

# **CPG** Series **Compact Pluggers** Models CPG48, CPG60, CPG72

# **CAR Series Compact Aerator** Models CAR48, CAR60, CAR72

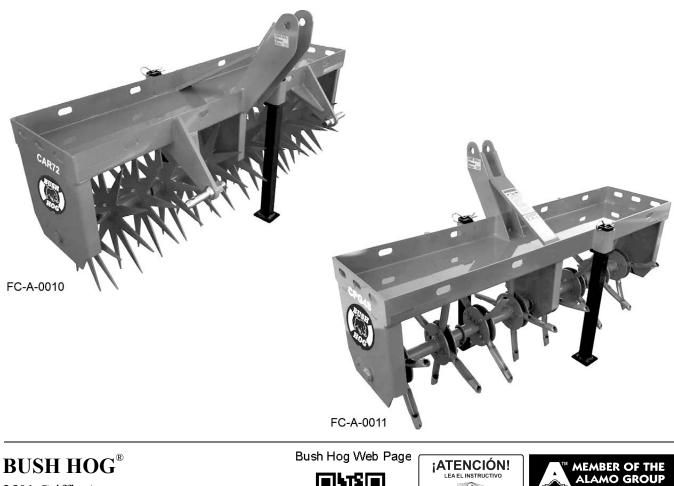
Published 08/22

Part No. 50078871

# **OPERATOR'S MANUAL**



This Operator's Manual is an integral part of the safe operation of this machine and must be maintained with the unit at all times. READ, UNDERSTAND, and FOLLOW the Safety and Operation Instructions contained in this manual before operating the equipment. C01-Cover str



2501 Griffin Ave. Selma, AL 36703 334-874-2700 www.bushhog.com







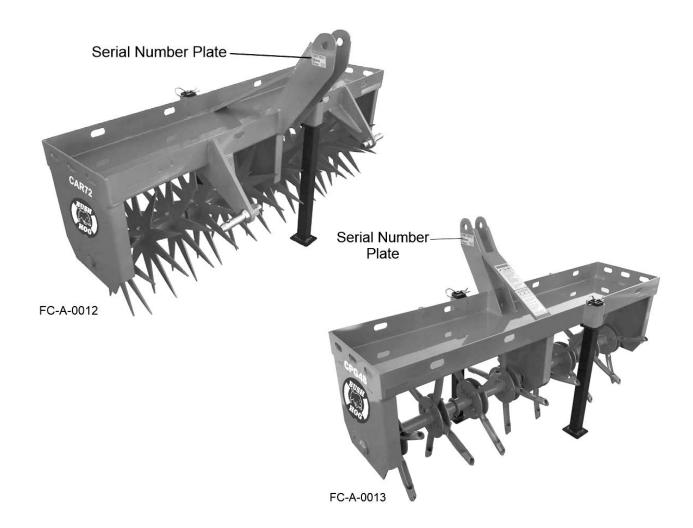
# To the Owner/Operator/Dealer

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

BEFORE YOU START! Read the safety messages on the implement and shown in your manual. Observe the rules of safety and common sense!

#### For future reference, record your Bush Hog product model number and serial number:

Dealer	Telephone	Model Number	
Owner	Purchase Date	Serial Number	



#### WARRANTY INFORMATION:

Read and understand the complete Warranty Statement found in this Manual. Fill out the Warranty Registration Form in full and return it to within 30 Days. Make certain the Serial Number of the Machine is recorded on the Warranty Card and on the Warranty Form that you retain.

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# **SAFETY SECTION**

Safety Section 1-1

## **GENERAL SAFETY INSTRUCTIONS AND PRACTICES**

A careful operator is the best operator. Safety is of primary importance to the manufacturer and should be to the owner/operator. Most accidents can be avoided by being aware of your equipment, your surroundings, and observing certain precautions. The first section of this manual includes a list of Safety Messages that, if followed, will help protect the operator and bystanders from injury or death. Read and understand these Safety Messages before assembling, operating or servicing this Implement. This equipment should only be operated by those persons who have read the manual, who are responsible and trained, and who know how to do so responsibly.



SAFETY

The Safety Alert Symbol combined with a Signal Word, as seen below, is used throughout this manual and on decals which are attached to the equipment. The Safety Alert Symbol means: "ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!" The Symbol and Signal Word are intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this equipment.

Practice all usual and customary safe working precautions and above all---remember safety is up to YOU. Only YOU can prevent serious injury or death from unsafe practices.



Indicates an imminently hazardous situation that, if not avoided, WILL result in DEATH OR VERY SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, COULD result in DEATH OR SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, MAY result in MINOR INJU-RY.



Identifies special instructions or procedures that, if not strictly observed, could result in damage to, or destruction of the machine, attachments or the environment.

NOTE: Identifies points of particular interest for more efficient and convenient operation or repair. (SG-1) str

READ, UNDERSTAND, and FOLLOW the following Safety Messages. Death or serious injury may occur unless care is taken to follow the warnings and instructions stated in the Safety Messages. Always use good common sense to avoid hazards. (SG-2) str





Si no lee ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad. (SG-3) str



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Safety Section 1-2

#### **AWARNING**

Repeated or substantial breathing of hazardous dusts, including crystalline silica, could cause fatal or serious respiratory disease including silicosis. Concrete, masonry, many types of rock, and various other materials contain silica sand. California lists respirable crystalline silica as a substance known to cause cancer. Operation of this equipment under certain conditions may generate airborne dust particles that could contain crystalline silica. In those conditions, personal protective equipment including an appropriate respirator must be used. If excessive dust is generated, a dust collection or suppression system should also be used during operation. (SG-41) str

## **OPERATOR SAFETY INSTRUCTIONS AND PRACTICES**

#### AWARNING

Never crawl under a raised Implement supported solely by the Tractor 3-Point hitch. Release of the control lever or mechanical failure will result in the Implement falling and possible injury or death. Always securely block up the Implement before crawling underneath to perform repairs and service. (S3PT-19) str

### A DANGER

**AWARNING** 

Never operate the Tractor or Implement until you have read and completely understand this Manual, the Tractor Operator's Manual, and each of the Safety Messages found in the Manual or on the Tractor and Implement. Learn how to stop the tractor engine suddenly in an emergency. Never allow inexperienced or untrained personnel to operate the Tractor or Implement without supervision. Make sure the operator has fully read and understood the manuals prior to operation. (SG-4)str

The operator and all support personnel should wear hard hats, safety shoes, safety glasses, and proper hearing protection at all times for protection from injury including injury from items that may be thrown by the equipment. (SG-16)str

**ACAUTION** PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS! Tractors with or without an Implement attached can often be noisy enough to cause permanent hearing loss. We recommend that you always wear hearing protection if the noise in the Operator's position exceeds 80db. Noise over 85db over an extended period of time will cause severe hearing loss. Noise over 90db adjacent to the Operator over an extended period of time will cause permanent or total hearing loss. **NOTE:** Hearing loss from loud noise [from tractors, chain saws, radios, and other such sources close to the ear] is cumulative over a lifetime without hope of natural recovery. (SG-I7)str

