



Installation Manual

Trailer Edition

HK 400 and HK 400 HO
Diesel Heating Unit

Revision 4

November 2023

TK-53320-2-IM

TRANE
TECHNOLOGIES™

Installation Manual

Trailer Edition HK-400 and HK-400 HO Diesel Heating Units

TK 53320-2-IM (Rev. 4, 11/23)

Release History

- Released (8/06)
- Rev. 1 (04/09) Updated manual to include the following - Page 14; added new Battery Selection Guide, pages 18-19; added new Surface Mount Controller instructions, pages 20-21; added new Flush Mount Controller instructions, pages 22-23; added early (enclosed style) fuel tank mounting bracket, pages 24-27; added late (open style) fuel tank mounting bracket.
- Rev. 2 (09/11) Updated manual to include the following: Page 6; added battery installation and cable routing information to the Safety Section, pages 34-37; added 65 gallon rectangle fuel tank information.
- Rev. 3 (02/13) Page 19 - Changed art to show forged connecting links and forged locking hooks used for lifting the unit.
- Rev. 4 (11/23) Page 37 - Added new fuel return line fitting (133520) to image.

Introduction

This installation manual was written to assist with the installation of the **Thermo King HK-400 and HK-400 HO** diesel heating units onto trailers or intermodal containers specifically designed and built for these applications.

Due to its complexity, you should not attempt this installation unless you:

- Are an experienced mechanic
- Can safely lift 34 kilos (75 lbs.)
- Are certified or trained in the repair and maintenance of diesel powered refrigeration systems
- Have a basic understanding of electricity and electrical wiring
- Have the necessary tools and equipment to complete the installation.

This manual is published for informational purposes only. Thermo King makes no representations warranties express or implied, with respect to the information recommendations and descriptions contained herein. Information provided should not be regarded as all-inclusive or covering all contingencies. If further information is required, Thermo King Corporation Service Department should be consulted.


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.


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Safety Precautions

The  symbol appears next to a point that is particularly important:


 **DANGER:** Addresses a circumstance that, if encountered, will lead to death or serious injury


 **WARNING:** Addresses a circumstance that, if encountered, might lead to death or serious injury.


 **CAUTION:** Addresses a circumstance that, if encountered, may cause damage to equipment or minor injury.

 **WARNING:** Keep your hands away from fans and belts when the unit is running. Set all electrical controls to the OFF position before servicing the unit.

 **WARNING:** Make sure all mounting bolts are tight and are of correct length for their particular application


 **WARNING:** Never drill holes in the unit unless absolutely necessary. Holes drilled into the unit may weaken structural components. Holes drilled into electrical wiring can cause fire or explosion.


 **WARNING:** When using ladders to install or service refrigeration systems, always observe the ladder manufacturer's safety labels and warnings. A work platform is the recommended method for installations.


 **CAUTION:** Exposed coil fins are very sharp and can cause painful lacerations. Wear leather work gloves to prevent injury.


Safety Precautions (continued)


Battery Installation and Cable Routing


 **WARNING:** Improperly installed battery could result in a fire or explosion! A Thermo King approved battery must be installed and properly secured to the battery tray.


 **WARNING:** Improperly installed battery cables could result in fire or explosion! 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:** Do not attach fuel lines or any additional wiring harnesses to the battery cables as this could cause an electrical fire!

 **CAUTION:** Do not connect other manufacturer's equipment or accessories to the Thermo King unit. This could result in severe damage to equipment and void the warranty!

 **CAUTION:** 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.

 **CAUTION:** Always wear protective clothing, gloves and eye wear when handling and installing batteries. Battery acid can cause serious burns when exposed to eyes or skin. 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.

 **CAUTION:** 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.

Required Tools

1. Safety Glasses
2. Drill
3. Drill Bits
4. Tape Measure
5. Mechanics Tools
6. Lifting Device
7. Two Forged Eyebolts (1/2-13 UNC)
8. Work Platform (Recommended)
9. Torque Wrench

NOTE: Equipment such as torque wrenches should be in good working condition and routinely calibrated to assure accurate readings.

Installation Components

HARDWARE KIT

Clamps
Bandwraps
Screw 1/4-20 SS
Nut 1/4-20 SS
Nut 1/2-13
Washer 1/2- SAE
Washer 1/4 SS
Washer 1.25 OD
Screw #10
Screw 1/4-20

FUEL LINE KIT

Hose 1/4 OD x 40 ft.
Hose 3/8 OD x 40 ft.
Eyelet fitting 1/4"
Eyelet Fitting 3/8"
Sleeve Fitting 1/4"
Sleeve Fitting 3/8"
Nut Fitting 1/4"
Nut Fitting 3/8"
Connector 1/4"
Connector Fuel Line
Hose 4.00 in. long


FUEL PUMP KIT

Fuel Pump
Hose Fitting 3/8"
Pump Bracket
Harness
Nameplate

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Trailer / Container Requirements

HK- 400 and HK-400 HO


 **DANGER:** The front wall of the trailer or container must be structurally strong enough to support the weight of the HK-400 or HK-400 HO unit!


IMPORTANT: Thermo King HK-400 and HK-400 HO diesel heating units should only be installed onto trailers or containers specifically designed and built for these applications.

| APPROXIMATE WEIGHTS | | |
|-------------------------------------------------|-----------------------------|--------------------------------|
| Thermo King HK unit with EON battery installed. | HK-400 203 kg (448 lbs.) | HK-400 HO 221 kg (488 lbs.) |

* Does not include weight of fuel, fuel tank and brackets.

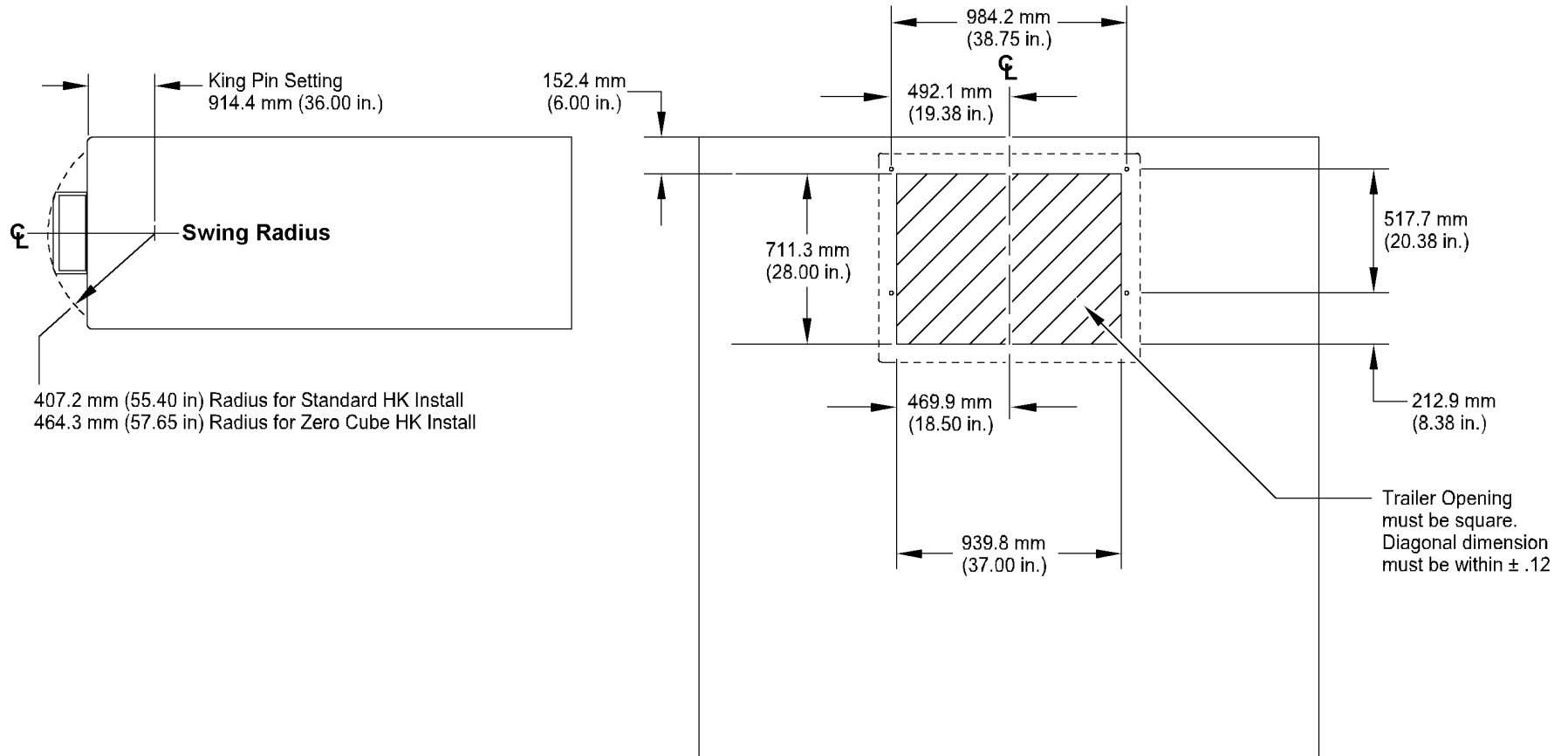
Front Wall Mounted Fuel Tank

 **DANGER:** The front wall of the trailer or container must be structurally strong enough to support the weight of the HK-400 or HK-400 HO unit and the 65 gallon fuel tank!

 **DANGER:** An improperly installed fuel tank could lead to serious injury or death! Consult your trailer or container manufacturer for specific details on proper fuel tank installation and recommendations.

IMPORTANT: Thermo King HK-400 and HK-400 HO diesel heating units should only be installed onto trailers or containers specifically designed and built for these applications.


Trailer / Container Requirements



AAA665

Mounting Bolt Specifications and Installation Requirements


Mounting Bolts Specifications

 **DANGER:** The use of mounting bolts other than those specified could result in severe damage to equipment, void the warranty or cause personal injury or death!

NOTE: Mounting hardware to be supplied by installer.

- Use Metric M12 x 1.75 pitch class 8.8 (1/2 in.-13 UNC - 2B Rolled thread grade 5), medium carbon steel bolts and locking nuts.
- All hardware must be zinc plated with dichromate finish.

