

**N2 13.35 B**

09 - 2013

# HEAT PUMPS

*Maintenance guide*



Dear customer,

You have purchased a CIAT product. We would like to thank you for the trust you have placed in our company and products.

This manual contains information about our CIAT Authorised Technical Stations (STAC) network in France.

We have produced this manual to enable you to make the most of the various functions available on your unit, and we recommend that you read it carefully and keep it safe.

## CIAT

Since its creation in 1934, CIAT has been working to advance heat transfer techniques designed to improve the comfort of customers and end users.

Largely used in tertiary and industrial buildings in the form of high power equipment, this expertise enabled the company to be among the first to offer heat pump ranges specifically designed for residential use, almost 40 years ago.

Split or packaged air-source units, geothermal energy, domestic hot water production or cooling, all CIAT heat pumps naturally establish themselves as a solution for homes which meet the highest energy efficiency and environmental standards.



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## CIAT warranty

Your CIAT unit must be delivered, installed and connected by a qualified professional. The required installation and connections must comply with the specifications contained in the operating instructions, in line with electrical standards, industry practice and safety rules.

### Manufacturer's 2-year\* parts warranty

CIAT heat pumps undergo quality control steps throughout the design and manufacturing processes. They are covered by a 2-year\* parts warranty from the date on which CIAT invoices its direct customer. In accordance with our general warranty terms and conditions (D3989722), the CIAT manufacturer's warranty is limited to the replacement of parts deemed to be defective by your installer or our authorised companies; replaced parts remain the property of CIAT. Shipping and labour costs are payable by the customer. In the event of a customer claim, and before referring it to CIAT, the distributor or installer must confirm its validity.

### Additional service warranties\*\* (Metropolitan France and Corsica only).

Additional warranties only include coverage of shipping and labour costs for replacing defective components diagnosed by the installer or CIAT representative if the fault can be attributed to CIAT or its equipment. It is essential to take out an additional CIAT warranty when the equipment is ordered. These warranties start from the date on which the system is started up by a CIAT-authorized company when this is carried out within 3 months of the date on which CIAT invoices its direct customer.

Before requesting any work under the CIAT warranty, the installer must carry out preliminary observations and ascertain the origin of the fault in order to avoid the inconvenience of invoicing for an operation which cannot be covered by the additional CIAT warranty.

In providing this service, CIAT does not assume the legal responsibilities of the principal or otherwise sanction their actions.

CIAT shall not under any circumstances be held responsible for:

- Equipment size calculations and selection,
- The positioning of the units and any inconvenience that this may cause.

**The application of the CIAT warranty may under no circumstances give rise to the awarding of direct or indirect damages.**

**This additional warranty is not a substitute for maintaining the unit.**

\* From 1st June 2013, all additional service warranties taken out will give rise to an extension of the parts warranty to 3 years.

\*\* All of the services covered by the additional warranty are described in document D3989618 [www.ciat.fr](http://www.ciat.fr)

# Limits of the manufacturer's warranty

## Issues that void the manufacturer's warranty

- Incorrect installation, in particular that which does not comply with the regulations in force or the instructions contained in the installation and operating manual supplied with the unit.
- The warranty does not cover: repairs due to handling errors, abnormal use, negligence or equipment overload, or repairs due to variations in the power supply, overvoltage or defective installations.
- Damage due to impacts is not covered by the warranty. The equipment is shipped at user's own risk; in the event of damage during shipping, the recipient must notify the carrier of all necessary reservations before taking delivery of the unit.
- The warranty will not apply in the event of operations, repairs or modifications by unqualified persons or improper use.
- If the user has modified the unit, removed the CIAT logo or the serial number.
- In case of abnormal or improper use of the unit, in particular if it has been started up at a voltage different to that prescribed. In case of external events such as floods, lightning, impacts, etc.
- In case of inadequate maintenance.
- In case of failure to use original manufacturer parts.
- Normal wear and tear of products due to use.



### **Warning:**

**In order to operate correctly, our products must be installed in accordance with the CIAT installation guide, industry practice and the annual maintenance procedures.**

# Warranty certificate

Unit type / Unit Fabrication No. / Unit Serial No.

The CIAT equipment specified above is of optimal quality and has a proven construction. We guarantee against any material or manufacturing defects as part of the CIAT GENERAL WARRANTY TERMS AND CONDITIONS (D3989722).

