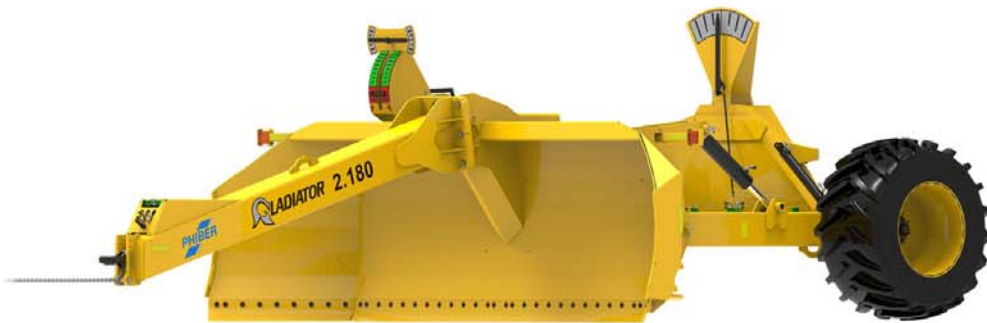


PhiBer Gladiator Scraper Blade



Model: 2.180, 2.220



INNOVATIONS FOR PROGRESSIVE PEOPLE

OPERATOR'S MANUAL
www.phiber.ca

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Limitation of Liability

PhiBer® Manufacturing Inc. shall not be liable for special, incidental or consequential damages arising out of the use of, the misuse of, or the inability to use any product sold by PhiBer® Manufacturing Inc. including, but without limitation: damages or loss of other property or equipment, personal injury, loss of life, loss of profits or revenue, or claims of purchaser for any such damage or loss.

Warranty

PhiBer® Manufacturing Inc. warrants its products to be free from defect in factory workmanship and material under normal use and service, when set-up and operated according to factory instructions. Warranty should be handled through PhiBer® or an authorized selling dealer. Warranty is subject to the following conditions:

Warranty Claims: Must be completed within 30 days of replacement of part(s). Claim must include serial number of Gladiator, date of delivery, explanation of problem and all other necessary particulars.

Warranty Parts: Must be kept for PhiBer's® inspection unless otherwise specified.

Warranty Labor: PhiBer® must authorize any labor subject to warranty. PhiBer® Manufacturing Inc. reserves the right to set the labor rate and time required to complete a warranty repair.

Warranty Limitations: Warranty will not be granted on any product that has been misused, altered, or modified in any way. Diagnostic and service calls are not covered by warranty. Warranty covers only the cost of repair and parts; it does not include shop supplies, mileage and freight costs.

Government Legislation: Warranty terms and conditions are subject to provincial or state legislation and laws.

Warranty on cylinders, hydraulic components, electronic components, and other trade accessories are limited to the warranties made by the respective manufacturers and not by PhiBer® Manufacturing Inc.

The following table shows the available warranty:

Item	Time from Purchase
Frame and other structural components	One (1) Year
Electronic components	One (1) Year
Hydraulic components	One (1) Year
Hydraulic cylinders	One (1) Year

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Introduction

Congratulations on your purchase of the PhiBer® Gladiator. The PhiBer® Gladiator offers the agricultural industry a machine to reclaim unproductive land; landscape fields, roads, and drainage zones.

All persons authorized to operate this equipment should read and understand the contents of this Operator's Manual, especially the *Safety* section. The owner or operator should seek assistance from the dealer, distributor or PhiBer® for any information not fully understood regarding the safe operation, adjustment, maintenance or repair of this equipment.

Keep this Operator's Manual in a clean, dry place that is easily accessible for reference when more detailed information is required to perform tasks related to the operation, adjustment, maintenance or repair of this equipment. It is further recommended that the contents of this Operator's Manual be reviewed at least annually by persons operating, adjusting, maintaining or repairing this PhiBer® Gladiator and any time a new person is assigned to any of the above-mentioned tasks.

Any information in this Operator's Manual that is not fully understood should be clarified by contacting the dealer, distributor or manufacturer.

The contents of this Operator's Manual are accurate up to the time of printing.

PhiBer® reserves the right to make design changes without prior notice to the end user.

Description of the Machine

The Gladiator series of heavy scraper blades are designed to reclaim substandard land (acres) lost to high moisture levels. The Gladiator is also useful for top dressing approaches or road areas that need to be restored. The Gladiator will help you revive potentially arable acres and reduce costs for regular land maintenance required around your farm or agri-business.

With the unique design of the blade, you will be able to move more material, saving time and cost to move product from one location to another. The contour of the blade is designed to “roll” dirt onto the blade while reducing “bounce” when digging. This contour also reduces dirt clinging to the blade on dumping.

Illustration of the Machine

IMPORTANT! All references to “LEFT” and “RIGHT”, as used throughout this Operator’s Manual, are determined by facing the direction of forward travel when in use.

Gladiator Assembly

1. Hitch
2. Blade
3. Depth Indicator
4. Horizon Indicator
5. Lift Cylinder
6. Tilt Cylinder
7. Axle
8. Yoke
9. Tilt Indicator

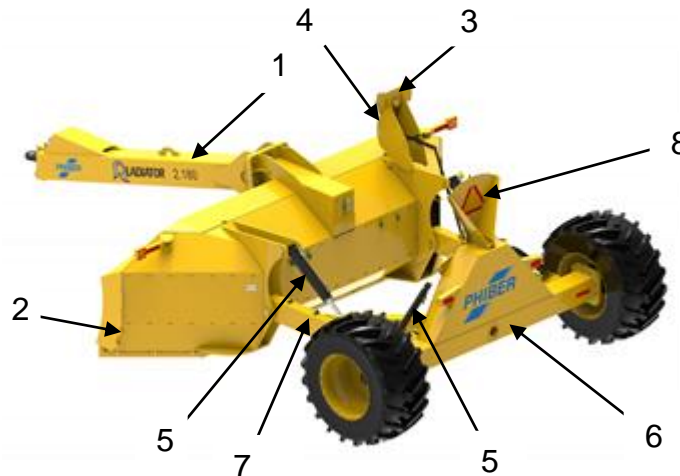


Figure 1.1

Serial Number Location

The serial number plate (Figure 1.2) is located on the back left hand side of the blade.

