
OWNER'S MANUAL SUPPLEMENT

SMART LIMIT for NER2 SERIES ELECTRIC CHAIN HOIST

1/8 and 5 Ton Capacities

Code, Lot and Serial Number

▲WARNING

This equipment should not be installed, operated or maintained by any person who has not read and understood all the contents of this manual. Failure to read and comply with the contents of this manual can result in serious bodily injury or death, and/or property damage.

HARRINGTON
A **KITO** GROUP COMPANY

IMPORTANT INFORMATION ON HOW TO USE THIS MANUAL

This OWNER'S MANUAL SUPPLEMENT is intended for use *in combination* with the “**Owner’s Manual for Electric Chain Hoist ER2 and NER2 Series 1/8 through 5 Ton Capacity**”. Refer to the Table of Contents below to determine the location(s) of information pertaining to your hoist. References to the “Owner’s Manual for Electric Chain Hoist ER2 and NER2 Series 1/8 through 5 Ton Capacity” will be designated by the use of the acronym “**ER2OM**”.

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1.0 Important Information and Warnings

1.2 Warning Tags and Labels

The NER2 Smart Limit tag illustrated below in Figure 1-1 is supplied with each hoist shipped from the factory. If the tag is not attached to your hoist's pendant cord, order a tag from your dealer and install it. Read and obey all warnings attached to this hoist. Tag is not shown actual size.

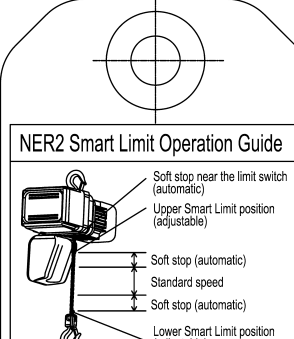
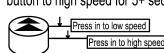
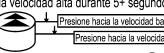
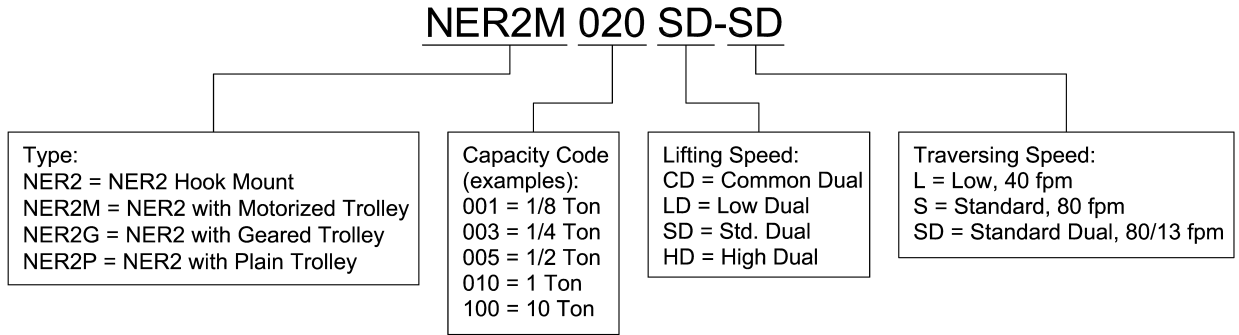
<div style="text-align: center;">  </div> <p style="text-align: center;">NER2 Smart Limit Operation Guide</p> <p>Soft stop near the limit switch (automatic) Upper Smart Limit position (adjustable) Soft stop (automatic) Standard speed Soft stop (automatic) Lower Smart Limit position (adjustable)</p> <p style="text-align: center;">Setting and Cancelling Limits</p> <ol style="list-style-type: none"> 1. Stop hook at the desired limit position. 2. Press the emergency stop button (⊖). 3. To set: For upper limit, depress the UP (⬆) button to low speed for 5+ seconds. For lower limit, depress the DOWN (⬇) button to low speed for 5+ seconds. To cancel: For upper limit, depress the UP (⬆) button to high speed for 5+ seconds. For lower limit, depress the DOWN (⬇) button to high speed for 5+ seconds. <div style="text-align: center;">  </div> <ol style="list-style-type: none"> 4. Turn the emergency stop button (⊖) clockwise to allow hoist operation. <p style="text-align: center;">Calibration of Smart Limit</p> <p>*After a loss of power, the hoist will only operate in low speed until it is calibrated.</p> <ol style="list-style-type: none"> 1. Press the emergency stop button (⊖). 2. Depress the UP (⬆) button to the high speed for 5+ seconds. 3. Turn the emergency stop button (⊖) clockwise to allow hoist operation. 4. Operate the hoist in the UP direction until the upper limit switch is actuated. 5. With the upper limit switch actuated, press the emergency stop button (⊖). 6. Depress the UP (⬆) button to the low speed for 5+ seconds. 