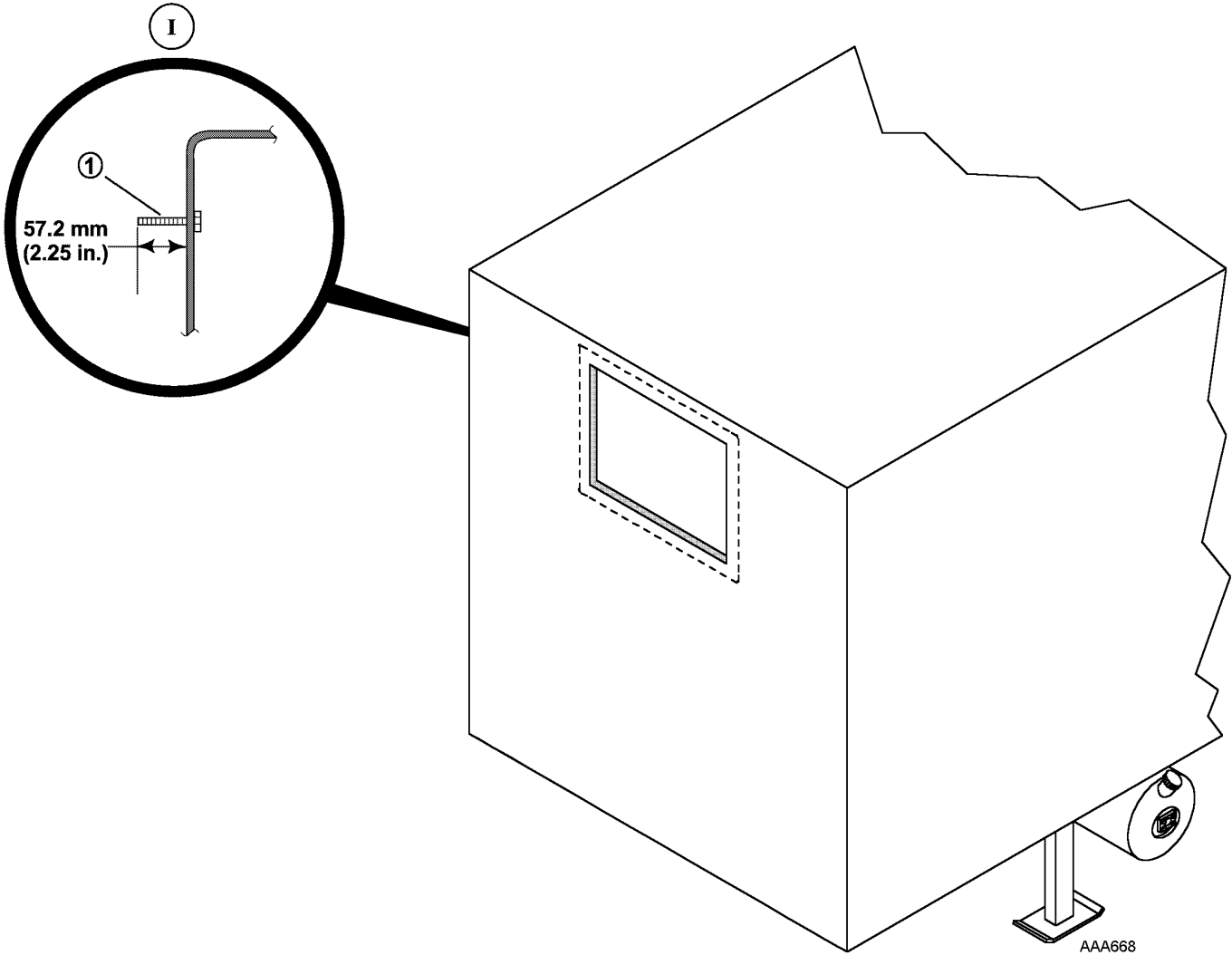
Mounting Bolt Installation Requirements

 **DANGER:** Four mounting bolts must be installed to properly secure the unit to the trailer front wall! Failure to do so could result in severe damage to equipment, void the warranty or cause personal injury or death!

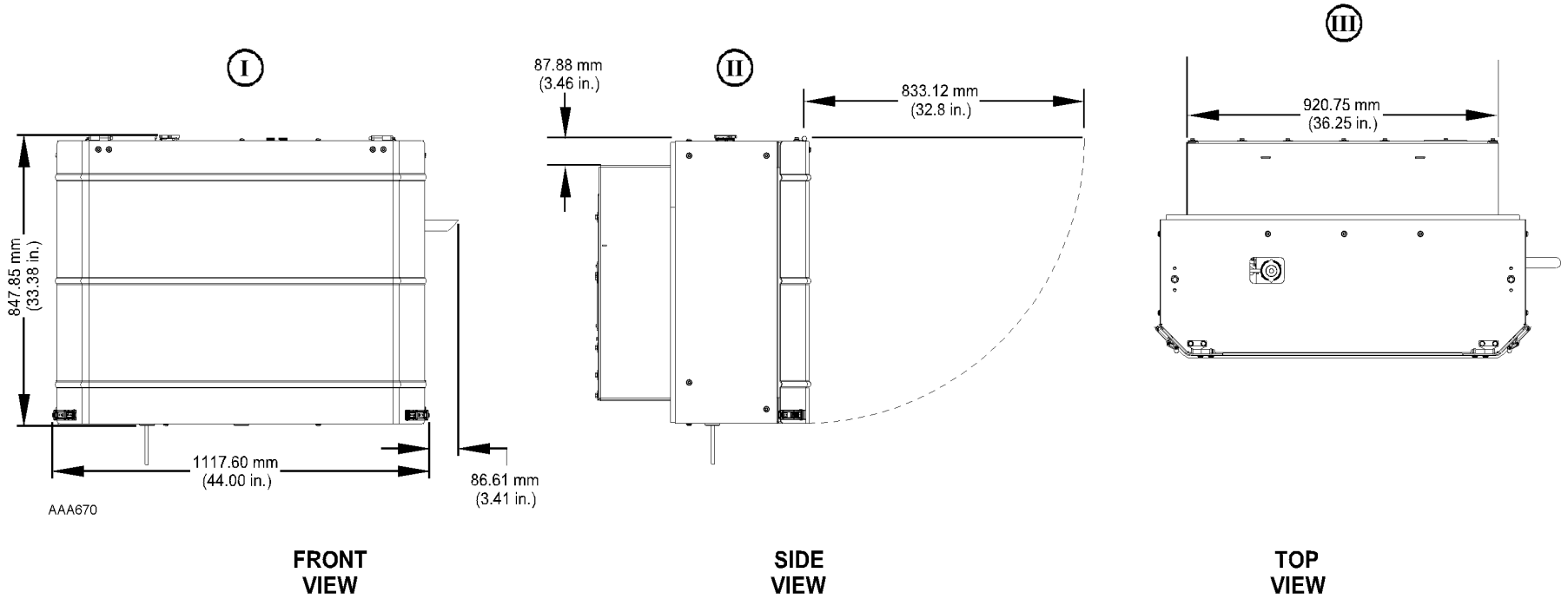
NOTE: The location of the unit mounting bolts in the trailer front wall is critical to proper unit installation.

- A gasket sealing surface of 76.2 mm (3.00 in.) wide all around the trailer wall opening must be free from rivets or bolt heads and flat within 6.5 mm (.25 in.)
- All mounting bolts must be square with the front wall and securely fastened to the trailer wall in such a manner to allow the mounting nuts be torqued to 82 N•m (60 ft. lbs.) from outside the trailer.
- Mounting bolts are to extend 57.2 mm (2.25 in.) beyond the front wall (**Detail I**).
- Surface of all mounting bolts are to be flat within 2.5 mm (0.10 in.).

Mounting Bolt Specifications and Installation Requirements



Unit Dimensions



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Battery Selection Guide

Refer to Service Bulletin T&T 446 for more information regarding Battery Selection and Maintenance.



CAUTION: Do not connect other manufacturer's equipment or accessories to the Thermo King unit! This could result in severe damage to equipment and void the warranty!

IMPORTANT: The specified battery, electrical wiring and electronic controls were designed to operate and maintain only the Thermo King refrigeration system and factory authorized Thermo King options.

Trailer units are designed for one 12 volt, Group 31 battery supplied by the installer.

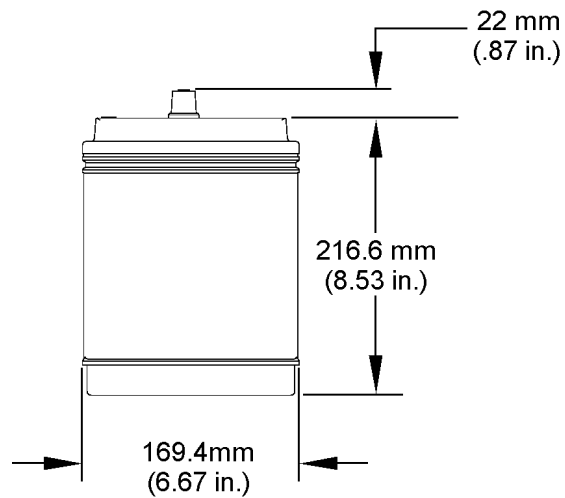
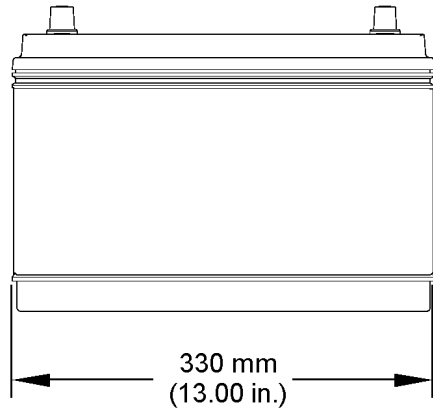
The battery must be suitable for deep cycling, heavy duty and rated with a minimum of 95 amp/hr.

NOTE: See following table for Thermo King approved batteries. Refer to Service Bulletin T&T 446 for more information regarding Battery Selection and Maintenance.

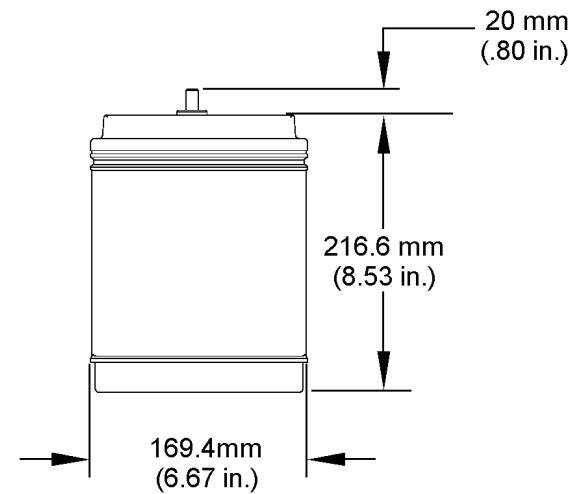
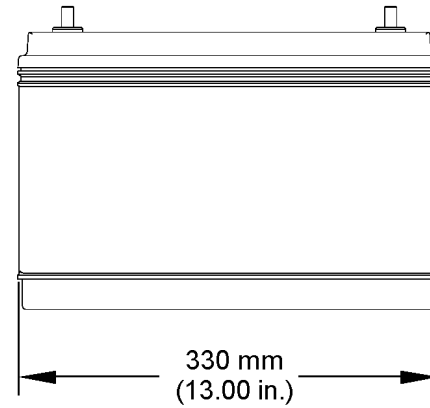
| BATTERY APPLICATION TABLE | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 750 CCA Wet Cell Thermo King ReliaMax 750S P/N 203-731 Threaded Stud P/N 203-730 SAE Post | 925 CCA Wet Cell Thermo King ReliaMax 925N P/N 203-733 Threaded Stud P/N 203-732 SAE Post | 1150 CCA Dry Cell (AGM) Thermo King EON P/N 203-550 Threaded Stud P/N 203-551 SAE Post |
| <ul style="list-style-type: none"> • Wet Cell Technology • Better suited for warmer climates • Less cranking power at low ambient temperatures • 18-24 month expected life *see note below • Choose for southern climates | <ul style="list-style-type: none"> • Wet Cell Technology • Better suited for colder climates • High cranking power at low ambient temperatures • 18-24 month expected life *see note below • Choose for northern climates | <ul style="list-style-type: none"> • Dry Cell (AGM) Technology • Better suited for all applications • High cranking power at lower ambient temperatures • Suited for extreme temperatures • Best for high cycling applications (Cycle-Sentry use) • 5-7 year expected life |
| <p>* NOTE: Wet cell battery life and maintenance requirements are determined by the operating environment and the charge/discharge rate (cycles) while the battery is in service. Higher ambient temperatures and frequent discharges will shorten a wet cell battery's overall life expectancy and increase maintenance requirements.</p> | | |

Group 31 Battery Dimensions

Lug Connections




Threaded Stud Connections




AAA403

Uncrating and Installing the Unit

Uncrating the Unit

 **DANGER: Do not use a forklift to install the unit! This could result in severe damage to the equipment, void the warranty or cause personal injury or death!**

 **WARNING: Use only locking hooks to safely lift the unit! Failure to use locking hooks could result in severe damage to the equipment, void the warranty or cause personal injury or death! (Detail I).**

To avoid unnecessary damage to your unit, place the crated unit near the trailer prior to its removal.

