

**PRODUCT LIABILITY  
PREVENTION GUIDE**  
for  
**Packaging and Processing  
Machinery  
Manufacturers**

*Volume 2 First Edition*

**Legacy Machinery – What to Do?**



The Association for Packaging  
and Processing Technologies

**PMMI**  
12930 Worldgate Drive, Suite 200  
Herndon, VA 20170

## **PMMI's PRODUCT LIABILITY PREVENTION GUIDE Volume 2 First Edition**

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### Foreword

PMMI's *Product Liability Prevention Guide* is now contained in two volumes. Volume 1 provides an overview of the product liability process and how packaging and processing machinery manufacturers can proactively address issues related to products liability. This Volume 2 focuses on the post-sale issues related to legacy machinery.

PMMI's Product Liability Prevention Guide Volume 1 was first published in 1992 and was subsequently revised in 1998 (Second Edition), 2002 (Third Edition), and 2008 (Forth Edition). To keep current with various legal and technical changes, the 2019 Volume 1 is the Fifth Edition of this Guide.

PMMI's Product Liability Prevention Guide assists packaging and processing machinery manufacturers with information on how to decrease their product liability exposures. There are two distinct methods to prevent problems with product liability:

- 1) Build a safe machine
- 2) Improve the ability of the company to defend itself when litigation occurs.

PMMI's Product Liability Prevention Guide Volume 1 identifies actions that packaging machinery manufacturers can take now before an incident occurs that might result in litigation, and actions that should be taken once the company learns that an incident has occurred.

PMMI's Product Liability Prevention Guide Volume 2 provides guidance regarding Legacy machinery (existing machinery in the field). Legacy machinery poses opportunities and challenges for the manufactures of packaging machinery, packaging related converting machinery and processing machinery for food, beverage and pharmaceutical products. For example:

- Existing customers need spare parts, service, overhauls, change parts for new products and opportunities for new machine sales.
- Upgrades to legacy machinery arise when new technology is implemented on new designs and can be retrofitted on existing machinery.
- A service technician goes to a customer's facility and discovers that guards have been removed and interlocks bypassed or removed.

How should a packaging or processing machinery supplier handle these or similar situations? PMMI's Product Liability Prevention Guide Volume 2 provides guidance to answer the question **"What to do?"** by looking at the issues from an "engineering" view and a "legal view".

The Guide is not the sole authority on product safety or product liability in packaging machinery manufacturing, nor are all of the guidelines set forth in the Guide necessarily applicable to each product manufactured by PMMI's members. Local requirements and laws vary from state to state, and even from city to city. Therefore, PMMI encourages its members to consult with their own professional advisors in developing and implementing a product liability program that is specifically tailored to the particular products manufactured by each member. Additionally, because of the constantly evolving law concerning product liability, any product liability prevention program should be reviewed and updated on a periodic basis.

This Guide cannot be construed as specific legal advice; PMMI strongly urges that readers consult appropriate counsel in the specific jurisdiction for answers to discreet legal issues. PMMI and the contributors disclaim responsibility for any statements that may be found to be incorrect, inaccurate or incomplete, and for the omission of information that may be considered pertinent.

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**Acknowledgments**

Bruce Main, PE, CSP  
design safety engineering inc  
[www.designsafe.com](http://www.designsafe.com)  
(888) 628-8788

Kevin G. Owens  
Martha E. Drouet  
Zachary A. Pestine  
Johnson & Bell, Ltd.  
33 West Monroe Street – Suite 2700  
Chicago, IL 60603  
(312) 372-0770 – General  
[www.johnsonandbell.com](http://www.johnsonandbell.com)

Fred Hayes  
PMMI, The Association for Packaging and Processing Technologies  
[www.pmmi.org](http://www.pmmi.org)

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**Contents**

<b>LEGACY EQUIPMENT – AN ENGINEERING VIEW.....</b>	<b>6</b>
<b>Key Points .....</b>	<b>6</b>
<b>Introduction .....</b>	<b>6</b>
<b>Acceptable Risk for Legacy Machinery .....</b>	<b>7</b>
<b>Effective Date .....</b>	<b>8</b>
<b>Legacy machinery scenarios.....</b>	<b>11</b>
<b>#1. SUPPLIER UPDATES CURRENT MACHINE.....</b>	<b>12</b>
<b>#2. WHEN A PREVIOUSLY UNKNOWN HAZARD IS DISCOVERED .....</b>	<b>14</b>
<b>#3 RESPONSIBILITIES FOR WORKING ON LEGACY MACHINES .....</b>	<b>18</b>
<b>#4 SUPPLIER REFURBISHES LEGACY MACHINE.....</b>	<b>23</b>
<b>#5 USER REFURBISHES LEGACY MACHINE .....</b>	<b>24</b>
<b>#6 STORED EQUIPMENT .....</b>	<b>25</b>
<b>#7 CUSTOM MACHINES.....</b>	<b>26</b>
<b>#8 USED EQUIPMENT .....</b>	<b>27</b>
<b>#9 PURCHASING A PRODUCT LINE OF ANOTHER COMPANY .....</b>	<b>28</b>
<b>#10 USER CAPABILITIES / CAPACITIES .....</b>	<b>28</b>
<b>OPPORTUNITIES .....</b>	<b>29</b>
<b>CONCLUSION .....</b>	<b>31</b>
<b>LEGACY EQUIPMENT – A LEGAL VIEW .....</b>	<b>34</b>
<b>INTRODUCTION .....</b>	<b>34</b>
<b>DISCUSSION .....</b>	<b>34</b>
<b>General .....</b>	<b>34</b>
<b>Voluntary Assumption .....</b>	<b>35</b>
<b>Differences State by State .....</b>	<b>35</b>
<b>Jablonski v. Ford Motor Co. ....</b>	<b>36</b>
<b>Greater imposition of post-sale duty .....</b>	<b>37</b>
<b>Recalls.....</b>	<b>38</b>
<b>Formal Risk Assessments.....</b>	<b>38</b>
<b>Risk Assessment in litigation.....</b>	<b>39</b>
<b>Closure .....</b>	<b>39</b>
<b>50 STATE COMPENDIUM ON POST-SALE DUTY TO RECALL, RETROFIT OR WARN RELATIVE TO LEGACY EQUIPMENT.....</b>	<b>40</b>
<b>About the Authors.....</b>	<b>53</b>

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## LEGACY EQUIPMENT – AN ENGINEERING VIEW

### Machinery in the Field

\* Much of this content originally appeared in *Risk Assessment, Challenges and Opportunities* (Main 2012). The content has been revised and updated for this publication in the PMMI Product Liability Prevention Guide, Volume 2 *Legacy Equipment – What to do?*

#### Key Points

1. Legacy machinery – equipment in the field - is a complicated and complex topic. There are many gray areas related to the responsibilities of equipment suppliers, refurbishers and users of legacy equipment.
2. Acceptable risk is the goal and requirement with legacy machinery. However, as equipment designs and industry standards evolve, the level of acceptable risk also evolves.
3. Nine different legacy machinery situations are discussed highlighting common scenarios, factors that complicate the situation, and general guidance to address the concerns in a practical manner.
4. In sorting out the issues related to legacy equipment, the supplier must:
  - Understand the residual risk associated with the legacy equipment by conducting a risk assessment associated with the legacy equipment
  - Determine whether the legacy equipment still provides an acceptable level of risk
  - Understand the residual risk associated with the new design or improvements currently available to customers
  - Evaluate the business risks associated with different options of recall, retrofit, post-sale warning, or no action
5. Users of legacy machinery should:
  - Use the risk assessment process to focus and guide efforts
  - Evaluate operations and machinery and whether acceptable risks are achieved
  - Pay particular attention to new workers that may not appreciate the hazards and risks associated with machinery
  - Seek input from workers familiar with the legacy machinery to identify hazards and prioritize risk reduction measures
6. Clear and effective communications between users and suppliers about the scope of refurbishing work are critical to detail what is included and excluded in the work. A common understanding must be agreed to prior to the work commencing.

#### Introduction

Legacy equipment is a general term used to identify equipment or a product manufactured a time in the past which is still being used in the field. In some instances, machinery can be put to serviceable use for decades. In the ensuing years as safety, technology and/or system improvements occur, the question arises “*What to do with legacy machinery in the field?*”

As a matter of success and survival, machinery suppliers continually update and improve their product lines. Technology changes, materials improve, processes advance, costs must be reduced, equipment

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needs to perform faster, capacities must increase and many other influences prompt changes and improvements to supplier offerings. Yet the improvements also give rise to legacy issues because yesterday's machines do not have the latest and greatest safety improvements. The implication being that older designs are perhaps less safe or even unsafe.

Similarly, industry standards continually evolve. As best practices become common, they are often written into industry safety standards. Indeed, most industry standards must be reviewed by the writing committee every five years for update or reaffirmation. This raises several different questions such as:

- Do new improvements require updates/upgrades to legacy equipment? If yes, who is responsible, the user or the supplier?
- Is an improvement to a machine an admission of an inadequacy in the prior design?
- Is a machine user obliged to update or upgrade an older machine when technology or safety standards change?
- Must user personnel spend time and efforts to identify the applicable standards and remain current with the many different standards that may apply to their machinery?

Addressing questions about legacy machinery involves plenty of complexity and confusion. The issue often remains dormant until an injury occurs with an older machine, which further complicates the situation due to liability concerns. There are also legal implications concerning industry standards and how to apply them, and implications with OSHA requirements<sup>1</sup>. Attorney Kevin Owens, of Johnson & Bell, Ltd in Chicago, IL shared that "Perhaps no area of product liability law is more unsettled than the area dealing with the obligations of a manufacturer after it sells its machine" (Owens, 2010). See also Product Liability Prevention Guide Volume 1, Fifth edition.

This chapter examines several legacy machinery situations and the factors involved in helping managers and engineers make intelligent decisions about legacy machinery. Fundamentally, the questions of legacy machinery come down to making informed business decisions.

Both suppliers and users may have responsibilities for legacy equipment in the field. The subject is complex and varies greatly depending on many factors. To explore the legacy issues further, several situations are addressed looking at different scenarios, factors that complicate the issues, and then practical guidance on how to handle the situations legacy machinery.

Before digging into the different situations, the context for legacy equipment needs exploring.

### **Context**

#### **Acceptable Risk for Legacy Machinery**

Before delving into the details of legacy issues, a key concept must be discussed – acceptable risk. Why? Because legacy issues can only be decided in the context of acceptable risk (see Main, 2012).

Acceptable risk is a key concept in recent standards. Various definitions exist for the term without great variations. One definition appears in ANSI/PMMI B155.1 as follows:

**acceptable risk** - risk that is accepted for a given task or hazard. For the purpose of this standard the terms "acceptable risk" and "tolerable risk" are considered synonymous.

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<sup>1</sup> Disclaimer: The following is not legal advice but only an engineer's perspective on important issues related to refurbishing machinery. When machinery or equipment has important legal considerations, an attorney should be consulted.

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***Informative Note 1:** The decision to accept (tolerate) a risk is influenced by many factors including the culture, technological and economic feasibility of installing additional risk reduction measures, the degree of protection achieved through the use of additional risk reduction measures, and the regulatory requirements or best industry practice. The expression "acceptable risk" usually, but not always, refers to the level at which further risk reduction measures or additional expenditure of resources will not result in significant reduction in risk.*

***Informative Note 2:** The user and supplier may have different level(s) of acceptable risk.*

Similar definitions appear in other standards such as ANSI B11.0, ANSI/ASSE Z590.3, ISO Guide 51, ISO 12100.

One measure of acceptable risk is the information contained in voluntary industry consensus standards. These standards evolve over time to include safety and performance improvements.

The concept of acceptable risk is not new. When machinery is shipped to a customer a decision has been made by the supplier that the risks have been reduced to an acceptable level. Setting aside the rare cases of fraud or malice, most machinery suppliers are confident in their designs and are willing and able to support their decisions that the machine is ready for the customer. Whether implicit or explicit, a decision has been made that an acceptable risk level has been achieved by the supplier. To achieve an acceptable level of risk in using a machine, the user needs to conduct a risk assessment and follow the supplier's information for use. Although this acceptable risk concept has existed for decades, only in the past fifteen years have industry standards begun to require that risks be documented to show that acceptable risk has been attained.

In the U.S., mere compliance with a standard does not guarantee acceptable risk. Complying with a standard is often used as one measure of achieving acceptable risk, but there is no guarantee that compliance alone will be sufficient. Suppliers and users must be able to demonstrate acceptable risk has been achieved – usually through a documented risk assessment.

Legacy machinery decisions must be viewed within the framework of acceptable risk, but is the acceptable risk level of today or yesterday applicable?

### **Effective Dates**

When a standard is published the issue of when the standard becomes effective arises. Clearly a machine cannot be expected to meet a requirement that did not exist at the time of manufacture. But what if the date of manufacture is one month after the standard is published?

Some standards allow for a transition period for new requirements to be implemented through the means of the Effective Date. The ANSI/PMMI B155.1 standard includes the following text on Effective Dates:

#### **Effective Date**

The following information on effective dates is informative guidance only, and not a normative part of this standard. The subcommittee recognizes that some period of time after the approval date on the title page of this document is necessary for suppliers and users to develop new designs, and/or modify existing designs or manufacturing processes in order to incorporate the new and/or revised requirements of this standard into their product development or production system.

The committee recommends that **suppliers** complete and implement design changes for new packaging and processing machinery within 6 months of the publication of this standard.



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The committee also recommends that **users** confirm that packaging and processing machinery has acceptable risk within 6 months of the publication date of this standard. If the risk assessment process shows that modification(s) is necessary, refer to the requirements of this standard to implement risk reduction measures for appropriate risk reduction. *[emphasis added]*

This text is informative or guidance language and not part of the normative requirements.

Unlike the above, many standards are completely silent on the issue of an effective date. This occurs because:

- the committee writing the standard may not have discussed the issue,
- the committee considered the publish date as the effective date,
- the topic was controversial and consensus was not reached thus no mention was made, or
- other reason(s).

There are two very different philosophical viewpoints on the topic of effective dates and responsibilities for existing machinery. The viewpoints are often expressed quite passionately. The controversy centers around whether a user is required to update its machinery as industry standards evolve. Although cost plays a part in the discussion, the most passionate discourse has more to do with the principle of who should do what related to updating machinery, and why.

One view, often espoused by machinery suppliers, is that after the point of sale the machinery is owned by the machinery user and keeping the machinery updated is the user's responsibility. This view espouses that the user is responsible for keeping abreast of changes to the standards applicable to the machinery and to keep the machinery current with existing standards. By this mechanism, machinery is updated to current safety standards and ensures user personnel are able to work on and around the machinery with acceptable risk based on current standards. This view expects users to keep machinery current with today's requirements whether updates are offered by the supplier or not. For example, machines that last for decades can outlast the supplier companies that manufacture them. This perspective views that users keeping machines current is the primary means of providing a safe workplace, and that to not keep machinery current can lead to unsafe systems.

A dissenting view holds that to require users to continually update machinery and equipment incurs an onerous and excessive cost that machinery users are unable to provide. Particularly for larger companies that have hundreds of varied machines, updating machinery and keeping current with all the applicable standards would involve considerable resources that few organizations have, particularly since these resources would not be deployed to improve and advance the operations of the organization. Even small manufacturers can have several different machines of different vintages. Keeping in mind that users purchase machines to perform work, the primary focus of users is on using the machinery rather than standards evolution or machinery designs. User organizations of all sizes often lack the requisite skills or expertise to keep current with the many standards that apply to various machines and equipment. Suggesting that users must keep legacy machinery current to today's standards is viewed as an onerous responsibility on the user. This view places greater emphasis on the ability of users to consider current standards but not implement changes if they are not needed. This perspective is based on the belief that most existing machinery systems achieve acceptable risk and do not require updating.

The effective date and supplier / user responsibilities remain an open issue. The effective date text above represents something of a compromise of these viewpoints.

There is very little controversy regarding the supplier's duty to produce new machinery that meets the current industry standard, subject to a reasonable time for implementation. New machinery should

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comply with the requirements of voluntary industry standards that exist at the time of manufacture. Machinery suppliers need to make certain that their machinery complies with the applicable requirements at the time of manufacture. However, there is no expectation that machinery will meet the new requirements on the date the new standard is published, although some machines do, and this is one of the reasons suppliers participate on standards writing committees.

There exists a common perception that revised standards have “grandfathering” clauses. This phrase refers to the very common assumption that new standards only apply to new machines and that existing machinery is *explicitly exempted* from the requirements of new standards. This is a false perception. There is no *explicit* “grandfather clause” for existing machinery.

There is an implicit assumption that the newer requirements provide reduced risk and thus updates to existing machinery could be needed. Most standards are silent or do not address whether the new requirements apply to older equipment. This leads to the assumption or interpretation of grandfathering, but could also be interpreted as applying only to new machinery. Thus there is potential for confusion as to whether the new requirements do or do not apply to legacy machinery. The answer is discussed in this chapter through the different situations.

There is also a perception that if a machine met the applicable industry standard(s) at the time of manufacture, then the machine has achieved acceptable risk. In the EU, this concept is termed the “presumption of conformity” where a machine that complies with the applicable standards is presumed to conform to the legal requirements of the Machinery Directive, which implicitly is the finish line of acceptable risk. Although compliance with an industry standard is one measure (and often a very strong measure) of acceptable risk, there is no presumption of conformity in the U.S. Compliance with standards does not automatically presume acceptable risk (see Main (2012) for further discussion).

One area where this “no free pass” idea makes sense is in complying with OSHA standards. Many of the current OSHA standards are very outdated (as many as 60 years old). Complying with out dated standards should not automatically convey a presumption of conformity or acceptable risk.

There is very little specific guidance in law or in technical standards on what a supplier must do regarding legacy machinery. What guidance that does exist tends to be very general, subjective, and open to differing interpretations and opinions, especially after an accident has occurred.

Although some standards recommend updating existing equipment, most standards do not impose any specific obligation on machinery suppliers or users to update their legacy machinery in the field to meet the requirements of the evolving new standards.

ANSI/PMMI B155.1 provides the following criteria:

#### **4.14 Existing (legacy) equipment**

When evaluating existing machinery, the risk assessment process shall include but not be limited to the following:

- experience in the field;
- history of past incidents;
- similar machines and processes;
- reports of near misses;
- number of machines in the field;
- lifespan of the equipment;
- new information regarding hazards;

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- internal safety audits or regulatory visits.