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Safety Section 1-3

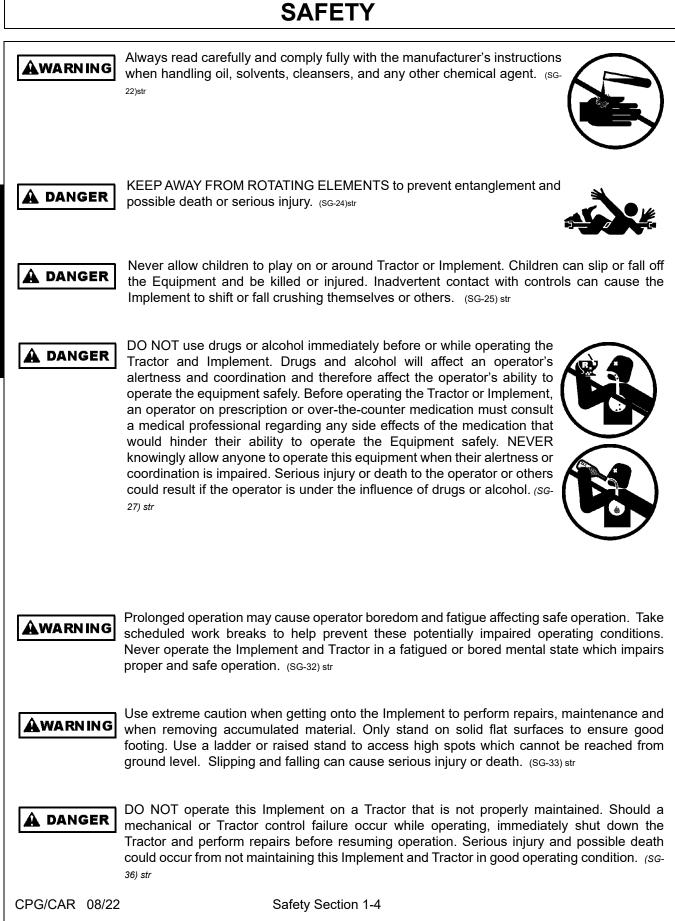


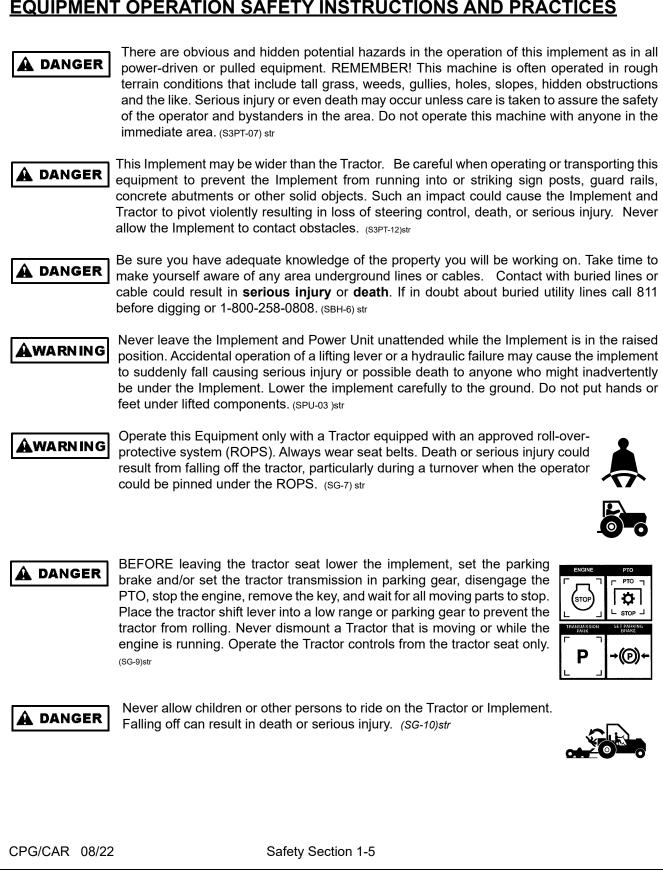


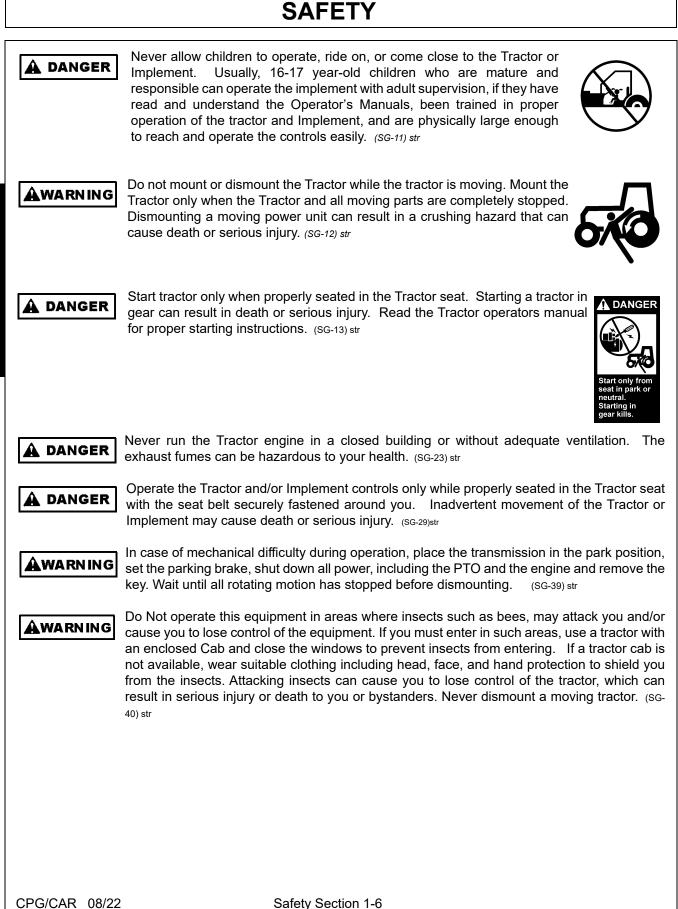




SAFETY







	NG OR DISCONNECTING SAFETY INSTRUCTIONS AND
PRACTICES	
<b>A</b> DANGER	Always shut the Tractor completely down, place the transmission in park, and set the parking brake before you or anyone else attempts to connect or disconnect the Implement and Tractor hitches. (S3PT-15) str
MAINTENA	NCE AND SERVICE SAFETY INSTRUCTIONS & PRACTICES
<b>AWARNING</b>	Never crawl under a raised Implement supported solely by the Tractor 3-Point hitch. Release of the control lever or mechanical failure will result in the Implement falling and possible injury or death. Always securely block up the Implement before crawling underneath to perform repairs and service. (S3PT-19) str
<b>A</b> WARNING	Never leave the Tractor and Implement unattended while the Implement is in the lifted position. Accidental operation of lifting lever or a hydraulic failure may cause sudden drop of unit with injury or death by crushing. To properly park the implement when disconnecting it from the tractor, lower the stand and put the retaining pin securely in place, or put a secure support under the A-Frame. Lower the implement carefully to the ground. Do not put hands or feet under lifted components. (S3PT-01) str
<b>A</b> WARN IN G	Keep fingers clear of adjusting holes. A sudden movement could cause injury or even amputate fingers. KEEP CHILDREN AWAY WHEN MAKING ADJUSTMENTS. (SBL-3)str
<b>AWARNING</b>	Always maintain the safety signs in good readable condition. If the safety signs are missing, damaged, or unreadable, obtain and install replacement safety signs immediately. (SG-5)str
<b>A</b> WARN IN G	Do not modify or alter this Implement. Do not permit anyone to modify or alter this Implement, any of its components or any Implement function. (SG-8)str
A DANGER	Never work under the Implement, the framework, or any lifted component unless the Implement is securely supported or blocked up to prevent sudden or inadvertent falling which could cause death or serious injury. (SG-14)str
<b>A</b> WARN IN G	Never attempt to lubricate, adjust, or remove material from the Implement while it is in motion or while tractor engine is running. (SG-20)str
CPG/CAR 08/22	Safety Section 1-7

## SAFETY Periodically inspect all moving parts for wear and replace when necessary AWARNING with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)str Do Not fill fuel tank while engine is running. Refuel only after engine has cooled down. If fuel is spilled, move machine away from the area of the spill and avoid creating any source of ignition until the spill has been cleaned up. (SG-28) str Perform service, repairs and lubrication according to the maintenance section. Ensure the 🔒 WARN IN G unit is properly lubricated as specified in the lubrication schedule and all bolts and nuts are properly torqued. Failure to properly service, repair and maintain this Implement in good operating condition could cause component failure and possible serious injury or even death. (SG-35str) Use caution and wear protective gloves when handling sharp objects such as blades, knives, WARNING and other cutting edges. Be alert to worn component surfaces which have sharp edges. Sharp surfaces can inflict severe laceration injuries if proper hand protection is not worn. (SG-37) str Cancer and Reproductive Harm www.P65Warnings.ca.gov 🔥 WARNING STORAGE AND PARKING SAFETY INSTRUCTIONS AND PRACTICES A rear Implement can fall if not properly supported. Always use the stand on the front hitch (if 🛕 DANGER equipped) or block up securely to prevent falling and possible crushing injury and/or other injury from holding or lifting heavy components. Use the stand to stabilize the implement during storage. (S3PT-3) str CPG/CAR 08/22 Safety Section 1-8

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SAFETY

## TRANSPORTING SAFETY INSTRUCTIONS AND PRACTICES

Be particularly careful when transporting the Implement with the Tractor. Turn curves or go up hills only at a low speed and using a gradual steering angle. Rear mounted implements move the center of gravity to the rear and remove weight from the front wheels. Make certain, by adding front ballast, that at least 20% of the tractor's weight is on the front wheels to prevent rearing up, loss of steering control or Tractor tip-over. Slow down on rough or uneven surfaces to prevent loss of steering control which could result in property damage or possible injury. Do not transport unless 3-Point lift lever is fully raised and in the latched transport position. Dropping implement in transport can cause serious damage to the tractor and/or Implement and possibly cause the operator or others to be killed or injured. (S3PT-02)str

## **A**WARN ING

**AWARNING** 

AWARNING

Make certain that the "Slow Moving Vehicle" (SMV) sign is installed in such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations. (SG-6)str

Transport only at speeds where you can maintain control of the equipment. Serious accidents and injuries can result from operating this equipment at high speeds. Understand the Tractor and Implement and how it handles

before transporting on streets and highways. Make sure the Tractor steering and brakes are in good condition and operate properly.

Before transporting the Tractor and Implement, determine the proper transport speeds for you and the equipment. Make sure you abide by the following rules:

Test the tractor at a slow speed and increase the speed slowly. Apply the Brakes smoothly to determine the stopping characteristics of the Tractor and Implement. As you increase the speed of the Tractor the stopping distance increases. Determine the maximum transport speed not to exceed 20 mph (30 kph) for transporting this equipment.

Test the equipment at a slow speed in turns. Increase the speed through the turn only after you determine that the equipment can be operated at a higher speed. Use extreme care and reduce your speed when turning sharply to prevent the tractor and implement from turning over. Determine the maximum turning speed for you and this equipment before operating on roads or uneven ground.

Only transport the Tractor and Implement at the speeds which allow you to properly control the equipment.

Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes or worn tires. When operating down a hill or on wet or rain slick roads, the braking distance increases: use extreme care and reduce your speed. When operating in traffic always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy. (SG-19)str

## **CONCLUDING SAFETY INSTRUCTIONS AND PRACTICES**

In addition to the design and configuration of this Implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the Tractor and Equipment Manuals. Pay close attention to the Safety Signs affixed to the Tractor and Equipment. (SG-18)str

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Safety Section 1-9



SAFE<sup>-</sup>





### PARTS INFORMATION

Bush Hog products are designed utilizing specifically matched system components to ensure optimum equipment performance. These parts are made and tested to Bush Hog specifications. Non-genuine "will fit" parts do not consistently meet these specifications. The use of "will fit" parts may reduce equipment performance, void warranties, and present a safety hazard. Use genuine Bush Hog parts for economy and safety. (*SPBH-2)str* 

#### SEE YOUR BUSH HOG DEALER

**Operator's & Parts Manuals** 



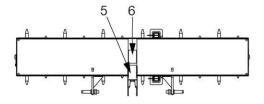
www.algqr.com/bpm

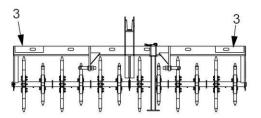
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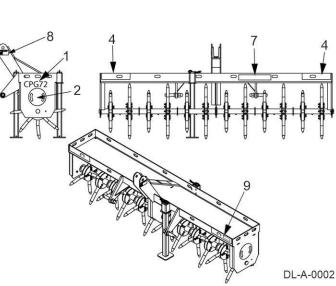
Safety Section 1-10

## **DECAL LOCATION**

NOTE: Bush Hog supplies safety decals on this product to promote safe operation. Damage to the decals may occur while in shipping, use, or reconditioning. Bush Hog cares about the safety of its customers, operators, and bystanders, and will replace the safety decals on this product in the field, free of charge (Some shipping and handling charges may apply). Contact your Bush Hog dealer to order replacement decals







