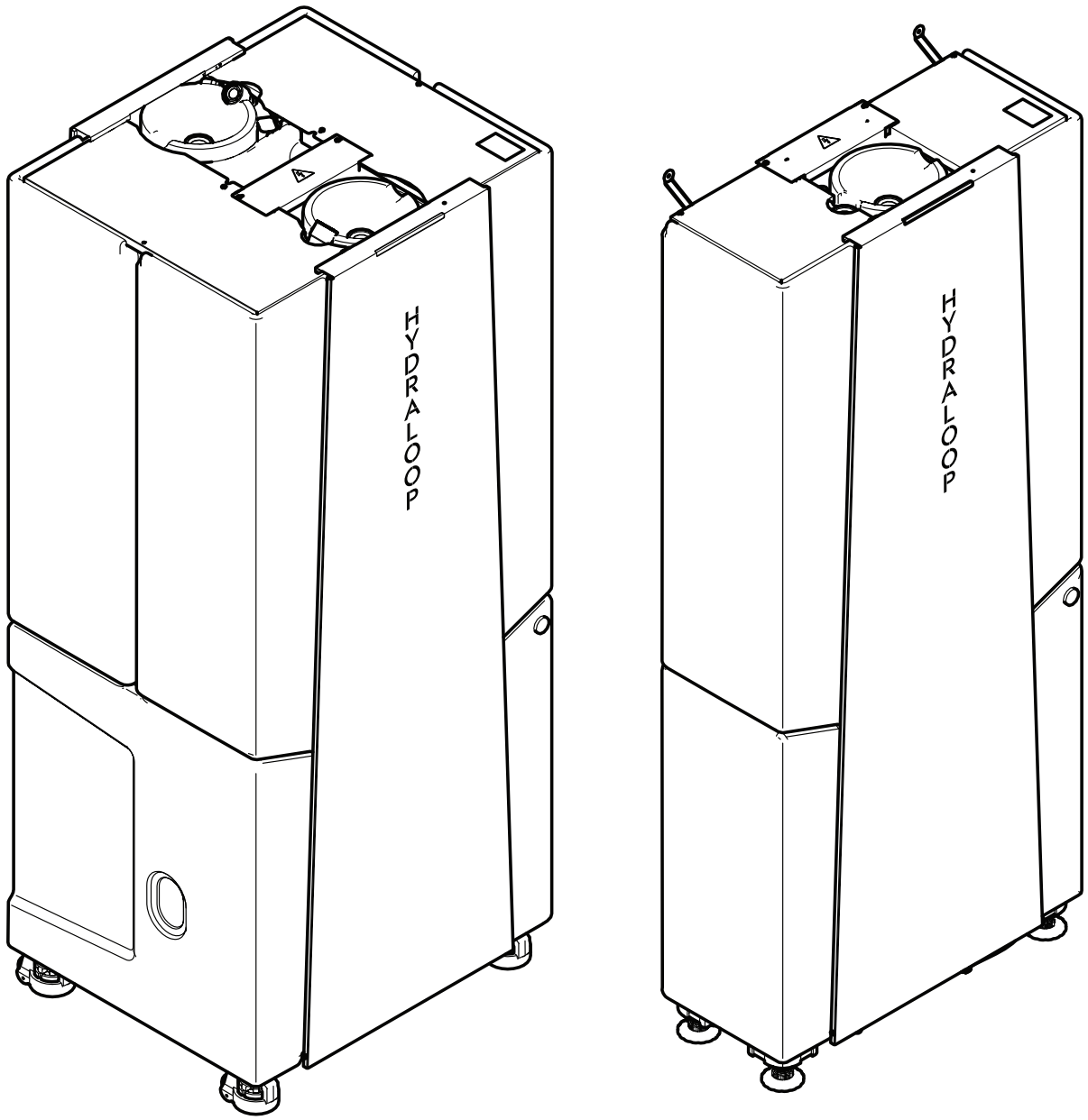
HYDRALOOP

H300/H600

Maintenance Guide



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1. INTRODUCTION

This guide describes the service procedures required to maintain the Hydraloop H300 and H600 greywater recycling systems. It is intended as a reference for technicians performing scheduled and unscheduled service visits.

1.1 DESCRIPTION OF THE USER

This manual is intended for:

- Hydraloop staff
- Certified Hydraloop partners
- Authorised installers with active HDM credentials

The procedures described in this manual require physical access to the device's internal components and direct interaction with the Hydraloop Device Manager (HDM). They are not intended for end users. System owners should refer to the Hydraloop H300/H600 Owners Manual for guidance on day-to-day use, app interaction, and when to request service.

⚠WARNING

Performing service without the qualifications listed above creates a risk of electric shock, contamination of the reusable water circuit, and voids the manufacturer's warranty.

