Adam Pumps

cabinets, meter, DC and AC pumps, accessories, repair kit

MANUAL OPERATION AND MAINTENANCE

TECH TANK

210L

440L

GENERAL DESCRIPTION
INSTALLATION & OPERATION
MAINTENANCE & REPAIR
PARTS LIST

Read and understand this Operating Manual before starting installation, maintenance or repair.

GENERAL DESCRIPTION AND ALLOWED USE

This diesel transfer system is designed for the delivery of diesel fuel (also for heating fuel and antifreeze) to vehicles and equipment from an open surface storage tank. The pump is a self priming, positive displacement, rotary vane machine which operates on 12V DC power (models for 24V DC power are available), and delivers a flow of approximately 40 litres per minute. The pump has a built-in bypass valve that keeps the operating pressure below 1.3 Bar (18 psi). The motor has a 30 minute duty cycle.

SAFETY PRECAUTIONS AND FORBIDDEN USE

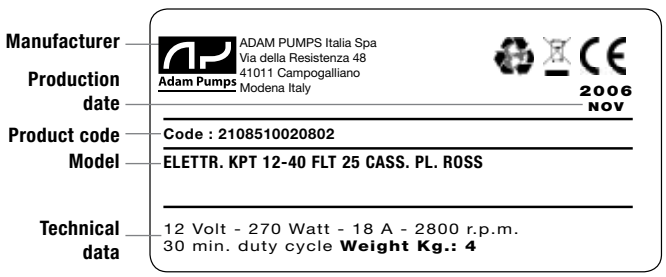
Improper use or installation of this product can cause serious bodily injury or death!

- **Not for use with gasoline, alcohol, or other liquid with a flash point below 40°C (104°F)**
- **Not for use in hazardous locations.**
- **Not for use with fluids thicker than diesel fuel.**
- **Not for use to transfer fluids into an aircraft.**
- **Not for use with fluids for human consumption.**
- **Not for dispensing water.**
- **Not for continuous duty applications.**

EC COMPLIANCE STATEMENT

ADAM PUMPS ITALIA SPA, Via della Resistenza, 46/48, 41011 Campogalliano (Modena) - Italy, states.This system has been designed for stocking, transport and transfer of diesel fuel for vehicles or machines (see forbidden use paragraph). The flow comply with the Directive for Machines 89/392/CEE (91/368/CEE, 93/44/CEE, 93/68/CEE), 89/336/CEE (93/68/CEE), 73/23/CEE, and with standards EN 60529, EN 60204-1, EN 55081-2. The TECH TANK system has been designed following total exemption normative 1.1.3.1C ADR. Declaring that the pump EN 55011C/.A, D.L. 277/91 and AC Tech 40, conforms to the harmonized EN 60529, EN 60204-1, EN 50081-2, EN 55011C/.A, DL 277/91. This document has been signed by:
Mr. Bernard Gilson, Via della Resistenza, 46/48, 41011 Campogalliano (Modena) - Italy, Phone +39 059 528128, Fax +39 059 528437who has full legal authority to represent the firm in the European Community. Dated, 1st of February 2008.

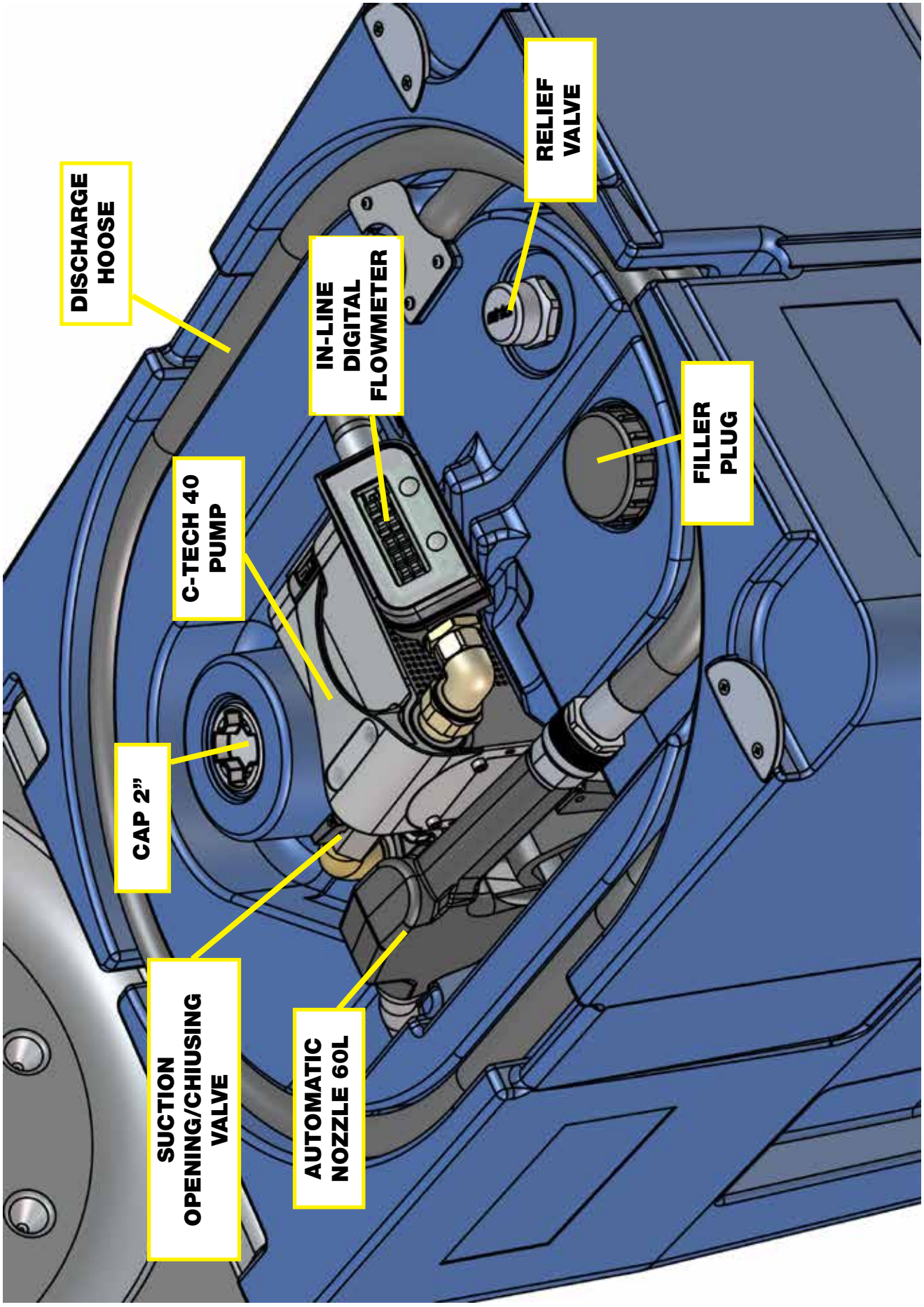
Machine Identification - Label (typical example)



This Operating Manual should be considered as part of the machine. When the machine is sold, it must be transferred to the new owner.

NB PERFORMANCE OF UNAUTHORIZED MODIFICATIONS TO "ADAM PUMPS" AUTOMATICALLY VOID WARRANTY OF ANY AND ALL RESPONSIBILITY 'CIVIL AND CRIMINAL CHARGE OF THE SAME.