**CPG Compact Pluggers** 

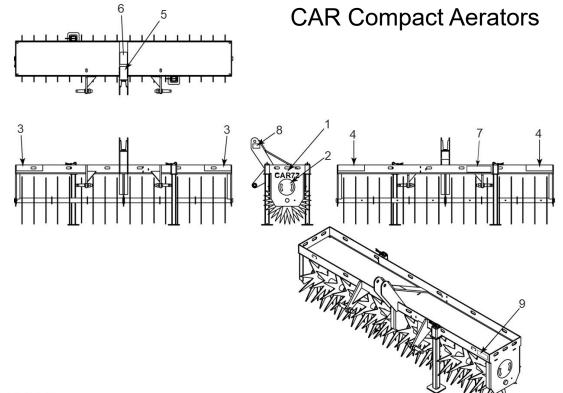
ITEM	PART NO.	QTY	ТҮРЕ	DESCRIPTION
1.	50078867	2	LOGO	CPG48
	50078869	2	LOGO	CPG60
	50079041	2	LOGO	CPG72
2.	50057843	2	LOGO	Bush Hog
3.	50031212	2	REFLECT	Amber Reflector
4.	50031214	2	REFLECT	Red Reflector
5.	50057097	1	CAUTION	Multi-Hazard
6.	90960BH	1	WARNING	Multi-Hazard
7.	00725746	1	PELIGRO	Spanish Translation
8.	NFS	1	SERIAL PLT	Serial Number Plate
9.	D960	1	WARNING	Proposition 65

CPG/CAR 08/22

Safety Section 1-11

## **DECAL LOCATION**

**NOTE:** Bush Hog supplies safety decals on this product to promote safe operation. Damage to the decals may occur while in shipping, use, or reconditioning. Bush Hog cares about the safety of its customers, operators, and bystanders, and will replace the safety decals on this product in the field, free of charge (Some shipping and handling charges may apply). Contact your Bush Hog dealer to order replacement decals



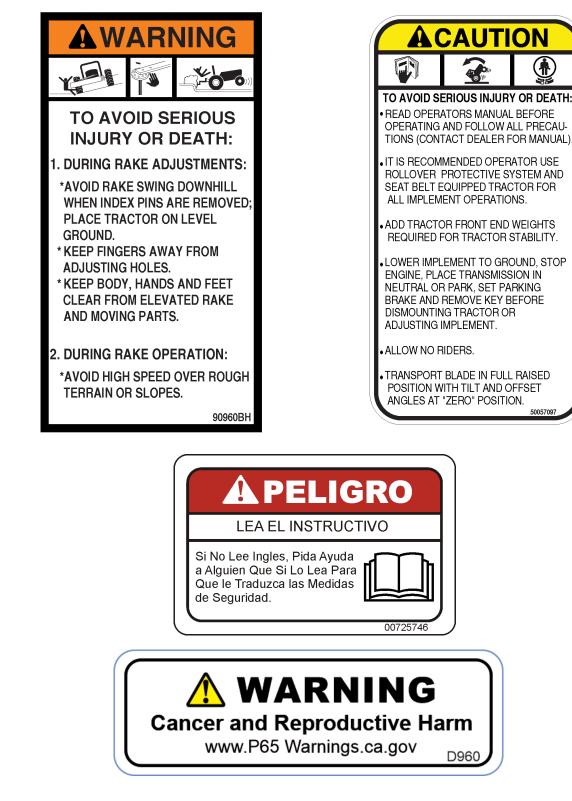
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ITEM	PART NO.	QTY	ТҮРЕ	DESCRIPTION
1.	50078872	2	LOGO	CAR48
	50078874	2	LOGO	CAR60
	50079043	2	LOGO	CAR72
2.	50057843	2	LOGO	Bush Hog
3.	50031212	2	REFLECT	Amber Reflector
4.	50031214	2	REFLECT	Red Reflector
5.	50057097	1	CAUTION	Multi-Hazard
6.	90960BH	1	WARNING	Multi-Hazard
7.	00725746	1	PELIGRO	Spanish Translation
8.	NFS	1	SERIAL PLT	Serial Number Plate
9.	D960	1	WARNING	Proposition 65

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Safety Section 1-12

## **DECAL DESCRIPTION**



CPG/CAR 08/22

Safety Section 1-13

50057097

#### FEDERAL LAWS AND REGULATIONS

This section is intended to explain in broad terms the concept and effect of federal laws and regulations concerning employer and employee equipment operators. This section is not intended as a legal interpretation of the law and should not be considered as such.

#### Employer-Employee Operator Regulations

U.S. Public Law 91-596 (The Williams-Steiger Occupational and Health Act of 1970) OSHA

#### This Act Seeks:

"...to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources..."

#### DUTIES

Sec. 5 (a) Each employer-

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations

and orders issued pursuant to this Act which are applicable to his own actions and conduct.

#### **OSHA Training Requirements**

#### Title 29, Code of Federal Regulations Part 1928.57(a)(6). www.osha.gov

Operator instructions. At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee who operates an agricultural tractor and implements in the safe operating practices and servicing of equipment with which they are or will be involved, and of any other practices dictated by the work environment.

Keep all guards in place when the machine is in operation;

Permit no riders on equipment

Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment.

Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine.

#### **Employer Responsibilities:**

To ensure employee safety during Tractor and Implement operation, it is the employer's responsibility to:

- 1. Train the employee in the proper and safe operation of the Tractor and Implement.
- 2. Require that the employee read and fully understand the Tractor and Implement Operator's Manual.
- 3. Permit only qualified and properly trained employees to operate the Tractor and Implement.
- 4. Maintain the Tractor and Implement in a safe operational condition and maintain all shields and guards on the equipment.
- 5. Ensure the Tractor is equipped with a functional ROPS and seat belt and require that the employee operator securely fasten the safety belt and operate with the ROPS in the raised position at all times.
- 6. Forbid the employee operator to carry additional riders on the Tractor or Implement.
- 7. Provide the required tools to maintain the Tractor and Implement in a good safe working condition and provide the necessary support devices to secure the equipment safely while performing repairs and service.
- 8. Require that the employee operator stop operation if bystanders or passersby come within 300 feet.

#### Child Labor Under 16 Years of Age

Some regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these regulations are in your own area or situation. (Refer to U.S. Dept. of Labor,

Employment Standard Administration, Wage & Home Division, Child Labor Bulletin #102.)

CPG/CAR 08/22

# **INTRODUCTION SECTION**

Introduction Section 2-1

# INTRODUCTION

This compact plugger/aerator is designed with care and built with quality materials by skilled workers. Proper assembly, maintenance, and operating practices, as described in this manual, will help the owner/operator get years of satisfactory service from the machine.

The purpose of this manual is to familiarize and instruct. The Assembly Section instructs the owner/operator in the correct assembly of the plugger.

Careful use and timely service saves extensive repairs and costly downtime losses. The Operation and Maintenance Sections of the manual train the owner/operator how to work the plugger correctly and attend to appropriate maintenance.

Safety is of primary importance to the owner/operator and to the manufacturer. The first section of this manual includes a list of Safety Messages, that, if followed, will help protect the operator and bystanders from injury or death. Many of the Safety Messages will be repeated throughout the manual. The owner/operator/dealer should know these Safety Messages before assembly and be aware of the hazards of operating this implement during assembly, use, and maintenance. The Safety Alert Symbol combined with a Signal Word, as seen below, is intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this machine.

Indicates a hazardous situation that, if not avoided, WILL result in DEATH OR VERY SERIOUS INJURY.

AWARNING

Important

INJURY. Indicates a hazardous situation that, if not avoided, MAY result in MINOR OR MODERATE

Indicates a hazardous situation that, if not avoided, COULD result in DEATH OR SERIOUS

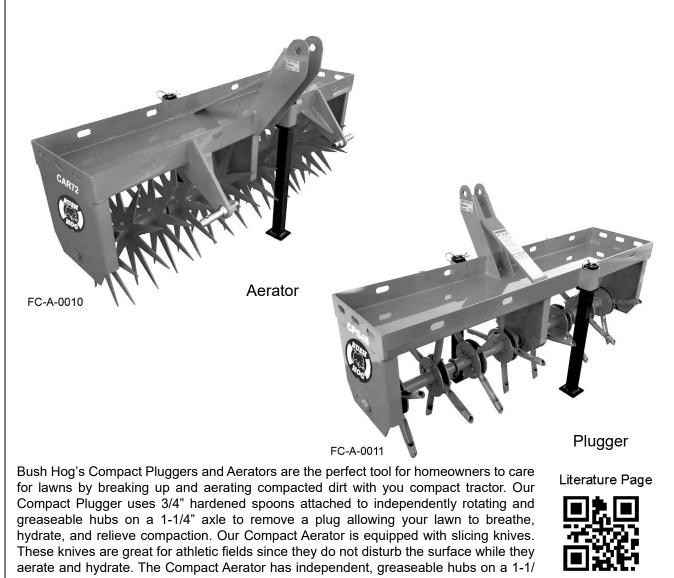
A CAUTION INJURY.

Identifies special instructions or procedures that, if not strictly observed, could result in damage to, or destruction of the machine, attachments or the environment.

CPG/CAR 08/22

Introduction Section 2-2

## INTRODUCTION



4" axle. Knives are also great for controlling thatch. The frame of both of these units can  $_{\rm W}$  also be used as weight rack. Five (5) gallon buckets fit within the frame and can be used in the weight rack to get maximum penetration..

www.algqr.com/ble

AWARNING

At least 20% or the tractor's weight must be on the front tires with the implement lifted to provide adequate traction for safe steering under good conditions. Slow down on hills, rough terrain, and curves.

Front and rear, and left and right are determined by the normal direction of travel (the same as on your automobile).

Carefully read the Operator's Manual completely, understand the Safety Messages and instructions, and know how to operate correctly both the tractor and aerator

Introduction Section 2-3

# INTRODUCTION

## **Attention Owner/Operator**

BEFORE OPERATING THIS MACHINE:

- 1. Carefully read the Operator's Manual, completely understand the Safety Messages and instructions, and know how to operate correctly both the tractor and implement.
- 2. Fill out the Warranty Card in full. Be sure to answer all questions, including the Serial Number of the implement. Mail within 30 days of delivery date of this implement.

**NOTE:** Warranties are honored only if completed "Owner Registration and Warranty" forms are received by Bush Hog within thirty days of delivery of the implement.

