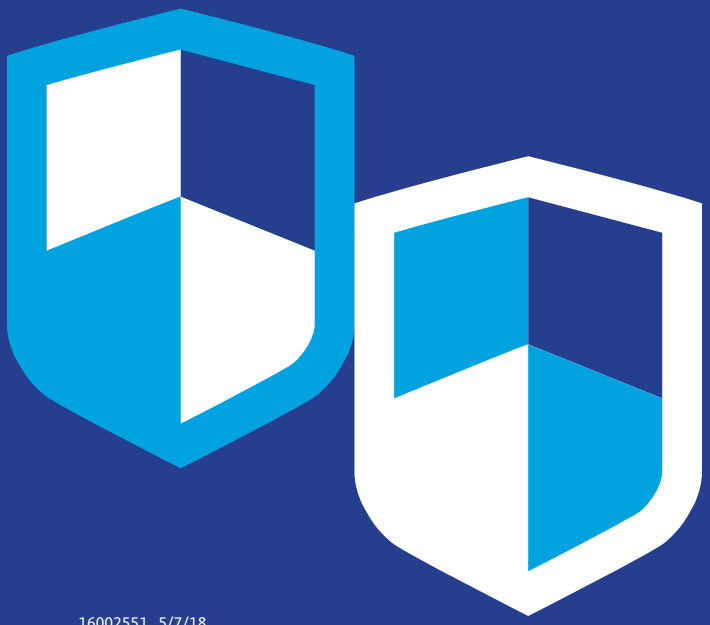
Sentry®

Product Safety/ Liability Prevention

Information for farm equipment manufacturers



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Thank you for your interest in our product safety and liability prevention services. Sentry's safety services are provided by Parker Services, LLC, a member of the Sentry Insurance Group.

As part of our long-standing relationship with the Farm Equipment Manufacturers Association (FEMA), we worked with their Risk Management Committee to develop this extensive product safety resource. Together, we're focused on helping you administer your risk management program by addressing product safety.

We're committed to helping you keep your business, employees, and customers safe. Contact me if you're interested in an onsite safety consultation or visit sentry.com to learn more. Thanks again for insuring your business with us.

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Promoting safety, striving to avoid liability

As a farm equipment manufacturer, you know the importance of safety—not just for your workplace, but for your customers. That's where this resource kit comes in. Here are some ways we can help you promote safety and avoid possible liability risks:

- Product safety process
- Loss control guidelines
- Document management program
- Incident and claim reporting

We've put together this short summary to help you take advantage of opportunities in each topic.

LOSS CONTROL GUIDELINES

This will help you organize your safety program, establish basic policy and safety rules, and conduct activities that are essential for your program's success.

You'll find the following reference materials and forms after page 23 of this guide:

- Safety committee meeting minutes
- Safety meeting minutes
- Accident investigation report
- General inspection checklist
- Security and theft prevention checklist
- Vehicle inspection record
- Equipment safety checklist
- New employee safety orientation checklist

Please note this material isn't all-inclusive and may not address specific hazards or all federal, state, or local requirements. This booklet is not intended to fulfill written performance requirements of federal, state, or local regulations—like OSHA, your state's health department, or local fire departments.

When you review this document, be sure to include an evaluation of additional needs, related regulations, and your commitment to workplace safety.

ESTABLISHING A PRODUCT SAFETY PROCESS

During recent years, there have been many changes in the concept of liability, what constitutes negligence, and the size of verdicts. It's important to take these changes into consideration when you review existing or proposed product safety process. There are several elements that you should consider as part of your product safety process, including design reviews, safety assessments and hazard analyses, quality control, and operator's manuals and safety labels.

Developing and maintaining effective operator's manuals and proper safety labels are a key part of the product safety program for farm equipment manufacturers. By incorporating manual development into the product development process, you can offer products more likely to be used safely by your customers.

We've also included information on regulatory efforts, industry consensus standards, and the development of the manual.

DOCUMENT MANAGEMENT PROGRAM

It's important to keep records tracking the development, testing, production, and reliability of a product. That way you'll be able to show whether the product was sold with recommended safety devices, warnings, and instruction. It also shows that due care was taken during all phases of the manufacturing process.

This publication deals with product safety and document management. While the implementation of an effective document management program is not easy, the benefits—both in immediate savings and avoiding the long-term effect of lawsuits—can make it worthwhile.

INCIDENT AND CLAIM REPORTING

Immediately report to your insurance provider any injuries or property damage involving a product you sell, service, repair, or install. This will help ensure a proper and complete investigation of the incident, which will help properly resolve the claim.

We've prepared this guide for anyone in the Farm Equipment Manufacturers Program underwritten by Sentry Insurance.

Report any notice of a claim to your insurance agent, broker, or the insurance company itself. Participants should contact:

Sentry Claims Service
2225 Minnesota Avenue
PO Box 8026
Stevens Point, WI 54481
Telephone: 800-473-6879
FAX: 800-999-4642
claimsmail@sentry.com

SENTRY SOLUTIONS

We know farm equipment manufacturers like you face unique safety challenges and exposures. That's why we've created Sentry Solutions—a series that identifies the most common exposures and helps you develop or enhance your safety program and establish basic safety policies. It covers:

- Controlling employee vehicle use
- Manual material handling
- Handling hazardous materials at your facility
- Reducing your product liability exposures
- Facility safety
- Recruiting, training, and retaining your employees
- A safe approach to mechanical material handling
- Machinery and equipment safety at your facility
- Managing safety and health exposures at your business
- Controlling fire hazards at your facility
- Emergency preparedness and response
- The importance of operator's manuals

As a policyholder, you're able to access these and other safety materials by logging into your account at sentry.com.

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Sentry®

Loss control guidelines

Information for farm equipment manufacturers

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How a safety program can help your business

As you know, every aspect of a farm equipment manufacturing operation involves an element of risk. Risk affects the potential for making a profit, and can even threaten your company's assets. Risk can cause losses, and losses cost money.

What's often overlooked, however, is the relationship between safety and efficiency. Good managers know you need both in order to reduce accident costs. Because when you reduce those costs and improve efficiency, profit tends to improve.

IT ALL GOES BACK TO SAFETY

You can determine the cause of an accident—in general, an unsafe act, unsafe condition, or a combination of both. You can control these causes with an effective safety program. A safety program can help you meet state and federal OSHA requirements. It also means greater efficiency and productivity throughout your team—workers and supervisors alike—while also improving your business's image.

This manual furnishes the basics for such a program. You should expand or modify it to meet your requirements and consult with your human resources and safety experts and legal counsel to ensure applicability to your business circumstances. It's not intended to meet the specific safety needs of every business.

THE HIDDEN COSTS OF ACCIDENTS

For the purposes of this discussion, an accident is defined as an unexpected event that disrupts normal work schedules and has the potential to cause physical injury, property damage, and loss of revenue. By nature, accidents tend to have negative effects on employee morale, resulting in a loss of efficiency.

Insurance policies cover the direct costs of a loss, like medical and indemnity payments for an employee work injury. Unfortunately, many hidden costs aren't insured, leaving the business responsible for the results. For instance, if one of your employees is injured and can't return to work, you lose the services of an individual who was capable of earning a certain amount of revenue for your business. Hiring a replacement involves recruiting and training costs, along with the struggles of an inexperienced and less efficient worker.

Other hidden costs you may encounter include time lost by others while work was disrupted, replacing damaged equipment, deductibles paid from property damage and vehicle accidents, and loss of customers from delays.

For example, suppose Joe—a tractor mechanic—has an accident while charging a battery. The explosion sprays him with acid and destroys the battery and charging unit. Joe loses three days from work, but his employer pays his wages anyway. Joe and the other eight mechanics make $16/hour, and the shop rate is $38/hour. You can see an example of the cost breakdown in Table 1. Note that there are other hidden costs that could have been included. In this example, Joe's company will pay out, lose, or assume approximately $2,100 of its own money. A loss control program can help to control these types of costs.

While this description isn't based on a specific individual or entity, the details reflect characteristic facts from multiple actual claims.

TABLE 1

Direct (insured) cost	
Joe's medical bills	$460
Insurance pays	**$460**
Hidden (uninsured) cost	
Joe's lost time (24 hours)	$384
30 min. work stoppage—eight others	64
Shop's lost time (28 hours)	1,064
Battery and charger	550
Clean-up time (one hour)	38
Company pays	**$2,100**

RECOVERING LOST PROFITS

Uninsured losses eat up profits. For example, a company needs to sell an additional $100,000 in products or services to recover $5,000 in uninsured losses, assuming an average sales profit of 5 percent. The amount of revenue required to pay for losses varies with the profit margin, as illustrated in Table 2.

Even small amounts of hidden costs require large amounts of revenue to recover the loss. Consider this: If your business has two auto accidents this year that barely exceed your insurance deductible, how much in additional sales will you need to make to get that money back?

TABLE 2

If hidden costs are:	If profit margins are:		
	3%	5%	7%
	*Additional revenue needed**		
$1,000	$33,000	$20,000	$14,000
2,500	$83,000	$50,000	$36,000
5,000	$167,000	$100,000	$71,000

* Hidden costs divided by profit margin

Now that you've seen the effect losses can have on your business, it's time to develop a practical method of controlling losses.

Safety program

THE SENTRY APPROACH

We work with you to help control your risk exposures and protect your assets—employees, property, and business. We provide:

- Assistance in developing and managing a loss control program
- Information for creating a statement of safety policy
- Safety posters, signs, and other materials
- Inspection forms for employee safety, fire protection, vehicle safety, and crime prevention

MANAGEMENT'S ROLE

To create a successful loss control program, it's vital that top management demonstrates interest and consistently participates. Management must be more than just concerned—supervisors and employees invariably reflect their attitude.

If management doesn't project an honest, positive attitude, your efforts toward loss control will likely fail.

Federal and state laws have established legal obligations to provide a safe and healthful workplace, free of recognized hazards. The first step is translating this concern into policy and action.

All safety programs require the same basic steps to get started. Management can begin by taking the following steps:

- Issue a written statement of policy to communicate management's interest and define overall responsibilities.
- Appoint a safety coordinator. This individual will be accountable for the entire program and must report directly to top management.
- Appoint a safety committee. This group can assist or replace the coordinator, and involve more employees in the program. The committee reports to top management. Consult your legal advisor to discuss establishing a safety committee.
- Provide realistic amounts of time and money for merging safety into the current management system and complying with safety suggestions.
- Include consideration in the safety program for customers, salespeople, and outside contractors that come to your premises.
- Periodically review your program activities and results to determine the program's effectiveness.

STATEMENT OF POLICY

Adopt a policy statement that demonstrates management's interest and support, while making it clear that management expects the cooperation of all involved. The key is to express concern for accidents while communicating management's expectations to your employees.

You can use the following sample safety policy as a starting point as you develop a policy tailored to your employees, your facilities, and your management team.

SAMPLE SAFETY POLICY

The management of this organization is committed to providing employees with a safe workplace.

Management is involved in establishing and maintaining an effective safety program. Our safety program coordinator—or other members of our management team—will collaborate with your department's employee representative in safety and health program activities, including:

- Promoting safety committee participation
- Providing safety and health education and training
- Reviewing and updating workplace safety rules

We welcome employee recommendations to improve safety and health conditions. Management will provide financial resources for correcting unsafe conditions, and will take disciplinary action against employees who willfully or repeatedly violate workplace safety rules.

This policy serves as management's commitment to and involvement in providing a safe workplace. This workplace safety program will be incorporated as the standard practice for this organization. Compliance with safety rules is required as a condition of employment.

It's up to employees to report all accidents, injuries, and unsafe conditions to their supervisors.

_____

President's signature

Essential activities

COORDINATORS AND COMMITTEES

Safety coordinator

Assign a management representative the responsibility of coordinating safety activities and administrating the program. The coordinator could have the following duties:

- Coordinate all safety activities for the company. This includes the general areas of employees, vehicle operation, sales and service, property, buildings and equipment, and customer safety.
- Establish employee rules and regulations.
- Establish safe practices and conditions and ensure that they're followed in all areas.
- Review safety committee and accident reports, and see that recommendations are acted upon. Maintain a file of these reports for analysis.
- Establish training programs for employees, as required.
- Maintain information and interest-sustaining items, such as safety posters and emergency information.
- Include salespeople and outside contractors as part of the safety program. Be sure that the appropriate people file certificates of insurance for any contracted work.
- Act as a liaison with various outside safety agencies, including state and federal inspectors.

Safety committee

Many companies organize safety committees to assist their safety coordinators. A committee consists of a group of experienced employees representing all departments. The committee advises management on safety matters at the business. It forms a vital line of communication between employees and management.

The safety committee can perform many duties, including:

- Promoting safety policies throughout the company
- Setting an example by practicing safe work and driving habits
- Conducting scheduled facility inspections of the business and vehicles to identify unsafe acts and conditions
- Reviewing and recommending corrective action for deficiencies identified from:
  - Facility inspections
  - Accident reports
  - Preventive maintenance programs
  - Loss statistics
- Establishing and maintaining a procedure for handling and evaluating employee suggestions
- Assisting in developing or revising safety rules and procedures as needed

Authority

Grant the committee written authority to perform its functions in a manner consistent with the loss control program in an unencumbered manner.

All committee recommendations typically go to the coordinator and then on to top management. Management retains the final decision on all program changes and expenditures.

Organization

The size and complexity of your company will determine the size and makeup of the committee. In most cases, smaller is better (three to seven members are usually plenty). Regardless of size, certain items are common to all safety committees:

- Committees are typically made up of at least one person from each company department, so all employees are represented. Whenever possible, committee members can represent management, supervision, and labor.

- Select experienced employees who are familiar with the company's operations as well as their own departments.
- Establish a program in which members serve fixed terms, then rotate off so others can serve. This can help introduce fresh ideas to the committee. Stagger terms so at least two-thirds of the committee is experienced.

MEETINGS AND INSPECTIONS

Safety meetings

Scheduled safety meetings are an excellent way for management to promote interest in the safety program and keep all employees updated on control of the common hazards that cause the most frequent type of injuries.

These meetings don't have to be long—five to 15 minutes is sufficient. Choose topics that relate to problems at your company. For instance, if you've identified several back injuries from lifting, hold a short training session on proper lifting techniques. You can select topics from Sentry Safety Advisor bulletins (available on our self-service customer website).

Follow a few basic steps to structure your meeting:

- **Plan ahead.** Choose the topic with plenty of time to get materials together—don't wait until the day before.
- **Set a time and place.** Make sure everyone can attend.
- **Make an outline.** Or get a safety bulletin that outlines the subject so that it can be discussed right from the bulletin itself. Review old business first, including items not completed at previous meetings.
- **Make copies of handouts.**
- **Be active during the meeting:**
  - Call the meeting to order and state the purpose of the meeting.
  - Cover the material.
  - Ask for comments or questions. Discuss the significant points of the material.

Always keep records of safety meetings, including who attended and the topic covered. They can come in handy if an OSHA compliance officer ever visits the company.

You can find a sample safety committee minutes form in this manual's appendix.

Safety inspections

Safety inspections are among the most important tools in preventing accidents. You can use properly completed inspections to identify hazards and help develop ways to control them.

Have the safety coordinator and members of the safety committee perform inspections on a scheduled basis. We recommend monthly inspections.

Perform the inspections during normal work hours, whenever possible, to observe employees at work. This will also help identify unsafe acts that lead to accidents. When your committee observes an unsafe act, immediately make the employee aware of the problem, and instruct them on the correct way of doing the job.

Use an inspection form to promote consistency. You can design the form to fit your business so it covers the safety of the building and the operations performed therein. We've included a general inspection checklist in the appendix of this manual.

ACCIDENTS

Accident investigation is the first step in preventing future occurrences of the same type. Be sure to investigate any accident—even one where no one is injured—as soon as possible. Maintain records to allow management to review the need for corrective action and determine if a trend is developing.

The most important principle of accident investigation is to identify cause, not place blame. Remind your investigator to focus on helping everyone realize that the sole purpose is to prevent other accidents.

Accident causes

It's a common misconception that accidents are caused by a single event. All too often, an untrained investigator will list the cause as "carelessness" on the part of the injured employee.

Accidents are caused by a series of events that come together under certain circumstances. To understand what happened, the investigator must know how to break the accident down to its basic elements. These are:

- **Object causing injury:** A tool, material, or piece of equipment associated with the injury
  - Examples: Hammer, grinding wheel, vehicle, chemical
- **Type of accident:** The way the victim contacted the object causing the injury
  - Examples: Struck by, slip/fall, caught in (or under or between)
- **Unsafe condition:** The condition that, left uncorrected, may cause an accident
  - Examples: Damaged electrical cord, unguarded saw blade, water on floor, poor lighting
- **Unsafe act:** Any deliberate or unknowing violation of any safety rule or work procedure that may result in an accident
  - Examples: Refusing to wear eye protection, using the wrong tool, taking shortcuts when servicing equipment
- **Personal aspects:** The reason for the employee's unsafe actions
  - Examples: Lack of knowledge, insufficient training, emotional or health problems

By examining an accident in this manner, the investigator can isolate the cause(s) in such a way that they can make recommendations for corrective action.

For example, if an employee slips in an oil puddle, cleaning it up will not prevent future slips from a long-term standpoint—finding out how the oil got there and developing a plan to prevent more spills will.

Conducting the investigation

After an accident occurs, your first step is assisting anyone injured. Then, preserve the accident scene until the investigation is complete. If this isn't possible, photograph the scene from all angles for later examination. Interview all witnesses and the victim as soon as possible. Have the investigator interview each person separately, in a relaxed setting. The investigator should also:

- Ask each person to tell what they saw in their own words
- Ask each person what they observed regarding unsafe acts and unsafe conditions
- Take notes of all interviews
- Encourage witnesses to contact the investigator if they remember any new information after the interview

Accident reports and analysis

Once the interviews are complete, gather the accumulated information into several reports for corrective action, insurance, and legal purposes.

You can find an accident investigation report form in the appendix of this manual. You can use it to summarize information used in the investigation and formulate recommendations for improvement. File all reports for future use.

You'll need to complete the first report of injury form to report the claim to us, and also to ensure you meet OSHA recordkeeping requirements. Be sure to include an OSHA case number on the form. You may want to discuss claims reporting procedures with your insurance representative in detail.

You'll need to complete the OSHA Form 300 Log of Work-Related Injuries and Illnesses log if the injury to the employee is OSHA-recordable.

Please review OSHA's current standard regarding this topic: https://www.osha.gov/laws-regs/regulations/standardnumber/1904/1904.39.

SAMPLE SAFETY RULES

Use the following sample safety rules as a guide—you can customize them to fit your business. Once you've developed your safety rules guide, distribute it to employees and encourage them to review it thoroughly.

Sample general safety rules

You're expected to take proper care of your safety and that of your fellow workers. If at any time you don't understand something about your job, ask your supervisor. Don't experiment, shortcut job procedures, or take chances. All accidents are preventable if we all carry out our safety responsibilities to the best of our ability.

- Follow the safe job procedures established by your supervisor. Perform only those jobs you have been assigned and properly instructed for.
- Wear protective equipment required for your job, as established by your supervisor through job instruction. It's up to you to see that protective equipment is kept clean and in good repair. Report damaged equipment to your supervisor immediately.
- Report unsafe practices or unsafe conditions to your supervisor immediately.
- Report all accidents and near misses to your supervisor immediately. In cases of injury, get first aid as soon as possible.
- Keep all mechanical safeguards in position during operation.
- Put main switches in OFF position whenever adjusting, setting up jobs, or when the machine is to remain idle for any length of time. Don't allow machinery to operate unattended.
- Use only the machinery, equipment, and tools for which you're qualified and authorized to use.
- Don't make repairs on any electrical device or equipment unless authorized to do so.
- Tag and lock master machine switches in the OFF position when performing major repairs, oiling, greasing, or maintenance.
- Keep the covers on switch boxes, circuit panels, and fuse stations closed at all times.
- Walk, don't run, while within the plant area.
- Don't remove any machine guard installed over the point of operation, power transmission, or moving parts without permission from the supervisor—and then only after complying with other precautions outlined herein.
- Don't use compressed air for cleaning clothes or cooling—it can result in serious injury. Don't allow nozzle pressure to exceed 30 psi.
- Don't block fire extinguishers, sprinklers, or fire exits with supplies or equipment at any time.
- Don't use flammable solvents in an open container. Store and handle flammables in approved safety containers only.
- Administer first aid only if you're properly trained. Under no circumstances should any employee attempt to remove foreign objects from someone's eyes, ears, or face.
- Don't ride hand trucks or power trucks.
- Don't use any tools, machinery, or equipment for personal use without management's approval.
- Don't repair machinery or equipment unless you're a qualified maintenance person authorized by management.

We've included the following specialized safety rules to help you avoid specific injuries. Keep in mind that these rules won't cover all situations. The practices listed below are generally accepted as good workplace safety practices. Help your team learn and practice them regularly.

Hand tools

- Carry hand tools in a tool box or tool belt intended for that purpose. Don't carry sharp-edged or pointed tools in your pockets.
- Note that tools resting on benches, near machines, or on floors and ladders may cause accidents or get lost. Return tools to their appropriate storage place. This is especially important for sharp or heavy tools.
- Keep your tools clean. Grease and dirt cause slippage, which may result in injury.

- Check that tools are in good condition before using. Turn in defective and/or dull tools.
- Use the right size and correct tool for the job. There are special hammers, wrenches, pliers, screwdrivers, chisels, and saws for specific types of work. The right tool makes the job easier and safer.

Lifting and carrying

- Don't lift awkward or heavy materials alone—get someone to help.
- Inspect the object for sharp corners, nails, and other projections that may cause an injury.
- Keep your back straight when lifting, and bend at the hips so you're over the load to be lifted. Use your leg muscles to avoid straining your back.
- When two or more workers carry an object, one should give instructions. The workers should decide, in advance, which route they'll use and how the object will be handled. Keep in step and have signals for changing directions, stopping, placing objects, etc.

Piling material

- Provide a safe, stable base with a solid, smooth, level surface. Check barrels and other materials that may roll or slide for stability.
- Maintain adequate aisle space. Leave enough room so powered trucks, fire equipment, and workers can get to the pile. Don't allow dunnage and material ends, especially bar stock, to protrude beyond the face of the pile.
- Pile to a safe height so the pile remains steady and doesn't exceed the floor load limit. Be sure that 18 inches remain between the pile and fire sprinkler heads.

Machine operations

- Use lockout devices and tags when you've turned off a machine for repairs or adjustments to make sure it won't reactivate without your knowledge.
- Never clean, repair, or adjust any machinery while it's in operation. Follow procedures in the lockout/tagout program when conducting any repair or maintenance on machinery or equipment.
- Keep machinery clean, free of tools, rags, and scrap.
- Keep the floor around your machine dry and free of tripping hazards.
- Keep your fingers away from points of operation and other exposed moving machine parts.
- Don't work with any defective equipment.
- Report defects to your supervisor immediately.
- Make sure all machines have guards in place before putting that machine into operation. Adjust the guards per the required operation.
- Remove guards only when it's required to set up a new part or when that machine is to be repaired.
- Be sure all belt-driven equipment has guards around pulleys, gears, spindles, belt shafts, sprockets, and other moving parts that expose the employee to, or create, an unsafe condition.
- Keep all other special equipment guarded in accordance with the manufacturer's instructions.
- Avoid removing or bypassing a machine guard if you're unauthorized to do so. Disciplinary procedures apply.
- Don't operate equipment without the specific approval of your supervisor, if you aren't already authorized to operate it. Only those employees trained in the safe operation of the machine will be allowed to use them.

Powered lift truck operation

- Don't ride hand trucks, powered lift trucks, or trailers.
- Operate powered lift trucks at a safe speed at all times, as determined by the type of load, aisle space, and pedestrian traffic.
- Always drive at a speed that will allow you to stop safely in case of an emergency. The speed limit set in the plant is the maximum for ideal conditions.
- Stop trucks at blind intersections and before passing through doorways.
- Don't transport unstable loads or those above the rated capacity of the vehicle.

- Anchor dock plates, approach them at a right angle, and drive over them slowly.
- Turn off truck motors and set brakes in elevators.
- Sound your truck's horn or bell when approaching pedestrians. Note that sounding a warning, however, does not give an operator the right-of-way. Proceed slowly until pedestrians are out of the way.
- Don't operate lift trucks with fork tines up. Use the tilt control to bring the load over your drive wheels and stabilize it.
- Operate lift trucks only if you're trained and authorized to do so.

Ladders

- Use an approved ladder for overhead work.
- Avoid using metal ladders when working on or near electrical circuits—use fiberglass ladders instead.
- Inspect ladders for defects (missing cleats, cracked rungs, broken spreaders, etc.) before use.

Housekeeping

- Return tools and other equipment to proper storage place after use.
- Dispose of oily rags, old paint cans, and other containers that have held flammable liquids—they're fire hazards. Use appropriate closed disposal containers located throughout the facility.
- Remove or bend nails in lumber containers that may be handled.
- Promptly clean up broken glass.
- Keep floors dry—wipe up all spills immediately.
- Throw away debris and scrap in properly labeled waste containers.
- Pick up tripping hazards such as nuts, nails, pieces of wire, waste materials, etc.
- Don't let personal items accumulate in locker areas and workplaces.
- Do your part to keep first aid facilities clean and sanitary.
- Practice good housekeeping within your work area.

Fire

Report all first aid and fire hazards immediately. When phoning for help, be sure to give the operator specific information as to the fire's location, and refer to the emergency response plan for prompt evacuation.

- Follow your firefighting program throughout all phases of work. Make sure effective firefighting equipment is available without delay and is designed to effectively meet all fire hazards as they occur.
- Keep fire extinguishers conspicuously located and readily accessible at all times, and be sure they're maintained in operational condition. Each employee, upon being assigned to a work area, should know the closest location of this equipment.
- Report the use of a fire extinguisher to the supervisor immediately. The same applies if you find a fire extinguisher that has been discharged.
- Be sure that piles of materials are orderly and regular.
- Don't obstruct exits with material storage.
- Store materials with due regard to their fire characteristics.
- Maintain a clearance of at least 36 inches for lights, heating units, and electrical boxes.
- Move objects that are to be welded, cut, or heated to a designated safe location. If they can't be moved, work to confine the heat, sparks, and slag, and keep them away from fire hazards.
- Dispose of all oily rags in the proper closed containers located throughout the plant.

Flammable and combustible liquids

- Use only approved containers to store and handle flammable and combustible liquids. Store flammables, including gasoline, in approved safety cans.
- Place flammable liquid containers in flammable liquids storage cabinets when not in use and at the end of the workday.
- Clean up spilled or leaking flammable or combustible liquids immediately, and dispose of the liquids properly within the guidelines of EPA, state, and federal regulations.
- Never smoke or use open flames in areas where you store or use flammable or combustible liquids.

Restricted work

Get your supervisor's approval before doing the following types of work (unless authorized):

- Welding or other hot work that normally requires a special precaution
- Opening pressurized gas, chemical, air, or steam lines/valves
- Repairing or cleaning drums and tanks that have held volatile or toxic substances
- Disposing of flammable or toxic materials, per EPA regulations
- Changing the operation or removal of any safety device

We've established these safety rules in the interest of protecting lives and property. We ask all employees to follow these rules, to help safeguard themselves and their coworkers.

Employee responsibilities

The Occupational Safety and Health Act of 1970 requires "that every employer covered under the act furnish to his/her employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his/her employees." The act also requires "that employees comply with standards, rules, regulations and orders issued under the act which are applicable to their own actions and conduct."

As an employee, your responsibilities for safety include:

- Follow all safety rules and regulations.
- Wear appropriate safety equipment as required.
- Maintain equipment in good condition with all safety guards in place when in operation.
- Report all injuries immediately—no matter how minor—to a supervisor.

HIRING AND TRAINING

Knowledgeable job placement is important to building and maintaining a successful business. Through employment applications, many businesses set up personnel files on each employee. Collecting the right data by having applicants fill out relevant forms can help. You can find these forms through firms that specialize in and maintain forms that comply with regulations and statutes.

Administration

- Reevaluate your hiring practices and procedures. This could include application forms, job placement physicals (in accordance with Americans with Disabilities Act compliance), reference checks, and motor vehicle driving experience.
- Develop a short orientation procedure for new employees. During this orientation, explain your safety policy, safety rules, enforcement procedures, and job performance expectations, and other company policies, procedures, and practices. Document the orientation for future reference.

Employee training

- Remember that supervisors are key to an effective training program. Develop a special safety education program for supervisors so they can carry out their responsibilities for training employees.
- Hold quarterly meetings with your supervisors to discuss safety topics and reemphasize the management policy on safety and health. This could include accidents that have occurred in the past, procedures necessary to bring about better safety controls, ways of reaching employees with new safety programs, and policies.

New employee safety orientation

A key element to any successful safety program is initial training and helping your new employees form safe work habits. They need to understand your company safety program, policies, and rules, so they form a good attitude toward safety—along with proper work procedures—from day one. This also demonstrates management's interest in their well-being.

Include the following areas in your orientation:

- Company safety policies (Consider each employee's part and responsibility, along with management's expectations of safe work performance)
- Company safety and job-specific safety rules
- Accident reporting and follow-up procedures emphasizing the need for prompt reports
- Safety organization and functions: directors, committee makeup, employee involvement, and agendas
- Personal protection equipment (PPE) requirements
- Orientation tours
- Emergency disaster plans, response actions, and evacuation procedures
- Fire alarm procedures, location of fire extinguishers, and what to do in case of fire
- First aid response procedures and appropriate PPE
- Back injury prevention measures

This training can be accomplished through:

- Educational materials (visual aids, pamphlets, posters, signs, etc.)
- Brief periodic safety training meetings, such as toolbox safety meetings
- Personal safety contacts

You can use checklists in more structured courses, such as new employee training, to ensure that points regarding safety and health are included in job instruction.

Specific job training by the job supervisor

It's up to the job supervisor to acquaint new employees with the nature of their work, the specific safety requirements, and the department's general safety rules. Introduce the new person to other employees and outline what's expected, including safety equipment requirements and work procedures.

The supervisor should follow up on key points to be sure the new employee understands them. They can use a simple form, completed by a supervisor and placed in the employee's file, to document this important phase of initial job training.

Vehicle safety

Vehicle operations can vary tremendously depending on the business type, even within the farm equipment manufacturing industry. Regardless of your business's size and complexity, your management team should exercise certain controls beyond just checking for drivers' licenses and assigning vehicles.

MANAGEMENT'S ROLE

Top management should set an example by operating their vehicles in a safe and responsible manner. Like other safety activities, employees probably won't accept the program if they perceive that top management isn't following it.

Inform all drivers that the safety policy extends to vehicle operations. You may need to amend the policy statement to reflect this. The safety coordinator's duties can include these tasks:

- Advise management on vehicle accident prevention and safety
- Develop and promote accident prevention measures throughout the fleet
- Evaluate driver safety performance and maintain driver safety records
- Investigate all vehicle accidents for determination of cause
- Maintain vehicle accident records for analysis
- Review vehicle inspection forms and follow up on corrective maintenance

DRIVER SELECTION

Your driver selection program can bolster management's efforts to obtain people who not only drive safely, but also handle cargo properly and project a good public image.

- **Job analysis:** Define driving skills based on the vehicles your company uses
- **Application and reference check:** Take written applications and follow up by checking references, previous employers, and motor vehicle records for prospective drivers
- **Personal interview:** Include driving requirements when conducting interviews

All states require operators of certain types of vehicles to hold a commercial driver's license.

Vehicles requiring a commercial driver's license (CDL) include those:

- With a gross vehicle weight or combined gross vehicle weight of 26,001 lbs. or more
- Used to haul listed hazardous materials or waste
- That can transport 16 or more passengers including the driver

Commercial vehicle license holders must possess a valid medical certificate approved by the state and pass a written examination. For details in licensing drivers with a CDL, contact your state Motor Vehicle Licensing Department.

You need to maintain a driver qualification file on each driver to include motor vehicle reports, license documentation, accident reports, complaints, applications, and past driver history.

DRIVER RESPONSIBILITIES

It's essential that you communicate safety responsibilities to your drivers. For a small fleet without heavy vehicles, these can be straightforward:

- Obey all laws regarding speed limits, weight restrictions, and vehicle marking
- Be sure all occupants of company vehicles and personal vehicles used on company business wear seat belts
- Never pick up hitchhikers
- Be aware that substance abuse prior to or while driving a company vehicle is not tolerated
- Inspect all service and delivery vehicles daily, prior to operation
- Report all accidents, no matter how slight, to management immediately
- Never use cell phone applications while driving, including making/receiving calls, text messaging, and internet use—use only when the vehicle is parked

These are basic rules. The safety coordinator can develop rules that apply to specific problems as necessary.

VEHICLE MAINTENANCE AND INSPECTION

A preventive maintenance program can go a long way to making sure the vehicle is ready to go when needed. It promotes safety by finding minor vehicle problems before they cause major breakdowns or accidents. A basic preventive maintenance program includes these items:

- Establish a preventative maintenance program to ensure that vehicles function with minimum repair
- Instruct drivers to inspect vehicles regularly and note deficiencies on a report
- Follow the vehicle manufacturer's recommended service schedule, at minimum
- Record all inspections, service, and repair work on maintenance forms and keep them in the vehicle file

We've included a sample vehicle inspection record in the appendix of this manual.

ACCIDENT REPORTING AND INVESTIGATION

Federal Motor Carrier Safety regulations and most states require that accidents be reported within a specified time period, depending upon severity. Instruct your drivers to report all accidents to the safety coordinator. Investigate these accidents to determine how future incidents can be prevented.