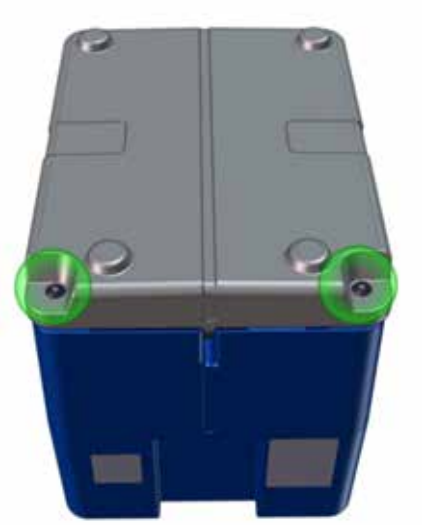
TRANSFER GROUP COMPONENTS



PRELIMINARY OPERATIONS

Before making any type of operation, read attentively this manual..

a) Using the key supplied with the unit, open the tank cover, make sure that during tran sport thank has not been damaged.



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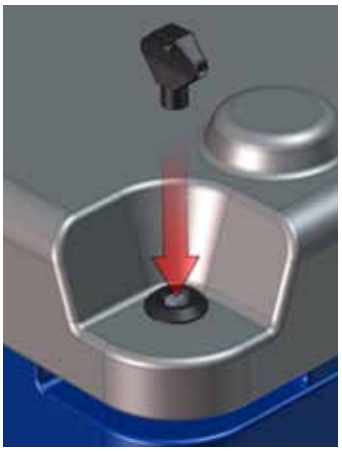

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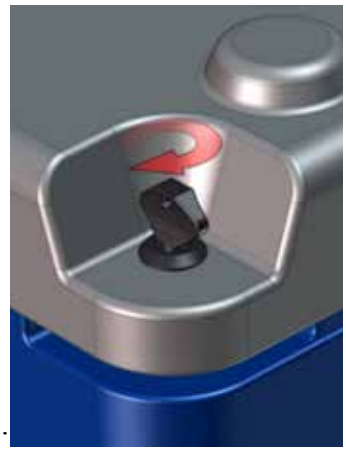


3.

4.

b) Position the tank on a secure surface, in a ventilated area, making sure that it is securely fastened during transportation. ATTENTION once full with diesel, the sloshing force could provoke tank movements!

c) Unscrew the filler plug and fill up the tank with diesel after having verified that pump is unplugged. For this operation wear appropriate safety clothes and devices like glasses and gloves.

d) One the tank is full, close and secure the filler plug.

e) If part of the kit, calibrate the digital flowmeter Di-Flow In line. (CALIBRATION paragraph)

ELECTRICAL INSTALLATION 12/24V

1. Connect the battery clips on the motor power cord to a suitable battery, capable of delivering the necessary voltage and current (see the Technical Data, back page of this manual)
   - The RED clip is attached to the positive (+) battery terminal.
   - The BLACK clip is attached to the negative (-) battery terminal or to the vehicle frame.
2. If the power cable provided is not long enough, have it replaced by an authorized electrician.

Avoid sparks that could cause a fire: Do NOT use a patch cord to extend the power cables.

ELECTRICAL INSTALLATION 230V

The pump must be provided with a safety device of 30mA minimum Din standard. The plug must be connected to an earthed SHUKO socket. Do not cut or replace the provided plug.

Avoid sparks that could cause a fire: Do NOT use a patch cord to extend the power cables.

OPERATIONS

AVOID HAVING PUMP RUNNING DRY FOR MORE THAN 3 MINUTES.

a) Open tank cover.
b) Before using the system, clean nozzle and hose from dirt.
c) Insert the nozzle into that to be filled up.
d) Connect the electrical cable to power supply as explained in paragraph: ELECTRICAL INSTALLATION after having verified that pump switch is on OFF(O)
e) Open the valve located at pump inlet.
f) Switch on pump motor.
g) Reset the DI-FLOW flowmeter to 0 by pressing the R button
h) Press nozzle lever to dispense.
i) When desired quantity or when the nozzle has automatically closed, release the trigger.
j) Switch off pump immediately.
k) Reposition nozzle and hose into their login and rewind power supply cable.
l) Close pump inlet valve and close tank cover.

MAINTENANCE

1. Inspect and clean the strainer on the inlet hose or pipe monthly.
2. Clean the metal “mouth” portion of the battery clips with steel wool monthly to maintain good electrical connection to the battery.
3. Hoses should be inspected annually. Replace if cracked or worn.
4. Rotor and vanes will eventually wear, and should be replaced if pump performance degrades. See the “Operational Problems” section to determine if replacement is needed.
5. Drain hoses and pump and store in a clean, dry place when not in use.

OPERATIONAL PROBLEMS (See Figures 5, 6 & 7)

Relieve pressure by opening the nozzle and draining the hose, and disconnect power before servicing pump.

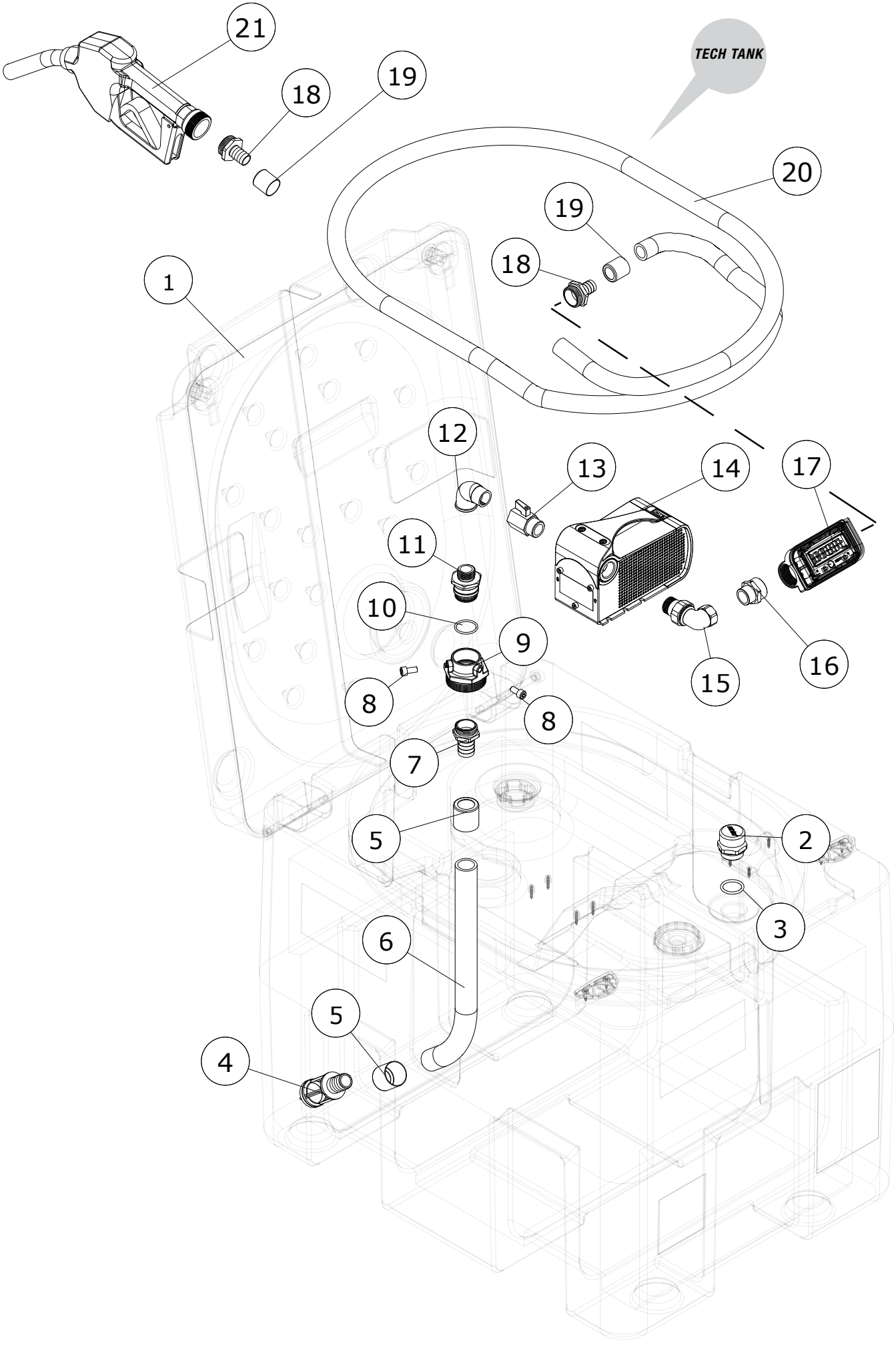
PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump won't prime.	1. Suction line problem	Check for leaks or obstruction in suction hose or pipe;
	2. Outlet is blocked	Check to make sure outlet hose and nozzle are clear and operating correctly;
	3. Bypass valve open	Remove and inspect valve; must move freely & free of debris;
	4. Vanes are sticking	Check vanes and slots for nicks, burrs and wear;
	5. Excessive rotor and/or vane wear	Replace rotor and vanes;
Pump hums but won't dispense fluid.	1. Dirt or rust in pump cavity	Clean out pump cavity;
	2. Broken rotor key	Remove all debris & replace key;
	3. Motor failure	Return to place of purchase;
Low Flow.	1. Excessive dirt in filter	Remove and clean or replace filter;
	2. Restriction on the outlet or in the inlet	Long and small ID hoses, filters, and automatic nozzles will reduce the flow rate. Use higher flow components;
	3. Excessive rotor or vane wear	Replace rotor and vanes;
	4. Low fluid level	Fill tank;
Pump runs slowly.	1. Incorrect voltage	Check incoming power;
	2. Vanes sticking	Check vanes and slots for nicks, burrs and wear;
	3. Wiring problem	Check for loose connections;
	4. Motor problem	Return to place of purchase;
Motor surface temperature gets hotter than 100°C (212°F).	1. Fluid is too thick	Fluid must not be thicker than diesel fuel;
	2. Motor ran more than 30 minutes	Motor is designed for a maximum "on" time of 30 minutes. Motor must be allowed to cool down before using again (except for model PA1 60);
	3. Excessive dirt in filter	Remove and clean filter;
	4. Blocked pump rotor	Clean and check rotor and vanes;
Motor will not turn on.	1. Battery dead or low (pump 12-24V)	Check battery;
	2. Fuse in power cord is blown (pump 12-24V)	A blown fuse often indicates a problem with the free rotation of the motor. Inspect for dirt or debris in pump cavity. Replace fuse with a standard automobile fuse with same value;
	3. Switch failure	Replace switch;
Liquid leaks.	1. Bad o-ring gaskets	Check all o-ring gaskets;
	2. Dirty shaft seal	Clean seal and seal cavity;
	3. Bad shaft seal	Replace seal;
	4. Incompatible fluid	The liquid must be compatible with HNBR seals and cast iron;
	5. Loose fasteners	Tighten fasteners;