3. Record the Rake Model and Serial Numbers on the Warranty page at the front of the Operator's Manual. Keep this as part of the permanent maintenance file for the implement.



www.P65 Warnings.ca.gov

D960

CPG/CAR 08/22

Introduction Section 2-4

## **BUSH HOG LIMITED WARRANTY**

# \*\*\*\*\*\*\*\*\*\*\*\*\*\*

Bush Hog warrants to the original purchaser of any new Bush Hog equipment, purchased from an authorized Bush Hog dealer, that the equipment be free from defects in material and workmanship for a period of one (1) year for non-commercial, state and municipalities' use and ninety (90) days for commercial use from date of retail sale. The obligation of Bush Hog to the purchaser under this warranty is limited to the repair or replacement of defective parts.

Replacement or repair parts installed in the equipment covered by this limited warranty are warranted for ninety (90) days from the date of purchase of such part or to the expiration of the applicable new equipment warranty period, whichever occurs later. Warranted parts shall be provided at no cost to the user at an authorized Bush Hog dealer during regular working hours. Bush Hog reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

#### DISCLAIMER OF IMPLIED WARRANTIES & CONSEQUENTIAL DAMAGES

Bush Hog's obligation under this limited warranty, to the extent allowed by law, is in lieu of all warranties, implied or expressed, **INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE** and any liability for incidental and consequential damages with respect to the sale or use of the items warranted. Such incidental and consequential damages shall include but not be limited to: transportation charges other than normal freight charges; cost of installation other than cost approved by Bush Hog; duty; taxes; charges for normal service or adjustment; loss of crops or any other loss of income; rental of substitute equipment, expenses due to loss, damage, detention or delay in the delivery of equipment or parts resulting from acts beyond the control of Bush Hog.

#### THIS LIMITED WARRANTY SHALL NOT APPLY:

- 1. To vendor items which carry their own warranties, such as engines, tires, and tubes.
- 2. If the unit has been subjected to misapplication, abuse, misuse, negligence, fire or other accident.
- 3. If parts not made or supplied by Bush Hog have been used in connection with the unit, if, in the sole judgment of Bush Hog such use affects its performance, stability or reliability.
- 4. If the unit has been altered or repaired outside of an authorized Bush Hog dealership in a manner which, in the sole judgment of Bush Hog, affects its performance, stability or reliability.
- 5. To normal maintenance service and normal replacement items such as gearbox lubricant, hydraulic fluid, worn blades, or to normal deterioration of such things as belts and exterior finish due to use or exposure.
- 6. To expendable or wear items such as teeth, chains, sprockets, belts, springs and any other items that in the company's sole judgment is a wear item.

NO EMPLOYEE OR REPRESENTATIVE OF BUSH HOG IS AUTHORIZED TO CHANGE THIS LIMITED WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY UNLESS SUCH CHANGE IS MADE IN WRITING AND SIGNED BY BUSH HOG'S SERVICE MANAGER, 2501 GRIFFIN AVE., SELMA, ALABAMA 36703.

# \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Record the model number, serial number and date purchased. This information will be helpful to your dealer if parts or service are required.

MAKE CERTAIN THE WARRANTY HAS BEEN FILED WITH BUSH HOG SELMA, ALABAMA MODEL NUMBER \_\_\_\_\_

SERIAL NUMBER

DATE OF RETAIL SALE \_\_\_\_\_



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Introduction Section 2-5

# **ASSEMBLY SECTION**

Assembly Section 3-1

# ASSEMBLY

## ASSEMBLY AND SETUP

Bush Hog's Compact Pluggers and Compact Aerators come fully assembled from the factory but make sure to grease each hub before use to ensure longevity and prevent damage.

## Attachment

The implement should be placed on level ground.

Place the tractor rockshaft control in 'position control' (non floating) for attaching and detaching the implement. 'Draft control' or 'position control' can be used while operating.

Back the tractor until the ends of the lift arms can be attached to the lift points on the implement. Secure the lift arms to the mast.

Attach the center link to the top of the mast and adjust so that the frame will be level in the operating position. Remove parking stand and store in the upside down position.

IMPORTANT: Scan this QR Code with your smart phone to link to the PAMI Safe Implement Hitching Manual for more information on correctly connecting agricultural tractors to implements. Or type in your internet browser the following web address: www.algqr.com/hme *Ops-0008-MISC str* 



CPG/CAR 08/22

Assembly Section 3-2

# **OPERATION SECTION**

**Operation Section 4-1** 

## CPG SERIES COMPACT PLUGGER & CAR SERIES COMPACT AERATOR OPERATING INSTRUCTIONS

Your implements should now be assembled and inspected for any evidence of defective or damaged parts before use. Any evidence of damage should be reported to your dealer immediately

This section of the Operator's Manual is designed to familiarize, instruct, and educate safe and proper implement use to the operator. Pictures contained in this section are intended to be used as a visual aid to assist in explaining the operation of a plugger or aerator and are not necessarily of this implement. Some pictures may show shields removed for purposes of clarity. NEVER OPERATE this implement without all shields in place and in good operational condition. The operator must be familiar with the plugger or aerator and tractor. Proper operation and all associated safety practices before operating the plugger or aerator and tractor. Proper operation of the plugger or aerator, as detailed in this manual, will help ensure years of safe and satisfactory use of the plugger and aerator.

**READ AND UNDERSTAND THE ENTIRE OPERATING INSTRUCTIONS AND SAFETY SECTION OF THIS MANUAL AND THE TRACTOR MANUAL BEFORE ATTEMPTING TO USE THE TRACTOR AND IMPLEMENT.** If you do not understand any of the instructions, contact your nearest authorized dealer for a full explanation. Pay close attention to all safety signs and safety messages contained in this manual and those affixed to the implement and tractor. *OPS-U- 0001str* 

READ, UNDERSTAND, and FOLLOW the following Safety Messages. Death or serious injury may occur unless care is taken to follow the warnings and instructions stated in the Safety Messages. Always use good common sense to avoid hazards. (SG-2str)



	CPG48	CAR48	CPG60	CAR60	CPG48	CAR48
Product Description	Compact Plugger	Compact Aerator	Compact Plugger	Compact Aerator	Compact Plugger	Compact Aerator
Overall Width	49-7/8"	49-7/8"	62-1/4"	62-1/4"	74"	74"
Working Width	43-11/16"	44-15/16"	56-1/4"	57-3/8"	67-7/8"	69"
Overall Depth	20-5/8"	20-5/8"	20-5/8"	20-5/8"	20-5/8"	20-5/8"
Weight	166 lbs	166 lbs	199 lbs	199 lbs	219 lbs	219 lbs
Number of Spoons/Knives	32	120	40	150	48	180
Number of Hubs	4	4	5	5	6	6
Spoon/Knife Spacing	6"	3-15/16"	6"	3-15/16"	6"	3-15/16"
Axle	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"
Hitch Type	CAT 1 + Quick Hitch					

## STANDARD EQUIPMENT AND SPECIFICATIONS

CPG/CAR 08/22

**Operation Section 4-2** 

## **1. OPERATOR REQUIREMENTS**

Safe operation of the unit is the responsibility of a qualified operator. A qualified operator has read and understands the implement and tractor Operator's Manuals and is experienced in implement and tractor operation and all associated safety practices. In addition to the safety messages contained in this manual, safety signs are affixed to the implement and tractor. If any part of the operation and safe use of this equipment is not completely understood, consult an authorized dealer for a complete explanation.

If the operator cannot read the manuals for themselves or does not completely understand the operation of the equipment, it is the responsibility of the supervisor to read and explain the manuals, safety practices, and operating instructions to the operator.

Safe operation of equipment requires that the operator wear approved Personal Protective Equipment (PPE) for the job conditions when attaching, operating, servicing, and repairing the equipment. PPE is designed to provide operator protection and includes the following safety wear:

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Always Wear Safety Glasses (with side shields marked to comply with ANSI Z87)
- Hard Hat
- Steel Toe Safety Footwear
- Gloves
- Hearing Protection
- Close Fitting Clothing
- Respirator or Filter Mask (depends on operating conditions)

OPS-U- 0002str



#### A DANGER

DO NOT use drugs or alcohol immediately before or while operating the Tractor and Implement. Drugs and alcohol will affect an operator's alertness and coordination and therefore affect the operator's ability to operate the equipment safely. Before operating the Tractor or Implement, an operator on prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to operate the Equipment safely. NEVER knowingly allow anyone to operate this equipment when their alertness or coordination is impaired. Serious injury or death to the operator or others could result if the operator is under the influence of drugs or alcohol. (SG-27) str



## **2.TRACTOR REQUIREMENTS**

Operating the plugger with a tractor that does not meet the following requirements may cause tractor or implement damage and be a potential danger to the operator and passersby.

#### **Tractor Requirements and Capabilities**

- ASABE approved Roll-Over Protective Structure (ROPS) or ROPS cab and seat belt.
- CPG/CAR 08/22

**Operation Section 4-3** 

• Front End Weight ...... As needed to maintain 20% weight on front axle

#### 2.1 ROPS and Seat Belt

The tractor must be equipped with a Roll-Over-Protective-Structure (ROPS) (tractor cab or roll-bar) and seat belt to protect the operator from falling off the tractor, especially during a roll over where the driver could be crushed and killed. Only operate the tractor with the ROPS in the raised position and seat belt fastened. Tractor models not equipped with a ROPS and seat belt should have these life saving features installed by an authorized dealer. OPS-U- 0003str

## **A**WARNING

Operate this Equipment only with a Tractor equipped with an approved roll-overprotective system (ROPS). Always wear seat belts. Death or serious injury could result from falling off the tractor, particularly during a turnover when the operator could be pinned under the ROPS. (SG-7) str



#### 2.2 Tractor Horsepower

The power required to operate this implement is determined by the tractor PTO horsepower. For most operating conditions, the plugger/aerator requires a tractor with the maximum of 25 PTO HP. Operating these implements with a tractor that does not have adequate power may damage the tractor engine. Exceeding the recommended horsepower may cause plugger damage by overpowering the unit in heavy operating conditions.

