Doc. No.	OSA 137U-00

INSTRUCTION

Mechanical Oil Meter

OM-30MN ITEM No.805339

Digital Oil Meter

OM-30D ITEM No.805185

OM-30MN

OM-30D

⚠ WARNING

Prior to operating this pump, be sure to read this operation manual for safety. After reading the manual, please keep it at hand any time for your quick reference.

YAMADA CORPORATION

- Preface

Thank you very much for purchasing Yamada Pump.
This product is an oval gear oil meter which is primarily for lubricants. There are two types: mechanical and digital.
This oil meter is to be connected with the oil discharge line from manual, pneumatic and electric oil pumps. It can be used for dispensing oil into vehicles.

- This product is designed for engine oil, gear oil, Automatic Transmission Fluid (ATF), and hydraulic fluid. Therefore, it cannot be used for brake fluid or windshield washer fluid.
- The maximum allowable pressure for the oil meter is 7 MPa, and the maximum flow rate is 30 LPM.
- This product cannot be used for transactions or certifications pertaining to the Measurement Act.

- For Safe Operation

This document describes the items that are important for the user to operate this product safety, correctly, and efficiently. Before operating this product, read this manual thoroughly, in particular, “Warnings and Cautions” at the beginning of this manual, with a good understanding of its contents. Keep this manual carefully in an easy-to-access place so that the user may refer to it whenever necessary.

- Warnings and Cautions

To use this product safely, be sure to observe the contents of the following description. In this manual, warnings and cautions are indicated by using symbols. These symbols are intended to prevent death or serious injury that may be caused to the operator or those who are around the product and damage that may be caused to the articles that are around the product, as well as to use the product safely and correctly. Each symbol is indicated and has a meaning as shown below. Read the description with a good understanding of its contents.

WARNING : This indicates the existence of potential hazard which, if not avoided, will result in death or serious injury.

CAUTION : This indicates the existence of potential hazard which, if not avoided, may result in bodily injury or in physical damage.

To indicate the contents of danger and damage, the following symbols are used together with the above indications.

This symbol indicates an act that is prohibited (prohibition). The concrete contents of prohibition are indicated by the side of the indication.

This symbol indicates the contents that must be observed. The concrete contents of observance are indicated by the side of the indication.

- Precautions on Use

The following warnings and cautions are very important. Be sure to observe them.

⚠WARNING

Risks of high-pressure injection]

The high-pressure injection caused by leakage from the meter, gun, hose or cracks on the parts will penetrate your skin. The injury initially looks like a simple cut can lead to a serious injury resulting in amputations. Take medical treatment immediately.

- Do not point the discharge outlet toward people or any part of the body.

- Do not place your hand in front of the discharge outlet.

- Do not use your hand, body, glove, or a cloth to stop a fluid leak.

- Be sure to release the pressure and diacharge all the fluid from the meter when stopping suppying oil or before cleaning, inspecting or repairing the equipment.

[Risks of product misuse]
The product misuse can cause death or serious personal injury.

- DO NOT use the product when fatigued, after taking medicine or after drinking alcohol.

- The pressure and the temperature should not exceed the maximum of the most unresistant material in the system (e.g., piping).

- Do not modify the product.

- This oil meter should be used only by the experts.

- Use fluid or solvent compatible with the wetted parts of the product (refer to “9. Main Specifications”). Also refer to the warnings for the fluid and the solvent. When the information on the fluid is required, contact the fluid supplier to obtain the SDS.

- Inspect the product every day. When finding worn-out or damaged parts, immediately repair them by using only the genuine parts.

- Use the product only for the instructed purposes. Contact the retail store where you purchased your product or our business office if all else fails.

- Keep children and animals away from the work area.

- Comply with all the safety regulations related to the product.

⚠ WARNING

[Risks of fire and explosion]
If there are some flammable fluids (e.g., gasoline or windshield washer fluid) nearby, an open flame can ignite a fire or cause an explosion.

In order to avoid the fire or explosion:

- Use only in a well-ventilated area.
- Remove all ignition sources, such as lit cigarettes and portable lights.
- Keep a fire extinguisher in the work area.

