

LM-200 MECHANICAL LUBE METER

Owner's Manual



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GREAT PLAINS INDUSTRIES, INC.

"A Great Plains Ventures Subsidiary"

www.gpipumps.net

1-800-835-0113

To the owner...

Congratulations on receiving your GPI Mechanical Lube Meter. We at GPI are pleased to provide you with a Lube Meter designed to give you maximum reliability and efficiency.

Our business is the design, manufacture, and marketing of liquid handling, agricultural, and recreational products. We succeed in this business because we provide customers with innovative, reliable, safe, timely, and competitively-priced products. We pride ourselves in conducting our business with integrity and professionalism.

We are proud to provide you with a quality product and the support you need to obtain years of safe, dependable service.



President
Great Plains Industries, Inc.



Great Plains Industries, Inc.
is a member of the Petroleum Equipment Institute.

TABLE OF CONTENTS

General Information.....	2
Installation	3
Operation.....	3
Maintenance.....	3
Calibration	4
Repair	4
Troubleshooting.....	5
Specifications	5
Illustrated Parts Lists.....	6
Parts and Service	7

GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your GPI Mechanical Lube Meter. This manual is designed and written with you in mind. Please take a few moments to read through this manual before installing and operating your meter.

If you need assistance, contact the dealer from whom you purchased your meter. If you feel you need further assistance, please call GPI Customer Service Department at:

1-800-835-0113



This symbol is used throughout this manual to call your attention to safety messages.

WARNING

Warnings alert you to the potential for personal injury.

CAUTION

Cautions call your attention to practices or procedures which may cause damage to your equipment.

Notes give you information that can improve efficiency of operations.

It is your responsibility to ensure that all equipment operators have access to adequate instructions concerning safe operation and maintenance.

Read Me!

Below is a list of major warnings and cautions that are given in this manual. Please take a moment to review them now for your future safety.

1. Your meter is designed for use with thin viscosity fluids such as hydraulic oil.
2. Do not use this equipment for dispensing any fluids other than those for which it was designed. **DO NOT USE FOR FLAMMABLE FLUIDS.**

INSTALLATION

Upon receipt of your meter, examine it to make sure there are no visible signs of damage. If damage is evident, please contact your GPI distributor.

1. Remove protective plugs from meter inlet and outlet ports.
2. Wrap threaded male connections with oil resistant thread tape or use a pipe sealant compound compatible with fluids being dispensed.
3. Install the meter on the pump. The meter's outlet port is marked with a flow arrow.
4. Install other system components on the meter and tighten snugly.

Meter Accuracy

This meter is factory calibrated to hydraulic oil with accuracy of $\pm 2\%$. Due to differences in viscosities and flowrates, calibration may need to be adjusted if other fluids are being dispensed. Refer to the Repair Section for calibration instructions.

OPERATION

1. Before use, visually check the meter to ensure it is securely fitted to other system components and there is no leakage at connections. If leakage is present, refer to the Troubleshooting Section.
2. Follow safety precautions, wiping any spilled fluid from the exterior of the meter and other system components.

Totalization

1. The large display on the meter represents the Batch Total for each fluid delivery. Before measuring fluid, reset the Batch Total to zero by turning the reset knob on the side of the meter counterclockwise.

NOTE: The small display represents the Cumulative Total measured and cannot be reset.

2. To enhance meter accuracy, dispense fluid using a quick-open and quick-close method. Avoid choking flow as the tank becomes full.

MAINTENANCE

Your mechanical lube meter is designed for minimum maintenance. Examine the meter and other system components regularly for leakage. Keep the system exterior clean to help identify leaks.

The LM-200 meter is equipped with an internal strainer. The strainer should be checked periodically or whenever low flow is noticed. The meter may also require recalibration if actual fluid delivery differs noticeably from meter readings. Refer to the Repair Section for strainer access and calibration information.

