



TRANE®

Maintenance manual

Absorption chillers



November 99

ABS-SVD01A-EN



Dear customer,

Thank you for your confidence **in choosing TRANE.**

The commissioning of your TRANE equipment has been completed in accordance with our standard start-up procedures.

We confirm that the machine run log has been completed and registered with our factory under our **ISO 9001** Quality Management System.

The first stage of your warranty has been validated.

To keep your TRANE equipment operating at peak efficiency during the warranty period and to extend its life we recommend that regular maintenance procedures as detailed in the timetable contained within this maintenance guide must be carried out.

To guarantee that the service you receive is efficient, reliable and carried out by technically competent factory trained technicians certificated to the refrigerant handling standard, we strongly recommend that you enroll in one of our **"SécuriTrane"** Maintenance Programs.

As a commitment to our customers, we have created a nationwide service division called **Trane ServiceFirst**. At **Trane ServiceFirst** we offer all the benefits of after sales service direct from the manufacturer and we are committed to our mission statement to provide customer Care second to none.

We would be delighted to discuss your individual requirement with you. For further information regarding **SécuriTrane** please contact your local **TRANE ServiceFirst** Center.

We at Trane ServiceFirst look forward to providing you with Customer care second to none and again thank you for your confidence in choosing Trane.

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Recommended yearly service routine frequencies

Year	Commissioning	Inspection visit	Seasonal shut-down	Seasonal start-up	Annual maintenance	Preventive maintenance	Tube Analysis
1	X	X	X	X		XX	
2			X	X	X	XXX	
3			X	X	X	XXX	
4			X	X	XXX	X	
5			X	X	X	XXX	X (1)
6			X	X	X	XXX	
7			X	X	X	XXX	
8			X	X	X	XXX	
9			X	X	X	XXX	
10			X	X		XXX	X
+10			Every year	Every year	Every year	3 every year	Every 3 years

This timetable is applicable to for units operating in normal conditions with an average of 4000 hours per year. If operating conditions are abnormally severe, an individual timetable must be made for that unit.

(1) Tube testing required if aggressive water conditions exist. Applies to condensers only on water cooled units.

Seasonal start up and shut down are mainly recommended for Comfort Air Conditioning and annual and preventive maintenance are mainly recommended for Process Application

Maintenance routine

Commissioning

- Check installation of equipment/ pre-commission
- Check water flows and interlocks
- Check steam or hot water circuits
- Check all valves
- Check the chiller for proper vacuum
- Check operation of all safety devices
- Check configuration of unit control module (if applicable)
- Inspect the purge pump
- Lithium bromide and refrigerant charge
- Meg test on solution pump
- Burner installation and adjustment (when available)
- Check the sensors (when available)
- Start the unit
- Check and calibrate all modulating controls and actuators
- Measure and record operating conditions
- Stop the unit and check for proper dilution cycle
- Start the unit again
- Check the refrigerant for salt
- Train the operator for unit operation
- Fill the Start up Log Sheet and review with the operator.

Seasonal shut down

- Visually inspect the machine for refrigerant and water leaks
- Pressure test the machine as required to identify leaks
- Clean pump cooling water filter
- Inspect condenser and absorber tubes
- Check operation of machines/compare conditions of operation against original commissioning data
- Fill the Start up Log Sheet and review with the operator
- Provide a written report of work performed and indicate all detected deficiencies.

Inspection visit

- Take a bromide sample for analysis
- Clean the magnetic filter
- Measure and record :concentrate and dilute solution, refrigerant
- Change the vacuum pump oil
- Check the UCP2 control module
- Check the operation of machine/compare conditions of operation against original commissioning data
- Fill the Inspection visit Log Sheet and review with the operator.

Maintenance routine

Seasonal start-up

- Check water flows and interlocks
- Check operation of all safety devices
- Check the unit for proper vacuum
- Check oil level and operation of the purge pump
- Check configuration of unit control module (if applicable)
- Measure voltage and amperage of the pumps and motors
- Check operation of machines/compare conditions of operation against original commissioning data
- Fill the Start up Log Sheet and review with the operator
- Provide a written report of work performed and indicate all detected deficiencies.

Preventive Maintenance

- Check the level of vacuum in the unit
- Check operation of purge system
- Change oil in purge vacuum pump
- Check operation of solution pump (s)
- Check the safety controls for proper operation
- Check configuration of unit control module (If applicable)
- Visually inspect chiller for refrigerant and water leak
- Check the refrigerant for salt
- Check operation of machines/compare conditions of operation against original commissioning data
- Fill the Inspection visit Log Sheet and review with the operator
- Provide a written report of work performed and indicate all detected deficiencies.