1.2 HOW TO USE THIS GUIDE ALONGSIDE THE HDM

The Hydraloop Device Manager is the authoritative source of service instructions for any specific device. The HDM provides:

- Step-by-step procedures matched to the device's hardware version and firmware
- Dry-run simulations of the scheduled work
- Automatic logging of completed tasks against the device record
- Real-time verification that each step has produced the expected sensor response

This guide complements the HDM by providing a stable, printable reference for planning, training, and pre-visit preparation. It describes the general shape of each procedure, the tools and consumables required, and the rationale behind each task.

When the HDM and this guide differ, follow the HDM. HDM instructions are updated continuously and reflect the most current Hydraloop service protocols.

1.3 EXPLANATION OF SAFETY WARNINGS

⚠DANGER

"DANGER" — Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury

⚠WARNING

"WARNING" — Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠CAUTION

"CAUTION" — Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

NOTICE

"NOTICE" — Indicates information considered important, but not hazard-related.

2. DESCRIPTION OF THE H300/H600

2.1 INTENDED USE AND REASONABLY FORESEEABLE MISUSE

The Hydraloop system is intended for the collection, treatment, and reuse of greywater from approved sources such as showers and baths. The treated water is suitable for non-potable applications, including toilet flushing, washing machines, and non-spray garden irrigation, subject to applicable local regulations, which may vary by jurisdiction.

The Hydraloop system shall not be used for other purposes, such as:

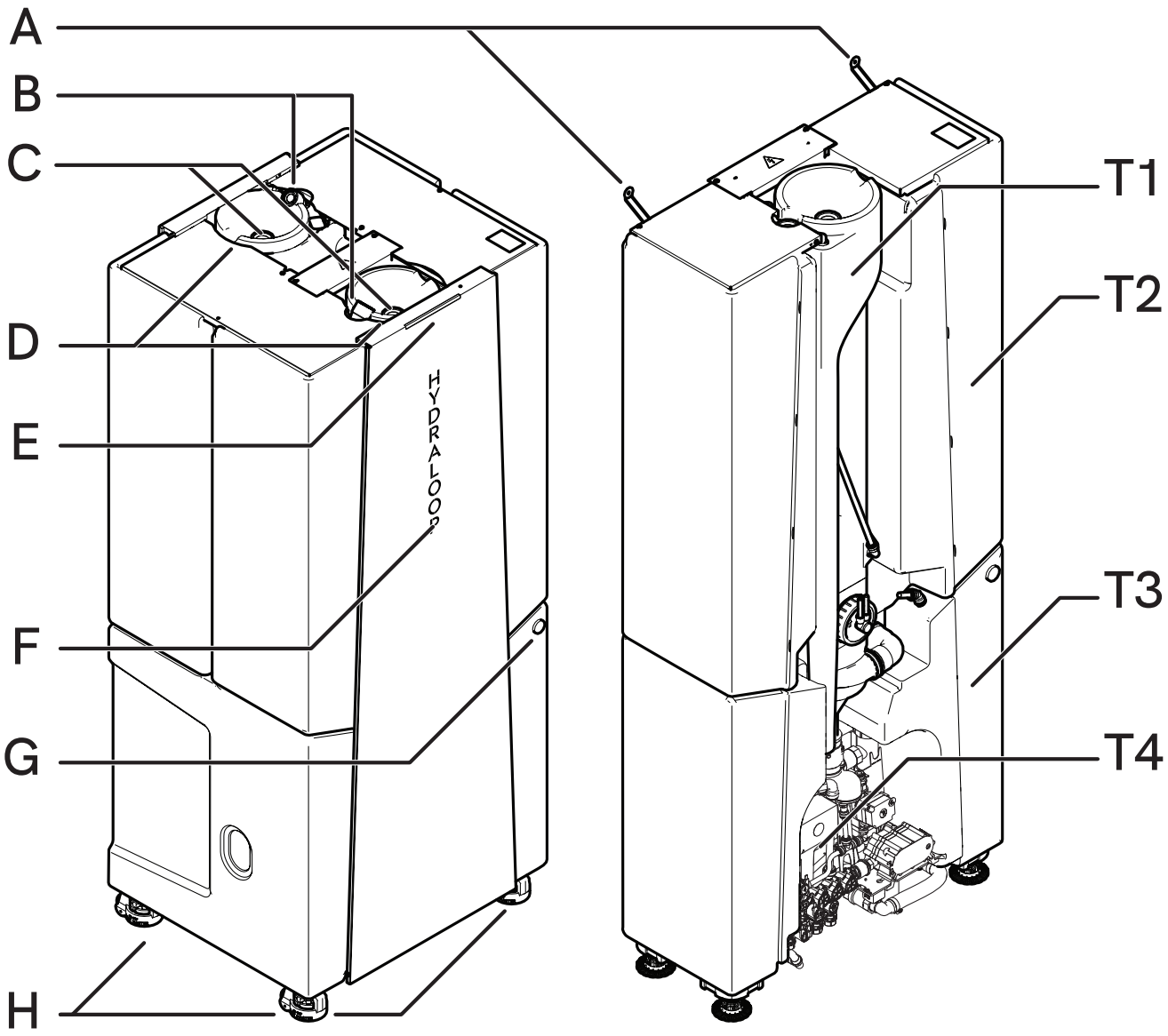
- Treating blackwater (toilet wastewater) or kitchen wastewater;
- Treating water containing solid waste, grease, or food residues;
- Introducing chemicals such as paint, solvents, bleach, disinfectants, or hair dye into the system;
- Treating industrial or process water;
- Producing potable (drinking) water or water for food preparation;
- Operating the system outside the specified environmental and installation conditions.