Record the machine Model and Serial Number in the spaces provided below. Use these numbers when contacting the dealer for repair parts or service assistance.

Model Number: _____

Serial Number: _____

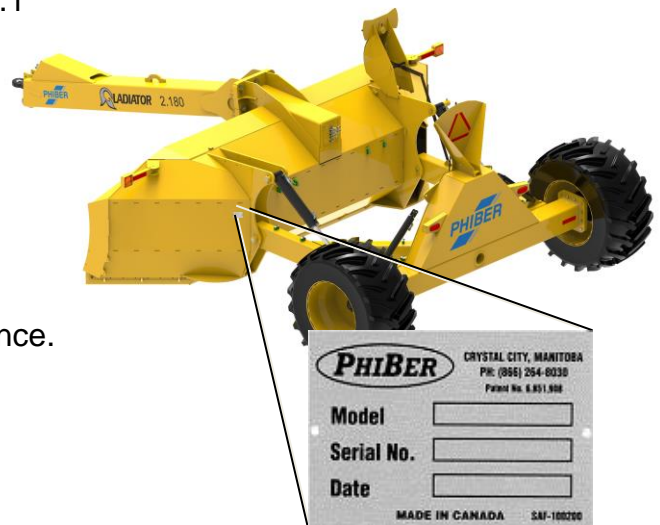


Figure 1.2

Safety

Call Before You Dig

- Every time you dig in the ground, you run the risk of loss of life or damage to property if you hit any buried cables, conduits, gas or oil pipelines and/or other underground facilities that serve our cities, towns, and rural areas.
- Contact your local Call Before You Dig service to prevent damage to underground infrastructure.



Canada		
	Number	Website
All Provinces and Territories		www.clickbeforeyoudig.com
United States		
All States	811	www.clickbeforeyoudig.com
TransCanada Pipelines		
Canada	1-888-982-7222	www.transcanada.com/en/about/contact/
United States	1-800-447-8066	

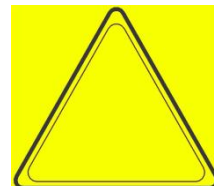
Safety Alert Symbols

Safety Alert Symbols are intended to draw attention of the machine operator to important safety information both published in the Operator's Manual and applied to the machine. Whenever a Safety Alert Symbol is seen, it means that associated information is provided for recognizing, responding appropriately to and avoiding potentially hazardous situations.

An equilateral triangle surrounding an exclamation point or a double line equilateral triangle surrounding symbols or graphics indicates a potentially hazardous situation. Information included on a safety sign or printed in the Operator's Manual describes the hazardous situation and indicates appropriate response and/or avoidance procedures.

Remember:

ACCIDENTS DISABLE AND KILL
ACCIDENTS ARE COSTLY
ACCIDENTS CAN BE AVOIDED



Signal Words

DANGER

Indicates an imminently hazardous situation that, if not avoided, **WILL** result in death or serious injury if proper precautions are not taken.



WARNING

Indicates a potentially hazardous situation that, if not avoided, **COULD** result in death or serious injury if proper precautions are not taken.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, **MAY** result in minor or moderate injury if proper precautions are not taken, or it serves as a reminder to follow appropriate safety practices.



Operator Responsibility

Remember, YOU, the operator, are responsible for the safe operation, adjustment, maintenance and repair of this PhiBer® Gladiator. It is the responsibility of the owner, or authorized person in charge, to ensure that all persons who operate, adjust, maintain and/or repair this implement are familiar with the information provided in this Operator's Manual.

A safe operator is the key to safety. Good safety practices not only protect you, but also persons who may be near the blade. Make good safety practices a part of your farming operation. Ensure that all persons operating, adjusting, maintaining and/or repairing this equipment are familiar with the procedures recommended in this Operator's Manual.

Always heed safety warnings and follow recommended safety precautions to avoid hazardous situations. Do not risk personal injury or death by ignoring safety warnings and safety precautions.

Key Safety Reminders:

- The most important safety device is a safe and qualified operator.
- A safe operator is one who has read and understood the contents of this Operator's Manual prior to performing any tasks related to the machine.
- Owners have a responsibility to provide training to persons who may operate, adjust, maintain and/or repair the equipment prior to performing any of these tasks.
- Do not perform any unauthorized modifications to the blade or use the blade for any purpose other than what is described in the contents of this Operator's Manual.
- Plan tasks and work schedules to reduce exposure to unnecessary stress and fatigue.
- Observe all workplace safety and health requirements.

General Safety Practices

- Read and understand the contents of this Operator's Manual prior to operating, adjusting, maintaining and/or repairing the blade.
- Locate, read and understand all safety signs applied to the blade before performing any tasks.
- Review the contents of this Operator's Manual at least annually, and any time a new person is assigned to perform any task with the blade.
- Do not allow riders on any part of the blade.
- Keep hands, feet, hair and loose clothing away from moving and/or rotating parts.
- Stop the engine, lower the equipment, set the parking brake, remove the ignition key and allow time for moving parts to stop prior to adjusting, maintaining or repairing the equipment.

- Ensure that all equipment lighting and marking is intact, clean and operating properly prior to traveling on public roads. Check with local highway authorities to confirm that the blade is properly equipped for highway travel.
- Provide a fully stocked First-Aid kit in a highly visible and easily accessible location.
- Keep a fully charged fire extinguisher in a highly visible and easily accessible location.
- Ensure that the blade is securely blocked and supported prior to working underneath (if it needs to be raised for repair).
- Ensure that all persons operating, adjusting, maintaining and/or repairing the blade know how to seek or summon medical assistance should an injury occur.