Drivers should complete an accident form to gather data at the scene to identify what happened, and assist in filing an insurance claim. Give completed forms to the safety coordinator. The coordinator can use the same accident investigation form for employee injuries by including a sketch. File all reports for periodic review.

Accident prevention is closely geared to accident frequency and known causes of accidents. By recording the pertinent facts relating to each accident, you'll be in a better position to conduct accident prevention activities tailored to your problems:

- Maintain a reporting and recording system for drivers and vehicles to pinpoint and correct trouble areas
- Require your drivers to file a written report immediately following each accident, regardless of injury or the extent of property damage

Liability exposure

A policy that prohibits employees or others from using company vehicles for their personal use will help control an unnecessary liability exposure. However, if you do allow personal use of a company vehicle based at an employee's home, limit its use to the employee.

Crime prevention

Theft is a high-profit, low-risk business, and it costs businesses like yours billions of dollars per year. It's also a crime of opportunity—thieves aim for the easiest targets. Just because your location hasn't been hit doesn't mean it won't be.

This section covers some of the basics of making it difficult for a thief to steal from you. It introduces the three Ds—deterrence, delay, and detection. If you make it too hard for a thief to succeed, they'll usually go somewhere else.

MANAGEMENT'S ROLE

The key to success with theft loss control is management's personal interest and participation.

- Assume direct responsibility for the program or delegate it to someone in management
- Communicate management's interest by informing all employees of your security intentions, and provide them with copies of guidelines, including employee theft policies
- Insist that all thefts, no matter how insignificant, must be reported to management promptly

RECORDKEEPING

The certainty of apprehension is a strong deterrent to theft. Maintaining accurate records of stock, tools, and equipment increases the odds of recovery.

One of the most important actions is to promptly record the Product Information Number (PIN) or Vehicle Information Number (VIN) of all units and attachments you have for sale. Engrave special tools and power tools owned by the company with a special owner-applied number that can be identified nationwide. Encourage employees to mark personal tools similarly, especially if you're insuring them as part of a benefits package.

SECURING THE FACILITY

A basic concept of security involves hardening the target—making a break-in so difficult that a thief will give up. Your entire facility should include several perimeter defenses.

Fencing

A fence is your first line of perimeter defense. Depending on the size of the property and the location, your fence should enclose all buildings and storage areas. If this isn't feasible, the next best thing is to enclose external storage areas and use other perimeter defenses elsewhere.

Your fence should be at least eight feet high, with barbed wire on top. Use see-through material, such as chain-link, and set posts no more than 10 feet apart.

All gates should be similarly constructed and have security hinges. Locks should be high-security: hardened steel shackle, with five-tumbler operation and nonremovable keys when open. For additional security, use locks that are protected by welded steel shrouds.

Structure all gates so the longest vehicle you use can pull completely off the road into the drive if the gate is closed.

Lighting

Proper lighting is an excellent theft deterrent. The basic principle of security lighting is simple: light up the entire area around and inside the facility.

An effective lighting plan should:

- Illuminate all sides of the facility
- Project light from the perimeter in toward the center of the property
- Illuminate all entry doors with perimeter or overhead lights
- Keep all showrooms and offices visible from the street illuminated after hours
- Maintain all lights through regular checks

To determine if your facility is adequately lit, visit it at night and look for dark areas that could shelter a thief from observation.

Doors

The type, construction, and use of doors will determine what kind of protection you need. Here are some minimum standards:

- Ensure entry doors are metal or solid wood-core construction
- Minimize windows on side and rear entry doors, if possible—if windows are necessary, specify wire reinforced glass, 3/8-inch polycarbonate (Lexan), or install security screens
- Equip aluminum extrusion glass doors with case-hardened locks and extra-long deadbolts for added security
- Use only deadbolt-type locks; if the locks are located close to windows, use locks that require a key on both sides
- Secure overhead doors by drilling the door track just above a roller, and use padlocks with a hardened shackle, five-tumbler locking mechanism
- Shut off and lock electric doors at the switch box

NOTE: Emergency exit doors must be operable during business hours. Use special, one-way panic hardware on these doors if you need to keep them locked during business hours.

Windows

You can usually protect plate glass front windows with an alarm system. In high crime areas, you may need custom-built burglary screens.

Construct side and rear windows out of wire-reinforced glass or Lexan, or install burglary screens. Keep your windows locked during business hours unless they're needed for ventilation. Lock them after hours.

Alarms

Alarms have proven their effectiveness in deterring crime for decades. In many instances, the mere presence of an alarm will make a potential intruder go elsewhere.

There are two basic types:

- **Local alarm systems:** These signal an alarm with a bell, siren, or flashing light on the building, leaving it up to neighbors or passersby to call police—not ideal if your facility is in an isolated area.
- **Remote or central station:** These signal a silent alarm—usually at a security company or police station.

Modern technology has developed many different types of detection devices. Some attach to doors and windows, and trigger an alarm when a break-in is attempted. Others wait until the thief gets in and detects by means of pressure pads, electric eye, or sound waves. Regardless of which type you choose, be sure your alarm system is an Underwriters Laboratories listed system, and have it installed by a reputable, certified installer.

Security guards and watchdogs

If your company is contemplating hiring a security guard, consider the services of a licensed, bonded security company. These organizations check the background of their employees and carry their own insurance. Discourage using armed guards in all but special circumstances, as the liability of using a firearm usually outweighs the advantages.

The same is true for watchdogs. They often end up biting customers or employees, and can be neutralized by a knowledgeable thief. At Sentry, we discourage using watchdogs.

INTERNAL CONTROLS

Employee dishonesty causes many financial losses each year. With a system of internal controls on cash handling and parts inventory management, you can help to control these types of losses.

- Establish procedures for prosecuting dishonest employees. Communicate this to the entire staff.
- Bond employees who handle cash.
- Require management approval and countersignature for disbursements. Make all payments by check, if possible.
- Establish a frequent, systematic, physical inventory system. Perform it at least annually with an employee not normally responsible for maintaining daily inventory records.
- Never assign receiving and distributing duties to one employee.

Customer and property protection

MANAGEMENT'S ROLE

Your business assumes legal responsibility for the personal safety of everyone who visits your facility. Your customers are exposed primarily to physical hazards, like slips and falls. Injuries from improper product demonstration can also occur. Management must control these hazards by establishing rules on customer control, and training employees to deal with them.

CUSTOMER SAFETY

Customers are exposed to many of the same hazards as employees. An immediate control, therefore, is to restrict customers from all shop areas. Establish a comfortable customer waiting area. If customers want to discuss service and repair, have the service technician come to the waiting area. Train all personnel to spot customers in their areas, and if necessary, politely steer them to appropriate areas.

DEMONSTRATIONS AND TEST DRIVES

When demonstrating products, it's important to cover the use of all safety devices along with operating procedures. In most cases, the salesperson supervises the customer.

Some things to consider:

- When demonstrating vehicles or mobile equipment, thoroughly brief the customer on control functions before allowing them to operate it. Require seat belt use during the demonstration.
- Select a route or practice area free of traffic or dangerous obstacles for the demonstration. Be aware of how weather conditions can affect the demonstration area.
- If you require personal protective equipment, like safety goggles, gloves, or hard hats, have them on hand for the customer to wear.

CONTRACTORS AND JOBBERS

Contractors who come to your facility to perform repairs or service can present a serious hazard to your employees and property. Always determine the nature of the work to be done and consider whether you need to restrict employee operations, move stock, or provide extra fire protection to allow the contractor to complete the work safely.

Jobbers present hazards through the services or products they supply for your company. For example, a machine shop that mills a part critical to a repair job you're doing can inadvertently destroy the equipment if the part isn't milled correctly. Select jobbers carefully, paying attention to their qualifications and reputation.

It's critical that you protect your company assets by carefully selecting contractors and jobbers. You can also obtain certificates of insurance on all businesses that provide services to your business.

A certificate of insurance is proof that the service company can pay for damages caused by their negligence while working for you or on your behalf. Certificates should clearly state the type and limits of coverage with policy expiration dates. We encourage you to require the service company to carry the same basic liability and auto limits as your own. Maintain and periodically review a certificate file to check that all are in force.

PRODUCT LIABILITY

Manufacturers are responsible for the quality of work performed on products they sell. Selling used products also presents a problem, as most states hold the seller responsible for repairing and upgrading them. The as-is sales contract doesn't always protect the seller's interest. You need a strict plan of action to control potentially huge lawsuits from product liability.

- Check all repair work before returning to the customer.
- Don't perform unauthorized modifications to any type of equipment, even if the customer demands it. Explain the reasons for not doing so in writing, citing the dangers of modifying equipment without proper testing.
- Stay current on all product improvement modifications and recall notices. Contact known customers to arrange for repairs or replacement as soon as possible.
- Perform a documented safety inspection to identify problems when you receive equipment for service. If you find problems, immediately contact the owner for permission to repair them.
- Document the condition of all used equipment to identify repairs needed before resale. Pay special attention to safety-related items.

To assist in documenting the last two items, use an equipment safety checklist. We've included a sample checklist in the appendix.

PROPERTY PROTECTION

Fire, windstorms, hail, and floods pose catastrophic loss potential to business operations like yours. Each area requires special attention within the safety program to prevent major losses.

Fire safety

Shop operations involving service, repair, and painting create serious fire hazards. Perform sales, shop, and storage area inspections to identify and correct fire hazards. Use the general inspection checklist found in the appendix of this manual to help identify fire hazards in your facility.

Wind and hail

These loss exposures are very difficult to control. Consider moving easily damaged or high-cost items inside or to a sheltered storage. If feasible, you may want to consider paving parking areas instead of using gravel. Additionally, you can construct windbreaks for protection.

Flood

Businesses located in areas subject to flooding should have a plan to move stock and equipment to high ground during flood warnings. Another strategy for minor flooding is storing small stock subject to water damage on upper floors, if possible, and high-cost units on the highest ground on the premises.

Self-service website

As a Sentry policyholder, you have access to a range of safety information through our secure online customer portal. We've designed this site to help you protect and manage your business by providing access to:

Account: Access your protection.
We have you covered. View your active policies, download policy documents, and more.

Billing: View important financial information.
Access billing documents and contact information.

Claims: Discover the details.
Track all of your claims in a single, smart destination.

Alerts: Track what's important.
Our powerful alerts system allows you to keep track of what's happening with your account. Choose what, when, and how to get alerts on what matters most to you.

Safety: Reduce risk.
We offer industry-specific safety resources—from sample safety policies to training videos—that reduce costs and increase safety.

News: Stay in the know.
Be informed of the latest news and information from Sentry.

With our self-service website, you'll spend less time worrying about the unexpected and more time focusing on running your business successfully. For more information, visit us at sentry.com or call 800-473-6879.

Appendix

We've compiled these sample forms to help you develop a health and safety program specific to your farm equipment manufacturing business. We encourage you to look at these forms as baselines—feel free to customize the relevant forms to suit your operations.

- Safety committee meeting minutes
- Safety meeting minutes
- Accident investigation report
- General inspection checklist
- Security and theft prevention checklist
- Vehicle inspection record
- Equipment safety checklist
- New employee safety orientation checklist

Note: Be sure to consult with your human resources and safety experts and legal counsel to ensure applicability to your business circumstances.

SAFETY COMMITTEE MEETING MINUTES

Date_____ Time_____ Length of meeting _____

Next meeting date/time_____

Members present:	Position:	Members absent:

Old business (items not completed, status):

New business (review inspections, suggestions, etc.):

SAFETY COMMITTEE MEETING MINUTES (continued)

Accident review (employee, vehicle, property, and customer losses since last meeting):

New recommendations (include suggestions for implementation):

Comments:

Safety committee chairperson

Date

SAFETY MEETING MINUTES

Company name _____

Date_____ Time_____ Length of meeting _____

Meeting topic:

Materials used:

Persons attending (name/department):

Meeting coordinator

Date

ACCIDENT INVESTIGATION REPORT

Your designated accident investigator must complete this form within 24 hours of an accident.

Name of employee _____

Occupation _____

Department and employee number _____

Date of accident_____ Time _____ ☐ a.m. ☐ p.m.

Place of accident _____

Witness _____

Describe injuries _____

Describe accident _____

First aid was administered or doctor was called ☐ Yes ☐ No Time _____ ☐ a.m. ☐ p.m.

Time _____ ☐ a.m. ☐ p.m.

Name and address of doctor _____

Did injured employee return to work? ☐ Yes ☐ No

Cause of accident:

☐ Improper tools or equipment

☐ Poor housekeeping

☐ Unguarded equipment

☐ Overcrowded area

☐ Unstable or improperly piled storage

☐ Improper apparel

☐ Improper light, ventilation, or temperature

☐ Improper training

☐ Failure to use personal protective equipment

☐ Failure to follow rules or instructions

☐ Improper methods of procedure

☐ Operation without authority

☐ Physical limitations for work

☐ Other

_____

_____

_____

_____

Solutions to prevent recurrence:

_____

_____

_____ _____

Employee Date

_____ _____

Supervisor Date

_____ _____

Person responsible for safety Date

GENERAL INSPECTION CHECKLIST

Safety and health program

		Action(s) taken
1. Do you have an active safety and health program that deals with:		
• General safety and health program elements?	☐ Yes ☐ No	
• Managing hazards specific to your worksite?	☐ Yes ☐ No	
2. Is one person responsible for the overall activities of the safety and health program?	☐ Yes ☐ No	
3. Do you have a safety committee or group (made up of management and labor representatives) that meets regularly and reports on its activities?	☐ Yes ☐ No	
4. Do you have a working procedure for handling in-house employee complaints regarding safety and health?	☐ Yes ☐ No	
5. Are your employees aware of the efforts and accomplishments you (and/or your safety committee) have made in creating a safe workplace?	☐ Yes ☐ No	
6. Have you considered incentives for employees or workgroups who excel in reducing workplace injuries/illnesses? • Note: Before establishing an incentive program, consult with your human resources or safety experts or legal counsel.	☐ Yes ☐ No	

Comments:

Personal protective equipment

		Action(s) taken
1. Are employers assessing the workplace to determine if hazards that require the use of personal protective equipment (PPE)—head, eye, face, hand, or foot protection—are present or likely to be present?	☐ Yes ☐ No	
2. If employers find hazards or the likelihood of hazards, do they direct affected employees to use appropriate, properly fitted PPE?	☐ Yes ☐ No	
3. Have employees been trained on PPE procedures?	☐ Yes ☐ No	
4. Are employees provided protective goggles or face shields where there's a risk of flying particles or corrosive materials?	☐ Yes ☐ No	
5. Are approved safety glasses required in areas where there's a risk of eye injuries (punctures, abrasions, contusions, or burns)?	☐ Yes ☐ No	
6. Are employees who need corrective lenses (glasses or contacts) in working environments with harmful exposures required to wear approved safety glasses or protective goggles, or use other medically approved precautionary procedures?	☐ Yes ☐ No	

Personal protective equipment

Action(s) taken

7. Are protective gloves, aprons, shields, or other means provided and required where employees could be cut, or where there is reasonably anticipated exposure to:		
• Corrosive liquids?	☐ Yes ☐ No	
• Chemicals?	☐ Yes ☐ No	
• Blood?	☐ Yes ☐ No	
• Other potentially infectious materials? *See 29 CFR 1910 .1030(b) for the definition of "other potentially infectious materials."*	☐ Yes ☐ No	
8. Are hard hats provided and worn where a danger of falling objects exists?	☐ Yes ☐ No	
9. Are hard hats inspected periodically for damage to the shell and suspension system?	☐ Yes ☐ No	
10. Is appropriate foot protection required where there is the risk of foot injuries from hot, corrosive, or poisonous substances, falling objects, and crushing or penetrating actions?	☐ Yes ☐ No	
11. Are approved respirators provided for regular or emergency use where needed?	☐ Yes ☐ No	
12. Is all protective equipment maintained in a sanitary condition and ready for use?	☐ Yes ☐ No	
13. Are eye wash facilities and quick drench showers located within the work area where employees are exposed to injurious corrosive materials?	☐ Yes ☐ No	
14. Where electrical workers need special equipment, is it available?	☐ Yes ☐ No	
15. Are food or beverages consumed in areas where there is no exposure to toxic material, blood, or other potentially infectious materials?	☐ Yes ☐ No	
16. Are adequate work procedures, protective clothing, and equipment provided and used when cleaning up spilled toxic (or otherwise hazardous) materials/liquids?	☐ Yes ☐ No	
17. Are procedures in place for disposing of or decontaminating PPE contaminated with (or reasonably anticipated to be contaminated with) blood or other potentially infectious materials?	☐ Yes ☐ No	

Comments:

Flammable and combustible materials

		Action(s) taken
1. Are combustible scrap, debris, and waste materials (oily rags, etc.) stored in covered metal receptacles and promptly removed from the worksite?	☐ Yes ☐ No	
2. Is proper storage practiced to minimize the risk of fire, including spontaneous combustion?	☐ Yes ☐ No	
3. Are approved containers and tanks used for storing and handling flammable and combustible liquids?	☐ Yes ☐ No	
4. Are all connections tight on drums and combustible liquid piping, vapor, and liquid?	☐ Yes ☐ No	
5. Are all flammable liquids kept in closed containers when not in use (parts-cleaning tanks, pans, etc.)?	☐ Yes ☐ No	
6. Are bulk drums of flammable liquids grounded and bonded to containers during dispensing?	☐ Yes ☐ No	
7. Do storage rooms for flammable and combustible liquids have explosion-proof lights?	☐ Yes ☐ No	
8. Do storage rooms for flammable and combustible liquids have mechanical or gravity ventilation?	☐ Yes ☐ No	
9. Is liquefied petroleum gas stored, handled, and used in accordance with safe practices and standards?	☐ Yes ☐ No	
10. Are No Smoking signs posted on liquefied petroleum gas tanks?	☐ Yes ☐ No	
11. Are liquefied petroleum storage tanks guarded to prevent damage from vehicles?	☐ Yes ☐ No	
12. Are all solvent wastes and flammable liquids kept in fire-resistant, covered containers until they're removed from the worksite?	☐ Yes ☐ No	
13. Is vacuuming used whenever possible, rather than blowing or sweeping combustible dust?	☐ Yes ☐ No	
14. Are firm separators placed between containers of combustibles or flammables to ensure stability when stacked?	☐ Yes ☐ No	
15. Are fuel gas cylinders and oxygen cylinders separated by distance and fire-resistant barriers while in storage?	☐ Yes ☐ No	

Flammable and combustible materials

		Action(s) taken
16. Are fire extinguishers selected and provided for the types of materials in areas where they are to be used?	☐ Yes ☐ No	
• Class A: Ordinary combustible material fires	☐ Yes ☐ No	
• Class B: Flammable liquid, gas, or grease fires	☐ Yes ☐ No	
• Class C: Energized-electrical equipment fires	☐ Yes ☐ No	
17. Are appropriate fire extinguishers mounted within 75 feet of outside areas containing flammable liquids, and within 10 feet of any inside storage area for such materials?	☐ Yes ☐ No	
18. Are extinguishers free from obstructions or blockage?	☐ Yes ☐ No	
19. Are all extinguishers serviced, maintained, and tagged at intervals not to exceed one year?	☐ Yes ☐ No	
20. Are all extinguishers fully charged and in their designated places?	☐ Yes ☐ No	
21. Where sprinkler systems are permanently installed, are the nozzle heads directed or arranged so water will not be sprayed into operating electrical switch boards and equipment?	☐ Yes ☐ No	
22. Are No Smoking signs posted in areas where flammable or combustible materials are used or stored?	☐ Yes ☐ No	
23. Are safety cans used for dispensing flammable or combustible liquids at a point of use?	☐ Yes ☐ No	
24. Are all spills of flammable or combustible liquids cleaned up promptly?	☐ Yes ☐ No	
25. Are storage tanks adequately vented to prevent the development of excessive vacuum or pressure (due to filling, emptying, or atmosphere temperature changes)?	☐ Yes ☐ No	
26. Are storage tanks equipped with emergency venting that will relieve excessive internal pressure caused by fire exposure?	☐ Yes ☐ No	

Comments:

Hand and portable powered tools

Action(s) taken

Hand tools and equipment

1.	Are all tools and equipment (both company- and employee-owned) used by employees at their workplace in good condition?	☐ Yes ☐ No
2.	Are hand tools such as chisels and punches—which develop mushroomed heads during use—reconditioned or replaced as necessary?	☐ Yes ☐ No
3.	Are broken or fractured handles on hammers, axes, and similar equipment replaced promptly?	☐ Yes ☐ No
4.	Are worn or bent wrenches replaced regularly?	☐ Yes ☐ No
5.	Are appropriate handles used on files and similar tools?	☐ Yes ☐ No
6.	Are employees made aware of the hazards caused by faulty or improperly used hand tools?	☐ Yes ☐ No
7.	Are appropriate safety glasses, face shields, etc., used while using hand tools or equipment that might produce flying materials or be subject to breakage?	☐ Yes ☐ No
8.	Are jacks checked periodically to ensure they're in good operating condition?	☐ Yes ☐ No
9.	Are tool handles wedged tightly in the head of all tools?	☐ Yes ☐ No
10.	Are tool cutting edges kept sharp so the tool moves smoothly without binding or skipping?	☐ Yes ☐ No
11.	Are tools stored in dry, secure locations where they won't be tampered with?	☐ Yes ☐ No
12.	Is eye and face protection used when driving hardened or tempered spuds or nails?	☐ Yes ☐ No

Portable (power-operated) tools and equipment

13.	Are grinders, saws, and similar equipment provided with appropriate safety guards?	☐ Yes ☐ No
14.	Are power tools used with correct, manufacturer-recommended shields, guards, or attachments?	☐ Yes ☐ No
15.	Are portable circular saws equipped with guards above and below the base shoe?	☐ Yes ☐ No
16.	Are circular saw guards checked to assure they are not wedged up, thus leaving the lower portion of the blade unguarded?	☐ Yes ☐ No

Hand and portable powered tools

		Action(s) taken
17. Are rotating or moving equipment parts guarded to prevent physical contact?	☐ Yes ☐ No	
18. Are all cord-connected, electrically operated tools and equipment effectively grounded? If not, are they an approved double-insulated type?	☐ Yes ☐ No	
19. Are effective guards in place over belts, pulleys, chains, and sprockets on equipment such as concrete mixers and air compressors?	☐ Yes ☐ No	
20. Are portable fans provided with full guards or screens having openings of ½ inch or less?	☐ Yes ☐ No	
21. Is hoisting equipment available and used for lifting heavy objects?	☐ Yes ☐ No	
22. Are hoist ratings and characteristics appropriate for the task?	☐ Yes ☐ No	
23. Are ground-fault circuit interrupters provided on all temporary electrical 15 and 20 ampere circuits used during construction periods?	☐ Yes ☐ No	
24. Are pneumatic and hydraulic hoses on power-operated tools checked regularly for deterioration or damage?	☐ Yes ☐ No	

Power-actuated tools

25. Are employees who operate power-actuated tools trained in their use?	☐ Yes ☐ No	
• Do they carry valid operator's cards?	☐ Yes ☐ No	
26. Is each power-actuated tool stored in its own locked container when not in use?	☐ Yes ☐ No	
27. Is a sign (at least 7x10 inches with bold typeface) stating "power-actuated tool in use" conspicuously posted when the tool is being used?	☐ Yes ☐ No	
28. Are power-actuated tools left unloaded until they are ready to be used?	☐ Yes ☐ No	
29. Are power-actuated tools inspected for obstructions or defects each day before use?	☐ Yes ☐ No	
30. Do power-actuated tool operators have—and use—appropriate personal protective equipment such as hard hats, safety goggles, safety shoes, and ear protectors?	☐ Yes ☐ No	

Comments:

Lockout/tagout procedures

		Action(s) taken
1. Is all machinery or equipment capable of movement required to be de-energized or disengaged and locked out during cleaning, servicing, adjusting, and setup?	☐ Yes ☐ No	
2. Where the means for disconnecting power to equipment don't also disconnect the electrical control circuit:		
• Are the appropriate electrical enclosures identified?	☐ Yes ☐ No	
• Are means provided to ensure the control circuit can also be disconnected and locked up?	☐ Yes ☐ No	
3. Is it prohibited to lock out control circuits in lieu of locking out main power disconnects?	☐ Yes ☐ No	
4. Are all equipment control valve handles provided with a means for locking out?	☐ Yes ☐ No	
5. Does the lockout procedure require that stored energy (mechanical, hydraulic, air, etc.) be released or blocked before equipment is locked out for repairs?	☐ Yes ☐ No	
6. Are appropriate employees provided with individually keyed personal safety locks?	☐ Yes ☐ No	
7. Are employees required to keep personal control of their key(s) while they have safety locks in use?	☐ Yes ☐ No	
8. Is it required that only the employees exposed to the hazard place or remove the safety lock?	☐ Yes ☐ No	
9. Are employees required to check the safety of the lock-out by attempting a startup after making sure no one is exposed?	☐ Yes ☐ No	
10. Are employees instructed to always push the control circuit stop button immediately after checking the safety of the lock-out?	☐ Yes ☐ No	
11. Is there a means provided to identify any or all employees who are working on locked-out equipment by their locks or accompanying tags?	☐ Yes ☐ No	
12. Are sufficient accident preventive signs or tags and safety padlocks provided for any reasonably foreseeable repair emergency?	☐ Yes ☐ No	
13. When machine operation, configuration, or size requires the operator to leave his or her control station to install tools or perform other operations—and that part of the machine could move if accidentally activated—is such an element required to be separately locked or blocked out?	☐ Yes ☐ No	

Comments:

Confined spaces

		Action(s) taken
1.	Are confined spaces thoroughly emptied of any corrosive or hazardous substances (such as acids or caustics) before entry?	☐ Yes ☐ No
2.	Are all lines to a confined space containing inert, toxic, flammable, or corrosive materials valved off and blanked—or disconnected and separated—before entry?	☐ Yes ☐ No
3.	Are all impellers, agitators, or other moving parts and equipment inside confined spaces locked out if they present a hazard?	☐ Yes ☐ No
4.	Is either natural or mechanical ventilation provided prior to confined space entry?	☐ Yes ☐ No
5.	Are appropriate atmospheric tests performed to check for oxygen deficiency, toxic substances, and explosive concentrations in the confined space before entry?	☐ Yes ☐ No
6.	Is adequate illumination provided for the work to be performed in the confined space?	☐ Yes ☐ No
7.	Is the atmosphere inside the confined space frequently tested or continuously monitored during conduct of work?	☐ Yes ☐ No
8.	Is there an assigned safety standby employee outside the confined space (when required) responsible for watching the work in progress, sounding alarms if necessary, and assisting?	☐ Yes ☐ No
9.	Is the standby employee appropriately trained and equipped to handle an emergency?	☐ Yes ☐ No
10.	Is the standby employee (or other employees) prohibited from entering the confined space without lifelines and respiratory equipment if there is any question as to the cause of an emergency?	☐ Yes ☐ No
11.	Is approved respiratory equipment required if the atmosphere inside the confined space cannot be made acceptable?	☐ Yes ☐ No
12.	Is all portable electrical equipment used inside confined spaces either grounded or insulated, or equipped with ground fault protection?	☐ Yes ☐ No
13.	Before gas welding or burning is started in a confined space, do you:	
	• Check hoses for leaks	☐ Yes ☐ No
	• Forbid compressed gas bottles inside the confined space	☐ Yes ☐ No
	• Light torches only outside the confined area	☐ Yes ☐ No
	• Test the confined area for an explosive atmosphere before taking torches into the confined space?	☐ Yes ☐ No

Confined spaces

		Action(s) taken
14. If employees will be using oxygen-consuming equipment (salamanders, torches, furnaces) in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration of the atmosphere below 19.5 percent by volume?	☐ Yes ☐ No	
15. Whenever combustion-type equipment is used in a confined space, are provisions made to ensure the exhaust gasses are vented outside the enclosure?	☐ Yes ☐ No	
16. Is each confined space checked for decaying vegetation or animal matter (which may produce methane)?	☐ Yes ☐ No	
17. Is the confined space checked for possible industrial waste (which could contain toxic properties)?	☐ Yes ☐ No	
18. If the confined space is below ground and near areas where motor vehicles operate, is it possible for vehicle exhaust or carbon monoxide to enter the space?	☐ Yes ☐ No	

Comments:

Electrical

		Action(s) taken
1. Do you specify compliance with OSHA for all contract electrical work?	☐ Yes ☐ No	
2. Are all employees required to report any obvious hazard related to electrical equipment or lines as soon as practicable?	☐ Yes ☐ No	
3. Are employees instructed to make preliminary inspections and/or appropriate tests to determine existing conditions before starting to work on electrical equipment or lines?	☐ Yes ☐ No	
4. When electrical equipment or lines are to be serviced, maintained, or adjusted, are necessary switches opened, locked out, or tagged whenever possible?	☐ Yes ☐ No	
5. Are portable electrical tools and equipment grounded? If not, are they double-insulated?	☐ Yes ☐ No	
6. Are electrical appliances such as vacuum cleaners, polishers, and vending machines grounded?	☐ Yes ☐ No	
7. Do extension cords have a grounding conductor?	☐ Yes ☐ No	

Electrical

		Action(s) taken
8. Are multiple plug adaptors prohibited?	☐ Yes ☐ No	
9. Are ground-fault circuit interrupters installed on each temporary 15- or 20-ampere, 120-volt AC circuit at appropriate locations (where construction, demolition, modifications, alterations, or excavations are being performed)?	☐ Yes ☐ No	
10. Are all temporary circuits protected by suitable disconnecting switches or plug connectors at the junction with permanent wiring?	☐ Yes ☐ No	
11. Do you have electrical installations in hazardous dust or vapor areas?	☐ Yes ☐ No	
• If so, do they meet the National Electrical Code (NEC) for hazardous locations?	☐ Yes ☐ No	
12. Is exposed wiring and cords with frayed or deteriorated insulation repaired or replaced promptly?	☐ Yes ☐ No	
13. Are flexible cords and cables free of splices or taps?	☐ Yes ☐ No	
14. Are clamps or other securing means provided on flexible cords or cables at plugs, receptacles, tools, equipment, etc.?	☐ Yes ☐ No	
• Is the cord jacket securely held in place?	☐ Yes ☐ No	
• Are all cord, cable, and raceway connections intact and secure?	☐ Yes ☐ No	
15. In wet or damp locations, are electrical tools and equipment appropriate for the use or location, or otherwise protected?	☐ Yes ☐ No	
16. Is the location of electrical power lines and cables (overhead, underground, underfloor, other side of walls) determined before digging, drilling, or similar work begins?	☐ Yes ☐ No	
17. Are metal measuring tapes, ropes, handlines, or similar devices with metallic thread woven into the fabric prohibited where they could contact energized parts of equipment or circuit conductors?	☐ Yes ☐ No	
18. Is the use of metal ladders prohibited in areas where the ladder (or the person using the ladder) could contact energized parts of equipment, fixtures, or circuit conductors?	☐ Yes ☐ No	
19. Are all disconnecting switches and circuit breakers labeled to indicate their use or equipment served?	☐ Yes ☐ No	
20. Are disconnecting means always opened before fuses are replaced?	☐ Yes ☐ No	
21. Do all interior wiring systems include provisions for grounding metal parts of electrical raceways, equipment, and enclosures?	☐ Yes ☐ No	
22. Are all electrical raceways and enclosures securely fastened in place?	☐ Yes ☐ No	

Electrical

		Action(s) taken
23. Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?	☐ Yes ☐ No	
24. Is sufficient access and working space provided and maintained about all electrical equipment to permit ready and safe operations and maintenance?	☐ Yes ☐ No	
25. Are all unused openings (including conduit knockouts) in electrical enclosures and fittings closed with appropriate covers, plugs, or plates?	☐ Yes ☐ No	
26. Are electrical enclosures such as switches, receptacles, and junction boxes provided with tight-fitting covers or plates?	☐ Yes ☐ No	
27. Are disconnecting switches for electrical motors higher than two horsepower capable of opening the circuit when the motor is in a stalled condition, without exploding? (Switches must be horsepower rated equal to or more than the motor HP rating.)	☐ Yes ☐ No	
• Is low-voltage protection provided in the control device of motor driving machines or equipment that could cause probable injury from inadvertent starting?	☐ Yes ☐ No	
28. Is each motor disconnecting switch or circuit breaker located within sight of the motor control device?	☐ Yes ☐ No	
29. Is each motor located within sight of its controller (or the controller's disconnecting means) capable of being locked in the open position? Or is a separate disconnecting means installed in the circuit within sight of the motor?	☐ Yes ☐ No	
30. Is the controller for each motor more than two horsepower (rated in horsepower equal to or more than the rating of the motor it serves)?	☐ Yes ☐ No	
31. Are employees who regularly work on or around energized electrical equipment or lines instructed in cardiopulmonary resuscitation (CPR) methods?	☐ Yes ☐ No	
32. Are employees prohibited from working alone on energized lines or equipment over 600 volts?	☐ Yes ☐ No	

Comments:

Walking/working surfaces

Action(s) taken

General work environment

1.	Is a documented, functioning housekeeping program in place?	☐ Yes ☐ No
2.	Are all worksites clean, sanitary, and orderly?	☐ Yes ☐ No
3.	Are work surfaces kept dry, or are appropriate means taken to ensure that surfaces are slip-resistant?	☐ Yes ☐ No
4.	Are all spilled hazardous materials or liquids (including blood and other potentially infectious materials) cleaned up immediately, per proper procedures?	☐ Yes ☐ No
5.	Is combustible scrap, debris, and waste stored safely and removed from the worksite properly?	☐ Yes ☐ No
6.	Is all regulated waste, as defined in the OSHA bloodborne pathogens standard (1910.1030), discarded per federal, state, and local regulations?	☐ Yes ☐ No
7.	Are accumulations of combustible dust routinely removed from elevated surfaces, including the overhead structure of buildings?	☐ Yes ☐ No
8.	Is combustible dust cleaned up with a vacuum system to prevent the dust from going into suspension?	☐ Yes ☐ No
9.	Is metallic or conductive dust prevented from entering or accumulating on or around electrical enclosures or equipment?	☐ Yes ☐ No
10.	Are covered metal waste cans used for oily and paint-soaked waste?	☐ Yes ☐ No

