



## **Operator's Manual**

**SLXi-100, 200, 300, 400, SLXi-300 Whisper Pro,  
SLXi Spectrum and SLXi Spectrum Whisper Pro**

**Revision B**

# Introduction

This manual is published for informational purposes only and the information furnished herein should not be considered as all-inclusive or meant to cover all contingencies. If more information is required, consult your Thermo King Service Directory for the location and telephone number of the local dealer.

**Thermo King's warranty shall not apply to any equipment which has been "so installed, maintained, repaired or altered as, in the manufacturer's judgment, to affect its integrity."**

***Manufacturer shall have no liability to any person or entity for any personal injury, property damage or any other direct, indirect, special, or consequential damages whatsoever, arising out of the use of this manual or any information, recommendations or descriptions contained herein. The procedures described herein should only be undertaken by suitably qualified personnel. Failure to implement these procedures correctly may cause damage to the Thermo King unit or other property or personal injury.***

There is nothing complicated about operating and maintaining your Thermo King unit, but a few minutes studying this manual will be time well spent.

Performing pre-trip checks and enroute inspections on a regular basis will minimize operating problems. A regular maintenance program will also help to keep your unit in top operating condition. If factory recommended procedures are followed, you will find that you have purchased the most efficient and dependable temperature control system available.

All service requirements, major and minor, should be handled by a Thermo King dealer for four very important reasons:

- They are equipped with the factory recommended tools to perform all service functions.
- They have factory trained and certified technicians.
- They have genuine Thermo King replacement parts.
- The warranty on your new unit is valid only when the repair and replacement of component parts is performed by an authorized Thermo King dealer.

## Machine Information Policy

Use of this product serves as acceptance of the Thermo King Machine Information Policy available at: [www.europe.thermoking.com](http://www.europe.thermoking.com). This product

includes a standard feature that collects and shares Machine Information with Thermo King. Separate terms may apply when a customer has entered into an agreement with Thermo King. Customers that would like to opt-out of sharing Machine Information with Thermo King should forward such inquiries to the email address [Opt-Out@ThermoKing.com](mailto:Opt-Out@ThermoKing.com).

## Software License

The product includes software that is licensed under a non-exclusive, non-sublicensable, terminable and limited license to use the software as installed on the product for its intended purpose. Any removal, reproduction, reverse engineering, or other unauthorized use of the software is strictly prohibited. Hacking the product or installing unapproved software may void the warranty. The owner or operator shall not reverse engineer, decompile, or disassemble the software, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation. The product may include third party software separately licensed as specified in any documentation accompanying the product or in an about screen on a mobile application or website that interfaces with the product. You are obliged to complete the declaration for "THERMO KING EQUIPMENT SOFTWARE LICENSE AGREEMENT" before you put your unit in operation. This is located in your language at the following location : <https://www.emea-user-manuals.thermoking.com>

## Emergency Assistance

Thermo Assistance is a multi-lingual communication tool designed to put you in direct contact with an authorized Thermo King dealer.

**Thermo Assistance should only be contacted for breakdown and repair assistance.**

To use this system, you need the following information before you call: (phone charges will apply)

- Contact Phone Number
- Type of TK Unit
- Thermostat Temperature Setting
- Ambient temperature
- Present Load Temperature
- Probable Cause of Fault
- Warranty Details of the Unit

## Introduction

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- Payment Details for the Repair

Leave your name and contact number and a Thermo Assistance Operator will call you back. At this point you can give details of the service required and the repair will be organized.

No payment at point of repair for customers with a ThermoKare service contract or with a guaranty of payment from their Thermo King home-dealer



Belgium	+32 270 01 735
Denmark	+45 38 48 76 94
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Spain	+34 914 53 34 65
The Netherlands	+31 202 01 51 09
United Kingdom	+44 845 85 01 101
Kazakhstan	+7 7273458096
Russia	+7 4992718539
Others	+32 270 01 735

BEA261

## General Inquires and Unit Maintenance

For general inquiries please contact your local Thermo King dealer.

Go to [www.europe.thermoking.com](http://www.europe.thermoking.com) and select dealer locator for your local Thermo King dealer.

Or refer to the Thermo King Service Directory for contact information.

## Customer Satisfaction Survey

Let your voice be heard!

Your feedback will help improve our manuals. The survey is accessible through any internet-connected device with a web browser.

Scan the Quick Response (QR) code or click or type the web address [https://tranetechnologies.iad1.qualtrics.com/jfe/form/SV\\_2octfSHoUJxsk6x?Q\\_CHL=qr&Q\\_JFE=qdg](https://tranetechnologies.iad1.qualtrics.com/jfe/form/SV_2octfSHoUJxsk6x?Q_CHL=qr&Q_JFE=qdg) to complete the survey.



# Table of Contents

<b>Safety</b>	<b>9</b>
Danger, Warning, Caution, and Notice	9
General Safety Practices	10
Automatic Start/Stop Operation	12
Battery Installation and Cable Routing	12
Refrigerant	14
Refrigerant Oil	15
First Aid	15
Safety Decals and Locations	17
Service	17
Operation	17
Condenser and Evaporator Fans	18
Remote Start of the Unit	20
Refrigerant	21
Do Not Use Ether Starting Aids	21
<b>Unit Description</b>	<b>22</b>
General Information	22
Diesel Engine	23
Extended Life Coolant (ELC)	23
EMI 3000	24
Thermo King Reciprocating Compressor	24
Electronic Throttling Valve	24
SMART REEFER 3 (SR-3) Control System	25
CYCLE-SENTRY Operation	25
Continuous Run Operation	25
CYCLE-SENTRY™ Start-Stop Controls	26
Telematics as Standard	26

Further Communication Capabilities .....	26
OptiSet™ Plus .....	27
Defrost .....	27
Engine Compartment .....	28
Unit Protection Devices .....	28
Pharma .....	30
<b>Manual Pretrip Inspection (Before Starting the Unit) .....</b>	<b>32</b>
<b>Operating Instructions .....</b>	<b>35</b>
SMART REEFER 3 (SR-3) Controller Overview .....	35
Switching “ON” the Unit .....	36
Microprocessor ON/OFF switch .....	36
HMI Control Panel .....	37
Control Panel Display .....	37
Control Panel Keys .....	38
Operating the SR-3 Controller .....	39
Return to English at Any Time .....	39
Printing a Trip Report .....	40
<b>Alarm Codes .....</b>	<b>42</b>
Introduction .....	42
<b>Loading and Inspection Procedures .....</b>	<b>43</b>
Pre-Loading Inspection .....	43
Post-Loading Inspection .....	44
Enroute Inspections .....	45
Inspection Procedure .....	45
Inspection Troubleshooting .....	45

<b>Connecting to a Third Party Device .....</b>	<b>48</b>
LVD Switch.....	48
<b>Jump Starting .....</b>	<b>49</b>
<b>Specifications .....</b>	<b>53</b>
Engine.....	53
Filters.....	55
Refrigeration System .....	55
Electrical Control System.....	55
Electric Motor (Model 50).....	55
Standby Power Requirements .....	56
TracKing.....	56
<b>Warranty.....</b>	<b>57</b>
<b>Maintenance Inspection Schedule .....</b>	<b>58</b>
Inspection and Service Intervals .....	58
<b>Serial Number Locations .....</b>	<b>59</b>
<b>Recover Refrigerant.....</b>	<b>60</b>

# Safety

## Danger, Warning, Caution, and Notice

Thermo King® recommends that all service be performed by a Thermo King dealer and to be aware of several general safety practices.

Safety advisories appear throughout this manual as required (refer to examples below). Your personal safety and the proper operation of this unit depend upon the strict observance of these precautions.

### **⚠ DANGER**

#### **Example!**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### **⚠ WARNING**

#### **Example!**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

### **⚠ CAUTION**

#### **Example!**

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury and unsafe practices.

### **NOTICE**

#### **Example!**

Indicates a situation that could result in equipment or property-damage only accidents.

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## General Safety Practices



### **DANGER**

#### **Risk of Injury!**

Keep hands and loose clothing clear of fans and belts at all times when the unit is operating with the doors open.

### **WARNING**

#### **Personal Protective Equipment (PPE) Required!**

A battery can be dangerous. Lithium Ion batteries are potentially hazardous. The combustion gas from these batteries is toxic and can present a serious FIRE HAZARD if damaged, defective or improperly used. A battery stores enough electricity to burn you if it discharges quickly. Always wear goggles or safety glasses and personal protective equipment when working with a battery. Do not replace the battery with any type other than the one approved by Thermo King for this unit.

### **WARNING**

#### **Risk of Injury!**

Do not apply heat to a closed cooling system. Before applying heat to a cooling system, drain it. Then flush it with water and drain the water. Antifreeze contains water and ethylene glycol. The ethylene glycol is flammable and can ignite if the antifreeze is heated enough to boil off the water.

### **WARNING**

#### **Risk of Injury!**

Temperatures above 120 degrees F (50 degrees C) can cause serious burns. Use an infrared thermometer or other temperature measuring device before touching any potentially hot surfaces.

**⚠ CAUTION**

**Sharp Edges!**

Exposed coil fins can cause lacerations. Service work on the evaporator or condenser coils is best left to a certified Thermo King technician.

## Automatic Start/Stop Operation



### ⚠ CAUTION

#### **Risk of Injury!**

The unit can start and run automatically any time the unit is turned on. Turn the unit On/Off switch Off before doing inspections or working on any part of the unit. Please note that only Qualified and Certified personnel should attempt to service your Thermo King unit.

