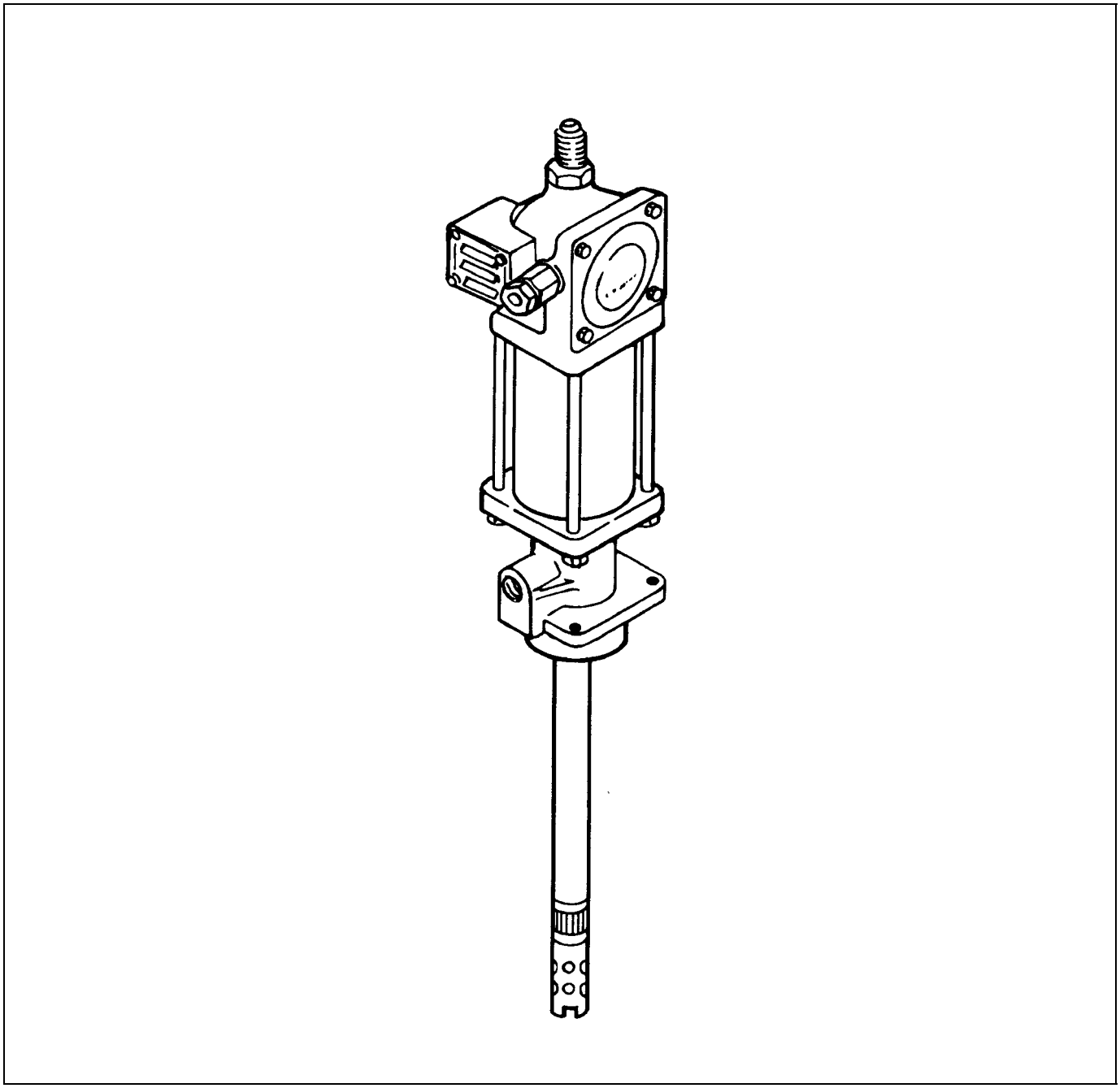
Operating Instructions & Service Parts List

Lubrigun Pumps, air operated
No. 82050, No. 82054, No. 83513, No. 82050-E575 Ser. J



1. Foreword

This User Manual is intended to familiarize the user with the pump/equipment and its designated use.

The operating instructions contain important information on how to operate the pump/equipment safely, properly and most efficiently. Observing these instructions helps to prevent danger , to reduce repair costs and downtimes and to increase the reliability and life of the pump/equipment.

The Manual has to be supplemented by the respective national rules and regulations for accident prevention and environmental protection.

The Manual must always be available wherever the pump/equipment is in use.

If persons being involved in handling/operating the pump/equipment are not fluent in English, it is the user's responsibility making sure that personnel comprehends the contents of this Manual, particularly the Instructions and Warnings, prior to operating this pump/equipment.

This Manual must be read and applied by any person in charge of carrying out work with the pump/equipment, such as

- **Operation** including setting up, troubleshooting in the course of the work, evacuation of production waste, care and disposal of consumables.
- **Maintenance**
  (servicing, inspection, repair)

and/or transport

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Note
For additional information,
refer to instructions of machine manufacturer.

2. Safety Instructions for Pumps and Pump Units

2.1 General Safety Instructions

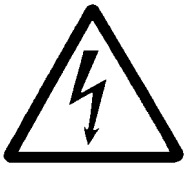
This Operating Instructions Manual contains important information about the equipment on set-up, operation and maintenance.
Therefore, this Manual shall be read by the Fitter, Technical Personnel, the Owner\Operator prior to erecting and operating this equipment.
Follow instructions and heed Warnings.
This Manual must always be at hand at the place of use of the equipment.
All safety instructions contained in this main chapter 'Safety Instructions' as well as safety instructions in other chapters must be observed.

Hazard Markings in Operating Instructions

Warnings that may result in serious personal injury if ignored, are marked in the Manual by symbols as follows:
Warnings for exposure to hazards marked by

Safety Symbol according to DIN 4844-W9

Warnings for exposure to electrical hazards marked by



Safety Symbol according to DIN 4844-W8

Safety instructions that might result in equipment damage and machine malfunction if ignored, are marked by the word

CAUTION

Heed safety instructions and Warnings attached to the machine. Keep them complete and perfectly legible.

Qualification of Personnel and Training

The staff responsible for operation, maintenance, inspection and installation must be adequately qualified for these jobs. The user must properly regulate the field of responsibility and supervision of the personnel. If the personnel is not in command of the necessary expertise, they must receive appropriate training and instructions. If necessary, this can be done by the manufacturer/supplier on behalf of the machine user. Furthermore, the user must ensure that the contents of the of the Operating Instructions Manual are fully understood by the personnel.

Hazards on Disregard of Safety Instructions

Failure to heed the safety instructions and warnings may result in damage to equipment and the environment and/or serious personal injury.
Failure to observe the safety notes may result in the loss of all claims for damage.
As an *example*, we list some dangers that may result from failure to observe these instructions and warnings:

- Hazards by malfunction of the equipment/machine.
- Hazards generated by neglecting specified methods for maintenance and repair.
- Personal injury effected by electrical, mechanical and chemical hazards.
- Danger to the environment due to leakage of harmful materials.

Operating Precautions

The safety instructions given in this Operating Instructions Manual, the prevailing national regulations for the prevention of accidents and any internal directives of the user concerning the plant and the prevention of accidents must be observed.

Safety Instructions for the User/Operator

- In case of thermal hazards by hot (or cold) machine parts, the owner/user must take care of guards preventing direct contact of those sections.
- Do not remove safety guards/devices for moving parts while the machine is in operation.
- Avoid hazards to persons and environment by leakage of harmful materials. Always collect material for disposal according to the regulation of the national authorities.
- Never expose to electrical hazard. Equipment and all operations must be in compliance with applicable engineering rules and regulations (for details refer for example to applicable specifications of your national board of electr. engineers, the local electric power supply companies etc.).

Safety instructions
for Maintenance, Inspection and Installation Services

The owner/user must make sure that all maintenance, inspection and installation work are executed by authorized and qualified experts who have thoroughly read the Operating Instructions Manual.
Any work servicing the equipment must be done while the machine is not in operation and is shut down. Follow the instructions for shutting down the machine.
Decontaminate pumps/pump units used for pumping harmful materials.
Guards and safety devices must be re-installed immediately after completion of servicing the equipment.
Dispose of harmful materials/consumables according to the regulation of the national authorities.
Always observe instructions of the sections 'Initial Operation' before operating the equipment.

Safety Instructions

Unauthorized modifications of equipment and parts

Altering or modifying parts of this equipment may exclude warranty. Never make any modifications or conversions without supplier's approval. Original spare parts and accessories comply with the technical requirements and safety.

Inadmissible operating modes

The operational safety of the supplied product is only maintained when the equipment is used according to section 'Designated Use' and operated within the ratings stated in section 'Technical Data'.

Commissioning and operating the equipment are permitted in the European Community only when the machine/machinery, which the Pump is intended to be used on, is in conformity with safety requirement according to EC directives for safety of machinery.

2.2 Specific safety instructions for air operated pumps

Differential plunger pump type *Lubrigun* with pneumatic drive.

General

Air operated *Lubrigun* pumps with pressure ratio of 50:1 are used for chasiss grease lubrication or in central lubrication systems that can consist of a great number of components. The reliability and safety of the complete system/machine depend on all system components of the assembly installed.

The manufacturer / supplier of the complete installation/ machine has to supplement the supplied pump by system components individually required for operation and safety.

The operating instructions for the complete system, considering all components additionally used with the *Lubrigun* Pump is part of the supply of the supplier/ manufacturer of the installation/machine.

In addition to the operating instructions, the user of the equipment has to observe all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection. The owner/user has to supplement the Manual accordingly.

These compulsory regulations may also deal with the handling of hazardous materials/substances, issuing and/or wearing of personal protective equipment.

