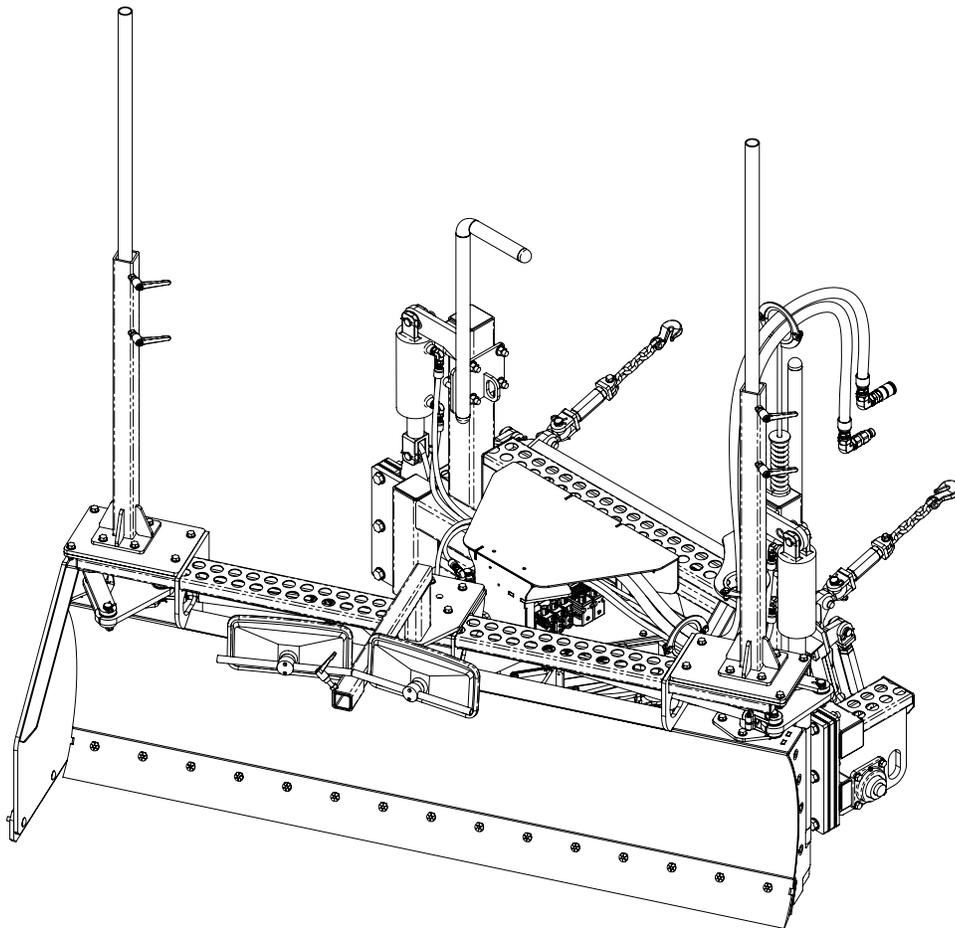


BURCHLAND

LGX

LASER GRADER



OPERATORS MANUAL

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Introduction

1. Introduction

Congratulations on your purchase of your Burchland Manufacturing Grader.

Carefully examine the grader upon receipt. Report any damage immediately to the freight carrier and register any claim.

Read and understand this manual before using the grader and follow all of the safety instructions. Keep this manual with the grader at all times.

Information provided in this manual was current as of the issue date. Burchland Manufacturing, Inc. reserves the right to make design changes without further notice or liability.

This manual explains the operation and routine maintenance of the LGX Laser Grader.

Information furnished in this manual does not include all of the details of design, production, or variations of the equipment. It does not cover all the possible contingencies, which may arise during operation, setup, or maintenance. Should special issues arise, or further information be desired, please contact your Burchland Manufacturing dealer.

The text contained in this manual is for current production models. Some instructions and maintenance procedures may not apply to your specific unit.

Equipment modifications from original design and specifications are strictly prohibited. Modifications or overloading may compromise safe operation of the grader, subjecting users to serious injury or death and may void any remaining warranty.

Burchland Manufacturing reserves the right to change, improve, modify or expand features of this equipment at any time. Specifications, models, or equipment are subject to change without notice, and without incurring any obligations to change, improve or expand features of previously delivered equipment. Because of the variations in optional equipment and continued design improvement, certain information contained within this manual may not apply.

This operators manual does not replace, nor does its use release the owner/operator from observing all safety codes or operating limitations as well as any applicable federal, state, provincial or local regulations.

The grader is designed to be used by experienced operators, trained in the safe operation of a skidsteer and trained in the hazards related to using the grader and the safe use of the grader for the intended purpose.

Serious injury or death of the operator or bystanders may be caused if the grader is misused. Misuse may also cause damage to the skidsteer carrying the grader, or the grader itself.

2. Safety

Before setting up, operating or servicing the LGX Grader, you must read, understand and follow the instructions and safety warnings in this manual. Your machine may not be equipped with some of the optional equipment described in this manual.

