



SAFETY INFORMATION

Turret Unwind Safety

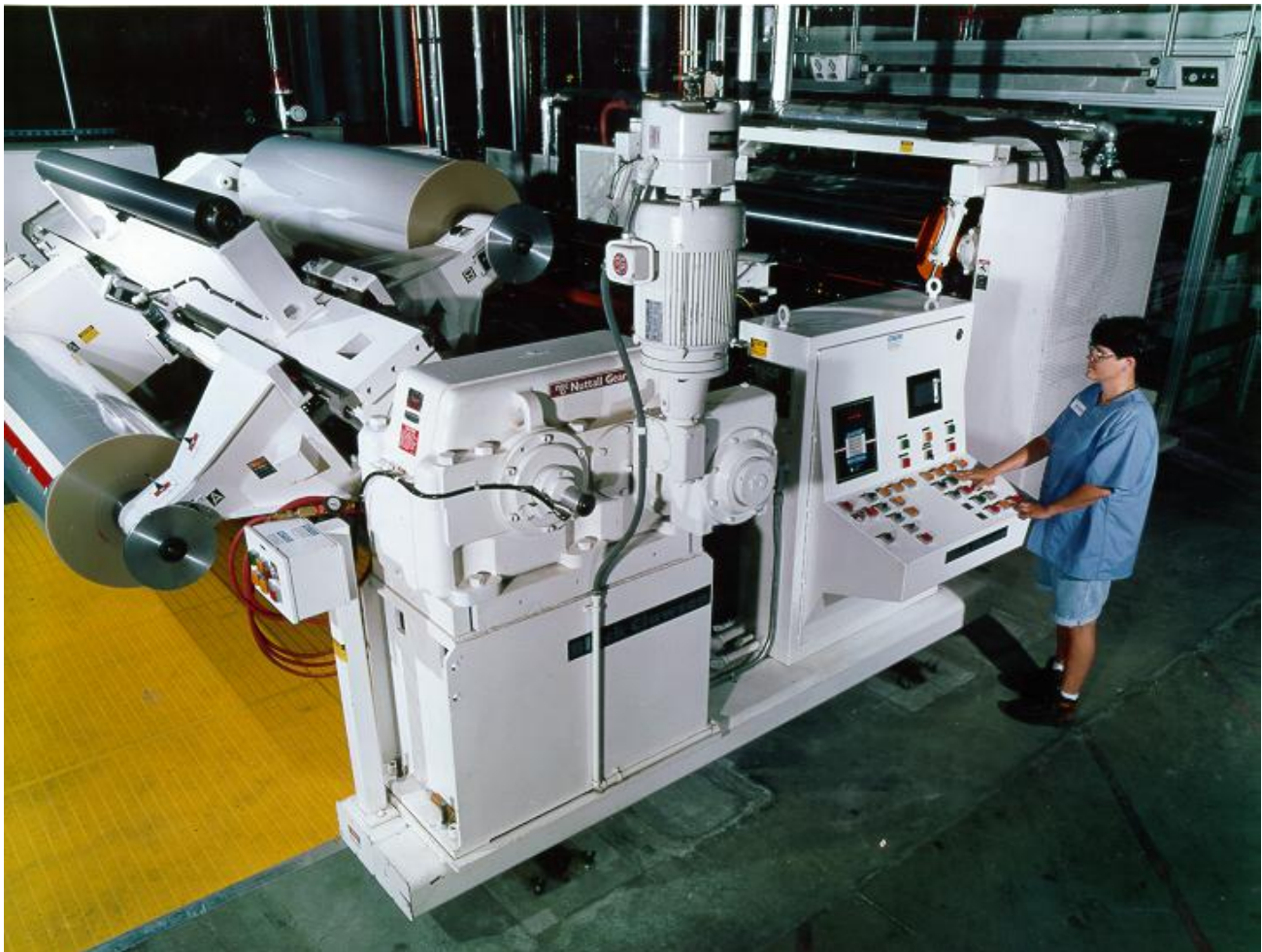


Figure 1



SAFETY INFORMATION

INTRODUCTION

The purpose of the **Turret Unwind** is to unwind rolls of paper, paperboard and non-paper products such as film and polyethylene into a continuous web so that the web can be processed into a finished product. See Figures. 1, 2 & 3.

