Pre-Delivery Manual
MC5109, 5111, 5313 & 5315
Max-Chisel

Read the operator’s manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

Illustrations may show optional equipment not supplied with standard unit.

ORIGINAL INSTRUCTIONS

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Printed 2020-02-20
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Printed in the United States of America

2020-02-20 566-242Q
Important Safety Information

Look for Safety Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of 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 equipment.

Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Use Adequate Lifting Means

The frame sections and gangs of this machine are extremely heavy. If using multiple lifters, make sure each is rated for at least its share of the load.

Prepare for Emergencies

▲ Be prepared if a fire starts
▲ Keep a first aid kit and fire extinguisher handy.
▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.
Be Familiar with Safety Decals

▲ Read and understand the “Safety Decals” section of the Operators Manual.
▲ Read all instructions noted on the decals.
▲ Keep decals clean. Replace damaged, faded and illegible decals.

Wear Protective Equipment

▲ Wear protective clothing and equipment.
▲ Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
▲ Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection such as earmuffs or earplugs.
▲ Because operating equipment safely requires your full attention, avoid wearing entertainment headphones while operating machinery.

Avoid High Pressure Fluids

Escaping fluid under pressure can penetrate the skin, causing serious injury.
▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines.
▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
▲ If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.

Use Safety Lights and Devices

Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
▲ Use flashing warning lights and turn signals whenever driving on public roads.

Use lights and devices provided with implement

Keep Riders Off Machinery

Riders obstruct the operator’s view. Riders could be struck by foreign objects or thrown from the machine.
▲ Never allow children to operate equipment.
▲ Keep all bystanders away from machine during operation.

Shutdown and Storage

▲ Lower implement, put tractor in park, turn off engine, and remove the key.
▲ Secure Max-Chisel using blocks and supports provided.
▲ Detach and store Max-Chisel in an area where children normally do not play.
Tire Safety

Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.

▲ When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.

▲ When removing and installing wheels, use wheel-handling equipment adequate for weight involved.

Safety At All Times

Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.

▲ Be familiar with all machine functions.
▲ Operate machinery from the driver’s seat only.
▲ Do not leave machine unattended with tractor engine running.
▲ Do not stand between the tractor and machine during hitching.
▲ Keep hands, feet and clothing away from power-driven parts.
▲ Wear snug-fitting clothing to avoid entanglement with moving parts.
▲ Watch out for wires, trees, etc., when folding and raising machine. Make sure all persons are clear of working area.
Introduction

The Max-Chisel has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance, and safe operating practices will help the customer get years of satisfactory use from the machine.

Description of Unit

The MC5109-5315 Max-Chisel is a one or three-section “vertical” tillage tool. Working width ranges from 11’ 6” to 19. The implement is designed to cut, size and bury residue. It can work up to 11” deep, the blades will dislodge rootballs while mixing and incorporating residue in the top 4-5” of soil chopping in to accelerate the decaying process, leaving the field smooth enough for “one pass” finishing in Spring. For optimum leveling of your machine, it should be equipped with either a Chopper Reel or Buster Bar attachment.

Models Covered

<table>
<thead>
<tr>
<th>Model</th>
<th>Width</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC5109</td>
<td>11-Foot</td>
<td>1-section</td>
</tr>
<tr>
<td>MC5111</td>
<td>14-Foot</td>
<td>1-section</td>
</tr>
<tr>
<td>MC5313</td>
<td>16-Foot</td>
<td>3-section</td>
</tr>
<tr>
<td>MC5315</td>
<td>19-Foot</td>
<td>3-section</td>
</tr>
</tbody>
</table>

Document Family

- 566-242Q-ENG Assembly Manual
- 566-242Q Pre-Delivery Manual (this document)
- 566-242M Operator Manual
- 566-242P Parts Manual

Tools Required

- Basic Hand Tools
- Torque Wrench
- Fork Truck, Overhead Hoist or Loader

Pre-assembly Checklist

- Before assembling, read and understand “Important Safety Information” in front part of this manual.
- Have at least two people on hand while assembling.
- Make sure area is level and free of obstructions (preferably an open concrete area).
- Have all major components
- Have all fasteners and pins shipped with machine.
Using This Manual

This manual was written to help you assemble and prepare the new machine for the customer. The manual includes instructions for assembly and setup. Read this manual and follow the recommendations for safe, efficient and proper assembly and setup.