7. Turn the emergency stop button (⊖) clockwise to allow hoist operation. <div style="text-align: center;"> <p>⚠ WARNING</p> <ul style="list-style-type: none"> • ALWAYS read owner's manual <input type="checkbox"/> supplement provided with Smart Limit. • To avoid a potentially hazardous situation, perform a calibration of Smart Limits after a loss of power. • Do NOT calibrate with load on the hoist. <p>80476</p> </div> <p style="text-align: center;">front</p>	<div style="text-align: center;">  </div> <p style="text-align: center;">Guía de funcionamiento de Límite Inteligente NER2</p> <p>Suave desaceleramiento cerca del interruptor de límite (automático) Límite Inteligente superior (ajustable) Suave desaceleración (automática) Velocidad estándar Suave desaceleración (automática) Límite Inteligente inferior (ajustable)</p> <p style="text-align: center;">Configuración y cancelación de límites</p> <ol style="list-style-type: none"> 1. Posicione el gancho en el lugar donde desea el nuevo límite. 2. Presione el botón de detención de emergencia (⊖). 3. Para configurar: Para el límite superior, oprima el botón SUPERIOR (⬆) hacia la velocidad baja durante 5+ segundos. Para el límite inferior, oprima el botón INFERIOR (⬇) hacia la velocidad baja durante 5+ segundos. Para cancelar: Para el límite superior, oprima el botón SUPERIOR (⬆) hacia la velocidad alta durante 5+ segundos. Para el límite inferior, oprima el botón INFERIOR (⬇) hacia la velocidad alta durante 5+ segundos. <div style="text-align: center;">  </div> <ol style="list-style-type: none"> 4. Gire el botón de detención de emergencia (⊖) en el sentido de las agujas del reloj para permitir el funcionamiento del polipasto/tecle. <p style="text-align: center;">Calibrado del Límite Inteligente</p> <p>*Después de una pérdida de electricidad, el polipasto/tecle solo funcionará en velocidad baja hasta que se lo recalibre.</p> <ol style="list-style-type: none"> 1. Presione el botón de detención de emergencia (⊖). 2. Oprima el botón SUPERIOR (⬆) hacia la velocidad alta durante 5+ segundos. 3. Gire el botón de detención de emergencia (⊖) en el sentido de las agujas del reloj para permitir el funcionamiento del polipasto/tecle. 4. Opere el polipasto/tecle en dirección ASCENDENTE hasta que se accione el interruptor de límite superior. 5. Con el interruptor de límite superior accionado, presione el botón de detención de emergencia (⊖). 6. Oprima el botón SUPERIOR (⬆) hacia la velocidad baja durante 5+ segundos. 7. Gire el botón de detención de emergencia en el sentido de las agujas del reloj para permitir el funcionamiento del polipasto/tecle. <div style="text-align: center;"> <p>⚠ ADVERTENCIA</p> <ul style="list-style-type: none"> • SIEMPRE lea el suplemento del manual del propietario proporcionado con el Límite Inteligente. • A fin de evitar una situación potencialmente peligrosa, calibre el Límite Inteligente después de una pérdida de electricidad. • NO calibre si el polipasto/tecle tiene una carga. <p>KITO/HARRINGTON</p> </div> <p style="text-align: center;">back</p>
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Figure 1-1 NER2 Smart Limit Tag Attached to Hoist

