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HG45 MECHANICAL PRESET OIL INSTRUCTION MANUAL

INTRODUCTION

Thank you for purchasing a Macnaught HG45 oil control gun complete with preset mechanical meter. This Macnaught oil control gun has been designed to dispense, measure and control oil flow. This control gun is suitable for use with engine oil, gear oil, automatic transmission fluid and anti-freeze/anti-boil and compatible fluids.

Macnaught also manufactures a complete range of ratio oil pumps and retractable oil hose reels to fulfill all your fluid handling needs.

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

GENERAL INFORMATION

The information contained in this manual 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 center.

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.

This oil control gun is not designed for in-line installation. Do not install with a shut-off valve on the outlet side of the meter. Such an installation could result in damage to the meter housing cover.

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

Do not exceed the maximum working pressure of 10350 kpa / 1500 psi / 103 bar.



CAUTION

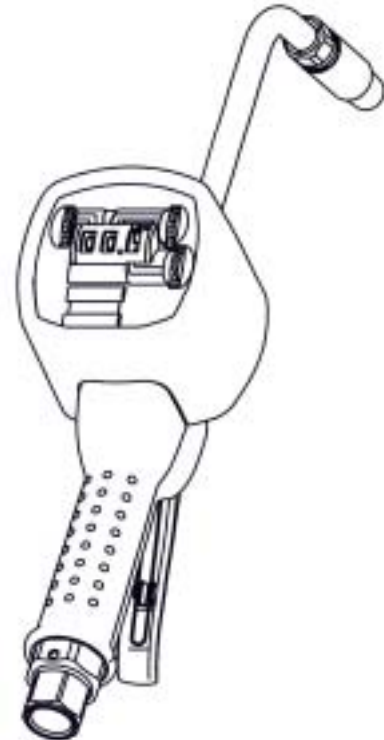
Do not hit the oil control gun if it fails to operate. Refer to "trouble shooting guide" or return the unit to your nearest authorised service center.

Never point the nozzle at yourself or anyone else.

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

Before each 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 pressing 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.

Outlet Nozzle.

The outlet nozzle can be fitted either "inline" (forward) or on the outlet port "pistol style" located under the gun.

The long outlet tube should be used for the "inline" option.

The short adaptor should be used (instead of the long outlet tube) when using the "pistol style" option

Note: Use the threaded Plug supplied to seal the outlet port not in use

OUTLET NOZZLE OPERATION

When fluid flows through the gun the outlet nozzle will automatically open. When the fluid flow stops outlet nozzle will automatically shut

HANDLE OPERATION

To latch the handle first press the lever (38) followed by push button (41). To release latch simply press and release lever (38).

When the meter has been programed to dispense a set volume the lever will automatically release once the preset volume has been reached.

Note: Do not obstruct or stop the lever from releasing automatically.

PRE-SET METER OPERATION

The programable batch totalizer provides the ability for the gun to automatically shut off after a pre-set volume has been dispensed, see fig 1.

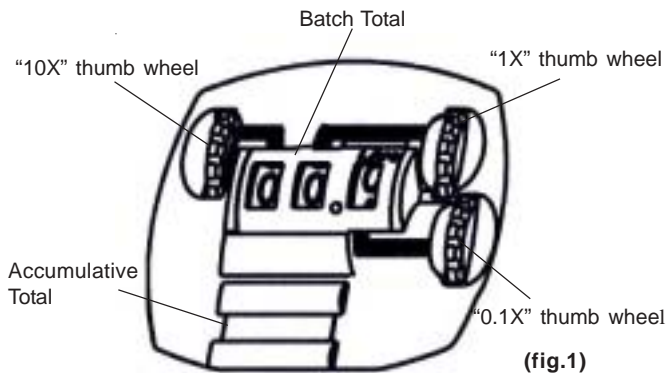
The non-resettable accumulative totalizer will record the total volume of oil which has passed through the meter, see fig 1.

HOW TO PRESET THE BATCH TOTAL

- To set the "10" digit, (fig 1). Press down and rotate the 10X thumb wheel until the required digit is displayed.
- To set the "1" digit, (fig 1). Press down and rotate the 1X thumb wheel until the required digit is displayed.
- To set the "0.1" digit, (fig 1). Press down and rotate the 0.1X thumb wheel until the required digit is displayed.