A benefit of this type of unwind is its ability to unwind a wide array of materials under uniform tension. Each unwind is custom engineered to meet the needs of the particular product to be produced and to be able to operate in a continuous mode.

Turret Unwinds utilize various types of splicers that can splice either manually or in an automatic mode. In addition, the splicer can be designed to make splices from above or below depending on which side of the web is to be presented to the process. Some splicers are designed to do both. As the product is unwinding from the inboard spindle position, the machine operator loads a new roll of product into the empty outboard spindle and prepares the roll for splicing. At the desired time, the turret is indexed to bring the new roll to the inboard splicing position and the unwinding roll to the outboard position. After the product is spliced the expired roll is removed.

Products, properties, speeds, and widths vary from unwind to unwind and from plant to plant; therefore, the proper procedure of unwinding and splicing each particular product may vary from unwind to unwind.

IT IS ESSENTIAL THAT OPERATING PERSONNEL BE THOROUGHLY TRAINED IN THE **TURRET UNWIND** SAFETY AND THE OPERATING PROCEDURES APPLICABLE TO THE PARTICULAR PRODUCT AND THE UNWIND & SPLICER INVOLVED.

Lack of proper training can be A MAJOR CAUSE OF SERIOUS INJURY. Care must be taken while transferring the unfinished product rolls to the

Turret Unwind. Special safety measures must be taken while transporting this heavy roll whether by crane, trolley or tow motor.

Wherever practical and appropriate, adequate barriers and safety signs must be installed to protect and remind personnel of potential **Turret Unwind and Splicer** hazards as referred to in this bulletin. **For examples of unsafe practices see page 11.**

This Bulletin discusses and illustrates typical methods of safe operation. Davis-Standard, LLC is available to assist you with implementing a safety program for your Egan, Black Clawson Company, Black Clawson Converting Machinery LLC, Black Clawson Converting Machinery, Inc., as well as Davis-Standard **Turret Unwinds and Splicers.**

IMPORTANT NOTE

This bulletin applies to **Turret Unwinds and Splicers** manufactured by Davis-Standard, LLC, Egan, Black Clawson Company, Black Clawson Converting Machinery, LLC, and Black Clawson Converting Machinery, Inc. only. Although these instructions will apply to most Davis-Standard, LLC, Egan and Black Clawson **Turret Unwinders and Splicers**, there are a number of specialty winders in use that differ slightly in design. If the instructions in this bulletin do not apply to your particular **Turret Unwind or Splicer**, please contact Davis-Standard, LLC.



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DANGER IN-RUNNING NIPS

PERSONNEL MUST NEVER COME INTO CONTACT WITH THE IN-RUNNING NIP POINT BETWEEN THE SPLICER PASTER ROLL AND THE UNWINDING ROLL OF PRODUCT AS SERIOUS PERSONAL INJURY CAN RESULT.

SAFETY DEVICES

Because operators require access to the **Turret Unwind** and **Splicer** for threading, completely surrounding the unwind/splicer with fixed barrier guards is almost always impractical. **Turret Unwinds** and **Splicers** come in all sizes and combine with other equipment to make each application unique. If removable barrier guards are utilized, they must be fully interlocked with the drive so that the indexing drive, as well as the spindle drives, are disabled when the barriers are opened or removed.

SAFETY MATS - INBOARD

Safety mats (presence sensing devices) are strongly recommended for use in the area under and between the Unwind and Splicer so that when an operator steps on the mat, the indexing drive for the unwind is disabled, the spindles are stopped, movement of the Splicer mechanism is prevented, and the paster and knife are prevented from firing. The safety mat shall be fixed permanently to the floor.

After someone steps on the safety mat, the Unwind and Splicer must not be capable of resuming normal operation until after the safety mat circuit has been manually reset.

FAILURE TO INSTALL A SAFETY MAT AND ITS SAFETY FUNCTIONS IN THIS AREA CAN RESULT IN SERIOUS PERSONAL INJURY.



Figure 2



SAFETY INFORMATION

WARNING LATCH LOCK ASSEMBLIES

This applies to latch lock assemblies on Turret Unwinds manufactured prior to March 15, 2003 by the Black Clawson Company and Black Clawson Converting Machinery, LLC.