[Personal Protective Equipment]

- Depending on the fluid, there are risks of visual or hearing damage, inhalation of poisonous gas, or burning. Wear appropriate protective equipment when using the product.
  <Examples of Protective Equipment>
  ・Safety glasses, earplugs
  ・Masks, protective clothing, and gloves as recommended by the fluid or solvent manufacturer

⚠ CAUTION

- The maximum Operating pressure for this product is 7 MPa. Do not apply the pressure higher than 7MPa; otherwise, it will crack the product, which will cause injuries or pollute the work area.
- Be sure to check the oil dispensing volume after dispensing. An incorrect amount (too much or too little) will cause unexpected troubles.
- Some fluids discharged from the product do harm to human health. Be sure to discharge the fluids into the container and not to the ground.

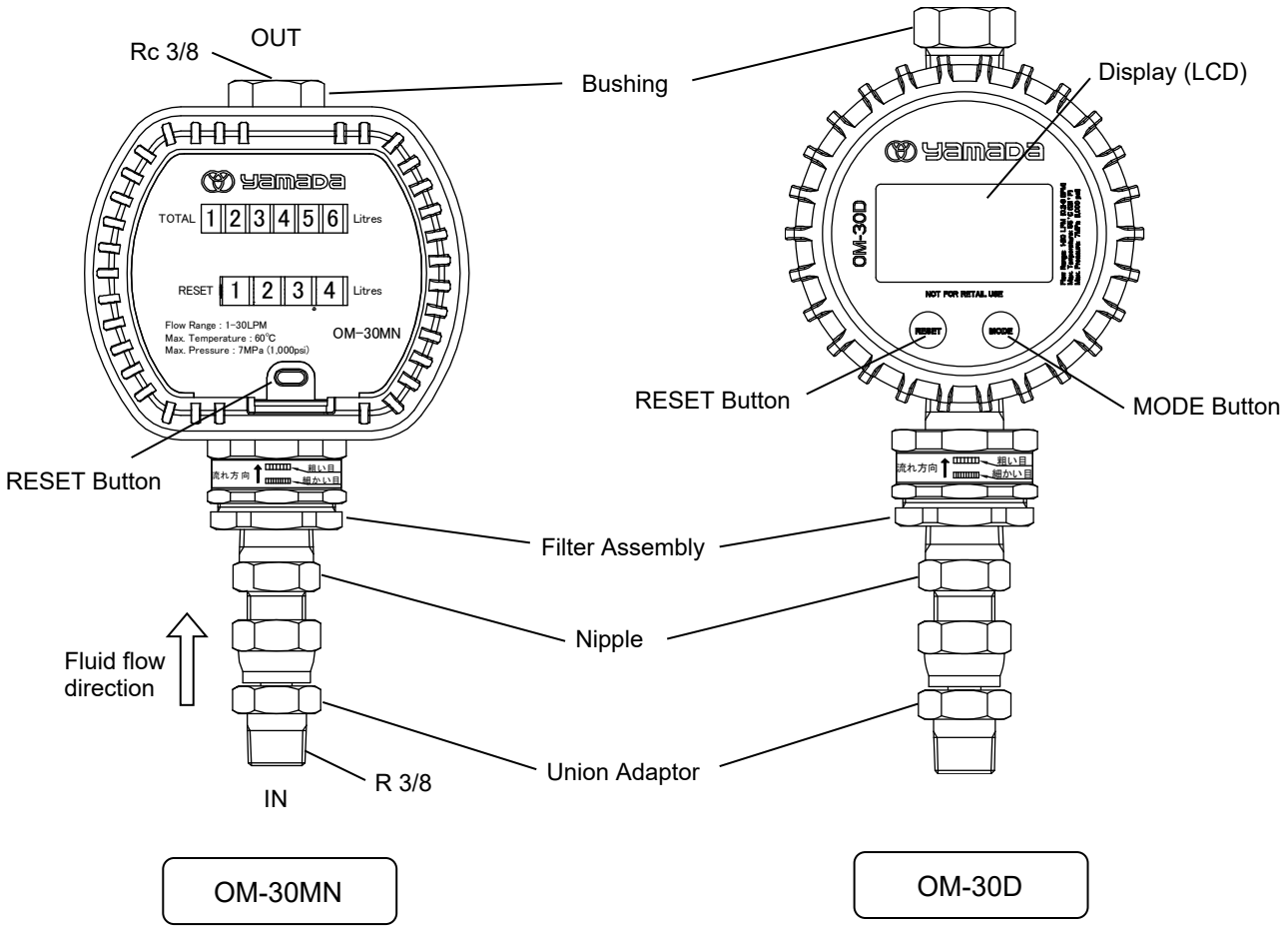
[Ground connection]

