is then opened (Figure 22). Enter the external diameter and total width of the bearing, the date of first lubrication, and the lubrication interval. When you press OK, the calculated lubricant quantity and the interval selected are displayed. You can press the “Calculation help” button again if you want to change the interval to get a different lubricant quantity.

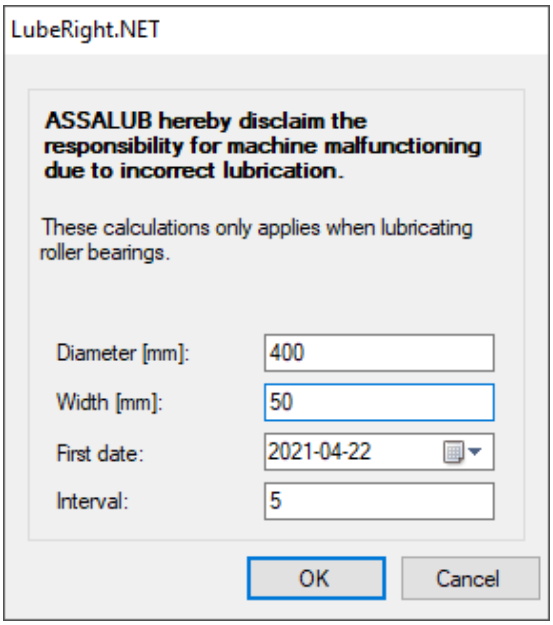

Figure 22, Calculation help

The calculation help suggests for the suitable quantity of grease to use for each lubrication point, calculated on the lubrication interval selected. The program only takes the dimensions into consideration. The suitable lubrication interval depends on several factors, for example temperature, RPM and bearing type. SKF has an advanced calculation program for grease lubrication that calculates the quantity of grease and lubrication interval. The program can be run from: http://www.mapro.skf.com/dialset/

You can also get calculation help after the lubrication point has been registered. Select a lubrication point and press the “Calculation help” button.

2.1.3.8 Check points

Lubrication points that have 0 as lubricant amount shall only be connected without lubricating to be accepted and green. This can be used for oil level control in gear boxes for instance.

2.1.3.9 Remove a Lubrication Point

To remove a lubrication point, place the cursor in the row of the point to be removed in the grid and press the “Remove transponder” button. The dialog box shown in Figure 23 is then opened.

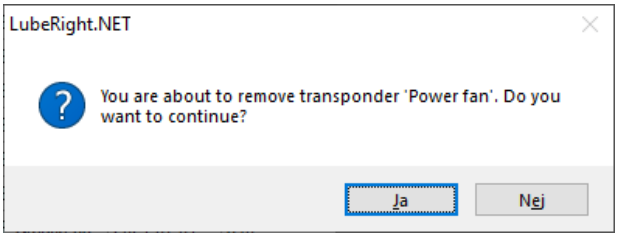

Figure 23, Remove transponder

Select “Yes” if you want to remove the lubrication point or “No” if you want to cancel. If a lubrication point is removed, the information on lubrication performed previously remains.

2.1.3.10 Replace transponder

To replace a transponder, place the cursor in the row of the transponder to be replaced in the grid and press the “Replace transponder” button. The dialog box shown in Figure 24 is then opened.

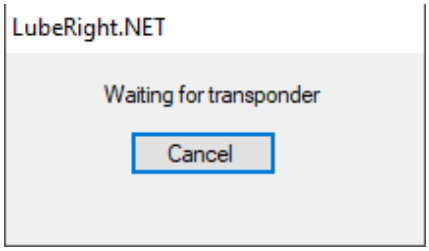

Figure 24, Waiting for incoming transponder ID

Check that the grease meter is connected to the PC and that it is turned on.
Hold the new transponder in front of the grease meters nozzle. The replacement is then ready.

2.1.3.11 Sorting Functions

The program also allows all columns in the grid to be sorted in ascending or descending order. To sort the grid by a column, press the grey column header once for the column you want to sort. The column is then sorted in descending order. Press again and the grid is sorted in ascending order.

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2.1.3.12 Information Texts

Information texts are texts that can be inserted between the lubrication points to provide information in the lubrication schedule on, for example, where the lubrication is to start, when to switch to a different floor or oil level checks. The information texts are linked to the round order numbers and come immediately before the round number selected in the lubrication schedule. The information texts are registered by selecting information texts under the Options menu, see Figure 25.

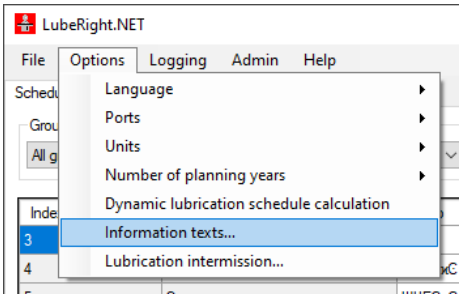

Figure 25, Options pull-down menu

The dialog box shown in Figure 26 appears.

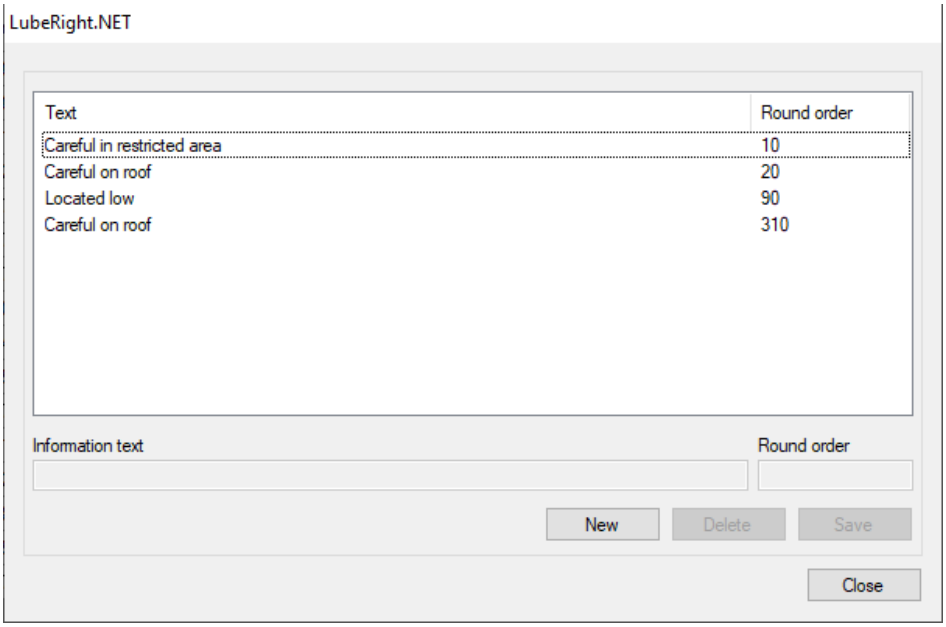

Figure 26, Information texts

2.1.3.12.1 New Information Text

To add a new information text, press the “New” button. Enter the desired information text and the round order number for the lubrication point, in front of which the information text is to be displayed and press the “Save” button.