An operator’s and parts manual is also provided with the new machine. Read and understand “Important Safety Information” and “Operating Instructions” in the operator’s manual before assembling the machine. Refer to the parts manual for proper part’s identification. As a reference, keep the operator’s and part’s manual on hand while assembling.

The information in this manual is current at printing. Some parts may change to assure top performance.

Definitions

The following terms are used throughout this manual.

NOTICE

A crucial point of information related to the preceding topic. Read and follow the directions to remain safe, avoid serious damage to equipment and ensure desired field results.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated. An orientation rose in some line art illustrations shows the directions of: Up, Back, Left, Down, Front, Right.
Shipping

The Max-Chisel will be shipped pre-assembled as shown.

Refer to Figure 3

- The Max-Chisel will be shipped with shipping stands and u-bolts that will not need to be returned to Great Plains.
- Wings (if equipped) will be stacked and will need to be attached to the center frame after unloading.
- Finishing attachments (if equipped), will be pre-assembled, shipped stacked with the center frames, and, or banded to pallet
- Some shank mount assemblies will be attached to frames in proper locations, others will need to be installed.
- Shank assemblies will be shipped in a box on a pallet, and tips may need to be installed.

Refer to Figure 4.

- Gang frames will be pre-assembled and stacked together on shipping stands.
- Some shank mount assemblies will be attached to frames in proper locations, others will need to be installed.
- Shank assemblies will be shipped in a box on a pallet, and may need tips installed.
- Chopper/ML Roller Attachments will be shipped partially assembled. They will be banded to pallets or in crates.
Unloading

Be sure the truck is on level ground, preferably concrete. 

Centering components:
The Max Chisel is very heavy, be sure to use 2, 8000# forks trucks to unload machine. Be sure to center fork truck or chains (overhead hoist) on components so they won’t slide and cause injury.

Unload Smaller Items First

Unloading the Max-Chisel is a potentially dangerous operation.
Reduce risk and complications by first unloading
1. the gang frames and finishing attachments
2. the misc. boxes
3. the Max-Chisel (described in the next section)

Unload Max-Chisel

4. Place smaller components well out of the maneuvering area needed for unloading the Max-Chisel.
5. Double-check that all chains and tie-down straps have been released and stowed.
6. Set parking brake on trailer tractor.
7. Slowly lift the Max-Chisel off trailer bed using two fork lifts.
8. Stop lifting about 12” above the bed.
9. Have the truck driver slowly pull the trailer straight out from under the Max-Chisel.
10. Making sure to keep level from front to back and side to side, slowly lower the Max-Chisel.
11. Lower the Max-Chisel to the ground, DO NOT remove the shipping stands.
12. Unstack the Chopper attachment, hitch, level bar, and center frame.

Unpacking Boxes

Position boxes in area that you can maneuver components up to machine to assembly.
13. Carefully remove banding from boxes.
14. Carefully remove any banding from attachments or where items are secured on frame components.
15. Locate and identify all components before assembling.

Further Assistance

Great Plains Manufacturing, Inc. wants you to be satisfied with your new Max-Chisel. If for any reason you do not understand any part of this manual or are otherwise dissatisfied with the product please contact:

Great Plains Service Department
1525 E. North St.
PO Box 5060
Salina, KS 67402-5060

Or go to www.greatplainsag.com and follow the contact information at the bottom of your screen for our service department.
Assembly

Gang Frames

Refer to Figure 5

16. Carefully move the gang frames 10, & 11 into place in front of the center section.

17. Bolt the gang frames together using, 5/8 x 2 1/2 Gr. 5 hex bolt 12, lock washers and hex nuts.

18. Locate the 5109/11 Center Cylinder Lift Bracket 13, and install it onto the front of the gang frames using 1 1/4 x 6 3/4 hardened pin 14, 1/2 x 2 5/8 Gr. 8 special thread bolt 15, and top lock.

19. Install both rear sub frame lift brackets 16 onto the rear of the gang frames using 1 1/4 x 6 3/4 hardened pins 14, 1/2 x 2 5/8 Gr. 8 special thread bolts 15, and top locks.

20. Attach hydraulic cylinders 17, to the 5109/11 Center Cylinder Lift Bracket 13, with clevis pin, washer, and cotter pin.

