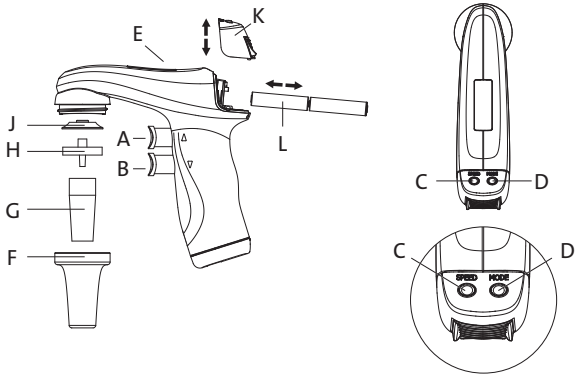
APPJET

CE

1



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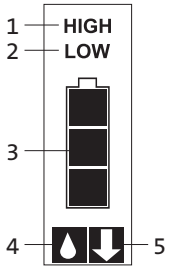

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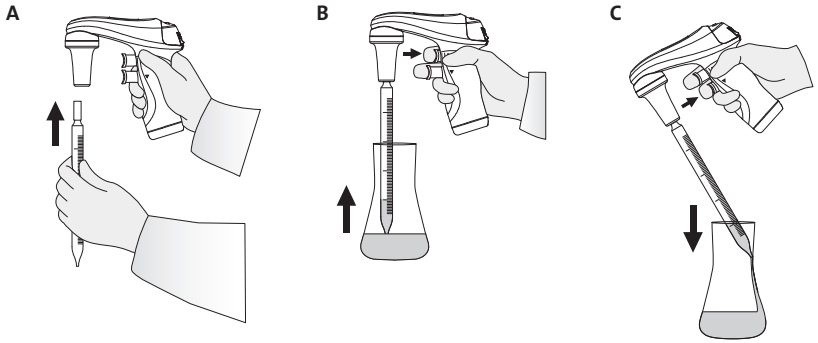
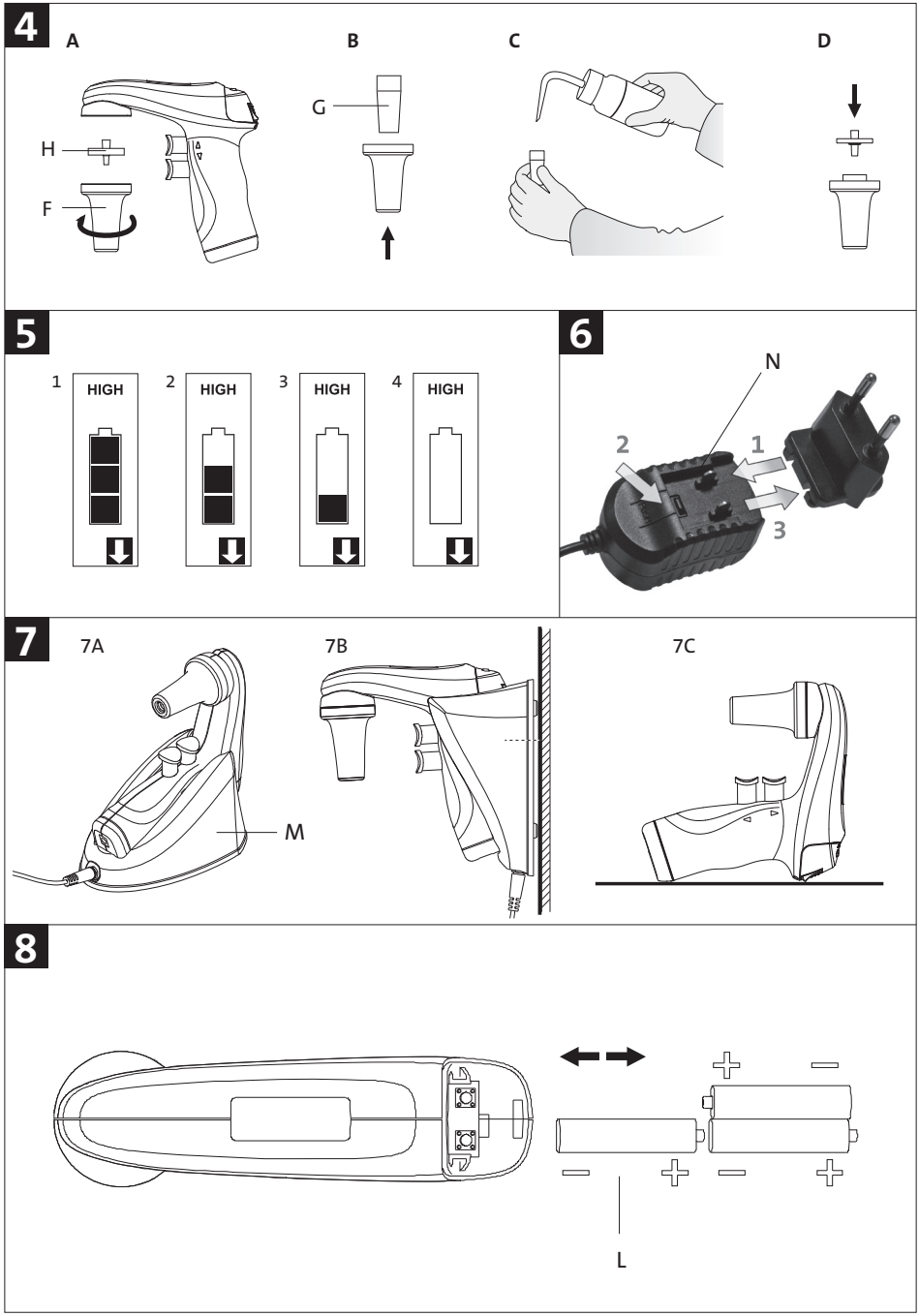


