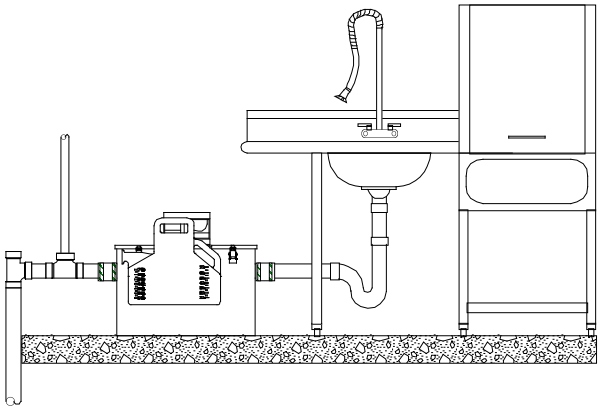
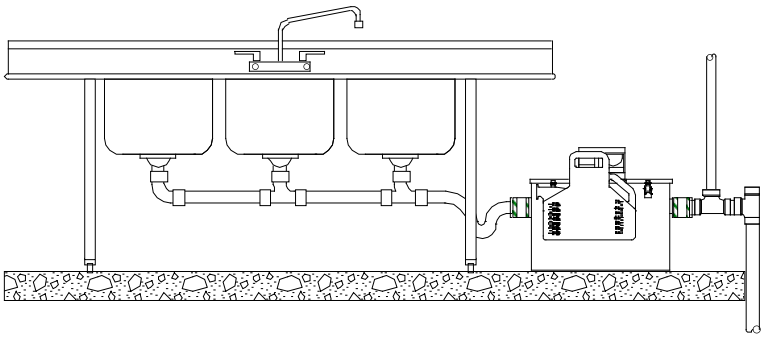
Thermaco® BIG DIPPER® Kitchen Grease Removal

Installation & Operation Instructions For Big Dipper Systems Internal Strainer (IS) Series

Models W-150-IS, W-200-IS, W-250-IS, W-350-IS, W-500-IS and W-750-IS



Big Dipper W-200-IS Servicing A Pre-Rinse Sink



Big Dipper W-200-IS Servicing A 3-Compartment Sink

PLUMBING AND DRAINAGE INSTITUTE CERTIFIED PDI ® *

NSF ® *

ASME A112.14.3

* Please consult Thermaco, Inc. for specific models tested, certified and/or listed by these organizations.

IAPMO ® *

CSA ® C US

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E-mail: info@thermaco.com • Online: www.big-dipper.com

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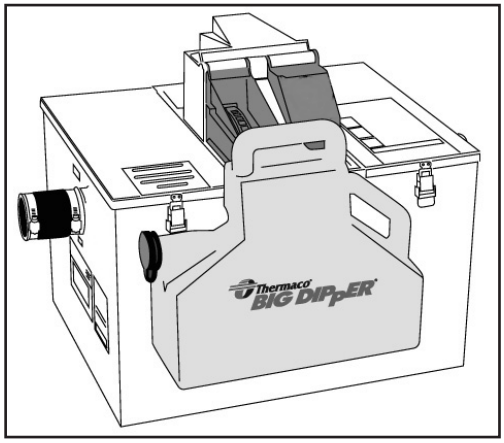
Big Dipper® Internal Strainer (IS) System Overview



The **Thermaco, Inc. Big Dipper®** Automatic Grease and Oils Removal System removes free-floating grease & oils from kitchen drain water flows. As most food service facility managers already know, grease buildup within a building's plumbing drainage system is a major cause of problems due to drain line blockages. These problems jeopardize normal operations as well as create health and safety hazards within the facility itself.

The proper installation of a Big Dipper System® can reduce or eliminate grease problems. Use of the Big Dipper® assures minimization and/or elimination of costly sewer surcharges and fines through efficient separation and removal of free-floating grease & oils. In addition, the Big Dipper® also helps reduce or eliminate pumping and disposal costs associated with conventional grease traps or interceptors. The recovered grease & oils are substantially water-free and are suitable for recycling by local rendering and/or biodiesel companies.

The Big Dipper system is an automatic, self-cleaning device. As greasy kitchen effluent drains from kitchen fixtures, the system traps the grease & oils. These separate from the effluent and rise to the surface of the grease separator chamber. The system automatically skims the trapped grease & oils and transfers the grease & oils to a collection container. An internal sensor controls the self cleaning operation, activating the skimming wheel when sufficient grease and oil is present. Only the "cleaned" water exits the system and flows into the facility drain lines. The Big Dipper IS automatic systems operate most efficiently when servicing single fixtures such as a 1 to 3-compartment sink or a pre-rinse station.

The Big Dipper system's compact footprint allows installation directly at the source where grease problems originate. The system design also allows easy maintenance and operation requiring only a minimal amount of daily and weekly maintenance to maintain peak operating performance.

The Big Dipper system design allows for maximum installation flexibility. Reversing the system operation is a simple as rotating the cover assembly of the unit (see page 7).

Grease interceptors, grease traps, automatic recovery systems, grease removal devices and other similar plumbing devices receiving kitchen flows from sinks, floor drains, woks and other food bearing sources may generate odors. There are many factors influencing odor evolution and dissemination. These include room ventilation, kitchen menu, ambient temperatures, ware washing practices, grease/oil input, daily input fluid volume, sanitizers, installation plumbing design and product maintenance/upkeep. Odors are usually prevented by good area ventilation, frequent fluid inputs, good product maintenance practices and proper product installation. Additional steps, including aeration, chlorination, improved area ventilation and additional maintenance control, may be needed at some sites.

Big Dipper® Internal Strainer (IS) System Maintenance

***CAUTION! DISCONNECT POWER TO SYSTEM BEFORE CLEANING to prevent damage to the system and personal injury**
***NOTE: Before energizing system after cleaning, fill grease separator chamber with water to protect wipers and heater from damage**

Daily Maintenance:

(A) Empty the clear plastic grease/oils collection container (located beside the system) prior to its becoming full once each day. The Big Dipper® recovers grease and oil virtually water-free so that they can be recycled. The collector container should be washed periodically so as to maintain the easy viewing translucent characteristic of the collector.

(B) The internal strainer basket should be removed and emptied into a garbage container by shaking briskly. Wash the inside and outside surfaces of the strainer after emptying.