Clean Strainer

1. Remove the four retaining screws on the strainer coverplate. Remove the coverplate and strainer.
2. Using a fine brush, clean the strainer and reposition in the housing.
3. Wipe clean the strainer coverplate O-ring, groove, and the housing. Coat the O-ring with oil or light grease and install in the coverplate groove.
4. Hold the coverplate in position and replace the four screws by alternately tightening screws until the coverplate is firm against the meter housing.

CALIBRATION

1. Purge air from the meter and system by dispensing fluid into a container until a full flow occurs. Close the nozzle.
2. Reset the meter counter to zero by turning the reset knob counterclockwise.
3. Fill a graduated calibration container to a specified quantity. For the greatest accuracy, be sure the container is placed on a level surface and a consistent flowrate is used. When topping off the calibration container, use a quick-open and quick-close method until the mark is reached.

NOTE: Your GPI dealer can supply a calibration container designed for this purpose.

4. Compare the meter display to the quantity in the container. If the display does not register the quantity on the container, adjust the meter by performing the following:
 - a. Gain access to the recessed calibration screw by removing the calibration screw cover.
 - b. If the meter registered **less** than the quantity in the container, turn the calibration screw **clockwise**. If the meter display read **more** than the amount in the container, turn the screw **counterclockwise**.
5. Empty the calibration container and repeat steps 2 to 4 until the meter registers the quantity in the container.
6. Reinstall the calibration screw cover and seal.

REPAIR

Replace Counter Assembly or Nutator Kit

1. Pull out on the reset knob to remove.
2. Remove the two screws connecting the counter cover to the counter assembly. Remove the counter cover.
3. Remove the four screws securing the counter assembly and gently pull the assembly free. Replace the counter assembly and O-ring, as required.
4. To remove the nutator disc, loosen the two screws holding the disc in the meter housing and lift the disc and O-ring from the main meter housing.

NOTE: It may be necessary to place a screwdriver under the edge of the nutator and gently pry free.

5. Replace the nutator disc, as necessary. Make sure the nutator disc pin is secure in the back of the counter assembly before assembling again.
6. To assemble, reverse the above procedure. Make sure that all O-rings are in place and lubricated with oil or light grease.

Replace Calibration Screw and/or O-Ring

1. Remove the calibration screw cover and seal by turning counterclockwise.
2. Remove the calibration screw and O-ring by turning the screw counterclockwise. While removing, count the number of revolutions required to free the screw.
3. Install the new calibration screw and O-ring, using the same number of rotations needed to remove the old screw. Ensure the O-ring is lubricated and seated properly.
4. Adjust the meter calibration, using the Calibration procedures.

Remove Meter

Your meter is designed to allow normal maintenance and service without removing the meter from the transfer system. If removal is necessary, use the following procedure:

1. Drain all fluid from the system.
2. Wearing protective clothing, loosen the meter connections from other system components by hand. Do not use a wrench since it could damage the meter housing.
3. Using safety precautions, thoroughly drain excess fluid from the meter.
4. If the meter will not be immediately installed again, insert plastic plugs in the inlet and outlet ports.

SPECIFICATIONS

Unit of Measure: Quart or Litres (depending on model)

Flow Range: 16-80 QPM (15-75 LPM)

Type: Nutating Disc

Housing: Aluminum

Max. Working Pressure: 50 psi (3.4 bar)

Inlet/Outlet: 3/4 in. or 1 in. NPT models available

Includes Strainer

Max. Batch Total: 9,999

Max. Cumulative Total: 999,999

Shipping Weight: 4 lbs. (1.8 kg)

Dimensions:

