

Timken C-Power Lubricator Operating System Manual



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C-Power Multi-Point Lubrication System

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1. VARIOUS

About this Operating Manual

- This operating manual is intended for the safe operation of the Timken C-Power multi-point lubricator. It contains important instructions that must be followed to ensure safe operation.
- All workers who will come in contact with Timken C-Power must read all relevant instructions and notices, and have access to this operating manual during their shifts.
- The operating manual must be maintained in a complete and easy-to-read condition.

Terms Used

■ C-Power Lubricator

In the following text, the lubricator will be referenced as the brand name C-Power.

■ Lubrication Canister

In the following text, the "Lubrication Canister" will be called C-Power LV-unit. The user can order the C-Power LV-unit with different lubricants and in 250 cc and 500 cc sizes.

Usage of Safety Instructions

All safety instructions in this operating manual are standardized.



Danger Signs

This sign warns of potential danger.



Tips

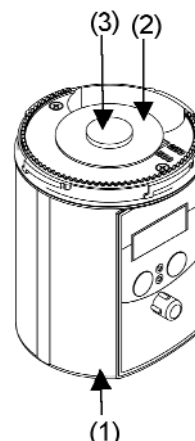
This sign alerts you to application tips that can help save time and improve safety.

1.1 Delivery / Content

- Timken C-Power will be delivered according to customer specifications for type of grease and size of the C-Power LV-unit. The user will only need to assemble it and adjust the settings.
- Mounting device and screws are included.
- Operating instructions and EC Conformity Declaration are included.
- Upon delivery, make sure the delivered goods correspond to your order. Timken will not accept liability for subsequent claims.
- Immediately forward any claims of noticeable transport damage directly to the shipper.
- Immediately forward any claims of noticeable faults, shortcomings or defects to your Timken distributor.

1.2 Storage

- If the C-Power will not be installed immediately, store in a dry, dust-free place with a temperature of 59° F to 77° F (15° C to 25° C).
- Do not remove the cover disc (2) with plug (3) on C-Power drive units (1) for long periods, as this will cause the internal support battery to prematurely lose power.
- The cover disc should only be removed immediately before use of the lubricator.
- Extended storage periods without cover disc/plug or without a C-Power LV-unit should be avoided.
- Do not store C-Power LV-units and battery sets for more than one year.



1.3 Markings

- The C-Power is clearly marked with a label on the drive system and a label on the C-Power LV-unit.
- CE mark is located on the drive unit and the C-Power LV-unit.

1.4 Intended Usage

The Timken C-Power:

- Immediately supplies all lubrication points with lubricant, at a pressure buildup of max. 360 psi (25 bar).
- Supply is precise and independent of temperature.
- Can be used for all lubrication points.
- Should only be connected to and used with original lubrication tubes from Timken.
- Is intended for use on machinery and equipment.
- Should not be used for any inappropriate purpose.
- Is only to be used under recommended operating conditions.
- Is only to be used with the recommended settings and variations.



Any other usage, setting, addition and/or variation is considered inappropriate.

1.5 Legal Requirements

Liability

- The information, data and tips contained in this operating manual were current as of the printing date. No claims for the Timken C-Power that were already delivered can be made based on the following information, pictures and descriptions.
- Timken cannot be held liable for damages and malfunctions caused by:
 - Inappropriate usage.
 - Unauthorized alterations to the drive system or the C-Power LV-unit.
 - Inappropriate operations on or with the lubricator.
 - Incorrect operation and settings of the lubricator.
 - Incorrect settings of time and size of the lubricator.
 - Disregarding the operating manual.

Warranty

- Warranty terms and conditions: see terms and conditions of sale and delivery pertaining to Timken.
- Immediately lodge any warranty claims with your local supplier.
- The warranty expires in all instances where no liability claims can be enforced.

2. SAFETY INSTRUCTIONS

2.1 Persons responsible for safety

- The operator or maintenance supervisor must ensure:
 - That all relevant instructions and regulations are followed.
 - That only qualified personnel work with and on the C-Power.
 - That unauthorized personnel are not allowed to work with and on the C-Power.
 - That safety regulations are followed when mounting the lubricator or during maintenance.

2.2 General Safety Instructions

- All safety instructions must be followed, even if not expressly outlined in this manual. Please contact Timken Customer Service with questions or problems.
- At the time of delivery, the C-Power is considered to be safe to operate.
- The possibility of accidents and or/injury increase when:
 - Unqualified personnel operate the C-Power.
 - The lubricator is used inappropriately.
 - The lubricator setting/variation is incorrect.
 - The C-Power is opened by force while in operation.
 - The C-Power is not mounted with the Timken mounting device.
 - The tube connection to the lubrication point is not attached correctly.
- Operate the C-Power only when it is in perfect working condition.
- Retrofitting, reconstructing or otherwise changing the lubricator is prohibited. Timken must be consulted before any changes are made.
- Only original tube connections and connectors from Timken can be used on or with the lubrication system. These will withstand high pressure up to 360 psi (25 bar).
- Ambient media, especially chemically aggressive substances, can attack seals and plastic.

2.3 Safety Information for Timken C-Power Multi-Point Lubricator



Safety During Installation and Maintenance

- All work stations and traffic routes must be safe and free of debris.
- Follow all regulations and guidelines when installation or maintenance is performed, particularly under conditions in which there is a risk of falling objects.
- Observe all safety and operating instructions when the C-Power is installed or serviced.



Safety When Handling the C-Power LV-Unit

- Avoid contact between lubricant and eyes, skin and clothing.
- Avoid ingestion of lubricant.
- Prevent lubricant from spilling into soil or sewer system.
- Observe safety data sheets.
- Immediately clean lubricant from floors to avoid slipping accidents.
- Use only original C-Power LV-units from Timken.



Safety when Handling Batteries

- Avoid contact between battery substances and eyes, skin and clothing.
- Avoid ingestion of any leaking battery substances.
- Observe safety data sheets.
- Do not expose batteries to extreme heat and do not throw into open fire.
- Do not recharge batteries.
- Observe regulations for battery disposal.
- Use only original battery sets from Timken.

3. TECHNICAL DATA

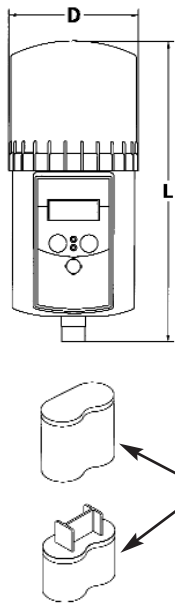
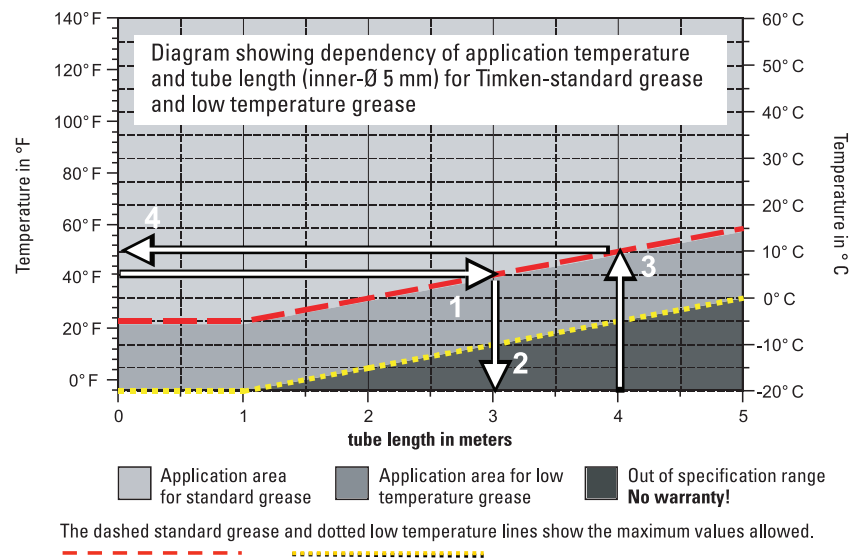