A – Aspiration button – PP
B – Dispense button – PP
C – Suction speed switch – PP
D – Dispense mode switch – PP
E – Display
F – Nosepiece – PP
G – Pipette holder – SI
H – Membrane filter – PP / PTFE
J – Connector gasket – SI
K – Batteries cover with wings – PP
L – Battery – NiMH, AAA, 1.2V

M – Charging stand – PP
N – Charger 9V: EU, US, UK, AU
INPUT: 100-240V, 50/60Hz, 0.3A
OUTPUT: AC DC 9V, 230mA

PP: Polypropylene
PTFE: Polytetrafluoroethylene
SI: Silicone


4
A
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D
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5
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3
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7A
7B
7C
M
8
L

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1 - INTRODUCTION

The **APP*JET*** pipette controller is designed to pipette liquids using measuring pipettes. It works well with all types of glass or plastic pipettes in the volume range from 0.5ml to 100ml. Two dispense modes permit the selection of dispensing intensity depending on the user's needs. The selected setting of the pipette controller mode is shown on the display (Fig. 1E). Fig. 1 shows the external parts of the pipette controller with a description of the materials used. Display indicators are shown in Fig. 2. It is intended for professional use and should be used for research purposes only.

2 - WORK SAFETY INSTRUCTIONS

⚠ WARNING! Risk of injury

CAUTION: Risk of damage to the device or errors in pipetting of liquids

Before starting to use the **APP*JET*** every user should read these operating instructions carefully.

CAUTION:

- Using the device inconsistently with the operating instructions may result in damaging the device.
- The device should be maintained only at an authorised service centre, otherwise the manufacturer will be relieved from any liability under the warranty.
- Only original spare parts and accessories, recommended by the manufacturer, should be used.
- Only the original charger, supplied by the manufacturer, should be used for charging the batteries.
- In case of incorrect functioning of the pipette controller, work should be stopped. The device should be cleaned according to section 9 and sent for repair to an authorised service centre.
- In the case of mechanical damage to the casing, the device should be immediately sent for repair to an authorised service centre.
- The use of excessive force during work should be avoided.

