Need Assistance?
Macnaught USA Inc (813) 628-5506 info@macnaughtusa.com

Includes models
HG100-019E-01
HG100-019E-02

HG100-019E

HIGH FLOW OIL CONTROL GUN WITH ELECTRONIC FLOWMETER

INSTRUCTION MANUAL

Introduction

Thank you for purchasing a Macnaught HG100 oil dispensing gun complete with IM019E meter, flexible extension and non-drip nozzle. The Macnaught oil dispensing gun and meter has been designed for use with engine oil, gear oil, automatic transmission fluid, anti-freeze/anti-boil and compatible fluids.

Macnaught also manufacture a complete range of ratio oil pumps and retractable oil hose reels, greasing equipment and accessories, to fulfil all your fluid handling or greasing requirements.

Please read and retain this instruction manual to assist you in the operation and maintenance of this quality product.

GENERAL INFORMATION

This manual assists you in operating and maintaining your new oil control gun. The information contained will help you ensure many years of dependable performance and trouble free operation.

Please take a few moments to read through this manual before installing and operating your new oil control gun. If you experience problems with this product, refer to the trouble shooting sections of this manual. If you require further assistance please contact your local Macnaught distributor or authorised Macnaught service centre.

IMPORTANT INFORMATION

READ THIS INFORMATION CAREFULLY BEFORE USE.

Your safety is important to us. Please read and follow all safety instructions listed inside.

Some of these instructions alert you to the potential for personal injury. “Cautions” listed throughout this manual advise of potential practices or procedures which may cause damage to your equipment.

Ensure all operators have access to adequate instructions about safe operating and maintenance procedures.

Do not exceed the maximum working pressure of 10500 kpa / 1500 psi / 105 bar.

CAUTION

Do not hit the oil control gun if it fails to operate. Refer to “trouble shooting guide” or return the unit to your nearest authorised service centre.

Never point the nozzle at yourself or anyone else.

Never exceed the pressure rating of any component. installed in the System.

Before every use check all hoses for signs of wear, leaks or loose fittings. Tighten all fluid connections regularly and replace weak or damaged hoses.

Before attempting any repairs or maintenance of this product firstly disconnect the air supply from the oil pump, then release the oil line pressure by squeezing the lever on your oil control gun.

ASSEMBLY

Use Teflon tape (or suitable thread sealant) when connecting the oil control gun to an oil hose.

MANUAL NOZZLE OPERATION

With the nozzle pointing away from you turn the nozzle tip clock-wise to open.

With the nozzle pointing away from you turn the nozzle tip anti-clockwise to close.

HANDLE OPERATION

Ensure the manual nozzle is open before operating the handle.

To latch the handle, squeeze the lever, push the latch button on the rear of the gun and then release lever.

To release the latch in simply squeeze and release lever.

CONTROL HANDLE DISASSEMBLY

Use a clean bench to carry out maintenance.

A) Remove the oil delivery hose from the control gun inlet swivel (14).

B) Unscrew and remove swivel (14) from the control gun inlet.

C) Carefully unscrew the valve cap (20), remove the valve spring (18) and valve stem assembly (15,16,17) from the gun body (8).

D) Remove the Gun Handle (9).

CONTROL HANDLE REASSEMBLY

A) Clean and inspect all parts for wear or damage. Replace any suspect, worn or damaged components.

Note: Lightly lubricate all o-rings and seals before assembly.

B) If required, carefully place new o-rings (15,16) onto valve stem (17).

Note: 'O'-ring (16) has a green dot and is different to the 2 'O'-rings (15).

C) Re-fit the gun handle (9).

D) Carefully insert the valve stem assembly(15,16.17) into the gun body (8).

E) Replace the valve spring (18), then replace the valve cap with its 'O'-ring in place (19,20).

Note: Ensure the valve spring locates around the nipple on the underside of the valve cap.

F) Replace the swivel assembly (14).

Note: After assembly ensure the control gun handle is operating correctly.

MANUAL NOZZLE MAINTENANCE

1) Using a spanner and strap wrench, unscrew the nozzle cap (1) from the nozzle body (6).

Note: All the nozzle seals must be replaced if the nozzle is disassembled.

2) Remove all the old seals from the nozzle body (6).

