

# UV disinfection unit (DiUV) – Owner’s Manual

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Congratulations on your purchase of a UV disinfection unit from Premier Tech, you have wisely chosen to protect your health and your environment.

The UV disinfection unit coupled with an Ecoflo biofilter is a tertiary treatment system with disinfection certified Class V in accordance with the NQ 3680-910 standard. The system includes a septic tank, an effluent filter, an Ecoflo biofilter and a UV disinfection unit.

This manual contains information on the operation, operating guidelines, maintenance as well as warranties for the UV disinfection unit.

All information relative to the operation, operating guidelines and maintenance of the septic tank, effluent filter and Ecoflo biofilter can be found in the Ecoflo biofilter Owner’s manual. For additional information, please contact our Customer Service department at 1-800-632-6356 or visit our website at PT-WaterEnvironment.com.

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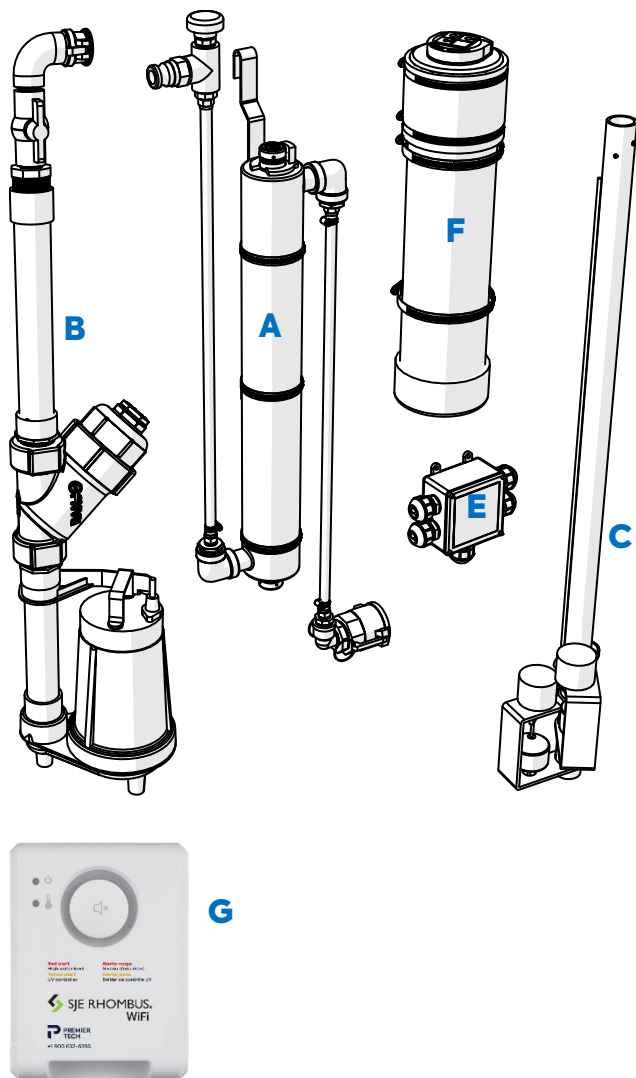
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# 1. Operating principle

The purpose of the UV disinfection unit is to reduce the concentration of fecal coliforms below 200 CFU/100 m<sup>3</sup>. The operating principle of the UV disinfection unit is to expose microorganisms to a given dose of ultraviolet rays. The dose depends on the time of exposure and the intensity of the rays; the applied flowrate on the UV unit ensures an optimal exposure time providing the required dose.

## 1.1. Main components & fonctions



### A- UV unit

- Includes the UV lamp and the quartz sleeve;
- Exposes the water to UV rays;
- Equipped with quick disconnects for easy retrieval of the lamp.

### B- Pump assembly

- Provides pressurized water to the UV unit;
- Equipped with a mesh filter;
- Equipped with an entry valve that can isolate the UV unit during servicing.

### C- Float tree

- Pre-wired to the pump assembly and the junction boxes;
- Manages the pumping events;
- Detects high water levels.

### D- Alarm float

- Warns the homeowner of an abnormal situation in the septic installation;

### E- Junction box

- Protects electrical connections;

### F- Watertight box

- Houses the UV controller;

### G- WI-FI alarm box

<sup>1</sup> The maximum concentration for tertiary treatment systems with UV disinfection must be divided by a factor of 10 to take into account the reactivation of fecal coliforms after disinfection.