- Proper grounding is a core to maintain the safe systems. Static charge is generated when fluid goes through piping. Static charge will cause ignition of flammable vapor. In order to reduce the risk of static spark, connect the component parts of the system to the ground for safety in a proper way, following the regional or the national regulation pertaining to electric construction. Refer to the instruction manuals for your pump and other system components to ground the following items:
  ・Pump: Follow the recommendation from the manufacturer.
  ・ Air and hose: use only grounded hoses.
  ・Air compressor: Follow the recommendation from the manufacturer.
  ・Container to supply fluid: Follow the local regulations.
  In order to maintain grounding in cleaning or pressure releasing, always keep putting the metallic part of the valve on the grounded metallic container, and pull the trigger of the valve.

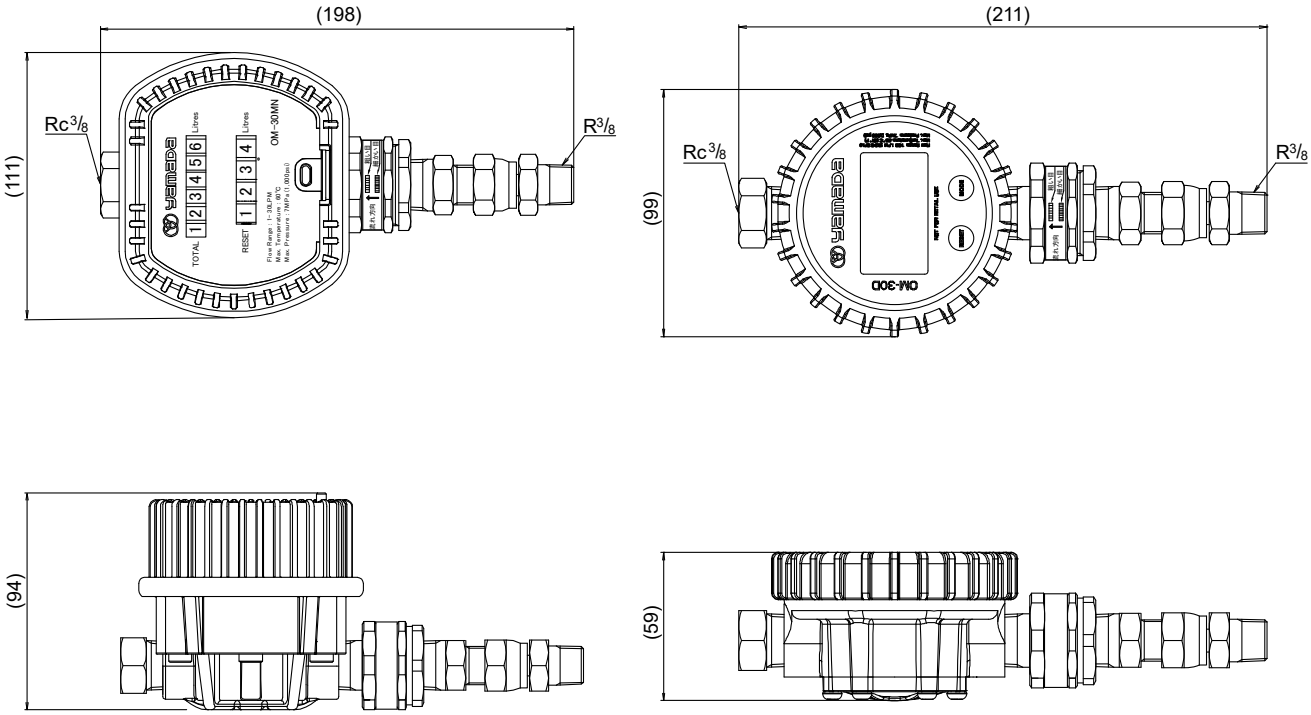
Table of Contents

1. Names of Part and Dimensions

1.1 Names of Part



1.2 Dimensions



2. Preparations before Operation

⚠ CAUTION

- The built-in battery is for shipping inspection. Change the new battery if the existing one has already run out.
- Change the battery regularly. The recommended frequency is once every 5 years, though it depends on the frequency of the product usage. Continuing to use the product with a depleted battery may cause malfunctions.
- Be sure to use a new battery (Battery type: 3V Lithium button cell CR2450: 1 pcs)
- Use fluid or solvent compatible with the wetted parts of the product (refer to “9. Main Specifications”). Also refer to the warnings for the fluid and the solvent. When the information on the fluid is required, contact the fluid supplier to obtain the SDS.
- If the piping is brand new, foreign matter can be on the inner walls of the piping. Therefore, clean the piping thoroughly before connecting the oil meter. In addition, be sure to clean the filter one week and one month after you begin using the oil meter.

2.1 Connecting the Oil Meter

1） Please make sure no damage during shipment and no missing accessories after unpacking as soon as possible. Meter, Filter Assembly, Bushing 1/2×3/8, Nipple G 3/8×R 1/2, and Union Adapter.