Note: The thumb wheels can be rotated forward or backward

To dispense the preset volume simply press the lever (38) followed by the push button (41). The gun will automatically shut off at the preset volume.



MAINTENANCE



CAUTION

Before carrying out any maintenance disconnect the air supply to the pump and release the fluid pressure in the system by pressing the lever on the control gun.

Inspect your oil control gun daily for any signs of damage. Replace any damaged parts or components as required.

CONTROL HANDLE DISASSEMBLY

Use a clean bench to carry out maintenance.

- Remove the oil hose from the control gun inlet swivel (49)
- Unscrew and remove swivel (49) washer (47) and o'ring (48) from the control gun inlet. Clean or replace the strainer and o'ring.

Caution the swivel is under spring tension

- Slide off the handle sleeve (46).
- Remove valve spring (45), valve seal assembly (44) and plunger(43)

Lever, Latch plate and Valve Removal

- With the use of a suitably sized pin punch carefully remove the latching plate pin (35), spring (36) and latching plate (37). (The pin should be removed from the opposite side from the latch spring).
- Using a 2.5mm allen key, remove the 2 handle screws (42).
- Remove lever (38).
- Remove the back up ring (34), "O"Ring (33), then push the valve cam(32) from the gun body (4), and remove "O"Ring (33).

CONTROL HANDLE REASSEMBLY

- Clean and inspect all parts. Replace any suspect, worn or damaged components.

Note: Lightly lubricate the valve cam (32) before assembly.

- Place "O"Ring (33) onto valve cam (32).

Note: The cutout section in the middle of the valve cam (32) must face the inlet swivel (49).

- Replace the valve cam (32) into the body (4). Note the orientation shown on the assembly drawing. Fit the second "O"Ring (33) and back up ring (34).
- Slide lever assembly (38) into position and replace the two allen screws (42). (Use Loctite or similar sealant).

Note: The latch plate pin should be fitted from the " 0.1X " wheel side of the gun.

- Slide the latching plate (37) into position, push the latch pin (35) through the lever and part of the way through the latch plate assembly.
- Insert the latch spring (36) (The outside leg of the spring must point down and face away from the meter).
- Carefully press the latch pin (35) into position.
- Clip the inside leg of the latch spring (36) under the location tab on the latch plate (37).
- Replace plunger (43).

Note: The end hole in the plunger must face the meter.

- Assemble the valve seal assembly (44), and spring (45) then replace into the gun body.

Note: Install the spring, small end first.

- Replace handle sleeve (46).

- Replace washer (47), o'ring (48) swivel assembly (49), and screw firmly into place (Use Loctite or similar sealant).

Note: After assembly ensure the handle latch is operating correctly.

METER DISASSEMBLY

- Unscrew the swivel assembly (49) two complete turns to allow easy disassembly and assembly of the meter and remove the rubber boot (30).
- Unscrew the 4 x Philips head screws (21), from the underside of the gun body (4).
- Remove the mechanical register by pressing down on the "0.1X" wheel (fig 1), then very carefully lift out the register from the register housing.

NOTE: Do not force the register assembly when removing from the register housing, or damage may occur.

- Using 4mm Allen key remove 4 screws (31) from the underside of the gun body (4).
 - Remove register housing (22) assembly.
- Note:** Take care when removing register housing as the outlet shaft (15) and assembly are also removed at the same time.
- Remove gearbox housing (9) assembly.
 - Remove rotors (7,8).
 - Clean and inspect all parts. Replace any suspect, worn or damaged parts.

REPLACEMENT OF THE LATCH RELEASE PLATE AND BEVEL GEAR ASSEMBLY (register casting)

- Remove the philips head screw (27) holding the latch release plate assembly (25) and latch spring (24).

Note: Observe the correct orientation of the latch catch (26) before removal.

Use all new parts when reassembling the Latch release and gear / shaft assembly

- Assembly is a reversal of disassembly.

