

# MAINTENANCE

Wayne Forsberg  
Service Manager,  
Romans' Precision Irrigation

# LOCK OUT TAG OUT

Your Lock!



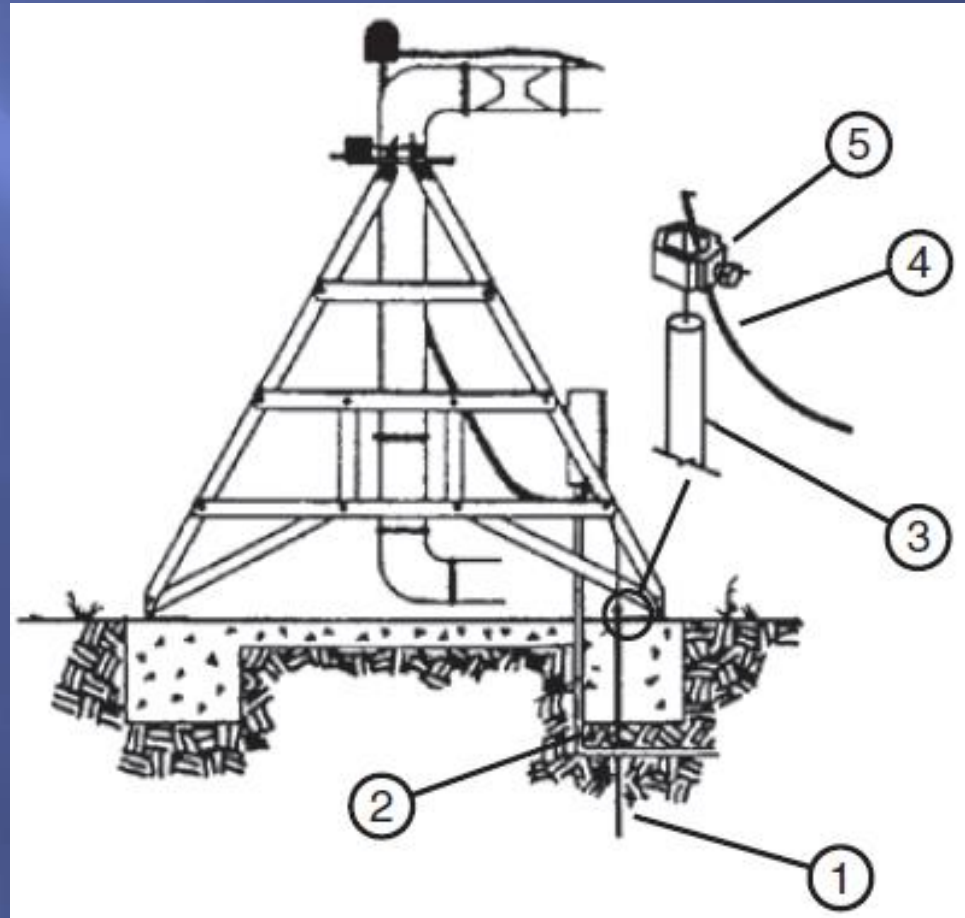
3/25/92

# ELECTRICAL AND GROUNDING

Check the condition of all electrical and grounding conductors regularly

Have a qualified Valley dealer make any necessary repairs

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



# Ground Wire Connection to Ground Rod



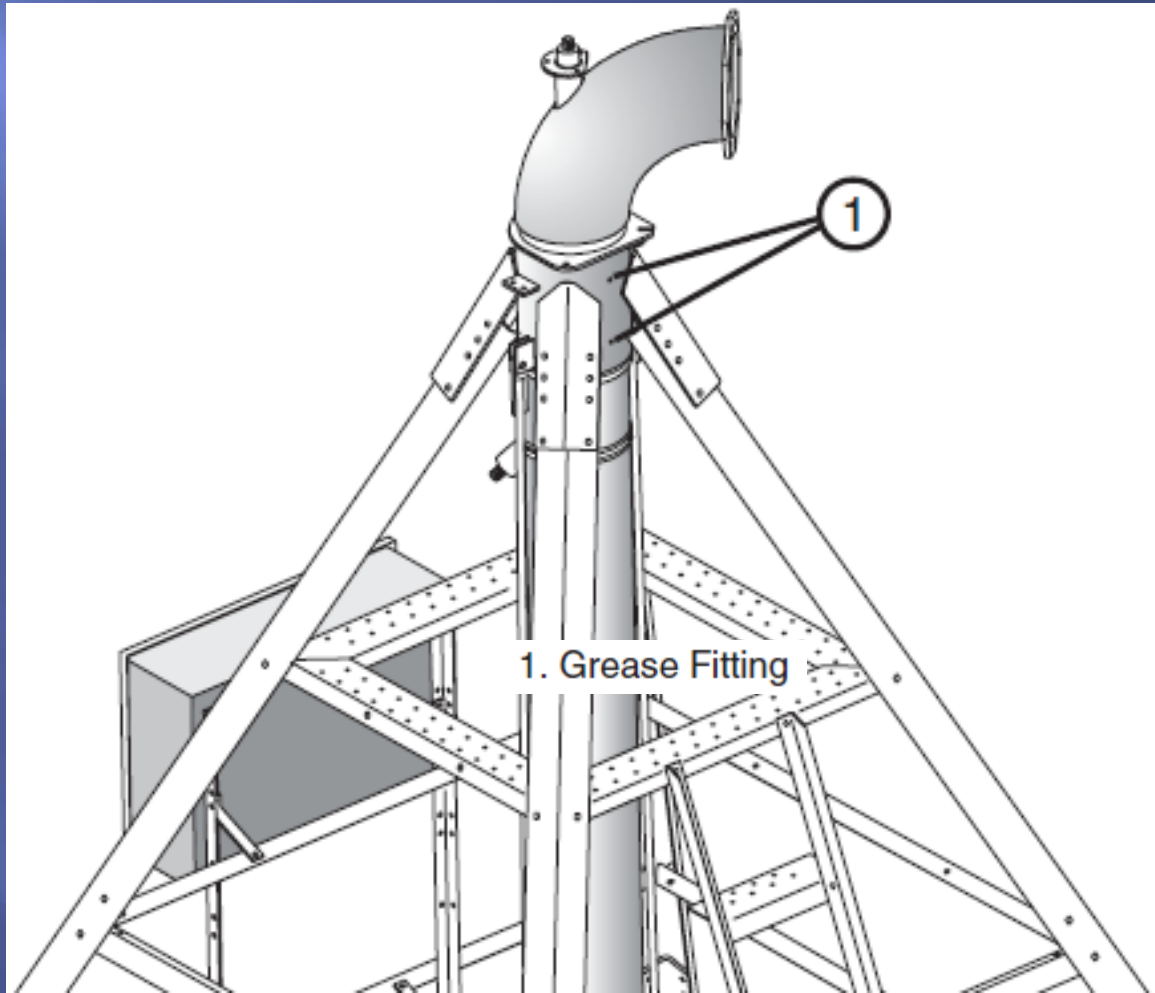
The maximum resistance of a ground electrode (rod) shall not exceed 25 ohms. Under some sandy soil conditions, it may be impossible to have a resistance as low as 25 ohms. If resistance is higher than 25 ohms, drive another electrode (rod) at least eight feet from first rod and securely bond the #6 gauge wire (or larger wire, never smaller than #6) to the metal box.