2） Install the accessories based on the oil gun or piping (“1.2 Dimensions” is an example of the connection). Be sure to install the filter assembly upstream of the oil meter.

NOTE

- Be sure to check the technical data (e.g., connection, pressure, range of flow rate and oil) is compatible with the specifications of the oil meter.
- After installing the oil meter, ensure that there is no risk of damage to the meter from air impact pressure or particles.
- Be sure to check whether there is no oil leakage from all connection points.
- When using inline, open the input valve slowly so that the oval gears do not over-speed.

3. Definition of Terms

The BATCH (Resettable batch total) and TOTAL (Non-Resettable Total) are displayed on the digital oil meter's LCD. They are also used frequently throughout this instruction manual.

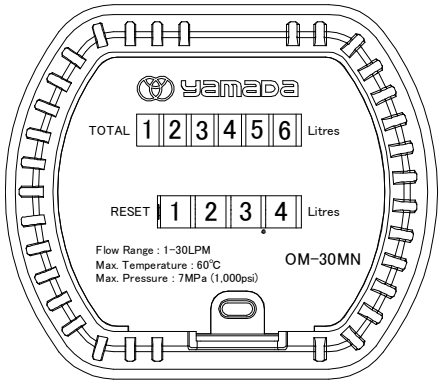
• BATCH : Resettable batch total (BATCH TOTAL)
This refers to the total amount of oil discharged per batch. It can be reset to 0

• TOTAL : Non-resettable total
This refers to the total amount of oil discharged throughout the period when the oil meter has been used. It cannot be reset to 0.

•Sleep mode : Battery-Saving mode
The LCD will turn off if the digital oil meter is not operated for 30 seconds. The LCD will recover from sleep mode when either pressing any button or fluid flows through the oil meter.

4. How to Reset the Meter

4.1 For the OM-30MN Mechanical Oil Meter



The oil meter has two meter displays.

Top Display: Non-resettable Total

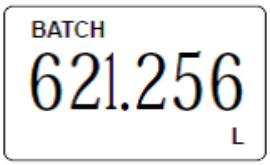
Bottom Display: Resettable Total

1） The bottom display can be reset by pressing the RESET button.

NOTE
The display may not return to 0 with a single press of the RESET button.
If it does not reset to 0, press the RESET button again.

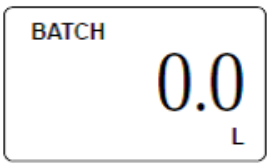
4.2 For the OM-30D Digital Oil Meter

1） Press the MODE button to toggle between the ‘BATCH’ and ‘TOTAL’ display.



2） During normal operation, the LCD shows the ‘BATCH’.

3） If pressing Reset button when ‘BATCH’ is displayed, the BATCH TOTAL is reset to 0.
When ‘TOTAL’ is displayed, the TOTAL cannot be reset to 0.