Figure 1

	C-Power 250	C-Power 500
Volume of the C-Power LV-unit	250 cc	500 cc
Length (L)	210 mm	260 mm
Diameter (D)	92 mm	92 mm
Weight, empty	1.30 kg	1.37 kg
Weight, filled with SF04	1.53 kg	1.82 kg
Discharge period	1 day to 24 months	1 day to 12 months
Discharged volume per lubrication impulse	0.5 cc	
Application temperature	-4° F to +140° F/-20° C to +60° C	
Maximum pressure buildup	25 bar/360 psi	Combination of these Maximum-Values can only be realized by temperatures of ≥ 68° F/20° C. At lower temperatures, the application is limited according to the diagram below.
Maximum tube length (inner-Ø 5 mm)	5 m	
Lubricants	Greases up to rated consistency NLGI 2	
Power supply	Battery set C-Power B (3 V alkaline manganese, not rechargeable)	
Connection thread	G 3/8 outside – G 1/8 inside	
Protection class	Protection class IP 54 D L UL Certification and listing information	

Table 1



If your application is out of the specification range shown in this diagram, please contact your local distributor. Timken cannot be held liable for these applications.

Example:

1. The application temperature is +41° F/+5° C. What is the maximum tube length allowed for standard grease?

Correct Answer: 3 m maximum tube length for standard grease, 5 m maximum tube length for low temperature grease (arrow 1 meets the dashed line of the standard grease range at 3 m).

2. You want to use a 4 m tube. Up to which temperature can the system be used?

Correct Answer: 50° F/+10° C with standard grease 23° F/-5° C with low temperature grease (arrow 3 meets the dotted line of low temperature grease at the -5° C mark; and the dashed line of the standard grease at the +10° C mark).

3.1 Design of the Timken C-Power Lubricator

Lubricators are available in 250 cc and 500 cc versions. They can be supplied with the lubricant requested by the customer. They consist of (refer to figure 2):

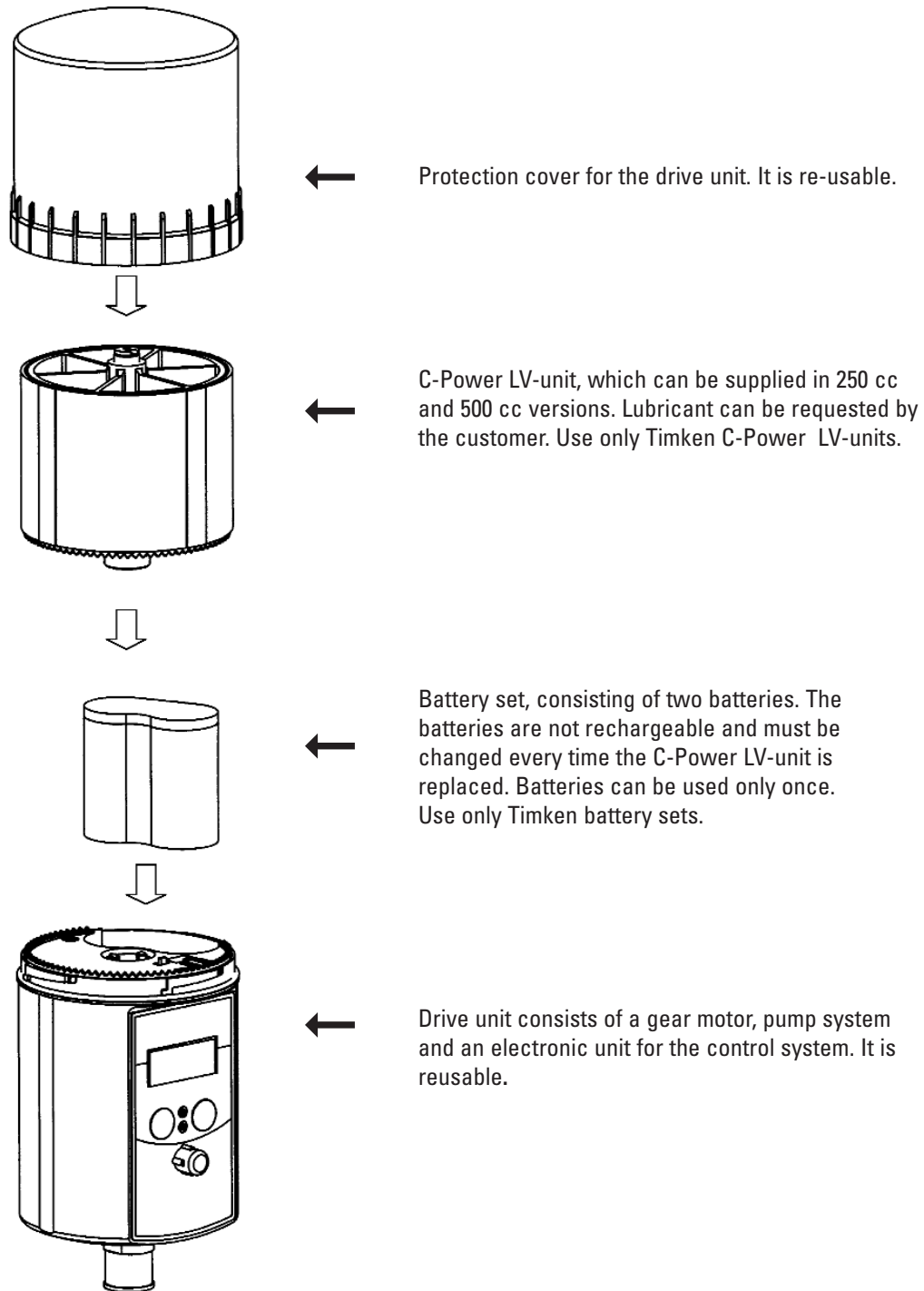


Figure 2

4. MOUNTING AND ASSEMBLY OF THE TIMKEN C-POWER LUBRICATION SYSTEM

4.1 Mounting the Drive Unit onto a Fixing Device for Wall Mounting

- Attach the supplied mounting device to the drive unit using the two enclosed hex head bolts (M6 x 16) and the two washers.
- Screw the mounting device with the drive unit on to a support for your system. For the position of the bores of the three fixing screws (141.5 x 45) refer to figure 3 below. You must use at least three hexagon screws (M6 x 25).
- Before connecting the outlet of the drive unit to the lubricant tube, make sure that the lubrication points and the complete lubricant tube are pre-lubricated with the same lubricant that is contained in the C-Power LV-unit. To do this, Timken offers a 400 g lubrication cartridge for manually operated grease presses.
- Connect the lubricant tube (connection G 3/8 outside or G 1/8 inside) to the outlet of the drive unit and install the tube between the outlet and the lubrication point. The lubricant tube must not exceed five meters.