The table below indicates the capacity of the UV disinfection unit.

Number of bedrooms	Total daily flow (liters)	Number of UV disinfection unit required
1	540	1
2	1,080	1
3	1,260	1
4	1,440	1
5	1,800	1
6	2,160	1
Other buildings ruled by Q-2, r.22 <sup>2</sup>	3,240	1

## 2. Operating guidelines

### 2.1. Type of wastewater that can be treated

#### Using a secondary or advanced secondary treatment system

Domestic wastewater (for example: wastewater from an onsite installation).

#### Using the UV disinfection unit

Domestic wastewater coming from an advanced secondary treatment system certified in accordance with the NQ 3680-910 standard for an advanced secondary level (Class III). To be installed in Québec at a flow rate below 3,240 L/d, the treatment chain consisting of an advanced secondary treatment and the UV disinfection unit must be certified in accordance with the NQ 3680-910 standard.

#### Water supply source quality analysis

A drinking water test is recommended although not mandatory. Drinking water should respect the following levels:

For **self-cleaning UV disinfection unit** :

Hardness < 500 mg/L

For **classic UV disinfection unit** :

Water Quality and Minerals	Level
Iron	< 0.3 ppm (0.3 mg/L)
Hardness	< 7 gpg (120 mg/L)
Manganese	< 0.05 ppm (0.05 mg/L)
Tannins	< 0.1 ppm (0.1 mg/L)

#### Drinking water filtration system

If your home is equipped with a drinking water filtration system (i.e. a water softener, green sand filter, etc.), the backwash from this system must never be sent to the wastewater system as this can damage the UV disinfection unit.

<sup>2</sup> Q-2, r.22 is applicable only in Quebec.

## 2.2 Recommendations

IT IS RECOMMENDED THAT YOU NOT flush any of the following into your septic system:



- Water softener backwash;



- Oil and grease (motor oil, cooking oil, etc.);



- Petroleum products;



- Paints and solvents and all other toxic substances;



- Wax, resins and any septic tank additives;



- Anything not easily biodegradable (i.e.: coffee beans, cigarette butts, sanitary napkins, tampons, condoms, cotton swabs, etc.);



- Pesticides.

By respecting these instructions, you contribute to the proper operation of your septic system and increase the chances of extending the useful life of the product.



- NEVER open the access lid or go inside the UV disinfection unit unless authorized;



- NEVER cover or bury the access lid(s) of the components of your septic system. Once the landscaping has been completed, the lid of the tank must be 50 mm (2") above the surface of the finished lot (grass included);



- NEVER connect a drainage pipe, roof gutter, sump/drainage pump or air condition drain to your septic system;



- NEVER operate a vehicle or place any item weighing more than 225 kg (500 lb) within 2 m (6.7') from the edge of the lid<sup>3</sup>;



- DO NOT let anything that might cause an overload collect on top of your septic system (i.e. blown snow). The overload can damage your system;



- NEVER use automatic toilet cleaners;



- NEVER add extensions on the access of the UV disinfection unit.

<sup>3</sup> If your UV disinfection unit is integrated in your Ecoflo biofilter, the distance to respect must be of 3 meters (10') from the edge of the lid of the Ecoflo biofilter in concrete or of 4 meters (13') from the edge of the lid of an Ecoflo biofilter in polyethylene.



**Warning !**  
**Do not handle !**

The handling of this UV disinfection unit from Premier Tech is dangerous for your health and carries a serious risk of eye injury.

Only a duly authorized representative of Premier Tech can handle or maintain this equipment. For more information, please contact Premier Tech at 1 800 632-6356.

### **2.3. What you need to know**

#### **Owner's responsibility**

The owner must respect all existing laws and regulations regarding the quality of the effluent from the system and its discharge into the environment.

#### **Keep heavy weights off your system**

Never operate a vehicle or place objects weighing more than 225 kg (500 lb) within 2 m (6.7') from the edge of the lid<sup>4</sup>. If you plan to change the landscaping or undertake any other kind of work, make sure you advise the people involved so they do not damage your septic system. As well, if you shovel or blow snow from part of your lot, do not let the snow accumulate on top of your septic system. The overload can damage it. To prevent this from happening, mark or indicate the location of your system's components.