*Informative Note: The supplier and/or user should decide when and what existing machinery should be evaluated.*

ANSI B11.0 (2019) includes the following additional information for existing machinery:

**Table 1 Requirements for new and existing machinery**

<b>Scenario and Description</b>	<b>Requirement</b>
<b>1. New Machinery / System</b> (created utilizing new or used components)	Perform a risk assessment to confirm the risks are at an acceptable level. Comply with current applicable standard(s).
<b>2. Repair / Rebuild / Refurbish Machinery</b> (utilizing comparable components)	No risk assessment required. Comply with applicable standard(s) existing at time of manufacture or initial installation.
<b>3. Rebuild / Refurbish Machinery</b> (utilizing non comparable components, changing the use of the machinery)	Perform a risk assessment to confirm the risks are at an acceptable level. Comply with current applicable standard(s) on any new hazards.
<b>4. Reconfigure / Relocate Machinery</b> (existing machinery is relocated or layout is reconfigured)	Perform a risk assessment on any hazards created by the new layout or change in spatial configuration, and to confirm the risks associated with the reconfigured machinery are at an acceptable level.
	Comply with current applicable standard(s) on any new hazards associated with relocation. All other (pre-existing) hazards comply with applicable standard(s) existing at time of manufacture or initial installation.
<b>5. Modify, Reconfigure, or Remanufacture Machinery</b> (machinery or components are added to or removed from an existing machinery system, or are modified to introduce new features)	Perform a risk assessment to confirm the risks are at an acceptable level.  Comply with current applicable standard(s).

Although complying with a voluntary standard is not a specific legal duty or government requirement, lack of meeting the requirements of a standard can be used in Court as evidence of a design or manufacturing defect, or of a failure to warn (see chapter 2, A Legal View for further details. Often such evidence can be persuasive to a jury. Although there is no explicit legal requirement to meet industry standards, best practices to prevent products liability exposures suggest that a supplier should have a very defensible and documented reason for not meeting the requirements of an industry standard.

**Legacy machinery scenarios**

With the foregoing context, the different legacy machinery situations can be explored further. The following legacy machinery situations are examined:

1. Supplier updates current machine
2. When a previously unknown hazard is discovered
3. Responsibilities for working on legacy machines
4. Supplier refurbishes legacy machine
5. User refurbishes legacy machine
6. Stored equipment
7. Custom machines

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8. Used equipment
9. Purchasing a product line of another company
10. User capabilities / capacities

### **1. SUPPLIER UPDATES CURRENT MACHINE**

#### **Scenarios**

Suppliers update product lines on an ongoing basis. New machines, new products, new product lines help companies survive and meet evolving customer needs.

Many machines are evolutionary in design. Each new model has new features, functions, performance capabilities, speeds, capacities, and/or other enhancements. Often the improvements are safety related. When a new machine, model or product includes safety related factors, the question often arises as to whether the older design(s) are rendered unsafe or unacceptable by the newer designs. The answer to this question impacts both suppliers and users.

#### **Complicating Factors**

The cloud of products liability greatly complicates decisions on legacy machinery when current designs have been improved. This applies whether an injury incident has occurred or not. Why? Because in the event of an injury the plaintiff will attempt to argue that the legacy machine contained a hazard that should have been identified during the design of the machine, and that the supplier should have addressed the particular hazard differently than it did. The plaintiff will argue that the improvements demonstrate evidence of poor design or negligence, and that the alternate design provided by the supplier should have been supplied prior to the injury. If a newer machine has safety features or systems that eliminate or reduce risks of a particular hazard, the plaintiff will likely argue that the design change should have been included with the original machine, or that the supplier should have retrofitted the machine so as to avoid the incident.

Another complicating factor is that not only do machinery and products evolve, but the industry standards evolve as well. As standards change over the years the changes bring different levels of acceptable risk, presumably lower. Not only are older products and machines compared to the newest models, but the older products are also compared to the current safety standards. These comparisons can cast the older machinery or product in a light that questions if the risks are acceptable.

#### **Guidance on what to do**

An improvement to a design does *not* imply that previous designs are unsafe or defective. New designs can, and often do, provide a higher level of safety (lower residual risk) than legacy equipment. Although today's designs may be better than yesterday's, this does not imply that yesterday's designs are unsafe or that the risks associated with their use are unacceptable.

An example can be found in the auto industry related to side air bags. Vehicles manufactured before the 1990s when side air bags become more widely available are still operating on the roads today. Newer model vehicles include multiple side air bags. These new safety features reduce the overall risk of injury under certain conditions. The side air bag features do not render the older vehicles unsafe. Plaintiff attorneys have attempted to argue in litigation cases that older vehicles without side air bags are unsafe, but these arguments have not been persuasive. If they were, older model vehicles would not be supported or repaired by the auto manufacturers (repair parts would not be sold). Older model vehicles can be operated with an acceptable level of risk even though they lack the side air bag features.

As a matter of law, subsequent improvements to a machine do not constitute an admission of a defect in prior machines. Usually subsequent improvements are considered inadmissible evidence in Court and excluded from the evidence the jury hears in deciding a case (see chapter 2 A Legal View).

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Mr. Fred Hayes described lessons learned in a product liability case involving a stretch wrapper for pallets that involved legacy equipment (Hayes, 2006). The differences between new and old designs is clarified by the following jury instructions delivered by Judge Haynes in the case *Wilkerson v Lantech, Inc.*:

Under Tennessee law, a design defect is not established merely because there may have been a better design which would have prevented the injury. A manufacturer is not an insurer of the product it designs, and it is not required that the design adopted be perfect, or render the product accident proof, or incapable of causing injury, nor is it necessary to incorporate the ultimate safety features in the product. Hence, a departure from the required standard of care is not demonstrated where it is simply shown that there was a better, safer or different design which would have averted the injury.

Under Tennessee law, to establish a defect in a product, the plaintiff must trace the injury to some specific error in construction or design of the product. (*Wilkerson v Lantech, Inc.*)

The same concepts apply with evolving standards. A newer standard may yield a lower risk level, but that does not mean that the prior standard is unacceptable. The newer standard may be better than the older one, but that does not necessarily mean that the older one is now rendered bad or unacceptable. The issues to be addressed are whether the design provided an acceptable level of risk at the time of manufacture and currently.

A supplier with current designs and legacy equipment in the field should consider the following actions:

- Conduct a risk assessment to evaluate residual risks of the subject machine. A task-based risk assessment is recommended because the granular level of detail in such an approach can provide good basis for understanding the risks. Demonstrating that the tasks performed on and around a machine have been thoroughly identified and analyzed will be very important to making a determination about the acceptability of risks. Note this supplier risk assessment differs from the user risk assessment that should be conducted for the particular application of the machine in the work place setting.
- Evaluate if the legacy machine met the requirements of industry standards and provided acceptable risk *at the time of manufacture*. If yes, that is good news. If no, this is not good news. See Situation #2 for further discussion.
- Evaluate if the legacy machine meets the industry standards *of today*. If yes, that is good news. If no, a response may or may not be required depending on the risk. If there are deviations from an industry safety standard, document the differences and why they exist. Demonstrate through a risk assessment that the risks are known and low enough to be acceptable, even if not equal. Document that the legacy machine achieves an acceptable level of risk today even if it does not provide the latest or greatest design safety improvements. Deviations from standards requirements are permitted in some standards provided the deviations are based on a documented risk assessment and acceptable risk is achieved (see ANSI/PMMI B155.1 and ANSI B11.0 for example).

If the legacy machine has an acceptable risk but lacks potential safety improvements, then the supplier should consider potential opportunities that might be available described under Opportunities. If the supplier identifies a new hazard through the course of developing the new design, and determines that the legacy machinery does not achieve acceptable risk, Situation #2 applies.

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## **2. WHEN A PREVIOUSLY UNKNOWN HAZARD IS DISCOVERED**

### **Scenarios**

Manufacturing a product or machine includes identifying hazards associated with the intended use and reasonably foreseeable misuse of the machine. In some circumstances, a hazard that was unknown or undiscovered at the time of manufacture becomes known. This situation arises from one of many sources:

- Customer calls with a problem based on an unanticipated use of the machine/system,
- Field service personnel observe an unexpected use or misuse,
- Customer places an order for a part that very rarely requires replacement and follow up discussions reveal the cause,
- The design engineer or technician thinks of it,
- An injury or near injury occurs, or
- The supplier receives a complaint giving notice of a lawsuit.

When such a hazard is identified, the supplier's post-sale duties become relevant.

The post-sale duties of a machinery supplier involve fairly complex legal issues and can require a large commitment of company resources in terms of time, staffing and funding. The nature of post-sale product liability duties, however, leaves suppliers with little choice but to respond appropriately to ensure its machinery has risks reduced to an acceptable level and that the company decisions are defensible.

### **Complicating Factors**

#### An incident occurs

An injury incident occurring considerably complicates the discussion of legacy equipment. In the event of an injury or lawsuit, considerable effort usually focuses on determining how the injury occurred and why. In some cases, the injured person is harmed through no fault of their own – due to a failure of some kind. In other situations, questions of misuse arise which complicates discussions related to the need for changing an existing design.

#### Missing risk reduction measures

The absence of an intended risk reduction measure can also complicate the discussion. In many instances one or more risk reduction measure intended to be used with a machine / system was not in place at the time of the injury. This could include a guard, safety device (e.g., a light curtain), a warning, procedures or other risk reduction measure. This situation complicates the discussion related to legacy equipment because it raises the question of whether the lack of the particular intended risk reduction measures was reasonably foreseeable and should have been taken into account during the design of the machine potentially prompting an alternate design solution.

#### Prior injuries or near injuries

Another factor to consider is whether there have been prior injuries or reports of near injuries on the machine. If there are reports of injuries or near injuries on older machines, the need to modify the machine to today's standards increases. This needs to be viewed primarily in the context of products liability and the ability of the company to defend itself. A plaintiff attorney would greatly enjoy presenting to a jury the situation that a machine supplier or rebuilder knew of a prior injury on an older machine, had developed an improved design for its current machines, but failed to update the older machine to include the improved design; particularly if the update would have prevented the injury. This scenario could easily lead to very significant financial penalties through punitive damages.

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### Extent of changes

Another potentially complicating factor in the decision is the extent of changes between the older and current machines. If the differences between the machines are relatively simple and involve the same basic machine with new interlocks or software, and the ability to update the safety systems is relatively simple, then updating the legacy machinery may be worthwhile – particularly if an opportunity can be made of the issue as described in Main (2012).

Conversely, when the number and/or kind of changes made between the machines is significant, the machines can fairly be described as being completely different machines. Even though the machines may perform the same general function and come from the same supplier, if the differences between the machines are many and/or substantial, then the refurbishing decision becomes less complex. In this situation modifying the machinery to today's standards would involve an extensive machine redesign or more likely the purchase of a new machine.

### Regulation

Another complicating factor is regulatory aspects that may be important. If the machine is a consumer product, then there are special reporting and communication requirements that the supplier must provide to the Consumer Product Safety Commission (CPSC) in the U.S. or the rapid alert system/exchange for information on dangerous consumer products (RAPEX) in the EU. Industrial or commercial equipment may also fall under government scrutiny, such as pharmaceutical or food applications.

### Time Elapsed Since Manufacture

The time elapsed between the machinery release and the discovery of the hazard/hazardous situation may play a role. A hazard identified shortly after the release of the product may raise questions as to whether the hazard could or should have been identified prior to the product's initial release. The longer the elapsed time the greater implication that the hazard was unidentifiable until it was discovered. As time advances between the release and discovery there typically accumulates numbers/hours/days/weeks of successful product usage without the hazard occurring which adds to the perception of the hazard being previously unidentifiable.

### Post-Sale Duties and Obligations

Additional complicating factors are the potential duties and obligations of suppliers after the machinery has been sold. Whether, and to what extent, a supplier has a duty to provide notice, retrofit or recall a machine after sale is largely dependent upon state law. Different states impose or recognize different levels of post-sale duties of a supplier ranging from no post-sale duty at all, to significant duties. Courts have decided, or decided not to decide, on legacy issues of ongoing duty to warn and post-sale duties. The trend, if there is one, is that Courts and Legislatures are tending to increase rather than limit or decrease the supplier's duties related to post-sale responsibilities (Owens, 2019).

Post-sale obligations generally fall into three categories: post-sale warnings, retrofits, and recalls. To execute any of these activities the supplier must notify the users of the effort, prompt or incentivize the user to respond, and prompt the user to install the retrofit or return the product. Potential challenges include knowing how to contact the users (who they are, where they are, etc.) and convincing the user to respond.

Post-sale warnings may involve:

- simply a notice of a potential hazard and how to check for or avoid it,
- providing new or updated warning labels, or
- providing an updated manual or information concerning the hazard and how to avoid it.

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A retrofit of a product involves the user providing or offering for sale:

- a new guard or guard package,
- a new safety device, or
- new instructions or warning labels for the machinery.

A recall of a product or a machine is the most difficult to execute. There are at least five basic areas that must be addressed by a company undertaking a recall:

1. planning the mechanics and logistics of the recall,
2. implementing the recall,
3. evaluating and monitoring the recall,
4. taking follow-up action if necessary and
5. terminating the recall program.

The objective of a recall is to retrieve the product from the user. Usually a recall involves compensating the users for the cost of the product or some other form of recompense. A recall requires considerable supplier time and resources. For these and other reasons, recalls are usually only performed when the discovered hazard creates significant risk of harm and the supplier's potential liability warrants a recall.

Product recalls have been performed in different industries with varying degrees of success. The methods and means to achieve a successful recall continually evolve based on lessons learned. In the unlikely event that a recall of a machine may be warranted, the supplier should seek the most current methods to achieve success in the above five recall areas. Legal counsel should be involved.

In some cases, a duty to recall may be statutorily imposed, which could expose the supplier to civil and/or criminal penalties if a recall is not undertaken.

### Machinery Location Unknown

In the sale of consumer products and some machinery, the supplier of the product may have no contact with the user or the product once the product is sold. The task of providing post-sale notice or warning of a hazardous situation is complicated when the supplier does not know where the equipment is located or how to contact the user.

### **Guidance on what to do**

When a supplier receives notice or knowledge that a machine it sold contains a previously unknown hazard that could be a defect, it must quickly perform an analysis to determine if the cause is an isolated incident or if the issue could apply to each unit manufactured. The analysis must also determine if a hazard could be construed to be a defect or if the hazard requires some type of affirmative corrective action.

1. The risk should drive the response. The supplier should do a risk assessment to better document and understand the risk. The greater the risk of injury, the more the supplier will need to do to prevent harm and avoid liability. In situations where the probability of the occurrence of harm is likely, a response will typically be required unless the severity of harm is minor. Situations where the severity of harm is significant deserve very close evaluation even if the probability of occurrence of harm is low.
2. No explicit duty to recall. At the current time, most states do not impose a duty on a supplier to recall a machine after it has been sold. This is certainly true where the machine in question was not defective at the time of manufacture, but, through new technology, may now be made to be less hazardous. However, if a supplier learns that the machine was dangerous or defective after it has sold a machine, there may exist a duty to retrofit or recall the machine with upgraded safety devices. Unfortunately, there is no clear answer on the recall question, particularly for



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suppliers that sell machinery in many states. A conservative approach would be to assume that there may be a post-sale duty.

3. Post-sale duty to warn. Most states do maintain that a supplier may be obligated to provide post-sale warnings of machine hazards or defects under certain circumstances. Where a knowable, dangerous defect exists in the machine at the time of distribution that could have been discovered and was within the state of the art at the time of distribution but did not become known to the supplier until a later time, a jury is likely to find that the supplier must issue, at a minimum, a post-sale warning. Failure to do so could result in the award of compensatory and even punitive damages against the supplier.

Critical to legacy machinery is the issue of whether the machinery provided an acceptable level of risk at the time of manufacture. If the answer to this issue is No, then the supplier should assume that it needs to respond to the situation and take action to notify the users in some form.

4. Post-sale duty to retrofit. In some cases, a retrofit kit of a guard, device, warning labels or other item(s) can be developed that reduces the risk of harm for the discovered hazard to an acceptable level. Notifying the users of the retrofit is required. Typically, the supplier also develops a retrofit kit with instructions on how to properly install the retrofit. Alternatively, the supplier's field service personnel may install the retrofit during a service visit.

Machinery suppliers should evaluate offering a retrofit kit for machinery for which such a kit can be designed. Again, the decision should be based on a good understanding of the risk of harm to customers and the business risk of supplying or not supplying the retrofit.

Perhaps the worst solution is an in between response. A supplier may make a reasoned decision based on the risk not to recall a product and not to provide a retrofit or even notice of the newly discovered hazard. Alternatively, the supplier may decide that a notice, retrofit or recall is warranted. Whatever path the supplier chooses, execution of the decision needs to be taken very seriously. Owens (2010) advises: "If you do something, do it well." A poorly executed post-sale effort can be a greater liability than no notice at all. Resources, staffing and time need to be allocated to see that any post-sale effort is well executed.

In some instances there may be an ability to turn what may seem like a negative situation into a positive one (see Main, 2012).

### Tips on Contacting the User

Decisions concerning legacy equipment and notifying users can significantly impact liability and therefore legal counsel and the insurance representative should be involved. Handling the notice to users is a very significant concern to insurance carriers because it impacts the potential liability exposure. A poorly worded notice could increase a supplier's liability position. Thus it is a good idea to form a team of management, engineering and involve legal counsel and the insurance carrier / broker prior to sending out any recall or retrofit notice. In some cases an attorney or technical expert with experience and expertise in planning and executing recalls may be beneficial.

In contacting the user, two key goals should be noted:

- make sure the customer knows of the improvement, and
- make sure that the company can absolutely demonstrate the customer was made aware of the improvement (delivery receipt, letters, advertisements, etc.).

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Contact with users should be in writing which can be kept for future verification, not just verbal communications. The purpose is to demonstrate that reasonable efforts were made to communicate updates or information about the updates to the users. Documenting the efforts made can be extremely important in the event of a products liability claim. Situations have occurred where documentation of notice has been produced decades after a machine was manufactured, and the value of that notice has been extremely influential in the supplier's successful defense of a claim.

The supplier should notify the customer of the improvement(s) by a traceable method. In days past, certified mail was the preferred method. Today certified mail often scares recipients even to the point of refusing the mail. A more common method today is to use overnight carriers such as FedEx, UPS, or others where delivery can be confirmed but the ubiquity of such deliveries creates no angst. Electronic communications and social media can and should also be used effectively. Regardless of the method(s) used, the supplier needs to be able to show that it made the customer aware of the retrofit/upgrade with enough information such that the customer could make an informed decision about its machine.

Particularly with machinery, suppliers may know of the specific location of the machine due to the supplier servicing, refurbishing or inspecting the machine on site. The supplier may also know of the machine from spare parts orders made by the user. If the supplier fulfilled a spare parts order(s) without viewing the product on site, the legacy issue is typically limited to notifying the users of a recently learned hazard.

Sample letters warning users of new hazards that have been identified can be found in Appendices of Product Liability Prevention Guide Volume 1 Fifth Edition (PMMI, 2019).

### **3. RESPONSIBILITIES FOR WORKING ON LEGACY MACHINES**

#### **Scenarios**

Recent standards have introduced the following requirements that can guide product suppliers. ANSI/PMMA B155.1 (2016) includes the following,

#### **4.15 Modifying and/or rebuilding machinery**

A modifier or rebuilder of machinery shall use the risk assessment process to ensure that risks are reduced to an acceptable level. See also the definition of "supplier."