Weekly Maintenance:

(A) Check the collection trough and the wiper blades for any solids build-up. Wipe off any accumulated deposits and assure that the wiper blades are clipped in place properly.

(B) Remove the internal strainer basket, empty any accumulated solids into a garbage container by shaking briskly. Be sure to spray down both the inside and outside surfaces of the strainer basket.

Monthly Maintenance:

(A) Unlatch the system covers and carefully lift the center module up off the grease separator to expose heater and green sensor probe to be cleaned.

(B) Wipe off any accumulated build-up from green sensor probe with a soft cloth.

(C) Carefully replace center module on top of the grease separator chamber and fasten all latches.

Quarterly Maintenance:

(A) The internal strainer basket in the system is designed to remove incidental solids from kitchen drain flows. Over a period of time, sediment consisting of very fine particles may begin to accumulate on the bottom of the grease separator chamber. If this build-up is allowed to continue, it may eventually block the outlet baffle. To prevent this from occurring, remove the cover and stir the bottom of the grease separator chamber with a long handled spatula while water is flowing to flush out the sediment. Occasionally drain and clean the grease separator chamber thoroughly. Properly used, a wet vacuum may be appropriate for this purpose.

Big Dipper® IS System Operation

The sensor controlled Big Dipper® is hands free, and automatically adjusts to fit each user site's grease generation profile.

The sensor in the Big Dipper® activates upon receiving power and immediately checks to see if there is sufficient grease in the separator chamber to require skimming of the grease. It will continue to check for grease daily thereafter. There is no "setting" of the system required with the sensor controlled Big Dipper®. If the sensor determines there is enough grease, it will skim for 60 minutes. Note: The sensor controlled Big Dipper® is designed to leave a small amount of grease inside the separator chamber after skimming.

If the sensor determines there is not sufficient grease inside the Big Dipper®, it will wait and check the next day to see if more grease has been captured inside the separator chamber. If the Big Dipper® has not skimmed after several days, you may be an extremely low grease generating site. Check inside the system by releasing the latches on the sides of the separator tank, removing the cover wings, and sliding the center module to the side. Then, take a long handled spoon or ladle and gently stir around the top of the fluid inside to see the quantity of grease. If you consistently see more than 1 inch of grease over several days without any skimming, contact us with the information at 1-800-633-4204 or E-mail at info@thermaco.com.

User Interface - LED

•LED illuminated - Normal Operation.

•LED not illuminated - Loss of Power. Check to see if the power cord is plugged in and that the safety switch on the underside of the center module is engaged.

•LED flashing ON and OFF slowly - Low Water Level. This indication continues until chamber is filled and either a) system is reset by disconnecting/reconnecting power or, b) next sensing cycle verifies that water level is OK (Mode will reset without human intervention).

•LED blinks 2 times quickly followed by a longer off period - Sensor error. Contact us.

•LED blinks 3 times quickly followed by a longer off period - Sensor error. Contact us.

Jog Switch

The jog switch is normally used to check the condition and operation of the motor, sprocket and wheel. When this switch is depressed, the motor is energized and the sprocket and wheel should rotate. This check can be done at any time.

Big Dipper® IS System Series Troubleshooting

Big Dipper® system overflows

(1) Check to see that the outlet pipe is not reduced to a smaller size, the outlet piping is vented, has as few 90 degree outlet turns as possible, and that no "P" trap is installed on the outlet. Re-plumb the piping, if necessary. Check outlet piping for clogs. Have a plumber clean the line, if necessary.

(2) Make sure that the solids strainer is in place and emptied daily.

(3) Check the bottom of the grease separator chamber for excessive solids and silt buildup which may be blocking the outlet baffle. Disconnect the power and use a long handled spatula or similar instrument to stir the bottom while water flows through the system. If necessary, drain and clean the sediment from the grease separator chamber. To prevent recurrence, schedule this cleaning to be done on a regular basis (properly used, a wet vacuum may be appropriate for cleaning sediment from the bottom of the grease separator chamber).

(4) Make sure the flow rate to the system does not exceed the maximum flow rate, which is shown on the nameplate. If necessary, have a plumber install an approved flow control to restrict the inlet flow to the specified level or install a properly sized Big Dipper® for the application.

No grease is collected in the container

(1) Check to be sure the power is on. There is a Power Indicator Light on the front of the system which indicates that Power is reaching the Big Dipper®. If this light is not "ON", power is not reaching the Big Dipper®.

(2) Raise the cover and clean away any buildup that may be present on the wiper blades or collection trough. Make sure the wiper blade(s) are properly in place on the skimmer wheels. Replace wiper blades when worn or warped.

(3) DISCONNECT POWER TO SYSTEM unlatch the covers. Carefully lift the center module up off the grease separator chamber to expose heater and sensor probe to be cleaned. Wipe off any accumulated build-up from green sensor probe with a soft cloth. Replace center module on top of the grease separator chamber, fasten all latches before applying POWER.

(4) Press the Jog Switch on the front of the system and ensure that the skimmer turns. CAUTION: Keep your hands away from moving parts to avoid possible injury. If the skimmer motor does not come on, the motor assembly must be replaced.

(5) Check for congealed grease in the system. If the Big Dipper's heating element is not warming the grease separator chamber, the heating element must be replaced.

(6) Some sites do not generate enough grease to be captured by the skimming process. If the sensor determines there is not sufficient grease inside the Big Dipper®, it will wait and check the next day to see if more grease has been captured inside the Big Dipper®

Excessive water observed in the grease collection container

(1) Follow instructions as described in step (3) under "No grease is collected in the container".

Objectionable odor

(1) Make sure grease/oil is being skimmed properly from the Big Dipper®. This can be observed from daily accumulations of grease and oil in the grease collector.

(2) If excessive sediment has collected on the bottom of the grease separator chamber, clean as described in item (3) in "Big Dipper® unit overflows."

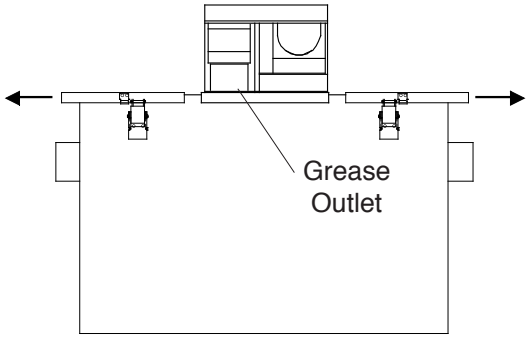
(3) Clean the solids strainer and grease collection container more frequently.