#### **About your home**

Your home must be equipped with an air vent that is in proper working order and the plumbing must comply with the applicable standards of the building code. Premier Tech strongly recommends using a 100 mm Ø (4") pipe for the air vent. Any change in the use of your home or any modification to your UV disinfection unit must be authorized by local authorities, and Premier Tech must be notified. If this condition is not fully respected, the warranty for your UV disinfection unit will be null and void.

#### **Electrical connections**

The electrical connections for the UV disinfection unit and the alarm float must be executed by a licensed electrician. As well, use only watertight screw-in connections for the electrical connection box.

Use two (2) separate circuit-breakers, one to operate the UV disinfection unit and the other to connect the alarm box. Do not connect anything else to these circuit-breakers (i.e. a household appliance). The circuit-breakers must be used exclusively for the UV disinfection unit and the alarm box.

#### **Warning regarding the start-up**

Once the unit is plugged in, the new UV lamps may take a few moments to several hours to reach full power. To hear a UV lamp malfunction alarm with a new system or with newly installed lamps is normal until the lamps have reached full power.

According to Article 87.16 of the Regulation respecting wastewater disposal systems for isolated dwellings (Q-2, r.22), it is prohibited to not connect, to disconnect or to not replace a lamp forming part of an ultraviolet disinfection system.

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<sup>4</sup> If your UV Disinfection Unit is integrated in your Ecoflo biofilter, the distance to respect must be of 3 meters (10') from the edge of the lid of the Ecoflo biofilter in concrete or of 4 meters (13') from the edge of the lid of an Ecoflo biofilter in polyethylene.

### 3. UV disinfection unit attributes

#### 3.1 WI-FI, visual and audio alarm systems

The UV disinfection unit can generate two types of alarms that are both connected to the same box. The box must be installed inside the residence to make sure the alarm can be heard as soon as it is activated. The operation of these two types of alarms is presented below.



#### High level alarm into the Ecoflo biofilter

The **red** indicator lights up and an audible alarm is heard when the water level in the Ecoflo biofilter is unusually high. Troubleshooting must be performed.

#### UV controller malfunction alarm

The **amber** indicator lights up and an audible alarm is heard when a UV controller malfunction is detected. For Ecoflo biofilter integrated UV disinfection units, that type of alarm is generated whenever there is an issue with the UV bulb, UV controller or the alarm relay. For disinfection units that are not integrated into an Ecoflo biofilter, that type of alarm may also indicate the presence of water in the dedicated UV disinfection unit tank. In all cases, troubleshooting must be performed.

When a problem is detected by the alarm box and that an audible alarm is heard, that signal can be silenced using the “SILENCE” button located on the alarm box. It is important to contact Premier Tech at 1 800 632-6356 to address the cause of the incident.

The alarm box is also WI-FI enabled allowing email or SMS notifications whenever there is an alarm detected. To configure and activate the WI-FI function, please refer to the quick guide provided with your alarm box or contact Premier Tech’s after sales service team at 1 800 632-6356. It will be our pleasure to accompany you throughout the configuration process. The activation

of the WI-FI feature will also allow Premier Tech to receive email notifications whenever there is an issue with your UV disinfection unit. We will then contact you to address the cause of the incident.

In the event of a power failure, the alarm system continues to function on an emergency battery integrated to the alarm system. The button on the alarm box may also be used to verify if the alarm is functional. During a test, the red indicator should light up, the audio alarm be heard and, if the WI-FI function is activated and configured, you and Premier Tech should receive a notification either by email or SMS according to the configuration.

## 4. Maintenance

### 4.1. Primary treatment and effluent filter

Under normal operating conditions, as described in this manual, an effluent filter that complies with BNQ Standard 3680-905 should operate efficiently for many years. It must be cleaned every time the septic tank or primary reactor is emptied. A service partner or a qualified third party as referred to in section 1x.2) of the *Regulation respecting waste water disposal systems for isolated dwellings (Q-2, r.22)* can do this during the annual maintenance. For Ecoflo 100% coco filter treatment systems combined with a UV disinfection unit, the flow regulator must be cleaned to remove particles any residue that may have stuck to the surface.