5. Accessing Programing Menu and Returning to Operation Mode (OM-30D Digital Oil Meter Only)

Accessing Programing Menu

Press and hold the RESET button for 5 seconds to enter the Program Menu. Then when pressing RESET button, the menu can be changed as follows.

Setting the Decimal Place → Measurement Units Configuration (BATCH) → Measurement Units Configuration (TOTAL) → Calibration → Setting the Decimal Place …

Returning to Operation Mode

At any stage during Programming, the meter can be returned to the Operation Mode by pressing and holding the RESET Button for 5 seconds.

NOTE
Any changes made in the programming menu will automatically be ‘Saved’ when the unit is returned to the operation mode.

5.1 Setting the Decimal Place

1） To enter the Programming Menu, press and hold the RESET Button for 5 seconds.

2） The LCD will display ‘MENU’ in the lower left corner and the number of Decimal Places currently set on the main LCD.

3） Press the MODE button to cycle through options available.

dEC .1 = 1 Decimal Place
dEC .22 = 2 Decimal Places
dEC .333 = 3 Decimal Places

4） Once the required Decimal Place has been selected, press the RESET button to move to the Measurement Units Configuration.

5.2 Measurement Unit Configuration

1） First, set the measurement unit for BATCH. The LCD will now display ‘UNIT’ in the lower left corner and ‘BATCH’ on the main LCD. The unit is currently set to liters, as the letter ‘L’ indicates.

2） Press the MODE button to cycle through options available.

L → GAL → Qt → Pt → Oz → dL → L …

3） Once the required UNIT has been selected, press the RESET button to move to the measurement unit configuration of TOTAL.

4） Next, set the measurement unit for TOTAL. The LCD will now display ‘UNIT’ in the lower left corner and ‘TOTAL’ on the main LCD. The unit is currently set to liters, as the letter ‘L’ indicates.

5） Press the MODE button to cycle through options available.

L → GAL → Qt → Pt → Oz → dL → L …

6） Once the required UNIT has been selected, press the RESET button to move to the CALIBRATION.

5.3 Calibration

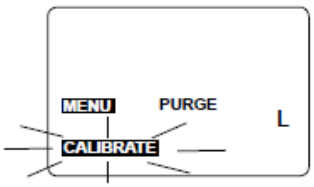
1） The LCD will display ‘CALIBRATE’ in the lower left corner, and a number on the main LCD (which represents the ‘Test Volume’ to be dispensed through the meter during Calibration)

2） Press the MODE button to cycle through options available.

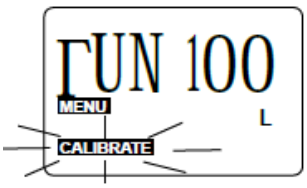
2 → 4 → 8 → 20 → 100 → 250 → 2 …

NOTE
Prepare for a container with scales (e.g., graduated cylinder) that can accommodate the amount of oil sufficient for testing.

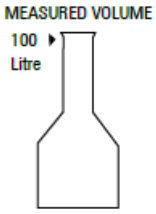
3） Once the required ‘Test Volume’ has been selected, press and hold the MODE button for 3 seconds. The LCD will display ‘PURGE’ while ‘CALIBRATE’ will also start to flash.



4） Purge the air from the oil meter by running fluid through it.
Then, press the MODE button to commence calibration. The LCD will display "RUN" and the test volume (e.g., "RUN 100"), and the oil meter will begin measuring for the calibration.



5） Run the fluid through oil meter into a graduated container until the Test Volume has been reached (e.g., 100). Press the MODE button to finish the test.



6） The oil meter will now compare the ‘Measured Volume’ to the ‘Test Volume’ and perform an Auto Calibration if the difference between the two volumes is within ± 8 %. When "DONE" flashes on the LCD, the calibration is complete.

NOTE
If the difference between the two volumes is not within ± 8%, the LCD will display one of the following messages:
- ERROR LOW
- ERROR HIGH

Refer to “8 Troubleshooting”
Contact the retail store where you purchased your product or our business office if all else fails.

7） Discharge the fluid and check the accuracy after the calibration.