#### 2.3 Front End Weight

A minimum of 20% total tractor weight must be maintained on the tractor front end at all times. Front end weight is critical to maintain steering control and to prevent the tractor from rearing up while driving. If the front end is too light, add weight until a minimum of 20% total weight is reached on the front tires. Front weights and weight carriers can be purchased through an authorized tractor dealership. OPS-U-0005 str

## **3.GETTING ON AND OFF THE TRACTOR**

Before getting onto the tractor, the operator must read and completely understand the implement and tractor operator manuals. If any part of either manual is not completely understood, consult an authorized dealer for a complete explanation. OPS-U- 0007str



Do not mount or dismount the Tractor while the tractor is moving. Mount the Tractor only when the Tractor and all moving parts are completely stopped. Dismounting a moving power unit can result in a crushing hazard that can cause death or serious injury. (SG-12) *str* 



#### 3.1 Boarding the Tractor

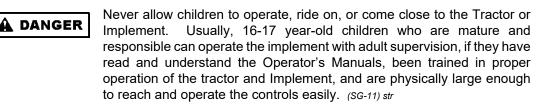
Use both hands and equipped handrails and steps for support when boarding the tractor. Never use control levers for support when mounting the tractor. Seat yourself in the operator's seat and secure the seat belt around you.

Never allow passengers to ride on the tractor or attached equipment. Riders can easily fall off and be seriously injured or killed from falling off and being ran over. It is the operator's responsibility to forbid all extra riders at all times. *OPS-U- 0008str* 

CPG/CAR 08/22

**Operation Section 4-4** 

**OPERATION** 







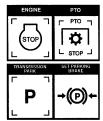
Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in death or serious injury. (SG-10)str

#### 3.2 Dismounting the Tractor

Before dismounting, park the tractor and implement on a reasonably level surface, apply the parking brake, idle the engine down, disengage the PTO, and lower the implement to the ground. Shut down the tractor engine according to the operator's manual, remove the key, and wait for all motion to completely stop. Never leave the seat until the tractor, its engine and all moving parts have come to a complete stop.

Use hand rails and steps when exiting the tractor. Be careful of your step and use extra caution when mud, ice, snow or other matter has accumulated on the steps or hand rails. Use all handrails and steps for support and never rush or jump off the tractor. *OPS-U- 0009 str* 

BEFORE leaving the tractor seat lower the implement, set the parking brake and/or set the tractor transmission in parking gear, disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop. Place the tractor shift lever into a low range or parking gear to prevent the tractor from rolling. Never dismount a Tractor that is moving or while the engine is running. Operate the Tractor controls from the tractor seat only. (SG-9)str



OPERATION

CPG/CAR 08/22

**Operation Section 4-5** 

## **4. STARTING THE TRACTOR**

The operator must have a complete understanding of the placement, function, and operational use of all tractor controls before starting the tractor. Review the tractor operator's manual and consult an authorized dealer for tractor operation instructions if needed.

#### **Essential Tractor Controls:**

- Locate the light control switch.
- · Locate the engine shut off control.
- Locate the brake pedals and the clutch.
- Locate the PTO control.
- Locate the 3-point hitch control lever.
- Locate the hydraulic remote control levers

#### Before starting the tractor ensure the following:

- Conduct all pre-start operation inspection and service according to the tractor operator's manual.
- Make sure all guards, shields, and other safety devices are securely in place.
- The parking brake is on.
- The PTO control lever is disengaged.
- The 3-point hitch control lever is in the lowered position.
- The hydraulic remote control levers are in the neutral position.
- The tractor transmission levers are in park or neutral.

Refer to the tractor owner's manual for tractor starting procedures. Only start the tractor while seated and belted in the tractor operator's seat. Never bypass the ignition switch by short circuiting the starter solenoid. After the tractor engine is running, avoid accidental contact with the tractor transmission to prevent sudden and unexpected tractor movement. OPS-U-0028str



Never run the Tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health. (SG-23) str



Start tractor only when properly seated in the Tractor seat. Starting a tractor in gear can result in death or serious injury. Read the Tractor operators manual for proper starting instructions. (SG-13) str



## **5.CONNECTING THE IMPLEMENT TO THE TRACTOR**

Use extreme caution when connecting the implements to the tractor. The implement should be securely resting at ground level or setting on blocks. Keep hands and feet from under the units and clear of pinch points between the tractor hitch arms and implement pins. *OPS-0011\_B str* 

CPG/CAR 08/22

**Operation Section 4-6** 

IMPORTANT: Scan this QR Code with your smart phone to link to the PAMI Safe Implement Hitching Manual for more information on correctly connecting agricultural tractors to implements. Or type in your internet browser the following web address: www.algqr.com/hme *Ops-0008-MISC str* 



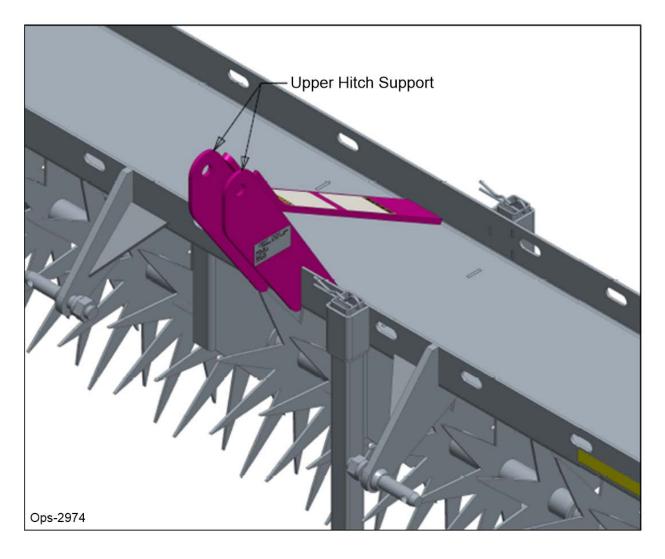
Attem

Attempting to hitch when implement is not on leveled ground could cause the implement to tip over and cause serious injury or death.

- 1. Ensure CAR or CPG is stable on its jack stands and on leveled ground.
- 2. Before hitching your CAR/CPG, consult and follow your tractor specific manual for instructions on 3-point hitching.
- 3. Align lower hitch points from tractor towards category 1 mounting pins on CAR/CPG.
- 4. Slide in lower hitch points onto the lower mounting pins. Secure with lynch pin through hitch pin hole

Category 1 Lower Hitch Mounting Pins	
CPG/CAR 08/22	Operation Section 4-7

- 5. Align upper hitch point from tractor in between upper mounting frame.
- 6. Using a 3/4" clevis pin (not supplied), secure CAR/CPG to upper hitch point.



A DANGER

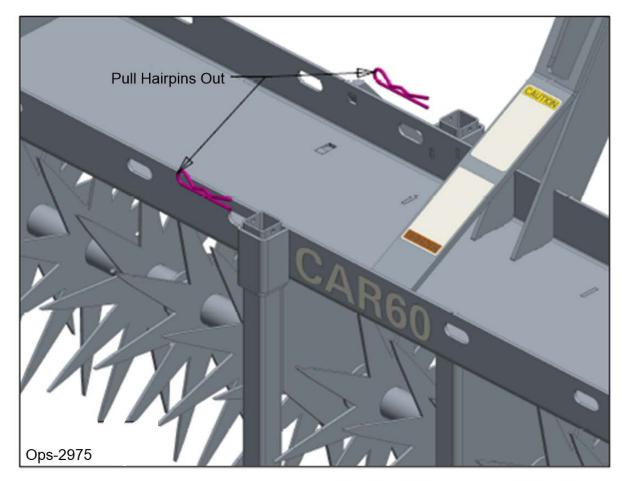
To avoid serious injury or death clear area to be aerated of debris and other potential hazards. Never place hands or feet near the slicing knives or spoons while implement is in motion.

CPG/CAR 08/22

**Operation Section 4-8** 

#### 5.2 Hitching Implement

- 1. Before hitching and operating your CAR/CPG, make sure each of the hubs are greased.
- 2. Ensure proper connections with hitch, please see 3-Point Hook-Up.
- 3. Once securely attached to your tractor, raise implement to assure clearance for jackstand removal. There is one located on the front and rear. Perform following steps to each one individually.
- 4. While holding the jackstand, remove the hairpin holding the jackstand in place. (Ops-2975)



- 5. Slide the jackstand down and away. (Ops-2976)
- 6. Flip jackstand to the up-right position and place back into slot. (Ops-2977)
- 7. Secure jackstand in the up-right position by reinserting the hairpin through the pin hole.
- 8. Lower CAR/CPG towards the ground until desired contact is made.
- 9. Pull tractor forward and check penetration depth.

Important impleme

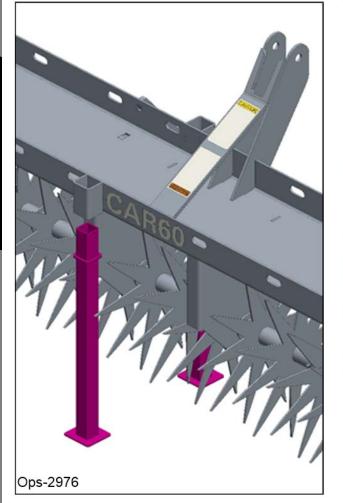
Please consult and follow your tractor's manual for proper and safe procedures on pulling implements when operating.