2.0 Technical Information

2.1 Specifications

2.1.1 Product Code



2.1.2 ER2 and NER2 Models - Harrington ER2 series hoist are available in two versions, the ER2 and NER2. Smart Limits is available with dual speed NER2 only.

2.1.3 Operating Conditions and Environment

- Temperature range: -4° to +104°F (-20° to +40°C)
- Humidity: 85% or less
- Noise Level: 85 dB or less (A scale: measured 1 meter away from electric chain hoist)
- Enclosure Rating: Hoist Meets IP 55
- Supply Voltage: Dual Speed Standard: 208/230V-3-60 or 460V-3-60
- Number of Adjustable Limits: One upper limit and one lower limit
- Precision of Adjustable Limits: ±10mm

	Dual Speed
Hoist Duty Rating:	ISO M4/M5; ASME H4
Intermittent Duty Rating:	40/20% ED
Short Time Duty Rating:	120/240 starts per hour 30/10 min.

2.2 Dimensions

All dimensions are the same as the NER dual speed hoist dimensions shown in Table 2-3 of ER2OM, except for the following:

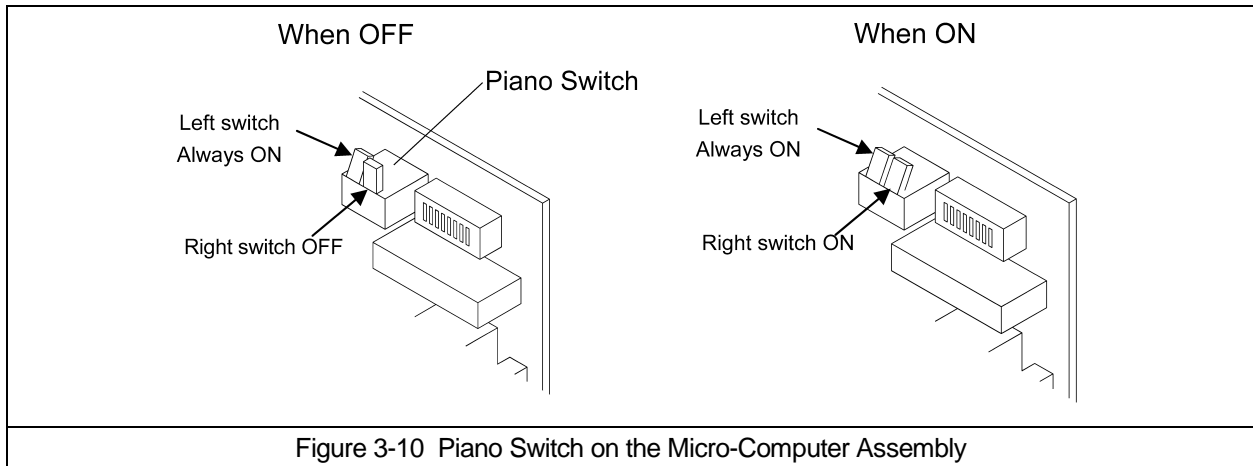
- For 460V-3-60 NER2003HD and NER2005SD,
 - a = 22.9 in (581 mm)
 - d = 12.3 in (313 mm)
- For 460V-3-60 NER2005LD,
 - a = 23.0 in (584 mm)
 - d = 12.3 in (313 mm)

3.0 Preoperational Procedures

3.8 Activation

3.8.1 **CAUTION** Ensure that the voltage of the electric power supply is proper for the hoist.

3.8.2 In order to activate the Smart Limit option, turn the piano switch on the micro-computer assembly to ON as shown in Figure 3-10.

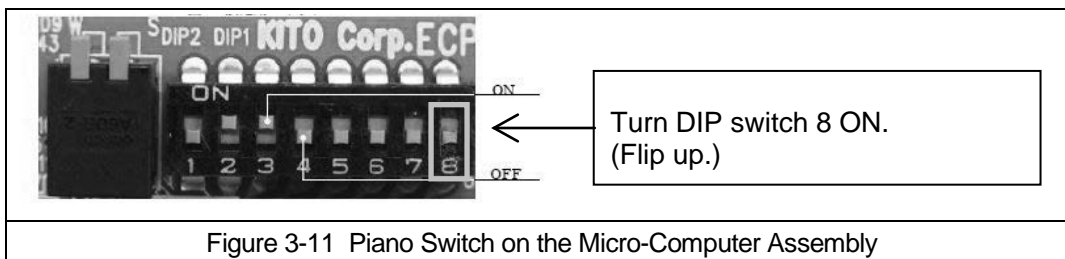


3.8.3 **WARNING** Do not put a load on the hoist when registering the length of load chain.

3.8.4 The length of load chain must be registered before the Smart Limits is activated. The hoist will only operate in low speed before the length of load chain is registered. The registration procedure is as follow:

- Turn the hoist on and open up the controller cover.
- Locate the DIP switches on the interface board shown in figure 3-11. Turn switch number 8 on (flip up). Do not change the positions of switches 1 through 7.
- With switch number 8 on, operate the hoist in the up direction until the upper limit switch actuates.
- Operate the hoist in the down direction until the lower limit switch actuates.
- After reaching both upper and lower limits, turn switch number 8 off (flip down).

With the length of load chain registered with the unit, the hoist will operate in high speed. The registration will also enable the soft stop feature. The soft stop feature allows the hoist to automatically switch to low speed near its limits (upper/lower ultimate limits and upper/lower set limits).



3.8.5 **CAUTION** Be sure to register the length of load chain every time the hook or the chain has been replaced.

4.0 Operation

4.4 Setting and Canceling the Smart Limit

4.4.1 **⚠ CAUTION** Register the length of load chain before setting or canceling the Smart Limit.

4.4.2 Smart limit is adjustable from the pendant for both upper and lower limits. The setting/canceling procedure for the Smart Limit is as follow:

- Stop hook at the desired limit position.
- Press the Emergency Stop Button.
- To set the limit:
 - For upper limit, depress the UP button to low speed for 5+ seconds.
 - For lower limit, depress the DOWN button to low speed for 5+ seconds.
- To cancel the limit:
 - For upper limit, depress the UP button to high speed for 5+ seconds.
 - For lower limit, depress the DOWN button to high speed for 5+ seconds.
- Turn the Emergency Stop Button clockwise to allow hoist operation.

4.5 Calibration of the Smart Limit

4.5.1 **⚠ WARNING** To avoid a potentially hazardous situation, perform a calibration of the Smart Limit after a loss of power occurs during hoist operation.