6. Maintenance (Refer to “7. Parts Disassembly Drawing and Parts List”)

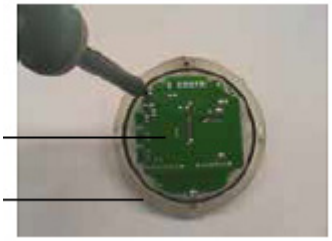
This oil meter is designed to require minimal maintenance. The only maintenance jobs required are:
- Changing the Battery - Necessary when the battery is depleted. (For OM-30D Digital Oil Meter only)
- Cleaning the meter body - Due to the presence of solid particles following bad filtering. (common to all models)

6.1 Changing the Battery (OM-30D Digital Oil Meter only)

A ‘Low Battery’ warning is displayed on the LCD when the remaining charge is 5% or less. This warning will persist until the battery is replaced.

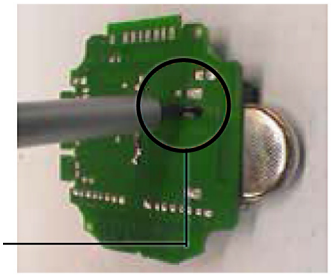
1） Remove the rubber shroud (1). Unscrew the four screws (2) with Phillips Head screwdriver in a diagonal sequence and separate the electronic module (3) from the meter body (5).

2） Remove the PCB from clear plastic housing by unscrewing the 3 retaining screws of the electronic module (3).



3） Remove the battery by placing a screwdriver into the slot on the PCB. Then, replace it with a new one.

Battery type: 3V Lithium button cell CR2450



4） Assemble in the reverse order.

5） Discharge the fluid and ensure the oil meter is measuring accurately.

6.2 Cleaning the Meter Body (common to all models)

The following explanation uses the digital oil meter as an example.
The measurement chamber can be cleaned without removing the oil meter from the lines.

⚠ WARNING

- Always make sure the fluid has been drained from the oil meter and the line pressure is released before cleaning.

1） Loosen and remove the eight meter cap screws (9).

2） Remove the meter cap (8) and the O-Ring (7).

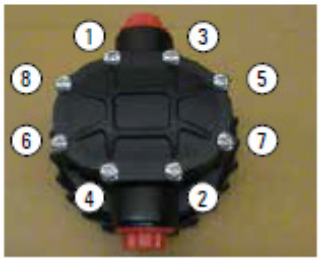
3） Remove the oval gears (6).

4） Clean the meter body (5) with a soft brush or cloth. Be careful not to damage the meter body or the oval gears.

5） Assemble in the reverse order taking care of the following:

1. Position the oval gears (6) at 90° to each other and turn them with your fingers to ensure they rotate freely. If the oval gears sit higher than the sealing face, turn them over and refit them (The magnets must be facing the electronic module).

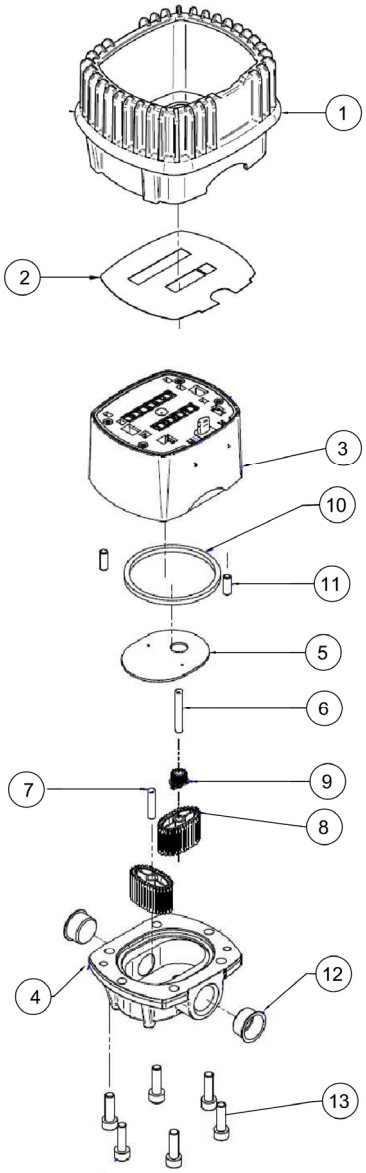
2. Tighten the eight meter cap screws (9) evenly in a diagonal sequence as shown in the figure.