The latch lock assembly has been redesigned for the above mentioned Model 10, 20, 30, 40 & 50 Turret Unwinds.

On occasion, the previous latch lock assemblies have been incorrectly re-assembled creating an unsafe condition where the locking mechanism has failed to lock. The new latch lock assembly does not require drilling at assembly and correct assembly is virtually assured.

We strongly recommend that when the plant replaces the latch lock assembly because of wear, they contact Davis-Standard, LLC spare parts department referencing installation sheet # A-397597.

FAILURE TO ASSEMBLE THE LATCH LOCK ASSEMBLY CORRECTLY CAN CAUSE THE SPINDLE TO DISENGAGE FROM THE CORE ON LOSS OF AIR AND CAUSE SERIOUS PERSONAL INJURY OR MACHINE DAMAGE.

WARNING

Safety devices are no substitute for safe and proper operating procedures. Interlocks can and sometimes will be bypassed if the operator feels they are a hindrance to production. Davis-Standard, LLC only supplies interlocks that are necessary for safe operation. **UNDER NO CIRCUMSTANCES SHOULD ANY SAFETY INTERLOCKS BE BY-PASSED FOR ANY REASON.** It is the duty of the user to maintain interlocks in good repair.

WARNING

Where barrier guards are not used, clearly mark the operating area with yellow lines on the floor. Personnel must stay outside of these lines when the unwind and splicer are running.

WARNING SHEET THREADING

Threading of a web from the full roll through the Splicer varies according to the particular Turret Unwind and/or Splicer. During threading it is impractical to lock out the machine, therefore personnel must read, understand and strictly follow proper and safe threading procedures in order to avoid serious personal injury.

As a general rule, the threading procedure requires two operators, all drives must be off, the Splicer mechanism must be fully retracted, and all nips must be open before proceeding.

FAILURE TO FOLLOW THE PROPER AND SAFE THREADING PROCEDURES IN THE OPERATOR'S MANUAL CAN RESULT IN SERIOUS PERSONAL INJURY.



SAFETY INFORMATION

IMPORTANT

All operating and supervisory personnel must learn and understand the threading procedure for their particular **Turret Unwind and Splicer**. If your Unwind or Splicer was manufactured by Davis-Standard, LLC, Egan, Black Clawson Converting Machinery, Inc. or manufactured prior to March 15, 2003 by The Black Clawson Company or Black Clawson Converting Machinery LLC, we will be pleased to assist you in establishing and developing proper procedures.

WARNING CONTROL PANEL LOCATION

Make sure that nothing blocks the view of the operators when operating the controls.

DANGER CUT-OFF KNIFE

Cut-off knives are extremely sharp and possess a very high penetrating power when fired by their air cylinders. Keep clear of this area at all times during operation. Lock out all electrical and pneumatic power before performing any work in this area. Wear protective gloves and use extreme care when changing or handling knives. Knives must be guarded in their rest position.

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

WARNING LOCKOUT – TAGOUT

All personnel must be trained in the proper procedures for lockout. Refer to OSHA Subpart J 1910.147. Lockout and tagout devices must identify the employee applying the device.

Remove product rolls before performing any work or maintenance on the **Turret Unwind and Splicer**.

All drives must be de-energized and locked out before performing any maintenance on a **Turret Unwind and Splicer**.

Where programmable logic controllers (PLCs) are used, disable and lock out all output functions.

All controls must be locked out and all systems de-energized before performing any work on the **Turret Unwind and Splicer** by any personnel.

De-energizing the unwind and splicer must not create a hazard. All rolls and components left in an "UP" position must be blocked or pinned up before de-energizing.

After maintenance is completed, replace all guards that were removed and ensure that no unsafe condition exists and that all personnel are clear of the **Turret Unwind and Splicer** before removing the lockouts and activating the controls.