Delivered: \_\_\_\_\_

Installed:  
Signature of reseller/installer \_\_\_\_\_

Started up:  
Stamp of CIAT Authorised Technical Station \_\_\_\_\_

This copy of the warranty certificate must be kept safe by the user; it must be submitted to the reseller or the CIAT Authorised Technical Company as evidence of the warranty.

# Cleaning and Maintenance

Under no circumstances should the CIAT warranty be treated as a substitution for maintaining your equipment. Maintaining a heat pump will guarantee an optimal service life and performance for your installation.

Conversely, failure to maintain your heat pump may cause it to malfunction, which can lead to increased consumption of electricity and higher bills.

Maintaining your heat pump is just as important as its installation.

## Your legal obligations

In accordance with Regulation (EC) No. 842/2006 on greenhouse gases, users must have an annual sealing test carried out by qualified personnel on machines containing more than 2 kg of refrigerant in line with the French Market (decree of 7th May 2007).

For reversible machines with a cooling capacity above 12 kW, the decree of 31/03/2010 relating to the inspection of air conditioning systems and reversible heat pumps stipulates an inspection within the first year.

- The inspection relates to the entire heating system
- It must be requested by the owner or the ownership association
- The inspection must take place at least once every 5 years
- For new equipment, the inspection must be carried out within one calendar year of installation.

**However, even if your unit comprises a smaller quantity than that recommended, we strongly advise you to take out a maintenance contract to ensure that a refrigerant sealing test is performed.**

For a list of our authorised partners, visit [www.ciat.fr](http://www.ciat.fr)  
section: Residential after-sales follow up OUR STAC PARTNERS.



# Cleaning and Maintenance

## Operations you can carry out

- For air-source heat pumps, the circulation of air around the outdoor unit must not be obstructed. Check regularly that nothing is obstructing the free circulation of air (leaves, pollen, miscellaneous objects, toys, etc.).
- Check the water filters for fouling.
- Check for water leaks and traces of oil around the unit.
- Check that the batteries in your remote control are working correctly

### **Important:**

**Never clean the outdoor coil of the air-source heat pumps with a water cleaner or high-pressure steam cleaner.**

For operational air-source heat pumps, the defrosting cycles involve the release of steam and water.

These cycles are normal and not dangerous. However, it is important to make sure the water flows away properly to prevent the formation of an ice sheet.

## Operations to be carried out by a professional from the STAC network every year:

- Leak detection on the refrigerating circuit by qualified personnel (sheet to be retained for 5 years).
- Check that the electrical connections are secure.
- Check the condition of the water in the heating circuit: presence of sludge, etc.
- Check the glycol proportion and pH (if the mix needs topping up, always do so with the same type of MONOPROPYLENE Glycol mix initially used).
- Record the unit's operating readings (attached to this manual).

# Malfunctions

## Resolving minor faults

Experience shows that most malfunctions that occur during day-to-day use can be resolved without contacting the after-sales service. This saves money and ensures that the unit is quickly up and running again.

Please note that in case of improper use or a malfunction outside the scope of the warranty, a technician call-out will be subject to a charge even during the warranty period.

## Diagnosing faults

- Try to resolve minor faults yourself (see Diagnosing faults section in the manual supplied with the unit).
- Switch the unit off and on to see whether the problem persists.
- Check that the batteries in your remote control are working correctly.

## You must never:

- Open the heat pump and touch the power supply.
- Modify the electrical and hydraulic installation.
- Move your heat pump.
- Constantly modify the room temperature setpoint.
- Clean the unit's outdoor coil using a water jet or high-pressure jet.
- Remove excess ice on the outdoor unit using any kind of tool or object.
- Dispose of the glycol from your heating circuit into the natural environment or your household waste water system.
- Overload the heat emitters with any kind of object (shelves, ornaments, etc. in the case of radiators).
- Change the type of floor covering without consulting your maintenance company (mat, carpet, etc. in the case of radiant floors).
- Perform any actions that, despite not being expressly mentioned in this document, contravene common sense or environmentally responsible behaviour.