Make sure the connections and lubricant tubes are assembled correctly and tightly to avoid possible leakage.

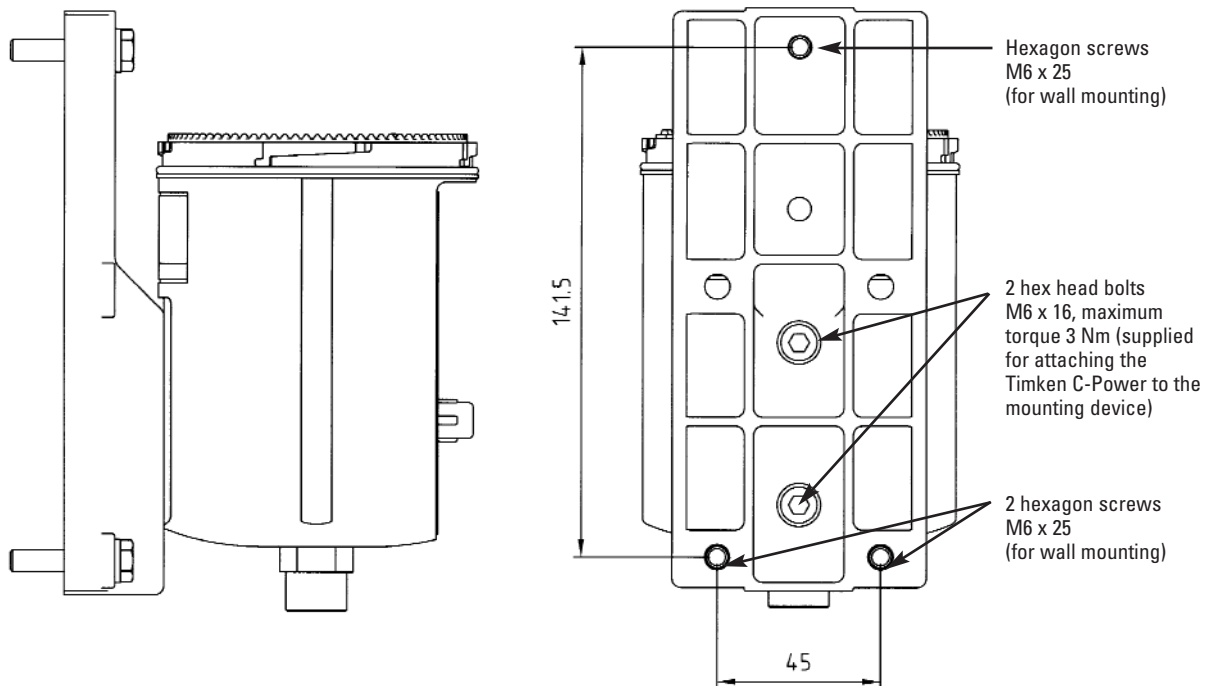


Figure 3

4.2 Assembly of the Lubricator

a)

- Insert the battery set into the drive unit (according to the direction of the arrow on the label).
- Check the position of the jumper. It must correspond to the size of the C-Power LV-unit (refer to figure 4 and chapter 7.1).

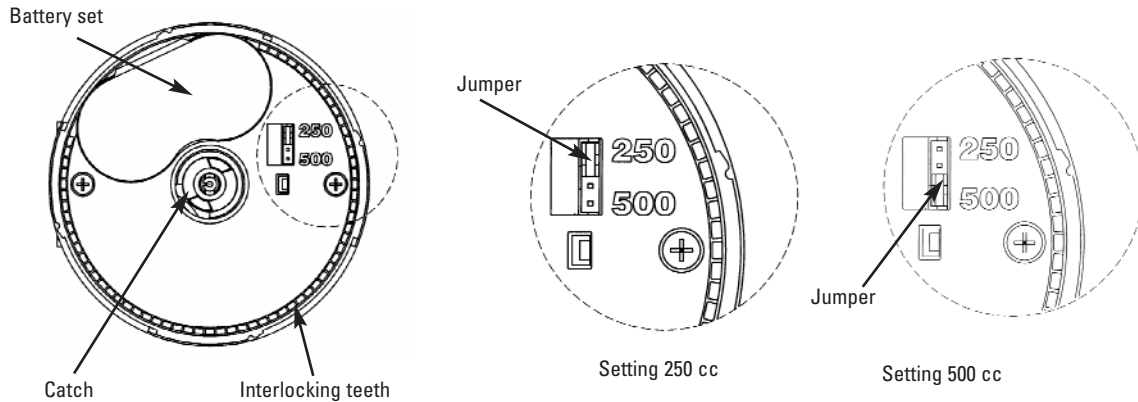


Figure 4

b)

- Place the C-Power LV-unit inside the protection cover and remove the plug (refer to figure 5).

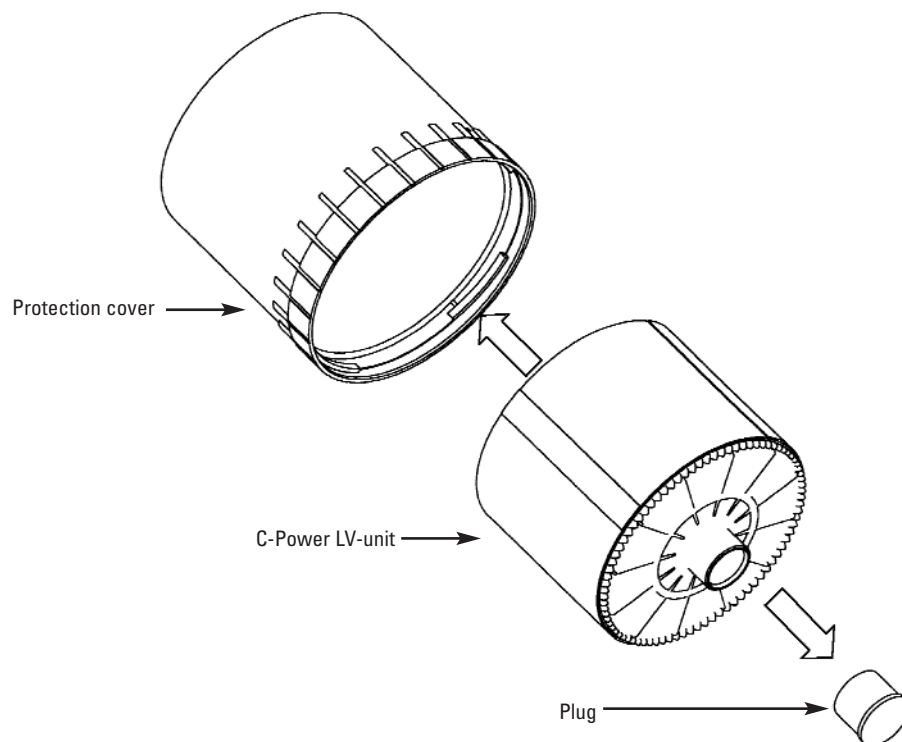


Figure 5

- c)
- Push the C-Power LV-unit into the protection cover until lubricant comes out of the opening (refer to figure 6).