⚠ WARNING!

- When working with the pipette controller general safety regulations regarding risks related to laboratory work should be observed. Protective clothing, goggles and gloves should be worn.
- The pipette controller should only be used for measuring liquids in conditions specified by the manufacturer, which are limited due to the chemical and mechanical resistance of the device, as well as user safety.
- The information and instructions provided by the manufacturer regarding the use of reagents must be observed.

3 - LIMITATIONS OF USE

- The **APP*JET*** may not be used for measuring substances, the vapours of which damage the following plastics: PP, SI, EPDM, POM.
- The pipette controller may not be used in an environment where there is a risk of an explosion.
- Flammable liquids should not be measured - in particular substances with a flash-point below 0°C (ether, acetone).
- The pipette controller should not be used for drawing acids with a concentration above 1 mol.
- The pipette controller should not be used for drawing solutions with a temperature above 50°C.
- The pipette controller may be used in a temperature range from +10°C to +35°C.

4 - SWITCHING ON

The **APP*JET*** pipette controller is switched on by pressing any of the buttons (Fig. 1A, B, C, D). The display will show the selected aspiration mode, dispense mode and the battery level indicator. Examples of the display indications are shown in (Fig. 5). The batteries are discharged and require charging if the indicator does not display “bars” (Fig. 5.4). When the batteries are fully charged, the indicator displays three “bars” (Fig. 5.1).

- The pipette controller switches off automatically if not used for 5 minutes.
- The pipette controller may be charged only with the original charger.
- The mains voltage should conform with the specification on the charger.
- Charging should be done in accordance with section 8 of the instruction manual.

5 - ASPIRATING AND DISPENSING LIQUIDS

Attaching a pipette

CAUTION: Before attaching a pipette check that the pipette is not damaged, and has no dents or sharp edges in the gripping part. Check whether the gripping part is dry.

The pipette should be gripped as close to the upper end as possible and carefully inserted into the pipette holder until resistance is noticed (Fig. 3A).

⚠ WARNING!

Do not apply excessive force so as to damage thin pipettes to avoid risk of injury. A pipette that has been correctly attached and sealed in the holder should not tilt to the side.

After attaching a pipette hold the device in such a way as to keep the pipette controller in a vertical position. It is not recommended to leave the device with a pipette attached for a longer period, for example overnight or over a weekend.

CAUTION: Do not put the pipette controller aside if there is liquid in the pipette.

Filling the pipette

Before starting aspiration, set the speed by pressing the SPEED switch (Fig. 1C) until the display shows the right speed (Fig. 1E).

- HIGH speed - fast aspirating (Fig. 2.1),
- LOW speed - slow aspirating (Fig. 2.2).

We recommend setting the pipette controller to a LOW speed when working with pipettes of volume up to 5ml, and a HIGH speed for pipettes of volume greater than 5ml. Hold the pipette controller in such a way that the pipette is in a vertical position by immersing the pipette end in the liquid to be drawn up (Fig. 3B), and press the aspiration button gently. The speed depends on how deep the aspirating button has been pressed. The deeper the button is pressed the faster the liquid is aspirated into the pipette.

We recommend drawing a slightly greater liquid volume than required (due to meniscus above the required volume mark), and adjusting the aspiration speed, so as not to overfill the pipette.

Setting the volume

After the pipette is filled, dry the outside surface with absorbent paper that does not leave impurities. Then set the required liquid volume precisely. Press the dispense button gently (Fig. 3C), and dispense the excessive liquid from the pipette until the meniscus of the liquid aligns exactly with the required volume mark on the pipette.

