



**DropSpan  
Owner's Manual  
Supplement**

0998559\_0





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# GENERAL INFORMATION

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## **About This Manual**

This manual only covers the operation of the Valley DropSpan option.

All information, specifications, descriptions and illustrative material contained herein were as accurate as known at the time this publication was approved for printing.

Valmont Industries Inc., reserves the right to change specification or design at any time without notice and without incurring any obligation. Specifications are applicable to machines sold in the United States and may vary outside the United States.

## **Ancillary Equipment Warranty**

The owner is responsible for warranty registration of all ancillary equipment such as engines, pumps and generators with its respective manufacturer.

## Recognize Safety Information

This irrigation equipment may be powered by high voltage which can be extremely dangerous if used improperly. For maximum safety and optimum performance of the machine, all owner's operator's and maintenance personnel must read and understand the owner/operator manual(s), all safety messages in this manual and safety signs/decals on the machine before operating this equipment.

Anyone assembling, operating, servicing or maintaining this machine must read and understand all operation, maintenance, troubleshooting, testing, installation, assembly instructions and all safety messages in this manual before operating the machine or beginning any maintenance, troubleshooting, testing, installation or assembly of components.

These instructions alert you to certain things you should do carefully; if you don't, you could hurt yourself or others, hurt the next person who operates the equipment, or damage the equipment.

## Safety Messages

Safety messages in this manual are preceded by the hazard symbol and one of three words, danger, warning or caution. These messages alert you to potential hazards that could hurt you or others and or cause property damage.



This HAZARD SYMBOL is used to alert you to information about unsafe actions or situations, and may be followed by the word danger, warning, or caution.

### **DANGER**

The HAZARD SYMBOL used with the word DANGER, will describe immediate hazards that may result in severe personal injury or death.

### **WARNING**

The HAZARD SYMBOL used with the word WARNING, will describe unsafe actions or situations that may cause severe injury, death and/or major equipment or property damage.

### **CAUTION**

The HAZARD SYMBOL used with the word CAUTION, will describe unsafe actions or situations that may cause injury, and/or minor equipment or property damage.

## Information Messages

Important information messages in this manual are preceded by the word NOTE.

### **NOTE**

The word NOTE is used to alert you to information that describes procedures or tips to help you install, operate or maintain your equipment properly.

# SAFETY

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## Use Of Personal Protective Equipment

- People working in areas where there are potential electrical hazards must use, personal protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed. Refer to U.S. Occupational Safety & Health Administration (OSHA) Regulations (Standards - 29 CFR) Safeguards for personnel protection. - 1910.335, or applicable national, state or local regulations, for additional information.
- Personal protective equipment must be maintained in a safe, reliable condition and periodically inspected or tested.
- Protective shields, protective barriers, or insulating materials must be used to protect each person from shock, burns, or other electrically related injuries while that person is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur. When normally enclosed live parts are exposed for maintenance or repair, they must be guarded to protect unqualified persons from contact with the live parts.
- Safety signs and tags. Safety signs, safety symbols, or accident prevention tags must be used where necessary to warn people about electrical hazards which may endanger them.

## Conductive Materials And Equipment

Materials and equipment that may conduct electricity must be handled in a way that will prevent them from contacting energized power lines, exposed conductors or circuit parts.

- When handling long conductive objects (such as but not limited to truss rods, pipes, angles and ladders) in areas with energized power lines, exposed conductors or circuit parts, work practices (such as the use of insulation, guarding, and material handling techniques) must be used to minimize the hazard.
- Portable ladders must have non-conductive side rails.
- Do not wear conductive articles of jewelry and clothing (such as but not limited to watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) that could come in contact with energized power lines, exposed conductors or circuit parts.

## Fall Protection

Identify potential fall hazards and determine if fall protection equipment is appropriate for the task, before beginning the work. Pay attention to hazards associated with routine and non-routine tasks. Inspect fall protection equipment (harnesses, lanyards) and devices (guardrails, tie-off points) before each use. Use fall protection equipment if required for the job. Be sure the fall protection equipment is right for the task, fits properly, and is in good condition. Refer to U.S. Occupational Safety & Health Administration (OSHA) Regulations Standards - 29 CFR 1926.500, 1926.501 and 1926.502, or applicable national, state or local regulations for more information.

- When using scaffolds, make sure there is proper access, full planking, stable footing, and guard railing.
- When using a boom lift, keep feet firmly on the platform of a boom lift, use fall protection equipment tied-off at all times to the guardrail or tie-off point.
- When using a ladder, make sure the ladder is non-conductive and the correct size for the task. Read the ladder user instructions and be sure the ladder is in good condition. Make sure ladder is set on stable footing and at the correct angle.

**Minimum Working Clearance**

To reduce the risk of injury, all persons require adequate working clearance around the electrical panel or other electrical equipment. The table below identifies the minimum working clearance needed. Refer to U.S. Occupational Safety & Health Administration (OSHA) Regulations (Standards - 29 CFR) Safeguards for personnel protection. -1910.303(g)(1)(i), or any other applicable national, state or local regulations, for additional information.

MINIMUM WORKING CLEARANCE 0-600 VOLTS				
WIDTH OF WORKING CLEARANCE AREA	HEIGHT OF WORKING CLEARANCE AREA	★MINIMUM WORKING CLEARANCE IN FRONT OF ELECTRICAL PANEL/EQUIPMENT		
		EXPOSED LIVE PARTS ON ONE SIDE OF WORK SPACE AND NO LIVE GROUNDED PARTS ON THE OTHER SIDE.	EXPOSED LIVE PARTS ON ONE SIDE OF WORK SPACE AND LIVE GROUNDED PARTS ON THE OTHER SIDE.	EXPOSED LIVE PARTS ON ONE SIDE OF WORK SPACE AND EXPOSED LIVE PARTS ON THE OTHER SIDE.
30 in (760 mm) MINIMUM OR WIDTH OF ENCLOSURE, WHICH EVER IS GREATER	78 in (1980 mm) MINIMUM OR HEIGHT OF ENCLOSURE, WHICH EVER IS GREATER	36 in (915 mm) MINIMUM	42 in (1065 mm) MINIMUM	48 in (1220 mm) MINIMUM

★Concrete, brick or tile walls shall be considered as grounded.

**Qualified Person**

A Qualified person is one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

Only qualified persons may work on electric circuit parts or equipment that have not been de-energized.

Refer to U.S. Occupational Safety & Health Administration (OSHA) Regulations Standards - 29 CFR 1926.32(m) and 1910.333, or applicable national, state or local regulations for additional information.

# SAFETY

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## Overhead Power Lines

Assembling, towing or transporting irrigation machine components such as but not limited to the pivot point, linear cart, span/drive unit assemblies, overhangs and/or corner assemblies underneath or near power lines is extremely dangerous because of the risk of electrocution.

Operating equipment that elevates irrigation machine components, such as but not limited to an aerial lift or crane, near power lines is extremely dangerous because of the risk of electrocution. Only qualified personnel should operate this type of equipment. Before operating the equipment, qualified personnel must read the equipment manufacturers' operating and safety instructions.

Refer to U.S. Occupational Safety & Health Administration (OSHA) Regulations (Standards - 29 CFR) Cranes and derricks. - 1926.550, or any other applicable national, state or local regulations for additional information.

- Always presume that any overhead power line is an energized line unless and until the person(s) owning the line and/or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.
- Before operating any equipment near any power line make sure the line has been de-energized and visibly grounded at the point of work.
- Electrocution can occur without touching an electrical power line. Electricity, depending on the magnitude, can jump or become induced into equipment or conductive materials that come in close proximity to, but do not touch a power line. High wind, lightening, wet ground and other environmental conditions will increase the possibility of electrocution and require additional consideration.
- Transmitter towers can induce the equipment or materials being handled with an electrical charge. Before working or operating equipment near transmitter towers make sure the transmitter is de-energized.
- Select the location where the span/drive unit will be assembled to ensure that neither the irrigation machine, or the equipment used during the assembly process, will violate the minimum clearance guidelines.
- Never operate equipment or allow the load, ropes or tag lines within 10 ft (3.05 m) of any power line rated 50 kV or lower whether it is energized or not. For lines rated over 50 kV, the minimum clearance shall be 10 ft (3.05 m) plus 0.4 in (1.1 cm) for each kV over 50 kVs. .
- Never assemble, tow, transport or allow irrigation machine components underneath or within 10 ft (3.05 m) of any power line rated 50 kV or lower whether it is energized or not. For lines rated over 50 kV, the minimum clearance shall be 10 ft (3.05 m) plus 0.4 in (1.1 cm) for each kV over 50 kVs. Overhang support angles, cables and spinner drive components regularly extend 10 ft to 12 ft (3.1 m to 3.7 m) above the irrigation pipeline (span).
- Use barricades to identify areas where interference with overhead power lines could occur. Keep the assembly, towing or transporting of irrigation machine components and the operation of equipment including load, ropes or tag lines away from any power line, in the distances described above, whether the line is energized or not.
- Always designate a person to observe clearance between the power line and all equipment being operated or moved in order to give timely warning for all operations to STOP if the minimum clearance is violated.

## Minimal Lockout / Tagout Procedure

The following procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It is used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before personnel perform any servicing or maintenance where the unexpectedly energized or start-up of the machine or equipment or release of stored energy could cause injury. All personnel, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

When the energy isolating devices are not lockable, tagout should be used and affected personnel must wear full personal protection.

Refer to U.S. Occupational Safety & Health Administration (OSHA) Regulations (Standards - 29 CFR) Typical minimal lockout procedures - 1910.147 App A, or applicable national, state or local regulations, for additional information.

## Sequence Of Lockout

1. Notify all affected personnel that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
2. The authorized personnel shall identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.
3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
4. Deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).
5. Lock out the energy isolating device(s) with assigned individual lock(s).
6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. CAUTION: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.
8. The machine or equipment is now locked out.

### **DANGER**

**•WHEN PERSONNEL WILL BE EXPOSED TO CIRCUIT ELEMENTS AND ELECTRICAL PARTS, A QUALIFIED PERSON MUST USE TEST EQUIPMENT TO VERIFY THAT THE CIRCUIT ELEMENTS AND EQUIPMENT PARTS OF THE EQUIPMENT ARE DE-ENERGIZED.**

## Restoring Equipment To Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all personnel have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.
4. Remove the lockout devices and reenergize the machine or equipment.
5. Notify affected personnel that the servicing or maintenance is completed and the machine or equipment is ready to be used.

# SAFETY

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## Operate Safely

Valley Irrigation machines are designed with safety in mind. However, if this machine is operated incorrectly, it may pose a safety threat to the operator. A good safety program is much like a chain, it is only as strong as its weakest link. The manufacturer, dealer, and operator must maintain and improve all safety programs. Following is a list of safety operating tips which you and all other persons servicing or operating the machine must read and understand.

### CAUTION

- DO NOT operate this machine without first reading the Owner's Manuals for the machine.
- Read all safety messages in this manual and safety signs on the machine.
- DO NOT let anyone operate this machine without proper instructions.
- Unauthorized modifications may impair the function and/or safety of the machine.
- If you do not understand any part of this manual, contact your Valley dealer.

### EMPLOYEE INSTRUCTION ON SAFETY

It is very important to instruct your employees on the safe use of this equipment at the time of their initial assignment to operate it. DO NOT let anyone operate this equipment without proper instructions.

Safety training should be presented annually and the service manager should ensure employees fully understand the safety messages and what to do in case of emergencies.

### EMERGENCY STOPPING

The machine can be stopped at any time at any tower by turning the disconnect switch, located underneath the tower box, to the OFF position. See Figure 11-1.