The owner/user must supplement the Manual by instructions covering the duties involved in supervising and notifying special organizational features.

Manufacturer / supplier of the installation/machine and the user are responsible for the appropriate use of the *Lubrigun* Pump and system components.

Basic organizational measures

Immediate stop of the pump/equipment and report of the malfunction to the competent authority/ person must be always ensured in the event of safety-relevant modifications or changes in the behaviour of the pump/ equipment during operation.

Qualification of personnel

Installation work, inspection, maintenance and repair shall be executed by qualified, trained personnel only.

The instructions for disassembly and repair of pumps/ pump components are designated to experts skilled in hydraulics/pneumatics.

If using electrical components for pump/equipment, work on the electrical system and equipment must be carried out only by a skilled electrician or by instructed persons under the supervision and guidance of a skilled electrician and in accordance with electrical engineering rules and regulations.

Warning

- Do not allow unauthorized personnel to assemble, operate, service or repair the pump/equipment.
- Do not operate airmotor of this pump with combustible gas.
- Do not alter or modify any part of this equipment.
- Do not exceed the max. working pressure of the pump or of system components when performing adjustments/settings that cause changes of the operating pressure.
  Never exceed the permissible pressure of the lowest rated system component in the material dispensing system and/or air supply system.
- Do not operate pump before safety devices of the equipment is in place and fully functional.
  Note: When using mobile pumps/pump units, safety devices to be mounted directly to the pump. Mobile means that the air operated pump can be used at changing places of operation and/or the connecting point of the air supply to pump is not fixed.
- Prevent static sparking.
- Tighten all connections securely before using pump. Take special care to fluid connections of the material dispensing system. Splashed oil may cause injury and fire.
- Never attempt to pump flammable liquids (for example gasoline).
- Do not pump materials which are incompatible with wetted parts of the pump or system components.

Safety Instructions

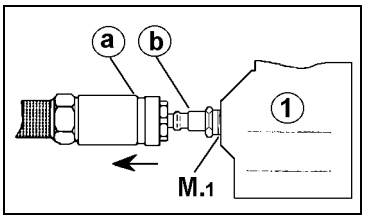
Warnings

- While operating or testing
  Hands away from material outlet and lower part (material inlet) of the pump.
  Never point the material outlet (for example outlet of flow guns, lubricating guns) at any part of the body or at other persons. Do not deflect material flow at outlet by hands.
- Shut pump off in the case of malfunction or changes in the behaviour of the pump/ equipment during operation.
- Do not attempt to repair or disassemble the equipment while pump/system is pressurized.
- Do not use non-original equipment spare parts.
- Do not permit maintenance and service works to persons not qualified to do.
- Always read and follow the safety instructions of the manufacturer of materials used for dispensing or cleaning/flushing the pump.
  Use protective clothing when prescribed.
- Always follow recommendations of the material manufacturer regarding use, compatibility and disposal of the material.

Operating Precautions

- Always heed safety instructions and warnings listed in this Operating Instructions Manual.
- When adding system components, use quality products that comply with the technical requirements regarding pressure and material compatibility; hoses must have the proper length.
- For installation of compressed air and material supply line, follow standard plumbing practice. They must be laid and fitted properly. Ensure that no connections are interchanged.
- Before operating the equipment, always make sure that safety devices are in place and operating properly.
- Do not exceed the working pressure of the equipment.
- Follow operating instructions when putting or setting-up equipment in operation.
- If the equipment is completely shut down for maintenance and repair work, the pump must be secured against inadvertent starting.
- Check all lines, hoses and screwed connections regularly for leaks and obvious damage. Inspection intervals depend on stress of the specific equipment.
  ▪ Repair damage immediately. Repairs by authorized personnel only.
- Check pump/pump unit regularly for proper operation and working conditions.
- In case of malfunction or damages: Immediately shut off pump (disconnect air coupler from pump).

Always disconnect air coupler from pump when pump sits idle for long periods of time (pump not being used) or before servicing (inspection, maintenance, repair) the pump/equipment. (See illustration).



1 Pump drive (airmotor)
M.1 Air inlet
a Air quick coupler
b Coupler nipple
Note: a & b to supplement by user.

- Report damages or malfunction of the equipment immediately to the competent authority/ person. Have any defects rectified immediately by qualified, authorized personnel.
- Observe the adjusting, maintenance and inspection activities and intervals set out in the operating instructions, including information on the replacement of parts/components. These activities must be executed by skilled personnel only.
- Pay attention to instructions concerning the execution of maintenance and repair!
- Before carrying out maintenance and repair works or any disassembly of the pump or system components (for example hose, swivel, control valve, etc.), ensure that air supply line to pump is disconnected. Perform pressure relief procedure to depressurize pump and components of fluid system (material dispensing system). If depressurizing is restricted by clogged material supply line/system components, very slowly loosen connectors cautiously to relieve the pressure. Wear safety glasses!
- Perform maintenance and repair safely; methods and tools to be adequate for carrying out the work.
- If replacing parts/components take care that replacement parts comply with requirements
- Use original spare parts only.
- On re-assembly of high pressure sections, do not interchange mistakenly connectors, hoses, etc. with those for compressed air lines.
- Always tighten any screwed connections that have been loosened during maintenance and repair.
  ▪ Adhere to stated torque specifications.
- Any safety devices removed for set-up, maintenance or repair purposes must be refitted and checked immediately upon completion of the maintenance and repair work.
- Ensure that all consumables and replaced parts are disposed of safely and with minimum environmental impact.

CAUTION

Use clean and moisture-free compressed air only to operate pump. Do not operate with air contaminated with materials not compatible with NBR seals.
Do not operate pump when out of material.

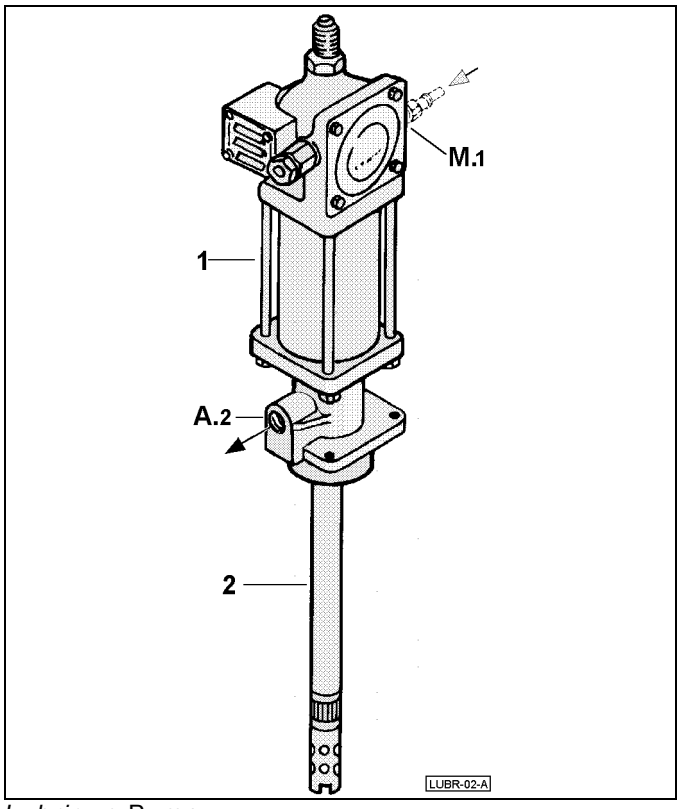
3. Specifications of the Product

LUBRIGUN PUMPS
Model No. 82050, No. 82054, No. 83513,
No. 82050-E575
piston pump, air operated
pressure ratio 50:1.

Manufacturer	Sales & Service
LINCOLN	Lincoln GmbH & Co. KG
St. Louis, Mo 63120-1578	Heinrich-Hertz-Str. 2-8
USA	D-69190 Walldorf

Contacts for inquiries and service:
⇒ See telephone- and Telefax number below

3.1 Designated Use



Lubrigun Pump

M.1 Air inlet
A.2 Material outlet
1 Pump drive (airmotor)
2 Pump tube (piston pump)

Pump drive & Pump tube are one unity.
Air quick-coupling for connecting pump drive not included in scope of supply.

Warning

Do not operate pump drive (airmotor) with combustible gas.

Always use compressed air only to operate airmotor of the pump.

LINCOLN *Lubrigun* Pumps are built in accordance with state-of-the-art standards and the recognized safety rules. Nevertheless, its use may constitute a risk to life and limb of the user or third parties, or cause damage to the equipment and to other material property.

Lubrigun Pumps, models with pressure ratio 50 : 1, are designed for pumping petroleum based lubricants; preferable for semi-fluid grease and common chassis grease not exceeding NLGI #2.

Using the equipment for purposes other than those mentioned above is considered contrary to its designated use. The manufacturer/supplier cannot be held liable for any damage resulting from such use. The risk of such misuse lies entirely with the user.

Operating the equipment within the limits of its designated use also involves observing the instructions set out in the operating manual and complying with the inspection and maintenance directives.

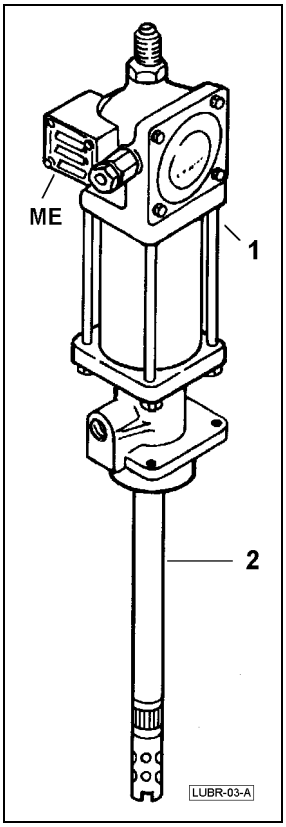
Commissioning and operating the equipment are permitted in the European Community only when the machine/machinery, which the Pump is intended to be used on, is in conformity with safety requirement according to EC directives for safety of machinery.