Emptying the pipette

Holding the vessel in inclined position, place the pipette end in contact with the vessel wall and press the dispense button gently (Fig. 3C). The dispensing intensity may be adjusted depending on how deep the dispense button has been pressed. The deeper the button is pressed the faster the outflow of liquid from the pipette.

The **APP*JET*** has two dispense modes. The dispense mode is selected by successively pressing the MODE switch (Fig. 1D) until the display shows the right mode (Fig. 1E).

- gravity mode marked with the icon on the display (Fig. 2.4) – dispensing is effected in gravity mode, which means that the liquid flows out of the pipette by its own weight.
- blow out mode marked with the icon on the display (Fig. 2.5) – dispensing is effected in gravity mode, however, when the dispense button is pressed to the middle position, the pump is started and fast emptying of the pipette with a blowout is achieved.

CAUTION:

During gravimetrical dispensing the pipette is not completely emptied due to the characteristics of pipettes used with the pipette controller.

6 - TROUBLESHOOTING

If during your work the functioning of the pipette controller is incorrect, check the cause in the table below and remove the fault.

Problem	Possible cause	Action
The pipette falls out (the holding force of the pipette is too small), or tilts to the side too much.	The pipette holder is dirty or wet (Fig. 1G).	Take out the pipette holder, clean, wash and dry.
	The pipette holder is damaged.	Replace the holder with a new one.
The pump is working, but the pipette controller does not draw liquid or draws liquid very slowly.	The filter is dirty (Fig. 1H).	Take out the pipette holder, then take out the filter, and if it is dirty, replace it with a new one.
	The pipette holder and/or the connector gasket is damaged (Fig. 1J).	Replace the mechanically damaged elements with new ones.
Liquid leaks from the pipette (the aspiration and the dispense buttons are not pressed)	The pipette is damaged.	Check the pipette for damage like cracks & dents - if present, replace the pipette with a new one.
	The pipette is inserted incorrectly.	Check whether the pipette has been correctly inserted in the holder.
	The pipette holder, the filter, or the connector gasket is installed incorrectly.	Check whether all parts are present and correctly installed.
	The pipette holder and/or the connector gasket is damaged (Fig.1G, Fig. 1J).	Replace the mechanically damaged elements with new ones.

If the above actions do not help, the device should be sent to **Appleton service**.

Before that the product should be cleaned and decontaminated. Fill in the questionnaire available at *www.appletonwoods.co.uk/APPJET.pdf* with precise specification of solutions used and the type of laboratory, in which the device has been used, and send it together with the product.

7 - REPLACING THE FILTER

CAUTION:

The work safety instructions given in section 2 should be observed when disassembling

the pipette controller.

Filter replacement is necessary, if deterioration of drawing efficiency is observed. The direct reason may be a dirty filter after a long period of use.

In order to replace the filter:

- Remove the pipette.
- Unscrew the nosepiece (Fig. 4A).
- Remove the membrane filter (Fig. 4A) and the pipette holder (Fig. 4B).
- Rinse the holder using a wash bottle (Fig. 4C).
- Blow liquid out of the holder and leave it until it is completely dry.
- Install new membrane filter (Fig. 4D) and assemble the device in reverse order.

8 - CHARGING THE BATTERIES

CAUTION!

The **APP*JET*** may be charged only with the original charger. The mains voltage must conform with the specification on the charger.

Using chargers other than the original one may damage the battery.

The pipette controller is delivered with 3 NiMH type AAA batteries.

The batteries can be replaced easily if necessary after the battery cover is taken off (Fig. 1K). The manner in which the batteries are arranged is shown in Fig. 8.

Charging:

1. Charging temperature: 10°C to 35°C.
2. Charging the battery is carried out through a charger (power supply) by direct connection to the mains, or indirectly by means of a charging stand (Fig. 7M). Battery charging is indicated by successive lighting of “bars”.
3. Full charging time: 7- 8 hours.
4. The batteries are charged when all 3 “bars” are displayed simultaneously (Fig. 5.1).