When non-standard uses or modifications of the machine, machine control system or the risk reduction measures can create additional hazards, a modifier and/or rebuilder of machinery shall use the risk assessment process to ensure that risks are reduced to an acceptable level.

Modifiers and/or rebuilders shall, where practicable, solicit the original supplier's recommendations regarding any proposed modification to a machine that may affect the safe operation prior to making any such changes.

Where modifications are made to the machine/system (e.g., intended use, tasks, hardware, and software), the risk assessment process shall be repeated for those parts of the machine/system being modified or affected.

The user shall ensure that acceptable risk is maintained after modifying and/or rebuilding is complete, and maintain updated risk assessment documentation for both historical purpose as well as future use for potential additional modifications to the machine (see 6.9.1 and 6.9.2).

Similar text appears in ANSI B11.0 (2015) for machinery generally.

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Refurbishing a machine requires that the risks be reduced to an acceptable level for its intended use and reasonably foreseeable misuse (ANSI/PMMI B155.1). This requirement applies to the supplier, the user, and the integrator/modifier/rebuilder.

“Acceptable risk” is admittedly general and subjective. However, they document the implicit requirements that have existed for decades – that the risks associated with the uses of a new or modified machine should be at an acceptable level through a variety of appropriate and applicable risk reduction measures including the design, guarding systems, warning information, personnel training, personal protective equipment, etc. The converse to this requirement, that machinery may have unacceptable risks, is often addressed through product liability litigation.

Throughout this chapter the term “refurbish” is used with a general meaning to include any of the post-sale servicing work on a machine.

### Complicating Factors

One of the primary complicating factors for refurbishing work involves clearly communicating the nature of what is intended and expected to be performed. In general there are three types of work: repair, rebuilding and modifications. For example, the following definitions appear in ANSI/PMMI B155.1:

**rebuilding / reconstruction:** restoring the machine or the machinery system to its original or updated design, purpose, capacity and function. Also referred to as **remanufacture** or **retool**

***Informative Note:** Rebuilding involves the restoration or replacement of major components of the machinery system and is not considered a maintenance or repair activity.*

**modification** - change to the machine or machinery system that alters its original purpose, function, capacity, operation or risk reduction measures requirements.

ANSI B11.0 further defines the following term:

**repair:** To restore a machine by replacing a part or putting together that which is broken without altering its original purpose, function, capacity, operation or safeguarding requirements.

However, different organizations and industries use different terms to describe the types of work. For example, the following appears in an OSHA Training Institute document which appears to be a blend of repair and rebuilding as defined above:

**alteration.** Replacement of parts and components with parts or components not identical with original (i.e. changes in material, dimensions, or design configuration).

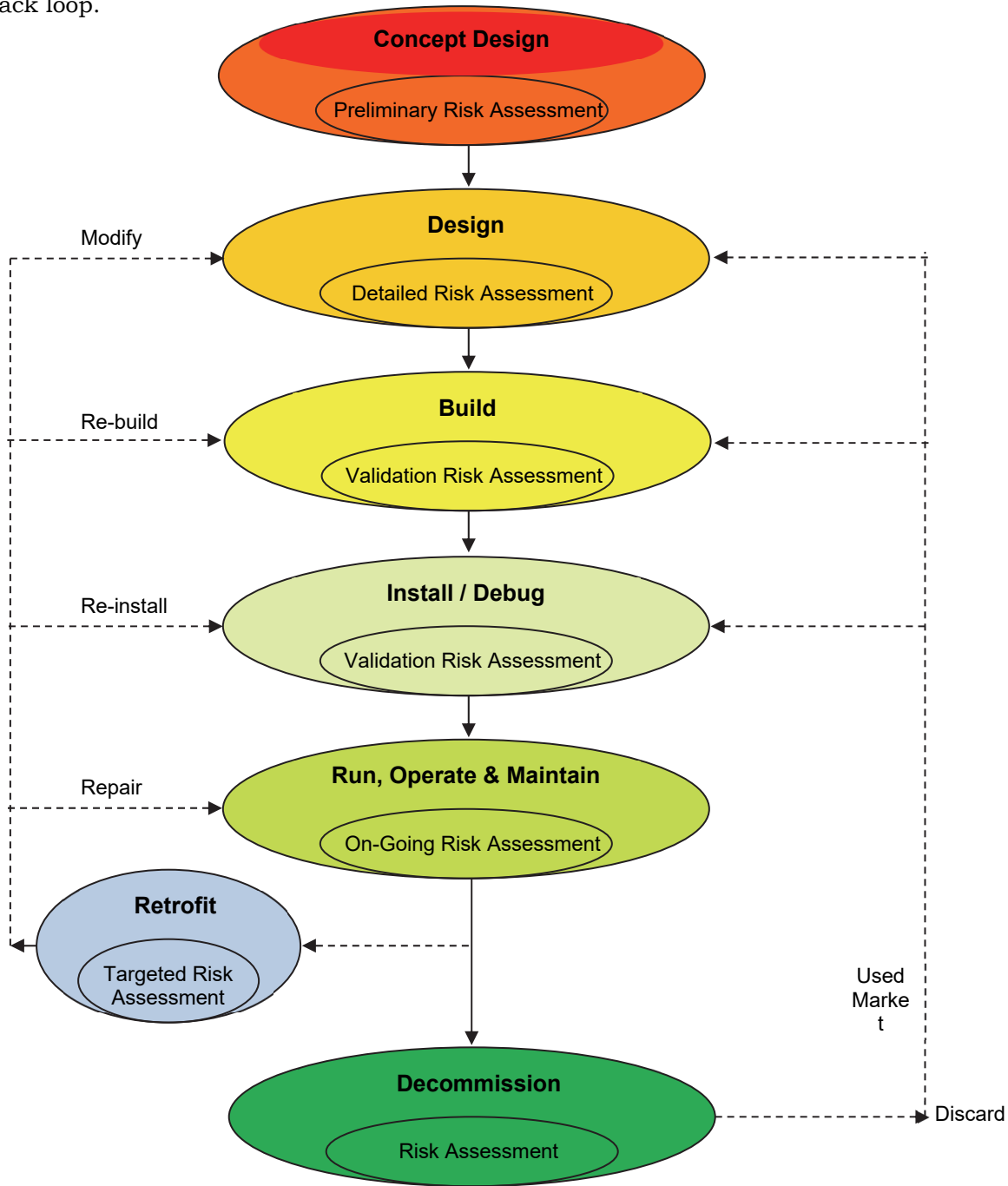
- a) Addition of parts or components not previously a part of the equipment
- b) Removal of components that were previously a part of the equipment
- c) Rearrangement of parts or components
- d) Alteration of existing parts and materials. (NAVFAC 1998)

The Canadian standard for machinery safety (CSA Z432: 2016) uses “overhauled or restored” to define rebuilt machinery, and introduces the terms “redeployed” and “relocated” which are similar to reinstall.

The point is not to try and force a single set of terms into use, but to be certain that both the supplier of the refurbishing services and the user of the refurbished equipment agree as to what the work entails and excludes.

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Figure 1 illustrates the connections of these terms to the design development process through the feedback loop.



**Figure 1 – Risk Assessment with Legacy Equipment**

As shown in the figure, the different refurbishing work ties back to the design development process at different points. The higher in the figure (earlier in the process), the greater responsibilities are incurred by the refurbisher.

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The key message is that both the supplier and user need to have a common understanding of what is intended for the refurbishing work.

In the instance where a supplier or refurbisher has the opportunity to view the product in use, the situation gets more complicated. When a supplier has viewed a specific machine at the user facility, questions may arise about the supplier's duty to perceive and notify the user of any unsafe or hazardous situations such as guards removed, safety devices defeated, warning labels damaged or missing, procedures being ignored or violated, etc. If the supplier personnel view the machinery or product being put to an unintended use that could create a hazardous situation, a plaintiff will likely try and hold the supplier responsible for preventing the use or notifying the user of the situation. If one of these situations occur, a supplier response is necessary. Even in situations where the supplier may only have had a brief opportunity to inspect the machine, the issues of observing potential hazardous situations and the supplier's subsequent response may become significant after an injury occurs.

Where the work is performed also complicates the situation. The work may take place at the customer's facility or at the supplier's facility. A general guideline is that the more control the rebuilder / modifier / supplier has over the work, the greater the duty it shoulders to achieve acceptable risk and update the machinery. For example, if the machine only requires new motors and chains, and the work is conducted solely at the user's facility, the supplier has limited control of the project. At the other extreme, if the machinery is shipped back to the supplier who reconfigures the machine at its facility with enhanced features or to run new products, then the supplier has much greater control of, and resultant responsibilities for, the project.

The scope of the work also complicates the situation. Frequently a user will request only a portion of a machine be refurbished. For example, on a particular machine the infeed portion may need refurbishing but the outfeed end may be working adequately for the user. Thus the user requests the supplier to refurbish only the infeed section of the machine. The situation gets complicated when once on site the supplier observes a potentially hazardous situation on the outfeed end of the machine, such as a guard missing, an interlock bypassed, damage to the machine or guarding that exposes a hazard, proper procedures not followed, etc. The scope of work clearly limits the tasks to the infeed portion of the machine. However, the supplier's new knowledge of the potentially hazardous situation elsewhere on the machine complicates how the supplier should respond to the situation. Should the supplier correct the situation even though it falls outside the original scope of work? If yes, at whose cost? If no, does it have a responsibility to notify the user? If yes, is verbal notice on site sufficient or is a formal written notice required?

The scope of work issue can extend beyond a single machine. Does a supplier have any responsibility to observe other machinery near the subject machine? What if two of the supplier machines are side by side but only one is being refurbished? Does the supplier personnel have any responsibilities to look for potentially hazardous situations on the other machine? And by notifying the user of an obvious hazardous situation does it potentially incur responsibility for doing a more-than-cursor observation that could identify other hazards? These questions are easy. The answers are hard.

### **Guidance on what to do**

#### Define the Work

One of the key questions that must be addressed is to define the work. Is the project a modification, or a rebuild / reconstruction or repair to the original manufactured purpose, capacity and function? Why is this important? In nearly all situations modification requires updating the machinery to today's standards. Repair, rebuilding, reconstruction, remanufacture or retooling does not involve updating, upgrading, reconfiguring or modifying the machine. A repair or rebuild can usually rely on when-built safety standards.

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An understanding of the extent of the refurbishing work should be a consideration in the business decision about the project before the job is accepted. In general, the following applies:

- Define the work clearly and the responsibility for the work very clearly.
- Use ANSI/PMMI B155.1 as a guide.
- Do what you do well.
- Notify the user of problems, hazardous situations or concerns.
- The more you do, the more you have to do

### Re-Build/Repair

In re-building or repairing equipment, the rebuilder needs to ensure that the risk reduction measures provided with the original equipment supplier are provided and adequately reduce risks to an acceptable level. Restoring the equipment to its original condition may or may not provide an acceptable risk level, thus the refurbisher needs to verify that the machinery can be operated safely.

### Modify/Reconfigure/Redesign

When legacy equipment is reconfigured or redesigned from one use to another, the entity performing the modification is responsible for achieving acceptable risk within the scope of the work activity – whether supplier or user. The modifier stands in the shoes of the machinery supplier and is required to reduce risks to an acceptable level within the scope of the work activity. To know the risks and when they are acceptable, suppliers/modifiers/rebuilders need to use the risk assessment process. Thus, whether the customer is asking the supplier to refurbish one of its machines or another supplier's machinery, the modifier assumes the responsibilities of the machine supplier within the scope of the work activity (see Situation #4). This is why many companies do not agree to refurbish other companies' machinery.

### A conservative but difficult policy

The most conservative and therefore lowest risk approach for the refurbisher is to require that all refurbishing work on existing machinery will be performed to current standards. However, this is also the most costly approach in terms of refurbishing projects which the customer may or may not be willing to absorb. Although admirable in concept this approach is not a very realistic option. Customers may not be interested in paying for such upgrades and in truth the upgrades may not be needed.

### Field service personnel

Field service personnel that perform maintenance services on legacy equipment can be the eyes and ears of the supplier. They observe machinery in use and out of service and can report back to the supplier any opportunities for upgrades, new designs, repairs, misuses, unexpected part wearing or fatigue, etc. They can also report to the supplier and user any potentially hazardous situations observed and should do so on site verbally and in writing afterwards. Suppliers should develop a process to standardize and ease this type of communication with users to be certain notice of hazardous situations are communicated. Necessary corrections to the observed hazardous situations need not be solely at the suppliers cost – see Main (2012).

### Location

Generally, if the work comes in-house, a good practice is to seriously consider bringing the machinery up to date in terms of the safety devices, guards and interlocks. The modifier / supplier can, but is not likely required to, refurbish the entire control system, e.g., moving from a hardware system to a safety PLC based system.

Given the litigious nature of the U.S., refurbishers would be well advised to observe a machine for which it has been contracted to refurbish only a portion thereof. Even though portions of the machine may be outside the scope of the work activity, observations of obvious potentially hazardous situations should be pointed out to the user and followed up with formal written notification. If corrections can be made

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easily with little cost, the refurbisher may choose to decide to just make the corrections at its cost after discussions with the user.

#### **4. SUPPLIER REFURBISHES LEGACY MACHINE**

##### **Scenarios**

Suppliers struggle with legacy machinery questions as illustrated through the following two examples. First, the following is an excerpt from a recent discussion with a manufacturing client:

To give you some background on our situation. We have had an interlock switch fail closed in the field on an old machine. We do not sell this interlock switch anymore. We have an upgraded interlock that meets our risk assessment. Also our safety circuit has changed considerably since we have started doing risk assessments.

Our question is, should we offer an entire safety circuit upgrade for all of the machines in the field, that do not have the "latest & greatest", or just replace the component, or do we give them the option to do either one?

I cannot tell you whether or not the old machines met the safety standards when they were shipped. Because I am not sure what the standards were back then, if any.

We have a lot of machines in the field. I know that there are probably other manufacturers that have this same situation. We were just curious as to how other manufacturers were handling this.

Indeed, although the specific details differ, many suppliers face this situation.

A second example highlights that other suppliers face slightly different concerns. For example, a customer calls a machinery supplier with a simple request: Will it refurbish an older machine? The machine was built ten years ago and the customer has been very pleased with its performance. The customer is in the process of a change over and would like to have the machine updated to modestly increase its capacity and generally refurbish the machine. Should the supplier take the job?

Although the machine was built to the then-existing standards at the time of manufacture ten years ago, much has changed since then. The capacities and features of the supplier's current machines are greatly improved. The supplier has improved the control systems and guarding package. New warning labels and instructions have also been developed. In many respects the current design represents an entirely different machine than its ten year old predecessor.

These scenarios commonly occur in many industries and typical variations on the theme include the following:

- The customer asks that the machine be simply repaired or a broken component be replaced,
- The customer asks for a rebuild of only part of the machine,
- The customer asks to only increase the permissible speed without any other changes,
- The customer asks one supplier to refurbish another supplier's machine,
- The customer may want the mechanical systems upgraded with a new motor and drive system, but not the electrical controls,
- The customer may want the control system upgraded without updating the guard package or mechanical systems,

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- The customer may want a specific machine on a manufacturing line updated but the rest of the line to remain as is, and
- Others

In each of these situations, the supplier faces the dilemma of deciding how much, if any, of the machinery must be brought up to current standards, or whether to do the work at all.

### **Complicating Factors**

The supplier must consider potential products liability issues related to the refurbishing project. Assume that an end user employee is seriously injured on the rebuilt machine. The rebuild was performed restoring the machinery to its original design thus the rebuilder used the time of manufacture safety standards. The worker cannot recover damages from the machinery user because the employer is protected from litigation through Worker Compensation (in most states). Thus, if the injured worker brings a products liability lawsuit, the supplier and rebuilder will certainly be named as defendants in the resulting litigation.

The plaintiff will likely argue in Court that the modifier/supplier had a duty to bring the machine up to current day standards. This argument may or may not be successful depending on many factors including:

- the Court involved (local or federal),
- the location (some parts of the country are more advantageous venues for plaintiffs than others),
- the extent of the refurbish project,
- the contract between the supplier and end user (customer), and
- other factors.

Another complicating factor is that in most instances the customer's specifications constitute the primary driver of the refurbishing project. The customer may be aware of the new machine but may not want to spend the money for a new purchase. Perhaps the older machine suits the customer's need adequately and thus it is requesting the supplier to do the refurbishing. Yet customer desires are only one consideration in an informed decision on the work.

### **Guidance on what to do**

Products liability exposure should be considered at the start of any refurbishing project. The greater the potential liability exposure, the more likely the current day standards should be applied.

Packaging machinery suppliers need to use the applicable industry standards such as ANSI/PMMI B155.1 to guide them in making business decisions about refurbishing older machinery. The best answer is to do a risk assessment on the machine and make an informed business decision on how to best respond. In the end the decision is a business decision not a regulatory one.

Upgrading to today's standards is a conservative position, but costs and the need for the upgrades should be considered based on the risks. In some cases updating to new standards may not be practicable at any cost – such as rewiring a machine to provide dual channel capabilities.

If prior injuries or near injuries are known to have occurred on older machines, the modifier / rebuilder / supplier should very seriously consider bringing the machine up to current day standards.

## **5. USER REFURBISHES LEGACY MACHINE**



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### **Scenarios**

In many companies the ability and expertise necessary to update or refurbish a machine resides within a user company. A fairly common example occurs when a user company purchases a used machine and installs it on the plant floor. Any refurbishing needed occurs by the plant maintenance personnel and/or engineers. Once completed the machine is put to use. The original supplier of the machine may have no idea and no involvement in the process.

Some companies design, build and/or modify machinery for use in their own organization. These companies face a similar situation as the supplier in decisions about refurbishing equipment if the user performs the work in-house.

User responsibilities for legacy machinery raise a raft of separate concerns that also need to be considered.

If the risk is acceptable then there is no clear requirement for updating machinery assuming that acceptable risk can be maintained.

### **Complicating Factors**

One complicating factor in the situation of a user refurbishing the machine involves sorting out responsibilities according to industry standards, product liability laws and worker compensation laws. According to current machinery standards, the user in this situation stands in the shoes of the supplier and becomes the supplier of the machine within the scope of the refurbishing activities (see ANSI/PMMI B155.1 for example). Products liability laws vary from state to state, but generally would hold the party making modifications to the machine responsible for safety of those modifications. However, worker compensation laws also vary state to state but typically protect the user from products liability claims if an employee is injured on the machine.

The subject becomes complicated further if an OSHA investigation occurs in this situation as the employer/user would likely be held responsible for the incident with OSHA issuing a citation(s) for non-compliance with an OSHA safety standard. The OSHA investigation would not likely impact any products liability claim, but would certainly require management's time and attention.