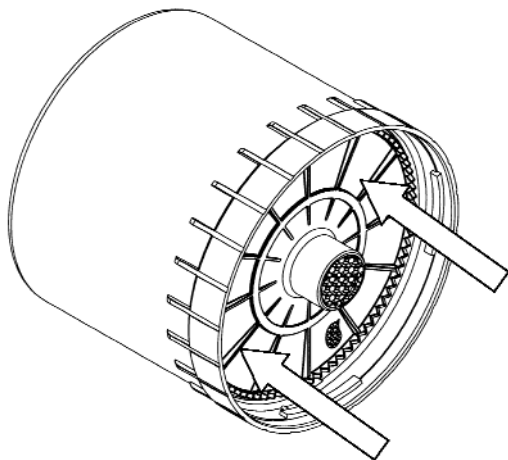


Figure 6

- d)
- Place the C-Power LV-unit, with its protection cover, on the drive unit. Make sure that the catch locks in place and that the teeth of the C-Power LV-unit and the drive unit interlock (refer to figure 4 and figure 7).
 - Turn the cover clockwise until the bayonet catch locks.

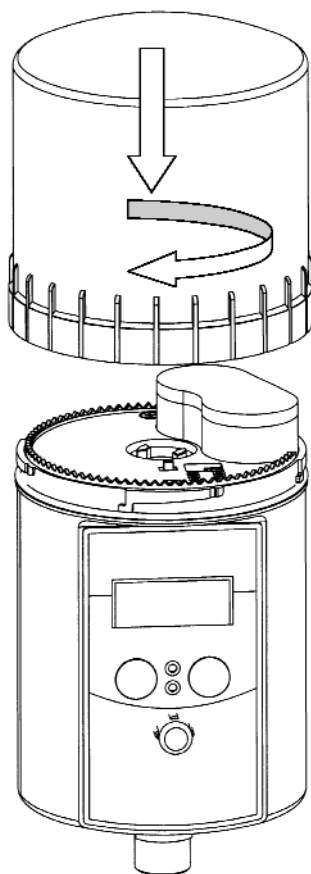


Figure 7

5. DISPLAY AND CONTROL ELEMENTS OF THE LUBRICATION SYSTEM

5.1 Display Elements

The operating status of the C-Power can be determined via the green or red LED and the display screen on the C-Power unit (refer to figure 8). The C-Power offers a menu-guided setting. Changes to settings are shown on the display. Error messages also are indicated on the display.

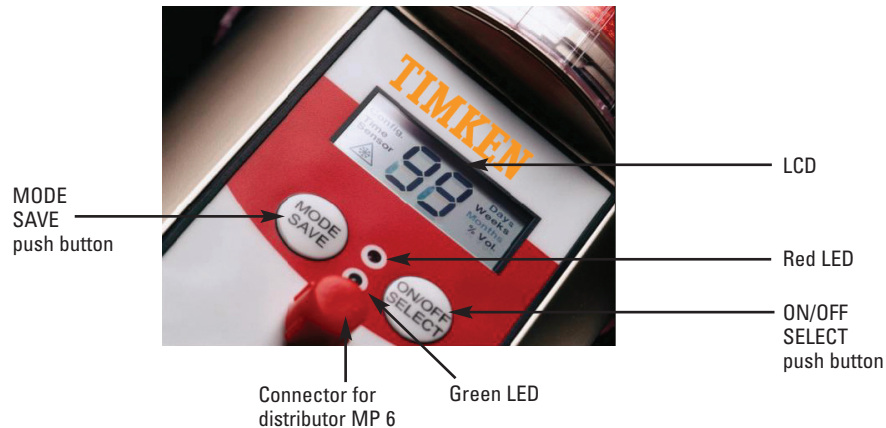


Figure 8

5.2 Function Indication on the Display

The display is located on the C-Power unit (refer to figure 8, chapter 5.1). The display shows settings, operating conditions and error messages.

When no errors are present, the display shows the remaining volume of the mounted C-Power LV-unit in percent volume (% Vol.). Figure 9 shows an example of the information that will be displayed if the C-Power LV-unit is new and full.



Figure 9

The display cannot be switched off by the operator. If the lubrication system is switched off, the display will always show two lines (see figure 10 below).



Figure 10

5.3 Function Indication via the LED signal lights

LED	Signal	Signal Length	Explanation
green	flash	every 10 seconds	Operation (OK)
red	flash	every 3 seconds	Error/malfunction
green and red	flash	every 3 seconds	C-Power LV-unit empty
green	light	permanently	Lubricator is discharging
green and red	none	none	Lubricator switched off or battery low

Table 2

5.4 Control Buttons

There are two push buttons on the control unit (refer to figure 8), which can be used for a menu-guided change of the settings.

When operating the C-Power, it is important to note that the lubricator differentiates between long and quick pushes of the button. For the control system to recognize that a button has been pushed for a long period of time, it must be held down for at least four seconds. If the button is held down for less than four seconds, it is recognized as a quick push of the button.

- With the MODE/SAVE button (refer to figure 11), you can reach the configuration menu, change the mode and save the modified settings.



Figure 11

- With the ON/OFF/SELECT button (refer to figure 12), you can switch the lubricator on and off and gradually increase the discharge period. Every time that you push the button, the discharge period is increased by a day, a week or a month.



Figure 12

6. OPERATION AND CONTROL

6.1 Preparations

- Prior to installation of the lubricator, the lubrication point and the complete connection tube must be sufficiently pre-lubricated with the same lubricant that the C-Power LV-unit contains. For this, Timken offers a 400 g lubrication cartridge for grease presses with the corresponding lubricant.
- The supplied Timken mounting device should be used when installing the Timken C-Power.
- The lubricant tube must be installed and mounted correctly. The length of the lubricant tube should not exceed five meters. The tube must be a Timken product.
- Please verify that the connection threads of the Timken C-Power (G 3/8 or G 1/8) correspond to the connection thread of the lubrication point. If they do not match, a corresponding reducer or other parts can be ordered from the Timken accessory range.



For the initial setting into operation of a Timken C-Power, the pump system in the drive unit is pre-filled with SF 04 from Timken's standard range of lubricants. An exception is made with regard to lubricants for the food industry. A complete discharge of this pump filling is guaranteed after approximately 10 discharges (carry out additional discharges, if necessary).

6.2 Questions to ask Prior to Operation

- Have all parts of the C-Power been checked for obvious damage?
- Is the new C-Power LV-unit filled with the required lubricant?
- Has a new battery set been inserted?
- Was the drive unit set to the correct size of the C-Power LV-unit by inserting the jumper into the corresponding slot?
- Has the cover disc with plug been removed from the drive unit? (See chapter 1.2).
- Was the drive unit set to the discharge period requested by the operator while taking into account the required discharge volume?
- Have all of the parts been assembled and mounted correctly and tightly?

