DualSpan Corner

Owner's Manual

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www.valleyirrigation.com

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EC DECLARATION OF CONFORMITY

CE

We: **Valmont Industries, Inc.**
28800 Ida Street
Valley, NE 68064
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Serial Number:

Purchase Order:

declare under our sole responsibility that the product,

Crop Irrigation System

to which this documentation relates, is in conformity with the following documents:

Machinery Directive 2006/42/EC
Low Voltage Directive 2006/95/EC
Electromagnetic Compatibility Directive 2004/108/EC

The above-referenced equipment is in conformity with all safety-related clauses (Not all clauses reflecting commercial preference are met) of the following documents:

EN 60204-1:2006	**Safety of Machinery – Electrical Equipment of Machines**
EN 12100:2010	**Safety of Machinery**
EN 909:1998+A1	**Irrigation Machines**

Statement regarding **Pressure Equipment Directive 97/23/EC:**

The Crop Irrigation System is excluded from the scope of the Pressure Equipment Directive, by the language of Article 1, Sections 3.2, 3.6 & 3.10. This equipment is classified less than Category 1.

Statement regarding **RoHS Directive 2011/65/EC**:

The Crop Irrigation System is excluded from the scope of the RoHS Directive, by the language of Article 2, Section 4(e), being a “Large Scale Fixed Installation.”

Person Authorized to Compile the Technical File in Europe:
Relevant information will be transmitted via e-mail
in response to a reasoned request by national authorities

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Place of Issue: Valley, NE 68064

ELECTRICAL SAFETY STATEMENT

Installation Of The Valley Electric Irrigation Machine

Valmont Industries Inc. does not install a differential (ground fault) circuit breaker in the control panel of the Valley electric irrigation machine because the standards of protection vary according to country of destination. The distributor must provide and install a differential (ground fault) circuit breaker that meets the standards of the country where the Valley irrigation machine is installed.

In the European Union, differential circuit breaker protection is fixed at a maximum of 24 volts.

Good grounding of the Valley irrigation machine is required.

- If resistance to ground is lower than 80 ohms, a differential (ground fault) circuit breaker of 300mA will meet requirements.
- If resistance to ground is between 80 and 800 ohms, a differential (ground fault) circuit breaker of 30mA will meet requirements.

The power supply installation and inspection of equipment protection components or machines are the responsibility of the installer. Valmont Industries Inc. is not responsible for the failure of equipment protection components or machines not of their manufacture.

Valley pivot irrigation machines receiving power from a generator must have a cable connected from the irrigation machine structure to a ground rod and another cable from the irrigation machine structure to the ground terminal on generator in order for the differential (ground fault) circuit breaker to work.

- The resistance between the irrigation machine and the generator must be substantially below 80 ohms.

About This Manual

This manual only covers the operation of the Valley DualSpan Corner. Sections related to safety. Pivot hardware, maintenance, troubleshooting and winterization are covered in the appropriate Valley Pivot Owners Manual.

You, as the owner/operator, should familiarize yourself with the capabilities of the system in order to obtain optimum system performance. It should be remembered that the sprinkler will perform according to your knowledge of the equipment, soil and water relationships and equipment application concepts.

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 without incurring 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

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

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

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 12-1.

Figure 12-1 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.

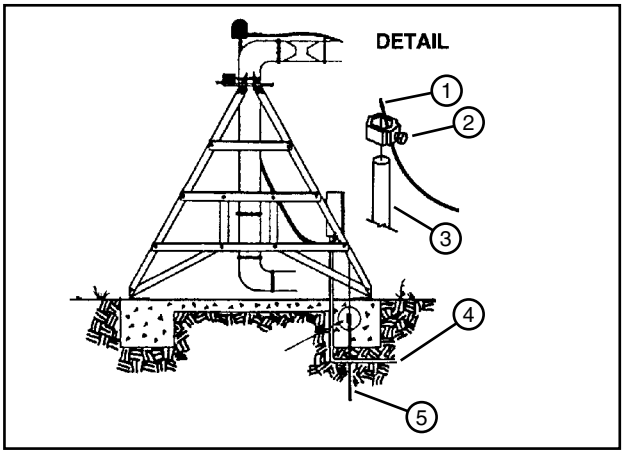


Figure 12-2 1. Copper Wire 2. Clamp 3. Copper Rod 4. 4 Wire Service Conductor 5. Ground Rod Installation

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 13-1.

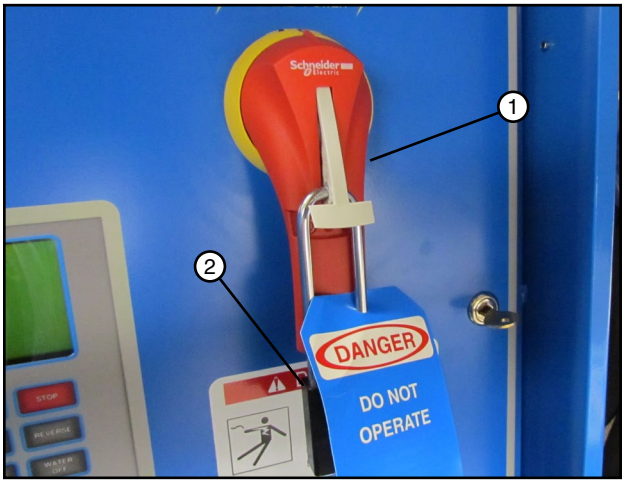


Figure 13-1 1. Main Power Disconnect
2. Lock

The blue (OSHA safety color code) tag shown below should also be filled out and attached to the disconnect after locking. See figure 13-2.

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

Figure 13-2

⚠ 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.

SAFETY

Operate Safely

⚠ 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 center pivot powers two or more drive shafts connected to wheel gear drives. These drive shafts start and stop without warning.

- DO NOT touch rotating drive shalt 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.

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
Pivots 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 15-1.

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

Figure 15-1 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.

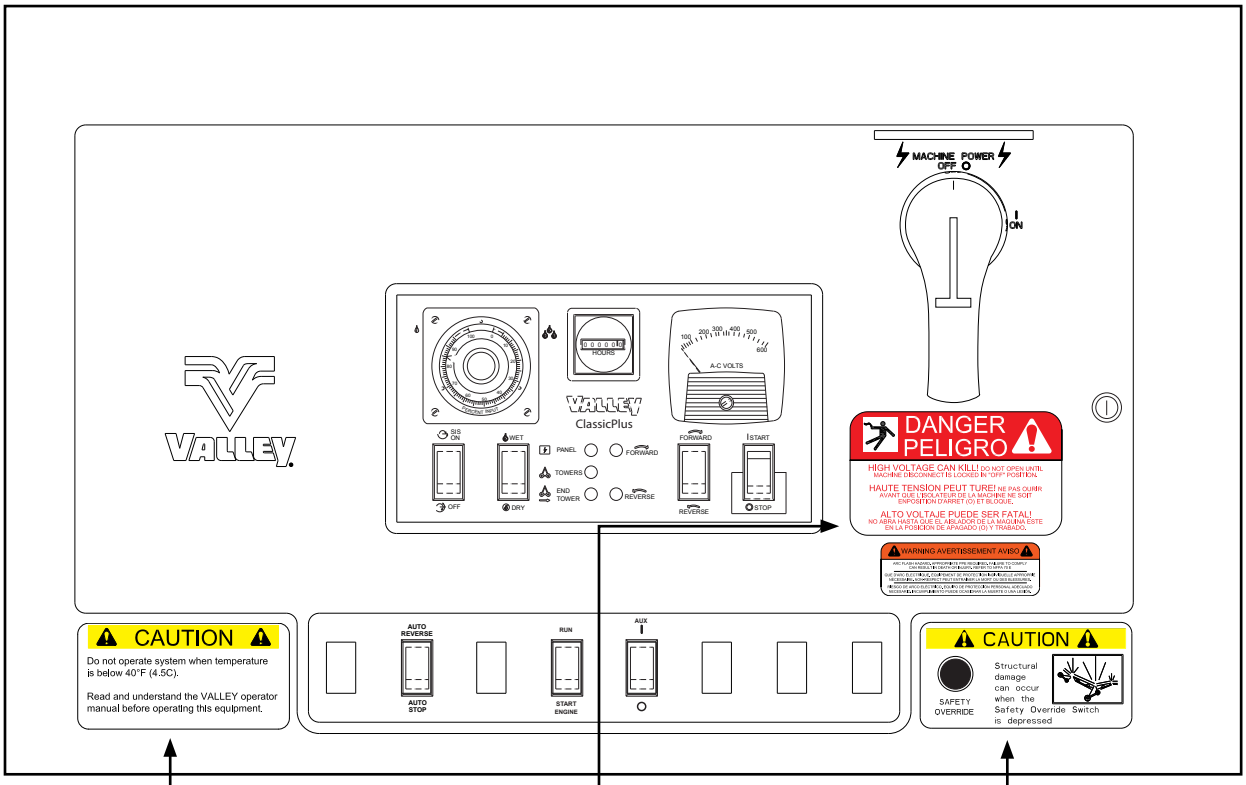
Call your Valley dealer if the machine fails to start.

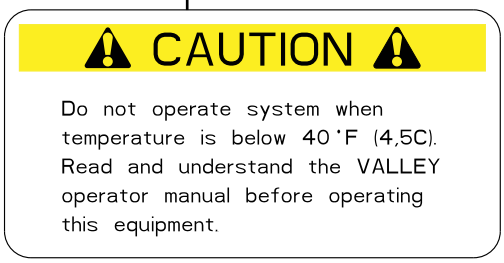
SAFETY

Safety Decals

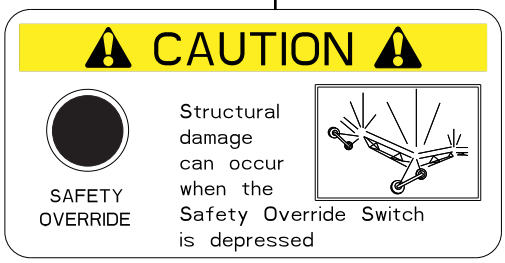
Pivot Control Panel

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.





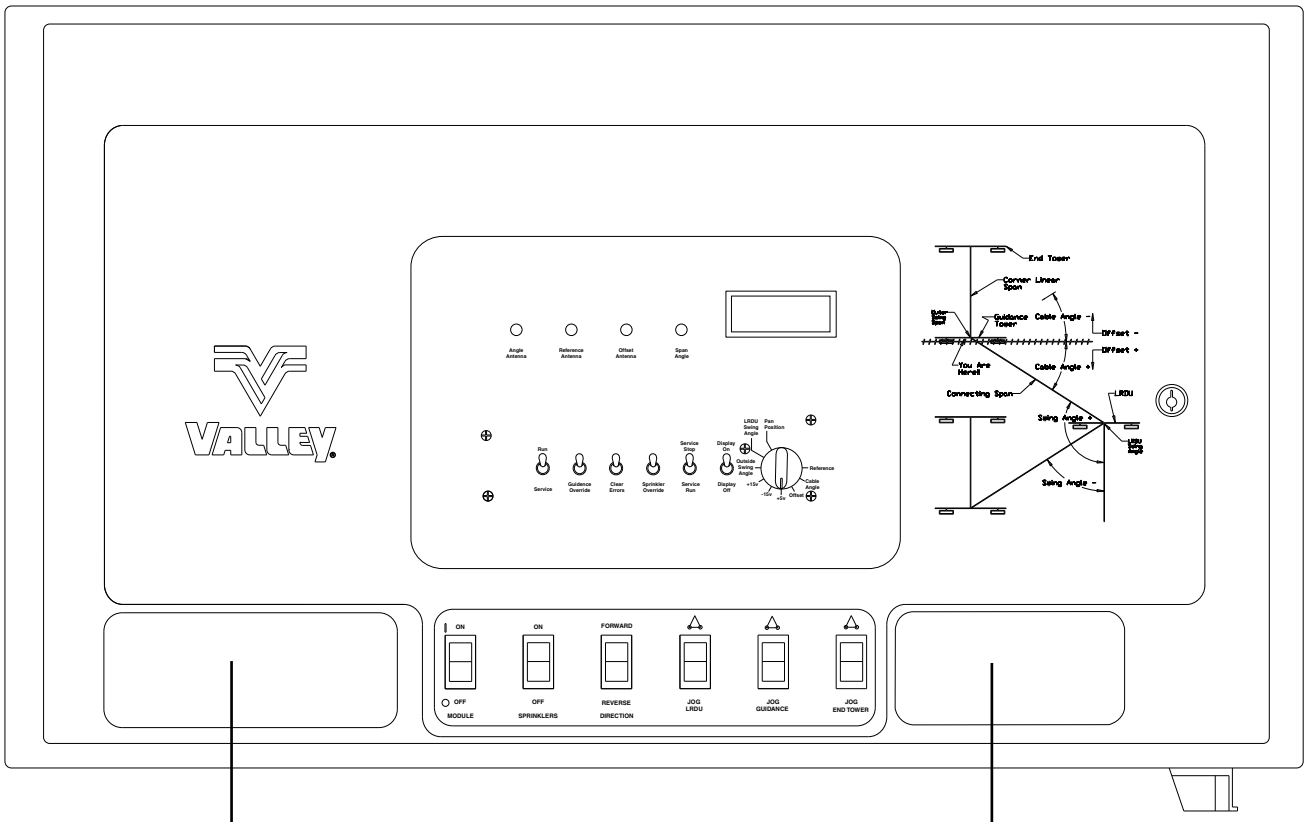
Location: Control Panel



Location: Control Panel

Safety Decals (Continued)

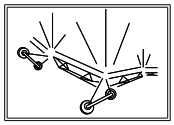
Guidance Control Panel



CAUTION

SAFETY OVERRIDE

Structural damage can occur when the Safety Override Switch is depressed



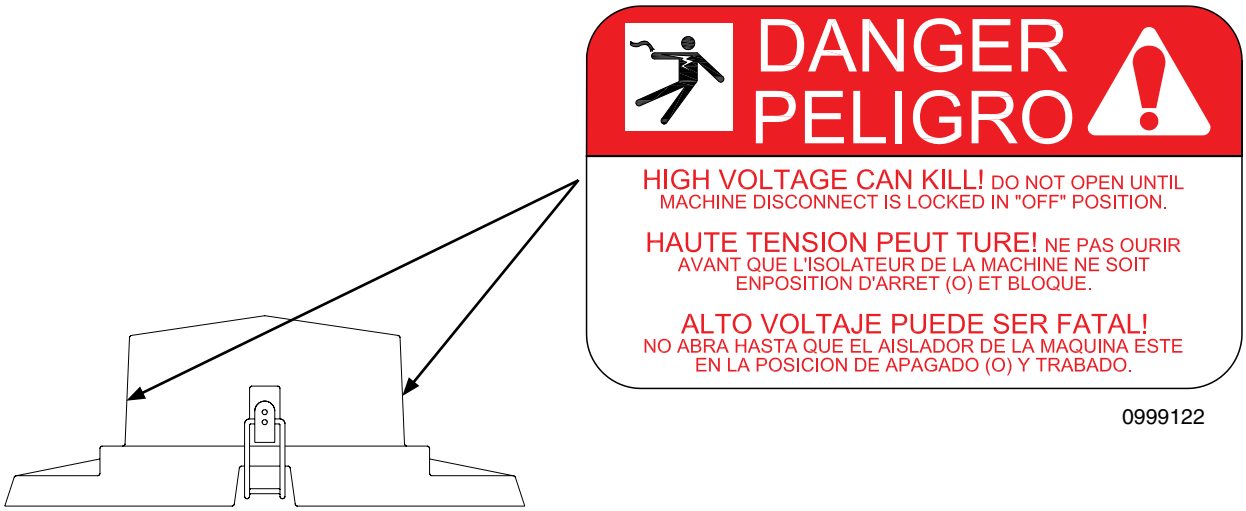
Location: Guidance Control Panel

DANGER

High Voltage!
480 Volts can kill.
Lock Machine Power in the "OFF" position before opening cover.