The Hydraloop system shall be used only in accordance with the instructions in this manual. Any use other than described is considered unintended use.

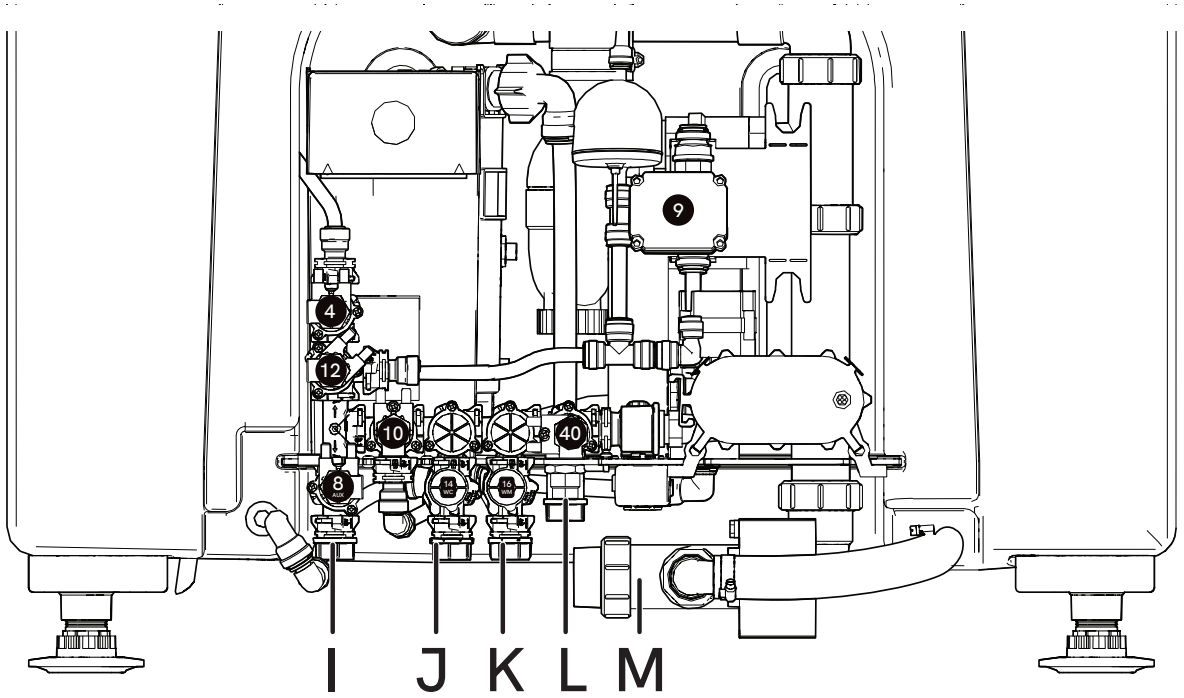
The Hydraloop system shall be installed, operated, and maintained using approved components, configurations, and procedures. Use of non-approved parts, incorrect installation, or inadequate maintenance could result in system malfunction, reduced performance, or damage, and could void the warranty.