Walkways

11.	Are aisles and passageways kept clear?	☐ Yes ☐ No
12.	Are aisles and walkways marked as appropriate?	☐ Yes ☐ No
13.	Are wet surfaces covered with non-slip materials?	☐ Yes ☐ No
14.	Are holes in the floor, sidewalk, or other walking surface repaired properly, covered, or otherwise made safe?	☐ Yes ☐ No
15.	Is there safe clearance for walking in aisles where motorized or mechanical handling equipment operates?	☐ Yes ☐ No
16.	Are materials or equipment stored in such a way that sharp edges/objects don't interfere with the walkway?	☐ Yes ☐ No
17.	Are spilled materials cleaned up immediately?	☐ Yes ☐ No

Walking/working surfaces

		Action(s) taken
18. Are changes of direction or elevation readily identifiable?	☐ Yes ☐ No	
19. Are aisles or walkways that pass near moving or operating machinery, welding operations, or similar operations arranged so employees aren't subjected to potential hazards?	☐ Yes ☐ No	
20. Is adequate headroom provided for the entire length of any aisle or walkway?	☐ Yes ☐ No	
21. Are standard guardrails provided wherever aisle or walkway surfaces are elevated more than 30 inches above any adjacent floor or the ground?	☐ Yes ☐ No	
22. Are bridges provided over conveyors and similar hazards?	☐ Yes ☐ No	

Floor and wall openings

23. Are floor openings guarded by a cover, guardrail, or equivalent on all sides (except at entrance to stairways or ladders)?	☐ Yes ☐ No	
24. Are toeboards installed around the edges of permanent floor openings (where people may pass below the opening)?	☐ Yes ☐ No	
25. Are skylight screens of such construction and mounting that they will withstand a load of at least 200 pounds?	☐ Yes ☐ No	
26. Is glass in the windows, doors, glass walls, etc. of sufficient thickness and type for the condition of use?	☐ Yes ☐ No	
27. Are grates or similar covers over floor openings—like floor drains—of such design that foot traffic or rolling equipment will not be affected by the grate spacing?	☐ Yes ☐ No	
28. Are unused portions of service pits either covered or protected by guardrails or equivalent?	☐ Yes ☐ No	
29. Are manhole covers, trench covers, and similar covers—plus their supports—designed to carry a truck rear axle load of at least 20,000 pounds when located in roadways and subject to vehicle traffic?	☐ Yes ☐ No	
30. Are floor or wall openings in fire-resistive construction provided with doors or covers:	☐ Yes ☐ No	
• Provided with doors or covers compatible with the fire rating of the structure	☐ Yes ☐ No	
• Provided with a self-closing feature when appropriate?	☐ Yes ☐ No	

Walking/working surfaces

Action(s) taken

Stairs and stairways

31.	Are standard stair rails or handrails located on all stairways having four or more risers?	☐ Yes ☐ No
32.	Are all stairways at least 22 inches wide?	☐ Yes ☐ No
33.	Do stairs have landing platforms not less than 30 inches in the direction of travel, and do they extend 12 inches in width at every 12 feet or less of vertical rise?	☐ Yes ☐ No
34.	Do stairs angle no more than 50 and no less than 30 degrees?	☐ Yes ☐ No
35.	Are step risers on stairs uniform from top to bottom?	☐ Yes ☐ No
36.	Are steps on stairs and stairways designed or provided with a surface that renders them slip-resistant?	☐ Yes ☐ No
37.	Are stairway handrails located between 30 and 34 inches above the leading edge of stair treads?	☐ Yes ☐ No
38.	Do stairway handrails have at least three inches of clearance between the handrails and the wall or surface they are mounted on?	☐ Yes ☐ No
39.	Where doors or gates open directly on a stairway, is there a platform so the swing of the door does not reduce the width of the platform to less than 21 inches?	☐ Yes ☐ No
40.	Where stairs or stairways exit directly into any area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?	☐ Yes ☐ No
41.	Do stairway landings have a dimension measured in the direction of travel at least equal to the width of the stairway?	☐ Yes ☐ No

Elevated surfaces

42.	Are signs posted, when appropriate, showing the elevated surface load capacity?	☐ Yes ☐ No
43.	Are surfaces elevated more than 30 inches above the floor or ground equipped with standard guardrails?	☐ Yes ☐ No
44.	Are all elevated surfaces (beneath which people or machinery can be exposed to falling objects) provided with standard four-inch toeboards?	☐ Yes ☐ No
45.	Is a permanent means of access and egress provided to elevated storage and work surfaces?	☐ Yes ☐ No

Walking/working surfaces

		Action(s) taken
46. Is required headroom provided where necessary?	☐ Yes ☐ No	
47. Is material on elevated surfaces piled, stacked, or racked in a manner to prevent it from tipping, falling, collapsing, rolling, or spreading?	☐ Yes ☐ No	
48. Are dock boards or bridge plates used when transferring materials between docks and trucks or rail cars?	☐ Yes ☐ No	

Comments:

Hazard communication

		Action(s) taken
1. Is a list of hazardous substances distributed in your workplace?	☐ Yes ☐ No	
2. Is there a written hazard communication program dealing with safety data sheets (SDS) labeling and employee training?	☐ Yes ☐ No	
3. Is each hazardous substance container (vats, bottles, storage tanks) labeled with product identity and a hazard warning (specific health and physical hazards)?	☐ Yes ☐ No	
4. Is there a safety data sheet readily available for each hazardous substance used?	☐ Yes ☐ No	
5. Is there an employee training program for hazardous substances? Does this program include:	☐ Yes ☐ No	
• An explanation of what an SDS is and how to use and obtain one?	☐ Yes ☐ No	
• SDS contents for each hazardous substance or class of substances?	☐ Yes ☐ No	
• An explanation of right to know?	☐ Yes ☐ No	
• Identification of where an employee can find the written hazard communication program and where hazardous substances are present in their work areas?	☐ Yes ☐ No	
• Information about the physical and health hazards of substances in the work area, and specific protective measures?	☐ Yes ☐ No	
• Details of the hazard communication program, including how to use the labeling system and SDSs?	☐ Yes ☐ No	

GENERAL INSPECTION CHECKLIST (continued)

Hazard communication

Action(s) taken

6. Are employees trained in the following:
   - How to recognize tasks that might result in occupational exposure? ☐ Yes ☐ No
   - How to use work practice and engineering controls and personal protective equipment and to know their limitations? ☐ Yes ☐ No
   - How to obtain information on the types selection, proper use, location, removal handling, decontamination, and disposal of personal protective equipment? ☐ Yes ☐ No
   - Who to contact and what to do in an emergency? ☐ Yes ☐ No

7. Is the hazard communication program compliant with changes under OSHA's Globally Harmonized System (GHS)? ☐ Yes ☐ No

Comments:

Location

Date of inspection

Name of auditor

SECURITY AND THEFT PREVENTION CHECKLIST

Exterior

		Action(s) taken
1. Are potential points of entry well-illuminated?	☐ Yes ☐ No	
2. Are there potential points of entry where a burglary may occur unobserved?	☐ Yes ☐ No	
3. Are stock piles, crates, or merchandise positioned to prevent hiding places?	☐ Yes ☐ No	
4. Have weeds or trash adjacent to your building been cleared away?	☐ Yes ☐ No	
5. Is the fence intact, prohibiting unauthorized entry?	☐ Yes ☐ No	
6. Is the fence in good repair, at least eight feet high, protected with barbed wire, and does it prohibit an intruder from crawling under it?	☐ Yes ☐ No	
7. Are machines, pallets, and equipment kept away from the fence?	☐ Yes ☐ No	
8. Are there poles outside the fence that would help a burglar gain entry?	☐ Yes ☐ No	
9. Are the gates solid and in good condition?	☐ Yes ☐ No	
10. Are the gates properly locked with a strong chain and padlock?	☐ Yes ☐ No	
11. Are the padlocks locked in place when the gate is unlocked?	☐ Yes ☐ No	
12. Are the gate hinges secure?	☐ Yes ☐ No	
13. Have unused gates been eliminated?	☐ Yes ☐ No	
14. Are there solid brick, block, or wood fences where a burglar could climb and be shielded from view?	☐ Yes ☐ No	
15. Is a check done regularly to ensure gates are locked?	☐ Yes ☐ No	
16. Have weeds or trash adjacent to your fence been removed?	☐ Yes ☐ No	
17. Are walls or hedges blocking the view of a police officer on patrol?	☐ Yes ☐ No	
18. Are barrier posts at least four to six feet below ground, and two to three feet above ground?	☐ Yes ☐ No	
19. Do barrier posts prevent a thief from moving a piece of equipment?	☐ Yes ☐ No	
20. Are vehicles parked such that if a unit was removed, you could easily recognize the change?	☐ Yes ☐ No	

Comments:

Doors

		Action(s) taken
1. Are all unused doors secured?	☐ Yes ☐ No	
2. Are the door panels strong and securely fastened?	☐ Yes ☐ No	
3. Is the glass in the doors reinforced or protected by screens or bars?	☐ Yes ☐ No	
4. Can the door lock be reached by breaking glass or a lightweight panel?	☐ Yes ☐ No	
5. Are hinges designed so that pins cannot be pulled?	☐ Yes ☐ No	
6. Can the lock bolt be pushed back or cut?	☐ Yes ☐ No	
7. Can the lock bolt be forced open by spreading the frame?	☐ Yes ☐ No	
8. Are the locks a cylinder type, firmly mounted, and in good working order?	☐ Yes ☐ No	
9. Do the set-screws hold the cylinder firmly in place?	☐ Yes ☐ No	
10. Are keys issued to a trusted person?	☐ Yes ☐ No	
11. Do doors with panic locks have auxiliary locking mechanisms?	☐ Yes ☐ No	
12. Are padlock hasps heavy, difficult to cut, firmly mounted, and not easily removed?	☐ Yes ☐ No	
13. Do overhead doors have padlocks in the track on each side of the door?	☐ Yes ☐ No	
14. Are electric doors turned off after hours?	☐ Yes ☐ No	

Comments:

SECURITY AND THEFT PREVENTION CHECKLIST (continued)

Windows

		Action(s) taken
1. Are windows protected by heavy screens or bars?	☐ Yes ☐ No	
2. Are unused windows permanently and securely closed?	☐ Yes ☐ No	
3. Are windows protected by bars or alarms, and locked or shuttered?	☐ Yes ☐ No	
4. Can window locks be opened by breaking the glass?	☐ Yes ☐ No	
5. Have you considered glass brick in place of some windows?	☐ Yes ☐ No	
6. Are skylights protected with heavy screens, bars, or burglar alarms?	☐ Yes ☐ No	
7. Are exposed roof hatches properly secured?	☐ Yes ☐ No	
8. Do fire exits comply with city and state fire regulations?	☐ Yes ☐ No	
9. Do fire exits allow easy exit and difficult entry?	☐ Yes ☐ No	
10. Are panic locks checked regularly, closed properly, and in good working order?	☐ Yes ☐ No	

Comments:

Walls

		Action(s) taken
1. Are walls solid, with no insecure openings?	☐ Yes ☐ No	
2. Is the roof secure and protected by an alarm system?	☐ Yes ☐ No	
3. Have weak points in walls been eliminated?	☐ Yes ☐ No	
4. Are interior walls lined with heavy objects?	☐ Yes ☐ No	

Comments:

Safes

		Action(s) taken
1. Is the safe designed to protect against burglary and fire?	☐ Yes ☐ No	
2. Is the safe approved by Underwriters Laboratories?	☐ Yes ☐ No	
3. Are safes weighing less than 750 pounds securely fastened to the floor or wall, or set in concrete?	☐ Yes ☐ No	
4. Is the safe illuminated at night and located where police can see it from outside?	☐ Yes ☐ No	
5. Are the vault walls and door secure?	☐ Yes ☐ No	
6. Is money kept in the safe?	☐ Yes ☐ No	
7. Is cash kept at a minimum because you bank regularly?	☐ Yes ☐ No	
8. Is the combination changed if someone who has it no longer needs it?	☐ Yes ☐ No	
9. Can the combination be observed when accessing the safe?	☐ Yes ☐ No	
10. Do you spin the dial after use?	☐ Yes ☐ No	
11. Is the money taken out of the register and locked in the safe or bank when your business is closed?	☐ Yes ☐ No	
12. Is the cash register open at night so a burglar will not damage it by forcing it open?	☐ Yes ☐ No	

Comments:

Alarms

		Action(s) taken
1. Is the alarm system approved by Underwriters Laboratories?	☐ Yes ☐ No	
2. Regarding the alarm system:		
• Was it properly installed?	☐ Yes ☐ No	
• Is it tested regularly?	☐ Yes ☐ No	
• Does it cover building openings and target locations?	☐ Yes ☐ No	
3. If the building was remodeled, was the alarm system updated?	☐ Yes ☐ No	

Comments:

Police protection

		Action(s) taken
1. Do you know the commanding officers in your police and sheriff's department, and the patrol officers covering your area?	☐ Yes ☐ No	
2. Do you assist in civic projects to support and improve your law enforcement departments?	☐ Yes ☐ No	

Comments:

Cash and check handling

		Action(s) taken
1. Are areas where cash is handled closely monitored?	☐ Yes ☐ No	
2. Do all check-writing disbursements receive two signatures?	☐ Yes ☐ No	
3. Are checks or credit cards used as payment?	☐ Yes ☐ No	
4. Are separate individuals responsible for writing checks and reconciling statements?	☐ Yes ☐ No	
5. Are incoming cash and checks recorded on a received ledger?	☐ Yes ☐ No	
6. Are checks stamped For Deposit Only?	☐ Yes ☐ No	

Comments:

Employee theft prevention

		Action(s) taken
1. Are criminal background and credit checks run on employees handling financial matters?	☐ Yes ☐ No	
2. Have employees handling cash, credit, or checks been bonded?	☐ Yes ☐ No	
3. Is payroll immediately notified when an employee resigns or is terminated?	☐ Yes ☐ No	
4. Are separate individuals responsible for receiving parts and the distribution of payment?	☐ Yes ☐ No	

Comments:

Company records, communication, and auditing

		Action(s) taken
1. Are all financial, credit, or warranty documents in a locked, secured, and fireproof location?	☐ Yes ☐ No	
2. Are periodic internal audits performed?	☐ Yes ☐ No	
3. Is a certified public accounting firm used for an annual audit?	☐ Yes ☐ No	
4. Has company policy been communicated to prosecute employee dishonesty?	☐ Yes ☐ No	

Comments:

Miscellaneous

		Action(s) taken
1. Is physical stock inventoried annually?	☐ Yes ☐ No	
2. Are special tools and pieces of high-value equipment locked?	☐ Yes ☐ No	
3. Are identification numbers or descriptions of products recorded in inventory?	☐ Yes ☐ No	
4. Are serial numbers and descriptions of business equipment recorded?	☐ Yes ☐ No	
5. Are special tools and powered hand tools engraved or marked?	☐ Yes ☐ No	
6. When strangers are on the premises, do employees find out the nature of their business?	☐ Yes ☐ No	
7. Are employees instructed to remove keys from all vehicles parked on the premises?	☐ Yes ☐ No	
8. Following a burglary, are employees instructed to leave the scene unchanged and call the police?	☐ Yes ☐ No	

Comments:

Location

Date of inspection

Name of auditor

VEHICLE INSPECTION RECORD

Driver _____ Date _____

Location _____

Make of vehicle _____ Model _____ Year _____

Vehicle number _____ Mileage reading _____

Before starting engine		After starting engine	
Body	☐ Pass ☐ Fail	Gauges, oil/fuel/temp/air	☐ Pass ☐ Fail
Glass	☐ Pass ☐ Fail	Heater/defroster	☐ Pass ☐ Fail
Wheels and tires (including spare)	☐ Pass ☐ Fail	Clutch	☐ Pass ☐ Fail
Suspension system	☐ Pass ☐ Fail	Drive train	☐ Pass ☐ Fail
Muffler and exhaust system	☐ Pass ☐ Fail	Steering	☐ Pass ☐ Fail
Belts	☐ Pass ☐ Fail	Speedometer	☐ Pass ☐ Fail
Oil level/leak	☐ Pass ☐ Fail	Transmission	☐ Pass ☐ Fail
Coolant level/leak	☐ Pass ☐ Fail	Brakes	☐ Pass ☐ Fail
Battery	☐ Pass ☐ Fail	Parking brake	☐ Pass ☐ Fail
Mirrors, inside/outside	☐ Pass ☐ Fail	Trailer	☐ Pass ☐ Fail
Lights (head/tail/brake/clearance)	☐ Pass ☐ Fail	Body	☐ Pass ☐ Fail
Direction signals	☐ Pass ☐ Fail	Tarpaulin	☐ Pass ☐ Fail
Emergency flashers (four-way)	☐ Pass ☐ Fail	Wheels/tires (including spare)	☐ Pass ☐ Fail
Windshield wipers/washers	☐ Pass ☐ Fail	Suspension system	☐ Pass ☐ Fail
Horn(s)	☐ Pass ☐ Fail	Landing gear (dolly)	☐ Pass ☐ Fail
Seat belts	☐ Pass ☐ Fail	Kingpin/upper plate	☐ Pass ☐ Fail
Fire extinguisher	☐ Pass ☐ Fail	Other*	☐ Pass ☐ Fail

VEHICLE INSPECTION RECORD (continued)

Before starting engine		After starting engine	
Reflectors/flags/flares	☐ Pass ☐ Fail	Air/electric lines	☐ Pass ☐ Fail
Chains	☐ Pass ☐ Fail	Lights, tail/brake/clearance	☐ Pass ☐ Fail
Other*	☐ Pass ☐ Fail	Other*	☐ Pass ☐ Fail
Air hoses/tanks	☐ Pass ☐ Fail	Other (identify)*	
Electric lines	☐ Pass ☐ Fail		
Fifth wheel	☐ Pass ☐ Fail		
Fuel tanks	☐ Pass ☐ Fail		
Other*	☐ Pass ☐ Fail		

Remarks:

_____

_____

_____

Maintenance action:

Defects corrected ☐ Defects need to be corrected for safe operating ☐

Shop remarks:

_____

_____

_____

_____ _____

Mechanic's signature Date

_____ _____

Reviewing driver's signature Date

EQUIPMENT SAFETY CHECKLIST

Machine type _____ Model _____

PIN _____ Engine serial number _____

- ☐ Operator's manual is provided with sale or rental
- ☐ Safety and warning signs are intact and visible
- ☐ Slow-moving vehicle emblem and reflectors are in place and visible
- ☐ All guards and shields are in place and secured
- ☐ Lights, brakes, steering, and safety switches operate
- ☐ Authorized manufacturers' safety product improvement programs are complied

The performed repair work is detailed on invoice/work order number _____

The following items were recommended for installation:

Rollover Protective Structure (ROPS)	☐ Accepted	☐ Rejected
	☐ Accepted	☐ Rejected
	☐ Accepted	☐ Rejected
	☐ Accepted	☐ Rejected
	☐ Accepted	☐ Rejected

Inspected by _____ Date _____

Disclaimer of warranties

Except to the extent the selling dealer gives a separate written warranty covering this equipment, it is being sold used, as is. There is no warranty of any kind, express or implied, and specifically there is no warranty of merchantability or of fitness for a particular purpose.

Customer acknowledgement

I have read the above checklist and inspected this equipment to my satisfaction. I am familiar with its operation and realize that it is not expected to perform as, or have features which may be offered on newer models.

_____ _____

Dealer representative Customer/buyer

_____

Date

NEW EMPLOYEE SAFETY ORIENTATION CHECKLIST

- ☐ Tour department
- ☐ Review location of washrooms and first aid facilities
- ☐ Review company safety policy
- ☐ Proper use, care, and maintenance of personal protective equipment
- ☐ Review safety rules applicable in your department
- ☐ Review hazard communication for work with hazardous materials
- ☐ Review proper lifting techniques and body mechanics to avoid back injuries
- ☐ Review proper use and safety features of machinery, hand tools, and material handling equipment
- ☐ Review safe driving rules and responsibilities
- ☐ Review fire safety rules
- ☐ Review location and use of fire extinguishers and emergency equipment
- ☐ Review fire or other emergency procedures
- ☐ Review unsafe conditions reporting
- ☐ Review accident reporting

I acknowledge the above information was furnished during my orientation

Employee's signature

Department

I have instructed the employee in the subjects listed above

Supervisor's signature

Date

1800 North Point Drive
Stevens Point, WI 54481

800-473-6879
sentry.com

70-271 (FEMA) 1554093 6/2/21

Sentry®

Establishing a product safety process at your business

A guide for farm equipment manufacturers

Table of contents

The guidance, advice, and counsel of the Farm Equipment Manufacturers Association Risk Management Committee is gratefully acknowledged.

Introduction

We interact with a variety of products every day. We use them to help us do things for ourselves, make life easier, earn a living, and go from place to place.

Unfortunately, products sometimes cause injury, damage, or economic loss. As a product producer or manufacturer, you can and should take steps to enhance product safety to protect your employees, your customers, and your business.

Throughout this document, we'll examine the product safety process and explain its importance to farm equipment manufacturers like you. From establishing a product safety team and completing a hazard analysis to writing an operator's manual and revising your post-sale process, we're here to help guide you.

Please note all examples provided in this publication are only meant to be samples and templates. You should customize them to fit your company and ask for advice from legal counsel before establishing the finished result as your own.

What's a product?

Before we jump into safety information, we need to first understand what defines a product. As a farm equipment manufacturer, your products can range from small parts to a large piece of heavy machinery. For practical purposes, a product isn't just the sum of its parts. A product also involves:

- Promotional materials and advertising
- Parts and accessories
- Operator's manuals and safety labels
- Shipping and packing materials
- Special assembly tools
- Management policy
- Design and manufacturing process
- Quality control
- Sales
- Field service and support
- Supporting documents and content, including electronic media

In a legal sense, an item isn't considered to be a product until it enters the stream of commerce, which happens when at least one of the following occurs to the product:

- Sold
- Leased
- Rented
- Loaned
- Given for free as a sample or demonstration

Individuals who come in contact with a product in the chain of distribution can be affected by legal liability in the event of an accident. This liability follows the product through its life cycle to disposal. That's why it's important to consider product safety before releasing the product into the stream of commerce.

Establishing a product safety team

One of the first steps of the product safety process is designating a group of individuals to lead your company's product safety. Developing a strong product safety program can help you reduce your potential for accidents and liability. Your product safety team can help you set realistic objectives and develop a company-wide means of communication. As you bring your team together, outline specific duties and responsibilities for each team member.

TEAM MEMBERS

Based on your company size, you can choose how to appropriately organize your product safety team or committee. Regardless of team members, be sure each representative has the authority and responsibility to make appropriate recommendations for product improvement. Since the team will provide advice to senior management and report on existing products and prototypes, it's important that each member trusts that their suggestions will be taken seriously.

Use the following employee roles as an example when building your team—expand or adjust these suggestions to fit your business:

- An executive member with decision-making authority
- A legal department representative or outside counsel
- An engineering or design representative capable of understanding, evaluating, and proposing solutions to design criteria
- A production department representative to evaluate and propose solutions to production problems
- A purchasing representative to review material availability and selection criteria
- A sales or marketing representative to consider expenses, customer feedback, and dealer comments
- An advertising representative to evaluate product promotions and images
- A customer service representative to provide feedback regarding product failure, malfunction, and misuse or complaints
- A quality control member to establish procedures at the beginning of the production line, through and including shipment
- A risk manager or insurance buyer to provide input on the availability and cost of insurance and applicable coverages, and to make sure you obtain certificates of insurance with adequate limits and applicable hold harmless agreements
- A servicing representative to discuss exposures and operations used at the customer's site and evaluate early warning systems

TEAM RESPONSIBILITIES

Though your team's structure will be unique to your business, the intent and general content will likely be similar to that of other farm equipment manufacturers. Here's a summary of product safety assignments you should consider:

- Evaluate new product safety
- Investigate product deficiency claims
- Collaborate with safety regulatory agencies
- Evaluate and/or prepare product use instructions and collateral materials
- Audit and test existing product safety
- Set safety performance standards for finished products
- Evaluate deficiency claim patterns and trends
- Educate employees about product safety
- Process product liability claims and harm reports
- Set quality control standards for manufactured products
- Set safety standards for raw materials
- Complete regulatory recordkeeping
- Report alleged safety defects to regulatory agencies
- Plan safety education programs for product users
- Manage product post-sale action, including recall and/or retrofit campaigns
- Evaluate website information regarding safety
- Conduct risk assessments

PRODUCT SAFETY POLICY

After you've assembled your team and assigned responsibilities, you should create a management-endorsed policy statement that:

- Emphasizes your company's desire to design, develop, produce, and market products consistent with the intent of recognized codes and standards, while meeting safe usage requirements
- Outlines the general content of the product safety program, listing goals, objectives, and administrative procedures
- Commits all employees to meeting your company's product safety objectives

Safe product production begins with a manufacturer who understands product manufacturing safety and addresses the importance of safety in all phases of designing, manufacturing, servicing, and marketing a product.

You can view a sample safety policy in this document's appendix.

Hazard analysis

It's essential that farm manufacturers like you take the proper time and care to evaluate product hazards. Increased scrutiny should bring safety to the forefront of your business.

HAZARD SOURCES

A hazard is a condition that's a prerequisite to an accident or mishap. It's a real or potential condition, or a characteristic of a product that presents a risk of injury or damage to property.

Hazards have several sources:

- Hazardous material and equipment characteristics
- Equipment malfunctions
- Computer software
- Human error

Human error deserves additional attention. Several types of human errors include:

- Failing to perform a required task (omission)
- Performing a task that shouldn't be performed (commission)
- Failing to recognize a hazardous condition
- An inadequate, improper, or poorly timed response to a hazardous condition

It's not unusual for humans to do things that can result in accidents. You're unlikely to be able to predict every possible way someone could misuse or come up with an unanticipated use for your product. Nevertheless, you should attempt to foresee as many misuse situations as possible.

Accidents typically result from two types of causes: unsafe conditions and unsafe acts.

Examples of unsafe conditions

- Inadequate guards or protection
- Defective equipment or materials
- Congestion or inadequate workspace
- Fire and explosion hazards
- Projection hazards
- Poor housekeeping
- Hazardous environmental conditions
- Inadequate lighting
- Unsafe personal attire
- Unsafe grooming (hair length, jewelry, etc.)

Examples of unsafe acts

- Operating without authority
- Failure to warn
- Operating at unsafe speed
- Nullifying safety devices
- Using defective equipment
- Using equipment improperly
- Failure to use personal protective equipment (PPE)
- Improper loading or placement
- Assuming an unsafe posture
- Improper servicing of equipment
- Inadequate training

HAZARD AND DESIGN REVIEW

As a manufacturer, it's up to you and your product safety team to evaluate the safety of your products before releasing them into the stream of commerce.

Your hazard and design review process should include:

- Preliminary hazard analysis (PHA)
- Failure modes and effects analysis
- Fault tree analysis
- The safety hierarchy

We'll take a more in-depth look at each of them.

Preliminary hazard analysis (PHA)

The PHA process includes a brainstorming phase, an evaluation phase, and a corrective action phase. Even simple analyses often require two or more iterations of these phases.

This might seem excessive for certain products, but after you complete a hazard analysis, designers often find ways to improve the way the product meets customer needs and wants. Your examination may also reveal ways to reduce costs and improve reliability.

You need to have a broad understanding of the product's function, design, and use. To conduct your PHA, you'll need to define:

- A description of the hazard
- Potential causes, failure mechanisms, and scenarios leading to the hazard
- The probability of the hazard occurring
- How the hazard could be prevented

Failure modes and effects analysis
Investigating a malfunctioning product under stress is known as a failure modes and effects analysis. This process deals with product reliability—the probability of a mission's successful accomplishment within a specified time and under specific conditions.

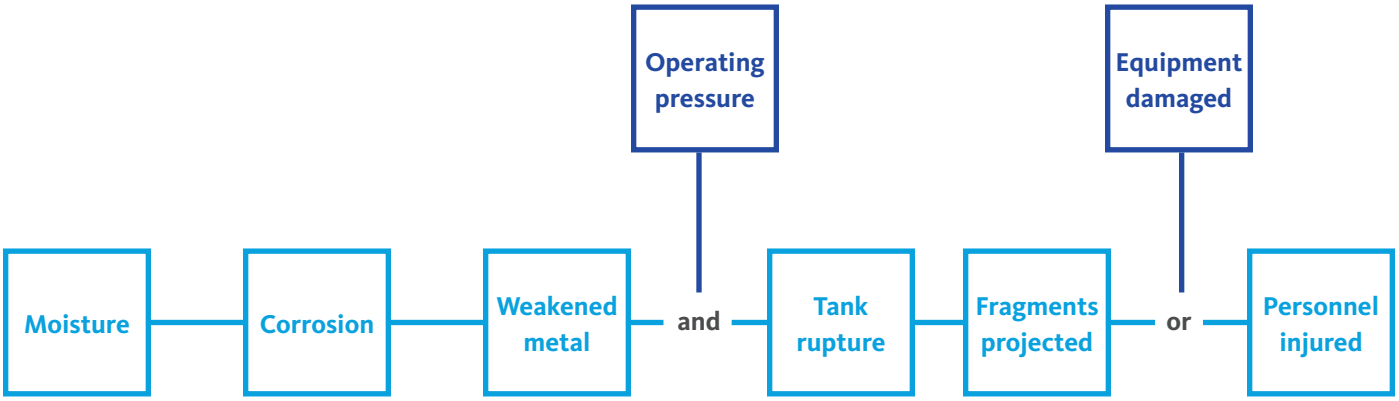
Follow these steps for your analysis:

1. Describe the system or process
2. Identify how the system or process might fail based on historical data, personal experience, or brainstorming
3. Identify each failure mode's symptoms that might aid in detection
4. Determine each failure mode's effects—look at property damage and any hazards
5. Assess the probability of each failure mode occurring
6. Assess personal injury and property damage risk for each failure mode
7. Compute a danger index from the values assigned in steps five and six

Fault tree analysis
Accidents usually occur as the result of a chain of events. This sequence is often identified during the accident investigation process. Bell Laboratories recognized this investigation process and developed fault tree analysis. Although it was developed to determine quantitative possibilities, it's more commonly used for its qualitative aspects because of the systematic way it presents the various factors in any situation.

Here's an example:

Sequence of events leading to rupture of a pressurized tank



Safeguards

- Use desiccant to keep moisture out of tank.
- Use stainless steel, or coat or plate carbon steel to prevent contact with moisture.
- Overdesign metal thickness so corrosion will not reduce strength to failure point during foreseeable lifetime.
- Reduce pressure as tank ages.
- Use burst diaphragm to rupture before tank does, preventing more extensive damage and fragmentation.
- Provide mesh screen to contain possible fragments.
- Locate tank away from equipment susceptible to damage.
- Keep personnel away from vicinity of tank while it is pressurized.

The safety hierarchy

Almost all modern products have some type of hazard that may manifest during product use or misuse. Use the following hierarchy to help prioritize how to eliminate a hazard:

1. Engineer and design out the hazard
2. Use guarding and shielding technology to isolate the hazard
3. Warn users about the hazard using safety labels that comply with standards
4. Educate users through effective instructions, manuals, literature, or other collateral materials
5. Prescribe PPE

Use the following list of potential hazards, and others your team may identify, when analyzing your product safety. This list isn't intended to include all sources.

- Acceleration
  - Unexpected movement
  - Loose parts/materials
- Deceleration
  - Falling parts
  - Sudden impact
  - Shrapnel
- Chemical exposure
  - Explosions
  - Non-compatibility
  - Corrosion/oxidation
  - Fire
- Industrial hygiene
  - Vibration/noise
  - Toxicity
  - Carcinogenics
  - Sensitizers
  - Cumulative trauma
  - Human factors layout
- Temperature
  - Hot/cold surfaces
  - Pressure reactivity
- Material spills/leaks
  - Contamination
  - Volatile, flammable hazards
  - Spill containment capability
- Electrical
  - Electrocution/shock
  - Burns
  - Fire
  - Unintended startup
- Mechanical exposures
  - Rough/sharp edges
  - Exposed moving parts
  - Suspended heavy loads
  - Stability
  - Part removal
- Pressure sources
  - Dynamic
  - Static
- Maintenance needs
  - Confined spaces
  - Lockout capability
  - Ease of service
- Radiation
  - UV/infrared/microwave
  - Ionizing
- Computer reliability/programming
  - Software security

You can view a sample product hazard analysis form in this document's appendix.

Quality assurance

A key component of product safety is adhering to design and manufacturing specifications. Your quality assurance program should focus on preventing nonconforming material from entering the marketplace. Your manufacturing system is key to this step because it includes all manufacturing phases: design, purchasing, marketing, and the shop floor.

Your quality assurance plan should include, but not be limited to, the following actions:

- Planning pre-production quality assessments
- Formalizing vendor certification
- Establishing product requirements
- Developing a gauge calibration program
- Creating a quality assurance program manual
- Performing nonconforming product analysis
- Assigning quality functions and responsibilities
- Determining statistical process control on key dimensions
- Building continuous improvement plans

Machine guarding and safety shields

After you've taken steps to identify product hazards, you'll need to control any product part, function, or process that may cause injury.