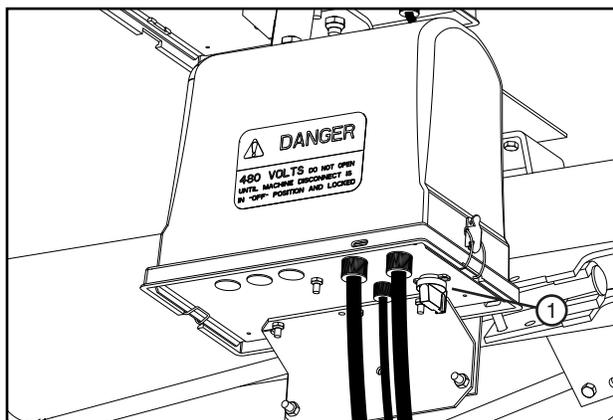


Figure 11-1 1. Disconnect Switch

### WARNING

#### PROPER GROUNDING

DO NOT attempt to start the machine until the electrical service is properly installed and grounded by a qualified electrician as per the electrical standards.

If the power supplied to the machine is not grounded properly, severe injury or death can result should an electrical malfunction occur.

It is your responsibility to ensure that your power supplier and/or electrical contractor has grounded the irrigation machine as required by the National Electrical Code and by applicable local electrical codes. If a machine is properly grounded and fuse sizing is correct, there is extremely low probability of an individual being injured by electrical shock.

### NOTE

- All 480 VAC, 60 Hz. (380 VAC, 50 Hz.) power supply services MUST be a 4 conductor service. Three 480 VAC (380 VAC) power lines and one ground conductor which is as large as the power carrying conductors for that service.

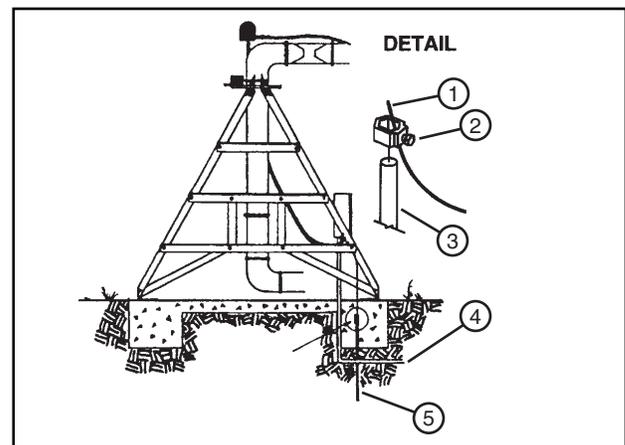


Figure 11-2 1. Copper Wire 2. Clamp 3. Copper Rod 4. 4 Wire Service Conductor 5. Ground Rod Installation

# SAFETY

## Operate Safely

### **⚠ DANGER**

#### **DISCONNECT POWER WHEN SERVICING**

ALWAYS disconnect electrical power before servicing or performing maintenance to the machine.

If you are going to perform maintenance on the machine, YOU MUST shut off and lock the main power disconnect as shown below. See figure 12-1.



Figure 12-1 1. Main Power Disconnect  
2. Lock

The blue (OSHA safety color code) tag shown below should also be filled out and attached to the disconnect after locking. See figure 12-2.

The tag should reveal the name of a person to contact before restoring power to the machine.



Figure 12-2

### **⚠ CAUTION**

#### **QUALIFIED SERVICE PERSONNEL**

If you do not understand electricity or other parts of the machine, have qualified service personnel perform any hazardous repairs or maintenance.

### **⚠ CAUTION**

#### **GUARD ALL POWER TAKE-OFF DRIVES**

This includes all belt and power line drives.

Replace any guards and shields removed for maintenance.

### **⚠ WARNING**

#### **MARK AND GUARD ALL POWER LINES**

Do NOT deep rip or chisel near the buried power service wires.

Do NOT deep rip in a circle at the drive unit. The deep chisel track will cause severe stresses on the structure.

If you do deep rip your field, run the machine with the percent timer at 100% for the first revolution.

### **⚠ WARNING**

#### **SUSPECTED SHORT CIRCUITS**

DO NOT touch the machine if you suspect a short-circuit situation. Call a qualified electrician or an authorized Valley dealer immediately.

Circumstances which may cause you to suspect hazardous voltage situations may include:

- Physical damage to the machine or span cable
- Recent electrical storms (lightning)
- Unusual operating characteristics of the machine

If you suspect a short circuit due to feeling a rippling tingle when touching the machine, DO NOT touch the machine again. Call a qualified electrician or an authorized Valley dealer immediately.

### **WARNING**

#### **LIGHTNING AND THE MACHINE**

Stay away from the machine during an electrical storm. An irrigation machine makes a good path to earth. It is also probably the tallest object in the field, which makes it a good lightning receptor!

### **CAUTION**

#### **DO NOT OVERSIZE FUSES**

Fuses are sized for the protection of a specific machine.

Be certain you have the proper fuse sizes in place before initial start-up and when replacing fuses.

### **CAUTION**

#### **PLUG - IN CONNECTORS**

Disconnect power before connecting or disconnecting any plug-in connectors.

### **CAUTION**

#### **DO NOT OPERATE AT FREEZING TEMPERATURES**

Spraying water has a cooling effect and water will freeze even though the air temperature is slightly above freezing.

Shut the machine down at 40 degrees Fahrenheit (4.5 degrees Celsius). Do not operate machine when temperature is below 40° F (4.5° C).

- **DAMAGE TO EQUIPMENT RESULTING FROM FREEZE-UP IS NOT COVERED UNDER WARRANTY.**
- **IT IS IMPORTANT TO MAKE SURE ALL PIPE DRAINS FUNCTION PROPERLY TO PREVENT PIPELINE FREEZE-UP DURING COLD WEATHER.**

### **CAUTION**

#### **AVOID HIGH PRESSURE WATER STREAMS**

Avoid body contact with high pressure water streams.

### **WARNING**

#### **AVOID CHEMICALS**

Avoid exposure to sprinkler spray while chemicals are being injected into the water. Read EPA Label Improvement Program (PR Notice 87-1) and all instructions for chemical applications.

If you plan on chemigating, make certain you have complied with state or local regulations in regard to safety equipment, certification, operation and calibration of the injector pump. Make certain you have first aid and fresh water available in case of an accident. You must also be familiar with the correct cleanup procedures in case of a spill.

- **USE OF PROTECTIVE CLOTHING IS RECOMMENDED WHEN HANDLING CHEMICALS. SAFETY GLASSES, GLOVES, AND PROTECTIVE OUTERWEAR SHOULD BE WORN WHEN HANDLING CHEMICALS.**
- **CONTAMINATION OF THE WATER SUPPLY MAY OCCUR IF EFFECTIVE SAFETY DEVICES ARE NOT INSTALLED/USED IN CONNECTION WITH INJECTION EQUIPMENT FOR CHEMIGATION.**

### **DANGER**

#### **DRIVE SHAFTS START WITHOUT WARNING**

An electric motor on each tower of the machine powers two or more drive shafts connected to wheel gear drives. These drive shafts start and stop without warning.

- **DO NOT touch rotating drive shaft or shield, Clothing or limbs may become entangled, resulting in severe injury.**
- **DO NOT service the machine until the main disconnect is locked in the OFF position.**
- **ALWAYS replace drive shaft shields after servicing.**
- **DRIVE SHAFT SHIELDS MUST ALWAYS BE IN PLACE WHEN OPERATING THE MACHINE.**

# SAFETY

## Operate Safely

### CAUTION

#### CHECK WHEEL TRACKS BEFORE STARTING

Make sure all objects, livestock or persons are clear of the machine before starting. Drive trains are powerful and can climb over vehicles, equipment, etc.

### CAUTION

#### KEEP CHILDREN AWAY

Irrigation Machines are NOT playground equipment.

Prevent children from playing or climbing around on the machine. This can be extremely dangerous, especially if the machine is operating.

### CAUTION

#### CHECK MACHINE DIRECTION

DO NOT operate the machine if it moves in the direction opposite to that which was chosen.

Forward should be clockwise and reverse counter-clockwise.

### CAUTION

#### KEEP WATER OFF ROADWAYS

It is against the law in most states to allow water to spray on state and county roadways. This is a serious hazard to passing motorists.

If end guns are used, make sure you read and understand the correct procedures for setting the on and off positions to avoid watering the roadways.

If an end gun is watering a roadway, immediately discontinue use and adjust the shutoff setting or call your Valley dealer to repair the end gun shut off mechanism.

### CAUTION

#### AUTO REVERSE OPERATION SAFETY

If the machine reverses direction at a roadway or a physical object such as a building, tree line, power pole, etc., then you MUST provide a backup device to stop the machine if the reversing mechanism were to fail. See figure 14-1.

Contact your Valley dealer for more information concerning physical barricades for machines under these circumstances.

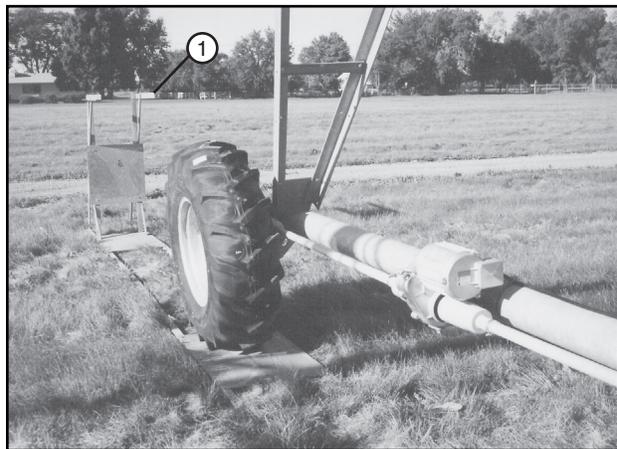


Figure 14-1 1. Physical Barricade

### CAUTION

#### PROPER USE OF THE SAFETY OVERRIDE

Caution MUST be taken by the operator when using the safety override function as it will bypass or disable all of the machine's automatic safety shutdown circuits.

NEVER depress and hold the START/STOP SAFETY OVERRIDE switch in the START position for more than 3 to 5 seconds.

If the machine is not in full view by the operator, do not use the Safety Override function.

The operator MUST inspect the entire machine between each safety override start attempt.