1. Carefully remove top boards of the crate.
2. Remove installation kit boxes and any other loose components from rear of unit.
3. Attach two forged lifting eyebolts (1/2-13 UNC) into the thread holes located on top of unit (**Detail I**).
4. Attach lifting device to eyebolts and slightly raise unit.
5. Remove hardware holding unit to crate.

Installing the Unit

Optional Zero Cube Installation

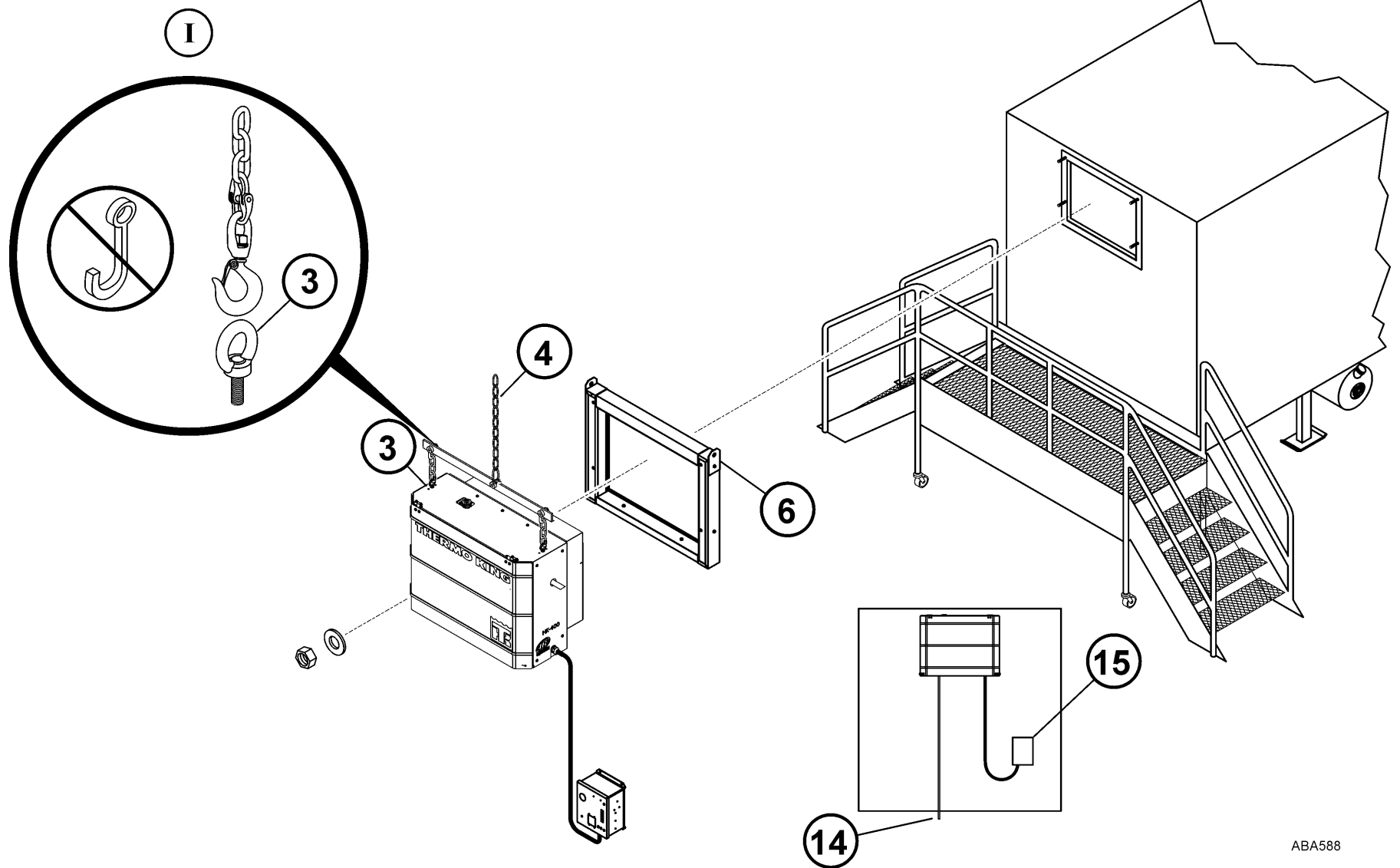
A zero cube installation kit is available from your Thermo King Dealer. The kit consists of a insulated collar that positions the HK unit outside the cargo area of the trailer.

6. Loosen each lifting plate bolt located on the collar, rotate the lifting plates 180 degrees and retighten bolts.
7. Attach a lifting device to the lifting plates and raise the collar into position at the rear of the unit with the gasket surface facing the trailer opening.
8. Secure the collar to the rear of the unit with appropriate hardware and tighten securely.
9. Unbolt and remove the lifting plates from the collar. Reinstall only the bolts onto the collar.
10. Continue by following steps #11-15 below.

Standard Unit Installation

11. Lift the HK unit and position it in the trailer opening.
12. With the HK unit access door open, align the four mounting holes with the mounting bolts.
13. Attach washer and elastic stop nuts (Nylock) and torque to 82 N•m (60 ft. lbs.).
14. Route the drain hose straight down and past the bottom of the trailer and secure with supplied clamps and screws. Be sure not to pinch the drain hose closed when routing and installing clamps.
15. Install the control box in a easily accessible location on the front of the trailer wall without interfering with the operation of the trailer.

Uncrating and Installing the Unit



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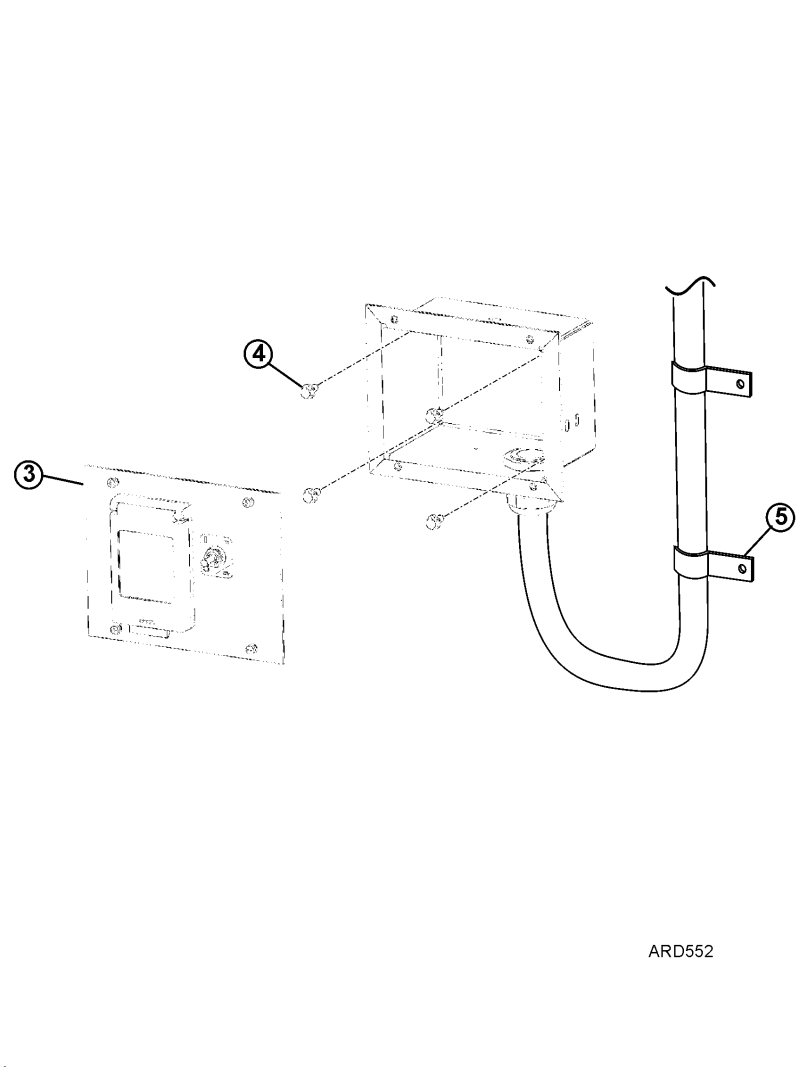
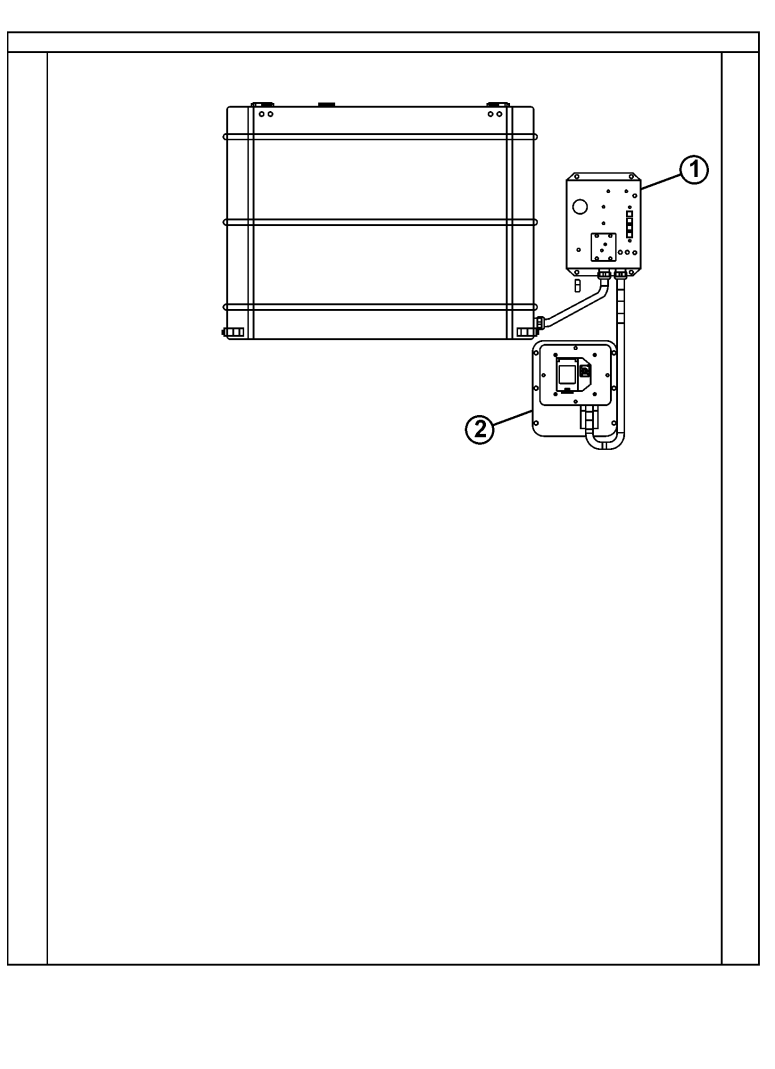
Installing the Surface Mount Controller (Option)

NOTE: The installation views shown are for reference only. The actual locations chosen for installing the main control box and the surface mount controller may vary per your specific application.