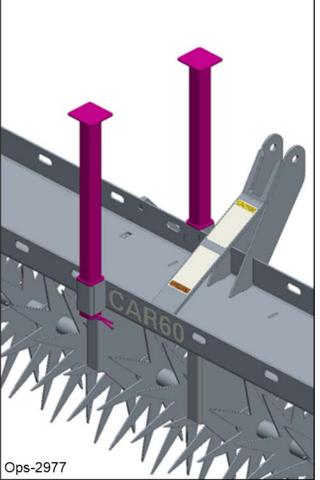
CPG/CAR 08/22

**Operation Section 4-9** 

OPERATION

10. If further penetration is needed or desired add weight to the frame of the CAR/CGP (Normally 1" to 3" depth penetration is sufficient, but can penetrate up to 6")





CPG/CAR 08/22

**Operation Section 4-10** 

#### 6. PRE-OPERATION INSPECTION AND SERVICE

Before each use, a pre-operation inspection and service of the implement and tractor must be performed. This includes routine maintenance and scheduled lubrication, inspecting that all safety devices are equipped and functional, and performing needed repairs. DO NOT operate the unit if the pre-operation inspection reveals any condition affecting safe operation. Perform repairs and replacement of damaged and missing parts as soon as noticed. By performing a thorough pre-operation inspection and service, valuable down time and repair cost can be avoided. OPS-U-0029str

#### AWARNING

Periodically inspect all moving parts for wear and replace when necessary with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)str





OPERATION

#### 6.1 Tractor Pre-Operation Inspection/Service

Refer to the tractor operator's manual to ensure a complete pre-operation inspection and scheduled service is performed according to the manufacturers recommendations. The following are some of the items that require daily service and inspection:

- Tire condition/air pressure
- Wheel lug bolts
- Steering linkage
- PTO shield
- SMV sign is clean and visible
- Tractor's lights are clean and functional
- Tractor Seat belt is in good condition
- ROPS is in the raised position
- No tractor oil leaks
- Radiator free of debris
- Engine oil level and condition
- Engine coolant level and condition
- Power brake fluid level
- Power steering fluid level
- Fuel condition and level
- Sufficient lubrication at all lube points
- Air filter condition OPS-U-0030 str



CPG/CAR 08/22

**Operation Section 4-11** 

#### 6.2 Aerator/Plugger Pre-Operation Inspection/Service

Before each use, a complete inspection and service is required to ensure the aerator or plugger is in good and safe working condition. Damaged and/or broken parts should be repaired and/or replaced immediately. To ensure the aerator is ready for operation, conduct the following.



Periodically inspect all moving parts for wear and replace when necessary with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)str





**OPERATION** 

The operator's manual and safety signs affixed on the unit contain important instructions on the safe and proper use of the equipment. Maintain these important safety features on the implement in good condition to ensure the information is available to the operator at all times.

- Ensure the manual canister is secured to the equipment with the operator's manual inside.
- Ensure all safety signs are in place and legible. Replace missing, damaged, and illegible decals. *OPS-U- 0011 str*



#### MAINFRAME ASSEMBLY

- Inspect condition of frame weldment.
- Ensure all bolts and screws are in position and are properly torqued.
- Ensure all pins are in place and fastened properly.
- Ensure frame is properly mounted to tractor and hardware is properly installed and tightened.

CPG/CAR 08/22

**Operation Section 4-12** 

#### **TRACTOR PRE-OPERATION INSPECTION**

Date:\_\_\_\_\_ Shaft: \_\_\_\_\_



Tractor ID# \_\_\_\_\_ Make: \_\_\_\_\_

🗚 WARN IN G

Before conducting the inspection, make sure the tractor engine is off, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up and all hydraulic pressure has been relieved.

Item	Condition at Start of Shift	Specific Comments if not OK
The flashing lights function properly		
The SMV Sign is clean and visible		
The tires are in good condition with proper pressure		
The wheel lug bolts are tight		
The tractor brakes are in good condition		
The steering linkage is in good condition		
There are no visible oil leaks		
The hydraulic controls function properly		
The ROPS or ROPS Cab is in good condition		
The seatbelt is in place and in good condition		
The 3-point hitch is in good condition		
The drawbar pins are securely in place		
The PTO master shield is in place		
The engine oil level is full		
The brake fluid level is full		
The power steering fluid level is full		
The fuel level is adequate		
The engine coolant fluid level is full		
The radiator is free of debris		
The air filter is in good condition		

Operator's Signature:

#### **DO NOT OPERATE an UNSAFE TRACTOR or MOWER**

CPG/CAR 08/22

**Operation Section 4-13** 

#### **AERATOR PRE-OPERATION INSPECTION**



Pulverizer ID# \_\_\_\_\_

Date:\_\_\_\_\_

Make:	 		
Shift:			

**A**WARN IN G

**ING** Before conducting the inspection, make sure the tractor engine is off, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the aerator is resting on the ground or securely blocked up and all hydraulic pressure has been relieved.

Item	Condition at Start of Shift	Specific Comments if not OK		
The Operator's Manual is in the canister				
All safety decals are in place and legible				
The hitch connection pins are properly retained				
There are no cracks in the Hitch				
All frame bolts are in place and tight				
The roller bearings are properly lubricated and retained				
The rollers and aerator points are clear of mud and debris				
The roller attachment bolts are in place and tight.				
The aerator points are properly retained				
The aerator points are in good condition				
The storage stands are in place and in good condition				
The ballast weight is securely retained				
The hydraulic cylinder pins are in place and retained				
There are no leaking or damaged hoses				
There is no evidence of hydraulic leaks				

Operator's Signature:

#### **DO NOT OPERATE an UNSAFE TRACTOR or IMPLEMENT**

CPG/CAR 08/22

#### **PLUGGER PRE-OPERATION INSPECTION**



Plugger ID# \_\_\_\_\_

Date:\_\_\_\_\_

Make: \_\_\_\_\_

Shift:\_\_\_\_\_

AWARNING

Before conducting the inspection, make sure the tractor engine is off, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the aerator is resting on the ground or securely blocked up and all hydraulic pressure has been relieved.

Item	Condition at Start of Shift	Specific Comments if not OK
All safety decals are in place and legible		
The hitch connection pins are properly retained		
There are no cracks in the Hitch		
All frame bolts are in place and tight		
The roller bearings are properly lubricated and retained		
The rollers are clear of mud and debris		
The plugger points are properly retained		
The plugger points are in good condition		
The storage stands are present and in good condition		
The ballast weight is securely retained		

Operator's Signature: \_\_\_\_\_

**DO NOT OPERATE an UNSAFE TRACTOR or IMPLEMENT** 

CPG/CAR 08/22

**Operation Section 4-15** 

#### 7. DRIVING THE TRACTOR AND IMPLEMENT

Start off driving at a slow speed and gradually increase your speed while maintaining complete control of the tractor and unit. Moving slowly at first will also prevent the tractor from rearing up and loss of steering control. The tractor should never be operated at speeds that cannot be safely handled or which will prevent the operator from stopping quickly during an emergency. If the power steering or engine ceases operating, stop the tractor immediately as the tractor will be difficult to control.

Perform turns with the tractor and units at slow speeds to determine how the tractor with an attached blade or rake handles a turn. Determine the safe speed to maintain proper control of the tractor when making turns. When turning with a towed implement, the overall working length of the unit is increased. Allow additional clearance for the units when turning.

To avoid overturns, drive the tractor with care and at safe speeds, especially when operating over rough ground, crossing ditches or slopes, and turning corners. Tractor wheel tread spacing should be increased when working on inclines or rough ground to reduce the possibility of tipping.

Use extreme caution when operating on steep slopes. Keep the tractor in a low gear when going downhill. DO NOT coast or free-wheel downhill. *OPS-U- 0014str* 

#### **8.STARTING THE TRACTOR**

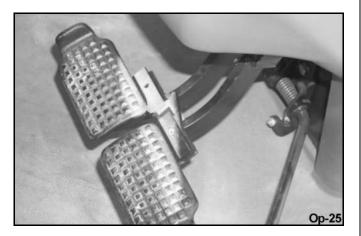
The procedure to start the tractor is model specific. Refer to the tractor operator's manual for starting procedures for your particular tractor. Consult an authorized dealer if the starting procedure is unclear. Ensure the 3-point control lever is in the lowered position and the PTO is disengaged before starting the tractor. OPS-U-0033str



#### 8.1 Brake and Differential Lock Setting

Make sure the tractor brakes are in good operating condition. Tractor brakes can be set to operate independently allowing single rear wheel braking action or locked together to provide simultaneous rear wheel braking. FOR MOST DRIVING AND OPERATING CONDITIONS, THE BRAKE PEDALS SHOULD BE LOCKED TOGETHER TO PROVIDE THE MOST EFFECTIVE BRAKING ACTION.

Always disengage the tractor differential lock when turning. When engaged the differential lock will prevent or limit the tractor from turning. During normal cutting conditions, locking the differential provides no benefit and should not be used.



CPG/CAR 08/22

#### **A**WARNING

Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes. When operating down a hill or on wet or rain slick roads, the braking distance increases. Use extreme care and reduce your speed in these conditions. When operating in traffic, always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy. *OPS-U- 0013 str* 

#### **9.OPERATING THE TRACTOR AND IMPLEMENT**

THE OPERATOR MUST COMPLETELY UNDERSTAND HOW TO OPERATE THE TRACTOR AND IMPLEMENT AND ALL CONTROLS BEFORE ATTEMPTING TO OPERATE.

The operator must read and understand the Safety and Operation Sections of the implement and tractor operator's manuals. These manuals must be read and explained to any operator who cannot read. Never allow someone to operate the implement and tractor without complete operating instructions.

Before starting any operation, the operator must become familiar with the area to be worked in and any obstacles and hazards contained within to ensure safety to the operator, bystanders, and equipment. Special attention should be paid to foreign debris, rough terrain, steep slopes, and passersby and animals in the area. *OPS-U- 0015 str* 

CPG/CAR 08/22

#### 9.1 Operating the Aerator/Plugger

Level the implement from side to side and front to rear using adjustments on the tractor's 3-point lift.

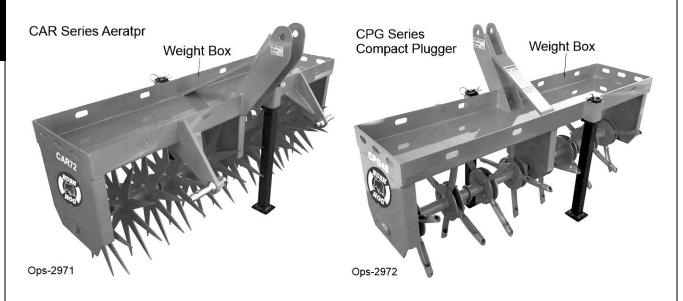
During implement adjustment, keep body, hands and feet clear of spoons or other parts.

#### **AWARNING**

Compact Pluggers and Aerators should be operated when the ground is moist to achieve the best penetration.

The frame can be used as a weight rack (Max 500 lbs.) when conditions require it. Weight may be added to the aerator or plugger frame to aid in penetrating hard soil. Concrete blocks, water jugs or other types of weight may be used as long as nothing extends through the frame and interferes with the rotation of the spoons. **Penetration of 1" to 3" is all that is normally required, but up to 6" is possible.** Aeration is normally done is the spring or fall but is helpful year-round. Make two passes on the lawn or field you wish to aerate.