Dangerous moving parts require guarding in three areas:

- **Point of operation:** The point where work is performed on the material such as cutting, shaping, boring, forming, or processing raw material.
- **Power transmission apparatus:** All components of the mechanical system that transmit energy to the part of the machine performing the work. This can include flywheels, pulleys, belts, connecting rods, couplings, cams, spindles, chains, cranks, and gears.
- **Other moving parts:** All parts of the machine that move while the machine is working. This can include reciprocating, rotating, and transverse moving parts as well as feed mechanisms and auxiliary parts. Additional sources include electrical energy and toxic materials.

GUARDS AND SHIELDS

Per ANSI/ASAE S318.18, there are three types of guards: shields, enclosures, and barriers.

OSHA requires that industrial machinery complies with regulations in the Safety and Health Standards for General Industry, 29 CFR, 1910:

"One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by nip points, rotating parts, flying chips and sparks."

You may also find another OSHA standard—29 CFR, 1928.57 (Guarding of farm field equipment, farmstead equipment, and cotton gins)—relevant to your business. It states:

"Functional components (such as snapping or husking rolls, straw spreaders and choppers, cutter bars, flail rotors, rotary beaters, mixing augers, rotary tillers, and similar units) that must be exposed for proper function shall be guarded to the fullest extent that will not substantially interfere with normal functioning of the component."

When evaluating a guard's effectiveness, make sure it's sturdy while still allowing for easy maintenance operations. Rigid mounting prevents rattles and interference with working parts. Be sure to outline guard maintenance procedures in your operator's manuals.

Guards that stay in place are more likely to serve their protective purposes. Label guards in a manner that:

- Informs the user what the guard is designed to protect
- Emphasizes the importance of keeping the guard in place

Add safety labels—which we'll cover in the next section—on the machine or implement to alert users of hazards after they remove the guard and direct them to replace the guard prior to operating the equipment. An effective guard should keep operators and bystanders from reaching over, under, around, or through the guard to get to the point of operation. The guard itself must not create a hazard.

You can view a sample guarding and shielding checklist in this document's appendix.

Safety messages and labels

Just as it's your responsibility as a manufacturer to analyze your products for safety concerns, it's also up to you to provide adequate safety messages (warnings) and instructions regarding the potential dangers of using your products. In product liability cases alleging a failure to warn, plaintiffs attempt to show that manufacturers could foresee hazardous conditions or characteristics of their products—conditions which users aren't likely to recognize or appreciate in the intended use (or foreseeable misuse) of the product.

Remember that directions for use aren't a substitute for warnings of danger from foreseeable misuse. Identifying hazards is an essential step toward preventing and controlling injuries and property damage resulting from the use of your products. The earlier in the design process you recognize these hazards, the easier it is to make changes to limit their consequences.

Even if your product is properly designed, manufactured, assembled, and packaged, you could still be subject to a potential legal challenge. As a result, you have a duty to provide reasonable warnings about such conditions or hazards and offer instructions for the safe use of the product.

RESPONSIBILITY TO INFORM

Adequate safety labels specifically indicate the nature of the danger and communicate the extent or seriousness of harm that could result from that danger. They also must:

- Inform the user how to avoid the hazard
- Alert the user through conspicuousness, prominence, and size of print
- Motivate a change in behavior by a reasonably prudent person to act in a safe manner

Keep this important distinction in mind: safety messages outline the safe use of a product, while instructions outline proper and effective use. Your duty to warn arises if a user deviating from directions could create a serious hazard. In the United States, this is described in Section 388 of Restatement of the Law of Torts, Second.

It's generally accepted that you have no duty to warn of open and obvious dangers—the fact that a knife or axe will cut, a match will catch fire, dynamite will explode, or a hammer may smash a finger. However, recent trends in product liability case law have interpreted "open and obvious" more liberally. This trend doesn't seem to emphasize the open and obvious nature of a particular hazard so much as the likelihood of unreasonable danger.

Your duty to warn is related to the extent and type of danger associated with foreseeable uses of your product. For instance, you're not required to provide warnings of hazards that present only a slight risk of potential damage or injury. In fact, doing so could dilute the impact of other warnings related to more serious risks.

Be sure that representations of your product emphasize its safe use. For example, if one of your advertising photographs shows unsafe product use—such as children using the product or a user without proper personal protective gear—it could weaken or contradict warnings you've included or attached to the product.

SAFETY LABELS

Don't include safety labels as part of a public relations effort or as an attempt to liability-proof your product, and never include them as an afterthought to cover up product design deficiencies. Consider safety labels only after you've exhausted other feasible design alternatives. Design your product to be as safe as possible and rely on safety labels only when risks or hazards still remain. Finally, be sure your safety labels are available as a replacement part, specified by part numbers.

When developing safety labels, consider the following items:

- The nature of the product
- The expected use of the product
- The age and experience of the people you expect to use the product
- The feasibility of eliminating or guarding the hazard versus warnings of potential injury
- The obviousness of the danger to the user

Effective safety labels follow these guidelines:

- Identify the hazard with words, and include graphics where feasible
- Explain avoidance procedures

- Point out the consequences or seriousness of ignoring the safety message
- Use proper signal words, color-coding, and the hazard alert symbol

SYMBOLS, WORDS, AND COLORS

ANSI Standard Z535.4 addresses product safety labels that incorporate a combination of symbols, words, and colors.

The following three signal words indicate hazard intensity and should be preceded with the safety alert symbol.

- **DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury. Use this signal word only for the most extreme situations, such as machine components that, for functional purposes, cannot be guarded.
- **WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury, including hazards that are exposed when guards are removed.
- **CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

The following two signal words indicate safety-related information that's not related to physical injury:

- **NOTICE** addresses practices not related to physical injury.
- **SAFETY INSTRUCTIONS** (or equivalent language) indicates specific safety-related instructions or procedures.

Use these words in safety messages only; this will help you avoid diluting their impact.

Please note that while these words can be used in manuals without being designated as specific signal words, they shouldn't be used for anything other than safety and property damage messages. This ensures you don't weaken their impact.

As you create other operations, maintenance, and lubrication messages that don't pertain to physical injury, use other words—such as notice, important, or attention. When using the three-panel system for safety messages on safety labels, note that each signal word carries a different color combination:

- **DANGER:** White letters on a red background
- **WARNING:** Black letters on an orange background
- **CAUTION:** Black letters on a yellow background
- **NOTICE:** Italicized white letters on a blue background
- **SAFETY INSTRUCTIONS (or equivalent language):** White letters on a green background

The ANSI Safety Alert Symbol is recommended for use on safety labels. It takes the form of a triangle surrounding an exclamation mark. The solid triangle portion should be the same colors as the signal word lettering, and the exclamation mark should be the same color as the signal word panel background.

When using DANGER, WARNING, and CAUTION, you may use the safety alert symbol with a yellow background, black border, and black exclamation mark.

The additional panels of a three-panel safety label include a message panel and a pictorial panel. The message panel should have either black lettering on a white background or white lettering on a black background. The pictorial panel should have a black pictorial on a white background, though you may use other colors for emphasis, such as red for fire.

We've compiled sample formats and labels in the remainder of this section. We'll also discuss how safety symbols and labels play a role in your operator's manual in a later section.

Safety label format

Figure 1.
Three-panel label—vertical format

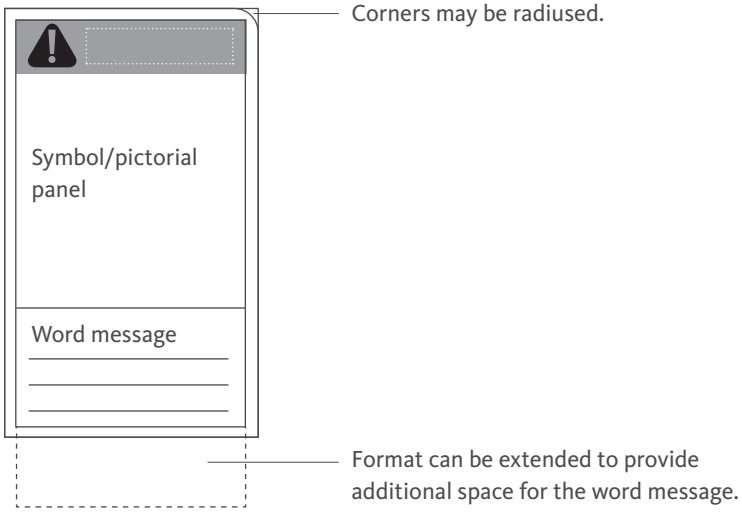


Figure 2.
Three-panel label—horizontal panel

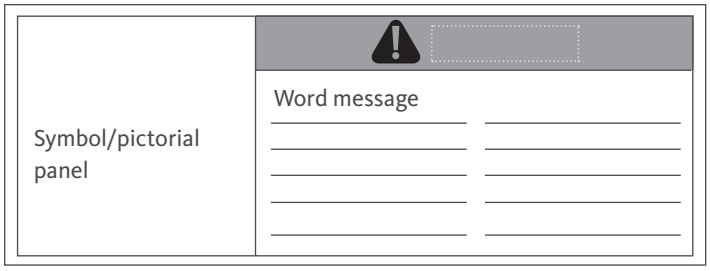


Figure 3.
Two-panel label—vertical format

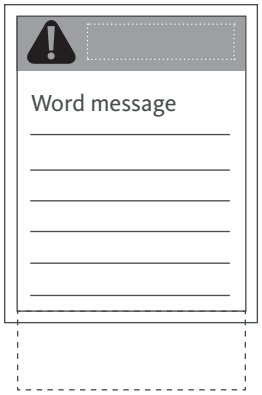
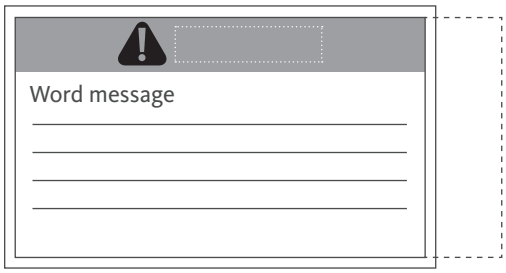


Figure 4.
Two-panel label—horizontal format



Safety label colors

Figure 5.
Three-panel label—horizontal format

Danger
Signal word—white lettering/red background

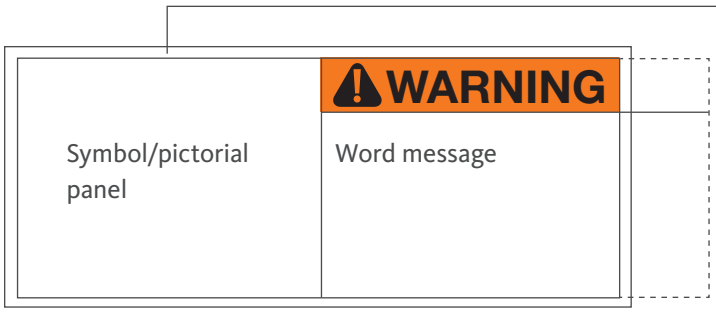
Safety alert symbols—white triangle/red exclamation point

Word message
Black lettering on white background or white lettering on black background

Symbol/pictorial panel
Black pictorial on white background

Warning
Signal word—black lettering/orange background

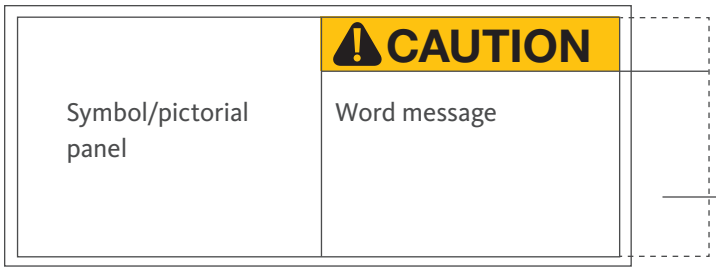
Safety alert symbols—black triangle/orange exclamation point



Border
White or black or color of signal panel

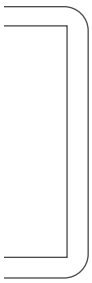
Caution
Signal word—black lettering/yellow background

Safety alert symbols—black triangle/yellow exclamation point



Format can be extended to provide additional space for the word message.

Safety alert symbol
You can use the the safety alert symbol—with a yellow background and black exclamation point—with any signal word.



Corners may be radiused.

Warning and safety labels

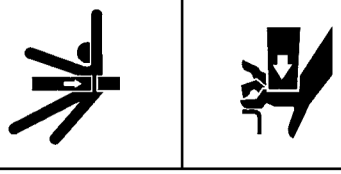
DANGER

To Prevent Serious Injury Or Death

- Keep hands, feet and clothing away from auger intake.

SW103

DANGER

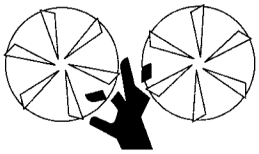


To prevent serious injury or death from pinching:

- Keep all persons and objects clear while any part of this machine is in motion.

SW205

DANGER



ROTATING SPINNERS

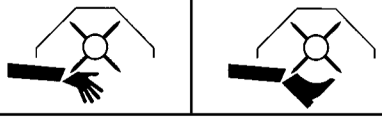
To Prevent Serious Injury Or Death From Rotating Spinners:

Do Not Service or Make Adjustments Without First:

- Stopping power source.
- Ensuring bystanders are at least 100 feet away from machine.

SW400

DANGER



ROTATING BLADE HAZARD

To prevent serious injury or death from Rotating blade:

- Do not go under frame when blades are turning or engine is running. Keep others away.
- Disconnect and lockout power source before adjusting or servicing.
- Keep hands, feet, hair and clothing away from moving parts.

SW407

DANGER

EXPLOSION HAZARD

To prevent an explosion or a fire:

- Do not smoke while refuelling.
- Keep smoking material, sparks and open flames away.

SW501

DANGER

EXPLOSION HAZARD

To prevent serious injury or death:

- Keep machine and material away from sparks or open flames. Fumes are flammable.
- Do not load when there is water in bottom of tank. Steam can cause explosion.
- Do not mix grades of material

SW502

DANGER

GUARD MISSING
DO NOT OPERATE

DANGER

GUARD MISSING
DO NOT OPERATE

DANGER

WARNING

THROWN OBJECT HAZARD
KEEP AWAY

- To prevent serious injury or death from thrown object:
- Stay away from discharge area during operation. Keep others away.
- Do not point discharge toward people, animals or property.

SW805

WARNING


MOVING PART HAZARD

To prevent serious injury or death from moving parts:

- Close and secure guards and shields before starting.
- Keep hand, feet, hair and clothing away from moving parts.
- Disconnect and lockout power source before adjusting or servicing.
- Do not stand or climb on machine when operating.

SW404

WARNING

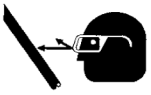


ROTATING BLADE HAZARD

- Keep Away - Rotating Blades
- To prevent serious injury or death from thrown objects or blade contact:
- Do not operate with deflectors removed.
- Do not point discharge toward people, animals or buildings when operating.
- Do not place hands or feet under deck when operating or when engine is running.

SW800

WARNING

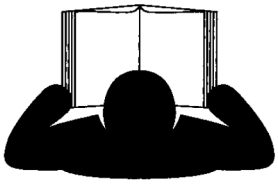



HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

- Relieve pressure on system before repairing or adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

SW700



WARNING

To prevent Serious Injury or Death

- Avoid unsafe operation or maintenance.
- Do not operate or work on this machine without reading and understanding the operator's manual.
- If manual is lost, contact your nearest dealer for a new manual.

SW1

WARNING

OVERHEAD WING HAZARD

To prevent serious injury or death:

- Stay away from beneath wings when they are in the raised position or are being lowered.
- Keep others away.

SW200

CAUTION

- Review operator's manual before operating this machine.
- Fasten seat belt securely before starting.
- Keep both hands on controls at all times when operating this vehicle.
- Carry load low.
- Use low range for hillside or ramp operation.
- Block elevated components before servicing equipment.
- Do not leave machine with loader arms raised.
- Do not allow riders.
- Do not leave machine with engine running.

SW 5

CAUTION

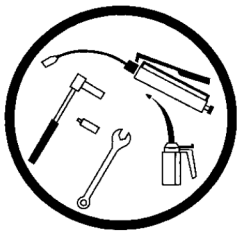
1. Stand clear of automatic plow trip at all times.
2. When adjusting or servicing automatic toggle trip units, be sure to keep hands and fingers away from pivot linkages and
3. Before working under or around the plow, set safety stands and block up plow.
4. Do not ride on the plow.
5. See operator's manual for other safety info.

SW 8

CAUTION

1. Read Operator's Manual before using machine.
2. Stop tractor engine, lower machine to the ground, place all controls in neutral, set park brake, remove ignition key and waite for all moving parts to stop before servicing, adjusting, repairing, unplugging or fitting.
3. Install and secure all guards before starting.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Do not allow riders.
6. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using.
7. Clean reflectors, SMW and lights before transporting.
8. Install safety locks before transporting or working beneath components.
9. Add extra lights and use pilot vehicle when transporting during times of limited visibility.
10. Use hazard flashers in tractor when transporting.
11. Install safety chain when attaching to tractor.
12. Keep away from overhead electrical lines. Electrocution can occur without direct contact.
13. Review safety instructions with all operators annually.

SW 4



CAUTION

To Avoid Injury Or Machine Damage:

- When servicing machine use proper tools and equipment.
- Refer to operations manual for instructions.

SW2

Developing an operator's manual: Considerations before you begin

Note: ANSI/ASABE AD3600:2015 lists specific requirements for manuals. We've included a content checklist outlining key requirements in the standard.

Over the duration of a product's life, your customers will refer to their operator's manual frequently. Accidents can happen if customers can't find the information they need in the manual and decide to implement their own solution. By creating clearly written, comprehensive manuals, you can help them safely make the most of these products—and that's the best outcome for everyone involved.

Your customers rely on informative manuals to:

- Learn how to operate the product for the first time
- Furnish reference material for settings, calibration, maintenance schedule, etc.
- Provide a safety reference
- Troubleshoot
- Find manufacturer contact information

Manuals should guide the product user to avoid hazards during any stage of product use, from setup and the operating cycle through storage and product disposal at the end of its life cycle.

AUDIENCE

When developing a manual, it's important to know your audience—who's using your product and what are they are using it for? You and your manual writer need to consider several things about your audience when writing a manual:

- Literacy and language
- Culture and geography
- Gender
- Age
- User sophistication

If you misjudge the user's prior knowledge or ability to operate equipment, the instruction manual may not be as effective in reaching the audience with lower experience. Also remember that the product purchaser may not always be the operator. Address the contents of the manual to the actual user to read and understand before operating the equipment.

HAZARDS

As we discussed in an earlier section, a hazard is a condition that is a prerequisite to an accident or mishap. It's a real or potential condition, or a characteristic of a product that presents a risk of injury or damage to property. Analyzing the hazards inherent in the product is necessary before creating a manual.

KNOW THE DIFFERENCE BETWEEN INSTRUCTIONS AND SAFETY MESSAGES

Your product safety program and team exist to provide a safe product, to provide proper instructions, and to identify and warn of hazards. Certain products have "open and obvious" hazards that don't require warnings. This is a subjective determination. Many manufacturers protect themselves from liability by warning against all foreseeable hazards.

Instructions versus safety messages
It's important to discuss the difference between instructions and safety messages:

- **Instructions** are designed to promote the proper and effective use of the product.
- **Safety messages** are designed to promote safe use of the product. Warnings are messages designed to provide information to fill the gap between what the user has and what the user needs to operate the product safely.

You should write both safety messages and instructions using simple language. Don't mix the two. You can find proper safety message formatting for safety signs and labels in ANSI Z535.4 and proper formats for safety messages in operator's manuals in ANSI Z535.6.

Safety messages should protect the product user and, if needed, motivate them to change unsafe behavior.

Once you determine a hazard is present and write your safety message, consider:

- Is the safety message obvious to an operator exposed to the hazard?
- What is the appropriate signal word to describe the hazard?
- Would symbols or pictograms help describe the hazard?
- Is the specific risk clearly communicated?

You also need to determine if the safety message should be placed on the product or in the instruction manual, and where. If feasible, it should appear in both.

User perceptions and safety messages
You must provide safety messages for hazards associated with the normal use and reasonable foreseeable misuse of the product. You must provide a safety message if the hazard is not obvious to the user and the hazard will exist during foreseeable use or misuse.

Safety messages play an integral part in educating people about the risks they may encounter and persuading them to handle risks in prescribed ways.

Safety messages can fail when:

- Too much effort is required
- The product is familiar
- Previous experience is positive
- Other users aren't complying
- Benefits outweigh perceived risks
- The likelihood of injury is low
- The source is not credible

Use effective writing strategies for maximum effect. The message must clearly:

- Identify the hazard
- Explain how to avoid it
- Outline the consequences of ignoring the safety message

Effective safety messages:

- Include pictures or icons
- Use positive avoidance messaging, rather than negative messaging
- Place the message first or at the top of the instructions

The message shouldn't create a motivational conflict. An example of a motivational conflict is the warning "do not remove guards," when the guard must be removed for maintenance purposes.

When creating safety messages, you need to overcome a few specific challenges. First, they're a one-way means of communication. This is less effective than two-way communication because there is little or no cognitive interaction between the reader and author. Second, printed media are generally less effective than media combinations which include sound, visuals, demonstrations, lectures, etc.

LANGUAGE CONSIDERATIONS

Your manual will be ineffective if you don't provide it to the user in a language they understand. ANSI/ASABE AD3600:2015 states, "The manual should be written in a style and language that can be readily understood by the operator. Manuals should be available in the appropriate language for each country where the machine is sold."

Keep in mind, there's a distinction between translation and interpretation. Translation is using correct words. Interpretation is communicating the correct intent. Take great care when using computer translations. Many times, certain words in one language may not have a direct translation in another language. It's best to use a professional translator because most computer translators are not designed for use with technical language. Native speakers of a language are typically best at translation. If you work with a translator, remember it'll be easier for the translator if the original manual uses common terminology. For example, use "on-off switch" instead of "electronic actuator."

Writing strategies

Use effective writing strategies to help the user better understand your safety messages.

Be clear and specific. Consider how these vague examples leave unanswered questions:

- Use with adequate ventilation—what's considered adequate?
- Avoid prolonged contact with skin—what's considered prolonged?
- Be careful with electrical hazard—what's considered careful?

Always write to be understood and don't rely too heavily on technical documents. Here are a few additional writing strategies with examples:

STRATEGY	BEFORE	AFTER
Construct in the active voice	Machine must be shut off to service or clean.	Shut machine off to service or clean.
Avoid complex phrases	Shut feeder off in the event of an overflow.	Shut feeder off if it overflows.
Eliminate unnecessary adjectives	Do not touch extremely hot surfaces.	Do not touch hot surfaces.
Use explicit modifiers	Open colored valve to reduce pressure.	Open green valve to reduce pressure.
Use headline styles	Release the brake before the gears are engaged.	Release brake before engaging gears.
Use verbs accurately	Remove power source before servicing.	Unplug power source before servicing.
Select specific nouns	Wear protective masks when cleaning solvents.	Wear respirator when cleaning with solvents.

LEGAL CONSIDERATIONS

Creating comprehensive manuals can help protect your company. Your manual will be used in any products liability lawsuit involving property damage, personal injury, or economic loss. Your decisions to include or exclude material from a manual—whether mistakenly or intentionally—can be challenged in any subsequent liability lawsuit.

As a manufacturer, you have a legal duty to warn users of reasonably foreseeable hazards and product dangers. This duty has been established through case law.

In the United States, the principle of strict liability generally provides that:

- One who sells any product in a defective condition unreasonably dangerous to the user or consumer, or to the user or consumer's property, is liable to the user or consumer for any injuries that are caused by the product
- The seller must be in the business of selling the product that causes injury
- The product must reach the user without substantial change to the condition in which it is sold

The seller is liable under this principle even when they've exercised all reasonable care. Whether a product is "unreasonably dangerous" can depend upon whether the product has adequate warnings and instructions and whether it's reasonably designed.

Express warranty

An express warranty is one that is clearly stated, intentional or not, and isn't limited to a document that says "warranty" on it. An express warranty can include text and images showing a product in use. To avoid express warranty issues, accurately represent the product in all advertising literature, manuals, related publications, and media. Keep performance claims reasonable and in line with the product's design criteria. Remember, almost anyone and anything connected with a product can be considered advertising or endorsement of a particular practice.

Photographs, videos, and illustrations

Take these proper precautions to avoid unintended legal difficulties when you add realism and impact to your educational manuals, photographs, videos, and drawings.

Don't portray unsafe acts or conditions or suggest inappropriate use. For example, showing a tractor incorrectly navigating a steep ditch bank implies an acceptable method of crossing ditches.

Ensure all guards and shields are in place unless they're removed for illustration or demonstration purposes. If you must remove them, include a caption like, "Guards and shields removed for illustration purposes only. Do not operate without functioning guards and shields in place." Place the caption immediately on, or adjacent to, the image.

Product illustrations should portray proper product usage. Here are some things to remember:

- Don't show children on equipment, near equipment, or operating equipment.
- If animals are necessary to demonstrate the product, show them in a safe position or engaged in the product's intended activity. Never put animals in jeopardy or danger.
- Show the operator working safely, using applicable and proper safety equipment.
- Don't show the operator wearing unsafe clothing, using the wrong tools, or performing other unsafe acts.
- Depict any onlookers in a safe location, free from hazards.
- Show the unit exactly as it'll be sold, including all guards, labels, colors, configuration, etc.
- Ensure anyone using the product is wearing appropriate PPE.
- Don't portray unsafe practices or conditions unless they're clearly noted as incorrect and are provided as examples and for clarity.

REGULATORY EFFORTS

With the Occupational Safety and Health Act of 1970, Congress created the Occupational Safety and Health Administration (OSHA) to ensure safe and healthful working conditions for working people. OSHA sets and enforces standards and provides training, outreach, education, and assistance. Nearly every industrial employer in the nation, including those in agriculture, is subject to its standards and regulations.

This is a list of some of the current OSHA regulations with agricultural implications:

- **1910.111:** Storage and handling of anhydrous ammonia
- **1910.142:** Temporary labor camps
- **1910.145:** Specifications for accident prevention signs and tags
- **1910.146:** Permit-required confined spaces
- **1910.147:** The control of hazardous energy (lockout/tagout)
- **1910.266:** Logging operations
- **1928.51:** Rollover protective structures (ROPS) for tractors used in agricultural operations
- **1928.57:** Guarding of farm field equipment, farmstead equipment, and cotton gins
- **1928.110:** Field sanitation

Product standards may vary or overlap because industries, associations, and governmental agencies often develop their own. Use engineering judgment to determine which standard is most appropriate for a product's intended use. The American Society of Agricultural and Biological Engineers (ASABE), the American National Standards Institute (ANSI), and the International Organization for Standardization (ISO) all publish standards that provide governance. Some examples of topics that impact your business include:

- **ANSI Z535.3-2011 (R2017):** Criteria for safety symbols
- **ANSI Z535.4 (R2017):** Product safety signs and labels
- **ANSI Z535.6 (R2017):** Product safety information in product manuals, instructions, and other collateral materials
- **ASABE AD11684:1995 APR2011 (R2016ED):** General principles for safety signs and hazard pictorials
- **ASABE AD3600:2015 MAY2016:** Content and format of operator's manuals
- **ISO 3864-2:2016:** Safety colors, safety signs, and symbols

In addition to the listed standards and regulations, state and local regulations require a slow-moving vehicle (SMV) sign and proper lighting and marking when equipment is hauled on public roads. Other ANSI or ASABE standards may also apply specifically to your products that may require special attention. Please refer to the following ANSI/ASABE standards and check your state and local agencies regarding specific regulations.

- **ANSI/ASAE S279.18 OCT2019:** Lighting and marking of agricultural equipment on highways
- **ANSI/ASAE S318.18 JUN2017:** Safety for agricultural field equipment
- **ANSI/ASAE S354.7 SEP2018:** Safety for farmstead equipment
- **ANSI/ASABE S648 MAR2020:** Agricultural field equipment braking

Technical publications for agricultural equipment

The guiding standard for farm equipment manufacturers manuals, published jointly by ANSI and ASABE, is ANSI/ASABE **AD3600:2015: Tractors, machinery for agriculture and forestry, powered lawn and garden equipment—operator's manuals—content and format.**

The standard is intended to help machine manufacturers like you draft and present manuals. It doesn't cover manuals intended for service technicians.

Terms and definitions

For ANSI/ASABE AD3600:2015, the following terms and definitions apply:

- **Operator:** The person using the machine for the purpose intended by the manufacturer and complying with the information for operation, including safety practices, as specified by the manufacturer in the manual and by signs or labels on the machine
- **Normal operation and service:** Using the machine for the purpose intended by the manufacturer by an operator
- **Service technician:** Individual specifically trained to service, maintain, diagnose, and repair the machine

Developing your operator's manual: What to include in your manual

Remember, the product purchaser may not always be the operator. Therefore, be sure to instruct the owner to provide the operator with a copy of the owner's and/or operator's manual. Address the contents of the manual to the actual user to read and understand before operating the equipment.

To review, your manual should help:

- Assure safety shields/guards and safety labels are operable and in place
- Achieve the maximum performance from each product with the least service and warranty cost
- Educate the user in the safe operation of the product
- Educate the user to perform maintenance and adjustment with the least amount of assistance
- Minimize complaints
- Promote proper operation and use
- Warn of known and foreseeable misuses of the product

A manual that doesn't reach the user, that isn't used, or that's easily damaged is of little benefit to the owner or operator. An attractive, well-designed, accurate, and easily understood manual is imperative. Follow these ASABE content and format guidelines for your manual.

FRONT COVER MANUAL IDENTIFICATION

- Publication name or type
- Effective date
- Machine model number, model name, or designation type
- Machine manufacturer or distributor, including contact information
- Part number or publication number where the manual can be ordered
- Printing or publication date, or revision level or a publication code used to identify the publication date or revision level

TABLE OF CONTENTS

Your table of contents should list, at a minimum, the main sections of the manual with the page number of the first page of each section.

If applicable, you should include the content within each main section in the table of contents, or at the beginning of the section to which the contents list applies, or both.

MACHINE IDENTIFICATION

Include the following information:

- Machine model designations to which the manual applies
- Serial numbers, serial number range, or beginning serial number of the range to which the manual applies, as appropriate
- A description, either by words, pictorially, or both, of the location of serial numbers of the machine and of serialized components
- Spaces to record serial numbers pertaining to the particular machine the manual accompanies

INTRODUCTION

Include the following information:

- A statement of the importance of the information provided in the manual and the necessity for all operators to read the manual and to understand the information
- The functions for which the machine is designed (intended use)
- Any information to help the user interpret the information given in the manual
- Sources of assistance in understanding the information given in the manual and other concerns regarding operation of the machine

SAFETY INFORMATION

The safety section should outline major safety concerns with a reference to appropriate parts of the instruction book that contain additional, more detailed instructions. The safety section should contain the definitions used for safety signal words, preceded by the safety alert symbol.

Safety alert symbol

Graphical symbols for operator controls and displays should conform to ISO 3767 – Tractors, machinery for agriculture and forestry, powered lawn and garden equipment, Symbols for operator controls and other displays, Parts 1–5.

Signal words

Always explain signal word definitions (DANGER, WARNING, CAUTION, etc.) when using them in conjunction with safety messages in the manual and on safety labels on the machine. Follow the guidelines we shared in the Symbols, words, and colors section on page 11.

You should also explain the meaning of other signal words not associated with safety messages, such as NOTICE, SAFETY INSTRUCTIONS, NOTE, ATTENTION, and IMPORTANT, if you use them in the manual.

Safety messages

Include safety messages specific to particular hazards in the pertinent sections of the manual, preceding the functional instructions. Include them in the safety section, too. You should provide information regarding hazards and precautions the user should take to avoid or minimize the effect of hazards associated with the following aspects of machine use, as applicable:

- Preparation for use
- Normal operation and service
- Clearing blockages and cleaning
- Transport
- Maintenance and adjustment
- Storage

Repeat specific safety messages in different sections of the manual that may involve the hazard area. This process is particularly important for products used in environments that render safety messages unreadable over time. Safety and health information in operator's manuals also provides a way of communicating hazard information when safety messages aren't replaced and when older products with unreadable safety messages are resold on the secondary market.

Safety labels

Make the safety label system an integral part of the manual. Include copies of all safety labels indicating proper placement on the machine or implement in the manual. You should provide information and user strategies regarding all safety labels that are affixed to the machine, including:

- Reproducing safety labels in a legible size
- Locating safety label locations on the machine
- Explaining the safety labels if the label doesn't contain a written message
- Keeping the safety labels clean and visible
- Replacing safety labels, if they're missing or illegible
- Affixing safety labels to replacement parts, as applicable
- Obtaining replacement safety labels

Potential product misuse

Address known potential product misuse plainly, with an explanation of the possible consequences of misuse. Include instructions with captioned photographs or illustrations when appropriate to assist in clarification. In instances where the user may not understand English, use an appropriate method to convey safety information, such as images or graphics.

PRE-OPERATION

Use this section to help users prepare their equipment for use. Provide step-by-step instructions to ensure the end user can safely and successfully bring the implement or machine to full operation. You may need to include specific safety messages to alert users of hazards that exist during the assembly, preparation, and setup of the implement or machine.

Reception (unpacking/uncrating)

Provide unpacking instructions and draw attention to any specific points needing special care or treatment. Specify lifting points, use of slings or spreaders, etc.

Assembly and initial set-up

Specify instructions to assemble the machine and bring it to full working condition. Include requirements for performance specifications, hookups, hitching inspection, and testing.

Storage

Provide instructions, including precautions the user may need to take and any required tools or special equipment, to prepare the machine for storage.