(4) Grease interceptors, grease traps, automatic recovery systems, grease removal devices and other similar plumbing devices receiving kitchen flows from sinks, floor drains, woks and other food bearing sources may generate odors. There are many factors influencing odor evolution and dissemination. These include room ventilation, kitchen menu, ambient temperatures, ware washing practices, grease/oil input, daily input fluid volume, sanitizers, installation plumbing design and product maintenance/upkeep. Odors are usually prevented by good area ventilation, frequent fluid inputs, good product maintenance practices and proper product installation. Additional steps, including aeration, chlorination, improved area ventilation and additional maintenance control, may be needed at some sites.

How To Reverse a Big Dipper® IS System Operation

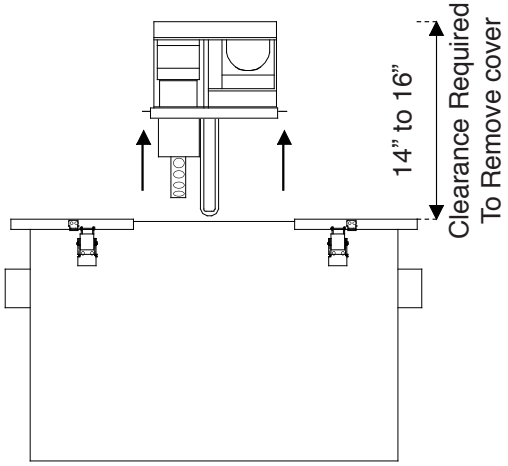
***ALWAYS UNPLUG SYSTEM BEFORE REMOVING COVER COMPONENTS**
***SYSTEM WILL NOT OPERATE UNLESS CENTER MODULE IS IN PLACE**

1)



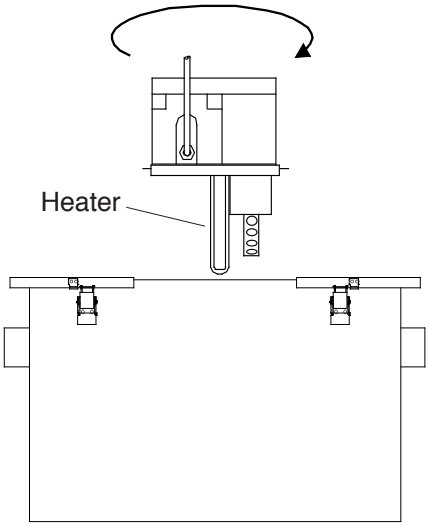
1) Unlatch the system covers. Pull the side wings outward.

2)



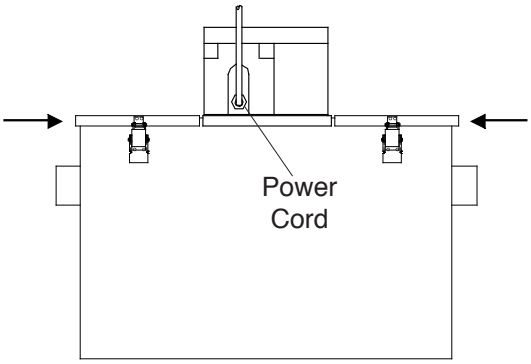
2) Lift the center module up off of the grease separator chamber, ensuring clearance for the heater.

3)



3) Rotate the center module 180°.

4)



4) Lower the center module back down on top of the grease separator chamber. Move the two side wings back into place & fasten all latches.

Big Dipper® IS System Plumbing Installation

Locating the Unit

To minimize grease build-up in piping, a Big Dipper system should be located as close as possible to the fixture it is serving. The system should be visible and easily accessible for maintenance and inspection. The unit must be in a level position. **Be sure to check the Specification Sheet for your model for the exact clearances needed for installation.** If the system is located directly on the floor, the bottom should be sealed to the floor with an approved silicone type sealant. Make sure the height above the Internal Strainer access cover is enough to remove the strainer basket.

Inlet/Outlet Piping

The inlet and outlet piping connections require flexible sleeve pipe couplings. Keep outlet piping as straight as possible. Use only "sweep" connections. Do not reduce the pipe sizing on the outlet piping. Do not install "P" trap on outlet connection of system. (Note: The system already has a internal gas trap).

Flow Controls

Big Dipper systems are tested and certified to PDI and ASME standards using externally mounted vented flow controls. Installation using any other flow control arrangement may result in reduced efficiency.

Big Dipper systems are provided with an internal flow control mounted in the inlet end of the system. If the internal flow control is to be used verify its location and placement prior to connecting the inlet piping.

If it is necessary to ensure that compliance to PDI and/or ASME standards is maintained or if the installation has a head height over 6 feet (1.95 m) then an externally mounted, vented flow control shall be installed. In this situation the internal flow control must be removed and an approved control with a flow rating matching the system's flow rate should be installed.

Note: When a Big Dipper is servicing multiple fixtures, some local codes require separate flow controls for each fixture. See the following page for suggested external, vented flow control installation.

Fill Unit With Water Before Applying Power

Big Dipper systems, equipped with an electric heating element, MUST be filled with water before energizing the power to the system. Failure to do so may damage the electric heating element. These elements will NOT be replaced under Thermaco's Warranty.

Venting the Outlet

An outlet vent or approved vacuum breaker of at least 1/2 the diameter of the system's outlet connection must be present as close as possible to the Big Dipper outlet to prevent possible siphonage problems. Failure to provide a vent for the system voids Thermaco's Warranty for the system.