Location: Guidance Control Panel

Safety Decals (Continued)



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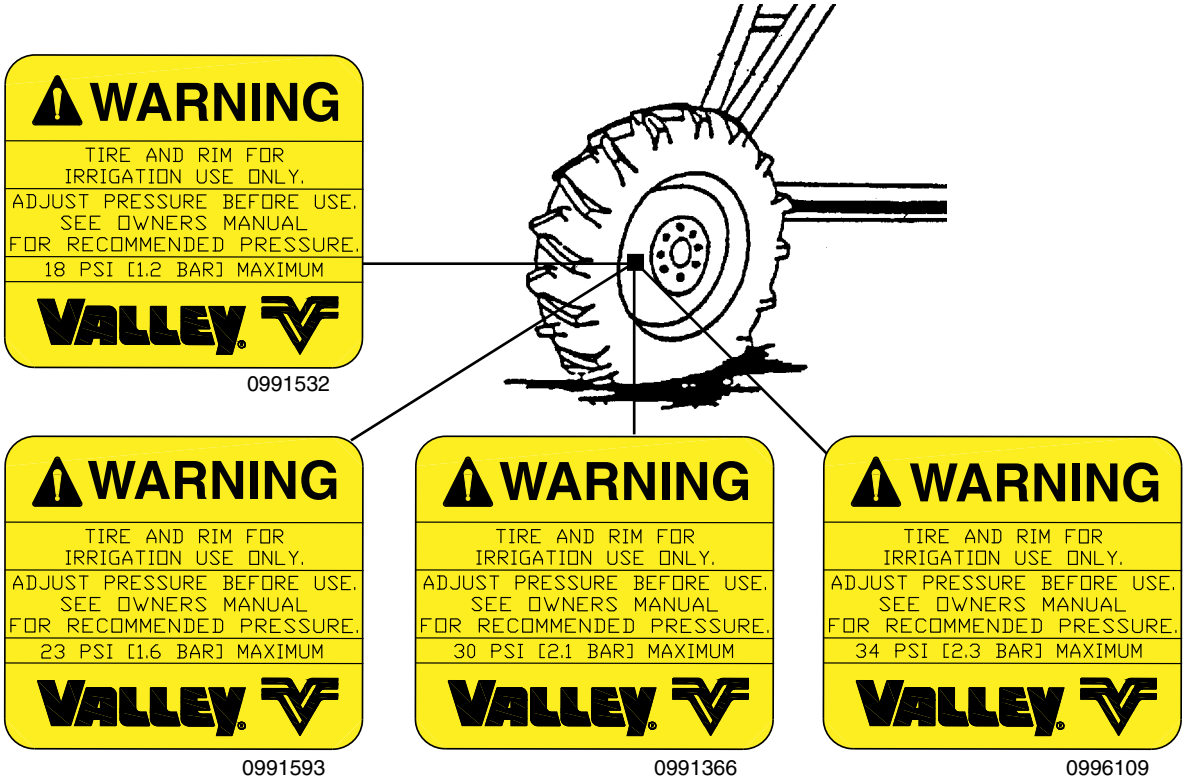

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Safety Decals (Continued)

WARNING

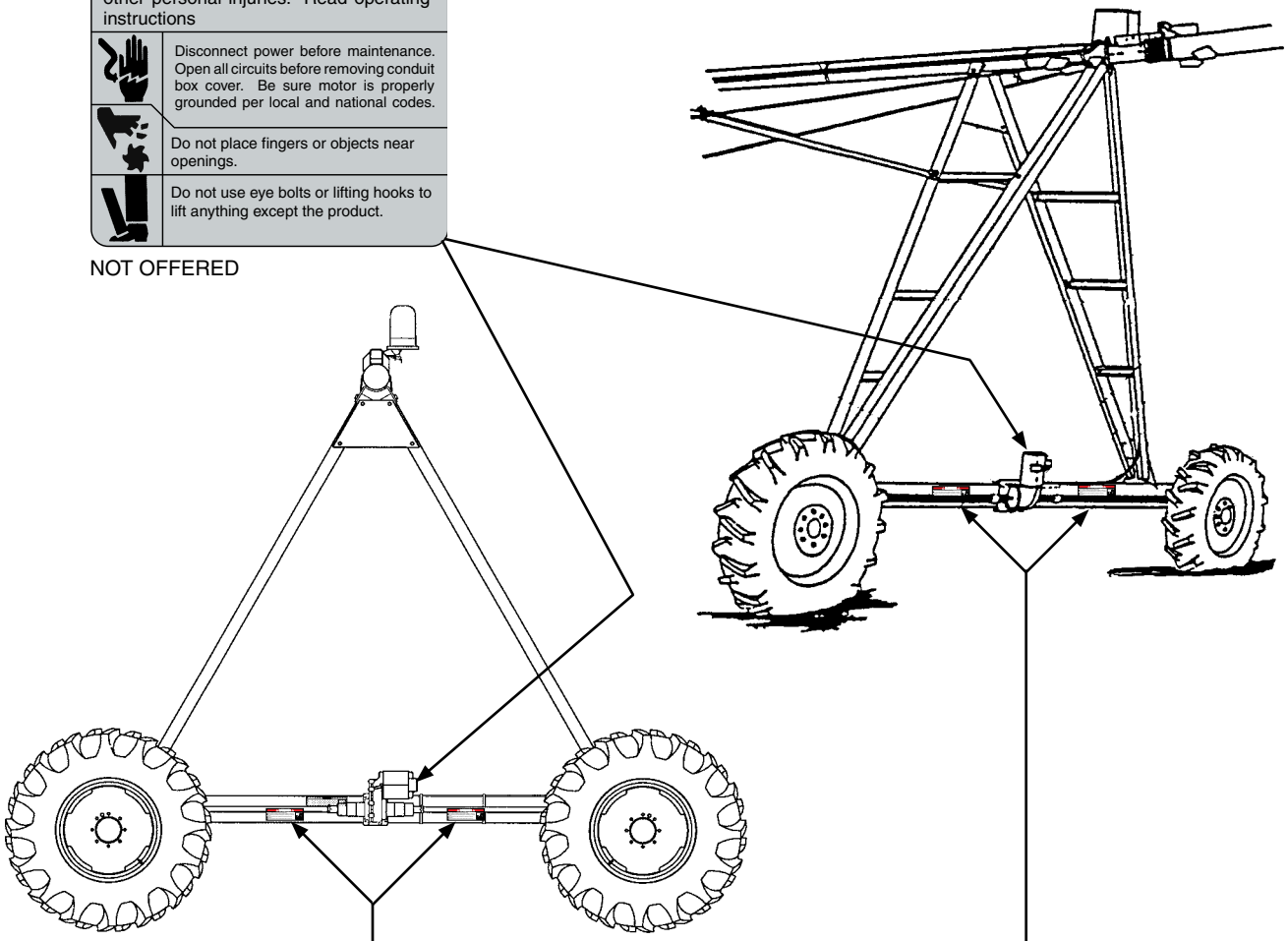
Improper installation of this motor may result in fire, explosion, electrical shock or other personal injuries. Read operating instructions

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.

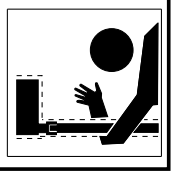
NOT OFFERED



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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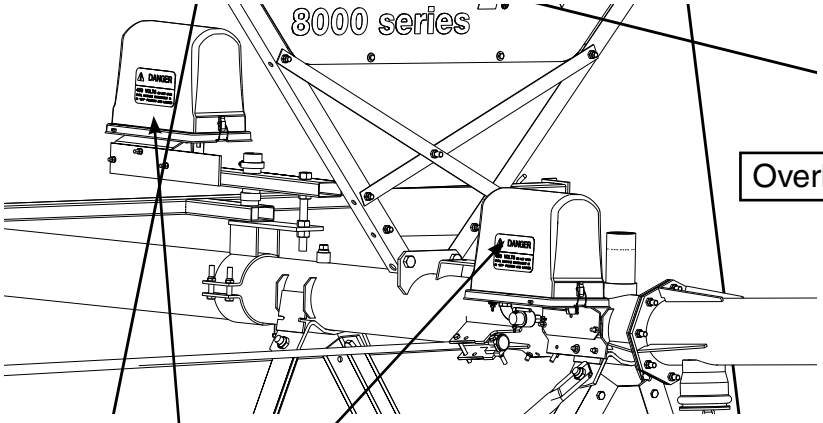
Safety Decals (Continued)



Overhang

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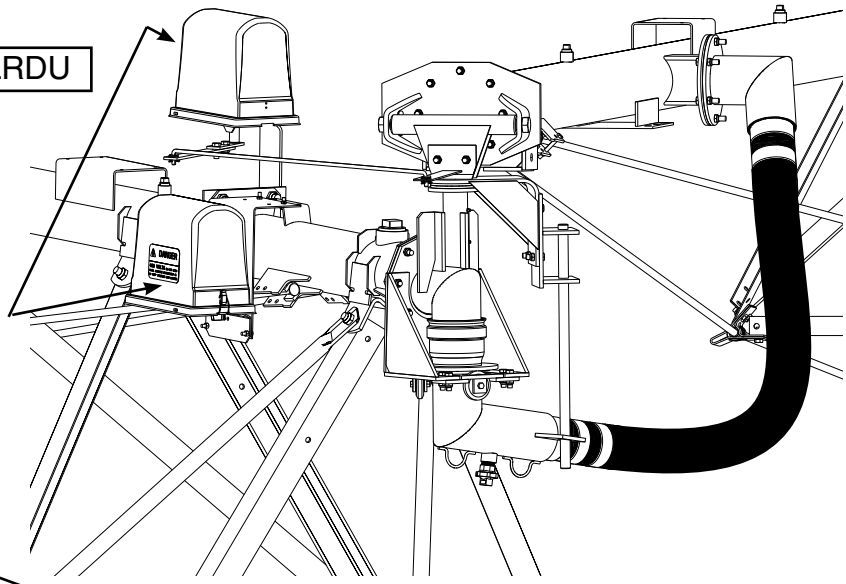
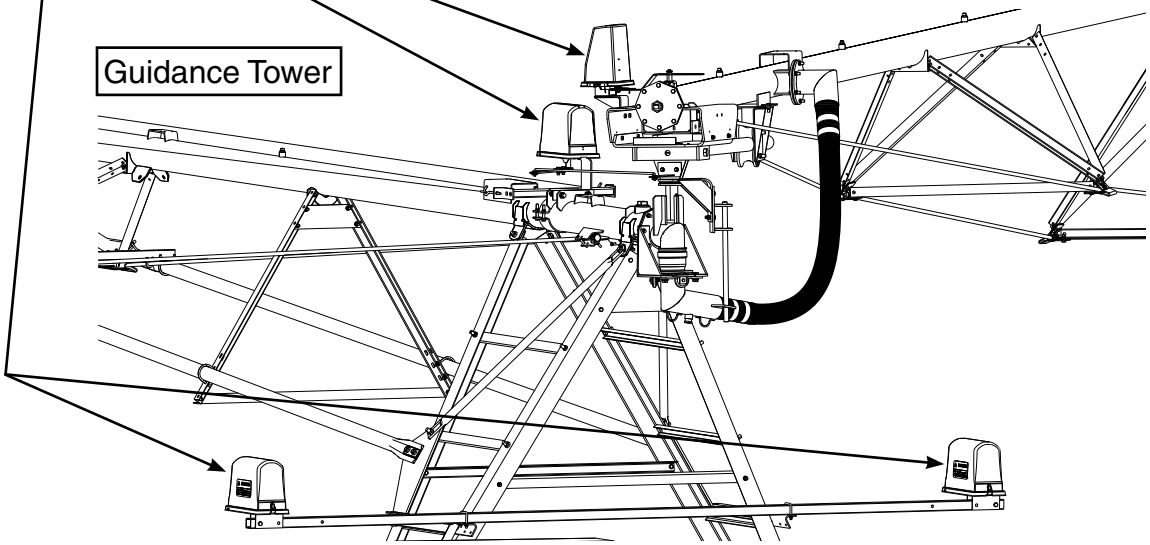
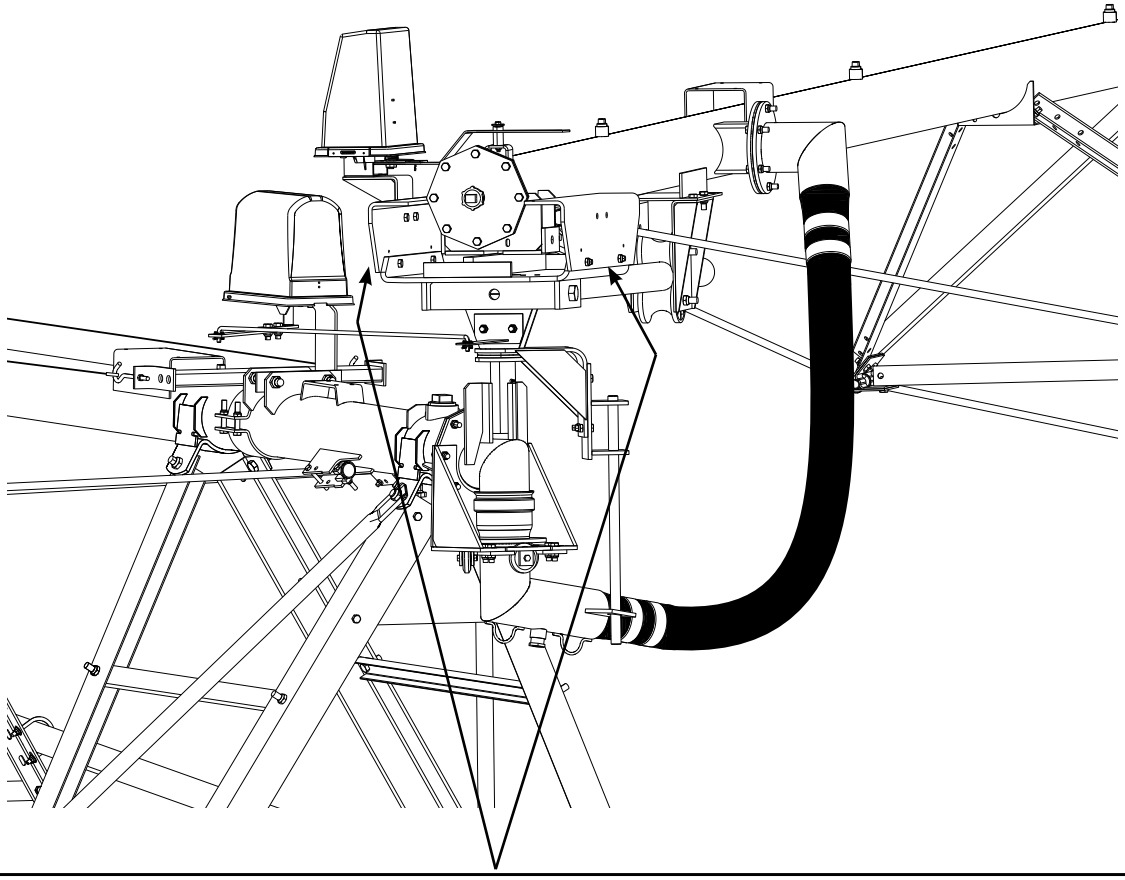
LRDU



Guidance Tower



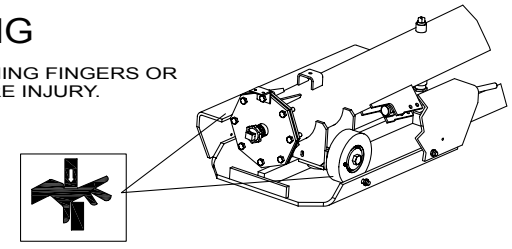
Safety Decals (Continued)



⚠ CAUTION ⚠

PIPE MOVES WITHOUT WARNING

- DO NOT TOUCH MOVING CRADLE OR PIPE, CLOTHING FINGERS OR LIMBS MAY BECOME ENTANGLED, RESULTING IN SEVERE INJURY.
- KEEP AWAY FROM DRIVE UNIT DURING OPERATION.
- DO NOT SERVICE UNTIL MACHINE IS LOCKED IN THE OFF POSITION.
- KEEP TRAY CLEAR OF TOOLS, PARTS OR DEBRIS.
- GREASE LARGE & GUIDE ROLLERS REGULARLY.



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SAFETY

Components

Below is a description of the various components associated with the DualSpan Corner.

Last Regular Drive Unit

The Last Regular Drive Unit (LRDU) connects the connecting span to the pivot. The connecting span is attached to the LRDU with a T-bar and swivel assembly. See Figure 23-1.

LRDU Tower Box

The last tower control box provides power to the center drive gear motor depending on the percent timer setting at the control panel. It also completes the safety circuit. See Figure 23-1.

LRDU Angle Sensor Box

The LRDU angle sensor box is mounted to the pipeline just above the LRDU and is connected via a linkage to the connecting span T-bar. This linkage senses the angle of the connecting span relative to the to the regular machine. Which moves a potentiometer inside the box. See Figure 23-1.

During connecting span arm extension, this potentiometer sends electrical signals to the Solenoid Valve Box, causing the appropriate sprinkler control valves to open, allowing water to begin flowing to the sprinklers on the swing span and overhang.

During connecting span arm retraction, the potentiometer sends an electrical signal to the solenoid valve box, causing the appropriate sprinklers to turn off.

Swivel Inlet

The swivel inlet allows for greater angles than a fixed inlet configuration. See Figure 23-1.

Flexible Hose

The flexible hose provides water to the connecting span. See Figure 23-1,

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 23-2.