Users can also face difficulties in making refurbishing decisions for existing machinery in use for production. Keeping machinery current with advances in safety standards is a good business practice. But depending on the extent of work needed, a user could be faced with temporarily removing a significant portion of its production capacity for upgrade work. This can present a significant challenge in scheduling which could result in the refurbishing work being delayed indefinitely, particularly if a significant portion of the operations may not be compliant with the latest standard(s). Implementing such changes can be very difficult to justify especially if the older machinery still provides an acceptable level of risk.

### **Guidance on what to do**

If legacy machinery provides an acceptable risk, then updates are not likely needed. If not, then updates are likely required. If the legacy machinery provides an acceptable risk level but the newer updates/machinery offers significantly lower risk, then an update should be closely evaluated by the user to determine if the safety gain merits updating or replacing portions or all of the machine. If not, then the reasoning for the decision(s) should be documented to avoid future questioning. If yes, then implement the necessary changes and be certain to do them well (validate the effectiveness).

## **6. STORED EQUIPMENT**

### **Scenarios**

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Another legacy machinery scenario involved stored equipment – equipment removed from active service but neither sold nor discarded. At some time the user decides to remove the machinery from storage and put it back into operation. Users that are redeploying machinery that has been stored for some time may face decisions about refurbishing the equipment.

The simplest application occurs when used equipment is re-installed in a new location. In this situation, the original equipment supplier has no additional risk assessment responsibilities beyond what it did when it first produced the equipment. Since the equipment remains as built, the re-installer also carries no new risk assessment responsibilities beyond that needed to install the equipment. The user is responsible for conducting a risk assessment for the use of the machine. In Figure 2, this situation is shown with the feedback loop that connects back to the Install/Debug stage of development.

### **Complicating Factors**

One complicating factor is how long has the machinery been in storage and personnel's knowledge of the operation when it was last working. The longer the equipment has been in storage the more likely that technology and safety standards will have advanced to lower residual risk levels.

Also, the more time passes personnel's working knowledge of the equipment operation will likely diminish. The less that is known about the stored equipment and its operations, the less confident the user can be that acceptable risk is attained. In extreme examples, stored equipment is functional but no operational knowledge remains within the company and the supplier is out of business leaving the user to its own devices to determine if, and how, to best achieve acceptable risk and use the machine.

The technical support available from the equipment supplier is a complicating factor, particularly if the company no longer exists or no longer supports the equipment.

### **Guidance on what to do**

Seek out the original supplier of the equipment and obtain assistance on the operations and maintenance of the machinery. Also ask if any retrofit kits, recall notices, service memos, or notices of other kinds were issued relative to the stored equipment. In some cases the user may be able to engage the original supplier to help ready the machine for production operations and to help verify all safety systems are operating properly.

If the original supplier is unavailable or unwilling to assist, the user must assume the responsibilities of providing a machine with acceptable risk. Conducting a risk assessment and implementing necessary risk reduction measures will be required.

In evaluating stored equipment, the supplier or user may find useful to obtain the standards that applied at the time of manufacture and the current standards. Comparing the standards will highlight the changes that have been made. This may help in determining if the changes apply to the current application of the machine or if acceptable risk can be attained using the prior standard (without upgrades).

## **7. CUSTOM MACHINES**

### **Scenarios**

In some industries custom machinery forms the norm rather than the exception. For example, in the packaging machinery industry machines are often unique machines for which no second version of the system occurs. Each machine is designed for a specific application. Although there are common parts, components, sub-systems or systems across machines occur, the combination of parts and the working performance objectives that must be met constitute a completely unique machine.

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### **Complicating Factors**

A complicating factor with custom machinery is the challenge of identifying hazards unique to the application. In other applications where machinery models evolve, lessons learned and experience gained over time is assimilated into the design. With custom machinery such evolution is not applicable.

Another complicating factor with custom machinery is the engineering time required to develop a solution to a hazard not previously identified. Every machine would require engineering time to develop a retrofit solution. Compared to a situation with hundreds of machines of the same model, this can be extremely costly to implement.

### **Guidance on what to do**

Identifying hazards associated with custom machinery is extremely important so that appropriate risk reduction measures can be implemented in the machinery design. Suppliers of custom machinery should use the risk assessment process to assist in identifying hazards and achieving acceptable risk. Users or purchasers of custom machinery should also use the risk assessment process to evaluate hazards associated with the operation of the machine in the anticipated work environment. Good communications between the user and supplier are essential to the success of custom machinery development.

## **8. USED EQUIPMENT**

### **Scenarios**

When the original purchaser of industrial equipment no longer has use for the machinery, it often disposes of the equipment on the used machinery market. Most industrial equipment has a second life beyond the initial purchase. Used equipment is purchased and sold, often more than once. Frost (1998) notes that: "Very rarely would one party have charge across the entire lifecycle [of a machine] and it is therefore considered necessary to delineate responsibilities between manufacturers and users."

### **Complicating Factors**

In some cases, the original equipment supplier may no longer be in business or have information available. However, risk assessment of the equipment is still appropriate and needed to protect users from harm. Therefore, users need to be involved in the risk assessment process. The risk assessment necessary for the used equipment will vary slightly depending on how it is used relative to its original design.

A further complicating factor occurs when the machinery is purchased from a used equipment dealer. Machinery dealers often lack any technical or engineering staffs and have limited ability or interest in providing technical support for the machinery they sell.

Used equipment presents distinct challenges for purchasers, suppliers and third parties. One challenge involves determining who stands in the role of the equipment supplier. It could be the original manufacturer, the reseller, the integrator if one is involved, or the user. This issue is significant because it impacts the risk assessment responsibilities of the parties. To aid in solving this challenge, one can look at what is done to the used equipment before it is returned to production (see Figure 1).

### **Guidance on what to do**

As a practical matter, the user often does or should assume many of the responsibilities for risk assessment and achieving acceptable risk when purchasing used equipment. Often the seller of the equipment such as a dealer has insufficient knowledge or expertise to conduct an effective risk assessment. The original manufacturer may or may not be available. To be certain that workers are adequately protected from injury and to avoid the business interruption that occurs following an injury

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incident, users have an incentive to see that the risk assessment process is appropriately completed for used equipment.

Purchasers of used equipment should attempt to contact the original equipment supplier and obtain any retrofit kits, recall notices, service memos, operations and maintenance manuals, or notices of other kinds were issued relative to the used equipment.

## **9. PURCHASING A PRODUCT LINE OF ANOTHER COMPANY**

### **Scenarios**

Legacy issues also arise when one company purchases the product line of another company. Two different applications often arise:

1. Original supplier is now defunct and any legacy equipment becomes the purchasing company's problem
2. Original supplier continues to be an ongoing enterprise.

### **Complicating Factors**

Legal and contractual issues can complicate the purchase. Often purchase discussions focus on the existing assets of a company and the business opportunities looking forward. Products liability of legacy machinery may or may not receive very much attention early in the purchase discussions. When the focus does turn to products liability of the legacy equipment, the discussion may be under a compressed schedule which could impact the results.

In this situation the technical aspects are only part of the discussion. Business interests, legal concerns, regulatory participation, etc. can overshadow the basic technical issues of whether the machinery complies with the technical standards or not, what can be done about the existing machinery, and who would be responsible for any costs or liability incurred with a purchase.

### **Guidance on what to do**

Purchase agreements must specify in detail the responsibilities for legacy machinery. In some cases the purchase may be only of the existing assets and exclude any liability for legacy machinery. In other cases the law may not allow this arrangement and the purchaser will be responsible for the legacy machinery, even though the purchaser had no input or awareness of the past decisions made or the basis for them.

The purchase agreement should include insurance provisions for liability claims for legacy equipment. The insurance coverage should be verified by the purchaser.

## **10. USER CAPABILITIES / CAPACITIES**

### **Scenarios**

A user typically knows the machinery or equipment in its facility(s). The machinery in a single facility often comes from many different suppliers. Keeping the many machines up to date can be a daunting task.

### **Complicating Factors**

The users face a nearly opposite problem from the equipment suppliers. Suppliers typically have one or a few machine models and tens, hundreds or thousands at different customer locations. The suppliers

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typically know the machinery but often do not know the location of the legacy equipment – particularly after several years when machines are sold on the used equipment market. Suppliers usually know the machinery and what has changed with the machines over time.

Users typically know the location of the machinery and equipment in their facility, but they have tens, hundreds and sometimes thousands of different machines. They usually know the particular machine they own, but have very limited familiarity with what may have changed over time in the supplier's offerings.

Larger end users with multiple facilities face an ever more complex problem of scale. They have thousands of machines spread across multiple facilities. Even though they may have the same type of machine in different facilities (for example a drill press or forklift), the suppliers, models and year of manufacture usually vary.

Small users with fewer machines may be able to keep abreast of updates and changes, but they typically have less personnel and expertise that may be required to do so. Moderate end users with many machines begin to face a bandwidth problem – tracking machinery and updates and making decisions about if updates or changes are needed can become a very involved logistic and technical challenge. For large end users with multiple facilities the problem becomes almost unmanageable. Keeping current would require significant resources and numerous personnel devoted to this task alone. Note also in terms of lean manufacturing concepts, this activity provides no value-added to the end customer.

One example of legacy machinery from a user perspective involves a large consumer goods manufacturer of food products. This company uses palletizers in packaging its products - machines that take individual bags or units and stack them onto pallets. The company identified that palletizers were a significant source of severe injuries in the company and determined that it needed to update its palletizers throughout North America. The company identified that it owned 220 different palletizers ranging in age from 8 months to 18 years. The cost to upgrade a single palletizer ranged between \$10,000 and \$30,000 depending on various factors. The total project cost approximately \$4.4M just to bring the palletizers in the company to a consistent and current level.

### **Guidance on what to do**

Users of legacy equipment and machinery need to make certain that the machinery, equipment and systems that operate in their facilities do so with an acceptable level of risk. When the risk associated with operating a machine drops below an acceptable level, it is time for the user to update the machine or replace it. This means that, by definition, new machines will have the most current residual risk levels but all others will likely have varying higher levels of residual risk. Contact and communications with the machinery or equipment suppliers should be maintained so that end users remain aware of retrofits, recalls, upgrades, service bulletins and new offerings. Decisions on if or when to implement any changes will need to be evaluated by the user on a situational basis.

### **OPPORTUNITIES**

Several suppliers have come to realize that legacy machinery can offer significant business opportunities rather than only potential liability. Keeping in contact with customers about legacy equipment offers/creates several business opportunities:

- Opportunity to provide customer service for the machinery,
- Opportunity to view the machine in the field of use and understand how the customer actually uses the machinery,

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- Opportunities to develop improvements that could make such uses safer, faster, more productive, easier to perform, etc., and
- Identify new uses or applications that customers have put the machinery to use which other customers may also find value.

These opportunities can lead to sales of spare parts, updates/upgrades to the machinery, or even sales of new machines and services.

One complicating factor is the cost of the post-sale offerings. If a retrofit kit or package is offered, there is no requirement that the supplier provide the kit to the user free of charge. Another option to consider is offering the retrofit kit at cost. Here the supplier does not make money on the kit but also does not incur the costs of the retrofit kit. The costs are borne by the end users. In other instances suppliers may reasonably charge more than the cost of the retrofit kit allowing the supplier to potentially gain some profit on the transaction. There are pros and cons to each of these paths and they should be considered carefully.

Products liability again complicates matters by strongly influencing the message and phrasing of the communications between the customer and the supplier. The message content, tone and delivery must be carefully considered so as to not scare, threaten or offend users. The message(s) should present the company in the best manner practicable.

Suppliers are under no obligation to offer an update free to the customer. Depending on the situation, the supplier may decide to offer the upgrade or improvement at no cost. Alternatively, the offer may be made at-cost where the supplier asks the customer to share in some portion or all of the retrofit cost. There is also the possibility that the supplier may offer the retrofit at a nominal profit above cost. This is a business decision that must be made for each situation.

Decisions about updates or retrofits to legacy machinery should be made with legal counsel involved.

One example of a hazard not previously discovered but then turned into an opportunity is noted in the following case study.

### Case Study of a newly Discovered Hazard

A company supplies large heating machinery for processing potatoes. Part of this system includes large fryers as big as a room which are used to create potato chips. The company sought to train its personnel on the risk assessment process to fully integrate a risk based approach to safety into its operations. Service technicians, engineers, managers, and others received training on the risk assessment process. Part of this training included understanding that risk is a function of severity of harm and the probability of the occurrence of that harm.

Shortly after the training a field service technician was on site with a customer and identified what could be a potential problem. On one of the oil recirculation lines has an access hatch for changing a filter. Changing the filter requires following a line break procedure to open the hatch where the pump is de-energized, the up and down stream valves are closed and the remaining oil is drained. The service tech became concerned what might occur if the hatch were opened with both valves open and the pump still energized. If the user attempted to change a filter without first de-energizing the pump, there was a concern about the release of hot fryer oil under pressure.

A test of this situation was conducted in a laboratory using water rather than oil. The results demonstrated that if the cover removed was attempted with the pump energized, the entire test room would be sprayed with water – or hot 400 F fryer oil in actual use. The potential for severe injury was thus confirmed. As a result of this discovery, The company developed a retrofit kit

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which included: new warning labels, revised instructions, and a redesigned retaining band that had fine course threads on the bolts rather than coarse threads – which limited the release rate if the pressure was not first relieved.

The service technician identified a potential hazard without any injury occurring. The company used this opportunity to contact customers, let them know of the company's ongoing concern for the safety of its machinery and the user's personnel. The retrofit was carried off in a very professional and positive manner that the customers were very impressed with the supplier's commitment to safety and ongoing support of its machinery.

This case study demonstrates how a company identified a hazard not previously identified, and turned the situation into an opportunity that benefited both the user and the supplier, and strengthened the relationship between them.

### CONCLUSION

In sorting out the issues related to legacy equipment, the supplier must:

- Understand the residual risk associated with the legacy equipment by conducting a risk assessment associated with the legacy equipment
- Determine whether the legacy equipment still provides an acceptable level of risk
- Understand the residual risk associated with the new design or improvements currently available to customers
- Evaluate the business risks associated with different options of recall, retrofit, post-sale warning, or no action

Owens (2019) suggests that when addressing legacy equipment concerns, reasonable guidance can be found by answering the question: "What is the right thing to do?" A company that has "done the right thing" will have much greater success in defending its decisions in the event of subsequent litigation.

With legacy machinery, the supplier response should be driven by a function of the risk. A higher risk implies a need to do more, while a lower risk less so. In the end the issue becomes a business decision, how much business risk does the refurbisher want to accept?

To avoid product liability problems with legacy equipment, suppliers need to do two things:

1. build safe machine or product (with acceptable risk)
2. make the company defensible by improving the ability of the company to defend itself when litigation occurs.

Building a safe machine or product means making certain that the machine or product can be used for its intended uses and reasonably foreseeable misuses with an acceptable level of risk.

The Product Liability Prevention Guide Fifth Edition Volume 1 (PMMI, 2019) suggests the following:

A safe machine is one that has risks reduced to an acceptable level. Packaging machinery manufacturers have a long history of meeting this requirement – even if not formally documented. Building a machine with acceptable risk involves complying with the applicable industry and government standards, and using sound engineering judgment.

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Making the company defensible involves improving the ability of the company to defend itself when litigation occurs.

One of the key elements in making the company defensible is to ensure that the machinery complies with the applicable industry standards such as ANSI/PMMI B155.1. Non-compliance will present challenges to defending a claim.

Machinery suppliers need to be able to demonstrate that they have made a good faith effort to help their customers maintain acceptable risk with legacy machinery. The plaintiffs will make every effort to show that the supplier was negligent and made no such good faith effort or its efforts were sufficiently poor as to be negligent.

Users of legacy machinery should:

- Use the risk assessment process to focus and guide efforts
- Evaluate operations and machinery and whether acceptable risks are achieved
- Pay particular attention to new workers that may not appreciate the hazards and risks associated with machinery
- Seek input from workers familiar with the legacy machinery to identify hazards and prioritize risk reduction measures

Clear and effective communications between users and suppliers about the scope of refurbishing work are critical to detail what is included and excluded in the work. A common understanding must be agreed to prior to the work commencing.



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**LEGACY EQUIPMENT – A LEGAL VIEW**  
***An Update on the Post-Sale Duty to Warn***

**INTRODUCTION**

American and European product manufacturers face many challenges operating in the international marketplace. Among these challenges is the product liability lawsuit. Litigation in U.S. courts can be particularly vexing for European and other non-U.S. manufacturers, who are unaccustomed to litigation of nearly any sort in their own countries. The prospect of a possible future lawsuit can challenge every decision made by a manufacturer, from the design and development stage through sale of the product, and even for an undefined period thereafter. In the context of litigation involving products that have been in the field for years, if not decades, those decisions will be challenged through the clear lens of hindsight.

A manufacturer's potential liability for legacy equipment, *i.e.*, older or prior models of machines, discontinued lines, and so on, represents among the most difficult of challenges. The design and engineering processes, as well as warnings on the product or in the product literature, may become subject to review at a later time, affording jurors or courts the opportunity to criticize the manufacturer with updated technology and knowledge.

Product liability lawsuits in the United States generally claim a design or manufacturing defect, or a failure to warn of dangers inherent in the product under theories of (1) strict product liability, (2) negligence, or (3) breach of warranty. With respect to so-called legacy equipment, the manufacturer may be faced with expert opinions claiming that the manufacturer had a duty to re-design, retrofit, issue a post-sale warning, or recall the product. In some instances, the manufacturer's knowledge of post-sale use by consumers or operators, as well as advancements in the design of the product, will supply the basis of expert opinions against the manufacturer. Further, the manufacturer's compliance with foreign laws may also demonstrate an alternative design which was required in a foreign country but not utilized in the United States.

Manufacturers operating in an international market must be prepared to defend their products in any venue. The American manufacturer must be cognizant of the changes in the Restatement (Third) of Torts: Product Liability regarding issues of post-sale duty to warn and recall of products. Further, the American manufacturer must be cognizant of the concept of formalized Risk Assessment and Hazard Analysis and its emerging footprint in American standards. Compliance with standards may not insulate the manufacturer from product liability lawsuits, however it will demonstrate to jurors and courts actions and conduct that were reasonable at the time the product was designed, manufactured and sold.

**DISCUSSION**

**General**

Manufacturers in the global marketplace are often confronted with issues related to older machines still operating in the field, so-called "legacy equipment." Among the questions presented are defining the manufacturer's duty when:

- It learns of advancements in safety that may apply to old equipment still functioning in the field
- It performs maintenance on its legacy equipment at customer locations
- It discovers a defect in a design in a current line where equipment has already been shipped
- It purchases a product line from another manufacturer, and:

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- The other manufacturer is defunct, or
- The other manufacturer remains a going concern

### **Voluntary Assumption**

Some manufacturers voluntarily assume a duty, irrespective of the governing law of the state where the product was manufactured, sold or is in use, to issue warnings or instructions post-sale. This is often done in the spirit of protecting the customer and the end-user of the product in cases where the manufacturer discovers a flaw in design or instructions after the product is sold, or where the manufacturer develops an advancement in safety or design in a later model of the product. There are a variety of sound reasons for undertaking such a duty, even where arguably not required by law, including:

- Avoiding injuries and property damage
- Reducing liability exposure
- Protecting company brand and image

### **Differences State by State**

Confounding the issue is the disparity in state common law on the issue of a manufacturer's duty, if any, with respect to legacy equipment. Simply stated, the issue comes down to whether or not a manufacturer has a post-sale duty to warn or retrofit older equipment still operating in the field. As is apparent, below, there is no uniform answer to this question. The 50 State Compendium at the end of this chapter summarizes the current legal situation in more detail.