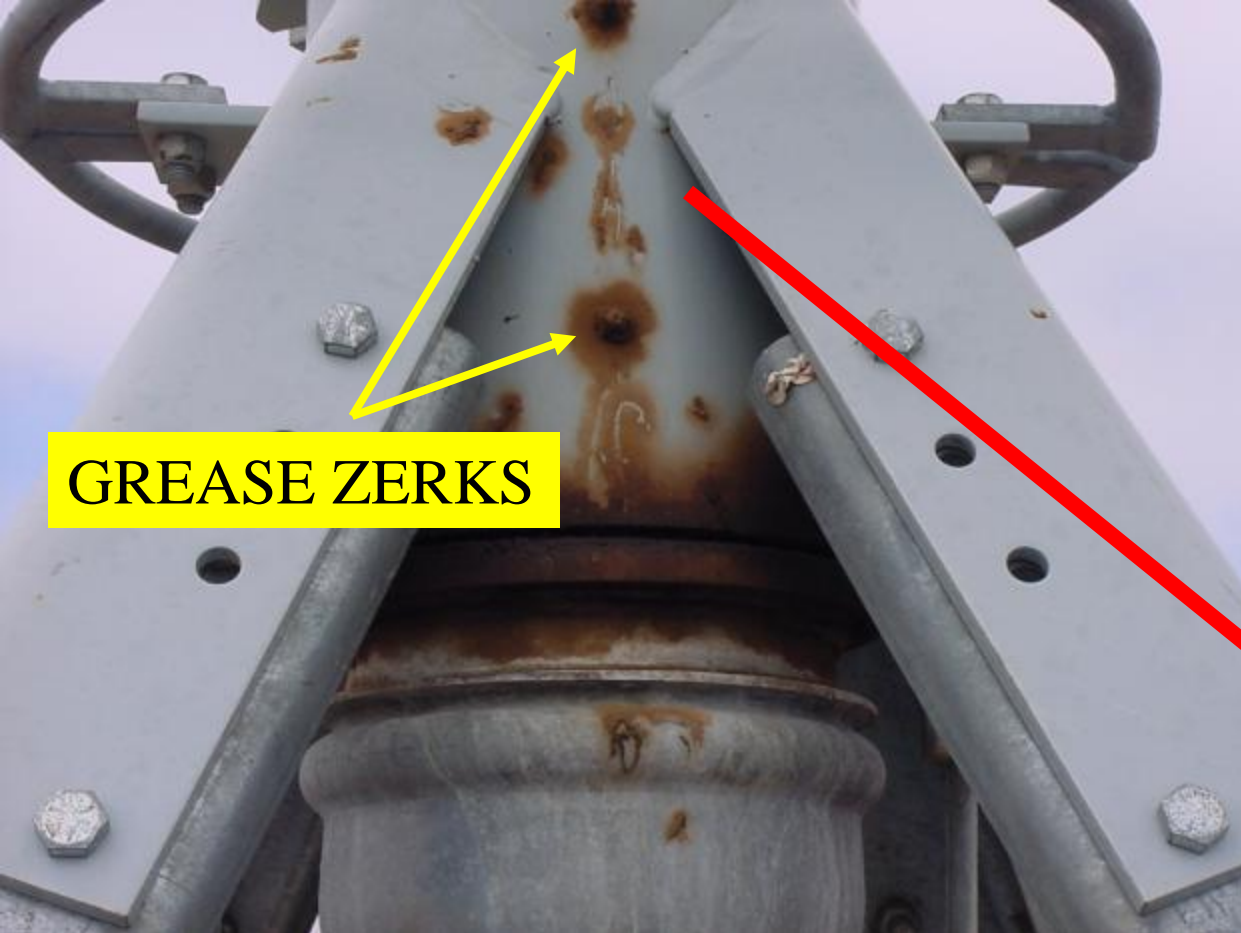




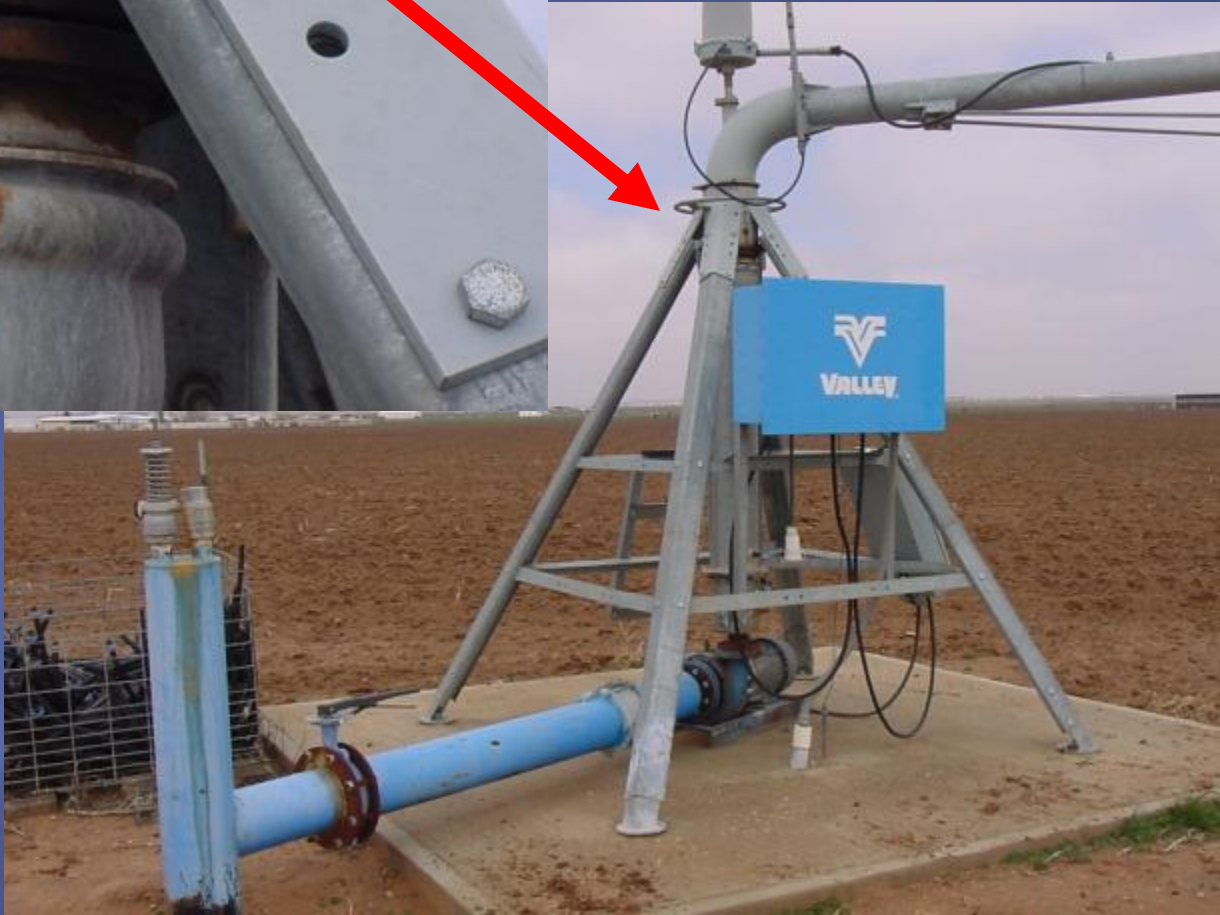
# PIVOT SWIVEL LUBRICATION

Grease every 5 to 7 revolutions with  
water resistant lithium based grease





GREASE ZERKS

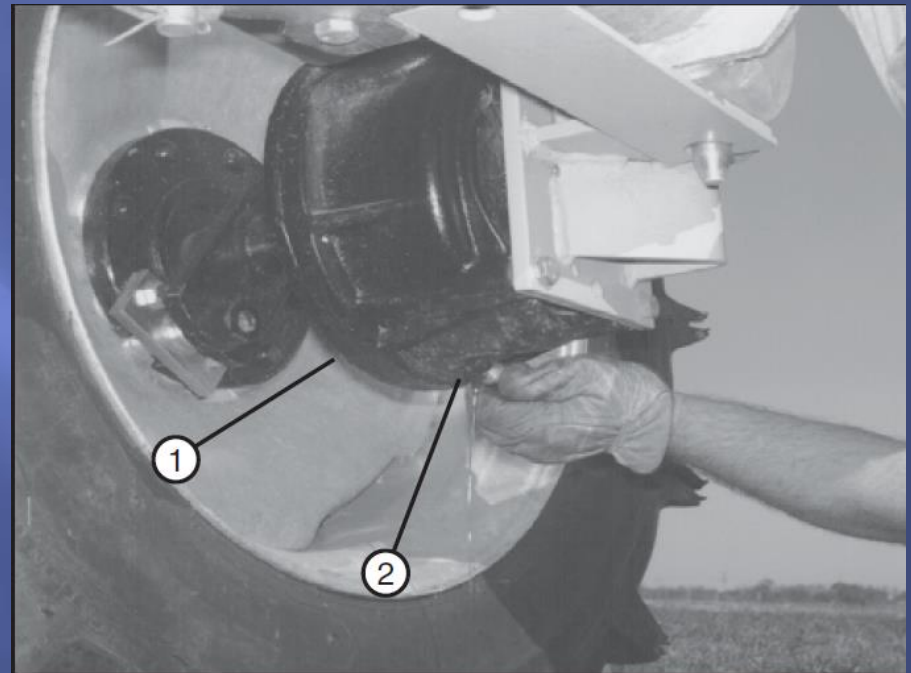


# WHEEL GEARBOX

Change all oil in gearboxes after first season

After first season change oil every 3<sup>rd</sup> year or 3000 hours

Drain any condensation and top off gearbox oil after every season



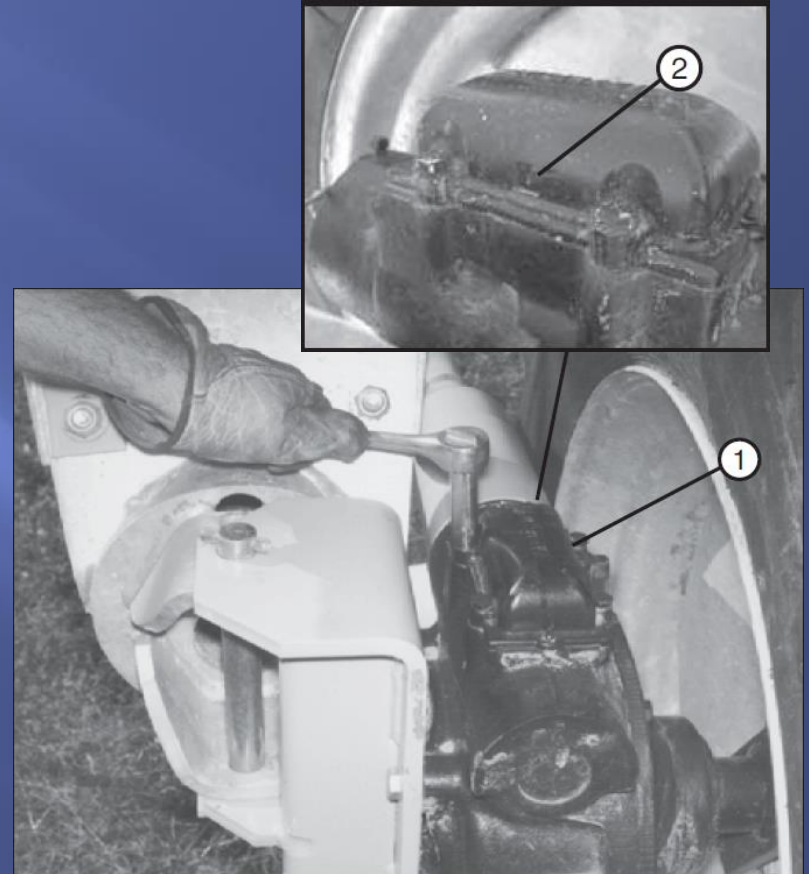
1. Wheel Gearbox
2. Drain Plug

# WHEEL GEARBOX CONT.

Remove Cap

Ensure vent holes are not plugged

Rubber expansion seal should not have any holes

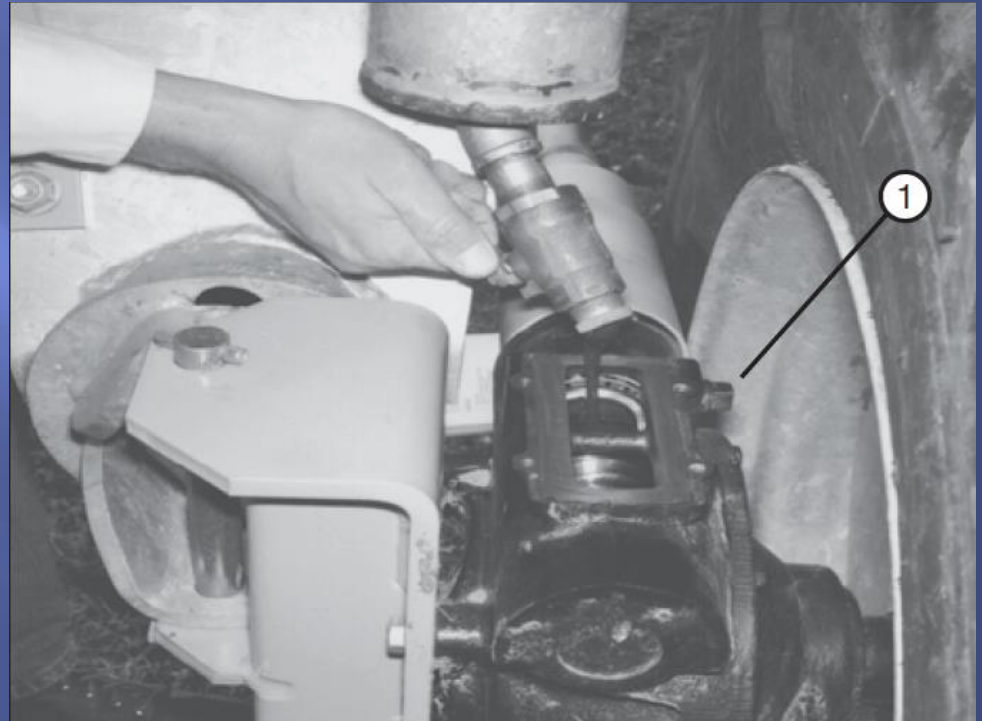


# WHEEL GEARBOX CONT.

Fill to the top of the worm gear

Capacity is about 5 quarts

Reinstall with original hardware  
and torque to 8 lb-ft








**CLEAN OFF DIRT-  
AIR OR WIRE  
BRUSH**





**OIL IS "MILKY" IN COLOR DUE TO WATER IN THE GEARBOX**





Special  
85-140 Gear Lube  
Contains Non-Active  
Sulfur and non-active  
Chlorine. Extreme  
pressure additives.

Always Change Oil After  
First Season!!!

A close-up photograph showing a person's hands using a pair of pliers to pull a pin or plug from a dark, cylindrical component of a vehicle's axle assembly. The component is mounted on a metal frame. A large, light-colored tire is visible in the lower left corner. The ground is covered in dry grass and straw. A blue text box with white text is overlaid on the left side of the image.

**WATER SETTLES TO  
THE BOTTOM!!!!**