Meter Reassembly

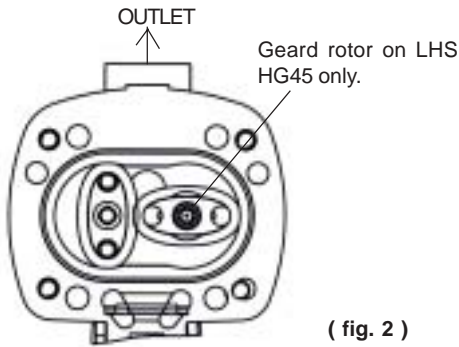
Note: Ensure all components are clean prior to reassembly.

- Replace rotors (7,8) into body casting (4). (see fig 2) for correct rotor positions.)

Note: Turn rotors by hand to confirm correct assembly. If rotors do not turn freely. (refer to fig 2 for correct rotor position)

- Fit "O"ring (5) to the gun body (4)
- Fit gears (12,13,14) into gear box (9).

Note: Gears are marked in order of assembly 1,2 and 3.



d) Replace "O"ring (10) on gear box housing (9) and position gearbox assembly on top of gun body (4).

e) Replace register housing assembly (22) on top of gearbox housing assembly (9).

Note: Ensure the latch catch (26) is positioned correctly into the slot located in the gear box (19), at the same time the gear shaft (15) on the register housing assembly (22), must be located through gear 2 (13) inside the gearbox and fitted into the location hole in the gearbox housing (9).

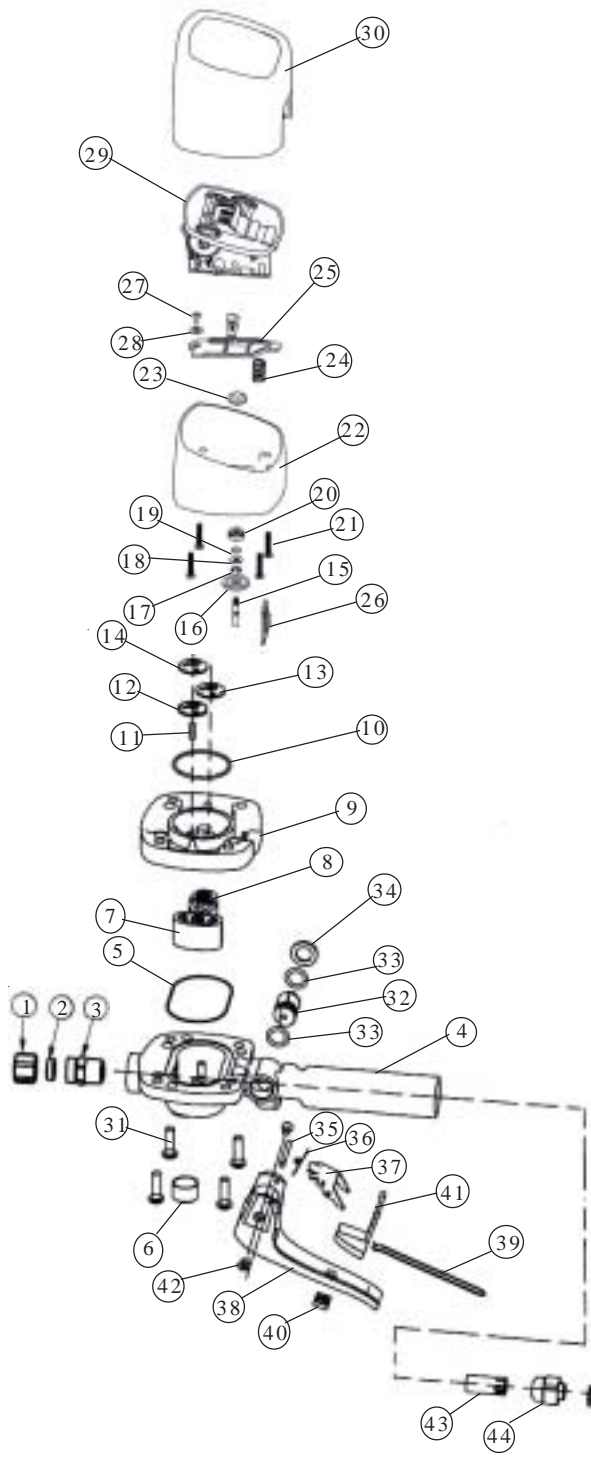
f) Replace 4 allen head screws (31) and screw the meter assembly together.

g) To fit the register assembly (29) into register housing (22), press down on the 0.1X wheel (fig 1). Carefully insert the register assembly into position and replace 4 x philips head screws (21).