Installation

1. Install the main control box securely to the trailer wall with appropriate mounting hardware.
2. Position the surface mount controller directly under the main control box while providing a drip loop as shown and mark the location.
3. Remove the front cover from the surface mount controller.
4. Drill four appropriate size mounting holes inside the four corners of the box and mount it securely to the trailer with appropriate mounting hardware.
5. Reinstall the front cover and route and secure the power cable to the front wall of the trailer with clamps.

Installing the Surface Mount Controller (Option)



ARD552

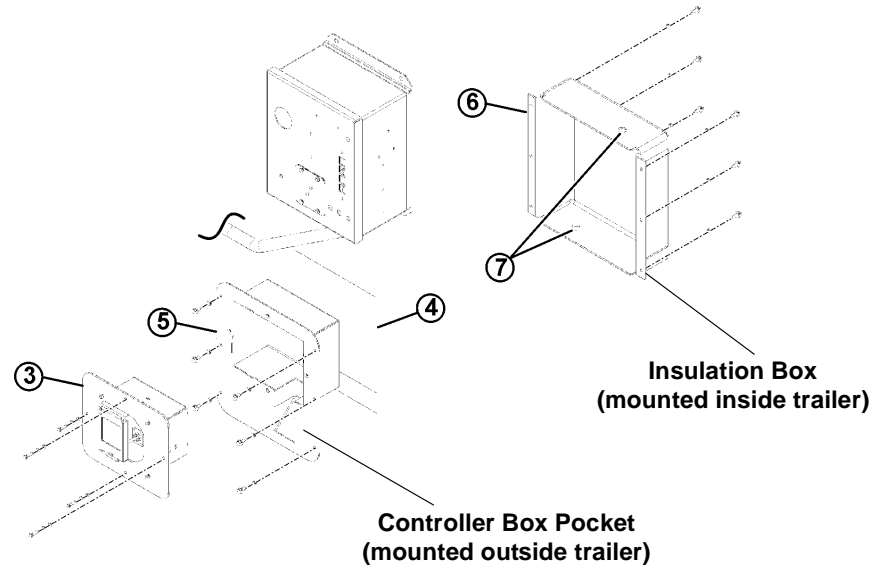
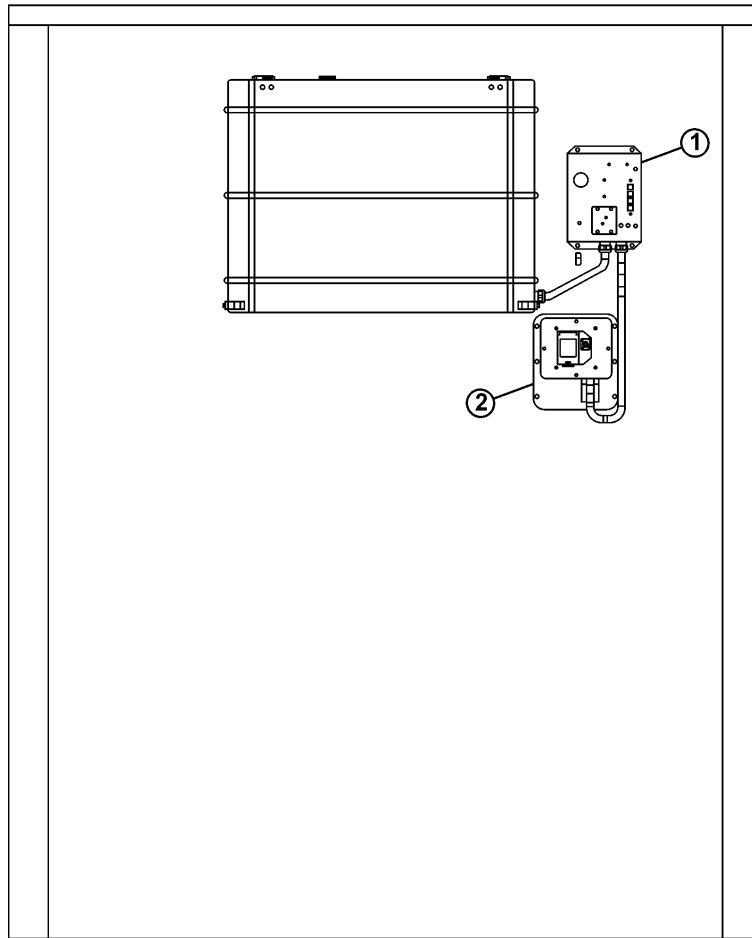
Installing the Flush Mount Controller (Option)

NOTE: *The installation views shown are for reference only. The actual locations chosen for installing the main control box and the flush mount controller may vary per your specific application.*

Installation

1. Install the main control box securely to the trailer wall with appropriate mounting hardware.
2. Position the flush mount controller directly under the main control box while providing a drip loop as shown and mark the location.
3. Remove the front cover from the flush mount controller.
4. Measure, mark and cut out an appropriate size hole in the trailer wall for the controller box pocket.
5. From **outside** the trailer, install the controller box pocket into the trailer wall with appropriate mounting hardware.
6. From **inside** the trailer, install the insulation box into the trailer wall with appropriate size mounting hardware.
7. Once the controller pocket box and the insulation box are installed, use the supplied holes in the pocket box to fill the air gap with insulating foam (supplier supplied).
8. Reinstall the front cover and route and secure the power cable to the front wall of the trailer with clamps.


Installing the Flush Mount Controller (Option)




ARD553

Installing the Fuel Tank - Aluminum, 22" dia. 30 & 50 Gallon - (Option)

Installed onto Trailers with Standard Cross Member Spacing

 **DANGER:** An improperly installed fuel tank could lead to serious injury or death! Consult your trailer manufacturer for specific details on proper fuel tank installation and recommendations.

 **CAUTION:** The trailers crossmembers must be strong enough to safely support the combined weight of the mounting hardware, fuel tank and fuel.

| Fuel Tank Capacity | Combined Total Weight |
|--------------------|-----------------------|
| 30 Gallon Diesel | 142 KG (313 lbs.) |
| 50 Gallon Diesel | 214 KG (471 lbs.) |

Open Style Tank Mounting Bracket - New fuel tank mounting kits were released November 1, 2008. Factory Kit 701635 and Aftermarket Kit 90-398 contain a new open style fuel tank mounting bracket. This new mounting bracket can be used to install either a 30 or 50 gallon, 22" diameter fuel tanks onto a typical trailer with standard crossmember spacing of 6", 8", 10" or 12".

- Trailers with non-standard crossmember spacing of 9", 15" and 16" will require the additional components found in Kit 701658 (90-399) to complete the installation.
- These new kits **can not** be used to install a 75, 90, 110 or 120 gallon, 22" diameter fuel tanks. Those tanks require Kit 710278 (90-121).
- DO NOT** substitute any components from Kits 701635 (90-398) and 701658 (90-399) with any previously supplied fuel tank mounting kits as they are not interchangeable.
- Kits 701635 (90-398) and 701658 (90-399) are specifically designed to install a 30 or 50 gallon fuel tank in a hanging position under a trailer attached to the floor crossmembers. **Substitutions are not acceptable!**

A. Fuel Tank Position

- Thermo King recommends the fuel tank be mounted 203.2 mm (8.00 in.) under the trailer as shown. Otherwise, the OEM or installer is responsible to ensure the fuel tank position meets or exceeds DOT or Federal Highway regulations, when applicable.

B. Tank Strap Position

- 30 Gallon Tanks - Fuel tank straps must be positioned 381 mm (15.00 in.) apart as shown.
- 50 Gallon Tanks - Fuel tank straps must be positioned 673 mm (25.50 in.) apart as shown.

C. Rubber Strips and Pads

- Rubber strips must be properly installed on both the mounting bands and the rubber pads must be installed onto the underside of the hanger assemblies to prevent metal to aluminum contact.

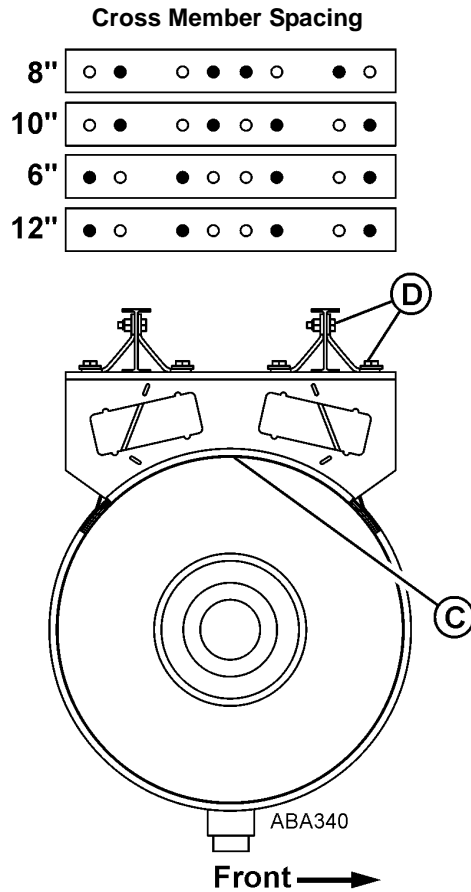
D. Mounting Hardware

- Grade 5 mounting hardware is supplied. **Substitutions are not acceptable!**
- All mounting hardware must be properly installed and torqued to the specifications listed.