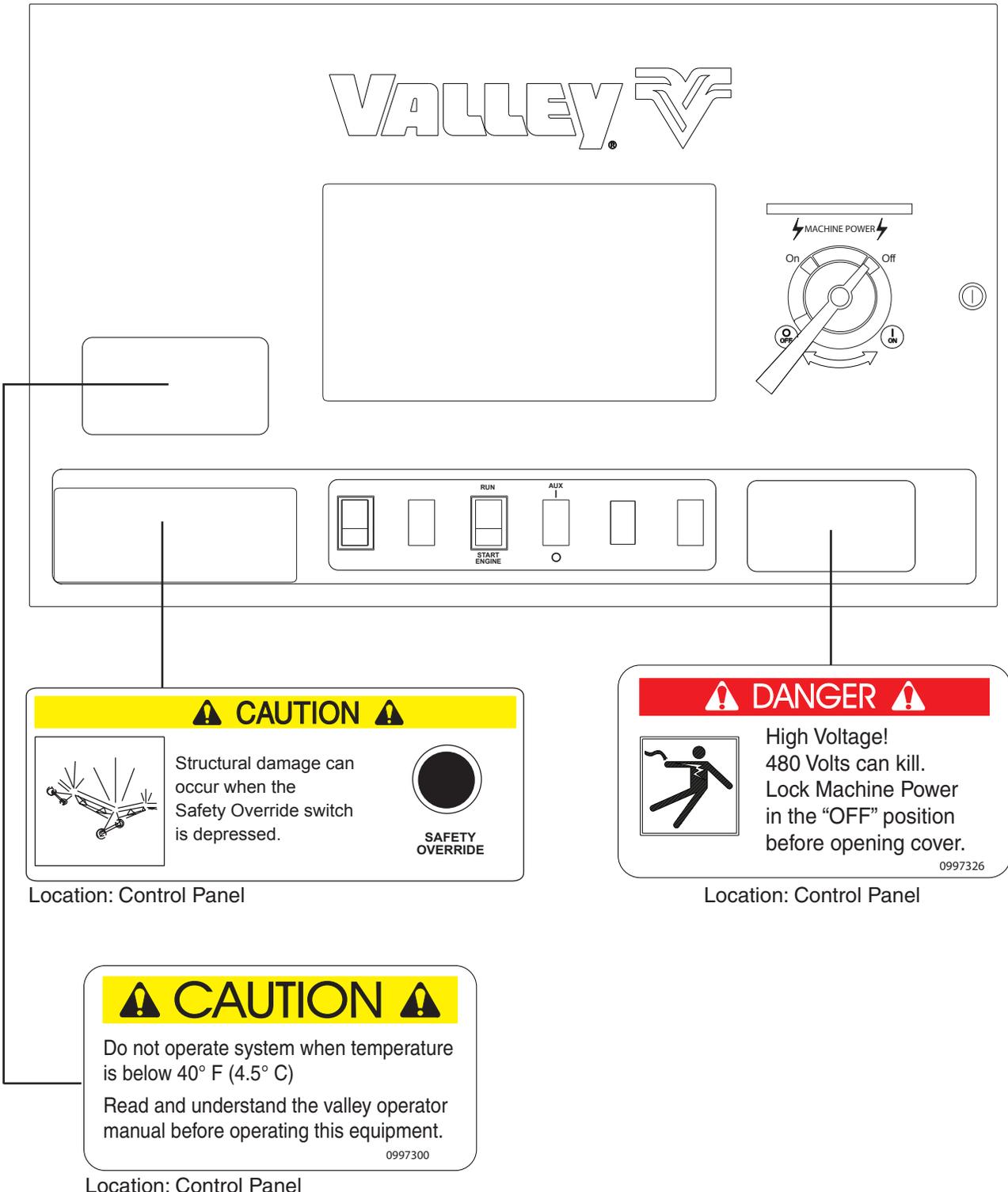
Repeated safety override start attempts can cause severe structural damage.

Call your Valley dealer if the machine fails to start.

## Safety Decals

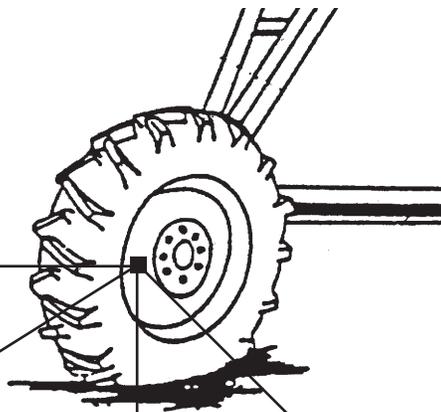
### Machine Control Panel

These Danger, Warning, and Caution decals appear in various locations on a Valley irrigation machine. You MUST familiarize yourself and other operators with these safety decals. For replacement of any decal, contact your local Valley dealer.



# SAFETY

## Safety Decals (Continued)



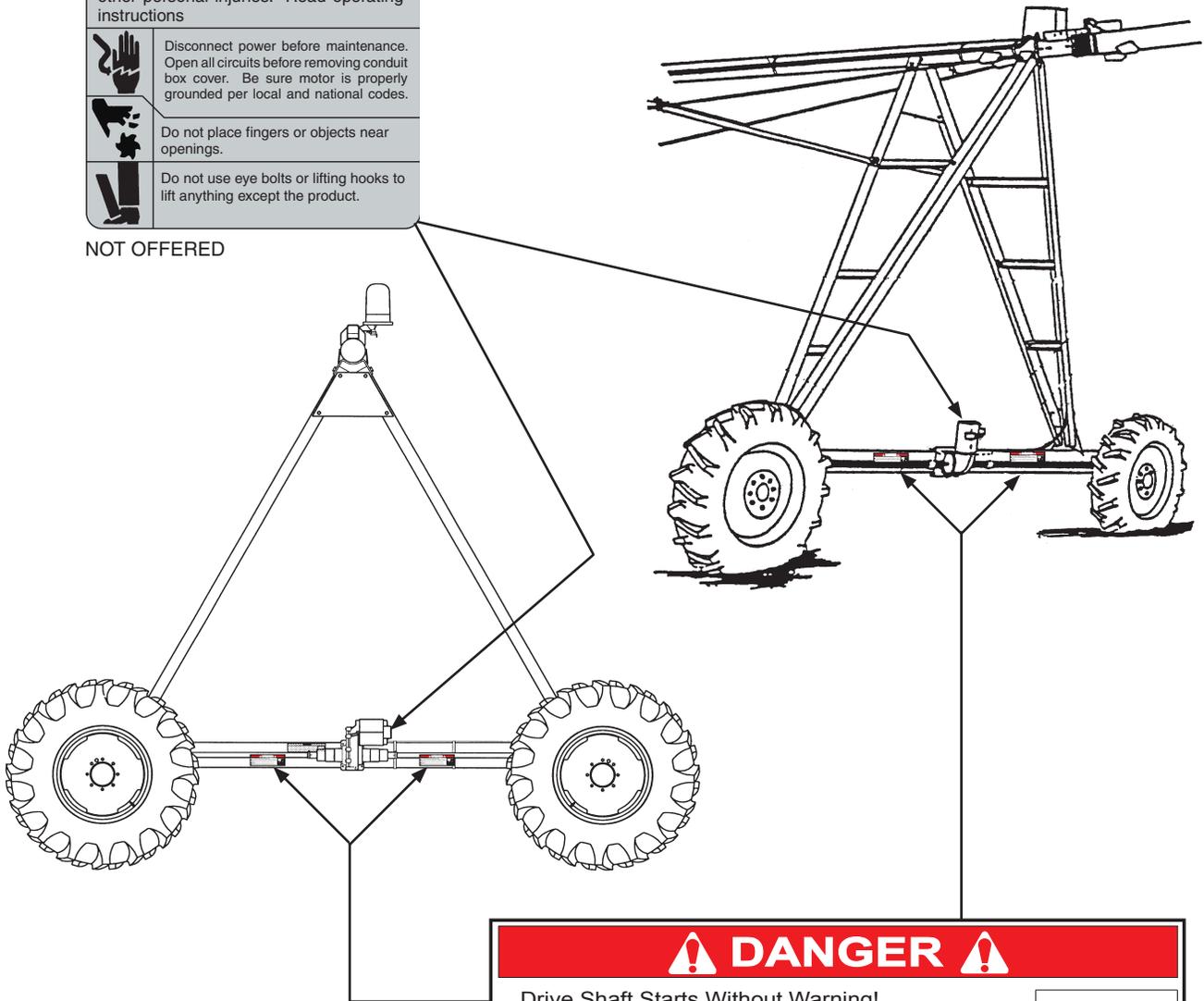
## Safety Decals (Continued)

**⚠ WARNING**

Improper installation of this motor may result in fire, explosion, electrical shock or other personal injuries. Read operating instructions

	Disconnect power before maintenance. Open all circuits before removing conduit box cover. Be sure motor is properly grounded per local and national codes.
	Do not place fingers or objects near openings.
	Do not use eye bolts or lifting hooks to lift anything except the product.

NOT OFFERED



**⚠ DANGER ⚠**

**Drive Shaft Starts Without Warning!**

- Do not touch rotating drive shaft or shield. Clothing or limbs may become entangled, resulting in severe injury.
- Do not service until machine is locked in the off position.
- Always replace drive shaft shield after servicing.



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# SAFETY

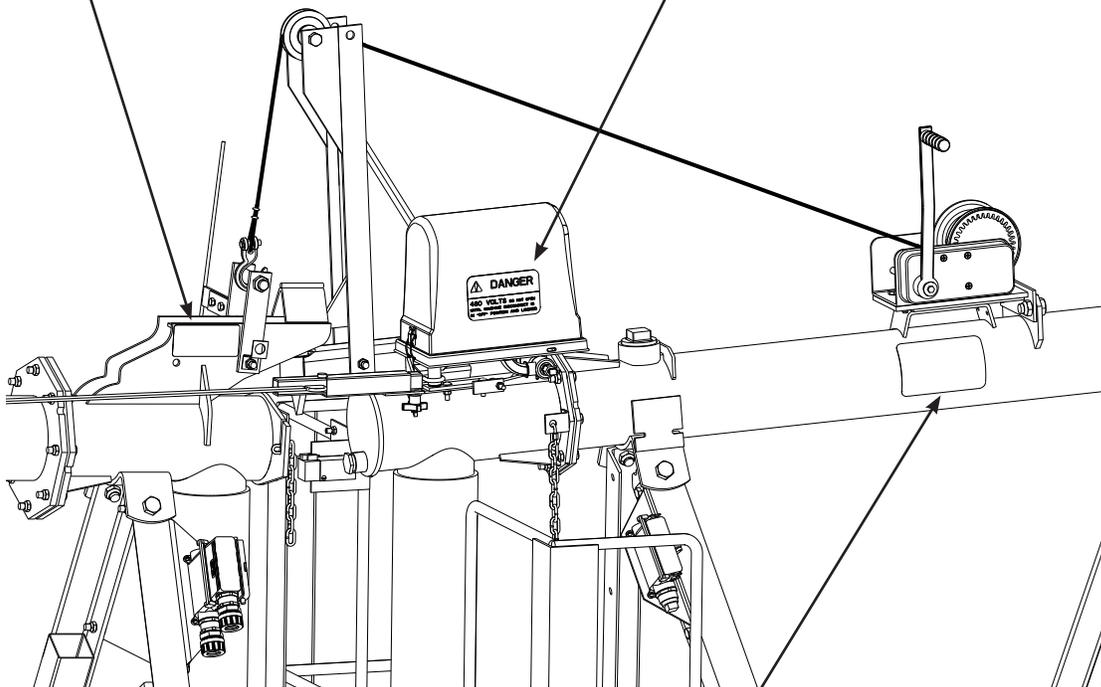
## Safety Decals (Continued)

**! DANGER !**  
**PINCH POINT!**  
Keep Hands Clear While  
Lifting The Span

0998406

**! DANGER**  
**480 VOLTS** DO NOT OPEN  
UNTIL MACHINE DISCONNECT IS  
IN "OFF" POSITION AND LOCKED

0991261



**! WARNING**  
BE FAMILIAR WITH THE PROPER  
PROCEDURE FOR DROPPING AND  
RE-ATTACHING SPANS.  
FAILURE TO COMPLETE ALL OF THE  
STEPS COULD RESULT IN EQUIPMENT  
DAMAGE OR PERSONAL INJURY  
(SEE OWNER'S MANUAL)

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# OVERVIEW

## DropSpan Components

Below is a description of the various components associated with the DropSpan Option.

### DropSpan Tower Box

The DropSpan tower box is mounted on the socket stub pipe.

The DropSpan tower box controls regular span alignment while running in straight mode.

The DropSpan Tower Box also acts as the Last Regular Drive Unit (LRDU) when spans are dropped off.

The DropSpan tower box can also control end guns (if equipped) while spans are dropped.