2.1.3.12.2 Remove Information Text

To delete an information text, select the information text and press the “Delete” button.

2.1.3.12.3 Edit Information Text

Click on the text you want to edit. The text then appears in the lower boxes and you can edit both text and round order there. Press the “Save” button when you are done editing.

Exit the editing of the information texts by pressing the “Close” button.

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2.1.3.13 Lubrication Intermission

Lubrication delay can be specified per group. The planned lubrication during the interval of time selected for the lubrication intermission is postponed until after the time selected.
Lubrication intermission is specified by selecting “Lubrication intermission...” under the Options menu, see Figure 27.

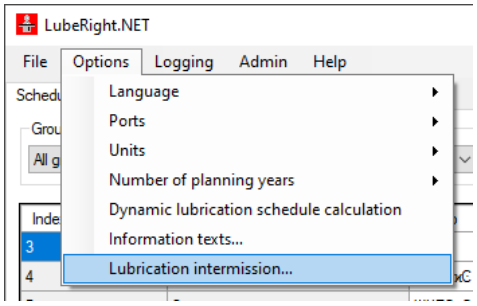

Figure 27, Options pull-down menu

The dialog box shown in Figure 28 appears.

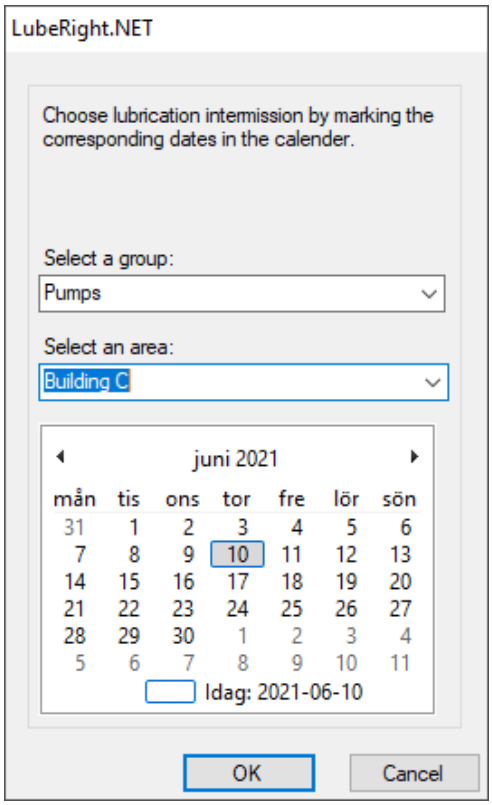

Figure 28, Lubrication intermission

Select the group and/or area to which the lubrication intermission is to be applied. Select the period required for the lubrication delay by clicking and dragging with the mouse or click on the first date hold down the shift key and use the arrow keys to locate the end date. Then select “OK” to confirm or “Cancel” to cancel.
If you want a lubrication intermission for a period of several months, select the lubrication intermission for one month at a time.

If you want a lubrication intermission for just one lubrication point, change the next lubrication date for that specific lubrication point, see section 2.1.3.

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2.1.4 Schedule

Figure 29 below show the schedule tab.
The schedule tab consists of a grid in which the names, groups, dates, etc. of the lubrication points are presented. To the right of the grid are five buttons with which it is possible to transfer lubrication data to and from the grease meter and select this or next week's lubrications. At the top of the display is functionality that allows you to sort lubrications by predetermined lubrication groups, area, and/or lubricant. You can mark selected lubrication points by using the search box. If you want to add a comment about a lubrication point, it is possible to write directly in the "Note" field in the grid. There is a pie chart showing how many of the lubrications this week which has been performed. Green is successfully performed. Successful in this regard is just that they have been lubricated or marked. Only two colours are used: left to do (white) and done (green).

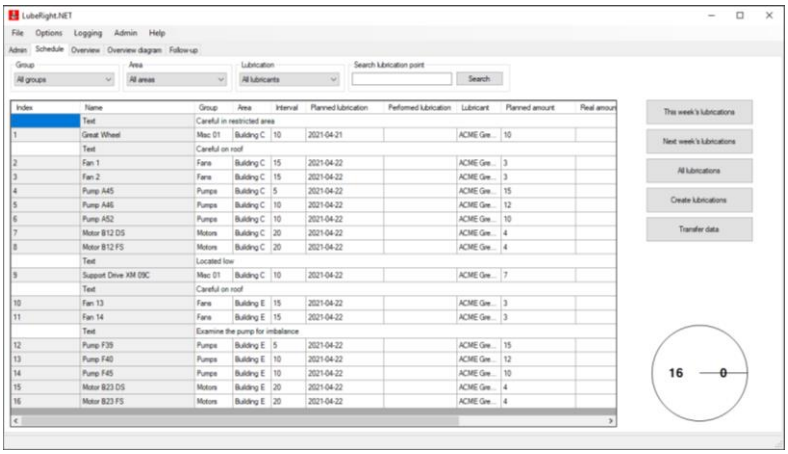


Figure 29, Schedule tab

Index	The index number of the lubrication point.
Name	The name of the lubrication point.
Interval	The interval in Weekdays between planned lubrications.
Group	The group to which the lubrication point belongs.
Area	The area where the lubrication point is located.
Planned lubrication	The date on which lubrication is to take place. The lubrication can take place on any of the days in the week for which the lubrication was planned.
Performed lubrication	After lubrication has been performed, the date on which lubrication was performed is displayed in this field. If the lubrication was performed within the correct interval of time, the cell is highlighted green. If the lubrication was performed too late, the column is highlighted red.
Lubricant	The lubrication point's lubricant.
Planned amount	The lubricant amount planned.
Real amount	After lubrication has been performed; the lubricant quantity used to lubricate the lubrication point is displayed in this field. If the lubricant quantity is equal to the quantity planned ±20%, the column is highlighted green. If the lubricant quantity deviates by more than 20% from the quantity planned, the column is highlighted red.
Note	You can write comments on the lubrication in this field.
Operator	Name of the person who performed the lubrication.
Round order	This number determines the order in which the lubrication points are sorted. The lubrication points are always sorted in round order in the meter after transfer.

