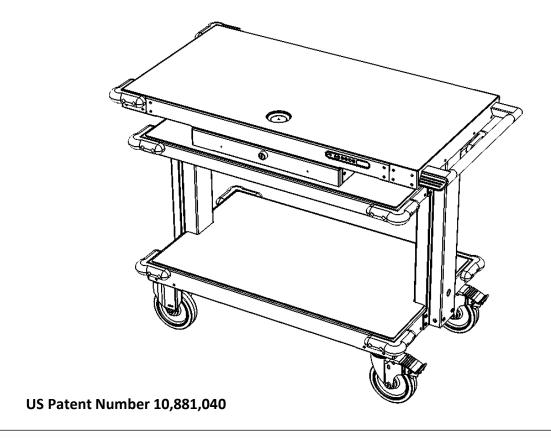


ESD MOBILE CART

Owner's Manual

Part Number ESD-EVH-1000



For Your Safety

Read and understand the entire manual before use

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Support

Support is available through the following methods:

By Phone from 8:00 AM to 5:00 PM CST. 651.213.1333

By Email customerservice@kendallhoward.com

By Mail 10152 Liberty Lane, Chisago City, MN 55013

By Web www.kendallhoward.com

Disclaimer

DISCLAIMER: Kendall Howard LLC. endeavors to make this manual accurate and complete. However, Kendall Howard LLC makes no representations or warranties of any kind, expressed or implied, about whether the use of products contained herein would infringe any rights or the correctness, accuracy or reliability of the information contained herein or that said information covers all details, conditions, or variations. The information herein does not provide for every possible contingency in connection with the installation or use of the product(s). The information contained in this document is subject to change without notice or obligation. Kendall Howard LLC assumes no responsibility for the accuracy, completeness or reliability of the information contained in this document. Any reliance placed on the information is therefore strictly at your own risk.

Replacement Components

Description	Part Number
Upper ESD Vinyl Mat	A-1148
Middle and Lower ESD Vinyl Mat	A-1147
Coiled Cable, ESD Ground Post to Upper Shelf	A-1123
Caster, ESD, Swivel, Locking, 5" Wheel	CP-5024
Caster, Fixed, 5" Wheel	CP-5043
Replacement Key	Contact Kendall Howard

Specifications

Dimensions	Length 36.38" (92.4 cm) x Width 20.38" (51.8 cm) x Height 29" to 54.8" (73.7 cm to 139.1 cm)
Weight	141 lbs (64 kg)
Color	Gloss Black Powder Coat

Safety

Your safety and the safety of others are very important.

We have provided many important safety messages in this manual and on the ESD cart. Always read and obey all safety messages.



This is the safety alert symbol.

This symbol alerts you to potential hazards that can hurt you or others.

All safety messages will follow the safety alert symbol and the word "WARNING".

These words mean: You can be seriously injured if you don't immediately follow instruction.

AWARNING

The safety message will tell you what the potential hazard is, tell you how to reduce the chance of injury, and tell you what can happen if these instructions are not followed.

WARNING: To reduce the risk of pinching, crushing, or tipping:

- •Read all instructions before using the ESD cart.
- •Only use the ESD cart on solid flat surfaces.

The cart should not be used on surfaces with an incline greater than 10°.

- •Use the locking casters when loading or moving components onto the shelves.
- •Do not overload the cart. Overloading the cart may cause it to tip over causing injury.
- •Maximum load for lower shelf is 200 lbs (90.7 kg).
- •Maximum load for middle shelf is 200 lbs (90.7 kg).
- •Maximum load for upper shelf or work surface is 160 lbs (72.6 kg).
- •Maximum load for the entire cart should not exceed 500 lbs (226.8 kg).
- •The motors in the lifting column have an integral Anti-Collision™ sensor. This sensor reduces the chance of pinching or crushing. The sensor needs .4 seconds (approximately ½" (6 mm) to calculate what