### Socket Stub Pipe Outlet

The Socket Stub Pipe Outlet is attached to the last pipe. The socket stub pipe outlet is used to transfer water to the elbow connection and attached spans. See Figure 19-1.

### Hitch Ball Stub Pipe Inlet

The Hitch Ball Stub Pipe Inlet is attached to the first pipe. The hitch ball stub pipe is used to transfer water along to the rest of machine and connecting spans. See Figure 19-1.

### Elbow Connection

The Elbow connection consists of two water transfer elbows with lock ring. See Figure 19-1,

### Span Cable

A cable with color coded wires enters and leaves each tower box. The cable runs the entire length of the machine and is referred to as span cable. See Figure 19-2.

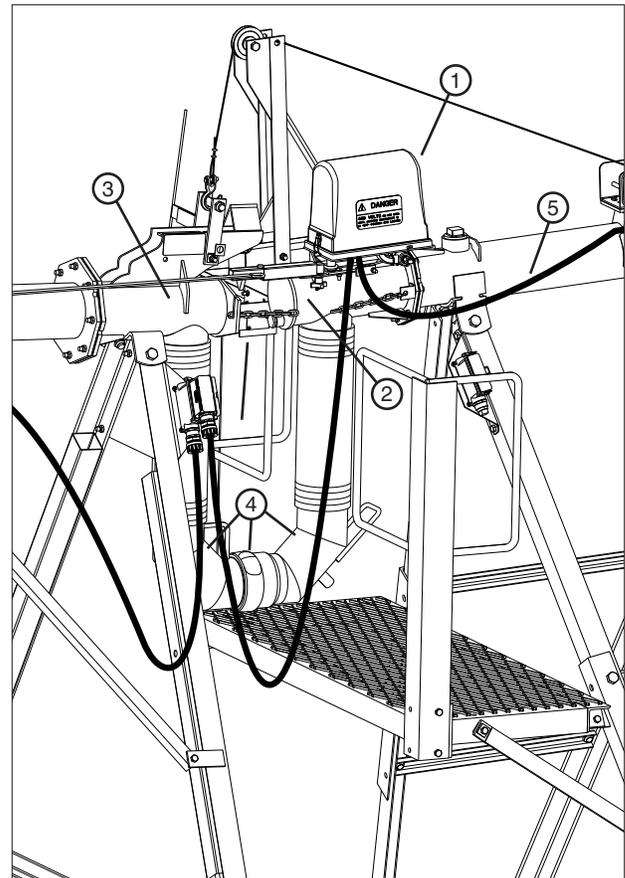


Figure 19-1 1. DropSpan Tower Box  
2. Hitch Ball Stub Pipe Inlet  
3. Socket Stub Pipe Outlet  
4. Elbow Connection  
5. Span Cable

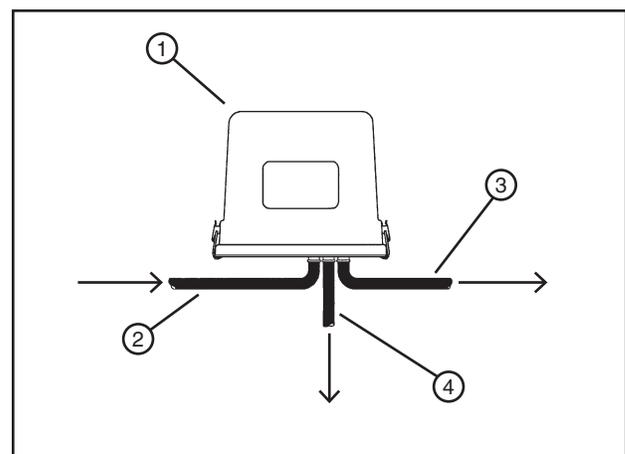


Figure 19-2 1. DropSpan Tower Box  
2. Span Cable Entering Tower Box  
3. Span Cable Leaving Tower Box  
4. Cable to Drive Motor

# OVERVIEW

## DropSpan Components

### DropSpan Platform

The DropSpan Platform is used for dropping and attaching spans. See Figure 20-1

### Support Leg Assembly

The support leg assembly is used to keep the dropped spans out of the crop once they are lowered to the ground. See Figure 20-1.

### Electrical Connectors

The Electrical Connectors provide a way to disconnect power from the dropped span. See Figure 20-2.

### Load Binder

The load binder provides the ability to align the hitch ball with the socket during the connection procedure. See Figure 20-2.

### Lift Winch With Brake

The lift winch with brake is used to raise and lower connecting span during dropping and attaching procedures. See Figure 20-3.

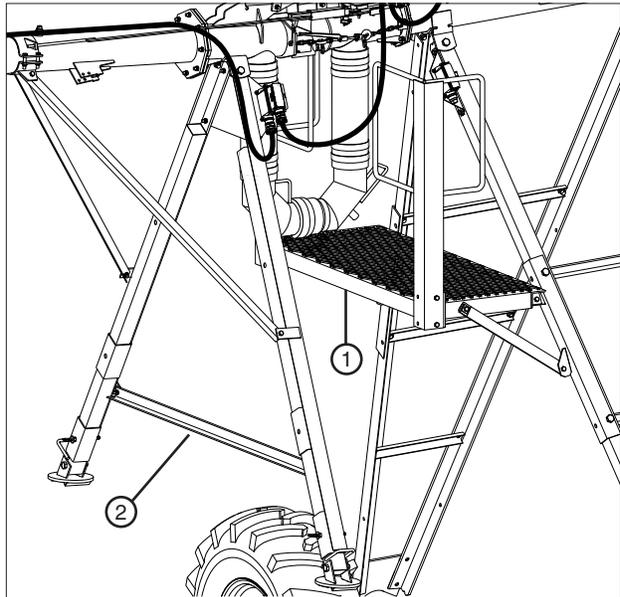


Figure 20-1 1. DropSpan Platform  
2. Support Assembly

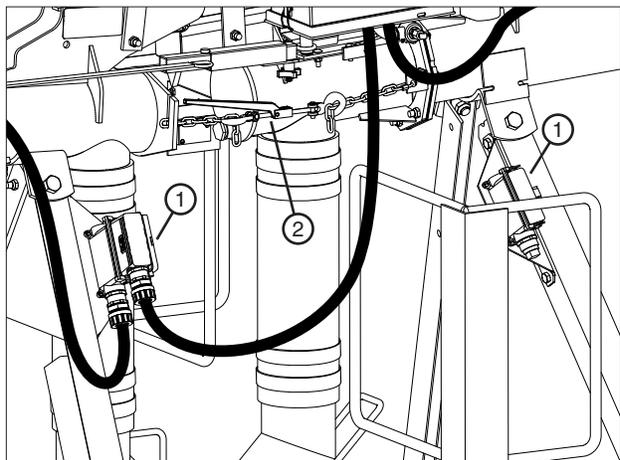


Figure 20-2 1. Electrical Connectors  
2. Load Binder

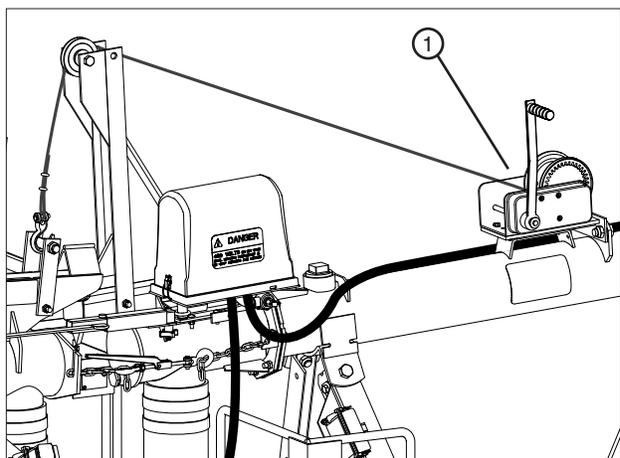


Figure 20-3 1. Winch

## DropSpan Components

### Stop Switch

During operation the stop switch will come in contact with the stop rod which will shut down the machine. This will indicate when the machine is ready for connection procedure, See Figure 21-1.

### (Optional) End Gun W/ Komet Valve

This Optional End Gun configuration uses a solenoid valve with 3/4 in (19.05 mm) cross filter to control the function of the Komet Valve when spans are dropped. See Figure 21-2.

### (Optional) End Gun W/ Manual Valve

This Optional End Gun configuration uses a Manual Shutoff Valve to control the function of the end gun when spans are dropped. See Figure 21-3.

The end gun is set to cover a specified area. This area is determined by the forward and backward angles, which are referred to as the end gun arc settings.

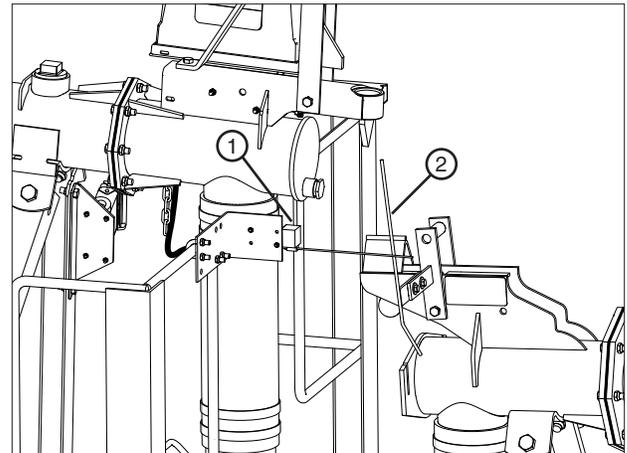
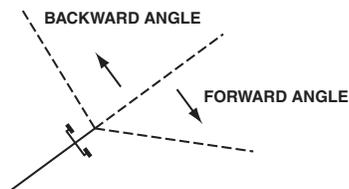


Figure 21-1 1. Stop Switch  
2. Stop Rod

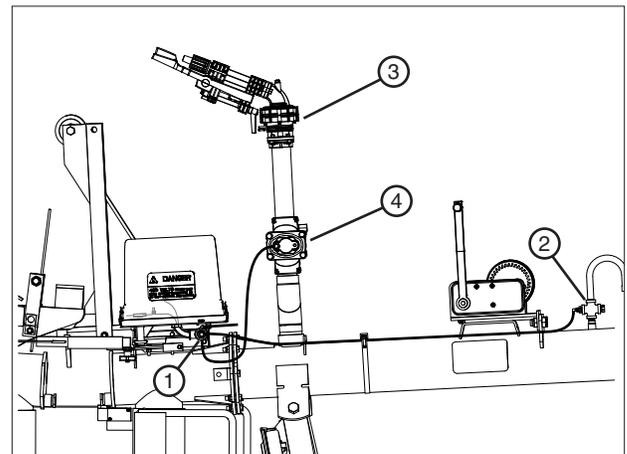


Figure 21-2 1. Solenoid Valve 3. End Gun  
2. 3/4 in Cross Filter 4. Komet Valve

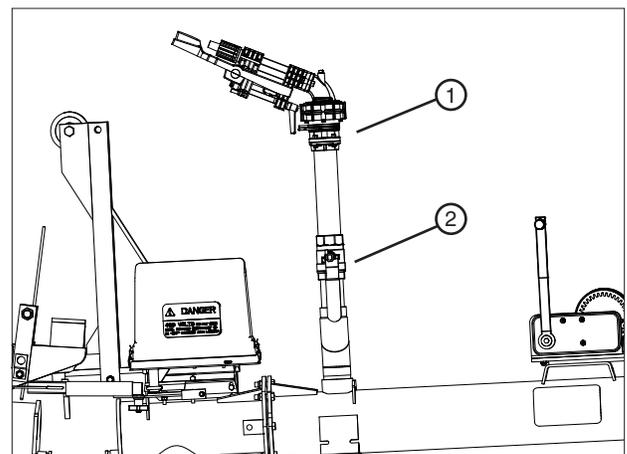


Figure 21-3 1. End Gun  
2. Manual Shutoff Valve

# OVERVIEW

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## DropSpan Components

### Tethered End Plug

The End Plug is used to stop water flow when spans are dropped. The end plug is attached to the water transfer elbow with a ring lock. See Figure 22-1.