If you have any safety concerns or questions that are not covered by this manual, please contact your Burchland Manufacturing dealer.

The safety information in this manual is denoted by the safety alert symbol:  This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

The level of risk is indicated by the following signal words:

DANGER

Indicates a hazardous condition that will result in serious injury or death if not performed appropriately.

WARNING

Indicates a hazardous condition that could result in serious injury or death if not performed appropriately.

CAUTION

Indicates a hazardous condition that could result in serious injury if not performed appropriately.

NOTICE

Indicates a situation that could result in damage to the machine or other property.

2.1 OPERATION HAZARDS

The following hazards are possible during the operation of the grader. All operators, maintenance and service personal, or any one working with or near the grader must be familiar with all hazards.

WARNING

Do not operate this grader until you read and understand this manual.

WARNING

Do not operate, work on or around grader while under the influence of alcohol, prescription or nonprescription medication, or if feeling ill.

WARNING

Entanglement hazard.

Do not wear loose fitting clothing.

Loose fitting clothing and long hair can become entangled in moving or rotating parts. Keep all personnel clear of moving parts when engine is running or about to be started.

Long hair must be tied back or netted.

Keep clear of moving components.

Never operate machine with open or missing guards or shields.

WARNING

Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.

Use body and face protection while searching for leaks. A tiny, almost invisible leak can penetrate the skin, thereby requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never use your hands.

WARNING

Crush hazard.

A raised grader can fall, resulting in death or serious injury.

Never enter the area under a raised grader.

WARNING

Moving parts can crush and dismember.

Do not operate without guards and shields in place.

Disconnect and lockout power source before adjusting or servicing.

Do not operate this grader until you read and understand this manual.

⚠ WARNING

Wear personal protective equipment appropriate for the job.

⚠ WARNING

Cancer and reproductive harm.

For more information go to www.P65Warnings.ca.gov.

Carefully read all safety messages in this manual and on equipment safety signs. Keep safety signs in good condition and replace missing or damaged safety signs.

New equipment components and repair parts must include the current safety decal.

Learn how to properly operate equipment.

Never operate or work around this equipment without proper instruction, while fatigued or under the influence of alcohol, prescription or nonprescription medication, or if feeling ill.

Keep your equipment in proper working condition. Know the regulations and laws that apply to you and your industry. This manual is not to replace any regulations or laws. Additional information may be found at: www.asae.org or www.osha.gov. If you do not understand any part of this manual, contact your Burchland Manufacturing dealer.

2.1.1 Replace Safety Signs

Replace missing or damaged safety signs. Safety signs are identified in this manual. Replacement safety signs are available from your Burchland Manufacturing dealer.

2.1.2 Do Not Allow Riders

Never lift or carry anyone on the grader. Never use the grader as a work platform. Never allow riders on the grader.

2.1.3 Hazards From Modifying Equipment

Do not make any alterations to the grader. Altering the grader may cause unsafe conditions and may void the manufacturer's warranty. Always use Burchland Manufacturing replacement parts.

2.2 MAINTENANCE HAZARDS

The following maintenance and service hazards are additional to those found while operating the grader. All operators, maintenance and service personal, or any one working with or near the grader must be familiar with these hazards. If you do not understand any part of this manual, contact your Burchland Manufacturing dealer.

After performing inspections, service or maintenance, reinstall all guards and verify all safety devices are functional.

Wear personal protective equipment appropriate for the job.

Always use Burchland Manufacturing replacement parts. Not using Burchland Manufacturing parts may cause harm to personnel and may void the warranty.

2.2.1 Lockout/Tagout

⚠ WARNING

Entanglement and crush hazard.

Keep all personnel clear of all moving components.

Verify all guards are in place.

Follow lockout/tagout procedure before performing service, inspections or maintenance.

