Freedom
Heat Pumps

Air Source Heat Pump
Handover and Maintenance Log Book

HITACHI

Freedom Heat Pumps

Who are Freedom Heat Pumps?

Freedom Heat Pumps are a wholesale distribution company for the Samsung EHS and the Hitachi Yutaki range of heat pumps and underfloor heating systems. We offer technical support, training, design and consultancy services and operate the www.samsungehs.co.uk and www.freedomhp.co.uk web sites and freedom heat pumps and Hitachi Yutaki Facebook pages.

We launched Samsung's eco heating systems in the UK in 2010 and have been market leaders in this sector with over 5000 units out in the field. In 2016 we started distributing Hitachi's Yutaki range of units to expand our heat pump portfolio and market influence.

How we work

Our approach is very straightforward. If you have a set of plans or an outline of the requirements for a project, send them to sales@freedomhp.co.uk. From there, we will produce a heat loss calculation in line with today's standards, and put together a list of the kit required at your cost price.

Alternatively, if you don't currently have a heat pump project, but would like to become a heat pump installer, and don't know where to start, contact us on 02380 274833 or email us at sales@freedomhp.co.uk and we can set you on the correct course.

Homeowners

If you are the homeowner please ask your installer for the pdf homeowner manual or download it at www.freedomhp.co.uk. Scroll to the bottom and click the link for end user manual. It shows how the unit should be used and how to get the best from it.

Hitachi Warranty Registration 7 Year

All Hitachi heat pumps can now be registered for a 7-year parts warranty, covering only the Hitachi components. Any labour charges for replacing faulty parts are not covered. The Hitachi warranty does not cover, radiators, cylinders, UFH, valves, pumps etc. It is the role of the installer to offer a warranty to the end user covering the heating system including the heat pump. Your installer may offer you their own full parts labour and call out warranty as part of their maintenance agreement, but you need to discuss this with the installer / maintenance company. The warranty will be held by the end user at the address the unit is installed. It is important that a qualified engineer services the unit annually to maintain the warranty . It does not have to be the installer who does this, we can recommend engineers to do this if the installer does not want to do this work.

Your unit is not automatically registered for warranty, your installer needs to fill in a form Online at www.freedomhp.co.uk.

Once this is done a certificate and a maintenance book will be emailed to the applicant, please make sure you have a copy of this certificate, and proof of maintenance. Hitachi may ask for this when a warranty claim is made.

Installation Details

Your Name

Your email address

Outdoor model number

Outdoor serial number
You will find this on the side of the heat pump

Indoor unit model number

Date commissioned   /   /

Name of Homeowner

End user email address
This is where the warranty certificate will be sent by Samsung

Installation address

Post code

Installation Details

Company name

Engineers name

Office telephone number

Is this your first Hitachi install?   YES   /   NO

Date commissioned

Will you or your company be maintaining the Unit?   YES   /   NO
If No, Freedom Heat Pumps will advise of an engineer who can do this

Install Photos

Please take at least 6 photos showing the outdoor unit, control box and cylinder cupboard
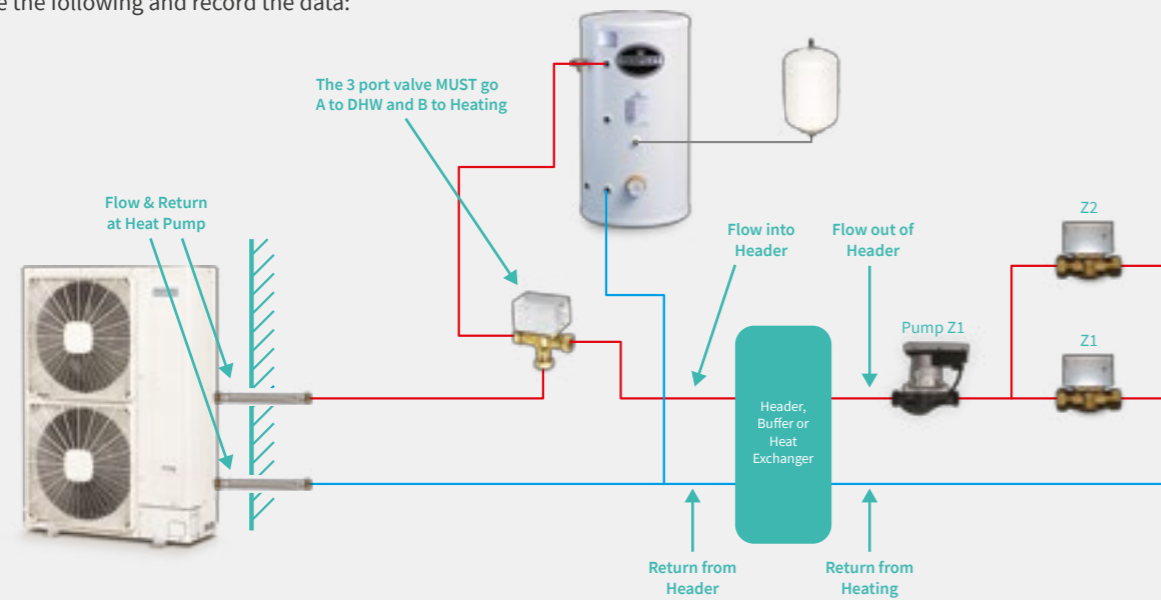
Hitachi Warranty Registration 7 Year

Heating Mode Commissioning Data

It is useful to take these measurements at commissioning and testing. They are for your own records, they are not needed to register the unit for warranty.