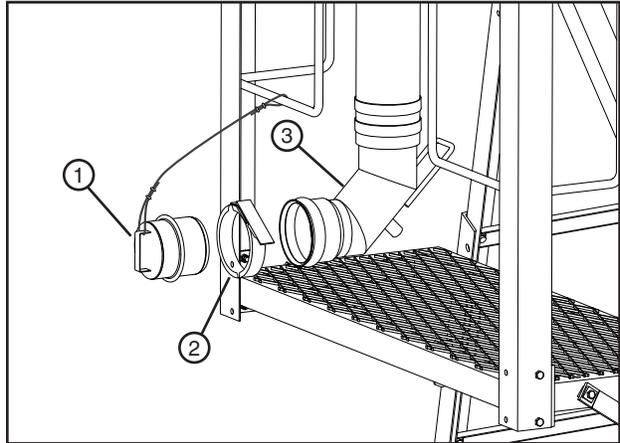


Figure 22-1 1. End Plug  
2. Ring Lock  
3. Water Transfer Elbow

## Starting The Machine

Refer to the control panel owners manual for information about starting the machine. The DropSpan runs only when the machine is running. During operation the machine pauses when it engages the dropspan field stop where spans are to be dropped/attached. Once the user completes the span drop procedures, the machine can be re-started and will operate normally without the dropped spans. When the machine returns to the location where the spans have been dropped the stop switch pauses the machine. The user will then complete the span attaching procedure and the machine will resume normal operation with the re-attached spans.

## Emergency Stopping

To stop the machine in an emergency situation, shut off any one of the following:

- Main Service Disconnect Switch from public power to the control panel. See figure 23-1.
- Control Panel Main Disconnect Switch. See figure 23-1.
- Any Tower Box Disconnect Switch. See figure 23-1.

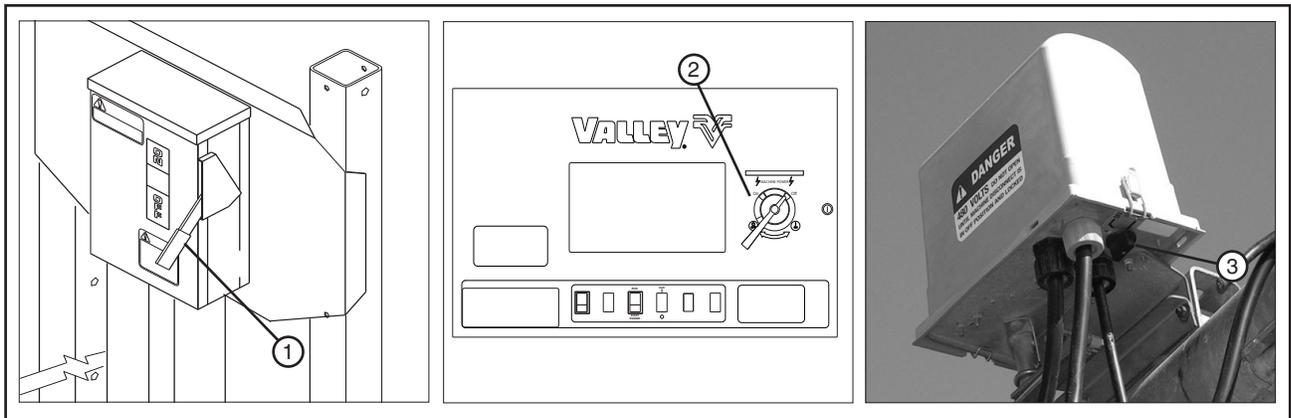


Figure 23-1 1. Main Service Disconnect Switch  
2. Control Panel Main Disconnect Switch  
3. Tower Box Disconnect Switch

## Stopping Under Normal Conditions

1. Place the START/STOP switch in the STOP position. See figure 23-2.
2. Turn the main disconnect switch to the OFF position. See figure 23-2.
3. Turn the pumping unit OFF (if not automatic).
4. If an engine generator set is utilized, place the Engine Run/Start switch to the Start position for the next start-up sequence.

**⚠ WARNING**

- **DO NOT SHUT THE MACHINE OFF BY SLOWLY IDLING DOWN THE ENGINE GENERATOR SET. THIS PRACTICE CAUSES LOW VOLTAGE AND WILL DAMAGE MACHINE COMPONENTS.**
- **ALWAYS STOP THE IRRIGATION MACHINE PRIOR TO SHUTTING DOWN THE ENGINE-GENERATOR SET.**

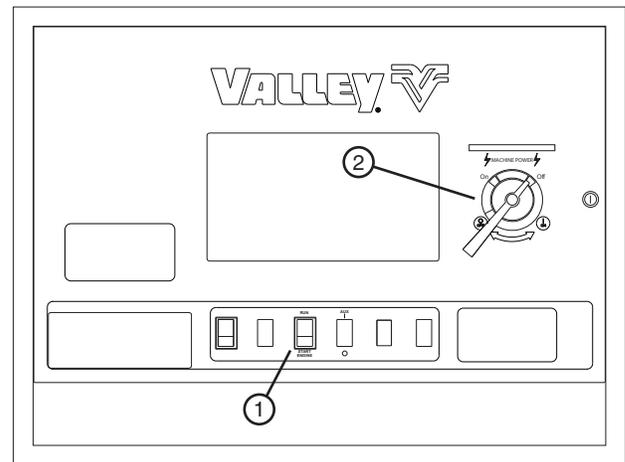


Figure 23-1 1. Start/Stop Switch  
2. Main Disconnect Switch "OFF"

# OPERATION

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# OPERATION

## Dropping Spans Procedure

### DANGER

- THE CONTROL PANEL CONTAINS HIGH VOLTAGE! LIVE VOLTAGE CAN KILL.
- ALWAYS DISCONNECT ELECTRICAL POWER BEFORE SERVICING OR PERFORMING MAINTENANCE TO THE MACHINE.
- INSTALLATION OF THIS KIT, INCLUDING TESTING AND TROUBLESHOOTING SHOULD BE PERFORMED ONLY BY AN AUTHORIZED VALLEY DEALER.
- ALWAYS REPLACE ANY GUARDS OR SHIELDS THAT ARE REMOVED FOR PERFORMING MAINTENANCE.

### Disconnect All Power

Follow the MINIMAL LOCKOUT/TAGOUT PROCEDURE located in the SAFETY section of this manual and do the following:

1. SHUT OFF and LOCK the public power service disconnect to the irrigation machine. FILL OUT the blue (OSHA safety color code) tag and attach to the disconnect after locking. See figure 25-1.
2. SHUT OFF the control panel main power disconnect. See figure 25-2.

Continue with Step 3 on the next page.

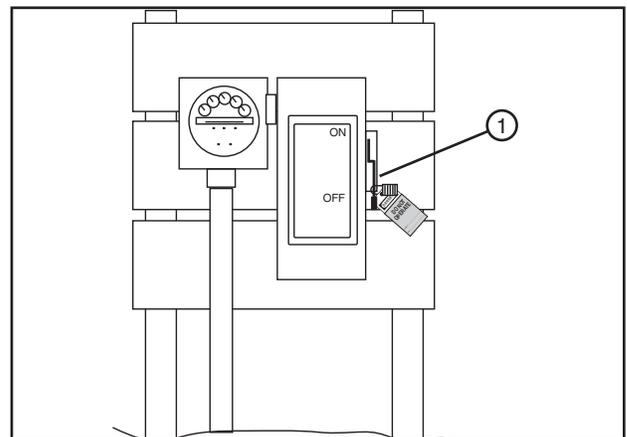


Figure 25-1 1. Public Power Service Disconnect

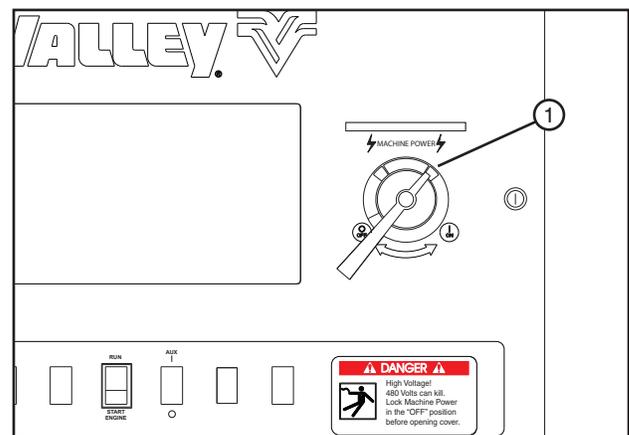


Figure 25-2 1. Main Power Disconnect  
Series 8000 Control Panel Shown

# OPERATION

## Dropping Spans Procedure (Continued)

3. Remove 3/4 in pins and lower the forward and rear support legs. Lock each leg in lowered position with a 3/4 in pin in place with a lynch pin. See Figure 26-1.
4. Unplug the span cable from the outer spans electrical socket. See Figure 26-2.
5. Unlock the weather tight guard and plug the span cable into inner span electrical socket, locking it in place. See Figure 26-2.
6. Close and lock the weather tight cover on the outer span electrical socket. See Figure 26-2.
7. Loosen the plastic knob located on tower box inner alignment arm. Then, slide out of the tower box inner alignment arm. See Figure 26-3.
8. Lay out alignment arm on outer span so that the loop is over the tab as shown. See Figure 26-3.
9. Tighten plastic knob completely to reduce the possibility of it from falling off during operation. See Figure 26-3.

### NOTE

- TIGHTEN PLASTIC KNOB COMPLETELY TO REDUCE THE POSSIBILITY OF IT FALLING OFF DURING OPERATION.