# LEAKING GEARBOXES



**AIR VENT HOLES TO RELEASE INTERNAL  
PRESSURE AS GEAR LUBE EXPANDS!!!**





**PAPER CLIP**



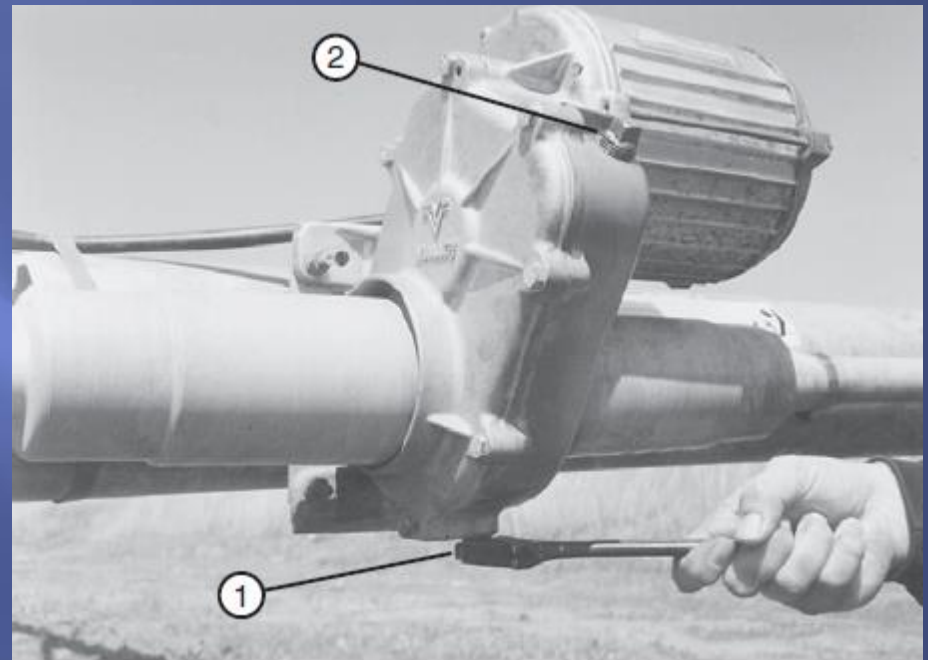
1/64 Drill Bit



# HELICAL GEARMOTOR

Change oil Every season

Don't be alarmed, New gearboxes arrive with a lighter weight oil then what will be put in after the first oil change



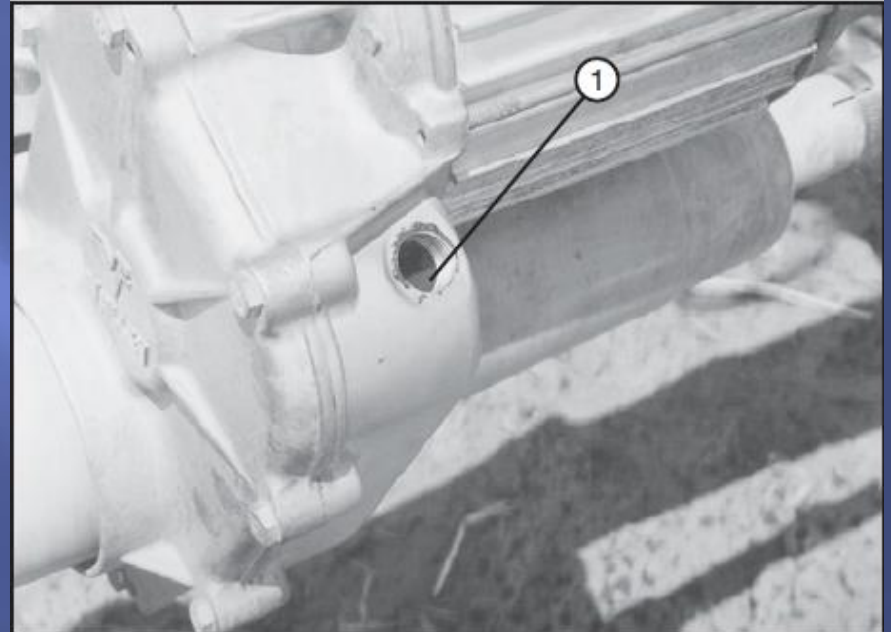
- 1. Drain Plug
- 2. Fill Plug

# HELICAL GEARMOTOR CONT.

Fill to within 1¼ inch of the BOTTOM of the fill plug with about 1 quart of Valley™ Gearlube

DO NOT OVERFILL

Overfilling can lead to seal leakage or failure as expansion needs the air gap



1. Bottom of Fill Plug Hole



Drive Shaft Starts Without Warning!

- Always lock drive shaft in the off position. Clamping or locking the drive shaft while the machine is running in reverse may cause the drive shaft to break, resulting in severe injury or death.
- Always replace drive shaft shield after servicing.

VALLEY CENTER DRIVE HIGH SPEED			
VALLEY	VALLEY CENTER DRIVE	VALLEY	VALLEY
OUTPUT 1 HP	1.2-1.3	AMBIENT °C	40
VOLTS AC	480/240	ENCLOSURE	TENV
AMPS	1.6-1.8	FRAME	56-B
HERTZ	60/50	TYPE	JFN-GD
OUTPUT RPM	68.56	INSULATION CLASS	F
PHASE	3	CONTINUOUS DUTY	THERMALLY PROTECTED
CODE	R	ID#	685917/2087
SERVICE FACTOR	1.3	MADE IN USA	LR8153
DESIGNED FOR IRRIGATION EQUIPMENT			
ASSEMBLY PN-03E1559 GEAR BOX PN-03E1559 MOTOR PN-03E1559			

03E1559

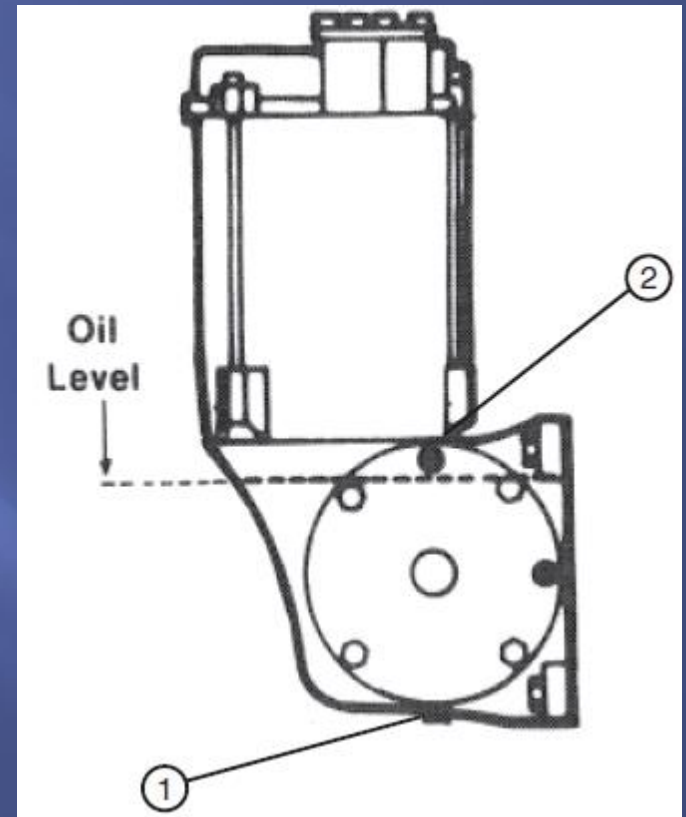
OOPS!!!!  
TOO FULL



# WORM GEARMOTOR

Change oil every season

Don't be alarmed, new gearboxes ship with a lighter weight oil then what will be put in after the first oil change