NOTICE: ANY MODIFICATION PERFORMED ON THE UNITS WITHOUT "ADAM PUMPS" WRITTEN PERMISSION WILL AUTOMATICALLY VOID ANY GUARANTEE AND FREE "ADAM PUMPS" FROM ANY KIND OF RESPONSIBILITY.

SPARE PARTS MANUAL

POS	REFERENCE	DESCRIPTION	Q.TY
1	TT010	TANK	1
2	TT04	RELIEF VALVE1" BSP/G	1
3	OR006	O-RING 4112	1
4	121500700000	FILTER FLT 25	1
5	TUB002	BOCCOLA PRESSATUBO Ø 25	2
6	20152500000	TRANSPARENT SPIRALED HOSE Ø25 PVC	1
7	240015025000	HOSE STEM 1X25 O-RING 3118 NBR	1
8	13001015	SCREW TCCE M8X16 ZNB ISO 4762	2
9	INCH0002	TANK ADAPTOR 2" BSP/G	1
10	18001008	O-RING 3118 NBR	1
11	INCH0034	SWIVEL 3/4" BSP/G	1
12	250151500200	BRASS ELBOW 90° 3/4" BSP-G M-F	1
13	TT008	VALVE 3/4" BSP/G M/F	1
14	-	PUMP C-TECH 40	1
	AC400200	AC - TECH 40 L 230 V	-
	DC402400	DC - TECH 40L12V	-
	DC404400	DC - TECH 40L 24 V	-
15	250161500200	BRASS CURVED NIPPLE 3 PZ 3/4" BSP-G	1
16	250053254000	BRASS NIPPLE 1"-3/4"M	1
17	ILG00D	IN-LINE DIGITAL FLOWMETER	1
18	240015020000	HOSE STEM 1"X19 + O-RING 3118 NBR	2
19	TUB001	ALUMINUM BUSHING Ø19 (B28X30)	2
20	201015005000	DISCHARGE HOSE Ø19 X 4M	1
21	2715010000000	AUTOMATIC NOZZLE 60L	1

REPAIR KITS	
KIT - 40	KIT40
KIT BY PASS 40-45	KITBY40-45


TECH TANK
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TECHNICAL DATA

TANK IN RELIEF ADR N°1.1.3.1.C

GENERAL FEATURES 210L

capacity[L]:	210
dimensions [mm; bxhxp]:	800x600x700
material:	polyethylene
empty weight [kg]:	26
empty weight with pump [kg]:	35
cover with locking key:	yes

GENERAL FEATURES 440L

capacity[L]:	440
dimensions [mm; bxhxp]:	1200x800x700
material:	polyethylene
empty weight [kg]:	45
empty weight with pump [kg]:	54
cover with locking key:	yes

VERSIONS

TECH TANK STANDARD	12v CC	24v CC	230v CA
Voltage [V]:	12	24	230
Flow [l/min]:	40	40	40
Cable [m]:	4	4	2
Shut-off valve:	sì	sì	sì
Filler plug:	2”	2”	2”
Discharge hose [m, Ø]:	4.5 - Ø 19	4.5 - Ø 19	4.5 - Ø 19
Nozzle:	automatic	automatic	automatic
Meter:	no	no	no
Safety valve / vent:	1”	1”	1”