SAFETY INFORMATION

WARNING ROLL LOADING

1. Ensure the outboard spindles are in the correct position to receive the roll to be unwound.
2. Use either the machine hoist or the roll lift table to align the core with the spindles and engage spindles. Incorrect alignment could damage the core and prevent proper engagement.
3. Keep hands and fingers away from all pinch and nip points.
4. Do not remove slings or lower table until you are satisfied that both ends of the core or coreshaft are fully engaged.
5. Leave pneumatic latching valve at the IN position during unwinding. Do not use the safety lock to secure the latch. The safety lock is not an operating tool. The safety lock is there as a back up should the unwind lose pneumatic power.
6. If this is the initial roll, the full roll can be rotated using the payout drive or rotated manually and the web prepared for threading through the machine. Care should be taken to not put undue tension on the product during unwinding.
7. When the machine is in operation, the new roll is prepared for splicing. When the roll is fully prepared for splicing, the "Roll Ready" circuit can be energized.

UNDER NO CIRCUMSTANCES SHOULD THE OPERATOR ENERGIZE THE "ROLL READY" CIRCUIT UNTIL THE ROLL IS FULLY PREPARED FOR SPLICING, THE TRANSFER KNIFE, THE PASTER ROLL AND THE SPLICER MECHANISM ARE ALL RETRACTED AND THE INNER SAFETY MAT IS CLEAR AND "RESET". FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN SERIOUS PERSONAL INJURY AND/OR MACHINE DAMAGE.

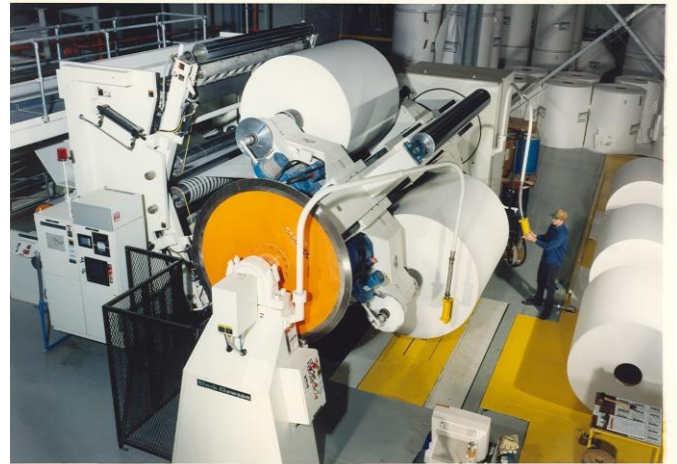


Figure 3



SAFETY INFORMATION

WARNING TURRET INDEXING

1. Clear all personnel from the Unwind and Splicer area before indexing the turret.
2. Machines with indexing automatically initiated from the core detection or splice tracking circuit must sound an alarm prior to machine movement. This alarm consists of a horn and a flashing beacon. The beacon must continue to flash throughout the roll change and the horn must sound for a minimum of 3 seconds before the turret indexes.
3. Machines with automatic index initiation must also have a "Roll Ready" circuit. This circuit prohibits automatic indexing until after the operator has prepared the new roll for splicing and has depressed the "Roll Ready" button.

WARNING OVERHEAD CRANES

Overhead cranes are sometimes used to load rolls. Crane operators and other personnel must be aware of all safety procedures for the safe operation of overhead cranes.

Personnel must be alerted to the hazard of the overhead crane travel. Crane operators must be aware of the possibility of workers being in the crane's path and must warn all workers to keep clear.

Slings, hooks and lifting devices must be checked regularly to ensure their good condition. Personnel must understand the proper procedures for the handling of rolls and use the proper lift points to pick up and transport equipment as recommended by the crane manufacturer.

WARNING ROTATING SHAFTS

All power transmission equipment such as shafts, couplings, gears, pulleys, belts, etc. must be guarded in accordance with OSHA's Regulation Subpart O 1910.212 & 219.

Never wear loose clothing near rotating power transmission components. Long hair should be up and covered to prevent entanglement with rotating equipment.

DANGER HIGH VOLTAGE

Spindle drive motors, indexing motors and any driven rolls require HIGH ELECTRIC VOLTAGE. HIGH VOLTAGE can cause serious personal injury or death.

LOCK OUT POWER before servicing motors, slip ring or drive cabinet.

NEVER REMOVE THE SLIP RING COVER OR REPLACE BRUSHES BEFORE LOCKING OUT POWER.