Annual Maintenance

- Inspection visit plus
- Meg solution pump motor
- Measure voltage and amperage of the pumps and motors
- Check the lithium bromide solution to adjust inhibitors
- Test for hydrogen
- Clean pump cooling water filter
- Check solution pump seals for leakage
- Inspect concentrator steam traps
- Check condition of all valve diaphragm
- Check valves operation and calibration
- Clean absorption pump strainer
- Tension any drive belts replace as required (where applicable)
- Check and adjust burner and his peripheries
- Check operation of machines/compare conditions of operation against original commissioning data
- Fill the Maintenance Log Sheet and review with the operator
- Provide a written report of work performed and indicate all detected deficiencies.

Additional services

System upgrade

This Service provides a consulting service.

Up grading your equipment will increase the unit reliability and can reduce the functioning costs by optimizing the controls.

A list of solutions / recommendations to the system will be explained to the customer. Actual upgrade for the system will be under different quotation.

Operator training

This service includes one day of training for the system operators or building engineers for unit on site. They will gain overall understanding and improve the ability to operate and maintain the chiller.

Water treatment

This Service provides all of the necessary chemicals to properly treat each water system for the period designated.

The inspections will be conducted at agreed upon intervals and will submit a written report to the customer after each inspection. These reports will indicate the conditions of corrosion, scaling, and algae growth of the system.

Refrigerant analysis

This Service includes a thorough analysis for contamination and solution upgrade

It is recommended that this analysis is performed every six months.

Annual cooling tower maintenance

This Service includes the inspection and maintenance of the cooling tower at least once a year. This involves checking the motor.

24 hours duty

This service includes emergency calls outside of the office normal working hours.

This Service is only available with our Ally Maintenance Contract, where available.



Additional services

Training

Our Trane Training Center, is able to support all your training needs, about the refrigeration, theoretical, practical, general and specific trainings dedicated for our units. These trainings can be done in our Training Center or in a area defined by you.

Tube cleaning/coil cleaning

This Service includes mechanical or chemical cleaning of the tubes or coils.

ESP (Extended Service Programs)

This Service, only available within a Maintenance contract, provides three different warranty levels

ESP one Parts only
ESP two Parts and Labor
ESP three Parts, Labor
and refrigerant

Remote monitoring service

This Service will require Trane technicians to log onto the customer's system. It is used within the maintenance contract to optimize the maintenance and repair. A diagnosis log report with the following information will be provided to the customer on a scheduled basis.

Tube analysis

- Eddy Current Tube Testing for prediction of tube failure/ wear.
- Frequency-every 5 years for first 10 years (depending on the water quality), then every 3 years thereafter.



Scope of coverage

Description	Startup	Inspection visit	Seasonal shut-down	Seasonal start-up	Preventive maintenance	Annual maintenance
Check installation of equipment/ pre-commission.	█					
Check water flows and interlocks.	█			█		
Check steam or hot water circuits.	█					
Check all valves	█					
Check the chiller (unit) for proper vacuum.	█			█	█	
Check operation of all safety devices.	█			█		
Check configuration of unit control module.(if applicable)	█	█		█		
Inspect the purge pump	█					
Lithium bromide and refrigerant charge	█					
Meg test on solution pump	█					█
Burner installation and adjustment. (when available)	█					
Check the sensors (when available)	█					
Start the unit	█					
Check and calibrate all modulating controls and actuators	█					
Measure and record operating conditions	█					
Stop the unit and check for proper dilution cycle	█					
Start the unit again	█					
Check the refrigerant for salt	█	█			█	█
Train the operator for unit operation	█					
Fill the Start up Log Sheet and review with the operator	█		█			
Check oil level/Change the vacuum pump oil	█	█		█		█
Inspect the unit for refrigerant and water leak	█		█		█	█
Check operation of solution pump	█			█	█	
Check operation of purge pump	█			█		
Measure voltage and amperage of the pumps and motors	█			█		█
Check the lithium bromide solution to adjust inhibitors/Bromide analyses	█	█				█
Clean the magnetic filter	█	█				█
Test for hydrogen	█					█
Provide a written report of work performed and indicate all detected deficiencies	█		█			█
Inspect condenser and absorber tubes	█		█			█
Clean pump cooling water filter	█		█			█
Check solution pump seals for leakage	█					█
Inspect concentrator steam traps	█					█
Check condition of all valve diaphragm	█					█
Check valves operation and calibration	█					█
Clean absorption pump strainer.	█					█
Tension any drive belts replace as required (if applicable)	█					█
Check and adjust burner and his peripheries	█					█
Check operation of machines/ Compare operation against original commissioning data	█	█				█
Fill the Log Sheet and review with the operator	█	█		█		█



Recommended yearly service routine frequencies

Year	Commissioning	Inspection visit	Seasonal shut-down	Seasonal start-up	Annual maintenance	Preventive maintenance	Tube Analysis
1							
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Seasonal start up and shut down are mainly recommended for Comfort Air Conditioning and annual and preventive maintenance are mainly recommended for Process Application

Notes



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New

Literature stocking location in Europe

Trane reserves the right alter any information without prior notice.

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