Do Not Use With Food Grinders, Potato Peelers or Waste Disposal Units

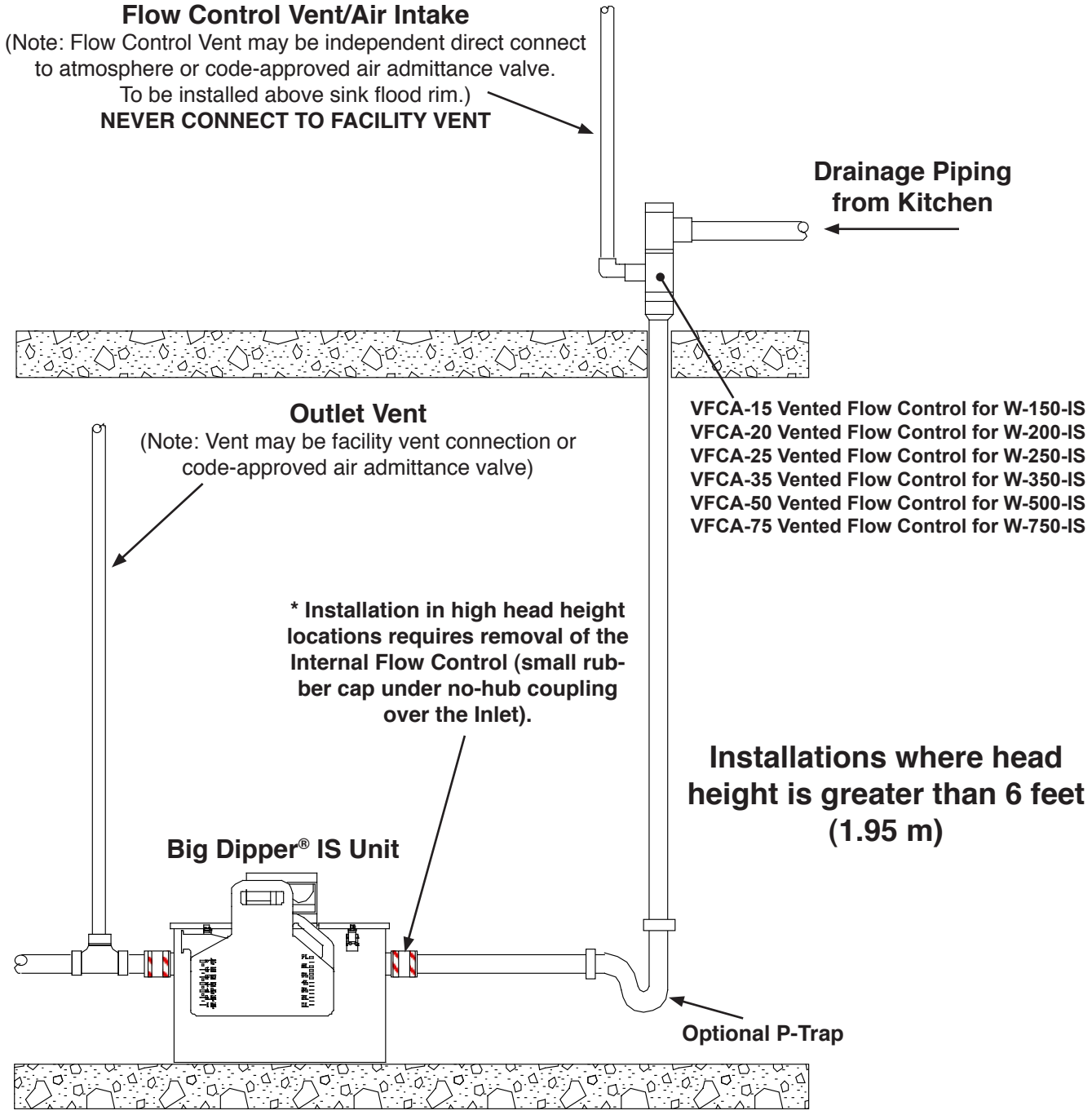
If the system is connected to a Waste Disposal Unit, Garbage Grinder or Potato Peeler, Thermaco's Warranty will be void.

Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.

Big Dipper® IS System Plumbing Installation

(For Installations With Head Height Greater Than 6 feet (1.95m))

For installations where there is a significant amount of head height (More than 6 ft./1.95 m), Thermaco, Inc. recommends installation of the optional VFCA Vented Flow Control module.



NOTE: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.

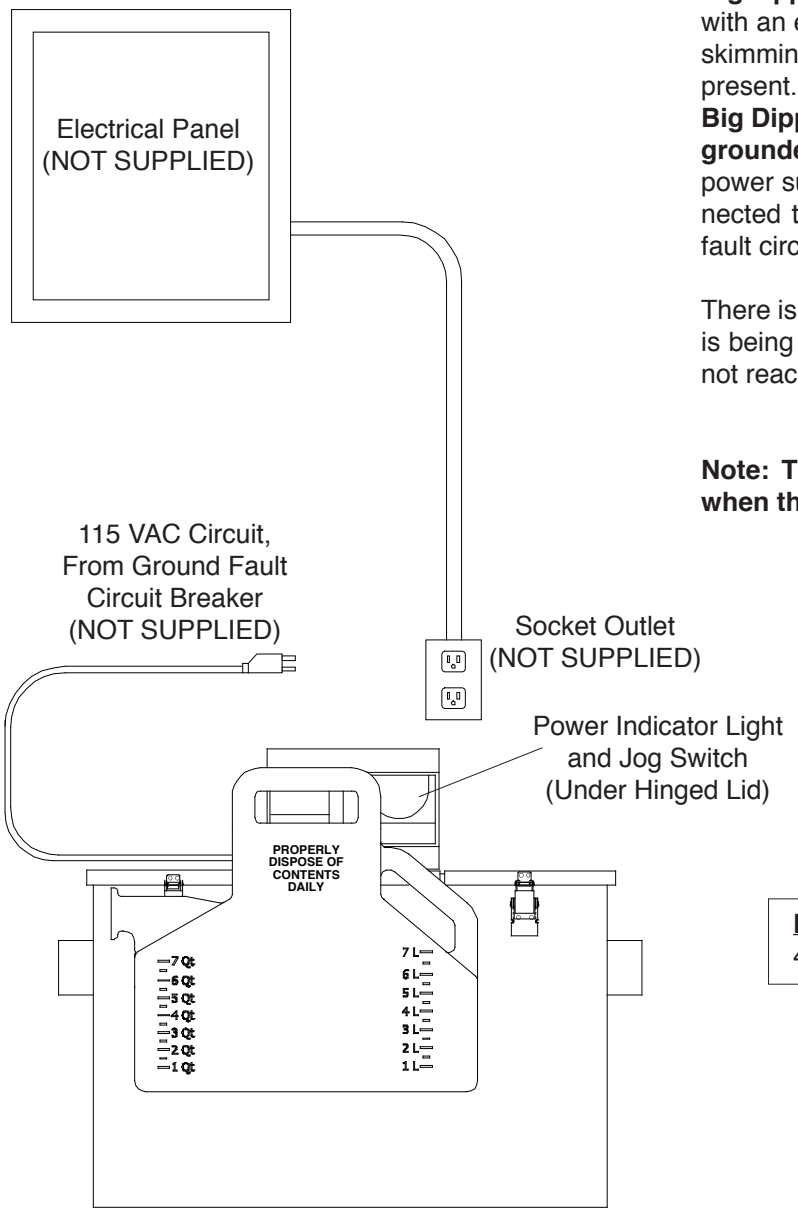
Big Dipper® IS System Electrical Installation