The Pennsylvania Supreme Court, in *DeSantis v. Frick Co.*, 745 A.2d 624 (Pa. Superior 2000), held that an industrial freezer manufacturer did not have a duty to warn the owner of an older freezer model of a device that prevented "hydraulic shock" that was developed after the freezer was sold, which would have prevented the injury to the plaintiff. The Court, however, went on to state that if the product was defective when sold due to a manufacturing or design defect, then the manufacturer has a "continuing duty to warn" of the defect after the sale by notifying distributors, sellers and owners of the defect. *DeSantis*, 745 A.2d at 631.

Similarly, under Texas law, manufacturers generally have no post-sale duty to warn, *unless* the manufacturer gains some significant control of the product (i.e., takes possession of it for repairs or the like), the product is deemed or discovered to be defective during that period of control, and the consumer is later injured as a result of the defect. See, *Bell Helicopter Co. v. Bradshaw*, 594 S.W. 2d 519 (Texas Civ.App. – Corpus Christi 1979). In Washington, neither a manufacturer nor seller can be liable for harm under the Washington Products Liability Act (WPLA) if the harm has occurred after the product's "useful safe life" has expired. Wash. Rev. Code §7.72.060(1). The actual duration for a product's "useful safe life" is defined by statute, but is generally presumed to be 12 years. Wash. Rev. Code §7.72.060 (1) and (2).

Georgia affirmatively imposes a post-sale duty to warn against dangers discovered after a product is sold under negligence theory at common law. *DeLoach v. Rovema Corp.*, 241 Ga.App. 802, 527 S.E.2d 882 (2000). Other states that apply some version of a post-sale duty to warn include: Michigan, Colorado, Minnesota, North Carolina, Kansas, New Jersey, North Dakota, Maryland, New York, Iowa, Massachusetts, New Mexico, and Maine.

Even for those states which affirmatively decline to impose a post-sale duty to warn on manufacturers or sellers, the rule is not absolute. Illinois does not impose a common law post-sale duty to warn against a manufacturer; however such a duty may be imposed either by statute or when the manufacturer voluntarily warns customers of a defect in a product outside of the manufacturer's control. *Modelski v.*

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*Navistar Intl. Transp. Corp.*, 302 Ill.App. 3d 879, 889 (1<sup>st</sup> Dist. 1999). However, one case in particular highlighted the unsettled nature of the issue.

**Jablonski v. Ford Motor Co.**

In *Jablonski v. Ford Motor Co.*, 398 Ill.App.3d 222, 923 N.E.2d 347 (5<sup>th</sup> Dist. 2010) *reversed*, 955 N.E.2d 1138, 2011 Ill.LEXIS 1136, 353 Ill.Dec. 327 (2011), an Illinois Appellate Court determined to impose a post-sale duty to warn on Ford Motor Company. The case involved the collision of a 1993 Lincoln Town Car in which plaintiff and her husband were riding. When their car came to a stop in a highway construction zone, it was struck from behind by another car traveling at a high rate of speed. A large pipe wrench in the trunk of the plaintiff's Town Car penetrated the trunk, puncturing the back of the car's fuel tank which had been mounted between the trunk and the vehicle's rear axle as part of a design that had been introduced in 1979, which Ford called the "Panther platform." The puncture of the fuel tank caused the Town Car to burst into flames, resulting in severe burns and permanent disfigurement to Mrs. Jablonski and the death of her husband. Plaintiff sued Ford in strict products liability and negligence, and sought to make out a case for post-sale duty to warn.

Specifically, plaintiff claimed that defendant failed to warn or inform her of a certain remedial measure that had been instituted by Ford *after* the manufacture of their Town Car, but *before* their accident. The remedial measure in question involved the development by Ford in 2002 of an "Upgrade Kit" consisting of shields that were installed between the trunk and the fuel tank of certain similar vehicles manufactured by Ford for police departments. The shields were intended to protect the fuel tank from puncture by other parts or components during high-speed rear-end collisions. In conjunction with various police agencies and the National Highway Transportation Safety Administration, Ford had also developed a drop-in trunk liner for the police vehicles along with instructions as to how to store items in the trunk to decrease the risk of gas tank puncture in the event of a rear-end collision. Plaintiff alleged that Ford wrongfully failed to alert consumers of the availability of this kit.

In affirming a multi-million dollar jury verdict in plaintiff's favor, the 5<sup>th</sup> District Illinois Court of Appeals held, essentially, that if a duty to warn exists at the time of the manufacture and sale of the subject product, it does not disappear after the sale. The key is whether the dangerous condition was known, *or should have been known*, to the manufacturer before the sale of the product. If it was known or should have been known as of that time, then any subsequent warnings developed need to be passed on to earlier purchasers. In other words, the Court found that the duty to warn is continuous.

Ford appealed to the Illinois Supreme Court. The petition for leave to appeal was granted by the Illinois Supreme Court, which also accepted *amici curiae* briefs from the Illinois Trial Lawyers Association ("ITLA") on behalf of the plaintiff, and from the Alliance of Automobile Manufacturers and Caterpillar, Inc. on behalf of the defendant. In urging the adoption of a post-sale duty to warn, such as that articulated in Section 10 of the Restatement (Third) of Torts: Product Liability (1982) (which the Court noted has never been previously adopted in Illinois), ITLA cited certain factors in automotive litigation that circumstantially support a post-sale duty to warn. Such factors include the ability of the car manufacturer to track vehicle owners using Vehicle Identification Number information, and the ease of passing along a warning to consumers, either through mailings to the owners identified by the VIN information or by publicizing through the general media, concerning the existence of a hazard and/or the means to address it, either by retrofit or the use of additional warnings. However, since no such evidence regarding the means or methods of contacting consumers had been introduced at trial, the Court declined to impose a post-sale duty to warn in Illinois.

In reversing the Appellate Court, the Illinois Supreme Court, in part, rejected the post-sale duty to warn argument advanced by plaintiff. The Supreme Court characterized Illinois precedent regarding a manufacturer's duty to warn in the following terms: "[W]hen a design defect is present at the time of sale, the manufacturer has a duty to take reasonable steps to warn at least the purchaser of the risk as

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*soon as the manufacturer learns or should have learned of the risk created by its fault* (see 2011 Ill. LEXIS 1136 at p.52, emphasis added). This might be interpreted to imply the existence of a post-sale duty to warn, even when the manufacturer was unaware of the risk posed by the product at the time of its sale. However, the Court then went on to cite other cases in which the argument for imposition of a post-sale duty to warn was rejected. (See, e.g., *Carrizales v. Rheem Mfg. Co.*, 226 Ill.App.3d 20, 34, 589 N.E.2d 569, 579 (1981)) (“Illinois law has been reluctant to impose a duty to warn beyond the time when the product leaves the manufacturer’s control unless the manufacturer knew or should have known at the time that the product was defective.”); *Modelski v. Navistar Int’l Trans. Corp.*, 302 Ill.App.3d 879, 890, 707 N.E.2d 239, 247 (1999) (“[A] manufacturer is under no duty to issue post sale warnings or to retrofit its products to remedy defects first discovered after a product has left its control.”); *Collins v. Hyster Co.*, 174 Ill.App.3d 972, 977, 529 N.E.2d 303, 306 (1988) (“[T]he law does not contemplate placing the onerous duty on manufacturers to subsequently warn all foreseeable users of products based upon increased design or manufacture expertise that was not present at the time the product left its control.”).

Plaintiff also argued that regardless of whether Illinois common law would otherwise impose upon the defendant a post-sale duty to warn, Ford nevertheless undertook such a duty, and was negligent in its performance, by providing post-sale warnings to some of its consumers (the owners of the aforementioned police vehicles) but not to others (the civilian owners of Ford cars designed with the aft-of-axle gas tanks). The Court rejected this argument, too, noting that voluntary undertakings, for the purpose of imposing liability for their negligent performance, are “limited to the extent of the undertaking” and are “narrowly construed.” 2011 Ill. LEXIS 1136 at pp.61-62, citing its recent decision in *Bell v. Hutsell*, 2011 Ill. LEXIS 777 at p.8 (2011) and *Frye v. Medicare-Glaser Corp.*, 153 Ill.2d 26, 32, 605 N.E.2d 557, 560 (1992).

According to the Court the development of the so-called post-remedial measures for fleets of police vehicles had nothing to do with other models of cars purchased by Ford’s individual civilian consumers. The Supreme Court thereby held that the trial court erred in instructing the jury on a post-sale duty to warn based upon an unrelated voluntary undertaking. However, had plaintiff in *Jablonski* introduced evidence at trial of the ease with which Ford could have contacted owners of the subject vehicle to alert them to the potential hazard and availability of the upgrade kits and the like, the outcome might have been different.

### **Greater imposition of post-sale duty**

These decisions and others signal a possible shift to greater imposition of a post-sale duty on manufacturers. The shift is likely prompted by the Restatement, (Third) of Torts: Product Liability. The Restatement provides that one engaged in the business of selling or otherwise distributing products is subject to liability for harm to persons or property caused by the seller’s failure to provide a warning after the time of sale or distribution of a product *if a reasonable person in the seller’s position would provide such warning. (emphasis supplied)*. Who is this “reasonable person?” According to the Restatement, a reasonable person in the seller’s position would provide a warning *after* the time of sale if: (1) the seller knows or reasonably should know that the product poses a substantial risk of harm to persons or property; (2) those to whom a warning might be provided can be identified and can reasonably be assumed to be unaware of the risk of harm; (3) a warning can be effectively communicated to and acted on by those to whom a warning might be provided; (4) the risk of harm is sufficiently great to justify the burden of providing a warning. While the Restatement (Third) of Torts directly addresses only sellers and distributors, the comments to the Restatement (Third) of Torts apply the guidelines to manufacturers as well. *Restatement (Third) of Torts: Product Liability*.

Likewise, under §11 of the Restatement, sellers are subject to liability for harm caused by a failure to recall a product after the time of sale or distribution if: (1) a government directive issued pursuant to a statute or administrative regulation specifically requires the seller or distributor to recall the product; (2) the seller or distributor, in the absence of a recall requirement, undertakes to recall the product; or

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(3) the seller or distributor fails to act as a reasonable person in recalling the product. The Comments to §11 acknowledge that a product recall is a far more costly and complex undertaking than issuing a product warning. Moreover, the Restatement acknowledges that if every improvement in product safety were to trigger a common-law duty to recall, manufacturers would face incalculable costs every time they sought to make their product lines better in safety. In an illustration, the Restatement confirms that when a manufacturer develops an improved model that includes a safety device that reduces the risk of harm to users, the manufacturer has no common-law obligation to recall previously distributed products in order to retrofit them with the new safety device. *Restatement (Third) of Torts: Product Liability* §11 (a)(1).

## Recalls

While considerations such as maintaining a good business reputation may prompt a decision to recall a product, the Restatement (Third) of Torts provides some guidance on the recall issue. Section 11, cited above, and §4 discuss effective compliance or non-compliance with product safety statutes or regulations and the post-sale duty to recall a product. While common law in the United States may limit the requirement to recall or retrofit products, U.S. regulatory law for decades has required manufacturers and sellers of various products to report safety problems to governmental agencies and undertake remedial actions depending on the severity of the problem, and to have the ability to find purchasers of the product. These regulations are being expanded, including the enactment of the Consumer Product Safety Improvement Act of 2008. The CPSC has always required a manufacturer or product seller to monitor its products that are in consumers' hands and report defects that could create a substantial risk of injury to the public or that may create an unreasonable risk of serious injury or death. Under this law, it is likely that there will be greater pressure to recall products. Additionally, the National Highway Traffic Safety Administration (NHTSA) requires that a manufacturer that determines that a safety-related defect or non-compliance with a NHTSA regulation exists in its product must file, within five working days, a report to NHTSA of that determination, outlining the defect or non-compliance. The manufacturer's proposed remedial program is to be included in the report.

Finally, it is common in the United States that the manufacturer that fails to conduct an adequate retrofit or recall campaign may be liable for negligence, apart from the issue of design defect. Although a seller may be under no statutory or regulatory obligation to recall the product that causes harm, if it volunteers to recall it, it will be subject to liability for unreasonably failing to do so. See e.g., *Bell Helicopter Co. v. Bradshaw*, 594 S.W. 2d 519, 532 (Texas Civ.App. 1979).

## Formal Risk Assessments

Formal programs of Risk Assessment, Hazard Analysis and the like may also impact a manufacturer's post-sale obligations. Risk assessment has become an integral part of business through the standards process, much like other industry standards that have always been a crucial element in a products liability lawsuit, and rightly so as it is an effective means of further assuring the safety of a product and better defending a lawsuit. For example, in many instances, the manufacturer or seller will utilize a standard to demonstrate that a design or warning was "state of the art". Likewise, companies selling machinery in the European Union are required by its Product Liability Directives and Machinery Directive to conduct formal Risk Assessment before applying a CE mark to their products. Where an industry standard requires a manufacturer or seller to perform a risk assessment, and to document the assessment, failure to comply with the standard requirements most certainly will be emphasized to a jury or court as a failure by the manufacturer or seller to act reasonably during the design process.

While risk assessments are not universal, they have been included in many U.S. standards for several years. For example, ANSI B11 TR3, covering machine tools, was released in 2000 addresses the risk assessment process. Additionally, ANSI/PMMI B155.1 covering packaging machinery first introduced

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risk assessment in the 2000 version. The current version of ANSI/PMMI B155.1-2016, , likewise requires suppliers and users to conduct a risk assessment.

ANSI/PMMI B155.1 sets forth seven steps in the risk assessment process:

1. Prepare for/set limits of the assessment;
2. Identify tasks and hazards;
3. Assess initial risk;
4. Reduce risk;
5. Assess residual risk;
6. Achieve acceptable risk; and
7. Document the results.

ANSI B155.6.1.4

Notably, the standard calls for a task-based approach to the risk assessment, as well as for identifying affected persons, the tasks they perform, and the hazards associated with those tasks. Further, the outcome of the risk assessment shall be documented and should include a listing of all items related to the assessment. ANSI B155.1, clauses 6.3.2 and 6.8

### **Risk Assessment in Litigation**

However, in at least one case, a risk assessment was used *against* a manufacturing defendant at trial of a product liability lawsuit, arguably to infer a post-sale duty to an end-user of a product that was manufactured before the advent of the assessment process. In *Thomas v. CMI Terex Corp.*, 2009 U.S. Dist. Lexis 86623 (D. N.J.), the defendant moved to exclude plaintiff's expert on the basis that his alternative design and risk standard *did not exist at the time the product was manufactured*. Plaintiff's expert utilized ANSI B11 TR3 2000 as the basis for his hazard analysis and risk reduction and applied the five steps in the standard to conclude that the defendant's product was defective. The court rejected the defendant's argument that the expert's opinion was not reliable because it failed to meet the criteria for admissibility established *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 US 597, 113 S.Ct. 2786 (1993). Furthermore, in commenting upon the ANSI standard, the court found that the plaintiff's expert used a well-recognized and straight forward risk analysis tool in submitting his risk analysis and alternative design for the product at issue in that litigation. Defendant's motion to bar the expert's opinion was therefore denied.

### **Closure**

Given the continuing evolution of this issue in U.S. courts, no manufacturer should consider itself completely insulated from a claim of post-sale duty to warn or the like relative to its legacy equipment, regardless of where the manufacturer is located or where its product was manufactured. This is particularly true in a global marketplace, where a manufacturer can see its product placed anywhere on the globe. The prudent manufacturer will have some measures in place to maintain contact and communication with known customers and to convey safety and related information to them, electronically, via its web site, or otherwise. That manufacturer will also have some repository of documents and the like related to its legacy equipment in order to allow it to adequately defend lawsuits related to same.

From a common sense perspective, the practical benefits to the manufacturer of outreach to its customer base and those possessing its "legacy equipment" are several, and may include:

- Avoidance of Injuries and Property Damage
- Reduction of Liability Exposure
- Satisfaction of Legal Obligations and Duties to End Users

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- Protection of the Company's Assets, Reputation and Brand Image
- Customer Feedback on Product Experiences and Performance

Ultimately, the manufacturer that is prepared to address claims that it has a duty with respect to its legacy equipment by showing that it indeed satisfied such a duty in some manner will find itself better positioned to respond to lawsuits related to that equipment or product.

## **50 STATE COMPENDIUM ON POST-SALE DUTY TO RECALL, RETROFIT OR WARN RELATIVE TO LEGACY EQUIPMENT**

### **Alabama**

The Alabama Supreme Court has not addressed the issue of whether manufacturers have a post-sale duty to warn, voluntarily recall or retrofit their products following post-sale safety advancements, but it is unlikely that Alabama would impose such a duty. An unpublished opinion by the United States District Court for the Northern District of Alabama suggests that a manufacturer does not have such a duty. *Holland v. Walter Kidde Portable Equip., Inc.*, No. 2:05-cv-325-TMP, slip. op. at 14 (N.D. Ala. Oct. 9, 2007) ("Subsequent improvements in design and manufacturing techniques do not make a product 'defective,' if, at the time it was sold or placed in the stream of commerce, it complied with the then-existing state of the art."). See also, *Robinson v. Anheuser-Busch, Inc.*, No. Civ.A. 00-D-300-N, 2000 WL 35432556, at \*2 (M.D. Ala. 2000); *Pearl v. Mad Engine, Inc.*, No. 7:12-cv-2850-TMP, 2015 U.S. Dist. LEXIS 118294, at \*16 (N.D. Ala. Sep. 4, 2015).