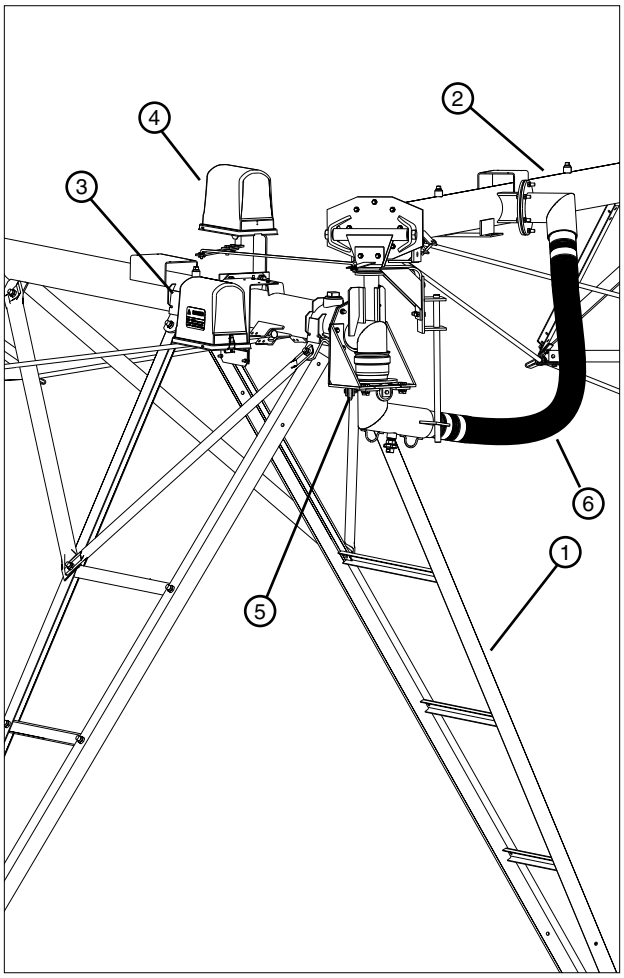


Figure 23-1
1. Last Regular Drive Unit
2. Connecting Span
3. LRDU Tower Box
4. LRDU Angle Sensor Box
5. Swivel Inlet
6. Flexible Hose

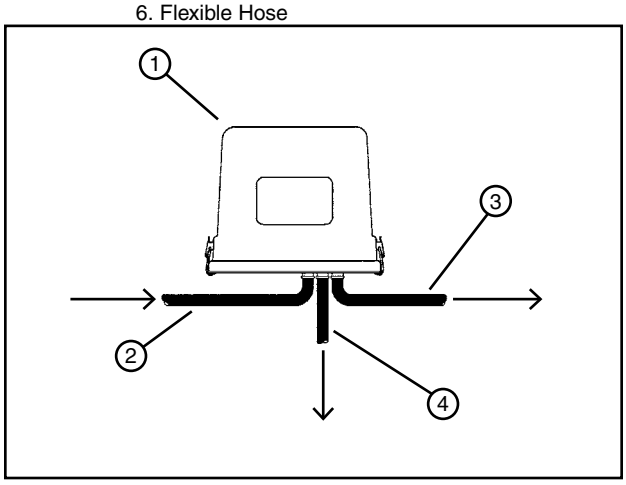


Figure 23-2
1. Tower Box
2. Span Cable Entering Tower Box
3. Span Cable Leaving Tower Box
4. Cable to Drive Motor

OVERVIEW

Components

Connecting Span

The connecting span is attached to both the LRDU and the Free Standing Span using two types of connections shown below. See Figure 24-1.

Pinned T-Bar Connection

The Pinned T-Bar Connection is used to connect the LRDU and the connecting span using the swivel inlet as a pivot point. See Figure 24-2.

Extended Cradle

The Extended Cradle holds one end of the connecting span and allows it to move forward and backward while the free standing span moves independently. See Figure 24-3.

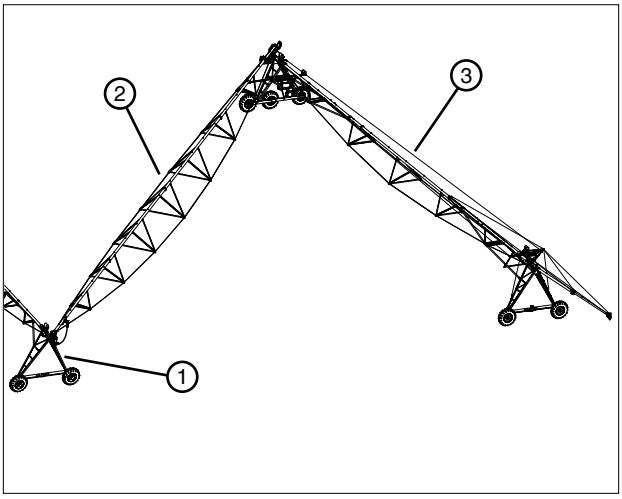


Figure 24-1 1. LRDU
2. Connecting Span
3. Free Standing Corner Span

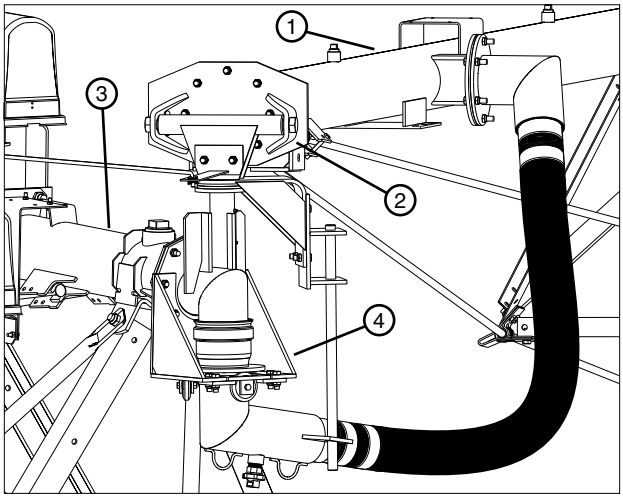


Figure 24-2 1. Connecting Span
2. Pinned T-Bar Connection
3. LRDU
4. Swivel Inlet

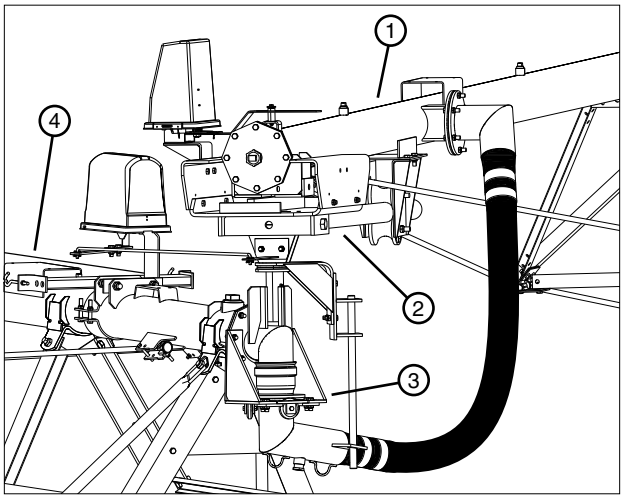


Figure 24-3 1. Connecting Span
2. Extended Cradle
3. Swivel Inlet
4. Free Standing Corner Span

Guidance Tower 3 Wheel Base Beam

The Free Standing Span is supported with a 3 wheel base beam on the guidance tower. See Figure 25-1

Swivel Inlet

The swivel inlet allows for greater angles than a fixed inlet configuration. See Figure 25-1.

Run Cycle Box

The Run/Cycle Box is mounted to the side of the cradle at the guidance tower.

The arm extending from this box senses the position of the connecting span relative to the Guidance Tower and commands the machine to either speed up or slow down according to the position of the LRDU.

This box also contains safety switches to stop the machine should the free standing span fall too far behind or travel too far ahead of the LRDU. See Figure 25-1.

Guidance Tower Angle Sensor Box

The Guidance Tower Angle Sensor Box is mounted to the pipeline just above the 3 wheel guidance tower and is connected via a linkage to the connecting span T-bar. This linkage senses the angle of the connecting span relative to the free standing corner span, and moves a potentiometer inside the box. See Figure 25-1.

During connecting span arm extension, a potentiometer sends electrical signals to the Solenoid Valve Box, causing the appropriate sprinkler control valves to open, allowing water to begin flowing to the sprinklers on the swing span and overhang.

During connecting span arm retraction, the potentiometer sends electrical signals to the solenoid valve box, causing the appropriate sprinklers to turn off.

Flexible Hose

The flexible hose provides water to the free standing corner span. See Figure 25-1.

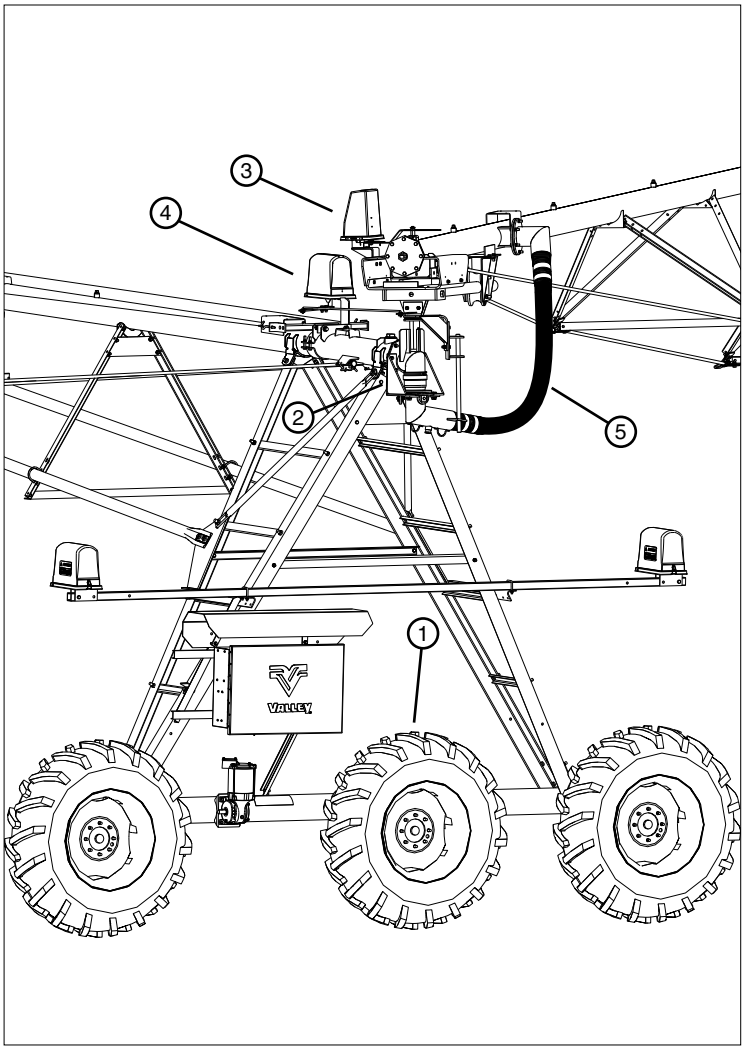


Figure 25-1
1. 3 Wheel Base Beam
2. Swivel Inlet
3. Run Cycle Box
4. Guidance Tower Angle Sensor Box
5. Flexible Hose

OVERVIEW

Components

Antenna Box

The Antenna Boxes are used with the below ground guidance wire, an oscillator box is mounted at the pivot control panel and two antenna boxes are mounted on the guidance tower.

The oscillator box creates a signal that is transmitted through the buried wire. This signal is received by the antenna boxes on the guidance tower of the free standing span and delivered to the guidance control box.

The antenna box receivers determine the location of the guidance tower in relationship to the buried wire and commands steering of the freestanding span to follow the wire.

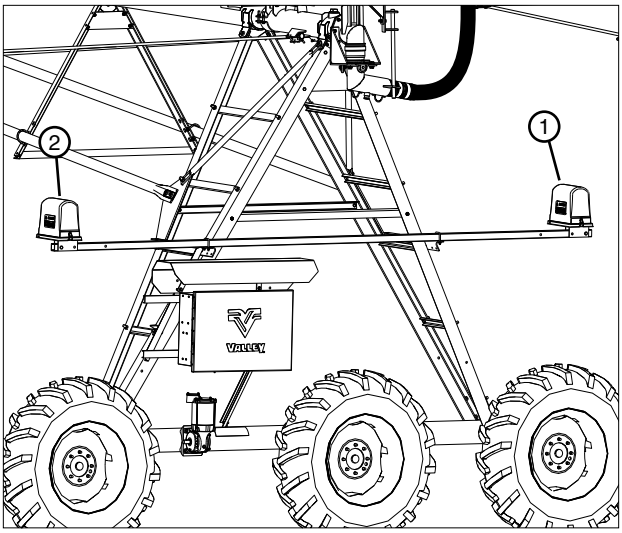


Figure 26-1 1. Forward Antenna Box
2. Reverse Antenna Box

Solenoid Valve Box

The Solenoid Valve Box contains electrically operated solenoid valves which use signals from the sprinkler sequencing controller to activate and deactivate groups of sprinklers.

When a solenoid valve receives an electrical power signal. The valve opens, sending pressure through the tubing harness to the appropriate sprinkler control valves. The sprinkler control valves respond to the pressure signal by turning off the water flow to their sprinkler.

When power is removed from the solenoid valve, it closes, preventing the pressure signal from reaching the sprinkler control valves, causing them to open allowing water to flow out of the sprinkler. See Figure 26-2

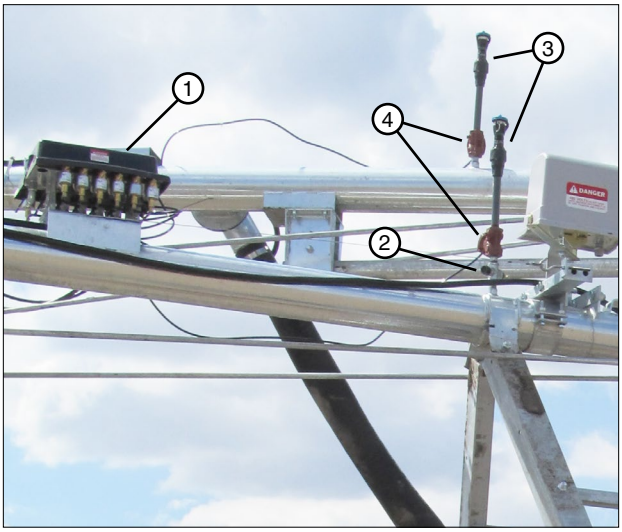


Figure 26-2 1. Solenoid Valve Box
2. Cross Filter
3. Sprinkler
4. Aquamatic Valve

Cross Filter

The Cross Filter cleans the dirty water that the solenoid valve box is sending to the sprinklers. See Figure 26-2.

Sprinklers

Every sprinkler is controlled by an aquamatic valve.

At each sprinkler location is an Aquamatic Valve, and in some cases, a pressure Regulating Valve. A Tube Harness connects each valve to the Solenoid Valve Box. See Figure 26-3.

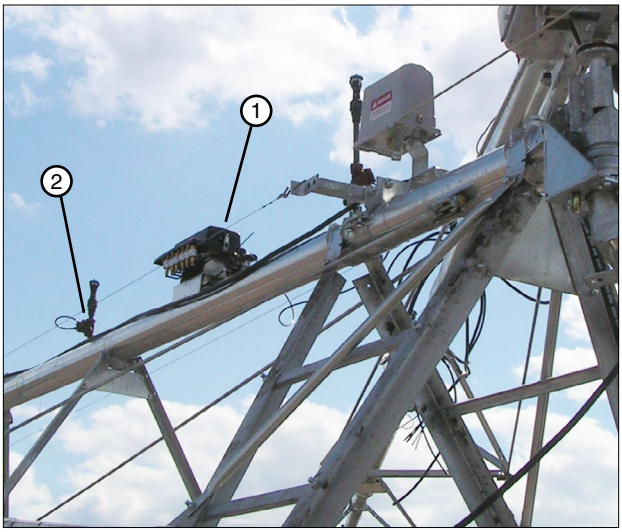


Figure 26-3 1. Solenoid Valve Box
2. Aquamatic Valve

Side Load Safety Box

The Side Load Safety Box is Located on the free standing span at the end tower. See Figure 27-1.

The Side Load Safety Box will shut down the machine if the span is out of alignment.

See Maintenance section for adjustment procedure.

Booster Pump

The Booster Pump is located near the overhang above the two wheel end of the free standing span. It is responsible for supplying water to the end gun. The Booster Pump is activated by a setting in the Control Panel. See Figure 27-2.

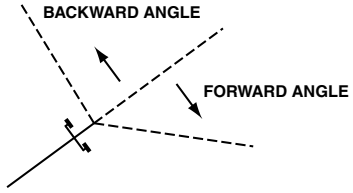
Overhang

The DualSpan Corner is equipped with a 36 ft overhang located on the free standing span. Support ears and cables hold up the overhang. See Figure 27-3.

End Gun

The End Gun is attached to the overhang which is used to increase the area irrigated beyond the end of the machine. See Figure 27-4.

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.