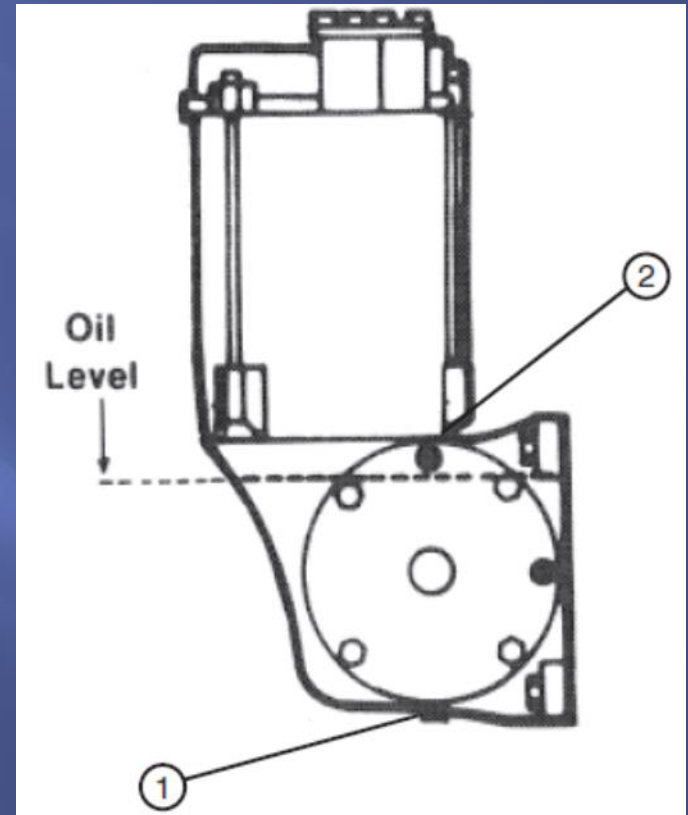
- 1. Drain Plug
- 2. Fill Plug

# WORM GEARMOTOR CONT.

Fill to WITHIN  $\frac{1}{2}$  inch of the bottom of the fill plug with about 1 quart of Valley™ Gearlube

DO NOT OVERFILL

Overfilling can lead to seal leakage or failure as expansion needs the air gap











Drive Shaft Starts Without Warning!

...ing drive shaft or shield. Clothing or  
... become entangled, resulting in severe injury.  
... machine is locked in the off position  
... replace drive shaft shield after servicing.



**Drive Shaft Starts Without Warning!**

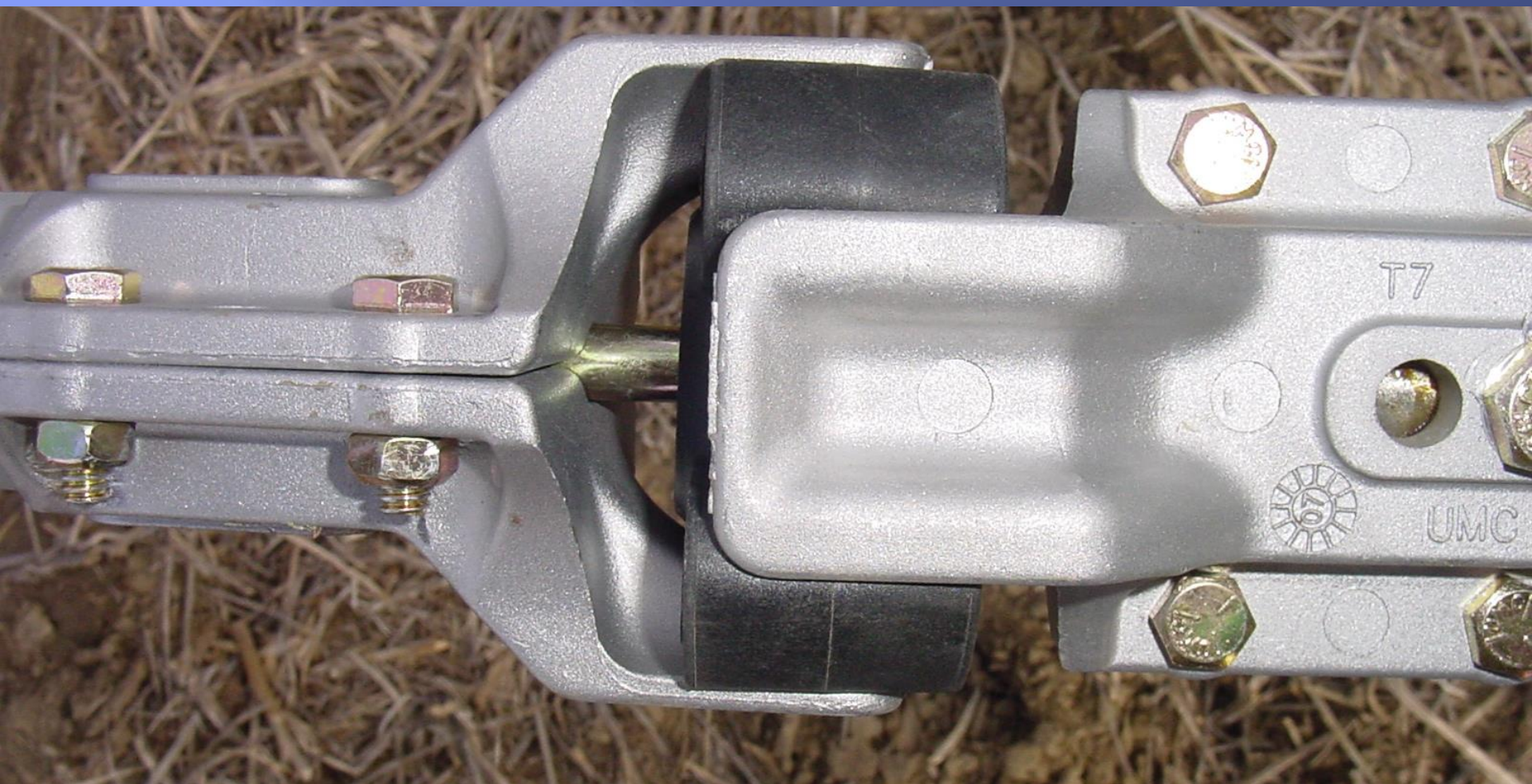
- Do not touch rotating drive shaft or shield. Clothing or limbs may become entangled, resulting in severe injury.
- Do not service until machine is locked in the off position.
- Always replace drive shaft shield after servicing.



