THERMO KING

Operator's Manual

Thermo King
AC-DC Power Converter/Charger

Revision 0

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TK-54626-19-OP

TRANE TECHNOLOGIES

Thermo King AC-DC Power Converter/Charger

TK 54626-19-OP (Rev. 0, 04/10)

Disclaimer

This manual is published for informational purposes only. Thermo King Corporation makes no representations or warranties, express or implied, with respect to the information, recommendations and descriptions contained in this manual and such information, recommendations and descriptions should not be regarded as all-inclusive or covering all contingencies. In the event you have any questions or require further information, please contact your local Thermo King dealer.

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.

Thermo King Corporation and its affiliates shall have no liability in contract or tort (including negligence and/or strict liability) or otherwise, to any person or entity for any personal injury, property damage or any other direct, indirect, special or consequential damage or liability whatsoever, arising out of or resulting from any actions by any person that are contrary to this manual or any of the information, recommendations or descriptions contained herein or the failure of any person to implement the procedures described herein correctly or to follow caution and safety decals located on the Thermo King unit.

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Introduction

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 on-the-road 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.

IMPORTANT: 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.

Safety Precautions

Thermo King recommends that all services be performed by a Thermo King dealer. However, there are several general safety practices which you should be aware of:

DANGER: Do not use the Thermo King Power Converter/Charger with life-support systems or other medical equipment or devices. There is a risk of injury or loss of life if the Converter/Charger is connected to these systems, equipment, or devices.

WARNING: Before installing and using the Thermo King Power Converter/Charger read all instructions and cautionary markings on the converter/charger, the batteries, and all appropriate sections of this manual.

WARNING: To reduce the risk of electrical shock, disconnect both AC and DC power from the Thermo King Power Converter/Charger before attempting any maintenance or cleaning or working on any circuits connected to the Thermo King Power Converter/Charger. Turning off controls will not reduce this risk.

WARNING: Do not expose the Thermo King Power Converter/Charger to rain, snow, or spray. To reduce risk of fire hazard, do not cover or obstruct the ventilation openings. Do not install the Thermo King Power Converter/Charger in a zero-clearance compartment. Overheating might result.

WARNING: Use only attachments recommended or sold by Thermo King. Doing otherwise might result in a risk, electric shock, or injury to persons.

WARNING: To avoid a risk of fire and electric shock, make sure that existing wiring is in good condition and that the wire is not undersized. Do not operate the converter/charger with damaged or substandard wiring.

WARNING: Do not operate the Thermo King Power Converter/Charger if it has received a sharp blow, been dropped, or otherwise damaged in any way.

WARNING: Do not disassemble the Thermo King converter/charger. It contains no user-serviceable parts. See Warranty for instructions on obtaining service. Attempting to service the converter/charger yourself may result in a risk of electrical shock or fire. Internal capacitors remain charged after all power is disconnected.

Explosive Gas Safety Precautions

WARNING: Explosion Hazard. Working in the vicinity of lead-acid batteries is dangerous. Batteries generate explosive gases during normal operation. Therefore, you must read this guide and follow the instructions exactly before installing or using the Thermo King Power Converter/Charger.

WARNING: Explosion Hazard. There are no components within the Thermo King Power Converter/Charger that, in normal operation, produces arcs or sparks. However, all electronic devices have some potential for generating sparks in the event of failure. Therefore, never install this device in the same compartment with flammable items such as gasoline or batteries. This includes any space containing gasoline-powered machinery, fuel tanks, as well as joints, fittings, or other connections between components of the fuel system.

WARNING: Explosion Hazard. To reduce the risk of battery explosion, follow these instructions and those published by the battery manufacturer and the manufacturer of the equipment in which the battery is installed.

Safety Precautions When Working with Batteries

WARNING: Explosion or Fire Hazard. Follow all instructions published by the battery manufacturer and the manufacturer of the equipment in which the battery is installed.

WARNING: Explosion or Fire Hazard. Make sure the area around the battery is well ventilated.

WARNING: Explosion or Fire Hazard. Use caution to reduce the risk of dropping a metal tool on the battery. It could spark or short circuit the battery or other electrical parts and could cause an explosion.

WARNING: Explosion or Fire Hazard. Never smoke or allow a spark or flame near the engine or batteries.