Maintenance Safety

- Read and understand all of the information provided in this Operator's Manual covering the operation, adjustment, maintenance and repair prior to performing any of these tasks.
- Ensure proper tools, equipment and personal protective equipment is available prior to working on the blade.
- Stop the engine, lower the equipment, set the parking brake, remove the ignition key and allow time for moving parts to stop prior to adjusting, maintaining or repairing the equipment.
- Ensure that all moving parts have come to a complete stop before performing adjustments, maintenance or repairs.
- Securely block frame if adjustment, maintenance or repair is required for wheels and tires.
- Wear personal protective equipment, such as gloves, eye protection, etc. when inspecting hydraulic system for leaks. Use a small piece of cardboard or wood to detect leaks.
- Prior to operating equipment, ensure that all guards and shields are intact and in place after performing adjustment, maintenance or repairs.
- Check for bushing wear and weldment fatigue on moving parts.
- Store flammable fluids in approved containers and store out of access by unauthorized persons, especially children.
- Wear appropriate clothing when performing tasks around the blade. Ill-fitting and/or frayed clothing as well as loose or dangling items should not be worn when working near the

equipment.

- Ensure that hydraulic oil pressure in hoses, lines and components is fully relieved prior to performing maintenance or repairs to the hydraulic system.
- Ensure that the hydraulic lock out is used before commencing any maintenance

Hydraulic Safety


- Ensure that all hydraulic system components are kept clean and in proper working condition.
- Periodically inspect condition of hydraulic hoses, lines and components. Remove and replace any parts showing damage or deterioration.
- Use only repair or replacement parts specified by the manufacturer.
- Follow instructions provided by the manufacturer when making repairs.
- Wear appropriate personal protective equipment when unsure if residual pressure may exist in hydraulic components during trouble-shooting and/or making repairs.
- Use a piece of cardboard or wood to check for hydraulic leaks. Hydraulic fluid under pressure can penetrate human skin.
- Ensure all fittings, couplings and other hydraulic connections are intact and properly tightened before operating hydraulics.
- Store flammable fluids in approved containers and store out of reach by unauthorized persons, especially children.
- Ensure that hydraulic oil pressure in hoses, lines and components is fully relieved prior to performing maintenance or repairs to the hydraulic system.
- Ensure that all persons operating, adjusting, maintaining and/or repairing the blade know how to seek or summon medical assistance should an injury occur.

Assembly Safety

- Read, review and understand all blade assembly instructions before attempting to assemble the Gladiator.
- Ensure that tractor engine is shut off, key is removed from the ignition and the parking brake is set and/or wheels blocked.

Transport Safety


- Ensure that the Gladiator is properly attached to the tractor.
- Ensure the safety tow chain is securely attached between blade and tractor.
- Ensure all lighting and implement marking devices are intact and visible.
- Ensure equipment is properly marked according to local road regulations and heed all local traffic regulations.
- Ensure the lift cylinder hydraulic lock is engaged before travel

 **NOTE:** Ensure the blade is fully unloaded and lifted before road travel.

- Do not exceed 20 mph (32 km/h).
- Reduce travel speed on rough roads and surfaces.
- Do not allow riders on the blade at any time.

 **NOTE:** Avoid travelling across steep inclines, particularly when blade is partially loaded.

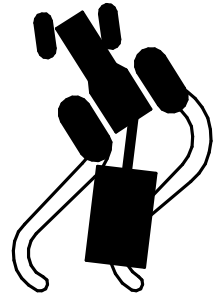
- Come on and off approaches or roads slowly; too much speed can cause loss of control.

 **NOTE:** Some tractors are capable of operating at speeds that exceed the maximum transport speed of this implement. Regardless of the maximum speed capability of the tractor being used to tow this implement, do not exceed the implement's maximum transport speed



Exceeding the implements maximum transport speed can result in:

- Loss of control of the tractor/implement combination
- Reduced or no ability to stop during braking
- Implement tire failure
- Damage to the implement structure or its components.



Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines.

Do not attempt transport if the fully loaded implement weighs more than 1.5 times the weight of the tractor.

Storage Safety

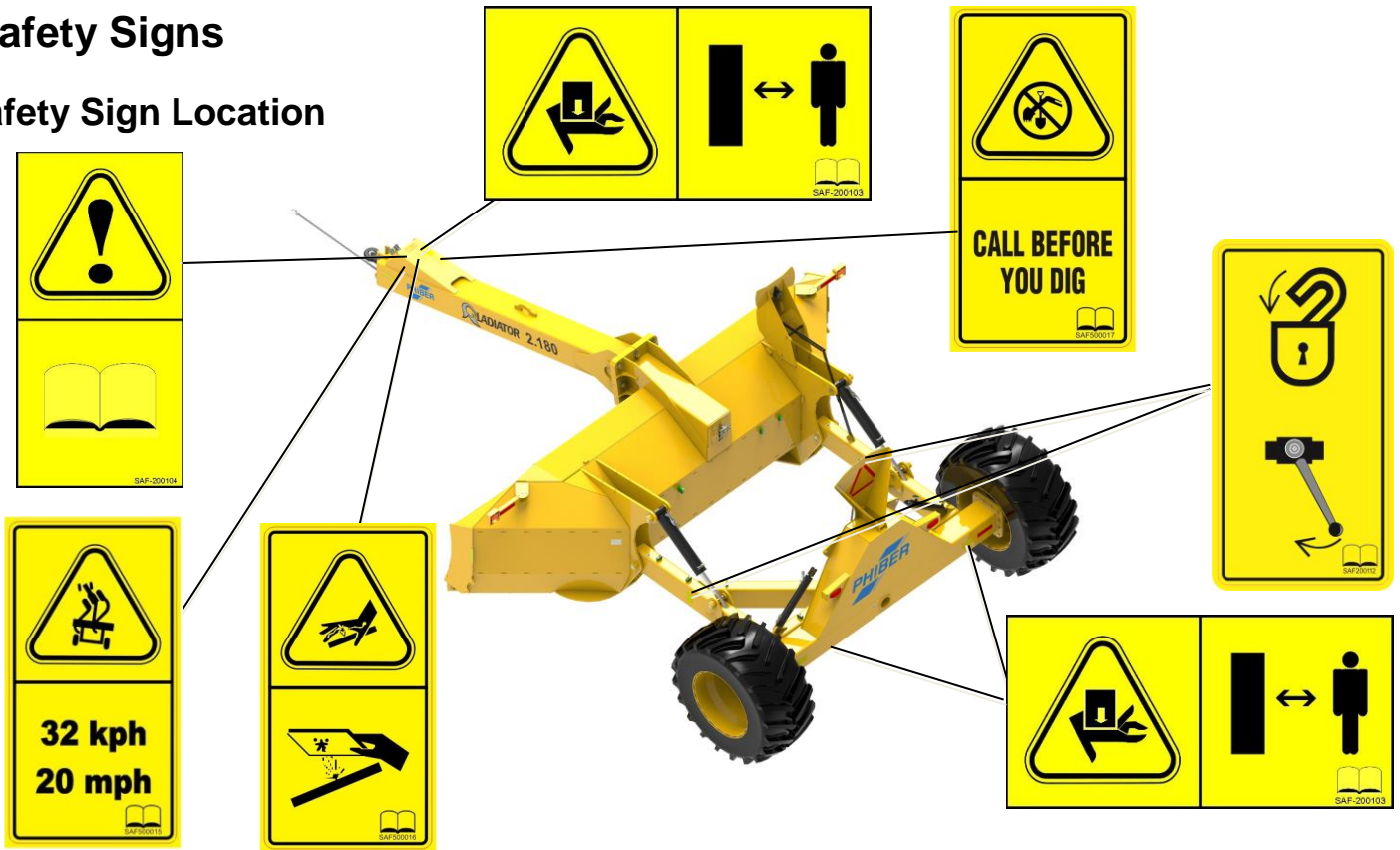
- Store the blade away from areas of human activity.
- Do not allow children to play on or around Gladiator.

