

ELECTRO-LUBER™ MD 2000

ULTIMATE 60 CC (MICRO)

INSTALLATION INSTRUCTIONS

Working Principle

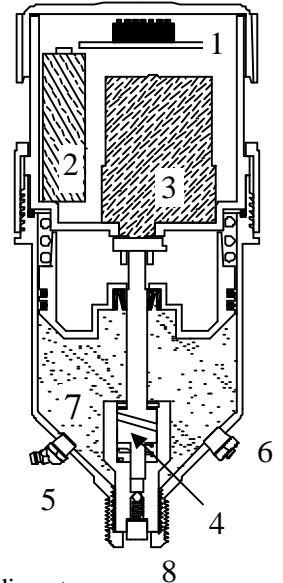
The **Electro-Luber MD™ 2000 Ultimate 60** is a self-contained, microprocessor controlled, motor driven automatic lubricator. The **MD ULTIMATE** unit is not a pressure vessel. The operation of the **MD ULTIMATE** lubricator depends upon the use of minor internal spring pressure forcing lubricant into a temperature compensating, fixed displacement pump.

This dispenses the lubricant at pressures up to 900psi. This pressure allows the **MD ULTIMATE** to be used with long feed line pipework, and it can even cycle progressive distributors, allowing one **MD ULTIMATE** to feed several bearings. When one or a combination of selector switches are turned on, the unit will activate at selected intervals.

(see charts on pages 3 & 4).

At each interval, approximately .625 grams of grease will be delivered to the bearing. The grease output is not affected by temperature or altitude. When the unit is empty, refilling is accomplished using a standard grease gun.

1. Time Selector Switch, Microprocessor based circuit board, Indicator Light
2. Replaceable Battery Pack
3. DC Motor
4. Pump
5. Grease Fitting
6. Pressure Relief Valve
7. Lubricant Reservoir
8. ½" NPT Mounting Outlet



**full 1 year
replacement warranty**

Dimensions

Model 60: 8 ¾" high X 3 1/16" diameter

General Information

On first installation, using a hand grease gun and the same type of grease, pump a few shots of lubricant into the bearing. If fittings or grease lines are used, these also should be filled with the same lubricant.

If possible, install the **ELECTRO-LUBER MD™ ULTIMATE 60** directly on the bearing. All **MD ULTIMATE** units have ½" NPT threads. The units will come with a brass adapter (1/4" or 1/8" NPT outlet) specified at time of order. Each adapter comes with an o-ring, which must be installed with the adapter to prevent leakage. (steel adapters can be substituted for brass; stainless steel adapters available at a nominal extra charge.)

If the **ELECTRO-LUBER MD™ ULTIMATE** is remotely mounted, the following applies:

- For tubing or pipe 3 feet or less in length, use minimum 1/4" I.D.
- For tubing or pipe from 3 to 35 feet in length, use minimum 3/8" I.D.
- Oil filled units, use minimum 1/4" I.D. tubing for up to 200 feet

It is important to make sure you prime all piping and lube points prior to installing the ELECTRO-LUBER MD™ ULTIMATE.

For optimal performance, the **MD ULTIMATE** unit works best with multi-grade (synthetic) lubricants. High temperature lubricants, with an NLGI 2 or higher rating, tend to harden at low temperatures, therefore, lower NLGI ratings are recommended (NLGI 1). In low temperature applications use Lowtemp lubricants with NLGI 0 or 1 rating.

Each **ELECTRO-LUBER MD™ ULTIMATE** is supplied with a **weather proof switch cap with O-Ring** which **MUST** be used in all cases as protection against weather and moisture.

To ensure the success and reliability of your **ELECTRO-LUBER MD™ ULTIMATE** installation, do not use in temperatures below 14 deg. F. (-10 deg. C.) or above 170 deg. Fahrenheit (76 deg. C.), or in an application requiring more than 900 psi. The Alkaline battery packs can be used up to 131°F (55°C), the Lithium battery packs can be used up to 170°F (76°C). The **MD ULTIMATE** unit is designed to feed multiple points using progressive distribution blocks. (2, 3, 4, 6, 8 & 12 port Kits are available from **ATS Electro-Lube**).