# Requesting Technical Assistance

If you cannot resolve the fault, please contact your installer in the first instance. S/he is legally authorised to work on your installation. However, if after several attempts you are unable to contact your installer, consult our list of authorised partners at:

[www.ciat.fr](http://www.ciat.fr) Section: Residential after-sales; our STAC partners

Please provide the following information when requesting assistance:

1- The SO number on your CIAT order

2 – The unit's designation:

**Example: AQUALIS 2+ 28A HT**

3 - Serial Number:

**Example: 02xxxxxx/0002**

4 - Year manufactured

5 - System start-up if undertaken by CIAT

6 - Type of request

7 - A brief explanation of the fault and the alarm code

8 - Any actions carried out prior to the request.

Ref. Produit/Item Nbr		Designation/Description	
7321648		AQUALIS2+ 28A H 230V/1/50HZ	
An /Year	No Serie/Serial Nbr	No Produit	
2013	02	7321648	
Refrigerant	R410A	kW Absorbee/Input kW	Poids/Weight kg
Refrigerant kg	1.55	Tension/Voltage	Temperature Maxi c
		1x230V ~ 50Hz	45
BP/LP Mini PSM/MOP	0.25 MPa / 2.8 MPa	Intensite/Current A	IP
		20.5	24
HP Maxi PSM/MOP	4.2 MPa / 4.2 MPa	Int.. Kit Elect.	No CE

**CIAT** 30, av Jean Falconnier  
01350 CULOZ (FRANCE)  
www.ciat.com

CE NF  
Made in France

***The location of the name plate on your unit is indicated in the operating manual.***



Repairs should only be carried out by a specialist. When replacing components, make sure that only original spare parts are used. Substandard repairs or the use of non-original spare parts may result in damage and the user may risk voiding the CIAT manufacturer's warranty.

# CIAT Authorised Technical Stations network

## **When you choose CIAT, you are choosing the benefits of a top-quality, exclusive network**

Our STAC service network comprises numerous specialist independent refrigeration companies that meet all the necessary legal conditions. They have all been specially selected and trained, and are continuously audited by CIAT to guarantee you the best quality service.

CIAT approval, which is a guarantee of quality, is issued to both the company and technicians who undergo annual training in our training department.

Taking out a contract with an authorised partner ensures:

- Priority repairs in case of faults.
- A privileged relationship with CIAT.
- High-quality services provided by qualified technicians with extensive knowledge of CIAT heat pumps thanks to technical training undertaken throughout the year within our factory.
- Guaranteed operation in line with CIAT recommendations.
- Programme updates.
- Original spare parts guaranteed by CIAT.

Our STACs are best qualified to meet your needs. Also qualified to carry out audits, they can provide you with advice on extensions, modifying your installation and making real savings on your electrical consumption.

For a list of our authorised partners, visit:

**[www.ciat.fr](http://www.ciat.fr)** Section: Residential after-sales; our STAC partners

# Unit system start-up report

System start-up date: .....

Name of technician and company: .....

Unit designation: ..... Serial No .....

Maintenance contract no.:.....

An annual sealing test **must** be carried out on the unit      YES  NO

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base       OK  NOK
- Access, installation dimension, ventilation, condenser       OK  NOK
- Tightness of mountings on the unit and compressor       OK  NOK

## Heating water circuit

- Length, cross section of the hydraulic piping & check if hydraulic modification       OK  NOK
- Check condition of the water in the heating circuit (presence of sludge, PH measurement, etc.)       OK  NOK
- Buffer or mixture water capacity sufficient       OK  NOK
- Check operation of expansion vessel and water valve       OK  NOK
- Clean intermediate exchanger (WATER-WATER unit)       OK  NOK
- Hydraulic leak       OK  NOK
- Presence of several different types of component on the installation (electrolysis effect)       OK  NOK
- Pipe insulation       OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply cable and options       OK  NOK
- Earth connection       OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.       OK  NOK
- Connection: no wires (sensor, etc.) disconnected       OK  NOK