Tire Safety

- Ensure tire inflation pressure is maintained per specifications.
- Follow proper procedures for tire repairs, especially when mounting tire to rim.
- Seek assistance from a trained person for tire repairs or mounting, especially if special equipment is required.

Safety Signs

Safety Sign Location



Safety Sign Explanation

HYDRAULIC HOSE LEAK (Figure 2.2)

CAUTION! HYDRAULIC HOSE LEAK. Check hoses for leak using piece of paper or cardboard, not hands.



Figure 2.2


PINCH POINT HAZARD (Figure 2.3)

CAUTION! PINCH POINT HAZARD. Keep head and all body parts, particularly hands and feet, away from area around lift and loader when machine is operating.



Figure 2.3

READ THE OPERATOR'S MANUAL (Figure 2.4)

 **CAUTION!** Read and understand the contents of the Operator's Manual before performing any tasks related to the operation, adjustment, maintenance or repair of the machine.

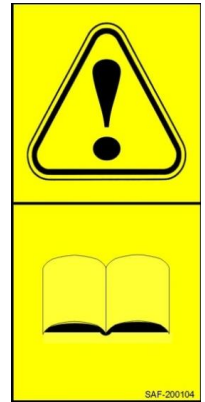


Figure 2.4

LOSS OF CONTROL HAZARD (Figure 2.5)


 **CAUTION!** TIPPING HAZARD. Travelling at speeds over 20 mph, (32 km/h) may cause the Gladiator to sway and lose control.



Figure 2.5

HYDRAULIC LOCK OUT (Figure 2.6)


 **CAUTION!** This machine has been equipped with a hydraulic lock out. In the event of its use, it immediately disables the machine's hydraulics.



Figure 2.6

DIG SAFETY (Figure 2.7)


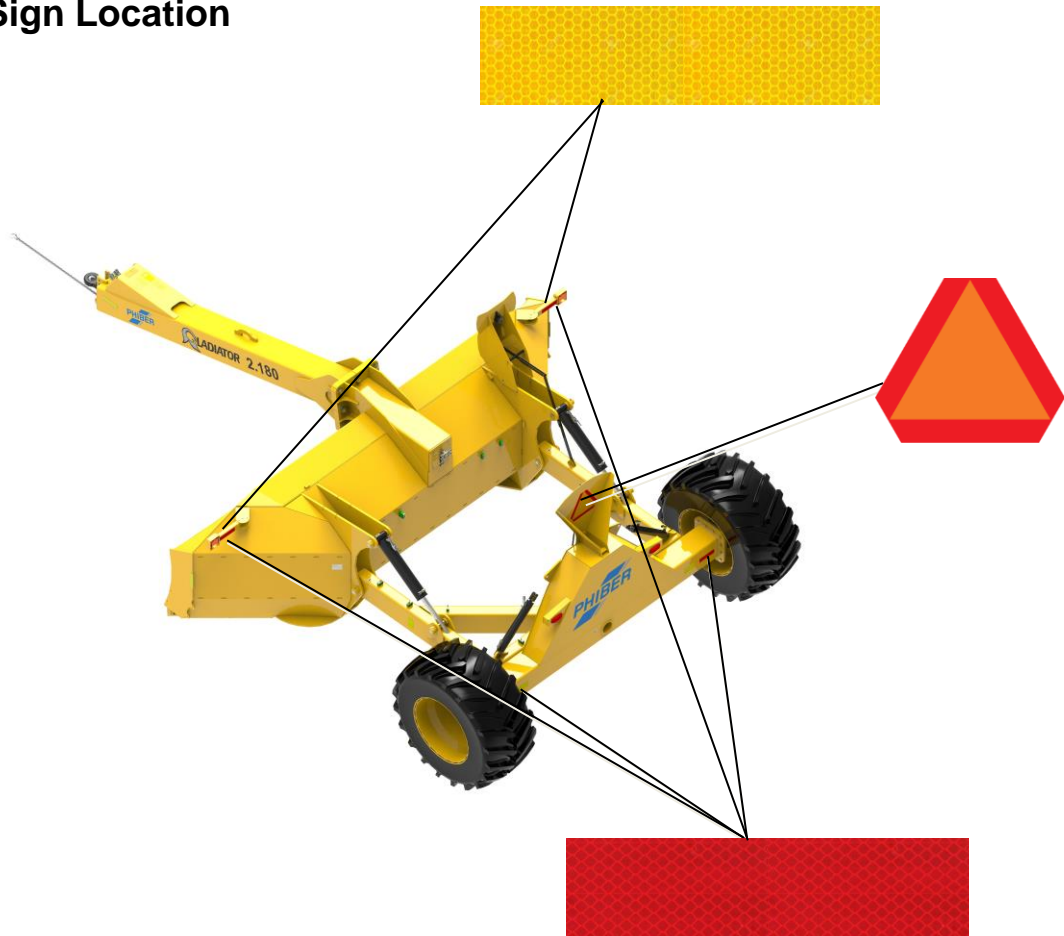
 **CAUTION!** Call your local Call Before You Dig service before engaging in any ground disturbance.