6） Discharge the fluid and ensure the oil meter is measuring accurately.

7. Parts Disassembly Drawing and Parts List

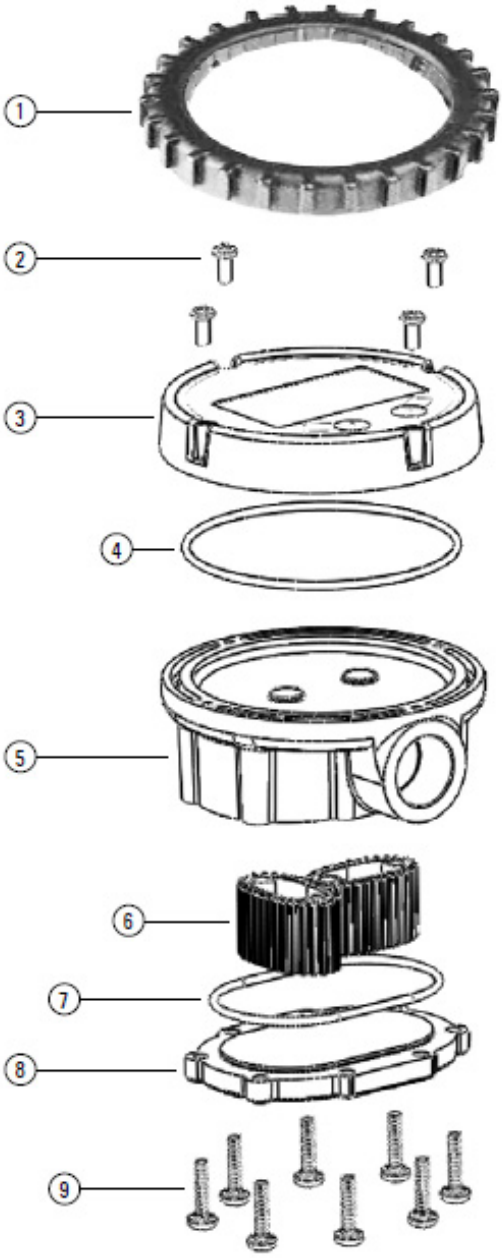
7.1 Mechanical Oil Meter (OM-30MN)



No.	Description	Q'ty
1	Protective Shroud	1
2	Label	1
3	Register assembly	1
4	Meter Body	1
5	Internal gear cover	1
6	Gear pin, long	1
7	Gear pin, Short	1
8	Oval Gear	2
9	Counter gear	1
10	Meter Body Seal	1
11	Pin	2
12	Protective Plug	2
13	Bolt	6

* This parts list is to explain the product. Those parts cannot be supplied.

7.2 Digital Oil Meter (OM-30D)



No.	Description	Q'ty
1	Protective Shroud	1
2	Screws	4
3	Electronic Module	1
4	O Ring (AS568-040)	1
5	Meter Body	1
6	Oval Gear	2
7	O Ring (AS568-035)	1
8	Meter cap	1
9	Meter cap screw	8

* This parts list is to explain the product. Those parts cannot be supplied.

8. Troubleshooting

PROBLEM	POSSIBLE CAUSE	CORRECTIVE SOLUTION
Little or no discharge through the meter	Stuck oval gears	Dismantle meter and clean the oval gears
	Soiled or blocked meter body	Dismantle meter and clean the oval gears
	Meter connections over tightened	Re-adjust connections
	Fluid is too thick	Use fluid of specified viscosity (up to SAE 140)
Insufficient accuracy	Fluid flow rate is too high or too low	Adjust the flow rate within the specified limits (1-30 LPM)
	Blocked or soiled inlet filter	Clean the filter
	Air in fluid	Check each connection part and purge the air.
	Calibration required	Calibrate the meter
LCD not working	Battery discharged	Change the battery
	Faulty PCB sensors / magnets / LCD	Replace the meter
ERROR LOW	Do not reach the test value.	Recalibrate the meter
	Oil leakage or air inclusion.	Stop the oil leaks and purge the air, then recalibrate the meter.
	Lack of calibration equipment (e.g., graduated cylinder) or its inaccuracy.	Check the calibration equipment
	Use of fluid which is not suitable.	Use suitable fluid.
	Contamination of dust into the fluid.	Disassemble the oil meter to clean the oval gear, remove the dust from the fluid, and clean the filter, then recalibrate the oil meter.
ERROR HIGH	Exceed the test value	Recalibrate the meter
	Oil leakage or air inclusion.	Stop the oil leaks and purge the air, then recalibrate the meter.
	Lack of calibration equipment (e.g., graduated cylinder) or its inaccuracy.	Check the calibration equipment
	Use of fluid which is not suitable.	Use suitable fluid.