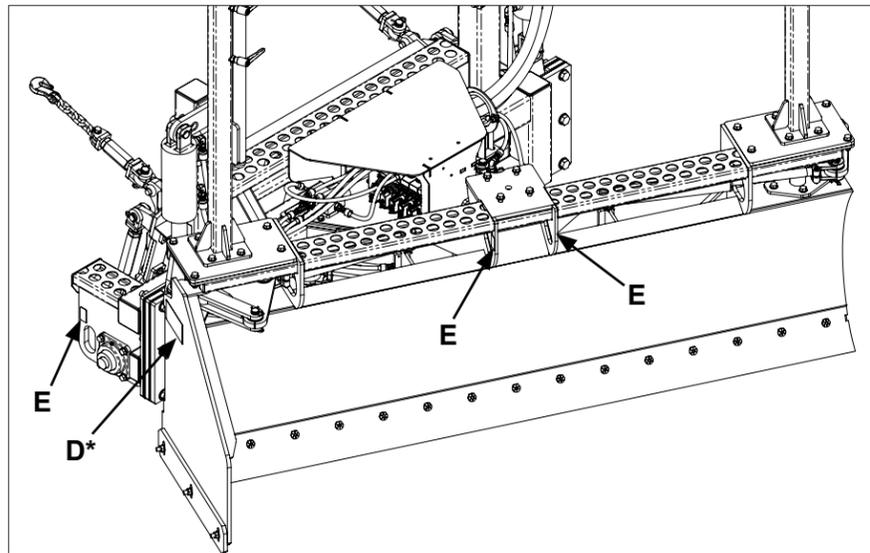
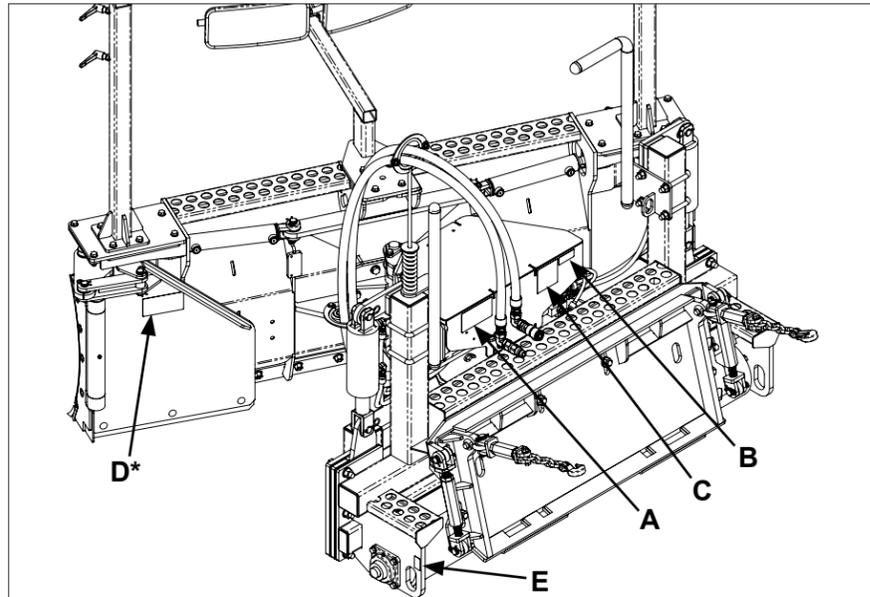
Before performing service or maintenance:

- If grader is connected to skid steer:
 1. Park on a firm and level surface.
 2. Lower grader to ground.
 3. Set parking brake.
 4. Stop engine and remove key.
 5. Place a Do Not Operate tag on control panel.
- If grader is not connected to skid steer:
 - Verify grader is on a firm and level surface.

2.3 SAFETY DECALS

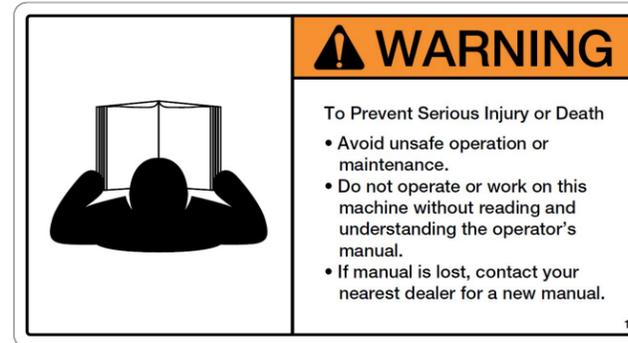
Safety decals are located on the machine to identify both operational and maintenance hazards. These safety decals are placed according to the hazard in that area of the machine. Read and understand each of the safety decals and the hazard it references. These safety messages are additional information to the safety content already described in this section of the operators manual.

All safety decals must be legible at all times. Keep them clean by using soap and water, avoid using harsh chemicals or pressure washing. If the safety decal is no longer legible, replace it with a new one. Contact your Burchland Manufacturing dealer for new decals. The part number of the decal is located on the decal and on the images of the safety decals that follow.



* Decal is on both sides of wing end plates.