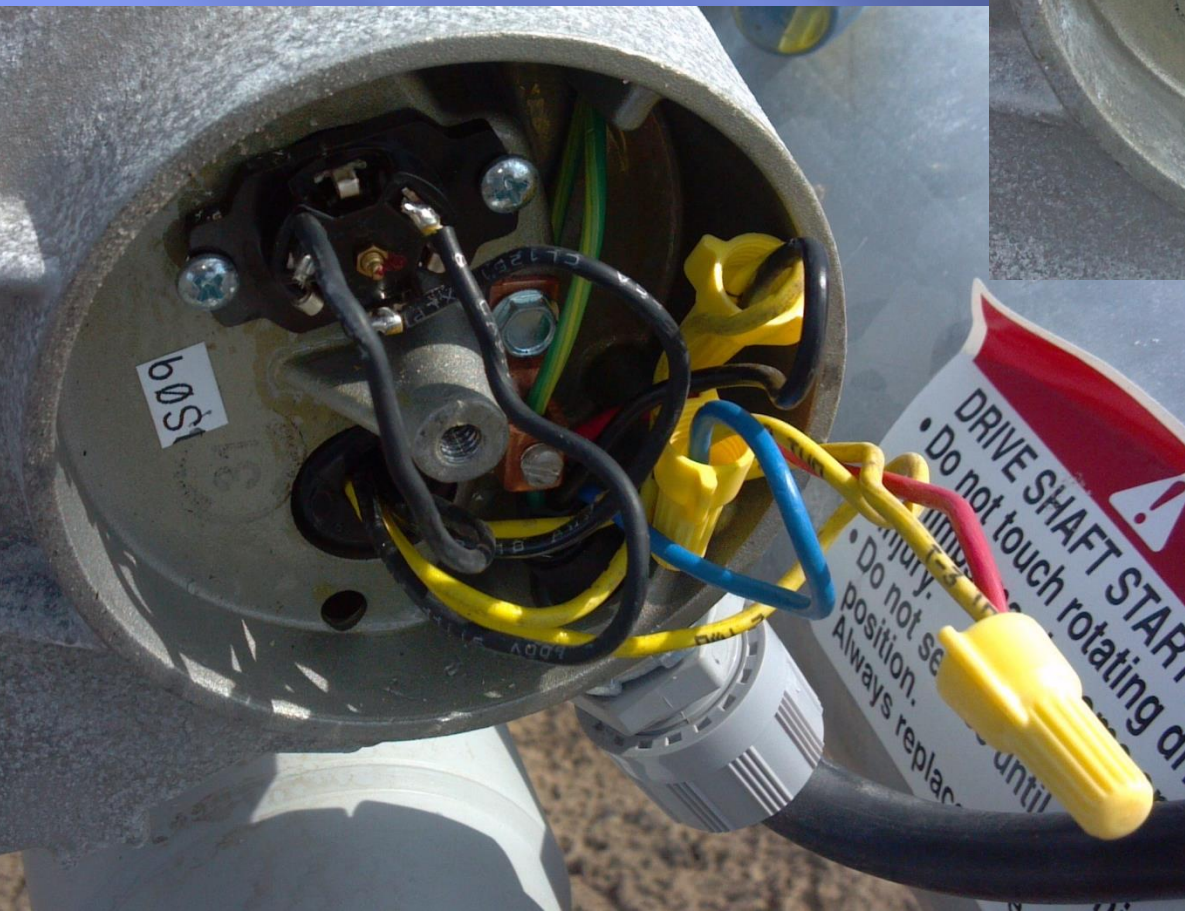
**NO CENTER PIN, PUCK INSERT WILL TWIST OUT UNDER HI TORQUE**



# U-JOINT WITH PIN INSERTED THROUGH PUCK



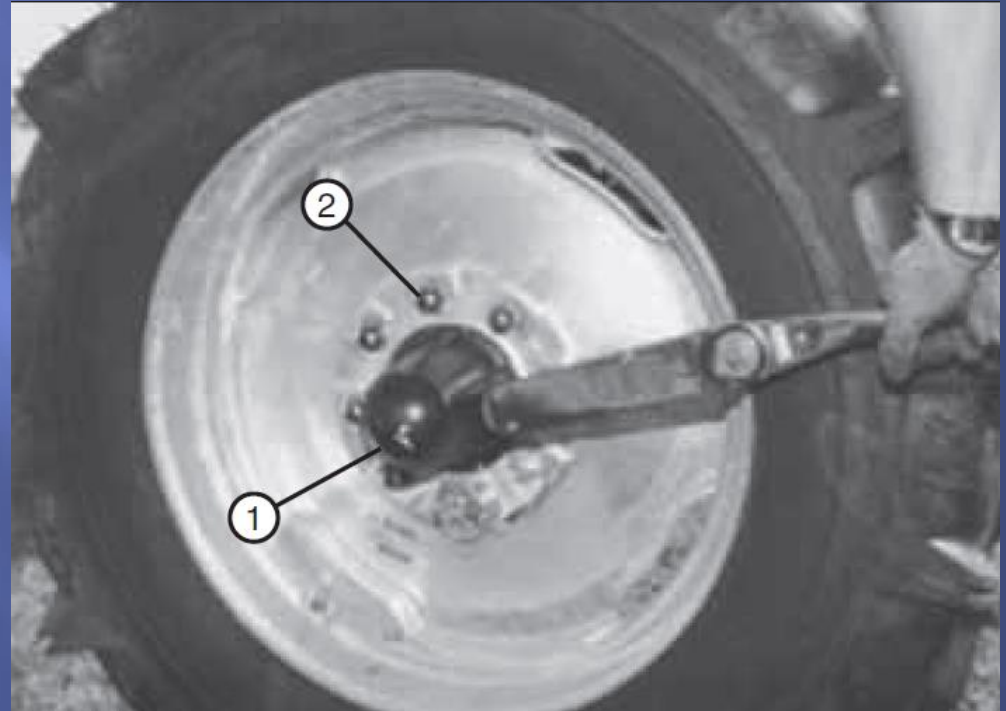
**WIRE NUTS SHOULD BE IN THE “UP”  
POSITION TO SHED MOISTURE, NOT  
“UPSIDE DOWN” TO CATCH MOISTURE!**



# WHEEL LUG NUT TORQUE

Torque to 125 lb-ft (169.47 N-m)

Check annually at spring startup





**WARNING: LOOSE!!!!!!!**

# **TIRE LUG NUTS**



**TIGHT !!!!!**



# TIRE PRESSURE

## 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.

Operating with low tire pressure will damage the drive train and tires

Check several times a year

Refer to the decal on the tire or the tire pressure chart in the owners manual

## TIRE PRESSURE CHART

Span Drive Units			
Tire Size	Pounds per Square Inch	Kilo pascal	Bar
(Inches)	(PSI)	(kPa)	(bar)
11 X 22.5 Tire	34	234	2.3
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	16	110	1.1
11.2 X 38 Tire	23	158	1.5
11L X 15 Implement Tire (4 Wheel E-Z Tow Only)	30	206	2.1