When the batteries are charged, the charging circuit disconnects automatically.

The service life of the batteries: approx. 1000 charging cycles, if used correctly. It is not possible to overcharge the batteries if all instructions of the manufacturer are followed.

⚠ **WARNING!**

If disposable batteries are used, it is unacceptable to connect the device to the charger. In order to prolong the life span of the rechargeable batteries, the following rules should be followed:

1. Before the pipette controller is activated for the first time, the batteries should be charged.
2. Avoid short charging cycles – disconnect the stand from power supply during work when charging is not needed.

3. If the pipette controller starts to indicate low battery level during work, connect it to the power supply to continue working.
4. Do not leave the pipette controller discharged for a long period of time.
5. If you plan to have a long break in using the pipette controller, it is advisable to take the batteries out of the battery compartment.

9 - MAINTENANCE

Cleaning

The **APP*JET*** does not require any maintenance. Its external parts may be cleaned with a swab moistened with isopropyl alcohol.

The nosepiece and the pipette holder may be autoclaved at 121°C for 20 minutes. After autoclaving, dry the pipette holder. The filter included in the set may be sterilised by autoclaving at 121°C for not more than 15 minutes.

Storage

The **APP*JET*** should be stored in a dry place. The correct storage temperature is -20°C to+50°C.

During breaks in work the pipette controller should be placed on a charging stand (Fig. 7A & 7B) or it can also be rested on the bench using the standalone “wings” of the battery cover (Fig. 7C). The charging stand may be fitted on a wall (Fig. 7B) with a fixing set included with the pipette controller. If the pipette controller is stored on a charging stand (Fig. 7A or Fig. 7B), the charging stand should be disconnected from the power supply.

CAUTION:

Do not store the pipette controller with a filled pipette.

The pipette controller has been tested and confirmed to be UV resistant. The recommended distance from the radiation source to exposed element should be not less than 50 cm. Prolonged and very intense UV exposure can cause discolouration of pipette controller parts, without affecting its performance.

10 - COMPONENTS

The **APP*JET*** set is supplied with the following components:

- Pipette controller
- Charger
- Charging stand
- Membrane filter 0.2 μm
- Batteries – 3 pcs.

11 - ORDERING INFORMATION

The **APP*JET*** comes with a universal charger and a set of adapters in different versions: EU, US, UK and AUS. Choose the relevant adapter specific to your region and connect it to the housing.

To mount the adapter, it should be inserted into the slots of the housing in the direction of the arrow (1), until you hear a click (Fig. 6). To remove or change the adapter, simply press the “PUSH” button in the direction of the arrow (2), then holding the button down, remove the adapter in the direction of the arrow (3).

Catalogue no. AEL540

12 - SPARE PARTS

Item in Fig. 1	Part name	Catalogue no.	Number pieces in pack
F	Nosepiece	AEL543	1
G	Pipette holder	AEL542	1
H	Membrane filter 0.2 μm	AEL512	1
	Membrane filter 0.45 μm	AEL513	1
J	Connector gasket	AEL514	1
K	Battery cover with wings	AEL546	1
L	Battery - NiMH, AAA, 1.2V	AEL545	3
M	Charging stand	AEL541	1
N	Charger 9V: EU, US, UK, AU	AEL544	1

13 - PRODUCT DISPOSAL

According to Directive 2012/19/EU of the European Parliament and of the Council of 4th of July 2012 on waste electrical and electronic equipment as amended, the **APP*JET*** pipette controller is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste. In accordance with the requirements of Directive 2006/66/EC of 6 September 2006 on batteries and accumulators and waste batteries and accumulators, batteries must be disposed of in accordance with national regulations.

The crossed out wheeled bin symbol is printed in the product manual and on its packaging. For information on product recycling, please go to http://www.appletonwoods.co.uk/sustainability.html

APW/09/2017/I

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