WARNING: Explosion or Fire Hazard. Have someone within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

WARNING: Explosion or Fire Hazard. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

WARNING: Explosion or Fire Hazard. Wear complete eye protection and clothing protection. Avoid touching your eyes while working near batteries.

WARNING: Explosion or Fire Hazard. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters your eye, immediately flood it with running cold water for at least twenty minutes and get medical attention immediately.

WARNING: Explosion or Fire Hazard. If you need to remove a battery, always remove the ground terminal from the battery first. Make sure all accessories are off so you do not cause a spark.

WARNING: Explosion or Fire Hazard. Remove all metal items, like rings, bracelets, and watches when working with lead-acid batteries. Lead-acid batteries produce a short circuit current high enough to weld metal to skin, causing a severe burn.

First Aid: Electrical Shock

IMMEDIATE action must be initiated after a person has received an electrical shock. Obtain immediate medical assistance if available.

The source of the shock must be immediately removed by either shutting down the power or removing the victim from the source.

If it is not possible to shut off the power, the wire should be cut with either an insulated instrument (e.g., a wooden handled axe or cable cutters with heavy insulated handles) or by a rescuer wearing electrically insulated gloves and safety glasses. Whichever method is used do not look at the wire while it is being cut. The ensuing flash can cause burns and blindness.

If the victim has to be removed from a live circuit, pull the victim off with a non-conductive material.

DO NOT TOUCH the victim! You can receive a shock from current flowing through the victim's body.

Use the victim's coat, a rope, wood, or loop your belt around the victim's leg or arm and pull the victim off.

After separating the victim from power source, check immediately for the presence of a pulse and respiration.

- If a pulse is not present, start CPR (Cardio- Pulmonary Resuscitation) and call for emergency medical assistance.
- If a pulse is present, respiration may be restored by using mouth-to-mouth resuscitation, but call for emergency medical assistance.

Unit Description

The Thermo King Power Converter/Battery Charger converts 120 volts nominal A.C. to 13.6 volts D.C. As a power supply, its tightly controlled regulation allows the user to operate any 12 volt nominal D.C. load up to the converter's rated output current. As a battery charger, the converter will maintain the battery, delivering its full-rated current when the battery capacity falls sufficiently low. The voltage is set to deliver its maximum current for the necessary period of time that minimizes undue stress to the battery caused by heating of its cells. This helps to ensure the longest possible life of the battery. Over time, as the battery nears its full capacity, the converter will float-charge the battery to prevent self-discharge of its cells.

Protection Features

The Thermo King Power Converter/Battery Charger is designed with high quality components to help ensure years of continuous use. The unit is protected by multiple protection features for a long, trouble-free life.

- Reverse Battery Polarity Protection.
- Brown-Out Input Protection.
- Over-Current Protection - cycle by cycle peak limiting as well as rated current limiting to maximize the life of the converter.
- Over-Temperature Protection. In addition, the converter/charger is designed with a unique "proportional" fan control circuit. Fan speed is directly proportional to the converter's internal ambient temperature. This enables the fan to turn on and off very slowly, minimizing unwanted fan-starting noise.
- The power supply is protected against reverse polarity on the DC output. If a battery or the unit is hooked up incorrectly, the fuses will blow and can be easily replaced. Always use the same size and style fuse that came with the converter. To change the fuses, use a screwdriver to loosen the screws and remove the fuses. Always replace the fuses with the same type and rating.