What type of system do you have? Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go A to DHW and B to Heating

Flow & Return at Heat Pump

Flow into Header

Flow out of Header

Z2

Z1

Pump Z1

Header, Buffer or Heat Exchanger

Return from Header

Return from Heating

Flow temperature at Heat Pump Measure with pipe thermometer		**Return from Heating into header / plate**	
Return temperature at Heat Pump		**Flow rate from flow meter**	
Flow temp into header / plate		**Air temp at the back of the unit**	
Return from header / plate		**Ambient air temperature** Measure from the garden	
Flow temp out of header / plate to heating			

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

|			
Hot water cylinder model No.		**Water flow temp at cylinder** Measure with pipe thermometer	
Cylinder water temp at start-up Measure from the remote controller		**Water return temp at cylinder** Measure with pipe thermometer	
Cylinder water temp after 30mins Measure from the remote controller		**Flow Rate** Measure from the flow meter	

Handover of the System

Leave these 5 pages with the Homeowner.

Search Freedom heat pumps, Handover video for Hitachi heat pump on YouTube

Thank you for buying an Hitachi heat pump system, your Hitachi heat pump heats the house and hot water cylinder much like a normal fossil fuel boiler, however there are a couple of differences which you should take notice of.

Your installer should have provided you with a room thermostat if you have radiators or a thermostat in every room if you have under floor heating. They will tell you how to use these stats. The heat pump will run when it gets a run signal from the thermostat. It is not controlled by the Hitachi remote controller.

To turn on the heating all you need to do is turn up the thermostats, to turn it off you need to turn them down. The thermostat sends a run signal to the heat pump. Once the unit starts up it will take time to get to temperature, it is not instant. Within 10 minutes you should feel the radiators beginning to warm up

Water temp in weather comp mode

Flow temperature °C

Ambient temperature °C
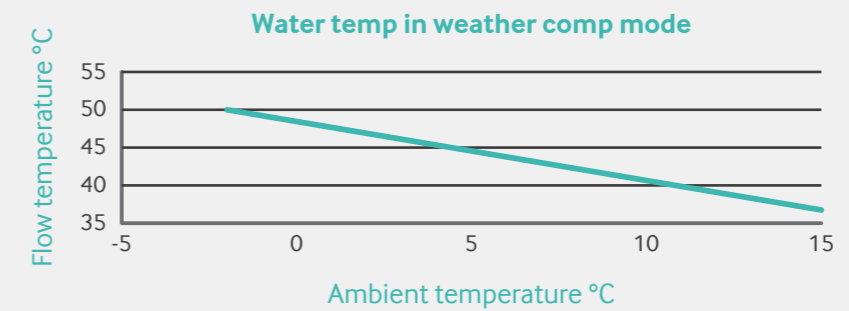
Weather compensation

The radiator temperatures will be lower than you are used to with a gas or oil boiler. To add to this, we run them in a weather compensation mode, this means that the unit measures the outside temperature and adjusts the radiator temperature to suit.

The colder it is outside the warmer the rads will be and vice versa. This function is automatic and is designed to save you money. In very cold weather the radiator will be at their hottest, they will reach 50°C, its possible to get to 80°C if you have an HT system.

Running your machine efficiently

It is very expensive to heat the house up from cold, with a heat pump the best advice is to maintain the house at as close to constant temperature as possible all the time.

Please DON'T set the room temperature too low when you leave the house, ideally drop it 2 degrees below your normal set temperature when you go out or it will take a long time and a lot of money to recover.

To switch off the heating in summer set the thermostats down to 16°C to avoid the heating starting up.

Your radiators will have thermostatic valves on them, you can adjust each room's temperature with these.

General Advice

The heat pump comes with a controller which looks like this, you should not use this or press the buttons, it is used for commissioning and fault diagnosing the system.

On you tube (search for freedom heat pumps) there are videos showing how to use the controller, faults etc.

If the system goes into fault, the screen will show a number at the bottom starting with A, for example A020. The green light will go out and a red light will flash. The engineer will want to know this number when you call.

Please avoid turning the unit off at the power supply especially in cold weather. If the unit is off and the weather is very cold, it cannot protect itself and your warranty will be at risk.

Hot Water

Scroll right highlight DHW, press power to turn DHW on. Press up to set the temperature of the cylinder typically 55°C for a low temp and 70°C for a high temp unit

The unit it set up to maintain the water between 43 and 50°C all the time.

As you use the water the heat pump will constantly top up the cylinder. The hot water cylinder has priority over the heating, if the cylinder temperature falls 5 degrees below its set point the unit will automatically switch to heating the cylinder. This should take less than an hour.

Once set temperature is achieved the unit will go back to heating the house. The hot water cylinder loses almost no heat (1/3 a degree an hour) if no hot water is used.

An anti-legionella / disinfection operation will be completed at a 3am every Wednesday morning. The unit will heat the cylinder with the immersion to 60°C, the hot water will be hotter on a Wednesday morning than the rest of the week.