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EMERGENCY STOPS

Turret Unwinds and Splicers must be equipped with devices that will stop the unwind and splicer in an emergency. OSHA recommends that the devices consist of pushbuttons for electric motive power (or electrically operated engine stops), pull cords connected directly to the prime mover, control clutches, or other devices interlocked with adequate braking action. These emergency stops must be located so any person working on the machine can stop the machine section or the entire machine in the quickest possible manner in case of an emergency.

Emergency stop devices shall be red. Stop buttons or electrical switches with letters or other markings used for emergency stopping of machinery shall be red.

Emergency stop devices should be tested periodically to make certain they are operational at all times.

Emergency stops are not safety devices and must never be used as an operational tool.

All employees must be made aware of the emergency stops in their section as part of their safety training. (Reference: OSHA 1910.261, Section K-1)

WARNING OPERATION

REVIEW THE FOLLOWING SAFETY RULES BEFORE OPERATING THE TURRET UNWINDER AND SPLICER.

- Do not remove or cover safety signs. They are installed to warn personnel of possible hazards. Observe all instructions given on the signs.
- Observe all color coding. **ORANGE:** This color indicates hazards on the machine which might cause personal injury and to be avoided during operation. **YELLOW:** This color indicates caution and is used for marking physical hazards; such as, falling and tripping, etc. Examples would be fixed guards, crosswalks and steps.
- Footwalks, handrails, barriers, and guards must be in place before starting the machine.
- Do not over-reach, climb or stand on places other than properly designed and designated ladders, steps or walkways.
- Aisles must be clean and clear of obstructions. Wipe up spilled oil, grease and water. Good housekeeping prevents injuries.
- Keep clothing and all parts of the body away from ingoing nips, traveling belts, gears, ropes, and rotating or pivoting loading mechanisms.
- Beware of head-high obstacles in and around the machinery area. Wear proper head protection when indicated.
- When threading machinery, feet must be squarely and properly placed for adequate balance.
- When threading machinery, all drives must be stopped and nips open.



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WARNING OPERATION (cont'd)

- Exhaust blasts from air motors may blow dirt, scale or other foreign materials into eyes causing eye injury. Wear proper eye protection when indicated.
- Keep all parts of the body away from rotating drive components.
- Any nip point on converting machinery is a hazardous area. Keep clothing and all parts of the body away at all times. And especially do not wear loose clothing that could be drawn into the in-running nips.
- Do not operate equipment until all personnel are accounted for and outside of safety lines.
- Guards should be provided for all exposed head bolts on rolls. Rotating nuts or capscrews on roll heads may catch clothing or loose paper. Use caution in these areas while the machine is running. Never climb between guards and moving machinery.
- Keep hands away from belt and chain drives. Make certain that all guards on drive components are in place.
- Never thread to an in-running nip.
- Do not use bent or damaged core shafts.
- If using pre-existing core shafts not originally furnished with the unwind and splicer, ensure torque and weight ratings are compatible.
- Do not enter between machine frames while machine is running.

WARNING MAINTENANCE

REVIEW THE FOLLOWING SAFETY RULES BEFORE PERFORMING MAINTENANCE ON THE TURRET UNWINDER AND SPLICER.

- Lock out all drives and controls before working on the machinery.
- All non-operating personnel are to be out of the area before activating drives and operating controls. Mirrors should be used to provide the operator with a view of the drive side area.
- Inspect slings and cables for worn or weak spots before using them. Keep all personnel out from under machine components when lifting. Use lifting points specified by manufacturer. Do not allow chains or other lifting devices to hang in the aisles.
- Do not walk under machinery, rolls or other items being transported by overhead crane equipment.
- Do not depend upon hydraulic or pneumatic devices to hold equipment in a raised position while performing maintenance. Pin, chain or block in a raised position.
- Inspect chains and clevis pins at frequent intervals for wear and damage. Block under or around units raised by chains when performing maintenance to prevent injury to personnel.