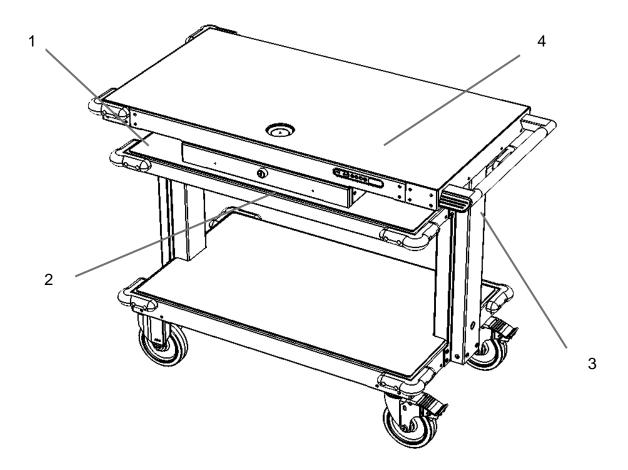
the load is on the upper shelf/ work surface. This calculation is preformed every time the upper shelf/ work surface is moved. When activated properly the chance of pinching or crushing is eliminated.

WARNING: If fingers, hands, limbs are in identified areas when the motors are initially activated, serious injury could result.

WARNING: Linear column pairs produce a maximum thrust of 315 lbs (1400 N).

- •Do not sit or stand on upper shelf/ work surface.
- •Do not operate ESD cart if a noticeable height difference exists between the 2 lifting columns.
- •Do not store liquids or solvents on ESD cart.
- •Do not operate ESD cart if it appears damaged.

Cart Pinch Points



IMPORTANT SAFETY INSTRUCTIONS



Keep fingers, hands, and limbs away from these areas when initially raising or lowering. NOTE that external obstructions are not identified but could be or cause a possible pinch point.

- 1. Underneath upper shelf/ worksurface.
- 2. Underneath drawer.
- 3. Top of vertical column.
- 4. Top of upper shelf/ work surface.

Installation and Setup

Step 1:

Cut and remove the two plastic banding and any shrink wrap material

Step 2:

Lift off and remove the wooden cover. This will take 2 people.

Step 3:

Unfasten the wing nuts that anchor the ESD cart into the crate. Remove the 2 boards.

Step 4:

Lift the cart out of the crate. NOTE this is a 10" (25.4 cm) lift. The ESD cart weighs 135 lbs (61.2 kg). This will take 2 or more people.

Step 5:

Connect the battery and raise the upper shelf/ work surface approximately 5" (13 cm) and remove the 2 form blocks next to the drawer

Step 6:

Make sure that the rear casters are unlocked and move freely.

Note: The ESD cart needs to be operated on surface that is ESD compliant. This includes bare concrete, ESD paint, ESD flooring.

Electronic Specifications

CHARGER

- •Power 175W.
- •Standby power consumption 0.1W.
- •Nominal output voltage: 29V DC ±10%.
- Plug type C7.
- •Plug type: Mini fit 2-pole.
- •Thermal switch.

Usage:

- •Storage and transport temperature: 14°f to 158°F (-10°C to +70°C).
- Approved according to:

EN 60335-1.

BATTERY:

- •Rechargeable Li-ion battery cell
- •Battery alarm (audio) when charging is needed.
- Battery charging indicator (LED light bars) indicating the capacity level.
- •Thermal switch protection, overcurrent protection.
- •Battery capacity: 2.15 Ah/ 52Wh
- •Nominal voltage: 24V DC
- •Discharge current 9A (max)
- •Maximum charging voltage: 40V DC
- •Charging current: 0.5A

Usage:

- •Ambient temperature: 41°F to 104°F (5°C to 40°C).
- •Storage temperature: 32°F to 113°F (0°C to 45°C).
- Approved according to:

EN 62133 (Battery safety testing)

UL 1642 (Lithium calls, standards test)

UN 36.3 (Transportation of Lithium batteries)

UL 2054 (Household and commercial batteries)

EN 60335-1 with CBH Advanced

BATTERY REMOVAL/ CHARGING

- Remove ESD mat from top work surface.
- •Slide off and remove cover in center of work surface.
- Unplug battery.
- •Depress tab at battery carrier end and slide battery off.
- Charge battery with supplied charger only. When fully charged reinstall battery.
- •Optional Charging: Battery can be charged while in the cart. AC hookup is located on the controller.