If you don't require 24/7 hot water It is possible to time clock the hot water to reduce costs, the timer video on you tube will show you how to do this.
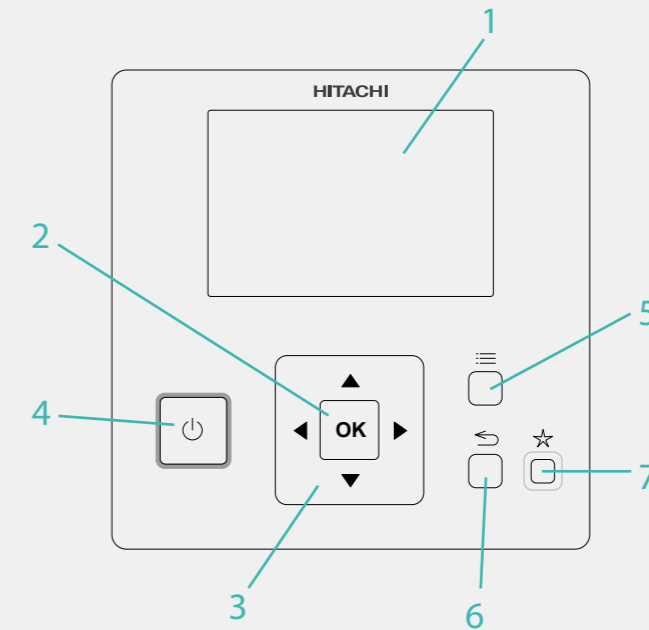
Location	Function
1	**Liquid Crystal Display** Screen where controller software is displayed.
2	**OK button** To select the variables to be edited and to confirm the selected values.
3	**Arrow Keys** It helps the user to move through the menus and views.
4	**Run/Stop button** It works for all zones if none of the zones is selected or only for one zone when that zone is selected.
5	**Menu button** It shows the different configuration options of the user controller.
6	**Return button** To return to the previous screen.
7	**Favourite button** When this button is pressed, the selected favourite action (ECO/Comfort, Holiday, Simple timer or DHW boost) is directly executed.

Common Icons

Icon	Name	Values	Explanation
OFF	Status for circuit 1, 2, DHW and swimming pool.		Circuit I or II is in Demand-OFF
			Circuit I or II is on Thermo-OFF
			Circuit I or II is working between 0 < X ≤ 33% of the desired water outlet temperature
			Circuit I or II is working between 33 < X ≤ 66% of the desired water outlet temperature
			Circuit I or II is working between 66 < X ≤ 100% of the desired water outlet temperature
	Mode		Heating
			Cooling
			Auto
88	Setting Temperatures	Value	Displays the setting temperature of the circuit 1, circuit 2, DHW and swimming pool
		OFF	Circuit 1, Circuit 2, DHW or Swimming Pool are stopped by button or timer
	Alarm		Existing alarm. This icon appears with the alarm code
	Timer		Simple timer
			Weekly timer
	Derogation		When there is a derogation from the configured timer
	Installer Mode		Informs that user controller is logged on the installer mode which has special privileges
	Menu Lock		It appears when menu is blocked from a central control. When indoor communication is lost, this icon disappears
	Outdoor Temperature		The ambient temperature is indicated at the right side of this button

Icons for the comprehensive view

Icon	Name	Values	Explanation
	Pump		This icon informs about pump operation. There are three available pumps on the system. Each one is numbered, and its corresponding number is displayed below to the pump icon when it is operating
	Heater step		Indicates which of the 3 possible heater steps is applied on space heating
	DHW Heater		Informs about DHW Heater operation. (If it is enabled)
	Solar		Combination with solar energy
	Compressor		Compressor enabled (For YUTAKI S, S COMBI and M)
			Compressors enabled. 1: R410A / 2: R-134a (For YUTAKI S80)
	Boiler		Auxiliary boiler is working
	Tariff		Tariff signal informs about some cost conditions of the consumption of the system
	Defrost		Defrost function is active
	Central/Local	-	No icon means local mode
			Central mode (Three types of control: Water, Air or Full)
	Forced OFF		When forced off Input is configured and its signal is received, all the configured items on the comprehensive view (C1, C2, DHW, and/or SWP) are shown in OFF, with this small icon below
	Auto ON/OFF		When daily average is over auto summer switch-off temperature, circuits 1 and 2 are forced to OFF (Only if Auto ON/OFF enabled)
TEST RUN	Test Run		Informs about the activation of the "Test Run" function
ANTI LEG	Anti-Legionella		Activation of the Anti-Legionella operation
	DHW boost		It activates the DHW heater for an immediate DHW operation
	ECO/Comfort mode for circuits 1 and 2	-	No icon means Comfort mode
			ECO mode

Operation of your Hitachi Heat Pump

Energy Usage and Running Costs

Your Hitachi heat pump will use more energy during the winter months when the ambient air temperature is cooler. Don't be alarmed if you see these winter months accounting for a large percentage of your annual heating bill, as illustrated in the chart to the right, the system will use much less energy during the warmer seasons.

You should make a note of your running costs each month from the electricity meter, they are around the same size as a circuit breaker and look like the below image.