Big Dipper Internal Strainer (IS) Models

Big Dipper Internal Strainer Series Models are equipped with an electronically controlled sensor to operate the skimming wheel when sufficiente grease and oil is present. (See page 5 for further information). **The Big Dipper should only be plugged into a properly grounded 3-prong 120 VAC outlet.** If possible, the power supply outlet for the Big Dipper should be connected to an electrical circuit controlled by a ground fault circuit breaker.

There is a Power Indicator Light that will glow if power is being fed to the system. If this light is off, power is not reaching the system.

Note: The Big Dipper® system will not operate when the electrical module is removed.



Big Dipper Electrical Requirements
4.5 Amps @ 115 VAC 50/60Hz

Note:
Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including electrical codes. Installation should be performed by a qualified electrician.

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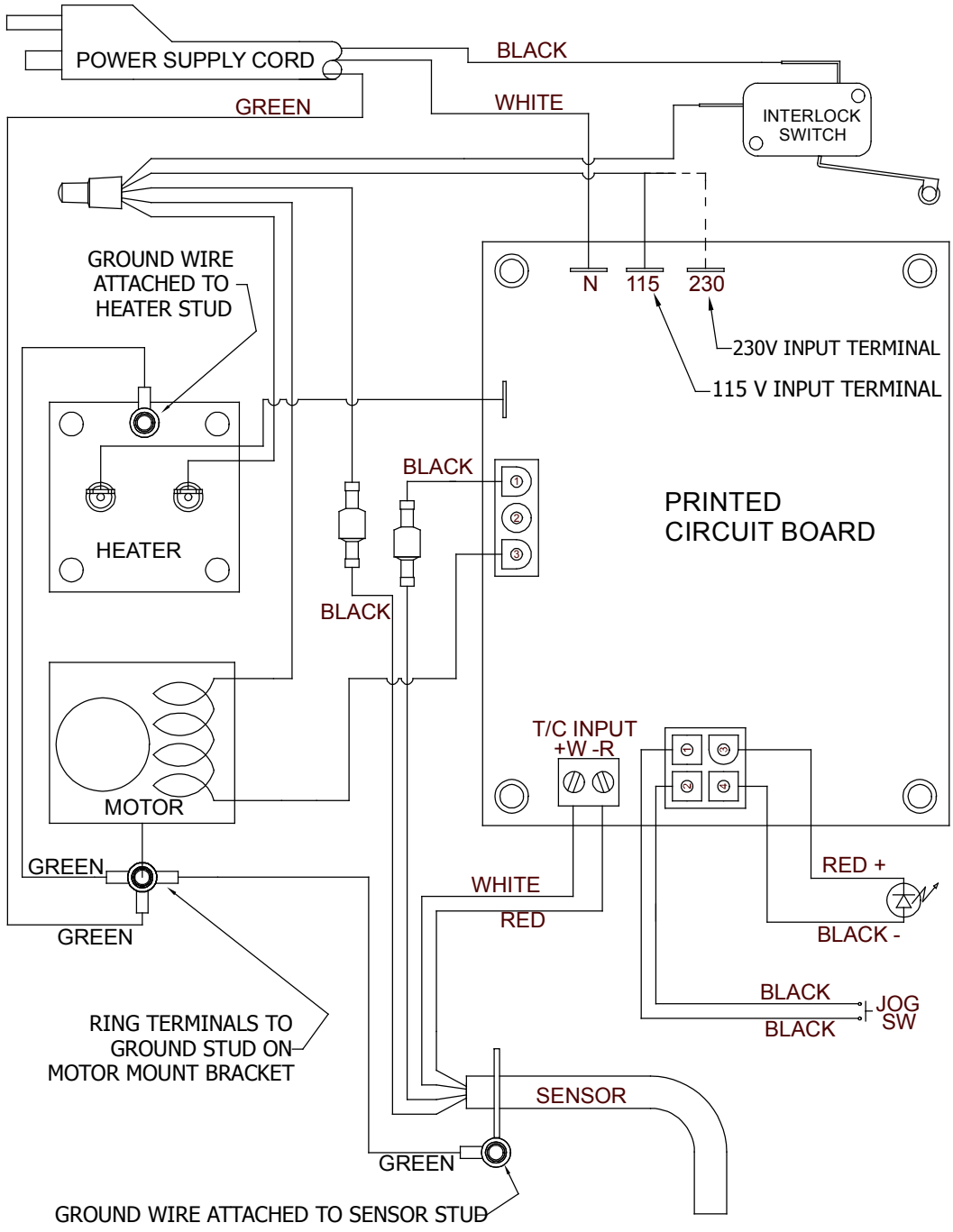
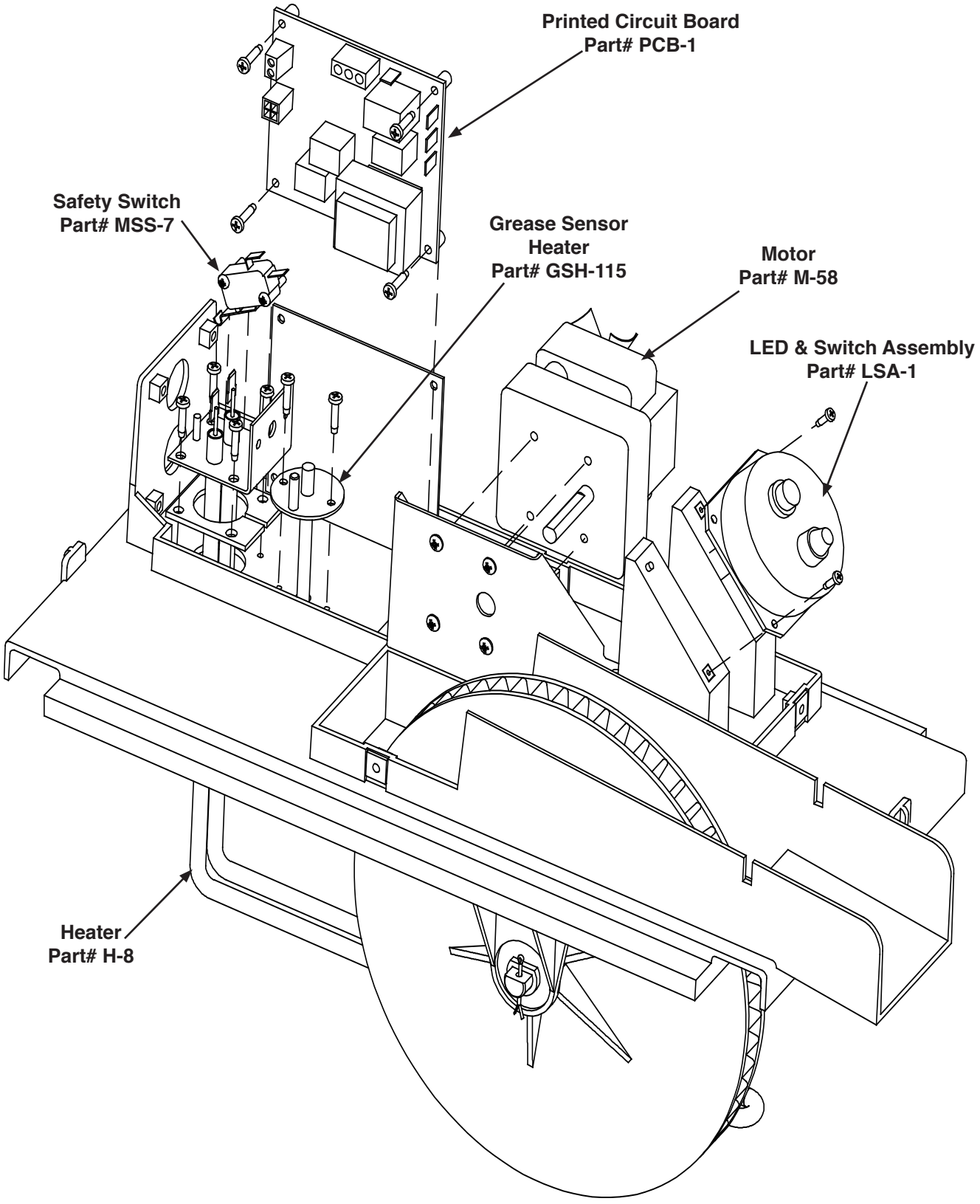
Big Dipper® IS System Wiring Diagram