Decal A - 11187



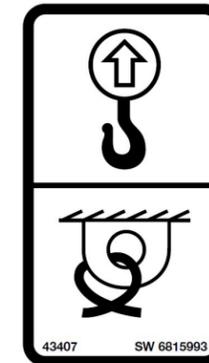
Decal D - 12740



Decal B - 7353642



Decal E - 6815993



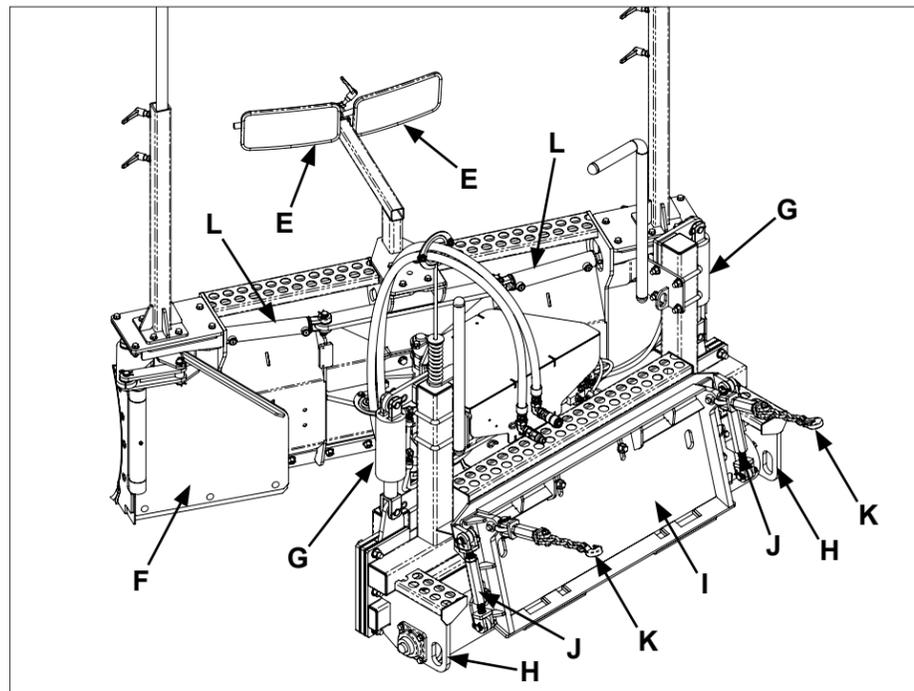
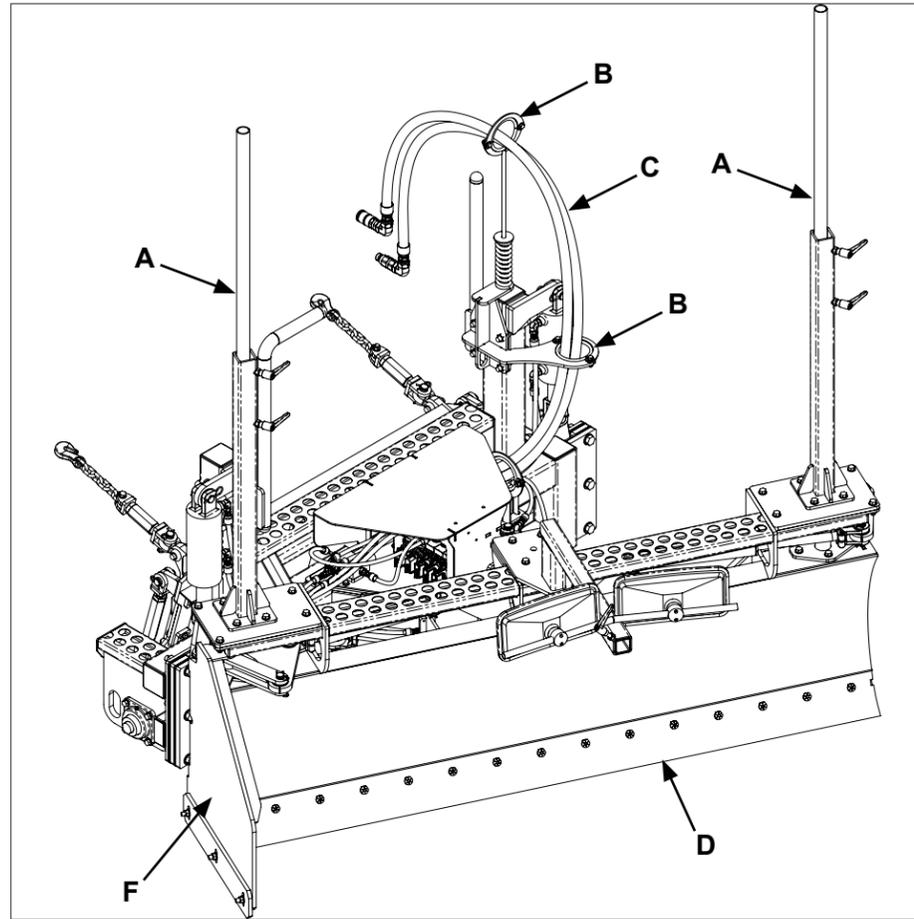
Decal C - 11190



Components

3. Components

- A. Laser Masts
- B. Hydraulic Hose Holder
- C. Hydraulic Hoses
- D. Grader Blade
- E. Mirrors
- F. Wing End Plates
- G. Lift Cylinder
- H. Tiedown Points
- I. Receiver Plate
- J. Receiver Plate Turnbuckles
- K. Tilt Lock Turnbuckle Chains
- L. Wing Cylinders

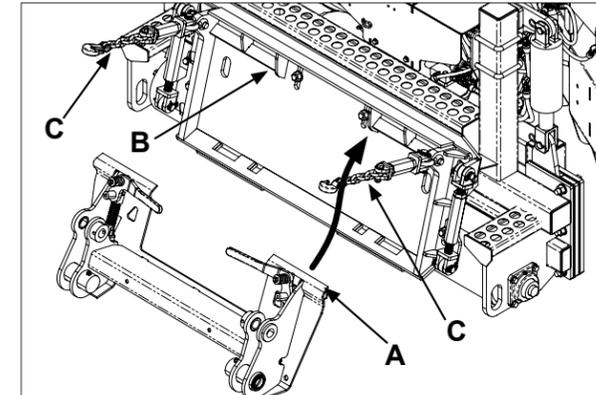


Attach And Detach

4. Attach And Detach

4.1 ATTACH SKID STEER TO GRADER

1. Verify the mount plate and receiver plate are free of any dirt or debris and that the locking mechanism pins rotate freely. Lubricate locking mechanism if necessary.
2. Tilt skid steer mount plate (A) forward.
3. Position mount plate into the upper lip (B) of the receiver plate.