Month	% Energy used / month
January	19%
February	17%
March	12%
April	7%
May	4%
June	2%
July	1%
August	1%
September	4%
October	6%
November	12%
December	15%

Each month, make a note of the date, time, each electric meter reading, and the reading of electric meter for the whole house.
You may also wish to take a photo of the house meter.

Date	Time	Electric Meter 1 (kWh)	Electric Meter 2 (kWh)	Electric Meter for the whole house (kWh)

Maintenance

The Hitachi heat pump should be maintained at least once a year to comply with warranty and RHI. You must log your maintenance at www.freedomhp.co.uk for the 7-year warranty.

Maintenance procedure
Stop the unit, clean the water strainer in the unit you need a spanner and circlip pliers for this.

Ball in closed position

Ball in cleaning position

OUTLET   INLET   OUTLET   INLET

Ball ready to clean-cut with flush. An extra 22° is needed to rotate the ball.

At this position, the mesh can be removed from the filter ball for maintenance tasks

(2) (1) 90° CLOSE

(3) 22° CLEAN

On Monoblocs test the concentration of the Anti-freeze (glycol) in the system using a Glycol tester the level should be 25%. If you don't have a glycol tester a glycol tester / refractometer can be bought from your heat pump supplier or online.

Refill the unit, pressure should be 1.5 bar,

We need to test the operation of the unit against the hot water cylinder. So first we need to draw off 50 liters of water, run a couple of taps for 5 mins to achieve this. The unit should start up automatically in hot water mode, if it doesn't on front screen scroll left highlight Heating press power to turn this off.

Scroll right highlight DHW press power turn DHW on. The unit should now run in DHW and open the 3 port to the cylinder,

To test cylinder and flow temp press menu, operational information ok, select DHW ok all temperatures are listed. Log the temperature of the flow, the flow rate, the temperature of the air as it enters the coil and the temperature of the air in the garden.

The heat pump should be able to achieve 50°C cylinder temperature without using the immersion heater. While running, check the outdoor unit for damage & debris, the coil needs washing, we recommend you use an approved heat pump cleaning chemical, your distributor will stock this. Instructions are given on the bottle. You also need to clean and polish the outside casing we recommend car wax to do this

Hot Water Cylinder
Check electrical connections & check the tank temperature sensor is above the immersion heater and fixed properly and the overheat thermostat is set to 70°C. On a Telford cylinder set the stat to 5.
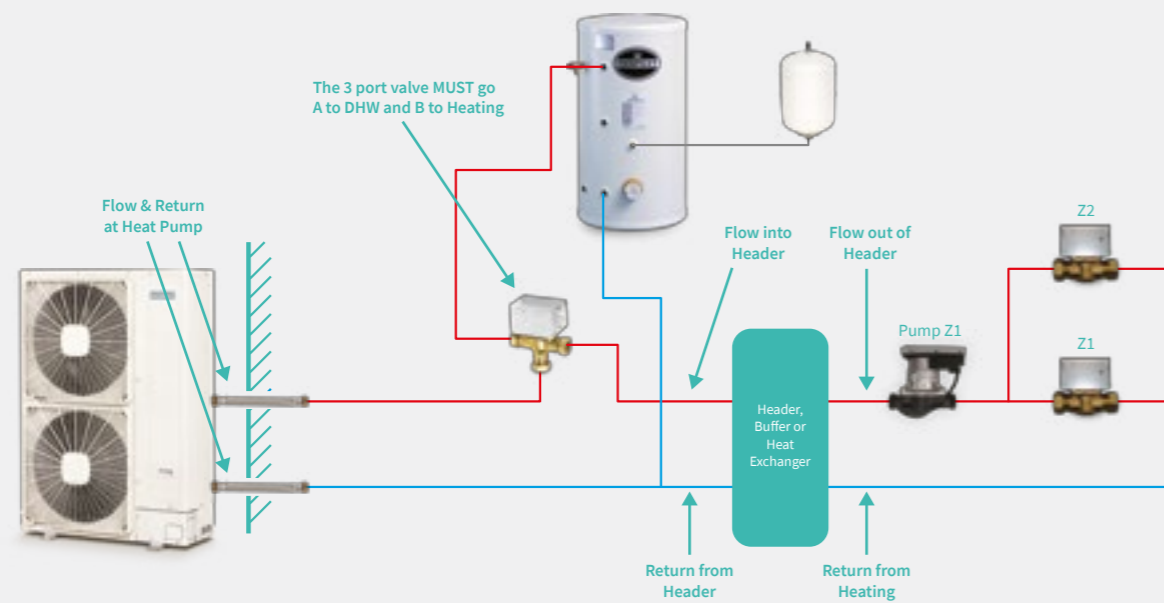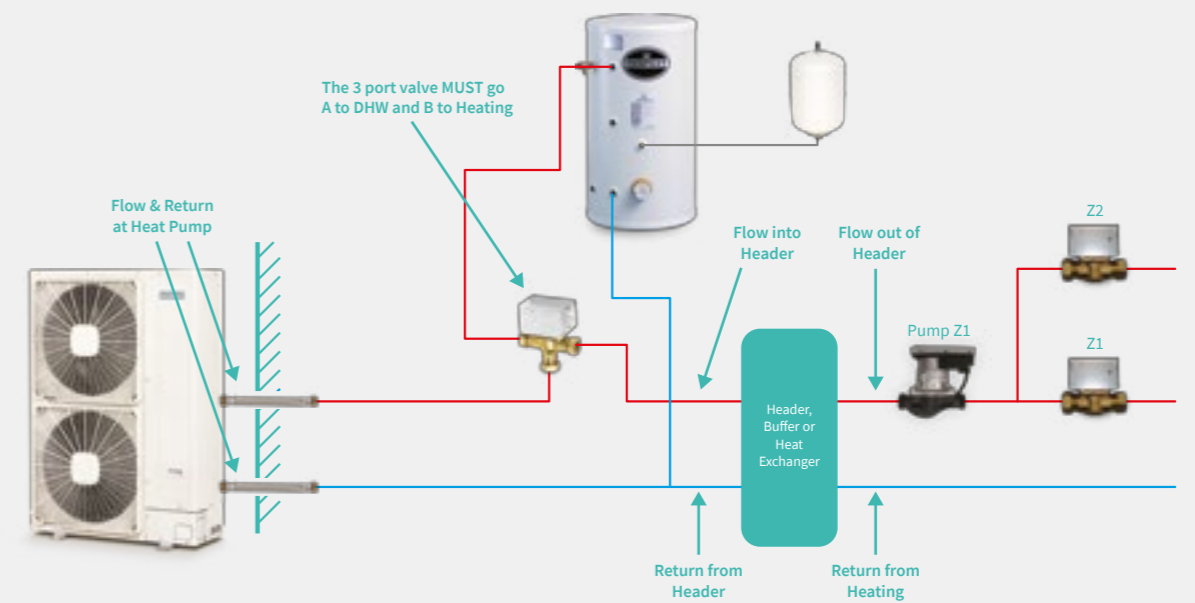
Maintenance Form: Year 1