Contact LINCOLN prior to using the Pump in case of any questions regarding the appropriate use of the equipment. Refer to bottom line for postal address, phone and fax number.

Note

In case of pumping semi-fluid, non-fluid lubricants, the user has to take steps to allow the pump to take in the material to be pumped, for example by attaching a follower plate or by heating the material. Among other things, the pumpability of the material depends on the environmental conditions of the individual application.
An air pressure regulator is required by the user to adjust pump cycles and pressure to pump.
System components to operate the Pump individually depend on the specific requirement. Ask for assistance if required.

3.2 General Description



Lubrigun Pump

Pump Models:
No. 82050, No. 82054,
No. 83513, No. 82050-E575.
Pump models listed above are of same technical design. The models differ by length of the pump tube (**2**) only.

1 Pump drive (airmotor)
2 Pump tube (piston pump)
ME Air exhaust (muffler)
1 & 2 are one unity.

***Lubrigun* Pumps 50:1**
are air operated, double acting pumps with differential piston.
The pump discharges the material on “up“ and “down“ stroke to the outlet; material intake on “up“ stroke.
The pump transforms the incoming air pressure in a 50-times higher material delivery pressure.
The pump has a shovel-type foot valve. The shovel supports the intake of the material to be pumped by mechanical force; recommended application for pumping chassis grease.
For pumping fluid and flowable lubricants, this pump type can be optionally equipped with ball-type Foot Valve No. 61275-E.
The pump tube is equipped with a precisely fitted piston for appropriate use which is the pumping of lubricants.
The non-adherence of the designated use, for example pumping of materials not having lubricating properties may cause premature wear and damage to the bushing & plunger assembly of the pump tube.
Accessories
depend on specific requirement. Ask for quotation in case of requirement.
Air pressure regulator required for pump drive. Use 1/4“ (DN6) FRL-Air service unit (Filter, regulator, gauge, lubricator) if compressed air is not free from foreign particles and moisture.

3.3 Technical Data

Technical Data of *Lubrigun* pump models listed in section 3.2:

Technical Data of Pump		
Pump Drive:	Airmotor	
Stroke length	63,5 mm	2½“
Air cylinder-Ø	63,5 mm	2½“
Air consumption at 7 bar	4,2 $l_{(N)}$ /cycle	
Air pressure)[1]	min. 2,1 bar	max. 10 bar
Air inlet	¼“ NPTF female	
Pump	Differential plunger pump	
Pressure ratio	i = 50 : 1	
Max. output pressure)[2]	500 bar at pump outlet	
Discharge volume	5,7 cm^3 /cycle	
Delivery output Q_g	0,43 l/min at 75 cycles	
Max. pump cycles)[3]	120 cycles/minute	
Material outlet	¼“ NPTF female	
Pump tube		
Tube length	*see* 3.4 ‘Dimensions’	
Wetted part materials Soft part seals:	Steel, Ms, Cu, PA, NBR & Polyurethane	
(Materials of pump) Environmental temperature	TMIN - 34° C	TMAX + 93° C
(Material to be pumped) Operating temperature)[4]	TAMIN *(see remark)*	TAMAX + 60° C
Noise level at 8 bar air operating pressure	< 85 dB(A)	
Weight	*see* 3.4 ‘Dimensions’	

Underline: Cycle = “up“ and “down“ stroke of the pump.

Remarks

)[1] For operating pump with lower air pressure (< 2,1 bar), attach Spring No. 55231 and Screw No. 12834 to air valve mechanism of the airmotor.

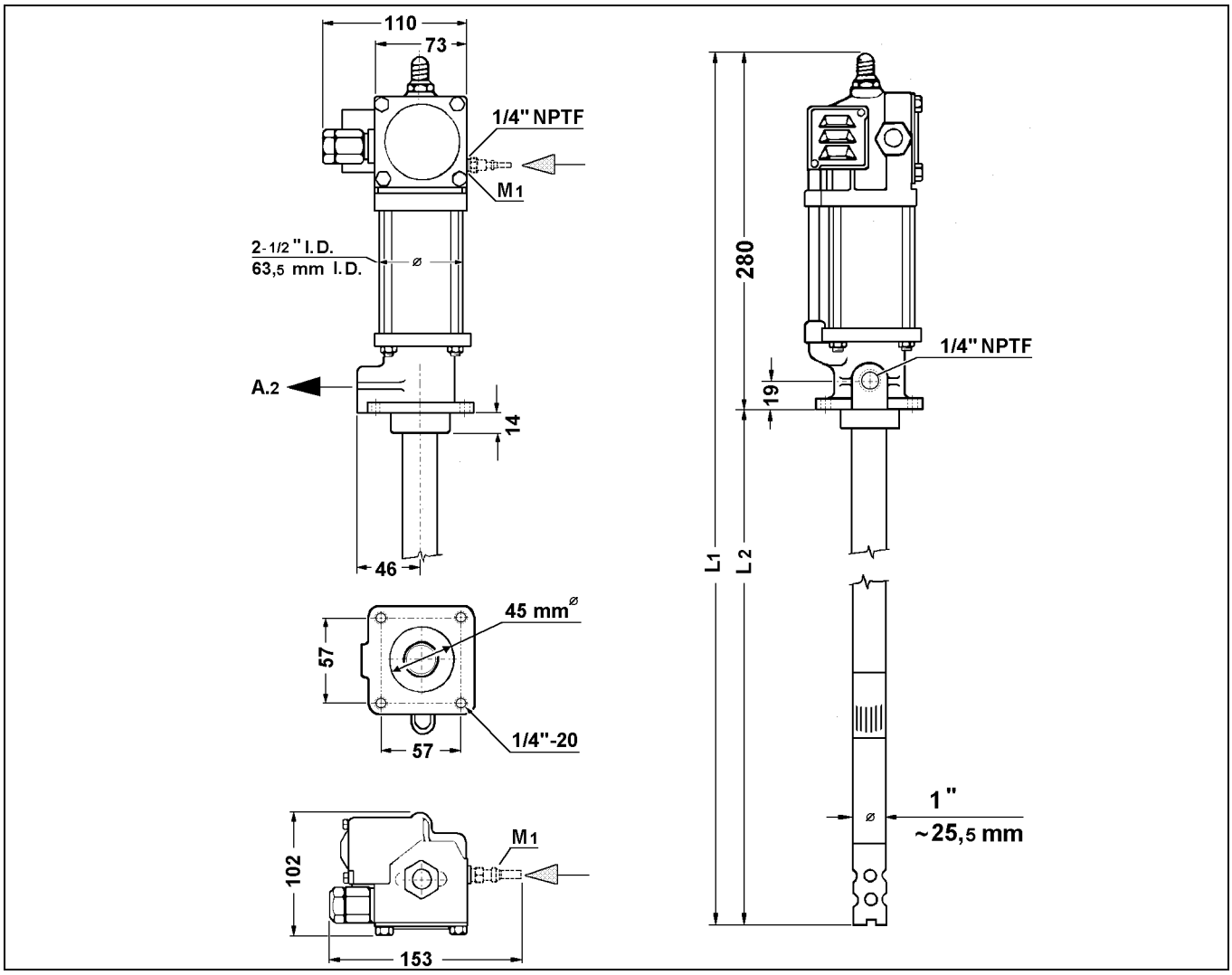
)[2] Max. delivery pressure at 10 bar air pressure.
Limit air pressure not to exceed the max. working pressure of the pump. When using system components that are rated at lower working pressure than this pump, then take pump pressure ratio of 50:1 into account; reduce and limit air pressure to pump accordingly.

)[3] Do not exceed 75 cycles/min for continuous operation. The pump cycles which can be achieved at normal operation may be less than indicated and depend on the material to be pumped and other parameters.
Control pressure and pump cycles using an air pressure regulator (by user). Always use the lowest pressure required to achieve the desired results. Higher pressures may cause pump packings to wear prematurely.

)[4] The temperature of the material to be pumped must be in a range that allows the material intake by the pump and shall not restrict the pumpability of the material.

Lubrigun Pumps No. 82050, No. 82054, No. 83513, No. 82050-E575, *Ser. J*

3.4 Dimensions



Note: The view mid, left illustrates the threaded mounting holes of the pump for fastening pump directly on top of a drum cover by four screws no. 50060.
Optional: Mounting kit no. 12643-E059 available for fastening pump by clamping the pump tube.
It permits adjustable dip length of the tube. Length L2 reduced by ~ 59 mm when using the mtg. kit.

M.1 Air inlet: ¼“ NPTF female connection at air valve casting
Optional: Coupler nipple No. 11659 for use with Air coupler No. 815

A.2 Material outlet: ¼“ NPTF female connection at pump outlet body

Pump Model No.	Dimensions		Connection		Weight
	L1	L2	Air inlet	Material outlet	
82050	975 mm	695 mm	¼“ NPTF female	¼“ NPTF female	6,8 kg
82054	1142 mm	862 mm	¼“ NPTF female	¼“ NPTF female	7,7 kg
83513	760 mm	480 mm	¼“ NPTF female	¼“ NPTF female	5,9 kg
82050-E575	855 mm	575 mm	¼“ NPTF female	¼“ NPTF female	6,3 kg

3.5 Operation Guidance. Air operated *Lubrigun* Pumps 50 : 1

Note

Connections of the pump

♦ Compressed air
Air inlet in head of airmotor.
Female thread ¼“ NPTF

♦ Material to be pumped
Material outlet in outlet casting of the pump.
Female thread ¼“ NPTF

To operate pump the manufacturer/supplier of the complete system has to supplement the pump by air and fluid system components being required for the individual application.
Ask for standard accessories in case of requirement.