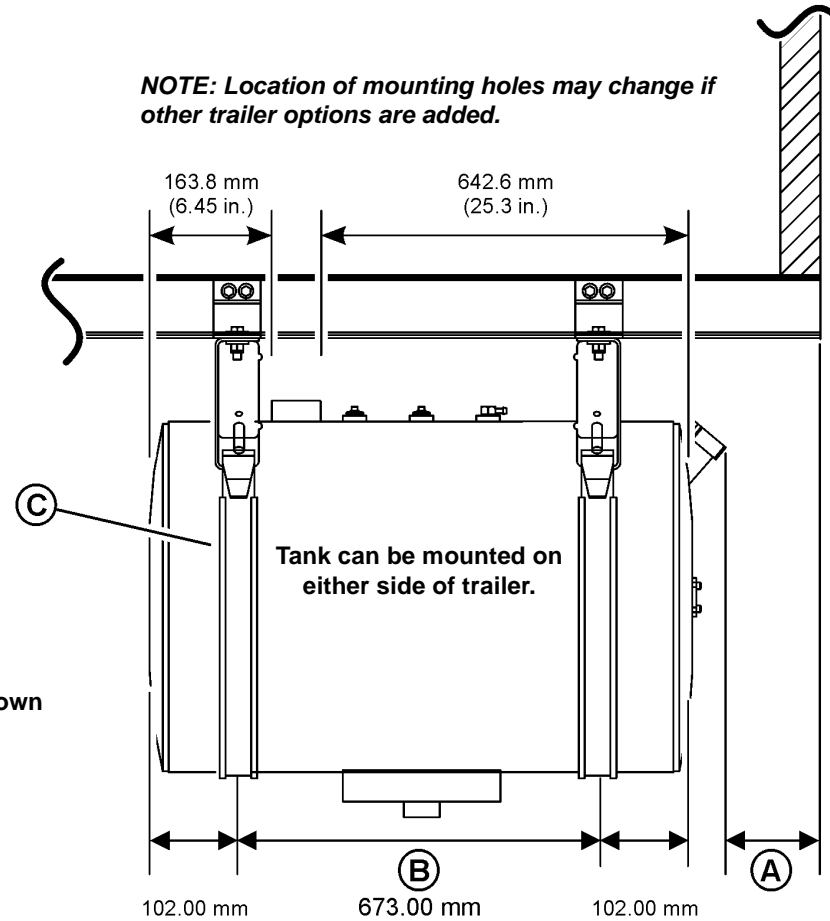
| Hardware Size | Torque Specifications |
|-----------------|----------------------------|
| 3/8-16 Grade 5 | 42 N•m (31 ft-lb) |
| 1/2 -13 Grade 5 | 81 to 88 N•m (60-65 ft-lb) |
| 1/2" T-bolts | 48 N•m (35 ft-lb.) |

Installing the Fuel Tank - Aluminum, 22" dia. 30 & 50 Gallon - (Option)

Standard crossmember spacing shown. For other crossmember spacing, refer to TK-54238-2-IM.
 Non-standard crossmember spacing of 9", 15" and 16" also requires Kit 701658 (90-399)



50 Gallon Fuel Tank Shown



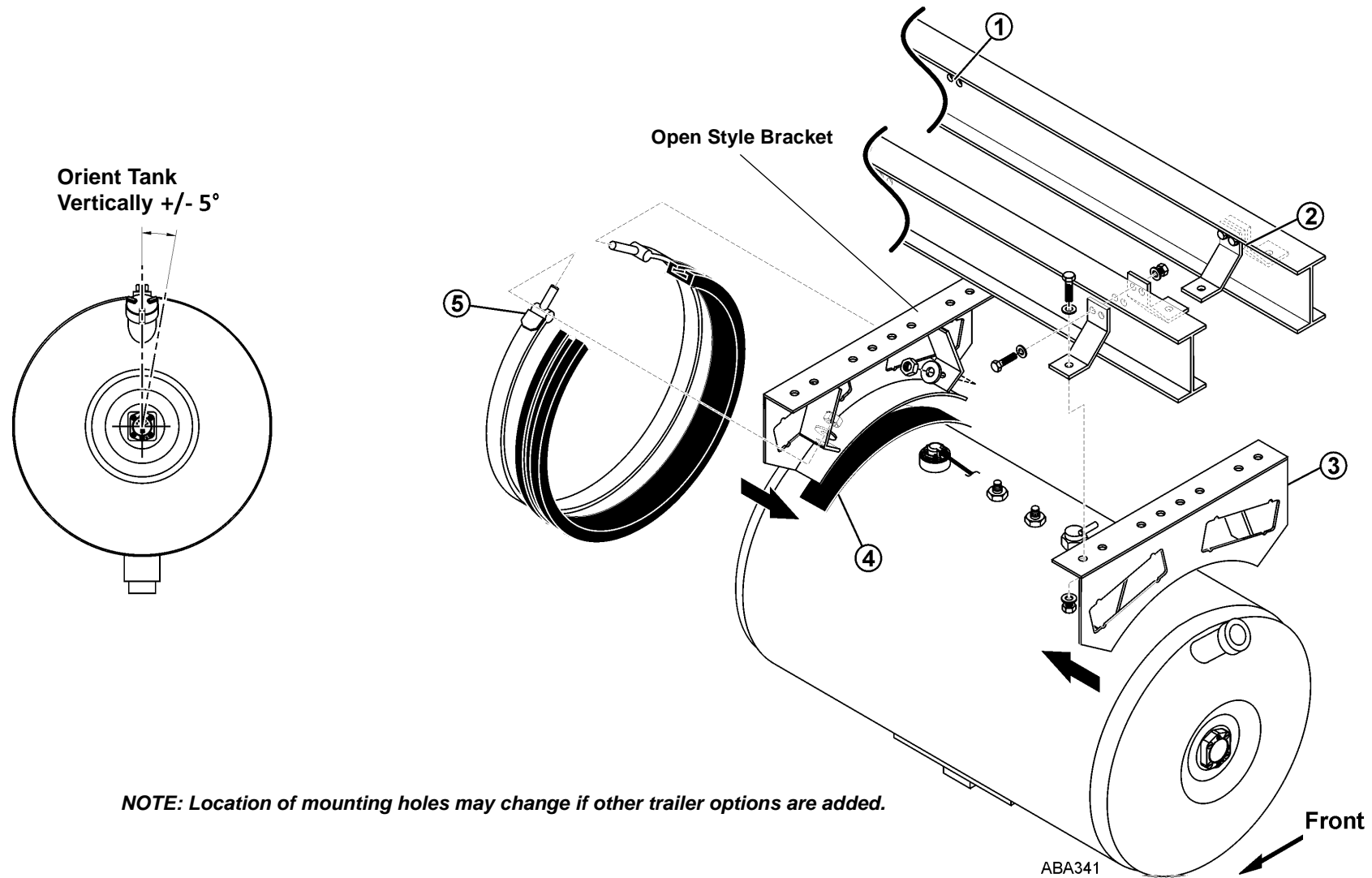
Installing the Fuel Tank - Aluminum, 22" dia. 30 & 50 Gallon - (Option)

Fuel Tank Installation

NOTE: Location of mounting holes may change if other trailer options are added.

1. Locate the existing sets of 10.3 mm (.406" dia.) pre-punched holes in the crossmembers. *See note above.*
2. Align the two holes of each hanger bracket with the holes in the crossmember and secure with two, 3/8-16 screws, washers and locking nuts. Torque the hardware to 42 N•m (31 ft-lb).
3. Install each hanger assembly (facing each other as shown) onto the hanger brackets with 1/2-13 screws, washers and locking nuts. Torque the hardware to 81 to 88 N•m (60-65 ft-lb).
4. Clean the underside of each hanger assembly and install the self-adhesive rubber pads.
5. Loosely install the tank straps t-bolts onto the hanger assemblies with 1/2" washers and locking nuts. Verify the rubber strips are properly installed on the mounting bands.
6. Install the fuel tank into the straps with the tank positioned vertically within plus or minus 5 degrees and tighten the tank straps to 48 N•m (35 ft-lb).

Installing the Fuel Tank - Aluminum, 22" dia. 30 & 50 Gallon - (Option)



NOTE: Location of mounting holes may change if other trailer options are added.

Installing the Fuel Tank - Aluminum, L-Shaped, 65 Gallon - (Option)

Important Fuel Tank Installation Information

NOTE: *These instructions are written exclusively for, and are limited to, the installation of the aluminum L-Shaped 65 gallon fuel tank, positioned directly under a Thermo King HK heating unit, and mounted onto the front wall of a trailer or intermodal container designed specifically for this application. All other installations are the responsibilities of the installer.*



DANGER: *An improperly installed fuel tank could lead to serious injury or death! The mounting hardware to secure the fuel tank and mounting brackets onto the front wall of the trailer or intermodal container is to be supplied by the installer and must be 1/2-13 UNC (rolled thread), Medium Carbon Steel (Grade 5 or better) with Zinc Plate and Dichromate finish. Additionally, the front wall of the trailer or intermodal container must be structurally strong enough to safely support the combined total weight of the HK heating unit, the fuel tank and mounting brackets and 65 gallons of diesel fuel (see chart below). Consult your trailer or intermodal container manufacturer for details regarding your specific installation.*

| APPROXIMATE WEIGHTS | | |
|--------------------------------------------------------------|------------------------------------|---------------------------------------|
| Thermo King HK unit with EON battery installed. | HK-400 203 kg (448 lbs.) | HK-400 HO 221 kg (488 lbs.) |
| Aluminum L-shaped fuel tank, mounting brackets and hardware. | 53.5 kg (118 lbs.) | 53.5 kg (118 lbs.) |
| 65 gallons of diesel fuel. | 236 kg (520 lbs.) | 236 kg (520 lbs.) |
| COMBINED TOTAL WEIGHT | 492.5 kg (1086 lbs.) | 510.5 kg (1126 lbs.) |

A. FUEL TANK POSITION

- Thermo King recommends the fuel tank be centered directly under the HK heating unit.

B. TANK STRAP POSITION

- Fuel tank mounting brackets and support straps must be positioned 1225 mm (48.25 in.) apart to properly support the weight of the tank and fuel.
- The tank straps must fit into the strap guides located on the top of the fuel tank.