## Battery Installation and Cable Routing



### ⚠ WARNING

#### **Hazard of Explosion!**

An improperly installed battery could result in a fire, explosion, or injury. A Thermo King approved battery must be installed and properly secured to the battery tray.

### ⚠ WARNING

#### **Hazard of Explosion!**

Improperly installed battery cables could result in a fire, explosion, or injury. Battery cables must be installed, routed, and secured properly to prevent them from rubbing, chaffing, or making contact with hot, sharp, or rotating components.

**⚠ WARNING**

**Fire Hazard!**

Do not attach fuel lines to battery cables or electrical harnesses. This has the potential to cause a fire and could cause serious injury or death.



**⚠ WARNING**

**Personal Protective Equipment (PPE) Required!**

A battery can be dangerous. A battery contains a flammable gas that can ignite or explode. A battery stores enough electricity to burn you if it discharges quickly. A battery contains battery acid that can burn you. Always wear goggles or safety glasses and personal protective equipment when working with a battery. If you get battery acid on you, immediately flush it with water and get medical attention.

**⚠ WARNING**

**Hazard of Explosion!**

Always cover battery terminals to prevent them from making contact with metal components during battery installation. Battery terminals grounding against metal could cause the battery to explode.

**⚠ CAUTION**

**Hazardous Service Procedures!**

Set all unit electrical controls to the OFF position before connecting battery cables to the battery to prevent unit from starting unexpectedly and causing personal injury.

**NOTICE**

**Equipment Damage!**

Do not connect other manufacturer's equipment or accessories to the unit or to the TK Batteries unless approved by Thermo King. Failure to do so can result in severe damage to equipment and void the warranty.

## Refrigerant



Although fluorocarbon refrigerants are classified as safe, use caution when working with refrigerants or in areas where they are being used.

**Note:** These hazard statements refer to servicing of the unit.

### **⚠ DANGER**

#### **Hazardous Gases!**

Refrigerant in the presence of an open flame, spark, or electrical short produces toxic gases that are severe respiratory irritants which can cause serious injury or possible death.

### **⚠ DANGER**

#### **Refrigerant Vapor Hazard!**

Do not inhale refrigerant. Use caution when working with refrigerant or a refrigeration system in any confined area with a limited air supply. Refrigerant displaces air and can cause oxygen depletion, resulting in suffocation and possible death.

### **⚠ WARNING**

#### **Personal Protective Equipment (PPE) Required!**

Refrigerant in a liquid state evaporates rapidly when exposed to the atmosphere, freezing anything it contacts. Wear butyl lined gloves and other clothing and eye wear when handling refrigerant to help prevent frostbite.

## Refrigerant Oil



Observe the following precautions when working with or around refrigerant oil and when servicing the unit:

### **⚠ WARNING**

#### **Personal Protective Equipment (PPE) Required!**

Protect your eyes from contact with refrigerant oil. The oil can cause serious eye injuries. Protect skin and clothing from prolonged or repeated contact with refrigerant oil. To prevent irritation, wash your hands and clothing thoroughly after handling the oil. Rubber gloves are recommended.

**Important:** Please note that it is recommended to evacuate all passengers if a refrigerant leak is suspected. Please use your own specific company evacuation procedure.

## First Aid

### REFRIGERANT

- **Eyes:** For contact with liquid, immediately flush eyes with large amounts of water and get prompt medical attention.
- **Skin:** Flush area with large amounts of warm water. Do not apply heat. Remove contaminated clothing and shoes. Wrap burns with dry, sterile, bulky dressing to protect from infection. Get prompt medical attention. Wash contaminated clothing before reuse.
- **Inhalation:** Move victim to fresh air and use Cardio Pulmonary Resuscitation (CPR) or mouth-to-mouth resuscitation to restore breathing, if necessary. Stay with victim until emergency personnel arrive.
- **Frost Bite:** In the event of frost bite, the objectives of First Aid are to protect the frozen area from further injury, warm the affected area rapidly, and to maintain respiration.

### REFRIGERANT OIL

## Safety

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- **Eyes:** Immediately flush with large amounts of water for at least 15 minutes. Get prompt medical attention.
- **Skin:** Remove contaminated clothing. Wash thoroughly with soap and water. Get medical attention if irritation persists.
- **Inhalation:** Move victim to fresh air and use Cardio Pulmonary Resuscitation (CPR) or mouth-to-mouth resuscitation to restore breathing, if necessary. Stay with victim until emergency personnel arrive.
- **Ingestion:** Do not induce vomiting. Immediately contact local poison control center or physician.

### ENGINE COOLANT

- **Eyes:** Immediately flush with large amounts of water for at least 15 minutes. Get prompt medical attention.
- **Skin:** Remove contaminated clothing. Wash thoroughly with soap and water. Get medical attention if irritation persists.
- **Ingestion:** Do not induce vomiting. Immediately contact local poison control center or physician.

### BATTERY ACID

- **Eyes:** Immediately flush with large amounts of water for at least 15 minutes. Get prompt medical attention. Wash skin with soap and water.

### ELECTRICAL SHOCK

Take IMMEDIATE action after a person has received an electrical shock. Get quick medical assistance, if possible.

The source of the shock must be quickly stopped, by either shutting off the power or removing the victim. If the power cannot be shut off, the wire should be cut with a non-conductive tool, such as a wood-handle axe or thickly insulated cable cutters. Rescuers should wear insulated gloves and safety glasses, and avoid looking at wires being cut. The ensuing flash can cause burns and blindness.

If the victim must be removed from a live circuit, pull the victim away with a non-conductive material. Use wood, rope, a belt or coat to pull or push the victim away from the current. DO NOT TOUCH the victim. You will receive a shock from current flowing through the victim's body. After separating the victim from power source, immediately check for signs of a pulse and respiration. If no pulse is present, start Cardio Pulmonary Resuscitation (CPR). If a pulse is present, respiration might be restored by using mouth-to-mouth resuscitation. Call for emergency medical assistance.

### ASPHYXIATION

Move victim to fresh air and use Cardio Pulmonary Resuscitation (CPR) or mouth-to-mouth resuscitation to restore breathing, if necessary. Stay with victim until emergency personnel arrive.

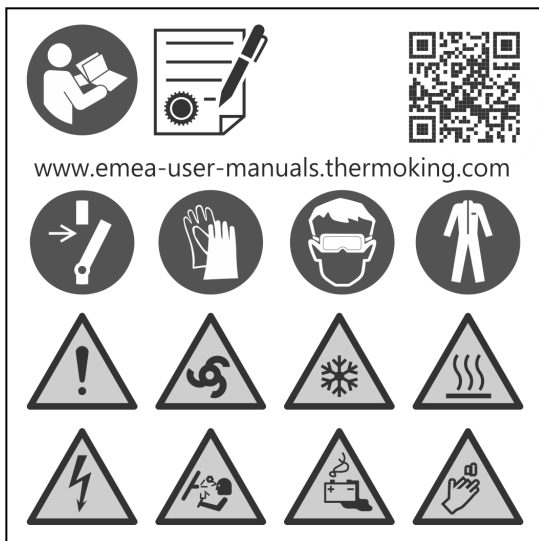
## Safety Decals and Locations

### Service

The Service decal is located inside the Engine Doors. This decal gives you the information to access/download your unit operator manual, but also the safety icons associated with your unit. These safety icons are directly associated with the information within this chapter. You can see the explanations for these icons starting from “General Safety Practices,” p. 10.

**Note:** This decal only contains symbols of warning for the operation of the unit.

**Figure 1. Service Decal**



BEN492

### Operation

The Operation decal is located on your HMI or rear remote controller (if fitted). This decal gives you the information to access/download your unit

operator manual and other supporting documentation and in many supported languages.

**Figure 2. Operation Decal**



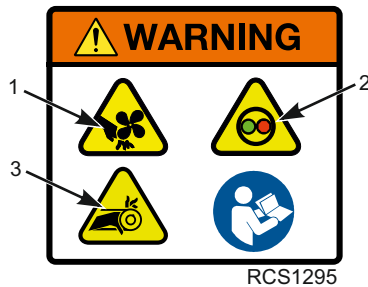
BEN525

## **Condenser and Evaporator Fans**

Be aware of warning nameplates in the following locations:

- On bulkhead
- On belt guard
- On rear of evaporator housing

**Figure 3. Fan Warning Nameplate**



1.	<p><b>Rotating Fans: Risk of Injury!</b> Caution Rotating Fan blade operating. Keep hands, hair, cloths and all object clear. Prior to completing any inspections or working on any part of the unit</p> <ol style="list-style-type: none"> <li>1. Press the OFF key on the HMI control panel.</li> <li>2. Open the engine bay doors.</li> <li>3. Turn the On/Off switch to the "Off" position.</li> </ol>
2.	<p><b>Automatic Start/Stop Operation: Risk of Injury!</b> The unit can start and run automatically any time without warning. Prior to completing any inspections or working on any part of the unit</p> <ol style="list-style-type: none"> <li>1. Press the OFF key on the HMI control panel.</li> <li>2. Open the engine bay doors.</li> <li>3. Turn the On/Off switch to the "Off" position.</li> </ol>
3.	<p><b>Rotating belt: Risk of Injury!</b> Rotating belt. Keep clear. Prior to completing any inspections or working on any part of the unit</p> <ol style="list-style-type: none"> <li>1. Press the OFF key on the HMI control panel.</li> <li>2. Open the engine bay doors.</li> <li>3. Turn the On/Off switch to the "Off" position.</li> </ol>

## Remote Start of the Unit

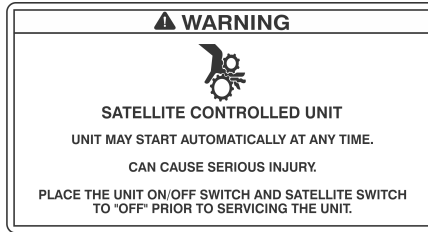
### ⚠ CAUTION

#### Risk of Injury!

The unit can start and run automatically any time the unit is turned on. Turn the unit On/Off switch Off before doing inspections or working on any part of the unit. Please note that only Qualified and Certified personnel should attempt to service your Thermo King unit.