3) Inspect the nozzle cap (1) and nozzle body (6) for damage. Replace if found to be damaged.

4) Replace all the nozzle seals (2,3,4,5).

5) Lightly lubricate the seals, then reassemble nozzle.

IM019 METER INSTRUCTIONS

1. During normal operation the 6 Figure LCD display will appear as per the example diagram below.

2. Press the blue '*Mode*' button to enable toggle between the Batch and Display options.
   - Batch
   - Total

3. Press the red 'Batch' total button to reset the batch total.

Please note:
The accumulative total is non-resettable.

4. The unit will go to '*Sleep*' after 30 seconds without use to preserve battery life.

Programming Instructions

Note

Any changes made during the programming phase will automatically be '*Saved*' when the unit is returned to the operation mode.

'Programming' Menu

To enter press the reset button for 5 secs.
Once in the programming menu, press reset to scroll through the 3 programming options.

1- Setting Decimal Place
2- Display Units of measurement
3 - Calibration Mode

Setting the decimal place.

1.The unit is currently set at ' **dEC .22**"

2. Pressing the blue '*Mode*' button will cycle through options available
   - **dEC .1** = *1 Decimal Place*
   - **dEC .22** = *2 Decimal Places*
   - **dEC .333** = *3 Decimal Places*

3. To move to the next section (Unit) press the red '*Reset*' button

Setting the Units for both Batch & Total.

1. The LCD will now display 'UNIT'.

2. Pressing the blue '*Mode*' button will cycle through the options of units that can be displayed for Batch.
   - **L**
   - **GAL**
   - **Qt**
   - **Pt**
   - **Oz**
   - **dL**

3. Then press the red 'Reset' button to set the 'Total' units as above.

4. To move to the next section (Calibration) press the Red '*Reset*' button.

Calibration.

The calibration mode enables, in the case the operator suspects the accuracy of the meter is in question, the operator to dispense a known volume of fluid through the meter (Test Volume)
This Test Volume is compared to the volume measured by the meter (Measured Volume). The meter will perform an 'Auto Calibration' if applicable.

1. The unit will display 'CALIBRATE' in the lower left hand corner, and a number on the main display.

Programming Instructions

The following options can be scrolled through by pressing the blue *Mode* button

- 2
- 4
- 8
- 20
- 100
- 250

This number represents the 'Test Volume' to be dispensed through the meter during Calibration.

2. On selecting the 'Test Volume' press the blue *Mode* button for 3 secs.

The meter will display 'PURGE' and 'CALIBRATE' will also start to flash.

3. Purge the system of air by running fluid through the system.

4. Once purged of air the calibration process can be started by pressing the blue Mode button.

The unit will display RUN and the 'Test Volume'.
E.g. RUN 100

5. Run the Test Volume through the meter until stipulated volume has been reached (e.g. 100).

6. Once this volume has been reached press the blue *Mode* button to stop the test.

The unit will now compare the 'Measured Volume' to the 'Test Volume' and perform an 'Auto Calibration' if the difference between the two volumes are within ± 8% of each other.

Note:
If the difference between the two volumes is greater than ± 8% of each other, the unit will display one of the following messages..

- ERROR LOW
- ERROR HIGH

If these messages are displayed please contact your Macnaught agent for advice.

Return to 'Operation' Mode

The unit can be returned to the '*Operation*' mode at any time by pressing the red 'Reset' button for approx. 3 secs. The program changes will automatically be saved.

Maintenance Procedures.

Disassembly

Ensure that the fluid supply to the meter is disconnected, and the line pressure is released before disassembly.

1. Remove protective boot (item 29) and unscrew the four retaining screws (item 28) and remove the Electronic Module (item 27)

2. Check for evidence of moisture into the electronic housing. If there is evidence of this, check the condition of the

3. To access the Rotor assembly, remove the 8 Meter Cap screws (item 33)

4. Remove the rotors (item 30) and inspect for any damage or evidence of foreign material inside the meter.

Note:
Replace any damaged or worn parts.

Reassembly

Note:
Insert the rotors with the magnets facing up toward the electronic module.

1. Replace the rotors (Item 30) onto the shafts at 90 degrees to each other (as per diagram below)

2. Check the rotors rotate freely by turning either of the rotors. If the rotors do not rotate freely, remove one of the rotors and replace it at 90 degrees to the other rotor.