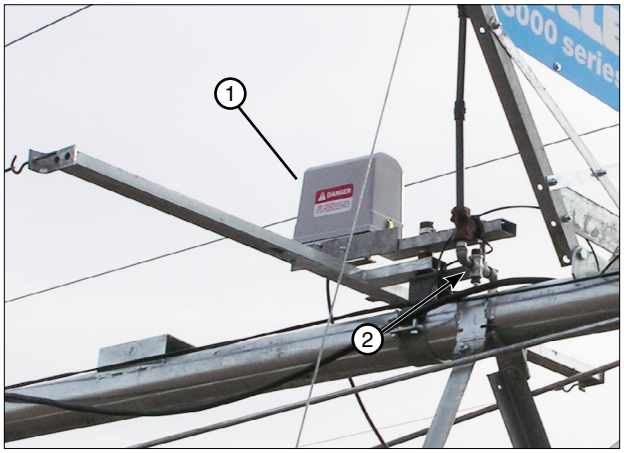


Figure 27-1 1. Side Load Safety Box

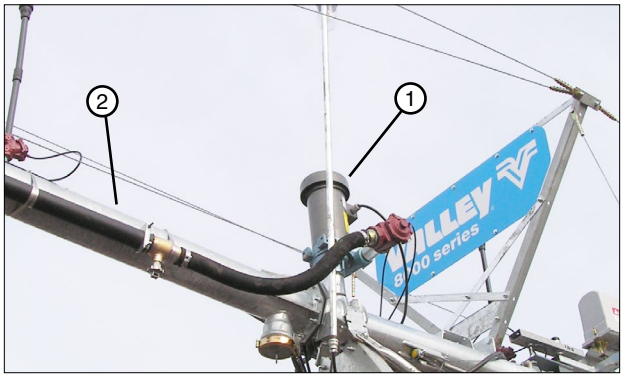


Figure 27-2 1. Booster Pump
2. Overhang

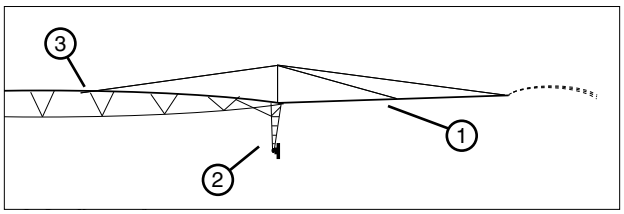


Figure 27-3 1. Overhang 3. Free Standing Span
2. Drive Tower

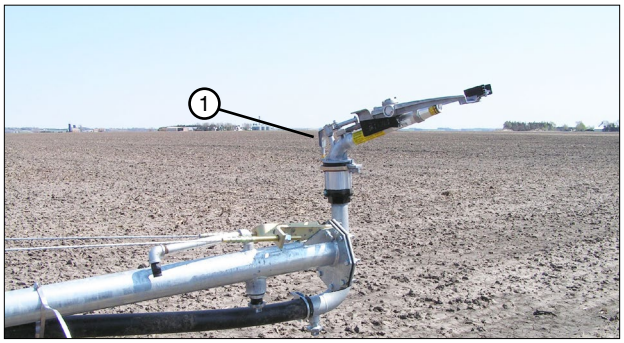


Figure 27-4 1. End Gun

OVERVIEW

Controls

The inside door of the DualSpan Corner control panel is shown below in figure 28-1.

⚠ DANGER

- **480 VOLTS – DO NOT OPEN THE INTERIOR CONTROL PANEL DOOR, ELECTRICAL SHOCK MAY OCCUR.**
- **ALL NEEDED CONTROLS AND MONITORING DEVICES ARE ON THE OUTSIDE OF THE INTERIOR CONTROL PANEL DOOR.**
- **SERVICE WORK DONE ON THE GUIDANCE CONTROL PANEL IS TO BE PERFORMED BY A QUALIFIED SERVICE PERSON ONLY.**

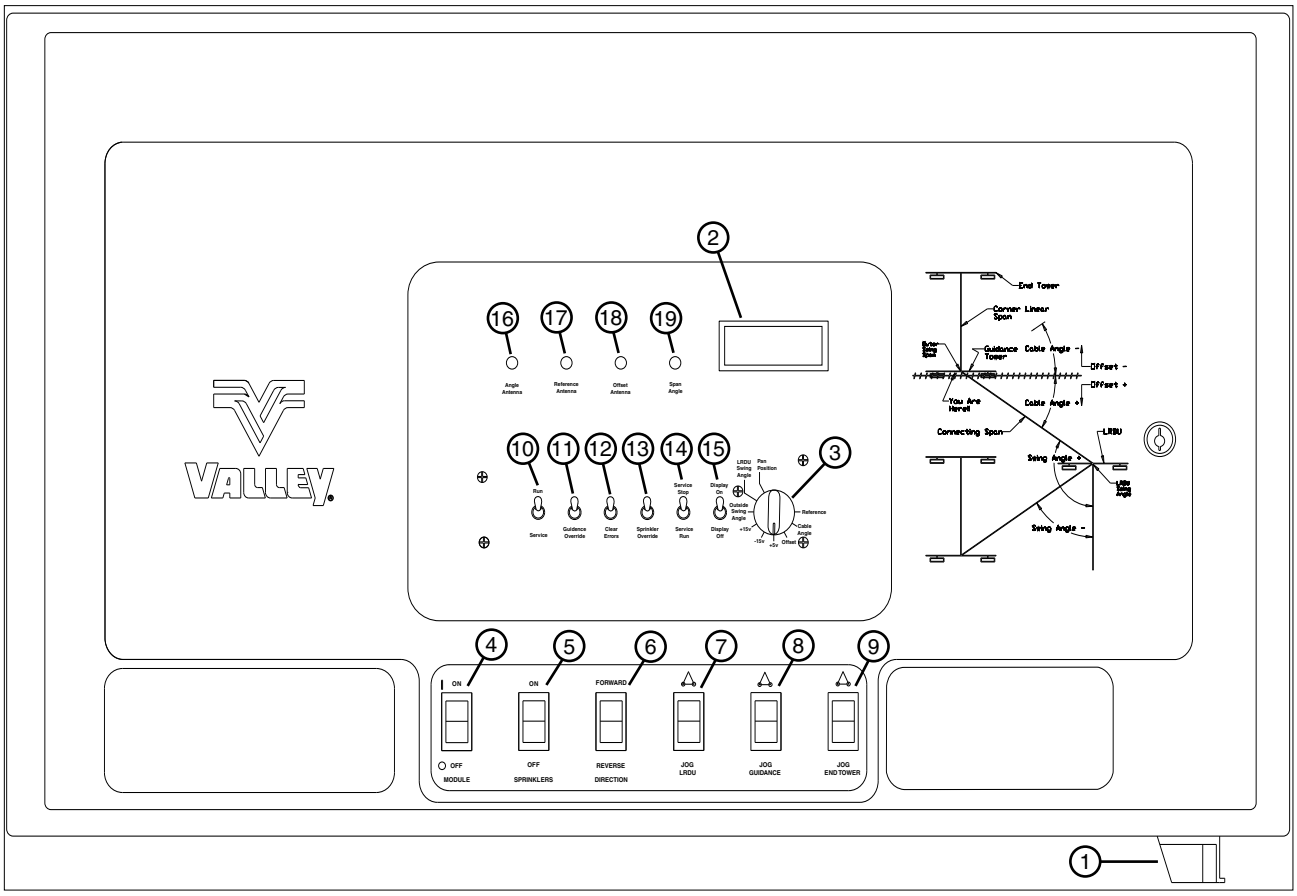


Figure 28-1
1. Guidance Control Panel Disconnect Switch
2. Voltage Display
3. Selector Switch
4. Module ON/OFF Switch
5. Sprinkler ON/OFF Switch
6. Forward/Reverse Switch
7. LDRU Jog Switch
8. Guidance Jog Switch
9. End Tower Jog Switch
10. Run/Service Switch
11. Guidance Override Switch
12. Clear Errors Switch
13. Sprinkler Override Switch
14. Service Stop/Service Run Switch
15. Display On/ Display Off Switch
16. Angle Antenna L.E.D
17. Reference Antenna L.E.D
18. Offset Antenna L.E.D
19. Span Angle L.E.D

Main Disconnect Switch

The Pivot Control Panel disconnect is located on the front right of the pivot panel. See figure 29-1.

The Guidance Control panel disconnect is located on the bottom right of the panel. . See Figure 29-2.

⚠ WARNING

- **ALWAYS TURN THE MAIN DISCONNECT SWITCH OFF, LOCK IT IN THE OFF POSITION AND TAG IT WHEN DOING ANY MAINTENANCE OR REPAIRS AND WHEN THE MACHINE IS NOT IN USE.**

Safety Override Switch (Pivot Control Panel)

If the machine safety circuit is broken (open) due to span misalignment, it will be necessary to override the safety circuit momentarily to realign the machine. However, the machine must be in full view of the operator, if the machine is not in full view of the operator, DO NOT override the safety circuit. See Figure 29-3.

To use the safety override function, depress the safety override switch in conjunction with the START switch. The machine safety circuit is bypassed and the machine will run until the switch is released. The switch should never be held in the START position for more than three seconds at any one time.

Inspect the entire machine after each safety override attempt.

⚠ CAUTION

- **CAUTION MUST BE TAKEN BY THE OPERATOR WHEN THE SAFETY OVERRIDE SWITCH IS DEPRESSED AS IT WILL BY-PASS OR DISABLE ALL OF THE SYSTEM'S SAFETY CIRCUITS.**
- **NEVER DEPRESS THE SAFETY OVERRIDE SWITCH FOR MORE THAN 3 SECONDS.**
- **IF THE SYSTEM IS NOT IN FULL VIEW BY THE OPERATOR, DO NOT USE THE SAFETY OVERRIDE SWITCH.**
- **THE OPERATOR MUST INSPECT THE ENTIRE SYSTEM BETWEEN EACH START ATTEMPT.**
- **REPEATED OVERRIDE START ATTEMPTS CAN CAUSE SEVERE STRUCTURAL DAMAGE.**
- **CALL THE LOCAL VALLEY DEALER SHOULD THE SYSTEM FAIL TO START.**

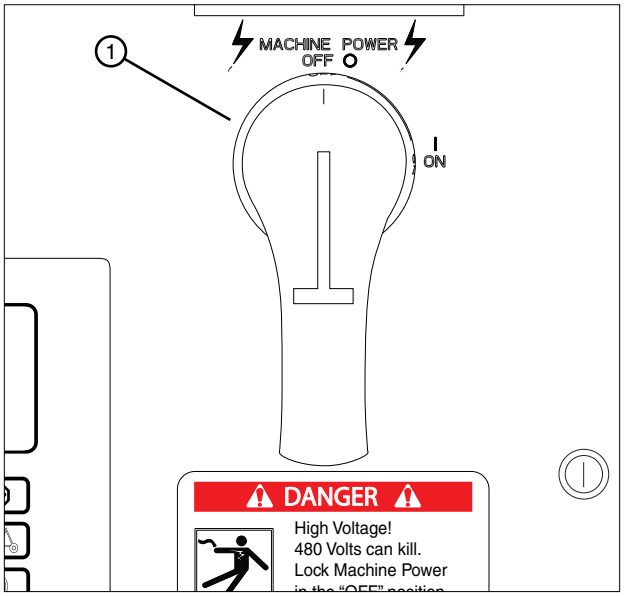


Figure 29-1 1. Pivot Control Panel Disconnect Switch

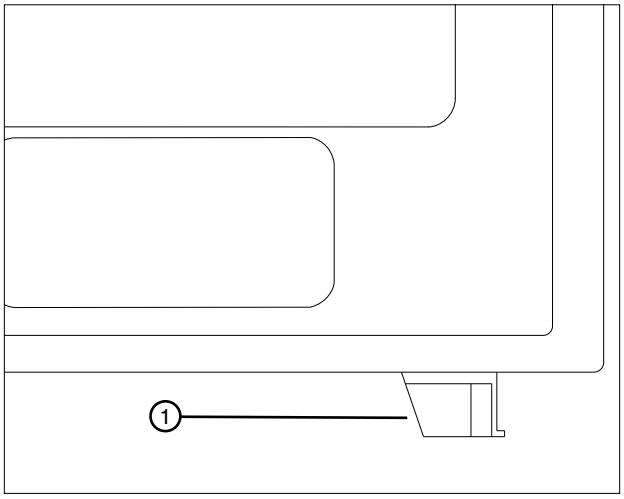


Figure 29-2 1. Guidance Control Panel Disconnect

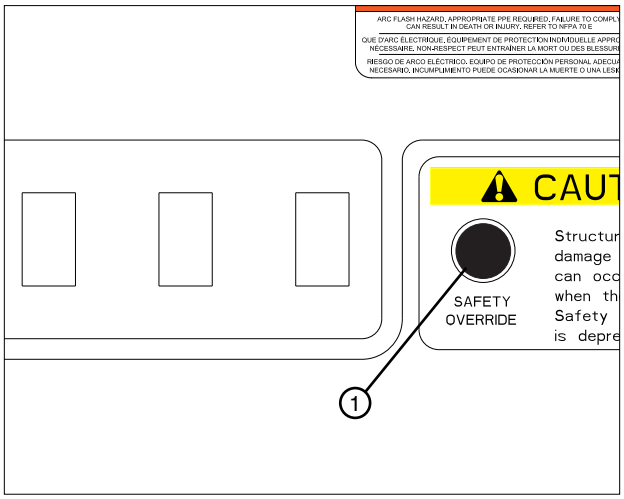


Figure 29-3 1. Start - Stop - Safety Override Switch

OVERVIEW

Controls

Module ON/OFF Switch

This switch is in series in the safety circuit of the entire system and is also the source of power for operation of the microprocessor. In the OFF position, no power is available to operate the microprocessor and the safety circuit is open. In the ON position the safety circuit is completed and power is available to the processor.

When the Run/Service is set to the Service position the system will restart in the direction the system was running at shutdown. See Figure 30-1.

Water ON/OFF Switch

The water switch is connected after the power on/off switch and supplies the 120V AC to the water valve output modules. With the switch in the OFF position no water valves will operate. With the switch ON the water valves will operate according to the processor control. See Figure 30-2.

Forward / Reverse Switch

This is a service only switch. It is supplied to allow for reversing of the system from the guidance control panel. See Figure 30-3.

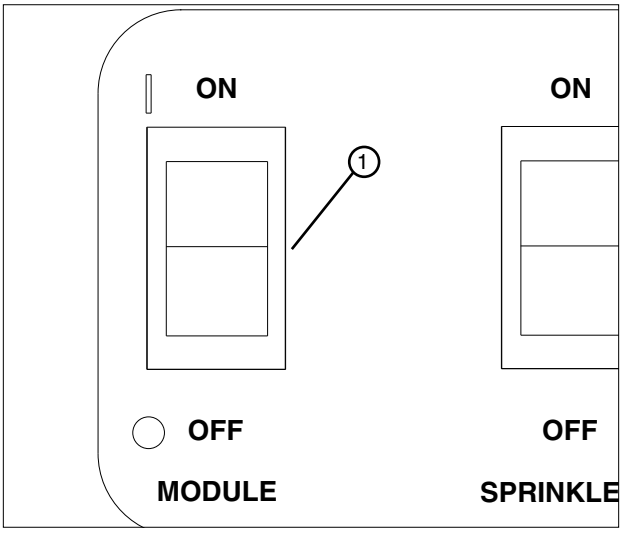


Figure 30-1 1. Module ON/OFF Switch

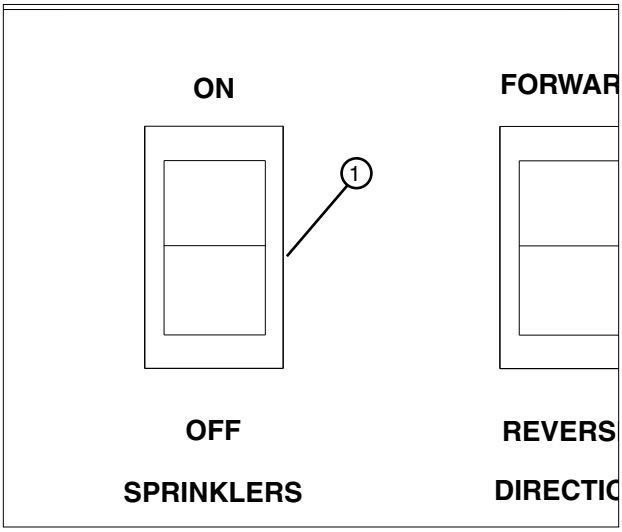


Figure 30-2 1. Sprinkler Override Switch

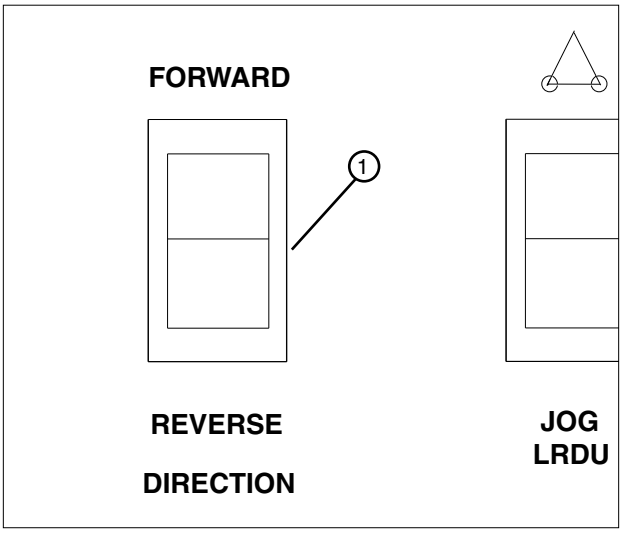


Figure 30-3 1. Forward / Reverse Switch

LRDU-Guidance-End Tower Jog Switches

The LRDU-Guidance-End Tower Jog Switches are used to manually operate the individual towers. See figure 31-1.

Jog LRDU - Runs the last tower of the main system Direction is controlled by the pivot panel.

Jog Guidance - Runs the inside of the freestanding span.