6.3 Setting into Operation

- If necessary, mount the drive unit on to a fixing device for wall mounting (refer to chapter 4.1).
- Set the volume of the C-Power LV-unit via the jumper position (refer to chapter 4.2 a).
- Insert the battery set into the drive unit and the C-Power LV-unit into the protection cover. Close the complete system (refer to chapters 4.2 b-d).
- Switch on the lubrication system (refer to chapter 6.5).
- Determine the discharge period (refer to chapter 6.7).
- Set the discharge period using the buttons below the display (refer to chapter 6.8).
- Carry out an additional discharge (refer to chapter 6.8). If the drive motor starts and the green LED is lit, the lubricator has begun to discharge. The display indicates the remaining volume (% Vol.) of the C-Power LV-unit.



The operator must always check the customer-specific settings and, if necessary, change them before the lubricator is set into operation.

6.4 During Operation

- Perform regular inspections during operation. Pay special attention to possible leakage and the condition of the lubricator.
- Regularly check the condition of the lubricant tube and the connections.
- Regularly check the filling level of the transparent C-Power LV-unit.
- After several additional discharges, calculate the reduced discharge period and note it on the lubrication and maintenance schedule.
- If a malfunction is indicated on the display, use the troubleshooting guide (table 4, chapter 8.2) to determine the cause. If the problem cannot be fixed, contact your Timken supplier for technical support.



Additional discharges and prolonged idle periods must be taken into account when determining the remaining discharge period of the lubricator.

6.5 Switching the Lubrication System On

To switch on the lubrication system (refer to figure 13), keep the ON/OFF/SELECT button pressed until the indication on the display “— —” is replaced by an indication of the remaining volume (with a new C-Power LV-unit) and the green LED starts blinking.

Figure 13



6.6 Switching the Lubrication System Off

To switch off the lubrication system (refer to figure 14), keep the ON/OFF/SELECT button pressed until the display no longer indicates the remaining volume and indicates “— —” instead. When the lubrication system is switched off, all of the settings are saved. If you start the lubricator again, it will resume operation at the point where it had been switched off.

Figure 14



6.7 Determining the Discharge Period



The discharge period is automatically factory-set to six months, according to the supplied C-Power LV-unit. Upon request, a discharge period required by the customer can be factory-set. The size of the C-Power LV-unit is taken into account.

To determine the discharge interval setting, you must know the required amount (volume) of lubricant in cubic centimeters. This information can be obtained in technical documents by the manufacturer of the lubrication point. Using this information, determine the appropriate discharge setting. See table 3.

Table 3

Timken C-Power Normal Settings								
1 month = 30.4 days • 1 week = 7 days • 0.5 cc/shot								
Days	Average Discharge Volume per Day		Weeks	Average Discharge Volume per Day		Months	Average Discharge Volume per Day	
	250	500		250	500		250	500
1	250.00	500.00	1	35.71	71.43	1	8.22	16.45
2	125.00	250.00	2	17.86	35.71	2	4.11	8.22
3	83.33	166.67	3	11.90	23.81	3	2.74	5.48
4	62.50	125.00	4	8.93	17.86	4	2.06	4.11
5	50.00	100.00	5	7.14	14.29	5	1.64	3.29
6	41.67	83.33	6	5.95	11.90	6	1.37	2.74
7	35.71	71.43	7	5.10	10.20	7	1.17	2.35
8	31.25	62.50	8	4.46	8.93	8	1.03	2.06
9	27.78	55.56	9	3.97	7.94	9	0.91	1.83
10	25.00	50.00	10	3.57	7.14	10	0.82	1.64
11	22.73	45.45	11	3.25	6.49	11	0.75	1.50
12	20.83	41.67	12	2.98	5.95	12	0.69	1.37
13	19.23	38.46	13	2.75	5.49	13	0.63	
14	17.86	35.71	14	2.55	5.10	14	0.59	
15	16.67	33.33	15	2.38	4.76	15	0.55	
16	15.63	31.25	16	2.23	4.46	16	0.51	
17	14.71	29.41	17	2.10	4.20	17	0.48	
18	13.89	27.78	18	1.98	3.97	18	0.46	
19	13.16	26.32	19	1.88	3.76	19	0.43	
20	12.50	25.00	20	1.79	3.57	20	0.41	
21	11.90	23.81	21	1.70	3.40	21	0.39	
22	11.36	22.73	22	1.62	3.25	22	0.37	
23	10.87	21.74	23	1.55	3.11	23	0.36	
24	10.42	20.83	24	1.49	2.98	24	0.34	



Please note that in case of one or several additional discharges, the remaining discharge period of the lubrication system must be recalculated. This also applies in the event of a cut-off of the lubrication system due to a long machine standstill such as weekends or holidays, or in the event of a low-temperature cut-off carried out by the system if temperatures reach -4° F (-20° C) (refer to figure 20). Be sure to note the resulting recalculation of the remaining discharge period in the lubrication and maintenance schedule.

6.8 Setting the Discharge Period

The discharge period can be set any time without having to install a new C-Power LV-unit (refer to figures 15 to 18) and without having to interrupt operation. The Timken C-Power can be switched on or off, because the system switches back to its original operating status after the changes have been made. The only difference is the information shown on the display before and after the settings. In the following example, the lubricator is switched off.



You must hold down the buttons until the indication of the display changes.

- To reach the configuration menu, hold down the MODE/SAVE button until the display changes. Then, the lubricator shows the current settings.



Lubricator is switched off



The figures on the display are blinking and the current setting mode is shown (e.g. 15 Days).

Figure 15

- You can now switch from days to weeks to months within the setting mode by pressing the MODE/SAVE button.



The figures on the display are blinking and the setting mode is shown.

Figure 16

- If you have reached the desired setting mode, push the ON/OFF/SELECT button as many times as it takes to set the number of days, weeks or months.



The figures on the display are blinking and gradually increasing with every push of the button. The example shows the setting of days.

Figure 17

- When setting the days, you can select a figure between 01 and 30. After 30, the count starts again with 01.
- When setting the weeks, you can select a figure between 01 and 24. After 24, the count starts again with 01.
- When setting the months, you can select a figure between 01 and 24, depending on the size of the C-Power LV-unit (refer to table 1) and on the position of the jumper. After 24, the count starts again with 01.

- To save the changes, press the MODE/SAVE button until the display reverts to the information that was displayed before you began changing the settings.



Figures in the display are blinking.

Display shows “— —,” if Timken C-Power was previously off.
Display shows “. % Vol.,” if Timken C-Power was previously switched on.

Figure 18

- To check the changes, press the MODE/SAVE button again, until the display switches to the configuration mode and shows the current settings.

If You Do Not Want to Save the Changes

If you do **not** want to save the changes that you have made in the configuration menu, press the ON/OFF/SELECT button until the display shows the symbol “— —” for OFF or the remaining volume of the C-Power LV unit in % VOL. The original settings remain valid.

Automatic Termination of the Configuration Mode

In the configuration mode, if you do not press a button for ten seconds, the control system automatically switches back to the previously set mode (“ON” or “OFF”) without saving the changes. The original settings remain valid.

Additional Discharge

With an additional discharge, a lubrication point can be supplied with an additional amount of the lubricant. For an additional discharge, the lubrication system must be switched on (the display will show the remaining volume). Press both buttons simultaneously and hold them down (refer to figure 19).



Figure 19

For an additional discharge, press both buttons at the same time and hold them down.