4. Raise skid steer loader arms slightly while tilting mount plate back at the same time. The grader should be raised and the mount plate (A) tilted far enough back to clear the ground.

WARNING

Crush hazard.

If locking mechanism pins are not fully seated, the grader could fall off of the skid steer, crushing you or bystanders.

Locking mechanism pins must be fully seated through the grader receiver plate.

5. Engage the locking mechanism pins. Verify pins are fully seated through the receiver plate.
6. Tilt grader back slightly and stop skid steer engine.
7. Connect the turnbuckle chains (C) to the skid steer boom, both sides.

To set the turnbuckles, park the skid steer on a flat, concrete surface. Lower the boom all the way down. Adjust the length of the turnbuckles and/or chains, so the grader is relatively flat or parallel with the ground when the chains are tight.

Make sure all operators are aware of the chains. The turnbuckle chains limit the bucket tilt cylinders from drifting during operation. If the skid steer boom does not have mounting points, contact your Burchland Manufacturing dealer for turnbuckle mounting locations.

Attach And Detach

NOTICE

Avoid trying to overpower the turnbuckle chains with the skid steer bucket tilt cylinders.

This could result in damage to the skid steer or grader.

Once the chains are tight the operator should not adjust the bucket tilt forward.

⚠ WARNING

Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.

Use body and face protection while searching for leaks. A tiny, almost invisible leak can penetrate the skin, thereby requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never use your hands.

8. Connect hydraulic hoses and electrical connector. Confirm hydraulic connections are secure by pulling on the hoses.

4.2 DETACH SKID STEER FROM GRADER

1. Lower grader on to a flat level surface.
2. Tilt grader back slightly and disconnect turnbuckle chains from skid steer.
3. Return grader to a level position on the flat surface.
4. Stop skid steer engine and relieve hydraulic pressure.
5. Disconnect hydraulic hoses and electrical connector.
6. Disengage locking mechanism pins.
7. Tilt skid steer mount plate forward and back skid steer away from the grader.

Operation

5. Operation

5.1 DAILY INSPECTIONS

Thoroughly inspect the grader before each operation.

Verify all safety signs are in place and clearly visible.

Visually inspect the grader before each start up. Check for loose or missing parts and any damage that may have occurred during moving or shipping.

Review all skid steer pre-start instructions and verify that all recommended steps and procedures have been followed.

5.2 TRANSPORTING

⚠ WARNING

Prevent death or serious injury.

Keep grader close to the ground. Operation with a raised grader may result in skid steer rollover.

1. Verify hydraulics to grader are disengaged.
2. Raise grader slightly off the ground.
3. Travel at a reasonable and safe speed.

5.3 OPERATING GRADER

⚠ WARNING

Prevent death or serious injury.

Keep shields and guards in place at all times. Do not operate without shields and guards.

Keep bystanders away.

NOTICE

Avoid trying to overpower the turnbuckle chains with the skid steer bucket tilt cylinders.

This could result in damage to the skid steer or grader.

Once the chains are tight the operator should not adjust the bucket tilt forward.