The engineer should leave a copy of this form with the home owner as evidence of an annual service to keep up with the warranty.

What type of system do you have?

Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go
A to DHW and B to Heating

Flow & Return
at Heat Pump

Flow into
Header

Flow out of
Header

Z2

Pump Z1

Z1

Header,
Buffer or
Heat
Exchanger

Return from
Header

Return from
Heating

Flow temperature at Heat Pump Measure with pipe thermometer		**Return from Heating into header / plate**	
Return temperature at Heat Pump		**Flow rate from flow meter**	
Flow temp into header / plate		**Air temp at the back of the unit**	
Return from header / plate		**Ambient air temperature** Measure from the garden	
Flow temp out of header / plate to heating			

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

Hot water cylinder model No.		**Water flow temp at cylinder** Measure with pipe thermometer	
Cylinder water temp at start-up Measure from the remote controller		**Water return temp at cylinder** Measure with pipe thermometer	
Cylinder water temp after 30mins Measure from the remote controller		**Flow Rate** Measure from the flow meter	

Maintenance Form: Year 2

The engineer should leave a copy of this form with the home owner as evidence of an annual service to keep up with the warranty.

What type of system do you have?

Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go
A to DHW and B to Heating

Flow & Return
at Heat Pump

Flow into
Header

Flow out of
Header

Z2

Pump Z1

Z1

Header,
Buffer or
Heat
Exchanger

Return from
Header

Return from
Heating

Flow temperature at Heat Pump Measure with pipe thermometer		**Return from Heating into header / plate**	
Return temperature at Heat Pump		**Flow rate from flow meter**	
Flow temp into header / plate		**Air temp at the back of the unit**	
Return from header / plate		**Ambient air temperature** Measure from the garden	
Flow temp out of header / plate to heating			

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

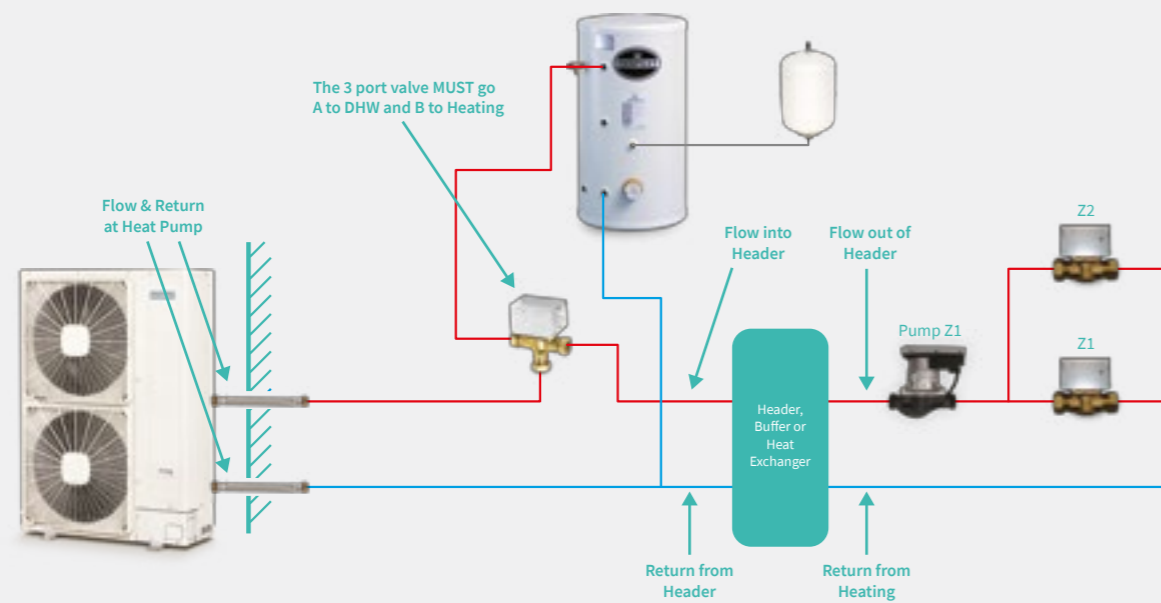|			
Hot water cylinder model No.		**Water flow temp at cylinder** Measure with pipe thermometer	
Cylinder water temp at start-up Measure from the remote controller		**Water return temp at cylinder** Measure with pipe thermometer	
Cylinder water temp after 30mins Measure from the remote controller		**Flow Rate** Measure from the flow meter	