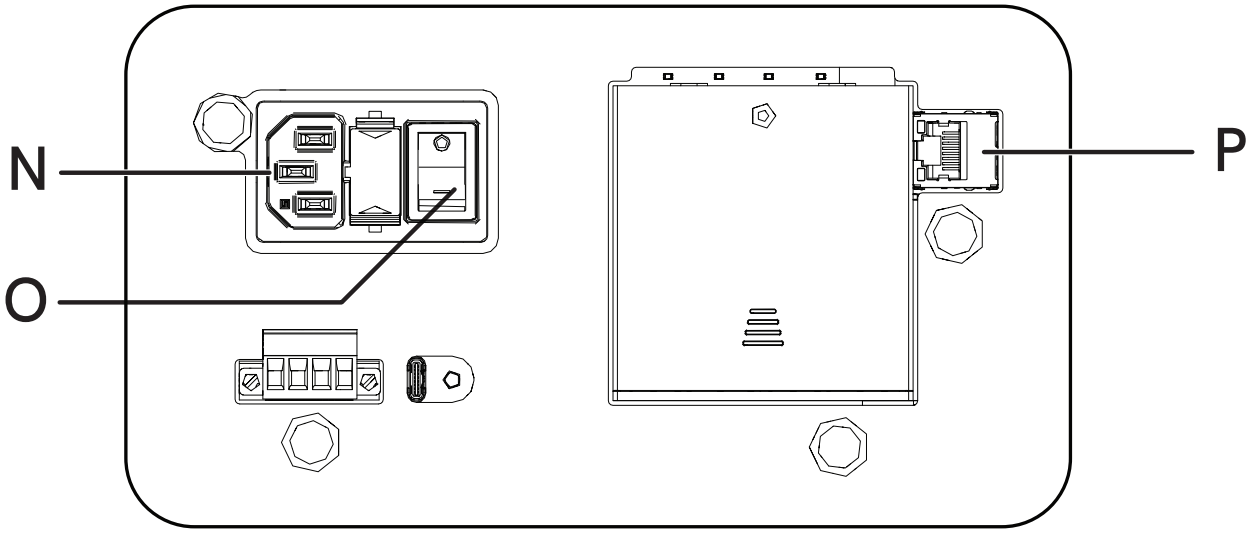
Do not sit or stand on the Hydraloop. Do not use it for storage.

2.2 PRODUCT OVERVIEW



A. Mounting points (H300 only)
B. Aerator port(s)
C. Inlet gasket(s)
D. Inlet port(s)
E. LED status light
F. Front plate
G. Maintenance plug
H. Castors (H600 only)
I. Valve 8 - Auxiliary outlet (AUX)
J. Valve 14 - Toilet outlet (WC)
K. Valve 16 - Washing machine outlet (WM)
L. Backup water inlet
M. Sewer outlet
N. Power port
O. Power switch
P. Ethernet port





The Hydraloop consists of 4 tanks:

- T1; Greywater inlet tank
- T2; Bioreactor tank with moving bed bioreactor (MBBR)
- T3; Storage tank holding recycled water
- T4; Tank for backup water connection, with a safe air gap

2.3 TECHNICAL DATA

Parameter	**Value H300**	**Value H600**
Device name	**Hydraloop H300**	**Hydraloop H600**
System type	Greywater recycling system	
Volume	100 L	200 L
Nominal treatment capacity (depending on user behaviour)	360 L/day	720 L/day
Internal voltage	24 V DC	
Supply voltage	120 V / 230 V AC	
Frequency	50 Hz / 60 Hz	
Average power consumption (actual energy consumption dependent on appliance use)	280 kWh/year	450 kWh/year
Max power during treatment	25 W	50 W
Pump pressure and flow	2.4 bar (240 kPa); max 8 L/min	
Internet connection	Ethernet or 2.4 GHz Wi-Fi	
Frequency band	Wi-Fi: 2.4 GHz; Bluetooth/BLE: 2.4 GHz	
Maximum radio-frequency power transmitted in the frequency bands in which the radio equipment operates	Wi-Fi: 19.68 dBm; Bluetooth: 6.73 dBm; BLE: 8.23 dBm	

2.3.1 Environmental conditions

Parameter	**Value**
Operating temperature	14 to 35 °C
Relative humidity	< 70 %
Installation location	Indoor only
UV / IP rating	Not rated

2.3.2 Dimensions and weight

Parameter	**Value H300**	**Value H600**
Width	800 mm	800 mm
Depth	360 mm	695 mm
Height	1870 mm (excluding inlet)	1892 mm (excluding inlet)
Dry weight	83.5 kg	128 kg
Wet weight	384 kg	740 kg

2.3.3 Input specifications

Parameter	Value
Greywater sources	Shower, bath
Backup water supply	Mains water supply
Maximum backup water pressure	500 kPa
Minimum backup water flow	12 L/min
Inlet pipe size	1/2" BSP
Greywater inlet pipe	Outer diameter Ø 40 mm
Water hardness range	max. 7° dH / 7 GPG / 120-180 ppm

2.3.4 Output specifications

Application	Delivery
Toilet	Permanently pressurised, 1/2" BSP
Washing machine	Permanently pressurised, 1/2" BSP
Auxiliary	Not permanently pressurised, 1/2" BSP
Drain connection	OD Ø 40 mm (clamp connection)

2.3.5 Acoustic performance

Operation	Sound pressure level	Interval
Air pump	29 dB(A)	Daily / long duration
Distribution pump	29 dB(A)	During use
Greywater inflow	49 dB(A)	During use
Backup water filling	48 dB(A)	Weekly (typical)
Inlet diverter	50 dB(A)	During operation
Self-cleaning cycle	50 dB(A)	Weekly / short

2.4 EXPLANATION OF VISUAL AND AUDIBLE CUES

The Hydraloop communicates its operating state through the LED status light and audible buzzer alerts.