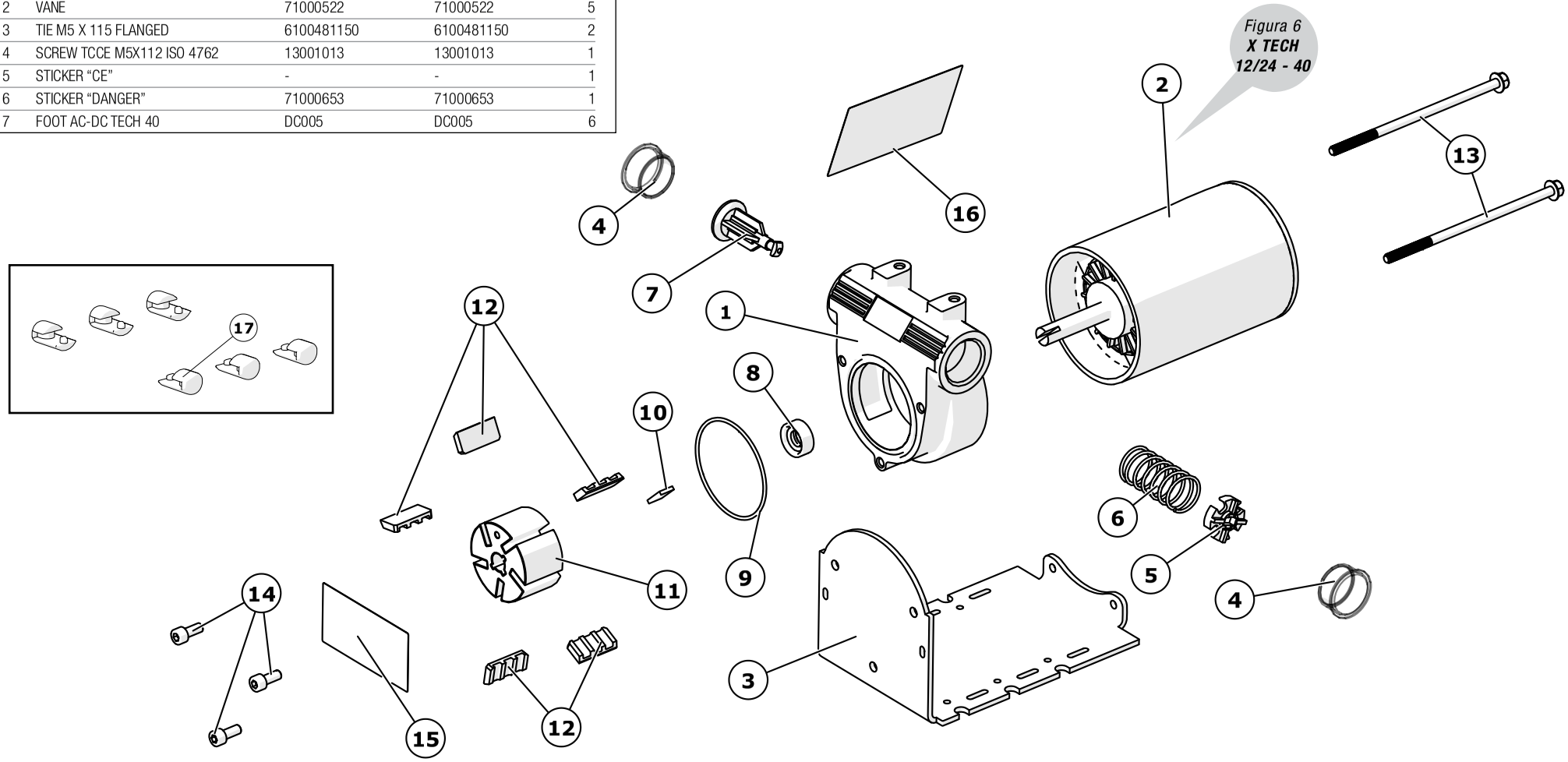
TECH TANK TOP	12 v CC	24v CC	230v CA
Voltage [V]:	12	24	230
Flow [l/min]:	40	40	40
Cable [m]:	4	4	2
Shut-off valve:	sì	sì	sì
Filler plug:	2”	2”	2”
Discharge hose [m, Ø]:	4.5 - Ø 19	4.5 - Ø 19	4.5 - Ø 19
Nozzle:	automatic	automatic	automatic
Meter:	flowmeter In-Line	flowmeter In-Line	flowmeter In-Line
Safety valve / vent:	1”	1”	1”

O TECH CC 40 FIG 6

POS.	DESCRIPTION	CODE		QTY
		12 V	24 V	
1	PUMP HOUSING 40L	CP001	CP001	1
2	ELECTRIC MOTOR Ø77	231501700000	231501700000	1
3	PLATE AC-DC TECH 40	DC006	DC006	1
4	SAVE CAP THREAD Ø25	163013300000	163013300000	2
5	BY PASS CAP	71000521	71000521	1
6	BY PASS SPRING Ø21, 4X42	71008006	190110000000	2
7	BY PASS VALVE	71000520	71000520	1
8	SEALING RING Ø19	12010031000	12010031000	1
9	O-RING 2212 NBR	18001014	18001014	1
10	PLASTIC KEY	71000517	71000517	1
11	ROTOR Ø45	61000003	61000003	1
12	VANE	71000522	71000522	5
13	TIE M5 X 115 FLANGED	6100481150	6100481150	2
14	SCREW TCCE M5X112 ISO 4762	13001013	13001013	1
15	STICKER “CE”	-	-	1
16	STICKER “DANGER”	71000653	71000653	1
17	FOOT AC-DC TECH 40	DC005	DC005	6

REPAIR KIT (see picture 6)

POS.	DESCRIPTION	CODE	QTY
KIT 40 LT		*KIT40*	
9	O-RING 2212		1
10	PLASTIC KEY		1
12	VANE		5
8	SEALING RING 10 X 19 X 7 HNBR		1
KIT BY PASS 40-45 LT		*41071000*	
7	VALVE		1
5	BY PASS CAP		1
6	BY PASS SPRING		1



AC-DC TECH 40 FIG 7

POS.	DESCRIPTION	CODE			QTY
		12 V	24 V	230V	
1	PUMP O-TECH 40	OT40200	OT40400	OT400000	1
2	STICKER “CE”	-	-	-	1
3	STICKER “DANGER”	71000653	71000653	71000653	1
4	SCREW TCCE M5X8 TRILOBATE DIN 7500 E	VT002	VT002	VT002	2
5	HANDLE AC-DC TECH 40	DC001	DC001	DC001	1
6	SWITCH HOLDER AC-DC TECH 40	DC002	DC002	DC002	1
7	RIGHT SIDE AC-DC TECH 40	DC004	DC004	DC004	1
8	LEFT SIDE AC-DC TECH 40	DC003	DC003	DC003	1
9	SWITCH ON/OFF 11X30	190050070000	190050070000	190050070000	1
10	SCREW TCCE M5X12 ISO 4762	13001013	13001013	13001013	2
11	FACEPLATE AC-DC TECH 40	MA022	MA022	MA023	1
12	CABLE WITH CLAMP 2M (FIG 8)	17001010	17001010	-	1
13	FUSIBLE 30A (FIG 8)	190170150000	190170150000	-	1
14	FOOT AC-DC TECH 40	DC005	DC005	DC005	6
15	CABLE GROMMET (FIG 8)	190100100000	190100100000	-	1
16	CABLE GROMMET (FIG 9)	-	-	AC001	1
17	CABLE WITH SCHUKO PLUG (FIG 9)	-	-	19000000000	1
18	O-RING 2287 NBR	-	-	OR010	1