NEVER make sharp turns while the CAR and CPG is engaged with the ground as that will damage the tines.



The Compact Aerators slicing knives do not disturb the surface while they aerate and hydrate. Knives are also great for controlling thatch

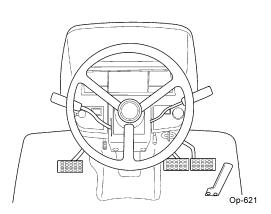
By removing core plugs from the soil, lawns are better able to breathe and hold moisture. Compacted soil and thatch are relieved, allowing air and fertilizer to reach roots.

CPG/CAR 08/22

#### 9.2 Shutting Down the Implement

To shut down the implement, first bring the tractor to a complete stop. To shut down the implement, first bring the tractor to a complete stop.

Park the tractor on a level surface, place the transmission in park or neutral and apply the parking brake, lower the attached implement to the ground, shut down the engine, remove the key, before exiting the tractor.



#### 9.3 Aerator/Plugger Pre-Operation Inspection/Service

Before each use, a complete inspection and service is required to ensure the aerator is in good and safe working condition. Damaged and/or broken parts should be repaired and/or replaced immediately. To ensure the aerator is ready for operation, conduct the following. *OPS-A-0004\_A str* 



Always shut the Tractor completely down, place the transmission in park, and set the parking brake before you or anyone else attempts to connect or disconnect the Implement and Tractor hitches. (S3PT-15) str

Pin parking stand into position and lower the implement to the ground with rockshaft control in position control. Remove top link from mast, disconnect hitch arms from bottom pins and pull tractor away from implement.

#### 10.STORAGE

Properly preparing and storing the plugger at the end of the season is critical to maintaining its appearance and to help ensure years of dependable service. The following are suggested storage procedures:

- Thoroughly clean all debris off the unit to prevent damage from rotting grass and standing water.
- Lubricate all grease points as detailed in the maintenance section.
- Tighten all bolts and pins to the recommended torque.
- Check the unit for worn and damaged parts. Perform repairs and make replacements immediately so that the unit will be ready for use at the start of the next season.
- Store the unit in a clean, dry place resting securely on the level ground.
- Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the unit.



Never allow children to play on or around Tractor or Implement. Children can slip or fall off the Equipment and be killed or injured. Inadvertent contact with controls can cause the Implement to shift or fall crushing themselves or others. (SG-25) str

CPG/CAR 08/22

#### **11. TRANSPORTING THE TRACTOR AND IMPLEMENT**

Inherent hazards of operating the tractor and implement and the possibility of accidents are not left behind when you finish working in an area. Therefore, the operator must employ good judgment and safe operation practices when transporting the tractor and implement between locations. By using good judgment and following safe transport procedures, the possibility of accidents while moving between locations can be substantially minimized. OPS-U- 0017str

#### **12.DRIVING THE TRACTOR AND IMPLEMENT**

Safe tractor transport requires the operator possess a thorough knowledge of the model being operated and precautions to take while driving with an attached implement. Ensure the tractor has the capacity to handle the weight of the implement and the tractor operating controls are set for safe transport. To ensure safety while driving the tractor with an attached implement, review the following. OPS-U- 0012str



This Implement may be wider than the Tractor. Be careful when operating or transporting this equipment to prevent the Implement from running into or striking sign posts, guard rails, concrete abutments or other solid objects. Such an impact could cause the Implement and Tractor to pivot violently resulting in loss of steering control, death, or serious injury. Never allow the Implement to contact obstacles. (S3PT-12)str

#### **A**WARN IN G

Transport only at speeds where you can maintain control of the equipment. Serious accidents and injuries can result from operating this equipment at high speeds. Understand the Tractor and Implement and how it handles



before transporting on streets and highways. Make sure the Tractor steering and brakes are in good condition and operate properly.

Before transporting the Tractor and Implement, determine the proper transport speeds for you and the equipment. Make sure you abide by the following rules:

Test the tractor at a slow speed and increase the speed slowly. Apply the Brakes smoothly to determine the stopping characteristics of the Tractor and Implement. As you increase the speed of the Tractor the stopping distance increases. Determine the maximum transport speed not to exceed 20 mph (30 kph) for transporting this equipment.

Test the equipment at a slow speed in turns. Increase the speed through the turn only after you determine that the equipment can be operated at a higher speed. Use extreme care and reduce your speed when turning sharply to prevent the tractor and implement from turning over. Determine the maximum turning speed for you and this equipment before operating on roads or uneven ground.

Only transport the Tractor and Implement at the speeds which allow you to properly control the equipment.

Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes or worn tires. When operating down a hill or on wet or rain slick roads, the braking distance increases: use extreme care and reduce your speed. When operating in traffic always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy. (SG-19)str



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Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in death or serious injury. (SG-10)str



Before transporting the tractor on a public roadway or boarding a trailer for transport, the tractor brake pedals should be locked together. Locking the pedals ensures that both wheels brake simultaneously while stopping, especially when making an emergency stop.

Use extreme caution and avoid hard applications of the tractor brakes when towing heavy loads at road speeds. Never tow the implement at speeds greater than 20 MPH (32 kph). OPS-U- 0018str



#### 12.1 Transporting on Public Roadways

Extreme caution should be used when transporting the tractor and implement on public roadways. The tractor must be equipped with all required safety warning features including a SMV emblem and flashing warning lights to alert drivers of the tractor's presence. Remember that roadways are primarily designed for automotive drivers and most drivers will not be looking out for you, therefore, you must look out for them. Check your side view mirrors frequently and remember that vehicles will approach quickly because of the tractor's slower speed. Be extremely cautious when the piece of equipment that you are towing is wider than the tractor tire width and/or extends beyond your lane of the road. OPS-BL-0003str

Only tow the Implement behind a properly sized and equipped Tractor which AWARNING exceeds the weight of the Implement by at least 20%. DO NOT tow the Implement behind a truck or other type of vehicle. Never tow the Implement and another Implement connected in tandem. Never tow the Implement at speeds over 20 MPH. (STI-06)str Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in death or serious injury. (SG-10)str Make certain that the "Slow Moving Vehicle" (SMV) sign is installed in A WARNING such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations. (SG-6)str CPG/CAR 08/22 **Operation Section 4-21** 

OPERATION

The SMV (Slow-Moving Vehicle) emblem is universal symbol used to alert drivers of the presence of equipment traveling on roadways at a slow speed. SMV signs are a triangular bright orange with reflective red trim for both easy day and night visibility. Make sure the SMV sign is clean and visible from the rear of the unit before transporting the tractor and implement on a public roadway. Replace the SMV emblem if faded, damaged, or no longer reflective. OPS-U- 0020str



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Make sure that all tractor flashing warning lights, headlights, and brake/tail lights are functioning properly before proceeding onto public roads. While newer model tractors have plenty of lighting to provide warning signals and operating lighting, most older models are only equipped with operating lights. Consult an authorized tractor dealer for lighting kits and modifications available to upgrade the lighting on older tractor models. *OPS-U- 0021str* 



When operating on public roads, have consideration for other road users. Pull to the side of the road occasionally to allow all following traffic to pass. Do not exceed the legal speed limit set in your country for agricultural tractors. Always stay alert when transporting the tractor and implement on public roads. Use caution and reduce speed if other vehicles or pedestrians are in the area.

Reduce speed before turning or applying the brakes. Ensure that both brake pedals are locked together when operating on public roads. *OPS-U-0023 str* 



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**Operation Section 4-22** 

#### 12.2 Hauling the Tractor and Implement

Before transporting a loaded tractor and implement, measure the height and width dimensions and gross weight of the complete loaded unit. Ensure that the load will be in compliance with the legal limits set for the areas that will be traveled through. OPS-U- 0024str



Use adequately sized and rated trailers and equipment to transport the tractor and implement. Consult an authorized dealer to determine the proper equipment required. Using adequately sized chains, heavy duty straps, cables and/or binders, securely tie down both the front and rear of the tractor utilizing the proper tie down locations as specified by the tractor manufacturer. *OPS-U-0025 str* 

Arrange the chains so that when tightened, the chains are pulling downward and against themselves. Carefully tighten the securing chains or other fasteners using boomers or binders to apply maximum tension. Use extreme care when attaching and removing the securing devices as the extreme tension involved when released has the potential to inflict serious injury.

While hauling the tractor and implement, make occasional stops to check that the tractor and implement have not moved or shifted and that the securing chains have maintained tension. If during transport a hard braking, sharp turning, or swerving action was performed, stop at the next safe location to inspect the security of the load. OPS-U-0026str



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### **13. TROUBLESHOOTING GUIDE**

Problem	Possible Cause	Remedy			
	Not enough weight in weight tray.	Add weight to the weight tray.			
	Ground is too hard	Irrigate field or wait for rain fall.			
	Ground Speed is too fast.	Decrease ground speed.			
	Plugger is set too high.	Remove one of more cylinder stops.			
Tillage Depth is Insufficient	Tines are worn or bent.	Replace tines.			
Insuncient	Tines are incorrectly installed.	Check placement of tine cutting edge.			
	Obstacles are entangled in tines and/or rotor.	Clear rotor and/or tines of obstacles.			
	Tractor has insufficient power.	Shift to a lower gear and increase tractor rpm.			
	Soil is too wet.	Wait until soil dries.			
	Rotor is plugged with trash.	Remove trash from rotor.			
Tines Balling up With Soil	Tines are worn or bent.	Replace tines.			
	Tines are incorrectly installed.	Install tines correctly.			
	Tractor speed is too fast.	Decrease tractor speed			
Rotor Will Not Turn	Obstacles are entangled in tines and/or rotor.	Clear rotor and/or tines of obstacles.			
Tulli	Rotor is plugged with trash.	Remove trash from rotor.			
Plugger is Bouncing on the Ground	Obstacles are entangled in tines and/or rotor.	Clear rotor and/or tines.			
Tines Breaking or Bent Sideways	Making too sharp a turn with tines in the ground.	Raise plugger out of the ground to make sharp turns.			
Bending Frame and/or Tines	Operating plugger over concrete, asphalt, tree stumps, rocks, curbs, & other solid objects.	Do not operate plugger over solid objects.			
Plugger Makes Intermittent	Too much weight in weight tray. Do not add more than recommentional weight.				
Clicking Noise	Tines are loose.	Tighten tines.			