Jog End Tower - Runs the outside of the freestanding span

⚠ CAUTION

- **THE JOG SWITCHES ARE USED FOR MANUAL OPERATION OF THE INDIVIDUAL TOWERS.**
- **CAUTION MUST BE TAKEN WHEN USING THE JOG SWITCHES TO INSURE THAT NO ONE TOWER IS RUN FOR A LONG PERIOD WITHOUT RUNNING THE OTHER TOWERS.**
- **THE PHYSICAL POSITION OF THE CRADLE MUST BE MONITORED AT ALL TIMES. IF THE CRADLE SHOULD REACH THE END OF THE CRADLE AND THE END TOWER CONTINUES TO RUN, PHYSICAL DAMAGE TO THE STRUCTURE CAN OCCUR.**

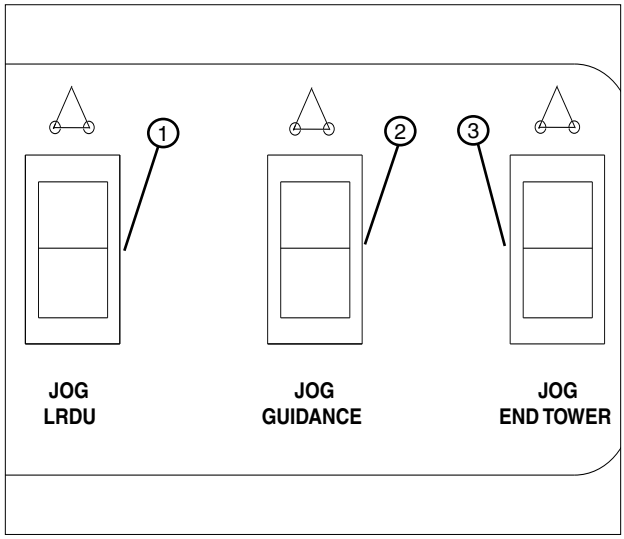


Figure 31-1 1. LRDU Jog 2. Guidance Jog 3. End Tower Jog

Run-Service Switch

For normal operation the switch is set to Run. See Figure 31-2.

In Run position the processor is in control of and operating the system. The processor is controlling the corner span drive motors, the LRDU, the water valve functions and maintaining the safety circuit.

In Service position the processor acknowledges any errors but, maintains the safety circuit to keep the system on. The processor will not operate the towers or water valves. Towers can be run manually.

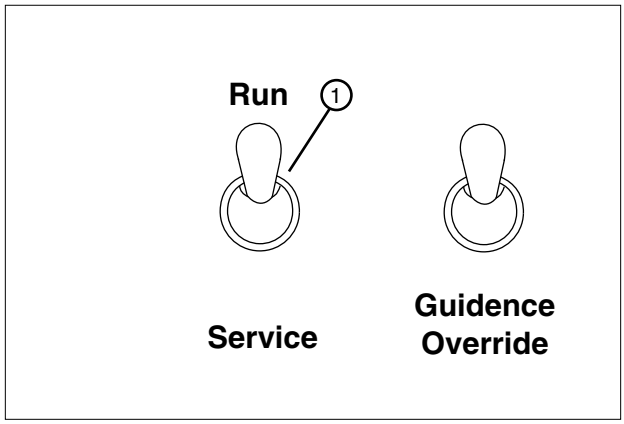


Figure 31-2 1. Service Switch shown in the Run Position

Guidance Override Switch

This mode will allow the processor to control the system and the water valves when the guidance override switch is held in the override position. With the switch being held the processor will ignore errors and attempt to center the antennas over the guidance wire. For normal operation the switch spring returns to normal mode. See Figure 31-3.

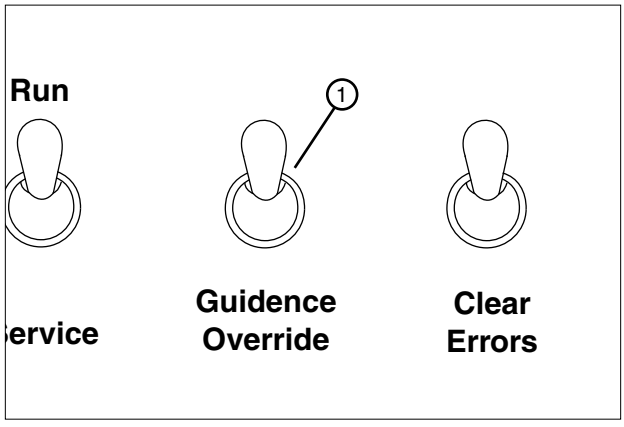


Figure 31-3 1. Guidance Override Switch shown in the Run Position

OVERVIEW

Controls

Error Clear Switch

When the processor detects an error it will turn on the appropriate alarm light (Offset, Swing Angle, Cable Angle, Reference). To turn off the alarm light the Error Clear switch is used. The error lights will remain on even if there is no current error therefore once the error light is activated it must be manually reset. Be sure to clear errors after servicing the machine so any new faults will set the appropriate light. If the error lights do not clear the error is still current. For normal operation the switch spring returns to the normal mode. See Figure 32-1.

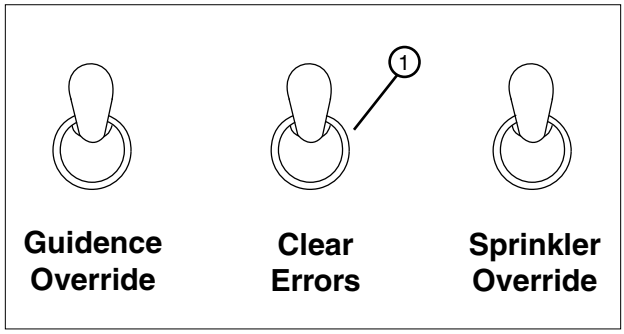


Figure 32-1 1. Error Clear Switch

Sprinkler Override Switch

In the Normal (UP) position the microprocessor controls the water valves according to the swing angle vs. the internal program.

In the ON (DOWN) position all the water valves will be turned on ignoring the internal program. For normal operation the switch is set to the Normal (UP) position. See Figure 32-2.

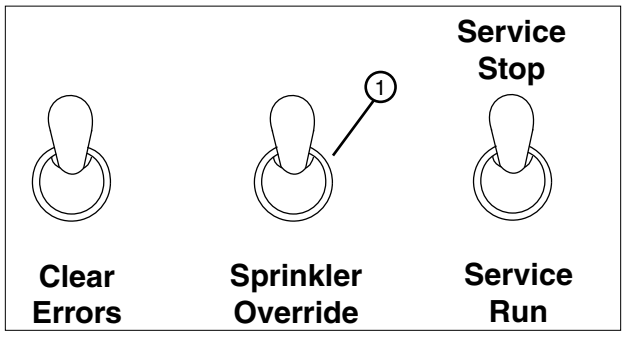


Figure 32-2 1. Sprinkler Override Switch

Service Run-Service Stop

This is used when the Guidance Control Panel Run/ Service switch is set to Service.

When in Service Run the comer system will run at 100%.

When set to Service Stop the comer system runs at 0%. This switch should be set to Service Stop for normal operation. See Figure 32-3.

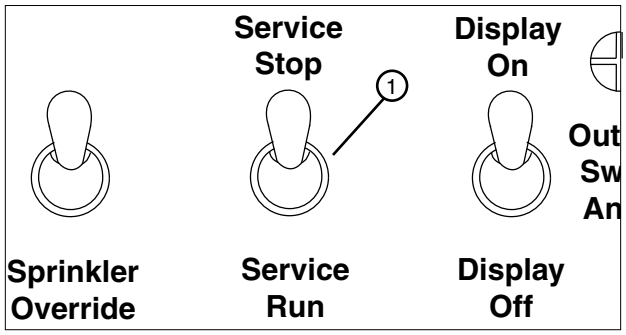


Figure 32-3 1. Service Run-Service Stop

Display ON/OFF Switch

The switch is used to toggle the display on and off. This switch should be set in the off position for normal operation. See Figure 32-4.

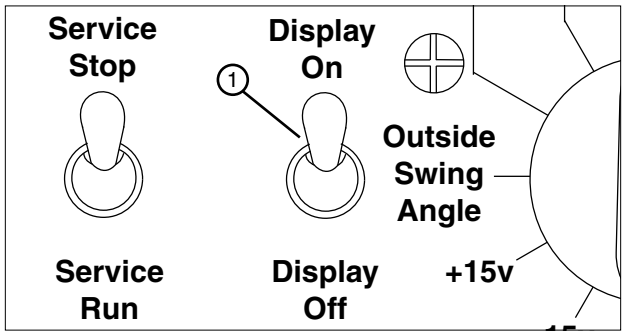


Figure 32-4 1. Display Switch

Angle Antenna Light

When on, an error has occurred indicating that the system is at too great of an angle to the wire. Threshold for error is 75% of reference signal. See Figure 33-1.

Reference Antenna Light

When on, an error has occurred indicating that the signal from the buried wire is too weak or too strong. See Figure 33-2.

Offset Antenna

When on, an error has occurred indicating that the system is at too great of an Offset to the wire. The threshold for error is 75% of reference signal. See Figure 33-3.

Span Angle

When on, an error has occurred indicating that the system has tried to extend or retract too far. Threshold for error is ~+/- 2.20v. See Figure 33-4.

All Lights ON

The reference antenna, angle antenna, span angle, and offset antenna lights are all on. If both the PS1 or PS2 switches open at the same time the programs turn on all the lights and shuts down the system. See Figure 33-5.

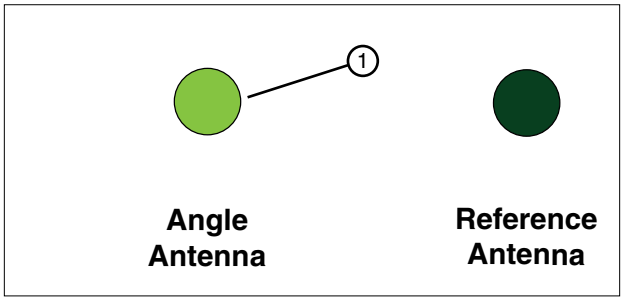


Figure 33-1 1. Angle Antenna Light ON

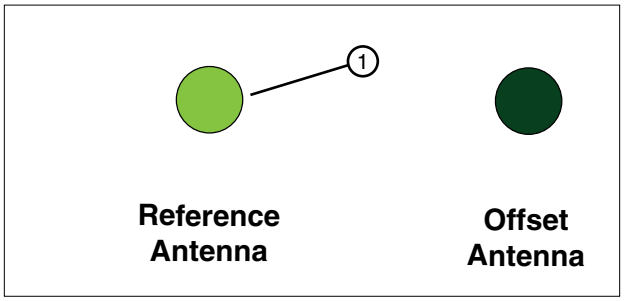


Figure 33-2 1. Reference Antenna Light ON

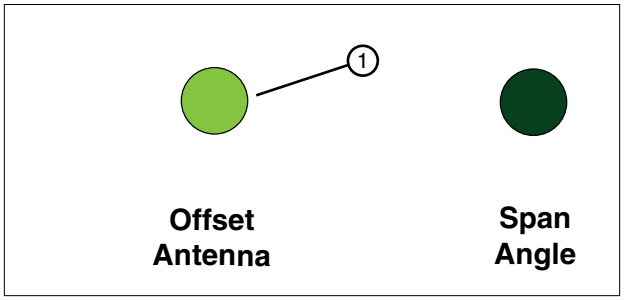


Figure 33-3 1. Offset Antenna Light ON

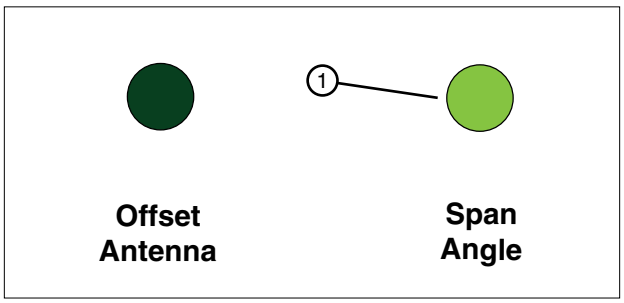


Figure 33-4 1. Span Angle Light ON

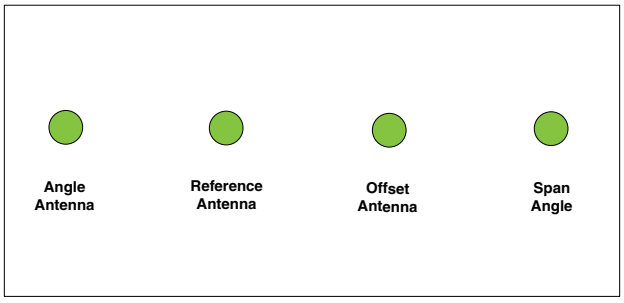


Figure 33-5 All Lights ON

OVERVIEW

Controls

Selection Switch

This switch is used with the voltage display to show current voltages as a troubleshooting method. See Figure 34-1 and 34-2.

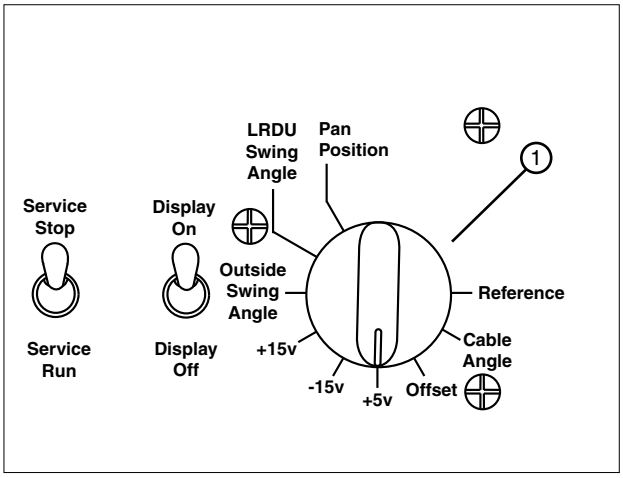


Figure 34-1 1. Selection Switch

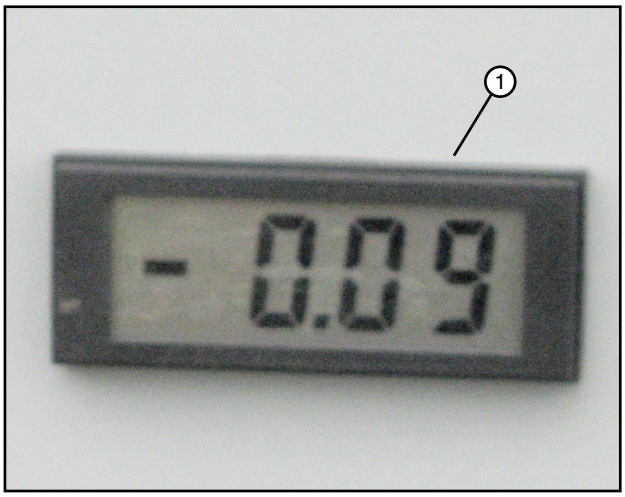


Figure 34-2 1. Voltage Display

Pan Position

This is the voltage from the cradle position potentiometer. With the rollers centered in the cradle the voltage will be ~0 v. The closer the free standing span is to the LRDU the closer the reading will be to -2.50 v. The further away the free standing span is to the LRDU the closer the reading will be to +2.5 v.

LRDU Swing Angle

Swing angle is defined as the angle between the LRDU span and the connecting span. This angle is used to control the water valves on the free standing span and the connecting span. The swing angle will vary from -2.50 when the corner system is in the tucked position to +2.50 in the fully extended position.

Guidance Tower Swing Angle

Guidance tower angle is defined as the angle between the Free Standing span and the connecting span. This angle is used to control the water valves on the free span and the connecting span. The swing angle will vary from -2.13 when the comer system is in the tucked position to +2.13 in the fully extended position.

+15 Volts:

This is a direct reading from the +15-volt power supply.

-15 Volts:

This is a direct reading from the -15-volt power supply.

+5 Volts:

This is a direct reading from the 5-volt power supply.

Offset Position

This is the voltage reading of the signal being received through the antenna from the buried wire and represents the distance the antenna is inside which will be positive or outside the guidance wire which will be negative.

Angle Position

This is the voltage reading of the signal being received through the antenna from the buried wire and represents the angular position of the antenna to the wire. Positive value inside and negative value for outside the buried wire.

Reference Position

In the reference position the voltage reading is the strength of the signal being received by the antenna from the buried wire. To maintain reference the signal must be between 0.5v and 2.5v with the ideal at 1.85-2.00 volts.

Starting The System Wet (With Water)

Before Starting Machine

1. Inspect the wheel tracks to ensure there are no vehicles or other equipment which will obstruct the system upon start-up or operation.
2. Place the WET/DRY switch in the DRY position to by-pass the low pressure switch.
3. If an engine shutdown circuit is utilized, place the Engine RUN/START switch in the START position.

Start The Pump and or Engine Generator

4. Partially close the mainline valve to the system. This will help to prevent “water hammer” if the pump is powered by an electric motor.
5. Start the pump. (The pump may be wired such that when the START switch on the center pivot control panel is pressed, the pump automatically starts. Check with your Valley dealer to determine how your pump has been wired into your control panel.)
6. Slowly introduce more water into the system by either opening the mainline valve or by increasing the engine speed. Examine the Valley System’s pressure gauge to ensure the desired operating pressure.

