

ELECTRO-LUBER MD™ 2000

ULTIMATE LUBER™

INSTALLATION INSTRUCTIONS

Working Principle

The **Electro-Luber MD™ 2000 Ultimate** 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 over 1000 psi. 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 1.25grams 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.

Filling and Starting Procedure

When **FILLING AN EMPTY UNIT FOR THE FIRST TIME**, fill unit 1/4 way. Pull pressure relief valve (#6 in diagram). This releases the air void. Continue filling until unit is full. Plug battery in and turn on Switch #7 (purge setting 2 minutes), then turn off Switch #7. On 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. Referring to the proper model's dispensing rate chart on page 3 or 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.

General Information

If possible, install the **ELECTRO-LUBER MD™ ULTIMATE** directly on the bearing. All **MD ULTIMATE** units have 1/2" 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, use minimum 3/8" O.D. by minimum 1/4" I.D. for tubing or pipe up to 35 feet in length.

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.

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**). When using a distribution block, stay within a maximum of 20 feet.

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**, do not use in temperatures below -40° F or above 131° F (-20° C to 55° C.), or in an application requiring over 1000 psi. **For cold temperature applications, must use special gearmotor, programming, Lithium battery packs and Low Temp grease (EP00).**



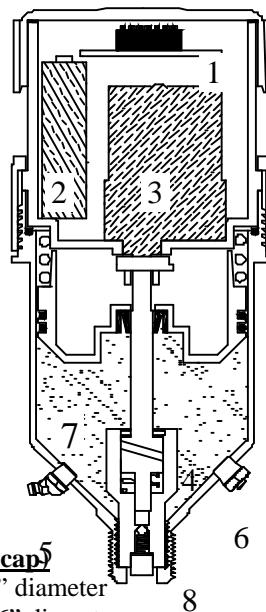
This equipment is suitable for use in:

Class 1, Division 2, Groups A,B,C,D; Class II, Division 2, Groups F & G; Class III or non-hazardous locations only. Maximum T-Code T6 55°C

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. 1/2" NPT Mounting Outlet

**1 year
replacement warranty**

**MUST USE ATS BATTERY
PACKS TO MAINTAIN
WARRANTY AND UL
LISTED STATUS**



Dimensions (without weathercap)

Model 125: 7 1/4" high X 3 1/8" diameter

Model 250: 7 1/4" high X 4 1/16" diameter

Model 500: 8 1/2" high X 4 3/4" diameter

WARNING: Explosion Hazard – substitution of any components may impair suitability for Class I, II & III, Division 2 locations.
WARNING: Explosion Hazard – batteries must only be changed in an area known to be non-hazardous.
CAUTION: The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100° C (212° F) or dispose of in fire. Dispose of used battery promptly.

In Conformity to European Norms
Ex nL IIC T3 II 3 G



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 2 minutes. If you require more purging, repeat the procedure.

LED LIGHT FUNCTIONS:

LED	SIGNAL	SIGNAL TIME	MEANING
Green	1 Flash	Every 20 Seconds	Operation OK
Green	1 Flash	Every 1 Second	Currently pumping grease
Red	1 Flash	Every 20 Seconds	If Internal limit switch counter is faulty, the unit will go into an operational timed failsafe mode.
Red	2 Flashes	Every 20 Seconds	Low battery. Must be replaced shortly.
Blue	2 Flashes	Every 20 Seconds	Unit paused via remote control option (if used here)
Blue	4 Flashes	Every 20 Seconds	Unit paused due to low ambient temperature. Unit will resume operation when temperature goes above 5 degrees F (-15 degrees C).

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:

- 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.
- DO NOT** remove the lower ring. If this ring is tampered with, the unit may be damaged, and warranty will be null and void.
- The lubricants dispensed by this equipment are to have flash points greater than 200°F.
- It is recommended and good practice to purge the bearing on every change out.