2.4.1 Visual cues

Light colour	**Meaning**
White	Sufficient reusable water is available for all connected outlets.
Blue	No reusable water is available. Backup water is used to supply all outlets.
Blue/White flashing	Reusable water is available in the storage tank, but the volume is insufficient for a full washing machine cycle.
Green	The Hydraloop does its automatic cleaning cycle.
Purple	The Hydraloop detected that the washing machine is in operation.
Orange	The device is not treating greywater and automatically switched to backup water.
Red	A fault is detected in either the connected outlets (toilets or washing machine) or in the Hydraloop itself. Distribution of water is stopped.

2.4.2 Audible cues

Detected faults produce a buzzer pattern, accompanied by a matching number of LED pulses.

Fault	**Buzzer and visual pattern**
High water level	2 pulses per minute
Air pump	3 pulses per minute
UV-C lamp	4 pulses per minute
Storage tank re-disinfection circulation	5 pulses per minute
Water distribution pump	6 pulses per minute

2.5 SIMPLIFIED DECLARATION OF CONFORMITY

Hereby, Hydraloop Systems B.V., declares that the radio equipment type Hydraloop is in compliance with directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: **https://www.hydraloop.com/ESP32-WROOM-32E-CE**

3. SAFETY INSTRUCTIONS

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⚠DANGER

READ AND UNDERSTAND THIS MANUAL AND ITS SAFETY INSTRUCTIONS BEFORE USING THIS DEVICE. FAILURE TO DO SO CAN RESULT IN SERIOUS INJURY OR DEATH.

3.1 SAFETY INFORMATION

General safety information

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, even if supervised.
- Children should be supervised to make sure that they do not play with the appliance.
- **RISK OF ILLNESS FROM DRINKING PROCESSED WATER!** DO NOT drink the water produced by the Hydraloop. It is not potable. Drinking the processed water can cause serious illness. Use the Hydraloop output only for permitted applications such as toilet flushing, irrigation, or doing laundry.
- Always prevent solid materials, chemicals, paint residues, hair dye, bleach, disinfectants, or other abnormal substances from entering the system. These can damage the unit and affect water treatment.
- Do not place objects on or against the product. Do not use the product as a support or to lean on. Do not sit or stand on the Hydraloop. Do not use it for storage.

Installation safety information

- Installation work shall only be done by Hydraloop staff, certified partners, or authorised installers.
- Follow the *Installation Manual* for a safe and correct installation.

Electrical safety information

- **RISK OF ELECTRIC SHOCK!** Only Hydraloop staff, certified partners, or authorised installers shall open or service the device to reduce risk of electric shock.
- Check the product and the cables for damage. If there is any visible damage, a strong odour or excessive heating of components, disconnect the power supply immediately and do not use the product.
- **RISK OF ELECTRIC SHOCK!** Do not expose the product to wet conditions when covers are removed. Water entering the product will increase the risk of electric shock.
- If the power cable is damaged, it shall be replaced by Hydraloop staff, a certified partner, or an authorised installer.
- **RISK OF THERMAL HAZARD!** In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

Maintenance and repair safety information

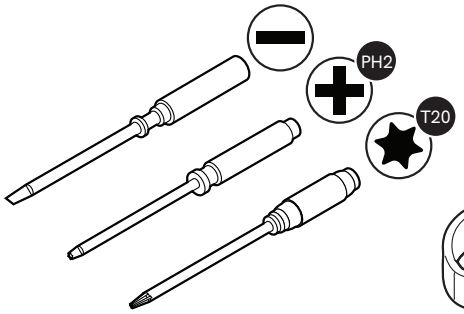
- Maintenance, service, and repair work shall only be done by Hydraloop staff or authorised persons.
- Always follow the maintenance and service schedule as indicated in this *Maintenance Guide*.
- If there is any visible damage, a strong odour, or excessive overheating of components, stop using the device.
- Do not use a water-spraying hose or high-pressure cleaner to clean the product. Water could get into sensitive parts of the product.
- Do not modify or change the product or its technical specifications. Only use original parts and accessories.

4. REQUIRED TOOLS AND EQUIPMENT

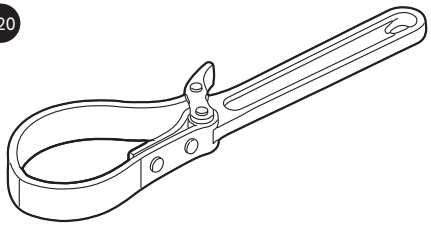
Each maintenance sequence in the HDM has a starting page listing the tools required for that specific task. Check this before going on site.

The Hydraloop Maintenance Tool Kit, available from the spare parts shop, contains the items marked with an asterisk.