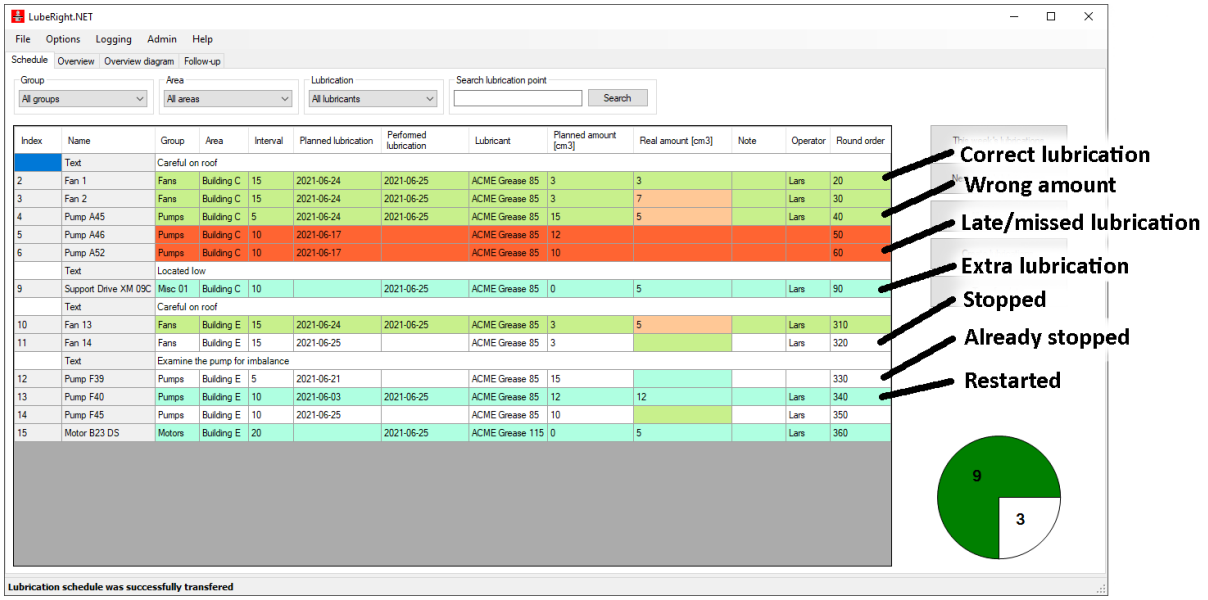


Figure 30, Colour coding of lubrications

Correct lubrication	When the lubrication was performed the correct week and with correct amount.
Wrong amount	When the lubrication was performed the correct week but with an incorrect amount.
Stopped	The lubrication point has been stopped this week.
Already stopped	A stopped lubrication point. When confirmed (the meter has been connected, but no lubrication applied) the line is removed.
Late/missed lubrication	A planned lubrication for an earlier week that have not been performed. When lubricated the line is removed.
Extra lubrication	An unplanned lubrication.
Restarted	The lubrication point has been restarted this week. An already stopped lubrication point gets lubricated.

2.1.4.1 Display Options

The buttons to the right of the grid in Figure 29 are used to transfer lubrication data between the grease meter and the program and to select the interval for which lubrications are to be displayed. The buttons “This week’s lubrications”, “Next week’s lubrications” and “All lubrications” are available for selection. Normal use is “This week’s lubrications”. “Next week’s lubrications” is normally used for when there will be no person available to lubricate the following week.
In the box where you select the group, you can choose to display information on a single group or all groups.
In the box where you select the area, you can choose to display information on a single area or all areas.
In the box where you select the lubrication, you can choose to display information on a single lubrication type or all lubrication types.

2.1.4.2 Transfer of Lubrication Data to and from the Grease Meter

For the transfer of lubrication data between the PC and the grease meter, the grease meter must be connected to the PC.

Figure 31, Connecting the communication cable

Press the on button on the grease meter, the button furthest to the left. During communication between the computer program and the grease meter, the text “PC CONNECTED” is displayed as shown in Figure 32 below.

Figure 32, “PC CONNECTED” is displayed during communication with the computer program

Then press the “Transfer data” button. Data is transferred from the Grease Meter to the PC and from the PC to the Grease Meter with the same button. You should only transfer lubrications with same grease that are loaded in the grease gun that is connected.

A dialog box in which the grease meter operator must be entered is opened, see Figure 33. Enter the name of the person who performed the lubrication and press OK.

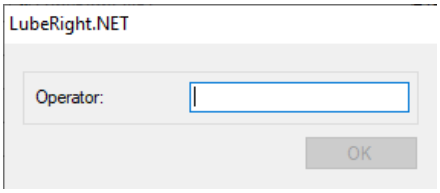


Figure 33, Operator of the grease meter

A dialog box that states the status of the transfer between the program and the grease meter appear, see Figure 34. The program first transfers any performed lubrications, if any, from the grease meter to the program and then it transfers any planned lubrications, if any, from the program to the grease meter. When all transfers are done, the dialog box closes.
The lubrication gun is now ready for use for a lubrication round.

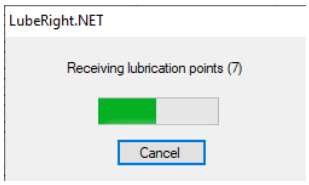


Figure 34, Receiving data from LubeRight

If a lubrication point has been correctly lubricated, it will be highlighted green in the grid. If a point is missed, it is highlighted red. Highlighting is also used to indicate whether a point has been lubricated with too little or too much grease, or whether a point has been lubricated at the incorrect time, see more under section 2.1.5.1.

2.1.4.3 Lubrication of next week's lubrication points

It is possible to lubricate next week's lubrication points. Press the button "Next week's lubrications" to see which lubrications that are planned for next week. Then press the "Transfer data" button. The next week's lubrications are then transferred to the grease meter. Note that the lubrications will be registered as too early performed and will be red in the performed lubrication date column.

2.1.4.4 Create lubrications

There may be lubrication points for which it is impossible to plan the lubrications in advance. It might only be possible to access the lubrication points when the machine is stopped. There is a function in LubeRight that makes it possible to manually create lubrications. These lubrication points are registered normally but no intervals are stated. The lubrication points shall also belong to one group, for example, "machine stop". Click "Create lubrications" button choose group and date when the lubrication shall take place.