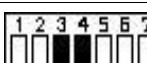
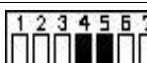
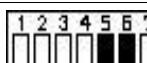
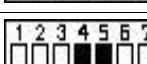
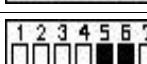
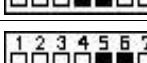
Power

The battery packs must be changed when the red LED flashes, as described above. The batteries life expectancy is 4 empties for the **MD125** and **MD250**, and 2 empties for the **MD500**. 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, 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

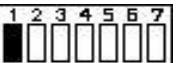
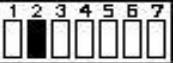
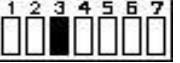
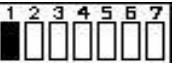
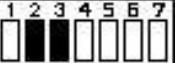
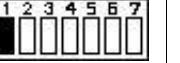
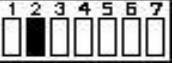
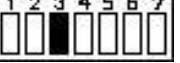
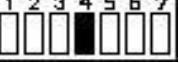
This chart compares the lubricant output rate of the **ELECTRO-LUBER MD™ ULTIMATE** with several common manual lubrication schedules. The **ELECTRO-LUBER MD™ ULTIMATE** switch settings indicated will provide comparable lubrication to that of the manual practice shown. **Do not over-lubricate bearing**.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

Manual Lubrication Schedule	MD Model 125 Setting		MD Model 250 Setting		MD Model 500 Setting	
	Unit Life	Switch Setting	Unit Life	Switch Setting	Unit Life	Switch Setting
Daily lubrication 3 – 4 strokes	1 month (30 days)		2 months (60 days)		4 months (120 days)	
2–3 day lubrication 3 – 4 strokes	2 months (60 days)		4 months (120 days)		8 months (240 days)	
Weekly lubrication 8 – 10 strokes	3 months (90 days)		6 months (180 days)		12 months (360 days)	
Bi-weekly lubrication 8 – 10 strokes	6 months (180 days)		12 months (360 days)		24 months (720 days)	
Monthly lubrication 8 – 10 strokes	12 months (360 days)		24 months (720 days)			
Bi-monthly lubrication 8 – 10 strokes	24 months (720 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	Model 125 Setting		Model 250 Setting		Model 500 Setting	
	Days to Empty	Switch Setting	Days to Empty	Switch Setting	Days to Empty	Switch Setting
12" to 14 $\frac{3}{4}$ "					15	
10 $\frac{3}{4}$ " to 12"					30	
8 $\frac{1}{2}$ " to 10 $\frac{3}{4}$ "					60	
6 $\frac{1}{2}$ " to 8 $\frac{1}{2}$ "			15		90	
4 $\frac{3}{4}$ " to 6 $\frac{1}{2}$ "	15		30		120	
4" to 4 $\frac{3}{4}$ "	30		60		120	
3 $\frac{1}{4}$ " to 4"	60		120		240	
2 $\frac{3}{4}$ " to 3 $\frac{1}{4}$ "	90		180		360	
2 $\frac{1}{4}$ " to 2 $\frac{3}{4}$ "	180		360		720	
1 $\frac{3}{4}$ " to 2 $\frac{1}{4}$ "	360		720			