Be sure to connect hydraulic cylinders to 5109/11 Center Cylinder Lift Bracket, before installing lift straps.

Trusses & Brace Bars

Refer to Figure 6

22. With the gang frames in place and the rear section of the center frame, shipping stands still attached, setting on the ground attach the left and right frame trusses (18), using $1\frac{1}{4} \times 8\frac{1}{2}$ Gr. 8 Special Thread Bolt (19), lock washers and hex nuts, to the rear section of the frame.

23. Bolt the truss cross braces (20), to the inside of the center trusses (18), using $\frac{5}{8} \times 2$ Gr. 5 bolts (20), lock washers and hex nuts.

24. Using $\frac{5}{8} \times 2$ Gr. 5 bolts (20), lock washers and hex nuts, install the left (22) and right (23) brace bars to the center trusses.

25. Secure the 5109/11 Center Cylinder Lift Bracket (24), and the rear sub frame lift brackets (25) to the left and right center frame brace bars (22) & (23) using $1\frac{1}{4} \times 6\frac{3}{4}$ hardened pins (26), $\frac{1}{2} \times 2\frac{5}{8}$ Gr. 8 special thread bolts (27), and top locks.

26. Bolts may be tightened to specs, See “Torque Values Chart” on page 21.
Lift Straps

Refer to Figure 7

Be sure to connect hydraulic cylinders to the 5109/11 Center Cylinder Lift Bracket, before installing lift straps.

27. Attach the left gang frame lift strap ①, & strap ②, to the rear sub frame lift brackets ③ and the 5109/11 Center Cylinder Lift Bracket ④ using 1 x 7\(\frac{3}{4}\) Gr. 8 Special Thread Bolt ⑤ and top lock nuts. Repeat this for the right side.

28. Now the hydraulic cylinders ⑥ may be attached to the left and right center frame brace bars ⑦ using clevis pin, washer, and cotter pin.

29. Bolts may be tightened to specs, See “Torque Values Chart” on page 21.

![Figure 7](image-url)
Hitch & Level Bar Assembly

Refer to Figure 8

30. Attach hitch assembly (10) to front of trusses (11) with 1\1/4 x 8 Gr. 8 hex bolts (12), 1\1/4 flat washers (13) and 1\1/4 lock nuts. Be sure to insert the two 1\1/4 flat washers (13) (one on each side of hitch uni-ball) to ensure tight fit. Bolts need to be tightened securely, but do not torque as the hitch needs to pivot.

31. Slide the level bar assembly (14) into place. On folding models slide the level bar assembly (14) under fold cylinders (as this will be attached to the leveling h-bracket as shown).

32. The leveling h-bracket (15) will be installed on the center frame. Use 1 x 4 Gr. 8 special thread hex bolts (16), top lock, and nuts to secure the level bar assembly to the leveling h-bracket (15).

33. Attach the level bar spring rod (17), to the level bar assembly (14) with 3/4 x 1\1/2 Gr. 8 hex bolts (18), lock washers and hex nuts.

34. With the level bar spring rod in place, remove the 1\1/2 jam nut (19), 1\1/2 hex nut (20), spring guide (21) and front half of compression spring (22). Slide the h-bracket (23) onto the level bar spring rod (17), and reinstall spring (22), spring guide (21), hex nut (20) and jam nut (19).

35. Install the h-bracket (23), to the rear of the hitch using 1 x 7 Gr 8 hex bolt (24), and top lock nut, do not torque as this needs to pivot. Connect the hitch turnbuckle (25) (with the turnbuckle lock in place) to the h-bracket with 1\1/4 x 8\1/2 Gr. 8 Special Thread bolt (26), and top lock. Use a 1 x 3.63 clevis pin (27), washer and cotter pin to connect the turnbuckle to the hitch.

36. The Level Bar Spring nuts should be tightened so that the dimension from the spring guide to the back of the level bar is 28\1/4\" (see illustration inset.)

Tongue jack may be adjusted up or down to get holes to align up to install pin through the turnbuckle.