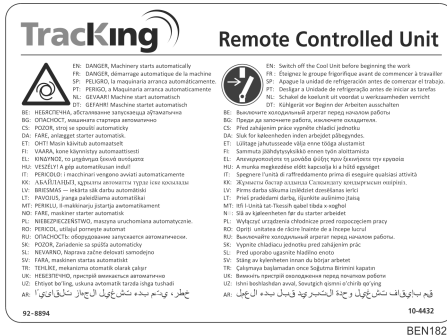
Decals located behind service door.

**Note:** Only present on units fitted with TK TrackKing Telematic's installed.



## TrackKing Decal

Figure 4. The decal itself as it appears on the unit



## Refrigerant

Refrigerant decal located on frame inside door.



F Gas decal indicates that this equipment Contains fluorinated greenhouse gases.



SAP1243

## Do Not Use Ether Starting Aids

Figure 5. Do Not Use Ether Starting Aids (Near Engine)



AMA1584

# Unit Description

## General Information

The Thermo King SLXi models are one piece, self-contained, diesel powered cooling/ heating units operating under the control of a Smart Reefer 3 (SR-3) programmable microprocessor controller. The unit mounts on the front of the trailer with the evaporator extending through an opening in the front wall.

- SLXi-100, 200, 300, 400, and 300 Whisper Pro Model 30's: Cooling and heating on diesel engine operation.
- SLXi-100, 200, 300, 400 and 300 Whisper Pro Model 50's: Cooling and heating on diesel engine or electric motor operation.
- SLXi Spectrum and Spectrum Whisper Pro Model 30's: Multiple trailer compartment cooling and heating on diesel engine operation.
- SLXi Spectrum and Spectrum Whisper Pro Model 50's: Multiple trailer compartment cooling and heating on diesel or electric motor operation.

**Figure 6. Front View**

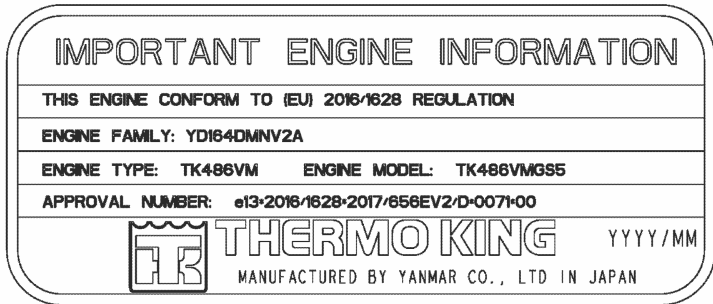


## Diesel Engine

SLXi units use a 4-cylinder, water cooled, direct injection diesel engine. The engine is coupled directly to the compressor on standard units. Belts transmit power to the fans (behind the condenser coil/radiator), water pump, and alternator on all models.

All Thermo King SLXi trailer units built from 2019 shall have engine type TK486VMGS5 installed. This is to confirm compliancy with 2016/1628 EU regulation (or NRMM Stage V). To determine if an engine is NRMM Stage 5 compliant, the engine model shall be stated on the engine serial plate (located on engine behind trailer service doors). See below an example of engine serial plate.

**Figure 7. Engine Serial Plate for NRMM**



BEN578

## Extended Life Coolant (ELC)

ELC (Extended Life Coolant) is standard equipment. The maintenance interval for ELC is five years or 12,000 hours. A nameplate on the coolant expansion tank identifies units with ELC. The new engine coolant, Chevron Extended Life Coolant, is RED in color instead of the previous GREEN or BLUE-GREEN colored conventional coolants.

### NOTICE

#### System Contamination!

Do not add "GREEN" or "BLUE-GREEN" conventional coolant to cooling systems using "RED" Extended Life Coolant, except in an emergency. If conventional coolant is added to Extended Life Coolant, the coolant must be changed after 2 years instead of 5 years.

## Unit Description

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**Note:** *The use of 50/50 percent pre-mixed Extended Life Coolant (ELC) is recommended to assure that de-ionized water is being used. If 100 percent full strength concentrate is used, de-ionized or distilled water is recommended over tap water to insure the integrity of the cooling system is maintained.*

## EMI 3000

EMI 3000 is an extended maintenance interval package. It is standard equipment. The EMI 3000 package consists of the following key components:

- EMI 3000-Hour Cyclonic Air Cleaner Assembly and Air Cleaner Element
- EMI 5-Micron 3000-Hour Fuel Filter
- EMI 3000-Hour Dual Element Oil Filter
- API Rating CI-4 Mineral Oil
- Five Year or 12,000 Hour ELC (Extended Life Coolant)

The EMI package allows standard maintenance intervals for air cleaner, air cleaner element, fuel filter and dual element oil filter to be extended to 3,000 hours, or 2 years, whichever occurs first.

**Note:** *Units equipped with the EMI 3000 package do require regular inspection in accordance with Thermo King's maintenance recommendations.*

## Thermo King Reciprocating Compressor

The SLXi units (except SLXi-100) are equipped with a 4-cylinder 492 cm<sup>3</sup> (30.0 cu. in.) displacement Thermo King X430 reciprocating compressor. The SLXi-100 unit is equipped with a 4-cylinder 426 cm<sup>3</sup> (25.9 cu. in.) displacement Thermo King X426 reciprocating compressor.

## Electronic Throttling Valve

**Note:** *SLXi-100 or SLXi-200 are equipped with a Mechanical Throttling Valve (MTV).*

The Electronic Throttling Valve (ETV) provides enhanced control of the refrigeration system as follows:

- Allows the refrigeration system to fully utilize the power capabilities of the engine under varying conditions.
- Provides an additional measure of protection against high discharge pressures.

- Protects the engine from high coolant temperature shutdowns.
- Provides a means of precise temperature control.

## **SMART REEFER 3 (SR-3) Control System**

The SR-3 is a microprocessor control system designed for a transport refrigeration system. The SR-3 integrates the following functions:

- Changing setpoint and operating mode
- Viewing gauge, sensor, and hourmeter readings
- Initiating Defrost cycles
- Viewing and clearing alarms

The microprocessor components are located inside the control box, which is located inside the lower roadside service door. The microprocessor is connected to a Human Machine Interface (HMI) Control Panel. It is used to operate the unit. The HMI control panel is mounted on the face of the control box. It is clearly visible through an opening in the lower roadside service door.

Refer to “Operating Instructions” for more information about the SR-3 Controller.

Depending on the air temperature in the trailer, as sensed by the microprocessor Base Controller, the unit will typically operate in one of the following modes.

### **CYCLE-SENTRY Operation**

- High Speed Cool
- Low Speed Cool
- Null (Engine Off)
- Low Speed Heat
- High Speed Heat
- Defrost

### **Continuous Run Operation**

In diesel operation the microprocessor will select the operating mode from the following:

- High Speed Cool
- Low Speed Cool

## Unit Description

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- Low Speed Modulated Cool
- Low Speed Modulated Heat
- Low Speed Heat
- High Speed Heat
- Defrost

## CYCLE-SENTRY™ Start-Stop Controls

The CYCLE-SENTRY Start-Stop fuel saving system provides optimum operating economy. When CYCLE-SENTRY Mode is selected the unit will start and stop automatically to maintain setpoint, keep the engine warm and the battery charged. When Continuous Mode is selected, the unit starts automatically and runs continuously to maintain setpoint and provide constant airflow.

## Telematics as Standard

**TracKing:** These units come with TracKing communication device and Bluetooth® as standard.

**Note:** *Your unit may not have a standard configuration and therefore may not include this facility. Please contact your Thermo King Dealer for more information.*

You can also download from your App store the appropriate App to connect, and manage your unit from your mobile device. Please contact your Thermo King Representative for more information. Refer to ("[Specifications](#)," p. ) for Specifications.

## Further Communication Capabilities

**Cable connection:** when using a laptop with WinTrac™ software.

**ServiceWatch™:** ServiceWatch is standard equipment. It records operating events, alarm codes, and compartment temperatures as they occur and at preset intervals. This information is typically used to analyze unit performance. Use a USB port to download the ServiceWatch data.

**Important:** *A ServiceWatch download can be helpful when diagnosing a problem. Therefore, it is recommended that a ServiceWatch download be performed to help diagnose a problem. A ServiceWatch download must be preformed before contacting the Thermo King Service Department for assistance in diagnosing a problem.*

**CargoWatch™:** CargoWatch data logging requires the installation of optional sensors. Up to six temperature sensor/probes and four door switches can be installed. CargoWatch also logs the setpoint. Use the CargoWatch Port to download the CargoWatch data. If optional temperature sensors are installed, the readings are displayed as Datalogger Sensor (1-6) Temperature in the sensor readings.

**Printer Port:** This port is used to print trip records from the CargoWatch™ datalogger download. It is located inside the control box.