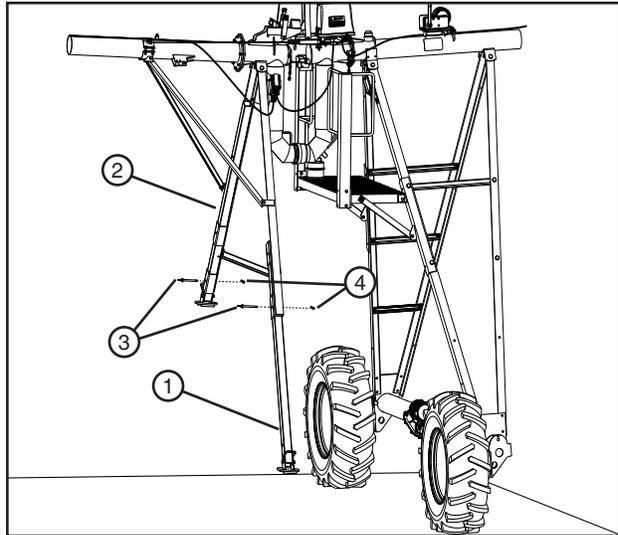


Figure 26-1 1. Front Support Leg 2. Rear Support Leg 3. 3/4 in Torque Pin 4. 3/4 in Lynch Pin

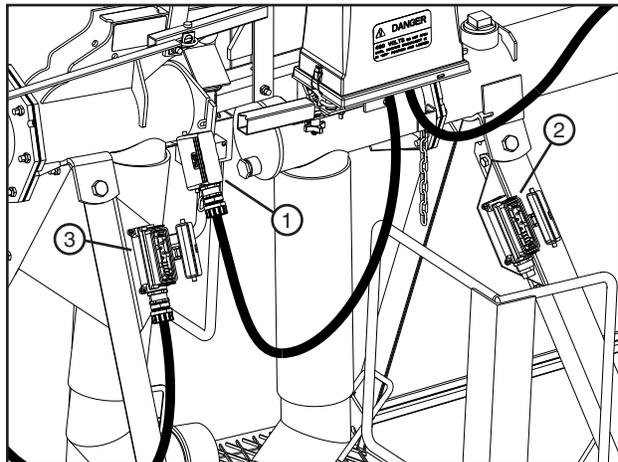


Figure 26-2 1. Span Cable 2. Inner Span Socket 3. Outer Span Socket

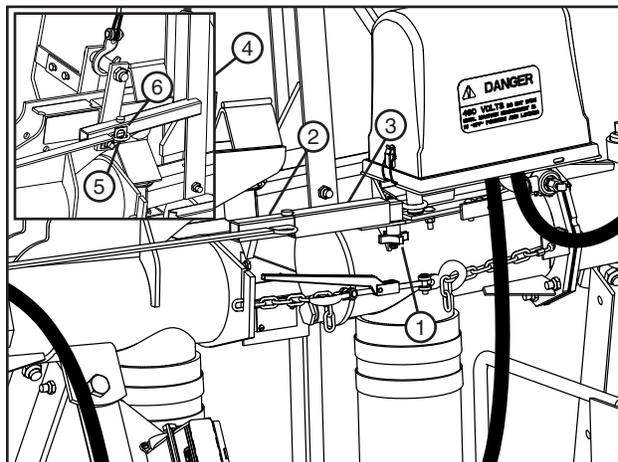


Figure 26-3 1. Plastic Knob 2. Outer Alignment Arm Location 3. Inner Alignment Arm 4. Alignment Arm Storage 5. Loop 6. Tab

# OPERATION

## Dropping Spans Procedure (Continued)

11. Remove the ring-lock clamp and uncouple the water transfer elbows from each other. See Figure 27-1.
12. Insert the ring lock end plug into the coupler. Secure in place with a ring-lock. 27-2.
13. Hook winch cable into the lift bar, then lift the span using the winch.
14. Lift span high enough to allow clearance for the ramp to be installed.

### **WARNING**

•KEEP FINGERS CLEAR OF THE AREA AS THE SPAN IS LIFTED TO PREVENT INJURY IF THE SPAN PUSHES INWARD.

15. Install ramp into the hitch socket. See Figure 27-3.

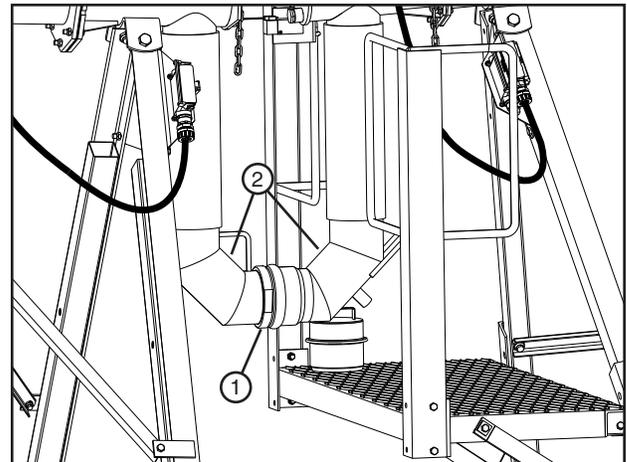


Figure 27-1 1. Ring Lock  
2. Water Transfer Elbows

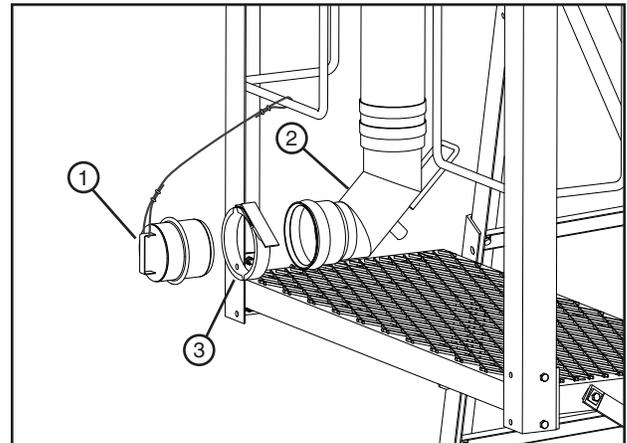


Figure 27-2 1. Ring Lock End Plug  
2. Elbow Coupler  
3. Ring Lock

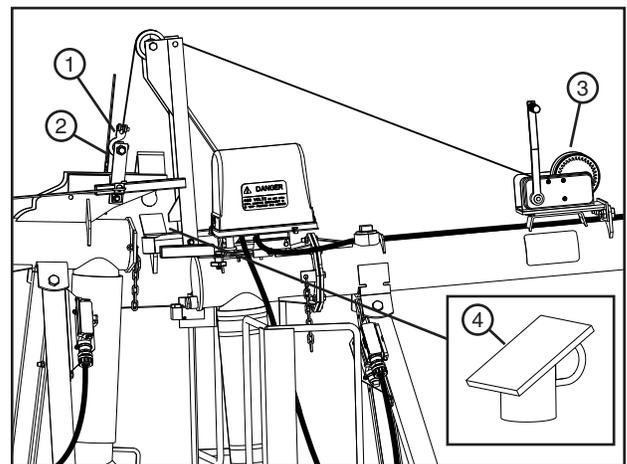


Figure 27-3 1. Hook 3. Winch  
2. Lift Bar 4. Ramp

# OPERATION

## Dropping Spans Procedure (Continued)

16. Lower the span until the support legs contact the ground. See Figure 28-1.

### CAUTION

- KEEP HANDS AWAY FROM PINCH POINTS WHEN LOWERING.

17. Remove the cable from the dropped span. Rewind cable onto the winch. See Figure 28-2.

### NOTE

- Be sure that all steps have been completed before resuming operation.

### WARNING

- BE SURE THAT CABLE HAS BEEN UNHOOKED FROM DROPPED SPANS STRUCTURAL DAMAGE COULD OCCUR.

18. Dropping Spans Procedure is complete. Refer to the control panel owners manual for information about starting the machine.

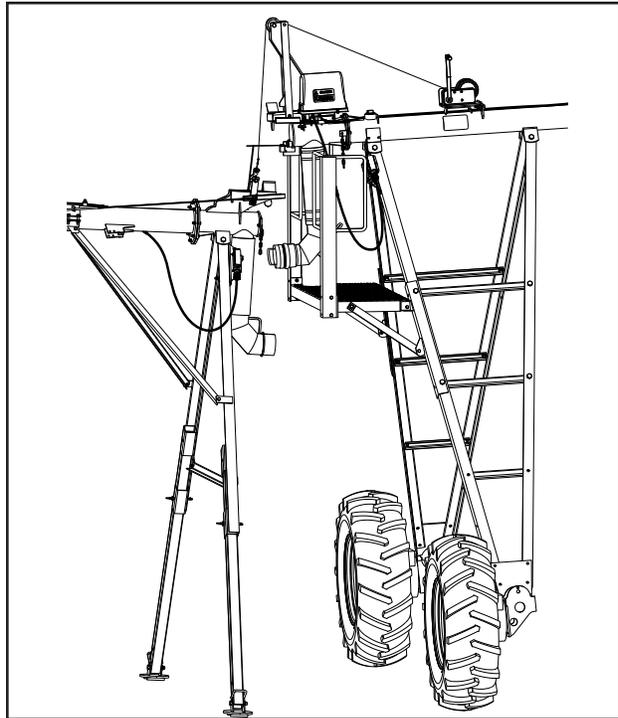


Figure 28-1 Span Dropped

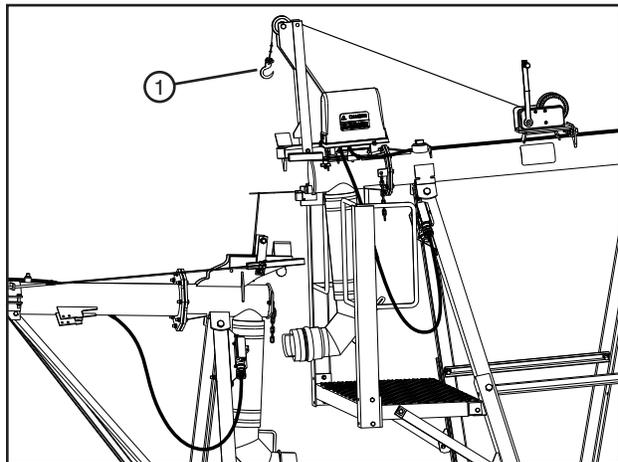


Figure 28-2 1. Cable up for Operation

# OPERATION

## Attaching Spans Procedure

### DANGER

- THE CONTROL PANEL CONTAINS HIGH VOLTAGE! LIVE VOLTAGE CAN KILL.
- ALWAYS DISCONNECT ELECTRICAL POWER BEFORE SERVICING OR PERFORMING MAINTENANCE TO THE MACHINE.
- INSTALLATION OF THIS KIT, INCLUDING TESTING AND TROUBLESHOOTING SHOULD BE PERFORMED ONLY BY AN AUTHORIZED VALLEY DEALER.
- ALWAYS REPLACE ANY GUARDS OR SHIELDS THAT ARE REMOVED FOR PERFORMING MAINTENANCE.

### Disconnect All Power

Follow the MINIMAL LOCKOUT/TAGOUT PROCEDURE located in the SAFETY section of this manual and do the following:

1. SHUT OFF and LOCK the public power service disconnect to the irrigation machine. FILL OUT the blue (OSHA safety color code) tag and attach to the disconnect after locking. See figure 29-1.
2. SHUT OFF the control panel main power disconnect. See figure 29-2.

Continue with Step 3 on the next page.

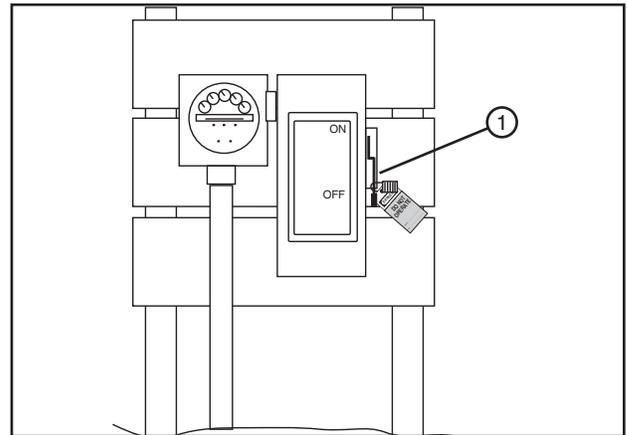


Figure 29-1 1. Public Power Service Disconnect

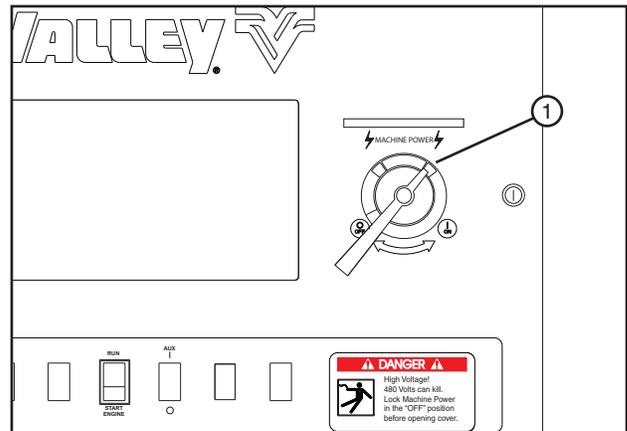


Figure 29-2 1. Main Power Disconnect  
Series 8000 Control Panel Shown

# OPERATION

## Attaching Spans Procedure (Continued)

3. Shut the machine down properly after the stop rod has made contact with the microswitch assembly. See Figure 30-1.
4. Unwind the winch cable, and hook it to the lift bar. 30-2.
5. Lift the span until the ball hitch is positioned above the hitch socket. See Figure 30-2.
6. Remove the ramp from hitch socket before lowering the ball hitch into the socket. Hang ramp by the ring on the stop rod for storage. See Figure 30-2.
7. Lower the span until the ball hitch is seated in the hitch socket. See Figure 30-2.