Warning:

TO PREVENT IGNITION OF A HAZARDOUS ATMOSPHERE, BATTERIES MUST ONLY BE CHANGED IN AN AREA KNOWN TO BE NON-HAZARDOUS.

AVERTISSEMENT: AFIN DE PRÉVENIR L'INFLAMMATION D'ATMOSPHÈRES DANGEREUSES, NE CHANGER LES BATTERIES QUE DANS DES EMPLACEMENTS DÉSIGNÉS NON DANGEREUX.

Starting Procedure

Referring to the proper model's dispensing rate chart on page 4, select the dispensing time and amount of lubricant required. Then set the appropriate switch or switches to the setting which corresponds to the period of time it takes to empty the unit. This action activates the unit, and within 1 minute the first cycle will commence dispensing.

Operating Procedure

If it is desired to increase or decrease the lubricant dispensing rate during operations, simply click the switch or switches in use to OFF, Then click on the new switch setting for the revised rate.

To turn **OFF** the **ELECTRO-LUBER MD™ ULTIMATE** set all switches to **OFF**.

The **ELECTRO-LUBER MD™ ULTIMATE** can be removed at any time without lubricant discharge.

Switch 7 is the purge switch. If your bearing requires an immediate shot of grease, turn **ON** switch 7. When the **MD ULTIMATE** unit starts operating, turn switch 7 **OFF**. The **MD ULTIMATE** unit will run for approximately 1 minute. If you require more purging, repeat the procedure.

While the unit is operational, the LED light will flash green once every 20 seconds, indicating the electronics are functioning properly.

During the pump cycle, the LED will flash green approximately once per second, indicating that the pump is turning and pumping grease.

If there is a problem with the unit it will be indicated by the Red or Blue LED flashing every 20 seconds as follows:

- 1 red flash indicates that the unit has an internal limit switch error and is running in the failsafe mode. (limit switch is used to control the dispensed volume, if it fails, the unit goes into a "failsafe" mode to dispense by time)
- 2 red flashes indicate that the battery is low and must be replaced shortly.
- 1 blue and 1 red flash indicates that the grease cartridge is low and should be replaced shortly.
- 2 blue flashes indicate that the unit is paused via the remote control option.
- 4 blue flashes indicate that the unit's operation is halted due to a low ambient temperature. When the temperature goes above 5 degrees F. (-15 degrees C.), the unit will resume operation.

When empty, the unit can be refilled using a standard grease gun, either manual or air/electrically operated. **DO NOT OVERFILL.** If overfilled, possible damage to the unit can occur. Fill only until marks on label line up with the piston o-rings. Excess grease may be expelled through the pressure relief valve,

- NOTE:**
1. **DO NOT** refill with high pressure, high volume air/electrically operated grease guns. This may damage the MD unit and the warranty will be null and void.
 2. **DO NOT** remove the lower ring. If this ring is tampered with, the unit may be damaged, and warranty will be null and void.
 3. The lubricants dispensed by this equipment are to have flash points greater than 200° F.

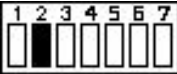




Power

The battery packs must be changed when the red LED flashes, as described above. The batteries life expectancy is 4 empties for the **MD ULTIMATE 60**. Please note that battery life is affected by temperature, bearing backpressure and unit setting. Life expectancy is based on standard installation. To change the battery pack, remove the top ring using the tool supplied in the carton, unplug and remove the old battery, and then install and plug in the new battery pack. It is recommended that you have a spare battery pack to avoid a prolonged outage. The battery packs, complete with connectors, may be purchased directly from the factory.

Optional alternate power sources are available, please consult the factory or your salesperson.