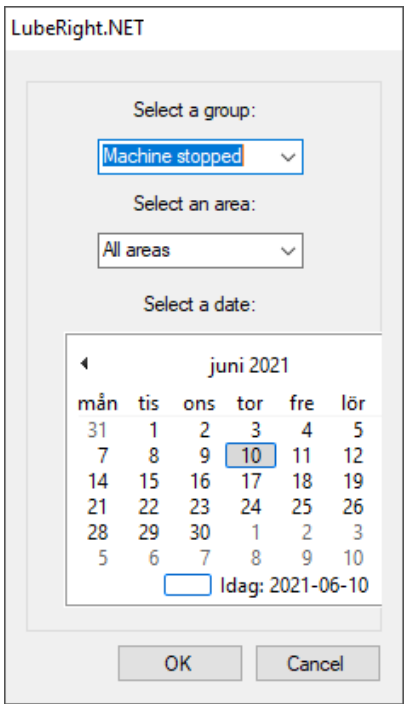


Figure 35, Create a lubrication

2.1.4.5 Lubrication

First transfer this week's lubrications to the grease meter. Then remove the communication cable from the grease meter. The display now displays the name for the next lubrication point, or it displays the first information text.

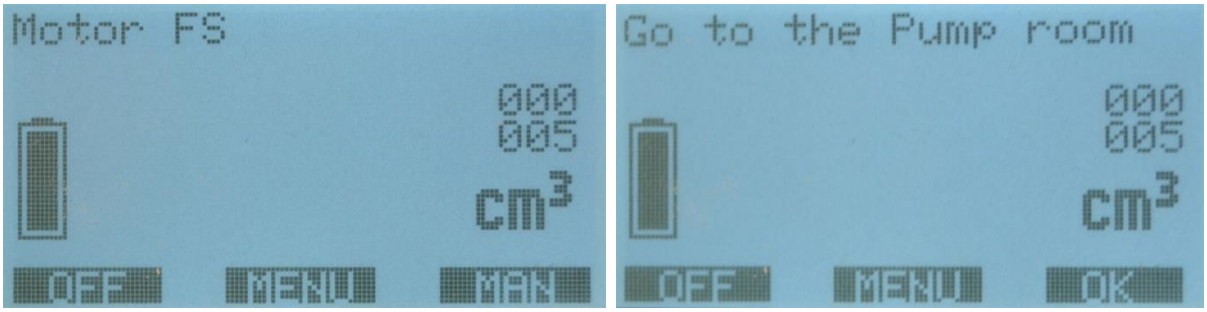


Figure 36, Display after start-up (Lubrication Point to the left and Information Text to the right)

If an information text appears on the display click the rightmost button under “OK” to remove the text when you read it. Then the connected lubrication point appears instead. Connect the grease meter’s lubrication connection to the lubrication point. The grease meter identifies the transponder of the lubrication point selected and the lubricant quantity planned is displayed in the display. The user starts to lubricate and the value in the display is decreasing. When you reach zero the backlight begins to flash. If you choose to lubricate more than planned, a plus sign appears in front of the value and the value begins to increase instead. This is to show that you have lubricated more than planned. The display may look like this:

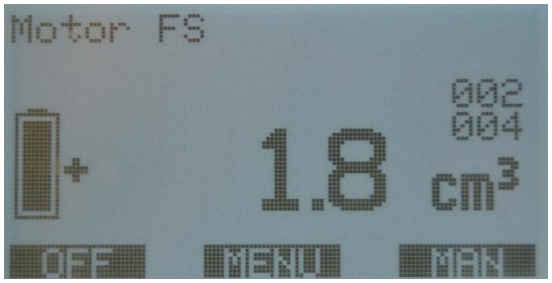


Figure 37, Lubricated with more than the quantity planned

The value remains for four seconds after lubrication has been finished and then the unit switches to show the next planned lubrication point or the next information text. If the user lubricates a point that is not one of that day’s lubrication points, it will state “UNPLANNED LUBRICATION” at the top of the display and the value “0.0” will be displayed as the amount to lubricate. It will also display the transponder number. If you still lubricate the point it will be registered as an extra lubrication in the program.

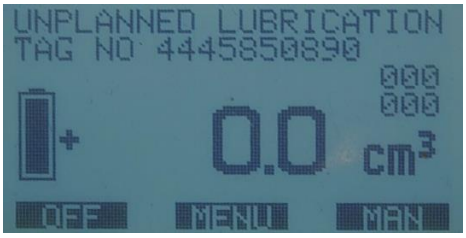


Figure 38, Lubrication of unplanned

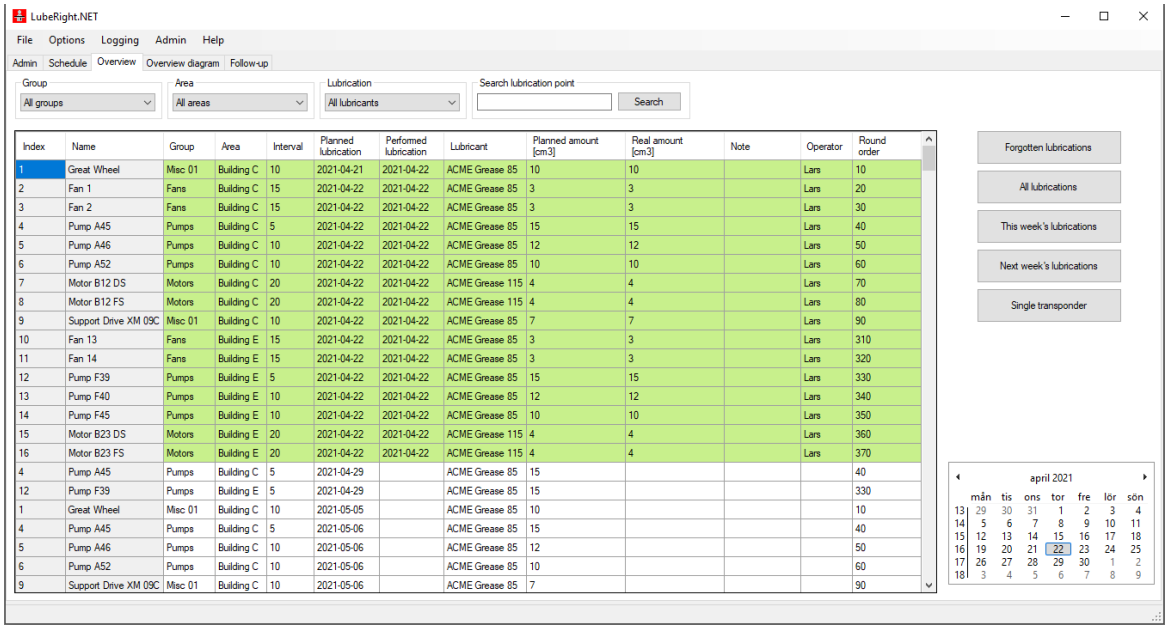
When the lubrication round has been finished, connect the grease meter to the PC again so that it is possible to download lubrication data from the grease meter to the PC, see section 2.1.4.2. When the data has been transferred, the user can add information about the lubrication points in the “Note” field. It’s the date you transfer the data to the PC that sets the date for those lubrications for the program.