Operation

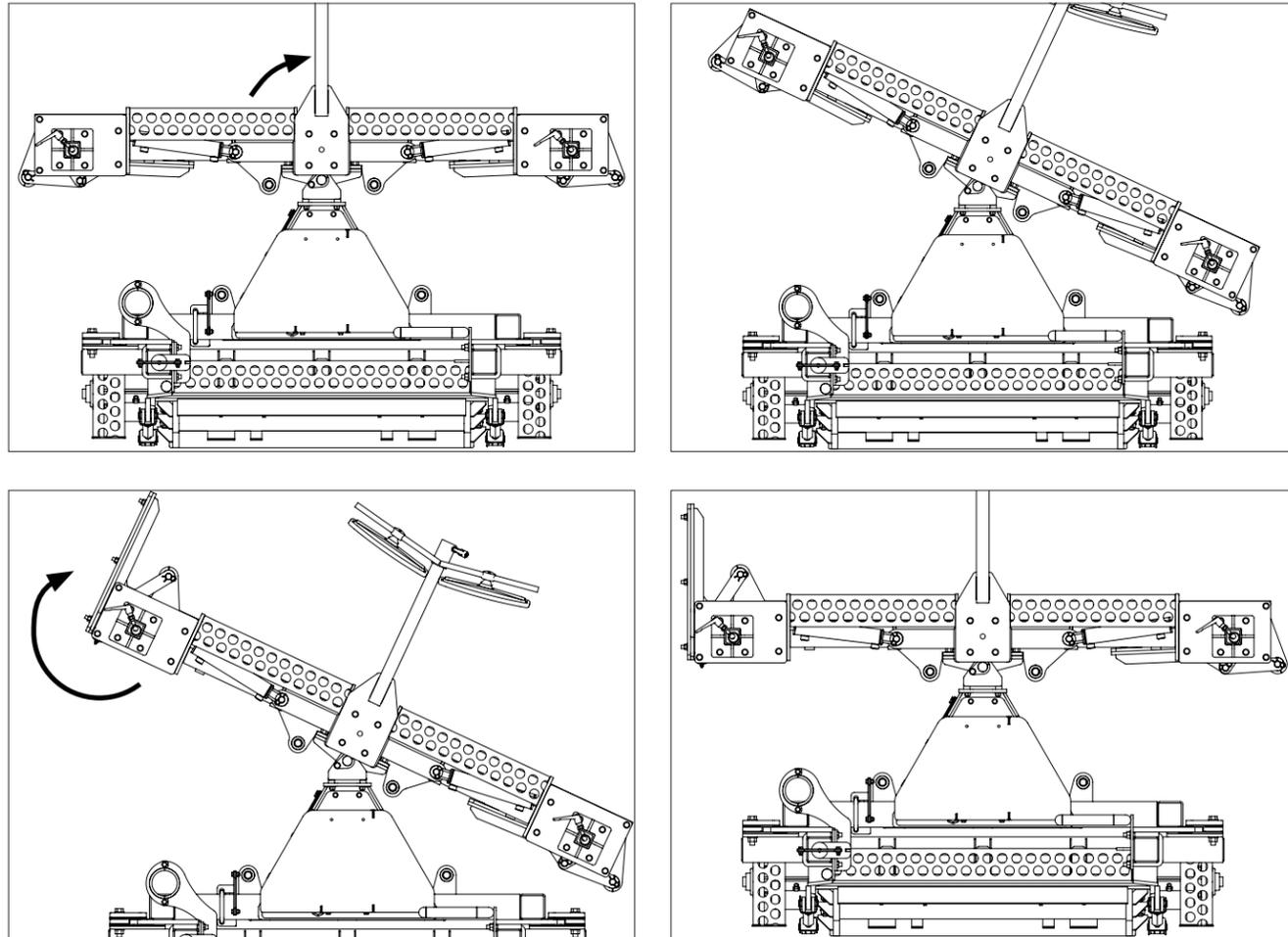
1. Attach grader to skidsteer.
2. Setup auto grading system See auto grading system suppliers information.
3. Set skid steer engine speed to low idle and engage hydraulics to grader.
4. Slowly increase engine speed to operating speed.

NOTICE

Prevent damage to the grader.

Avoid moving the wing end plates without first angling the blade away from the wing.

To move the left wing out, angle the blade to the right, see below. Then, swing left wing into position, and realign blade angle.



Repeat these steps vice versa to move the right wing out.

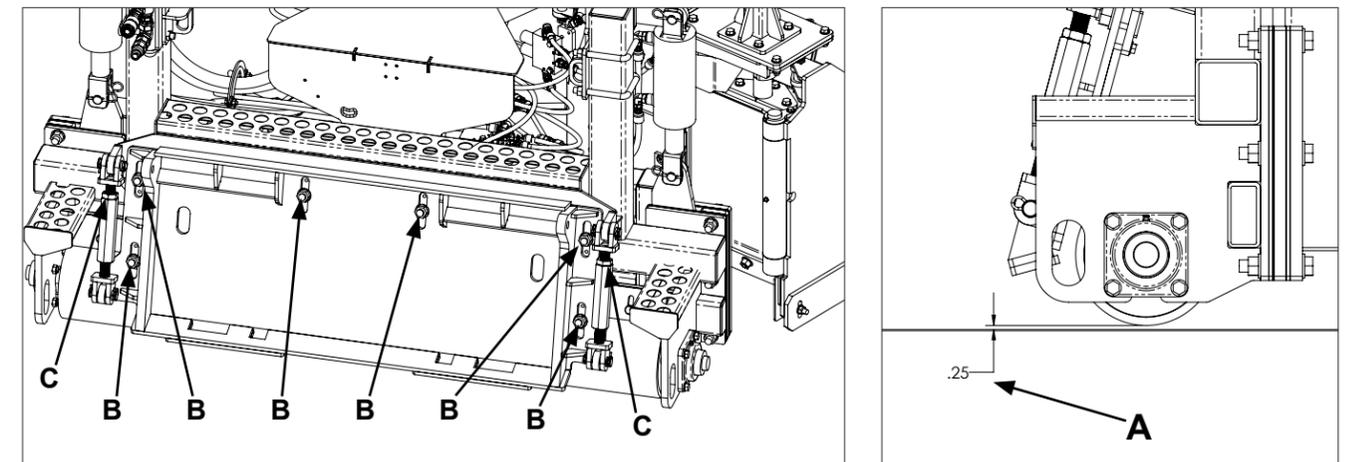
Operation

5.4 ADJUSTING RECEIVER PLATE

The receiver plate on the grader is designed to allow the operator to lower the boom all the way down during normal operation and get a constant pressure from the stabilizing roller.