3.5.1 Air supply

Air flow

Air lines and components must have an adequate size (inside dia.) to allow an unrestricted air flow to pump. They must not cause pressure drop during normal operation on increase of pump cycles.

For information about air consumption

⇒ Refer to 3.3 ‘Technical Data’

Air pressure

The minimum air pressure to operate pump is 2,1 bar. The air pressure being required depends on the individual application.
The max. air pressure permitted to operate the pump can occasionally be lower than the max. working pressure of the airmotor. The max. air operating pressure depends amongst others on the fluid system components. Always pay attention to the pressure ratio of the pump which transforms the air pressure in a 50-times higher fluid pressure.

⇒ Refer to 3.3 ‘Technical Data’

⇒ Refer to specifications of system components.

3.5.2 Pneumatic system components

The working pressure of pneumatic components must comply with the pressure (primary / secondary air pressure) applied to the equipment.

The nominal size (I. D.) of air pressure regulator, FRL-Air service unit, valves, couplings, etc. shall normally correspond to the size of the inlet to the airmotor which is 1/4“ (I.D. 6 mm).
Check if components are designed for air flow required for the appropriate use!

The connecting point of the air supply line shall be equipped with an air shut-off valve.

For each pump/pump unit following items are required

- One Air pressure regulator with gauge
- One Air connecting hose
  of sufficient length
- One Air quick-coupler

If the compressed air is not clean or is not free from moisture, use

- One Air filter

We recommend to use a FRL-Air service unit (Filter, regulator, gauge and lubricator).

If the primary air pressure is higher than the max. working pressure (air) of the pump or the output pressure resulting from the pump pressure ratio exceeds the max. permissible fluid pressure of the equipment, you also need:

- One Air pressure reducer and safety device

Important note: When using pumps/pump units as mobile equipment, safety devices must be mounted directly to the pump. Mobile equipment means that the pump can be used at different places of operation and/or the connecting point of the air supply to pump is not fixed.

- Low level device (Pump shut-off device)

should be used for pumps/pump units in automated applications or when pump is not permanently monitored by the operator. *Shut-off device prevents ‘run-away’ of pump when out of material and avoids premature wear and/or damage.*
Additional pneumatic components being required to operate pump are not listed and depend on the individual application.

3.5.3 Material supply line

Take viscosity or NLGI-class of the material to be pumped and the lengths of the material line into account when selecting nominal size (I.D.) of supply line and system components.
All system components have to comply with the specifications concerning max. working pressure and the compatibility with the material to be pumped.
Use control valve (gun) with heavy duty nozzle designed for power operated lubricating devices when operating pump as lubricator.
We recommend to use LINCOLN control valve no. 740.

3.5.4 Optional pump accessories

General

Install pump securely upright for operation. Use for example drum cover, and additionally mounting devices if required.

- One Drum Cover
  (for centering pump on top of barrel)

Drum cover	for container-Ø (O.D.)
No. 81523-E025	330-370 mm
No. 81523-E050	380-435 mm
No. 81523-E200	570-600 mm

If the dip length of the pump tube must be adjusted to the height of the container, then attach to drum cover: One No. 12643-E059 mounting kit.

For pumping non-fluid lubricants, use:

- One Follower plate for grease

Follower plate	for container-Ø (I.D.)
No. 83366-E025	310-330 mm
No. 83366-E050	375-400 mm
No. 990004-E	350-360 mm
No. 83366-E200	570-575 mm

Information about other system components on request.

Operation Guidance. Air operated *Lubrigun* Pumps 50 : 1

3.6 Environment conditions

- Stationary *Lubrigun* Pumps / Pump units are designed for use in closed areas protecting the equipment against weather; in the case of mobile equipment being used outdoors, the equipment must be stored safely protected.
  Contamination of the material to be pumped must be avoided during operation as well as storage.
- Ambient temperature

⇒ Refer to 'Technical Data' of the pump.
If the equipment is operated at ambient temperatures lower than room temperature, it must be ensured that pumpability of the material is not restricted. That also concerns the storage of material.
The user must take care for pumpability of the material.

3.7 Space required

- The space being required individually depends on the pump assembly and the dimensions of the material container/drum.

Note: On estimating the space requirement or on installation of the pump/pump unit also take into consideration:

– Transport of material containers
  Allow unrestricted supply, putting-up and removal of material containers.
– Controls
  Allow access to controls of the pump (for example shut-off valves, quick-couplings, regulators, shut-off devices, etc.) without hindrance.
– Connecting points of the pump
  Allow access to connecting hoses for compressed air and material.
  Connecting hoses to be freely movable without obstacles.
– Removal of the pump

Allow sufficient clearance for lifting the pump off of the container (for lifting manually or by pulley or by pneumatic lift).

3.8 Location

Locate pump / pump unit as close as possible to the outlet for the material consumer. Select a place that allows a favourable pipe run (short and straight) of the material supply line.

Pump and drum/container must be rigidly installed upright.

The location of the pump/pump unit must have:

- Facility for compressed air supply
  – Air supply line for connecting pump drive
  ⇒ Refer to 'Technical Data' of the pump; also see previous page, sections 'Air supply' and 'Pneumatic system components'.
- The equipment must be easily accessible.
  Plan sufficient room for operating and servicing pump/pump unit and handling of material containers.
- Locate equipment at a light place.
  Name plates, instructions and warnings to be legible.
  Operating and service personnel must be able to examine pump/pump unit in order to keep equipment in good working conditions and to make out any malfunction or defects in time.
- Location to have plane and firm ground
  If equipment mounted on mobile platform, the pump, drum cover and container must be securely fastened.
- Location to have flat horizontal surface.

Note

Pay attention to owner´s directives and regulations of authority!

When using materials which are hazardous to environment adhere to prevailing national regulations for safe location and attachments.

4. Erection & Installation

4.1 Safety Instructions

Warning

Do not operate pneumatic pump drive with combustible gas.
Do not exceed the stated working pressure of the pump.

- Visually check pump for proper condition on unpacking. Claim immediately in case of any damage.
- Installation and initial operation of the equipment shall be carried out by skilled, qualified personnel only.

4.2 Tools required

No special tools required to install the pump.

4.3 Erection of Pump

Locate pump at convenient place.
⇒ Refer to section 'Guidance for operation' for general information.
The outlet body of the pump has four threaded holes for fastening to drum cover. The pump can be also fastened to cover using a mounting kit.
⇒ See section 'Dimensions' of the pump.
Fasteners not included, to be added at site by user.
Securely fasten pump to avoid vibration. Rigidly install pump on a firm and plane horizontal base.

4.4 Installation

Note: Pumps are factory tested with light oil and some of it is left in the pump tube to protect pump parts during storage and transportation.
If required, before using flush pump to prevent contamination of material to be pumped.

Warning

Do not use flammable liquids for flushing/cleaning.

CAUTION Do not use fluids not compatible with the wetted parts of the pump tube.

Do not use fluids not compatible with the wetted parts of the pump tube.
⇒ See 3.3 'Technical Data'.
Note
Section 3.5 'Operation guidance' contains general information about components required for air operated *Lubrigun* Pumps 50:1, notes concerning material and air lines as well as notes concerning the location for erecting.
Remark: A material pumping system can consist of a variety of individual system components and for that reason, information and instructions for erection and installation:
⇒ See Operating Instructions of the manufacturer/ supplier of the complete material dispensing system.

General information for installation

Pump / Pump unit

- Putting up
  ⇒ See section 'Operation guidance', informing about place, room and location.

– Locate pump at convenient place.
– Install pump and container on a firm and plane horizontal base.
– Securely fasten pump and container preventing to tilt; anchor equipment to base if necessary.

While opening material container or container is open:
– Avoid contamination of the material to be pumped.

- Pump with drum cover & follower plate.

– Place drum at place selected.
– Remove head from the drum.
– Put follower centrally into drum; guide of center hole to show upwards. Push follower plate manually onto material in order to expel all air underneath the follower.
– Fasten pump on drum cover.
– Lift pump and manually guide pump tube through center hole of follower plate down until drum cover contacts rim of the drum.

After drum cover is located on top of the drum:
– Adjust (center) drum cover on the drum if required and then fasten drum cover to drum by screws.

Supply lines

On installation, note:
– Points for connecting pump to supply line should be close to the pump assembly.
– Shut-off valves, controls, etc. must be easily accessible.
– Connecting hoses should be movable without obstacles.

- Properly assemble air line and pneumatic components being required to control and monitor the pump. Not yet couple air hose to pump drive.

Air lines must be free from dirt and scale.
– Blow foreign particles off before installing lines.

- Properly assemble material line and system components, for example safety device, shut-off valves, etc.. High pressure quarter-turn valve is normally used in connecting line of pump.

– Screw high pressure connecting hose to material outlet of pump.

Securely fasten lines and components. High pressure!

- Ground pump/equipment according to electr. rules and practice.

5. Operation

Assembling, inspection and maintenance works shall be carried out by skilled, qualified personnel only.

Note

The pump is only one component of a variety of individual system components used for transfer and dispensing of materials.

For that reason, the section 'Operation' contains only general information to operate Lubrigun Pumps.

The pump drive (airmotor) shall be connected to air supply by an air quick coupling which is required to manually shut off the pump.

See section 3.5 for information regarding devices to control and monitor pump for operation.

Requirement as well as specifications of such devices depend on the individual application and system.

At least are required by user :

Shut-off valves for compressed air and material.

Air pressure regulator for the pump drive.

⇒ For details, see operating and safety instructions of manufacturer/supplier of the complete system.

Warning

Prevent static sparking by grounding pump/equipment.

Do not operate pneumatic pump drive with combustible gas.

Do not exceed the stated working pressure of the pump and other system components.