4.5.2 **⚠ WARNING** Do not put a load on the hoist when calibrating Smart Limit.

4.5.3 In case of a power loss during hoist operation, the set positions of Smart Limit may change. The hoist will only operate in low speed until it is calibrated. The calibration procedure is as follow:

- Press the Emergency Stop Button.
- Depress the UP button to the high speed for 5+ seconds.
- Turn the Emergency Stop Button clockwise to allow hoist operation.
- Operate the hoist in the UP direction until the upper limit is actuated.
- With the upper limit switch actuated, press the Emergency Stop Button.
- Depress the UP button to the low speed for 5+ seconds.
- Turn the Emergency Stop Button clockwise to allow hoist operation.

5.0 Inspection

5.7 Inspection Methods and Criteria

5.7.1 This section covers the inspection of specific items. The list of items in this section is based on those listed in ANSI/ASME B30.16 for the Frequent and Periodic Inspection. In accordance with ANSI/ASME B30.16, these inspections are not intended to involve disassembly of the hoist. Rather, disassembly for further inspection would be required if frequent or periodic inspection results so indicate. Such disassembly and further inspection should only be performed by a qualified person trained in the disassembly and re-assembly of the hoist.

Table 5-10 Smart Limit Components Inspection Methods and Criteria

Item	Method	Criteria	Action
Mounting screws	Visual	Mounting screws should not be loose.	Tighten or replace as required.
Smart Limit precision	Function	Precision of Smart Limit should not exceed +/- 10mm (0.4in).	Repair or replace as required.
Photosensor mount	Visual	Photosensor mount should not be loose.	Tighten or replace as required.
Trigger wheel mount	Visual	Trigger wheel mount should not be loose.	Tighten or replace as required.
Micro-computer assembly mount	Visual	Micro-computer assembly should not be loose.	Tighten or replace as required.
Lead wire guard and lead wires (for 1/8 ton to 1/2 ton units)	Visual	Lead wires should be located against the lead wire guard to prevent them from getting entangled with the trigger wheel.	Move the wires to proper location.

7.0 Troubleshooting

Table 7-1 Troubleshooting Guide for Smart Limit Micro Board Errors

Error code (U7-08)	Content	Hoist operate mode	Error detail/cause	Countermeasure
0	No error	Normal	N/A	N/A
1	Blackout signal detected	Low speed mode	It happens when the hoist is turned off during operation. The hoist works with low speed mode only when chain length has been registered. (see 3.8.4)	Calibration of the smart limit (see 4.5) or Factory reset*
2	Photo sensor error	Doesn't work	Photo sensor signal could not detected.	Inspect 2 of photo sensors.
3	Drop load detected	Doesn't work	Smart Limit could detect any wrong signal from photo sensors... opposite direction against hoist operation.	Inspect hoist to discover potential drop load mark.
4	Over count	Doesn't work	Encoder signal from photo sensors could be over 2147483648.(over count)	Calibration of the smart limit (see 4.5) and re-register length of chain (see 3.8.4)

