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.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>4</td>
</tr>
<tr>
<td>Description of Unit</td>
<td>4</td>
</tr>
<tr>
<td>Document Family</td>
<td>4</td>
</tr>
<tr>
<td>Tools Required</td>
<td>4</td>
</tr>
<tr>
<td>Using This Manual</td>
<td>5</td>
</tr>
<tr>
<td>Definitions</td>
<td>5</td>
</tr>
<tr>
<td>Shipping</td>
<td>6</td>
</tr>
<tr>
<td>Unloading</td>
<td>6</td>
</tr>
<tr>
<td>Unload Smaller Items First</td>
<td>6</td>
</tr>
<tr>
<td>Unload Velocity</td>
<td>6</td>
</tr>
<tr>
<td>Unpacking Boxes</td>
<td>6</td>
</tr>
<tr>
<td>Further Assistance</td>
<td>6</td>
</tr>
<tr>
<td><strong>Assembly</strong></td>
<td>7</td>
</tr>
<tr>
<td>Narrow Center Hub and Wheel Assembly</td>
<td>7</td>
</tr>
<tr>
<td>Wide Center Frame Assembly</td>
<td>8</td>
</tr>
<tr>
<td>Center Frame Gang Assembly</td>
<td>9</td>
</tr>
<tr>
<td>Wing Hub and Wheel Assembly</td>
<td>10</td>
</tr>
<tr>
<td>Hitch and Level Link Assembly</td>
<td>11</td>
</tr>
<tr>
<td>29-36 Wing Assembly</td>
<td>12</td>
</tr>
<tr>
<td>Hydraulic Assembly</td>
<td>13</td>
</tr>
<tr>
<td>Attach Hose Clamps and Hose wraps</td>
<td>14</td>
</tr>
<tr>
<td>Hydraulic Hose Hookup</td>
<td>14</td>
</tr>
<tr>
<td>Hose Handles</td>
<td>14</td>
</tr>
<tr>
<td>Purging Hydraulic System</td>
<td>15</td>
</tr>
<tr>
<td>Light Brackets and SMV Assembly</td>
<td>16</td>
</tr>
<tr>
<td>Manual Gauge Wheel</td>
<td>17</td>
</tr>
<tr>
<td>Hydraulic Gauge Wheel</td>
<td>17</td>
</tr>
<tr>
<td>C-Shank Alignment-Disc Gang Assembly</td>
<td>18</td>
</tr>
<tr>
<td><strong>Appendix - Reference Information</strong></td>
<td>19</td>
</tr>
<tr>
<td>Torque Values Chart</td>
<td>19</td>
</tr>
<tr>
<td>Tire Inflation &amp; Warranty</td>
<td>20</td>
</tr>
<tr>
<td>Hydraulic Connectors and Torque</td>
<td>20</td>
</tr>
<tr>
<td>Narrow Center Hydraulic Lift Layout</td>
<td>22</td>
</tr>
<tr>
<td>Wide Center Hydraulic Lift Layout</td>
<td>23</td>
</tr>
<tr>
<td>Hydraulic Fold Layout 23</td>
<td>24</td>
</tr>
<tr>
<td>Hydraulic Fold Layout 26-36</td>
<td>25</td>
</tr>
<tr>
<td>Hydraulic Level Layout 23-36</td>
<td>26</td>
</tr>
<tr>
<td>Hydraulic Reel Layout</td>
<td>27</td>
</tr>
<tr>
<td>HS2100-23 Machine Layout</td>
<td>28</td>
</tr>
<tr>
<td>HS2100-23 Machine Layout</td>
<td>29</td>
</tr>
<tr>
<td>HS2100-26 Machine Layout</td>
<td>30</td>
</tr>
<tr>
<td>HS2100-26 Machine Layout</td>
<td>31</td>
</tr>
<tr>
<td>HS2100-29 Machine Layout</td>
<td>32</td>
</tr>
<tr>
<td>HS2100-29 Machine Layout</td>
<td>33</td>
</tr>
<tr>
<td>HS2100-30 Machine Layout</td>
<td>34</td>
</tr>
<tr>
<td>HS2100-30 Machine Layout</td>
<td>35</td>
</tr>
<tr>
<td>HS2100-33 Machine Layout</td>
<td>36</td>
</tr>
<tr>
<td>HS2100-33 Machine Layout</td>
<td>37</td>
</tr>
<tr>
<td>HS2100-36 Machine Layout</td>
<td>38</td>
</tr>
<tr>
<td>HS2100-36 Machine Layout</td>
<td>39</td>
</tr>
<tr>
<td>HS2100-23DH Finishing Reel Layout</td>
<td>40</td>
</tr>
<tr>
<td>HS2100-26DH Finishing Reel Layout</td>
<td>41</td>
</tr>
<tr>
<td>HS2100-29DH Finishing Reel Layout</td>
<td>42</td>
</tr>
<tr>
<td>HS2100-30 Finishing Reel Layout</td>
<td>43</td>
</tr>
<tr>
<td>HS2100-33 Finishing Reel Layout</td>
<td>44</td>
</tr>
<tr>
<td>HS2100-36 Finishing Reel Layout</td>
<td>45</td>
</tr>
</tbody>
</table>