**USB key:** via the USB port provided as standard, eliminating the need for laptops and cables.

**GPRS connection:** via TrackKing™ tool which allows online fleet and temperature management.

**Wireless communication:** As end customers demand increasing temperature traceability, transporters need a simple and effective means of accessing critical data.

## OptiSet™ Plus

OptiSet Plus is a group of programmable functions that control how the unit will operate with specific setpoints or named products. This assures that when a particular setpoint or named product is selected, the unit will always operate the same way. This allows an entire fleet to be configured to match the customers' needs. Contact your Thermo King dealer for information about programming OptiSet Plus.

## Defrost

Frost gradually builds-up on evaporator coils as a result of normal operation. The unit uses hot refrigerant to defrost the evaporator coil. Hot refrigerant gas passes through the evaporator coil and melts the frost. The water flows through collection drain tubes onto the ground. The methods of defrost initiation are Automatic and Manual.

**Automatic Defrost:** The SR-3 automatically initiates timed or demand defrost cycles. The HMI can be programmed to initiate timed defrost cycles at intervals of 2, 4, 6, 8, or 12 hours. Demand defrost cycles occur if the differences between the return air temperature, discharge air temperature, and coil temperature exceed certain limits. The unit can enter defrost cycles as often as every 30 minutes if required.

**Manual Defrost:** In Manual Defrost mode, the operator initiates a defrost cycle. Refer to ("[Initiating a Manual Defrost Cycle](#)," p. )."

## Unit Description

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**Note:** *The unit will not perform a Manual Defrost Cycle unless the unit has been turned on with the ON key, the unit is running in Continuous or CYCLE-SENTRY Mode (or shut down in CYCLE-SENTRY Null Mode), and the coil temperature is below 45°F (7°C)/7°C (45°F).*

## Engine Compartment

### **WARNING**

#### **Risk of Injury!**

The unit can start at any time without warning. Press the OFF key on the HMI control panel and place the unit On/Off switch in the Off position before inspecting or servicing any part of the unit.

### **CAUTION**

#### **Service Procedures!**

Turn the unit off before attempting to check the engine oil.

The following maintenance items can be checked visually.

**Engine Oil Dipstick:** Use the engine oil dipstick to check the engine oil level.

## Unit Protection Devices

**Coolant Level Switch:** The coolant level switch closes if the coolant level drops below an acceptable level. If it stays closed for a specified time, the microprocessor records Alarm Code 37.

**Engine Coolant Temperature Sensor:** The microprocessor uses the engine coolant temperature sensor to monitor the engine coolant temperature. If the engine coolant temperature rises above an acceptable level, the microprocessor records Alarm Code 41 and possibly 18. The microprocessor might also shut the unit down.

**High Pressure Cutout Switch:** The high pressure cutout switch is located on the compressor discharge manifold. If the compressor discharge pressure becomes excessive, the switch opens the circuit to the run relay to stop the unit. The microprocessor will record Alarm Code 10.

**High Pressure Relief Valve:** This valve is designed to relieve excessive pressure in the refrigeration system. It is located on the receiver tank. If the high pressure relief valve opens, much of the refrigerant will be lost. Take the unit to a Thermo King dealer if this occurs.

**Low Oil Level Switch:** The low oil level switch closes if the oil drops below an acceptable level. If it stays closed for a specified time, the microprocessor shuts the unit down and records Alarm Code 66.

**Low Oil Pressure Switch:** The low oil pressure switch closes if the oil pressure drops below an acceptable level. If it stays closed for a specified time, the microprocessor shuts the unit down and records Alarm Code 19.

**Preheat Buzzer:** The preheat buzzer sounds when the controller energizes the preheat relay. This warns anyone near the unit that the controller is about to start the engine.

**Overload Relay - Automatic Reset (Electric Standby):** An overload relay protects the standby electric motor. The overload relay opens the circuit to the electric motor if the motor overloads for any reason (e.g., low line voltage or improper power supply) while the unit is on electric standby operation. The microprocessor will record Alarm Code 90.

**Smart FETs:** Smart FETs in the base controller protect some circuits and components from an overcurrent condition.

**Fuses:** A number of fuses, located on the base controller, protect various circuits and components. The base controller is located inside the control box.

Fuse	Size	Function
F2	15A	2AB Power
F3	40A	Fuel Solenoid/Starter Circuit
F4	None	No Fuse - Not installed in this particular application.
F5	60A	Preheat Circuit (See Note)
F6	15A	High Speed Solenoid Circuit
F7	2A	8FP - CAN bus
F8	5A	CAN connector J12
F9	5A	CAN connector J14
F10	10A	8X Power (Install Fuse in Upper Position)
F11	10A	Zone 1 LLS (Spectrum units only)
F12	5A	CAN connector J13
F13	2A	Status Light Circuit
F15	p/s	On/Off Relay

## Unit Description

Fuse	Size	Function
F20	2A	Alternator Sense Circuit
F25	7.5A	High Pressure Cutout Circuit
<b>Note:</b> The F5 preheat fuse is a "slow blow" type fuse. It is designed for use with the your particular trailer engine air pre-heater. Always replace the fuse with the TK specified Fuse Size Function fuse.		

## Pharma

Single temperature units qualified for pharmaceutical applications under Thermo King protocol are configured with specific Optiset profiles visible on the HMI display as follow:

- PHARMA AMBIENT: for temperature ranges +15°C to 25°C
- PHARMA CHILLED: for temperature ranges +2°C to 8°C
- PHARMA FROZEN: for temperature below -20°C

In case the operator is not using the Optiset profiles, ThermoKing recommends to run the unit with the recommended Setpoints below:

**Table 1. Single Temperature Units**

Temperature Range	Recommended Setpoint	Max Deviation Setpoint	Max Deviation Returned Air
Temperature < -20°C	-20°C	+1.5°C of setpoint	+ 1°C of setpoint
Temperature between 2°C and 8°C	+4°C	+/- 2°C of setpoint	+/- 1.5°C of setpoint
Temperature between 15°C and 25°C	+20°C	+/- 2.5°C of setpoint	+/- 2°C of setpoint

For multi-temperatures units qualified for pharmaceutical applications under ThermoKing protocol, ThermoKing recommends to operate the unit with:

- PTC parameter ACTIVATED (ON) [with SLXi this set to default on]
- Zone 1 DAC Kit switch turned ON with the recommended Setpoints below:

**Table 2. Multi-Temperature Units**

<b>Temperature Range</b>	<b>Recommended Setpoint</b>	<b>Max Deviation Setpoint</b>	<b>Max Deviation Returned Air</b>
Temperature < -20° C	-25°C	+2°C of setpoint	+ 2°C of setpoint
Temperature between 2°C and 8° C	+6°C	+/- 2°C of setpoint	+/- 2°C of setpoint
Temperature between 15°C and 25°C	+20°C	+/- 4°C of setpoint	+/- 4°C of setpoint

# Manual Pretrip Inspection (Before Starting the Unit)

Pretrip inspections are an important part of a preventative maintenance program designed to minimize operating problems and breakdowns. Perform this pretrip inspection before every trip involving refrigerated cargo.

**Notes:**

1. Refer to (*"Pre-Loading Inspection," p. 43*) also before commencing your journey.
2. Pretrip inspections are not intended to take the place of regular maintenance inspections.

**Fuel:** Verify the diesel fuel supply is adequate to guarantee engine operation to the next check point. Allow for maximum fuel consumption of 3.8 Litres (one gallon) per hour of engine operation.

## ⚠ CAUTION

### Service Procedures!

Turn the unit off before attempting to check the engine oil.

**Engine Oil:** Check the engine oil level. It should be at the Full mark when the dipstick is threaded all the way into the oil pan. Do not overfill.

## ⚠ CAUTION

### Hazardous Pressures!

Do not remove expansion tank cap while coolant is hot.

**Engine Coolant:** The engine coolant must have antifreeze protection to -34 C (-30 F). Add coolant if Alarm Code 37 is active. Check and add coolant to the expansion tank.

**Note:** Refer to Specifications (*"Engine," p. 53*) where it is clearly states which coolant types are allowed to be used in this unit.

**Battery:** Verify the battery terminals are tight and free of corrosion.

## Manual Pretrip Inspection (Before Starting the Unit)

---

**Note:** *All truck and trailer units will have a small battery drain when the unit is off. The battery can be drained even quicker if there are Aftermarket options or third party devices connected to the unit which consume battery power.*

*This will cause the battery to become discharged over time.*

*Apart from the obvious inconvenience of having to charge the battery, it is also liable to damage battery cell material and cause the life of the battery to be shorter than acceptable.*

*Therefore, to ensure the battery remains in optimum condition during periods when the unit is not being used, Thermo King strongly recommends to switch on the unit at least once each week and run for 30 minutes or longer.*

*If the EnergyONE battery is drained after a long idle period, it will need to be recharged using an automatic programmable battery charger (Thermo King does not recommend the use of manual battery chargers on dry cell batteries).*

*Failure to do so may result in warranty for the battery being rejected.*

*Alternatively, Thermo King offer a solar panel option from aftermarket which would negate the requirement to switch off the microprocessor switch during long unit idle periods. For more information, please contact your local Thermo King dealership.*

**Belts:** Verify belts are in good condition and adjusted to the proper tension. For more information about belt tension, see the Specifications chapter.

**Electrical:** Check the electrical connections to verify they are securely fastened. Wires and terminals should be free of corrosion, cracks, and moisture.