3. Replace the '0'-ring (item 31) into the groove of the Meter Cap (item 32).

4. Replace Meter Cap to Meter Body (item 25) and tighten Meter Cap screws (item 33) in a diagonal sequence
E.g. 1, 5, 3, 7, 4, 8, 6, 2

5. Place the O-Ring (item 26) into the Electronic Module (item 27) and mount the Electronic module to the Meter Body.

6. Replace the screws and tighten the in a diagonal sequence

7. Fit the protective boot (item 29) to the electronic module (item 27).

Changing the Battery.

A 'Low Battery' warning will be displayed on the LC screen when there is 5% power left. The warning will remain active until the battery is replaced.

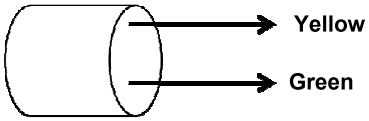
1. Remove the PCB from clear plastic housing by unscrewing the 3 retaining screws.

2. The battery can now be removed by placing a screw driver into the slot (*slot indicated by arrow*) on the PCB and easing the battery free from its compartment.

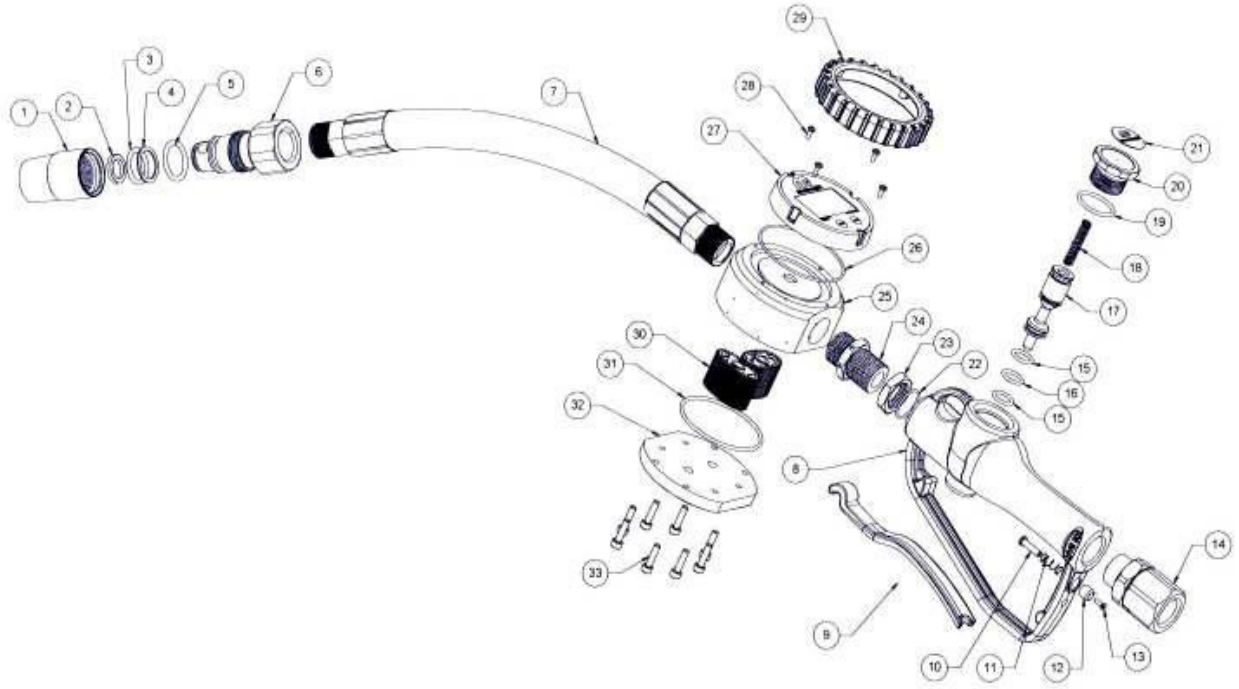
3. Replace with a new CR2450 Lithium battery.