Wiring Diagram For Big Dipper Models W-150-IS Through W-750-IS



NOTE:
International systems have the following wire color changes:
On the POWER SUPPLY CORD:
The Black Wire becomes Brown
The White Wire becomes BlueThe Green Wire becomes Yellow/Green

Big Dipper® IS System
Electrical Components



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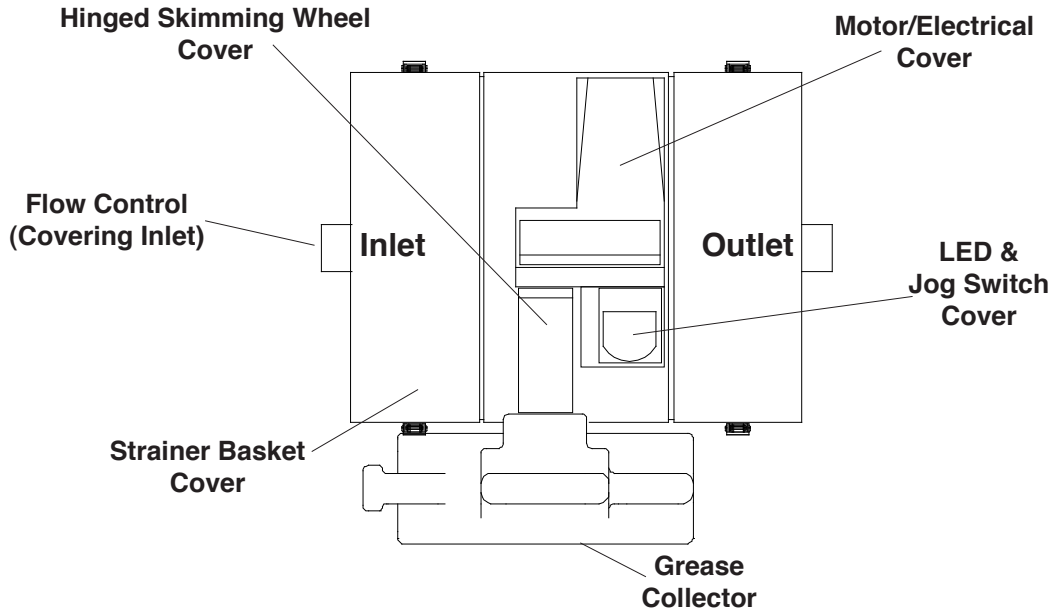
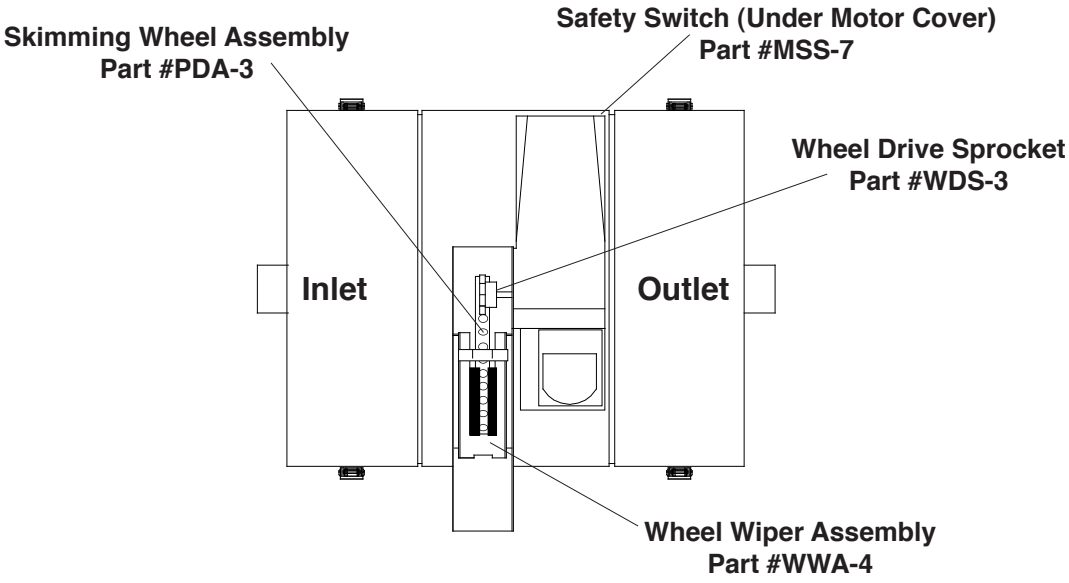
Big Dipper® IS System Component Identification