Cart operation is not recommended when charging with battery installed.

Electronic Specifications Continued

AWARNING

Observe all governing codes and ordinances.

Nominal input voltage 100V AC to 240V AC ±10%

Nominal input: 1.2 A

Nominal input frequency 50 Hz/60 Hz

The cart is shipped with 3 power cords used for charging.

CP-5031 MAINS CABLE, AC- 3000 mm (US)
 CP-5046 MAINS CABLE, AC- 3000 mm (EU)
 CP-5047 MAINS CABLE, AC- 3000 mm (UK)

Applies to battery charging only.

Plug into a grounded 3 prong outlet.

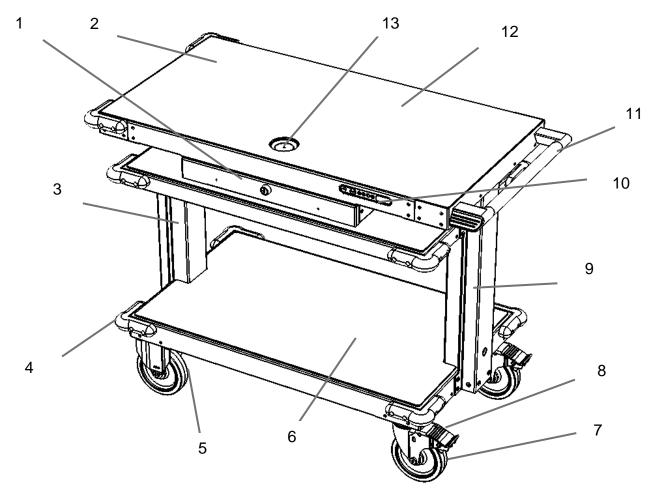
Do not remove ground prong.

Do not use an adapter.

Do not use an extension cord.

Failure to follow these instructions can result in death, fire, or electrical shock.

Cart Components

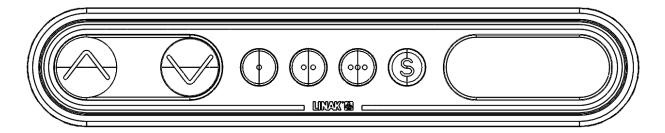


- 1. Locking drawer, keyed
- 2. ESD 3-layer vinyl mat, middle shelf
- 3. Front linear motor
- 4. Rubber bumper
- 5. Front caster, fixed, non-conductive
- 6. ESD 3-layer vinyl mat, lower shelf
- 7. Rear caster, swivel, conductive

- 8. Caster brake (rear only)
- 9. Rear linear motor
- 10. Operator controls
- 11. Ergonomic handle
- 12. ESD 3-layer vinyl mat, upper shelf
- 13. Magnetic hardware dish

Note: Minimum height of upper shelf/ work surface (shipping height) 28.0" (71.0 cm). Maximum height of upper shelf/ work surface 50.5" (128.27 cm).

Cart Control Panel Features



Display

When the battery is connected the display will stay blank.

Up/Down

^ The up arrow will move the upper shelf/ work surface up at .10" (2.5 mm) increments.

^v The down arrow will move the upper shelf/ work surface down at .10" (2.5 mm) increments.

Preset Height

- Factory set height of 36.0" (91.4 cm).
- •• Factory set height of 42.0" (106.7 cm).
- ••• Factory set height of 48.0" (121.9 cm).