REED SWITCH

Please Note: Not dependant on Polarity



PARTS DIAGRAM



		Order for replacement		
Item	No. off	Part / Set	Kit Ref	Description
		HG100-1K (KIT A)		Overhaul kit
1	1			Nozzle cap
2	1		A	Quad ring
3	1		A	O'ring (BS212)
4	1	HG424s	A	Backup ring
5	1		A	O'ring (BS214)
6	1			Nozzle body
7	1			Outlet hose
8	1	n/a - new gun required		Gun body
9	1	HG411s		Gun handle
10	1		A	Latch pin
11	1		A	Latch spring
12	1		A	Latch cap
13	1		A	Latch screw
14	1	HG421s		Swivel (BSP)
14	1	HG422s		Swivel (NPT)
15	2		A	O'ring (BS113)
16	1		A	O'ring (Green Dot)
17	1	order HG413s		Valve stem
18	1		A	Valve spring
19	1		A	O'ring (BS122)
20	1	HG413s incl items 17, 18,21		Valve cap
21	1			Label
22	1			O"ring (BS021)
23	1	HG439s		3/4" Connector nut
24	1			3/4" NPS x 3/4" NPT Adaptor
25	1	n/a - new meter		Meter body - 3/4" BSP
26	1			O'ring (BS040)
27	1	DKIT-IM019-MC		Electronic module
28	4			Screw (M3 x 8) Pan Hd Taptite
29	1	IM215s		Protective boot
30	2	MKIT-IM019-01		Rotor set
31	1			O'ring (BS147)
32	1	n/a		Cover plate
33	8	n/a		Screw SS SHCS (M5x20mm)

TROUBLE SHOOTING GUIDE

TROUBLE	CAUSE	REMEDY
No fluid passing through the meter	a) Blocked strainer	a) Clean or replace strainer
	b) Dirt particles jamming the rotors	b) Dismantle meter assembly and clean (refer to meter disassembly)
	c) Damaged plunger seal	c) Replace damaged plunger seal
The meter is not registering fluid output	a) Flat battery	a) Replace battery
	b) No signal from the magnets	b) Check magnets and replace rotors if required
	c) Damaged computer module	c) Replace computer module
No display	a) Flat battery	a) Replace battery
	b) Faulty LCD	b) Replace PCB
Constant oil leak from the nozzle	Damaged plunger seal	Replace plunger seal (check for damage)
Intermittent drip from the nozzle	Dirt in the nozzle	Remove the nozzle and blow out any dirt particles (replace if necessary).
Oil leak from the lever assembly area	Damaged o'rings	Replace damaged o'rings
Oil leak from between the body casting and the computer module casting	Damaged o'ring	Replace damaged o'ring
Low flow rate	Blocked strainer	Replace strainer
Oil leaking from the swivel inlet	Damaged o'ring or swivel	Replace damaged o'ring or swivel
Meter not accurate	Flowrate outside recommended flow rate	Adjust flowrate (refer to specifications)

NOTES:

WEEE Directive - Waste Electrical and Electronic Equipment

The WEEE Directive requires the recycling of waste electrical and electronic equipment in the European Union.

Whilst the WEEE Directive does not apply to some of Macnaught's products, we support its policy and ask you to be aware of how to dispose of this product.

The crossed out wheelie bin symbol illustrated and found on our products signifies that this product should not be disposed of in general waste or landfill.

Please contact your local dealer national distributor or Macnaught Technical Services for information on product disposal.

SPECIFICATIONS

Flow Range:	Up to 56 ltr / min (15 US GAL)
Maximum Pressure:	105 BAR / 10500 kPa / 1500 PSI
Maximum Operating Temp:	55 deg C (131 deg F)
Accuracy	0.5% of reading
Re- Settable Batch Total	99999.9
Non-Resettable Accumulative Total	999999
Maximum Viscocity	1000 cP (Centipoise)
Swivel Inlet:	3/4" BSPT or 3/4" NPT
Outlet:	3/4" NPT
Wetted Parts:	Aluminium, Mild Steel, Nitrile Rubber
Fluid Compatibility:	Transmission Fluid, Anti-freeze / Anti-Boil, Engine oil
Maxumum Viscocity	Diesel Oil, and Lubricating oils to SAE140

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Note:
This product should be disposed of according to all applicable local and national government environment regulations and guidelines.

For Warranty Terms and Conditions see macnaught.com.au
For a list of Australian Service Centres see macnaught.com.au