



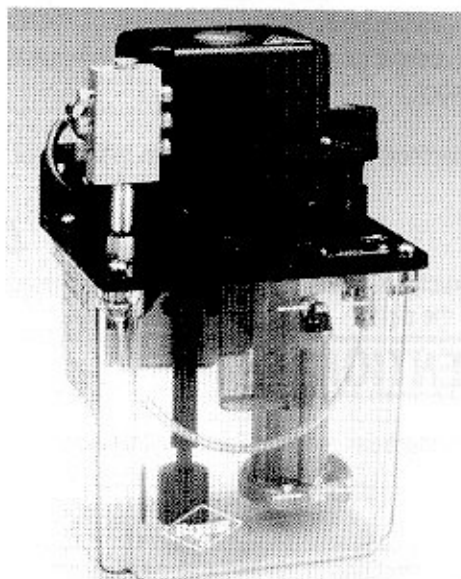
Before installing or operating this lubricator, please read this manual carefully. Failure to follow instructions can result in damage to the product and/or serious bodily injury.

The lubricator type TMD-5 meets all operating parameters for single line resistance centralized lubricating systems incorporating Bijur Meter Units.

## TECHNICAL DATA SHEET

Lubricator Type TMD-5, Automatic, Cyclic

Part Nos. 26201, 2, 3



### DECLARATION OF CONFORMITY

for  
Bijur Model TMD-5  
Automatic, Cyclic Lubricator

#### Manufacturer

Bijur Lubricating Corporation  
A Subsidiary of Vesper Corporation

#### Statement of Conformity

Based on test results using appropriate standards,  
the product is in conformity with

Machinery Directive 89/392/EEC  
Electromagnetic Compatibility Directive 89/336/EEC  
Low Voltage Directive 73/23/EEC  
Amendments 93/68/EEC, 92/31/EEC

This Conformity is indicated by the symbol **CE**  
i.e. 'Conformité européenne'

### Sample tests

Standards used:

Safety of Household and Similar  
Electrical Appliances  
EN 60335-1 (including amendments A2, A5, A6,  
A51, A53, and A54)  
EN 60335-2-41 (including amendment A1)

Electromagnetic Compatibility  
Generic Emissions Standard  
EN 50081-1 (1992)

Electromagnetic Compatibility  
Generic Immunity Standard  
EN 50082-1 (1992)

Pumps and Pump Units for Liquids  
General Safety Requirements  
prEN 809 (1995)

The tests have been performed in a typical  
configuration.

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Form No. 26275 (10/97)

## Definition of Precautions and Symbols

General precautions and symbols used in this manual:

Safety instructions given in this manual non-compliance with which would affect safety are identified by this symbol:



or where electrical safety is involved, with this symbol:



Safety instructions which shall be considered for reasons of safe operation of the lubricator and/or protection of the lubricator, are marked by the sign:

**ATTENTION**

Electrical connections made to Earth ground are identified by the following symbol:



Electrical connections made to the Neutral conductor are identified with a capital "N"

Conditions and actions that pose hazards to the user are marked by the sign:

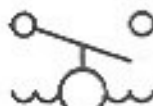
**WARNING**

The following symbol is used to identify increase and decrease of lubricant discharge adjustment. Lifting collar and turning counter-clockwise will increase lubricant discharge:

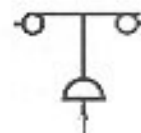


The following symbols are used for identification indicated:

Lubricant low level switch contained within the lubricator:  
Normally open electrical contacts (contacts open on low lubricant level)



Lubricant pressure switch  
Normally closed contacts (contacts open on increasing pressure):



The following symbol is used to identify the electric motor:



The following symbol is used to identify AC – alternate current voltage:



The following symbol is used to identify DC – direct current voltage:



## Specifications

### Technical Data

Motor	Single phase
Power Rating	3 watts 50/60 Hz
Current	30mA (115V) Average Values
Supply Voltage	115V $\sim$ $\pm$ 10%, 50/60 Hz
Protection	IP52
Cycle Time	8.9 min. (60 Hz), 10.7 min. (50 Hz)
Discharge Volume	Adjustable, 1-5cc (cubic centimeters) per cycle
Discharge Pressure	4.1 bar (60 psi) maximum
Connection Port	M8x1 female thread for tube $\phi$ 4mm (5/32") O.D.
Pressure Switch	Normally closed; opens before .8 bar (12 psi) Contact rating: 250V $\sim$ 5A 28V $\sim$ 5A Resistive 2.5A Inductive
Reservoir	1.8 liters (110 cu. inches) plastic
Lubricant Viscosity	27-1700 cSt (150-8000 SSU) at operating temperature
Operating Temperature	5 to 40°C (40 to 105°F)
Suction Filter	40 micron (nominal)
Low Level Switch	Contact rating: 10 watts maximum
Weight	2 kg (4.5 lbs.)
Noise Emission	Less than 70dB (A)
Color	Black

### Operation

Lubricator includes a motor-driven, spring discharge piston pump. The unit may be operated manually by raising and releasing the manual feed knob.

Volume of lubricant discharged for each cycle is selected using adjustment shown on marked indicator rod. Cycle time is fixed by an internal gear reduction motor which runs continuously when powered. A lubricant low level switch is provided for signalling low level condition. A pressure switch is attached to the junction bar and may be used for monitoring lubrication cycles.

### WARNING

Use only a clean lubricant of the type and viscosity recommended by the machine manufacturer and approved by Bijur.

### ATTENTION

This lubricator must not be used in explosive atmospheres and must not be used for pumping highly flammable liquids.

Lubricator Part No.	Stroke Discharge Factory Setting
26201	1.0cc
26202	1.8cc
26203	1.2cc

### Accessories

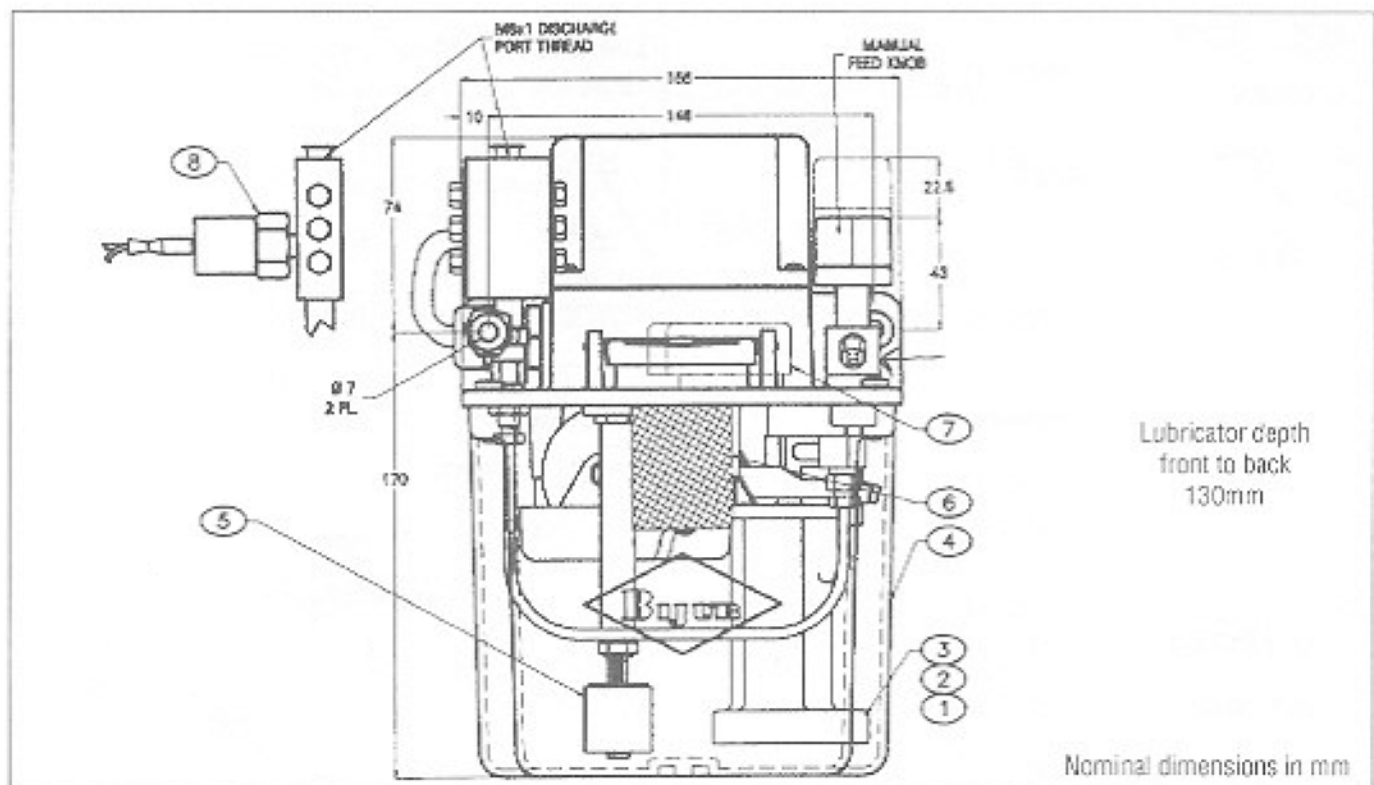
Part No.	Description
5N25	4mm O.D. nylon tubing
5C25	4mm O.D. copper tubing
5B25	4mm O.D. brass tubing
15326	Compression bushing for 4mm tubing M8x1 thread
15327	Compression nut for 4mm tubing, M8x1 thread
B1061	Compression sleeve for 4mm rigid tubing
B8272	Compression sleeve for 4mm nylon tubing
19268	Insert for 4mm nylon tubing
B5610	Pressure gauge, 0-7 bar (0-100 psi)