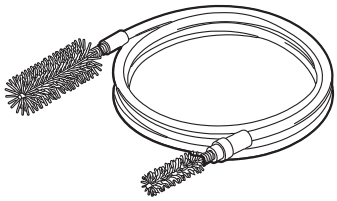
4.1 GENERAL MAINTENANCE TOOLS



- Flat/slotted screwdriver
- Torx T20 screwdriver
- Phillips PH2 screwdriver

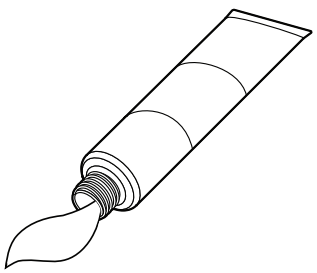


- Diffuser removal tool* or multifunction belt/strap wrench

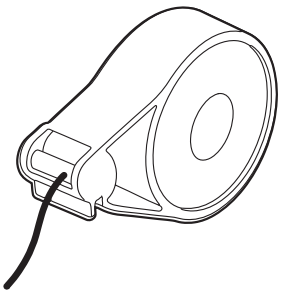


- Tube cleaning brush, 8 to 10 mm diameter, 1.2 m length

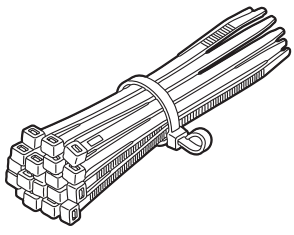
4.2 CONSUMABLES



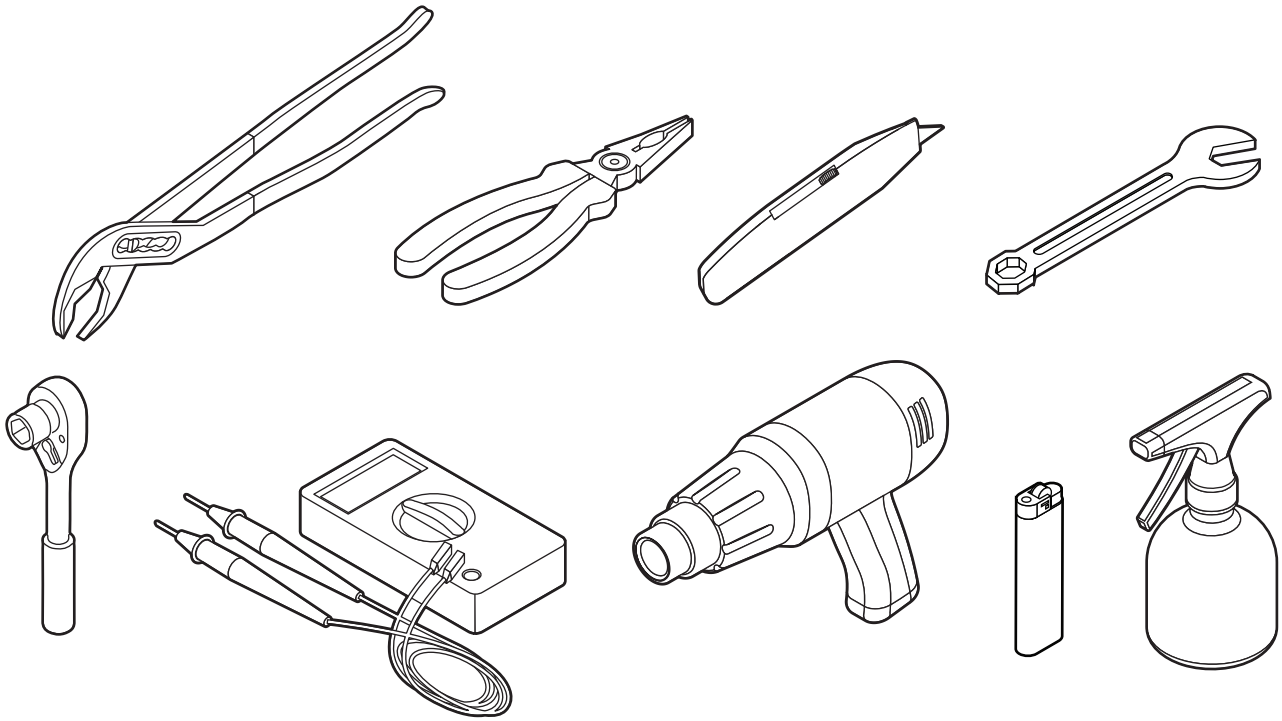
- Citric acid, food-grade, for descaling and cleaning cycle
- Acid-free petroleum jelly