Figure 2.7

Road Safety Sign Location



Road Safety Sign Explanation

AMBER CONSPICUITY TAPE (Figure 2.8)

Tape serves as reflectors to render vehicle visible in low light or dark driving conditions.



Figure 2.8

RED CONSPICUITY TAPE (Figure 2.9)

Tape serves as reflectors to render vehicle visible in low light or dark driving conditions.



Figure 2.9

SLOW-MOVING VEHICLE SIGN (Figure 2.10)

A slow-moving vehicle (SMV) sign warns other road users that the vehicle is moving at 40km/h (25mph) or less.



Figure 2.10

Safety Sign Maintenance

Safety Sign Legibility

All safety signs applied to the blade must be visible and legible. Keep dust and dirt cleared from safety signs and ensure that visibility is not obscured.

Damaged or Deteriorated Safety Signs

Remove and replace any safety signs that have been damaged or show signs of deterioration.

Safety Sign Replacement

Replacement safety signs may be ordered through your dealer or distributor. Contact PhiBer® if you are unable to obtain replacement safety signs from a dealer or distributor.

Safety Signs on Replacement Parts

Ensure that replaced parts or components on the blade, that had a safety sign attached originally, include a safety sign when they are shipped to you.

Affixing Safety Signs to Machine

1. Ensure proper position and orientation before installing.
2. Ensure installation area is clean and dry.
3. Ensure ambient temperature is above 50° F (10° C).
4. Remove backing material to expose label adhesive.
5. Place one edge of label to machine surface.
6. Slowly press the label onto the surface.
7. Ensure no air pockets exist under surface of the label.

Specifications

Gladiator

	<u>2.180</u>	<u>2.220</u>
Dirt Capacity	16-20 yd ³	21-26 yd ³
Width	18 ft (5.49m)	22 ft (6.70m)
Tire Size	R1 Lug 30.5L-32/16 ply	
Length	28.5 ft (8.69 m)	28.5 ft (8.69 m)
Height	10 ft (3.04 m)	10 ft (3.04 m)
Weight	20,000 lbs. (9,072 kg)	22,500 lbs. (10,206 kg)
Electrical Power Supply	12 V	
Horsepower Requirements	250-450 hp	350-600 hp

Tractor Requirements

Hydraulics

# of circuits required	2
Pressure	2900 psi
Electrical Power Supply	12 V @ 5 amps
Recommended Tractor Weight	Weight of Gladiator to not exceed 1.5 times tractor weight

Hardware Torque

SAE

Bolt Diameter	Bolt Torque		
	SAE 2 n·m (lb-ft)	SAE 5 n·m (lb-ft)	SAE 8 n·m (lb-ft)
inches			
1/4	8 (6)	12 (9)	19 (12)
5/16	13 (10)	25 (19)	36 (27)
3/8	27 (20)	45 (33)	63 (45)
7/16	41 (30)	72 (53)	100 (75)
1/2	61 (45)	110 (80)	155 (115)
9/16	95 (70)	155 (115)	220 (165)
5/8	128 (95)	215 (160)	305 (220)
3/4	225 (165)	390 (290)	540 (400)
7/8	230 (170)	570 (420)	880 (650)
1	345 (225)	850 (630)	1320 (970)
1 1/2	-	-	2440 (1800)

Flare-Type Tube Fittings

Tube Size OD	Nut Size across flats	Torque	Recommended # Turns (after finger tightening)
in	in	n·m (lb-ft)	turns (flats)
3/16	7/16	8 (6)	1/6 (1)
1/4	9/16	12 (9)	1/6 (1)
5/16	5/8	16 (12)	1/6 (1)
3/8	11/16	24 (18)	1/6 (1)
1/2	7/8	46 (34)	1/6 (1)
5/8	1	62 (46)	1/6 (1)
3/4	1-1/4	102 (75)	1/8 (0.75)
7/8	1-3/8	122 (90)	1/8 (0.75)

NOTE: Torque values listed are based on lubricated connections in reassembly.

Assembly

Setup

Attaching Wheels to Axle

1. Securely block yoke and axle
2. Roll wheel up to axle
3. Lift wheel onto wheel studs
4. Install wheel nuts and torque to 290 ft-lb (390 N-m)