NOTE:.....  
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# Unit system start-up report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT			
		V1	V2	V3	V1	V2	V3
Water inlet temperature (°C)							
Water outlet temperature (°C)							Δt=
Check water filter fouling level	YES			NO	YES		NO
Check flow switch	YES			NO	YES		NO
Accelerator pump speed	V1	V2	V3		V1	V2	V3
Accelerator pump voltage & input current		V		A		V	
Frost protection type & freezing temperature							°C
Frost protection triggering temperature	P Parameter No.	=		°C	P Parameter No	=	°C
Check for leaks on the refrigerating circuit	YES			NO	YES		NO
Check the fouling level of the coil	YES			NO	YES		NO
Air inlet temperature (°C)							Δt=
Air outlet temperature (°C)							
Check pans & condensate drainage	YES			NO	YES		NO
Check bolts: casing, compressor, etc.	YES			NO	YES		NO
Check for loose electrical connections	YES			NO	YES		NO
Unit supply voltage (V)	V			Compressor input current (A)			A
Discharge temperature (°C)	°C			Compressor intake temperature (°C)			°C
Condenser outlet fluid temperature (°C)	°C			Tank outlet fluid temperature (°C)			°C
Cooler outlet fluid temperature (°C)	°C			Compressor injection intake temperature (°C)			°K
Overheating value (°K)	°K			Injection overheating value (°K)			°K
Subcooling value (°K)	°K			Delta T value of the subcooler (°K)			°K
Defrosting check	YES			NO			Company stamp
Safety device check	YES			NO			Name of Technician:
Additional options	YES			NO			
Date of next inspection	/			/			

# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
- Tightness of mountings on the unit and compressor  OK  NOK

## Heating water circuit

- Length, cross section of the hydraulic piping & check if hydraulic modification  OK  NOK
- Check condition of the water in the heating circuit (presence of sludge, PH measurement, etc.)  OK  NOK
- Buffer or mixture water capacity sufficient  OK  NOK
- Check operation of expansion vessel and water valve  OK  NOK
- Clean intermediate exchanger (WATER-WATER unit)  OK  NOK
- Hydraulic leak  OK  NOK
- Presence of several different types of component on the installation (electrolysis effect)  OK  NOK
- Pipe insulation  OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply cable and options  OK  NOK
- Earth connection  OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.  OK  NOK
- Connection: no wires (sensor, etc.) disconnected  OK  NOK

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# Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT		
	Δt=	V	A	Δt=	V	A
Water inlet temperature (°C)						
Water outlet temperature (°C)						
Check water filter fouling level	YES	NO		YES	NO	
Check flow switch	YES	NO		YES	NO	
Accelerator pump speed	V1	V2	V3	V1	V2	V3
Accelerator pump voltage & input current		V	A		V	A
Frost protection type & freezing temperature			°C			°C
Frost protection triggering temperature	P Parameter No. =		°C	P Parameter No. =		°C
Check for leaks on the refrigerating circuit	YES	NO		YES	NO	
Check the fouling level of the coil	YES	NO		YES	NO	
Air inlet temperature (°C)						
Air outlet temperature (°C)						
Check pans & condensate drainage	YES	NO		YES	NO	
Check bolts: casing, compressor, etc.	YES	NO		YES	NO	
Check for loose electrical connections	YES	NO		YES	NO	
Unit supply voltage (V)	V	Compressor input current (A)				A
Discharge temperature (°C)	°C	Compressor intake temperature (°C)				°C
Condenser outlet fluid temperature (°C)	°C	Tank outlet fluid temperature (°C)				°C
Cooler outlet fluid temperature (°C)	°C	Compressor injection intake temperature (°C)				°K
Overheating value (°K)	°K	Injection overheating value (°K)				°K
Subcooling value (°K)	°K	Delta T value of the subcooler (°K)				°K
Defrosting check	YES	NO				Company stamp
Safety device check	YES	NO				Name of Technician:
Additional options	YES	NO				
Date of next inspection	/	/				



# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
- Tightness of mountings on the unit and compressor  OK  NOK

## Heating water circuit

- Length, cross section of the hydraulic piping & check if hydraulic modification  OK  NOK
- Check condition of the water in the heating circuit (presence of sludge, PH measurement, etc.)  OK  NOK
- Buffer or mixture water capacity sufficient  OK  NOK
- Check operation of expansion vessel and water valve  OK  NOK
- Clean intermediate exchanger (WATER-WATER unit)  OK  NOK
- Hydraulic leak  OK  NOK
- Presence of several different types of component on the installation (electrolysis effect)  OK  NOK
- Pipe insulation  OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply cable and options  OK  NOK
- Earth connection  OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.  OK  NOK
- Connection: no wires (sensor, etc.) disconnected  OK  NOK