If necessary, use chain and load binder to align ball hitch with hitch socket. See Figure 30-3.

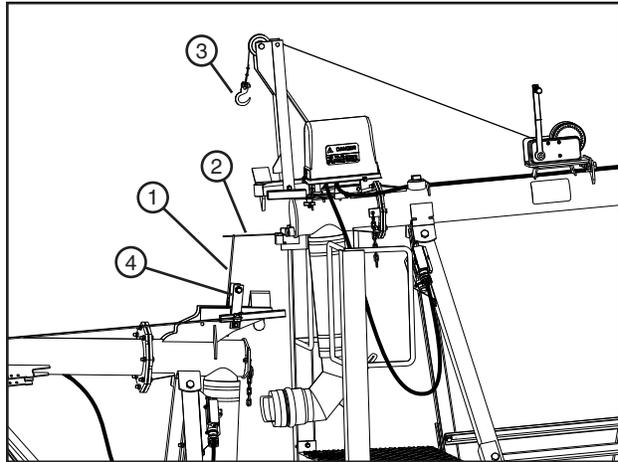


Figure 30-1 1. Stop Rod 2. Microswitch 3. Winch Cable 4. Lift Bar

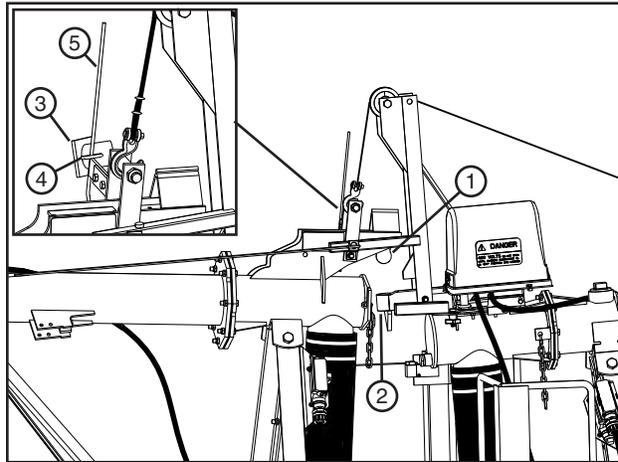


Figure 30-2 1. Ball Hitch 2. Hitch Socket 3. Ramp 4. Ring 5. Stop Rod

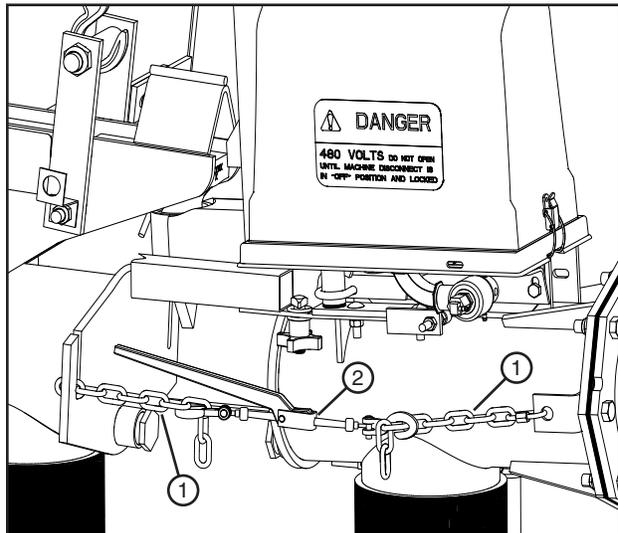


Figure 30-3 1. Chains 2. Load Binder

# OPERATION

## Attaching Spans Procedure (Continued)

8. Remove ring lock and end plug. See Figure 31-1.
9. Connect the water transfer elbows and lock in place with ring-lock clamp. See Figure 31-2.
10. Loosen the plastic knob located on tower box inner alignment arm. See Figure 31-3.
11. Slide the outer alignment arm into the inner alignment arm until the stop is seated in the V-notch. See Figure 31-3.
12. Tighten the plastic knob to hold the alignment arm in place. See Figure 31-3.

### NOTE

- TIGHTEN PLASTIC KNOB TO HOLD ALIGNMENT ARM IN PLACE.

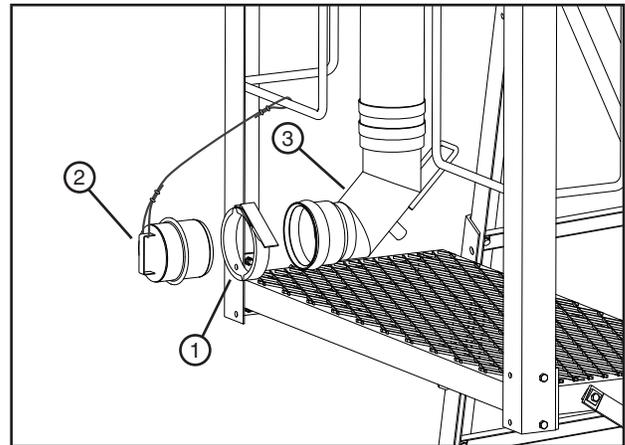


Figure 31-1 1. Ring Lock  
2. Ring Lock End Plug  
3. Elbow Coupler

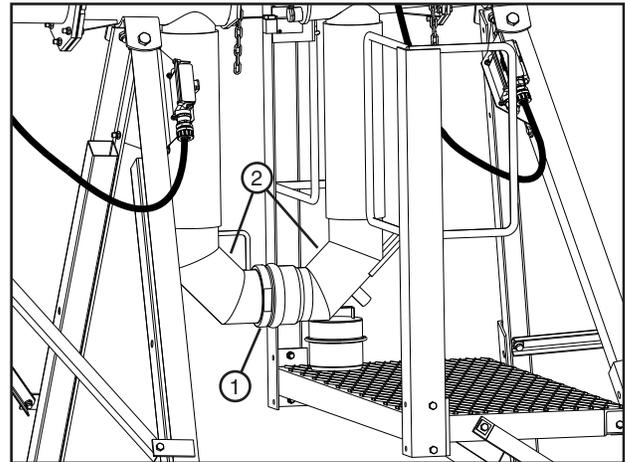


Figure 31-2 1. Water Transfer Elbows  
2. Ring-Lock Clamp

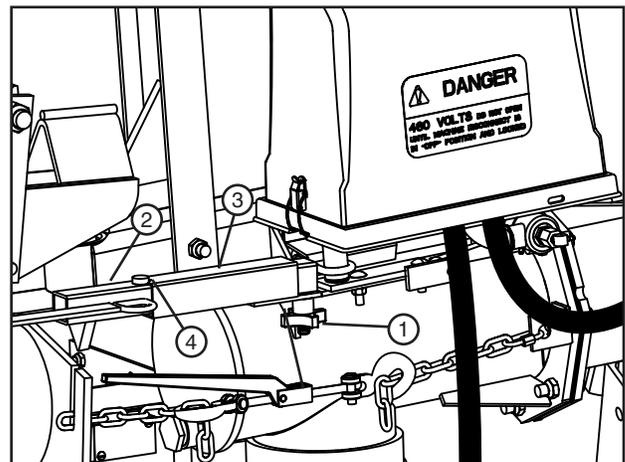


Figure 31-3 1. Plastic Knob 3. Inner Alignment Arm  
2. Outer Alignment Arm 4. V-Notch & Stop

# OPERATION

## Attaching Spans Procedure (Continued)

13. Unplug the span cable from the inner span electrical socket. See Figure 32-1.
14. Unlock the weather tight guard and plug the span cable into the outer span electrical socket, locking it in place. See Figure 32-1.
15. Close and lock the weather tight guard on the inner span electrical socket. See Figure 32-1.
16. Remove 3/4 in pins and raise the forward and rear support legs. Lock each leg in raised position with a 3/4 in pin. Secure each 3/4 in pin in place with a lynch pin. See Figure 32-2.
17. Insert the torque pins, secure the pins by inserting lynch pins. See Figure 32-2.

### NOTE

•Check that all steps have been completed.

18. Attaching spans procedure is complete. Refer to the control panel owners manual for information about starting the machine. See Figure 32-3.

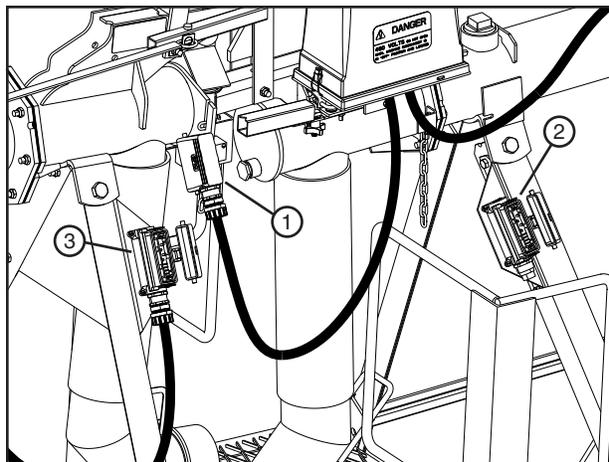


Figure 32-1 1. Span Cable  
2. Inner Span Socket  
3. Outer Span Socket

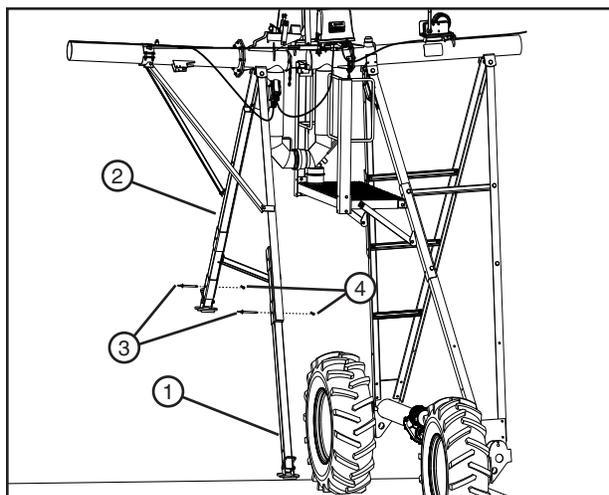


Figure 32-2 1. Front Support Leg  
2. Rear Support Leg  
3. Torque Pin  
4. Lynch Pin

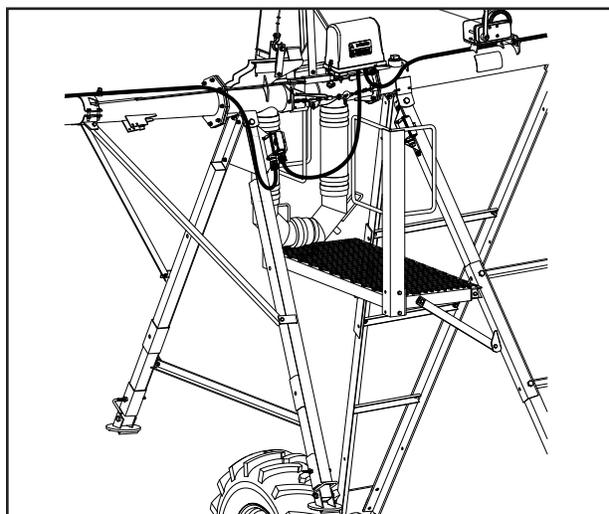


Figure 32-3 Complete Attached DropSpan

### **DANGER**

- **THE CONTROL PANEL CONTAINS HIGH VOLTAGE! 480 VOLTS CAN KILL.**
- **ALWAYS DISCONNECT ELECTRICAL POWER BEFORE SERVICING OR PERFORMING MAINTENANCE TO THE MACHINE.**
- **TESTING AND TROUBLESHOOTING SHOULD BE PERFORMED ONLY BY AN AUTHORIZED VALLEY DEALER.**
- **ALWAYS REPLACE ANY GUARDS OR SHIELDS THAT ARE REMOVED FOR PERFORMING MAINTENANCE.**

### Disconnect All Power

Before performing service or maintenance on any part of the machine, follow the MINIMAL LOCKOUT/TAGOUT PROCEDURE located in the SAFETY section of this manual and do the following:

1. SHUT OFF and LOCK the public power service disconnect to the irrigation machine. See figure 33-1.

FILL OUT the blue (OSHA safety color code) tag and attach to the disconnect after locking. See figure 33-1.