SET Height to Preset Button

S This button is used to change or modify the factory preset height. Manually move the upper shelf/ work surface to the desired height. Select "S" and the desired •, ••, ••• button to program. Press and hold desired •, ••, ••• button to recall pre-selected heights.

Display

The units displayed are in inches and are the value from the floor to the top of the upper shelf/work surface. The units are displayed for approximately 10 seconds.

Synchronize Column motors

This is used to synchronize the motors after the unit is shipped or an error occurred and the columns appear to be out alignment.

Hold the V button until the upper shelf/ work surface has completely retracted. Hold for another 5 seconds, motors are now synced.

Cart Use

ESD Control

The ESD 3-layer vinyl mats are required for proper ESD protection when using this mobile cart. This unit provides a RTT value of $< 1 \times 10^9$ ohms for each shelf. This unit provides a RTG value of $1 \times 10^5 < 1 \times 10^9$ ohms from each shelf to the casters.

ESD Casters

The rear, swivel casters are made of a conductive polymer that will provide an electrical to the ESD flooring. The front, fixed casters are non-conductive.

The Electrical circuit for ESD protection is as follows:

ESD Lower Shelf

A wire connects each conductive caster to a common ground located in the lower shelf. A wire connects from the common ground to a metal cover located on the top surface of the lower shelf. This metal cover contacts the 3-layer vinyl ESD mat.

ESD Middle Shelf

A wire connects each conductive caster to a common ground located in the lower shelf. A wire connects from the common ground to a metal cover located on the top surface of the middle shelf. This metal cover contacts the 3-layer vinyl ESD mat

ESD Upper Shelf/ Work Surface

A wire connects each conductive caster to a common ground located in the lower shelf. A wire connects from the common ground to a point on the linear motor shell column. A coiled cable is connected from this point to the underside of the upper shelf/ work surface. A metal cover contacts the 3-layer vinyl ESD mat to the underside of the upper shelf/ work surface. A metal cover contacts the 3-layer vinyl ESD mat.

Raise/Lower Upper Shelf/Work Surface

Use the ^, ∨ arrows or preset buttons •, ••, ••• to raise or lower the upper shelf/ work surface.

Cart Use Continued

Middle Shelf

The middle shelf is fixed at a height of 24.0" (61.0cm).

Lower Shelf

The lower shelf is fixed at a height of 8.8" (22.4cm).

Drawer

The drawer is mounted on the underside of the upper shelf. It has a full slide out extension of 8.0" (20.3 cm). The drawer interior size is 15.7" (40.0 cm) W X 16.8" (42.7 cm) D X 1.6" (40.6 cm) T. Maximum loading of drawer is 40 lbs (18.2 kg). The drawer has a keyed, single point, quarter turn cam lock.

NOTE: Drawer is non-ESD compliant.

Magnetic Parts Dish

A magnetic dish is located on the upper shelf/ work surface to contain or hold removed hardware. Size is 2.4" (6.1 cm) dia X .2" (.5 cm) D. to the underside of the upper shelf/ work surface. A metal cover contacts the 3-layer vinyl ESD mat.

Care and Cleaning

Painted Surfaces

All painted surfaces can be cleaned with a non-abrasive, non-ammonia or non-bleached based cleaner. Do not use soap or detergents on exposed metal surfaces located on the lower shelf, middle shelf, and upper shelf/ work surface. The soap may leave a residue that will insulate the mat from ESD grounding. Wipe down all cleaned surfaces with a lint free soft cloth.

Handle

The handle can be cleaned with a non-ammonia or non-bleached based cleaner.

Exposed Linear Columns

The exposed telescoping linear columns should only be dry wiped down as liquid cleaners may break down the internal lithium grease of the column.

ESD Mats

The lower shelf, middle shelf, and upper shelf/ work surface ESD mats should only be cleaned with any non-ammonia or bleached based cleaner.

Wipe down all cleaned surfaces with a lint free soft cloth.