Start The Machine

7. Turn the main disconnect switch to the ON position. If the power is supplied by an engine driven generator, adjust the RPM of the generator until the voltmeter reads 480 – 505 volts. DO NOT EXCEED 505 VOLTS.
8. Place the WET/DRY switch in the WET position.
9. Select the direction of travel by placing the FORWARD/REVERSE switch in either the FORWARD or REVERSE position. Remember, Forward is clockwise and Reverse is counter-clockwise.
10. Press the START-STOP switch to the START location for 1 – 2 seconds and release. The system should now start.
11. Place the Engine RUN/START switch in the RUN position.
12. Set the percentage timer to the desired speed setting.
13. If the system is equipped with the optional stop-in-slot, place the SIS ON/OFF switch in the desired position.
14. If the system is equipped with the optional drive unit mounted auto reverse/auto stop hardware, place the Auto Reverse/Auto Stop switch in the desired position.

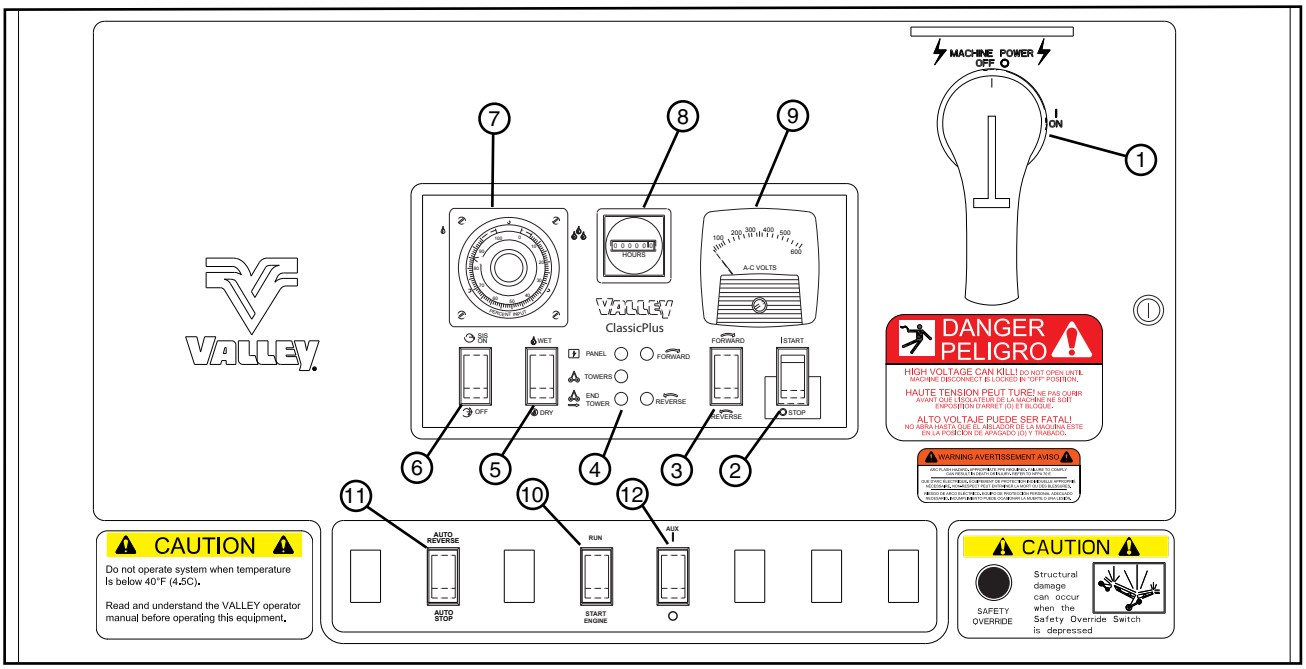


Figure 35-1
1. Main Disconnect Switch
2. Start/Stop Switch
3. Forward/Reverse Switch
4. Indicator Lights
5. Wet/Dry Switch
6. SIS On/Off Switch
7. Percentage Timer
8. Hour Meter
9. Volt Meter
10. Engine Run/Start Switch
11. Auto Reverse/Auto Stop Switch
12. Auxiliary On/Off Switch

OPERATION

Stopping The Machine
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 36-1.
- Control Panel Main Disconnect Switch. See figure 36-1.
- Any Tower Box Disconnect Switch. See figure 36-1.
- Guidance Control Panel Disconnect Switch. See figure 36-1.

Normal Stopping

1. Place the START/STOP switch in the STOP position. See figure 36-2.
2. Turn the main disconnect switch to the OFF position. See figure 36-2.
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.

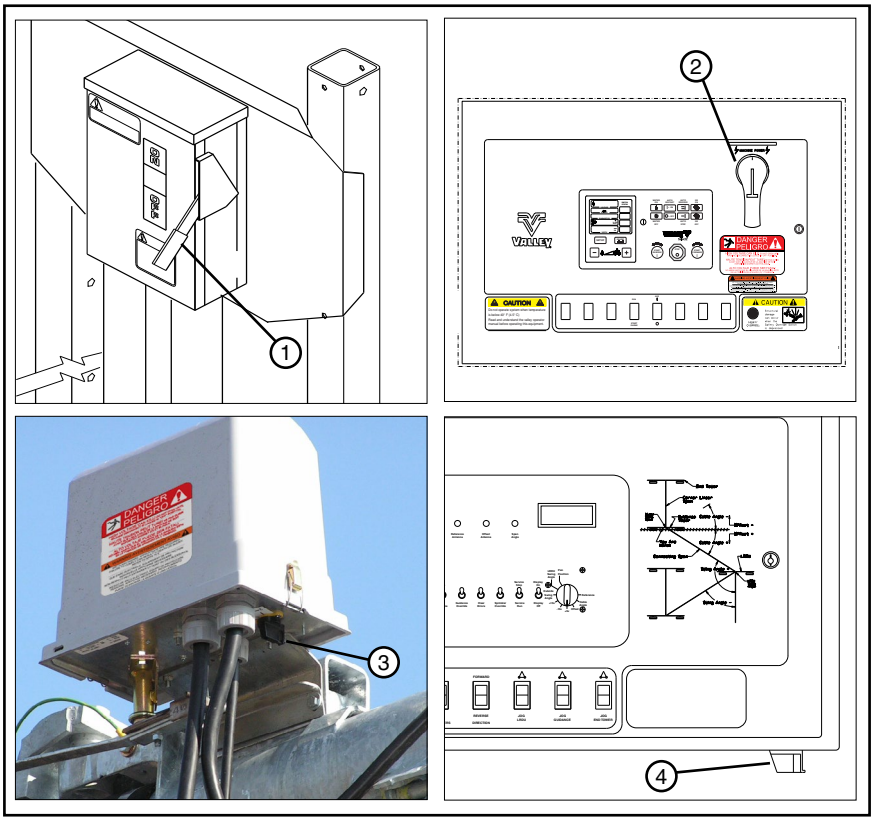


Figure 36-1 1. Main Service Disconnect Switch
2. Pivot Control Panel Main Disconnect Switch
3. Tower Box Disconnect Switch
4. Guidance Control Panel Disconnect Switch

⚠ 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.**

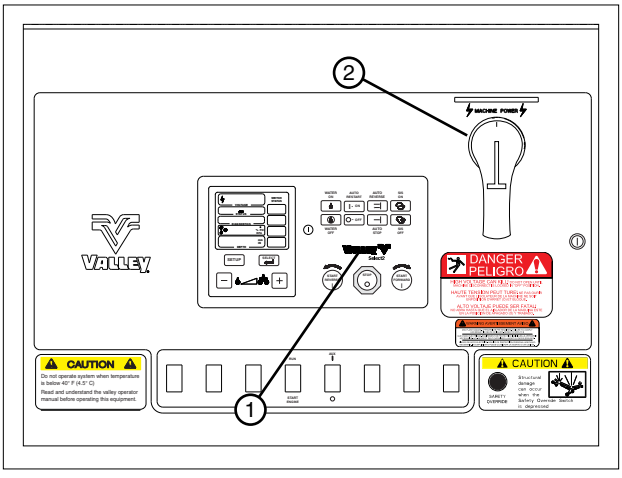


Figure 36-2 1. Start/Stop Switch
2. Main Disconnect Switch "OFF"

Theory of Operation

The purpose of the DualSpan Corner is to follow a non-circular path as the pivot revolves around a field. This allows the DualSpan Corner to water areas of the field that a circular pivot wouldn't be able to reach. On a typical field this additional coverage can be as much as 30%.

The DualSpan Corner runs only when the rest of the machine is running.

The DualSpan Corner has two different layout and length configurations: standard orientation and the inverted orientation and each could be either 401 ft or 351 ft in length.

Standard Orientation:

When standing at the pivot point looking down the machine towards the Last Regular Drive Unit (LRDU). The DualSpan Corner will be on the left side of the machine. When standard orientation is used the pivot will be run in the reverse direction with the DualSpan corner leading the pivot.

Inverted Orientation:

When standing at the pivot point looking down the machine at the LRDU the DualSpan corner will be on the right side of the machine. When inverted orientation is used the pivot will be run in the forward direction with the guidance tower leading the pivot.

The DualSpan Corner is guided around the field using antenna boxes to follow a buried guidance wire. The typical depth of the buried wire is 30 inches. A high frequency signal is then applied to the guidance wire. The guidance control panel located on the guidance tower processes the signal to cycle the guidance tower and the outer tower of the free standing span allowing the system to steer using the "skid steer" method. The guidance tower is kept over the wire with the free standing span at a 90 degrees to the guidance wire.

The guidance tower can be thought of as the (boss) tower. As the guidance (Boss) tower begins to move away from the LRDU, it might appear that it is going to leave the LRDU behind, but when the roller assembly reaches a point three inches behind center of the cradle, it trips a switch in the control box mounted to the cradle. That switch signals the pivot to begin its travel cycle.

The guidance control panel receives a signal from the percent timer via an input module. When the connecting span is near centered and the guidance tower centered over the guidance wire all towers will move together. As the system moves the main pivot is cycled to match the speed of the LRDU. During steering corrections the guidance tower may or may not run. As the machine reaches a point where the steering process becomes more frequent the DualSpan corner begins to extend. The DualSpan Corner does not make a straight line in the extended position.

Since both units are moving simultaneously, the six inches of roller movement can take several feet of ground travel in order to complete one cycle of movement.

The guidance tower now waits again until it is three inches behind center before it re-enters the travel cycle. If the guidance tower or the LRDU movement causes the roller assembly to approach either end of the cradle, a safety switch in the Run Cycle Box opens and shuts down the machine. The standard center pivot also has alignment safety switches at each tower of the machine to prevent structural damage.

Because steering can only take place when the machine is moving, the percent timer setting must be greater than zero. For example, selecting 50% means that the LDRU moves for 30 seconds and then rests for 30 seconds.

- Buried Wire Safety - The signal received by the antenna boxes weakens until it can not be detected by the antenna. When this happens, the safety relay "drops out", which opens the safety circuit and shuts down the machine before damaging the structure.
- The side load safety box located on the free standing span to detect twist in the structure. If the one end gets too far ahead or behind of the other the system will safety out before damaging the structure.

Theory of Operation

The second significant area of operation is water distribution with the sprinklers and end gun.

As the DualSpan Corner circles the field, sprinklers on the system cycle to keep the watering even. This is accomplished by the guidance control panels comparing the swing angles to an internal chart. These valves are cycled in groups of four by means of cycling the solenoids in the solenoid valve box located on the free standing span. The guidance control panel then cycles the sprinklers by means of aquamatic valves at each outlet.

There are two angle control boxes involved with the sequencing of sprinklers. As the DualSpan Corner extends or retracts, the boxes send angle information to the guidance control panel.

The other control box is the Solenoid Valve Box. When the Angle Sensor Boxes detect that the DualSpan Corner has begun to extend, a signal is sent to the Solenoid Valve Box. Power is removed from one or more of the solenoid valves, opening the exhaust port allowing the water to move through the tubing harnesses to the hydraulic valves on each sprinkler. Without control line pressure on the top of a hydraulic valve diaphragm, main line water pressure raises the diaphragm and allows water to flow through the valve and out the sprinkler, thus turning the sprinkler on.

When the Angle Sensor Boxes signal that the DualSpan corner has begun to retract, another signal is sent to the Solenoid Valve Box. During retraction, power is applied to one or more of the solenoid valves, closing the exhaust port and sending control line pressure to the top of the hydraulic valve diaphragm. When the control line pressure closes the valve diaphragm, the main line water is blocked from the sprinkler, thus turning the sprinkler off.

The end gun covers a specified area to ensure the best uniformity. This area is determined by two angles (Forward and Backward), which are also referred to as the end gun arc settings.

If the machine has a pressure regulators (recommended) installed at each sprinkler, the regulators will maintain pressure and flow whether the corner span is extended or retracted, even though more area is being irrigated and the pump is producing more flow. However, if pressure regulators are not used, a potential problem exists. Since there are between 17 and 35 extra sprinklers turned on in the course of irrigating a corner, the amount of water (and pressure) available to the rest of the sprinklers on the machine is much less. The result would be a very unfavorable water distribution pattern.

⚠ 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 39-1.

   FILL OUT the blue (OSHA safety color code) tag and attach to the disconnect after locking. See figure 39-1.

2. SHUT OFF and lock the control panel main power disconnect. See figure 39-2.

   FILL OUT the blue (OSHA safety color code) tag and attach to the disconnect after locking. See figure 39-2.

⚠ 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.**

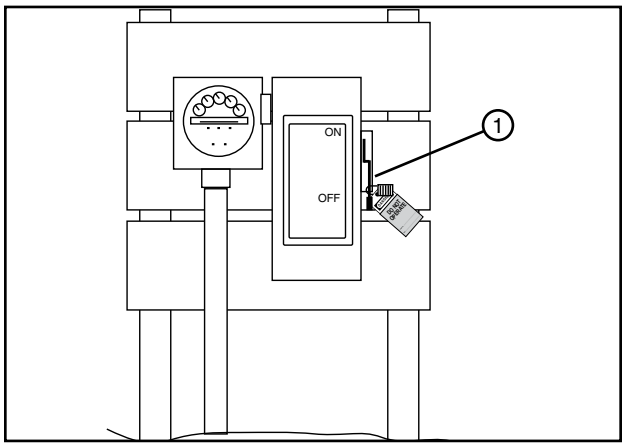


Figure 39-1 1. Public Power Service Disconnect

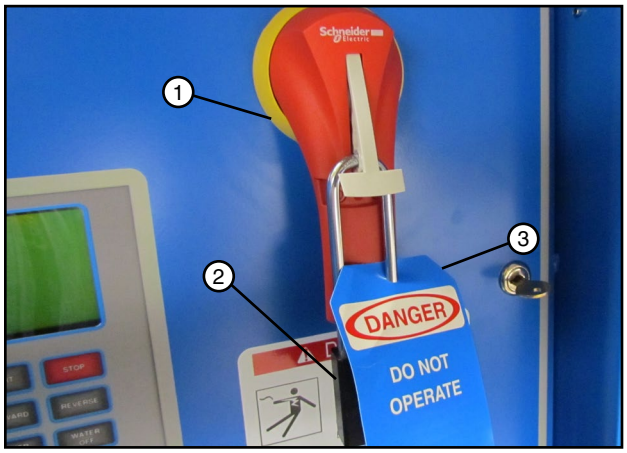


Figure 39-2 1. Main Disconnect
2. Lock
3. Blue Tag

Wheel Gearbox 8000/8120 Series

NOTE

- **After the first operating season, change the oil in all of the wheel gearboxes.**
- **After the first oil change, change the wheel gearbox oil every third year or 3000 operating hours, whichever occurs first.**
- **At the end of each operating season, drain the wheel gearboxes of any condensation or contaminated oil that may have accumulated in the gearbox and refill to its normal level.**

1. Remove the drain plug from the bottom of the wheel gearbox and drain the oil into a container. See figure 40-1.
2. Install the drain plug after draining oil.
3. Clean all of the dirt away from the expansion chamber cap and remove the expansion chamber cap. Do not allow dirt to fall into the gearbox when removing the cap. See figure 40-2.
   - Make sure the vent holes on each side of the expansion chamber cap are open and unobstructed.

NOTE

- **Use only Valley Gear Lube. Other brands of lubricants may contain corrosive extreme pressure additives, which may damage bronze worm gears.**

VALLEY GEAR LUBE	
Part No.	Description
0996557	55 Gallons
0996558	16 Gallons
0996559	5 Gallons
0996560	2 1/2 Gallons

- **The oil in worm gear cases may reach temperatures up to 200˚ F (94˚ C) without alarm.**

4. Fill the wheel gearbox with Valley Gear Lube. The capacity is approximately 3.9 quarts (3.7 liters).
   - Fill gearbox to the top of worm gear shaft or remove the check plug and fill until the oil begins to flow out of the check plug hole. See figure 40-3.
5. Install the expansion chamber cap after refilling the gearbox. Secure with original hardware and torque to 8 lb-ft (10.8 N·m).