2. SHUT OFF and lock the control panel main power disconnect. See figure 33-2.

FILL OUT the blue (OSHA safety color code) tag and attach to the disconnect after locking. See figure 33-2.

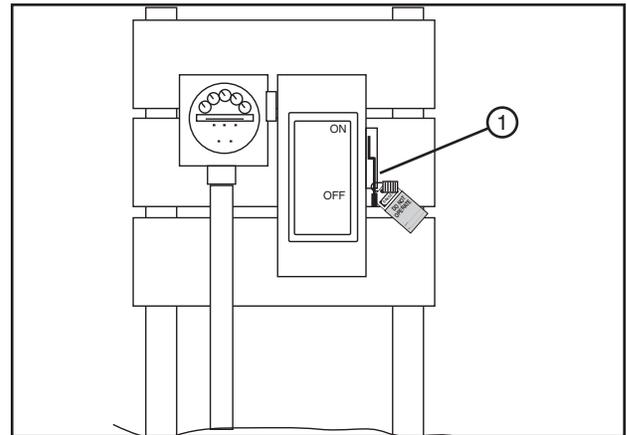


Figure 33-1 1. Public Power Service Disconnect

### **DANGER**

**BE AWARE OF HIGH WATER PRESSURE. TURN OFF THE PUMP AND ALLOW THE MACHINE TO DRAIN COMPLETELY BEFORE REPAIRING OR PERFORMING MAINTENANCE TO THE MACHINE.**

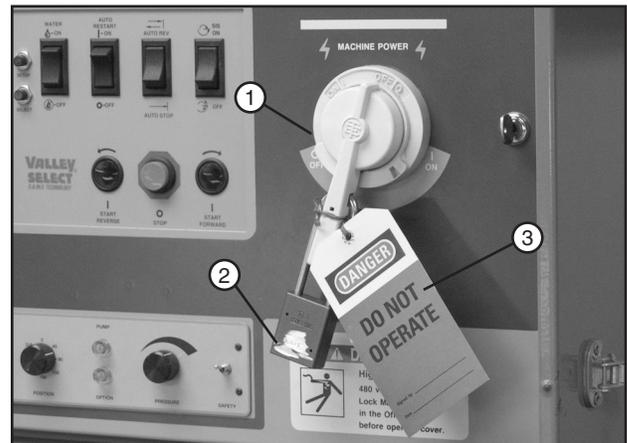


Figure 33-2 1. Main Disconnect  
2. Lock  
3. Blue Tag

# MAINTENANCE

## Hose Replacement

If the hoses are sufficiently weather-cracked, checked, or leaking, you need to replace. Follow the steps below to replace the 4-1/2 in hoses. See figure 34-1.

1. Loosen the hose clamps. See figure 34-1.
2. Remove the old hose.
3. Slide the hose clamps over the new hose.

### NOTE

To aid installation of the hose, a vegetable based soap or tire bead lubricant may be used to lubricate the barbed pipe. **DO NOT** use oil, grease, or other petroleum-based products.

4. Slide the new hose onto stub pipe and elbow until the hose contacts the hose stops.
5. Tighten the hose clamps. See figure 34-1.

Contact your local Valley Dealer if you have any questions about replacing the hoses.

## End Gun Arc Setting Example

An end gun is installed at the end of the machine and is used to increase the area irrigated beyond the end of the machine. See Figure 34-2.

The end gun must be set to cover a specified area to ensure the best uniformity. This area is determined by two angles – the Forward and Backward end gun angles which are sometimes referred to as the end gun arc settings.

A line on the sprinkler chart for this machine specifies the correct end gun arc settings for the machine: See Figure below.

END GUN ARC SETTING EXAMPLE:

FORWARD ANGLE = 45

BACKWARD ANGLE = 85

**IMPORTANT:** This is an example only. Refer to the sprinkler chart for this machine to determine the correct end gun arc settings.

These settings should initially be set by your Valley Dealer at time of installation and start up.

## Winterization

In regions where the temperature during the winter months will drop below 40°F (4°C) and/or the growing season is 6 months or less, the irrigation machine must be winterized.

\*Refer to the machine owner's manual for winterization, flushing procedure and recommendations for parking the machine.

\*After flushing for winterization, uncouple the DropSpan water transfer elbows from each other and allow them to drain completely before coupling them back together.

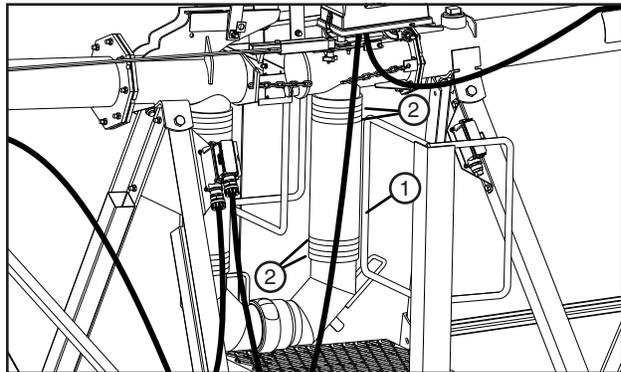


Figure 34-1 1. Hose  
2. Flex Joint Clamp

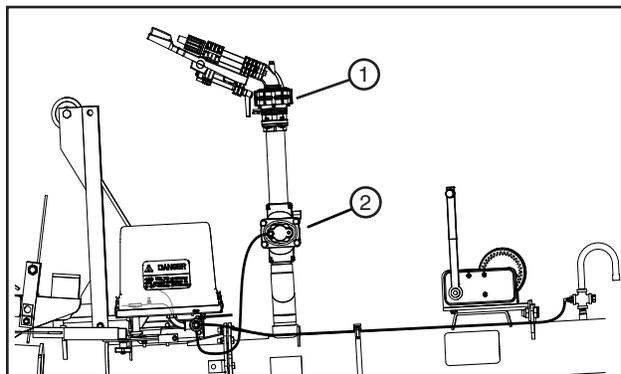
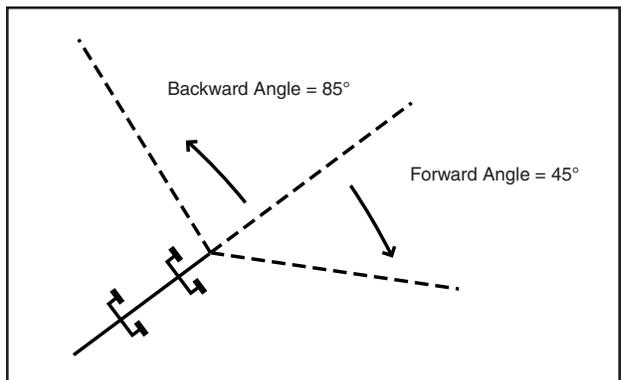


Figure 34-2 1. End Gun  
2. Komet Valve



# MAINTENANCE

## Annual Maintenance

Time, humidity, vibration, temperature, sand, and machine operation all contribute to wear on your VALLEY irrigation machine. To keep the machine operating properly with a minimum amount of down time, establish a regular preventative maintenance program using the recommended maintenance charts in this section. If replacement parts are needed, use only genuine VALLEY REAL PARTS.

<b>DropSpan</b>				
	Pre-season	1st Pass	End of Season	Remarks
Check all nuts and bolts. Tighten as required.	X		X	
Check equipment grounding conductors. Tighten or clean as required.	X		X	Check the grounding conductor hook-ups prior to start up.
Check/clean cross filter.	X		X	
Check air pressure in tires.	X		X	Also check at least once during the operating season.
Check power cable for damage and proper banding to ensure proper attachment.	X		X	Replace if frayed, worn, or weather checked.
Check pipe drains for proper drainage and invert the seal when applicable. (See Winterization procedure.)	X		X	These must be checked at end-of-season shutdown.
Check the winch for wear or damage	X			Replace if worn or damaged
Check winch cable for fraying	X			Replace if frayed
Check water transfer hoses for damage or cracking.	X		X	
Check plugs for damaged or corroded pins				Replace if damaged
Check microswitch for proper operation	X			Replace if damaged
Check for loose or missing components (alignment arm, socket ramp, load-binder, chains, drain plug, alignment arm nut, ring lock, etc.)	X			Replace when necessary

<b>Drive Unit</b>				
	Pre-Season	1st Pass	Pre-season	Remarks
Check the motor lead cable for damage.	X		X	Contact your Valley dealer if the outer insulating sheath is cracked.
Check for proper ground connection on motor and motor lead.	X		X	

<b>Sprinkler</b>				
	Pre-season	1st Pass	End of Season	Remarks
Check end gun bearing and brake setting.	X		X	
Check tubing harness for damage.	X		X	

# MAINTENANCE

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## Annual Maintenance

# TROUBLESHOOTING

## Troubleshooting List

The table below lists various problems that could occur along with their possible causes and corrective actions.

PROBLEM	POSSIBLE CAUSE OR CORRECTIVE ACTION
Cannot Re-Attach Spans	Check Alignment of Machine.
	The spans that are dropped are too close when machine returns. First dropped drive unit may need some dirt work to ensure the span is in tension when it is dropped.
	Dropped spans are too far away of machine for attachment. Use supplied come along to bring spans closer together
Machine has shut down or will not start.	The machine is out of alignment - See the Machine Owners Manual.
	Ensure the span cable plug is inserted in the correct receptacle.
	Water deposits have caused the angle sensor box to be out of alignment. (Precision Corner)
	A drive unit is stuck. Fill the wheel track with dry soil to allow movement.
	A flat tire at the drive unit
	A failed drive unit U-joint.
	Safety micro switch #3 is depressed in the Run Cycle Box. (Valley Corner)
	Faulty LRDU or guidance tower drive systems
	Check connection of connectors.
	Check the guidance tower and LRDU for signs of failure in the mechanical assemblies or the Run Cycle Box control arm linkage. (Valley and Precision Corners)
	Guidance Tower is too far off the guidance wire. (Valley and Precision Corners)
	Side load safety box has detected a problem (if equipped) (Precision Corner)
Call your Valley Dealer.	
End Gun fails to come on or shut off.	The plastic tubing is plugged or broken.
	Plugged water filters
	A faulty solenoid coil - call your Valley dealer.