Have your septic tank pumped-out regularly. This helps keep your septic system in proper working order. The standards regarding the pumping of septic tanks must be respected as prescribed in the *Regulation respecting wastewater disposal systems for isolated dwellings (Q-2, r.22)*.

If your home is equipped with a garbage disposal system or a disposal pump, we strongly recommend that you empty your septic tank more often. The use of this type of device increases the amount of sludge in the septic tank.

### 4.2 Advanced secondary treatment system

The maintenance of your Ecoflo biofilter is carried out by our local Premier Tech Wastewater Treatment Services partner network or a qualified third party as referred to in section 1x.2) of the *Regulation respecting waste water disposal systems for isolated dwellings (Q-2, r.22)*. This service includes a visual inspection of all the components and the verification of the operation as well as the maintenance of the filtering media. Easy access to your system's lid is essential for the annual maintenance and when the filtering media needs to be replaced the year that it will have reached the end of its useful life. To receive a maintenance report after each inspection, simply contact our Customer Service at 1 800 632-6356 to provide a valid email addressee. These reports should also be filed inside this manual and kept in a safe place.

For all other advanced secondary treatment systems, please refer to the manufacturer's instructions and to Article 3.3 of the *Regulation respecting wastewater disposal systems for isolated dwellings (Q-2, r.22)*.

### 4.3 UV disinfection unit

According to Article 87.16 of the *Regulation respecting wastewater disposal systems for isolated dwellings (Q-2, r.22)*, every tertiary treatment system with disinfection must be installed, used and maintained in accordance with the manufacturer's guides and manuals.

The maintenance of the UV disinfection unit will be performed twice a year by our local WALTER Wastewater Treatment Services partner network. Note that all of the unit's UV lamps must be replaced once a year. To receive a maintenance report after each inspection, simply contact our Customer Service at 1 800 632-6356 to provide a valid email addressee. These reports should also be filed inside this manual and kept in a safe place.

## 5. Sampling

According to Article 87.30.1 of the *Regulation respecting wastewater disposal systems for isolated dwellings (Q-2, r.22)*, the owner of a tertiary treatment system with disinfection must, at least once per 6-month period, have a sample of the system's effluent taken and analyzed to determine the fecal coliforms concentration. The owner must send the analysis reports within 30 days of their receipt to the municipality in whose territory the treatment system is situated. In addition, the owner must keep the reports for 5 years and make them available at the Minister's request.

Premier Tech also provides an effluent analysis service every 6 months. Please contact our Customer Service at 1 800 632-6356 for more details.

## 6. What to do in case of...

### 6.1. An activated alarm



If an alarm on your UV disinfection unit is activated and that the activity is unrelated to a power outage, please contact our After-Sales Service at 1-800-632-6356 so the situation can be addressed and corrected.

If the Wi-Fi feature is activated and configured in your alarm system, Premier Tech will contact you to address and correct the situation with your treatment system.

### 6.2 A prolonged power outage



If a prolonged power outage occurs during winter, we recommend certain precautions be taken to protect the components of your UV disinfection unit as well as your septic installation against from freezing. If you have any questions about the wintering of our system or the procedure to restart your UV disinfection unit, please contact our After-Sales Service.

### 6.3. Flooding



Certain sites are prone to flooding or to rises in groundwater levels. This can lead to a malfunction in your septic system and may alter the performance of your UV disinfection unit. If this happens, please contact our After-Sales Service.

### 6.4. Odours



The position and condition of the air vent as well as other factors unrelated to the wastewater treatment system itself can prevent the proper dispersion of septic gases by the wind and can lead to odours. If this happens, please contact please contact our After-Sales Service.

### 6.5. Backflow



Backflows rarely occur and the septic tank is usually the cause. Your septic tank installer or septic tank pumper can generally take care of the situation. Please contact them for more details.

### 6.6. Winter closing of residences

If you close your residence (i.e. close the circuit-breaker) during a potential freezing period, you must contact our After-Sales Service to help you establish the appropriate procedure to protect your system. This precaution will ensure a longer life for your UV disinfection unit.