Front Casters

The front casters are fixed and non-conductive. They can be cleaned with any non-ammonia or bleached based cleaner.

Rear Casters

The rear casters swivel and provide the ESD contact to the flooring. These are a conductive caster. They can be cleaned with any non-ammonia or bleached based cleaner.

Approved cleaning solutions for ESD surfaces

- Desco 10446 Reztore Surface & Mat Cleaner
- 3M 8001 Antistatic Mat & Table Top Cleaner

NOTE: Do not use petroleum-based solvents or alcohol to clean any surfaces on this ESD cart.

Troubleshooting

Upper Shelf/ Work Surface will not raise or lower

- Check the battery charge. To do this remove the ESD mat from the upper shelf/ worksurface and press the battery indicator button. If none of the LED light bars light up then the battery needs to be recharged.
- If the LED light bars do light up, remove the battery/ controller access panel and check to verify battery power cable is plugged in.
- Remove battery/ controller access cover and verify that all motor, power, and controls cables are connected

Upper shelf/ work surface is at an angle

• Synchronize linear motors. Remove all items from upper shelf/ work surface and from middle shelf. Press down V arrow on operator control display upper shelf/ work surface is fully retracted, hold for 5 seconds.

ESD non-compliant on upper shelf/ work surface

- Verify that the flooring has a RTT value of 10⁵<10⁹.
- Verify that the ESD mat has a RTT value of 10⁵<10⁹. If it does not, clean mat and repeat test. If it still does not pass then the mat will need to be replaced.
- Verify that that the resistance from the mat to each conductive swivel caster has a RTG value of 10⁵<10⁹ ohms. If this RTG value fails proceed to the next step.
- Remove the ESD mat. Check the RTG value of 10⁵<10⁹ from the metal surface to each conductive swivel caster. If this test passes, replace the ESD mat. If this RTG value fails proceed to the next step.
- Check the coiled cable to see if it connected or broken. Replace if damaged. Retest RTG value.
- Check ground wire connection to each conductive swivel caster (this is visible underneath the bottom shelf). Replace if damaged. Retest the RTG value.

Glossary:

- RTT = Resistance to table
- RTG = Resistance to ground

Troubleshooting Continued

ESD non-compliant on middle shelf

- Verify that the flooring has a RTT value of 10⁵<10⁹.
- Verify that the ESD mat has a RTT value of 10⁵<10⁹. If it does not, clean mat and repeat test. If it still does not pass then the mat will need to be replaced.
- Verify that that the resistance from the mat to each conductive swivel caster has a RTG value of 10⁵<10⁹ ohms. If this RTG value fails proceed to the next step.
- Remove the ESD mat. Check the RTG value of 10⁵<10⁹ from the metal surface to each conductive swivel caster. If this test passes, replace the ESD mat. If this RTG value fails proceed to the next step.
- Check ground wire connection to each conductive swivel caster (this is visible underneath the bottom shelf). Replace if damaged. Retest the RTG value.

ESD non-compliant on lower shelf

- Verify that the flooring has a RTT value of 10⁵<10⁹ Ohms resistance.
- Verify that the ESD mat has a RTT value of 10⁵<10⁹ Ohms resistance. If it does not, clean mat and repeat test. If it still does not pass then the mat will need to be replaced.
- Verify that that the resistance from the mat to each conductive swivel caster has a RTG value of 10⁵<10⁹ Ohms resistance. If this RTG value fails proceed to the next step.
- Remove the ESD mat. Check the RTG value of 10⁵<10⁰ Ohms resistance from the metal surface to each conductive swivel caster. If this test passes, replace the ESD mat. If this RTG value fails proceed to the next step.
- Check ground wire connection to each conductive swivel caster (this is visible underneath the bottom shelf). Replace if damaged. Retest the RTG value.