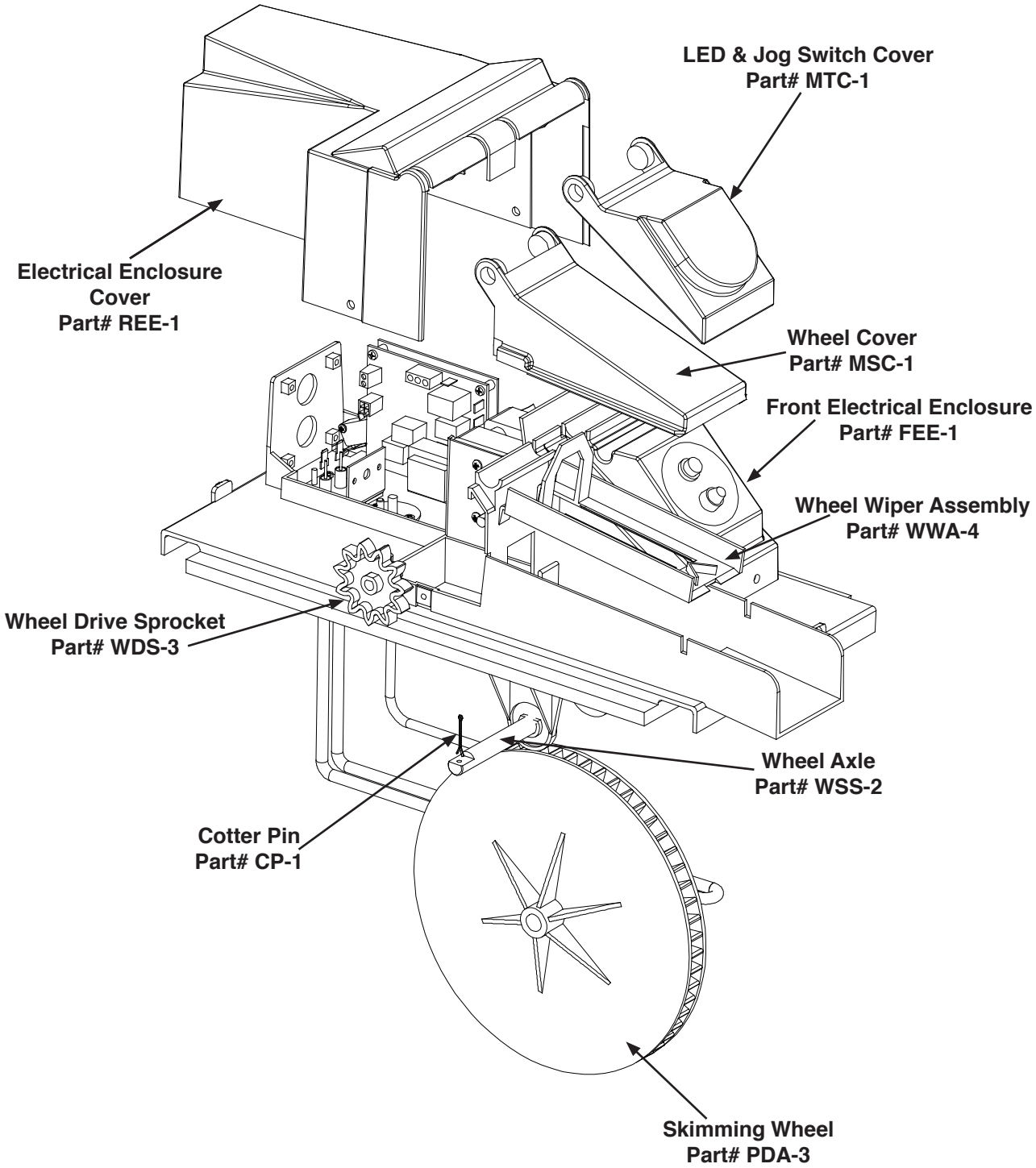
Big Dipper Internal Strainer (IS) Lid Components (With Covers In Place)



Big Dipper Internal Strainer (IS) Cover Components (With Wheel Cover Removed)