2.1.4.6 Stopped Machine

If you come to a machine that is temporarily stopped and therefore does not require lubrication, connect the grease meter’s lubrication connection to the lubrication point as usual but do not lubricate it. The lubrication point is then registered as a stopped machine and will be included the next time lubrication data is transferred to the grease meter. A stopped machine is indicated in the schedule by the real lubrication is highlighted in cyan. When the lubrication point is then lubricated, it is highlighted cyan in the schedule. Planned date is the date you marked it as stopped and the real date is the date you lubricated it.

2.1.5 Overview

The Overview tab, see Figure 39, contains the same information as the Schedule tab. The overview tab contains all planned and lubricated points.



Index	Name	Group	Area	Interval	Planned lubrication	Performed lubrication	Lubricant	Planned amount [cm3]	Real amount [cm3]	Note	Operator	Round order
1	Great Wheel	Misc 01	Building C	10	2021-04-21	2021-04-22	ACME Grease 85	10	10		Lars	10
2	Fan 1	Fans	Building C	15	2021-04-22	2021-04-22	ACME Grease 85	3	3		Lars	20
3	Fan 2	Fans	Building C	15	2021-04-22	2021-04-22	ACME Grease 85	3	3		Lars	30
4	Pump A45	Pumps	Building C	5	2021-04-22	2021-04-22	ACME Grease 85	15	15		Lars	40
5	Pump A46	Pumps	Building C	10	2021-04-22	2021-04-22	ACME Grease 85	12	12		Lars	50
6	Pump A52	Pumps	Building C	10	2021-04-22	2021-04-22	ACME Grease 85	10	10		Lars	60
7	Motor B12 DS	Motors	Building C	20	2021-04-22	2021-04-22	ACME Grease 115	4	4		Lars	70
8	Motor B12 FS	Motors	Building C	20	2021-04-22	2021-04-22	ACME Grease 115	4	4		Lars	80
9	Support Drive XM 09C	Misc 01	Building C	10	2021-04-22	2021-04-22	ACME Grease 85	7	7		Lars	90
10	Fan 13	Fans	Building E	15	2021-04-22	2021-04-22	ACME Grease 85	3	3		Lars	310
11	Fan 14	Fans	Building E	15	2021-04-22	2021-04-22	ACME Grease 85	3	3		Lars	320
12	Pump F39	Pumps	Building E	5	2021-04-22	2021-04-22	ACME Grease 85	15	15		Lars	330
13	Pump F40	Pumps	Building E	10	2021-04-22	2021-04-22	ACME Grease 85	12	12		Lars	340
14	Pump F45	Pumps	Building E	10	2021-04-22	2021-04-22	ACME Grease 85	10	10		Lars	350
15	Motor B23 DS	Motors	Building E	20	2021-04-22	2021-04-22	ACME Grease 115	4	4		Lars	360
16	Motor B23 FS	Motors	Building E	20	2021-04-22	2021-04-22	ACME Grease 115	4	4		Lars	370
4	Pump A45	Pumps	Building C	5	2021-04-29		ACME Grease 85	15				40
12	Pump F39	Pumps	Building E	5	2021-04-29		ACME Grease 85	15				330
1	Great Wheel	Misc 01	Building C	10	2021-05-05		ACME Grease 85	10				10
4	Pump A45	Pumps	Building C	5	2021-05-06		ACME Grease 85	15				40
5	Pump A46	Pumps	Building C	10	2021-05-06		ACME Grease 85	12				50
6	Pump A52	Pumps	Building C	10	2021-05-06		ACME Grease 85	10				60
9	Support Drive XM 09C	Misc 01	Building C	10	2021-05-06		ACME Grease 85	7				90

	mån	tis	ons	tor	fre	lör	sön
13	29	30	31	1	2	3	4
14	5	6	7	8	9	10	11
15	12	13	14	15	16	17	18
16	19	20	21	22	23	24	25
17	26	27	28	29	30	1	2
18	3	4	5	6	7	8	9

Figure 39, Overview

Using the calendar function to the right, it is possible to choose to look at which lubrications are to take place on a certain day or week in the future. There is also a button for just displaying forgotten lubrication points. In the box where you select the group, you can choose to display information on a single group or all groups, and the same for the area. In the box where you select the lubricant, you can choose to display information on single lubricant type or all lubricant types. There is an option to search and mark lubrications.

You can see all lubrications for one lubrication point by pressing “Single transponder” and choose index number.

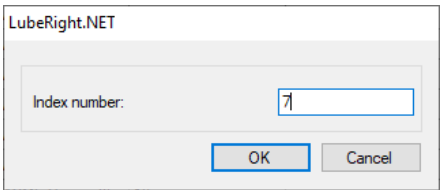


Figure 40, Single transponder

An alternative way to see all lubrications for a single lubrication point is to double click its index number under the Admin tab.

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2.1.5.1 Lubrication Status

In the Schedule and Overview tabs, it is easy to see the status of each lubrication point, see Figure 38 below.