Specifications
Provide appropriate technical data to assist the operator in achieving a high standard of operational performance and reliability.

Transportation
Provide the following information:

- Instructions for preparing the machinery for transportation, whether being driven or towed or carried on suitable means
- Precautions and information about the tools the user will need
- Requirements and procedures for preparing the product for use after transportation

Accessories and attachments
You should provide information regarding accessories and attachments you've approved and have available for the machine.

Warranty
You should include information regarding warranty terms and the coverage period, including any limitations of coverage and actions that can invalidate the warranty.

OPERATION

This section should include step-by-step instructions intended to guide users through safe and successful machine or implement operation. User experience, machine familiarity, and the information in this section can lead to efficient operation and good working habits. You may be required to include specific safety messages to alert users of hazards that exist during normal operation of the implement or machine.

Controls and displays
You should provide illustrations and descriptions for all controls and displays, including:

- Location relative to the operator's position
- Purpose, function, and mode of operation
- Explanations of any symbols used

Operating instructions
Provide information about proper machine or equipment operation, including:

- Pre-start instructions
- Instructions for starting, stopping, and shutdown, including emergency procedures
- Operation of all functions, including any adjustments the user can make during normal operation
- Instructions for clearing blockages and cleaning

Adjustments
You should explain how to complete any adjustments required to adapt the machine to different tasks or operation conditions (e.g. field conditions, environments). Along with explaining all component operations, any information you provide in this section should help users achieve their desired adjustment outcome.

Troubleshooting
You should provide information that helps users diagnose faults and remedying problems in normal operation, as applicable.

ROUTINE MAINTENANCE

This section is intended to provide detailed information on the proper servicing and maintenance of the implement or machine, which is key to ensuring safe operation and maintaining equipment life.

Maintenance schedules
You should provide information concerning periodic maintenance tasks and their recommended frequency, preferably in tabular or graphical format, with further details in text if necessary.

Maintenance procedures
You should provide instructions for each task, including identification of any tools, test equipment, replacement parts, or other required services. Identify any tasks requiring specialized knowledge or tools and recommend a qualified service technician perform such tasks.

Maintenance materials
You should provide specifications, including quantities or capacities, for normal maintenance materials, such as fuel, lubricants, and coolant.

Parts list
You should include a parts listing with parts numbers in the publication.

MANUAL FORMATTING AND PRINTING

Paper size
For manuals printed in or for North America, the preferred paper size for manuals is 8 ½" X 11".

Covers
The manual covers should be the same size as the pages and preferably made of stiff, durable material resistant to oil, lubricants, and water.

Inks
Inks should be durable, water resistant, and smudge resistant.

Font
The font used should be clear and readable.

Type size
The type size of the main text should be 10 points or greater. Smaller type sizes can be appropriate for manuals on smaller paper.

Columns
Information on larger paper should be presented in two columns. Information on smaller format paper should be presented in a single column.

Headings
Use headings consistently throughout the manual to provide a systematic method of presentation. Headings should be a larger type size than the text and a bolder typeface, or an alternative color.

Text conventions
You should use consistent forms of language, spelling, numbering, symbols, etc. throughout the manual.

Terminology
Use consistent terminology throughout the manual. Avoid technical terms requiring specialized knowledge, except where no other terms convey the intended meaning.

Symbols
Graphical symbols for operator controls and displays should conform to ISO 3767-1, ISO 3767-2, ISO 3767-3, ISO 3767-4, or ISO 3767-5.

Case
Use normal sentence case for text. Use bolded lowercase letters—rather than uppercase—to emphasize keywords or phrases. Uppercase should be used only for references to machine elements which have words in uppercase on them (for example, STOP control).

Measurements and quantities
Express all measurements and quantities in the International System of Units (SI units in accordance with ISO 80000-1). For countries where non-SI units are customary, give SI units first, followed by the equivalent in customary units parenthetically.

Numbers
Write all numbers in Arabic numerals. Avoid beginning sentences with a number. If not practical, express the number in words.

Dates
Show dates using the numerical year-month-day style (e.g., 2014-06-02) or the day-month-year style (e.g., 2 June 2014). Be consistent within your manual.

Illustrations
Illustrations with supporting text are, in general, a user-friendly way of presenting technical information. Illustrations should be as simple as practicable with no superfluous information.

Only use words on illustrations to identify specific elements if their usage doesn't impair the clarity. Otherwise, use numbers, letters, or symbols on the illustration, with an explanation for each number, letter, or symbol used in the text of the manual. This requirement doesn't apply to illustrations of machine displays.

Color use
Only use color when it's necessary to clarify complicated diagrams or to illustrate machine displays. Use shading, cross-hatching, and screening before color. If you need to use color, use primary colors and avoid red and green in combination. Use colors considered acceptable for color blindness where possible.

Charts
Include frequently required information in charts. These should be accompanied by a glossary of abbreviations, symbols, and any unfamiliar terms.

Tables
Present tables with the minimum number of lines required for clarity. Provide a title and number for each table.

Alphabetical index
Include an alphabetical index with page numbers, conforming to the relevant provisions of ISO 999, at the back of the manual—particularly if the manual is more than 30 pages.

MANUAL RECEIPT AND WARRANTY REGISTRATION

When feasible, attach the manual to the product itself. You also need to document receipt of the instruction book—here are a few recommended methods:

- Include the warranty registration card inside the manual. The card should instruct the user to tear it out and return so you can register the product warranty.
- Require the product seller to fill out the warranty registration in the product owner's presence at the time of sale.
- Consider online registration.
- Use a promotional campaign to encourage warranty card return or registration. This may include sending a cap, T-shirt, or similar premium to the product purchaser.

Online availability

Many manufacturers offer their publications and manuals online. Benefits include:

- Instant access
- Option to print
- Easy to update information
- Can include video
- Can't get dirty, dog-eared, or lost
- Cheaper
- Drives users to your website

Although publishing manuals online may have many advantages, there are also some disadvantages:

- It can be harder to find the manual on your website.
- It may be harder to bookmark.
- Users may not be able to take a computer to a shop or machine shed.
- Not everybody is computer-literate.
- There may be internet connectivity issues.
- The user can't pencil-in notes.
- Large files can take a long time to download.

You can view a sample operator's manual in this document's appendix.

Post-product release

Your product safety process doesn't end when your product enters the stream of commerce. The distribution chain can provide valuable information about the product in its use environment. There are a number of ongoing steps to keep in mind after your product has reached its end user.

FIELD SAFETY REPORTS

Your written procedures for field personnel should outline how to use a field safety report. As part of your product safety program, you should:

- Administer written procedures for marketing or service support personnel to record problems and/or complaints they witness in the field.
- Make field safety reports available for your distribution chain and your field service personnel.
- Respond to product problems promptly.
- Document field observations of safety concerns and your company's efforts to notify the owners/users.
- Monitor social media.

Keep observation records in your customer service file or other permanent product file. They may be useful in making product improvements or defending product liability cases.

Examples of findings that require prompt attention include:

- Products in defective or nonconforming condition
- Inappropriate use
- Modifications
- Maintenance needs
- Warranty problems
- Product claims
- Equipment malfunctions
- General service problems encountered by the customer

You can view a sample field safety report in this document's appendix.

EARLY WARNING SYSTEMS AND RETROFITS

To continue providing strong product evaluations and early warnings (in case of warranty situations or potential claims):

- Direct your field personnel to immediately inform you of product-related incidents, whether or not they resulted in bodily injury or property damage
- Obtain a photographic record of the equipment, and keep it for documentation purposes
- Identify a point of contact, and immediately contact your insurance carrier with all available details

These steps will help you establish a combined effort to investigate the incident.

Evaluate each modification to differentiate between items that affect product performance and those that adversely affect user safety. After reviewing information regarding product misuse or operating conditions, you may decide to proceed with a product modification or a retrofit.

In case of performance problems, you may decide on a routine product improvement. However, when potential user safety problems are involved, you'll need to decide if immediate action—a retrofit kit or product recall—is necessary. Retrofits aren't limited to a product's mechanical aspects; they can also include improving safety messages and operator's manuals. To increase the likelihood of a successful retrofit, work with highly trained personnel (such as a factory team or dealer network) to receive and install the retrofit item.

If you only need a simple substitution or an add-on, you may choose to offer a retrofit kit to the owner of record. Depending on the circumstances, consider providing the retrofit at no cost or at factory cost. We've also witnessed manufacturers successfully advertise their available retrofit kits in trade publications directed at the user population and dealer networks.

Always keep detailed documentation surrounding your retrofit program, and use return receipt mail when informing users or last known owners. An effective serial-number system and warranty card return program will likely help you locate products in the field.

Your customers often consider your field personnel to be the face and voice of your company, and credit them with above-average product knowledge. It's easy to see where this trust comes from: these personnel are obliged to warn users when they observe dangerous practices, product misuse, or unauthorized product modifications. If these conditions present an imminent hazard, field personnel should verbally warn the customer and immediately contact you. At that point, you should confirm the verbal warning via registered mail to the customer, and request a return receipt. This written warning should:

- Identify the hazard
- Provide the date of the observation
- Detail potentially harmful results
- Offer a solution, when appropriate

If your field operation personnel observe an undesirable condition that isn't imminently hazardous, they should still notify you. Pass this information along to your product safety team for consideration; they can use it to create a special bulletin for all owners of record. Follow this procedure if you believe a continually misused product could result in personal injury or property damage.

You can use any of these situations as the basis for a technical bulletin to warn users of hazards and specify proper corrective procedures. Use registered mail and request return receipts to verify that the bulletins are delivered. Depending on the seriousness of the situation, you could also consider using television, radio, and trade publications. In any case, work with your legal counsel at all levels of a retrofit or recall program.

You can view a few sample warranty registration forms in this document's appendix.

CORRECTIVE ACTION PLANS

After a product sale, someone may discover a hazard you didn't anticipate. In these cases, you may have a duty to warn about that hazard. A product recall may be required by government regulations administered by the Consumer Product Safety Commission (CPSC).

While no company likes to recall a product, safety problems make product recalls necessary to prevent injuries and save lives.

You should have a corrective action plan at the ready for when these situations occur. Its goal should be to retrieve as many hazardous products from the distribution chain and consumers as possible in the most practical, cost-effective manner. Reaching this goal often requires creative planning. By having a plan in place, you're better able to respond in a timely and appropriate manner to problem reports, accidents, or claims.

You should work closely with the CPSC staff. It'll result in greater protection for consumers against injury or death.

Reporting a product to the CPSC doesn't automatically mean that they'll conclude corrective action is necessary. Many of the reports the CPSC receives require no corrective action because the staff concludes that the reported product defect doesn't create a substantial product hazard.

The decision-making process regarding a post-sale hazard notification can involve several techniques, including:

- On-site investigation and/or product failure analysis by the company or an independent laboratory
- Analysis of other same-batch units
- In-house tests and evaluations

If a substantial product hazard does exist, you should:

- Cease production and distribution of the hazardous product
- Involve legal counsel and your insurance carrier to plan and conduct a product recall or field modification program

- Determine which and how many products should be recalled, based on design, production, and quality control records
- Determine involved product purchasers and their geographical areas
- Estimate the proposed recall/modification cost
- Supply reports—including hazard impacts, the number of units involved, and the estimated cost to recall or modify—to the person who'll make the final recall or modification decision
- If necessary, notify the CPSC of any substantial hazard within the required time and coordinate all subsequent product recall or field modification activities with the CPSC
- Notify dealers and/or distributors of the safety problem, provide them with recall or modification procedures, and outline reimbursement steps
- Initiate procedures to provide dealers and/or distributors with replacement products or parts for the recall or field modification program
- Notify major customers, defining the problem and product recall or field modification program steps
- Send a product hazard letter to all customers, clearly identifying the product involved, the hazard, its estimated severity, and suggested customer actions—notify customers by certified mail if the product hazard is estimated to be serious
- If necessary, send news releases identifying the product and required actions
- Develop and retain records defining the effectiveness of the product recall or field modification program
- Sort records by dealer or distributor and geographical area—follow up when you haven't received a customer response

The nature of the product issues being addressed and variations in the order, campaign scale, company culture, and legal advice will affect what steps you should take, and when. This guide is meant to provide recommendations and guidance but should not substitute for your employees', vendors', or contractors' direct knowledge, training, and expertise of the product and its uses.

You can view a sample retrofit letter in this document's appendix.

RECALL CONSIDERATIONS

Many organizations develop a recall preparedness plan that involves the preparation of written documents and standard operating procedures prior to the recall event.

The following list can help you develop your own.

- Draft a recall policy statement and determine appropriate procedures to implement the recall
- Identify person(s) who have authority to order the recall
- Distribute the written recall policy to managers, key employees, and distributors
- Appoint a recall campaign coordinator or committee
- When retrofitting, require component or part suppliers to mark and code each unit
- Forward all complaints to the product safety recall coordinator or committee
- Give the product recall committee authority to evaluate the necessity for a recall
- Establish a recordkeeping system that permits, where possible, determination of:
  - Product model number and manufacture date
  - Consumers' product quantity
  - Distributors' product quantity
  - Product field location
  - Incident, accident, and malfunction descriptions
- Develop incident reports and investigations that reveal whether:
  - Any design changes are necessary
  - Product conforms to industry/governmental standards
  - Malfunction was due to production error, negligent inspection, poor testing, or poor quality control
  - Product was misused by the consumer
  - The consumer failed to regard safety messages on safety labels or in the operator's manual

What and where to report

You should file a report by mail, phone, fax, or online with the CPSC division of recalls and compliance. Assign reporting responsibility to someone with product and reporting knowledge requirements.

Reporting firms should be prepared to provide the information described below. However, don't delay a report if you don't have all the following information:

- Product description
- Your company's name, address, and type (manufacturer)
- Nature and extent of product defect, or unreasonable risk of serious injury or death
- Name and extent of injury—or possible injury—associated with the product
- Reporting person's name, address, and phone number
- A timetable detailing when further information will be available
- If available, other information specified in Section 1115.13(d) of the CPSC's regulations

PRODUCT SAFETY PROGRAM AUDIT

Product safety is a process. Your product may evolve, the market may vary, laws and standards could change, and you may make improvements to your products. You must evaluate your product safety effort by completing a periodic product safety program audit.

Your product safety and liability audit report should highlight any issues and any opportunities for improved safety and reduced liability. Implementing detailed engineering, legal recommendations, and having a lawyer follow up can help reduce risks.

A legal safety audit can help you save millions of dollars in design costs, litigation, lost sales, and insurance premiums.

Conducting the audit

Audits are meant to observe your product safety program's conduct and process. They can help you determine:

- If your organization's safety policies are being observed
- Safety activity status within each area of responsibility
- If safety activities are well-coordinated and integrated
- If trade-offs adversely affect product safety
- In-plant and subcontractor safety task adequacy
- Appropriate procedures to identify product hazards, eliminate hazards, or provide suitable machine guarding

Findings reveal problems, the causes of those problems, and recommended solutions. Audits can also determine where management can make program improvements and where additional guidance, redirection, assistance, manpower, or training is required.

To ensure audits are effective, you, or whoever is conducting your audit, should report findings in writing. If the audit finds improvement needs, you should request timely corrective action. If the corrective action is a lengthy requirement, complete periodic progress reports until the deficiency is corrected. Subsequent audits should determine whether the corrective action was accomplished and if it's satisfactory.

The audit survey outlines some of the questions most frequently addressed in product safety audits. It's necessary to review product design, manufacturing, quality assurance, marketing, and general policies.

Product design considerations

- Who is the ultimate customer for this product? Account for things like age, physical aptitude, mechanical aptitude, and familiarity and experience with such products.
- What are the product's primary functions?
- How do your product performance levels meet or exceed consumers' expectations for the products?
- What existing federal, state, local, or industry standards apply to this product's design, manufacturing, distribution, and ultimate use?
- What new or pending standards or legislation apply to the product?
- What experience have you or your competitors had with similar products or designs regarding accidents, claims, and litigation?
- Are product designers fully familiar with how the product may be misused and the subsequent consequences?
- Do product designs incorporate all appropriate safety features for a product of this type and for its intended or conceivable range of use?
- Are necessary safety labels affixed to the product?
- Have unnecessary design hazards been eliminated?
- Has the product been designed with ease-of-service in mind?
- Has the product been tested under extreme usage conditions?
- Have competitive products of the same type been analyzed to determine if they offer safety advantages your products do not?
- Are there inherent weaknesses in any of the construction materials used to fabricate the product (and might those weaknesses be reflected in product failure)?

- Have recognized industry standards been established for the product and does this design meet or exceed these standards?
- Does the product design pose potential hazards that could violate current environmental controls?
- Does the product design impose unreasonably restrictive manufacturing specifications that could, in turn, result in manufacturing quality assurance problems?
- Is it reasonable to believe this design can be produced in volume without quality difficulties?
- Does the product design account for potential safety hazards that might arise in shipping or storage?
- Have the product designers prepared technical recommendations for how the product is best used, maintained, serviced, labeled, and packaged?
- Have the planned product instruction materials been fully tested and evaluated—including multilingual instructions when necessary?

Quality assurance considerations

- Are complete quality control specifications established for raw materials, components, and manufacturing techniques used in production?
- Have finished product specifications been established?
- Are all raw materials, components, and finished products adequately identified by lot or serial number?
- Are all quality lapses promptly referred to the product safety committee?
- Is there an adequate recordkeeping system to document production procedures?
- Have mock product recalls been conducted to determine the feasibility of identifying and locating products already shipped?
- Do quality assurance personnel fully know and understand applicable federal, state, or industry safety standards?
- Is there a plan for recovering and analyzing products that may have failed?
- Does the quality assurance department regularly review sales literature and instructions?

Marketing considerations

- Are marketing and sales personnel aware of safety-related product failure implications?
- Is there a system for alerting marketing and sales personnel of safety-related product failures?
- Are sales personnel familiar with approved product use instructions?
- Are marketing and sales personnel kept aware of hazards that might arise from both foreseeable and unforeseeable product use?
- Are product advertisements and sales literature reviewed for safety implications prior to their release?
- Is there a proper-use training program for personnel in the distribution chain? Are hazards that could result from their misuse discussed?
- Are there procedures in place to ensure product-use instructions and hazard-alerting safety messages are included with the delivery of every product? Are there regular material reviews?
- Have all warranty statements been reviewed to ensure their conformance with the Magnuson-Moss Warranty Act—a federal statute regulating warranty descriptions and terms?
- Are product design and quality assurance personnel kept informed of reports from field sales personnel regarding product safety issues?
- Are marketing personnel aware of various federal, state, and local product safety statutes?
- Are service personnel required to report safety hazards they encounter during field inspections, service, or repair work?
- Are sales and service personnel instructed to only report product safety facts and not add opinions in their field reports?
- Are customer service representatives fully acquainted with the procedures for handling product safety complaints? Is there an adequate provision throughout the company for relaying such information quickly and efficiently to all those concerned with safety matters?
- Are various individuals in the distribution chain encouraged to maintain records systems that would facilitate any required product recall efforts?

General policy and plan considerations

- Has a formal product safety policy been developed and disseminated throughout the company? Are all company personnel fully aware of its provisions?
- Have contingency plans been developed to deal with major product crises or environmental safety disasters?
- Has a crisis team been designated to take charge during an emergency?
- Is there a plan for conducting thorough investigations following safety mishaps?
- Have product safety programs been established for each of the company's operating units?

RECORDKEEPING

We believe there are no drawbacks to maintaining detailed records, particularly where safety is concerned. For example, be sure to retain records that confirm you've performed adequate product testing. It's also important to establish whether your products were sold with the recommended safety devices, safety labels, and manuals—this demonstrates that you exercise quality control, inspection, and care while manufacturing your products. Also, be sure you're able to identify suppliers whose records may assist your company in its defense.

We encourage you to keep the following materials on file:

- **All advertising materials:** To provide actual content and counter claims of extended warranty.
- **All engineering drawings and change notices:** To prove your designs meet generally accepted standards and/or met the state of the art at the time you manufactured the products.
- **Material specifications:** Specified materials, with an emphasis on materials for critical items.
- **Quality control systems:** This details the frequency and type of samples, tests, and results (with date and name recorded).
- **Test results:** Documented details of product prototype and functional testing, along with any corrections resulting from failures you've encountered.
- **Copies of all applicable standards:** All consensus standards, industry standards, standards prescribed by law, etc., that were in effect at the time of manufacturing.
- **State of the art ad comparisons:** Design considerations of competitive products during a specified period of time.
- **Design considerations:** A historical consideration record of:
  - Reasons for developing a new product
  - Product applications and intended markets
  - Optional equipment versus standard equipment
  - Product safety teams
- **List of first owners:** Compiled from return warranty registration forms, including initial purchasers' names and addresses, along with product serial numbers.
- **Data on production runs:** Records detailing batch numbers or dates (by serial number), along with materials by supplier. Also include records of any materials you've certified or subjected to quality control tests. This information provides a list of like items, in case of a limited recall or retrofit program.
- **Manuals and technical bulletins:** A complete file of all operator manuals, technical bulletins, and parts lists associated with various product lines. Retain all manual changes, documentation of changes, and updated versions.
- **Verifications of mailings:** Use mailing affidavits or registered mail return receipts to verify customer or dealer mailings of technical bulletins or product warnings. Mailing verification is necessary to confirm that you've carried out your duty to warn.

Retain all records essential for tracing a delivered product back to its processing, manufacturing, and receipt of raw material.

When determining how long to keep your records on file, consider not only your product's intended life cycle, but also its potential extended life cycle. A good rule of thumb is to retain records for at least two years beyond the foreseeable extended life cycle of the product. You'll create plenty of documents during product development, production, and sale. Keep them all.

You need honest, accurate documentation of test and inspection results. This includes analyzing products that haven't performed satisfactorily in service, or are the subject of a consumer complaint. Prepare these documents in a way that demonstrates your integrity as a manufacturer.

Finally, we urge you to consult your company legal counsel as you formulate your document-retention policy. They'll bring vital knowledge and information regarding legal trends, your company's history, and your industry as a whole.

Conclusion

After discussing the product safety process, we hope you've gained a clearer understanding of the methods you can implement within your organization to improve the safety of your products and minimize your liability exposure.

We designed our guidelines to help you determine strategies to improve your product safety.

At Sentry, we're dedicated to helping you create a culture of safety at your business, and we hope this guide has provided you with a better understanding of all that goes into product safety. When you provide your customers with safe, well-designed farm equipment, you take a vital step toward building and maintain long-lasting business relationships.

To learn more about how we can help protect your farm equipment manufacturing business, contact your safety services consultant.

Standards

As a farm equipment manufacturer, you have access to many relevant product standards developed by various industries, associations, standards-making bodies, and governmental agencies. While some are legally binding and others voluntary, even voluntary standards have become de facto legal requirements.

In some cases, overlapping standards may apply to your products. Use your engineering experience and judgment to determine the most appropriate standard for a particular product's intended use. The ASABE publishes the standards that principally govern agricultural equipment.

Keep in mind that the courts have consistently maintained that safety and/or performance standards—even those imposed by the government—establish only the minimum limit for product acceptability. They often consider products that fall below the established standard as defective, and sometimes even refuse to allow a manufacturer's compliance with such standards as an absolute defense in a product liability action. If possible, design your products to exceed the requirements of a given standard.

Some of the more common standards-making or listing organizations for farm equipment products include:

- American National Standards Institute (ANSI)
- American Society of Agricultural and Biological Engineers (ASABE)
- American Society of Mechanical Engineers (ASME)
- American Society for Testing and Materials (ASTM)
- Canadian Standards Association (CSA)
- Defense Research Institute (DRI)
- Factory Mutual Engineering Corporation (FM)
- International Organization for Standardization (ISO)
- National Fire Protection Association (NFPA)
- Occupational Safety and Health Administration (OSHA)
- Society of Automotive Engineers (SAE)
- Underwriters Laboratories, Inc. (UL)
- U.S. Department of Agriculture (USDA)
- U.S. Department of Transportation (DOT)

Glossary

ABSOLUTE LIABILITY—Often used interchangeably with strict liability. Under absolute liability, it may not be necessary to prove a defect existed, only that an injury occurred which can be causally related to the product.

ASSUMPTION OF RISK—A risk of harm knowingly and voluntarily assumed by the complaining party.

COMPARATIVE NEGLIGENCE—A doctrine designed to soften the harshness of contributory negligence, which completely bars recovery. The jury determines the total damages and the percent of total negligence attributable to the plaintiff. The award is then reduced by the percentage of the plaintiff's negligence. Many states have adopted some form of comparative negligence.

Note: This concept varies appreciably by local code and is found both in statutory and common law.

CONTRIBUTORY NEGLIGENCE—A defense set up by the defendant in which they allege that the plaintiff's own negligence contributed to the injury as a proximate cause of that injury.

DAMAGES—Monetary compensation or indemnity which may be recovered in the courts by any person who has suffered loss, detriment, or injury—whether to his/her person, property, or rights—through the unlawful act or negligence of another.

DEFENDANT—The party against whom relief or recovery is sought in an action or suit.

DISCOVERY—The part of a legal action where facts within the knowledge of the adverse party may be demanded as a part of the preliminary proceedings to the lawsuit.

EXPRESS WARRANTY—A written or oral statement affirming the goods or service will have certain specifications or performance levels. A video might constitute a warranty, either implied or expressed. For example, if you show a child sitting on your equipment in an ad, a lawsuit involving an injured child could point to the image and say you implied it was safe for children to be in contact with the equipment. To avoid express warranty issues, all advertising literature and media should accurately represent the product. Performance claims should be reasonable and in line with the product's design criteria. Remember almost anyone and anything connected with a product can be considered as advertising.

Product illustrations and videos should portray proper product usage. Here are some things to remember:

- If you show someone using the product, have them wear appropriate personal protective equipment
- Don't portray unsafe practices or conditions unless they're clearly noted as incorrect and are provided only as examples and for clarity
- Make sure performance claims are in accordance with the product's design specifications.
- Don't exaggerate product performance or include superlatives or all-inclusive statements, such as:
  - Totally safe
  - Unbreakable
  - Indestructible
  - No skill required
  - Use anywhere

IMPLIED WARRANTY—Implied warranties follow the idea that when a user obtains a product or service for a specific purpose, there's a valid assumption on the user's part that the product or service will be reasonably fit for the intended use. For example, when someone buys a carpenter's hammer, it's implied that it will drive and pull nails. Also, when the user is led to purchase the goods or services by the seller's description of them, the purchaser has a right to expect the product or service is as represented by the seller.

Thus, an unexpected, unusual, or abnormal hazard involving the seller's product or service would constitute a breach of implied warranty.

NEGLIGENCE—Negligence is the absence of reasonable care that an ordinary person would take under the circumstances. Under the theory of negligence, the standard of responsibility is the manufacturer's duty to exercise due care in supplying products that don't present an unreasonable risk of injury or harm to the public. In the event of a lawsuit, the quality control procedures, safety and design analysis, and other efforts to ensure the safety of the manufacturer's products are evaluated for reasonableness.

Negligence focuses on conduct and asks whether the manufacturer acted reasonably. A manufacturer may be negligent through:

- Failing to test or inspect the product, or in failing to do so adequately
- Failing to select a competent supplier
- Failing to warn—or warn adequately—of the dangers associated with the use of the product
- Failing to exercise due care in manufacturing or design of a product
- Failing to install the product properly
- Failing to exercise due care in any aspect of the production or distribution process
- Failing to warn of a danger even if it appears open and obvious
- Failing to guard dangerous points of the product when state of the art has designs that do so

PLAINTIFF—The person who brings an action; the one who complains or sues in a personal action and is so named on the record.

PRODUCT LIABILITY—Product liability concerns the responsibility of a seller to the user. A manufacturer can be held liable for defective materials, imprudent design, absence of proper labels or manuals, or failure to provide machine guarding and safety shields. It's the liability of the manufacturer (or someone else in the chain of distribution) for personal injury, property damage, or possible economic loss caused by product use.

PUNITIVE DAMAGES—Punitive damages are damages awarded as punishment over and above ordinary damages. Normally, there must be willful and wanton negligence. They're intended to deter further acts of a similar nature.

Punitive damages payments are not tax deductible, and often aren't covered by insurance.

STATE OF THE ART—Applicable technology or design criteria known or available to the manufacturer at the time they manufacture a product.

STATUTE OF LIMITATIONS—A limitation on the elapsed time, usually from date of injury, during which the injured party can file suit. The limitation time period varies from state to state and the conduct upon which the action is based. In most states, a minor may be barred from bringing a claim after he or she reaches legal age.

STRICT LIABILITY—Anyone who manufactures or sells any product in an unreasonably dangerous, defective condition is subject to liability for physical harm caused to the ultimate user or consumer or to his/her property. Strict liability applies even if the seller has exercised all possible care in the preparation and sale of his product.

Under strict liability, the plaintiff must show that:

- The product was defective
- The product underwent no substantial change after it left the manufacturer's care, custody, and control
- The product was unreasonably dangerous and that the defect caused the injury

Defects have their roots in three areas: design, manufacturing, and warnings and instructions.

- A design defect exposes the user to an unreasonable amount of preventable risk
  - Strict liability balances the likelihood and seriousness of harm against the burden of designing a product which prevents harm
- A manufacturing defect exists when the product deviates in some material way from the manufacturer's design specifications or performance standards, or from identical units of the same product line
- A warning and instruction defect is determined by:
  - Considering the likelihood and seriousness of harm, and
  - Whether the manufacturer could've provided adequate safety messages by using safety labels on the product or as warnings in the operator's manual to prevent harm

SUBROGATION—The substitution of one person into the place of another for recovery of indemnity paid when someone else caused the loss; often used by insurance companies under their contract of insurance.

TORT—A civil wrong (as compared to a criminal wrong). For a tort to exist, there must be duty owed, the duty must be proximate to the loss, and there must be damages.

Sample product safety policy

XYZ Manufacturing Company
1234 Safety Street
City, State, Zip

Our customers have come to expect a reliable, safe, and well-valued product from us. Our product safety program focuses on a proactive approach to optimizing safety while still satisfying our customers' quality requirements.

We're all responsible for our product safety program. Our program addresses the full product life cycle for quality and safety throughout design, development, manufacturing, assembly, inspection, testing, packaging, shipping, storage, and service.

Each operation division will establish and maintain a product safety program according to guidelines stated in this manual. We hope to achieve two major objectives:

- Ensure our products' quality, safety, and performance satisfies our customers' requirements, as explicitly defined in specifications or as implied in marketing literature
- Ensure quality by preventing or detecting faulty design, materials, manufacturing, or service

Your individual support for our objectives is important to our program's success. This policy is effective immediately.

Corporate Chief Executive Officer	Product Safety Manager
Engineer/Designer	Quality Control Director
Production Manager	Marketing/Sales

Sample product hazard analysis form

Instructions:

- Check any applicable block to identify possible exposures, hazards, injury, or damage
- Determine if you need any additional controls
- Evaluate how you'd implement processed changes and the affected product safety functions
- Don't confine your evaluation only to the points listed on this form
- Elaborate on the back of this form

Can the product result in damage or injury?

	IF THE PRODUCT IS:						
	Used properly	Used incorrectly/ misused	Poorly maintained	Repaired incorrectly	Installed incorrectly	Modified	Discarded/ resold
AND SUBJECT TO:							
Normal conditions							
Temperature or environment							
Vibration or shock							
Liquid, dust, or sand							
Pressure or vacuum							
Electric or magnetic fields							

Could the product:

☐ Explode ☐ Melt ☐ Shock ☐ Crush

☐ Poison ☐ Expand ☐ Corrode ☐ Grab

☐ Break ☐ Contract ☐ React (with) ☐ Leak

☐ Catch fire ☐ Radiate ☐ Contaminate ☐ Spill

☐ Overheat ☐ Cut ☐ Fall over ☐ Rupture

Could people be hurt:

Internally

☐ Ingestion ☐ Inhalation

☐ Absorption ☐ Radiation

☐ Asphyxiation

Externally

☐ Caught in ☐ Product breaking

☐ Struck by/run over/impaled ☐ Lifting/straining

☐ Falling from or into ☐ Noise

Does the product:

☐ Have exposure that increases with age

☐ Have a long life expectancy

☐ Include parts that are difficult to locate

Can the product:

☐ Be easily damaged during shipping or in storage

☐ Injure or damage if it or its container is damaged

Damage or injure as a result of inadequate or improper:

☐ Packaging ☐ Shipping ☐ Instructions

☐ Storage ☐ Labeling

Sample machine guarding and safety shielding checklist

Consider these key points when evaluating product safety:

	Yes	No
Basic machine guarding requirements		
• Do the provided guards meet the minimum OSHA requirements and applicable ANSI or ASABE standards?		
• Do the guards prevent workers' hands, arms, and other body parts from contacting dangerous moving parts?		
• Are the guards firmly secured and not easily removable?		
• Do the guards ensure no objects will fall into the moving parts?		
• Do the guards permit safe, comfortable, and relatively easy machine operation?		
• Can the product be lubricated without removing or circumventing the guard?		
• Is there a system for shutting down the machine before guards are removed?		
• Can the existing guards be improved?		
Mechanical hazards		
• Is there a point-of-operation guard or shield?		
• Does it keep the operator's hands, fingers, and body out of the hazardous area?		
• Is there a more practical, effective guard such as an interlocked grate or guard?		
• Is there a way to eliminate the point-of-operation hazard entirely?		
• Are there any unguarded gears, sprockets, pulleys, or flywheels on the equipment?		
• Are there any exposed belts or chain drives?		
• Are there any exposed set screws, key ways, collars, etc.?		
• Are starting and stopping controls within easy reach for the operator?		
• If there is more than one operator, are separate controls provided?		
• Are guards provided for all hazardous moving parts including all auxiliary machinery or parts?		