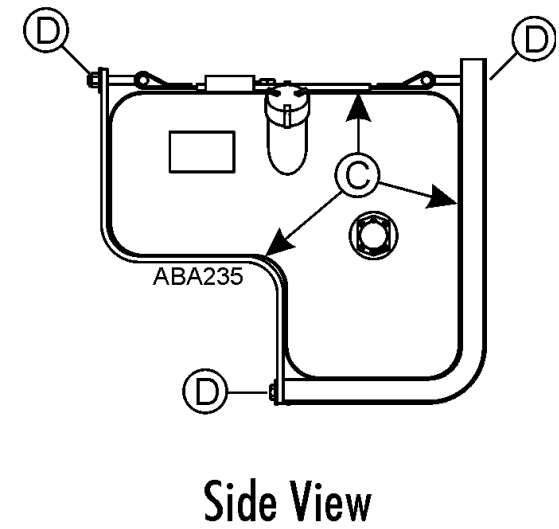
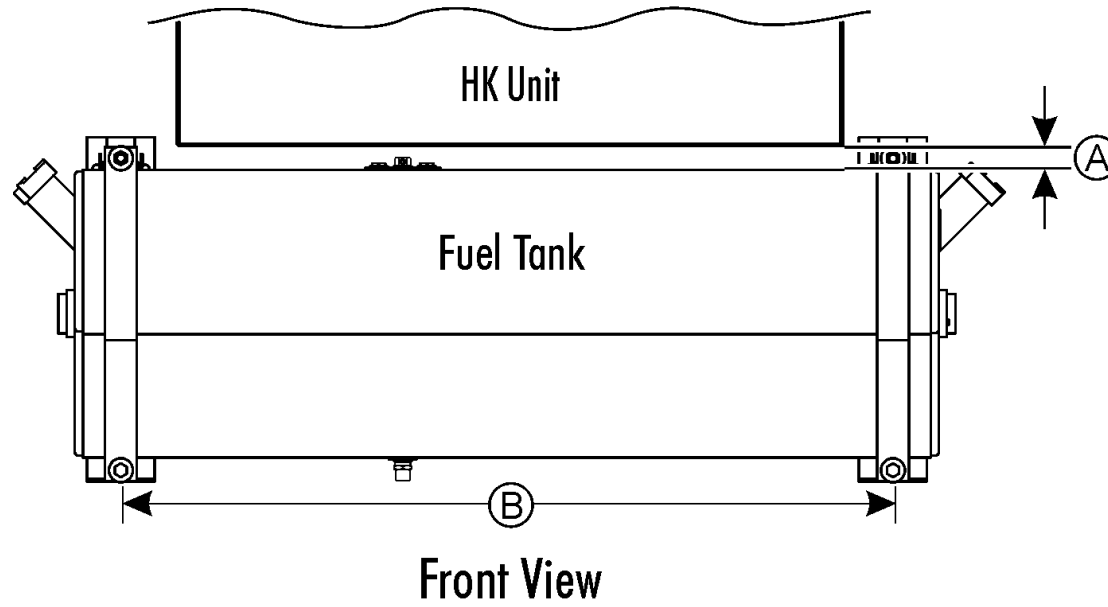
C. RUBBER STRIPS AND PADS

- Rubber strips must be properly installed on the mounting brackets, and mounting bands to prevent metal to aluminum contact.

D. MOUNTING HARDWARE

- Grade 5 mounting hardware is supplied to secure the tank to the mounting brackets.
- Mounting hardware to secure the complete fuel tank and mounting bracket assembly onto the trailer or container is to be supplied by the installer and must be 1/2-13 UNC (rolled thread), Medium Carbon Steel (Grade 5 or better) with Zinc Plate and Dichromate finish.
- All mounting hardware must be properly installed and torqued to the specifications listed.

Installing the Fuel Tank - Aluminum, L-Shaped, 65 Gallon - (Option)



Installing the Fuel Tank - Aluminum, L-Shaped, 65 Gallon - (Option)

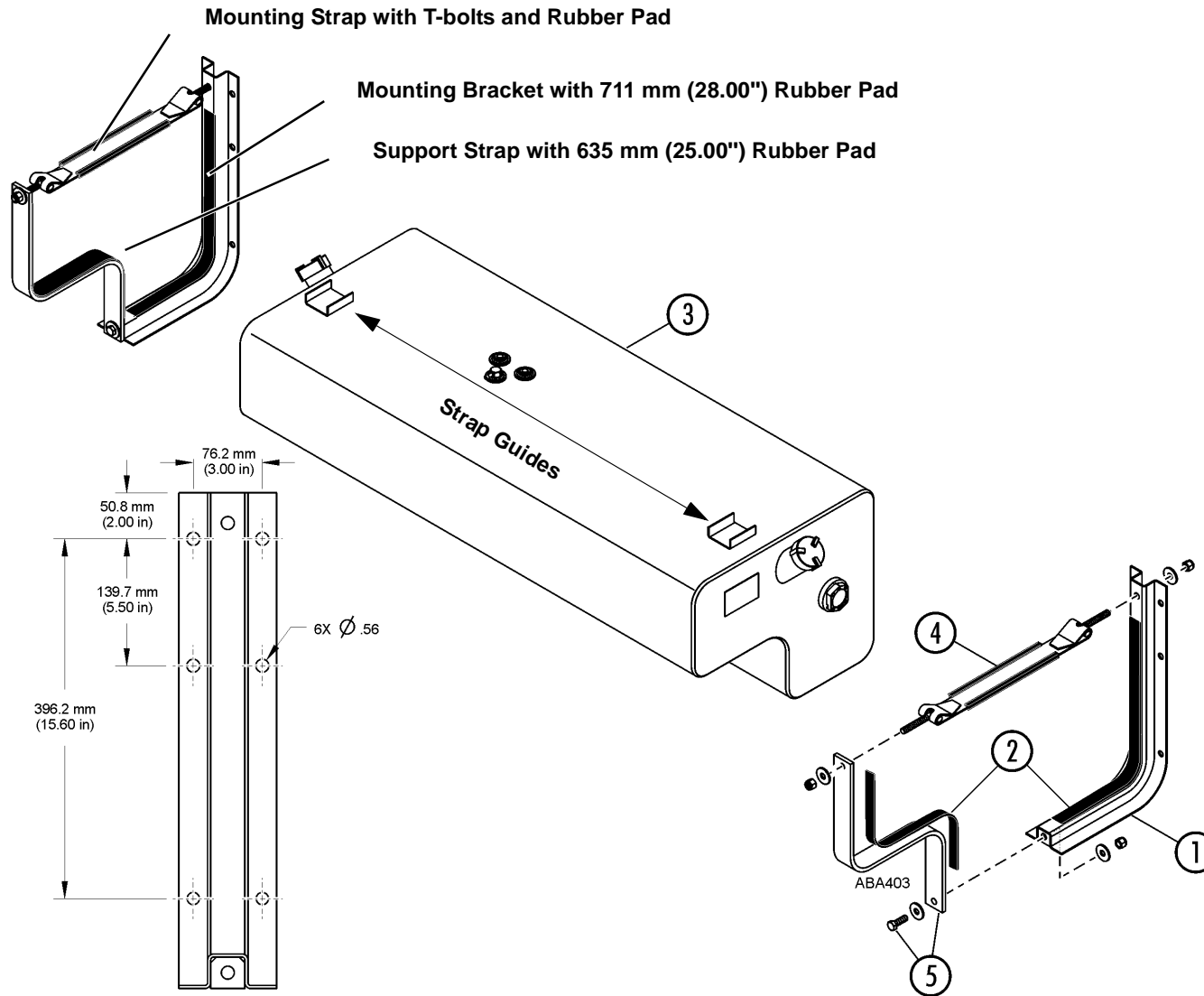
Fuel Tank Installation

1. Install the tank mounting brackets with six, (installer supplied) 1/2-13 screws, washers and locking nuts onto the front wall. Torque the hardware to 81 to 88 N•m (60-65 ft-lb.).
2. Clean the inside surfaces of the mounting brackets and support straps. Install the 711 mm (28.00') long rubber strips onto the mounting brackets and the 635 mm (25.00") long rubber strips onto the support straps.
3. Install and center the tank onto the mounting brackets.
4. Install the mounting straps with T-bolts onto the upper holes of the mounting bracket with the supplied 1/2" washers and locking nuts. Verify the rubber strips are properly installed on the mounting straps and straps are aligned with the strap guides on the top of the tank. Leave the nuts finger-tight on the threads.
5. Install the support straps to the lower mounting holes of each mounting bracket with the supplied 1/2-13 x 1.50" long bolts, flat washers and locking nuts. Leave the nuts finger-tight on the threads.
6. Tighten the lower nuts first to 44.5 N•m (33 ft-lb.) or until 2 full threads are exposed through the locking material of the nut, then tighten the upper nuts to 44.5 N•m (33 ft-lb.).

NOTE: At least two full threads must be exposed after 44.5 N•m (33 ft-lb.) is applied. If not, tighten the nuts until two full threads project through the locking material of the nuts.

IMPORTANT: Do not over tighten the mounting hardware or damage to the tank will result.

Installing the Fuel Tank - Aluminum, L-Shaped, 65 Gallon - (Option)



Installing the Fuel Tank - Steel, Rectangle, 65 Gallon - (Option)

Important Fuel Tank Installation Information

NOTE: *These instructions are written exclusively for, and are limited to, the installation of the 65 gallon steel fuel tank, positioned directly under a Thermo King HK heating unit, and mounted onto the front wall of a trailer or intermodal container designed specifically for this application. All other installations are the responsibilities of the installer.*



DANGER: *An improperly installed fuel tank could lead to serious injury or death! The mounting hardware to secure the fuel tank and mounting brackets onto the front wall of the trailer or intermodal container is to be supplied by the installer and must be 1/2-13 UNC (rolled thread), Medium Carbon Steel (Grade 5 or better) with Zinc Plate and Dichromate finish. Additionally, the front wall of the trailer or intermodal container must be structurally strong enough to safely support the combined total weight of the HK heating unit, the fuel tank and mounting brackets and 65 gallons of diesel fuel (see chart below). Consult your trailer or intermodal container manufacturer for details regarding your specific installation.*

| APPROXIMATE WEIGHTS | | |
|-------------------------------------------------------------|------------------------------------|---------------------------------------|
| Thermo King HK unit with EON battery installed. | HK-400 203 kg (448 lbs.) | HK-400 HO 221 kg (488 lbs.) |
| Steel, rectangle fuel tank, mounting brackets and hardware. | 89.4 kg (197 lbs.) | 89.4 kg (197 lbs.) |
| 65 gallons of diesel fuel. | 236 kg (520 lbs.) | 236 kg (520 lbs.) |
| COMBINED TOTAL WEIGHT | 528.4 kg (1165 lbs.) | 546.4 kg (1205 lbs.) |

A. FUEL TANK POSITION

- Thermo King recommends the fuel tank be centered directly under the HK heating unit.

B. TANK STRAP POSITION

- L-brackets and support straps must be positioned 1225 mm (48.25 in.) apart to properly support the weight of the tank and fuel.

C. RUBBER PADS AND STRIPS

- Rubber pads and strips must be properly installed on the L-brackets and support straps to prevent metal to metal contact.

D. MOUNTING HARDWARE

- Grade 5 mounting hardware is supplied to secure the tank to the L- brackets.
- Mounting hardware to secure the complete fuel tank and mounting t assembly onto the trailer or container is to be supplied by the installer and must be 1/2-13 UNC (rolled thread), Medium Carbon Steel (Grade 5 or better) with Zinc Plate and Dichromate finish.
- All mounting hardware must be properly installed and torqued to the specifications listed.