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Printed in the United States of America
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 Velocity using blocks and supports provided.
▲ Detach and store Velocity 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 Velocity 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 Velocity 23-36™ is a three section is a hybrid tillage implement designed to bury more residue than a true vertical tillage tool like the Turbo Max®, but with shallow concavity SpeedBlade™ on 7 1/2” spacing. The Velocity 23-36™ runs faster than a disk harrow, and is designed to out-cut and out-finish competitive low-concavity, high speed disks in the vertical tillage market. Working widths range from 23 to 36 feet. A heavy finishing reel breaks clods and smooths the surface for an excellent finish.

Models Covered

<table>
<thead>
<tr>
<th>Model</th>
<th>Footage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS2100-23</td>
<td>23-Foot 3-section</td>
</tr>
<tr>
<td>HS2100-26</td>
<td>26-Foot 3-section</td>
</tr>
<tr>
<td>HS2100-29</td>
<td>29-Foot 3-section</td>
</tr>
<tr>
<td>HS2100-30</td>
<td>30-Foot 3-section</td>
</tr>
<tr>
<td>HS2100-33</td>
<td>33-Foot 3-section</td>
</tr>
<tr>
<td>HS2100-36</td>
<td>36-Foot 3-section</td>
</tr>
</tbody>
</table>

Document Family

- Pre-Delivery Manual (this document)
- Operator Manual
- Parts Manual

Tools Required

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

Pre-assembly Checklist

1. Before assembling, read and understand “Important Safety Information” in front part of this manual.
2. Have at least two people on hand while assembling.
3. Make sure area is level and free of obstructions (preferably an open concrete area).
4. Have all major components
5. 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.

- **Useful**

  Useful information related to the preceding topic.

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 Velocity will be shipped partially pre-assembled. Refer to Figure 3

- The machine will be shipped with center frame and wings stacked on stands and banded together.
- Finishing attachments (if equipped), will be shipped with mounted brackets assembled and all bolts will be in a box.
- Remove unit from shipping stands (if equipped), after machine is lowered to ground and carefully un-band all components.
- The shipping stand bolts are not used in the assembly of unit.
- The shipping stands do not need to be returned to Great Plains.

Unloading

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

Centering components:

Be sure and center fork truck or chains (overhead hoist) on components so they won’t slide and cause injury.

Unload Smaller Items First

Unloading the Velocity is a potentially dangerous operation. Reduce risk and complications by first unloading

1. gangs and finishing attachments
2. misc. boxes
3. Velocity (described in the next section)
4. Place these components well out of the maneuvering area needed for unloading the Velocity.

Unload Velocity

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 Velocity 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 Velocity.
10. Making sure to keep level from front to back and side to side, slowly lower the Velocity.
11. Lower the Velocity down until the machine is about 12” off ground.
12. Remove shipping stands.

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 banding from gangs and finishing reels.

15. Locate and identify all components before assembling.

Further Assistance

Great Plains Manufacturing, Inc. wants you to be satisfied with your new Velocity. 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.
Narrow Center Hub and Wheel Assembly

Refer to Figure 4

1. Set pre-assembled center frame section (11) on stands (12) that are tall enough to allow for installation of the wheel hubs and tires as shown. See “Wide Center Frame” on page 8, for Models 30-36.

2. Bolt on rear fold bracket (13) with $\frac{3}{4}$” x 2 1/2” (14) hex bolts and secure with $\frac{3}{4}$” lock washers and $\frac{3}{4}$” nuts.