Sample field safety report

XYZ Manufacturing Company
1234 Safety Street
City, State, Zip
www.123456.com

Notification to:

XYZ Manufacturing Company received instruction to repair your [product name], serial number [serial number]. When we completed your repairs, we found the potential for an unsafe condition. [describe condition].

We're writing to notify you of this condition and the potential, if you don't correct the problem, for possible bodily injury, limb loss, or death.

Please know we're notifying you because we're looking out for your best interest and continued satisfaction with us.

Sincerely,

Sample warranty registration forms

This is an example of a form you could use to deal with common contractual issues and allocations of risk. Whether it's appropriate in any given situation depends on the business objectives of the contracting parties, and their intended allocation of risks. We believe you'll find it a useful and adaptable starting point. For advice on whether the language is appropriate to a particular situation, we encourage you to consult a lawyer.

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both dealer and customer at time of delivery.

Customer name _____ Dealer name _____

Address _____ Address _____

City, state, code _____ City, state, code _____

Phone number (____) _____

Model _____ Serial number _____ Delivery date _____

DEALER INSPECTION REPORT

____ Farm level
____ Wheel bolt tight
____ Fasteners tight
____ Chains adjusted
____ Hydraulic hoses free
____ Hydraulic fittings tight
____ Wiring harness connected
____ Picks and arms free
____ All drives turn freely
____ Check tire pressures
____ Lubricate machine

SAFETY

____ All safety labels installed
____ Reflectors, SMV clean
____ Guards and shields installed
____ Review operating and safety instructions

I have thoroughly instructed the buyer on the above described equipment; review included the operator's manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's signature _____

The above equipment and operator's manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____ Owner's signature _____

WHITE	YELLOW	PINK
MFG.	DEALER	CUSTOMER

PURCHASER'S WARRANTY REGISTRATION

(Manufacturer's name and address)

Purchaser's warranty protection on this equipment is valid only when this certification form is completed and signed by both the purchaser and retailer at the time of delivery of the equipment and mailed to the manufacturer. Purchaser's signature affirms that he/she has received the operator's manual and has been instructed by the retailer as indicated by the delivery date checks. Retailer's signature affirms he/she has performed the pre-delivery checks.

Date delivered to purchaser _____

Type of equipment _____

Model _____ Serial number _____

RETAILER'S SIGNATURE INDICATES:

→ Equipment was properly assembled as directed by manufacturer
→ Equipment was tested functionally and operates properly
→ Purchaser was instructed in safe and proper operating procedures
→ Warranty was explained to purchaser
→ Purchaser was given operator's manual

RETAILER

Signature _____

Company _____

Mailing address _____

City _____ State _____ Zip code _____

PURCHASER'S SIGNATURE INDICATES:

→ Acceptance of equipment, fully assembled
→ Receipt of operator's manual
→ Clear understanding of warranty
→ Receipt of instructions on special safety equipment available
→ Receipt of instructions on safe and proper operating procedures

PURCHASER

Signature _____

Company _____

Mailing address _____

City _____ State _____ Zip code _____

THIS WARRANTY MUST BE VALIDATED BY MANUFACTURER

It is valid only when the card copy has been received by manufacturer at address shown. Just mail, no postage required.

Sample retrofit letter

XYZ Manufacturing Company
1234 Safety Street
City, State, Zip
www.123456.com

Dear owner,

We're writing to notify you of safety conditions related to equipment you purchased, manufactured by [company name]. If you've transferred ownership, please notify [company contact name] so we can contact the new owner.

We've determined a shielding change/addition is required on [product name]. Without this shield, your equipment could potentially injure a person or damage equipment.

In response to this potential hazard, [company name] developed a retrofit kit to improve your [product name] safety.

ILLUSTRATION

We've included installation instructions with the kit. If you need help with installation, or you can help us locate the current owner, please return the enclosed postage-paid letter to _____.

We apologize for any inconvenience. We're taking action for your safety and continued satisfaction with _____ products.

Sincerely,

ASABE AD3600 content checklist

The checklist below is derived from ANSI/ASABE AD3600:2015, which includes information on proper content and formatting for manuals. You should include:

FORMATTING

- ☐ Foreword or introduction
- ☐ Table of contents
- ☐ Index
- ☐ Troubleshooting information or chart

IDENTIFYING INFORMATION

- ☐ Printing or publication date
- ☐ Manufacturer identity and contact information
- ☐ Publication identification/part number
- ☐ Model number
- ☐ Machine description and illustration
- ☐ Description of accessories or optional equipment
- ☐ Indicators and controls (including relative to the operator's position)

INSTRUCTIONS

- ☐ Pre-delivery setup and/or installation instructions
- ☐ Operation instructions
- ☐ Transportation instructions

SAFETY INFORMATION

- ☐ Safety label illustrations
- ☐ How to use safety labels on equipment
- ☐ How to keep safety labels legible
- ☐ How to replace safety labels if missing
- ☐ How to equip repaired machines with new or updated safety labels
- ☐ How to obtain replacement safety labels
- ☐ How to affix safety labels
- ☐ Safety alert symbol explanation
- ☐ Specific safety messages
- ☐ Signal word definitions
- ☐ Illustration and explanation of any symbols used

MAINTENANCE AND STORAGE

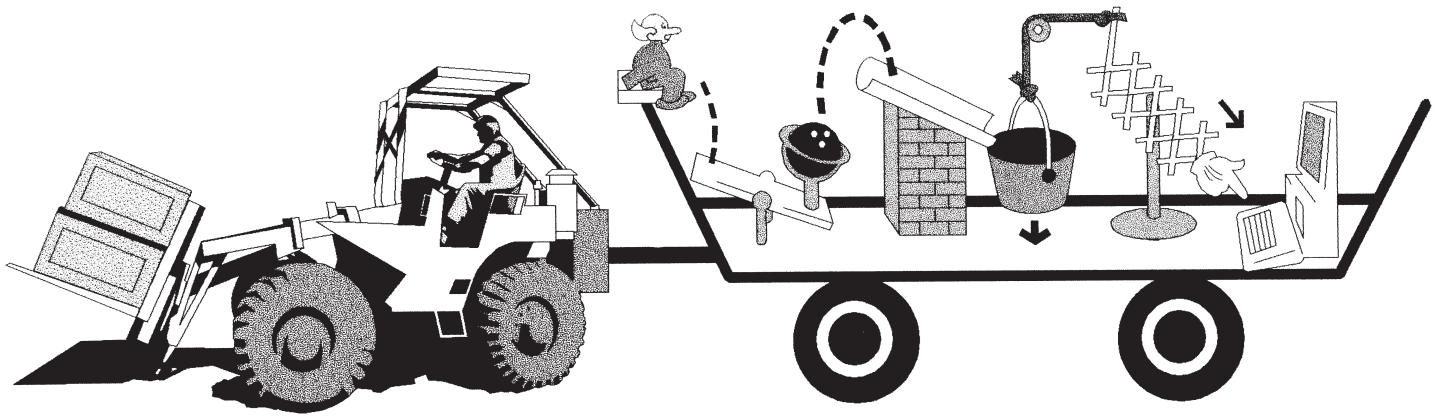
- ☐ Maintenance instructions
- ☐ Repair/overhaul instructions
- ☐ Installation and/or modification instructions
- ☐ Storage instructions
- ☐ Recommended fuels, lubes, fluids, and other maintenance materials
- ☐ Refill capacities
- ☐ Maintenance intervals, charts, and procedures
- ☐ Diagnostic procedures
- ☐ Repair specs, parameters, and wear limits
- ☐ Special tool and fixture information
- ☐ Start-up, break-in procedures testing
- ☐ Parts information (may be separate book)

When printing and shipping, you should also try to ensure your manual is:

- ☐ A preferred size (typically 8 ½" x 11")
- ☐ Durable
- ☐ Protected during shipment

OPERATOR'S MANUAL

XYZ PRODUCT
THIS IS A SAMPLE ONLY



COMPANY NAME
ADDRESS
PHONE
FAX
Website@ABC.com

Publication number: **Date:**

Table of contents

Introduction

Thank you for purchasing <machine name>. We hope you'll enjoy its protective use for years to come. Read and understand this operator's manual prior to operating this equipment. Failure to follow these instructions could result in serious personal injury or damage to the equipment. The purpose of this <machine name> is to provide a means to<machine purpose>. The manufacturer doesn't recommend any other use.

Information in this manual is designed to help owners and operators to obtain the best results and safe operation from their investment.

All product users must read and understand this manual prior to equipment operation. This manual is considered part of your machine and should remain with the machine at all times. Don't allow anyone to operate or maintain this equipment who has not fully read this manual. Failure to follow the recommended procedures may result in personal injury, death, or equipment damage.

If for any reason you don't understand the instructions and safety requirements, please contact your authorized dealer. The intent of this manual is to provide guidelines to cover general use and to assist avoiding accidents and injuries.

There may be circumstances that are not covered in the manual. At those times, it's best to use common sense and contact your authorized dealer or our factory.

Safety requirements cannot be emphasized enough. We urge you to make safety your top priority when using and maintaining the equipment. We strongly advise anyone allowed to operate this equipment be thoroughly trained and tested, to prove they understand the fundamentals of safe operation.

Some photographs, diagrams, or illustrations in this manual may show doors, guards, and shields opened or removed to aid in clarity and understanding of a particular procedure. All guards, shields, and safety devices must be in their proper position prior to operation.

Warranty

<Manufacturer name> has manufactured <machine name> for over <number> years and has an excellent reputation for quality and workmanship. Please contact us if you feel a component has not lasted to your expectation. We'll handle these concerns on a case-by-case basis. Contact the <factory name> for replacement parts.

General safety guidelines

Read and understand this manual and all safety labels before operating and maintaining. Review the safety instructions and precautions annually.

Take note: This safety alert symbol, found throughout this manual, is used to call your attention to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.

This symbol means:
- **ATTENTION**
- **BECOME ALERT**
- **YOUR SAFETY IS INVOLVED**

SAFETY SIGNAL WORDS

Note the use of the signal words DANGER, WARNING, and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE: is used to address safety practices not related to personal safety.

EQUIPMENT SAFETY GUIDELINES

Operator safety is one of the main concerns when designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year, many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.

This equipment is dangerous to children and persons unfamiliar with its operation—please follow these guidelines:

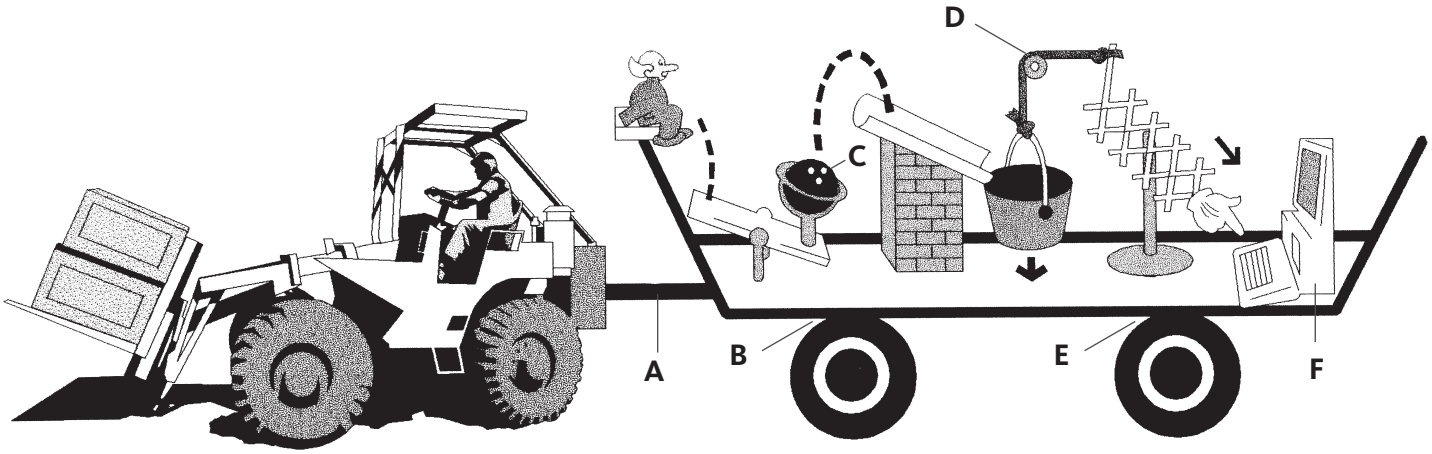
- **Don't allow persons to operate or assemble this unit until they've read this manual and have developed a thorough understanding of the safety precautions and how the unit works.**
- Don't attempt to operate this equipment under the influence of drugs or alcohol. Don't use the equipment when alertness or coordination is impaired.
- Don't read, eat, drink, talk, or use a mobile phone while using this equipment.
- To prevent injury or death, use a tractor equipped with a Rollover Protective Structure (ROPS). Do not paint over, remove, or deface any safety labels on your equipment. Observe all safety labels and practice the instructions on them.
- Never exceed the limits of a piece of machinery—if its ability to do a job, or to do so safely, is in question, don't try it.
- Stay clear of any moving parts, such as shafts, couplings, and universal joints.
- If adjustments need to be made, make them in small steps, shutting down all motions for each adjustment.
- Don't allow anyone to ride on any part of the equipment for any reason.
- Assure all bystanders are at a safe distance before operating or maintaining this equipment.

SAFETY LABELS

Safety label types and equipment locations are shown below. Good safety requires that you familiarize yourself with the various safety labels, type of warning, and label location that requires your safety awareness.

Remember

If any safety labels are damaged, removed, or illegible, you need to apply new labels. New labels are available from your authorized distributor or factory.



A

DANGER

ROTATING DRIVELINE
CONTACT CAN CAUSE DEATH
KEEP AWAY!

Do not operate without -
- All driveline, tractor and equipment shields in place.
- Drivelines securely attached at both ends.
- Driveline shields that turn freely on driveline.

SW101

B

WARNING

OVERHEAD HAZARD

To prevent serious injury or death:
- Stay away from beneath the wings when they are in the raised position or are being lowered.
- Keep others away.

SW201

C

DANGER

THROWN OBJECT HAZARD

To prevent injury or death from outlet chute projectiles:
- Stay away from outlet during operation.
- Keep others away.
- Do not direct outlet toward people, animals or buildings.

SW804

D

WARNING

MOVING PART HAZARD

To prevent serious injury or death from moving parts:
- Close and secure guards and shields before starting.
- Keep hand, feet, hair and clothing away from moving parts.
- Disconnect and lockout power source before adjusting or servicing
- Do not stand or climb on machine when operating.

SW403

E

CAUTION

1. Read Operator's Manual before using machine.
2. Stop tractor engine, lower machine to the ground, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or fitting.
3. Install and secure all guards before starting.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Do not allow riders.
6. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using.
7. Clean reflectors, SMV and lights before transporting.
8. Install safety locks before transporting or working beneath components.
9. Add extra lights and use pilot vehicle when transporting during times of limited visibility.
10. Use hazard flashers in tractor when transporting.
11. Install safety chain when attaching to tractor.
12. Keep away from overhead electrical lines. Electrocution can occur without direct contact.
13. Review safety instructions with all operators annually.

SW4

F

DANGER

ELECTROCUTION HAZARD

To prevent serious injury or death from electrocution:
- Disconnect power before opening box.
- Close cover before operating.
- Keep components in good repair.

SW1001

Safety label care

- Always keep safety labels clean and legible
- Replace missing or illegible safety labels
- Display current safety labels on replaced parts
- Get safety labels from your distributor or factory

Safety label installation

- Clean and dry the installation area
- Decide the exact placement before removing the backing paper
- Remove the smallest portion of the split backing paper
- Align the label over the specified area and carefully press the exposed backing
- Slowly peel back the remaining paper and carefully smooth the remaining section
- Smooth out small air pockets by piercing with a pin

TIRE SAFETY

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.

- Don't attempt to mount a tire unless you have the proper equipment and experience
- Whenever possible, call trained personnel to service and/or mount tires
- Always order and install tires and wheels with appropriate capacity to meet or exceed the expected load
- When inflating tires, use a clip-on chuck extension hose long enough to allow you to stand to one side—use a safety cage if available
- When removing and installing wheels, use wheel handling equipment adequate for the weight involved
- The rims and tires should be mounted on the feeder with the valve stem to the inside—use reverse disc rims as a protection
- Use proper tire pressure and ensure lug nuts are properly tightened
- Check wheel bearings on a regular basis and grease semiannually

LIGHTING AND MARKING

It's the customer's responsibility to:

- Know local highway authority's lighting and marking requirements
- Install and maintain equipment to comply with regulations
- Add extra lights when transporting at night or during periods of limited visibility

Lighting kits are available from your dealer or from the manufacturer.

PERSONAL PROTECTIVE EQUIPMENT

- Wear protective clothing and equipment appropriate for the job, such as safety shoes, safety glasses, a hard hat, and ear plugs
- Wear appropriately sized clothing. It should fit snug without fringes or pull strings to avoid entanglement with moving parts
- Wear suitable hearing protection such as ear muffs or earplugs—prolonged exposure to loud noise can cause hearing impairment or hearing loss
- Avoid wearing radio headphones or earbuds while operating equipment—it requires the operator's full attention

PREPARE FOR EMERGENCIES

- Be prepared if a fire starts
- Keep a first aid kit and fire extinguisher handy
- Keep emergency numbers for doctor, ambulance, hospital, and fire department near phone

Operating machinery

Before operation

- Carefully study and understand this manual
- Practice operating equipment and its attachments
- Familiarize yourself and other operators with operations before using
- Don't wear loose-fitting clothing
- Always wear protective clothing and appropriate shoes
- Keep wheel lug nuts or bolts tightened to specified torque
- Assure agricultural implement tires are inflated evenly
- Inspect and repair any loose bolts, worn parts, or cracked welds
- Be sure no tools are lying on or in the equipment
- Don't use the unit until you're sure the area is clear, especially of children and animals
- Use a tractor equipped with a roll over protective system (ROPS) and fasten your seat belt prior to starting the engine
- Move tractor wheels to the widest recommended settings to increase stability
- Securely attach to towing unit
- Use a high-strength, appropriately-sized hitch pin with a mechanical retainer and attached safety chain
- Don't allow anyone to stand between the tongue or hitch and the towing vehicle when backing up to the equipment

During operation

- Obtain and install a safety chain if equipment will be transported on a public highway
- Only use a safety chain to retain the connection between the towing and towed machines
- Beware of bystanders, particularly children—always look around to ensure it's safe to start or move the towing vehicle
- Keep all bystanders, pets, and livestock clear of the work area
- Don't carry passengers anywhere on, or in, the tractor or equipment, except as required for operation
- Keep hands and clothing clear of moving parts
- Don't clean, lubricate, or adjust your equipment while it's moving
- When halting operation, even periodically, set the tractor or towing vehicle brakes, disengage the power takeoff, shut off the engine, and remove the ignition key
- Always inspect the area prior to operation
- Don't operate near the edge of drop-offs or banks
- Operate up and down (not across) intermediate slopes
- Pick the most level route when transporting across fields
- Avoid the edges of ditches or gullies and steep hillsides
- Periodically clear brush, twigs, and other materials from the equipment to prevent buildup of debris
- Avoid sudden starts and stops
- Maneuver the tractor or towing vehicle at safe speeds
- Avoid overhead wires and other obstacles—overhead lines could cause serious injury or death
- Avoid loose fill, rocks, and hills which can be dangerous for equipment operation or movement
- Consider unit length when making turns
- Don't walk or work under raised components or attachments unless securely positioned and blocked
- Operate the towing vehicle from the operator's seat only
- Never run or start engine while standing alongside the unit
- Never leave running equipment attachments unattended
- Recheck the hardware on equipment every 100 hours of operation
- Follow maintenance safety procedures

Highway and transport operations

- Always follow state and local regulations regarding a safety chain and auxiliary lighting when towing farm equipment on a public highway—check with local law enforcement agencies for specific regulations
- Keep the brake pedals latched together at all times
- Never use independent braking with a machine in tow as loss of control and/or overturning can result
- Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure
- Keep speed to a minimum, especially prior to turns
- Avoid sudden uphill turns on steep slopes
- Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill—do not coast
- Never drink and drive
- Comply with state and local laws governing highway safety and movement of farm machinery on public roads—always check your local regulations for specific information
- Use approved accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport—flashing amber lights are acceptable in most localities
- When driving the tractor and equipment on the road or highway under 20 MPH, use flashing amber warning lights and a slow-moving vehicle (SMV) sign
- Plan your route to avoid heavy traffic
- Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Be aware of bridge loading ratings
- Don't cross bridges rated lower than the gross weight of the combined vehicle you're operating and any towed equipment
- Always operate equipment in a position providing maximum visibility
- Make allowances for increased length and weight of the equipment when making turns, stopping the unit, etc.

Following operation

- Stop the tractor or towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine, and remove the ignition keys
- Store the unit away from human activity
- Don't park equipment where it will be exposed to livestock for long periods of time
- Don't permit children to play on or around the stored unit
- Make sure all parked machines are on a hard, level surface and engage all safety devices
- If necessary, use wheel chocks to prevent rolling

Performing maintenance

Proper maintenance is your responsibility. Routine service and adjustments are key to the long life of any implement. With careful inspection and routine maintenance, you can avoid costly downtime and repairs.

- Don't allow anyone to perform maintenance on this equipment who hasn't been properly trained in its safe operation
- Before attempting to unfasten any part or assembly, arrange to support it by using a hoist, blocking, or using an adequate arrangement to keep it from falling, tipping, swinging, or moving
- Always use lifting equipment that is adequately rated to do the job—never lift equipment over people
- Never operate the towing vehicle engine in a closed building and ensure there's plenty of ventilation—exhaust fumes may cause asphyxiation
- Before working on the equipment, stop the towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine, and remove the ignition keys
- Be certain all moving parts on attachments are at a complete stop before attempting to perform maintenance
- Always use a safety support and block the wheels and never use a jack to support the equipment
- Always use the proper tools or equipment for the job you're working on
- Use extreme caution when making adjustments
- Never replace hex bolts with less than grade five bolts, unless otherwise specified
- Where replacement parts are necessary for periodic maintenance and servicing, use genuine factory replacement parts to restore your equipment to original specifications—the manufacturer will not claim responsibility for unapproved parts and/or accessories and other damages as a result of their use
- If equipment has been altered in any way from the original design, the manufacturer does not accept any liability for injury or warranty
- Don't alter the equipment or replace parts with other brands—doing so can cause the equipment to perform improperly and may lead to breakage causing bodily injury or death
- Remove all flammable and combustible materials before completing repairs using a torch or electric welder
- Don't weld or cut on any tank containing oil, fuel, other flammable material, or any container whose previous contents are unknown
- Don't use gasoline as a cleaning solvent—petroleum based solvents are flammable and present a fire hazard
- Use adequate ventilation with all solvents—do not inhale any vapors

HYDRAULIC FLUID AND EQUIPMENT SAFETY AND MAINTENANCE

Only adequately trained and qualified persons should work on hydraulics systems. You may be severely injured or killed by a falling piece of equipment. Keep body and body extremities away from areas such as pivot points and hydraulic cylinders.

When working on any hydraulic system, be sure to follow these other guidelines:

- **Keep all hoses and connections in serviceable condition:** Hydraulic fluid escaping under pressure can have sufficient force to cause serious personal injury or death. Avoid the hazard by relieving the pressure before disconnecting lines or performing work on the system.
- **Take appropriate precaution before applying pressure to the system:** Use a piece of paper or cardboard—not body parts—to check for suspected leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- **Always secure equipment with solid supports:** Never work under equipment supported by hydraulics. Hydraulics can instantly drop equipment if controls are actuated, hydraulic lines burst, or pressure is lost while disconnecting lines. Never attempt to disconnect a hydraulic cylinder or hose while the system is under pressure. Always secure equipment pivot points to assure they won't move when working on or near them.
- **Check hydraulic hoses and fittings frequently:** Brush and other debris can damage hoses and fittings. Loose, broken, and missing hardware can cause equipment to not perform properly and can result in bodily injury or death.
- **Only work on a cool machine:** Hydraulic systems and oil can be hot and cause burns. Before working on any system, wait until the oil has cooled.

If any accident occurs, see a doctor familiar with hydraulic injuries immediately. Any fluid injected into the skin or eyes must be treated within a few hours or gangrene may occur.

CONTROL OF HAZARDOUS ENERGY—LOCKOUT/TAGOUT PROCEDURES

OSHA's requirements for lockout/tagout are covered in Section 1910.147 of the OSHA standards. The lockout/tagout (LOTO) standard establishes the employer's responsibility to protect workers from unexpected machinery startup or the release of hazardous energy during service or maintenance. Employers are required to train each worker and ensure they know, understand, and can follow the applicable provisions of the hazardous energy control procedures:

- All employees must be trained in the purpose and function of the energy control program and have the knowledge and skills required for the safe application, usage, and removal of the energy control devices
- All employees who work in an area where energy control procedures are used need to be instructed in the purpose and use of the energy control procedure(s) and about the prohibition against attempting to restart or reenergize machines or equipment that is locked or tagged out
- All employees who are authorized to lockout machines or equipment and perform service and maintenance operations need to be trained in recognition of applicable hazardous energy sources in the workplace, the type and magnitude of energy found in the workplace, and the means and methods of isolating and/or controlling the energy
- All employees must be retrained on a regular basis to maintain proficiency or introduce new or changed control methods

OSHA outlines a six-step procedure for controlling hazardous energy:

1. **Prepare for shutdown.** Determine what type of power system is going to be deactivated including electrical, hydraulic, pneumatic, or other energy sources. Knowledge of shutdown methods is necessary.
2. **Shutdown the equipment.** This should be completed consistent with the manufacturer's instructions for the shutdown procedure and could be as simple as placing a switch in the off position or pressing a button.
3. **Isolate the equipment.** Close valves, throw the main disconnects or circuit breakers, and/or disconnect or cap any auxiliary power sources or secondary electrical systems.
4. **Apply the lockout/tagout device.** This is done to prevent restoration of the flow of energy and is done at all disconnect switches, valves, or other energy isolating devices. Locks are the preferred method of controlling energy and should be supplemented with tags. Various lockout devices are available including group lockout hasps. Locks should be individually assigned and have only one key.
5. **Control the stored energy.** This step includes the release, disconnect, or restraint of any residual hazardous energy which may be present. Someone should then check that all moving parts have stopped moving. It may also include blanking pipe flanges, installing ground wires to discharge electrical capacitors, and blocking or supporting elevated equipment.
6. **Verify isolation of equipment.** Double-check the steps and verify the equipment has been shut down and the lock and tag control the stored energy. Warn all employees and test the system, including pressing all start buttons to assure that the equipment will not start.

In addition to following OSHA's six-step procedure, you should also consider implementing a think, plan, check procedure.

- Think through the entire procedure and identify all the required steps.
- Plan what personnel will be involved, what needs to be shut down, what guards need to be removed, and how—and under what conditions—the power will be restarted.
- Check the machine over to verify all power sources and stored energy have been identified including engines, hydraulic and pneumatic systems, springs and accumulators, and suspended loads.

REFUELING SAFETY

- Don't smoke while refueling
- Don't fill the tank while the engine is running or while the engine is hot
- Clean up any gasoline spills immediately
- Allow the engine to cool before storing the machine inside a building
- Keep fuel away from open flames or sparks
- Store the machine away from open flame or spark if there's fuel in the tank
- Use extra caution when handling gasoline and other fuels—a fire or explosion from gasoline can burn you and others and can damage property
- Refuel outdoors or in well-ventilated areas
- Never attempt to start engine when there is a strong odor of gasoline fumes present
- Store gasoline in an approved container and keep it out of the reach of children
- Never buy more than a 30-day supply of gasoline
- Don't fill gasoline containers inside a vehicle or on a truck or trailer—interior carpets or plastic truck bed liners may insulate the container and slow the loss of any static charge, creating a spark hazard
- When practical, remove equipment from the truck or trailer and refuel the equipment with its wheels on the ground—if this isn't possible, refuel the equipment on the truck or trailer using a portable container
- If you must use a gasoline dispenser nozzle, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete

Maintenance chart

Item	Interval
Check tire pressure	Before transporting
Grease wheel bearings	Twice per year
Grease zerk—front wheel assembly	Twice per year
Review safety instructions	Annually
Clean drain	As needed
Clean and paint	As needed

Troubleshooting

Problem	Possible cause	Solution
Uneven operation	• Washer not between sleeve and nut	• Check washer location at all spindles • Shift to lower gear • Sharpen blades • Adjust wheel positions
Rotor turning but not sliding	• Wrong flow direction	• Ensure blade turns counterclockwise when you face deck bottom
Belt slippage	• Lack of tension • Object clogging • Debris in sheaves	• Tighten belt • Remove object • Clean sheaves
Machine vibrates	• Object wrapped around spinner • Damaged belt	• Remove object • Replace belt
Belt squeal	• Slipping belt	• Tighten belt
Built-up debris at exit	• Wet debris • Debris too high	• Allow debris to dry • Raise machine, shift to lower engine and PTO speeds
Tight belts when installing	• Wrong belt size • Incorrectly installed belts	• Check belt size • See replacing belts section

Use and care tips from the factory

1. Keeping the ‹machine name› cleaned and painted will help to prolong the usefulness of this product.
2. Failure to clean the ‹machine name› routinely may cause a buildup of residue, which may become compacted or frozen and may cause difficulty in operation of the equipment.
3. The drains can be opened wider to assist in cleaning.
4. Keeping the telescoping pole in the long position will provide safer towing. Field chopping is the only application where the pole should be in the short position.
5. When not attached to the tractor, turn the front wheels at a 90º angle, extend the pole and chain securely. This will reduce the chances of neck chains or feet from becoming entangled. Park this feeder in a level area if possible.
6. Grease the zerk fitting under the front wheel assembly as needed to make turning easier.

Warranty registration form and inspection report

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both dealer and customer at time of delivery.

Customer name _____

Address _____

City, state, code _____

Phone number _____

Dealer name _____

Address _____

City, state, code _____

Model _____ Serial number _____ Delivery date _____

DEALER INSPECTION REPORT

_____ Farm level

_____ Wheel bolt tight

_____ Fasteners tight

_____ Chains adjusted

_____ Wiring harness connected

_____ Check tire pressures

_____ Lubricate machine

SAFETY

_____ All labels installed

_____ Reflectors, SMV clean

_____ Guards and shields installed

_____ Review operating and safety instructions

I have thoroughly instructed the buyer on the above-described equipment. The review included the operator's manual content, equipment care, adjustments, safe operation, and applicable warranty policy.

Date _____ Dealer's signature _____

I have received the above equipment and operator's manual, and I have been thoroughly instructed as to care, adjustments, safe operation, and applicable warranty policy.

Date _____ Owner's signature _____

WHITE	YELLOW	PINK
MFG.	DEALER	CUSTOMER

DETACH HERE TO REGISTER WARRANTY

Accessories

Lighting Kit: Proper lighting on agricultural field equipment is required in some jurisdictions. Under proposed national standards, all towable agricultural field equipment will be required to have proper warning lights to operate on public roads and highways.

Assistance

If you have questions not answered in this manual, or require additional copies, or the manual is damaged, please contact your dealer or:

Company name
Service department
Address
Phone
Fax
Website@abc.com

1800 North Point Drive
Stevens Point, WI 54481

800-473-6879
sentry.com

90-42 1636753 5/7/21

Sentry®

Document management program

Information for farm equipment manufacturers

Table of contents

Introduction

It's important for you and your business to retain records that trace the development, testing, production, and reliability of a product.

Your records should:

- Establish whether the product was sold with recommended safety devices, warnings, and instructions
- Document your exercised due care during all phases of the manufacturing process
- Help identify suppliers whose records may also assist the manufacturer in managing product line disposition

Benefits of a document management program

Companies need records to manage business. At the same time, few companies are solely in the record storage business. Your task is to develop a policy ensuring documents required for business purposes are readily available when you need them, without maintaining every document ever written. This policy must comply with any federal or state requirements for document retention and contain safeguards to prevent destruction of potentially relevant documents in the event of pending or threatened litigation.

Some important advantages to a properly administered retention program include:

- **Increased efficiency:** Implementing a document retention program lets you quickly and efficiently locate key business documents. Only create documents with a necessary business purpose, then store them in centralized files within each business unit. Once a retention program is firmly in place, your executives and employees who need to quickly find certain documents will immediately know whether those documents have been kept, where they're located, and how they're organized.
- **Reduced cost:** Creating an effective document retention program allows you to dispose of certain categories of documents after they've been kept for a defined time. You can reduce document storage and retrieval costs if your employees understand not every document needs to be kept forever.
- **Reduced litigation expenses:** Frequently, one of the most expensive elements of litigation is the cost associated with the attorneys' efforts to find and process potentially relevant documents. Parties obtain documents through requests for production served on their opponents, which require document production within relatively short time frames. Broad discovery requests have become the norm in litigation, as plaintiffs search for data not specific to their claim. Lawyers and their assistants have to search, index, locate, and copy potentially responsive documents. With an effective document retention program in place, you can simply point your counsel to the centralized document retention files and provide a copy of your document retention policy.
- **Ensured document availability:** A document retention policy has certain defensive aspects with respect to litigation. Documents that no longer have any business purpose can be destroyed rather than being used by an adversary. Document retention programs also preserve critical documents necessary to defend actions in any subsequent litigation. Often, key documents that support a company's claim or defense are lost or destroyed because the company has no formal or consistently administered retention program.

Developing an effective program

Creating a document retention program may appear difficult. However, you can smoothly and effectively create one by following a few basic requirements:

Emphasize importance: Appoint a lead person to oversee implementing and maintaining the program. This centralized authority helps stress the importance of document retention and allows employees to ask questions from one source, ensuring consistent responses. Normally, document retention programs are administered through human resources. Some companies administer the program through the legal department, which may raise questions about the business purpose of the policies.