- Thread sealing tape (Loctite 55 or similar)
- Cable ties

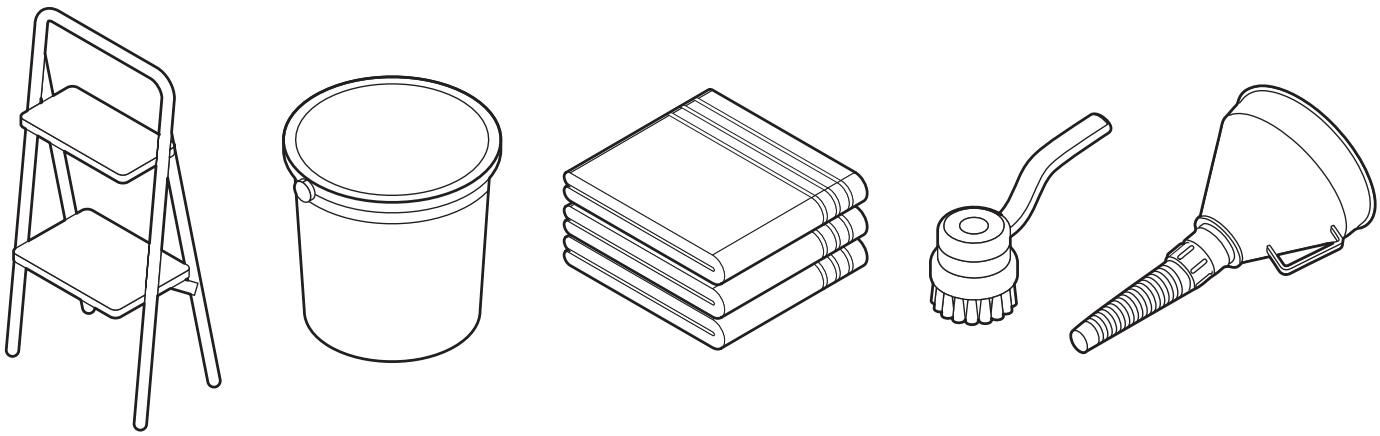


4.3 TROUBLESHOOTING TOOLS



- Water pump pliers
- Long/needle nose pliers
- Utility knife
- 7 mm ring and open spanner
- 8 mm × ¼" drive socket and ratchet
- Multimeter
- Heat gun or lighter
- Spray bottle with diluted dishwashing soap (for leak detection)

4.4 AUXILIARY EQUIPMENT



- Step ladder (minimum reach: top of device, approximately 2 m)
- Buckets (sufficient capacity to catch the tank contents during draining)
- Rags
- Soft brush
- Funnel with flexible hose

5. SERVICE INTERVALS

This section summarises the service activities required across the lifetime of the device.

5.1 SCHEDULED SERVICE

Interval	Activity
Every 2 years	Visual inspection
	Tank drain and internal cleaning (T1, T2, T3)
	Greywater inlet cleaning
	Pressure tube cleaning (inlet and T1)
	Air diffuser removal, cleaning, and descaling
	Transfer tube cleaning (upper, middle, lower)
	UV-C lamp replacement
	Citric acid cleaning program
Every 4 years	Air diffuser replacement
	Backup battery replacement
As needed	Additional descaling in hard-water regions

5.2 SERVICE PROFILE BY VISIT

Visit	Year	Tasks
1st service	2	Standard 2-year service + UV-C lamp
2nd service	4	Standard 2-year service + UV-C lamp + 4-year components
3rd service	6	Standard 2-year service + UV-C lamp
4th service	8	Standard 2-year service + UV-C lamp + 4-year components
...	...	Pattern continues

6. PRE-VISIT PREPARATION

Complete the following steps before travelling to the site.

1. **Review the device in the HDM:**
   Log in to the HDM for the device and check the recycling history, device behaviour history, open tickets, and service log.
2. **Check for required upgrades:**
   Inspect if any parts need upgrading, for example, the check valve or transfer upgrade.
3. **Order parts and supplies:**
   Obtain the standard spare parts kit (UV-C lamp, air pump, and so on) along with any additional parts indicated by the HDM review.
4. **Do a dry run:**
   Use the HDM dry-run function to walk through the scheduled maintenance sequence.
5. Schedule the appointment with the owner.

7. ON-SITE MAINTENANCE

⚠WARNING

Do not skip the below prerequisites under any circumstances. The internal water circuit operates under pressure, and the ECU and UV-C lamp circuits carry mains-derived voltages even when the device LED appears inactive.

NOTICE

The descriptions below are general recommendations. The HDM is updated regularly and could differ from this guide depending on your device version.

Before starting any service work:

- Disconnect the device from mains power.
- Close the backup water supply at the local shut-off valve.
- Relieve residual pressure in the backup water line.
- Allow the device to cool down if it was recently active.
- Log in to the HDM and review the HDM service log and any open tickets for the device.
- Confirm that the required tools and consumables are on site.

The maintenance tab guides you through the procedure step by step.