To adjust the height of the roller from the ground.

1. Attach grader to skidsteer.
2. Lower grader on to a flat level surface, with the skid steer boom all the way down.
3. Adjust bucket tilt until grader is relatively flat or parallel with the ground.
4. Measure the distance between the bottom of the roller and the ground (A).
5. If the roller is not at the desired height, detach the grader from the skid steer.
6. Loosen the six bolts (B), but do not remove them.
7. Loosen the two locking nuts (C) on the turnbuckles.
8. Adjust the length of the turnbuckles to move the receiver plate into the desired position.
9. Tighten the locking nuts (C) on the two turnbuckles, and tighten the six bolts (B).
10. Recheck the height of the roller from the ground.



6. Maintenance

⚠ WARNING

Prevent death or serious injury.

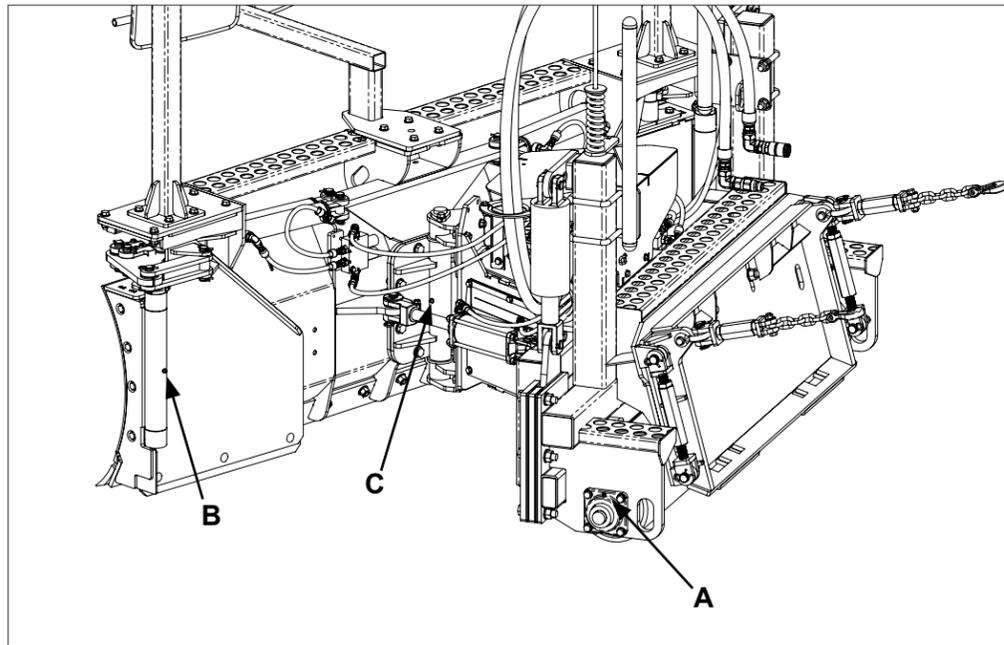
Do not perform service or maintenance until grader has been lowered to the ground and lockout/tagout safety precautions have been implemented.

Make sure to follow your company's lockout/tagout procedures.

6.1 LUBRICATE BEARINGS AND BUSHINGS

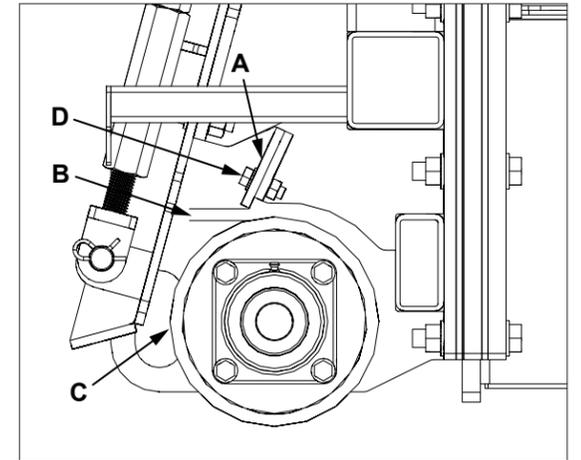
Grease bearings and bushings with general purpose grease every eight operating hours and immediately after every washing.

Clean grease fittings with a rag. Connect a grease gun to each fitting and pump grease into the fittings until grease begins to appear around bearing seals. Roller has one grease fitting (A) on left and right hand side. Wing end plate bushings have one grease fitting (B) on left and right hand side. Blade pivot bushings have one grease fitting (C) in middle.