Put your document retention plan in writing: The written plan typically includes a brief policy statement outlining how and why a document retention program is being implemented, specific guidelines on record creation and distribution, how the record retention program will work, and specific document retention schedules.

Provide the written plan to all employees: Evaluate compliance with your retention program as part of an employee's job performance. This includes all levels of management so document management isn't delegated improperly or quickly forgotten.

Consistently administer the document management program: The entire document management program might be an element of future litigation strategy. Documents kept beyond the prescribed retention period or discarded before the period ends might cast legal suspicion on the entire retention program. In some cases, courts have instructed the jury that missing documents, if available, would have been harmful to the company's claim or defense—also known as negative interference. To fully protect against any negative interference that may be derived from business record destruction, all departments and employees should uniformly administer the retention program. Document destruction should only take place as part of an established program and during the regular course of business.

Keep one copy of each retained document in a central file: Many documents are circulated to a lengthy distribution list or exist in multiple files among various departments. A main goal of an effective document retention plan is maintaining the document in a central file. These central files can be maintained at the departmental level. Once recipients finish reviewing document copies, they should discard the document or return their copy to the central file. By indicating the appropriate file designation on the document, the author can facilitate this process.

Document retention

It takes substantial effort to determine what documents you've created and maintained still exist. The following steps provide a framework for starting a retention program, incorporating the basic requirements outlined on the previous page.

ORGANIZING EXISTING DOCUMENTS

Create an index of all active files and document types created and maintained on a routine basis. Identify the type, volume, and age of all records stored as inactive files, wherever they're located. These records will likely be eliminated first pursuant to a document retention program.

Note: Your document management program needs controls on electronic media. We'll talk more specifically about electronic records later in this document.

Documents you should retain include:

- **All advertising materials:** Provides actual content of advertising material and can help you counter claims of extended warranty.
- **All engineering drawings and change notices:** Proves design was according to generally accepted standards and was state of the art at the time of manufacturing.
- **Material specifications:** Contains critical product details.
- **Quality assurance system:** Details the frequency and type of samples taken, tests conducted, and test results with names and dates recorded.
- **Test results:** Details product prototype and functional testing—retain records from both. Retain corrections resulting from failures.
- **Copies of all applicable standards:** Documents all consensus standards, industry standards, standards prescribed by law, etc., in effect at the time of manufacture.
- **State of the art:** Captures design considerations of competitive products during a specified time period to establish state of the art.
- **Design considerations:** Provides a narrative, historical style of discussion of:
  - Reasons for new product consideration
  - Contemplated product applications and intended market
  - Optional equipment versus standard equipment
  - Specific considerations of the product safety team
- **List of first owners:** Stores information compiled from return warranty registration forms; includes initial purchasers' names and addresses, as well as serial numbers of products they've purchased.
- **Data on production runs:** Preserves records detailing batch numbers or dates of product manufacturer by serial number, including materials by suppliers. Also includes records of any materials certified or subjected to quality control tests. This information provides a list of like items necessary in case of a limited recall or retrofit program.
- **Manual and technical bulletins:** Establishes a complete file of all operator manuals, technical bulletins, and parts lists associated with various product lines. Retain all manual changes, change documentation, and updated versions.
- **Verification of mailing:** Proves documents were mailed. Verify customer or dealer mailings of technical bulletins or product warnings with mailing affidavits or by certified mail return receipts. Mailing verification is necessary to confirm the manufacturer has carried out the duty to warn.

Document retention (continued)

DETERMINE AND DESIGNATE

Store documents in a centralized file for business purposes. Define who'll be responsible for document management tasks in each department or group. This person maintains an index of retained and eliminated documents, conducts employee compliance audits, and implements or modifies procedures concerning document retention and destruction. The custodian discusses the potential uses of each document type with department members. A realistic useful life for the information becomes the appropriate retention period. Frequently, a company will designate the retention periods for broad categories such as correspondence, memoranda, or sales calls. These periods apply throughout the company and ensure uniform management program administration.

DRAFT DOCUMENT RETENTION POLICIES

Once you've assessed your company's business needs and legal requirements, and you've thoroughly examined the types of documents created, develop a written retention policy. We've attached an example of a document retention policy implemented by a corporate client at the end of this guide (Exhibit A). This example includes an overall program description, its purpose and implementation provisions, and a description of how documents are reviewed and collected for destruction pursuant to the program.

DISTRIBUTE THE WRITTEN POLICY AND RETENTION SCHEDULES

Once your management has developed an effective written policy, circulate it to all affected employees. Making sure your employees understand and follow the policy is crucial to its effectiveness. It's often helpful to circulate the policy with a cover letter from your management team to stress the importance of compliance.

Electronic documents

As electronic media and communications continue to evolve, so have document retention difficulties.

Here is a typical definition of "document," used in a litigation discovery request:

> *The words "document" or "documents" are intended to refer to any material or any medium on which, or by which, information is recorded, including papers, photographs, moving pictures, drawings, graphs, charts, videotapes, and any method or medium by which information is used by computers. This specifically includes, but is not limited to, email and documents on computer databases, indexes and disks, and hard drives which may not currently be printed on paper.*

A carefully managed document retention program for paper files quickly becomes meaningless when electronic information is kept beyond the prescribed retention period.

Potential retention problems created by electronic documents take many forms:

- **Data backup:** Many people are taught to back up their computer files to prevent accidental destruction. Many businesses copy year-end computer files to tape and then archive the tapes, often for indefinite periods. Rather than selecting specific files for archiving, it may be easier to copy all the files in one operation.
- **Unnecessary information:** Personal computers and network servers can store massive amounts of information. You can quickly retrieve documents and data organized in computer folders, eliminating the need to search paper files. Because space isn't a concern, old documents and files sometimes aren't deleted. Again, information is retained well beyond the intended retention period.
- **Deleted data:** When someone deletes or erases information from a computer, that information may still physically exist in the hard drive of the machine. For example, one company's internal email system automatically stored messages on a main-frame tape if recipients didn't delete the message within 24 hours. Another company learned data it had assumed no longer existed could be retrieved by its computer user group.
- **Delete programs:** The opposite problem is periodic automatic program deletion. Once automatic deletion occurs, documents or information may become lost even though subject to a discovery request. As a result, your company may be sanctioned.

Nonetheless, computer users must understand retention policies for their department apply to information, regardless of storage media. A two-year retention for routine memoranda applies to the paper copy in the file cabinet and the word processing version in the computer directory.

Moreover, the same rules for document creation discussed at the beginning of this publication also apply to more informal communication, such as email. However, you should remember there are no private files and documents—even emails should be written with a view toward how they would be interpreted by a judge or jury.

The document management program administrator should meet with employees often. The administrator should understand and explain backup and deletion procedures used in the company's computer system.

For example, deleted computer files should be over-written with new data to ensure old information can't be resurrected. Similarly, computer users must understand the purposes and goals behind the company's document retention program.

Document creation consideration

Report truthfully: Document retention isn't a device for covering up or hiding from problems. Decision makers in any company require truthful and accurate information. Decision makers also require facts and are usually in the best position to analyze the importance of those facts.

Write objectively: While it's tempting to display creativity by using adjectives and adverbs, these expressions often have no quantitative value and can be misinterpreted. Words such as "high," "low," "majority," or even "problem," do not substitute a quantitative description. Avoid writing correspondence or memoranda when upset.

Attribute others' opinions: It's not unusual to meet with customers to obtain feedback about your products or services. Clearly attribute these comments to them to indicate they aren't from you or your company.

Discard drafts: It may be difficult to explain the meaning of final draft documents without addressing previous versions or drafts. Multiple drafts can make it more difficult to decide which version was final. Word processing programs make it easy to revise draft documents so only the current version is saved.

Limit distribution: Only distribute a document to those with a legitimate need to know its content.

Respond to unfavorable documents: Although your company's response to a problem could become an issue, lack of response may form the basis for a punitive damage claim. You must give a response to all unfavorable reports and document them.

Retention periods

You must base the time period for document retention on legal, industry, or business requirements. Certain documents are required by statute or regulation to be kept for a predetermined period. Many record-keeping requirements imposed by federal law are included in the Guide to Record Retention Requirements in the Code of Federal Regulations, a publication of the Office of the Federal Register, National Archives and Records Administration.

You should review this publication, as well as state laws and regulations, to determine if there are any legal retention periods for each type of document your company creates. Examples of these legal requirements include:

- Certain tax records—including returns, statements, and documents related to depreciation issues—must be retained "so long as the content thereof may become material in the administration of any internal revenue law." Record retention periods vary from three years to seven or more years for various tax-related documents.
- Manufacturers of new gasoline-fueled engines, diesel heavy-duty engines, or heavy-duty vehicles must maintain general records pertaining to equipment test pursuant to EPA Production Compliance Audits for six years from completion of all testing.
- Owners or operators of any building or facility emitting air pollution must retain all records of pollution measurements and other operations that may affect pollutant emissions for two years from their creation date.
- Manufacturers and importers who certify walk-behind rotary power lawnmowers comply with the Consumer Product Safety Commission safety standard must keep certain safety test records for a period of three years from each mower's certification date.

There may be additional requirements within your industry for record retention, or customers may impose certain requirements for maintaining records. Many manufacturers are certified under International Standards Organization Standard 9000, which contains retention requirements for various quality and design records. Similarly, suppliers to U.S. automobile manufacturers must comply with QS-9000, which also contains requirements for quality records.

When there is no legal or industry requirement, your company should determine the time period for retention based on what you think is reasonable. For example, daily manufacturing records may have much shorter retention requirements than product specifications. You should analyze each record type to determine its actual use in your business.

Any schedule calling for indefinite retention of a document can be suspect. Unfortunately, there is no hard and fast test for what is reasonable. Some observers recommend the useful life of the product, while others suggest the statute of limitations period for claims which may be made against the company. However, there is no one period for all types of documents and no substitute for a document-by-document analysis.

In most cases, it's not necessary to retain records indefinitely. However, manufacturers must consider not only the product's intended life cycle, but also its potential extended life cycle.

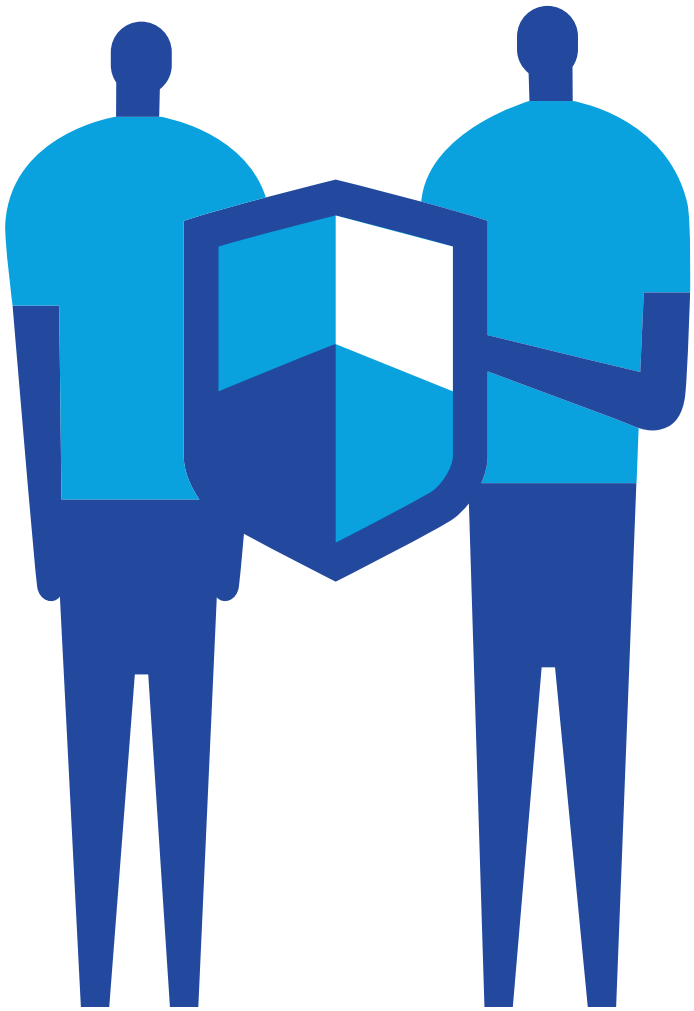
We strongly advise consulting with legal counsel as you formulate your own policy regarding document retention.

Program maintenance

Update your document retention plan annually or as required by your business. Like other company policies, a document retention plan is not intended to be set in stone. New legal retention requirements may be created or existing requirements modified. Your company may need to adjust the types of documents it creates and how long it retains them.

New employees need to be familiarized with the document retention program and how it works. The person designated to manage the program conducts an annual review of the program, including checking employee compliance, updating record-keeping requirements imposed by law, reviewing regulation or required business practices, and assessing any potential litigation or investigations that may require policy suspension in upcoming months.

All departments review draft schedules. Specific retention schedules by department or document type are an integral part of an effective retention program.



Special circumstances

You must retain potentially relevant documents if litigation is pending or threatened. A document retention program doesn't alleviate the legal requirement to preserve potentially relevant documents once a lawsuit is filed or litigation becomes likely. As indicated previously, destroying documents in those circumstances can have severe consequences, including a court-entering judgment against your company. One court has even suggested that:

"(I)f the company knew or should have known that the documents would become material (in a lawsuit) at some point in the future, then such documents should have been preserved."

When litigation is filed or notice of claim received, you must notify each departmental record custodian regarding the types of documents to be retained. This should be done in writing to present proof, if necessary, that relevant information was preserved. Similarly, if your company becomes the subject of a government investigation, suspend destroying documents to minimize the risk of charges of obstruction of justice. You may need to create or modify legal retention requirements. These basic requirements form the foundation of the retention program in any size company.

Sample policy statement

EXHIBIT A

Purpose

To establish a uniform policy for the creation, distribution, retrieval, storage, and disposal of company records.

Scope

_____'s records management program applies to all _____'s departments, business groups, plants, and offices in the United States. It also applies to all records, including hard copy, electronic, microfilms, or otherwise, and whether maintained in central files, offices, or homes.

Components

- Limiting record creation to only those necessary for our company's ongoing business
- Creating accurate and straightforward documents which avoid editorial comments, overstatements, and hyperbole
- Routing documents only to those individuals who genuinely need the information
- Immediately disposing of routine, informational, or other documents that serve no long-term business purpose
- Maintaining business records in accessible central files at the office, plant, or department level, reasonably assuring their availability when needed
- Establishing retention schedules for each department that will be uniformly administered throughout that department
- Updating and revising those schedules on an annual basis to ensure they are consistent with the overall records management program
- Preserving those documents required for litigation or other legal purposes beyond the normal retention period

Authority and responsibility

_____'s records management program will be administered by the risk manager under the direction of the vice president of finance. The risk manager will be responsible to ensure that this program is established, uniformly implemented, and strictly enforced. The office of the vice president of finance will maintain the master copy of the program manual.

Each department or separate office will establish and maintain the document retention schedule for its records. The vice president of finance, the risk manager, the vice president, and general counsel will review the records management program annually, make appropriate changes, and assure legal compliance. Each department head will also be responsible to update the schedule on an annual basis, and to ensure it's consistent with the company's uniform policies. The department head will also be responsible to ensure that documents are retained only in accordance with the department's schedule. The office of the vice president of finance and the risk manager will review any modifications made to a department's retention schedule to ensure they are consistent with the overall program. The vice president and general counsel, in conjunction with the risk manager, will be responsible for interpreting the guidelines as they may apply in specific situations.

Record recycling

Records will be discarded or recycled per the retention period indicated on the department's retention schedule. Records with monthly retention periods will be collected for recycling at the end of the applicable calendar month. Similarly, records with a retention period expressed in years will be collected at the beginning of the next calendar year.

A day will be designated annually to select files eligible for recycling. Documents selected for recycling by each department will be collected by a representative of the risk manager's office. This individual also will coordinate with MIS for the deletion of computer information and recycling of backup computer media. No automatic computer programs designed to delete information or data will be executed until authorized by the risk manager or the vice president of finance. No records can be recycled until authorized by the risk manager.

If you are ever in doubt concerning the proper status of a particular document, please ask.

1800 North Point Drive
Stevens Point, WI 54481

800-473-6879
sentry.com

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Sentry®

Reporting an incident or claim

A guide for farm equipment manufacturers

You can report an incident or claim to your insurance agent, broker, or directly to us.

Sentry Claims Service
P.O. Box 8026
Stevens Point, WI 54481
Call: 800-473-6879
Fax: 1-800-999-4642
claimsmail@sentry.com

The sooner you report an incident or claim, the sooner we can help.

Please let us know right away if a product you sell, service, repair, or install is involved in an accident resulting in injury or property damage. A quick response and investigation can help us identify unforeseen issues—product warnings, recalls, retrofits—and come to an equitable resolution for you.

We designed the following guide to help you navigate the incident and claim reporting process. Look it over and refer back to it as necessary.

Remember, make no statements and take no actions that admit to or extend your liability. Your claims representative will work with you to coordinate any necessary accident investigation.

Understanding your policy and coverages

Insurance plays an important role in managing risk at your company, which is why the Farm Equipment Manufacturers Association has endorsed our coverages for farm equipment manufacturers like you. The association supports its members by connecting them with one another, technology, and resources—like our insurance solutions for manufacturers. But don't just take our—or the association's—word for it. We encourage you to work with your independent insurance agent to understand your policy and coverages.

The following is a list of coverages included in most of our association-endorsed liability policies.*

- Damages due to bodily injury or property damage
- Defense expenses
- Certain expenses you incur as provided under Supplementary Payments in your policy

Please note, the following items may not be covered.*

- Damages that are expected or intended by you
- Product recall expenses
- Injury to your employees (this would be covered under your workers' compensation policy)
- Damages to your product

UNDERSTANDING TIME-PERIOD SPECIFIC COVERAGE

Just because a product is insured once, doesn't mean it's always insured. Most insurance covers a specified time period. This means the date when an accident takes place will determine coverage. For example, you may be covered for a product you currently manufacture. But if that product is involved in an accident 20 years from now, it may not be covered unless you have insurance for it then.

* Check your policy for specific details and exclusions.

Understanding information sources—how to find out about accidents involving your product

Once your product leaves your facility, how do you know if it's involved in an accident? We suggest taking the following actions to ensure you're informed of any accidents involving your product:

- Encourage dealers, distributors, and manufacturer representatives to relay reports to you (including hearsay) of accidents involving a product you manufacture or sell
- Monitor warranty claims and service work reports
- Use a news clipping service
- Monitor industry, association, and competitor websites
- Touch base regularly with industry, association, and competitor contacts

Too often, manufacturers become aware of accidents when served with a lawsuit years after the accident took place. By being proactive, you can defend yourself by getting our investigation started before the lawsuit.

WHAT TO REPORT

The following guidelines apply to any product manufactured, sold, serviced, repaired, or installed by you or on your behalf:

- **Any incident:** An incident is generally defined as an event arising out of the use of your product or service, which has:
  - Resulted in bodily injury and/or property damage but which has not resulted in a lawsuit, or
  - Not resulted in bodily injury and/or property damage but which has a high probability of doing so if the incident should reoccur
- **Any claim:** A claim is an event that has resulted in bodily injury and/or property damage for which you have received:
  - An official summons or complaint, or
  - A notice by an injured party or their representative that bodily injury or property damage has occurred arising out of the use of your product or service

Incidents or claims involving death, severe bodily injury, or severe property damage should be reported to us and your umbrella (excess limits) insurance carrier. When in doubt, we suggest making a report. Your claims representative will determine if any action is necessary.

THE IMPORTANCE OF PROMPT REPORTING

Accidents are out of your control, but you do have control over how you respond to them. In addition to being required by your insurance policy, promptly reporting all accidents can help resolve issues faster and protect your company's reputation. Prompt reporting will help ensure a proper and thorough investigation of the accident.

Reporting an accident right away helps ensure witness statements are more reliable, the scene will be relatively undisturbed, and the equipment will likely be available for inspection and in the same condition as at the time of the accident. Delays can jeopardize this information and increase investigation and defense expenses.

A guide to reporting an incident or claim

Please notify us of any incident or claim as soon as practical. Timely reporting helps us help you. In some instances, failure to report an incident or claim in a timely manner could result in a denial of coverage. To make sure this doesn't happen to you, we suggest reporting any incident or claim on the same day that you're made aware of it.

Gather the following information when making a report. But remember, timeliness is more important than completeness when notifying us of an incident or claim. After your initial report, we'll work with you to gather all the relevant information and documentation.

INFORMATION ABOUT YOUR BUSINESS:

- Product liability insurance policy number
- Company name and address
- Your name and contact information
- Main contact's name and information (if someone other than you)

DETAILS ABOUT THE ALLEGED ACCIDENT AND PARTIES INVOLVED:

- Date, time, and location of the accident
- Description of the sequence of events leading up to the accident
- Name of equipment operator
- Name, age, sex, occupation, and address of any injured party
- Description of any injuries and the name of any treating physician
- Description of any property damage
- Name, address, and telephone number of any witnesses
- Name of any dealership involved
- Sources of information pertaining to the accident, including newspaper or police reports (if available)
- Information about any photographs or videos taken of the accident, including photographer's name, address, and telephone number

INFORMATION ABOUT THE ALLEGED PRODUCT INVOLVED IN THE ALLEGED ACCIDENT:

- Model and serial number
- Age and date of manufacture
- Current location
- Information about any product your product was attached to (if applicable)
- Current and prior owners (if known)
- Information about where and when the product was sold or purchased
- Any servicing, repairs, or other work done by you or your vendors
- Information about any contracts involved in the manufacturing , design, or sale of the product
- Condition of the product prior to the accident (if known)
- Information about any product modifications or misuse (if known)
- Information about any product components made or sold by another manufacturer
- Copies of owner/operator manuals, service manuals, and advertising materials for the product

Remember, make no statements and take no actions that admit to or extend your liability. Your claims representative will work with you to coordinate any necessary investigation of the accident.

You can report an incident or claim to your insurance agent or broker or directly to us.

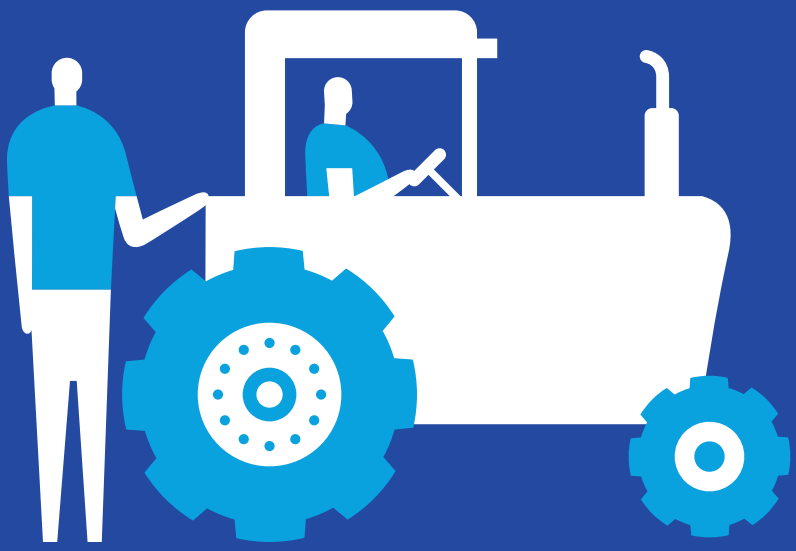
Sentry Claims Service
P.O. Box 8026
Stevens Point, WI 54481

Call: 800-473-6879
Fax: 1-800-999-4642
claimsmail@sentry.com

Stronger together

We're here to help your business. Regardless of the severity of your situation, we'll help you navigate applicable laws, court issues, and negotiations. Working together, we can help protect the integrity of your product, your company, and your industry.

This information was developed in cooperation with the Farm Equipment Manufacturers Association Risk Management Committee. We're grateful for their guidance.



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Sentry®

Controlling your employees' vehicle use

On-the-job vehicle use in the world of farm equipment manufacturing is expensive—so the risks can be too. Fortunately, there are things you can do to reduce your risks. And we can help.

Let's start by looking at the variety of situations during which hazards can come into play:

- Management and salespeople drive to customers' sites for product presentations
- Shop employees use assigned trucks to transport equipment to customers' farms for pre-production tryouts and final approval
- Sales and management staff get company vehicles for their business and personal use
- Temporary employees deliver parts to customers, with no restriction on delivery distance
- Front office employees travel to the post office while driving personal vehicles

Each represents diverse, but realistic, employee vehicle use at a typical farm equipment manufacturer. Effectively controlling the associated risks is one of your most important risk management challenges.

To help control risk factors associated with employee vehicle use, we recommend focusing on written safety programs, employee training, and equipment use and maintenance.

WRITTEN SAFETY PROGRAMS

- Have all employees sign a Motor Vehicle Record (MVR) authorization form
- Initiate a process to collect and review MVRs upon initial hire and every two years thereafter
- Objectively evaluate each employee's driving background over the last three years
- Train employees on safe driving techniques and your expectations of their driving conduct
- Specify disciplinary steps regarding employee driving conduct and MVR checks
- Conduct drug and alcohol testing for all new employees and on a post-accident basis—some limitations may apply
- Prohibit cell phone use while driving—permit use only after the vehicle has come to a complete stop
- Ensure vehicles over 10,000 pounds, or that transport hazardous materials, comply with Federal Motor Carrier Safety guidelines for driver qualifications

EMPLOYEE TRAINING

- Train new employees on your company's safe-driving expectations—have them read and sign your expectations document and repeat each year
- Train your employees on quality accident reporting, investigation procedures, and effective documentation
- Review company-owned vehicle assignments—state in writing the employee is the only authorized driver and accidents by unauthorized drivers will be the employee's financial responsibility

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- Assign specific vehicles to employees who conduct parts and supplies delivery, increasing damage/complaint tracking and accountability
- Limit employee delivery or pickup operations to a 250-mile radius on preplanned, mapped routes
- Require drivers to review cargo weight/configuration before departing on delivery runs and secure it properly with tie-downs and/or anchor points
- File copies of liability insurance certificates—$300,000 in coverage or more—for employees driving personal vehicles on company business

EQUIPMENT USE AND MAINTENANCE

- Ensure the appropriate vehicle is used for delivery
- Require headlight use at all times to enhance visibility
- Require authorized drivers to notify management immediately of citations or at-fault accidents while driving company or personal vehicles
- Practice a preventive maintenance and repair schedule for all vehicles, including sales, field-service, and delivery units
- Complete, file, and review a monthly vehicle inspection for each company-owned vehicle

DRIVER QUALIFICATIONS CRITERIA

Adopt an MVR review procedure appropriate for your company. Immediate training may be necessary to improve employees' awareness and adherence to safe driving habits.

Sample driver qualification criteria

At [business name], the safety of our employees and the public is paramount. To ensure only drivers with acceptable driving backgrounds are authorized to operate vehicles, we review all drivers' MVRs. Only those employees with driver scores of 15 points or less over the last three years will be allowed to operate company- or personally owned vehicles for business purposes.

Acceptable guidelines by driver age	Driver score points
16–21 • No at-fault accidents • No minor or major violations	**Initial score: 15 points** • Add five points for any at-fault accident(s) or violation(s)
22–25 • One at-fault accident • One minor violation • No major violations	**Initial score: 0** • Add 15 points if you identify an at-fault accident or minor violation • Add five points for each additional at-fault accident or violation • Add 16 points for a major violation
25 and over • One at-fault accident • Two minor violations • No major violations	**Initial score: 0** • Add 15 points for any at-fault accident • Add 7 points for one minor violation—15 points for two • Add 16 points if you identify an at-fault accident and one minor violation • Add 5 points for each additional at-fault accident or violation

Major violations include:

- Evading arrest
- Illegal possession
- Reckless disregard
- Operating without care
- Driving to endanger life
- DUI/DWI (alcohol or drugs)
- Refusing an alcohol test
- Driving while impaired
- Failure to stop for an accident
- Participating in a racing contest
- Speeding 25 mph or more over posted speed
- Operating after revocation or suspension
- Misrepresentation to avoid arrest
- Misrepresentation to obtain a driver's license
- Traffic violation resulting in death
- Vehicle use in connection with a felony
- License revocation for any reason

We understand how important it is to help keep your employees and your business safe. When you control vehicle use at your company, you can help reduce accidents. To learn more about how we can help protect your business, contact your safety services consultant today.

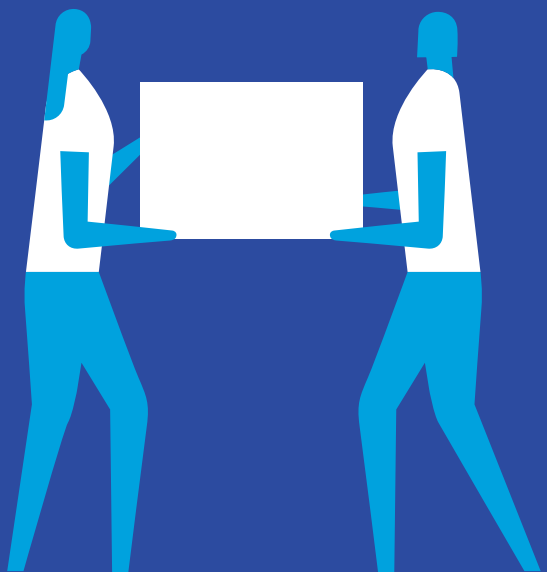
Sentry®

A safe approach to manual material handling

As a manufacturer, you know how important your employees are—and why keeping them safe is key. Workers in farm equipment manufacturing in particular have responsibilities that involve frequent heavy lifting, moving cumbersome objects, and other weighty tasks. That's why it's essential you take a proactive approach to safety.

We're here to help. We've identified the following risk factors involved in manual material handling:

- Frequency
- Weight
- Distance
- Position
- Posture
- Prolonged or static holding
- Personal factors



To help you reduce your employees' injury risk related to these factors, we encourage you to use the following recommendations as you review and strengthen your safety program.

EVALUATION

- Encourage management to take the lead in identifying problems and developing solutions
- Form a task force or committee dedicated to prioritizing problem tasks, assessing hazards, and developing solutions and proposals
- Review your manufacturing process to identify unnecessary manual material handling
- Evaluate your product flow for opportunities to reduce bottlenecks and improve efficiency

ACTION

- Develop a policy statement on lifting safety and back injury prevention
- Train your staff on proper lifting and material-handling practices
- Define an ergonomic program that supports all recommendations for procedural, workstation, and equipment changes
- Use mechanical devices when possible
- Provide adequate storage, housekeeping, and floor maintenance throughout your facility to minimize trip and fall hazards

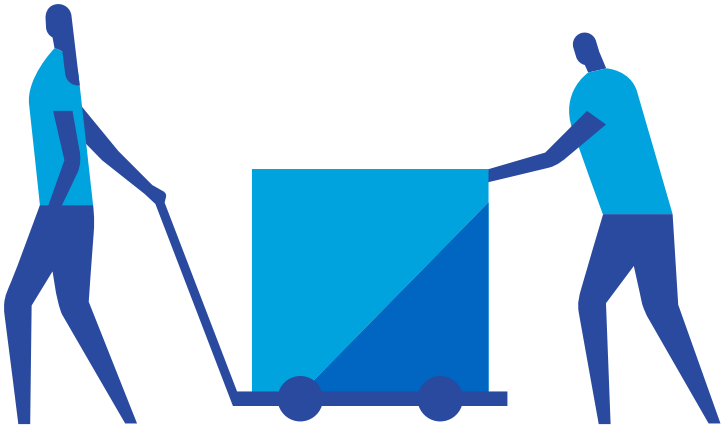
→

- Consider the impact on downstream departments as you make changes in material flow and handling in other areas
- Immediately address an employee's discomfort or pain when the situation arises, and document its cause
- Conduct a job safety/hazard analysis (JS/HA) to identify hazardous tasks and define solutions for tasks that require your employees to take part in intensive product- or parts-handling
- Place heavy or frequently lifted items within your average employee's strike zone (mid-thigh to lower chest) when organizing objects or materials on storage racks or shelving
- Keep lighter objects at floor level or above chest height
- Reinforce proper procedures if your employees continue to lift improperly
- Consider transferring physically demanding lifts to mechanized lift-assist equipment
- Encourage your employees to only lift objects they feel comfortable with, and restrict lifting by one person to no more than 50 pounds
- Train employees to recognize the physical hazards and characteristics of the materials they'll be handling, such as weight, surface finish, and sharp corners
- Empower your staff to manage their own personal health and physical fitness, including their weight

MANUAL LIFTING AND MATERIAL HANDLING

Train your employees to follow these lifting procedures:

- Be realistic about your personal lifting capability
- Avoid lifting from the floor
- Don't twist or rotate at the waist while lifting
- Maintain good posture
- Wear shoes that provide effective traction
- Be sure the floor is clean and dry
- Stabilize rolling ladders, lift trucks, and order picker units when accessing materials located on elevated racks or shelving



CARRYING OR MOVING OBJECTS HORIZONTALLY

- Use mechanical aids instead of manually moving objects from one point to another
- Organize workstations to minimize distances your employees need to move the objects
- Design stations for pushing rather than pulling when moving objects on a surface

ADMINISTRATIVE APPROACHES

You can supplement your efforts to prevent back injuries by adopting safety-conscious administrative approaches, including:

- Job rotation
- Job enlargement
- Employee wellness, exercise, and stretching programs

At Sentry, we want to help you keep your employees safe. And for farm equipment manufacturers like you, emphasizing proper manual material handling is an important step to meeting that goal. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388A 16002218 11/8/17

Handling hazardous materials at your facility

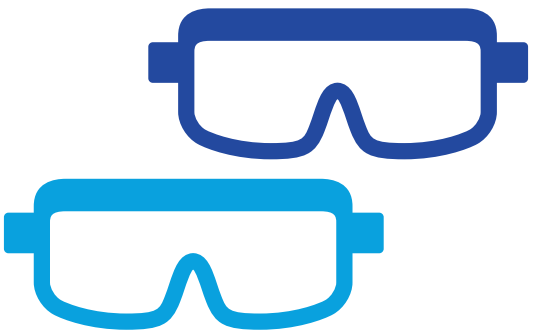
While equipment and materials help keep your business running, those materials and airborne byproducts from manufacturing processes at your facility can cause several safety management challenges such as:

- Welding stick and wire metal fumes
- Cutting and grinding metal fumes
- Carbon monoxide emissions
- Degreasing solvent vapors
- Drying skin from direct contact with metalworking fluids
- Dermatitis reactions from metals and organic solvents

To help you better understand and resolve hazardous materials safety issues at your business, we recommend you focus on general practices, welding and cutting, finishing, and fluids.