3. Remove $\frac{1}{2}$” x 4 1/2” Gr. 5 hex bolt (15) from walking beam. Slide the hub/spindle assembly into the walking beam and reinstall the hex bolt and secure with $\frac{1}{2}$” lock nut.

4. Install tire/wheel (16) to hub assembly (17) with $\frac{5}{8}$” lug nuts (18).

5. Bolts may be tightened to specs, See “Torque Values Chart” on page 19.

The center uses 340/60R 16.5 tires while the wings have 12.5Lx15 tires.
Wide Center Frame Assembly

Refer to Figure 5

6. Lower the left (11) and right (12) sides of the center frame onto stands (13).

7. Install the $\frac{3}{4}$ x 2” Gr. 8 hex bolts (15) through the 4-hole tie plates (14), secure with $\frac{3}{4}$” lock washers and $\frac{3}{4}$” nuts. Do not tighten at this time.

8. Pin the torque tube weldment to the center frames with $1\frac{1}{4}$ x 9” pins (16) (outer) and $1\frac{1}{4}$ x 7” pins (17) (center). Secure pins with $\frac{1}{2}$ x 2 $\frac{5}{8}$” Gr. 8 special thread bolts (18) and $\frac{1}{2}$” top lock nuts.

9. Remove $\frac{1}{2}$” x 4 $\frac{1}{2}$” Gr. 5 hex bolt (19) from the walking beams. Slide the hub/spindle assembly into the walking beam and reinstall the hex bolt and secure with $\frac{1}{2}$” lock nut.

The center uses 380/55R 16.5 tires while the wings have 12.5Lx15 tires.

10. Install tire/wheel (20) to hub assembly (21) with $\frac{5}{8}$” lug nuts (22).

11. Fasten center lift cylinders (23), base end to center frame and rod end to torque tube with pins, machine washers and cotter pins, provided. Be sure the washer is installed between the cotter pin and the cylinder.

12. Tighten all bolts to specs, See “Torque Values Chart” on page 19.

---

Figure 5
Wide Center Frame
Center Frame Gang Assembly
Refer to Figure 6

The gang assemblies (1) will be marked as to the location on disk as “left, front, center”. This would refer to the left, front gang on the center section. You may also refer to the machine layout section for placement. The gang assembly will be the same on both the narrow and wide center.

13. Remove the 1” x 3” Gr. 8 hex bolts (3). Align holes in plates of gang assemblies (1) to center frame plates (2), secure with 1” x 3” Gr. 8 hex bolts (3), 1” lock washers and 1” nuts.

14. Bolts may be tightened to specs, See “Torque Values Chart” on page 19.
Wing Hub and Wheel Assembly

Refer to Figure 7

- Remove the assembly stands from center section and allow unit to rest on the ground in the center of work area.

15. Set pre-assembled wing frame section (1) on stands (2) that are tall enough to allow for installation of the pre-assembled gang bars.

16. Remove the $\frac{1}{2}" \times 4 \frac{1}{2}"$ hex bolts (4) and slide in the hub/spindle assembly (3) to walking beam assembly (5) secure with the $\frac{1}{2}" \times 4 \frac{1}{2}"$ hex bolts (4), secure with $\frac{1}{2}"$ lock washers and $\frac{1}{2}"$ nuts.

- Install tire/wheel (6) (12.5Lx15, tire/wheel assembly) to hub assembly (3) with $\frac{9}{16}$" lug nuts (7).

17. Bolts may be tightened to specs, See “Torque Values Chart” on page 19
Hitch and Level Link Assembly

The hitch to frame assembly will be the same on both the narrow and wide models. Narrow shown.

Refer to Figure 8

18. Install hitch assembly (11) to front of center frame with the 1\(\frac{1}{4}\)” x 8” Gr. 8 hex bolts (12) provided. Be sure and install 1\(\frac{1}{4}\)” machine washers (13) as needed on both sides, to insure a tight fit (be sure and have same amount on both sides of hitch). Secure with the 1\(\frac{1}{4}\)” top lock nuts. Bolts need to be tightened down securely on the ball joints but do not torque as hitch needs to pivot freely.

19. Remove the tongue jack (14) from its storage location at rear of hitch and install it on the jack stub at the front of the hitch frame to support the front side of hitch.