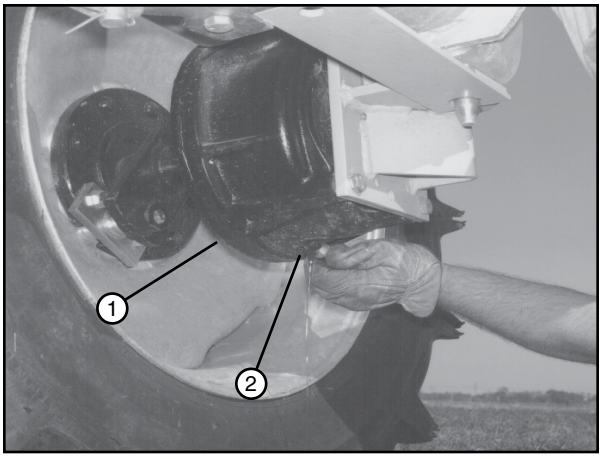


Figure 40-1 1. Wheel Gearbox
2. Drain Plug

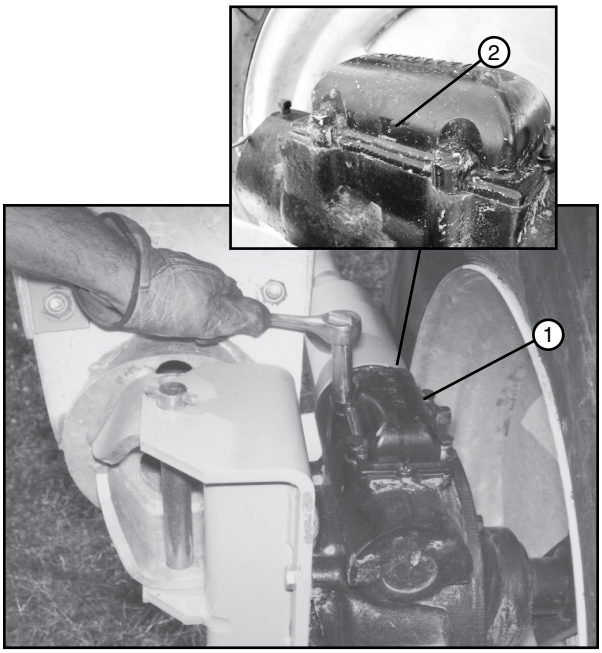


Figure 40-2 1. Expansion Chamber Cap
2. Vent Hole

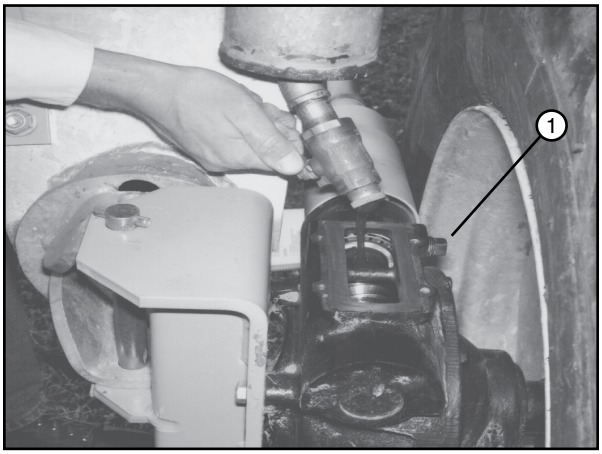


Figure 40-3 1. Check Plug

Helical Gearmotor

After EACH season of operation, change the oil in all of the helical gearmotor gearboxes.

1. Remove the drain plug and the fill plug. Drain the oil and install the drain plug. See figure 41-1.

NOTE

- **Use only Valley Gear Lube. Other brands of lubricants may contain corrosive extreme pressure additives, which may damage bronze worm gears.**

VALLEY GEAR LUBE	
Part No.	Description
0996557	55 Gallons
0996558	16 Gallons
0996559	5 Gallons
0996560	2 1/2 Gallons

- **The oil in worm gear cases may reach temperatures up to 200˚ F (94˚ C) without alarm.**

2. Fill the gearbox 1-7/8 in (48 mm) from the bottom of fill plug hole with Valley Gear Lube. The capacity of the gearbox is approximately 44 oz (1.3 liter). See figure 41-2.

NOTE

- **OIL LEVEL SHOULD BE 1-7/8 IN (48 MM) BELOW FILL PLUG WHEN FULL.**

⚠ WARNING

- **INPUT SEAL FAILURE CAN OCCUR IF OIL CAPICITY IS EXCEEDED.**

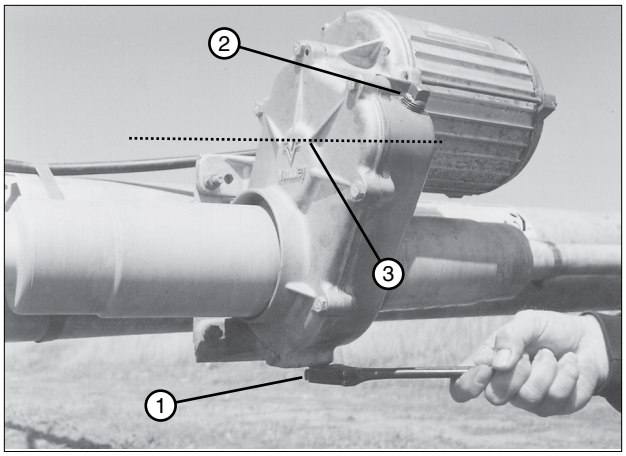


Figure 41-1 1. Drain Plug
2. Fill Plug
3. Approx. Oil Level

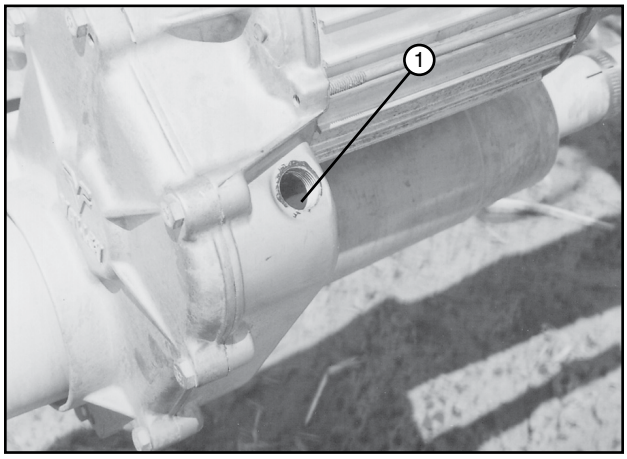


Figure 41-2 1. Bottom Of Fill Plug Hole

MAINTENANCE

Worm Gearmotor

After EACH season of operation, change the oil in all of the worm gearmotor gearboxes.

1. Remove the drain plug and the fill plug. Drain the oil and install the drain plug. See figure 42-1.

NOTE

•Use only Valley Gear Lube. Other brands of lubricants may contain corrosive extreme pressure additives, which may damage bronze worm gears.

VALLEY GEAR LUBE	
Part No.	Description
0996557	55 Gallons
0996558	16 Gallons
0996559	5 Gallons
0996560	2 1/2 Gallons

•The oil in worm gear cases may reach temperatures up to 200˚ F (94˚ C) without alarm.

2. Fill the gearbox to within 1/2 in (12.7 mm) of the bottom of the fill plug hole with Valley Gear Lube. The capacity of the gearbox is approximately 1 quart (0.9 liter). See figure 42-1.

Wheel Lug Nut Torque

Wheel lug nuts should be torqued to 125 lb-ft (169.47 N·m). See figure 42-2.

Check the wheel lug nut torque annually, preseason; at spring start-up.

Tire Pressures

Proper tire pressure is important! Operating with low tire pressure will damage the tires and the drive train.

Check tire pressure several times a year:

• Pre-season: At spring start-up.

• During-season: Check tire pressure monthly.

• Post-season: When performing fall winterization.

For the correct tire pressure refer to the decal on the rim or the tire pressure chart. See figure 42-3.

⚠ WARNING

•TIRES ARE SHIPPED AT A PRESSURE OF 30 TO 35 PSI (206 TO 241 KPA).

•BE SURE THE TIRES HAVE BEEN DEFLATED TO THE CORRECT PRESSURE (SHOWN ON DECAL) BEFORE THE TIRE IS USED.

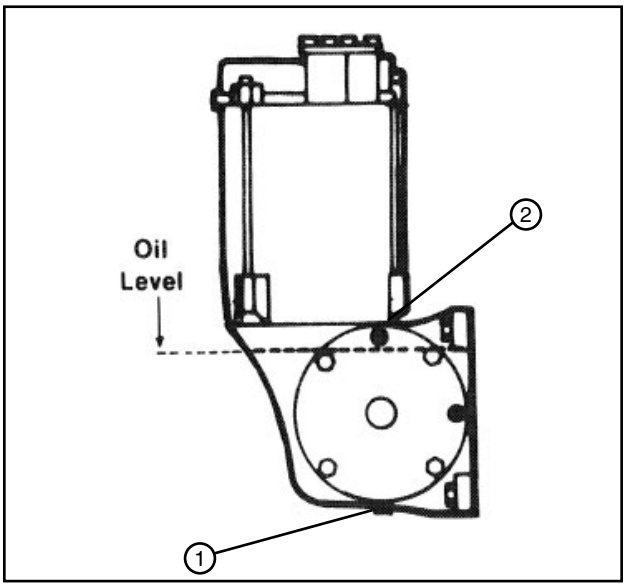


Figure 42-1 1. Drain Plug
2. Fill Plug

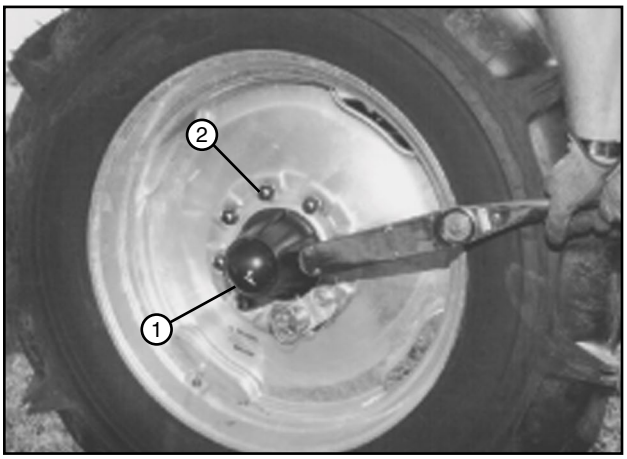


Figure 42-2 1. Grease Fitting
2. Wheel lug nut

TIRE PRESSURE CHART

Span Drive Units			
Tire Size (Inches)	Pounds per Square Inch (PSI)	Kilopascals (kPa)	Bar (bar)
11.2 X 24 Tire	34	234	2.3
14.9 X 24 Float Tire	18	124	1.2
14.9 X 24 Turf Tire	18	124	1.2
16.9 X 24 Turf Tire	18*	124	1.2
18.4 X 26 Tire	10	69	.69
11.2 X 38 Tire	23	158	1.5

Figure 42-3 Tire pressure may be reduced to 16 psi (110 kPa) for increased flotation.

NOTE

•When replacing tires be sure the ply rating of the new tire is equal to or greater than the ply rating of the old tire.

Barricade

Maintain the barricade structure and area.

Inspect the barricade structure for failure and tighten any loose hardware completely.

Ensure that the actuator arm contacts the tripping structure. Under certain conditions, soil may build up in the wheel track resulting in a ramp effect. This may allow the actuator arm to go over the top of the structure which trips the actuator arm. See figure 43-1.

Should this happen, the machine will not stop but continue to move and can result in damage to the machine. Remove any build up of soil in the barricade area.

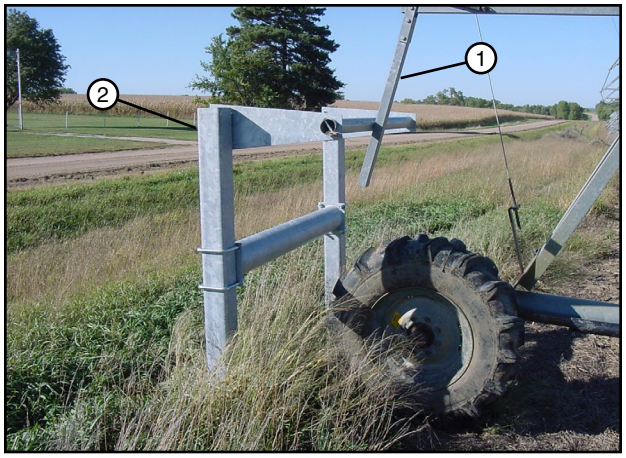


Figure 43-1 1. Actuator arm
2. Barricade

Wheel Tracks

It is important to maintain wheel tracks. If left in a state of disrepair, wheel tracks can cause structural damage to the irrigation machine. See figure 43-2.

- Wheel tracks should be maintained and controlled. A maximum allowable wheel track for machines is 8-10 in (20-25 cm) deep.
- Establish a wheel track with the first several revolutions of the machine at maximum speed and minimum water application depth.
- Deep ripping or chiseling in the wheel track area should be avoided.
- Wheel tracks can be controlled by various methods which include larger tires, dry wheel track sprinkler packages, boombacks, wide-flat berms, drag socks, etc. Wheel track depth can be controlled by using track fillers, tillers, discs, or flotation tires.
- If berms are built for wheel tracks it is recommended to have a width of 3 ft (1 m) to prevent slippage off the sides and compacted to prevent deep wheel tracks. Proper drainage may be required to prevent water buildup. Berms are not recommended for the guidance tower and end tower drive unit wheel tracks due to the potential variability of the wheel track from season to season.
- Wheel tracks may be wider with dual steering gearboxes.

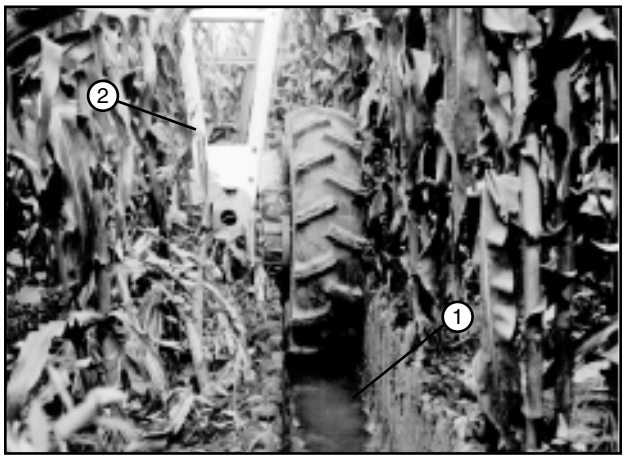


Figure 43-2 1. Wheel Track
2. Drive Unit

Miscellaneous

Hose Replacement

If the 4-1/2 in hose is sufficiently weather-cracked, checked, or leaking, you need to replace the hose. Follow the steps below to replace the 4-1/2 in hose. See figure 44-1.

1. Loosen the hose clamps. See figure 44-1.
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 each stub pipe until the hose contacts the hose stops.
5. Tighten the hose clamps. See figure 44-1.

Contact your local Valley Dealer if you have any questions about replacing the 4-1/2 in hose.

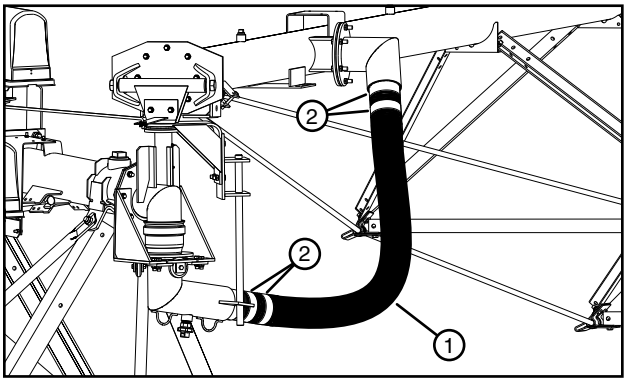


Figure 44-1 1. 4-1/2 in Hose
2. Flex Joint Clamp

Electrical and Grounding Conductors

Check the condition of all electrical and grounding conductors regularly. See figure 44-2.

Have your local Valley dealer repair or replace any broken conduit or electrical wire that has worn or cracked insulation.

Always make sure the ground wires are attached securely. See figures 44-2 and 44-3.

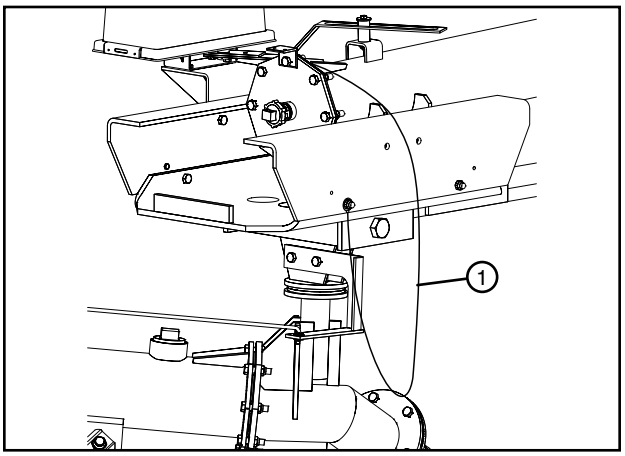


Figure 44-2 1. Ground Wire

T-Bar Lubrication

Lubricate the T-bar/corner outlet bushing every five to seven revolutions of the pivot with a water-resistant lithium-based grease. See figure 44-3.

Lubricating the T-bar/corner outlet bushing regularly reduces the possibility of binding.

The grease fittings are located on the side of the corner outlet bushing. See figure 44-3.