The engineer should leave a copy of this form with the home owner as evidence of an annual service to keep up with the warranty.

What type of system do you have?

Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go A to DHW and B to Heating

Flow & Return at Heat Pump

Flow into Header

Flow out of Header

Pump Z1

Z2

Z1

Header, Buffer or Heat Exchanger

Return from Header

Return from Heating

Flow temperature at Heat Pump
Measure with pipe thermometer

Return temperature at Heat Pump

Flow temp into header / plate

Return from header / plate

Flow temp out of header / plate to heating

Return from Heating into header / plate

Flow rate from flow meter

Air temp at the back of the unit

Ambient air temperature
Measure from the garden

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

Hot water cylinder model No.

Cylinder water temp at start-up
Measure from the remote controller

Cylinder water temp after 30mins
Measure from the remote controller

Water flow temp at cylinder
Measure with pipe thermometer

Water return temp at cylinder
Measure with pipe thermometer
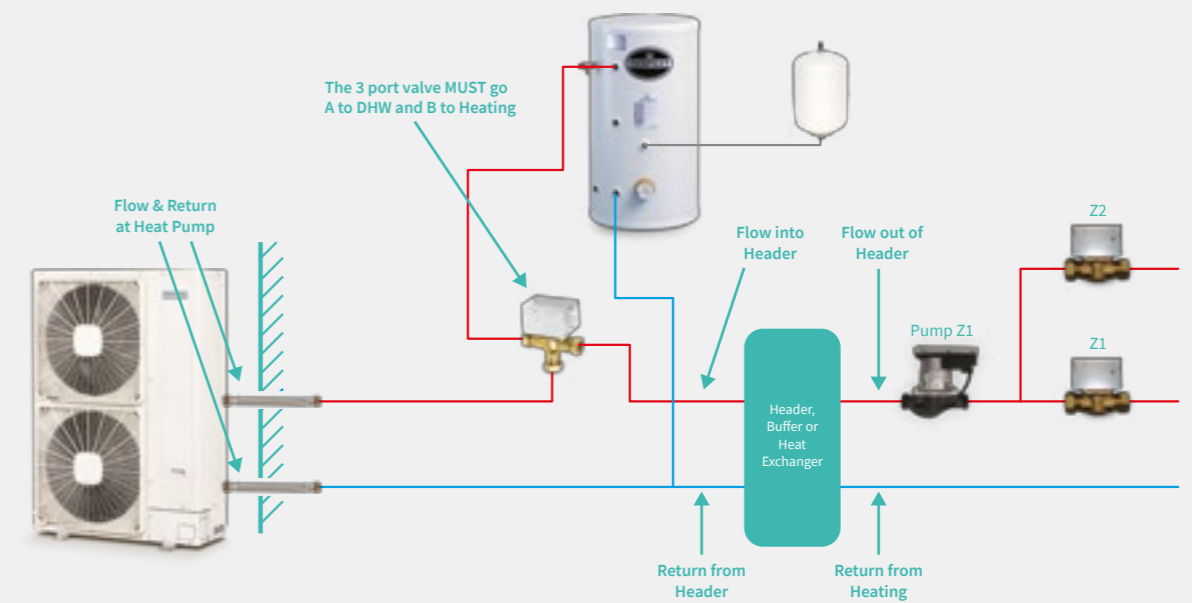
Flow Rate
Measure from the flow meter

The engineer should leave a copy of this form with the home owner as evidence of an annual service to keep up with the warranty.

What type of system do you have?

Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go A to DHW and B to Heating

Flow & Return at Heat Pump

Flow into Header

Flow out of Header

Pump Z1

Z2

Z1

Header, Buffer or Heat Exchanger

Return from Header

Return from Heating

Flow temperature at Heat Pump
Measure with pipe thermometer

Return temperature at Heat Pump

Flow temp into header / plate

Return from header / plate

Flow temp out of header / plate to heating

Return from Heating into header / plate

Flow rate from flow meter

Air temp at the back of the unit

Ambient air temperature
Measure from the garden

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

Hot water cylinder model No.