**Structural:** Visually inspect the unit for leaks, loose or broken parts, and other damage.

**Coils:** Verify condenser and evaporator coils are clean and free of debris.

- Washing with clean water should be sufficient.
- The use of cleaning agents or detergents is strongly discouraged due to the possibility of degradation of the construction.
- If using a power washer, the nozzle pressure should not exceed 600 psi (41 bar). For the best results, spray the coil perpendicular to the face of the coil. The spray nozzle should be kept between 1 inch and 3 inches (25 to 75 millimeters) from the coil surface.
- If necessary to use a chemical cleaner or detergent, use a cleaner that does not contain any hydrofluoric acids and is between 7 and 8 on the pH

## Manual Pretrip Inspection (Before Starting the Unit)

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scale. Verify dilution instructions provided by the detergent supplier are followed. In case of doubt about the compatibility of the detergent with the type of materials listed above, always ask the supplier a written confirmation of the compatibility.

- Should a chemical cleaner be required, it is **MANDATORY** that all components are thoroughly rinsed with water even if the instructions of the cleaner specify that it is a “no rinse” cleaner.

### **NOTICE**

#### **Equipment Damage!**

Failure to comply with above mentioned guidelines will lead to a shortened life of the equipment to an indeterminable degree and also may void your warranty.

**Note:** *The repeated transportation of meat and fish waste can cause extensive corrosion to the evaporator coils and evaporator section tubing over time due to ammonia formation and can reduce the lifespan of the coils. Appropriate additional measures should be taken to protect the coils against the aggressive corrosion that can result from transportation of such products.*

**Cargo Box:** Check the interior and exterior of the cargo box for damage. Any damage to the walls or insulation must be repaired.

**Note:** *On trailers equipped with units qualified for pharmaceutical applications - under ThermoKing protocol inspect the integrity of the air chute.*

**Cargo Doors:** Verify the cargo doors and weather seals are in good condition. The doors should latch securely and the weather seals should fit tightly.

**Damper Door:** The damper door in the evaporator air outlet must move freely with no sticking or binding.

**Defrost Drains:** Check the defrost drain hoses to verify they are open.

#### **TracKing Module:**

- Check that the module is turned on and communicating.
- **For Whisper Pro Enabled TracKing**, it is recommended to check at some stage throughout your journey if the SR-3 unit automatically switches to “High Speed Lock Out” in an area designated for this - i.e., PIEK assigned Zone.

**Note:** *For further best practices, please visit [www.europe.thermoking.com/best-practices](http://www.europe.thermoking.com/best-practices).*

# Operating Instructions

## SMART REEFER 3 (SR-3) Controller Overview

Thermo King has applied the latest advances in computer technology to develop a device that controls temperature and unit function, and displays operating information quickly and accurately.

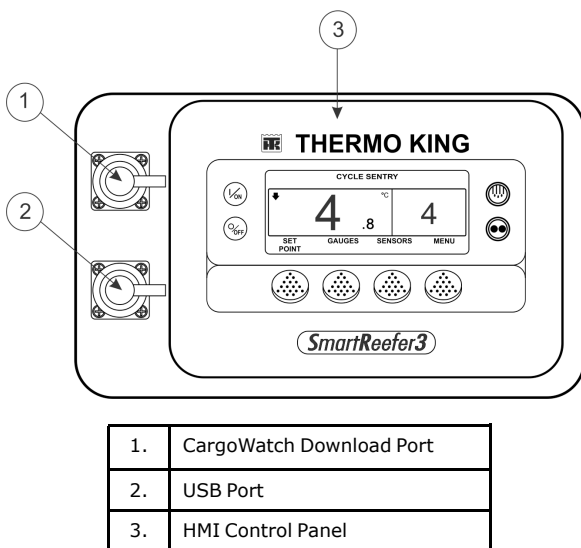
There is nothing complicated about learning to operate the SR-3 Controller, but you will find that a few minutes studying the contents of this manual will be time well spent.

### ⚠ CAUTION

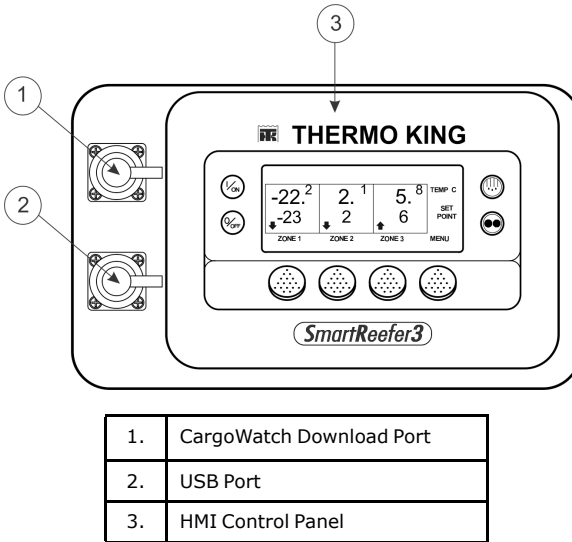
#### Risk of Injury!

Do not operate the SR-3 Controller until you are completely familiar with its function.

**Figure 8. SLXi Single-Temperature Controller Display**



**Figure 9. SLXi Multi-Temperature Controller Display**



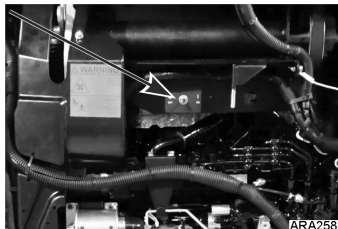
## Switching “ON” the Unit

1. On/Off Master Isolator Switch must be ON.
2. Press the I/ON Microprocessor key for one second.
3. Unit is switched “on”.

## Microprocessor ON/OFF switch

Microprocessor On/Off Switch is located above engine inside the unit. The switch is normally left in On position.

**Figure 10. Microprocessor On/Off Switch**



## HMI Control Panel

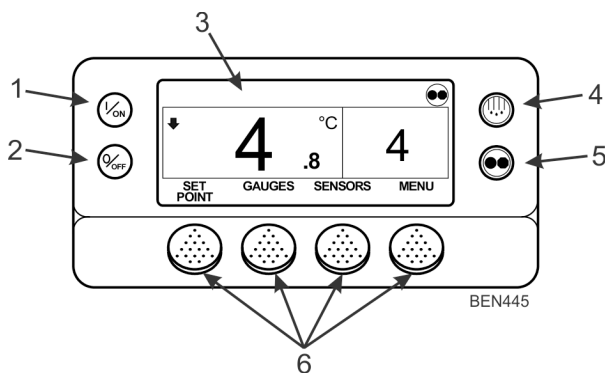
The HMI control panel has a display and eight touch sensitive keys. The display is capable of showing both text and graphics. The four keys on the left and right sides of the display are dedicated keys. The four keys under the display are "soft" keys. The function of "soft" keys change depending on the operation being performed. If a soft key is active, its function will be shown in the display directly above the key.

## Control Panel Display

The display is used to supply unit information to the operator. This information includes setpoint, current box temperature operating information, unit gauge readings, system temperatures and other information as selected by the operator.

The default display is called the Standard Display. It is shown below and will be described in detail later in this chapter.

**Figure 11. Control Panel Display and Keys**



1.	On Key (Dedicated Key)
2.	Off Key (Dedicated Hard Key)
3.	Display
4.	Defrost Key (Dedicated Key)
5.	CYCLE-SENTRY/Continuous Mode Key (Dedicated Key)
6.	Soft Keys

## Operating Instructions

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### Control Panel Keys

The four keys on the left and right sides of the display screen are “dedicated keys”. Their functions are listed below.



**On Key:** Used to turn the unit on. First the display will briefly show the Thermo King Logo and then the statement “Configuring System - Please Wait”. When the power-up sequence is complete, the display shows the Standard Display of box temperature and setpoint.



**Off Key:** Used to turn the unit off. First, the display will briefly show “System is Powering Down - Please Wait. Press On to Resume” and then “Off” will appear momentarily. When the power-down sequence is complete the display will be blank.



**Defrost Key:** Press this key to initiate a Manual Defrost cycle.



**CYCLE SENTRY/Continuous Mode Key:** Press this key to switch back and forth between the CYCLE-SENTRY mode and the Continuous Run mode. If OptiSet Plus is in use, it may not be possible to change the Mode.



The four “soft” keys under the display are multi-purpose keys. Their function changes depending on the operation being performed. If a soft key is active, the key function is shown in the display directly above the key. The keys are numbered from left to right, with Key 1 on the far left and Key 4 on the far right.

Typical soft key applications:

SETPOINT	SENSORS	NEXT/BACK	+ or -	CLEAR/HELP
GAUGES	MENU	YES/NO	SELECT/EXIT	HOURLMETERS

## Operating the SR-3 Controller

Please refer to Profeseor Kool and the “TK Tutor Series” for step by step instructions and training on how to use your SR-3 controller and also “TK Alarm Codes” to help diagnose any alarms. These can be found at the following link: <http://www.europe.thermoking.com/tools/>

**Note:** *These are Apps for your Mobile device, please contact your Dealer for desktop applications.*

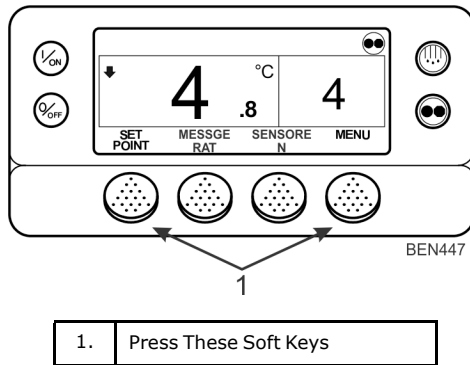
Please also see below a couple of useful items of information.