Installing the Fuel Tank - Steel, Rectangle, 65 Gallon - (Option)

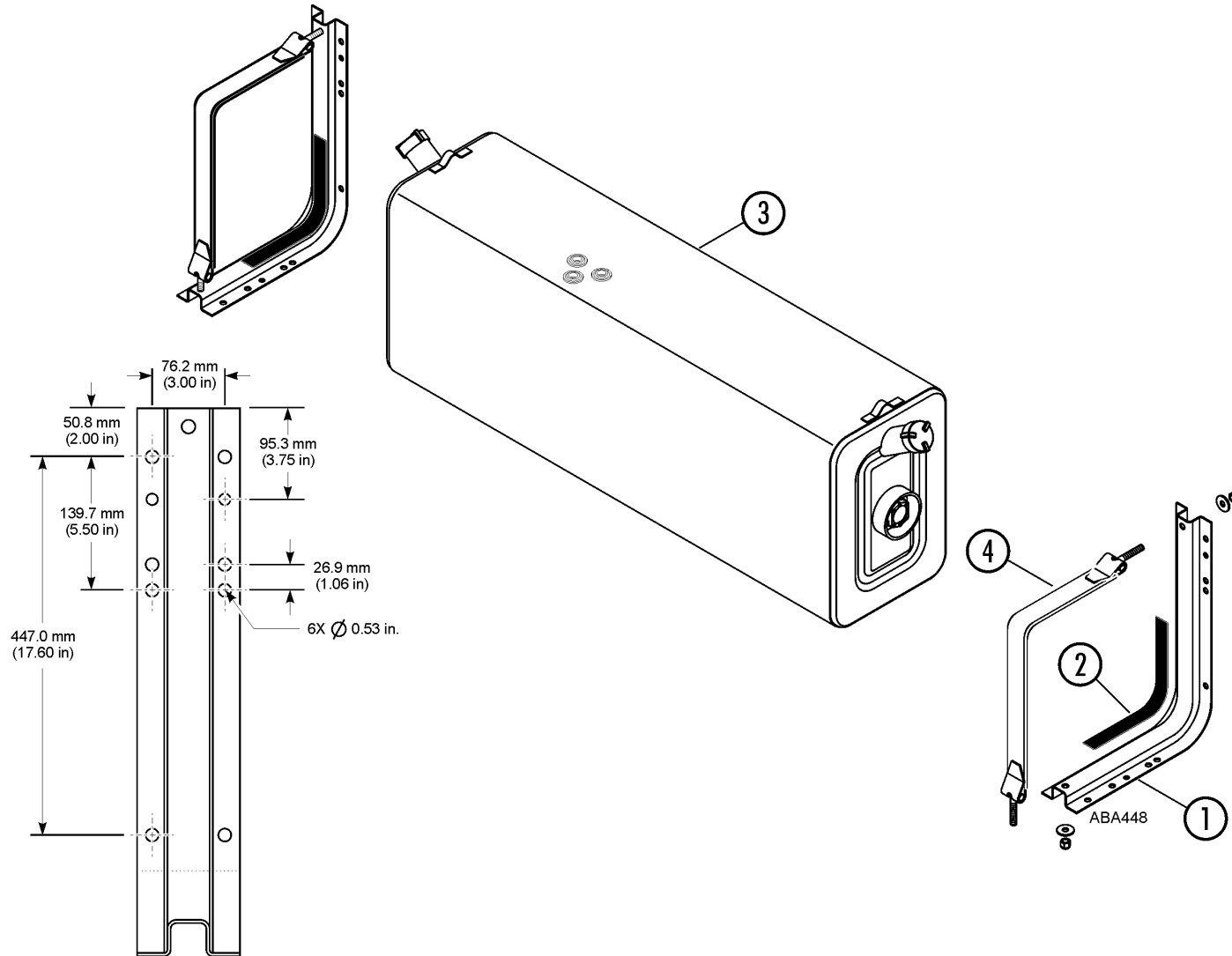
Fuel Tank Installation

1. Install the L-brackets with six, (installer supplied) 1/2-13 screws, washers and locking nuts onto the front wall of the container or trailer. Torque the hardware to 81 to 88 N•m (60-65 ft-lb.).
2. Clean the inside surfaces of the L-brackets and install the 710 mm (27.95 in.) self-adhesive rubber pads. Slide the 813 mm (32.00 in.) rubber strips onto the support straps.
3. Position and center the tank onto the L-brackets.
4. Install the T-bolts on the support straps into the upper and lower holes of the L-brackets with the supplied 1/2" washers and locking nuts. Verify the rubber pads and strips are properly positioned on the L-brackets and straps to prevent any metal to metal contact before hand tightening the mounting hardware. Leave the nuts finger-tight on the threads.
5. Tighten the lower nuts first to 44.5 N•m (33 ft-lb.) or until 2 full threads are exposed through the locking material of the nut, then tighten the upper nuts to 44.5 N•m (33 ft-lb.).

NOTE: At least two full threads must be exposed after 44.5 N•m (33 ft-lb.) is applied. If not, tighten the nuts until two full threads project through the locking material of the nuts.

IMPORTANT: Do not over tighten the mounting hardware or damage to the tank will result

Installing the Fuel Tank - Steel, Rectangle, 65 Gallon - (Option)



Installing the Fuel Pump and Fuel Lines

FOR UNDER CHASSIS FUEL TANKS

Installation Recommendations



DANGER: Leaking fuel lines could cause a fire resulting in death or serious injury! All fuel line fittings must be tight and leak free!



DANGER: Do not route fuel lines with battery cables or electrical wires, as this could cause a fire!

- All fuel lines should be routed in a protective housing with no kinks and sharp bends.
- Rubber grommets must be used when routing fuel lines through holes in metal.
- Secure all fuel lines with provided clamps.
- Remove plastic cap from the fuel vent and point the outlet towards the rear of the trailer.

Installing the Fuel Pump and Fuel Lines

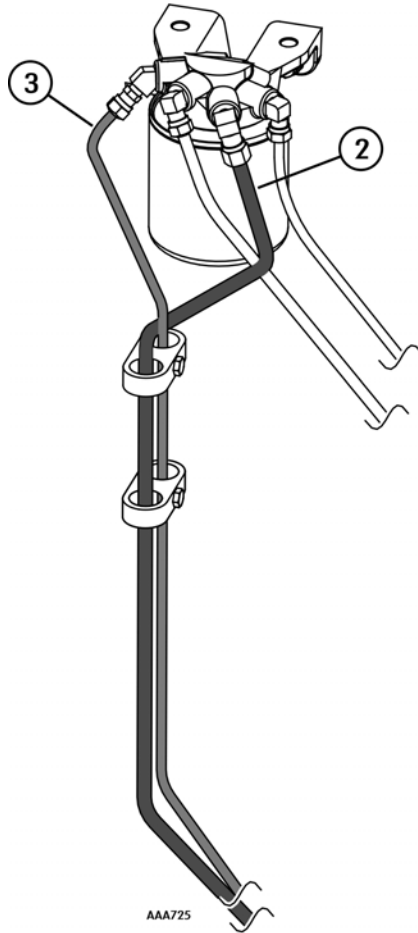
1. Install the fuel pump and bracket as low as possible to provide rapid pump priming.
2. Route the **fuel supply** line from the fuel filter located inside the unit, down to the fuel pump and then to the fuel pickup tube on the fuel tank. Install fuel line connectors (provided in installation kit), cut end of fuel line at a 45 degree angle and insert into fuel pickup tube until it is 38.1 mm (1.50 in.) from the bottom of the tank and tighten securely.
3. Route the **fuel return** line from the fuel filter located inside the unit down to the fuel tank return fitting. Attach fuel line connectors and tighten securely.
4. Route the electrical harness from the unit to the fuel pump and attach to the fuel pump connector. ***The connector must be installed out of road spray area.***

NOTE: Add sufficient amount of fuel (1/4 tank) to allow the unit to run for 8 to 12 hours during engine break-in and pre-delivery procedures.

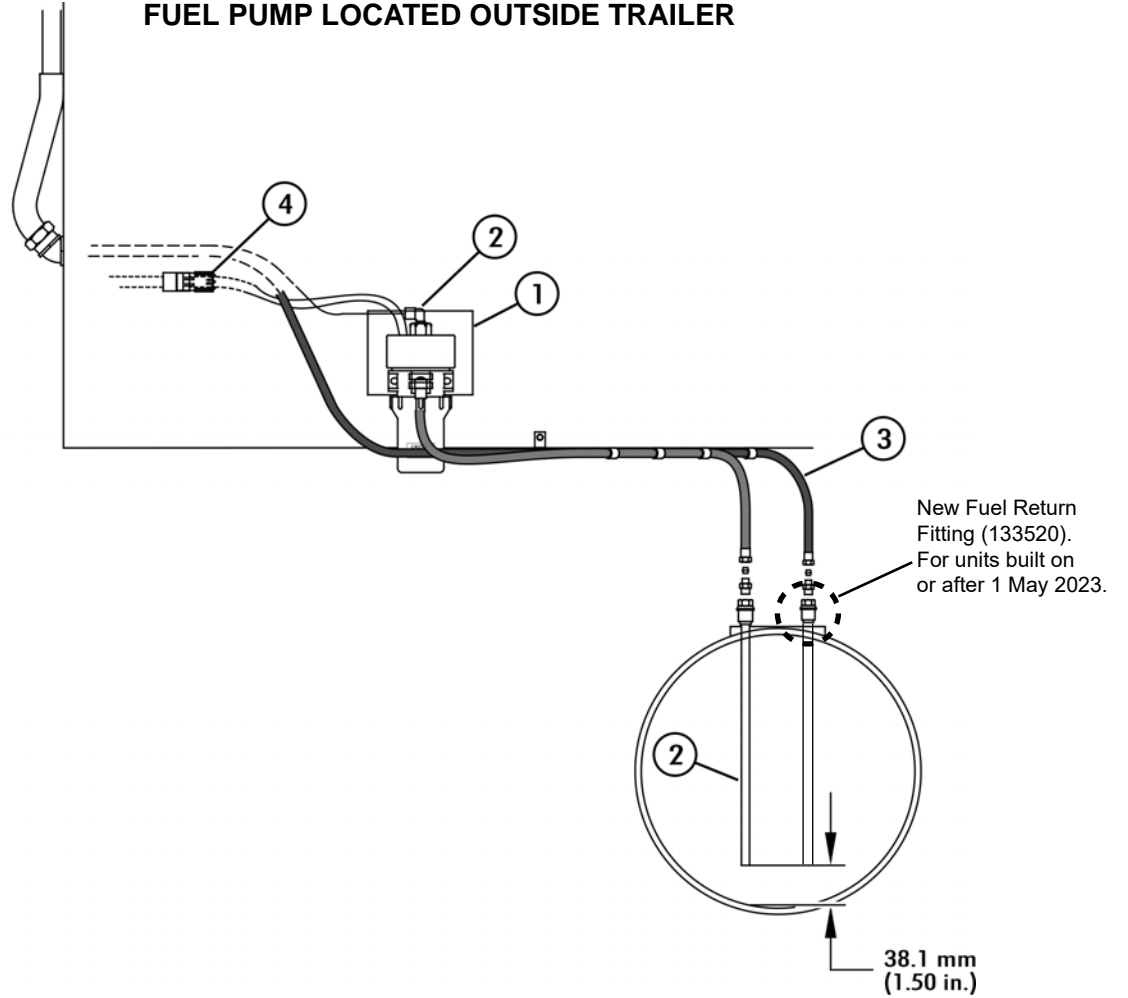
Installing the Fuel Pump and Fuel Lines

FOR UNDER CHASSIS FUEL TANKS

FUEL FILTER LOCATED INSIDE UNIT



FUEL PUMP LOCATED OUTSIDE TRAILER



Installing the Fuel Pump and Fuel Lines

FOR NOSE MOUNTED L-SHAPED and RECTANGLE SHAPED 65 GALLON FUEL TANKS

Fuel Pump Installation



DANGER: Leaking fuel lines could cause a fire resulting in death or serious injury! All fuel line fittings must be tight and leak free!