Attaching Blade to Yoke

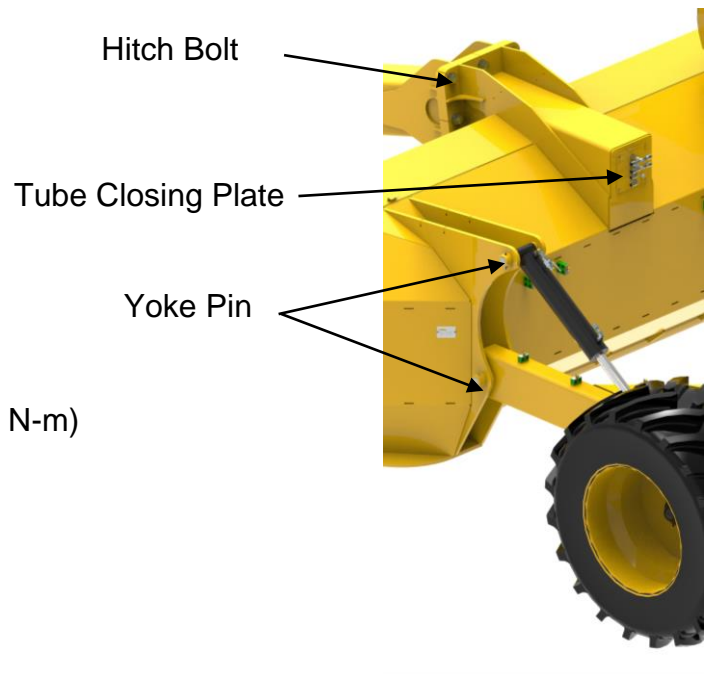
1. Set blade on blocks so it cannot tip over
2. Roll yoke up to rear of blade
3. Align pin holes and insert pins and ½ locking bolts
4. Align the cylinder tops to the blade pin hole and insert pins and ½ locking bolts

Attaching Hitch to Blade

1. Align the hitch bolt plate with the blade bolt plate and insert the 1-1/2 bolts. Torque bolts to 1800 ft-lb (2440 N-m)
2. Insert the electrical and hydraulic lines through the blade tube.
3. Attach the hydraulic hoses to the tees attached to Tube Closing Plate
4. Connect the electrical wires.

Preparing Tractor and Gladiator

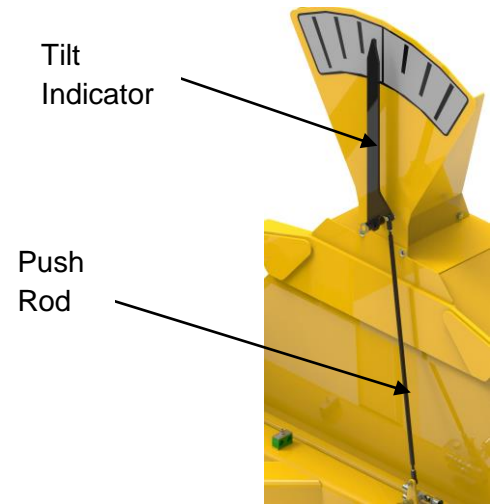
1. Set blade on firm, level ground.
2. Park tractor and set parking brake.
3. Attach hydraulic hoses to tractor.
4. Use hydraulics to raise or lower the blade until the cutting edge is level.
5. Remove hitch bolts and set the hitch height to same height as tractor hitch.
6. Attach hitch to tractor. Attach safety chain.
7. Set horizon and depth indicators.



Indicators Setup

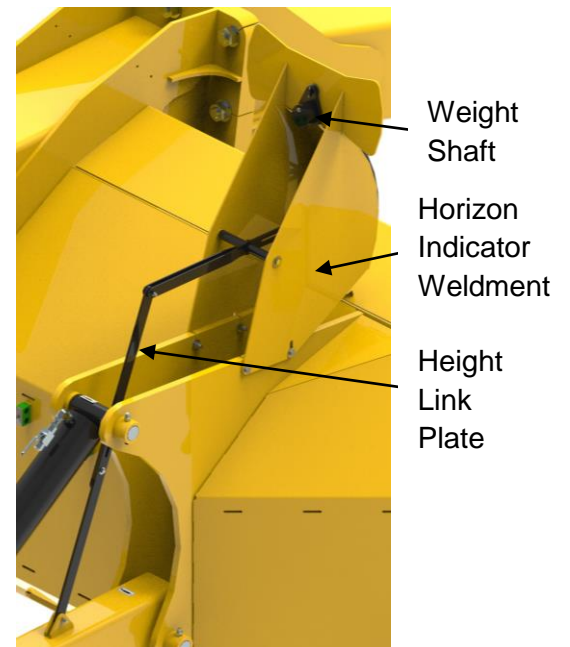
Tilt

1. Set blade on firm, level ground.
2. Park tractor and set parking brake.
3. Shut tractor engine off and remove key from ignition.
4. Adjust push rod until indicator is centered on tilt decal.



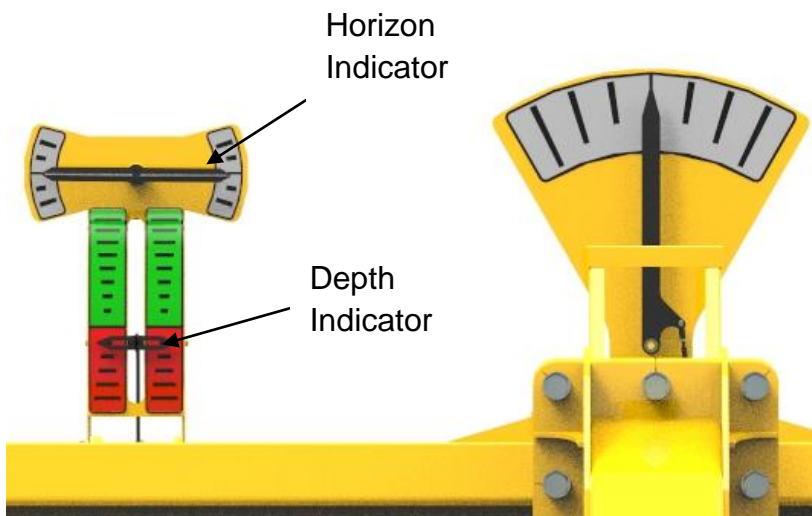
Depth

1. Set blade on firm, level ground.
2. Park tractor and set parking brake.
3. Shut tractor engine off and remove key from ignition.
4. Adjust height link plate and horizon indicator weldment until indicator is centered on depth decal.



Horizon

1. Set blade on firm, level ground.
2. Park tractor and set parking brake.
3. Shut tractor engine off and remove key from ignition.
4. Adjust weight shaft until indicator is centered and level on horizon decal.