It still turns, don't  
change it yet



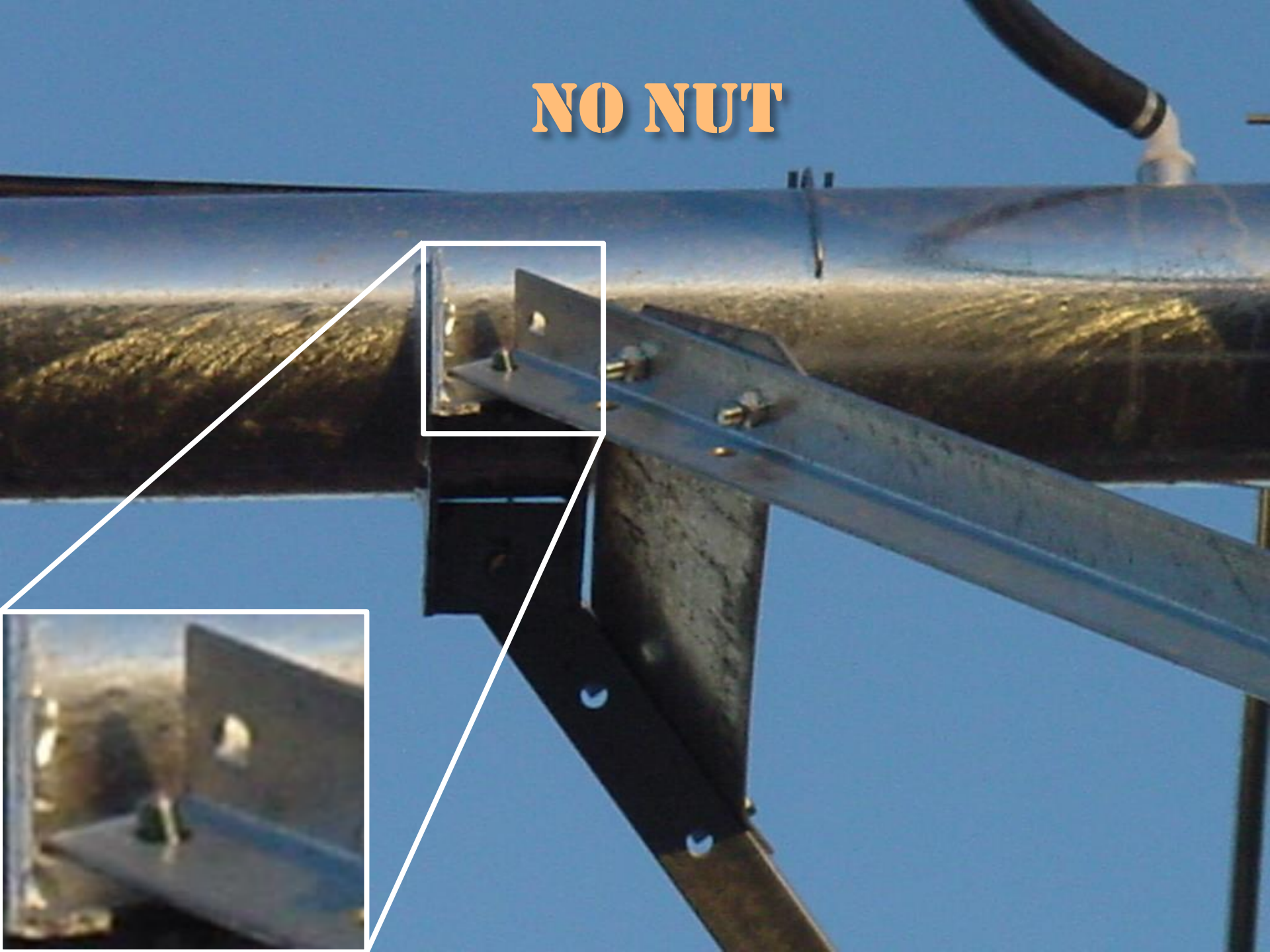


**⚠ WARNING**  
MAX INFLATION PRESS: 35 PSI  
THIS TIRE AND RIM FOR  
CENTER PIVOT USE ONLY  
**VALLEY**  
96

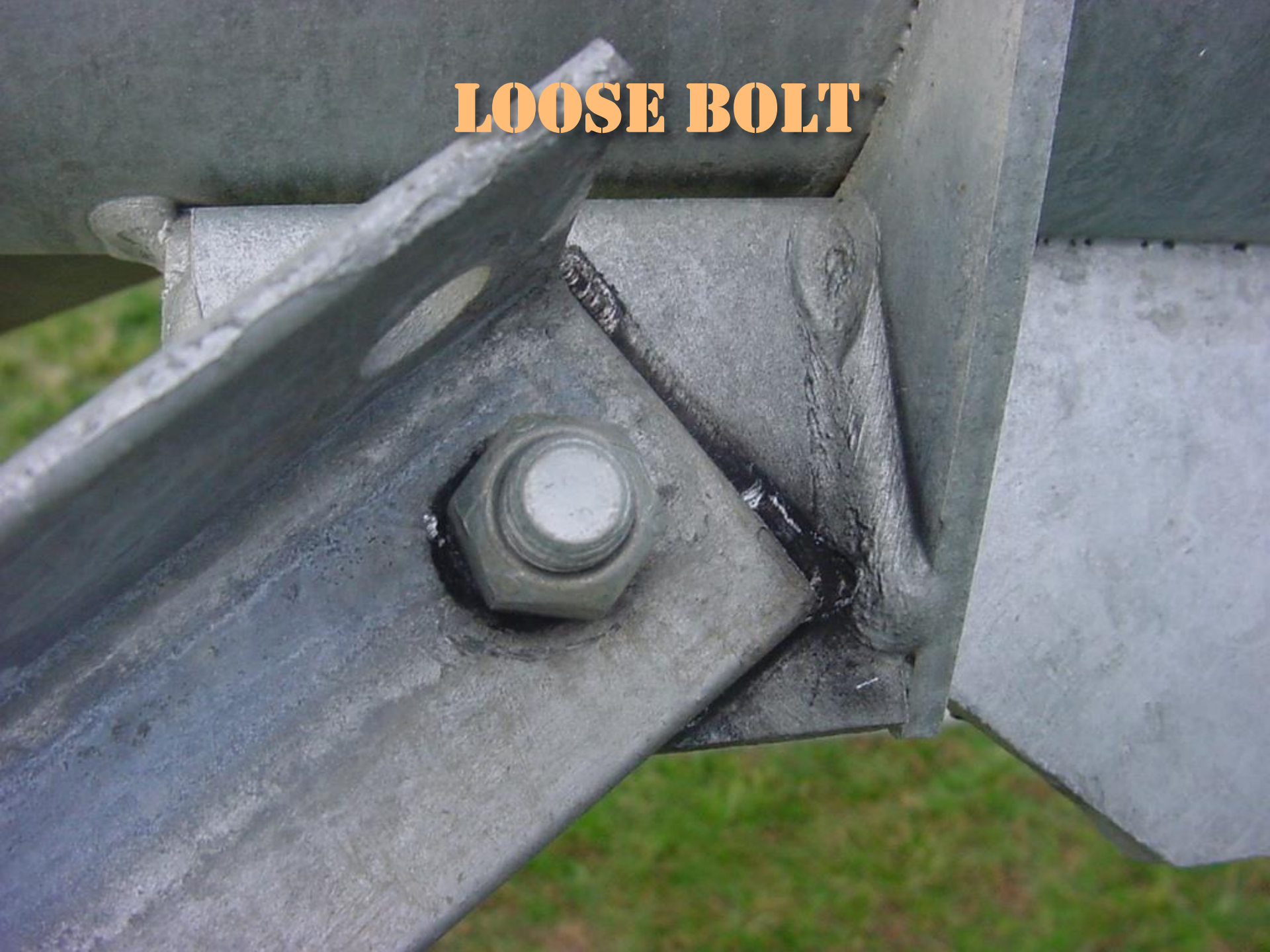
# LOOSE BOLT



**NO NUT**



**LOOSE BOLT**



# MACHINE ALIGNMENT

The machine is aligned when it is installed and should not require adjustment

Alignment should be inspected annually and adjusted by a qualified Valley dealer before there are wheel tracks

Changes in alignment could indicate a problem that should be properly evaluated

A Trailing bow is never acceptable and may result in severe structural damage



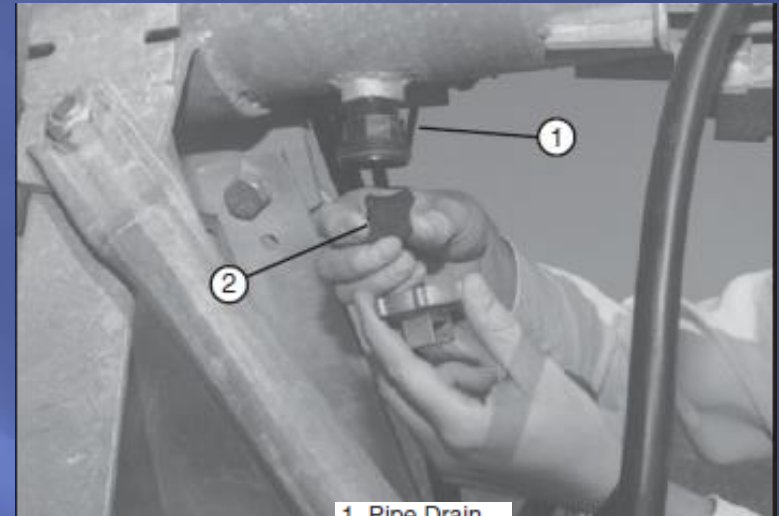
**DO NOT CHANGE ALIGNMENT WITH  
ESTABLISHED WHEEL TRACKS**

# SPAN FLUSHING

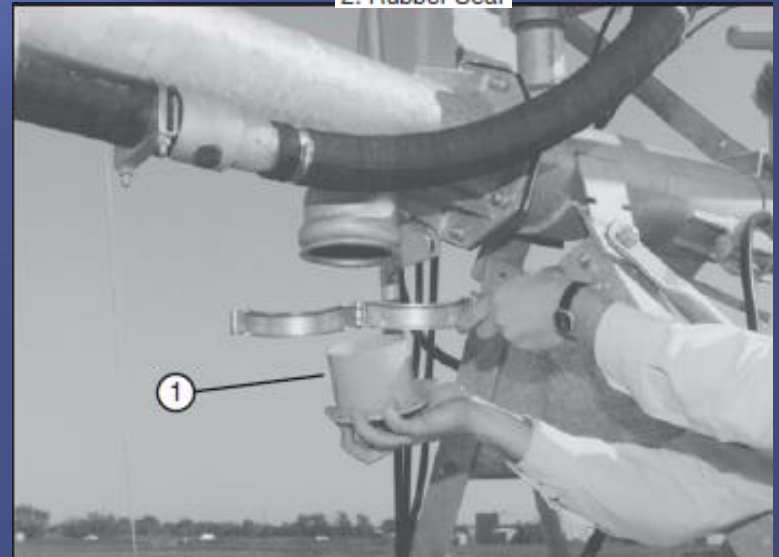
Remove the drains at each tower,  
the sand trap at the last regular  
drive unit, and any overhang  
plugs

Start the pump and allow the  
machine to flush

Re-install drains, sand traps, and  
overhang plugs.



1. Pipe Drain  
2. Rubber Seal



1. Sand Trap

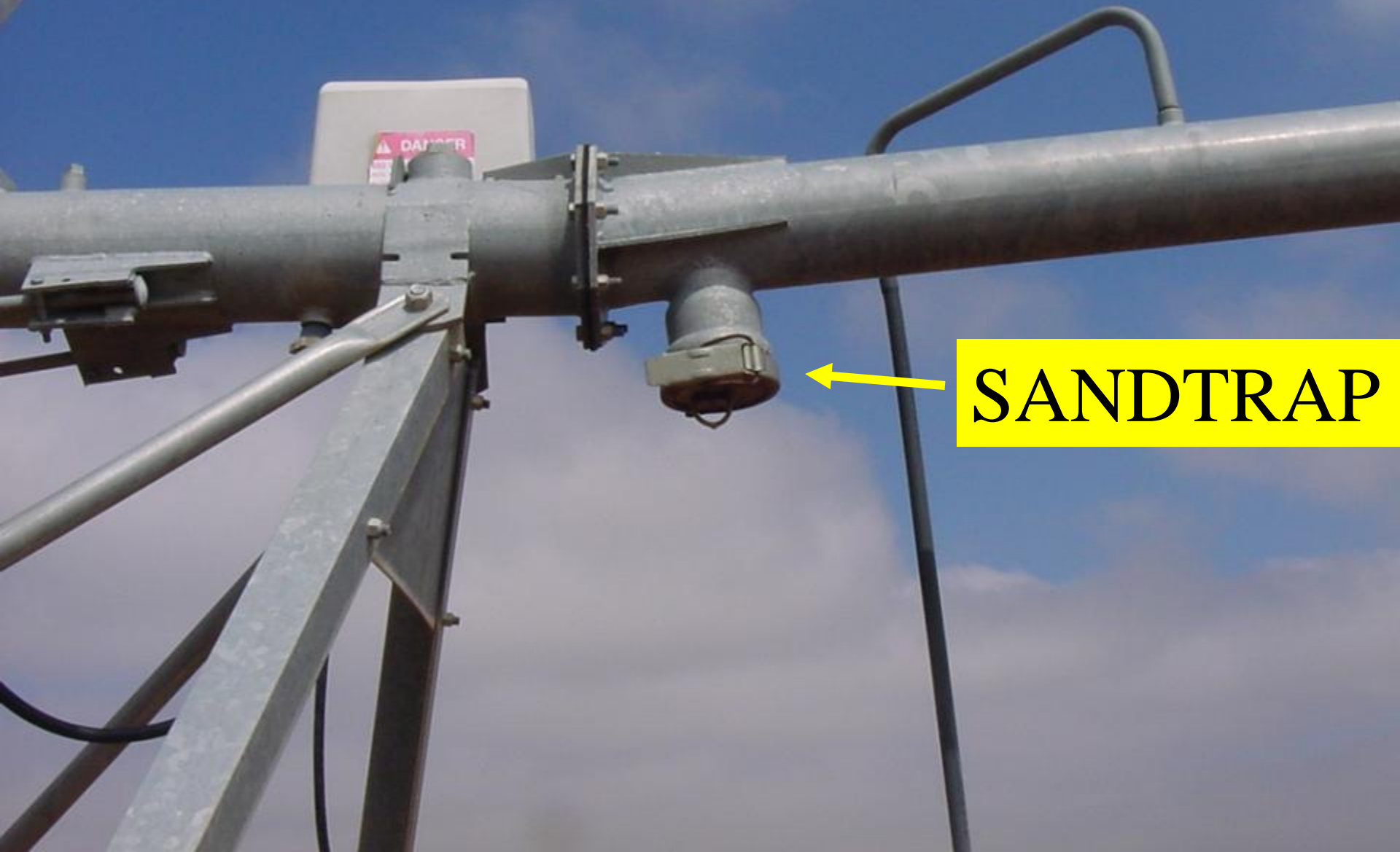








PERIODICALLY CLEAN SANDTRAP AND FLUSH OUT MACHINE, OFTEN IF SAND IS A PROBLEM!