**If you have any questions or comments,  
please do not hesitate to contact Premier Tech at 1-800-632-6356.**



#### PT Water and Environment

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# Certificate of warranty of the UV disinfection unit

## 1. PREAMBLE

Premier Tech Technologies Ltd. (hereinafter called "Premier Tech") is proud to provide its customers with an exclusive wastewater treatment system guaranteed by an innovative Warranty.

For the application and interpretation of this Warranty, "Customer" shall mean the person who has purchased a UV disinfection unit (hereinafter called "Initial Purchaser") as well as any subsequent purchaser (hereinafter called "Subsequent Purchaser(s)"), in accordance with the provisions of Section 8 of this Warranty. "Successor(s)" shall mean any other person entitled to exercise the same rights as the Customer under the law.

## 2. NATURE OF THE WARRANTY

The following warranty is conditional to and only applies if the UV disinfection unit has been installed according to the installation, maintenance and operation instructions described in the Installation Guide and Owner's Manual.

### 2.1 POLYETHYLENE TANK

Premier Tech warrants the polyethylene tank of the UV disinfection unit (parts and labour) against any manufacturing defect for a period of ten (10) years from the date of purchase by the Initial Purchaser (proof of purchase required).

### 2.2 OTHER COMPONENTS

Premier Tech also warrants all other components of the UV disinfection unit against any manufacturing defect for a period of two (2) years (parts and labour) from the date of purchase by the Initial Purchaser (proof of purchase required). The first year of the warranty also covers the labour.

This conventional warranty is provided by Premier Tech to all its customers in addition to the legal warranties and is expressly limited to the text of this certificate.

### 2.3 Wi-Fi Alarm Box

In the event of an UV lamp or high level alarm in the Ecoflo, Premier Tech warrants that a service partner will be present on the site within 24 hours from the time that Premier Tech receives the alarm message, provided that the resolution of this alarm requires an intervention on site and that the Client has a Wi-Fi alarm box. Premier Tech cannot be held responsible in the event of a signal interruption between the alarm box and the Wi-Fi router or if the customer refuses to carry out the initial start-up of the alarm box.

## 3. NOTICE

For this Warranty to be valid, the Customer must notify Premier Tech in writing immediately upon the appearance of any indication of an anomaly or irregularity in the UV disinfection unit.

Such notice shall be mailed to the Premier Tech World Headquarters at 1, avenue Premier, Rivière-du-Loup, Québec, G5R 6C1, CANADA, by fax at 418 862-6642 or by e-mail at [PTA@premiertech.com](mailto:PTA@premiertech.com).

Upon receipt of this notice, Premier Tech will evaluate the situation and, if necessary, take the appropriate corrective measures as per the terms of this Warranty.

## 4. GENERAL EXCLUSIONS

The following damages or problems are excluded from the warranty:

- (a) Any damage or problem caused by a fortuitous event or "force majeure", such as, without limiting the generality of the foregoing, an earthquake, a flood, frost, hurricane, landslide, explosion or dynamiting;
- (b) Any damage or problem caused by the fault or act of a third party including, without limiting the generality of the foregoing, the execution of landscaping work;
- (c) Any damage or problem arising from any installation, modification, correction or addition to the treatment system carried out after installation of the UV disinfection unit without prior written approval from Premier Tech;
- (d) Any damage or problem caused by the use of a septic tank not compliant with the applicable regulations and/or with Premier Tech's instructions and guidelines described in the Owner's Manual;
- (e) Any damage or problem, if it is shown that the usage of the UV (UV disinfection unit was not used, operated or installed in accordance with the instructions and guidelines described in the Owner's Manual;
- (f) Any damage or problem, if the maintenance of the UV disinfection unit was not carried out by a person authorized by Premier Tech or by a qualified third party as referred to in section 1x.2) of the *Regulation respecting waste water disposal systems for isolated dwellings (Q-2, r.22)*,

(g) Any damage or problem caused by an omission or act of the Customer or the Customer's Successors including, without limiting the generality of the foregoing, refusal to allow access to the system for maintenance;

(h) Any damage or problem, if it is found that the Customer or the Customer's Successors have modified or changed the use of the property serviced by the UV disinfection unit resulting in the alteration of the nature or quality of wastewater being treated and/or constitutes a violation of the applicable regulations;

(i) Any damage or problem caused by and/or resulting from the work carried out to access to the UV disinfection unit, including, without limiting the generality of the foregoing, excavation, snow removal or demolition;

(j) Any damage or problem resulting from the condition of the site or of the soil that is or was not reported or not properly reported to Premier Tech by the Customer or the person undertaking the site and/or soil investigation.