GENERAL PRACTICES

- Conduct an inventory of all chemicals and hazardous materials
- Create a hazard communication program including:
  - Employee training on your company's hazard communication program, safety data sheets (SDS) and how to read them, each chemical's hazards, and safety precautions
  - Job-specific training on all chemicals or materials employees may be exposed to
  - A standardized container labeling system compliant with Globally Harmonized System for Hazard Communication (GHS)
  - SDS inventory maintenance, including documenting each hazardous chemical or material on site
  - Provisions to retain SDS for all obsolete chemicals or materials removed from the production process
- Understand potential exposures to employees through baseline assessments of your on-site chemicals, materials, and processes
- Sample carbon monoxide levels existing in your facility
- Verify local exhaust ventilation is used and properly functioning
- Develop a chemical spill response procedure and plan for employees
- Develop a policy prohibiting employees from bringing unauthorized chemicals or materials into the building
- Keep break rooms and locker facilities separate from production areas
- Enforce a policy prohibiting smoking throughout the building or near any material storage outside the building
- Assess the need for appropriate personal protective equipment (PPE)
- Provide emergency eyewash and shower facilities, and train employees how to use them
- Provide and require appropriate PPE use for battery charging/service stations for battery-powered forklifts
- Use an exhaust-extracting system for servicing diesel, gasoline, and propane forklifts



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WELDING AND CUTTING

- Conduct air sampling to assess exposure to metal fumes
- Use local exhaust ventilation in workers' breathing zones
- Provide and require mobile welding curtain use to isolate fumes and keep flashes and sparks away from employees

FINISHING

- Perform all painting in an Underwriters' Laboratories-listed booth, room, or curtain enclosure
- Maintain spray booth's draft and filter systems per the manufacturers' specifications and pattern of use
- Train painters in the safe use and maintenance of compressed air and spray equipment systems
- Develop and enforce a respiratory protection program that meets or exceeds OSHA 1910.134

METALWORKING FLUIDS

- Properly manage fluid quality
- Verify biocides in your fluids inventory are registered by the EPA for use as an additive
- Enforce effective procedures to prevent skin dermatitis conditions

As a farm equipment manufacturing facility, you likely deal with hazardous materials. Help reduce your risk by following our recommendations at your facility. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388B 16002203 11/6/17

Sentry®

Reducing your product liability exposures

In the modern farming industry, manufacturers like you face unique liability challenges every day.

Since your products may be components of a larger overall product design, any failure of the subsystem or product design could draw you into litigation—even if you designed your product correctly. Plus, if your facility also functions as a job shop, it's up to you to meet another party's design specifications. This makes it difficult to assess misuse or design inadequacies, since your team wasn't involved in the initial design phase.

But with the right safety strategies, you can meet these challenges. To help you recognize and effectively manage the hazards inherent in product design and manufacturing, we have some recommendations for you:

STAFF

- Create a skills test and administer it to all job candidates
- Provide a written training schedule to new employees
- Develop an apprenticeship program that matches new employees with experienced mentors to guide their training and development
- Define a continuing education process that allows employees to train on new metalworking technology, equipment, and procedures

DESIGN

- Develop a statement of company policy on product safety and provide it to your staff
- Assign design responsibilities to a professional engineer (PE) staff member
- Complete prototype testing prior to moving a product design into production
- Have a PE thoroughly review and approve customer job specifications and design before production begins
- Have customers sign a hold harmless agreement exonerating your employees and company from liability in the event of litigation
- Pay attention to any hazards created by the product's design
- Ensure that all raw stock meets design specifications for quality control

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MANUFACTURING

- Adopt computer numerical control (CNC) production, rather than continuing to use manual machining methods
- Replace manually created blueprints with a computer-assisted design (CAD) system to improve accuracy and reduce potential defect rates
- Test a credible percentage of in-process and finished units within each production run for quality control
- Match appropriate technology to manufacturing needs

POST-PRODUCTION

- Keep all critical documents involved in a product's life cycle on file for at least two years beyond the product's foreseeable life cycle
- Store and process high-value and combustible stock and scrap through a secured/locked process
- Institute a product-tracking and identification method for all jobs
- Initiate a product recall and retrofit notification process
- Accommodate replacement part availability, if appropriate
- Make hazard and safety labeling available to customers in a replacement parts catalog in the event of loss or damage

Reducing your product liability exposure can be challenging. You can trust that we'll be here to provide the tips and tools you need. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388C 16002174 10/24/17

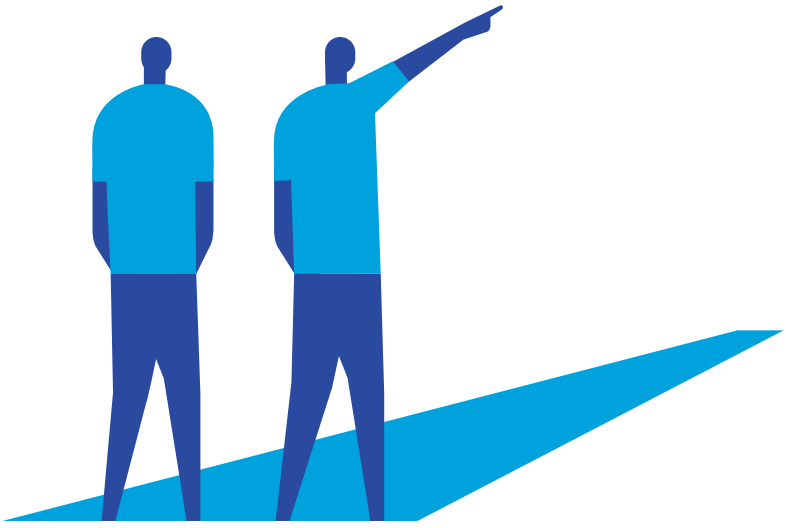
Facility safety

Keeping your buildings, machinery, and premises safe is essential to your farm equipment manufacturing operation's success.

These are common safety hazards you might find in farm equipment manufacturing facilities:

- A painted concrete floor becomes slippery around a CNC milling center
- An employee leaves a door unlocked for after-hours janitorial service and someone else gets in
- A facility located in a residential neighborhood has an unsecured yard area outside its fabrication and finishing buildings for raw stock storage in an unsecured yard area, attracting the attention of local children after hours

These and other hazards may exist at your facility. To effectively control them, we recommend focusing on general safety procedures, facility safety, and exterior safety.



GENERAL SAFETY PROCEDURES

- Develop, document, and implement a formal housekeeping policy
- Establish procedures for rag flow throughout your facility
- Secure racking to floors and walls to prevent tipping or collapse
- Establish a monthly self-inspection process throughout your facility
- Make housekeeping a daily priority for all operators and management staff
- Develop and implement a reporting process to identify defects in walking surfaces, including concrete floors, mezzanines/catwalks, and exterior yard areas
- Properly construct and maintain railings

FACILITY SAFETY

- Define procedures requiring employees to promptly report any fluid leaks from machinery or containers
- Establish a preventive maintenance schedule for each piece of machinery and critical-use equipment, according to the manufacturers' specifications
- Mark travel paths for forklifts, vehicles, and pedestrians throughout your facility
- Install electrical wiring using trained electricians, in accordance with the National Electric Code's NFPA 70 code
- Avoid congestion or bottlenecks when planning your facility's layout and machinery and equipment spacing
- Store stock supplies a safe distance from machinery and general traffic areas

- Apply an etcher or other commercial surface treatment that maintains a 0.5 friction coefficient to ensure a painted floor does not create additional slip and fall injuries
- Employees should wear non-permeable, slip-resistant soled shoes to prevent slipping
- Post personal protective equipment requirements at all entrances to the production area
- Do not allow employees to smoke, eat, or drink in the shop area
- Provide adequate lighting throughout your facility
- Assess the building exterior to determine if you need rodent, pest, or bird control
- Inspect floor coverings at entrances and hallways throughout your facility
- Meet all wiring needs by hardwiring rather than using extension cords
- Mark appropriate clearances around electrical panels, emergency exit ways/doors, and sprinkler equipment
- Store high-value metals on site in a locked area with limited employee access

EXTERIOR SAFETY

- Consider the impact of rain, ice, and snow runoff around your building and yard area
- Keep customer parking areas separate from employee parking
- Use signage to direct visitors, customers, employees, and truck drivers to appropriate entrances and exits
- Secure any exterior yard areas via locked fencing and perimeter lighting
- Remove trees, poles, and snowbanks that could allow an intruder to pass over the perimeter
- Post signs indicating no trespassing areas
- Store valuable or weather-sensitive inventory or stock in a secured location
- Provide appropriate perimeter protection to prevent unauthorized facility railroad spurs access

Farm equipment manufacturing has inherent risks. We want to help you protect your facilities and everyone within them. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388D 16002207 11/6/17

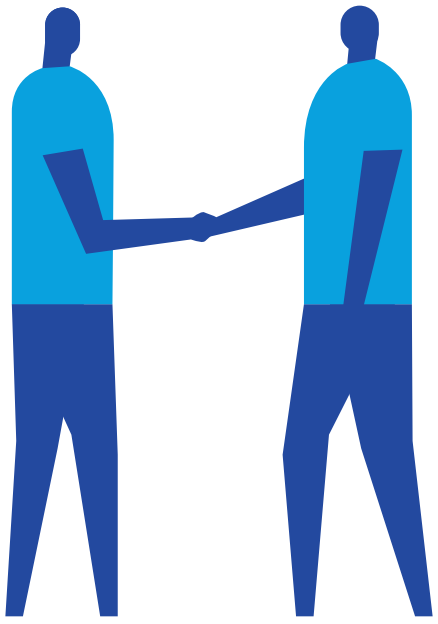
Sentry®

Recruiting, training, and retaining your employees

As a farm equipment manufacturer, you're likely challenged with finding quality employees.

An aging workforce and a trend toward service and technology skills versus manufacturing-related skills can result in:

- Lengthy and costly recruiting efforts to find quality employees
- Rising costs of extensive on-the-job training needed for less-qualified candidates
- Increasing turnover as the demand for qualified employees outpaces their availability



- Wage escalation as companies struggle to attract and retain quality employees
- Higher insurance premiums as less qualified employees experience more frequent and severe injuries

To help you maintain quality employees, we want to help you focus on recruiting, training, and retention. Before implementing them, consult with employment counsel or your human resources expert to ensure that the following items are appropriate to your business circumstances.

RECRUITING

- Require every applicant to complete and sign an employment application
- Consider screening prospective employees with a legally acceptable test for illegal drugs before making an employment offer
- Review your company's employment application every two years with legal counsel, updating it to minimize your risk of discrimination allegations
- Interview all qualified applicants with a focus on educational and technical background
- Conduct reference checks and verify prior employment for all qualified candidates
- Where allowed by law, complete a legally compliant criminal background check on all candidates who may be responsible for handling finances, high-value equipment, or stock
- Develop and administer a skills test to all candidates

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TRAINING

- Develop a written employee safety handbook and provide it to all new employees
- Develop a job description for each position
- Conduct a new employee orientation with each new hire to familiarize them with your facility's processes, your products, and the specifics of their position as it relates to work rules, safety expectations, emergency procedures, injury reporting, and regulatory requirements
- Establish a written training schedule for every new employee

RETENTION

- Develop an apprenticeship process to match new employees with an experienced mentor
- Define a continuing education process that allows employees the opportunity to receive external training on new technology, equipment, and procedures
- Find candidates dedicated to the industry through trade-related outlets, including technical colleges and trade associations

As a farm equipment manufacturer, you may face hiring challenges common to the industry. We want to help you beat the trend with smart hiring procedures. To learn more about how we can help protect your business, contact your safety services consultant today.

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Sentry®

A safe approach to mechanical material handling

To prevent strain-related injuries, we encourage you and your employees to use mechanical equipment rather than manual handling when possible. While there are many benefits to using this equipment, everyone in your business still needs to keep safety in mind.

To help you improve your mechanical material-handling safety program, we've identified the following general measures:

- Encourage management to take the lead with coaching and enforcing safe use practices
- Evaluate your manufacturing processes to identify unnecessary material-handling demands
- Reduce manual lifting by using mechanical devices when possible
- Evaluate current product flow for opportunities to reduce bottlenecks
- Consider your material flow and potential handling impact on downstream departments
- Train your staff on proper lifting and material-handling practices

These recommendations focus on using mechanical means to move loads.

USING FORKLIFTS, MOTORIZED HAND TRUCKS, AND ORDER-PICKERS

- Develop a written forklift material-handling equipment safety program
- Inspect each forklift pre-shift to verify proper working order
- Don't allow employees younger than 18 to operate a forklift (refer to Federal Child Labor Laws)
- Include initial certification, refresher training, and periodic reviews in your operator training program (refer to OSHA 1910.178)
- Cover the following practices while training your forklift operators:
  - Avoid sharp turns
  - Equip forklifts with an overhead cage
  - Never exceed the forklift's rated capability
  - Lower the forks to the floor when parking forklifts
  - Keep loads low when traveling
  - Drive in reverse when load heights obstruct your view, or when descending a slope of more than 10 degrees
  - Follow posted speed limits
  - Ensure that wheel chocks are in place (or a dock-lock is attached) before entering a trailer or truck
  - Never drive up to anyone standing in front of a fixed-object wall, workbench, racking, or other equipment
  - Never allow passengers on forklifts
  - Don't raise loads above other employees when traveling
  - Always wear seat belts

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CRANE AND HOIST SAFETY PROCEDURES

- Don't allow your employees to operate cranes or hoist systems until they've been trained
- Perform frequent inspections
- Post the maximum load for each crane or hoist
- Use only rated fixtures, connectors, or attachments in the lifting system
- Certify maximum load ratings for all lifting systems

PROTECTION OF PROPERTY AND SURROUNDINGS

- Avoid locating workstations or storage racking on the corners of intersecting aisles
- Avoid opening clearances that inhibit forklift traffic
- Ensure aisles are wide enough to accommodate two forklifts passing side-by-side
- Install multi-view mirrors on cross-traffic corners
- Keep floor surfaces in good repair
- Install properly rated storage racking to withstand intended loads
- Mark traffic paths and routes for forklifts
- Require your employees to wear steel-toed shoes wherever material-handling equipment traffic is common

ENERGY AND FUEL PRACTICES

- Complete and file an air-sampling survey for carbon monoxide if your forklifts are powered by diesel, gasoline, or LP fuel
- Ensure that fuel-dispensing stations or LP tank racks are properly secured and protected against accidental collision
- Install grounding to dissipate the build-up of static electrical charges as a potential ignition source near stations that dispense gasoline, diesel, or LP fuel
- Post and enforce a no smoking policy
- Trickle-charge batteries when possible to minimize hydrogen gas build-up
- Ventilate to prevent hydrogen gas build-up
- Provide adequate eyewash facilities and personal protective equipment (PPE) when charging batteries or mixing and dispensing acids and other fluids

SLING SAFETY

- Assess expected sling use and select the most appropriate type(s) for the environment
- Maintain an inventory of slings to allow your employees to complete their work without delay
- Inspect all connector systems
- Tag each sling with an identifier that includes maximum capacity
- Ensure operators are trained in, and practice, safe rigging techniques
- Store slings properly so they won't be degraded by environmental factors or become tripping hazards

At Sentry, we want to help you keep your employees safe. And for farm equipment manufacturers like you, emphasizing proper manual material handling is an important step to meeting that goal. To learn more about how we can help protect your business, contact your safety services consultant today.

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Sentry®

Machinery and equipment safety at your facility

As a farm equipment manufacturer, you should be aware of these common scenarios involving machinery, operator practices, and general shop conditions, that could cause injury at your facility. We want to help.

- A minor lubricant leak from a screw machine develops into a major slip and fall hazard for employees and visitors
- During a routine die setup, a technician is injured when helping an operator pull a die onto a bolster plate while the press is in inch mode and not blocked
- An operator wearing loose-fitting sleeves is seriously injured when reaching across the rotating bit of a drill press to hold the aluminum stock
- An operator loses a finger when a coiled stock straightener is kept in forward mode while he removes an expanded steel guard over the gear housing to adjust tension

These and other hazards may exist in your facility. To help avoid them, we recommended you focus on your machinery and equipment, operator practices, and general shop.

MACHINERY AND EQUIPMENT

- Equip all machinery with point-of-operation guarding over any openings exceeding 1/4" or OSHA's hand template
- Address less traditional guarding needs—including power-transmission equipment like pulleys, flywheels, and gear drives
- Visually inspect and regularly test all presses, brakes, and shears to verify proper functioning, including clutch/brake mechanisms, anti-repeat features, and single-stroke capabilities
- Inspect all primary press guarding for proper adjustment at the beginning of each shift, after a new die setup, and any time a new operator begins
- Establish procedures for whenever leaks—typically lubricant or cutting fluids—are identified
- Establish a preventative maintenance schedule following the manufacturer's specifications for each piece of machinery and equipment
- Use spring-loaded chuck keys to ensure their ejection from the chuck head once a change-out is completed
- Design and implement specific controls managing a robot's immediate work envelope and possible range of motion
- Install all electrical wiring throughout the facility using trained and qualified electricians in accordance with the National Electric Code's NFPA 70 code

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OPERATOR PRACTICES

- Periodically evaluate employee adherence to machine guarding
- Establish machine-specific lockout/tagout (LO/TO) procedures for all machinery or equipment that can't be unplugged from a wall socket or flexible cord plug
- Train all employees regarding their roles within the LO/TO system
- Don't allow employees to wear loose-fitting or frayed clothing
- Use a vacuum to clear metal dust and chips from machines and employee clothing
- Don't allow employees to eat or drink on the shop floor to prevent ingesting or inhaling hazardous materials
- Test operator candidates' skills before allowing them to operate equipment or machinery
- Instruct operators to avoid using compressed air to remove dust/debris from their person

GENERAL SHOP

- Design workstations with effective ergonomic designs to avoid potential injury risk
- Design adequate lighting and general dilution ventilation and install slip-resistant floors
- Require operators to keep workstations and common areas clean and well-organized
- Store stock supplies a safe distance from machinery and general traffic areas

There are always risks involved with using machinery and equipment on the job. We want to help you reduce those risks and keep you and your employees safe. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388G 16002221 11/13/17

Managing safety and health exposures at your business

No business expense has outpaced annual inflation like the cost of health care. That's why it's important to manage your employees' safety and health.

When considering workers' compensation costs, you'll usually think about direct employee injury costs first:

- **Medical:** Cost of treating the employee's injury
- **Indemnity:** Payment for lost wages and resulting disability

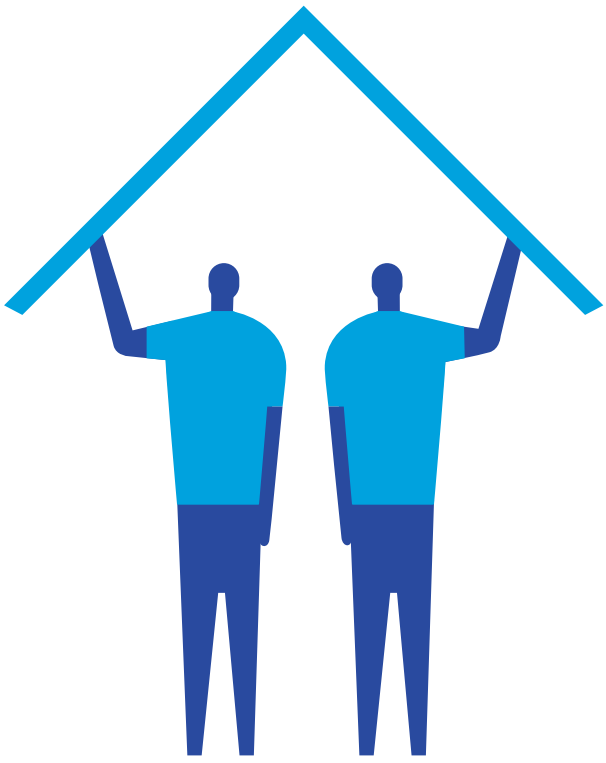
However, determining uninsured indirect costs can be more challenging—and costs can be at least twice the direct expenses of the injury. Consider these costs:

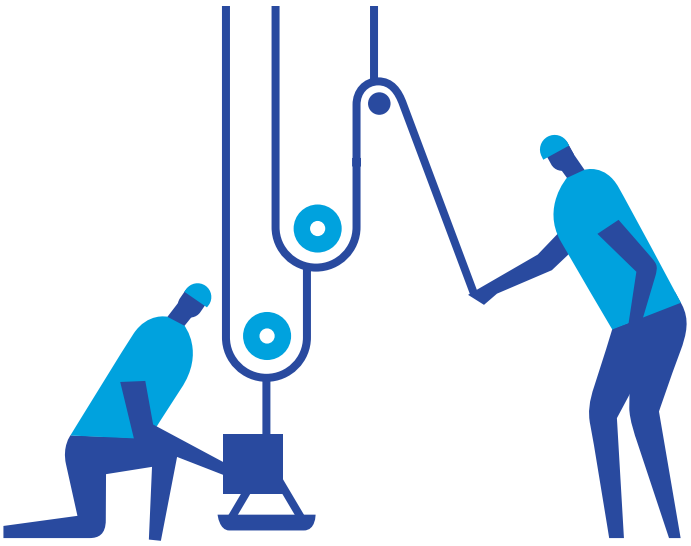
- Administrative time for claim reporting and interviewing
- Case/injury management
- Productivity loss from an injured employee
- Ongoing productivity loss from a less-qualified replacement
- Regulatory citations and actions
- Potential damage to your company's reputation and image
- Per loss and aggregate deductibles
- Recruiting and training costs
- Increased insurance premiums

To help define, administer, and manage a successful safety program, we recommend focusing on administrative action, ergonomic action, and hazard avoidance.

ADMINISTRATIVE ACTION

- Develop and distribute a safety policy statement
- Lead by example
- Define safety goals
- Hold management staff accountable for safety performance and results
- Apply direct costs for each injury against the profitability of the department experiencing the injury
- Administer safety training and enforcement through production-level supervision





ERGONOMIC ACTION

- Develop and implement a proactive ergonomics program including employee awareness and communication, effective workstation design principles, and employee training. Elements should include:
  - An employee symptom-reporting system
  - An ergonomic task force
  - A charter statement specifying goals, resources, and management support
  - Task force responsibility for research and solution development
- Use available design improvements:
  - Suspended (counter-balanced) inline tooling
  - Pneumatic lift tables
  - Sit/stand stools
- Provide anti-vibration gloves and vibration-suppressing coating or wraps for employees
- Install an effective, shock-absorbent forklift seating system
- Maintain floor surfaces to reduce jarring

HAZARD AVOIDANCE

- Complete a hazard identification self-inspection checklist every month
- Develop and communicate a policy on the company's expectations for general housekeeping
- Control walking and working surfaces throughout the facility to avoid slips, trips, and falls
- Ensure appropriate personal protective equipment is available and used effectively to prevent employee exposure to physical hazards and airborne contaminants
- Identify potential exposures to employees from on-site chemicals, materials, and processes
- Conduct noise assessments
- Meet OSHA compliance standards

CASE MANAGEMENT

Establish procedures to effectively manage injuries or illnesses:

- Promptly report workplace injuries and illnesses
- Preserve incident facts and responses

Safety should always be a top priority. And we want to help you keep yourself and your employees healthy and safe. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388H 16002184 10/31/17

Sentry®

Controlling fire hazards at your facility

As a farm equipment manufacturer, you create products that keep the country's farmers efficient and safe.

However, as you create these products, keep in mind that your own facility may face a number of fire hazards, including:

- Wiring and electricity
- Heating
- Flammable and combustible liquids, aerosols, and liquid petroleum (LP)

While those systems and materials can be hazardous, they're also essential to your operations. That's why it's vital you create a safety program that includes procedures to reduce your facility's fire risk.

To help you, we've got some recommendations:

WIRING AND ELECTRICITY

- Replace all temporary wiring with permanent wiring installed to applicable code
- Run flexible, plastic-wrapped wiring through a protective conduit
- Ensure local lighting lamps and their component parts are designed to prevent a fire/shock hazard—many of these products aren't suitable for commercial use off the shelf

HEATING

- Have a qualified heating specialist inspect your heating system and its component parts annually
- Follow regular maintenance schedules as specified by your heating system's manual
- Follow prescribed clearance distances for adjacent combustible material
- Meet all floor protection requirements for each situation

FLAMMABLE AND COMBUSTIBLE LIQUIDS, AEROSOLS, AND LP

- Substitute less flammable/volatile products whenever possible
- Isolate large quantities from production areas
- Use non-flammable cleaning materials in parts washers
- Use a self-closing lid with a tight seal on parts washers containing petroleum-based solvents

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- When using or storing flammable liquids:
  - Limit work area quantities to a one-day supply
  - Use only UL-listed or FM-approved safety cans at the point of use
  - Provide adequate general and local ventilation
  - Eliminate ignition sources
  - Train employees on proper grounding and bonding procedures
- Use appropriately grounded equipment, such as approved or listed hand pumps or gravity-feed spigots, when dispensing or transferring flammable liquids from a drum
- Keep in mind that aerosols can be more volatile than flammable liquids because of the explosive nature of container ruptures
- Locate bulk storage tanks outside your buildings and enclose them within fencing and substantial barriers, such as reinforced concrete or steel posts, when storing liquefied petroleum (propane or butane)
- Focus on chemical compatibility in your efforts to inventory and store chemicals

SPRAY FINISHING

- Check and change spray booth filters per manufacturer specifications
- Ensure that only rated non-sparking switches, lighting, and fixtures are permitted inside spray booths and curtain enclosures
- Protect the spray booth with a water sprinkler or dry-chemical fire extinguisher system specifically designed for spray booth protection

SPRINKLER SYSTEMS AND FIRE EXTINGUISHERS

- Check your building's sprinkler system frequently to verify its functionality
- Mount an adequate number of fire extinguishers and have them routinely serviced
- Select extinguishers based on the potential hazards at your facility
- Visually inspect extinguishers every month
- Make sure extinguishers are recharged immediately after discharge
- Perform and document thorough annual inspections using a qualified service contractor

GENERAL CONDITIONS

- Protect vertical openings like stairwells, elevators, and ventilation shafts—these areas create draft corridors that can dramatically accelerate a fire's spread

HOUSEKEEPING

- Keep combustible materials from accumulating
- Remove cobwebs and dust
- Eliminate uncontrolled trash and waste
- Implement a rotation schedule to dispose of old parts, equipment, and materials
- Keep sweeping compounds in closed metal cans
- Install light fixtures with two-inch clearances from combustible materials
- Define and enforce a no smoking policy
- Remove tall weeds, grasses, and dead bushes and trees that present a potential ignition/fire source around your facility's exterior

By the nature of your business, eliminating fire hazards is impossible. But with the right safety strategies and a hands-on approach, you can significantly reduce those risks. That's where we come in. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388J 16002188 11/2/17

Emergency preparedness and response

By their nature, emergency situations tend to be unpredictable. While some natural disasters only occur in certain areas of the country, most of the emergencies listed below could affect your farm equipment manufacturing facility at any time. That's why it's essential you're proactive in addressing them in your emergency response plan. By following the steps outlined in this guide, you'll be more prepared to respond to:

- Medical or first-aid emergencies
- Power outages
- Toxic or chemical spills
- Fires
- Terrorism or bomb threats
- Hurricanes
- Earthquakes
- Tornadoes
- Floods
- Workplace violence

EMERGENCY RESPONSE PLAN

Take the following steps to ensure that your emergency response plan is comprehensive and organized:

- Prepare written response procedures appropriate for each emergency scenario
- Include response elements in your plan, including:
  - Notifications and alarm systems
  - Emergency routes and exits
  - Emergency equipment
  - Training
  - Drills and updates
  - Responsibility assignments
  - Communications
  - Business continuity

SELECT A COORDINATOR

Designate a coordinator to manage emergency responses, communication, and interactions with external emergency agencies and services. The coordinator's responsibilities should include:

- Assessing situations to determine whether an emergency exists
- Leading evacuations, keeping a head count of staff, ensuring critical operations continue, and making appropriate responses
- Contacting outside emergency agencies and services and interacting with their personnel
- Directing shutdown of plant operations, facilities, and equipment (as necessary) to minimize losses

EMERGENCY RESPONSE TEAM

Establish an emergency response team as the first line of defense during an emergency. Train team members on basic emergency response procedures, including:

- Fire extinguisher use
- First aid and CPR
- Shutdown procedures
- Evacuation procedures
- Chemical awareness within the building
- Chemical spill and containment management
- Use of self-contained breathing apparatus (SCBA)
- Search and rescue during an emergency
- Initial- and advanced-stage firefighting

EVACUATIONS

- Establish and post emergency evacuation routes, outdoor gathering points, and interior shelter areas
- Practice periodic evacuation drills
- Install lighting and auxiliary power to help employees safely move during a power outage or smoke emergency
- Install EXIT signs above doorways and hallway corners, where appropriate
- Disable inside door locks along evacuation routes, or install panic hardware to allow emergency evacuations

MEDICAL ASSISTANCE

- Prepare for injuries by providing your staff with medical assistance training
- Provide personal protection equipment (PPE) to employees for use on the job and in emergencies

SECURITY

- Secure the grounds and buildings to prevent unauthorized access and accidents during recovery
- Develop a business continuity plan to return operations to normal after an emergency

When it comes to protecting your facilities and your employees in an emergency, we believe a quick, organized response can make all the difference. To learn more about how we can help protect your business, contact your safety services consultant today.

40-1388K 16002189 11/2/17

Sentry®

The importance of operator's manuals

As a farm equipment manufacturer, you deal with complex instructions and machinery every day. As a result, you recognize the importance of clear, intuitive directions. They help you and your employees stay safe and work efficiently. The same holds true for your customers. That's why operator's manuals are key. Over the duration of a product's life, your customers will refer to their operator's manual frequently. By creating comprehensive manuals, you can help them safely make the most of these products—and that's the best outcome for everyone involved.

INFORM YOUR CUSTOMERS

When you write operator's manuals, focus first on protecting your customers. Clearly written, user-friendly manuals provide your customers with the information they need to properly use your products. As a manufacturer, it's up to you to provide clear set-up, maintenance, safe use, storage, and disposal information.

First-time product users naturally need more information. Because of this, they rely on the manual to ensure they set up and use the product properly. Even after they begin using the product, users will often return to the manual when they have specific questions. Providing this reference information to your customers is just as important as initial set-up instructions.

Operator's manuals also provide comprehensive product safety information. Reserve safety labels only for severe hazards. Use manuals to provide in-depth information that can't fit on labels—due to their size, product safety labels are limited in the amount of information they can hold without losing effectiveness. Your operator's manuals must include a safety section containing general safety information and warnings associated with the product.

CONSIDER WHAT YOUR CUSTOMERS NEED

Ultimately, customers don't want to feel frustrated or incapable when using a product. When they encounter problems, they'll likely refer to the manual. But if they can't find their answer there, they may call you directly—even if the answer actually is in the manual. Or they may attempt to figure out their own solutions, which can lead to accidents.

These situations can be time-consuming, dangerous, and costly for both you and your customers. To reduce these instances, include a troubleshooting or frequently asked questions (FAQ) section in your manuals.

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Contrary to popular belief, most customers read their operator's manuals. But because the information tends to be very technical and occasionally confusing, it's your responsibility to develop a manual that's informative and keeps the customer engaged. Put yourself in your customer's position to determine the best way to present the information they'll need to use the product safely.

Consider the types of customers who are likely to use your products, and whether the information you've included is likely to confuse or overwhelm them. Use straightforward language as much as possible, but be comprehensive. When your customers can confidently and safely use your products, it's a win-win.

PROTECT YOUR COMPANY

By creating comprehensive operator's manuals, you take an important measure in protecting your company. As you know, accidents can happen regardless of efforts to prevent them. In these cases, you'll need to protect yourself. A proactive approach is key.

Any defects or information excluded from a manual—whether mistakenly or intentionally—can lead to a products liability lawsuit. An operator's manual is a legal text that will be used in products liability lawsuits involving property damage or an injured user. If you've created a clear, informative manual and included all relevant safety information and preventative measures, it'll help you in these cases.

We want to help you protect your farm equipment manufacturing business. By being diligent in preventing employee and customer injuries, as well as property damage, you'll help minimize accidents and potentially reduce your insurance costs. Contact your Sentry safety services consultant today for more information on how we can better protect your business.

This document was developed using information from "Writing and Designing Manuals and Warnings," by Patricia A. Robinson. Robinson, P. A. (2009). Writing and Designing Manuals and Warnings (4th ed.). Boca Raton, FL: CRC Press.

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