SANDTRAP

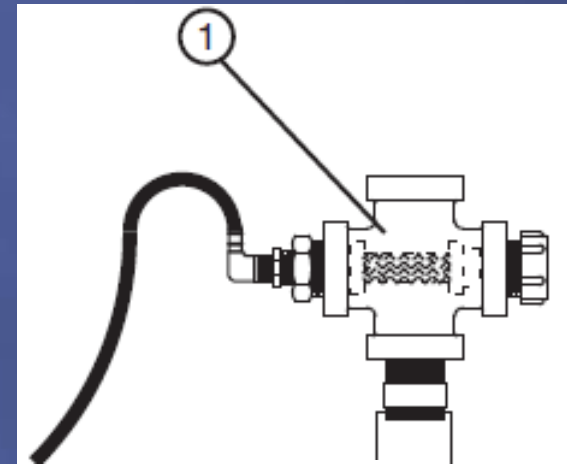


# END GUN FILTER

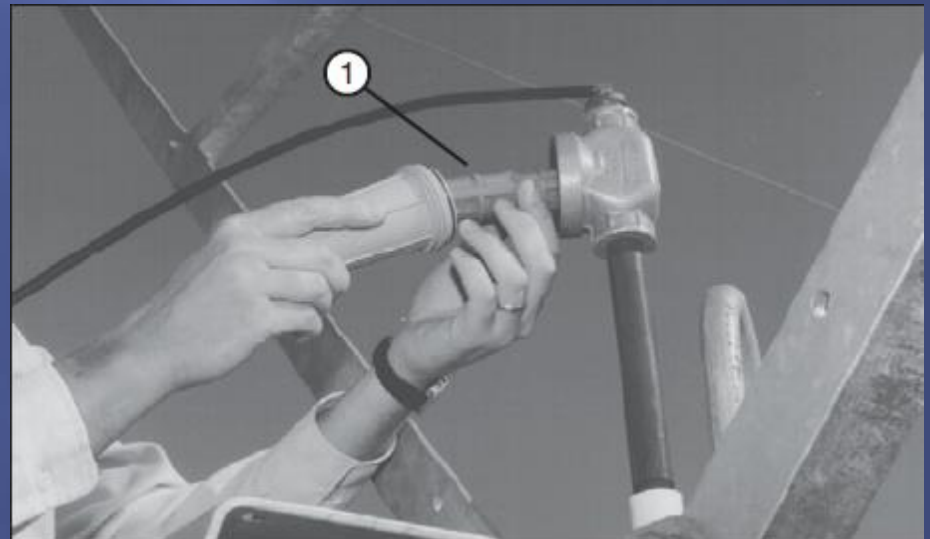
Clean the end gun shut off solenoid filter annually or as necessary depending on water conditions

The end gun will not shut completely off if filter is plugged

An air solenoid control upgrade is available if filter plugging is problematic



1. Cross Filter



1. Optional Dirty Water Filter



# REGULAR 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 your owners manual.
- ▣ If replacement parts are needed, use only genuine Valley RealParts™.

# PIVOT CHECKLIST

Pivot						
	Pre season	1st Pass	4th Pass	Mid season	Post season	Remarks
Check all nuts and bolts. Tighten as required.	X			X		
Check anchor bolts or chains.	X			X		If your pivot is towable, check the grounding conductor hook-ups prior to start up each time the pivot is towed.
Check equipment grounding conductors. Tighten or clean as required.	X			X		
Grease pivot swivel.	X		X	X		
Check condition of power and pump shutdown wires.	X			X		For your safety, call your local Valley dealer. for immediate replacement or repair of any broken conduit or wire with cracked insulation.
Check collector ring base drain for proper drainage.	X			X	X	
Visually check pivot contactors for arcing. Insure disconnect is in the OFF position.	X			X		Burned or pitted contact points indicate low voltage. Check generator belts for proper tension.
Drain riser assembly.	X				X	
Check placement of screens on the generator, pump panel, and electric motors (used to prevent rodent damage)	X			X	X	
Check tire pressure.	X			X	X	Check at least one time during the operating season.
Check condition of electrical conductor.	X			X	X	Replace if frayed, worn, or weather checked.

# SPAN CHECKLIST

Span						
	Pre season	1st Pass	4th Pass	Mid season	Post season	Remarks
Check all nuts and bolts. Tighten as required.	X			X		
Check flanges for leaks and tighten as required.	X			X		
Check pipe drains for proper drainage and invert the seal when applicable. Clean as required. See Winterization procedure.	X			X	X	
Check structural components for tightness.	X			X		
Check span cable for damage.	X			X		Replace or repair cable if chaffed or weather checked.
Check span cable for proper banding.	X			X		Replace bands and adjust span cable as required.

# SPRINKLER CHECKLIST

Sprinkler						
	Pre season	1st Pass	4th Pass	Mid season	Post season	Remarks
Check the water pressure to make sure it matches the sprinkler package pressure.	X		X	X		Notify your local 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		
Check pressure gauge or pressure transducer for proper operation.	X			X		
Check for plugged or partially plugged nozzles.	X	X	X	X		Clean as required.
Flush entire machine.	X				X	See the Span Flushing Procedure and Winterization in the Maintenance section
Check end gun bearing and brake setting.	X				X	
Ensure the booster pump hose is drained.					X	

# ALIGNMENT CHECKLIST

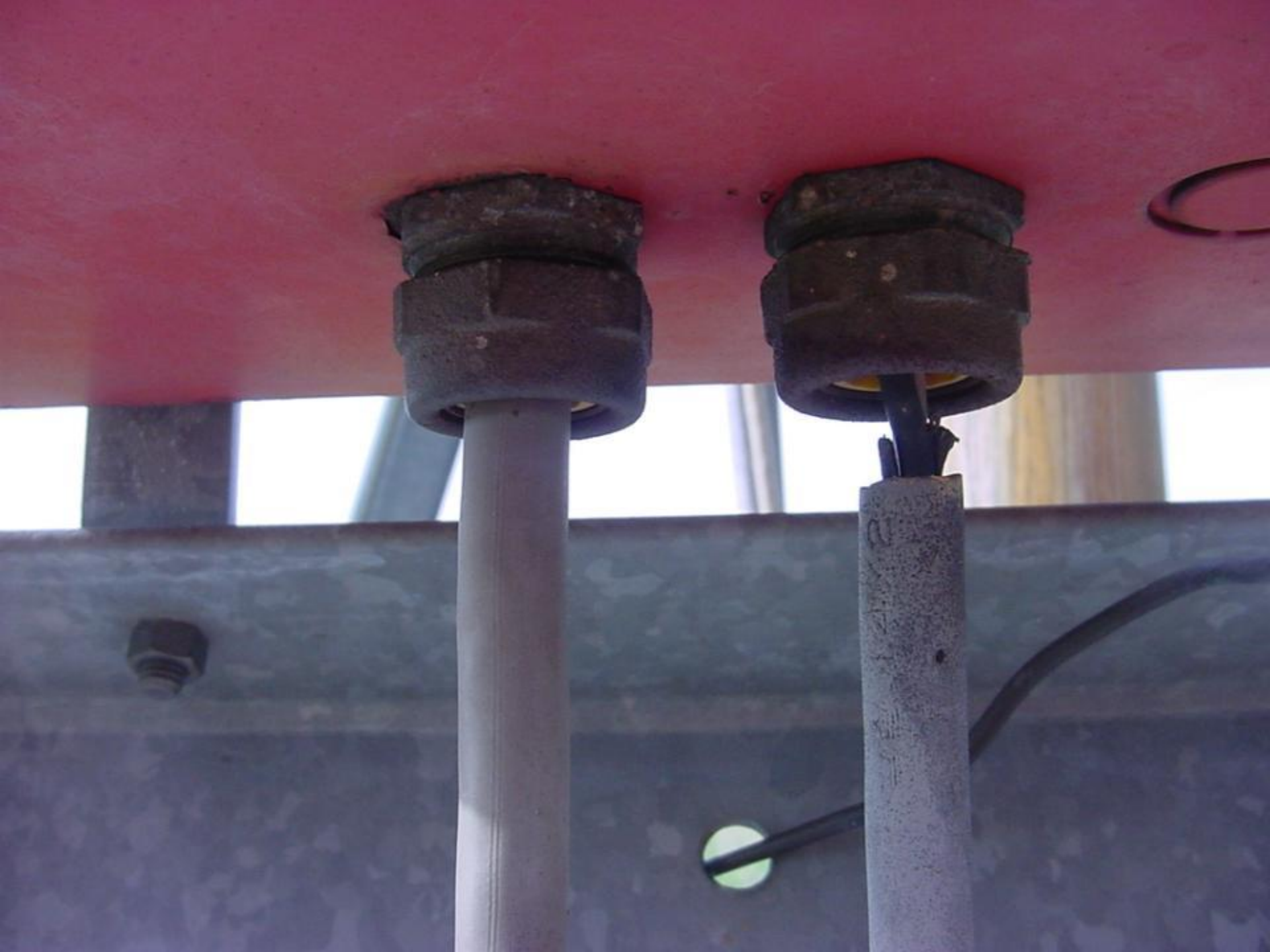
Alignment						
	Pre season	1st Pass	4th Pass	Mid season	Post season	Remarks
Check all nuts and bolts. Tighten as required.	X			X		
Check connection of grounding bond jumpers.	X			X		
Visually check for contactor wear and/or pitting. Make sure the power is OFF.	X					Pitted or burned contact points indicate low voltage.
Visually check the surge suppressor connection.	X					
Align the pivot and check all safety switches.						As needed. Call your local Valley dealer.
Check for proper safety microswitch position.						As needed. Call your local Valley dealer.