## Return to English at Any Time

**Important:** *If necessary, English and all other languages in the software version may be accessed from the Standard Display.*

When the Standard Display is shown press and hold the first and last soft key for five seconds as shown (Figure 12, p. 39).

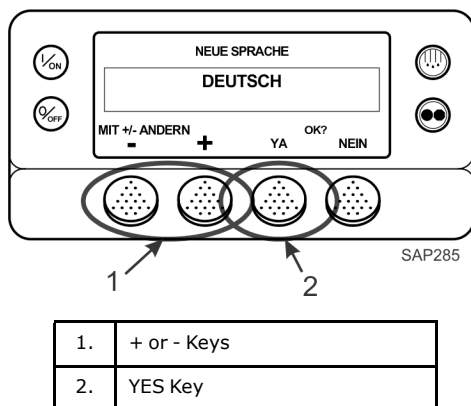
**Figure 12. Standard Display (German Shown)**



After five seconds the Language Menu will appear in the current language as shown (Figure 13, p. 40). Press the + or - Keys to select the desired language. When the desired language is shown press the YES Key to confirm the choice.

**Note:** *All languages in the installed software can be selected using this method.*

**Figure 13. + or - Keys, YES Key (German Shown)**



## Printing a Trip Report

This procedure shows how to connect a TouchPrint Printer, TouchPrint datalogger or equivalent to the unit. The printed record shows things such as the unit and Base Controller identification numbers, dates and times, the setpoint, and the data from the optional sensors connected to the CargoWatch datalogger. If no sensors are connected, the printed record shows the same things without the sensor data.

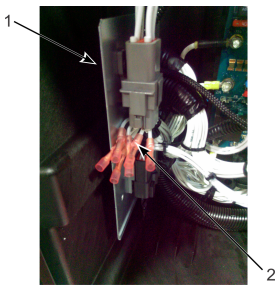
1. Connect the printer to the 6-spliced wires located inside the control box.

**Note:** Contact your Thermo King dealer about printer connection location options.

2. Please refer to your TK 61009-11-OP TouchPrint Operator Manual (or third party printer manual) for instructions for setup and use.

**Note:** For additional information concerning the TouchPrint Printer or CargoWatch/TouchPrint Datalogger contact your Thermo King dealer.

**Figure 14. Printer Connection Location**



1.	LVD Bracket
2.	Printer Wire Splices

# Alarm Codes

## Introduction

An alarm code is generated when the microprocessor senses an abnormal condition. Alarms direct an operator or service technician to the source of a problem.

Multiple alarms can be present at one time. All generated alarms will be stored in memory until cleared by the operator. Document all alarm occurrences and report them to the service technician.

**Important:** *Always record any Alarm Codes that occur - in the order that they occur - as well as any other pertinent information. This information is extremely valuable to service personnel.*

### Notes:

1. *Please refer to Professor Kool and the "TK Tutor Series" App for step by step instructions and training on Alarm types and how to clear alarms. Please refer to "TK Alarm Codes" App for the most up to date alarms list. These apps can be found at the following link: <http://www.europe.thermoking.com/tools/>*
2. *Some alarms (3, 4, 74, 203, and 204) cannot be cleared in the Alarms Menu, they must be cleared in the Maintenance Menu or the Guarded Access Menu. Contact your supervisor or a Thermo King dealer about clearing those alarms.*
3. *In some cases alarms cannot be cleared, or cannot be cleared after they have occurred a specified number of times. If such is the case, these alarms must be cleared by service personnel. These are all explained in your Alarm Codes App.*

# Loading and Inspection Procedures

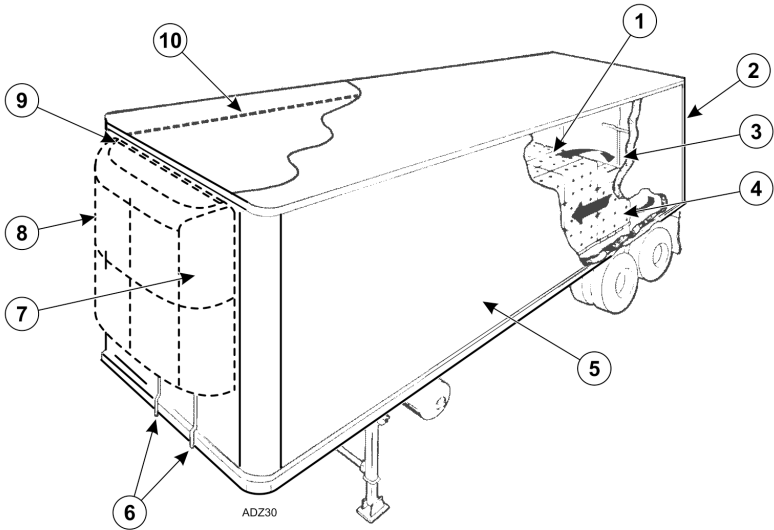
This chapter describes pre-loading inspections, loading procedures, post-loading procedures, post-loading inspections, and enroute inspections. Thermo King refrigeration units are designed to maintain the required product load temperature during transit. Follow these recommended loading and enroute procedures to help minimize temperature related problems.

## Pre-Loading Inspection

1. Pre-cool products before loading. Note any variances on the manifest.
2. Inspect door seals and vent doors for condition and a tight seal with no air leakage.
3. Inspect the trailer inside and out. Look for:
  - Damaged or loose trailer skin and insulation
  - Damaged walls, air ducts, floor channels, or "T" flooring
  - Clogged defrost drain tubes
  - Blocked return air bulkhead
4. Verify that the setpoint temperature is correct for your cargo. Pre-cool the trailer as required.
5. Supervise product loading to ensure sufficient air space around and through the load. Airflow around cargo must not be restricted.

**Note:** *If the warehouse is not refrigerated, operate the unit with the doors closed until cargo is ready to be loaded. Then turn off the unit, open the cargo doors and load cargo. When cargo is loaded, close trailer doors and restart the unit. The unit can be operated with the cargo box doors open if the truck is backed into a refrigerated warehouse and the dock door seals fit tightly around the trailer.*

**Figure 15. Loading Considerations**



1.	Correct load height (trailers without chutes)	6.	Clear defrost drains
2.	Tight doors and seals	7.	Good outside air circulation
3.	Good air circulation around load	8.	Unit inspection
4.	Proper cargo temperature ( <b>prior</b> to loading)	9.	Tight seals
5.	Interior/exterior walls and insulation in good condition	10.	Maximum load height followed

## Post-Loading Inspection

Post-loading inspections verify the cargo has been loaded properly. To perform a post-load inspection:

1. Inspect the evaporator outlets for blockage.
2. Turn the unit off before opening the cargo box doors to maintain efficient operation.

## Loading and Inspection Procedures

---

**Note:** *The unit can be operated with the cargo box doors open if the truck is backed into a refrigerated warehouse and the dock door seals fit tightly around the trailer.*

3. Perform a final check of the load temperature. If the load is above or below temperature, make a final notation on the manifest.

**Important:** *Cargo must be pre-cooled to proper temperature before loading. The unit is designed to maintain temperature, not cool an above-temperature load.*

4. Close or supervise the closing of the cargo box doors. Verify they are securely locked.
5. Verify the setpoint is at the temperature listed on the manifest.
6. If the unit was stopped, restart using the correct starting procedure. See the Operating Instruction chapter in this manual.
7. Start a manual defrost cycle 30 minutes after loading. See the Manual Defrost procedure in the manual.

## Enroute Inspections

Complete the following enroute inspection every four hours. This will help minimize temperature related problems.

### Inspection Procedure

1. Verify setpoint is correct.
2. Check the return air temperature reading. It should be within the desired temperature range.
3. Initiate a manual defrost cycle after each enroute inspection.

### Inspection Troubleshooting

1. If a temperature reading is not within the desired temperature range, refer to the troubleshooting table ([Table 3, p. 46](#)). Correct problem as required.
2. Repeat the Enroute Inspection every 30 minutes until the compartment temperature is within the desired temperature range. Stop the unit if the compartment temperature is not within the desired temperature range on two consecutive 30 minute inspections, especially if the compartment temperature appears to be moving away from the setpoint.
3. Immediately contact the nearest Thermo King Dealer or your company office.

## Loading and Inspection Procedures

4. Take all necessary steps to protect and maintain proper load temperature.

### NOTICE

#### **Cargo Loss!**

Stop the unit if the compartment temperature remains higher than the desired temperature range from the setpoint on two consecutive 30 minute inspections. Contact the nearest Thermo King Dealer or your company office immediately. Take all necessary steps to protect and maintain proper load temperature.