Note: Do not force register assembly when fitting

Note: To check correct operation, latch the lever and use low air pressure or blow into the oil inlet. The meter should now register flow.

Spare Parts Diagram



Spare Parts List

ORDER FOR REPLACEMENT					
ITEM	PART No.	No. off	PART/SET	KIT. REF	DESCRIPTION
			HG40-1K (KIT A)		MAJOR SERVICE KIT
			HG031-1K (KIT B)		CONTROL VALVE SERVICE KIT
1	N429	1			COMPRESSION FITTING
2	N428	1			OLIVE
3	HG511	1			ADAPTOR
4	HG003	1	HG003s incl shafts		GUN BODY
5	BS035	1		A	O'RING
6	HG029	1	N57s		3/8" FLUG
7	HG005	1			OVAL GEAR
8	HG006	1			OVAL GEAR AND PINION
9	HG250	1			GEARBOX HOUSING
10	BS029	1		A	O'RING
11	NG24	1			MIDDLE SHAFT
12	HG243	1			QL1 LTR / QRT GEAR
13	HG246	1			QL2 LTR / QRT GEAR
14	HG245	1			L3 LITRE GEAR
14	HG236	1			Q3 QUART GEAR
15	HG232	1	HG245s (Ltr) incl 23		OUTLET SHAFT
16	HG238	1	HG236s (Qrt) incl 23		L4 LITRE GEAR
16	HG237	1			Q4 QUART GEAR
17	N266	1		A	E-CLIP
18	M138	1		A	WASHER
19	BS007V	1		A	O'RING
20	HG215	1		A	BRASS BOSS
21	N98	4		A	HI-LO SCREWS
22	HG206	1		HG215As (LTR)	REGISTER HOUSING
23	HG235	1		HG216As (Qrt)	A BEVEL GEAR (LITRE / QUART)
24	HG774	1			LATCH SPRING
25	HG771	1			LATCH RELEASE PLATE ASSEMBLY
26	HG256	1		HG771As	LATCH CATCH
27	N96	1			SCREW
28	N138	1			WASHER
29	HG701	1	HG700As (Litre)		REGISTER ASSEMBLY (LITRE)
29	HG701A	1	HG701As (Quart)		REGISTER ASSEMBLY (QUART)
30	HG264-Black	1	HG264BKS		MECHANICAL BOOT (BLACK)
30	HG264-Red	1	HG264RDS		MECHANICAL BOOT (RED)
30	HG264-Yellow	1	HG264YLS		MECHANICAL BOOT (YELLOW)
30	HG264-Green	1	HG264GRS		MECHANICAL BOOT (GREEN)
30	HG264-Blue	1	HG264BUS		MECHANICAL BOOT (BLUE)
31	N95	4	N95s		A TAPITTE SCREWS
32	HG030	1	order HG031-1K		A & B VALVE CAM
33	BS111	1			A & B O'RING
34	HG037	1			A & B BACK UP RING
33	BS111	1			A & B O'RING
35	HG352	1			PIN
36	HG355	1			SPRING
37	HG356	1			RELEASE PLATE
38	HG021	1			LEVER (LATCHING)
39	HG024	1		HG016As	BUTTON SPRING
40	HG025	1			LEVER PLUG
41	HG022	1			PUSH BUTTON
42	N55	2			A & B COUNTERSINK SCREWS
43	HG032	1		HG032s	PLUNGER
44	HG038	1			A & B VALVE SEAL ASSEMBLY
45	HG033	1			A & B VALVE SPRING
46	HG004BK	1	HG004BKs (BLACK)		HANDLE SLEEVE
47	HG045	1			A & B WASHER
48	BS117	1			A & B O'RING
49	HG040A	1			SWIVEL ASSEMBLY (BSP)
49	HG043A	1			SWIVEL ASSEMBLY (NPT)
50	TD81	1			A & B STRAINER (not pictured)
51	BS113	1			A & B O'RING (not pictured)
54	HG524	1	HG524S		ADAPTOR (PISTOL STYLE) (not pictured)
55	HG570	1	HGNZL		OUTLET NOZZLE ASSEMBLY (not pictured)
56	HG510	1	HGREX incl HG511s		RIGID TUBE (not pictured)