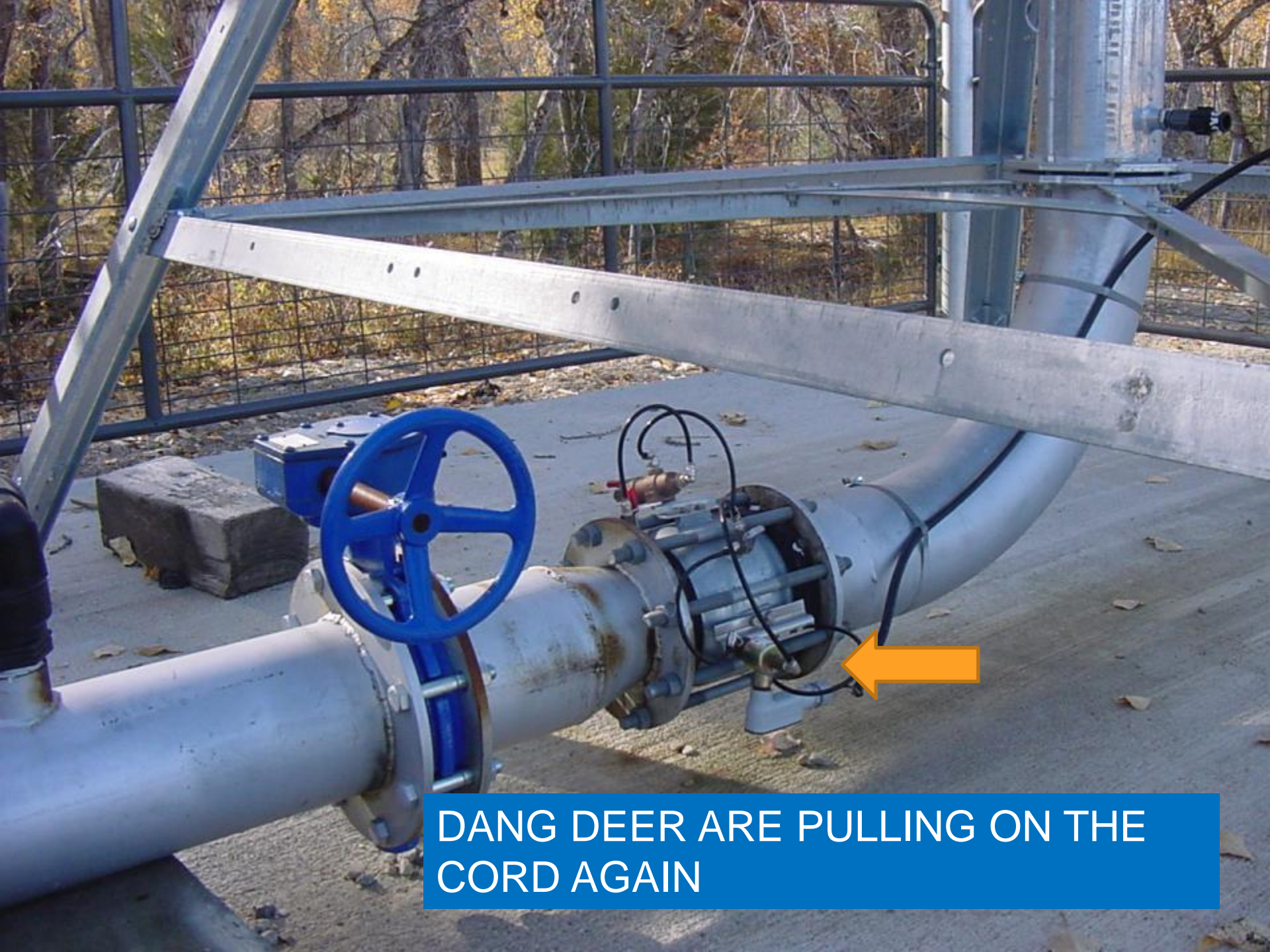
# END OF MACHINE CHECKLIST

Overhang/End Gun/Booster Pump						
	Pre season	1st Pass	4th Pass	Mid season	Post 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	X	Clean as required.
Check and clean the sand trap.				X	X	As needed. See Winterization in the Maintenance section.
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					
Drain the booster pump and ensure that the booster pump is drained completely.					X	See Winterization in the Maintenance section.

# DRIVE UNIT CHECKLIST

Drive Unit						
	Pre season	1st Pass	4th Pass	Mid season	Post season	Remarks
Check the flex joint hose for leaks.	X			X		Tighten clamps or replace as required.
Check the motor lead cable for damage.	X			X		Contact your local Valley dealer if the outer insulating sheath is cracked.
Check for proper ground connection on motor and motor lead.	X			X		
Check the motor drain hole for proper drainage.	X			X		
Check and change the center drive gearbox lubricant. Drain moisture.	X				X	See the Center Drive Gearbox in the Maintenance section.
Check the center drive gearbox seals and gaskets.	X					
Check the wheel gearbox lubricant level and drain moisture.	X				X	See the Wheel Gearboxes in the Maintenance section.
Change the wheel gearbox lubricant.	X					Change after the first season and then change every third season thereafter.
Check the wheel gearbox seals and gaskets.	X					
Check the drive shaft U-joints. Check the U-joint and drive shaft covers for damage.	X					Replace covers as required
Check the wheel lug nut torque. Tighten to 125 ft. lb (169 N·m) torque.	X				X	
Check the tire pressure.	X			X	X	See the Tire Pressure Chart in the Maintenance section.
Check the ARAS/EOFS arms for proper operation.	X			X		
Grease the towable hubs.	X			X	X	See Towable Hub Lubrication in the Maintenance section.





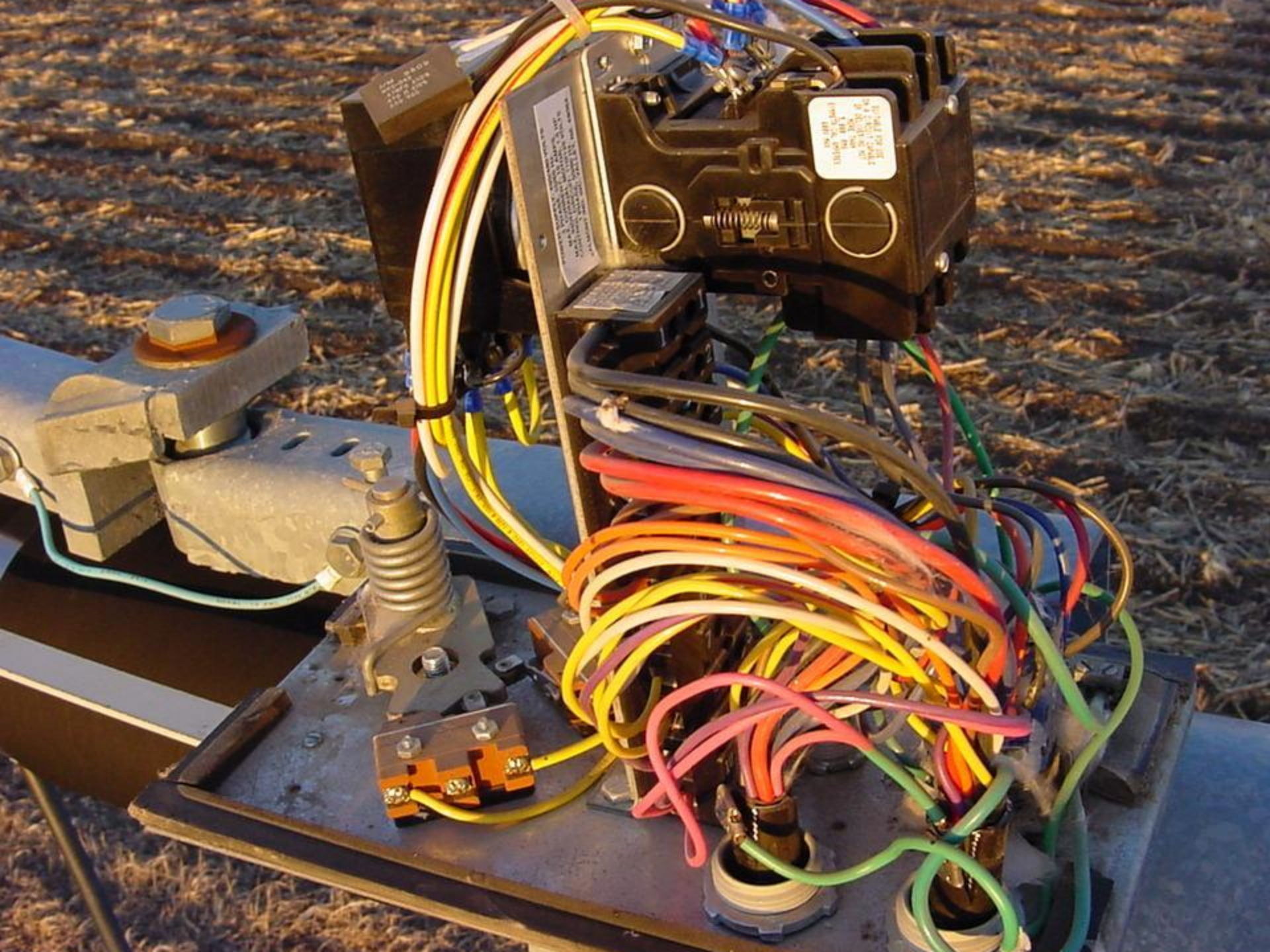
DANG DEER ARE PULLING ON THE  
CORD AGAIN



# NEW BIRD HOUSE







is.  
done

ad side  
nect the  
d/or ground.

1  
CORNER  
OSCILL.

2  
CORNER  
OSCILL.

3  
120 VAC.

4  
SAFETY  
RETURN

5  
SAFETY  
RETURN  
YELLOW

6  
PRESSURE  
SWITCH-STD  
MOD ONLY

7  
SAFETY OUT  
YELLOW/RED

8  
SAFETY OUT





# Tighten Boot Bands To Prevent Leaks





MAY 29 2009

**A LITTLE BIT OF PREVENTIVE  
MAINTENANCE NOW, WILL HELP  
DECREASE DOWN TIME WHEN  
IRRIGATION IS CRITICAL!!!!**

OVERHANG PIPE FULL OF SEDIMENT CAN CAUSE STUCTURAL DAMAGE



**IF ICE BUILD-UP IS TOO GREAT, IT COULD CAUSE THE STRUCTURE TO COLLAPSE!**



**OLSON MACHINE: TOWER BOX WAS SPRAYED WITH W-D 40 AND THE FUMES IGNITED AND YOU CAN SEE THE END RESULT.**