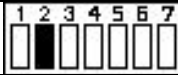




Comparison Chart

This chart compares the lubricant output rate of the **ELECTRO-LUBER MD™ ULTIMATE** with several common manual lubrication schedules. The **ELECTRO-LUBER MD™ ULTIMATE** switch settings indicated will provide comparable lubrication to that of the manual practice shown. **Do not over-lubricate bearing.** Some typical settings follow, see the charts on the next pages for all settings.

Manual Lubrication Schedule	MD Model 60 Setting	
	Unit Life	Switch Setting
2–3 day lubrication 3 – 4 strokes	1 month (30 days)	
Weekly lubrication 8 – 10 strokes	2 months (60 days)	
Bi-weekly lubrication 8 –10 strokes	3 months (90 days)	
Monthly lubrication 8 – 10 strokes	6 months (180 days)	
Bi-monthly lubrication 8 – 10 strokes	12 months (360 days)	

A “Rule of Thumb” for Switch Setting

This chart offers a “Rule for Thumb” for selecting appropriate switch settings and lubricant output rate for some basic applications. Many variables must be considered when determining the best setting for your operating environment. Areas of high contamination and heavy water washout generally require a slight increase in lubricant flow rate. Because of the wide number of variables found in actual operating environments, this chart should only be considered as a guide in making the selection of the proper switch setting. **ALWAYS AVOID OVER-LUBRICATING.**

Bearing Shaft Size	MD Model 60 Setting	
	Days to Empty	Switch Setting
4 ¾” to 6 ½”	30	
4” to 4 ¾”	60	
3 ¼” to 4”	90	
2 ¾” to 3 ¼”	180	
2 ¼” to 2 ¾”	360	

Selection of Switch Settings

One stroke from a typical grease gun is equal to approximately one cubic centimetre (cc). To select the switch setting appropriate for your application look down the column for the desired output of lubricant, remembering that 1 cc is equal to approximately one stroke from a grease gun. The switch setting for your selection is shown in the right most columns labelled Switch1 to Switch7.

Electro-Luber MD 2000 ULTIMATE Model 60 Dispensing Rate Chart

Days to Empty	Cycle Time (hrs)	Approx. Daily Output		Switch 1 (15 day)	Switch 2 (30 day)	Switch 3 (60 day)	Switch 4 (120 day)	Switch 5 (240 day)	Switch 6 (480 day)	Switch 7 (purge)
		in CC's	in CI's							
15	3.6	4.17	0.25	ON	OFF	OFF	OFF	OFF	OFF	OFF
30	7.2	2.78	0.17	OFF	ON	OFF	OFF	OFF	OFF	OFF
45	10.8	2.08	0.13	ON	ON	OFF	OFF	OFF	OFF	OFF
60	14.4	1.39	0.08	OFF	OFF	ON	OFF	OFF	OFF	OFF
90	21.6	1.04	0.06	OFF	ON	ON	OFF	OFF	OFF	OFF
120	28.8	0.83	0.05	OFF	OFF	OFF	ON	OFF	OFF	OFF
150	36.0	0.69	0.04	OFF	ON	OFF	ON	OFF	OFF	OFF
180	43.2	0.52	0.03	OFF	OFF	ON	ON	OFF	OFF	OFF
240	57.6	0.42	0.03	OFF	OFF	OFF	OFF	ON	OFF	OFF
300	72.0	0.35	0.02	OFF	OFF	ON	OFF	ON	OFF	OFF
360	86.4	0.26	0.02	OFF	OFF	OFF	ON	ON	OFF	OFF
480	115.2	0.21	0.01	OFF	OFF	OFF	OFF	OFF	ON	OFF
600	144.0	0.17	0.01	OFF	OFF	OFF	ON	OFF	ON	OFF

For other settings or special applications, please consult the factory or your Electro-Lube Sales Representative

Patents Pending

For more information, please visit our website at www.atselectrolube.com



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