Figura 7
AC -DC TECH 40
12/24 - 230

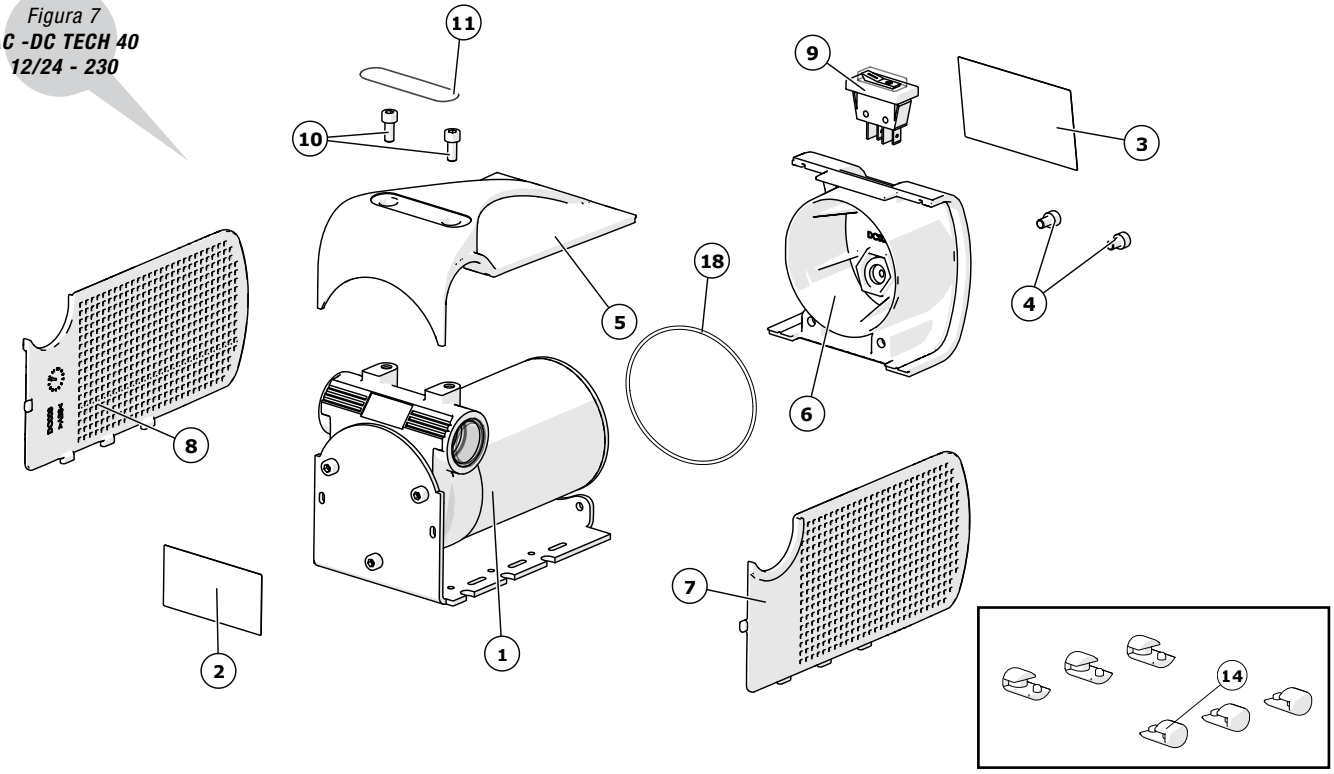


Figura 8
DC TECH
12/24 - 40

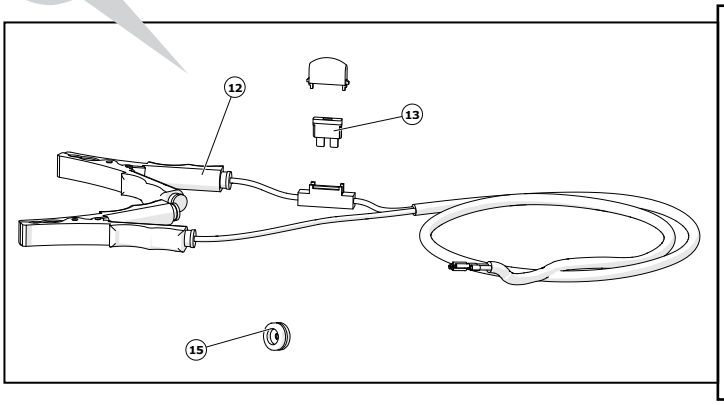
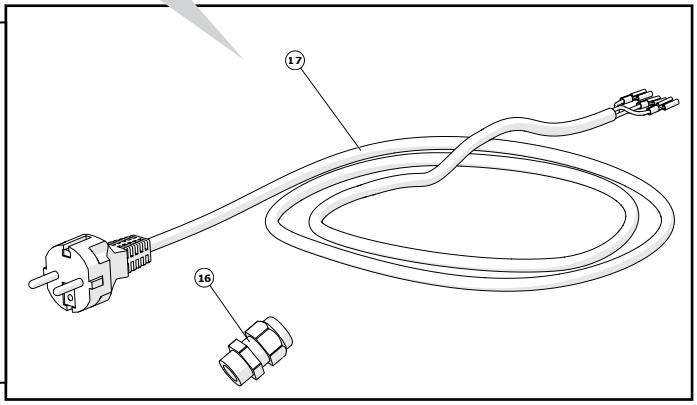


Figura 9
AC TECH
230 - 40

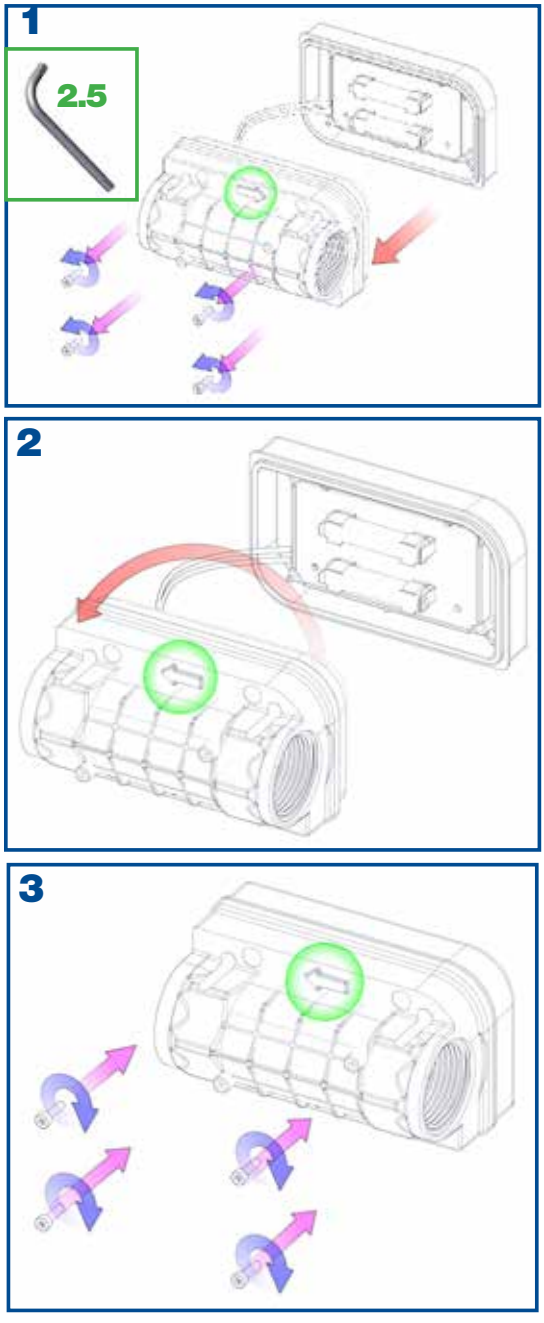


3. INSTALLATION AND USE

3.1 DISPLAY ORIENTATION

The meter is supplied with a calibration carried out for liquid diesel at 20 °C. Calibration is required when metering a different fluid, after disassembly, at different temperature or after significant wear. A proving container or a container of KNOWN volume will be needed for the calibration procedure. It is possible to invert the flow direction using following steps:

1. Remove the 4 screws from the back of the meter
2. Rotate the meter body by 180°
3. Reposition the body on the cover taking care of not squeezing wires.
4. Screw the 4 screws to tighten the body to the cover.



3.2 CONNECTIONS

When adding the flow meter to a existing system, connect the flow meter inlet to the outlet at of the pump, and connect the delivery hose into the flow meter outlet. It is important to respect the flow direction looking at the arrows on the meter body. In case you need the opposite flow, rotate the meter as described above in paragraph 3.1.

The meter has a double Reed switch system to avoid false readings due to vibrations or erroneous installation and turbine reverse rotation. The meter is threaded 1" BSP-P female both at inlet and outlet. Sealing is made using O - ring 30x3 70Sh.

It is necessary, if not already installed in the system, to install a filter or screen of at least 40 mesh prior to the flow meter.

3.2.1 ELECTRICAL WIRING FOR PULSER VERSION

If you bought our pulser model, the flowmeter is fitted with a 2m cable with 5 internal wirers to be connected as follows:

1. Yellow wire: power + 12 Vdc
2. Brown wire: power 0 Vdc
3. Green wire: pulser channel 100 imp/unit
4. White and grey wires: Relay contact should you desire to control the pump with the meter (max 24Vdc 500mAh)

Once connected to power supply, the meter will "Beep", this sound beeps at each button pressure (this happens only with pulser version).

It is important to know that the system is generating pulses 0-12Vdc with maximum frequency 2 milliseconds.