Labels



Crush hazard warning



Working load per shelf + total

KENDALL HOWARD 10152 Liberty Lane, Chisago City, MN 55025 (Mobile Utility Cart		
Series / Type	1830	
Serial Number	•183006192020687712185	
Year	2020	
Unit Weight	141lbs / 64kg	

Main marking plate

Declaration of Conformity

Kendall Howard hereby declares that the ESD Worksurface/ Cart complies with Machinery Directive 2006/42/EC, ANNEX 1: Essential health and safety requirements relating to the design and construction of machinery and according to the standards:

- Complies with EN / IEC 60204-1: 2008
- Complies with EN / ISO 13849-1: 2015

The internal components are hereby declared conforming according to standards:

CONTROLLER with MOTOR

- Complies with EMC Directive: 2004/108/EC according to following standard:
 EN 61000-6-1: 2007, EN 61000-6-3: 2007, EN 55022: 2011+A2 Class B
- Complies with Low Voltage Directive 2006/95/EC according to standard:
 EN 60335-1: 2012, EN 62233: 2008, EN 62311: 2008
- Complies with Machinery Directive 2006/42/EC according to standard:
 EN 13849-1: 2008 SRP/CS Cat. PLb and SRESW PLb
- Complies with RoHS2 Directive 2011/65/EU

OPERATOR CONTROL with DISPLAY

- Complies with EMC Directive: 2014/30/EU according to following standards:
 EN 61000-6-1: 2019, EN 61000-6-3 2007+A1:2011+AC:2012
- Complies with Low Voltage Directive 2014/35/EU according to standard: EN 60335-1: 2012+A11: 2014
- Complies with RoHS Directive 2011/65/EU according to the standard:
 EN 50581: 2012

BATTERY Approved according to:

- EN 62133 (Battery safety testing)
- UL 1642 (Lithium cells, standard test)
- UN 38.3 (Transportation of lithium batteries)
- UL 2054 (Household and commercial batteries)
- EN 60335-1 with CBH advanced

Warranty

GENERAL: Kendall Howard offers all users of our products the following Limited Warranty against defects in material and workmanship. Please read your Warranty carefully. This Warranty sets forth our responsibilities in the unlikely event of defect and tells you how to obtain resolution.

TERMS OF WARRANTY: Kendall Howard products are warranted to be free of defects in material and workmanship. If any part or portion of the Kendall Howard product fails to conform to the Warranty, Kendall Howard, at its option, will furnish new or factory remanufactured products for repair or replacement of that part.

WARRANTY EXTENDS TO FIRST PURCHASER FOR USE, NON-TRANSFERABLE: This Warranty is extended to the first person, firm, association, or corporation for whom the Kendall Howard product specified herein is originally sold for use in the United States (the "User"). This Warranty is not transferable or assignable without the prior written permission of Kendall Howard.

ASSIGNMENT OF WARRANTIES: Kendall Howard assigns to User any warranties which are made by manufacturers and suppliers of components of the Kendall Howard product and which are assignable, but Kendall Howard makes NO REPRESENTATIONS as to the effectiveness or extent of such warranties, assumes NO RESPONSIBILITY for any matters which may be warranted by such manufacturers or suppliers and extends no coverage under this Warranty to such components.

DRAWINGS, DESCRIPTIONS: Kendall Howard warrants for the period and on the terms of the Warranty set forth herein that the Kendall Howard product will conform to the descriptions contained in Kendall Howard final invoices, orders, proposals (as modified) and other Kendall Howard descriptive documents ("Descriptions"). Kendall Howard does not control the use of any Kendall Howard product. Accordingly, it is understood that the Descriptions are NOT WARRANTIES OF PERFORMANCE and NOT WARRANTIES FOR A PARTICULAR PURPOSE.