6.2 ROLLER SCRAPER

Scraper (A) should be 1/8 in. (3.2 mm) (B) from the roller (C). If adjustment is required, loosen mounting hardware (D) and adjust scraper as needed. Tighten mounting hardware.



6.3 REPLACE GRADER BLADE

⚠ WARNING

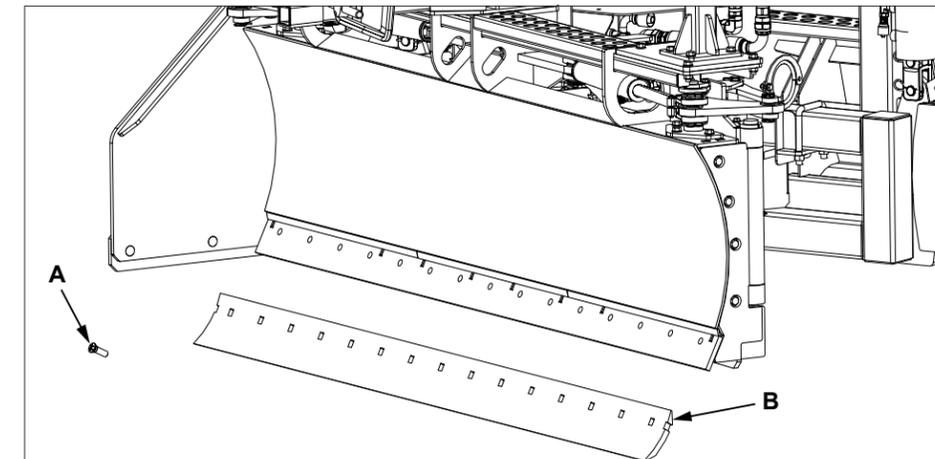
Prevent death or serious injury.

Grader blade weight is approximately:

- 7 ft (2.1 m) blade - 75 lbs (34 kg).
- 7.5 ft (2.3 m) blade - 80 lbs (36 kg).
- 8 ft (2.5 m) blade - 85 lbs (39 kg).

Plan a safe handling procedure before removing and installing grader blade.

1. Remove bolts (A), washers and nuts.
2. Remove grader blade (B).



3. Install replacement grader blade (B), install bolts (A), nuts and washers. Tighten nuts.

Warranty

7. Warranty

LIMITED WARRANTY FOR NEW BURCHLAND MFG. EQUIPMENT

The manufacturer warrants to the original retail purchaser that this product is free from defects in material and workmanship and agrees to repair or replace, at manufacturer's discretion, any defective product free of charge within 2 years from the date of purchase.

This warranty is not transferable and does not cover damage resulting from defects other than in material or workmanship, or damage caused by unreasonable use, including the failure to provide reasonable and necessary maintenance. Also, the warranty obligations do not apply to conditions resulting from misuse, alteration or accident. In addition, this warranty does not cover replacement of parts that may wear and need to be replaced with reasonable use within the warranty period or which may require replacement in connection with normal maintenance. This Warranty terminates once the Product has been altered or repaired by others without Burchland's express written consent.

SAVE YOUR SALES SLIP

Proof of purchase in the form of your dated sales receipt, cash register slip, etc. showing the serial number and the model of your product will be required before our dealers can perform warranty service on the product. You must at your own expense, arrange to deliver or ship the product for warranty repairs and arrange for pickup or return of the product after repairs have been made.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR OTHERWISE, SHALL BE EXCLUDED AND HEREBY DISCLAIMED. THE MANUFACTURER SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF PROFITS LOSS OF PRODUCTION OR ANY DELAY ARISING IN CONNECTION WITH THE INABILITY TO USE THE PRODUCTS.

HOW TO OBTAIN WARRANTY SERVICE

Warranty service can be obtained from a Burchland dealer authorized to make warranty repairs. If you need warranty service, check first with the dealer from whom you purchased the product. The manufacturer will not make any reimbursements for warranty service, except to Burchland dealers authorized to make warranty repairs. You must present your sales receipt when making any claim for warranty service.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. If you have any questions regarding your warranty rights and responsibilities, you should contact your Burchland dealer or Burchland Mfg. Inc. at 641-498-2063.

Appendix

8. Appendix

8.1 BOLT TIGHTENING TORQUE VALUES

Torque Values Chart - Plated Hardware				
Grade 8 (6 marks) 				
Diameter	Coarse		Fine	
	ft-lb	N-m	ft-lb	N-m
1/4"	9	12	10	13
5/16"	18	24	20	27
3/8"	33	44	37	50
7/16"	52	70	58	78
1/2"	80	108	90	122
9/16"	115	156	130	176
5/8"	160	217	180	244
3/4"	280	379	315	427
7/8"	450	610	500	678
1"	675	915	750	1016
1-1/8"	960	1301	1075	1457
1-1/4"	1360	1844	1500	2033
1-3/8"	1780	2413	2030	2752
1-1/2"	2307	3127	2670	3620

8.2 GRADER HYDRAULIC SCHEMATIC