\* Other cycle times, operating voltages (AC and DC) and accessories available. Contact factory for special requirements.

### Lubricator Stroke Settings for Various Mazak Machines

Part No.	Machine Model	Stroke Discharge Setting
26201	QT-20	1.0cc
26202	QT-30	1.8cc
26203	SQT	1.2cc
26203	VTC-16A/B	1.2cc
26203	VTC-20B	1.2cc
26203	VTC-30C	1.2cc

## Service and Installation



Item	Part No.	Description
1	20577	Spring Clip
2*	83747	Filter Disc
3*	83746	Filter Screen
4	20324	Reservoir
5	B9640	Level Switch Assembly
6	22285	Filler Screen
7	24278-1	Motor
8	26393	Pressure Switch

\* Recommended spare parts

### Installation

**Mounting:** Two (2) 7mm (.27 inch) diameter holes are provided near the back of the lubricator for mounting. The surface on which the lubricator is mounted must be capable of supporting 3.4 kg (7.5 lbs).

In order to access electrical connections without removing the lubricator from mounting surface, allow for sufficient space above the lubricator.

**Note:** For reservoir removal, allow 115mm (4.5 inches) below bottom of reservoir. Removal of the reservoir is required to change the suction filter disc.

### Service Parts

Order by part number and name shown in above table. Include complete lubricator part number and serial letters as shown on nameplate. For major repairs requiring parts not identified on the drawing, return the lubricator for factory rebuilding and adjustment. If a new lubricator is required for replacement, order by part number shown on nameplate.



**Before performing service to lubricator, always turn off and disconnect electrical power.**

### WARNING

**When connecting lubricator, make sure that unit is securely and adequately grounded. Failure to ground properly may cause serious injury.**

## Service and Installation (cont'd)

### Electrical

Access to electrical connections is accomplished through two (2) 22mm diameter holes provided in the cover.



The main power supply must be fused, since protection is not supplied internally with the lubricator.

### ATTENTION

An approved electrical connection fitting must be used to prevent ingress of fluid into the motor compartment.



### 115 Volt AC Operation

The neutral conductor must be connected to terminal number 6 indicated by "N." The hot conductor must be connected to terminal number 5. The ground wire must be attached to terminal number 1 indicated by ⏏.