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WARNING MAINTENANCE (cont'd)

- Attach sling(s) securely when attempting to lift machine components. Rotation of out-of-balanced pieces could be hazardous.
- Release pressure from oil and air lines before disassembly. Oil and air under pressure can be dangerous to personnel in the area.
- Some roll splicers use accumulator tanks in the knife firing circuit. Make sure that these are fully de-pressurized before performing maintenance.
- Wear protective gloves when changing out knife blades. Lock out all power before removing.
- Pneumatic spindle latches are equipped with safety latch lock devices. These prevent an unwinding roll from falling out of the unwind upon loss of air. They must be inspected periodically to ensure that they are not worn or broken and are correctly assembled.
- Use proper stops when applying hydraulic movement equipment to bearings, heads, gears, etc. These items may travel at a high rate of speed once they have broken loose from the fit.
- Be sure that all slings and cables are designed to lift the loads, taking into consideration the angles of the hookup and the load to be lifted.
- Use lifting points as specified by manufacturers. Where provisions have been made for lifting eyes to be screwed into a tapped hole, make certain that eyebolt is tightened to the shoulder and that eye is parallel to the lifting plane to prevent breakage.
- Personal articles are not to be stored in or on electrical switch boxes, panels or in other potentially hazardous places.
- Safety interlocks must be checked for proper operation as part of regular maintenance schedules.
- Do not work or walk under suspended loads or rolls.



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UNSAFE PRACTICES

To avoid injuries, operators and other personnel should be aware of and avoid the following:

- Failure to read, understand or follow the machine instructions.
- Unguarded in-running nip points
- Unguarded wrap points
- Unguarded pinch points
- Moving parts and parts capable of moving
- Unguarded rotating machinery
- Unguarded moving members
- Poor maintenance of hoist equipment
- Improper handling of scrap, trim or web during a break
- Inadequate barriers
- Failure to lock-out and de-energize when working on or repairing the Turret Unwinder and Splicer
- Improper loading of full rolls
- Improper modifications to latching mechanisms
- By-passing or improper tampering with safety interlocks
- Improper threading of machine
- Failure to ensure the area around the **Turret Unwind and Splicer** is clear of personnel before starting machine
- Inadequate safety signs
- Removal of handrails and guarding
- Improper use of footwalks, crosswalks, access steps, ladders, etc.
- Poor housekeeping, failure to keep working and traffic areas free of waste and other tripping hazards
- Improperly protected cut-off knives
- Improper handling of cut-off knives
- Improper care when cleaning with chemicals
- Improper maintenance of hydraulic hoses and fittings
- Failure to ensure that all personnel are clear before indexing the turret
- Touching the unwinding bundle, travelling web or turning rolls
- Manually lifting product roll or core shafts in excess of 50#/person
- Static electricity build-up
- Working or walking under suspended loads or rolls



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Safety Signs

INTRODUCTION

Operators of Davis-Standard, LLC machinery, where practical and appropriate, may be protected from certain hazards by a physical barrier and may; in addition, be warned of those hazards by the placement of Safety Signs. These signs alert persons to the degree or level of the hazard, the nature of the hazard, to how the hazard can be avoided, and the consequences of involvement with the hazard.

The following examples illustrate the ANSI Z535 standard series format for product safety signs and labels. These standards must be referred to when designing safety signs and labels. Not all safety signs will have a pictorial panel.

Color-coding for the words DANGER, WARNING, CAUTION, and SAFETY INSTRUCTION is important for the identification of the hazard level.



DANGER – (white letters with a red background) indicates an immediate hazard that if not avoided **WILL** result in death or serious injury. This should be limited to the most extreme situations.



WARNING – (black letters with an orange background) indicates a potential hazard that if not avoided **COULD** result in death or serious injury.



CAUTION – (black letters with a yellow background) indicates a potential hazard that if not avoided **MAY** result in minor or moderate injury.



SAFETY INSTRUCTION – (white letters with a green background) is used to convey multiple messages stating procedures or actions that must be followed for the safe operation of the product.



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DUAL LANGUAGE

The ANSI Z534.4 Product Safety Sign and Label standard provides a suggested format for multi-lingual safety signs. International and European Union standards require safety signs to be in the official language of the country in which the machine is to be used.

Davis-Standard, LLC has a number of ANSI format dual language safety signs for use in countries where English is not the official language.