37. Tighten all bolts securely but do not torque as the level bar assembly needs to pivot.
Hydraulic Hose Assembly

- See hydraulic layout section in Appendix for complete hose layout and follow the steps to connect hoses.
- Once the trusses and hitch are installed, the hydraulics may be hooked up. All models will be shipped with hoses attached to hitch. The hoses will be capped off and will need to be hooked up to fittings. The hose ends and fittings will be marked with color ties and will need to be hooked up with matching colors. Be sure to get the hoses hooked correctly or hydraulics will not work correctly. Refer to hydraulics in parts manual for hydraulic layouts.

Hydraulic Valve Bracket

Refer to Figure 9

- The hydraulic valve bracket will be installed in place on the front of the center frame, but will need to be reoriented so it hangs down.

38. Remove the hydraulic valve bracket (1), & reorient it so that it hangs down from the center frame mounting plate (2), reinstall the 3/4 x 2 Gr. 5 hex bolt (3), lock washer and hex nut. The double hydraulic tee block (4), and the lock valve (5), will already be installed on the bracket.

39. The hydraulic lift and gang frame hoses that are routed from the hitch will need to be hooked to the correct valves.

40. See “MC5109-MC5315 Hydraulic Lift Layout” on page 23 for hose routing and hook up.
Install Depth Control Valve and O-Ring Fittings

Refer to Figure 10

Some hydraulic hoses will already be routed and installed. The following procedure is for any hoses that have not been connected, or have needed repair.

41. Inspect all components for damage or contamination during shipping.

42. Lubricate o-ring and threads on fitting.

43. Thread straight (non-adjustable stud) fittings into ports finger tight.

44. Thread elbow (adjustable stud) fitting into side port of depth stop valve. Thread straight (non-adjustable stud) fittings into front port of depth control valve.

Do not over tighten as this could cause damage to valves. Tighten as shown. See “Hydraulic Connectors and Torque” on page 22 or proper torque value.

45. Route hoses as shown in layout section in Appendix.

46. When the JIC hoses are routed, follow the following procedure for hooking up and tightening.

a. Inspect for possible contamination or damage from shipping or handling. Sealing surface should be smooth. Annular tool marks of (100uin) concentric with thread permissible.

b. Lubricate the threads and the entire surface of the cone with hydraulic fluid or a light lubricant.

c. Align mating components for hand connection and turn flare nut until sealing surfaces make full contact.

47. Alternate Assembly Method for JIC.

a. If torqued method not possible, then proceed to steps b-e.

b. Lightly wrench tighten the nut until there is firm resistance.

c. Place a wrench on wrench pad next to nut as near the 6 o'clock position as possible.

d. Place second wrench on nut as near the 3 o'clock position as possible.

e. Turn nut clockwise to no less than the 4 o'clock position and no more than the 6 o'clock position. Required rotation generally decreases as size increases.
Attach Hose Clamps and Hose Wraps

Refer to Figure 11

48. When all the hoses are hooked up and tightened properly, put hose clamps on hoses as shown.

49. Install hose wraps on hoses as needed.

Be sure and get hoses and light wiring harness fastened properly so they do not drag. Check to be sure there is enough slack in hinge area when folding machine the first time.

Hydraulic Hose Hookup

50. Great Plains hydraulic hoses are color coded to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Lift (2 hoses)</td>
</tr>
<tr>
<td>Red</td>
<td>Gang (2 hoses)</td>
</tr>
<tr>
<td>Green</td>
<td>Fold (2 hoses) 3-Section Models</td>
</tr>
</tbody>
</table>

**WARNING**

High Pressure Fluid Hazard:
Relieve pressure before disconnecting hydraulic lines. Use paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury. Only trained personnel should work on system hydraulics.
Hose Handles

Refer to Figure 12

51. To distinguish hoses on the same hydraulic circuit, refer to hose handles. The hose under an extended-cylinder symbol feeds a cylinder base end. The hose under a retracted-cylinder symbol feeds a cylinder rod end.

52. Once all hoses are tightened, hook hoses to tractor...
Purging Hydraulic System

Refer to Figure 13

53. Charge the lift system first. Extend the lift cylinders ① (black handles) until the center section is fully raised. Remove the cylinder transport locks ② and install in storage position. Raise and lower the lift system several times to purge air from system. Watch for leaks and re-tighten fittings if necessary.