### Pressure and Cycle Indication

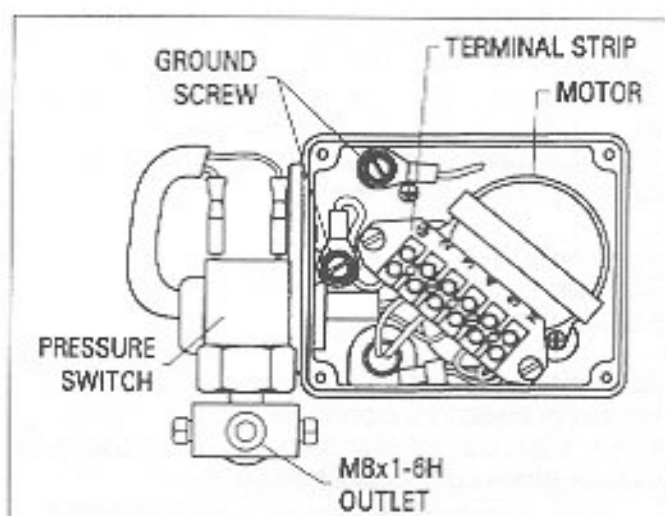
A non-adjustable pressure switch is provided for monitoring lubricator cycles and discharge pressure. The switch is normally closed and opens on pressure rise at .7 bar (10 psi) nominal. The switch will remain open until pressure drops to .4 bar (6 psi) nominal as lubricant is distributed to lubrication points.

### Low Lubricant Level Indication

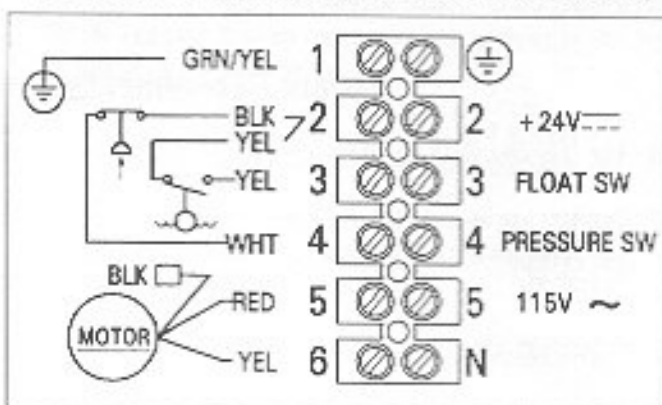
This lubricator is equipped with a low lubricant level switch. It is factory set to open an electrical circuit whenever the lubricant level in the reservoir becomes low and must be refilled. The switch contacts may be changed from normally open (empty reservoir) to normally closed by inverting the float. The switch will then close an electrical circuit whenever the lubricant level is approaching empty.

### ATTENTION

This switch is not intended to directly turn off the motor or illuminate a lamp.



View of electrical terminal strip (with top cover removed)



Wiring Diagram



Before performing service to lubricator, always turn off and disconnect electrical power.

### WARNING

When connecting lubricator, make sure that unit is securely and adequately grounded. Failure to ground properly may cause serious injury.


The electrical circuit for the level switch must not exceed 10 watts.

Electrical switch contact ratings are listed at right.

Volts	Amperes	
	AC	DC
0-50	.20	.13
115	.08	.05
230	.04	.02

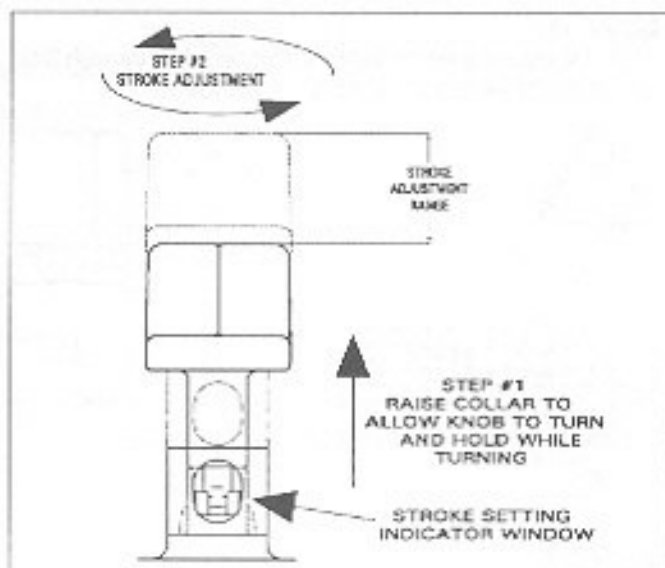
## Lubricant Discharge Adjustment

The amount of lubricant delivered for each stroke of the piston is adjustable from 1 to 5 cubic centimeters. Lubricator stroke adjustment has been factory set by part number to deliver rate shown in chart on page 3. Adjustment is made by raising the collar with indicator window and turning manual feed knob and collar.