AVAILABLE SAFETY SIGNS

The following safety signs are available for your Davis-Standard, LLC machine. Other safety signs may be available, including dual language. Signs can be provided for situations not covered by those listed below.

Contact Davis-Standard, LLC for additional information on availability, sizes, material, and placement.

SAFETY SIGNS ARE NEVER TO BE USED IN LIEU OF GUARDING WHERE GUARDING IS FEASIBLE.

<u>PART #</u>	<u>HAZARD</u>
424656	Confined space
424650	Hazardous voltage
424632	Roll to roll nip
424645	Belt or chain nip
424661	Pinch point
424653	Automatic movement
424647	Rotating equipment
424692	Hazardous area
424663	Shear and crushing point
424670	Web edges and wrap points
424638	Fixed member nip
424651	Multiple electrical sources
424672	Unexpected machine motion
424743	General safety instructions
424655	Airborne contamination
424699	Static electricity
424646	Gear nip
424668	Equipment above
424687	Hot surface area
424667	Low clearance
424708	Hot fluids
424700	Radiation
424652	Electrical grounding
424686	Hot water or steam
424649	Do not remove guard/Guard removed



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Reference Information

All machine operators, maintenance and supervisory personnel should read and understand not only the selected OSHA sections listed, but also all applicable OSHA codes pertaining to their job duties and functions.

OSHA and ANSI standards are updated periodically and the section numbers may change. The following references are correct at the time of printing. Owners of machines should be aware of the most recent standards applicable to their machine.

Subpart O - Machinery & Machine Guarding

- §212 - General requirements
- §219 - Power transmission

Subpart R - Special Industries

- §261 Pulp Paper and Board Mills.
 - (a) General Requirements
 - (b) Safe Practices
 - (k) Machine Room

Subpart S - Electrical

- §303 - General requirements

OSHA REGULATIONS

The following list of regulations from OSHA CFR 29, Section 1910 is for your reference. OSHA regulations are available on line at www.osha.gov.

Subpart G - Occupational Health
§95 - Noise exposure

Subpart I - Personal Protective Equipment
§133 - Eye and face protection
§134 - Respiratory protection

Subpart J - General Environmental Controls
§146 - Confined Space
§147 - Lockout Tagout.

Subpart N - Material Handling
§179 - Overhead cranes

ANSI STANDARDS

The American National Standards Institute publishes several consensus standards of interest to machinery users.

ANSI Z535.4: Safety Signs and Labels

ANSI B151.5: Plastic Film and Sheet Winding Machinery.

ANSI B151.2: Plastic Film Casting Machinery.

ANSI B151.20: Plastic Sheet Production Machinery.



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NATIONAL & INTERNATIONAL STANDARDS

The International Standards Organization (ISO) and the International Electrotechnical Commission (IEC) list many standards of interest, as does the European Union, whose standards are nearly identical. In addition, many countries promulgate their own standards. A source for many of these can be found at www.global.ihs.com.

INSTRUCTION MANUALS

It is essential that operators be thoroughly trained in turret unwind and splicer safety and the procedures applicable to the process in which they are involved.

Davis-Standard, LLC provides instruction manuals with all machine orders. All operators should read and understand the information in these manuals before operating the machine.

LACK OF PROPER TRAINING AND UNDERSTANDING CAN BE A MAJOR CAUSE OF SERIOUS PERSONAL INJURY.

IMPORTANT INFORMATION

For help on how to safely operate your Davis-Standard, LLC's Turret Unwind and Splicer or for such assistance or help with guarding Turret Unwinds and Splicers manufactured prior to March 15, 2003 by The Black Clawson Company or Black Clawson Converting Machinery LLC, or any Turret Unwinds and splicers manufactured by Black Clawson Converting Machinery, Inc. or Egan Machinery, contact:

Davis-Standard, LLC
46 North First Street
Fulton, NY 13069, USA
Telephone – (315) 598-7121

Please locate the serial number plate on the machine in question and write down the drawing number, order number and serial number, if any. This will greatly expedite locating information on your specific machine.

Drawing No.

Order No.

Serial No.



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SAFETY NOTES:

Turret Unwind Safety Bulletin
No. DSSL. 4-09/07
Davis-Standard, LLC
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<http://www.davis-standard.com/safety-bulletins>