54. The gang frame system ③ (red handles), will need purged. If your machine is a 3 section model the wing gangs will not start to rise until the center cylinders are fully extended and the master cylinders begin to bypass oil through the rephasing ports, to the wing cylinders. Continue to pump oil to the gang system until the wing gang cylinders are also fully extended. At this point, reverse the flow and raise the gangs, retracting all cylinders. Repeat this procedure several times until all the air is purged out of the system.

55. If your machine is a 3 section model you may now charge the fold system. Before charging the fold cylinders ④ make sure the rod end of the cylinders are un-pinned and block is under cylinder as shown, so that when the rod is extended, it will clear the wing fold brackets. Extend the fold cylinders ④ (green ends) completely and then close them. Extend and retract the cylinders several times to purge air from the system. Now the cylinders may be extended far enough to be connected to the wing fold brackets. Remove wood block and install the 1 x 3\(\frac{3}{8}\) clevis pin, 1.5 x 1.0 x 0.075 machine washer and \(\frac{3}{16}\) x 2 cotter pin.
Depth Gauge

Refer to Figure 14

56. Install the depth gauge bracket ① to the center frame with \( \frac{1}{2} \times 4\frac{1}{32} \times 5\frac{1}{4} \) u-bolts ②, \( \frac{1}{2} \) lock washers and \( \frac{1}{2} \) nuts.

See “MC5109-5111 Hydraulic Gang Layout” on page 25 for correct depth gauge bracket placement.

57. Attach the gang depth gauge link assembly ③, to the depth gauge ①, and the center lift bracket ④, with \( \frac{5}{16} \times 1\frac{1}{4} \) hex bolts ⑤, and top locks.

The level indicator decal may need to be applied to the depth gauge.

58. Tighten all u-bolts to specs, See “Torque Values Chart” on page 21. Tighten the three lock nuts up snug, but be sure the links will pivot.

569-190S & 596-293S Shanks

The 569-190S & 596-293S shank mount assemblies will be shipped pre-assembled in proper location except the back row. These will need to be installed. The shank mount assemblies will be shipped in a wooden box. See machine layouts in Appendix for proper shank placement.

Refer to Figure 15

59. Attach the shank assemblies ① to shank mounts ② with \( \frac{3}{4} \times 4 \) hex bolts ③, (top hole) \( \frac{3}{4} \) lock washers and \( \frac{3}{4} \) nuts. Install \( \frac{5}{8} \times 4 \) hex bolt ④, \( \frac{5}{8} \) lock washer and \( \frac{5}{8} \) nut in bottom hole.

60. Tighten all bolts to specs, See “Torque Values Chart” on page 21.
569-195S Shank

The 569-195S shank mount assemblies will be shipped in a wooden box. See machine layouts in Appendix for proper shank placement.

Refer to Figure 16

61. Install the shank mount assemblies to the rear side of tubes. Install front mount bracket on front of tubes, align holes, secure with 3/4 x 2 1/2 hex bolts, 3/4 lock washers and 3/4 nuts. Slide these two parts over frame tube in proper location.

62. Tighten all bolts to specs, See "Torque Values Chart" on page 21.

5113-5115 Wings

Refer to Figure 17

63. Attach wings with 3/4 x 2 1/2 Gr. 5 hex bolts, 3/4 lock washers and 3/4 nuts.

64. Tighten all u-bolts to specs, See "Torque Values Chart" on page 21.
Chopper/ML Roller

Refer to Figure 18

Chopper/ML Roller is not available on all models, and only on certain units manufactured after June 2017.

65. Locate the rear frame ext ①, and attach to rear of machine using $\frac{3}{4} \times 6\frac{1}{32} \times 5\frac{5}{8}$ U-Bolt ②, $\frac{3}{4}$ lock washers and hex nuts.

66. Chopper arm mounts ③, will be shipped attached and in the correct locations on the rear frame ext. The chopper arms ④, will need installed into the arm mounts using 1 x 4 pin ⑤, and secure pin with $\frac{3}{8} \times 2$ hex bolt, and $\frac{3}{8}$ top lock.

67. Locate the chopper assemblies ⑥, and using chopper mounting clamps ⑦, $\frac{5}{8} \times 3\frac{1}{32} \times 5\frac{1}{2}$ u-bolts ⑧, $\frac{5}{8}$ lock washers and hex nuts, attach the choppers to the chopper arms.