Width: 13.9 cm

Height: 11.4 cm

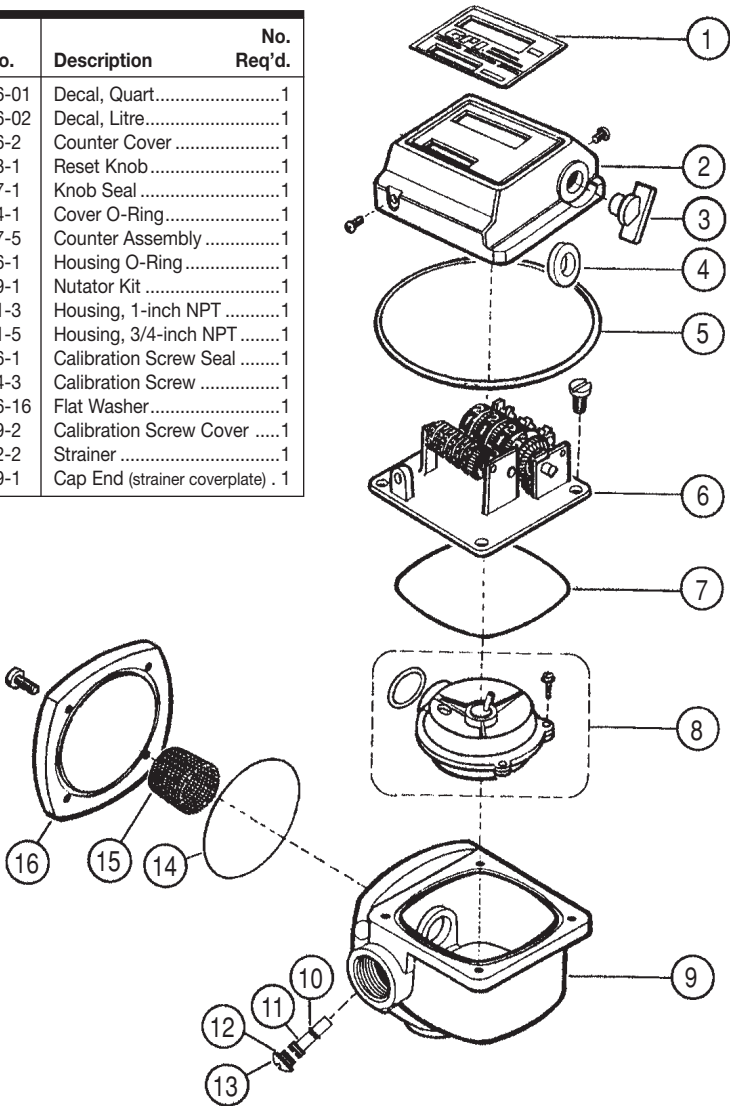
Depth: 13.9 cm

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
A. METER COUNTER DOESN'T OPERATE (Normal delivery)	<ol style="list-style-type: none">1. Broken counter assembly2. Foreign material in counter assembly3. Misaligned nutator disc pin4. Broken nutator disc pin or defective nutator assembly5. Missing or jammed counter bevel gear	<p>Replace counter assembly.</p> <p>Remove and clean counter assembly.</p> <p>Disassemble meter and align nutator disc pin with the counter assembly.</p> <p>Disassemble meter and install new nutator assembly.</p> <p>Contact GPI Customer Service.</p>
B. METER COUNTER DOESN'T OPERATE (Little or no flow)	<ol style="list-style-type: none">1. Clogged strainer	<p>Clean strainer.</p>
C. LEAKAGE	<ol style="list-style-type: none">1. Leakage at counter2. Leakage between counter cover and housing3. Leakage at fittings	<p>Contact GPI Customer Service.</p> <p>Remove counter cover and inspect for damaged, missing or incorrectly seated seal. Replace as required.</p> <p>Disassemble fittings and reseal using Teflon® tape or a pipe thread sealing compound.</p>