**Table 3. Inspection Troubleshooting**

<b>Problem: A return air temperature reading is not within desired temperature range of the setpoint.</b>	
<b>Cause</b>	<b>Remedy</b>
The unit has not had time to cool down to correct temperature.	<p>Refer to the load log history. Look for above temperature load records, properly pre-cooled cargo compartment, length of time on road, etc. Correct as required. Continue monitoring return air temperature until the reading is within the desired temperature range of the setpoint.</p> <p><b>Note:</b> <i>Ensure cargo is properly pre-cooled prior to loading onto trailer. If 'warm cargo' is loaded onto trailer and reefer is used to cool to setpoint this will result in longer time required to cool down to correct temperature and possibly plugging of evaporator with frost due to increased humidity in trailer compartment.</i></p>
The unit may have a low refrigerant charge.	Check the receiver tank sight glass for refrigerant level. If fluid is not showing in the receiver tank sight glass, the refrigerant charge may be low. A competent refrigeration technician is required to add refrigerant or repair the system. Contact the nearest Thermo King dealer, authorized Service Center, or call the Thermo King Cold Line for referral. Consult the Table of Contents for Cold Line information.
The unit is in defrost or has just completed a defrost cycle.	Monitor the return air temperature after the defrost cycle is completed to see if the temperature returns to the desired temperature range of the setpoint.
The evaporator is plugged with frost.	Initiate a manual defrost cycle. The defrost cycle will automatically terminate when complete. Continue monitoring the return air temperature until the reading is within the desired temperature range of the setpoint.

## Loading and Inspection Procedures

**Table 3. Inspection Troubleshooting (continued)**

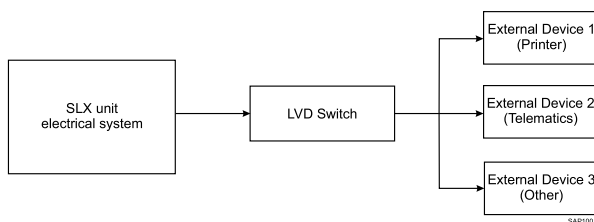
<b>Problem: A return air temperature reading is not within desired temperature range of the setpoint.</b>	
<b>Cause</b>	<b>Remedy</b>
Improper air circulation in the cargo compartment.	Inspect the unit and cargo compartment to determine if the evaporator fan (3) are working properly circulation the air. Poor air circulation may be due to improper loading of the cargo, shifting of the load, or depending on unit, fan belt slippage or faulty electrical fans. Correct as required. Continue monitoring return air temperature until problem is corrected.
The unit did not start automatically.	Determine the cause for not starting. Correct as required. Continue monitoring return air temperature until reading is within desired temperature range of the setpoint.
<b>Multi-Temp Units Only</b> – The unit is being used to cool/heat a single temperature load and does not have the capacity to cool the entire trailer.	A multi-temperature unit may not have the cooling or heating capacity to maintain a specific temperature range throughout an entire trailer.

# Connecting to a Third Party Device

All SLXi trailer units come fitted as standard from factory with a Low Voltage Disconnect (LVD) switch to accommodate for 3rd party device connections. The LVD switch ensures that all SLXi units provide a dedicated device connection point for external devices, while also preventing battery discharge/depletion of the EnergyONE battery during unit idle periods.

**Important:** All external device connections must be connected through the LVD switch as per instructions detailed in the SLXi Installation Manual/External Device Connection with LVD (Click in the following location to download - [www.emea-user-manuals.thermoking.com](http://www.emea-user-manuals.thermoking.com)). Failure to connect external devices through the LVD switch may result controller and/or battery related failures being rejected by warranty. The LVD switch acts as a protective medium between the SLXi unit electrical system and external device(s).

**Figure 16. Connecting a Third Party Device**



## LVD Switch

The function of the LVD switch is as follows:

- Disconnects power to external devices when battery voltage drops below 12.1V (for longer than five minutes).
- Automatically resets when system voltage rises above 13V (for longer than 10 seconds).
- Provides connection point in control box for up to three external devices.
- Recommended total maximum current draw from all connected devices combined (At all times, not just when the unit is power down): 2 Amps.
  - Excessive current draw due to external devices when unit is powered down will result in the LVD switch disconnecting the output after a short period of time (possibly within hours - depending on total current draw).

# Jump Starting

If unit battery is discharged or run down, unit may be jump started using jumper cables and another battery or vehicle. Consider the following precautions and be careful when jump starting a unit.

## **⚠ WARNING**

### **Personal Protective Equipment (PPE) Required!**

A battery can be dangerous. A battery contains a flammable gas that can ignite or explode. A battery stores enough electricity to burn you if it discharges quickly. A battery contains battery acid that can burn you. Always wear goggles or safety glasses and personal protective equipment when working with a battery. If you get battery acid on you, immediately flush it with water and get medical attention.

## **⚠ CAUTION**

### **Hazard of Explosion!**

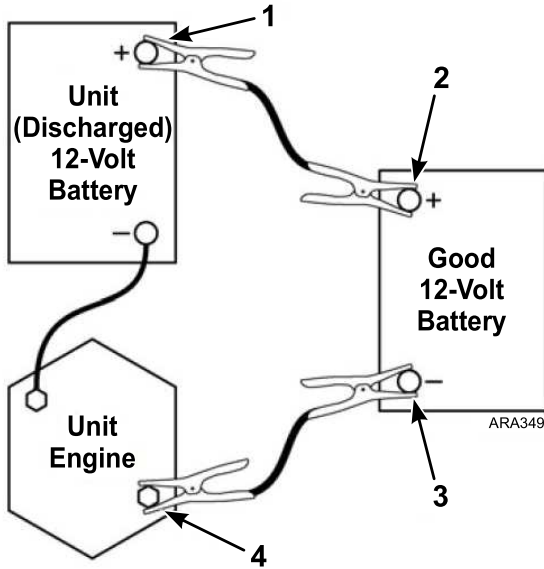
Unhook the semi tractor from the trailer before using the tractor to jump start the unit on the trailer. The negative ground circuit is complete when the tractor is hooked to the trailer. This can cause dangerous sparks when the positive connection is made at the battery.

**Important:** *Make sure to use a 12 volt battery to jump start unit. If you are using a vehicle, make sure it has a 12 volt battery with a negative ground system. Do not use a "hot shot" booster device or a 24 volt source.*

Read and understand the following procedure completely before connecting and jumper cables. Use good jumper cables made with #2 gauge (or larger) cables.

1. Verify unit is turned off. If you are using a vehicle, verify its ignition is also turned off.
2. Open front doors on unit. Battery is located to the left of engine.
3. Check discharged battery to verify it is not damaged or frozen. Do not jump start a damaged or frozen battery. Check vent caps to verify they are tight.
4. Identify positive (+) and negative (–) battery terminals.
5. Remove red cover from positive (+) battery terminal on the unit's battery.

**Figure 17. Sequence for Connecting Jumper Cables**



1.	Positive (+) Terminal on Unit Battery
2.	Positive (+) Terminal on Good Battery
3.	Negative (-) Terminal on Good Battery
4.	Starter Mounting Bolt on Unit Engine

6. Connect the red positive (+) jumper cable to the positive (+) battery terminal on the unit's battery. Do not let the other end of the jumper cable touch anything that conducts electricity.

### **⚠ WARNING**

#### **Hazard of Explosion!**

Allowing the positive (+) jumper cable to short to ground can produce dangerous sparks.

7. Connect the other end of the red positive (+) jumper cable to the positive (+) battery terminal on the good battery.

8. Connect the black negative (–) jumper cable to the negative (–) battery terminal on a good battery. Do not let the other end of the jumper cable touch anything that conducts electricity.

**⚠ WARNING**

**Hazardous Voltage!**

DO NOT connect to the positive connection on the starter motor, which is located on the top right of the starter motor.

9. Connect the black negative (–) jumper cable to the lower starter mounting bolt on the unit's engine.
10. If you are using a vehicle to jump start the unit, start the vehicle and let it run for a few minutes. This will help charge the discharged battery.

**⚠ DANGER**

**Risk of Injury!**

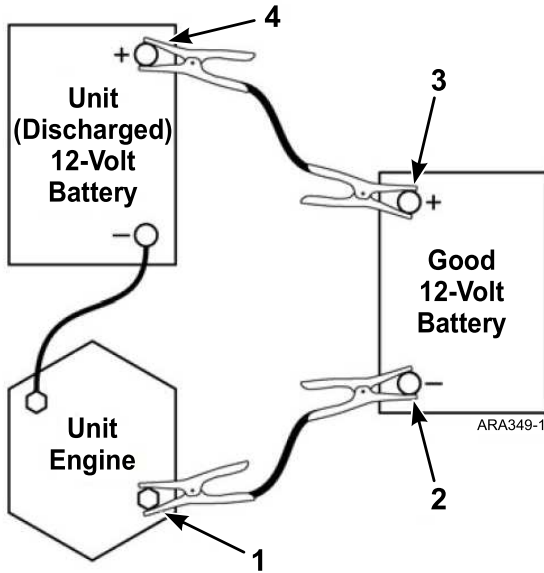
Keep your hands, clothing, and tools clear of fans and/or belts when working on a unit that is running or when opening or closing compressor service valves. Loose clothing might entangle moving pulleys or belts, causing serious injury or possible death.

11. Turn the unit on and let it start automatically or start it manually. If the unit will not crank or start, contact a qualified technician.

**Note:** *Some units with microprocessors will show an alarm code and will not try to start the unit until battery voltage is above 10 volts.*

12. After the unit starts, remove the jumper cables in reverse order: black negative (–) from the unit starter mounting bolt, black negative (–) from the good battery, red positive (+) from the good battery, and red positive (+) from the unit battery (that was discharged).