Cylinder water temp at start-up
Measure from the remote controller

Cylinder water temp after 30mins
Measure from the remote controller

Water flow temp at cylinder
Measure with pipe thermometer

Water return temp at cylinder
Measure with pipe thermometer

Flow Rate
Measure from the flow meter
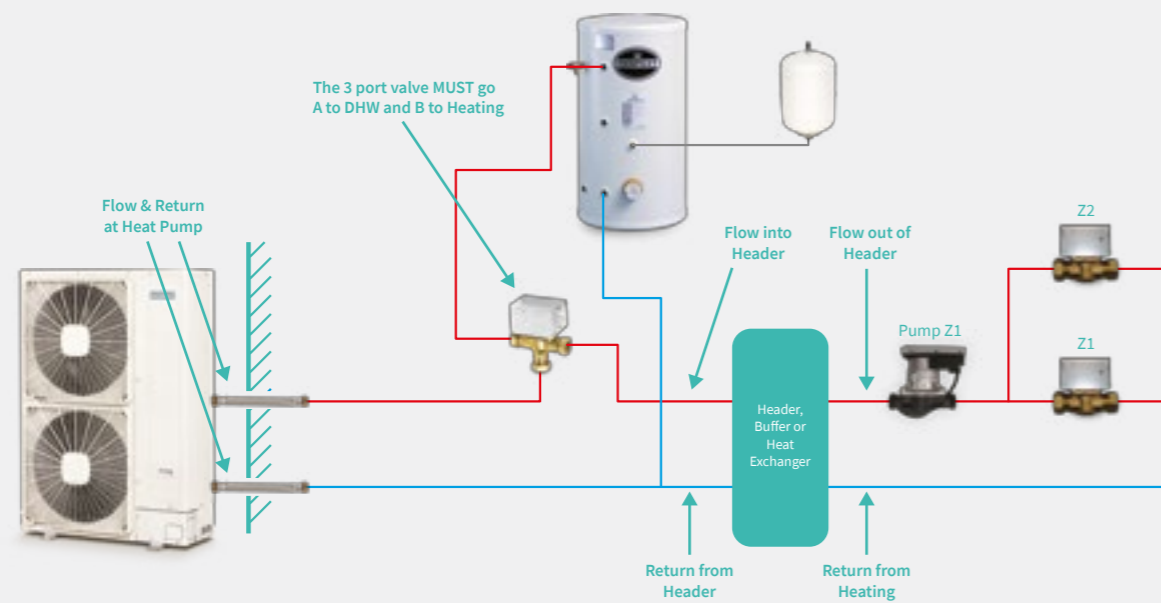
Maintenance Form: Year 5

The engineer should leave a copy of this form with the home owner as evidence of an annual service to keep up with the warranty.

What type of system do you have?

Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go
A to DHW and B to Heating

Flow & Return
at Heat Pump

Flow into
Header

Flow out of
Header

Z2

Pump Z1

Z1

Header,
Buffer or
Heat
Exchanger

Return from
Header

Return from
Heating

Flow temperature at Heat Pump Measure with pipe thermometer		**Return from Heating into header / plate**	
Return temperature at Heat Pump		**Flow rate from flow meter**	
Flow temp into header / plate		**Air temp at the back of the unit**	
Return from header / plate		**Ambient air temperature** Measure from the garden	
Flow temp out of header / plate to heating			

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

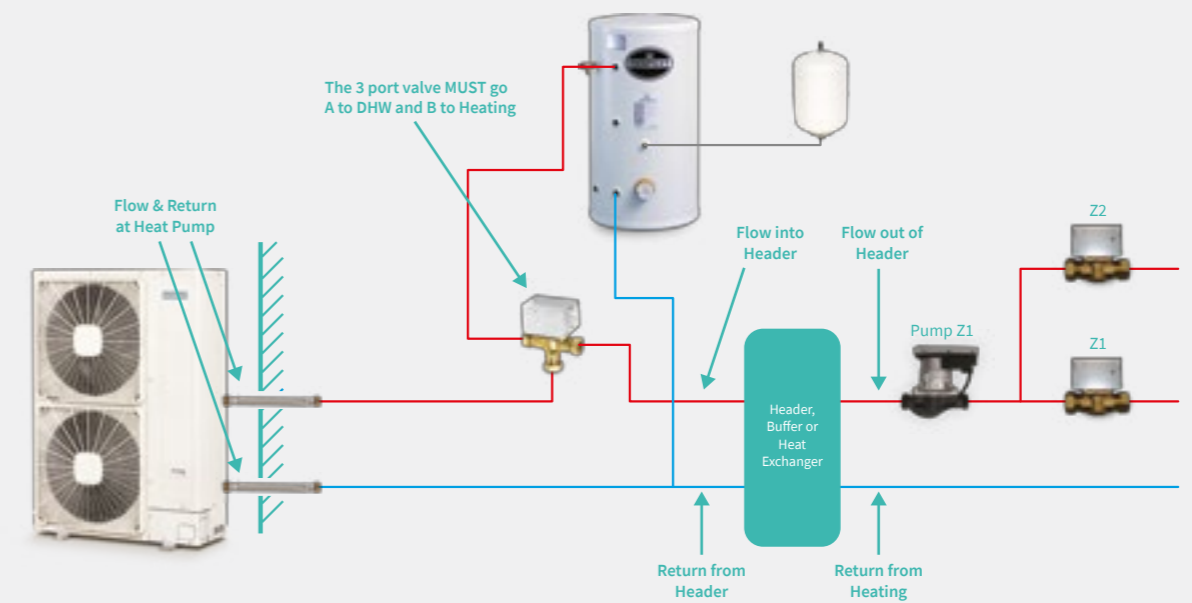|			
Hot water cylinder model No.		**Water flow temp at cylinder** Measure with pipe thermometer	
Cylinder water temp at start-up Measure from the remote controller		**Water return temp at cylinder** Measure with pipe thermometer	
Cylinder water temp after 30mins Measure from the remote controller		**Flow Rate** Measure from the flow meter	

Maintenance Form: Year 6

The engineer should leave a copy of this form with the home owner as evidence of an annual service to keep up with the warranty.