Options

Hitch Kit

There are two hitch kits: Category 4 hitch or Category 5 hitch



GPS Mount Kit

An optional mount is available for those wanting to mount a GPS or laser receiver on the Gladiator. To install simply bolt the mount to the top of the blade using the supplied bolts.



Moldboard Extension Kit

An optional Moldboard Extension Kit is available for the Gladiator.

Installation

1. Bolt extension onto side of blade using supplied bolts



Operation

Transporting



WARNING! Ensure the blade is fully unloaded and lifted before road.

- Use hydraulic locks on lift cylinders before transport.



WARNING! WIDE TURNING PATH.

Ensure that all oncoming and/or overtaking traffic is clear before making turns on public roads. Slow down and look for both oncoming and overtaking traffic before making turns.

Allow oncoming and overtaking traffic to clear before making turns when traveling on public roads.

Storage



WARNING! Store Gladiator away from human activity. DO NOT allow children to play on the Gladiator at any time.

To ensure optimum operation of the Gladiator for the next season:

1. Clean all crop material and dirt from Gladiator.
2. Retract hydraulic cylinders fully or oil shafts to prevent rusting.
3. Lubricate all grease points.(see Maintenance Section)

Maintenance

Proper maintenance of the blade will result in more reliable performance. Please refer to the chart below for recommended maintenance information:

Key			Maintenance Record												
✓	check	hours													
●	lubricate	by													
◇	clean	date													
⌚	hours														
40 ⌚															
●	Hitch Receiver														
100 ⌚															
●	Axle Pivot														
●	Yoke Pivot														
✓	Wheel Lug Nuts														
●	Cylinder Pins														
500 ⌚															
●	Wheel Bearings														



WARNING!

Before any work is done to the Gladiator, the blade must be set on the ground. Failure to do so may result in bodily harm while maintaining this machine.

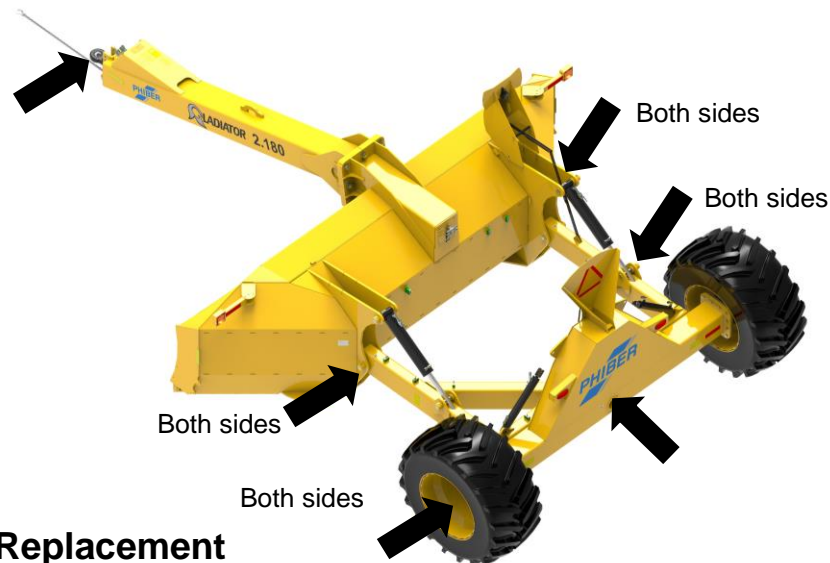
Wheel Lug Nuts

Check wheel lug nut torque (290 ft-lb/390 N-m) after the first two (2) hours of operation, again after the first ten (10) hours, then every 100 hours.

Wheel Bearings

Remove, clean and re-pack wheel bearings, every 500 hours or annually.

Grease Points



Hydraulic Cylinder Replacement

⚠ WARNING! UNEXPECTED MOTION HAZARD. Before removing any hydraulic components, the blade must be on the ground place to prevent injury from parts moving unexpectedly.

Once the blade is set on the ground, service to the hydraulic system may be performed as follows:

1. Install new component and insure that all seals are seated properly and all fittings and hoses are tightened to specs given. Where possible, fill hydraulic cylinders with oil before connecting hydraulic lines.
2. Connect Hydraulic lines to tractor

NOTE: After servicing hydraulic components, perform the following procedure in order to remove the air from the hydraulic system.

⚠ WARNING! UNEXPECTED MOTION HAZARD, MOVING PART HAZARD.