5.1 Setting-up for operation

After erection of pump and installation of lines and components for control and operation are completed

- Perform function check

– Pressure limiting and safety device.

Pressure limiting and safety devices are not required if the primary air pressure as well as the pump output pressure achieved by the pressure ratio of the pump do not exceed the max. working pressure of the pump and system components.

For max. air pressure to pump and pressure ratio of the pump

⇒ See 3.3 'Technical Data'

Setting of pressure limiting and safety device depends on the lowest rated component (for air as well as material) used in the system.

– Air pressure regulator and gauge.

Turning the adjusting knob of the pressure regulator clockwise increases the secondary air pressure; turning it counter-clockwise decreases the pressure.

Check regulator and adjust secondary pressure to 'Zero' reading.

– Low level shut-off device.

Setting must assure that pump drive stops and pump is shut off when container is empty before pump is out of material and 'run-away' condition occurs. Re-adjust setting, if necessary, after the first container is empty.

- Fill and adjust air lubricator.

– Fill reservoir of lubricator with low viscosity, high quality machine oil SAE 10.

– Later, when pump is operating, set adjustment to ~ 1 drop of oil per hour.

Remark: For details concerning filling and adjustments see instructions of the lubricator model used.

5.2 Initial operation.

Assembly, inspection and maintenance works shall be carried out by skilled, qualified personnel only.

Warning

Do not operate pneumatic pump drive with combustible gas.

Do not exceed the stated working pressure of the pump and other system components.

Hands away from lower part of the pump (material inlet) and all outlets for the material.

CAUTION

Do not operate pump exceeding 120 pump cycles per minute.

Use clean and moisture-free compressed air only to operate pump. Do not operate with air contaminated with materials not compatible with NBR seals.

Prior to initial operation

Regarding protecting oil left in the pump tube refer to note in section 'Installation'.

On initial operation

– pump drive must operate slowly in order to allow pump to intake the material and to prime;

– material lines must be filled and all air must be pushed out.

⇒ See Operating and Safety Instructions of the manufacturer / supplier of the complete material dispensing system.

<u>Before operating pump</u>

- If using a follower plate (when pumping non-fluid materials):

– Follower to be seated onto material without trapped air beneath follower plate.

- Air pressure for operating pump drive must be set to 'Zero' at air pressure regulator.
- Shut-off valve(s) of the material supply line must be turned to position 'open' to allow air to be purged from the system during the initial filling.

– Assistant persons with collecting can must monitor the material outlet(s) and close the outlet (quarter-turn valve, flow gun, etc.) when material flows without air pockets.

Safety note: Wear safety glasses!

Operation

Initial Operation

Pump Priming

The pump takes in (sucks) the material on up-stroke and discharges it under pressure to the pump outlet on up- and down-stroke. As the pump inlet is not yet filled with material, the pump must cycle slowly in the beginning in order to prime.

- Couple air connecting hose for pump drive by air quick-coupling to airmotor.
- Slowly regulate the secondary air pressure (air pressure operating the airmotor) > 'Zero' using the air pressure regulator.

– When pump drive starts to operate do not increase air pressure to pump.
  If air pressure is too high and pump fails to prime, immediately reduce air pressure to pump step by step and allow pump to cycle slowly.

- Allow pump to cycle very slowly until pumping material fills out pump and lines.

– If pump stalls (because of friction) before all material lines are filled, cautiously increase air pressure.

- Close outlet of material line when all air is pushed out and material flows without air pockets.

The pump should stall against pressure when material outlet(s) are closed and the system is properly filled with material.

After priming and filling procedure is completed, the setting of the required pressure follows. On adjusting the air operating pressure by air pressure regulator, the working pressure rating of the air and material line system components must be regarded.

According to the pressure ratio of the pump, the air pressure will be transformed to a 50-times higher fluid pressure.

⇒ See Operating and Safety Instructions of the manufacturer / supplier of the complete material dispensing system.

⇒ See 3.3 'Technical Data' of pump.

On adjusting the air operating pressure observe:

- Always use the lowest pressure to achieve the desired results and never exceed the permissible max. working pressure.
- Reduce pressure

– if pump runs evenly but continuously exceeds 120 cycles per minute.

– if pump accelerates or cycles erratically, not allowing the material to follow and to be taken in by the pump.

In case of malfunction see checklist and notes in section 'Trouble Shooting'.

If applicable: During initial operation check operation of low level control (pump shut-off device) in time when material in the container is running low. Re-adjust level control if device should not operate just in time.

CAUTION Do not allow pump to operate when out of material. Immediately shut off air to pump!

5.3 Standard operation.

Operate pump / equipment by qualified, instructed personnel only.

Warning

Do not exceed the stated working pressure of the airmotor/pump and other system components.
Hands away from lower part of the pump (material inlet) and all outlets for the material.
Never attempt to disassemble pump/ equipment while system (pump and system components) is pressurized.

Shut pump off in case of malfunction/damages or changes in the behaviour of the pump during operation.

CAUTION

When using pump for applications, for example for filling purposes, which require longer periods of time of continuous pump operation, do not exceed pump cycle speed of 75 cycles/min.

Shut pump immediately off when container is empty before pump is out of material and 'run-away' condition occurs.

Operation

Prior to operation (at least 1 x per working shift):

- Check pump / equipment visually for damages and abnormal shape.

The operating of pump / equipment depends on the individual design of the material dispensing system.

⇒ See Operating and Safety Instructions of the manufacturer / supplier of the complete material dispensing system.

Pump / airmotor are normally under pressure during the operation mode. The pump starts when the material outlet (shut-off valve, flow gun, etc.) is opened and discharges the material. The material flows under pressure from the outlet opened.

- Always disconnect air coupler from pump when pump sits idle for long periods of time. Also perform pressure relief procedure when equipment is shut down. Depressurize material system by opening end of line shut-off valve/flow gun and drain material into a collecting can.
- In case of malfunction during operation, shut pump off.

⇒ See checklist and notes in section 'Trouble Shooting'.

- When container is empty, immediately shut pump off. Do not allow 'run-away' of pump!

– Disconnect air connecting hose from pump drive.

– Change material reservoir or refill.
  Procedure and handling depend on the individual design of the equipment.

– If using a follower plate, take care that follower is seated onto the pumping material and all air is expelled underneath the follower plate.

– Reduce air operating pressure to pump by air pressure regulator before coupling air connecting hose to pump drive.

Operation

After change of reservoir or after malfunction, for example if pump sucked air:

⇒ See instructions in section 5.2 'Initial Operation'.

The required air pressure to pump can be set again thus continuing standard operation after change of the material reservoir, when pump priming is completed.

Putting out of operation

If using pumping materials that may alter when equipment is shut-down and pump is not used for longer periods of time, flush the pump (pump tube). In some cases it may become necessary to disassemble and clean the pump tube before storage.

CAUTION

Flush pump again with mineral oil before phase out / storage if a cleaning material is used that can cause corrosion after flushing.

5.4 Inspection and maintenance

Inspection and maintenance works shall be carried out by skilled, qualified personnel only.

Warning.

Hands away from lower part of the pump (material inlet) and all outlets for the material.

Never attempt to disassemble pump / equipment while system (pump and system components) is pressurized.

– If using a FRL-Air service unit:

Periodically as well as in time, open drain cock of air filter and blow-down bowl from moisture and dirt.

Periodically as well as in time, refill reservoir of air lubricator.

If an air line lubricator is not used, perform manual lubrication at least 1 x per day prior to operation of pump. Before coupling the air quick-coupling to air motor inject some drops of light mineral oil into the air coupler nipple using an oiler/oil can.

– Check screwed connections and hoses of material supply system regularly for fastening and leaks. Replace damaged hoses immediately.

– Keep pump neat and clean. Keep stickers legible. Visually check pump for proper shape and completeness before operation.

– Lubricate air valve mechanism of airmotor at least 1 x per year.

⇒ See illustration and instructions in section 6. 'Repair'.

5.5 Preventative maintenance

Preventative maintenance by replacing wear parts (for example seals and valves) in time is recommended. Service life of parts depends on the material pumped and working strains of the equipment.

- It is recommended to disassemble the air valve mechanism of the pump drive 1 x per year. Replace parts found worn.

– Lubricate air valve mechanism on assembly.

⇒ See illustration and instructions in section 6. 'Repair'.

Preventative maintenance works and repairs shall be carried out by qualified, trained personnel only.

If the user should not have personnel to perform such works, please contact
Lincoln GmbH & Co. KG, Service department.

⇒ Address / telephone see foot line.

5.6 Trouble shooting

Repair works must be performed by qualified, trained personnel only if any repair required.

Warning

- Never attempt to disassemble pump while airmotor, pump tube and fluid system are pressurized.
- Hands away from lower part of the pump (material inlet) when pump is in operation mode.
- Do not exceed the max. working of pump/equipment when performing adjustments/settings that cause changes of the operating pressure.

If working problems can only be eliminated by repair of the pump:

– Shut off pump immediately for repair.

If overpressurizing of the pump/equipment is believed to have occurred, return pump for inspection and repair. Contact Lincoln GmbH & Co. KG.

⇒ Address / telephone see foot line.

CAUTION

If pump accelerates to abnormal high frequency of pump cycles, for example when pump is cavitating, immediately shut off pump.

'Checklist' for possible causes of malfunction and solution:

⇒ See next page.