WARRANTY CLAIMS PROCEDURE: Within a reasonable time, but in no case to exceed thirty (30) days, after User's discovery of a defect, User shall contact Kendall Howard. Subject to the limitations specified herein, a Kendall Howard customer service representative will repair or replace the non-conforming Kendall Howard product warranted hereunder, without charge for materials. User will not be charged for labor if performed within thirty (30) days of product purchase. In all other instances, User will be charged for labor performed at Kendall Howard's then current rates. Kendall Howard shall assume shipping costs for replacement products and return of the defective product to Kendall Howard. Warranty coverage will be extended only after Kendall Howard inspection determines there is a defect as claimed and shows no signs of treatment or use which would void the coverage of this Warranty.

WARRANTY PERFORMANCE OF COMPONENT MANUFACTURERS: It is Kendall Howard's practice, consistent with its desire to remedy Warranty defects in the most prompt and effective manner possible, to cooperate with and utilize the services of component manufacturers and their authorized representatives in the performance of work to correct defects in Kendall Howard components. Accordingly, Kendall Howard may utilize third parties in the performance of Warranty work, including repair or replacement hereunder, where, in Kendall Howard's opinion, such work can be performed in less time, and with less expense.

ITEMS NOT COVERED BY WARRANTY: THIS WARRANTY DOES NOT COVER DAMAGE OR DEFECT CAUSED BY misuse, improper application, wrong or inadequate electrical current or connection, negligence, inappropriate on site operating conditions, repair by non- Kendall Howard designated personnel, accident in transit, tampering, alterations, a change in location or operating use, exposure to the elements, Acts of God, theft or installation contrary to Kendall Howard's recommendations or specifications, or in any event if the Kendall Howard serial number has been altered, defaced, or removed. THIS WARRANTY DOES NOT COVER installation costs, external circuit breaker resetting or maintenance or service items and further, except as may be specifically provided for herein, does NOT include labor or shipping costs arising from the repair or replacement of the Kendall Howard product, or any part thereof, or charges to remove same from any premises of User. THIS WARRANTY IS VOID if User alters the product in any way.

LIMITATIONS: THIS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. USER'S SOLE AND EXCLUSIVE REMEDY IS REPAIR OR REPLACEMENT OF THE KENDALL HOWARD PRODUCT AS SET FORTH HEREIN. IF USER'S REMEDY IS DEEMED TO FAIL OF ITS ESSENTIAL PURPOSE BY A COURT OF COMPETENT JURISDICTION, KENDALL HOWARD'S RESPONSIBILITY FOR PROPERTY LOSS OR DAMAGE SHALL NOT EXCEED ONE TIMES THE NET PRODUCT PURCHASE PRICE. IN NO EVENT SHALL KENDALL HOWARD ASSUME ANY LIABILITY FOR INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER, INCLUDING WITHOUT LIMITATION LOST PROFITS, BUSINESS INTERRUPTION OR LOSS OF DATA, WHETHER ANY CLAIM IS BASED UPON THEORIES OR CONTRACT, NEGLIGENCE, STRICT LIABILITY, TORT, OR OTHERWISE.

MISCELLANEOUS: NO SALESPERSON, EMPLOYEE OR AGENT OF KENDALL HOWARD IS AUTHORIZED TO ADD TO OR VARY THE TERMS OF THIS WARRANTY. Warranty terms may be modified, if at all, only in writing signed by a Kendall Howard officer. This Warranty is effective as of the date of Kendall Howard receipt of full payment and supersedes all previous warranties Kendall Howard reserves the right to supplement or change the terms of this Warranty in any subsequent warranty offering to User or others. If any provision of this Warranty should be or becomes invalid and/or unenforceable during the warranty period, the remaining terms and provisions shall continue in full force and effect. User must complete the attached User Information Card and forward it to Kendall Howard within thirty (30) days of receipt of the Kendall Howard product. This Warranty is given in and performance hereunder is to be construed under the laws of the State of Nebraska. This Warranty represents the entire agreement between Kendall Howard and User with respect to the subject matter herein and supersedes all prior or contemporaneous oral or written communications, representations, understandings, or agreements relating to this subject.