### **Alaska**

Alaska has adopted the Restatement (Third) of Torts and imposes a post-sale duty to warn on manufacturers in certain cases and if the Restatement's criteria are met. In *Jones v. Bowie Industries*, 282 P.3d 316, 335 (Alaska 2012), the court found that a manufacturer has a post-sale duty to inform consumers of its products of dangers that became apparent after sale when the danger is potentially life-threatening and specifically adopted the Restatement (Third) of Torts: Products Liability section 10 as the standard to apply in such cases. In doing so, the court outlined the Restatement's criteria, noting that the first factor in the Restatement is that the seller knows or reasonably should know that the product poses a substantial risk of harm to persons or property, that the seller can identify the recipients of the warning and that those recipients can reasonably be assumed to be unaware of the risk, that a warning can be effectively communicated to and acted on by those to whom a warning might be provided, and that the risk of harm is sufficiently great to justify the burden of providing a warning. (*Id.*)

### **Arizona**

In Arizona, with respect to the age of the product, a manufacturer's liability focuses on whether the subject product was defective when it left the manufacturer's control. *Jimenez v. Sears, Roebuck & Co.*, 183 Ariz. 399, 402, 904 P.2d 861, 864 (1995). There is no post-sale duty to warn if the product as manufactured was free of defect. Further, the Arizona Court of Appeals has held that the "hindsight" test does not apply to warnings, further suggesting no post-sale duty to warn. *Powers v. Taser Int'l, Inc.*, 217 Ariz. 398, 174 P.3d 777 (Ariz. Ct. App. 2007). However, there is a post-sale duty to warn if a manufacturer, subsequent to the sale, learns that there was a defect when the product left its hands. *Wilson v. U.S. Elevator Corp.*, 193 Ariz. 251, 972 P.2d 235 (Ariz. Ct. App. 1998).

### **Arkansas**



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Arkansas law does not recognize a post-sale failure to warn claim. *Campbell v. Davol, Inc.*, 620 F.3d 887, 894 (8<sup>th</sup> Cir. 2010). No Arkansas appellate court has specifically addressed the issue of whether there are any circumstances when a manufacturer has a duty to warn of a danger in the use of a product which danger is learned of subsequent to its sale. See Arkansas fixes liability at the date of sale. *Boatman's Trust Co. v. St. Paul Fire & Marine Ins. Co.*, 995 F.Supp. 956 (E.D.Ark. 1998).

### California

It is a question of fact for the jury to determine whether a manufacturer has done what it reasonably could be expected to do to correct an earlier design deficiency. *Balido v. Improved Machinery company, Inc.*, 29 Cal.App.3rd 633 (1972). The failure to conduct an adequate retrofit or recall campaign may constitute negligence apart from the issue of defective design. *Hernandez v. Badger Construction Equipment Company*, 28 Cal.App.4th 1791 (1994); *Lunghi v. Clark Equipment Company*, 153 Cal.App.3rd 485 (1984). Post design modifications are admissible in California to prove the existence of a product defect. *Ault v. International Harvester Company*, 13 Cal.3rd 113 (1974).

A manufacturer or supplier of a product may be under a post-sale duty to warn of dangers that the manufacturer or supplier becomes aware of after the product has left its possession. *Lunghi v. Clark Equipment Company*, 153 Cal.App.3rd 485 (1984); *Balido v. Improved Machinery, Inc.*, 29 Cal.App.3rd 633 (1972). A manufacturer may have an obligation to alert or otherwise warn the customer of the safety advancement. The safety advancement may also be introduced into evidence to prove the existence of a product defect. The failure to conduct an adequate retrofit campaign may constitute negligence apart from the issue of negligent design. *Hernandez v. Badger Construction Equipment Co.*, (1994) 28 Cal.App.4th 1791, 1827. California standardized jury instruction CACI No. 1223 sets forth the instruction for a claim alleging negligent failure to recall or retrofit a product. This instruction can be modified for claims alleging a negligently conducted recall.

Retailers are held to a slightly different standard. Their duty to warn under strict liability extends only to those risks of which it had actual or constructive knowledge at the time of sale. *Hensley-Maclean v. Safeway, Inc.*, No. CV 11-01230 RS, 2014 U.S. Dist. LEXIS 48591, at \*9 (N.D. Cal. Apr. 7, 2014).

### Colorado

Under Colorado law, a manufacturer has no post-sale duty to warn or remedy when the product was not defective under standards existing at the time of manufacture. *Romero v. International Harvester Co.*, 979 F.2d 1444 (10<sup>th</sup> Cir. 1991) (applying Colorado law). However, a duty to warn exists where a danger concerning a product that existed at the time it was manufactured becomes known to the manufacturer subsequent to sale and delivery of the product. *Downing v. Overhead Door Corporation*, 707 P.2d 1027 (Colo.App. 1985).

### Connecticut

Connecticut courts have not recognized a specific duty to recall and/or retrofit older equipment. In one case, however, a Superior Court denied the defendant's demurrer to a claim that a manufacturer had a duty to recall a product already sold and installed. *Argueta v. Overhead Door Corp.*, 2000 Conn. Super. LEXIS 2044 (Conn. Super. Ct. 2000). While the focus of the decision involved pleading under the Connecticut Product Liability Act, the Court's statement that this claim was an "alternate theory of liability under the umbrella of the product liability act," *id.* \*5, at least implies that this theory would be allowed by some Connecticut courts. Connecticut's Product Liability Act includes a ten-year Statute of Repose. Conn. Gen. Stat. § 52-577a(a). This includes an exception where the harm occurs during the "useful safe life" of the product, Conn. Gen. Stat. § 52-577a(c), and as such, may affect the obligation to recall or retrofit. Connecticut imposes a continuing duty to warn on manufacturers, which ends when the consumer becomes aware of the problem. See *Densberger v. United Technologies Corporation*, 125

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F. Sup. 2d 585, \*\*16-18 (D. Conn. 2000), *affd.* 283 F.3d 110 (2d Cir. 2002), *affd.* 297 F.3d 66 (2d Cir. 2002).

### **Delaware**

No Delaware Courts have squarely addressed the issue of a manufacturer's post-sale duty to recall a product or retrofit it with newly developed advances. *Elmer v. Tenneco Resins, Inc.*, 698 F.Supp. 535 (D.Del. 1988); *Smith v. DaimlerChrysler Corp.*, C.A. No. 94C-12-002-JEB 2002 WL 318 14534 (Del. Super. Nov. 20, 2002). Delaware has given consideration to adoption of a post-sale duty to warn, but has not yet adopted such a duty. *Michad v. Fairchild Aircraft Incorporated*, C.A. No. 00C-06-156 SCD (Del. Super. Nov. 16, 2001); *Smith v. Daimler Chrysler Corp.*, No. 94C-12-002-JEB, 2002 Del. Super. LEXIS 434, at \*17-18 (Super. Ct. Nov. 20, 2002).

### **District of Columbia**

A manufacturer may have a post-sale duty to warn about the dangerous characteristics of its products where the manufacturer later learns or has a reasonable opportunity to learn about such a defect. *Owens-Illinois, Inc. v. Zenobia*, 601 A.2d 633, 645-46 (Md. 1992).

### **Florida**

Florida has a duty to warn post-sale. *Diaz-Granados v. Wright Medical Technology, Inc.*, No. 6:14-cv-1953-Orl-28TBS, 2016 U.S. Dist. LEXIS 44862, at \*28 (M.D. Fla. Mar. 31, 2016). *See also, Florio v. Manitex Skycrane, LLC*, No. 6:07-cv-1700-Orl-28KRS, 2010 U.S. Dist. LEXIS 130864, 2010 WL 5137626, at \*7 (M.D. Fla. Dec. 10, 2010). Florida law imposes a post-sale duty to warn customers of a product's dangerous propensities on those who have control over the manufacture or distribution of the product—those who are in a position to take any safety measures; the duty to warn consumers of a defective product, even after the sale, is well-established in Florida. *Tran Dang v. Honda Motor Co.*, No. 6:14-cv-2071-Orl-40DAB, 2015 U.S. Dist. LEXIS 183997, at \*10 (M.D. Fla. Mar. 25, 2015).

### **Georgia**

No common law duty exists under Georgia law requiring a manufacturer to recall a product after the product has left the manufacturer's control, except in cases of government-mandated recalls. *Ford Motor Company v. Reese*, 684 S.E.2d 279, 283-284 (Ga. Ct. App. 2009). The manufacturer's duty to implement alternative safer designs is limited to the time the product is manufactured, not months or years later when technology may have changed. *Id.* Georgia does not place a specific duty on a manufacturer to alert the customer of a safety advancement. However, the general rule is that a manufacturer's duty to warn "arises whenever the manufacturer knows or reasonably should know of the danger arising from the use of its product." *Chrysler Corp. v. Batten*, 264 Ga. 723, 724, 450 S.E.2d 208 (Ga. 1994); *Hunter v. Werner Co.*, 258 Ga.App. 379, 383, 574 S.E.2d 426, 431 (2002). In negligence theory, a manufacturer is under a duty to warn consumers of a danger arising from the use of a product based on knowledge acquired after the product is sold. *DeLoach v. Rovema Corp.*, 241 Ga. App. 802, 527 S.E.2d 882 (2000).

### **Hawaii**

Manufacturers are not subject to an independent, continuing duty to retrofit their products subsequent to their manufacture and sale with post-manufacture safety devices that were unavailable at the time of manufacture. *Tabieros v. Clark Equipment Co.*, 85 Hawaii 336, 358 (1997). However, a post-sale duty to warn does exist where a danger concerning the product becomes known to the manufacturer subsequent to the sale and delivery of the product, even though it was not known at the time of the sale. *Tabieros v. Clark Equip.*, 85 Haw. 336, 356 (1997).

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### **Idaho**

No Idaho case law addresses the post-sale duty to warn. Under I.C. § 6-1406 and I.R.E. 407, evidence of subsequent remedial measures are inadmissible to prove negligence, culpable conduct or product defect, and evidence of subsequent remedial measures to imply culpability offered under the guise of impeachment or any other purpose is likewise inadmissible. *Watson v. Navistar Intern. Transp. Corp.*, 121 Idaho 643, 663-64, 827 P.2d 656 (1992) (citing *Liefeld v. Johnson*, 104 Idaho 357, 659 P.2d 111 (1983)). However, the Idaho Products Liability Reform Act (IPLRA) recognizes the existence of a duty to warn of known defects discovered after a product is designed and manufactured. Idaho Code Sec. 6-1406(1).

### **Illinois**

Generally, in Illinois, there is no continuing duty to warn consumers once a product has left the manufacturer's control, nor is there any legal duty to retrofit products, even if they are proven defective or if there have been improvements in design or manufacturing expertise that did not exist at the time the product left the defendant's control. *Birchler v. Gehl Co.*, 88 F.3d 518 (7th Cir. 1996); *Modelski v. Navistar Int'l. Transp. Corp.*, 302 Ill.App.3d 879, 707 N.E.2d 239 (1st Dist. 1999); *Collins v. Hyster Co.*, 174 Ill.App.3d 972, 529 N.E.2d 303 (3d Dist. 1988); *Jablonski v. Ford Motor Co.*, 955 N.E.2d 1138, 2011 Ill.LEXIS 1136, 353 Ill.Dec. 327 (2011); *Bensenberg v. FCA US LLC*, No. 4:17-cv-04213-SLD-JEH, 2018 U.S. Dist. LEXIS 141688, at \*8-9 (C.D. Ill. June 29, 2018)(the Illinois Supreme Court clearly stated that a manufacturer is under no duty to issue post-sale warnings or to retrofit its products to remedy defects first discovered after a product has left its control.)

### **Indiana**

There is no defined duty past the date when the product is sold to the initial user or consumer. I.C. 34-20-5-1; *Tober v. Graco Children's Products*, 431 F.3d 572, 579 (7th Cir. 2005) (applying Indiana law). *Dague v. Piper Aircraft Corp.*, 418 N.E.2d 407 (Ind, 1981). However, at least leaves open the possible existence of a post-sale duty to warn. However, any such claim would be subject to Indiana's ten-year statute of repose. *Id.* See also, *Fowler v. Werner Co.*, No. 1:13-CV-126-RLM-RBC, 2014 U.S. Dist. LEXIS 79174, at \*9 (N.D. Ind. June 10, 2014); *Timm v. Goodyear Dunlop Tires North America Ltd.*, 309 F. Supp. 3d 595, 602 (N.D. Ind. 2018).

### **Iowa**

The Iowa Supreme Court has adopted a post-sale duty to warn based on Section 10 of the Restatement (Third) of Torts: Products Liability under certain circumstances. See *Lovick v. Wil-Rich*, 588 N.W.2d 688 (Iowa 1999). See also, Iowa Code §668.12. Such duty may impact a manufacturer's ability to raise a state-of-the-art defense to a strict products claim. *Huber v. Watson*, 568 N.W.2d 787 (Iowa 1997); *Wurster v. Plastics Group, Inc.*, 917 F.3d 608, 617 (8th Cir. 2019)(Iowa has adopted the four factors found in the Restatement (Third) of Torts: Product Liability § 10 as the elements of a post-sale failure-to-warn claim.)

### **Kansas**

In Kansas, manufacturers have no duty to recall or retrofit a product that was free of defect at the time it was sold. *Kinser v. Gehl Co.*, 184 F.3d 1259, 1270 (10th Cir. 1000), cert. denied, 528 U.S. 1139 (2000), abrogated on different grounds by *Weisgram v. Marley Co.*, 528 U.S. 440 (2000). Kansas does not impose a duty on manufacturers to provide notice of safety advancements to past purchasers of its products.

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*Patton v. Hutchinson Wil-Rich Mfg. Co.*, 253 Kan. 741, 756 (1993). However, a manufacturer does have a post-sale duty to warn consumers who purchased a product, and who can be readily identified or traced, when a defect that existed at the time the product was manufactured but was unforeseeable at the time of sale is later discovered to present a serious, life-threatening hazard; the nature of that duty and to whom the duty is owed is determined on a case-by-case basis. *Patton v. Hutchinson Wil-Rich Mfg. Co.*, 253 Kan. 741, Syl.2, 756, 861 P.2d 1299, Syl.2 1311 (1993); *Estate of McDermed v. Ford Motor Co.*, No. 14-2430-CM, 2016 U.S. Dist. LEXIS 103129, at \*10 (D. Kan. Aug. 3, 2016).

### **Kentucky**

Kentucky does not recognize a common law duty by the seller to retrofit an existing product that was not defective at the time it was manufactured. *Ostendorf v. Clark Equipment Company*, 122 S.W.3d 530 (Ky. 2003). Interpreting Kentucky law, a Kentucky federal court found that Kentucky does not impose a post-sale duty to warn customers of safety advancements. *Cameron v. DaimlerChrysler Corp.*, 2005 U.S. Dist. LEXIS 24361, \*17 (E.D. Ky. 2005). However, Kentucky courts have found that, when a product is defective, a manufacturer may be subject to a post-sale duty in certain circumstances. *Jarrett v. Duro-Med Industries*, 2007 WL 628146 (E.D.Ky 2007). The nature of the defect will dictate the appropriate remedy; however, if the product was not defective at the time of the sale, the seller's post-sale conduct must contribute to the injury before liability will be imposed. See *Ostendorf v. Clark Equipment Company*, 122 S.W.3d 530 (Ky. 2003).

More recently, Kentucky law has imposed a duty on manufacturers to continue to review product designs even after sale. In situations where—after a sale—a manufacturer comes to know or should have known about a defective product, then that manufacturer must "make an effort to notify the purchasers." *Clark v. Hauck Mfg. Co.*, 910 S.W.2d 247, 251, 42 12 Ky. L. Summary 28 (Ky. 1995) (reversed on other grounds); *Jackson v. E-Z-GO Division of Textron, Inc.*, No. 3:12-CV-154-TBR, 2015 U.S. Dist. LEXIS 94366, at \*9 (W.D. Ky. July 21, 2015).

### **Louisiana**

The Louisiana Product Liability Act imposes no duty on a manufacturer to recall or retrofit when the manufacturer learns after the sale that the product contains a defect or if there is an advancement in safety. La. Rev. Stat. § 9:2800.57(C). However, a manufacturer who later develops knowledge of a dangerous characteristic of the product has a continuing duty to "use reasonable care to provide an adequate warning of such a characteristic (i.e., one that may cause danger) and its danger to users and handlers of the product." *Marks v. Ohmeda Inc.*, 871 So. 2d 1148, 1155 (La. Ct. App. 2004); La. Rev. Stat. Ann. §9:2800.57.C.; *Winterrowd v. Travelers Indemnity Company*, 462 So. 2d 639, 642 (La. 1985). The duty to warn was imposed in *Winterrowd* even though the defendant's malfunctioning machine had been constructed in 1907 and the injury to the user occurred in 1976.

### **Maine**

Maine imposes on manufacturers a duty under some circumstances to keep abreast of dangers for existing equipment and to warn known users, including indirect purchasers, of the equipment of such dangers and of any safety advancements to cure said dangers, post-sale. *Brown v. Crown Equipment Corporation*, 2008 ME 186, 960 A.2d 1188; *Maietta v. International Harvester Co.*, 496 A.2d 286, 295 (Me. 1985). Further, under Maine Rule of Evidence 407, evidence of a post-sale warning is admissible against a defendant.

### **Maryland**

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Maryland courts have not expressly adopted or rejected the Restatement (Third) of Torts: Product Liability. *Halliday v. Sturm, Ruger, & Co.*, 368 Md. 186, 209 (2002); *Nissan v. Nave*, 129 Md. App. 90, 177 n.13 (Ct. Spec. App. 1999). Maryland does impose a post-sale duty to warn upon sellers of a product where a latent defect becomes known to the manufacturer after the sale. *United States Gypsum Co. v. Mayor & City Council of Baltimore*, 336 Md. 145, 647 A.2d 405 (1994); *Owens-Illinois, Inc. v. Zenobia*, 325 Md. 420, 446, 601 A.2d 633, 645 (1992). The seller must make reasonable efforts to the extent practicable to warn users of hazards associated with its products, even if the knowledge of such hazards is learned after the time of sale. *Zenobia*, 325 Md. at 645-47. When a manufacturer discovers a product defect after the sale of the product, the post-sale duty to warn requires reasonable efforts to inform users of the hazard once the manufacturer is or should be aware of the need for a warning. *Ragin v. Porter Hayden Co.*, 133 Md. App. 116, 140, 754 A.2d 503, 517 (2000), *cert. denied*.

### **Massachusetts**

The Massachusetts Courts have not imposed on manufacturers a duty to recall and/or retrofit a product in light of safety advancements. Under *Vassallo v. Baxter Healthcare Corp.*, 428 Mass. 1, 22-23 (1998), a manufacturer would be “subject to a continuing duty to warn (at least purchasers) of risks discovered following the sale of the product at issue.” The duty does not extend to “second-hand” purchasers. *Lewis v. Ariens Company*, 434 Mass. 1, 23, 696 N.E.2d 909, 923 (2001). See also, *Hanlan v. Chandler*, 25 Mass. L. Rep. 48 (2008)(As for the issue of the post-sale duty to warn, there is no duty to warn purchasers that the manufacturer could not reasonably identify and locate); *Town of Westport v. Monsanto Co.*, 877 F.3d 58, 67 (1st Cir. 2017).

### **Michigan**

Generally, Michigan has codified by statute a product manufacturer's general duty to warn end-users about dangers associated with a product's use. The statute provides:

In a product liability action brought against a manufacturer or seller for harm allegedly caused by a failure to provide adequate warnings or instructions, a manufacturer or seller is not liable unless the plaintiff proves that the manufacturer knew or should have known about the risk of harm based on the scientific, technical, or medical information reasonably available at the time the specific unit of the product left the control of the manufacturer.