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5.6 Troubleshooting - Check List -

Problem	Possible Cause	Solution
Pump does not operate. Airmotor does not start operating.	Air supply is shut off.	Check if main air supply is shut off; if not, check air connecting line to Pump for breaks/disconnection of air supply and clear air flow obstructions.
	Air supply is inadequate. (Air pressure too low).	Cautiously increase air pressure to pump by air pressure regulator if pressure too low.
	Trip Rod **(16)** broken and/or Toggle Plate **(74)** broken.	Shut off pump. Perform pressure relief procedure. Check Airmotor. Dis-assemble. Check parts and replace if damaged.
	Foreign object clogging the pump tube.	Shut off pump. Perform pressure relief procedure. Disassemble pump tube. Clean and inspect check valves of pump tube. Replace parts if damaged.
	Obstructed material output. (For example the material control valve is clogged)	Shut off pump. Perform pressure relief procedure. Disassemble and clean material line components to remove restrictions.
Air seepage from air exhaust while pump is not operating.	Valve Slide & Seat **(65)** / Gasket **(64)** of airmotor damaged.	Shut off pump. Perform pressure relief procedure. Remove parts for inspection and replace if damaged.
	Sealing **(22 & 24)** damaged. Seepage between air cylinder and airmotor head.	Shut off pump. Perform pressure relief procedure. Disassemble airmotor and replace parts.
Erratic or accelerated operation of the pump. Pump cycles increase but material output unchanged.	Material too 'heavy' or pump cycles too fast for intake of material. Increase of viscosity of the material caused for example by temperature drop.	Reduce air pressure to pump. Heat material.
	Insufficient material supply. Pump sucks air because of low level of material.	Shut off pump. Refill or change material container.
Continuous operation of pump when not in normal use (outlet / material control valve closed)	Material container empty on continuous acceleration of pump cycles.	Shut off pump. Refill or change material container.
	Material supply line broken/leaking.	Shut off pump. Check and tighten line.
	Inlet Check Valve **(51 & 52)** of pump tube inlet damaged.	Shut off pump. Perform pressure relief procedure. Remove check valve and inspect; replace if damaged.
Loss of pressure and volume. Pump does not stop operating after material outlet is closed.	Priming check seat **(51 & 52)** in lower part of pump tube or check **(43 & 46)** seat in plunger are worn.	Shut off pump. Perform pressure relief procedure. Disassemble pump tube and replace worn check parts.
	Plunger rod **(47)** and packing **(49)** in lower part of pump tube are damaged or worn.	Shut off pump. Perform pressure relief procedure. Disassemble pump tube and check. Replace packing or damaged plunger rod.
Material leaking from weep hole at bottom of Outlet Casting **(14)**.	Seals of gland in outlet casting are worn.	Shut off pump. Perform pressure relief procedure. Disassemble pump. Check if Gland Nut **(27)** is tight. Remove Gland Nut and parts. Replace O-Ring **(32)**, U-Cup Packing **(33),** Packing **(29)** & Gasket **(30)**. Check Piston Rod **(11)** and replace if worn.
Excessive amount of air in material (lubricant) or excessive amount of lubricant coming from air exhaust.	Seals of gland in outlet casting are worn.	Solution as described above

Note: All codes indicated in bold-type bracket **( )** refer to item numbers listed on service parts dwg. and service parts list of the pump models.

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6. Repair

Repairs must be carried out by skilled, trained personnel only.

WARNING

Do not attempt to disassemble the pump while airmotor, pump tube and other equipment components are pressurized.
Do not flush or clean pump/pump tube with flammable fluids.
Hands away from lower part (material inlet) of the pump while operating or testing the pump.

- After shutting off the pump, before disassembling always relieve drive (airmotor), pump tube and other system components from pressure.

– Disconnect air coupler from the pump, allowing the compressed air to exhaust completely from the airmotor.

– Turn valve (Shut-off valve / flow gun) to position 'open' at end of the material line and drain the dispensing material into a collecting can.
Warning: Dispensing material is pressurized.
Always use a container for collecting drained material.

– Shut material valve off when material line is depressurized and material stops bleeding.

– After pressure relief procedure is completed, cautiously loosen connector of material supply line at pump outlet; remove material line (connecting hose) from pump.

6.1 Tools required

Hex keys and Hex. wrenches with inch-measures are required. Furthermore pliers, screw drivers and other standard tools of a workshop are required for the disassembly of the pump.

6.2 Disassembly instructions

The disassembly instructions are designated for service personnel only with special knowledge and experience of hydraulic and pneumatic equipment.

Attention: Never make any modifications! Use original spare parts only. See service parts list.

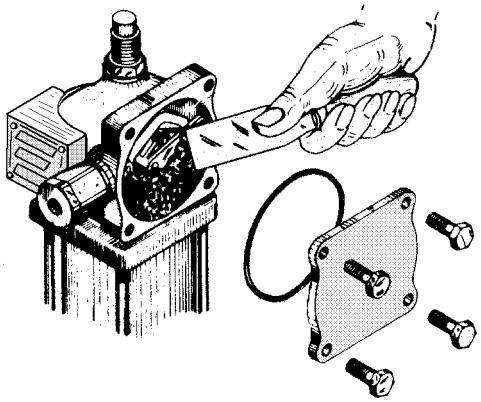
Collect dispensing material. Ensure that all consumables are disposed of safely according to the regulations of the authorities after repair.

Note: All codes indicated in bold-type bracket **( )** refer to item numbers listed on service parts dwg. and service parts list.

Adhere to stated torque specifications on re-assembly:

(21) Valve cover screw	1/2" hex. hd	10,5-11	Nm
(25) Trip rod packing nut	3/4" hex. hd.	13,6-20,3	Nm
(57) Hex. socket screw	5/32" hex.	3,4-4,4	Nm
(71) Hex. socket screw	5/32" hex.	3,4-4,4	Nm

Maintenance of the Air Valve Mechanism



Greasing of air valve mechanism

Lubricate air valve mechanism located inside of the Air Valve Casting **(4)** at least once a year with grease.
Use ~ 45 cm^3 N.L.G.I. No. 1 (light grade) water repellent grease for lubrication. Replace O-Ring **(20)**.

a) Disconnect air coupler from the pump. Turn valve to position 'open' at end of the material line and drain the material into a collecting can.
b) After pressure relief procedure is completed, remove the four Valve Cover Screws **(21)**, Cover **(72)** and O-Ring **(20)** from Air Valve Casting of the airmotor.
c) Remove old grease. *Wear safety glasses!* Use air blow gun to remove any chips or foreign particles.
d) Use spatula, as illustrated, to pack also cavity behind the Toggle Plate with grease.
e) Check if O-Ring is correctly seated before re-assembling the Cover.
f) Fasten the four 1/2" hex. head Screws **(21)** of the Cover with torque of 10,5-11 Nm.

Remark: On repair/overhaul and disassembly of the airmotor head (disassembly of pump and pump parts), carefully clean parts including the air valve casting before re-assembly and greasing.

Disassembly of pump.

After pressure relief procedure is performed and pump is removed for service, clamp pump by a vise at outlet body.

1. Remove Valve Cap **(1)** from Air Valve Casting **(4)**; remove Valve Cap Gasket **(3)**.
2. Remove Trip Rod Pin **(2)** and Trip Rod Collar **(19)**.
3. Unscrew Tie Rod Nuts **(75)** from the four Tie Rods **(63)**.
4. Lift Air Valve Casting **(4)** manually a little off from Air Cylinder **(13)** until Trip Rod is exposed and cautiously grip (do not damage rod) Trip Rod **(16)** in front of the Trip Rod Packing Nut **(25)**; unscrew Trip Sleeve **(5)** from end of the Trip Rod **(16)**.

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Disassembly of Pump. *(continuation)*

5. Lift Air Valve Casting **(4)** completely off of Air Cylinder after removal of Trip Sleeve **(5)**.
6. For removal of Muffler **(55)**, *see dwg. 3.*
7. Remove Air Cylinder Gasket **(26)** from Air Valve Casting **(4)** and unscrew the four Tie Rods **(63)**.
8. Remove Air Passage Tube **(12)** and remove O-Rings **(6)** from both ends of that tube.
9. Manually lift upward and remove Air Cylinder **(13)**.
10. Remove Air Cylinder Gasket **(26)** from Outlet Body **(14)**.
11. Loosen Packing Cap **(58)** a little and unscrew Packing Nut **(61)** from Air Valve Casting **(4)**.
12. Remove Packing Nut Gasket **(62)**; disassemble Packing Nut **(61)** and remove parts **(58-60)**.
13. Unscrew the four Valve Cover Screws **(21)** and remove Cover **(72)** and O-Ring **(20)** from Air Valve Casting **(4)**.
14. Unscrew the four Hex. Socket Screws **(71)** inside the Air Valve Casting **(4)** and remove Toggle Plate **(74)**, Trip Shoe **(73)** and Trip Sleeve **(5)**.
15. Unscrew the four Hex. Socket Screws **(70)** inside the Air Valve Casting **(4)** and remove four Springs **(69)**, Valve Guide Plate **(66)** incl. **(67** & **68)** as well as Valve Slide & Seat (Valve incl. Slide Valve Gasket) **(65)**. Remove parts **(64-68)** from Valve Guide Plate.
16. Unscrew Trip Rod Packing Nut **(25)** from Air Valve Casting **(4)** and remove Gasket **(22)**, Packing Washer **(23)** and Trip Rod Packing **(24)**.
17. Remove Priming Tube **(54)** from Bushing Extension **(41)**.
18. Manually push the air piston down to the Gland Packing Nut **(27)** and manually extend Plunger Rod **(47)** from the bushing extension of the pump tube for access to Check Seat **(46)** and Priming Plunger **(53)**.
19. Hold Check Seat **(46)** in place by placing on an awl through the small opening and unscrew Priming Plunger **(53)** by a wrench; if unscrewed together with Plunger Rod **(47)** then disassemble and remove the two parts later.
20. Take off Bushing Extension **(41)** and parts **(47-53)** and remove latter parts from the Bushing Extension.
21. Take (screwing) the check valve parts **(48-52)** off from the Plunger Rod **(47)**.
22. Disassemble the parts **(48, 49, 50, 51 & 52)** of the foot valve.
23. Unscrew Priming Plunger **(53)** from Plunger Rod **(47)** if not yet disassembled.
24. Unscrew Pump Tube **(36)** from the Outlet Body **(14)** and remove it together with the bushing **(***part of* **44)** by pulling it away from the plunger and extension rod.
25. Remove Pump Tube Gasket **(15)** from Outlet Body **(14)**.
26. Remove lower parts, Plunger Adapter, Piston **(***part of* **44),** etc.; disconnect (unscrew) lower parts from Piston Rod at Coupling Nut **(38)**.
27. Unscrew Piston Rod **(35)** from Piston Rod Connector **(17)** and remove Gasket **(18).**
28. Pull Trip Rod **(16)** out of the Piston Rod Connector **(17)**.
29. Unscrew Piston Rod Connector **(17)** from Airmotor Piston Rod **(11)**.
30. Unscrew Air Piston Nut **(7)** from Air Piston Bolt **(10)** and remove the two Air Piston Washers **(8)** and the Air Piston Packing **(9)**.
31. Loosen Gland Packing Nut **(27)** a little using a hex. wrench and pull (screwing) Airmotor Piston Rod **(11)** manually out from the Gland of the Outlet Body **(14)**.
32. Unscrew Gland Packing Nut **(27)** from Outlet Body **(14)** and remove all Gland Parts **(28-34)**.
33. Unscrew Bushing (*part of* **44)** from Pump Tube **(36)** and remove Gaskets **(40)**.
34. Unscrew Plunger Adapter **(39)** and Check Seat **(46)** from the Plunger **(***part of* **44)** and remove Ball **(43)** as well as Ball Stop **(42)** from the two ends.