7.1 INSPECTING THE HYDRALOOP VISUALLY

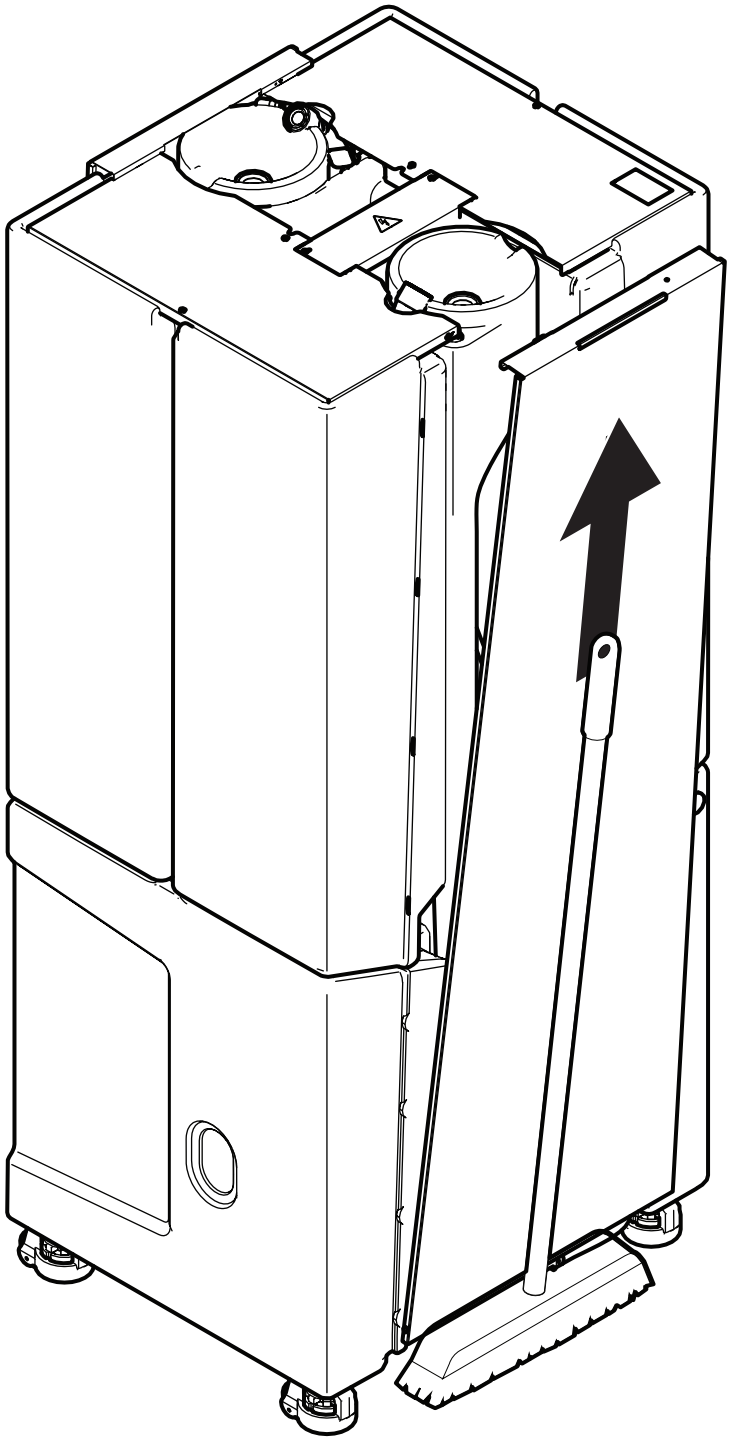
1. Before opening the device, check the following:
   - The exterior for any visible damage.
   - All external connections (water inlets, outlets, power, network).
   - The LED status light is functioning.
   - The surrounding area for signs of water damage or leakage.
2. Note any findings in the HDM before proceeding.

7.2 ACCESSING THE INTERNALS

The internal connections are behind the front plate of the Hydraloop. Remove the front plate to access these connections.

To access the internals:

1. Put a wedge (e.g. a broomstick) between the **front plate** Ⓕ and the floor. Lift the **front plate** Ⓕ using the wedge.



2. Set the **front plate** Ⓕ aside in a safe position where it can't fall over.

7.3 DISASSEMBLING AND CLEANING

Work through the components in the order below. The HDM guides each step. Inspect each component as you remove it and log anything unusual against the device record.

1. Drain the **T1**, **T2**, and **T3** tanks.
2. Remove and clean the inlet manifold, paying attention to accumulated hair and debris.
3. Remove and clean the pressure tubes at the greywater inlet and T1.
4. Remove and clean the air diffuser.
5. Disconnect and clean the upper, middle, and lower transfer tubes.

7.4 VERIFYING AND FINISHING THE MAINTENANCE CYCLE

Reassemble the device and verify before completing the maintenance cycle. The confirmation test needs to pass before you leave the site.

1. Reassemble the device and reinstall the front plate.
2. Run the HDM-guided confirmation test sequence.
3. Run the citric acid cleaning program. The cycle takes approximately 1 hour and runs unattended; you do not need to remain on site.
4. Log the completed maintenance in the HDM and schedule the next service for 2 years from the current date.
5. Close any open tickets in the HDM that were resolved during the preventive maintenance visit.

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