Big Dipper® IS System Component Identification

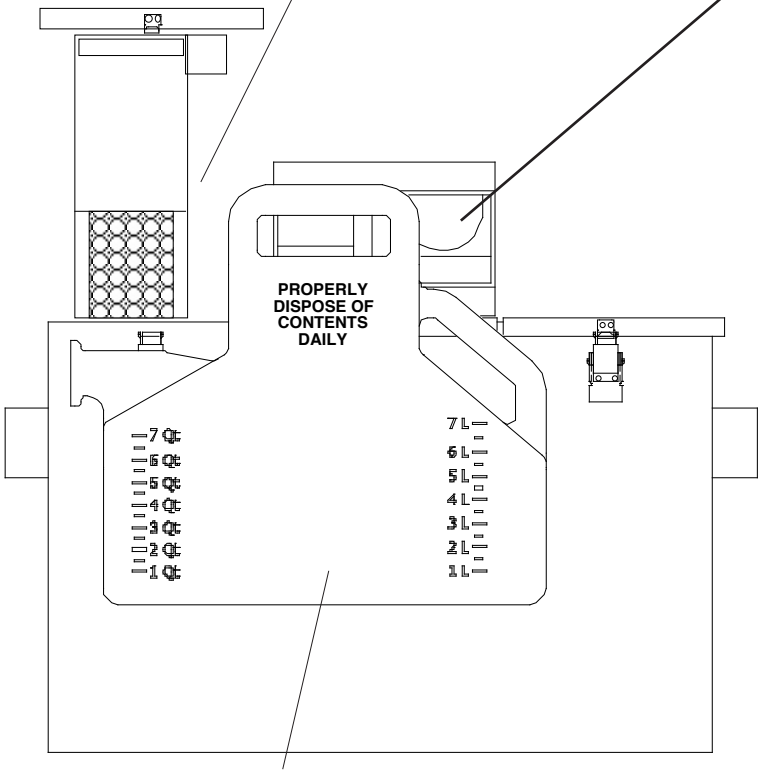


Big Dipper® IS System Replacement Parts

SOLIDS STRAINER BASKET

FOR MODEL#	USE PART#
W-150-IS THROUGH W-250-IS	ST-21
W-350-IS & W-500-IS	ST-60
W-750-IS	ST-97

LED & Switch Assembly (Under Cover)
FOR ALL MODELS USE PART# LSA-1



GREASE/OILS COLLECTION CONTAINER
FOR W-150-IS THROUGH W-750-IS USE PART# GC-7

NOT SHOWN:

MOTOR (1 per unit)
PART# M-58

HEATER (1 per unit)
PART# H-8

INTERNAL FLOW CONTROL (1 per unit)
PART# MFC-15 FOR W-150-IS
PART# MFC-20 FOR W-200-IS
PART# MFC-25 FOR W-250-IS
PART# MFC-35 FOR W-350-IS
PART# MFC-50 FOR W-500-IS
PART# MFC-75 FOR W-750-IS

LID GASKET
PART# RG-7

WHEEL WIPER ASSEMBLY (1 per unit)
PART# WWA-4

WHEEL DRIVE SPROCKET (1 per unit)
PART# WDS-3

SKIMMING WHEEL ASSEMBLY (1 per unit)
PART# PDA-3

Big Dipper® Limited Warranty & Remedy

Thermaco, Inc. warrants to the original user that the products manufactured by it delivered with this warranty shall be free from material defects in workmanship and materials for a period of 12 months from the date of invoice to the distributor (if sold by an authorized Thermaco distributor) or the date of invoice to the purchaser (if sold directly by Thermaco, Inc.), but in no event longer than 15 months from date of shipment from Thermaco's production facility.

Any claim must be made in writing to Thermaco at 646 Greensboro Street, Asheboro, NC 27203 promptly after discovery of the defect and within the applicable warranty period. The product must be delivered, prepaid, to Thermaco, together with proof of purchase, the serial number from which the item was removed and a return authorization number issued by Thermaco. If Thermaco determines upon examination that the component is defective and that the warranty conditions are met, Thermaco's sole obligation under this warranty, and the purchaser's sole and exclusive remedy, is the repair or replacement, at Thermaco's option, of the defective component, including parts and labor. The replacement will be furnished F.O.B. point of shipment. If Thermaco determines that the component is not defective or that the other conditions of this warranty are not met, then any return of such part to the purchaser shall be at purchaser's cost.

This warranty shall not cover any defect in otherwise covered products resulting directly or indirectly from: (i) failure to properly install, operate or maintain the product in accordance with Thermaco's instructions and procedures, including, without limitation, use in excess of rated flow, operation with other controls, improper electrical service, use to remove emulsified fats and oils or use that fails to comply with applicable laws, regulations or codes; (ii) damage in transit, handling or installation; (iii) modifications, adjustments, repairs, or alterations made by unauthorized persons; or (iv) other causes not arising out of defects in workmanship or materials. Thermaco shall not be responsible for damage to products resulting from vault flooding, sewer line back-up, pumping or lift station failure, ambient water flow or other sources of water damage. This warranty does not cover equipment or parts not manufactured by Thermaco. Purchaser's costs relating to any service, adjustment, removal, repair, packing, or otherwise incurred with respect to the defect prior to submission for warranty are the responsibility of purchaser.

No distributor, sales person or other person is authorized to make any warranty statements on behalf of Thermaco regarding Thermaco products other than as set forth in this warranty. This statement of warranty supersedes any quote, brochure, or other statement or document with respect to warranty of Thermaco products.

EXCEPT AS EXPRESSLY SET FORTH ABOVE, THERMACO, INC. MAKES NO REPRESENTATIONS, WARRANTIES OR GUARANTEES, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, AS TO **MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**, WHETHER OR NOT THERMACO HAD KNOWLEDGE OF PURCHASER'S PARTICULAR REQUIREMENTS OR NEEDS, OR WITH RESPECT TO ODOR GENERATION OR OTHER INCIDENTALS RELATING TO USE OF THE PRODUCT.

The sole and exclusive remedy with respect to this warranty any other claim relating to defects or any other condition or use of Thermaco products, however caused, and whether such claim is based upon warranty, contract, tort, strict liability or any other theory, is LIMITED to the repair or replacement of the product, excluding labor or any other cost to remove or install said the product or, at Thermaco's option, repayment of the purchase price. IN NO EVENT SHALL THERMACO, INC. BE LIABLE, WHETHER IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, INDEMNITY OR ANY OTHER LEGAL THEORY, FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR ANY OTHER LOSS OR COST OF A SIMILAR TYPE. UNDER NO CIRCUMSTANCES WILL THE AGGREGATE LIABILITY OF THERMACO FOR ANY CAUSE OF ACTION RELATED TO THE PRODUCTS COVERED HEREBY EXCEED THE NET PURCHASE PRICE RECEIVED BY THERMACO FOR THE PRODUCTS. Any action or suit by purchaser against Thermaco relating to Thermaco products must be brought within one (1) year of the date of the invoices referenced above. The exclusions and limitations set forth herein are separate and independent from any remedies which purchaser may have hereunder and shall be given full force and effect whether or not any or all such remedies shall be deemed to have failed of their essential purpose.