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Repair

Replace seals.
Clean and inspect parts.
Visually inspect the surface of all valves, check balls, cylinder, piston as well as plungers in particular!
Replace all parts that appear to be damaged or worn.
Generally replace all gaskets, O-rings and packings after disassembly.
Replace damaged and worn parts. It is recommended to replace all wear parts on complete overhaul of the pump.
Use all parts / soft parts contained in Repair Kits.
Refer to service parts list for Kits and other replacement parts..

Assembly

To re-assemble pump, reverse disassembly procedure.

Refer to notes on service parts drawing,
regarding torque specifications of fasteners
regarding use of fluid gasket eliminator

Before assembly/re-assembly, all parts must be clean, especially Air Valve Casting **(4)**.

Note:

- Use new seals when reassembling.
- Lubricate soft part seals and mechanically stressed parts when reassembling.
- Start all fasteners by hand to avoid stripping threads when reassembling.
- Do not damage seals. Check if correctly seated before fastening components.

Thread Piston Rod **(11)** through gland packings when assembling pump.

Thread Trip Rod Packing **(24)** over the threaded section of the Trip Rod **(16)**.

Insert Slide Valve Gasket **(64)** with plane side in air valve casting; the other side being convex at the passage holes must show to the Valve Plate.
When replacing the gasket be sure to use one of the same thickness as that being replaced!

- Before tightening the four hex. Socket Screws **(70)**, align Valve Gasket **(64)**, Valve Plate and Air Valve Casting by placing a rod through the center hole.
- Lubricate air valve mechanism in the Air Valve Casting!

⇒ Refer to illustration & instructions in section 6.2.

- Test pump after re-assembly is completed, before releasing pump for normal operation!

For instructions regarding taking pump in operation and pump priming
⇒ Refer to section 5 of the manual.

Heed warnings and safety instructions.

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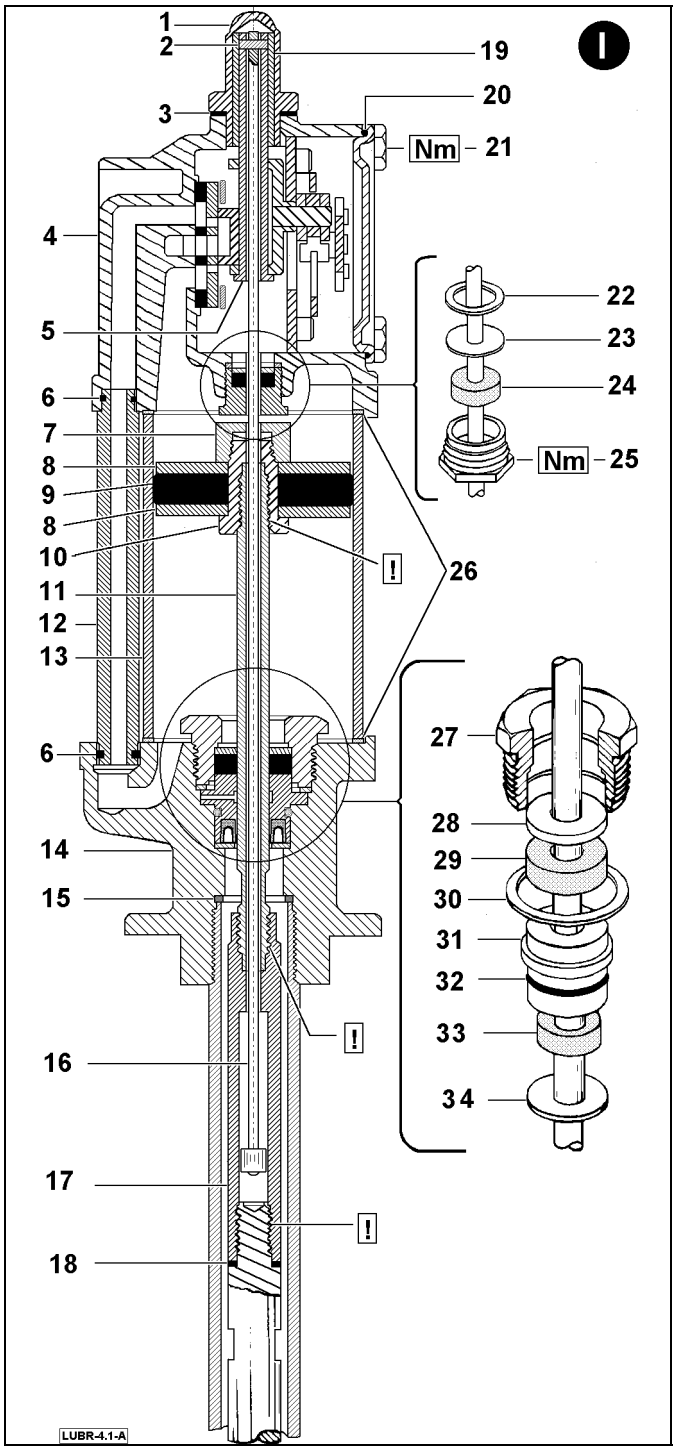
Service Parts Drawing *1 of 3*



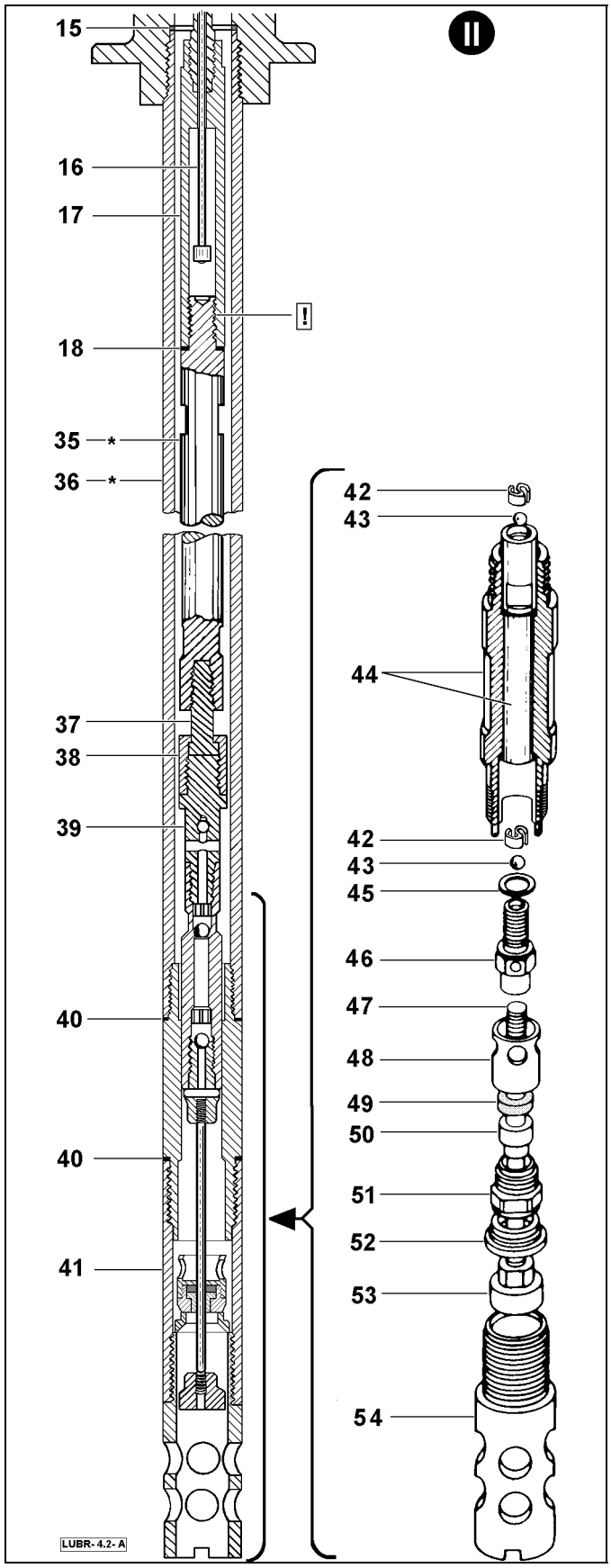
Important on re-assembly

Item **21**	1/2“ hex. head	torque to 10,5-11	Nm
Item **25**	3/4“ hex. head	torque to 13,6-20,3	Nm

! Use Loctite #510 Gasket Eliminator on threads of **(11)** and **(35)**

* Item **35** and item **36** of pump models differ by length only.