**Figure 18. Sequence for Disconnecting Jumper Cables**



1.	Starter Mounting Bolt on Unit Engine
2.	Negative (-) Terminal on Good Battery
3.	Positive (+) Terminal on Good Battery
4.	Positive (+) Terminal on Unit Battery

# Specifications

## Engine

Model: SLXi	Thermo King TK486V (prior to December 2018 - NRMM Stage IIIA compliant) Thermo King TK486VMGS5 (from December 2018 - NRMM Stage V compliant)
Fuel Type	Diesel fuel must conform to EN590
Oil Capacity	12.3 liters/litres (13 quarts) crankcase and oil filter Fill to full mark on dipstick
Oil Type	Petroleum Multi-grade Oil: API Type CI-4, ACEA Class E3 Synthetic Multi-grade Oil: API Type CI-4, ACEA Class E3 (after first oil change)
Recommended Oil Viscosity (based on ambient temperature)	-10 C to 50 C (14 F to 122 F): SAE 15W-40 (Synthetic) -15 to 40 C (5 to 104 F): SAE 15W-40 -15 to 40 C (5 to 104 F): SAE 10W-30 (Synthetic or Synthetic Blend) -25 to 40 C (-13 to 104 F): SAE 10W-40 -25 to 30 C (-13 to 86 F): SAE 10W-30 -30 to 50 C (-22 to 122 F): SAE 5W-40 (Synthetic) Below -30 C (-22 F): SAE 0W-30 (Synthetic)
Nominal Engine RPM	SLXi-200, SLXi-300: 1200 to 1450 RPM SLXi-300 Whisper Pro: 1250 to 2000 RPM SLXi-400: 1200 to 2000 RPM SLXi SPECTRUM, SLXi SPECTRUM Whisper Pro: 1250 to 2000 RPM
Engine Coolant Thermostat	71°C

## Specifications

Engine Coolant Type	<p>Conventional Coolant: Conventional coolant (antifreeze) is green or blue-green. GM 6038M or equivalent, low silicate antifreeze mixture, 50/50 antifreeze/water mixture, not to exceed 60/40.</p> <p><b>Important:</b> <i>Do not mix conventional coolant and ELC. ELC (Extended Life Coolant): ELC is red. Units containing ELC have an ELC nameplate on the expansion tank. Use a 50/50 concentration of any of the following equivalents: Texaco ELC (7997, 7998, 16445, 16447), Havoline Dex-Cool® (7994, 7995), Havoline XLC for Europe (30379, 33013), Shell Dexcool® (94040), Shell Rotella (94041), Saturn/General Motors Dex-Cool®, Caterpillar ELC, Detroit Diesel POWERCOOL® Plus</i></p>
<div style="background-color: black; color: white; text-align: center; padding: 5px;"><b>NOTICE</b></div> <div style="border: 1px solid black; padding: 10px;"> <p><b>System Contamination!</b></p> <p>Do not add “GREEN” or “BLUE-GREEN” conventional coolant to cooling systems using “RED” Extended Life Coolant, except in an emergency. If conventional coolant is added to Extended Life Coolant, the coolant must be changed after 2 years instead of 5 years.</p> </div>	
<div style="background-color: black; color: white; text-align: center; padding: 5px;"><b>NOTICE</b></div> <div style="border: 1px solid black; padding: 10px;"> <p><b>Equipment Damage!</b></p> <p>Do not use high silicate automobile antifreeze.</p> </div>	
Coolant System Capacity	6.6 liters/litres (7 quarts)
Radiator Cap Pressure	0.48 bar (7 psi) (48.3 kPa)
Drive	<p>Model 30: Direct to compressor; belts to fans, alternator, and water pump</p> <p>Model 50: Clutch and belts from electric motor</p>

## Filters

Engine Oil Filter	EMI 3000 Hour – P/N 11-9182
Fuel Filter	EMI 3000 Hour – P/N 11-9342
Air Filter	EMI 3000 Hour – P/N 11-9300

## Refrigeration System

Contact your Thermo King dealer for refrigeration system service or maintenance.

## Electrical Control System

Low Voltage	12.8 Vdc
Battery	Thermo King EnergyONE (880 CCA) AGM battery as standard.
Fuses	Refer to Fuses (" <a href="#">Unit Protection Devices</a> ," p. 28).
Battery Charging	Single Temperature as Standard - 12 volt, 37 amp, brush type, Thermo King Alternator Multi Temperature as Standard - 12 volt, 120 amp, brush type, Thermo King Alternator Single Temperature Option - 12 volt, 120 amp, brush type, Thermo King Alternator

## Electric Motor (Model 50)

Size/Type	Operating Speed	Voltage/Phase/Hertz	Full Load Amps
9.3 kW Induction	1450 RPM	230/400 Volt, 3 phase, 50 hertz	37.4/18.7 amps
10.5 kW Induction	1450/1735 RPM	200 Volt, 3 phase, 50/60 hertz	46.1/43.2 amps

## Specifications

### Standby Power Requirements

Power Supply Circuit Breaker	400/3/50 200-220/3/50	32 ampere 63 ampere
Power Cord Size	400/3/50	Up to 15m, 6mm <sup>2</sup> Over 15m, 10mm <sup>2</sup>
	200-220/3/50	Up to 15m, 10mm <sup>2</sup> Over 15m, 16mm <sup>2</sup>

### TrackKing

Platform	ARM Cortex-A8, 300MHz, 256MB RAM, 4GB Flash, Linux
GSM/GPRS	3G, Sierra HL8548
GPS	u-blox NEO-7M
Bluetooth	Version 4.0 Bluetooth Classic /Bluetooth Low Energy (BLE)
Serial Ports	2 External Serial Ports for TrackKing extensions or Third-Party Connect
Input Power	12V Nominal
Backup Battery	Single cell Li-Ion 3.7V Nominal, > 2Ah
Environmental Storage Temperature	-40 to +85 C

# Warranty

Please also refer to TK 61508-2-WA Thermo King EMEA Trailer Unit Limited Warranty for SLXi Units.

# Maintenance Inspection Schedule

## Inspection and Service Intervals

Inspection and Service intervals are determined by the number of unit operating hours and by the age of the unit. Examples are shown in the table below. Your Dealer will prepare a schedule to suit your specific needs.

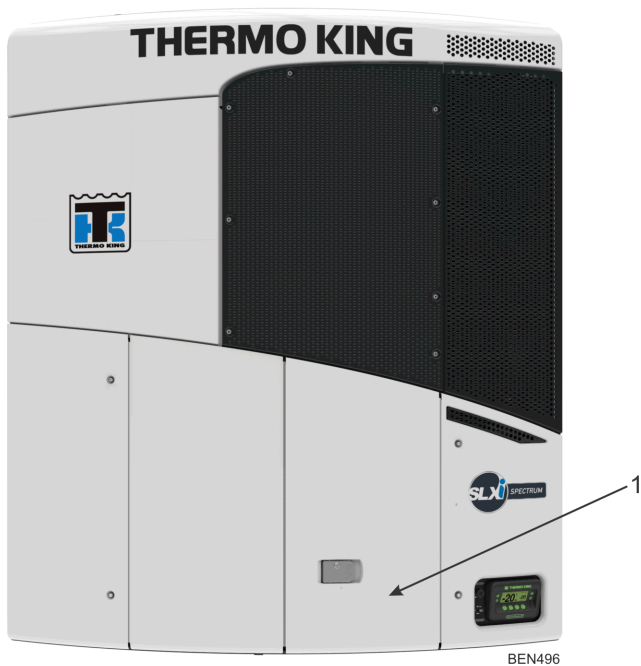
**Service Record:** Each inspection and service performed should be recorded on your Dealer Service Record.

Interim Inspection	Complete PM	Full Service
A Service  Every 1500 hours or every 12 months (whichever comes first)	B Service  Every 3000 hours or every 24 months (whichever comes first)	C Service  Every 6000 hours or every 48 months (whichever comes first)

Pretrip	Inspect/Service These Items
•	Run Pretrip Test (Refer to "Operating the SR-3 Controller," p. 39).
•	Check fuel supply.
•	Check and adjust coolant/engine oil levels.
•	Listen for unusual noises, vibrations, etc.
•	Visually inspect unit for fluid leaks. (fuel, coolant, oil and refrigerant).
•	Visually inspect unit for damaged, loose or broken parts (includes air ducts and bulkheads if so equipped).
•	Visually inspect belt.
<b>Note:</b> For further best practices, please go to <a href="http://www.europe.thermoking.com/best-practices">www.europe.thermoking.com/best-practices</a> .	

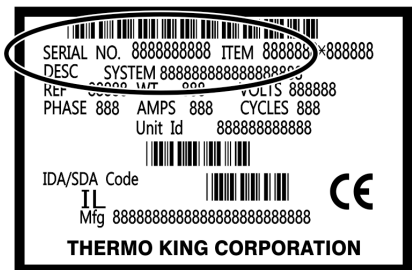
## Serial Number Locations

### Figure 19. Serial Number Location



1. Located on inside door frame

**Figure 20. Serial Number Plates**



## **Recover Refrigerant**

At Thermo King®, we recognize the need to preserve the environment and limit the potential harm to the ozone layer that can result from allowing refrigerant to escape into the atmosphere.

We strictly adhere to a policy that promotes the recovery and limits the loss of refrigerant into the atmosphere.

In addition, service personnel must be aware of Federal regulations concerning the use of refrigerants and the certification of technicians. For additional information on regulations and technician certification programs, contact your local THERMO KING dealer.







Thermo King – by Trane Technologies (NYSE: TT), a global climate innovator – is a worldwide leader in sustainable transport temperature control solutions. Thermo King has been providing transport temperature control solutions for a variety of applications, including trailers, truck bodies, buses, air, shipboard containers and railway cars since 1938. For more information, visit [www.thermoking.com](http://www.thermoking.com) or [www.tranetechnologies.com](http://www.tranetechnologies.com).

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