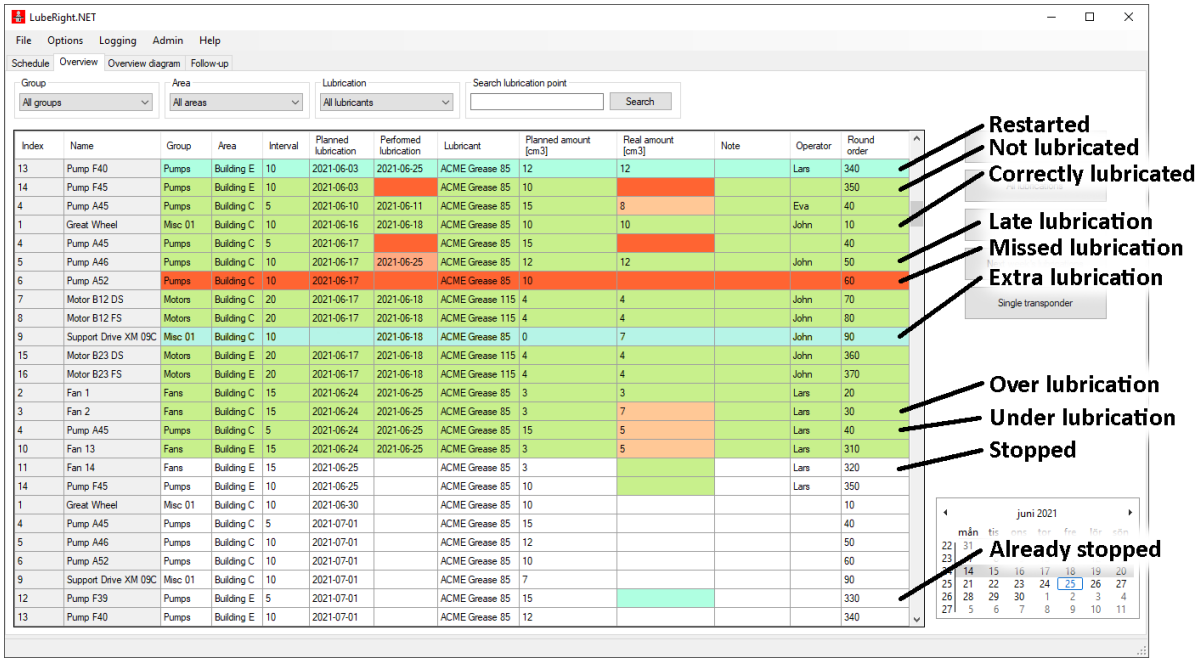

Figure 41, Overview

Correctly lubricated	When the entire row is highlighted green, it means that lubrication was performed correctly. Amount within 20% and the planned week.
Over/under lubricated	When the entire row is highlighted green except real amount, it means that the lubrication deviated more than 20% from planned amount.
Early/late lubrication	When the entire row is highlighted green except the performed lubrication, it means that the lubrication was performed in the wrong week.
Not lubricated	When the entire row is highlighted green, and both performed lubrication and real amount is highlighted red and empty, it means that a lubrication was missed and a new planned lubrication has passed.
Extra lubrication	When the entire row is highlighted cyan, and the planned lubrication is empty and the planned amount is 0, it means that the lubrication point has been lubricated out of schedule.
Missed lubrication	When the entire row is highlighted red, it means that a lubrication has been missed but that a full lubrication cycle has not passed since the lubrication was missed.
Machine stopped	
Stopped	When the entire row is white except real amount that is highlighted green. The first date the lubrication point was marked as stopped. Disappear when machine stop is ended.
Already stopped	When the entire row is white except real amount that is highlighted cyan. All future planned dated for a machine stopped lubrication point.
Restarted	When the entire row is highlighted cyan. The planned date is the first date the lubrication point was marked for this machine stop, and the real date is date that the first lubrication been done since this machine stop is started.

2.1.6 Overview Diagram

This tab is the easiest way to see how much you have done, is scheduled to do. Either for the current week or for next week.

Figure 42, Overview diagram

Each area has its own pie chart. White means it is something that is not done yet and green means that it has been done.
It is not only the lubrications scheduled for this week that is counted, but also all lubrications that are left to do this week because they were forgotten last week or because the machine is not in use.
The ones that are not planned for this week is removed from the white count instead of turning into a green count, when they are done.

Next week displayed may change if some of the current week's lubrications is forgotten or is marked as machine stopped.

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2.1.7 Follow-up

When there is a need to see what has been done, but do not need the details that Overview provides, there is the Follow-up tab.

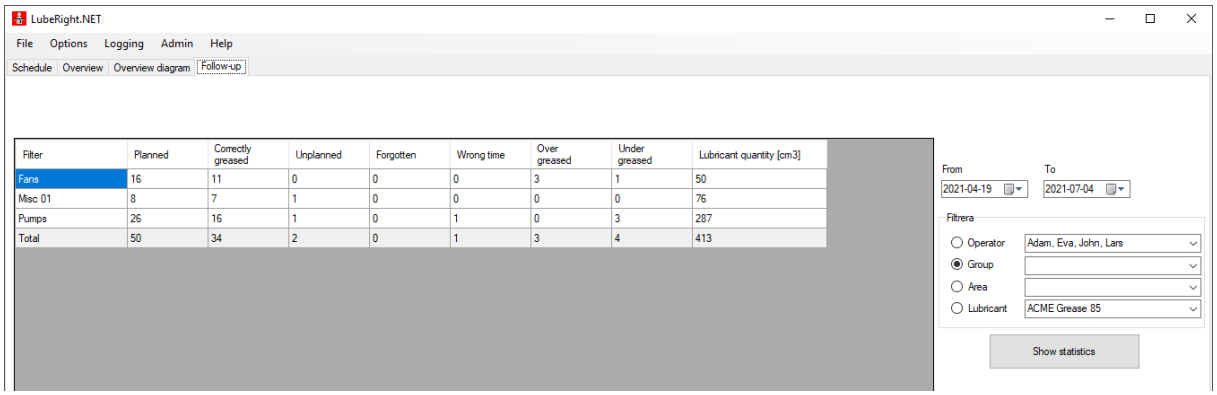

Figure 43, Follow-up

There are three steps to do before you get the information.

1. Choose which weeks you are interested in.
2. How you want the information ordered. This is the circles, choose Operator, Group, Area, or Lubricant, and the information will be separated for each separate choice of each of the one chosen.
3. (Optional) Filters, you can choose which ones that are interesting for every category. They do not show until you chosen the weeks you are interested in.

Then when you press the button “Show results”, you get all the information.

Planned	The number of planned lubrications that has their planned lubrication during the chosen week(s).
Correct Lubrications	The number or planned lubrications that are performed with the correct amount in the correct week.
Unplanned	Unplanned lubrications performed during the chosen week(s).
Over-lubricated	The number of lubrications performed during the chosen week(s), that was lubricated more than acceptable amount.
Under-lubricated	The number of lubrications performed during the chosen week(s), that was lubricated less than acceptable amount.
Wrong time	The number of lubrications that was not performed during their planned week, but they must have been performed during the weeks you chosen to show.
Forgotten	The number of lubrications that was planned for the chosen week(s) but were never lubricated or have not been lubricated yet.
Lubricant quantity [unit]	This is the amount lubricant used during the chosen week(s).

Note: Since lubrications can be in Over- or Under-lubricated, and Late; and that some columns use Planned lubrication and some use Performed lubrication; the results are not additive to each other.

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2.1.8 Printouts

It is possible to print the information in the five tabs. Select the tab first: Administration, Schedule, Overview, Overview diagram, or Follow-up. Using the buttons to the right, select what is to be displayed, this week's points, all points, etc. Select the group to be displayed or select all groups, or select the lubricant to be displayed or select all lubricants. Then select File, Print. The information selected and displayed on the screen is printed, including the information that is reached via the scroll bars. You can also choose to preview the printout before printing it by pressing File, Print Preview.