To decrease delivery volume, turn clockwise.   
To increase delivery, turn counter-clockwise. Return collar to original position to "lock" adjustment setting in place.

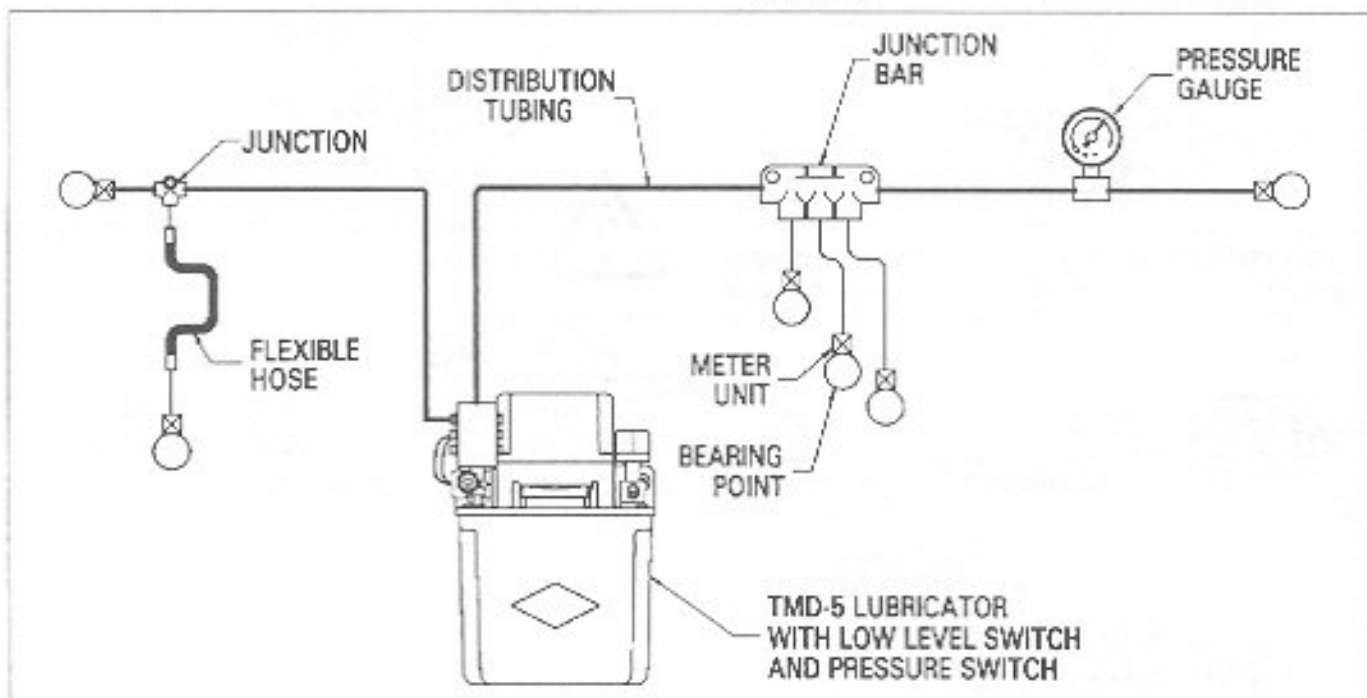
Approximate lubricant discharge setting in cubic centimeters is indicated by graduations appearing near the center of the window in the collar. For exact delivery, it is always best to measure delivery using a graduated cylinder.

Lubricant delivery per hour is equal to the number of cycles per hour times the discharge volume per cycle.