An additional discharge is only possible at temperatures above 32° F (0° C) (figure 20 – ice crystal is not visible). Each additional discharge reduces the remaining discharge period, as an increased amount of the lubricant has been supplied. This must be factored into the lubrication and maintenance schedule. A calculation is possible using the formula from chapter 6.9 and the remaining volume displayed.



The minimum period between two additional discharges is 30 seconds. If you continue to press the buttons during that period, further additional discharges will follow.

Low-Temperature Cut-Off of the Lubrication System

The temperature range from 32° F to -2.2° F (0° C to -19° C) is indicated by a blinking ice crystal symbol (refer to figure 20). In this temperature range, the Timken C-Power lubrication system continues to operate without interruption.

Please note that in this temperature range, an additional discharge is not possible.



Figure 20

Display with a blinking ice crystal (in this example with 89 % Vol.).

To protect the system from damage, the low-temperature cut-off is automatically performed by the control system and the built-in temperature sensor.

If the temperature reaches or falls below -4° F (-20° C), the lubricator is switched off by the low-temperature cut-off and the ice crystal symbol is indicated on the display. The remaining volume is still displayed in % Vol.



The lubricant will no longer discharge. To prevent damage, please take this into account if your system continues to operate.

As soon as the temperature rises to -2.2° F (-19° C) or higher, the control system switches the lubrication system on again. The display shows the remaining volume and the blinking ice crystal symbol.



All discharges (except additional discharges) accumulated during the shut-off will be caught up when the system resumes operation (at a maximum of two additional discharges with every regular discharge).

6.9 Calculation of the Remaining Discharge Period



Please note that in case of one or several additional discharges, the remaining discharge period of the lubrication system must be recalculated. This also applies in the event of a cut-off of the lubrication system due to a long machine standstill such as weekends or holidays, or in the event of a low-temperature cut-off carried out by the system if temperatures reach -4° F (-20° C). Refer to figure 20. Be sure to note the resulting recalculation of the remaining discharge period in the lubrication and maintenance schedule.

$$\text{Formula: } RDP = \frac{SDP * RV}{100}$$

SDP: Set Discharge Period of the lubricator (days, weeks, months)

RV: Remaining Volume (displayed in % Vol.)

RDP: Remaining discharge period (days, weeks, months depending on SDP)

Example of a Calculation of the Remaining Discharge Period

The Timken C-Power with a 250 cc C-Power LV-unit was originally set to a discharge period (SDP) of eight months, because the lubrication point needs 4.3 cc lubricant /100 h. After two months, the Timken C-Power indicates a remaining volume (RV) of 75% Vol. At this point, the lubricator is switched off for six weeks (simulating machine standstill). When it is switched on again, use this formula to determine when the C-Power LV-unit will be empty.

$$RDP = \frac{SDP * RV}{100} = \frac{8 * 75}{100} = \frac{600}{100} = 6$$

The result is a remaining discharge period of six months. After six months, the C-Power LV-unit will be empty and must be replaced.

7. REPLACEMENT OF THE C-POWER LV-UNIT

Remember the Following:

When a C-Power LV-unit becomes empty and must be replaced, the red and green LEDs will blink simultaneously. Also, the display will indicate that the C-Power LV-unit is empty (refer to figure 21).



Figure 21



When replacing the C-Power LV-unit, the battery set also must be changed. Otherwise, correct operation cannot be guaranteed. If replacement is done with a C-Power LV-unit of a different size, a corresponding protection cover must be used.

After installation of the new C-Power LV-unit, the control system continues to operate using the previous settings for the discharge period.

7.1 Setting the Volume of the C-Power LV-Unit

Set the size of the C-Power LV-unit by inserting the contact pin (jumper) into the base plate of the battery compartment in the drive unit (refer to figure 22). Pointed pliers can be used for plugging in the jumper.



If the position of the jumper does not correspond to the size of the installed C-Power LV-unit, resulting incorrect signals will lead to malfunctions. (Refer to table 4, chapter 8.2)

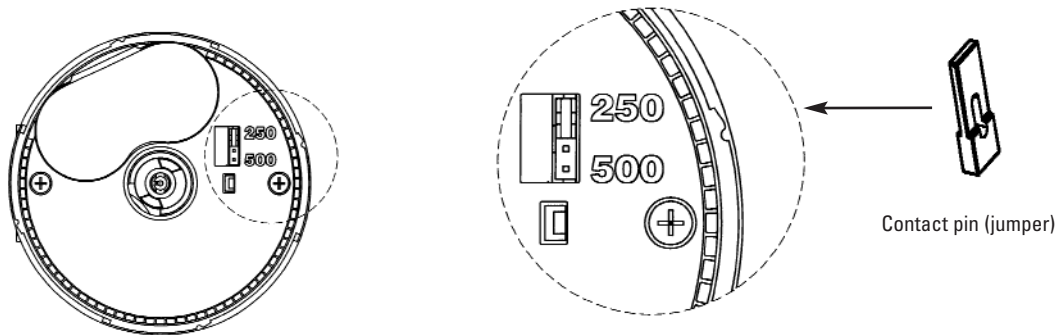


Figure 22

Plugged-in jumper for size 250 cc.

To protect the drive unit and the control board from moisture, the exchange must be performed in dry conditions.



Attention:

If a C-Power LV-unit has been removed from the lubricator and another C-Power LV-unit has been installed, the control system always assumes that this C-Power LV-unit is new and full. **For this reason, never use a C-Power LV-unit that is not completely full.**

7.2 How to Replace the C-Power LV-Unit

- a) Turn the protection cover on the drive unit counterclockwise and remove it.
- b) Remove the empty C-Power LV-unit. The display will indicate "LC" and the red LED will be blinking.
- c) Remove the used battery set from the drive unit. The display indicates "LO."
- d) Insert the new battery set into the drive unit, following the directions of the arrows. The display will again indicate "LC."
- e) Remove the plug of the C-Power LV-unit.
- f) Push the C-Power LV-unit into the protection cover until lubricant comes out of the opening.
(Refer to figure 6, chapter 4).
- g) Place the new C-Power LV-unit on the drive unit. Turn it until the catch locks in place and the teeth of the C-Power LV-unit and the drive unit interlock. The control system will automatically recognize the new C-Power LV-unit. The display will indicate "--" if the Timken C-Power was switched off prior to the replacement of the C-Power LV-unit. It will indicate "99% Vol." if the Timken C-Power was switched on before the replacement. Use only completely full Timken C-Power LV-units, to help guarantee trouble-free operation.
- h) The lubrication system will resume operating with the previous setting of the discharge period.
- i) If necessary, the discharge period of the lubricator can be changed (refer to chapter 6.8).



If the lubricator was switched on prior to the replacement of the C-Power LV-unit, the discharging process will automatically begin using the previous settings of the discharge period. If the lubricator was switched off, the discharging process must be started by pushing the ON/OFF/SELECT button. (Refer to figure 13, chapter 6.5)

8. TROUBLESHOOTING

8.1 Error Messages on the Display

Possible errors in the lubrication system are detected by the electronic control system and are indicated on the display. If an error is displayed, the system is switched off until the cause of the error has been eliminated and the error message has been acknowledged.



Error messages are acknowledged and reset by pushing the ON/OFF/SELECT button.

8.2 Troubleshooting guide

If there are malfunctions during the operation of the lubrication system, use the table below to check for possible causes. If you are experiencing a malfunction that is not listed in the table, please contact your local Timken supplier for technical support.