2.2 Grease Meter

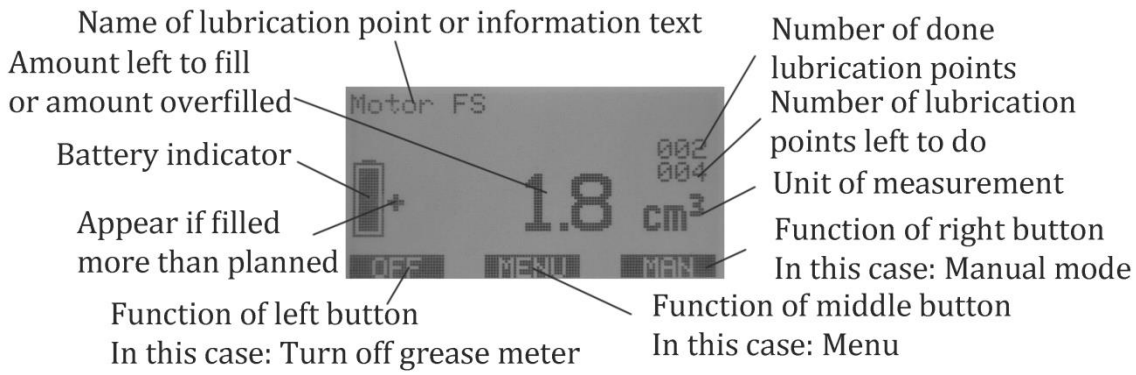

Figure 44, Description of meter display

2.2.1 Lubrication

Lubrication of lubrication points that are registered in the system and have a transponder is explained in section 2.1.4.5.

It is also possible to use the grease meter for standard lubrication nipples.
Press the ON/OFF button furthest to the left on the grease meter. The display lights up and the following information is displayed:

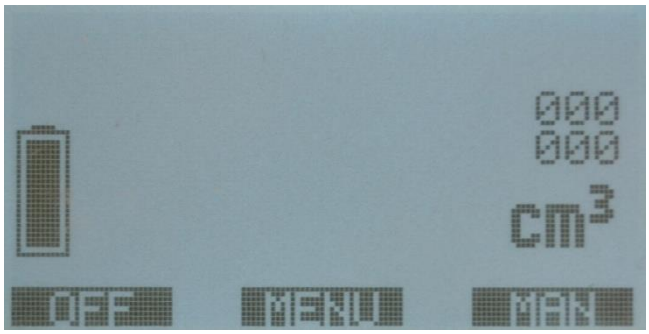

Figure 45, Display after start-up

Press the button under "MAN". The grease meter is then ready for measurement and the display is as follows:

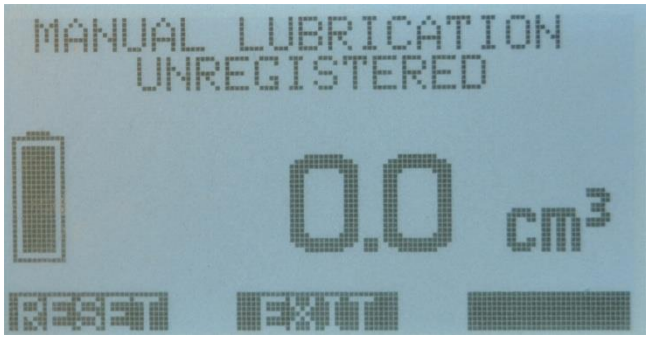

Figure 46, Standard grease measurement

The meter then only measures the grease passing through it.

2.2.2 Menu

The middle button is often the button to reach the Menu. The text in the display shows what the buttons do in each instance. The menu shows all options and highlights the one that is chosen, see Figure 47. The two rightmost buttons are used to move the highlight and the left to choose that option.

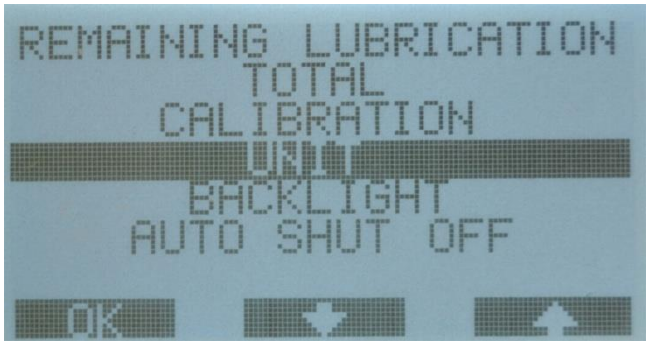

Figure 47, Menu choices

2.2.3 Remaining lubrication

The lubrication points not yet lubricated can be listed by choosing “REMAINING LUBRICATION” in the menu display. All the remaining lubrication points are then listed in round order. Three lubrication points are visible on the display and there are arrows for moving up and down in the list. See Figure 48 below.

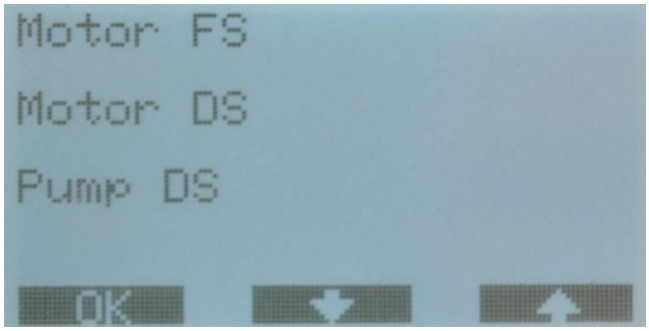

Figure 48, Remaining lubrications

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2.2.4 Total Quantity Display

Enter menu selection on the grease meter by pressing the button under “MENU”. Use the arrows to go up or down in the menu and select the TOTAL menu by pressing OK when TOTAL is highlighted. The following information is displayed:

Figure 49, Total quantity display

The total quantity of grease that has passed through the meter since it was taken into use is displayed in the unit TONNE with 3 decimal places, in this case 3 kg. The total measurement cannot be reset. When the measurement reaches 999 TONNES, the measurement starts from 0 again.

To exit this menu, press “OK”.

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2.2.5 Calibration

Start by calculating the extent by which the grease meter is measuring incorrectly.
Error = actual quantity/quantity displayed
Example:
The grease measured weighs 500 grams.
The grease meter displays 495 grams.
Error = 500/495 = 1.01 = +1 %
If the grease meter is displaying too little, it must be calibrated +.
If the grease meter is displaying too much, it must be calibrated –.
In this case, the grease meter must be calibrated +1 %.