20. Connect the bottom of leveling turnbuckle (15) to rear of hitch with 1\(\frac{1}{4}\)” x 6” Gr. 5 special thread bolt (16), and 1” nylon lock nut, (do not torque bolt), connect the top of the turnbuckle to the middle hole of leveler assembly (17) with the 1\(\frac{1}{4}\)” x 11” hinge pin (18), 1\(\frac{1}{2}\)” x 2\(\frac{3}{8}\)” Gr. 8 special thread hex bolt (19) and 1\(\frac{1}{2}\)” top lock nut.

21. Attach spring hose loop (20) to front of hitch assembly with 1\(\frac{1}{2}\)” x 1\(\frac{1}{2}\)” hex bolts (21), 1\(\frac{1}{2}\)” flat washers, 1\(\frac{1}{2}\)” lock washers and 1\(\frac{1}{2}\)” nuts.

22. Bolts may be tightened to specs, See “Torque Values Chart” on page 19.
29-36 Wing Assembly

The wing assembly will be the same on both the narrow and wide center. (Model 29 shown)

Refer to Figure 9

23. With the center frame stands removed, the center frame gangs should be resting on the floor.

24. Connect the wing gang bars (1) to the center gang bars using the hinge pins (2), \( \frac{1}{2} \) x 2\( \frac{1}{2} \)” pin spirol (3), 1” flat washer, and 1” top lock nut.

25. Set the wing frame (4) on the gang bars and attach with 1” x 3” Gr. 8 hex bolts (5), 1” lock washer and 1” nut.

Do not hook up rod end of fold cylinder until system is purged of air. See “Purging Hydraulic System” on page 15.

Pins must be installed so the pin spirol is in the pin stop as shown in inset picture (6).

26. Install the 8-bolt hub and spindle assembly (if not already), to the wing walking beam with \( \frac{3}{4} \) x 4 \( \frac{1}{2} \)” Gr. 8 hex bolt and \( \frac{1}{2} \)” top lock nut, See “Wing Hub and Wheel Assembly” on page 10.

27. Tighten all bolts to specs, See “Torque Values Chart” on page 19.

28. Repeat the same procedure for the other wing.
Hydraulic Assembly

Models 23-29 hydraulic hoses should already be routed and installed thru the hose clamps before delivery.

Refer to Figure 10

29. Route the tractor end of the hydraulic hoses (1) thru the spring hose loop and store in the hose storage bracket (2) located on the side of the hitch. Approximately 3’ of hose should extend past the hitch point. Attach hose wraps on hoses to prevent hoses from dragging or getting pinched. Connect the female ends of the hydraulic hoses to the bulkhead fittings (3) located on the front of the center section.

The bottom set of fittings are for the lift hydraulics, the middle fittings are for the fold hydraulics and the top fittings are for the level hydraulics. There is an empty set of spaces for auxiliary fittings. (See inset picture)

30. See “Attach Hose Clamps and Hose wraps” on page 14 for proper assembly.

Refer to Figure 11

31. Connect the hoses (4) from the center section to the bulkhead fittings (5) located in a bracket on the side of the wings frame. Connect hoses to the hydraulic gauge wheel cylinder is equipped.

32. When all hoses are connected, check that all fittings are tight. You are ready to charge the hydraulic system.
Attach Hose Clamps and Hose wraps

Refer to Figure 12

33. Make sure all Stauff Clamps are tight and that hoses are routed correctly. If not install hose clamps on hoses as shown.

34. 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

35. 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>Green</td>
<td>Fold (2 hoses)</td>
</tr>
<tr>
<td>Red</td>
<td>Hydraulic Level (2 hoses)</td>
</tr>
<tr>
<td>Yellow</td>
<td>Auxiliary (Optional 2 Hoses)</td>
</tr>
</tbody>
</table>

Refer to Figure 13

Hose Handles

36. 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.

37. Once all hoses are tightened, hook hoses to tractor

---

**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.
Purging Hydraulic System

Refer to Figure 14

38. Charge the lift system first, this includes the hydraulics for the gauge wheel if equipped. Extend the lift cylinders (1) (black handles) until the center section is fully raised. Hold lever back so the lift cylinders will be filled with oil, repeat several times. Remove the cylinder transport locks (2) and store on frame plate (3). Raise and lower the gang system several times to purge air from system. Watch for leaks and re-tighten fittings if necessary.