Every time an error message is displayed, the red LED also will be blinking.

Table 4

LCD display indicates	Error	Possible Cause	Corrective Measures
E0	Lubrication system has been shut off	Excess motor current of the Timken C-Power distribution block	Replace Timken C-Power distribution block
E2	Lubrication system has been shut off	Drive mechanism of the distributor is defective	Check the coding pins and carry out an initialization
E3	Lubrication system has been shut off	Distribution block does not detect the coding pins	Check the distributor and the coding pins for correct connection/installation
E4	Lubrication system has been shut off	Drive mechanism of the lubricator is defective	Replace the drive unit of the lubrication system
F1 - F6	Error at the displayed lubrication point/outlet	Excess motor current of the lubricator motor caused by a blocking of the displayed outlet	Clear the blockage and acknowledge the fault by pushing and holding down the ON/OFF/SELECT button
LC	Lubrication system does not detect the LV-unit Signal of the jumper is not found	No LV-unit installed Jumper has not been inserted correctly or is missing	Install a LV-unit (observe instructions) Insert jumper in the correct slot for the LV-unit intended for use (observe instructions)
Lo	No power supplied to the lubrication system	No power supplied to the lubricator	Establish a power supply (observe instructions)

9. DISPOSAL

Help protect the environment and save resources by recycling valuable raw material.
Please follow local waste disposal regulations.

10. SERVICE

■ Please contact your local Timken distributor for availability and cost of the following:

- Returning an empty lubricator for environmentally safe recycling or disposal.

or:

- Exchanging a battery set.
- Exchanging a C-Power LV-unit.
- Setting the desired discharge period.

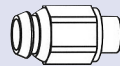
11. QUICK REFERENCE DISTRIBUTION GUIDE



ACCESSORIES

Coding pins (8 pcs.)

Inserted into the coding disk to mark the open outlets.



Connecting piece (6 pcs.)

Used to attach the lubricant tubes.

Connecting cable (1 pcs.)

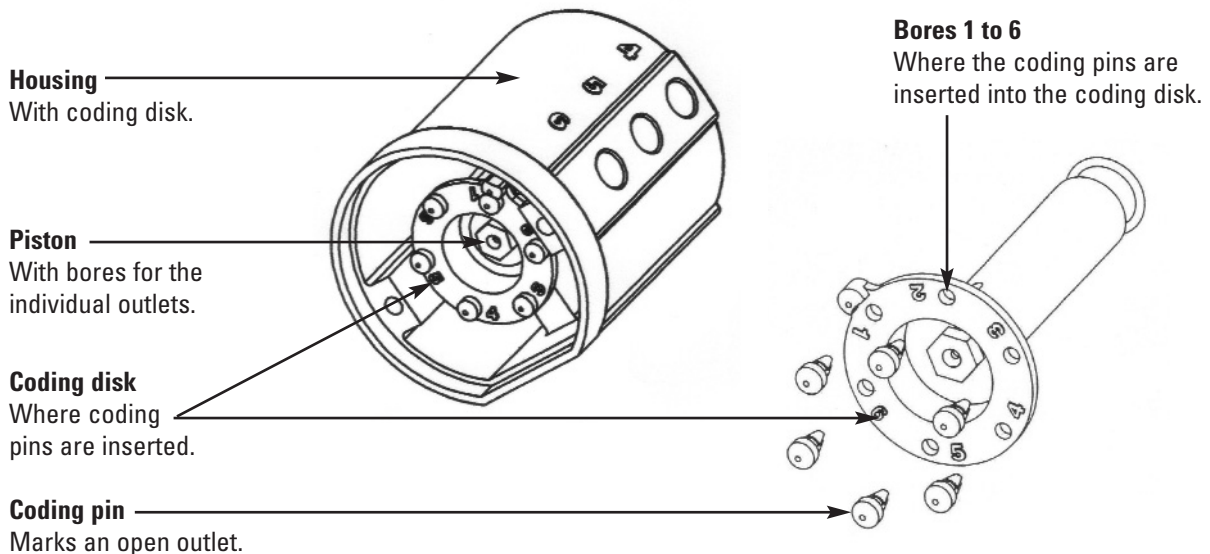
Used for power supply and communication.



Plug (4 pcs.)

Seals outlets that are not used.

HOUSING WITH CODING DISK AND CODING PINS



On this page, you will find some important information for the quick and easy operation and setting of the Timken C-Power multi-point lubricators. The complete operating manual should be read before the first use of the C-Power prior to the assembly with a lubricator. If you need detailed, in-depth information, please refer to the complete set of operating instructions. Make sure to follow the instructions given in the "Safety Instructions" chapter and observe the operating instructions for the connected lubricator.

1. Assembly of the Timken C-Power Distribution Block (refer to chapters 4.1 and 4.2)

- Attach connecting pieces to the outlets that are to be opened. Seal the other outlets with plugs.
- Insert coding pins into the coding disk, according to the position numbers of the open outlets.
For Position 1, a coding pin is already pre-assembled.
- Place the housing on the drive unit and screw the two parts together.

2. Screw Together the Timken C-Power with the Lubricator Distribution Block

- Seal the connection thread with an appropriate sealant.
- Tightly screw the Timken C-Power lubricator into the distributor.
- Make sure the rear sides of the lubricator and the distributor are level.
- Attach distributor and lubricator to the mounting device using the four bores.
- Connect lubricant tubes to connecting pieces. Position them between the distributor and the lubrication point ($\varnothing 8 \times 1.5$, inner- $\varnothing 5$ mm, admissible total length per pipe up to 5 m).
- Connect lubricator to the distributor using the enclosed connecting cable. The lubrication system must be switched off for this step.