*Factory Reset

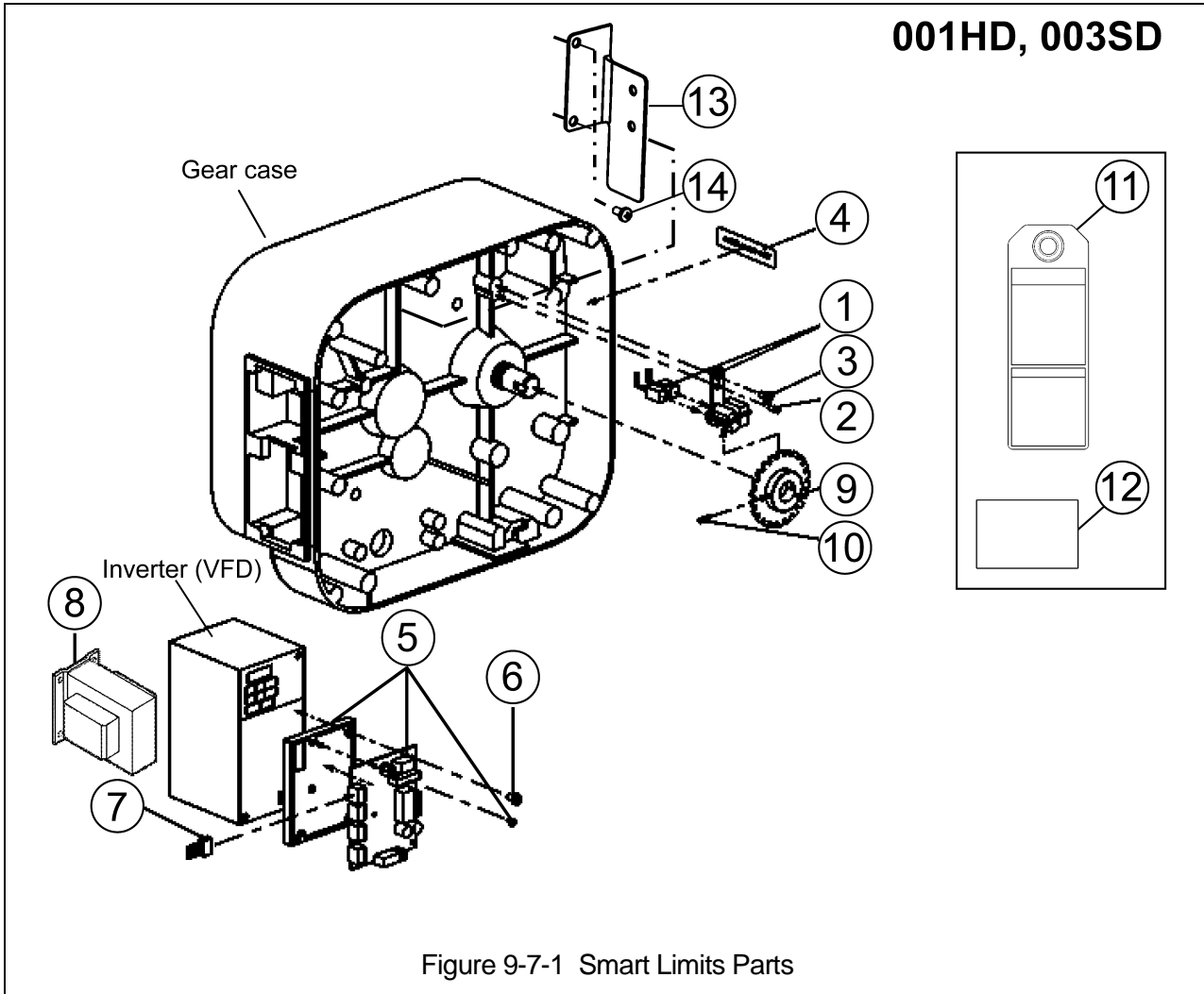
By turning dip switch 8 ON then OFF, all settings will be reset to initial settings.

**Standard NER2 mode

To avoid disabling the hoist entirely, in the event there is damage to the micro board, the Smart Limit system can be bypassed by keeping dip switch 8 in the ON position. This is a last resort.