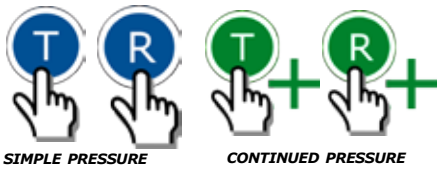
Should the meter control the pump, the R button will activate the pump while T button stops it.

Two default settings are available and settable in the system:

1. 60 seconds: to start the transaction after pressing R button
2. 20 seconds: seconds without pulse will stop the transaction.

3.3 KEY DISPLAY

3.3.1 SIMBOLS



3.4 MAIN FUNCTIONS

The meter switches on automatically when a transaction starts or when a button is pressed. The display switches off automatically when no transaction nor pulse is being detected during 120 seconds. Each time the display switches off, the "partial" resets to "0". It is then not necessary to reset the meter after it has switched off. When the meter switches o, it will automatically show the "partial" counter, it will also go back to this screen if buttons are not pressed during 10 seconds. There are 5 main screens that can be scrolled using  button, last 5 transaction however could be visualized using  button.

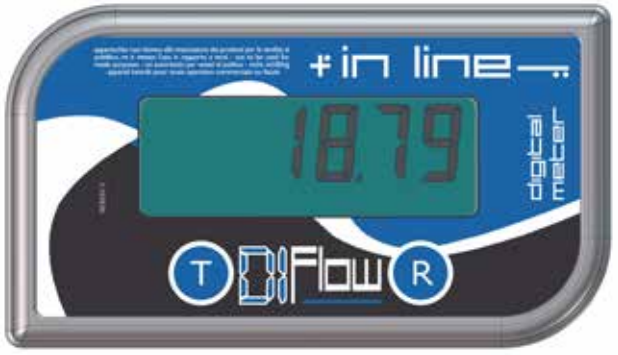
3.4.0 SCROLLING THROUGH 5 MAIN SCREENS

Starting from the "Partial" screen and at each time  button is pressed, following screens sequence will be displayed:

1)**TOTAL**, preceded by message "Total Litres"
2)**TOTAL PERIOD**, preceded by message "TotPer"
3)**TANK STOCK**, preceded by message "Stock"
4)**MINIMUM STOCK ALARM**, preceded by message "Alert"
5)**PARTIAL**

Starting from the "Partial" screen and at each time  button is pressed, system will scroll between last 5 transactions. To go back to "partial" screens wait 10 seconds without pressing buttons.

3.4.1 "PARTIAL" SCREEN



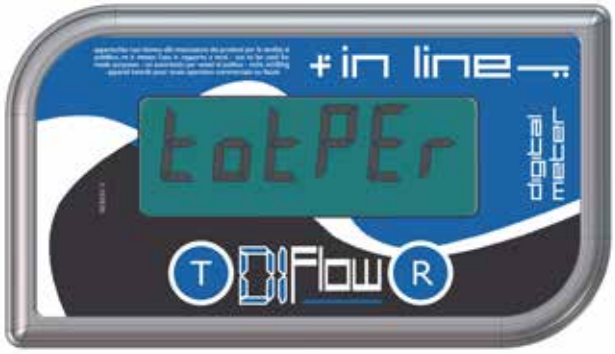
Displays 4.2 digits, switches on while pressing a button or detecting pulses at transaction start. An active meter will go back to this screens after 10 seconds without activity.

This screen is used as initial condition to describe other 4 available screens:

3.4.2 "TOTAL" SCREEN WITH MESSAGE "TOTAL LITRES""

 , displays 6 digits, no decimal, shows all litres transferred since first use. Cannot be reset.

3.4.3 "TOTAL PERIOD "SCREEN WITH MESSAGE "TOTPER"



T T displays 5.1 digits, identifica shows all litres transferred in a defined period of time. This totalizer can be reset by pressing R button.

3.4.4 “TANK STOCK” SCREENS WITH MESSAGE ”STOCK””

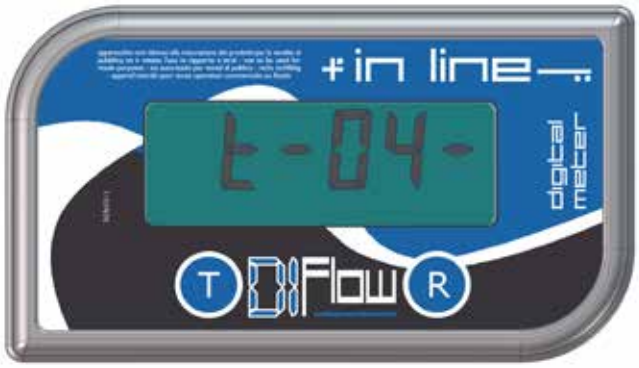
T T T displays 5 digits, no decimal, shows the calculated available stock. To insert available stock, it is necessary to go to “Stock” screen and press R button. Value on display will start blinking and will be then modifiable, increasing the value pressing R button or decreasing it pressing T button until you reach the desired number. Should you maintain the button pressed, the value will change rapidly. To confirm, wait 10 seconds until the “partial” screen I displayed.

3.4.5 “MINIMUM STOCK ALARM” SCREEN WITH MESSAGE ”ALERT”

T T T T displays 5 digits, no decimal place, settable at maximum 65000 litres. Such number identifies the minimum stock in the tank under which the meter will display the alarm. To set this alarm level, go to “Alert” screens and press R button . Value on display will start blinking and will be then modifiable, increasing the value pressing T button or decreasing it pressing T button until you reach the desired number. Should you maintain the button pressed, the value will change rapidly. To confirm, wait 10 seconds until the “partial” screen I displayed.
NB. Setting the value “0”, alarm will be de-activated. R

3.4.6 “LAST TRANSACTIONS SCREENS”

Scrolling using R button, displays 4.2 digits, allows you to see last 5 transactions. Each time R button is pressed, display shows the transaction number and the amount transferred. It is possible to sum the last transactions by pressing T button. Total is made depending off in which screens we currently are, example if we are currently displaying the fourth transaction, pressing T button will **T-04** and the sum of the 4 preceding transactions. It is possible to do this in any position of the transactions history.

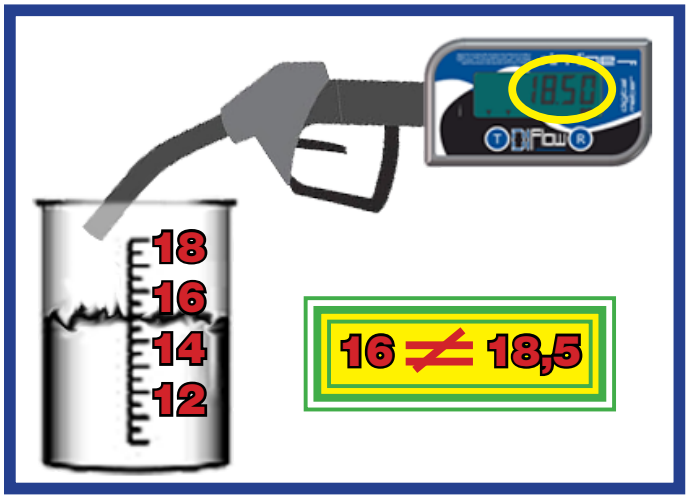


3.5 SECONDARY FUNCTIONS

The device has some secondary function, necessary to the good operation of the meter which are: calibration, unit selection and instantaneous flow rate.

3.5.1 CALIBRATION

The meter is supplied with a pre-calibration carried out for liquid diesel at 20 °C. Calibration is required when metering a different fluid, after disassembly, at different temperature or after significant wear. A proving container or a container of KNOWN volume will be needed for the calibration procedure. It is recommended that the container volume be at least 19 liters (5 gallons).



ATTENTON: the system does not allow a calibration if quantity transferred is under 5 litres.