68. The spring eye bolts ⑨, will need to be installed into the chopper arm mounts ③ and chopper arms ④ using 1.0 x 4.06 clevis pin ⑩ and secured with $\frac{1}{4} \times 1\frac{3}{4}$ linch pin.

69. The roller arms ⑪ will come assembled to the roller arm mount brackets ⑫, the cylinders will be attached and the 2 short hoses will be installed in place and attached to the bulkhead fittings on the roller arm mount bracket ⑫. The mounts will need attached to the rear ext frame in the proper locations, See “Appendix - Reference Information” for proper locations.

70. Use $\frac{3}{4} \times 4\frac{1}{32} \times 5\frac{3}{8}$ u-bolt, ⑬ $\frac{3}{4}$ lock washer and hex nuts to secure the roller arm mounts ⑫ to the rear ext frame. The roller gangs ⑭ will need attached to the arms using $\frac{5}{8} \times 3\frac{1}{32} \times 4\frac{1}{4}$ u-bolts ⑮, $\frac{5}{8}$ lock washers and hex nuts. The same u-bolts ⑮ are used to attach the rollers to the roller tubes, if not already attached.

71. Hydraulics will need to be run from the tractor, along the machine and to the rear middle bulkhead bracket bulkhead fittings. See “Appendix - Reference Information” for proper locations. Tighten all u-bolts to specs, See “Torque Values Chart” on page 21.

Figure 18

TP-69133
Light Brackets

Light brackets may be installed in the proper location but turned towards the rear of the machine. See machine layout in Appendix for proper location.

Refer to Figure 19

72. Remove $\frac{1}{2} \times 4\frac{1}{32} \times 7\frac{1}{4}$ u-bolts from light bracket assembly. Rotate light bracket assembly 90 degrees. Re-install $\frac{1}{2} \times 4\frac{1}{32} \times 7\frac{1}{4}$ u-bolts, secure with $\frac{1}{2}$ lock washers and $\frac{1}{2}$ nuts.

73. Tighten all u-bolts to specs, See “Torque Values Chart” on page 21.

74. Attach light plug to light wiring harness.

Completing Setup

75. If the Max-Chisel is equipped with an optional finishing attachment, refer to “Parts Manual” for parts breakdown and layout section of Appendix for proper placement.

NOTICE

If machine is equipped with a rear attachment, be sure you install the rear jack stand, see “Parts Manual” Rear Jack Stand, so machine doesn’t tip backwards when unhooking machine from tractor.

76. Once the options are installed, fold the Max Chisel to check for clearance and interferences. Slowly fold Max Chisel while watching that hoses and wiring harnesses do not become pinched or kinked, watching for interferences.

Double check that all bolts are tightened to specs, See “Torque Values Chart” on page 21. Consult the “Operator’s Manual”, for the first time field adjustments before going to the field.
### Appendix - Reference Information

#### Torque Values Chart

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 5</td>
<td>Grade 8</td>
</tr>
<tr>
<td>1/4-20</td>
<td>7.4</td>
<td>5.6</td>
<td>11</td>
</tr>
<tr>
<td>3/8-16</td>
<td>15</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>5/32-24</td>
<td>17</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>3/32-24</td>
<td>31</td>
<td>22</td>
<td>47</td>
</tr>
<tr>
<td>5/16-20</td>
<td>43</td>
<td>32</td>
<td>67</td>
</tr>
<tr>
<td>5/16-20</td>
<td>49</td>
<td>36</td>
<td>75</td>
</tr>
<tr>
<td>9/32-20</td>
<td>75</td>
<td>55</td>
<td>115</td>
</tr>
<tr>
<td>9/32-20</td>
<td>95</td>
<td>70</td>
<td>150</td>
</tr>
<tr>
<td>9/16-18</td>
<td>105</td>
<td>79</td>
<td>165</td>
</tr>
<tr>
<td>3/8-14</td>
<td>130</td>
<td>97</td>
<td>205</td>
</tr>
<tr>
<td>5/16-12</td>
<td>150</td>
<td>110</td>
<td>230</td>
</tr>
<tr>
<td>1/2-20</td>
<td>235</td>
<td>170</td>
<td>360</td>
</tr>
<tr>
<td>1/2-14</td>
<td>260</td>
<td>190</td>
<td>405</td>
</tr>
<tr>
<td>1/2-10</td>
<td>225</td>
<td>165</td>
<td>585</td>
</tr>
<tr>
<td>7/16-9</td>
<td>250</td>
<td>185</td>
<td>640</td>
</tr>
<tr>
<td>7/16-14</td>
<td>340</td>
<td>250</td>
<td>875</td>
</tr>
<tr>
<td>1-8</td>
<td>370</td>
<td>275</td>
<td>955</td>
</tr>
<tr>
<td>1-12</td>
<td>480</td>
<td>355</td>
<td>1080</td>
</tr>
<tr>
<td>1-1/4</td>
<td>540</td>
<td>395</td>
<td>1210</td>
</tr>
<tr>
<td>1-1/4</td>
<td>680</td>
<td>500</td>
<td>1520</td>
</tr>
<tr>
<td>1-1/4</td>
<td>750</td>
<td>555</td>
<td>1680</td>
</tr>
<tr>
<td>1-1/4</td>
<td>890</td>
<td>655</td>
<td>1990</td>
</tr>
<tr>
<td>1-1/4</td>
<td>1010</td>
<td>745</td>
<td>2270</td>
</tr>
<tr>
<td>1-1/8</td>
<td>1180</td>
<td>870</td>
<td>2640</td>
</tr>
<tr>
<td>1-1/8</td>
<td>1330</td>
<td>980</td>
<td>2970</td>
</tr>
</tbody>
</table>