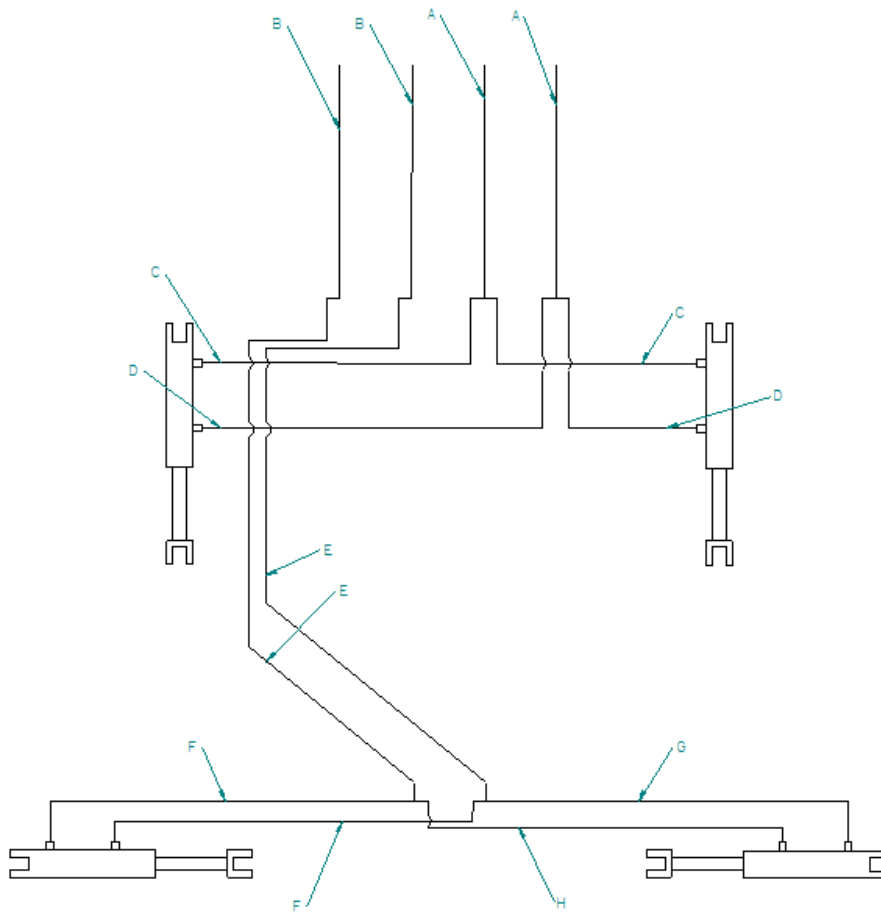
Hydraulic Run-up

Ensure all bystanders are clear of blade and at a safe distance during this air removal procedure. Use caution when activating any function. NEVER climb on or under the blade while the tractor is running.

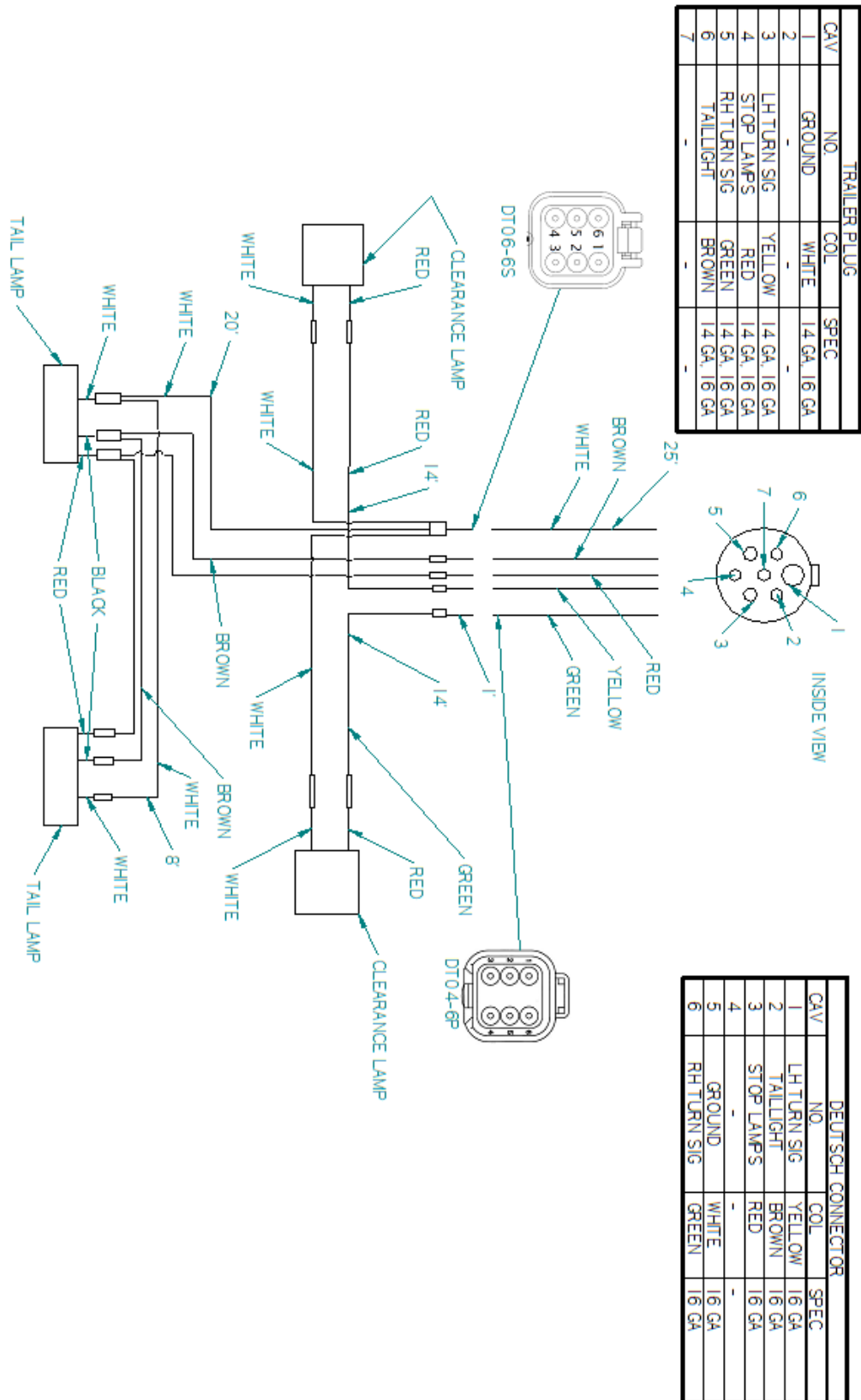
1. Install new component and insure that all seals are seated properly and all fittings and hoses are tightened to specs given. Where possible fill hydraulic cylinder(s) with oil before connecting hydraulic lines.
2. Connect Hydraulic lines to tractor.
3. Start tractor and engage hydraulic flow to blade.
4. Operate lift cylinders until cylinders extend and retract smoothly.
5. Operate tilt cylinders until cylinders extend and retract smoothly.

Hydraulic Schematic

ITEM	DESCRIPTION
A	LIFT SUPPLY HOSE
B	FRONT TILT SUPPLY HOSE
C	LIFT EXTEND HOSE
D	LIFT RETRACT HOSE
E	REAR TILT SUPPLY HOSE
F	LEFT TILT HOSE
G	RIGHT TILT EXTEND HOSE
H	RIGHT TILT RETRACT HOSE



Lights Schematic



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