ILLUSTRATED PARTS LIST

Item No.	Part No.	Description	No. Req'd.
1	111116-01	Decal, Quart.....	1
	111116-02	Decal, Litre.....	1
2	111006-2	Counter Cover	1
3	111028-1	Reset Knob	1
4	111107-1	Knob Seal	1
5	111024-1	Cover O-Ring.....	1
6	111047-5	Counter Assembly	1
7	110026-1	Housing O-Ring	1
8	111509-1	Nutator Kit	1
9	111021-3	Housing, 1-inch NPT	1
	111021-5	Housing, 3/4-inch NPT	1
10	111026-1	Calibration Screw Seal	1
11	111014-3	Calibration Screw	1
12	904006-16	Flat Washer.....	1
13	111039-2	Calibration Screw Cover	1
15	111032-2	Strainer	1
16	111029-1	Cap End (strainer coverplate) .	1



Replacement Kit

111506-2 Overhaul Kit includes seals, O-Rings and nutator disc assembly.

PARTS AND SERVICE

For warranty consideration, parts, or other service information, contact your local distributor. If you need further assistance, please contact the GPI Customer Service Department in Wichita, Kansas during normal business hours.

1-800-835-0113

To obtain prompt, efficient service, always be prepared with the following information:

1. The model number of your meter.
2. Date of manufacture.
3. Specific information about part numbers and descriptions obtained from the appropriate Illustrated Parts List.

For warranty work always be prepared with your original sales slip or other evidence of purchase date.

Please contact GPI before returning any parts. It may be possible to diagnose the trouble and identify needed parts in a telephone call or letter. GPI can also inform you of any special handling requirements you will need to follow covering the transportation and handling of equipment which has been used to transfer fuel.

Before packing for shipment, make sure the meter is thoroughly drained and free of fuel and vapors. Drain the meter using procedures in the Repair Section.

WARNING

Do not return meters or parts without specific authority from the GPI Customer Service Department. Due to strict regulations governing shipment of flammable liquids, meters may be refused and returned to the sender if sent without authorization.

Limited Warranty Policy

Great Plains Industries, Inc. 5252 E. 36th Street North, Wichita, KS USA 67220-3205, hereby provides a limited warranty against defects in material and workmanship on all products manufactured by Great Plains Industries, Inc. This product includes a 1 year warranty from date of purchase as evidenced by the original sales receipt. A 30 month warranty from product date of manufacture will apply in cases where the original sales receipt is not available. Reference product labeling for the warranty expiration date based on 30 months from date of manufacture. Manufacturer's sole obligation under the foregoing warranties will be limited to either, at Manufacturer's option, replacing or repairing defective Goods (subject to limitations hereinafter provided) or refunding the purchase price for such Goods theretofore paid by the Buyer, and Buyer's exclusive remedy for breach of any such warranties will be enforcement of such obligations of Manufacturer. The warranty shall extend to the purchaser of this product and to any person to whom such product is transferred during the warranty period.

This warranty shall not apply if:

- A. the product has been altered or modified outside the warrantor's duly appointed representative;
- B. the product has been subjected to neglect, misuse, abuse or damage or has been installed or operated other than in accordance with the manufacturer's operating instructions.

To make a claim against this warranty, contact the GPI Customer Service Department at 316-686-7361 or 800-835-0113. Or by mail at:

Great Plains Industries, Inc.
5252 E. 36th St. North
Wichita, KS, USA 67220-3205

GPI will step you through a product troubleshooting process to determine appropriate corrective actions.

GREAT PLAINS INDUSTRIES, INC., EXCLUDES LIABILITY UNDER THIS WARRANTY FOR DIRECT, INDIRECT, INCIDENTAL AND CONSEQUENTIAL DAMAGES INCURRED IN THE USE OR LOSS OF USE OF THE PRODUCT WARRANTED HEREUNDER.

The company herewith expressly disclaims any warranty of merchantability or fitness for any particular purpose other than for which it was designed.

This warranty gives you specific rights and you may also have other rights which vary from U.S. state to U.S. state.

Note: In compliance with MAGNUSON MOSS CONSUMER WARRANTY ACT – Part 702 (governs the resale availability of the warranty terms).



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