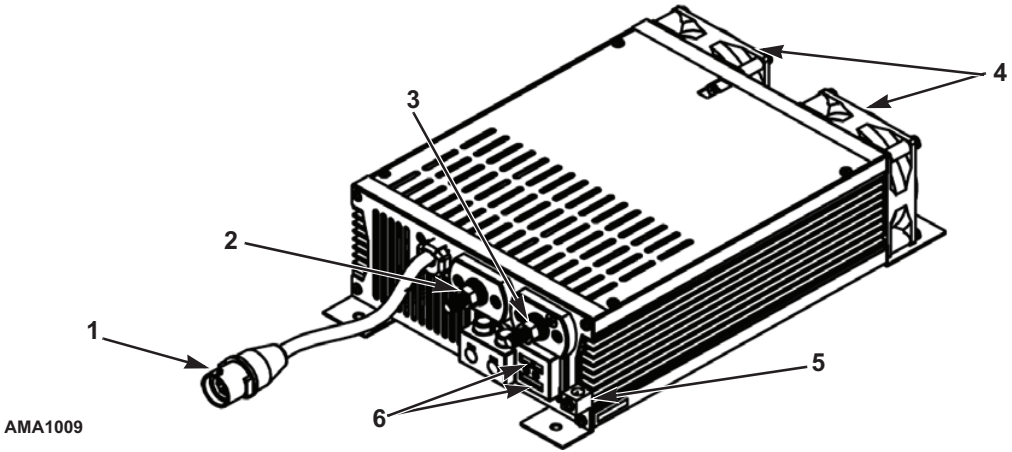


Figure 1: Converter/Charger Components

1.	AC Input Cord	2.	Negative Terminal Lug	3.	Positive Terminal Lug
4.	Cooling Fans	5.	Chassis Bonding Lug	6.	2X 40A Fuse

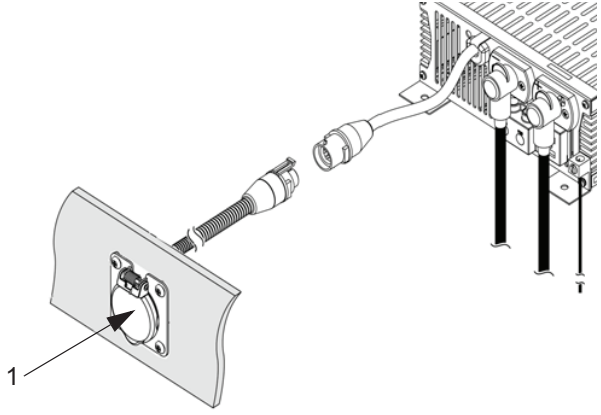
Unit Operation

120 Volt A.C. Input

An Exterior Power Receptacle is provided with the Converter/ Charger. It is used to connect an external 120 Volt A.C. power source to the the Converter/Charger. It is typically installed on the exterior of the tractor, near the driver's door. See Figure 2.

Connect a 120 Vac, 15 amp, 3 wire grounded source to the Exterior Power Receptacle. See Specifications for maximum current draw, required input voltages and required electrical cord size.

The Converter/ Charger will begin to operate after the external power is connected.



1.	**External Power Receptacle**

Figure 2: External Power Receptacle

Maintenance

Routine maintenance is required to keep your Thermo King Converter/Charger operating properly.

Periodically you should:

- Clean the exterior of the unit with a damp cloth to prevent the accumulation of dust and dirt.
- Tighten the screws on the DC output terminals.

Specifications

AC-DC Power Converter/Charger

Input Voltage Range		108 - 132 Volts AC
Input Voltage Frequency (Hz)		50 - 60
Maximum AC Current (at 120 Volts AC)		12 Amps
Maximum Power Output, Continuous		1200 Watts
Output Amperage, Maximum, Continuous		85
DC Output Voltage (no load) Approx.		13.6 Volts DC
Dimensions	Width	8.24 inches
	Length	13.1 inches
	Height	3.42 inches

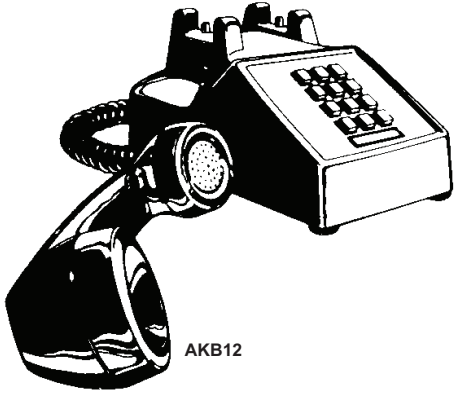
AC-DC Power Converter/Charger

Supply Circuit Breaker:		15 amps
Extension Cord Size:		Length Up to 75 ft. - 14AWG Length 76 - 145 ft. - 12AWG Cord Type: SJOOW Thermoset oil and water resistant -40C to 90C (minimum)

Warranty

Terms of the Thermo King Warranty are available on request.

Emergency Cold Line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If you can't get your rig rolling, and you have tried the Thermo King North American Service Directory (available from any Thermo King dealer) to reach a dealer without success, *then* call the Toll Free Emergency Cold Line Number (888) 887-2202.

The answering service at the factory will assist you in reaching a dealer to get the help you need. The Cold Line is answered 24 hours a day by personnel who will do their best to get you quick service at an authorized 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 or www.tranetechnologies.com

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