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 125 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	8.33	0.51	ON	OFF	OFF	OFF	OFF	OFF	OFF
30	7.2	4.17	0.25	OFF	ON	OFF	OFF	OFF	OFF	OFF
45	10.8	2.78	0.17	ON	ON	OFF	OFF	OFF	OFF	OFF
60	14.4	2.08	0.13	OFF	OFF	ON	OFF	OFF	OFF	OFF
90	21.6	1.39	0.08	OFF	ON	ON	OFF	OFF	OFF	OFF
120	28.8	1.04	0.06	OFF	OFF	OFF	ON	OFF	OFF	OFF
150	36.0	0.83	0.05	OFF	ON	OFF	ON	OFF	OFF	OFF
180	43.2	0.69	0.04	OFF	OFF	ON	ON	OFF	OFF	OFF
240	57.6	0.52	0.03	OFF	OFF	OFF	OFF	ON	OFF	OFF
300	72.0	0.42	0.03	OFF	OFF	ON	OFF	ON	OFF	OFF
360	86.4	0.35	0.02	OFF	OFF	OFF	ON	ON	OFF	OFF
480	115.2	0.26	0.02	OFF	OFF	OFF	OFF	OFF	ON	OFF
600	144.0	0.21	0.01	OFF	OFF	OFF	ON	OFF	ON	OFF
720	172.8	0.17	0.01	OFF	OFF	OFF	OFF	ON	ON	OFF

Electro-Luber MD™ 2000 ULTIMATE Model 250 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	1.8	16.67	1.02	ON	OFF	OFF	OFF	OFF	OFF	OFF
30	3.6	8.33	0.51	OFF	ON	OFF	OFF	OFF	OFF	OFF
45	5.4	5.56	0.34	ON	ON	OFF	OFF	OFF	OFF	OFF
60	7.2	4.17	0.25	OFF	OFF	ON	OFF	OFF	OFF	OFF
90	10.8	2.78	0.17	OFF	ON	ON	OFF	OFF	OFF	OFF
120	14.4	2.08	0.13	OFF	OFF	OFF	ON	OFF	OFF	OFF
150	18.0	1.67	0.10	OFF	ON	OFF	ON	OFF	OFF	OFF
180	21.6	1.39	0.08	OFF	OFF	ON	ON	OFF	OFF	OFF
240	28.8	1.04	0.06	OFF	OFF	OFF	OFF	ON	OFF	OFF
300	36.0	0.83	0.05	OFF	OFF	ON	OFF	ON	OFF	OFF
360	43.2	0.69	0.04	OFF	OFF	OFF	ON	ON	OFF	OFF
480	57.6	0.52	0.03	OFF	OFF	OFF	OFF	OFF	ON	OFF
600	72.0	0.42	0.03	OFF	OFF	OFF	ON	OFF	ON	OFF
720	86.4	0.35	0.02	OFF	OFF	OFF	OFF	ON	ON	OFF

Electro-Luber MD™ 2000 ULTIMATE Model 500 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	0.9	33.33	2.03	ON	OFF	OFF	OFF	OFF	OFF	OFF
30	1.8	16.67	1.02	OFF	ON	OFF	OFF	OFF	OFF	OFF
45	2.7	11.11	0.68	ON	ON	OFF	OFF	OFF	OFF	OFF
60	3.6	8.33	0.51	OFF	OFF	ON	OFF	OFF	OFF	OFF
90	5.4	5.56	0.34	OFF	ON	ON	OFF	OFF	OFF	OFF
120	7.2	4.17	0.25	OFF	OFF	OFF	ON	OFF	OFF	OFF
150	9.0	3.33	0.20	OFF	ON	OFF	ON	OFF	OFF	OFF
180	10.8	2.78	0.17	OFF	OFF	ON	ON	OFF	OFF	OFF
240	14.4	2.08	0.13	OFF	OFF	OFF	OFF	ON	OFF	OFF
300	18.0	1.67	0.10	OFF	OFF	ON	OFF	ON	OFF	OFF
360	21.6	1.39	0.08	OFF	OFF	OFF	ON	ON	OFF	OFF
480	28.8	1.04	0.06	OFF	OFF	OFF	OFF	OFF	ON	OFF
600	36.0	0.83	0.05	OFF	OFF	OFF	ON	OFF	ON	OFF
720	43.2	0.69	0.04	OFF	OFF	OFF	OFF	ON	ON	OFF

Patents: AU# 2005240682; EP# 1756467; CH# 1756467; DE# 602005011280.4; FR, IT, GB# 1756467; US #8783418B2; CA # 2565869