9. Main Specifications

ITEM No.	805339	805185
Type	OM-30MN	OM-30D
Meter Type	Mechanical	Digital
Mechanism	Oval gear	
Max. Operating Pressure	7 MPa	
Pressure Loss	70 kPa	
Recommended Use	Oils with viscosity up to SAE 140, Diesel, Kerosene and Engine Coolants	
Do Not Use With	Water based media, Gasoline etc. Fluids corrosive to packing	
Flow Rate	1 to 30 LPM	
Max. Viscosity of Media	SAE 140 / 1000 CP	
Accuracy	± 3.0 %	± 2.0 %
Repeatability	3.0 %	3.0 %
Operating Temperature Range	-10 °C to 60 °C	-14 °C to 55 °C
Max. Resettable Batch Total	999.9 L	99999.9 L
Max. Non-Resettable Totalizer	999999 L	
Decimal Place on LCD	—	0.1, 0.01, 0.001 units
Water Resistance	—	IP65
Battery	—	3V Lithium button cell CR2450

10.Limited Warranty

- If an abnormality occurs during normal operation in accordance with the operating instructions and other operating cautions within the warranty period (12 months after date of purchase) that can be attributed to a manufacturing defect, the defective parts of this product will be serviced or the product will be replaced free of charge. However, this warranty will not cover compensation for incidental damage or any malfunction listed below.

1. **Warranty period**
   This warranty will be valid for a period of 12 months after the date of purchase.

2. **Warranty**
   If, during the warranty period, any of the material of the genuine parts of this product or the workmanship of this product is found defective, and is so verified by our company, the servicing cost will be fully born by our company.

3. **Exclusion**
   Even during the warranty period, this warranty does not cover the following:
   1) Malfunction arising from use of parts other than manufacturer-specified genuine parts
   2) Malfunction arising from misuse or operating errors, or lack of storage or maintenance care
   3) Malfunction arising from use with a fluid that may cause corrosion, inflation or dissolution of the component parts of the product
   4) Irregularity arising from repair made by other than by our firm, our regional office, dealer or authorized service personnel
   5) Malfunction arising from modification of the product by other than authorized service personnel
   6) Wear and tear of parts that must be regularly replaced in the course of normal operation, such as packings, O-rings and hose.
   7) Malfunction and/or damage due to transportation, moving or drop page of the product after purchase
   8) Malfunction and/or damage due to fire, earthquake, flood or other force majeure
   9) Malfunction arising from use of compressed air that contains impurities or excessive moisture, or use of gases or fluids other than the specified compressed air
   10) Malfunction arising from use with a fluid that causes excessive abrasion or use of lubricating oil other than that specified for this product

   Furthermore, this warranty does not cover the rubber parts, or other parts that are subject to wear in normal operation, used in this product and its accessories.
   ・hoses ・packings ・cords

4. **Parts**
   Parts for this product will be kept available for 5 years after discontinuation of production. Once 5 years have elapsed after close of production, availability of parts for this product cannot be guaranteed.

YAMADA CORPORATION

INTERNATIONAL DEPARTMENT
1-1-3, Minami-Magome,Ota ku, Tokyo, 143-8504, Japan
PHONE : +81-(0)3-3777-0241
FAX : +81-(0)3-3777-0584
E-mail : intl@yamadacorp.co.jp
Web : www.yamadacorp.co.jp

YAMADA (THAILAND) CO., LTD

41/79 Moo 6, Bangcha-long,Bangplee,Sumutprakarn10540,Thailand
PHONE : +66-(0)2-130-0990
FAX : +66-(0)2-130-0993
E-mail : sales@yamada-th.com

202509.2888 OSA137U