Mich. Comp. Laws § 600.2948(3).

Michigan courts have imposed on the manufacturer a post-sale duty to warn in the case of latent defects existent at the time of sale. *Comstock v General Motors Corp.*, 358 Mich. 163, 177-178; 99 NW2d 627 (1959). If the product was not defective at the time of sale, the manufacturer has no duty to warn simply because of advances in technology. *Gregory v Cincinnati Corp.*, 450 Mich. 1, 28-29; 538 NW2d 325 (1995); *Mitchell v. City of Warren*, 803 F.3d 223, 233 (6th Cir. 2015)(if a manufacturer had no such duty to warn based on the pre-sale information available, it could not be liable if later studies suggested safer ways to design and market its products).

### **Minnesota**

Minnesota courts have not directly reached the issue of duties of manufacturers to recall, retrofit, notify or keep track of their customers in situations where there have been significant safety advancements involving older machines in the field. In *Hodder v. Goodyear Tire & Rubber Co.*, 426 N.W.2d 826, 832 (Minn. 1988), the Court discussed Minnesota's “useful life statute,” Minn. Stat. Ann. § 604.03, holding that the age of a product “is a factor to be weighed by the jury in determining the fault of the manufacturer.” *Id.* at 832. The *Hodder* opinion suggests imposition of a post-sale duty to warn in special cases, such as where the product has a long life span, is sold used to other consumers, where the

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manufacturer continues to advertise and sell components for the product, is aware of the defect, has previously warned of the danger, where the potential injuries are “severe,” and so on. In *McDaniel v. Bieffe USA, Inc.*, 35 F. Supp. 2d 735, 743 (D. Minn. 1999), the United States District Court observed that no Minnesota court had addressed this issue directly, but stated its belief that Minnesota would refuse to impose a duty on manufacturers to recall and/or retrofit a defective product because the overwhelming majority of other jurisdictions have rejected such an obligation.

More recently, however, a federal court in Minnesota concluded that a product manufacturer did indeed have a post-sale duty to warn of a hazard in its product so that the questions of whether it breached that duty and whether any breach was the cause of plaintiff's injuries must be submitted to the jury. *Gardner v. Brillion Iron Works, Inc.*, 120 F. Supp. 3d 928, 941-42 (D. Minn. 2014). See also, *Great Northern Insurance Co. v. Honeywell International, Inc.*, 911 N.W.2d 510, 520 (Minn. 2018)(adopting the Restatement (Third) of Torts factors and limiting the post-sale duty to the “special cases” contemplated by *Hodder, supra*).

### **Mississippi**

The Mississippi Product Liability Act does not impose a duty to recall and/or retrofit. Liability is to be determined “at the time the product left the control of the manufacturer or seller.” Miss. Code Ann. § 11-1-63(a). Thus, claims based on post-sale duties to warn, recall or retrofit are not viable. Mississippi courts find that a product manufacturer is liable only if a defect existed at the time the product left the control of the manufacturer. *Coca-Cola Bottling Company, Inc. v. Reeves*, 486 So.2d 374, 378 (Miss. 1986); *Early-Gary, Inc. v. Walters*, 294 So.2d 181, 186 (Miss. 1974); *Palmer v. Volkswagon of America, Inc.*, 905 So.2d 564, 601-02 (Miss.Ct.App. 2003), aff'd in part and rev'd in part, remanded 904 So.2d 1077 (Miss. 2005); *Noah v. GMC*, 882 So. 2d 235, 239 (Miss. Ct. App.)

### **Missouri**

Missouri courts have not held that a manufacturer has a duty to retrofit a product. However, the Missouri Court of Appeals was “unwilling to say that there can never be a duty on a manufacturer to retrofit its products.” *Morrison v. Kubota Tractor Corp.*, 891 S.W.2d 422, 430 (Mo. App. W.D. 1994). The Court in that case held that the manufacturer did not have a duty to retrofit because the absence of the safety device was “plain to see” and the consumer knew this safety device was available but declined to purchase it. *Id.* The Eight Circuit Court of Appeals has observed that Missouri law imposes no duty to retrofit unless there is a state or federally mandated recall. *Wallace v. Dorsey Trailers Southwest, Inc.*, 849 F.2d 341 (8<sup>th</sup> Cir. 1988); *Rodriguez v. Suzuki Motor Corp.*, 996 S.W.2d 47, 65, (Mo. banc 1999); *Uxa ex rel. Uxa v. Marconi*, 128 S.W.3d 121, 130 (Mo.App. 2003); *Efting v. Tokai Corp.*, 75 F. Supp. 2d 1006, 1011 (W.D. Mo. 1999).

Note, however, that federal courts in Missouri have applied a post-sale duty on manufacturers of certain drugs and medical devices who are engaged in their continuous sale given their impact on public health and welfare. *Stanger v. Smith & Nephew, Inc.*, 401 F. Supp. 2d 974, 982-83 (E.D. Mo. 2005).

### **Montana**

Montana courts have not specifically addressed the issue of post-sale duty to warn, recall or retrofit. However, a post-sale duty to warn theory is not precluded, either. See, *i.e.*, *Streich v. Hilton-Davis, a Div. of Sterling Drug, Inc.*, 214 Mont. 44, 60, 692 P.2d 440, 448 (1984).

### **Nebraska**

Nebraska's state courts have not specifically addressed the issue of post-sale duties on manufacturers. However, in *Anderson v. Nissan Motor Co., Ltd.*, 139 F.3d 599 (8th Cir. 1998), the United States Court

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of Appeals for the Eighth Circuit predicted that Nebraska law would not impose on a manufacturer a post-sale duty to warn of dangers or retrofit a product. In so deciding, the Eighth Circuit relied on dicta in *Rahmig v. Mosley Mach. Co.*, 226 Neb. 423, 412 N.W.2d 56 (1987), that “[i]n a products liability action, the plaintiff has the burden to prove that the alleged defect *existed when the product left the manufacturer.*” *Rahmig*, 412 N.W.2d at 69 (emphasis added). See also, *Vallejo v. Amgen, Inc.*, No. 8:14CV50, 2014 U.S. Dist. LEXIS 138455, at \*10 (D. Neb. Sep. 29, 2014).

### **Nevada**

Nevada has not specifically addressed what a manufacturer’s liability is for older equipment or products that were not defective at the time they were manufactured, when there have been subsequent advancements in safety.

### **New Hampshire**

New Hampshire has not specifically addressed what a manufacturer’s liability is for older equipment or products that were not defective at the time they were manufactured, when there have been subsequent advancements in safety. However, in a decision from a federal court in New Hampshire, a manufacturer was held to a continuing duty to warn under the Restatement (Third): Product Liability based on its prediction based on New Hampshire state court precedent and the law of other jurisdictions that the New Hampshire Supreme Court would recognize a continuing duty to warn of a product defect under §10 of the Restatement as a strict product liability claim, and that it might also find a continuing duty to warn under a negligence theory. *Jenks v. New Hampshire Motor Speedway, Breann Thompson, & Textron, Inc.*, 2012 DNH 75.

### **New Jersey**

A manufacturer has a continuing duty to cure a pre-sale design defect that it discovers to be a danger to users subsequent to the sale of the product. *Stephenson v. R.A. Jones & Co.*, 103 N.J. 194, 200 (1986); *Lally v. Printing Machinery Sales*, 240 N.J. Super. 181, 184-85 (App. Div. 1990) (recognizing a manufacturer’s continuing after-sale duty to provide protective devices on a defective machine). Moreover, a manufacturer has a non-delegable duty to actually correct the design defect and may not simply rely on a down-stream purchaser to make the necessary corrections. *Stephenson*, 103 N.J. at 200 (holding that a manufacturer cannot discharge its responsibility by merely sending a warning letter and new guard to be installed on the machine). This general rule, however, only applies to defects that existed at the time of manufacture and distribution; when a new safety advance is introduced after the sale of the product, a manufacturer is not liable if its product represented the “state of the art” at the time the product was manufactured. N.J.S.A. 2A:58C-3(a)(1); *Robert*, 139 N.J. at 378. A manufacturer that becomes aware or reasonably should have become aware of dangers has a post-sale duty to warn. *Molino v. B.F. Goodrich Co.*, 261 N.J. Super. 85, 93, 617 A.2d 1235 (App. Div. 1992); *Seeley v. Cincinnati Shaper Co., Ltd.*, 256 N.J. Super. 1, 606 A.2d 378 (App.Div. 1992).

Under New Jersey law, a post-sale failure to warn cause of action is different from a defective design claim. The New Jersey statute regarding manufacturers' duty to warn, see N.J. Stat. Ann. § 2A:58C-4, unlike the New Jersey statute pertaining to design defects, see N.J. Stat. Ann. § 2A:58C-3, "establishes no state-of-the-art defense limiting a manufacturer's liability to what it knew or should have known at the time of manufacture. Rather, it requires the manufacturer to warn of dangers it discovers or reasonably should discover after the product leaves its control." *Dixon v. Jacobsen Mfg. Co.*, 270 N.J. Super. 569, 637 A.2d 915, 922 (N.J. Super. Ct. App. Div. 1994); see also *Feldman v. Lederle Lab.*, 97 N.J. 429, 479 A.2d 374, 388-89 (N.J. 1984)("Subsequently acquired knowledge, both actual and constructive, also may obligate the manufacturer to take reasonable steps to notify purchasers and consumers of the newly-discovered danger."); *Seeley v. Cincinnati Shaper Co., Ltd.*, 256 N.J. Super. 1, 606 A.2d 378, 384-85 (N.J. Super. Ct. App. Div. 1992).

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Stated otherwise, if a product is not defective at the time of its sale, N.J. Stat. Ann. § 2A:58C-3, pertaining to design defects, does not require the manufacturer "to upgrade [an old model] to incorporate [a] safer . . . design adopted [later]." *Dixon*, 637 A.2d at 922. In contrast, under N.J. Stat. Ann. § 2A:58C-4, pertaining to the duty to warn, "a manufacturer enjoys no such immunity, and has a continuing duty to warn of dangers discovered even after a product leaves its control." *Id.*; see also *Seeley*, 606 A.2d at 384. As noted by a federal court applying New Jersey law: "The crucial distinction between the two [design defect and failure to warn] is that a manufacturer has no duty to correct a physical design that was considered state of the art at the time of its manufacture, whereas it does have a duty to warn of dangers in its product exposed by advances in the state of the art." *Straley v. United States*, 887 F. Supp. 728, 748 (D.N.J. 1995); *Mandile v. Clark Material Handling Co.*, 131 F. App'x 836, 838 (3d Cir. 2005).

### **New Mexico**

New Mexico has not specifically addressed what a manufacturer's liability is for older equipment or products that were not defective at the time they were manufactured when there have been subsequent advancements in safety. However, a supplier has a duty to use ordinary care after the product has left its possession and a supplier that later learns, or should have learned, of a risk of injury caused by a condition of a product must use ordinary care to then avoid that risk when it voluntarily undertakes the responsibility to do so. *Couch v. Astec Industries, Inc.*, 2002-NMCA-084, ¶43, 132 N.M.631, 640-41, 53 P.3d 398, 407-08 (2002). The court in *Couch* was explicit to limit such duty to the set of facts at hand, thus leading to the logical conclusion that New Mexico will find a duty on a fact-by-fact basis. Little to no jurisprudence has come from the holding in *Couch* to further define this duty. See e.g. *Rivera v. Volvo Cars of N. Am., LLC*, 2015 U.S. Dist. LEXIS 192620, \*12-13 (D.N.M. 2015) (citing *Couch* and a post-sale duty to warn in dicta).

### **New York**

In *Cover v. Cohen*, 61 N.Y.2d 261, 461 N.E.2d 864, 473 N.Y.S.2d 378 (1984), the New York Court of Appeals held that a post-sale duty to warn may arise when a manufacturer receives notice of a danger through the reporting of an accident involving the product or "through some advancements in the state of the art, with which the manufacturer is expected to stay abreast..." *Cover*, 61 N.Y.2d at 274. "[T]he existence and scope of this duty are generally fact specific." *Liriano v. Hobart Corp.*, 92 N.Y.2d 232, 700 N.E.2d 303, 677 N.Y.S.2d 764 (1998). What notice will trigger the manufacturer's duty will depend on the degree of danger involved and the number of accidents reported. *Cover*, 61 N.Y.2d at 275. See also *Hernandez v. Biro Mfg. Co.*, 251 A.D.2d 375, 674 N.Y.S.2d 72 (2<sup>nd</sup> Dept. 1998). Manufacturers must also keep abreast of the state of the art and may be liable for failing to warn of dangers that come to light after initial distribution of a product. *Id.* See also *Lindsay v. Ortho Pharm. Corp.*, 637 F.2d 87, 91 (2d Cir. 1980). More recent jurisprudence has acknowledged that no single standard exists under New York law, but generally has summarized the duty to exist where a dangerous defect comes to a manufacturer's attention, requiring dissemination of adequate warnings to minimize the danger. *Adams v. Genie Indus., Inc.*, 2007 N.Y. Misc. LEXIS 323 \* (2007).

### **North Carolina**

In North Carolina, "[a] manufacturer does not completely discharge its duty to warn simply by providing some warnings of some dangerous propensity of its product at the time of sale. A continuing duty exists to provide post-sale warnings of any deficiencies it learns exists in the product to users." *Smith v. Selco Products, Inc.*, 96 NC App. 151, 158, 385 S.E.2d 173, 175-76 (N.C. 1989); *Corprew v. Geigy Chemical Corp.*, 271 NC 485, 491, 157 S.E.2d 98, 103 (1967); *Davis v. Siloo, Inc.*, 47 NC App. 237, 245, 267 S.E.2d 354, 359, rev. denied 301 NC 234, 283 S.E.2d 131 (1980). Moreover, in *Selco Products*, the North Carolina Court of Appeals criticized a manufacturer which had knowledge of certain safety advancements and which failed to either: (1) recall its machines already in the market or (2) undertake



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a systematic effort to retrofit its machines already in the market. *See id.* at 176. *See also*, N.C. Gen. Stat. §99B-5(a)(2).

The most recent decision interpreting North Carolina's post-sale duty to warn has further broadened this duty, holding that North Carolina law does not discharge a seller of its duty to warn by warning just an intermediary. *Finch v. Covil Corp.*, 1:16-CV-1077, 2019 U.S. Dist. LEXIS 73129, \*25-26 (M.D.N.C. 2019). Although this duty is seemingly broad, North Carolina has limited the duty as it relates to hidden defects, holding that a six-year statute of repose applies. *See Davidson v. Volkswagenwerk, A.G.*, 78 N.C. App. 193, 336 S.E.2d 714, 716 (N.C. Ct. App. 1985).

### **North Dakota**

The North Dakota Supreme Court has held that negligence principles may create a duty for manufacturers to warn foreseeable users about dangers associated with the product that were discovered after it was manufactured and sold. *Crowston v. Goodyear Tire & Rubber*, 521 N.W.2d 401 (N.D. 1994). *Stroklund v. Thompson/Ctr. Arms Co.*, 4:06-cv-08, 2007 U.S. Dist. LEXIS 86294, \*14-15 (2007) ("The North Dakota Supreme Court has recognized a cause of action for negligent failure to warn which encompasses a post-sale duty to warn."). The existence of such a duty is a question of law for the trial judge to decide. *Stanley v. Turtle Mountain Gas*, 567 N.W.2d 348 (N.D. 1997). Under negligence principles, a manufacturer cannot ignore post-sale knowledge gained about dangers associated with the use of its product just because specific purchasers or current owners cannot be reasonably traced; the fact that a product is mass produced and widely distributed does not totally absolve a manufacturer of a post-sale duty to warn under ordinary negligence principles. *Crowston*, 521 N.W.2d at 408. A federal district court in North Dakota predicts that the state's Supreme Court would reject the notion of a manufacturer having a duty to recall or retrofit. *Eberts v. Kawasaki Motors Corp.*, No. A1-02-43, 2004 WL 224683 (D.N.D. Feb. 2, 2004).

### **Ohio**

Ohio law does not require a manufacturer to recall or retrofit a defective product. The Ohio Product Liability Act, codified at O.R.C. §2307.71 *et. seq.*, contains no recall or retrofit obligation. Generally, under the OPLA a plaintiff must prove that the product was defective when it left the manufacturer's hands. *Roberts v. Performance Site Mgmt., Inc.*, 2004-Ohio-2820 at ¶11 (Ohio Ct. App. 2004) (*citing Temple v. Wean United, Inc.*, 50 Ohio St. 2d 317, 322 (Ohio 1977)).

Ohio law ascribes a post-market duty to warn if the manufacturer knew or should have reasonable known about the risk **and** the manufacturer failed to provide post-marketing warnings or instruction that a reasonable manufacturer would have provided. O.R.C. § 2307.76(A)(2). The Ohio Supreme Court has recently analyzed the breadth of this duty in *Linert v. Foutz*. 149 Ohio St. 3d 469 (2016). The court in *Linert* held that, "[e]ven when a product is not defective at the time of sale, a manufacturer may be subject to liability if it subsequently learns of dangers attendant to the use of the product or methods to avoid serious risks and fails reasonably to communicate that information to product users." *Id.* at 477 (citing Henderson & Twerski, *The Products Liability Restatement in the Courts: An Initial Assessment*, 27 Wm.Mitchell L.Rev. 7, 28 (2000)). The Ohio Supreme Court directed subsequent fact-finders to focus on a risk associated with the product of which the manufacturer acquires knowledge after the sale of the product when applying Section 2307.76(A)(2), i.e. a reasonableness standard. *Id.* at 478. However, it is important to note that there is no post-market duty to warn where just a component part is defective. *Wells v. Komatsu Am. Int'l Co.*, 162 Ohio App. 3d 827 (Ct. App. Ohio 2005). In such a circumstance, it is the duty of the component part manufacturer to provide the post-market warning.

### **Oklahoma**

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In *Wicker ex rel. Estate of Wicker v. Ford Motor Co.* a federal district court held that "Oklahoma does not recognize a post-sale duty to warn or retrofit a product." *Wicker ex rel. Estate of Wicker v. Ford Motor Co.*, 393 F.Supp.2d 1229, 1236-37 (W.D. Okla. 2005). *Smith v. Sears Roebuck & Co.*, CIV-04-1271-HE, 2006 U.S. Dist. LEXIS 98645, \*19-20 (W.D. Okla. 2006) ("Oklahoma does not recognize a post-sale duty to warn."), *affirmed by Smith v. Sears Roebuck & Co.*, 232 Fed. Appx. 780 (10th Cir. 2007). No post-sale duty to warn also exists related to potential safety upgrades where the danger is open and obvious under Oklahoma law. *Brewer v. Harley-Davidson, Inc.*, 1999 U.S. App. LEXIS 2962, \*9-10 (10th Cir. 1999).