## System Recommendations for Trouble-Free Operation

1. Use only clean and approved lubricant.
2. Connect low level switch and pressure switch to machine controller for monitoring lubricant level and lubricator operation.
3. Incorporate a pressure gauge downstream from the lubricator to provide visual indication of lubrication cycles.
4. All tubing, flexible hoses and fittings must be compatible with the lubricant, operating pressure and surrounding environment.



Typical Lubrication System Layout



## Starting A New Machine

### ATTENTION

Fill reservoir with clean Bijur approved lubricant until lubricant level is within 25mm (1 inch) from the top of the reservoir. Attach M8x1 tube fitting to discharge port(s) and tighten to 3.4 Nm (30 in. lb.) torque.

If lubricant distribution system has not been previously primed with lubricant, it is necessary to prime the system manually to purge air from the system before operating machinery.

This may be accomplished by manually operating the TMD-5 lubricator. Raise and release the manual feed knob several times until lubricant flows at all bearing points. Adjust lubricant delivery volume as needed.

## Maintenance

### ATTENTION

1. Check lubricant level daily and refill as needed with clean, **Bijur approved** lubricant to maintain proper level in reservoir at all times.

Failure to maintain proper lubricant level may result in serious damage to lubricator and machine being lubricated.



Before disassembling lubricator to perform routine maintenance, always turn off and disconnect electrical power.

2. Replace suction filter annually or as frequently as necessary by following the steps below:
  - a. Remove reservoir by unscrewing 4 screws. If sediment has accumulated inside the reservoir, wipe with clean cloth to remove.
  - b. Remove spring clip and pry out old suction filter element and screen.
  - c. Insert screen and new filter disc (screen first).
  - d. Install spring clip and reservoir.
  - e. Refill with clean lubricant.



## TECHNICAL DATA SHEET

Lubricator Type TMD-5, Automatic, Cyclic

Part Nos. 26201, 2, 3 Page 8



Before performing service to lubricator, always turn off and disconnect electrical power.

### Troubleshooting Chart

SYMPTOM	POSSIBLE CAUSE	REMEDY
Lubricator does not pump automatically.	1. Motor not running – poor electrical connection.	1. Check electrical connections to insure power is being supplied to motor. If motor will not run, replace motor.
Motor runs but lubricator does not pump within specified cycle time.	1. Discharge setting incorrect. 2. Clogged suction filter disc. 3. Use of non-approved lubricant.	1. Readjust setting – refer to lubricant discharge adjustment. 2. Replace suction filter disc. 3. Replace suction filter disc and use approved lubricant.
Lubricator will not pump when manually operated.	1. Rocker arm near top of cam for piston stroke. 2. Discharge setting incorrect. 3. Clogged suction filter disc. 4. Use of non-approved lubricant.	1. Allow motor to run until lubrication cycle is initiated. 2. Readjust setting – refer to lubricant discharge adjustment. 3. Replace suction filter disc. 4. Replace suction filter disc and use approved lubricant.
Air bubbles in lubricant when discharged from lubricator.	1. Clogged suction filter disc. 2. Use of non-approved lubricant. 3. Reservoir low on lubricant.	1. Replace suction filter disc. 2. Replace suction filter disc and use approved lubricant. 3. Refill reservoir.
Lubricant level switch does not operate properly.	1. Switch contacts reversed. 2. Switch contact rating exceeded.	1. Invert float on level switch stem – refer to low lubricant level indication. 2. Replace lubricant level switch.
Pressure switch does not operate properly.	1. System pressure not reaching .7 bar (10 psi). (Verified with pressure gauge). 2. System pressure not dropping to .4 bar (6 psi) between cycles. (Verified with pressure gauge). 3. Faulty switch or contact rating exceeded.	1. Make sure all lube lines have been purged of air. 2. Check fittings and tubing for leaks. 3. Increase stroke discharge setting. 4. Decrease size of meter units. 1. Check all lines for pinched or kinked tubing. 2. Check meter units and replace if they have become clogged. 1. Replace switch.

Illustrations and specifications are not binding in detail. Designs are subject to modification and improvement without notice.

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