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# Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT		
		$\Delta t =$			$\Delta t =$	
Water inlet temperature (°C)						
Water outlet temperature (°C)						
Check water filter fouling level	YES	NO		YES	NO	
Check flow switch	YES	NO		YES	NO	
Accelerator pump speed	V1	V2	V3	V1	V2	V3
Accelerator pump voltage & input current	V		A	V		A
Frost protection type & freezing temperature			°C			°C
Frost protection triggering temperature	P Parameter No. =		°C	P Parameter No. =		°C
Check for leaks on the refrigerating circuit	YES	NO		YES	NO	
Check the fouling level of the coil	YES	NO		YES	NO	
Air inlet temperature (°C)						
Air outlet temperature (°C)						
Check pans & condensate drainage	YES	NO		YES	NO	
Check bolts: casing, compressor, etc.	YES	NO		YES	NO	
Check for loose electrical connections	YES	NO		YES	NO	
Unit supply voltage (V)	V		Compressor input current (A)	A		A
Discharge temperature (°C)	°C		Compressor intake temperature (°C)	°C		°C
Condenser outlet fluid temperature (°C)	°C		Tank outlet fluid temperature (°C)	°C		°C
Cooler outlet fluid temperature (°C)	°C		Compressor injection intake temperature (°C)	°C		°C
Overheating value (°K)	°K		Injection overheating value (°K)	°K		°K
Subcooling value (°K)	°K		Delta T value of the subcooler (°K)	°K		°K
Defrosting check	YES	NO		Company stamp		
Safety device check	YES	NO		Name of Technician:		
Additional options	YES	NO				
Date of next inspection	/					

# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
- Tightness of mountings on the unit and compressor  OK  NOK

## Heating water circuit

- Length, cross section of the hydraulic piping & check if hydraulic modification  OK  NOK
- Check condition of the water in the heating circuit (presence of sludge, PH measurement, etc.)  OK  NOK
- Buffer or mixture water capacity sufficient  OK  NOK
- Check operation of expansion vessel and water valve  OK  NOK
- Clean intermediate exchanger (WATER-WATER unit)  OK  NOK
- Hydraulic leak  OK  NOK
- Presence of several different types of component on the installation (electrolysis effect)  OK  NOK
- Pipe insulation  OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply cable and options  OK  NOK
- Earth connection  OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.  OK  NOK
- Connection: no wires (sensor, etc.) disconnected  OK  NOK

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# Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT		
	V1	V2	V3	V1	V2	V3
Water inlet temperature (°C)						
Water outlet temperature (°C)						
Check water filter fouling level	YES		NO	YES		NO
Check flow switch	YES		NO	YES		NO
Accelerator pump speed	V1	V2	V3	V1	V2	V3
Accelerator pump voltage & input current	V		A	V		A
Frost protection type & freezing temperature			°C			°C
Frost protection triggering temperature	P Parameter No. =		°C	P Parameter No. =		°C
Check for leaks on the refrigerating circuit	YES		NO	YES		NO
Check the fouling level of the coil	YES		NO	YES		NO
Air inlet temperature (°C)						
Air outlet temperature (°C)						
Check pans & condensate drainage	YES		NO	YES		NO
Check bolts: casing, compressor, etc.	YES		NO	YES		NO
Check for loose electrical connections	YES		NO	YES		NO
Unit supply voltage (V)	V		Compressor input current (A)			A
Discharge temperature (°C)	°C		Compressor intake temperature (°C)			°C
Condenser outlet fluid temperature (°C)	°C		Tank outlet fluid temperature (°C)			°C
Cooler outlet fluid temperature (°C)	°C		Compressor injection intake temperature (°C)			°C
Overheating value (°K)	°K		Injection overheating value (°K)			°K
Subcooling value (°K)	°K		Delta T value of the subcooler (°K)			°K
Defrosting check	YES		NO	Company stamp		
Safety device check	YES		NO	Name of Technician:		
Additional options	YES		NO			
Date of next inspection	/		/			

# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
- Tightness of mountings on the unit and compressor  OK  NOK