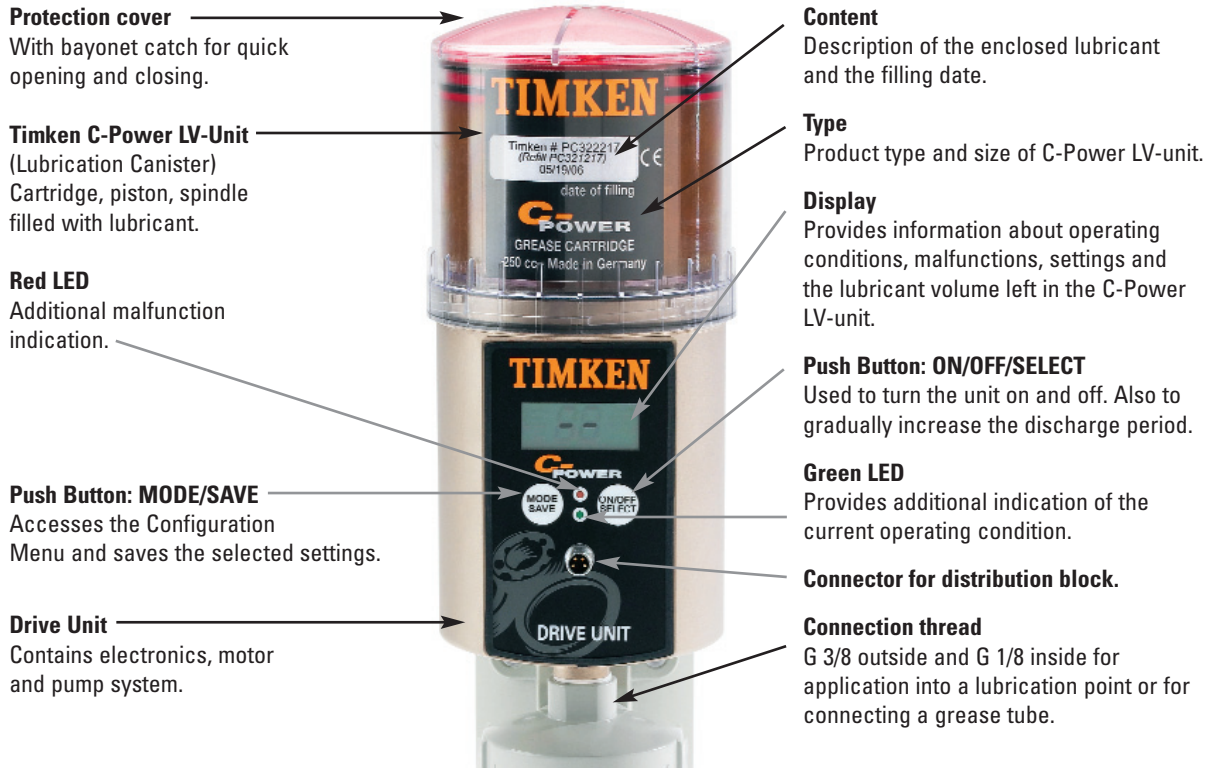
3. Determine the Discharge Period (refer to chapter 6.7)

- Determine the required lubricant volume per one hundred operating hours, taking into account the number of open outlets. To arrive at the figure, multiply the lubricant volume by the number of open outlets.
- Note: the distributor is able to supply an equal amount of lubricant up to six lubrication points.
- Determine the required discharge volume by reviewing lubricator operating instructions. The setting for the discharge period and the setting mode depend on the size of the C-Power LV-unit.

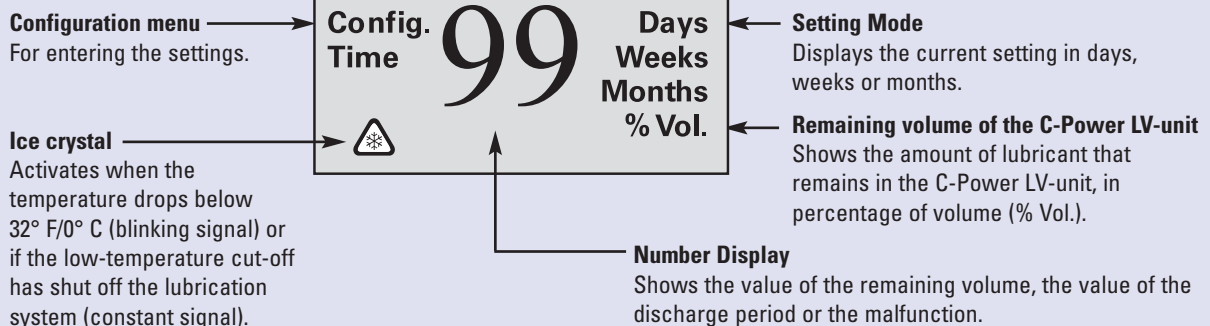
4. Starting the Complete Lubrication System (refer to chapter 6)

- Press the ON/OFF/SELECT button until the display no longer reads "--" (for OFF).
- Turn on power supply.
- Automatic initialization will begin. The count of open outlets will be displayed.
- After initialization is complete, the display shows the remaining volume and the lubrication system starts to operate.

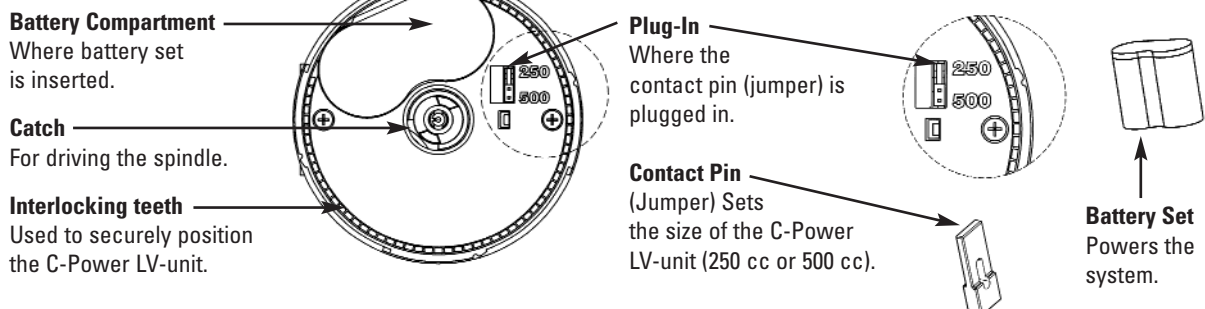
12. QUICK REFERENCE TIMKEN C-POWER MULTI-POINT LUBRICATOR GUIDE



DISPLAY



DRIVE UNIT



On this page, you will find some important information for the quick and easy operation and setting of the Timken C-Power centralized multi-point lubricators. The complete operating manual should be read before the first installation of the Timken C-Power unit and whenever detailed instructions are required. Make sure to follow the instructions given in the “Safety Instructions” chapter.

1. Assembly of the C-Power LV-unit (refer to chapters 4 and 7)

- Insert a new battery set into the battery compartment (follow direction of the arrows).
- On the assembly plate, insert the contact pin in the correct slot for the C-Power LV-unit that you intend to use (250 cc or 500 cc).
- Place the C-Power LV-unit inside the cover and remove its plug.
- Push the C-Power LV-unit into the cover until lubricant comes out of the opening.
- If necessary, mount the drive unit onto the mounting device and attach it using the three pre-drilled holes.
- Place the C-Power LV-unit inside its cover on the drive unit. Make sure that the catch locks in place and the teeth of C-Power LV-unit and drive unit interlock.
- Turn the cover clockwise until the bayonet catch locks in place.

2. Starting the C-Power

- Hold down the ON/OFF/SELECT button until “Remaining Volume” appears in the display and the green LED starts blinking.

3. Determining the Discharge Period (refer to chapter 6.7)

- Refer to the manufacturer’s guidelines about the lubrication point that you want to lubricate to determine the required lubricant amount in cubic centimeters (cc) per one hundred hours of operation.
- Refer to table 3 (chapter 6.7) and locate your required lubrication amount. The table will reflect the required C-Power LV-unit size, the setting of the discharge period and the setting mode.

4. Setting the Discharge Period (refer to chapter 6.8)

- Press the MODE/SAVE button until you reach the Configuration Menu.
- Push the MODE/SAVE button until you reach the desired setting (days, weeks or months).
- When the display shows the correct setting mode, push the ON/OFF/SELECT button until you reach the desired discharge period.

5. Save Settings (refer to chapter 6.8)

- Press the MODE/SAVE button until the display shows “Remaining Volume.”

6. Stopping the C-Power unit (refer to chapter 6.6)

- Press the ON/OFF/SELECT button until the display shows “—.”



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Printed in USA
Order No. 999-10793