39. You may now charge the fold system. Before charging the fold cylinders (4), make sure the rod end of the cylinders are un-bolted or un-pinned and a block (5) is under the cylinders as shown, so that when the rod is extended, it will clear the wing fold brackets. Extend the fold cylinders (4) (green handles) 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.

40. The fold cylinders may now be connected to the wing fold brackets. Use the 1” x 5.38” snap ring pin (6), 1” washers, and 1” heavy snap rings provided.

41. Charge the hydraulic leveling cylinder at this time (red handles). Extend and retract this cylinder several times also.

42. The unit may now be folded. Once unit is raised completely, slowly fold the machine, watching that hoses do not get pinched, etc.... Once machine is fully folded, install the transport locks. Now the unit is in transport mode.

Figure 14
Hydraulic Purging
Light Brackets and SMV Assembly

Refer to Figure 15

43. Install the amber light bracket assemblies (1) to rear gang bars with the u-bolts provided with brackets. Position the amber light brackets (1) between the gang bar mounting plate and the c-shank mounting plate. The placement may need small adjustments to avoid the tires during field operation and the wings while folding and unfolding.

44. Attach red lights (2) and the SMV sign (3) on the wing stops with the bolts, lock washers and the nuts provide in the locations shown.

45. Connect the wiring harness leads marked right and left, red and amber to the appropriate side of the machine for turn signals to be correct. For the amber lights, thread the wires through the light bracket tubing before connecting to the lights. For the red lights run wires long sides of the wing stops and secure with zip ties.

46. Tighten all bolts to specs, See “Torque Values Chart” on page 19.

Figure 15
Narrow Center Lights
Manual Gauge Wheel

If your machine is equipped with hydraulic gauge wheels then proceed to step 50.

Refer to Figure 16

47. When light brackets are installed, unfold the disk and watch that everything clears the brackets. Install the gauge wheel assembly (1) (if applicable) with the 3/4" x 2" hex bolts (2), 3/4" lock washers and 3/4" nuts to wing frame as shown.

48. Tighten all bolts to specs, See “Torque Values Chart” on page 19

49. Once the gauge wheels are in place, the assembly of the disk harrow is complete. At this time the unit should be checked over for any loose bolts. Air pressure in the tires should be checked, See “Tire Inflation & Warranty” on page 20. Refer to the lubrication section of the “Operators Manual” for the lubrications for this machine. If there is any rear attachment, it should be installed at this time.

Hydraulic Gauge Wheel

Refer to Figure 17

50. When light brackets are installed, unfold the disk and watch that everything clears the brackets. Install the hydraulic gauge wheel assembly (3) (if applicable) with the 3/4" x 2" hex bolts (4), 3/4" lock washers and 3/4" nuts to wing frame as shown. Connect hydraulic cylinder to the gauge wheel arm lever with pin provided.

51. Tighten all bolts to specs, See “Torque Values Chart” on page 19

52. Once the gauge wheels are in place, the assembly of the disk harrow is complete. At this time the unit should be checked over for any loose bolts. Air pressure in the tires should be checked, See “Tire Inflation & Warranty” on page 20. Refer to the lubrication section of the “Operators Manual” for the lubrications for this machine. If there is any rear attachment, it should be installed at this time.
C-Shank Alignment-Disc Gang Assembly

Refer to Figure 18

53. If gangs are removed from the gangbar for maintenance, care must be taken to re-align the parts correctly during re-assembly. See figure below for the proper C-shank alignment dimensions and pre-assembly procedures.

![Figure 18 C-Shank Alignment-Disc Gang](image)

Assembly Procedure:
1. Position the gangs on the ground under the disk.
2. Install Peer bearing casting (1).
3. Lower gang bar (2) with C-shanks onto bearing casting.
4. Verify dimensions on all C-shanks for your blade size and spacing. Move U-bolts (3) as necessary.
5. Tighten bearing castings bolts and nuts (4) and gang U-bolts and nuts (3).

54. At this time the unit should be checked over for any loose bolts. Air pressure in the tires should be checked, See “Tire Inflation & Warranty” on page 20. Refer to the lubrication section of the “Operators Manual” for the lubrications for this machine. If there is any rear attachment, it should be installed at this time.

**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.

55. Once the options are installed, fold the Disk Harrow to check for clearance and interferences, also watch that hoses do not get pinched.