9.0 Parts List

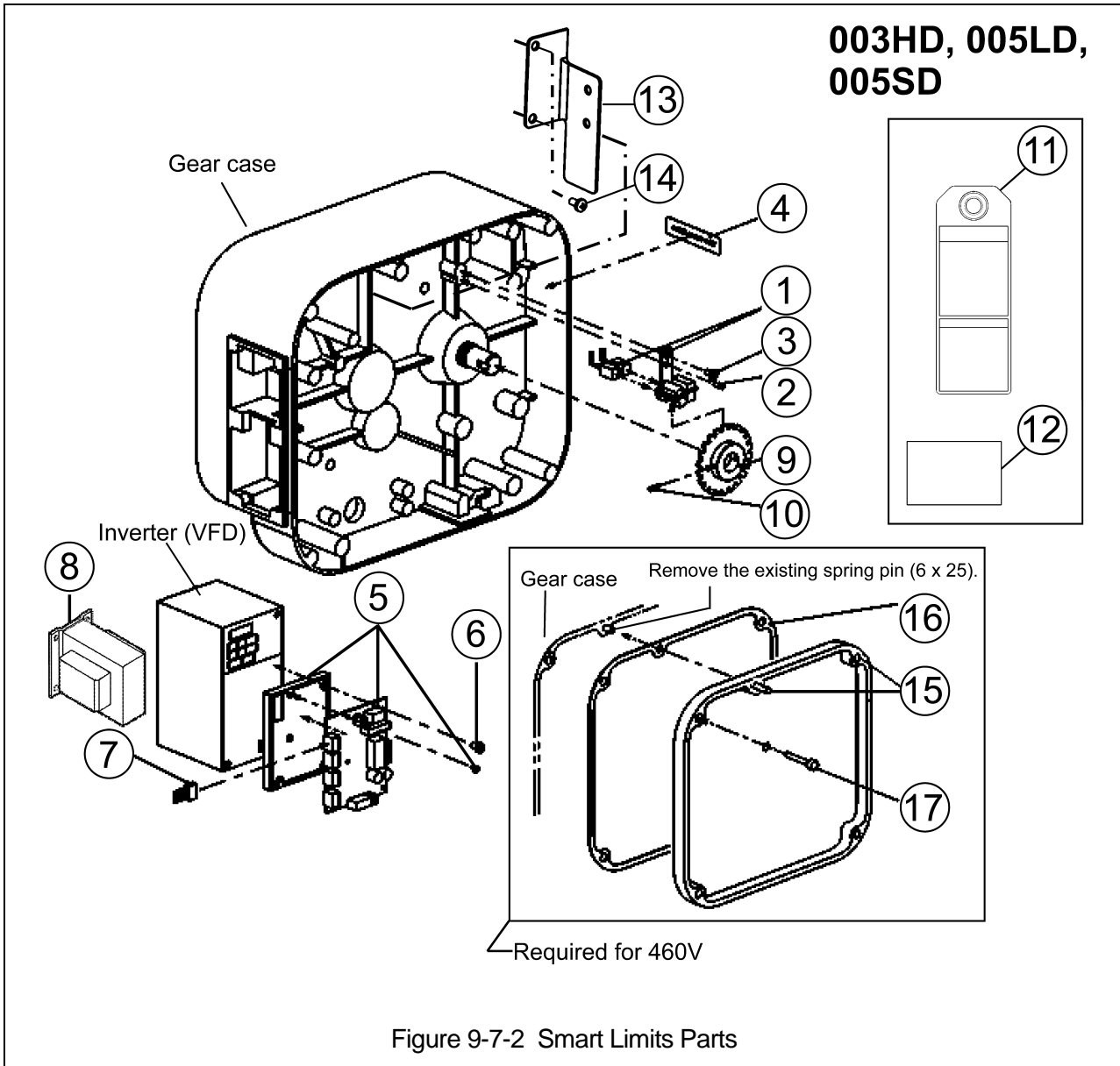
9.7 Smart Limit Parts



9.7 Smart Limit Parts

Figure No.	Part Name	Parts per Hoist	Part Number	
1	Photosensor Assembly	1	ER2BI1669	
2	Spring Pin	1	ES451005S	
3	Machine Screw with Spring Washer	1	J1AP25000808	
4	Smart Limit Label	1	80469	
5	Micro-computer Assembly	1	ER2BEE00I5B7	
6	Pan Head Machine Screw	1	J1AK23001515	
7	Micro-computer Lead Wire	2	ER2BHE03I9B3	
8	Transformer	1	2V	TRF32C912
			4V	TRF92N912
9	Trigger Wheel	2	ER2BS9674	