DANGER: Do not route fuel lines with battery cables or electrical wires, as this could cause a fire!

1. Install the fuel pump and bracket inside the unit next to the battery box with 1/4-20 screws, flat washers and locking nuts. Tighten hardware securely.
2. Route and attach the fuel pump harness to the fuel pump.

Fuel Line Installation

3. Remove the protective plugs from each of the fuel fittings and install the fuel line supply and return line fittings securely.
4. **FUEL SUPPLY** - Route fuel lines from:
 - Supply fitting on the fuel filter to the top outlet fitting of the fuel pump.
 - Side inlet fitting on the fuel pump to the fuel tank fitting.
 - Tighten all fuel line fittings securely.
5. **FUEL RETURN** - Route fuel line from:
 - Return line fitting from the fuel filter to the fuel tank fitting.
 - Tighten all fuel line fittings securely.
6. Secure all fuel lines adequately with cable ties or clamps.
7. Remove the plastic cap from the fuel vent and point it towards the rear of the unit.

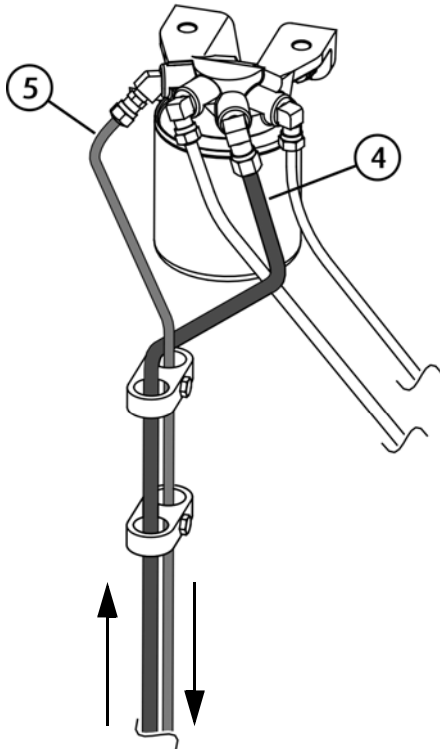
NOTE: Add sufficient amount of fuel (1/4 tank) to allow the unit to operate.

8. Operate the unit and check all fuel line fittings for leaks.

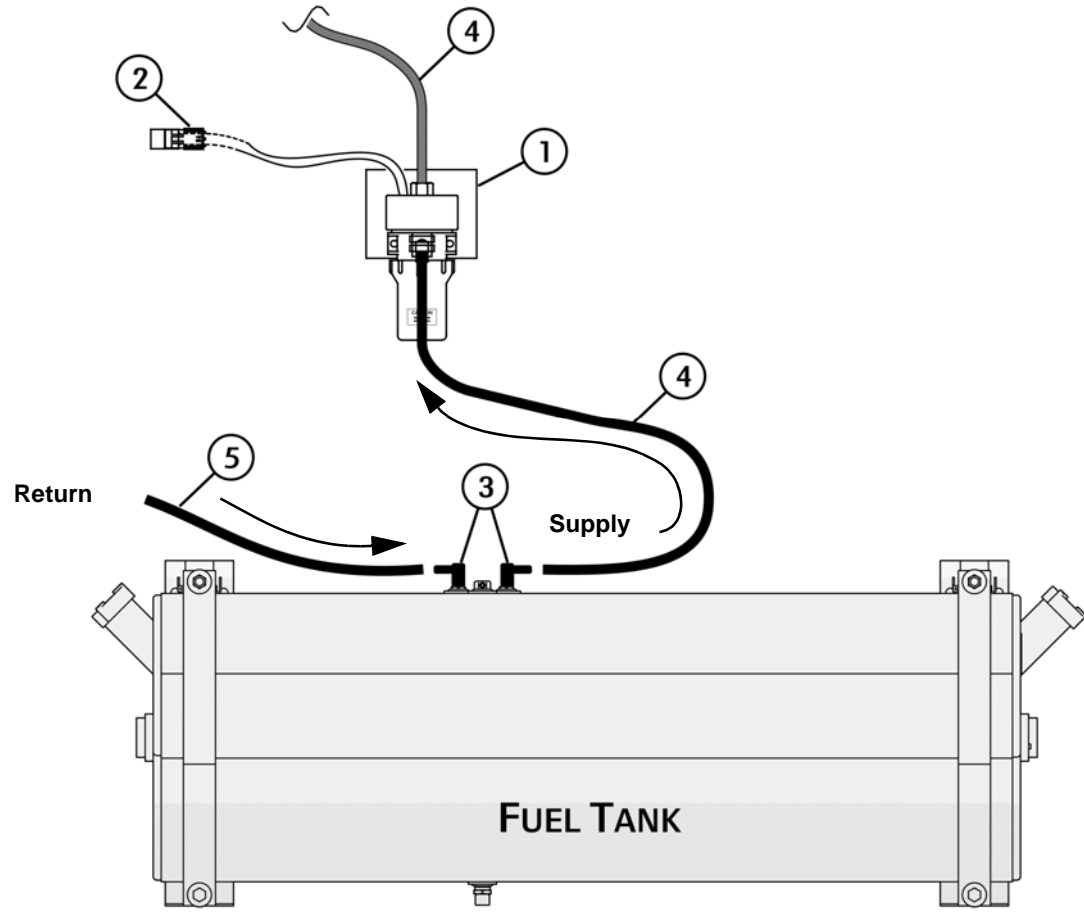
Installing the Fuel Pump and Fuel Lines

FOR NOSE MOUNTED L-SHAPED and RECTANGLE SHAPED 65 GALLON FUEL TANKS

FUEL FILTER LOCATED INSIDE UNIT




FUEL PUMP LOCATED INSIDE HK UNIT



Installing the Battery

Installing the Battery

 **CAUTION: Set all electrical controls to the OFF position before connecting the battery to prevent the unit from starting!**

 **CAUTION: Always wear protective clothing, gloves and eye wear when handling and installing batteries!**

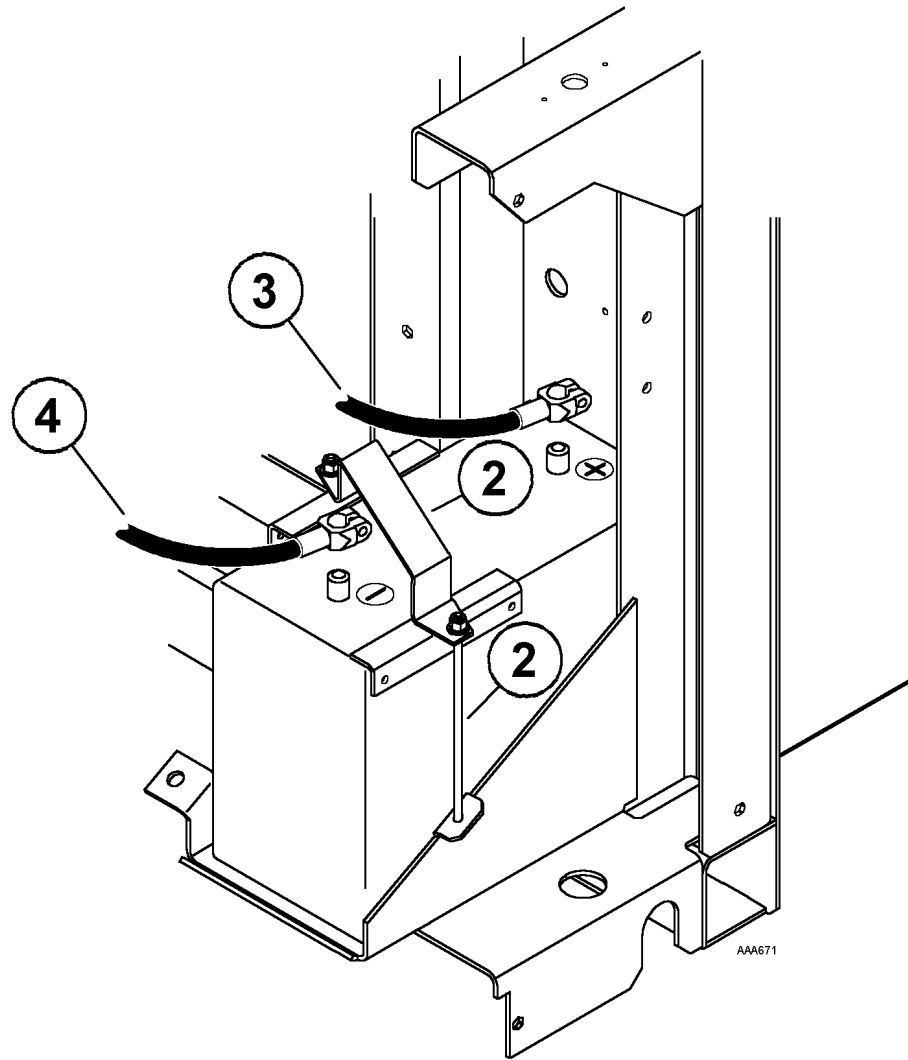
 **CAUTION: Cover battery terminals to prevent accidental shorting during battery installation!**

 **CAUTION: Do not route battery cables together with fuel lines as this could cause a fire!**

 **CAUTION: All battery connections must be clean and tightly secured.**

1. Open unit door to access battery tray.
2. Install battery into tray and secure with hold down bracket, bolts, lock washers and flat washers.
 - Hand tighten both bolts and then torque to 6.8 N•m (60 in-lb). **DO NOT over tighten hardware as this may crack or distort the battery!**
3. Install **positive** + battery cable on the positive battery post **first** to minimize accidental electrical shorting.
4. Install **negative** - battery cable on negative battery post **second** to minimize accidental electrical shorting.
5. Close and secure unit door.

Installing the Battery



SYSTEM CHECK LIST

- All unit mounting hardware torqued to specifications.
- No air gaps between unit and trailer wall.
- Drain hose properly routed and secured.
- Fuel tank properly installed.
- Fuel lines properly routed and fuel fittings tightened securely.
- Bulkhead properly designed and installed.
- Battery secured correctly and all connections clean and tight.
- Control Box mounted securely.
- Run Pre-Trip Inspection (refer to Operator's Manual).
- Run unit under load for eight hours to properly break-in engine.
- Release to customer.

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