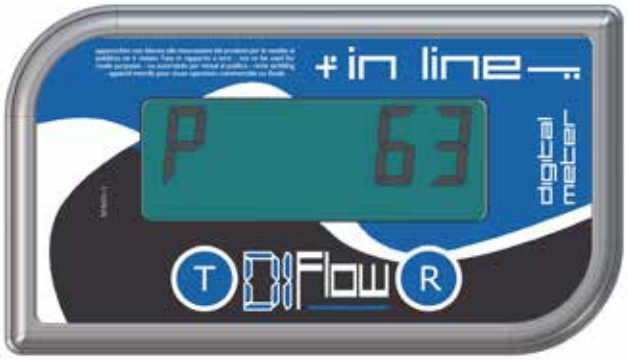
Calibration procedure

1. Starting from “Partial” screen, fill up the calibration jug to a known volume; it is important to do this at a flow rate of minimum 10 litres a minute without topping up else calibration could be inaccurate. Use the nozzle fully open.
2. if the displayed quantity is not matching the measured quantity the meter must be calibrated.
3. R + R to enter in calibration mode, display will show “CAL” blinking
4. R to confirm, will display last quantity transferred blinking in current unit of measure
5. Increase or decrease that quantity using R T buttons until correct quantity i displayed.
6. Wait 10 seconds to confirm and save automatically this new calibration.

With this new calibration last transaction as well as last 5 in history will be adapted to new calibration. TOTAL and TOTAL PERIOD will remain unchanged.

3.5.2 INSTANTANEOUS FLOW RATE

The device is capable of showing the instantaneous flow rate during a transaction. To visualize the flow rate press and maintain R button during transaction.



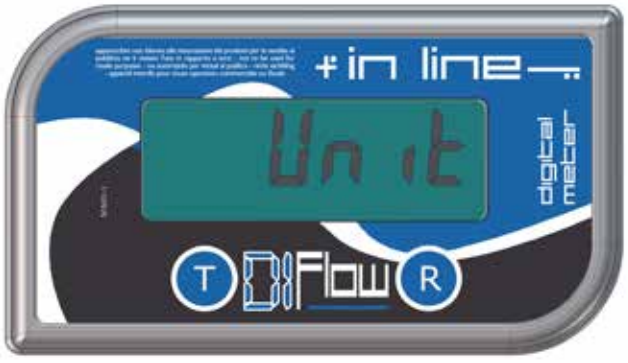
3.5.3 SELECTING UNIT OF MEASURE

The system has 4 standard units of measure (Litre - US Gallon - Quarts & Pint) plus one “Custom” unit that can be configured by the user. To select the unit, do as follows:

1. Start from “Partial” screen, to do this do not press buttons for 10 seconds.
2. press T to enter in “unit of measure” mode, the message “Unit” will be displayed
3. press R to confirm
4. press T to scroll between unit:

“litres”- “us-gal” –“quarts” – “pints” – “custom”

5. press R to confirm.



CUSTOM UNIT OF MEASURE

Default factory setting is decalitre (1/10 litre). This value can be configured as follows:

1.Repeat operations 1 to 5 from paragraph 3.5.3 “Selecting unit of measure”.

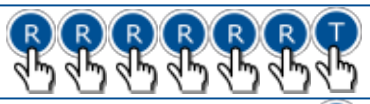
2.Once the choice of “custom” has been confirmed pressing R button, the meter will propose the default value blinking 0.100. To obtain such a coefficient, it I necessary to simply divide “custom”/”litre”. Example: if we desire to have a “custom” unit (1,00) for a 0,33 litre can, we have to divide 1 / 0,33 = 3,03 and insert the new coefficient 3.03.

3.Increase or decrease this value with R and button until you reach the desired value taking into account that reference unit is the litre.

4. Once the correct value is displayed wait 10 seconds, the meter will save the value and return to “Partial” screen.

3.5.4 BUTTONS COMBINATIONS:

Starting from “Partial” screen:
(see table page 9)

BUTTONS	FUNCTION
	reset partial screen (only if transaction is not going on
	visualize the instantaneous flow rate (only when transaction is ongoing)
	visualize first transaction in history
	visualize second transaction in history
	visualize third transaction in history
	visualize fourth transaction in history
	visualize fifth transaction in history
	visualize first transaction in history
	visualize total of first two transactions in history
	visualize total of first three transactions in history
	visualize total of first four transactions in history
	visualize total of all transactions in history
	visualize total “Total”
	visualize period total “totPer”
	reset period total ”totPer”
	visualize the ”Stock” situation
	modify the value in “Stock”
	visualize minimum stock level “Alert”
	modify minimum stock level “Alert”
	modify “unit of measure”
	enter in “calibration mode”

4. MANUTENTION & STOCK

4.1 TEST LCD & BATTERY CHANGE

While pressing T + & R + together for 2 seconds, the system will run a test one the LCD display

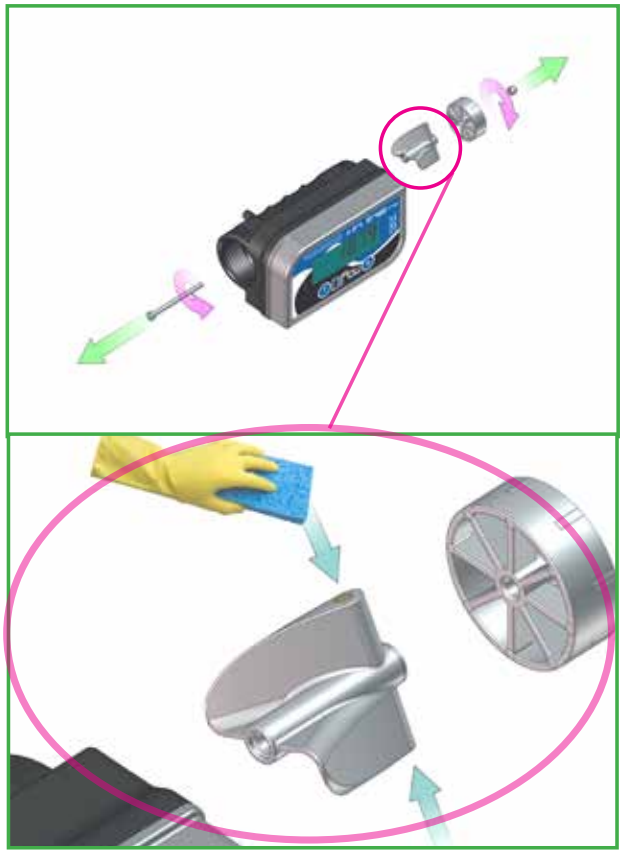
The system will then show following information:
1. Product name: ”DI FLOW”
2. Firmware version: “r1.0”
3. Current unit of measure: “Unit” “Litres”
4. Current calibration factor (imp/l): ”CAL” “40.00”
5. Power supply in Volt: “bat Vol” “2.79” (if value is < di 2.8V else “FULL”)
6. Percentage of residual battery charge: “bat Per” “52.95”(displayed only if supply tension is < 2.8 Volt)

When battery power is < 0.9Volt the displays shows a battery icon (bottom left). When this happens, display brightness will be low. It will be necessary to change batteries:

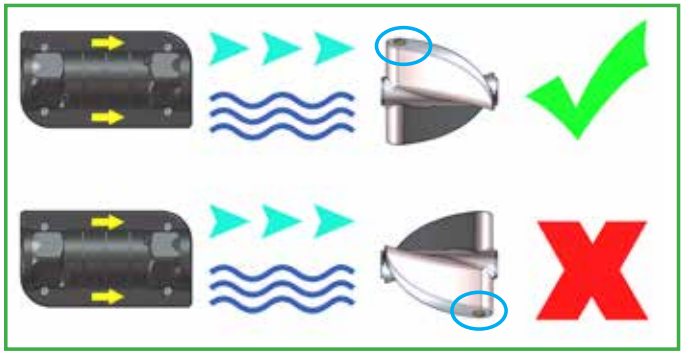
1. Rimove the 4 screws on the back of the meter
2. Exchange the 2 batteries with 2 AAA 1.5V alkaline batteries
3. Reposition the body on the cover taking care of not squeezing wires.
4. Screw the 4 screws to tighten the body to the cover.