Service Parts Drawing ***2*** *of 3*



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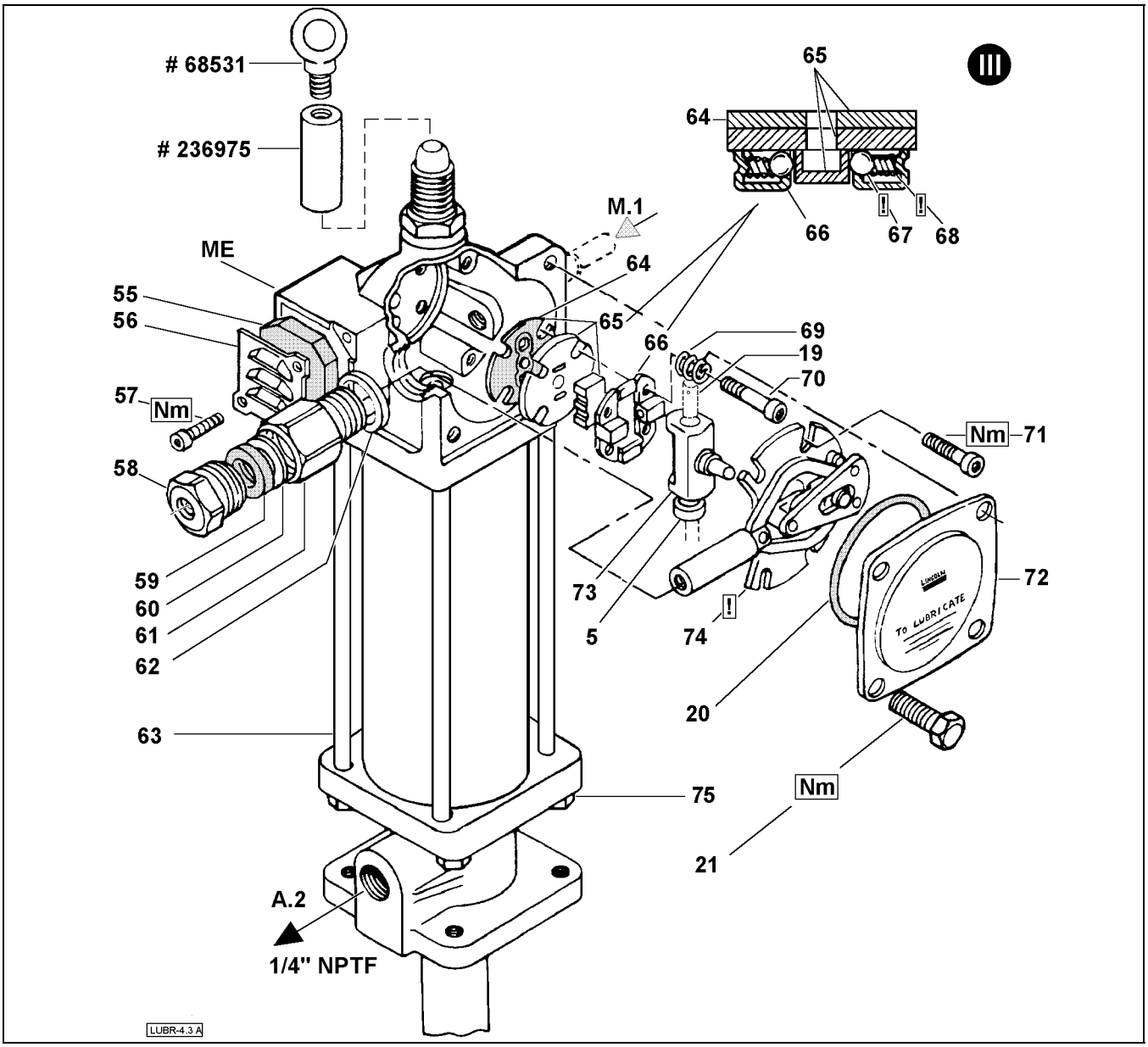
Service Parts Drawing *3 of 3*



M.1 Air inlet
A.2 Material outlet
Attention: Torque to max. 20,3 Nm
ME Exhaust

Important:
Adhere to torque specifications on re-assembly:

Item **21**	1/2“ hex. head	torque 10,5-11	Nm
Item **57**	5/32“ hex. socket	torque 3,4-4,4	Nm
Item **71**	5/32“ hex. socket	torque 3,4-4,4	Nm

! Lubricate Balls **(67)** & Springs **(68)** before assembly.

Lubricate Air Valve Mechanism on re-assembly
⇒ See sect. 6.2 for illustration & instructions

Note
Eye bolt screw # 68531 & Adapter #236975 are optional accessories.

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Service Parts List Page *1 of 2*

Item	Description	@	Qty.	Part number
1	VALVE CAP		1	11470
2	TRIP ROD PIN	●	1	11472
3	VALVE CAP GASKET (Copper)	● ©	1	246816
4	AIR VALVE CASTING	©	1	237563
5	TRIP SLEEVE		1	11947
6	O-RING (NBR)	●	2	34368
7	AIR PISTON NUT		1	11337
8	AIR PISTON WASHER		2	48212
9	AIR PISTON PACKING (NBR)	x	1	34090
10	AIR PISTON BOLT		1	11329
11	AIR MOTOR PISTON ROD	●	1	11340
12	AIR PASSAGE TUBE		1	61502
13	AIR CYLINDER	x	1	61041
14	OUTLET BODY		1	40537
15	PUMP TUBE GASKET	●	1	31054
16	TRIP ROD	x	1	90691
17	PISTON ROD CONNECTOR		1	11349
18	CONNECTOR GASKET	●	1	31048
19	TRIP ROD COLLAR		1	11471
20	O-RING (NBR)	●	1	34158
21	VALVE COVER SCREW		4	236868
22	GASKET	●	1	33039
23	PACKING WASHER	● x	1	236616
24	TRIP ROD PACKING (NBR)	● x	1	236835
25	TRIP ROD PACKING NUT		1	245425
26	AIR CYLINDER GASKET (NBR coated fiber)	● ©	2	247611
27	GLAND PACKING NUT		1	12333
28	GLAND PACKING WASHER		1	48268
29	GLAND PACKING (NBR)	●	1	34180
30	GLAND GASKET	●	1	31050
31	GLAND PACKING SPACER		1	14940
32	O-RING (Polyurethane)	●	1	34572
33	U-CUP PACKING (Polyurethane)	●	1	38165
34	GLAND PACKING WASHER		1	48213
35	PISTON ROD		1	*see chart*
36	PUMP TUBE		1	*see chart*
37	COUPLING STUD		1	11346
38	COUPLING NUT		1	11345
39	PLUNGER ADAPTER		1	11344
40	BUSHING GASKET		2	31049
41	BUSHING EXTENSION		1	61273
42	BALL STOP		2	57027
43	BALL	● ◆ ©	2	66102
44	PLUNGER & BUSHING ASSEMBLY		1	90554
45	CHECK SEAT GASKET	● ◆	1	31047
46	CHECK SEAT	● ◆	1	11726
47	PLUNGER ROD	● ◆	1	11723
48	CHECK STOP		1	11722
49	PRIMING CHECK PACKING (NBR)	● ◆	1	35073

Continued, ref. to next page.

Lubrigun Pumps No. 82050, No. 82054, No. 83513, No. 82050-E575, Ser. J

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Item	Description	@	Qty.	Part number
50	CHECK WASHER (PA)	● ◆	1	11702
51	PRIMING CHECK	● ◆	1	11721
52	PRIMING CHECK SEAT	● ◆	1	11725
53	PRIMING PLUNGER	● ◆	1	11724
54	PRIMING TUBE		1	239719
55	MUFFLER		1	236833
56	MUFFLER COVER		1	236615
57	HEX. SOCKET SCREW		2	236869
58	PACKING CAP		1	11905
59	PLUNGER PACKING (NBR)	●	1	34110
60	PACKING WASHER		1	48237
61	PACKING NUT		1	11904
62	PACKING NUT GASKET	●	1	30003
63	TIE ROD		4	10294
64	SLIDE VALVE GASKET	●	1	38162
65	VALVE SLIDE & SEAT		1	83063
66	VALVE GUIDE PLATE		1	45605
67	BALL	● ©	2	66102
68	SPRING		2	56038
69	SPRING		4	55138
70	HEX. SOCKET SCREW		4	236870
71	HEX. SOCKET SCREW		4	236869
72	COVER		1	236286
73	TRIP SHOE	**x**	1	11475
74	TOGGLE PLATE	**x**	1	91331
75	TIE ROD NUT		4	51009

Chart: **Item 35 Piston rod**			
35.1	*used on Pump 82050*	1	13020
35.2	*used on Pump 82050-E575*	1	13020-E575
35.3	*used on Pump 82054*	1	11761
35.4	*used on Pump 83513*	1	11799

Chart: **Item 36 Pump tube**			
36.1	*used on Pump 82050*	1	61407
36.2	*used on Pump 82050-E575*	1	61407-E575
36.3	*used on Pump 82054*	1	61285
36.4	*used on Pump 83513*	1	61293

@ Remark: © *Indicates change*
x *Item recommended for service parts inventory.*
● *Item included in repair kit no. 83054.*
◆ *Item included in repair kit no 83001.*

Note:
When ordering replacement parts, specify parts by part number and description.
Also, list part number and series letter of the Pump the parts are required for.