- **a.** in-tpi = nominal thread diameter in inches-threads per inch
- **b.** N·m = newton-meters
- **c.** mm x pitch = nominal thread diameter in mm x thread pitch
- **d.** ft-lb = foot pounds

Torque tolerance +0%, -15% of torque values. Unless otherwise specified use torque values listed above.

---

**Torque Values Chart**

<table>
<thead>
<tr>
<th>Wheel Bolt Torque Values</th>
<th>1/2&quot;-20 (75-85ft-lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel Bolt Torque Values</td>
<td>9/16&quot;-18 (80-90ft-lbs)</td>
</tr>
<tr>
<td>Wheel Bolt Torque Values</td>
<td>5/8&quot;-18 (85-100ft-lbs)</td>
</tr>
<tr>
<td>Chopper Hub Spindle Values</td>
<td>7/8&quot;-9 (350 ft-lbs)</td>
</tr>
</tbody>
</table>

---

2020
Tire Inflation Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>12.5L x 15 12-Ply</td>
<td>52 psi (358 kPa)</td>
</tr>
<tr>
<td>Transport</td>
<td>340/60R16.5</td>
<td>73 psi (503 kPa)</td>
</tr>
</tbody>
</table>

Tire Warranty Information

All tires are warranted by the original manufacturer of the tire. Tire warranty information is found in the brochures included with your Operator’s and Parts Manuals or online at the manufacturer’s web sites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Web Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firestone</td>
<td><a href="http://www.firestoneag.com">www.firestoneag.com</a></td>
</tr>
<tr>
<td>Gleason</td>
<td><a href="http://www.gleasonwheel.com">www.gleasonwheel.com</a></td>
</tr>
<tr>
<td>Titan</td>
<td><a href="http://www.titan-intl.com">www.titan-intl.com</a></td>
</tr>
<tr>
<td>Galaxy</td>
<td><a href="http://www.atgtire.com">www.atgtire.com</a></td>
</tr>
<tr>
<td>BKT</td>
<td><a href="http://www.bkt-tire.com">www.bkt-tire.com</a></td>
</tr>
</tbody>
</table>

Hydraulic Connectors and Torque

Refer to Figure 20 (a hypothetical fitting)

Leave any protective caps in place until immediately prior to making a connection.

NPT - National Pipe Thread
Note tapered threads, no cone/flare, and no O-ring.

Apply liquid pipe sealant for hydraulic applications.
Do not use tape sealant, which can clog a filter and/or plug an orifice.

JIC - Joint Industry Conference (SAE J514)
Note straight threads and the 37° cone on “M” fittings (or 37° flare on “F” fittings).
Use no sealants (tape or liquid) on JIC fittings.

ORB - O-Ring Boss (SAE J514)
Note straight threads and elastomer O-Ring.
Prior to installation, to prevent abrasion during tightening, lubricate O-Ring with clean hydraulic fluid.
Use no sealants (tape or liquid) on ORB fittings.