Enter menu selection on the grease meter by pressing the button under “MENU”. Use the arrows to go up or down in the menu and select CALIBRATION by pressing OK when CALIBRATION is highlighted. The following information is displayed:

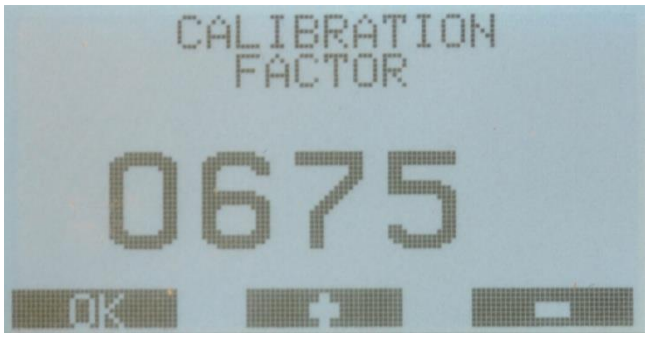

Figure 50, Calibration of the lubrication gun

Now take the error value, 1.01 in our example above, and multiply it with the value shown on the grease meter.
New value = 1.01 x 675 = 682
Press + (middle button) until the display match your desired value, then press the left button “OK”. Then the grease meter displays the old value, the new value and asks you to verify that you want to change the setting, see Figure 51 below. Unless you press the “YES” button the old value will stand.

Figure 51, Saving new calibration value

In a correctly functioning meter, the calibration factor must not exceed 750.

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2.2.6 Change Unit of Measurement

Enter menu selection on the grease meter by pressing the button under “MENU”. Use the arrows to go up or down in the menu and select the UNIT menu by pressing OK when UNIT is highlighted. The following information is displayed:

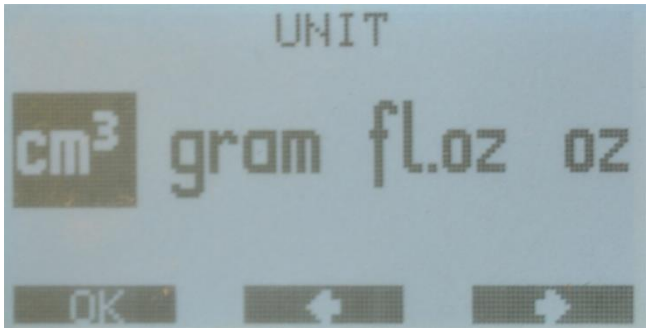

Figure 52, Change unit.

Change to the unit you want to display by pressing the arrows. Confirm your selection by pressing “OK”. The units that can be displayed are cm^3, gram, fl.oz and oz.

2.2.7 Backlight

If the backlight is not necessary or wanted select “BACKLIGHT” from the menu. The choice is between to have the backlight “ON” or “OFF”, see Figure 47 below.

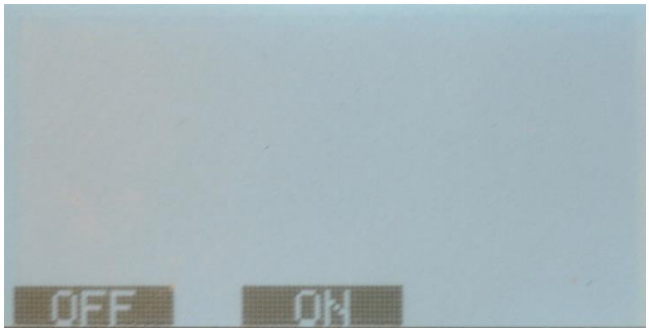

Figure 53, Backlight on or off

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2.2.8 Auto Shut Off

The grease meter can be set to different auto shut off times. When the grease meter has not recorded any activity for the set amount of time it will shut off.
To select the auto shut off time select “AUTO SHUT OFF” in the menu display. The choices are 1, 5 and 15 minutes or to have it not to auto shut off at all. It will always shut off when the battery capacity is low.
If you do not want to change the setting and do not know what it was choose “EXIT” and press “OK”.

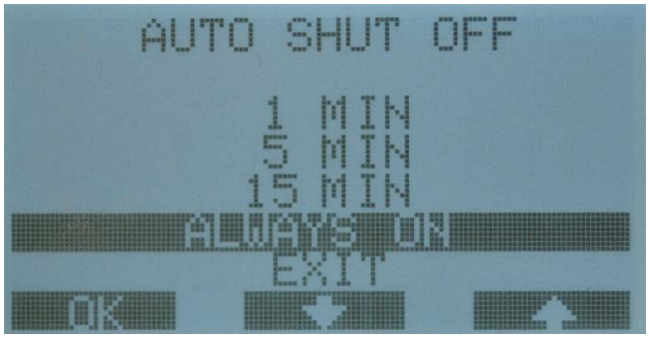

Figure 54, Auto shut off options

2.2.9 Battery Symbol

The battery symbol shows the remaining battery capacity. A fully charged battery lasts up to 12 hours. When the capacity is really low the grease meter shuts down even if the setting is “Always on”. Charging the battery of the grease meter from empty to full takes about 7 hours. The grease meter shuts off after a while when battery is fully loaded and still connected to the PC.

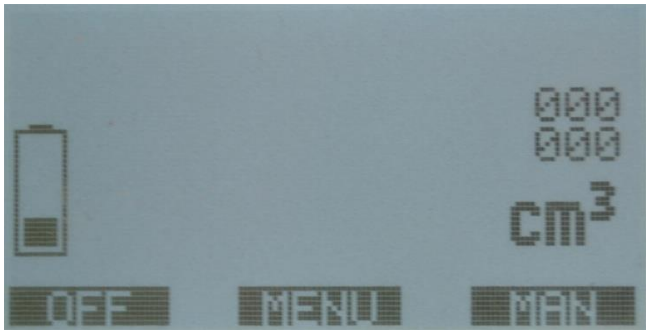

Figure 55, The charge of the battery is low

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DECLARATION OF CONFORMITY

EU DECLARATION OF CONFORMITY

We, Assalub AB,
Prästängsvägen 15, SE-597 30 Åtvidaberg, Sweden,
declare that the:

GREASE METER

Version: LubeRight MK II
Art. No. 0102510

is designed and manufactured in accordance with

EUROPEAN EMC DIRECTIVE 2004/108/EC

as outlined in the harmonized Norms

Emission: EN 61000-6-3:2007
Immunity: EN 61000-6-2:2005, EN 61000-4-2, -3, -8

Åtvidaberg, January 20, 2015

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Responsible for Technical File

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