Double check that all bolts are tightened to specs, See “Torque Values Chart” on page 19. Consult the “Operator’s Manual”, for the first time field adjustments before going to the field.
## 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>in-tpi²</td>
<td>N-m² ft-lb²</td>
<td>N-m² ft-lb²</td>
<td>N-m² ft-lb²</td>
</tr>
<tr>
<td>¼-20</td>
<td>7.4 5.6 11 8 16 12</td>
<td>M 5 X 0.8</td>
<td>4 3 6 5 9 7</td>
</tr>
<tr>
<td>¼-28</td>
<td>8.5 6 13 10 18 14</td>
<td>M 6 X 1</td>
<td>7 5 11 8 15 11</td>
</tr>
<tr>
<td>5/16-18</td>
<td>15 11 24 17 33 25</td>
<td>M 8 X 1.25</td>
<td>17 12 26 19 36 27</td>
</tr>
<tr>
<td>5/16-24</td>
<td>17 13 26 19 37 27</td>
<td>M 8 X 1</td>
<td>18 13 28 21 39 29</td>
</tr>
<tr>
<td>3/8-16</td>
<td>27 20 42 31 59 44</td>
<td>M10 X 1.5</td>
<td>33 24 52 39 72 53</td>
</tr>
<tr>
<td>3/8-24</td>
<td>31 22 47 35 67 49</td>
<td>M10 X 0.75</td>
<td>39 29 61 45 85 62</td>
</tr>
<tr>
<td>5/16-14</td>
<td>43 32 67 49 95 70</td>
<td>M12 X 1.75</td>
<td>58 42 91 67 125 93</td>
</tr>
<tr>
<td>7/16-20</td>
<td>49 36 75 55 105 78</td>
<td>M12 X 1.5</td>
<td>60 44 95 70 130 97</td>
</tr>
<tr>
<td>1/2-13</td>
<td>66 49 105 76 145 105</td>
<td>M12 X 1</td>
<td>90 66 105 77 145 105</td>
</tr>
<tr>
<td>1/2-20</td>
<td>75 55 115 85 165 120</td>
<td>M12 X 2</td>
<td>92 68 145 105 200 150</td>
</tr>
<tr>
<td>9/16-12</td>
<td>95 70 150 110 210 155</td>
<td>M14 X 1.5</td>
<td>99 73 155 115 215 160</td>
</tr>
<tr>
<td>9/16-18</td>
<td>105 79 165 120 235 170</td>
<td>M14 X 2</td>
<td>145 105 225 165 315 230</td>
</tr>
<tr>
<td>5/8-11</td>
<td>130 97 205 150 285 210</td>
<td>M16 X 2</td>
<td>145 105 225 165 315 230</td>
</tr>
<tr>
<td>5/8-18</td>
<td>150 110 230 170 325 240</td>
<td>M16 X 1.5</td>
<td>155 115 240 180 335 245</td>
</tr>
<tr>
<td>3/4-10</td>
<td>235 170 360 265 510 375</td>
<td>M18 X 2.5</td>
<td>195 145 310 230 405 300</td>
</tr>
<tr>
<td>3/4-16</td>
<td>260 190 405 295 570 420</td>
<td>M18 X 1.5</td>
<td>220 165 350 260 485 355</td>
</tr>
<tr>
<td>7/8-9</td>
<td>225 165 585 430 820 605</td>
<td>M20 X 2.5</td>
<td>280 205 440 325 610 450</td>
</tr>
<tr>
<td>7/8-14</td>
<td>250 185 640 475 905 670</td>
<td>M20 X 1.5</td>
<td>310 230 650 480 900 665</td>
</tr>
<tr>
<td>1-8</td>
<td>340 250 875 645 1230 910</td>
<td>M24 X 3</td>
<td>480 355 760 560 1050 780</td>
</tr>
<tr>
<td>1-12</td>
<td>370 275 955 705 1350 995</td>
<td>M24 X 2</td>
<td>525 390 830 610 1150 845</td>
</tr>
<tr>
<td>1-7/8</td>
<td>480 355 1080 795 1750 1290</td>
<td>M30 X 3.5</td>
<td>960 705 1510 1120 2100 1550</td>
</tr>
<tr>
<td>1-1/2</td>
<td>540 395 1210 890 1960 1440</td>
<td>M30 X 2</td>
<td>1060 785 1680 1240 2320 1710</td>
</tr>
<tr>
<td>1-1/4</td>
<td>680 500 1520 1120 2460 1820</td>
<td>M36 X 3.5</td>
<td>1730 1270 2650 1950 3660 2700</td>
</tr>
<tr>
<td>1-1/2</td>
<td>750 555 1680 1240 2730 2010</td>
<td>M36 X 2</td>
<td>1880 1380 2960 2190 4100 3220</td>
</tr>
<tr>
<td>1-1/4</td>
<td>890 655 1990 1470 3230 2380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5/8</td>
<td>1010 745 2270 1670 3680 2710</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/2</td>
<td>1180 870 2640 1950 4290 3160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/4</td>
<td>1330 980 2970 2190 4820 3560</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