ORB fittings that need orientation, such as the ell depicted, also have a washer and jam nut (“adjustable thread port stud”). Back jam nut away from washer. Thread fitting into receptacle until O-Ring contacts seat. Unscrew fitting to desired orientation. Tighten jam nut to torque specification.

### Fittings Torque Values

<table>
<thead>
<tr>
<th>Dash Size</th>
<th>Fitting</th>
<th>N-m</th>
<th>Ft-Lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>1/4-18 NPT</td>
<td>1.5-3.0 turns past finger tight</td>
<td></td>
</tr>
<tr>
<td>-5</td>
<td>1/2-20 JIC</td>
<td>19-20</td>
<td>14-15</td>
</tr>
<tr>
<td>-5</td>
<td>1/2-20 ORB w/jam nut</td>
<td>12-16</td>
<td>9-12</td>
</tr>
<tr>
<td>-5</td>
<td>1/2-20 ORB straight</td>
<td>19-26</td>
<td>14-19</td>
</tr>
<tr>
<td>-6</td>
<td>9/16-18 JIC</td>
<td>24-27</td>
<td>18-20</td>
</tr>
<tr>
<td>-6</td>
<td>9/16-18 ORB w/jam nut</td>
<td>16-22</td>
<td>12-16</td>
</tr>
<tr>
<td>-6</td>
<td>9/16-18 ORB straight</td>
<td>24-33</td>
<td>18-24</td>
</tr>
<tr>
<td>-8</td>
<td>3/4-16 JIC</td>
<td>37-53</td>
<td>27-39</td>
</tr>
<tr>
<td>-8</td>
<td>3/4-16 ORB w/jam nut</td>
<td>27-41</td>
<td>20-30</td>
</tr>
<tr>
<td>-8</td>
<td>3/4-16 ORB straight</td>
<td>37-58</td>
<td>27-43</td>
</tr>
</tbody>
</table>
MC5109-MC5315 Hydraulic Lift Layout

See Hydraulic Section for Parts Layout

Black Extend to V1 on Counter Balance Valve

Hose Wrap, Large

C1 to Depth Valve

Hose Wrap, Large

Clamp

Clamp

Hose Wrap, Large

Depth Stop Valve to Cylinder Base End

Clamp

Clamp

Hose Wrap, Large

Hose Wrap, Large
MC5313-MC5315 Hydraulic Fold Layout

See Hydraulic Section for Parts Layout

Green Retract to V1 on Rebound Valve

Green Extend to V2 on Rebound Valve

Hose Wrap, Large

Clamp

Hose Wrap, Large

Clamp

Hose Wrap, Large

Clamp

Double Tee, Top to Cylinder Base End

Double Tee, Bottom Cylinder Rod End

C1 to Double Tee, Bottom

C2 to Double Tee, Top
MC5109-5111 Hydraulic Gang Layout

See Hydraulic Section for Parts Layout
MC5313-MC5315 Hydraulic Gang Layout

See Hydraulic Section for Parts Layout

Red Extent to Top Bulkhead of Lock Valve

Hose Wrap, Large

Red Retract to Bottom Bulkhead of Lock Valve

Hose Wrap, Large

Clamp

Run Hitch Hydraulic Hoses Underneath the Turnbuckle.

Top of Tee to Outside Cylinder Rod End

Bottom of Tee to Inside Cylinder Base End

Clamp

Hose Wrap, Large

Clamp
MC5111 Machine Layout

43738
MC5313 Machine Layout
MC5315 Machine Layout
Twisted Shovel Layout
Blade Layout

Depending on the Model the number of 24" blades will change.

All Models will have these blades with this placement.

TRAVEL

22" RH Blade
620-567C

24" RH Blade
620-566C

24" LH Blade
620-566C

18" Straight Blade
620-562C

TP-69160
MC5111 Chopper Reel Layout
MC5313 Chopper Reel Layout

43768
MC5315 Chopper Reel Layout
MC5109 & MC5111 Chopper/ML Roller Hydraulic Layout
MC5313 & MC5315 Chopper/ML Roller Hydraulic Layout
MC5109 Chopper/ML Roller Layout
MC5111 Chopper/ML Roller Layout
MC5313 Chopper/ML Roller Layout
MC5315 Chopper/ML Roller Layout
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