## 5. PARTICULAR EXCLUSIONS

It is further expressly understood that the Customer may not carry out or cause to be carried out any repair or verification of the UV disinfection unit sold to him before notifying Premier Tech in accordance with the provisions of section 3 of this Warranty and before Premier Tech has visited the site, within a reasonable time following receipt of said notice, to assess the situation.

It is also expressly understood that the Customer may not modify or carry out any corrective measures whatsoever to the UV disinfection unit sold to him before notifying Premier Tech, in accordance with the provisions of section 3 of this Warranty, and before Premier Tech has visited the site, within a reasonable time following receipt of said notice, to assess the situation.

If the Customer carries out or causes to be carried out repairs, or attempts to repair or to apply corrective measures of any kind whatsoever to the UV disinfection unit sold to him without prior authorization by Premier Tech, this Warranty shall be considered null and void and Premier Tech shall be considered completely discharged from any and all of its obligations under this Warranty.

This section does not restrict the Customer from having the manual maintenance of the Ecoflo biofilter performed by a qualified third party as referred to in section 1x.2) of the *Regulation respecting waste water disposal systems for isolated dwellings (Q-2, r.22)*.

## 6. INDEMNITIES AND DAMAGES

In accordance with Sections 3 and 4, Premier Tech's liability and obligations regarding any corrective measure carried out or any attempt to correct an indicated problem shall be limited to replacing one or several components of the UV disinfection unit and to supplying the required labour, if applicable.

## 7. LIMITATION OF LIABILITY

Premier Tech's compensation or indemnification obligation shall be limited to the provisions of Section 6 of this Certificate of Warranty and Premier Tech shall not be held liable for any other damage or loss that may have been suffered or incurred by the Customer or any third party about the UV disinfection unit.

## 8. TRANSFER OF OWNERSHIP

In the event of a transfer of ownership, sale, assignment or disposal in any way whatsoever of the Customer's property to a third party, this Warranty shall continue to apply if and only if the Subsequent Purchaser or the Successor confirms, by forwarding the attached "Notice of New Property Owner" to Premier Tech within a reasonable delay, informing Premier Tech that he/she is the new owner of the property, he/she understands and is aware of the content of this Certificate of Warranty and accepts its terms and conditions.

The person who proceeds with the transfer, sale, assignment or disposal in any way whatsoever of the property undertakes to hand over the Certificate of Warranty provided upon completion of the work to the Subsequent Purchaser or the Successor as well as the Owner's Manual and, if applicable, the Maintenance and Environmental Monitoring Program for the UV disinfection unit.

Failure to abide by the terms and conditions of Section 8 of this Certificate of Warranty may, at Premier Tech's discretion, render it invalid or to be rejected.

## 9. INSPECTION

The Customer and/or the Customer's Successors shall allow Premier Tech or its duly authorized representatives or third parties to carry out all necessary monitoring and inspections, as required, for the implementation of this Warranty.

If the Customer and/or the Customer's Successors notify Premier Tech of an alleged defect or malfunction of the UV disinfection unit and that, after inspection, it is found that no such defect or malfunction exists or that such defect or malfunction is excluded from or does not apply to the Warranty, a minimum charge of \$200.00 plus direct expenses shall be paid to Premier Tech by the Customer and/or the Customer's Successors for the cost of the inspection.

10. INTERPRETATION

The terms and conditions of this Warranty shall be interpreted in accordance with and governed by the provisions of this Warranty and the legislation in effect in the Province of Québec.

11. PRIORITY OF THE CERTIFICATE OF WARRANTY

This Warranty supersedes any contract or understanding, written or verbal, entered into between the Customer and Premier Tech. In the event of a contradiction between this Warranty and any other documents and/or contracts entered into between the Customer and Premier Tech, this Warranty shall prevail.

12. PURCHASERS AND SUCCESSORS

Subject to the provisions of this Warranty and specifically those of Section 8, this Warranty shall continue to be valid for Subsequent Purchasers and Successors and shall continue to have full effect until the end of the agreed Warranty period provided for in Section 2 of this Certificate.