What type of system do you have?

Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go
A to DHW and B to Heating

Flow & Return
at Heat Pump

Flow into
Header

Flow out of
Header

Z2

Pump Z1

Z1

Header,
Buffer or
Heat
Exchanger

Return from
Header

Return from
Heating

Flow temperature at Heat Pump Measure with pipe thermometer		**Return from Heating into header / plate**	
Return temperature at Heat Pump		**Flow rate from flow meter**	
Flow temp into header / plate		**Air temp at the back of the unit**	
Return from header / plate		**Ambient air temperature** Measure from the garden	
Flow temp out of header / plate to heating			

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

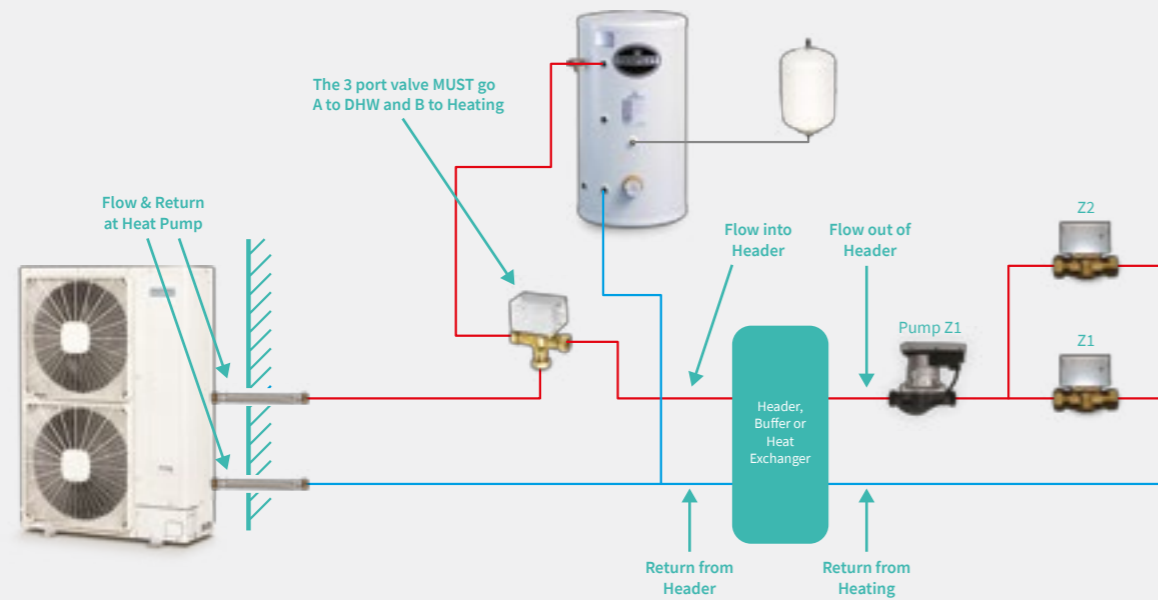|			
Hot water cylinder model No.		**Water flow temp at cylinder** Measure with pipe thermometer	
Cylinder water temp at start-up Measure from the remote controller		**Water return temp at cylinder** Measure with pipe thermometer	
Cylinder water temp after 30mins Measure from the remote controller		**Flow Rate** Measure from the flow meter	

Maintenance Form: Year 7

The engineer should leave a copy of this form with the home owner as evidence of an annual service to keep up with the warranty.

What type of system do you have?

Pre-plumbed / Separate Cylinder

Is there a Header, Buffer or Heat Exchanger installed?

Measure the following and record the data:

The 3 port valve MUST go A to DHW and B to Heating

Flow & Return at Heat Pump

Flow into Header

Flow out of Header

Z2

Pump Z1

Z1

Header, Buffer or Heat Exchanger

Return from Header

Return from Heating

Flow temperature at Heat Pump Measure with pipe thermometer		**Return from Heating into header / plate**	
Return temperature at Heat Pump		**Flow rate from flow meter**	
Flow temp into header / plate		**Air temp at the back of the unit**	
Return from header / plate		**Ambient air temperature** Measure from the garden	
Flow temp out of header / plate to heating			

Hot Water Mode Commissioning Data

You must be running the heat pump in hot water mode for this section

Hot water cylinder model No.		**Water flow temp at cylinder** Measure with pipe thermometer	
Cylinder water temp at start-up Measure from the remote controller		**Water return temp at cylinder** Measure with pipe thermometer	
Cylinder water temp after 30mins Measure from the remote controller		**Flow Rate** Measure from the flow meter	

Freedom Heat Pumps

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