10	Socket Set Screw	1	J1TD1103008	
11	Smart Limit Warning Tag	1	80476	
12	Smart Limit Wiring Diagram	1	ER2BHE03I9B4	
13	Lead Wire Guard	1	ER2BI9667	
14	Machine Screw with Spring Washer	2	MS555010	

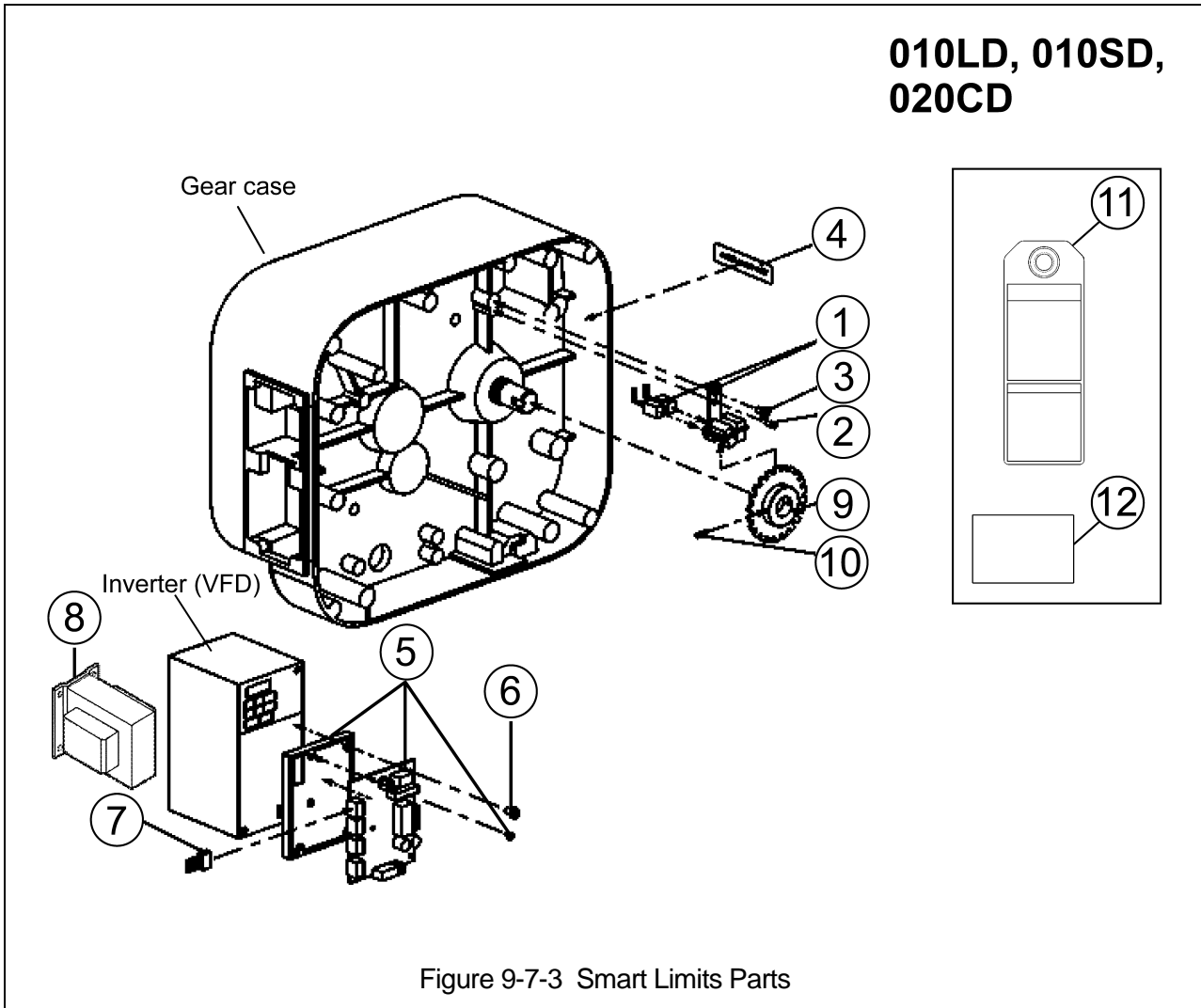
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12	Smart Limit Wiring Diagram	1		ER2BHE03I9B4
13	Lead Wire Guard	1		ER2BI9667
14	Machine Screw with Spring Washer	2		MS555010
15	Spacer C Assembly	1	4V	ER2CS5684
16	Packing C	1	4V	ER2CS9117
17	Socket Bolt	4	4V	J1BE10505518