TROUBLE SHOOTING GUIDE

TROUBLE	CAUSE	REMEDY
Meter not accurate	Flow rate not correct	Adjust flow rate to correct rate (1-30 Ltr/min)
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) Damaged register assembly (29)	a) Replace register assembly
	b) Damaged gear or gears (12, 13, 14, 16, 23)	b) Replace complete gear set.
	c) Bevel gear (23) is slipping on the outlet shaft (15)	c) Replace register housing assembly
Constant oil leak from the nozzle	Damaged plunger seal (44)	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 (33)	Replace damaged o'rings
Oil leak from between the body casting and the gear box housing	Damaged o'ring (5)	Replace damaged o'ring
Low flow rate	Blocked strainer	Replace strainer
Oil leaking from the swivel inlet	Damaged o'ring (48) or swivel	Replace swivel
Gun does not automatically shut off	Restriction preventing the lever from operating correctly	Remove any restrictions from around the lever area
	Dispense volume is not set correctly	Reset dispense volume
	Damaged release plate assembly (25)	Replace release plate assembly (25)
	Register assembly damaged (29)	Replace register assembly

SPECIFICATION

Accuracy:	+ - 1% (of Reading)
Flow Range:	1-30 l/min (0.26 – 8 US gal/min)
Maximum Pressure:	103.50 BAR / 10350kPa / 1500 PSI
Pressure Loss:	1Bar/ 100kPa / 14.4PSI @ 12 l/min (3.2 USgal/min) with calibration fluid (6 Centipoise Viscosity) without extension.
Weight:	1.16kg (2.55lbs)
Swivel Inlet:	½" BSPT or ½" NPT
Outlet:	¾"
Operating Temperature	-5° to +50°Celsius (23° – 122°F)
Wetted Parts:	Aluminium, Acetal, Steel, Nitrile Rubber
Fluid Compatibility:	Engine Oil, Diesel Oil, Automatic Transmission Fluid, Anti-freeze / Anti-Boil Mixture. (Maximum Viscosity SAE140)
Dimensions:	25.8cm (10inch) Long x 9.5 cm (3.7inch) High, 11cm (4.33inch) wide (Dimensions without extension)



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WARRANTY POLICY

Macnaught Pty Ltd ("Macnaught") warrants that all Products manufactured by Macnaught and purchased after 1st of July 1999 will be free from any defects caused by faulty materials or workmanship for a period of (5) years from the date of purchase of the product, provided that during the Warranty period:

- 1) Macnaught receives notice setting out full details of any defect in any product and details of the time and place of purchase.
- 2) The Purchaser, at their own cost returns the product to the nearest authorized Macnaught service center.

For componentry contained in the product, (such as o'rings, seals, springs and hoses) which are subject to wear, the warranty period will be (12) months from the date of purchase of the product.

Macnaught shall, at its option repair or replace any product found defective by its inspection. This warranty does not cover failure of parts or components which, in the judgment of Macnaught, arises from misuse, abrasion corrosion, negligence, accident, substitution of non-Macnaught parts, faulty installation or tampering.

If Macnaught inspection discloses no defect in material or workmanship, repair or replacement and return will be made at customary charges. Macnaught's liability and the purchaser's rights under this Warranty shall be limited to such repair or replacement and in particular, shall not extend to any direct, special, indirect or consequential damage or losses of any nature. The foregoing warranty supersedes, voids and is in lieu of all or any other warranties.

"Note: This warranty does not form part of, nor does it constitute, a contract between Macnaught and the end-user or purchaser. It is additional to any warranty given by the seller of the products.

This warranty does not exclude, limit, restrict or modify the non-excludable rights or remedies conferred upon the end-user or purchaser, or the non-excludable duties or liabilities imposed on the seller or Macnaught, by Part V, Divisions 2 and 2A of the Trade Practices act 1974 (Commonwealth) or other legislative provisions. Macnaught otherwise excludes, to the extent permitted by law, any rights conferred on the end-user or duties or liabilities imposed upon it."