### **Oregon**

Oregon has not definitively addressed the issue of whether or not an ordinary manufacturer or seller may have a continuing duty to warn, suggesting only that a post-sale duty to warn may exist in a "proper" case. *See, e.g., Sealy v. Hicks*, 309 Or. 387, 399, 788 P.2d 435, 441 (1990), *overruled in part on unrelated grounds by Smothers*, 332 Or. at 123. A drug manufacturer, however, has a continuous duty in Oregon to keep current with scientific developments associated with the manufacturer's drug and to notify physicians of any additional side effects it discovers. *McEwen v. Ortho Pharm. Corp.*, 270 Or. 375, 388, 528 P.2d 522, 528 (1974). No additional jurisprudence has come from Oregon to develop this theory further.

### **Pennsylvania**

Pennsylvania law does not impose a duty upon the manufacturer to retrofit its already sold product when the manufacturer exercises reasonable care in producing the product and does not retain any post-sale responsibility for or control over its product. *Lynch v. McStome and Lincoln Plaza Associates*, 548 A.2d 1276, 1281 (Pa. Super. 1988); *DeSantis v. Frick*, 745 A.2d 624 (Pa. Super. 1999). Under Pennsylvania law, a manufacturer has no duty to inform a buyer of advances in technology or safety when the product was safe and functioning properly at the time it was sold. *See Lynch*, 548 A.2d at 1276. Under some circumstances, i.e., where a component part manufacturer alerts the product manufacturer to a defect in the component part, a manufacturer may be held to a post-sale duty to warn. *Walton v. Avco Corp.*, 610 A.2d 454 (Pa. 1992). *Walton* imposed the duty only on "unique and costly products" and not to "household goods". *Id.* Courts have also interpreted *Walton* to create a post-sale duty to warn where the product was defective at the time of manufacture and where the manufacturer had notice of the defect. *See Sullivan v. Modern Group Ltd.*, 2000 Pa. Dist. & Cnty. Dec. LEXIS 288, \*8-9 (2000).

### **Rhode Island**

Under Rhode Island law, a manufacturer's duty to manufacture a product without defect is measured as of the date the product leaves the manufacturer's hands. *Olshansky v. Rehrig Int'l*, 872 A.2d 282 (R.I. 2005); *Buonanno v. Colmer Beltings Co., Inc.*, 733 A.2d 712 (R.I. 1999). Rhode Island courts have, to date, not specifically addressed the post-sale duties of a manufacturer to recall, retrofit, notify or keep track of their products. *Sweredoski v. Alfa Laval, Inc.*, 2013 R.I. Super. LEXIS 130 \*2 (2013) ("It is true that our Supreme Court has not formally imposed on product manufacturers a post-sale duty to warn.").

### **South Carolina**

If a product is non-defective under the standards applicable at the time of the sale, a manufacturer has no duty under South Carolina law "to notify previous purchasers of its products about later developed safety devices or to retrofit those products." *Bragg v. Hi-Ranger, Inc.*, 319 S.C. 531, 548 (S.C. Ct. App. 1995). However, if a manufacturer discovers a defect that was present when the product was sold, it has a duty to notify the users of the product of the discovered dangers or defects. *Id.*

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Federal courts interpreting South Carolina law agree that it does not recognize a post-sale duty to warn. *Davenport v. Goodyear Dunlop Tires N. Am., Ltd.*, 1:15-cv-03752-JMC, 2018 U.S. Dist. LEXIS 36008 \*7-8 (D.S.C. Mar. 6, 2018) (citing *Campbell v. Gala Indus., Inc.*, No. 6:04-cv-02036-RBH, 2006 U.S. Dist. LEXIS 26606, 2006 WL 1073796, at \*5 (D.S.C. Apr. 20, 2006) (granting manufacturer's motion for summary judgment "on the ground that there is no post-sale duty to retrofit or recommend" under South Carolina law)); *Andrews v. CBS Corp.*, 2:13-cv-2055-RMG, 2015 U.S. Dist. LEXIS 185828 (D.S.C. June 24, 2015).

### South Dakota

While South Dakota's state courts have not addressed the issue, the Eighth Circuit Court of Appeals has imposed on manufacturers a duty to warn, including a post-sale duty to warn of defects that existed at the time of sale but were discovered after the sale of a product, predicting that South Dakota state courts would impose such a duty. *Novak v. Navistar International Transportation Corporation*, 46 F.3d 844, 850 (8<sup>th</sup> Cir. 1995); *Robinson v. S.D. Brandtjen & Kluge, Inc.*, 500 F.3d 691, 697-68 (8<sup>th</sup> Cir. 2007).

### Tennessee

By statute in Tennessee, in actions based on strict liability, negligence or implied warranty, "[a] manufacturer or seller of a product shall not be liable for any injury to a person or property caused by the product unless the product is determined to be in a defective condition or unreasonably dangerous at the time it left the control of the manufacturer or seller." Tenn. Code. Ann. § 29-28-105(a) (2011). Tennessee does not recognize a post-sale duty to warn

### Texas

A manufacturer does not generally have a post-sale duty to warn of dangers discovered after an allegedly defective product has been sold to the consumer, and there is no cause of action for failure to warn about hazards discovered after a product has been manufactured and sold or to recall products for which a safer design has been developed. *Medina v. Michelin N. Am., Inc.*, No. 05-16-00794-CV, 2018 Tex. App. LEXIS 804, \*15 (Jan. 29, 2018) (citing *Torrington, Co. v. Stutzman*, 46 S.W.3d 829, 836-837 (Tex. 2000)). However, if a manufacturer regains control after the sale of a product fails to correct a known defect before sale of the product to a subsequent purchaser, a post-sale due to warn can exist. *Bell Helicopter Co. v. Bradshaw*, 594 S.W.2d 519 (Tex. Civ. App. 1979); *See also McLennan v. American Eurocopter Corp.*, 245 F.3d 403, 430 (5<sup>th</sup> Cir. 2001).

### Utah

There is no general post-sale duty to warn in Utah. A successor corporation has an independent post-sale duty to warn customers of defects in products manufactured and sold by the predecessor corporation under certain conditions, such as where the successor provides maintenance or service to the purchaser or knows of a substantial risk of harm posed by the product, and can identify the consumers and effectively communicate a warning to them. *Tabor v. Metal Works Corp.*, 2007 UT 71, ¶ 12, 168 P.3d 814. However, the successor only has a duty to warn the end user if it has a reasonable means of doing so. *Id.* Drug manufacturers are required to notify the medical profession of any additional side effects associated with the use of the drug that are discovered after the drug is put on the market. *Barson v. E.R. Squibb & Sons, Inc.*, 682 P.2d 832, 835-836 (Utah 1984).

Federal courts interpreting Utah law have held that a seller **does** have a post-sale duty to warn but, however, **does not** have a post-sale duty to recall or retrofit. *Dowdy v. Coleman Co.*, 1:11CV45DAK, 2011 U.S. Dist. LEXIS 120004 \*7-9 (D. Utah, Sept. 12, 2012) (under *Tabor*, it would be "strangely inconsistent" to impose a greater post-sale duty on a successor entity rather than the original seller and,

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thus, Utah Supreme Court would adopt a post-sale duty to warn; and declining to recognize a post-sale duty to recall or retrofit under Utah law).

### **Vermont**

In *Ostrowski v. Hydra-Tool Corp.*, 144 Vt. 305, 479 A.2d 126 (1984), the Court rejected a claim of liability for a machine manufactured by a predecessor corporation no longer in existence. The Court, however, suggested that there may be circumstances where a mere successor to assets, which knows of defects and of the location of the owner of a product, may have a duty to warn. *Id.*, 479 A. 2d at 128 (citing *Travis v. Harris Corp.*, 565 F.2d 443, 449 (7th Cir.1977)). Outside this area, Vermont courts have not addressed liability of the original or successor manufacturer for equipment in the field where there have been advancements in safety. The Second Circuit Court of Appeals in *Lavoie v. Pacific Press & Shear Co.*, 975 F.2d 48 (2<sup>nd</sup> Cir. 1992) recognized a post-sale duty to warn and upheld a jury verdict based upon it. The Vermont Supreme Court has not addressed the issue.

### **Virginia**

There is no post-sale duty to retrofit in Virginia. *Buettner v. Super Laundry Mach.*, 857 F.Supp. 471, 477 (E.D. Va. 1994). The Supreme Court of Virginia has not specifically addressed the issue of post-sale duty to warn. *Hart v. Savage*, 72 Va. Cir. 41 (2006) (“The Supreme Court of Virginia has not ruled on the existence of such a duty” to warn after sale.), see e.g. *Royal Indem. Co. v. Tyco Fire Prods., LP*, 281 Va. 157 (2011) (declining to rule on the existence of a post-sale duty to warn where the plaintiff failed to present any argument to the circuit court regarding whether Virginia recognizes a post-sale duty to warn ). Lower courts, however, have declined to extend a post-sale duty to warn. *Hart*, 72 Va. Cir. at 45.

Federal courts applying Virginia law historically have not been uniform in their view as to how Virginia state courts would decide the issue. Compare *McAlpin v. Leeds & Northrup Co.*, 912 F. Supp. 207 (W.D. Va. 1996) (finding a duty to warn after sale), *Ambrose v. Southworth Products Corp.*, 953 F. Supp. 728 (W.D. Va. 1997) (holding no duty to warn after sale exists under Virginia law), *Kimmell v. Clark Equipment Co.*, 773 F. Supp. 828 (W.D. Va. 1991) (a limited duty to warn after sale exists under Virginia law).

More recently, though, federal courts applying Virginia law seem to rule more frequently in favor of finding a post-sale duty to warn. See *Rash v. Stryker Corp.*, 589 F. Supp. 2d 733, 735-36 (2008) (holding that “The Supreme Court of Virginia would allow a cause of action based on a negligent breach of a post-sale duty to warn to proceed); *King v. Flinn & Dreffein Eng’g Co.*, 7:09-cv-00410, 2012 U.S. Dist. LEXIS 86133, \*11-13 (2012) (concluding that the plaintiff plausibly stated a claim for breach of post-sale duty to warn under Virginia law); *Russell ex rel. Russell v. Wright*, 916 F. Supp. 2d 629, 650 (W.D. Va. 2013) (noting that the Supreme Court of Virginia has not formally adopted the duty though would do so if confronted).

### **Washington**

A manufacturer’s duties with regard to older equipment when there have been advancements in safety are not expressly addressed under the Washington Product Liability Act. However, the statute does address a manufacturer’s duty to provide warnings or instructions after the product was manufactured and if the manufacturer knew or should have known of a danger. Specifically, if a manufacturer knew or should have known of a danger connected with the product after it was manufactured, then the manufacturer has a duty to issue warnings or instructions concerning the danger “in the manner that a reasonably prudent manufacturer would act in the same or similar circumstances.” Wash. Rev. Code §7.72.030(1)(c). The manufacturer’s duty is satisfied “if the manufacturer exercises reasonable care to

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inform product users.” *Id.* See also, *Esparza v. Sky Reach Equip., Inc.*, 103 Wash.App. 916, 935, 15 P.3d 188, 198 (2000).

Of note, *Sherman v. Pfizer, Inc.*, 8 Wn. App. 2d 686 (2019) interpreted this statute in the context of the learned intermediary doctrine, i.e. where a drug manufacturer provides warnings to a prescribing physician. The manufacturer had no additional duty to warn and/or update consumer beyond the package inserts provided to the prescribing physicians/learned intermediary.

### **West Virginia**

Though West Virginia does not specifically recognize a post-sale duty to warn, there may be a post-sale duty to warn under a negligence theory. *Johnson by Johnson v. General Motors Corp.*, 438 S.E.2d 28, 36-40 (W.Va. 1993) (citing Robert A. Royal, *post-sale warnings: A Review and Analysis Seeking Fair Compensation Under Uniform Law*, 33 *Drake L.Rev.* 817, 831-32 (1983-84), for the proposition that “most courts have held that a seller has a post-sale duty to warn.” *Johnson*, 438 S.E.2d at 37). In practice, West Virginia Circuit Courts have applied *Johnson* to hold that a manufacturer does not have a post-sale duty to warn under strict liability claims. See e.g. *In re Asbestos Pers. Injury Litig., et al.*, 2014 W.V. Cir. LEXIS 466 (2014)

### **Wisconsin**

Under some circumstances, a manufacturer may be liable under a post-sale duty to warn. However, Wisconsin does not recognize an absolute, continuing duty to warn of new safety devices. The post-sale duty to warn may be found where there is a limited market and a limited number of products in existence, but it does not generally apply to products that are mass produced and which may see advancements in safety with successive models. *Sharp. ex rel. Gordon v. Case Corp.*, 227 Wis.2d 1, 26, 595 N.W.2d 380, 391 (1999); *Gracyalny v. Westinghouse Electric Corporation*, 723 F.2d 1311, 1318-19 (7<sup>th</sup> Cir. 1983); *Kozlowski v. John E. Smith's Sons Company*, 87 Wis.2d 882, 901, 275 N.W.2d 915, 923-24 (1979). Evidence of post-sale warnings by a defendant manufacturer is inadmissible in a strict liability failure-to-warn case if the feasibility of providing a warning is not disputed. *Krueger v. Tappan Company*, 104 Wis.2d 199, 203-08, 311 N.W.2d 219, 222-24 (Ct. App. 1981).

### **Wyoming**

No Wyoming decision explicitly adopts a post-sale duty to warn as a basis for strict liability. See *Continental Ins. V. Page Eng'g Co.*, 783 P.2d 641, 657-61 (wherein dissenting opinion entertains a post-sale duty to warn as a developing theory of liability in other jurisdictions). There is no post-sale duty to warn in Wyoming of defects that cause damage only to the product itself. Further, the Wyoming Supreme Court follows the majority rule that there is no post-sale duty to retrofit a product that was not defective when it was sold. *Loredo v. Solvay Am., Inc.*, 212 P.3d 615, 632, 2009 WY 93 (2009).

*Accord*, Morton F. Daller, Editor-In-Chief, *Product Liability Desk Reference: A Fifty-State Compendium – 2012 Edition* (2012); Defense Research Institute, Chicago, IL, *Product Liability Cases and the Duty to Warn – A 50 State Compendium* (2007).

### **About the Authors**

**Bruce Main**, PE CSP, is the president of design safety engineering, inc. A professional engineer and certified safety professional, Mr. Main holds mechanical engineering degrees from MIT and the University of Michigan, and an MBA also from the University of Michigan. He is a member and/or chair of several national and international industry committees on risk assessment and safety of machinery including

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ANSI/PMMI B155.1, ANSI B11.0 and ISO 12100. He is also the primary representative to the B11 Committee (machine tool industry) on behalf of the American Society of Safety Professionals.

Mr. Main is a member of several professional engineering and safety organizations having authored numerous articles, papers, and books including *Risk Assessment: Basics and Benchmarks*, *Risk Assessment: Challenges and Opportunities*, and *The Battle for the Control of Hazardous Energy*. He is a frequent lecturer on risk assessment and machinery safety to industry and educational institutions.

**Kevin G. Owens** is a senior shareholder in the Chicago law firm of Johnson & Bell, Ltd., where he serves as co-chair of the firm's Product Liability Practice Group. His civil litigation practice includes the defense of catastrophic injury, consumer and other product liability actions, construction and general negligence actions, and the litigation of commercial disputes in state and federal courts. His experience also includes litigation of construction product defect actions, and litigation of contract actions at law and equity. He received his B.A. from Marquette University in 1980 and his J.D. from the DePaul University College of Law in 1983. He is a member of the Defense Research Institute and a past member of its Product Liability Practice Group's Steering Committee, and has also been a member of the Chicago, Illinois State and American Bar Associations, serving on the CBA's Judicial Evaluation Committee from 1987 to 1992.

A frequent lecturer and panelist at CLE programs, Mr. Owens has also authored numerous publications in the areas of product liability and civil litigation. He is licensed in the State of Illinois, the United States District Court for the Northern District of Illinois, the United States Seventh Circuit Court of Appeals, and the United States District Courts for the Western District of Michigan, Northern District of Indiana, Western District of Illinois and Southern District of Illinois.

Johnson & Bell, Ltd. is also the northern Illinois member of ALFA International, a global legal network of independent law firms with member firms in each U.S. state and most international capitols. Mr. Owens is a past chair of ALFA's Product Liability Practice Group and presently serves as Vice Chair of ALFA International's Board of Directors.

**Martha E. Drouet** is an associate at Johnson & Bell, Ltd. and concentrates her practice on defending hospitals and healthcare practitioners against medical malpractice, nursing home act, and general negligence claims. Prior to joining Johnson & Bell, she practiced both plaintiff and defense work, independently litigating cases from pre-litigation claims through trial and subsequent appeals in areas such as product liability, toxic tort, commercial litigation, premises liability, and transportation law. She also served as national counsel for a prominent product manufacturer where she was charged with identifying defense strategy, monitoring local counsel, and determining when to step in and litigate cases via *pro hac vice* admission in multiple state and federal jurisdictions.

Ms. Drouet was named an Emerging Lawyer by Leading Lawyers in 2018 and 2019, a distinction that is reserved for the top 2% of Illinois lawyers who are 40 years old or younger and have been identified by their peers as proving themselves to be professional, ethical and experienced at an early point in their legal career. She was selected as an Illinois Super Lawyers Rising Star for 2019, a distinction that is limited to fewer than 2.5% of attorneys in Illinois.

Ms. Drouet earned her J.D. from Chicago-Kent College of Law with a 40-hour Mediation Training Certificate. While a student at Chicago-Kent, she founded the Alternative Dispute Resolution team and placed in 2nd at the Regional Championships for the ABA National Representation in Mediation Competition in 2014. She received the CALI award and was named a Baum Fellow for her work in the Environmental Law Clinic and was on the Dean's List for four of six semesters.

**Zachary A. Pestine** is an associate at Johnson & Bell, Ltd. and focuses his practice on municipal liability defense and civil rights litigation. Prior to joining Johnson & Bell, Mr. Pestine worked at a premier

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litigation boutique in Chicago, where he drafted pleadings and assisted in the preparation of direct and cross-examination for a near-billion dollar complex litigation suit. Mr. Pestine also has significant experience in municipal liability litigation, including drafting discovery and dispositive motions, and appearing in court.

Mr. Pestine earned his J.D. *cum laude* from Washington University in St. Louis School of Law in 2016, where he focused on civil rights litigation, including municipal liability and employment law. He graduated *with distinction* from University of Wisconsin-Madison in 2013 and is a proud Badger.

Mr. Pestine is also an active member of the Chicago Bar Association and is an Associate Board Member of the Anti-Defamation League.

**Fred Hayes** is the PMMI Director Technical Services. Mr. Hayes holds mechanical engineering and engineering administration degrees from Michigan Technological University. Mr Hayes is the secretary of the PMMI B155.1 standards committee, a member of the B11.0 committee and a U.S. delegate to ISO TC199 WG5 safety of machinery – risk assessment, WG8 control systems and ISO TC130 Graphics Technology, - ergonomics and safety. Mr. Hayes was recognized for his contributions to the packaging industry by being elected to the Packaging Hall of Fame in 2012.

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