## Heating water circuit

- Length, cross section of the hydraulic piping & check if hydraulic modification  OK  NOK
- Check condition of the water in the heating circuit (presence of sludge, PH measurement, etc.)  OK  NOK
- Buffer or mixture water capacity sufficient  OK  NOK
- Check operation of expansion vessel and water valve  OK  NOK
- Clean intermediate exchanger (WATER-WATER unit)  OK  NOK
- Hydraulic leak  OK  NOK
- Presence of several different types of component on the installation (electrolysis effect)  OK  NOK
- Pipe insulation  OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply cable and options  OK  NOK
- Earth connection  OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.  OK  NOK
- Connection: no wires (sensor, etc.) disconnected  OK  NOK

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## Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT		
Water inlet temperature (°C)						
Water outlet temperature (°C)						
Check water filter fouling level	YES	NO		YES	NO	
Check flow switch	YES	NO		YES	NO	
Accelerator pump speed	V1	V2	V3	V1	V2	V3
Accelerator pump voltage & input current	V		A	V		A
Frost protection type & freezing temperature			°C			°C
Frost protection triggering temperature	P Parameter No. =		°C	P Parameter No. =		°C
Check for leaks on the refrigerating circuit	YES	NO		YES	NO	
Check the fouling level of the coil	YES	NO		YES	NO	
Air inlet temperature (°C)						
Air outlet temperature (°C)						
Check pans & condensate drainage	YES	NO		YES	NO	
Check bolts: casing, compressor, etc.	YES	NO		YES	NO	
Check for loose electrical connections	YES	NO		YES	NO	
Unit supply voltage (V)	V		Compressor input current (A)	V		A
Discharge temperature (°C)	°C		Compressor intake temperature (°C)	°C		°C
Condenser outlet fluid temperature (°C)	°C		Tank outlet fluid temperature (°C)	°C		°C
Cooler outlet fluid temperature (°C)	°C		Compressor injection intake temperature (°C)	°C		°C
Overheating value (°K)	°K		Injection overheating value (°K)	°K		°K
Subcooling value (°K)	°K		Delta T value of the subcooler (°K)	°K		°K
Defrosting check	YES	NO		Company stamp		
Safety device check	YES	NO		Name of Technician:		
Additional options	YES	NO		/		
Date of next inspection	/			/		

# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
- Tightness of mountings on the unit and compressor  OK  NOK

## Heating water circuit

- Length, cross section of the hydraulic piping & check if hydraulic modification  OK  NOK
- Check condition of the water in the heating circuit (presence of sludge, PH measurement, etc.)  OK  NOK
- Buffer or mixture water capacity sufficient  OK  NOK
- Check operation of expansion vessel and water valve  OK  NOK
- Clean intermediate exchanger (WATER-WATER unit)  OK  NOK
- Hydraulic leak  OK  NOK
- Presence of several different types of component on the installation (electrolysis effect)  OK  NOK
- Pipe insulation  OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply cable and options  OK  NOK
- Earth connection  OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.  OK  NOK
- Connection: no wires (sensor, etc.) disconnected  OK  NOK

NOTE:.....  
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# Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT		
	V1	V2	V3	V1	V2	V3
Water inlet temperature (°C)						
Water outlet temperature (°C)						
Check water filter fouling level	YES		NO	YES		NO
Check flow switch	YES		NO	YES		NO
Accelerator pump speed	V1	V2	V3	V1	V2	V3
Accelerator pump voltage & input current	V		A	V		A
Frost protection type & freezing temperature			°C			°C
Frost protection triggering temperature	P Parameter No. =		°C	P Parameter No. =		°C
Check for leaks on the refrigerating circuit	YES		NO	YES		NO
Check the fouling level of the coil	YES		NO	YES		NO
Air inlet temperature (°C)						
Air outlet temperature (°C)						
Check pans & condensate drainage	YES		NO	YES		NO
Check bolts: casing, compressor, etc.	YES		NO	YES		NO
Check for loose electrical connections	YES		NO	YES		NO
Unit supply voltage (V)	V		Compressor input current (A)			A
Discharge temperature (°C)	°C		Compressor intake temperature (°C)			°C
Condenser outlet fluid temperature (°C)	°C		Tank outlet fluid temperature (°C)			°C
Cooler outlet fluid temperature (°C)	°C		Compressor injection intake temperature (°C)			°C
Overheating value (°K)	°K		Injection overheating value (°K)			°K
Subcooling value (°K)	°K		Delta T value of the subcooler (°K)			°K
Defrosting check	YES		NO	Company stamp		
Safety device check	YES		NO	Name of Technician:		
Additional options	YES		NO			
Date of next inspection	/		/			



# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
- Tightness of mountings on the unit and compressor  OK  NOK

## Heating water circuit

- Length, cross section of the hydraulic piping & check if hydraulic modification  OK  NOK
- Check condition of the water in the heating circuit (presence of sludge, PH measurement, etc.)  OK  NOK
- Buffer or mixture water capacity sufficient  OK  NOK
- Check operation of expansion vessel and water valve  OK  NOK
- Clean intermediate exchanger (WATER-WATER unit)  OK  NOK
- Hydraulic leak  OK  NOK
- Presence of several different types of component on the installation (electrolysis effect)  OK  NOK
- Pipe insulation  OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply cable and options  OK  NOK
- Earth connection  OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.  OK  NOK
- Connection: no wires (sensor, etc.) disconnected  OK  NOK

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# Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT		INDOOR CIRCUIT	
	$\Delta t =$		$\Delta t =$	
Water inlet temperature (°C)				
Water outlet temperature (°C)				
Check water filter fouling level	YES	NO	YES	NO
Check flow switch	YES	NO	YES	NO
Accelerator pump speed	V1	V2	V1	V2
Accelerator pump voltage & input current	V		V	
Frost protection type & freezing temperature				
Frost protection triggering temperature	P Parameter No.	=	°C	P Parameter No = °C
Check for leaks on the refrigerating circuit	YES	NO	YES	NO
Check the fouling level of the coil	YES	NO	YES	NO
Air inlet temperature (°C)				
Air outlet temperature (°C)			$\Delta t =$	
Check pans & condensate drainage	YES	NO	YES	NO
Check bolts: casing, compressor, etc.	YES	NO	YES	NO
Check for loose electrical connections	YES	NO	YES	NO
Unit supply voltage (V)	V	Compressor input current (A)		A
Discharge temperature (°C)	°C	Compressor intake temperature (°C)		°C
Condenser outlet fluid temperature (°C)	°C	Tank outlet fluid temperature (°C)		°C
Cooler outlet fluid temperature (°C)	°C	Compressor injection intake temperature (°C)		°K
Overheating value (°K)	°K	Injection overheating value (°K)		°K
Subcooling value (°K)	°K	Delta T value of the subcooler (°K)		°K
Defrosting check	YES	NO	Company stamp	
Safety device check	YES	NO	Name of Technician:	
Additional options	YES	NO		
Date of next inspection	/ /			

# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

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# Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT		
		$\Delta t=$			$\Delta t=$	
Water inlet temperature (°C)						
Water outlet temperature (°C)						
Check water filter fouling level	YES	NO		YES	NO	
Check flow switch	YES	NO		YES	NO	
Accelerator pump speed	V1	V2	V3	V1	V2	V3
Accelerator pump voltage & input current	V		A	V		A
Frost protection type & freezing temperature			°C			°C
Frost protection triggering temperature	P Parameter No. =		°C	P Parameter No. =		°C
Check for leaks on the refrigerating circuit	YES	NO		YES	NO	
Check the fouling level of the coil	YES	NO		YES	NO	
Air inlet temperature (°C)						
Air outlet temperature (°C)						
Check pans & condensate drainage	YES	NO		YES	NO	
Check bolts: casing, compressor, etc.	YES	NO		YES	NO	
Check for loose electrical connections	YES	NO		YES	NO	
Unit supply voltage (V)	V		Compressor input current (A)	A		A
Discharge temperature (°C)	°C		Compressor intake temperature (°C)	°C		°C
Condenser outlet fluid temperature (°C)	°C		Tank outlet fluid temperature (°C)	°C		°C
Cooler outlet fluid temperature (°C)	°C		Compressor injection intake temperature (°C)	°C		°C
Overheating value (°K)	°K		Injection overheating value (°K)	°K		°K
Subcooling value (°K)	°K		Delta T value of the subcooler (°K)	°K		°K
Defrosting check	YES	NO		Company stamp		
Safety device check	YES	NO		Name of Technician:		
Additional options	YES	NO				
Date of next inspection	/					

# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
- Tightness of mountings on the unit and compressor  OK  NOK