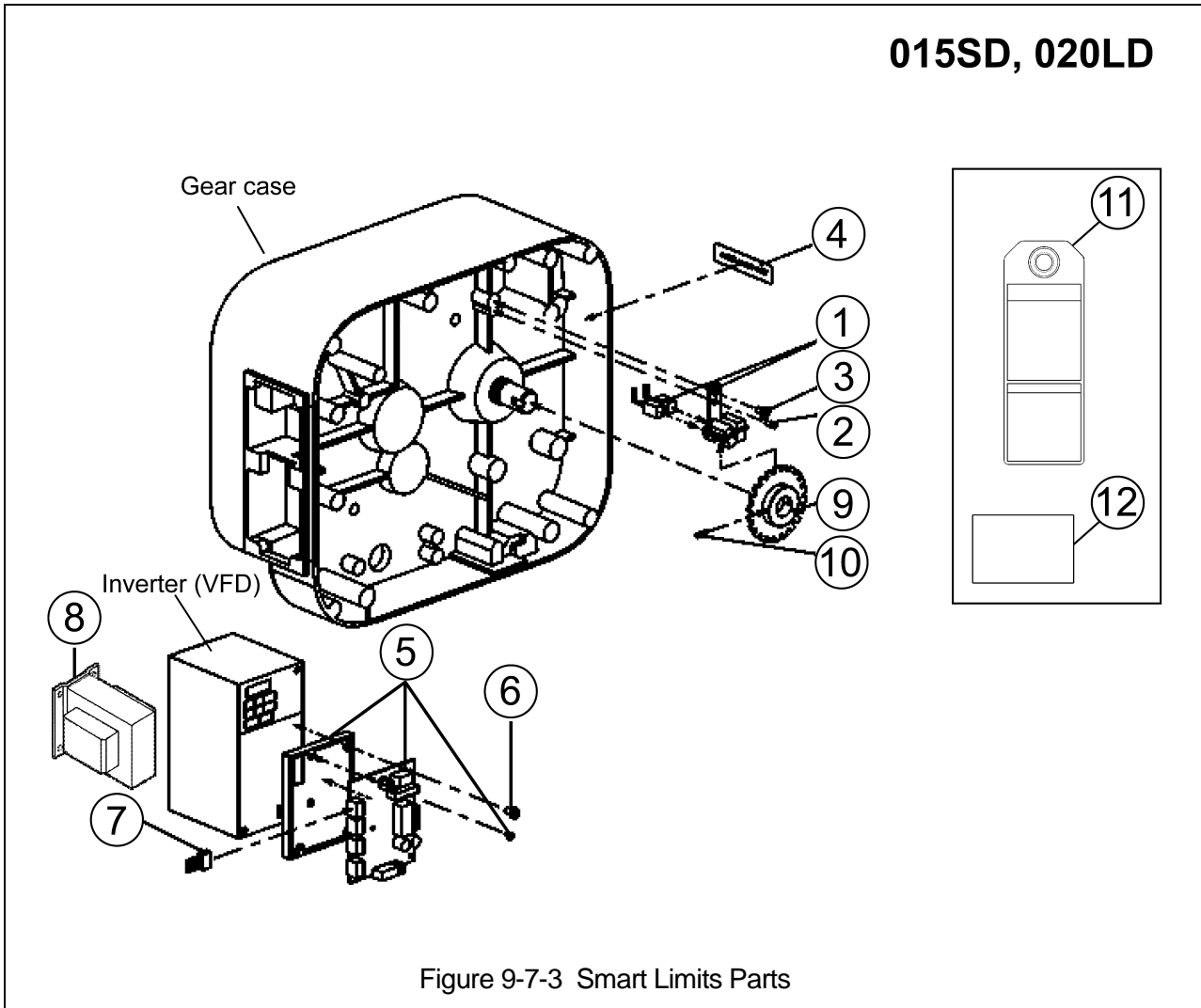
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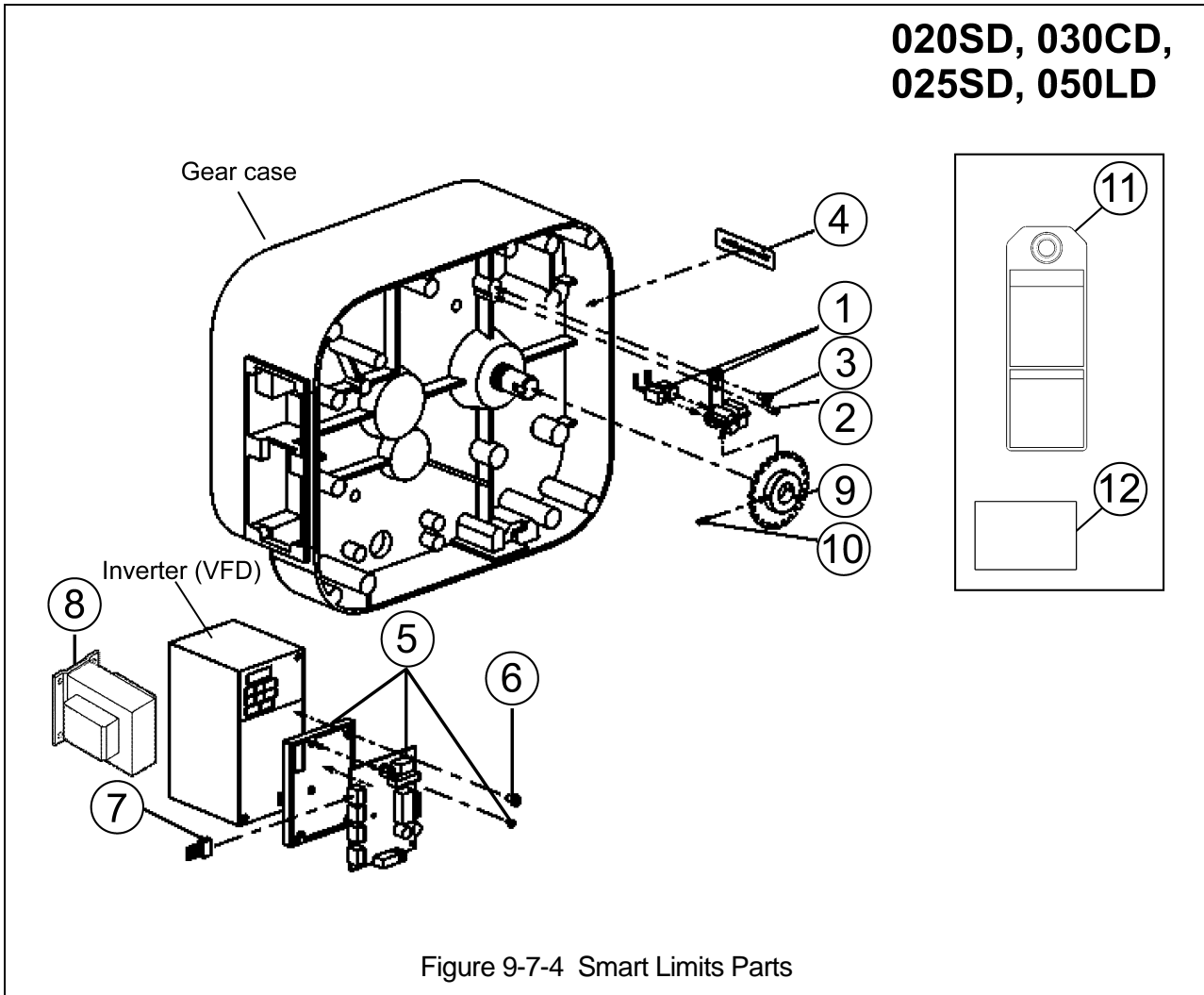
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Harrington Hoists, Inc.
401 West End Avenue
Manheim, PA 17545

www.harringtonhoists.com

Toll Free: 800-233-3010
Phone: 717-665-2000
Fax: 717-665-2861

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