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# **MAINTENANCE SECTION**

Maintenance Section 5-1

# MAINTENANCE

Before operating your implement, make sure it is properly lubricated and thoroughly inspected. Only a minimum of time and effort is required to regularly lubricate and maintain this machine to provide long life and trouble-free operation.



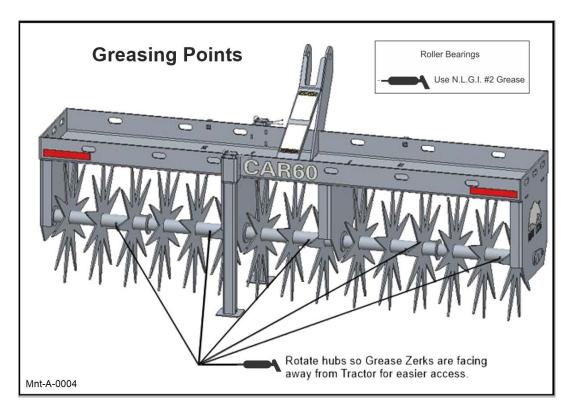
Block up or support machine securely before putting hands or feet under or working underneath lifted components to prevent CRUSHING INJURY or DEATH from sudden, inadvertent dropping. Make certain area is clear before lowering

#### LUBRICATION INFORMATION

Apply NGLI Grade 2 Multi-purpose grease to sleeves on shaft before each use.

Your implement has independent, greaseable hubs that need to be greased before each use to spin freely.

- 1. Locate the 1/4" straight drive grease Zerk on each hub and rotate the bub so the grease Zerk is pointed towards the back (away from the tractor) for easy access.
- 2. With a clean cloth, wipe any dirt or lawn debris off the hub and Zerk that would otherwise block grease from entering the hub.
- 3. Using a grease gun apply an appropriate amount of NGLI Grade 2 Multi-purpose grease or until grease is seen protruding from the hub at either end.



Remove any wrapped debris from around the axle and frame and tighten all other fasteners to specifications given in torque chart before every use.

**A** CAUTION Lower the implement as much as possible and securely support before making any adjustments.

Inspect your implement periodically and replace any worn or broken parts in order to have it ready for use when needed.

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Maintenance Section 5-2

**MAINTENANCE** 

# MAINTENANCE

### **SPOONS**

When spoons become worn, replace one at a time to ensure proper location and assembly.

Store the implement out of the weather when it is not in use. This helps prevent rusting of the spoons and other components.

#### STORAGE

Your implement represents an investment from which you should get the greatest possible benefit. Therefore, when the season is over, the implement should be thoroughly checked and prepared for storage so that a minimum amount of work will be required to put it back into operation for the next season. The following are suggested storage procedures:

- 1. Thoroughly clean the implement.
- 2. Lubricate the implement as covered on Lubrication Information.
- 3. Tighten all bolts and pins to the recommended torque.
- 4. Check the implement for worn or damaged parts. Make replacements immediately.
- 5. Store the implement in a clear, dry place with the implement housing resting on blocks.
- 6. Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the implement.

#### PROPER TORQUE FOR FASTENERS

The chart lists the correct tightening torque for fasteners. When bolts are to be tightened or replaced, refer to this chart to determine the grade of bolts and the proper torque except when specific torque values are assigned in manual text.

RECOMMENDED TORQUE IN FOOT POUNDS UNLESS OTHERWISE STATED IN THE MANUAL\*

NOTE: These values apply to fasteners as received from supplier, dry or when lubricated with normal engine oil. They do not apply if special graphited or molydisulphide greases or other extreme pressure lubricants are used. This applies to both UNF fine and UNC coarse threads.

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Maintenance Section 5-3

# MAINTENANCE

**TORQUE SPECIFICATIONS - DRY TORQUE** 

Bolt Hea	d Markings	WRENCH SIZE (IN.) "A"	(IN.)	DIAMETER ) "B" AND EAD SIZE	SAE GRADE 2	S/ GRA	AE DE 5	SAE GRADE 8
		7/16	1/4	- 20 UNC	6 (7)	8 (	11)	12 (16)
A		7/16	1/4	- 28 UNF	6 (8)	10	(13)	14 (18)
( )	SAE Grade 2	1/2	5/16	i - 18 UNC	11 (15)	17 (	(23)	25 (33)
	(No Dashes)	1/2	5/16	i - 24 UNF	13 (17)	19 (	(26)	27 (37)
	(·····,	9/16	3/8	- 16 UNC	20 (27)	31 (	(42)	44 (60)
		9/16	3/8	- 24 UNF	23 (31)	35 (	(47)	49 (66)
		5/8	7/16	- 14 UNC	32 (43)	49 (	(66)	70 (95)
		5/8	7/16	i - 20 UNF	36 (49)	55 (	(75)	78 (106)
		3/4	1/2	- 13 UNC	49 (66)	76 (	103)	106 (144)
		3/4	1/2	- 20 UNF	55 (75)	85 (	115)	120 (163)
A		7/8	9/16	- 12 UNC	70 (95)	109	(148)	153 (207)
	SAE Grade 5	7/8	9/16	i - 18 UNF	79 (107)	122 (	(165)	172 (233)
	(3 Dashes)	15/16	5/8	- 11 UNC	97 (131)	150 (	(203)	212 (287)
		15/16	5/8	- 18 UNF	110 (149)	170 (	(230)	240 (325)
		1-1/8	3/4	- 10 UNC	144 (195)	266	(360)	376 (509)
		1-1/8	3/4	- 16 UNF	192 (260)	297 (	(402)	420 (569)
	Diameter B	1-5/16	7/8	- 9 UNC	166 (225)	430	(583)	606 (821)
	Diamer	1-5/16	7/8	- 14 UNF	184 (249)	474 (	(642)	668 (905)
1		1-1/2	1	- 8 UNC	250 (339)	644 (	(873)	909 (1232)
	T	1-1/2	1-	12 UNF	274 (371)	705 (	(955)	995 (1348)
rench ze "A"	SAE Grade 8	1-1/2	1-	- 14 UNF	280 (379)	721 (	(977)	1019 (1381)
	(6 Dashes)	1-11/16	1-1/	8 - 7 UNC	354 (480)	795 (	1077)	1288(1745)
4	1	1-11/16	1-1/8	8 - 12 UNF	397 (538)	890 (	1206)	1444 (1957)
	7	1-7/8	1-1/	4 - 7 UNC	500 (678)	1120	(1518)	1817 (2462)
	Bolt Diameter "B"	1-7/8	1-1/4	4 - 12 UNF	553 (749)	1241 (	(1682)	2013 (2728)
	Diamaro	2-1/16	1-3/	8 - 6 UNC	655 (887)	1470 (	(1992)	2382 (3228)
( C) -		2-1/16	1-3/8	3 - 12 UNF	746 (1011)	1672 (	(2266)	2712 (3675)
	N All Capscrews	2-1/4	1-1/	2 - 6 UNC	870 (1179)	1950 (	(2642)	3161 (4283)
	SAE Grade 8	2-1/4	1-1/2	2 - 12 UNF	979 (1327)	2194	(2973)	3557 (4820)
METRIC	Diameter B	-	Recor wrench			Metric faste ot Pounds (N		eters).*
	Diameter		SIZE	DIA.	ASTM	ASTM	ASTM	ASTM
2014	Á X		(mm) "A"	(mm) "B"	4.6	8.8	9.8	10.9
+			8 10	5	1.8 (2.4) 3 (4)		5.1 (6.9) 8.7 (12)	6.5 (8.8) 11.1 (15)
/rench			13	8	7.3 (10)		21.1 (29)	27 (37)
ize "A" 8.8			16	10	14.5 (20)		42 (57)	53 (72)
		0	18	12	25 (34)	74 (100)	73 (99)	93 (126)
T Numbers appearing on bolt heads indicate ASTM class.		s –	21 24	14 16	40 (54) 62 (84)	118 (160) 167 (226)	116 (157) 181 (245)	148 (201) 230 (312)
		-	30	20	122 (165)	325 (440)	101 (240)	449 (608)
			33	22	x/	443 (600)		611 (828)
*Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque values for lubricated fasteners.		or plated	36	24	211 (286)	563 (763)		778 (1054)
		e values	41	27	418 (566)	821 (1112)		1138 (1542
ioi iunioateu iasteli	1010.	7	46	30	418 (566)	1119 (1516)		1547 (2096

MAINTENANCE

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Maintenance Section 5-4

# TO THE OWNER/OPERATOR/DEALER

To keep your implement running efficiently and safely, read your manual thoroughly and follow these directions and the Safety Messages in this Manual. The Table of Contents clearly identifies each section where you can easily find the information you need.

The OCCUPATIONAL SAFETY AND HEALTH ACT (1928.51 Subpart C) makes these minimum safety requirements of tractor operators:

**REQUIRED OF THE OWNER:** 

- 1. Provide a Roll-Over-Protective Structure that meets the requirements of this Standard; and
- 2. Provide Seat belts that meet the requirements of this paragraph of this Standard and SAE J4C; and
- 3. Ensure that each employee uses such Seat belt while the tractor is moving; and
- Ensure that each employee tightens the Seat belt sufficiently to confine the employee to the protectedarea provided by the ROPS

REQUIRED OF THE OPERATOR:

- 1. Securely fasten seat belt if the tractor has a ROPS.
- 2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
- 3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
- 4. Stay off slopes too steep for safe operation.
- 5. Watch where you are going especially at row ends, on roads, and around trees.
- 6. Do not permit others to ride.
- 7. Operate the tractor smoothly no jerky turns, starts, or stops.
- 8. Hitch only to the drawbar and hitch points recommended by the tractor manufacturer.
- 9. When the tractor is stopped, set brakes securely and use park lock, if available.
  - **X** Keep children away from danger all day, every day...
  - **X** Equip tractors with rollover protection (ROPS) and keep all machinery guards in place...
  - **X** Please work, drive, play and live each day with care and concern for your safety and that of your family and fellow citizens.



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