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- Length, cross section of the hydraulic piping & check if hydraulic modification  OK  NOK
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- Connection: no wires (sensor, etc.) disconnected  OK  NOK

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## Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT			INDOOR CIRCUIT		
Water inlet temperature (°C)						
Water outlet temperature (°C)						
Check water filter fouling level	YES	NO		YES	NO	
Check flow switch	YES	NO		YES	NO	
Accelerator pump speed	V1	V2	V3	V1	V2	V3
Accelerator pump voltage & input current	V		A	V		A
Frost protection type & freezing temperature			°C			°C
Frost protection triggering temperature	P Parameter No. =		°C	P Parameter No. =		°C
Check for leaks on the refrigerating circuit	YES	NO		YES	NO	
Check the fouling level of the coil	YES	NO		YES	NO	
Air inlet temperature (°C)						
Air outlet temperature (°C)						
Check pans & condensate drainage	YES	NO		YES	NO	
Check bolts: casing, compressor, etc.	YES	NO		YES	NO	
Check for loose electrical connections	YES	NO		YES	NO	
Unit supply voltage (V)	V		Compressor input current (A)	V		A
Discharge temperature (°C)	°C		Compressor intake temperature (°C)	°C		°C
Condenser outlet fluid temperature (°C)	°C		Tank outlet fluid temperature (°C)	°C		°C
Cooler outlet fluid temperature (°C)	°C		Compressor injection intake temperature (°C)	°C		°C
Overheating value (°K)	°K		Injection overheating value (°K)	°K		°K
Subcooling value (°K)	°K		Delta T value of the subcooler (°K)	°K		°K
Defrosting check	YES	NO		Company stamp		
Safety device check	YES	NO		Name of Technician:		
Additional options	YES	NO				
Date of next inspection	/		/			

# Maintenance service report

Operation type: ..... Date: .....

Name of technician and company: .....

Unit designation: ..... Serial No. ....

Maintenance contract No.:.....

## Installation and appearance of the unit

- Level, straightness of the unit and any subsidence of the concrete base  OK  NOK
- Access, installation dimension, ventilation, condenser  OK  NOK
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- Presence of several different types of component on the installation (electrolysis effect)  OK  NOK
- Pipe insulation  OK  NOK

## Unit electrical circuit

- Condition, length and cross section of the heat pump power supply  OK  NOK
- cable and options  OK  NOK
- Earth connection  OK  NOK
- Connection of DHW automatic devices or controllers; swimming pool, etc.  OK  NOK
- Connection: no wires (sensor, etc.) disconnected  OK  NOK

NOTE:.....  
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## Maintenance service report

DESIGNATION	OUTDOOR CIRCUIT				INDOOR CIRCUIT			
Water inlet temperature (°C)			Δt=				Δt=	
Water outlet temperature (°C)								
Check water filter fouling level	YES		NO		YES		NO	
Check flow switch	YES		NO		YES		NO	
Accelerator pump speed	V1	V2	V3		V1	V2	V3	
Accelerator pump voltage & input current	V		A		V		A	
Frost protection type & freezing temperature			°C				°C	
Frost protection triggering temperature	P Parameter No.		=		°C		P Parameter No = °C	
Check for leaks on the refrigerating circuit	YES		NO		YES		NO	
Check the fouling level of the coil	YES		NO		YES		NO	
Air inlet temperature (°C)			Δt=				Δt=	
Air outlet temperature (°C)								
Check pans & condensate drainage	YES		NO		YES		NO	
Check bolts: casing, compressor, etc.	YES		NO		YES		NO	
Check for loose electrical connections	YES		NO		YES		NO	
Unit supply voltage (V)	V		Compressor input current (A)				A	
Discharge temperature (°C)	°C		Compressor intake temperature (°C)				°C	
Condenser outlet fluid temperature (°C)	°C		Tank outlet fluid temperature (°C)				°C	
Cooler outlet fluid temperature (°C)	°C		Compressor injection intake temperature (°C)				°K	
Overheating value (°K)	°K		Injection overheating value (°K)				°K	
Subcooling value (°K)	°K		Delta T value of the subcooler (°K)				°K	
Defrosting check	YES		NO				Company stamp	
Safety device check	YES		NO				Name of Technician:	
Additional options	YES		NO					
Date of next inspection	/		/					









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