4.2 CLEANING THE TURBINE

The meter has 2 magnets fitted into the turbine. This magnets could attract metallic powders (if present) that could block the turbine into the meter body. For that reason, it could be necessary to periodically verify and eventually clean the magnets. To do this, unscrew the internal shaft and its bolt. Take care to reassemble the turbine in the correct mode as illustrated hereafter. .



Be careful when reassembling the turbine in the correct direction, as in the following figure:



4.3 STOCK

If the meter has to be positioned in stock for a while, clean it carefully. This will help to prevent eventual damages.

4.4 DIAGNOSTIC

PROBLEM	POSSIBLE CAUSE	SOLUTIONS
The meter is not reading	1. turbine is blocked 2. wrong installation 3. Reed switches are broken 4. turbine has been reassembled reverse	1. Disassemble & clean turbine 2.verify thanks to the arrow on the meter that it i correctly fitted on the line. 3. contact your supplier to get an Exchange board 4. rotate the turbine by 180°
The display is not switching on	1. exhausted batteries 2. bad contact on batteries	1. change batteries 2. verify batteries positioning
Inaccurate precision reading	1. flow rate too low or too high 2.wrong calibration 3.air inside system 4. dirty magnets	1. verify technical data on pump flow rate 2.calibrate 3. verify that pump is not sucking air 4. clean magnets

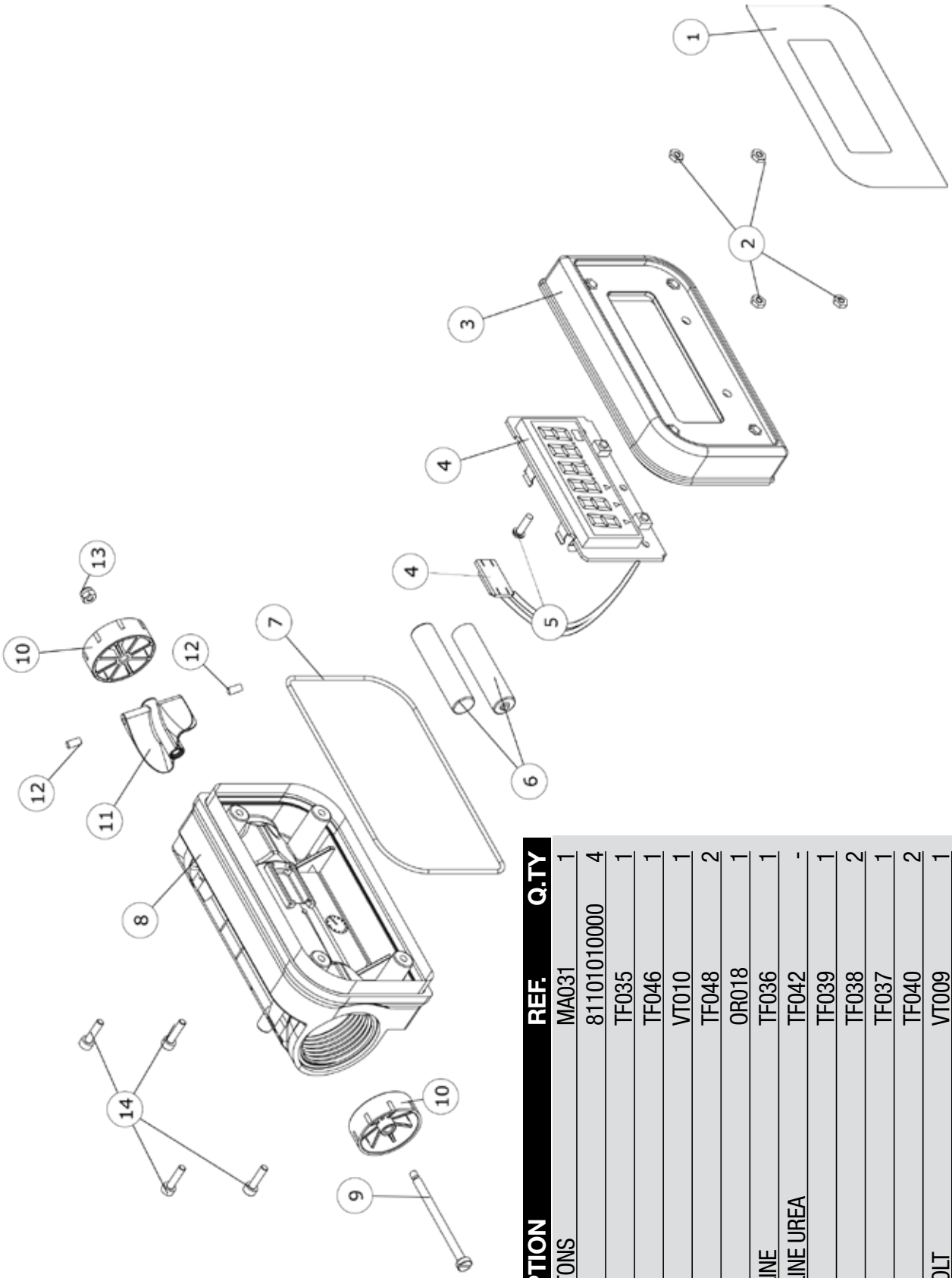
5 .TECHNICAL DATA BATTERY MODEL

1. Measuring system: Turbine
2. Inlet/Outlet : 1” BSP/G female
3. Measuring range: 5 - 150 lpm
4. Accuracy ± 0.5%
5. Repeatability (typical): ± 0.3%
6. Max Pressure of use: 3,5 bar (50 psi)
7. Temperature of use: -10°C + 60°C
8. Display: 6 digits LCD
9. Power supply: Alkaline batteries 2x1.5V AAA
10. Impermeability rating: IP65
11.Weight: 0.25Kg

5 .TECHNICAL DATA DI-FLOW 12V PULSER MODEL

1. Measuring system: Turbine
2. Inlet/Outlet : 1” BSP/G female
3. Measuring range: 5 - 150 lpm
4. Accuracy ± 0.5%
5. Repeatability (typical): ± 0.3%
6. Max Pressure of use: 3,5 bar (50 psi)
7. Temperature of use: -10°C + 60°C
8. Display: 6 digits LCD
9. Connection cable antiflame: 2m
10. Power supply: 12vDC - 10mAh (yellow +12, brown 0v)
11. Relay contacts: max.voltage 24vdc 500mAh (white,grey)
12. Pulser output: 0-12vDC, 100 imp/unit (green)
13. Impermeability rating: IP65
14. Weight: 0.25Kg

6 . EXPLODED VIEW & SPARE PARTS



POS.	DESCRIPTION	REF.	Q.TY
1	STICKER WITH BUTTONS	MA031	1
2	BOLT M3	81101010000	4
3	METER COVER	TF035	1
4	ELECTRONIC PCB	TF046	1
5	SCREWS M3	VT010	1
6	BATTERY AAA	TF048	2
7	O-RING	OR018	1
8	BODY DIFLOW – INLINE	TF036	1
	BODY DI FLOW - INLINE UREA	TF042	-
9	TURBINE SHAFT	TF039	1
10	TURBINE HOLDER	TF038	2
11	TURBINE	TF037	1
12	MAGNET	TF040	2
13	SELF BLOCKING BOLT	VT009	1
14	SCREW M3 X 12	VT011	1