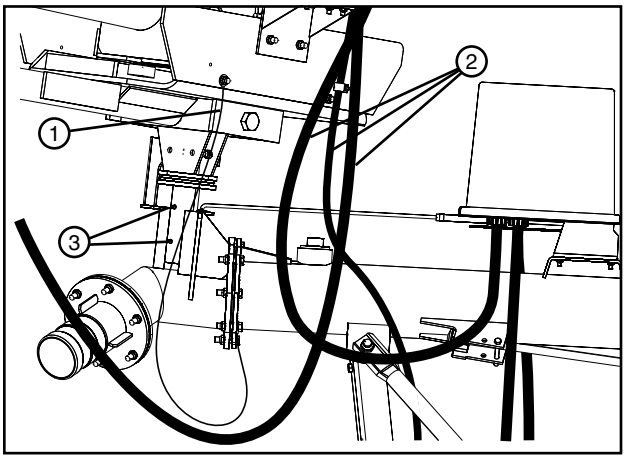


Figure 44-3 1. Ground Wire
2. Electrical Conductor
3. Grease Fitting
4. Ground Wire

Guide and Track Roller Bearing Lubrication

Lubricate the guide and track rollers every five to seven revolutions with a water-resistant lithium-based grease.

1. Align the two guide rollers over the holes in bottom of extended cradle.
2. From beneath the extended cradle, use a grease gun with fitting Valmont pn 0991807 to lubricate the grease fitting on each guide roller. See figure 45-1.
3. Lubricate the grease fitting on each track roller. See figure 45-2.

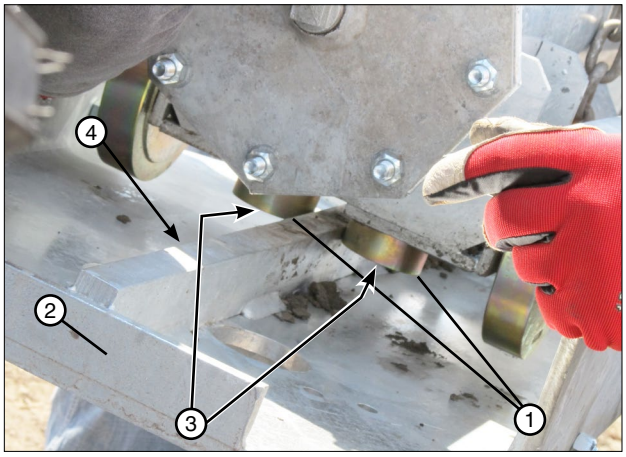


Figure 45-1 1. Guide Roller
2. Cradle
3. Grease Fittings
4. Holes in Bottom of Cradle

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 45-3.

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 45-4.

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.

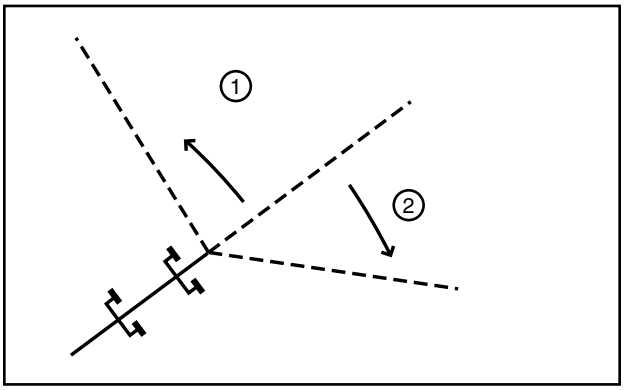


Figure 45-4 1. Backward Angle = 85°
2. Forward Angle = 45°

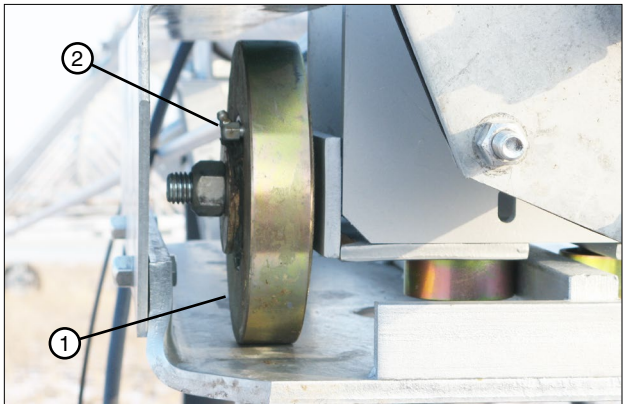


Figure 45-2 1. Track Roller'
2. Grease Fitting

Figure 45-3 1. End Gun

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.

Free Standing Span

	Pre-season	1st Pass	4th 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.
Lubricate T-bar/corner outlet bushing	X			X	See T-Bar Lubrication in Maintenance section
Lubricate the guide and track rollers	X			X	See Guide and Track Roller Bearing Lubrication
Check air pressure in tires.	X			X	Also check at least once during the operating season.
Check condition of electrical conductor.	X			X	Replace if frayed, worn, or weather checked.

Overhang/Booster Pump

	Pre-season	1st Pass	4th Pass	End of Season	Remarks
Check overhang cables for broken cable strands.	X			X	Replace if cables are damaged.
Clean and ensure operation of the end gun drain.	X			X	Always check at end-of-season shutdown.
Check and clean the sand trap.	X			X	As needed. See Winterization Procedure.
Check the end gun arc settings.	X			X	Refer to the sprinkler chart.
Check the end gun bearing and brake.	X			X	
Check the end gun nozzle for wear.	X			X	
Drain the booster pump and ensure that the booster pump is drained completely.	X				See Winterization Procedure.

Connecting Span

	Pre_season	1st Pass	4th Pass	End of Season	Remarks
Check flanges for leaks and tighten as required.	X			X	
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 structural components for tightness.	X			X	
Check power cable for damage and proper banding to ensure proper attachment.	X			X	
Check/clean cross filter.	X			X	

Annual Maintenance

LRDU and Guidance Tower

	Pre-Season	1st Pass	4th 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	
Check each motor drain hole for proper drainage.	X			X	
Check the gearmotor seals and gaskets.	X			X	
Check drive shaft U-joints and U-joint covers.	X			X	
Check the gearbox seals and gaskets.	X			X	
Check and tighten the wheel lug bolts. (125 ft. lbs. torque).	X	X		X	When ever a lug nut is tightened, re-check lug nuts after the first revolution.
Check the tire pressure.	X			X	See Tire Pressure in the Maintenance section.
Clean gearbox ventilation hole in expansion chamber (3 times a year).	X			X	Ventilation holes must be kept open to extend the gearbox seal life.
Check/change the wheel gearbox lubricant.	X			X	See the Wheel Gearbox in the Maintenance section.
Drain and replace the wheel gear motor lubricant.	X			X	See the Wheel Gearbox in the Maintenance section.

Sprinkler

	Pre-season	1st Pass	4th Pass	End of Season	Remarks
Check the pivot pressure to make sure it matches the sprinkler package pressure.	X		X	X	Notify your Valley dealer of any changes.
Check sprinklers and nozzles for tightness.	X			X	
Check sprinkler for free movement.	X			X	
Check sprinkler nozzles for wear.	X		X	X	Increasing the engine RPM or drop in pressure indicates wear.
Check pressure gauge.	X			X	
Check for plugged or partially plugged nozzles.	X	X	X	X	
Flush entire machine.	X			X	See Flushing Procedure.
Check end gun bearing and brake setting.	X			X	
Ensure the booster pump hose is drained.	X			X	This should be done at end of season.
Check tubing harness for damage.	X			X	

Span Flushing Procedure

The purpose of flushing the machine is to remove sand and debris from the pipeline. Excessive accumulation of sand in the machine also adds weight and can cause structural damage to the machine.

The Flushing Process should be performed:

- After system installation.
- After pump repair.
- After structural repair.
- Seasonally - prior to operating the system and after the operating season is over.
- As often as necessary according to debris or sand content in water.

NOTE

•Excessive sprinkler problems (clogging) could be an indication of high debris or sand content.

⚠ DANGER

•DO NOT START THE FLUSHING PROCEDURE WHILE THE SYSTEM IS UNDER WATER PRESSURE. REMOVING SAND TRAP PLUGS WHILE THE SYSTEM IS UNDER PRESSURE MAY CAUSE PERSONAL INJURY OR DEATH.

1. Turn the main disconnect switch off. Only water is required for this procedure - the machine does not need to run.
2. Remove the pipe drains at each tower and clean sand and foreign particles from these drains. Turn the rubber drain seal over when reinstalling. See figure 48-1.

NOTE

•The rubber drain seals should be turned over when being reinstalled. This practice helps to increase the seal life.

3. Remove and clean the sand trap at the last regular drive unit of the free staiding corner span. See figure 48-2.

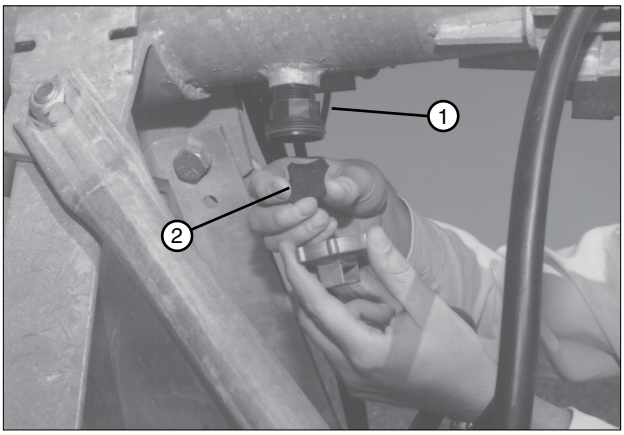


Figure 48-1 1. Pipe Drain
2. Rubber Seal

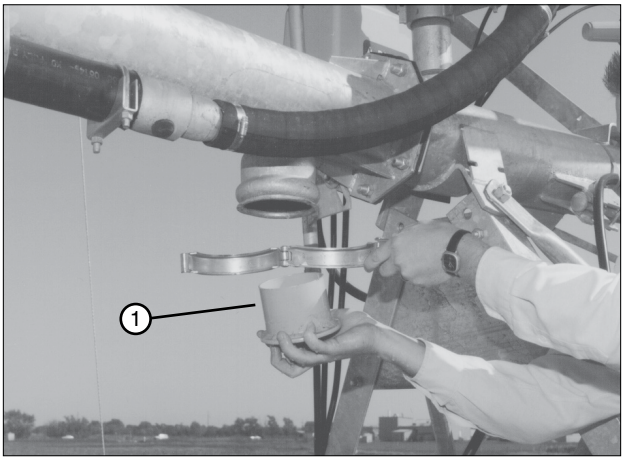


Figure 48-2 1. Sand Trap

Span Flushing Procedure

4. Remove plugs from the overhang drain. See figure 49-1.
5. Start the pump and allow the machine to flush thoroughly.
6. Turn off the water supply and install the pipe drains, sand trap, and overhang plugs.
7. If the machine is equipped with an end gun:
   - Make sure the booster pump hose drain is not plugged with sand. See figure 49-2.
   - Clean the end gun shut off solenoid valve cross filter or optional dirty water filter. See figures 49-3 and 49-4.

NOTE

•After flushing for winterization, ensure the water has been allowed to drain completely before replacing the pipe drains and plugs to prevent freezing and splitting of the pipeline.

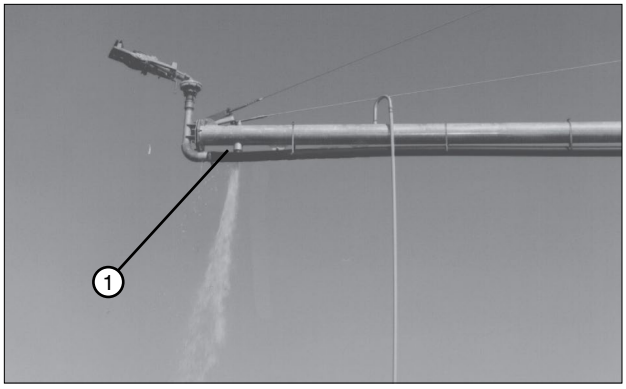


Figure 49-1 1. Overhang Drain

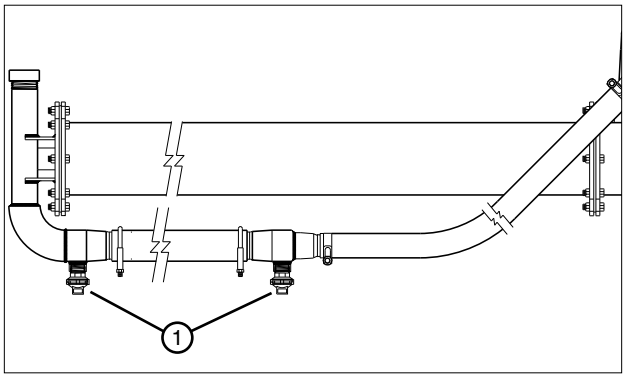


Figure 49-2 1. Booster Pump Hose Drain

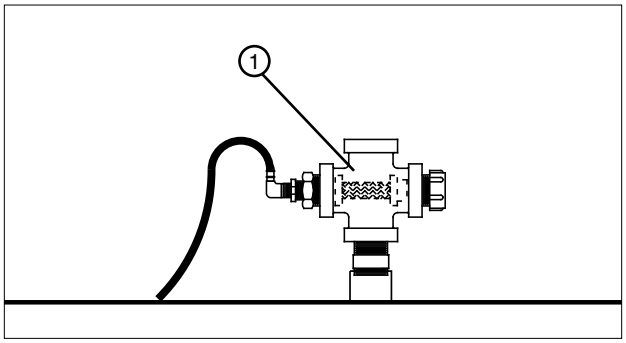


Figure 49-3 1. Cross Filter

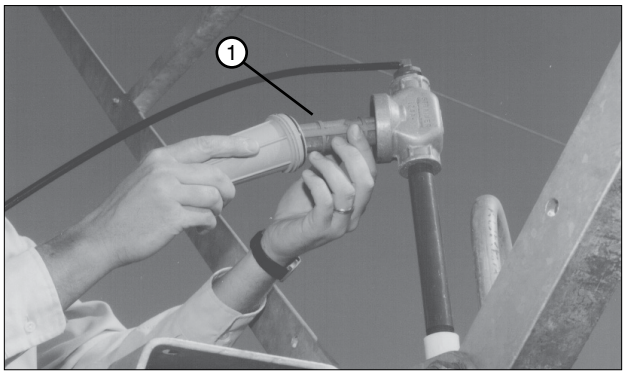


Figure 49-4 1. Optional Dirty Water Filter

MAINTENANCE

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.

- Flush and drain the irrigation machine and all plumbing components as specified in the flushing procedure section. After flushing for winterization, ensure the water has been allowed to drain completely from all drains and plumbing components before replacing drains and plugs to prevent freezing and splitting of the pipeline.
- All underground pipe MUST be drained below the frost line. When drainage is complete, re-install all plugs to prevent rodent infestation.
- Perform all post-season maintenance as specified in the recommended maintenance section.
- Winterize auxiliary equipment such as pumps, power units, mainline pipes and hoses according to the auxiliary equipment manufacturers recommendations.
- Ensure the main pipeline is completely drained and replace all of the drains. Any low spot in the mainline which is buried above the frost line between the pump and the pivot should have a riser installed at the low point to provide access for pumping water from the line.

Parking the Machine

The metal in the irrigation machine will expand and contract with variances in temperature. When the machine is being operated, this poses no threat. However, if the machine is parked in the wheel tracks which were created during the year, shrinking due to the contraction of the metal could cause structural damage.

The possibility of structural damage due to metal contraction increases as the machine length increases. Long machines are more susceptible to these stresses, especially where extreme temperature variances occur (90°F (32°C) down to -0°F (-17°C)) and when wheel tracks are present.

To reduce the possibility of structural damage due to expansion and contraction of the metal, the operator should consider one of the following methods when parking the machine in the off season:

1. Park the machine in an area where the wheel tracks have been eliminated.
2. Place wooden 2 in x 12 in planks over the wheel tracks. Park the machine with the tires on the center of the planks.
3. Towable Drive Units – Place every third drive unit's wheels in the tow position.
4. Remove all wheel tracks and run the machine dry (without water) for approximately 100 yards (92 m) to 200 yards (183 m) monthly. Only run the pivot if the temperature is above 40°F (4°C).

Contact your Valley dealer for other winter storage/parking information and tips.

Troubleshooting

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

PROBLEM	POSSIBLE CAUSE OR CORRECTIVE ACTION
Machine has shut down or will not start.	The pivot is out of alignment - See the Pivot Owners Manual.
	Water deposits have caused the angle sensor box to be out of alignment.
	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.
	Faulty LRDU or guidance tower drive systems
	The pipe position in cradle is more than 5.5 in (139.7 mm) from the center
	Check the guidance tower and LRDU for signs of failure in the mechanical assemblies or the Run Cycle Box control arm linkage.
	Guidance Tower is too far off the guidance wire.
	Side load safety box has dectected a problem
	Call your Valley Dealer.
Free Standing Corner Span is out of its wheel tracks.	Check the wheel track to see if the free standing corner span is having difficulty climbing over a steep soil ridge.
	Check the Position of the DualSpan corner.
	Faulty wheel gearbox motors
	Call your Valley dealer.
Sprinklers fail to come on or shut off.	The plastic tubing is plugged or broken.
	Plugged water filters
	A faulty solenoid coil - call your Valley dealer.

TROUBLESHOOTING