---

**Disk Gang Torque** 1³/₄"-5 | 900-1100ft-lbs (170 lbs on 6' Cheater)
---

<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>5/₁₆&quot;-18 (80-90ft-lbs)</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
Hydraulic Connectors and Torque

Refer to Figure 19 (a hypothetical fitting)
Leave any protective caps in place until immediately prior to making a connection.

1. **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.

2. **JIC** - Joint Industry Conference (SAE J514)
   - Note straight threads (4) and the 37° cone (5) on “M” fittings (or 37°-flare on “F” fittings).
   - Use no sealants (tape or liquid) on JIC fittings.

3. **ORB** - O-Ring Boss (SAE J514)
   - Note straight threads (5) and elastomer O-Ring (7).
   - 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 (8) and jam nut (9) (“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.

---

### Tire Inflation & Warranty

#### Tire Inflation Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing</td>
<td>12.5L x 15</td>
<td>52 psi</td>
</tr>
<tr>
<td></td>
<td>12-Ply RI</td>
<td>(358 kPa)</td>
</tr>
<tr>
<td>Transport</td>
<td>340/60 R 16.5</td>
<td>73 psi</td>
</tr>
<tr>
<td></td>
<td>(503 kPa)</td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>380/55 R 16.5</td>
<td>73 psi</td>
</tr>
<tr>
<td></td>
<td>(503 kPa)</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Gauge Wheel</td>
<td>11L x 15</td>
<td>52 psi</td>
</tr>
<tr>
<td></td>
<td>12-Ply RI</td>
<td>(358 kPa)</td>
</tr>
<tr>
<td>Manual Gauge Wheel</td>
<td>9.5 x 15</td>
<td>44 psi</td>
</tr>
<tr>
<td></td>
<td>8-Ply</td>
<td>(303 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.

- **Manufacturer Web site**
  - Firestone www.firestoneag.com
  - Gleason www.gleasonwheel.com
  - Titan www.titan-intl.com
  - Galaxy www.atgtire.com
  - BKT www.bkt-tire.com

---

### 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>
Narrow Center Hydraulic Lift Layout

See Hydraulic Section for Parts Layout

Center Lift Hydraulic Hoses and cylinders are mounted underneath the center frame.
Wide Center Hydraulic Lift Layout
Hydraulic Fold Layout 23
Hydraulic Fold Layout 26-36
Hydraulic Level Layout 23-36

See Hydraulic Section for Parts Layout

- Red Extend to Bulkhead
- Red Retract to Bulkhead
- Hose Wrap, Large
- Clamp
- Bulkhead to Rear Lock Valve Left V
- Lock Valve Left C to Cylinder Base End
- Lock Valve Right C to Cylinder Rod End
- Lock Valve Mounted Underneath Frame
Hydraulic Reel Layout
HS2100-23 Machine Layout
HS2100-23 Machine Layout
HS2100-26 Machine Layout
HS2100-26 Machine Layout
HS2100-29 Machine Layout
HS2100-29 Machine Layout
HS2100-30 Machine Layout
HS2100-30 Machine Layout
HS2100-33 Machine Layout

7 1/2" Gang Spacing

2" Smaller Dia. Heavy 40A Blade

7 Blade LH Gang

LEFT HAND GANGS

8 Blade LH Gang

12 Blade LH Gang

2" Dia. Smaller Blade

3-Sided Blade

Full Size Dia. Blade

2
dia. Smaller Blade

11 Blade RH Gang

8 Blade RH Gang

9 Blade RH Gang

RIGHT HAND GANGS

Full Size Dia. Blade
HS2100-33 Machine Layout
HS2100-36 Machine Layout

7 1/2" Gang Spacing

TP-69466
HS2100-36 Machine Layout
HS2100-23DH Finishing Reel Layout
HS2100-26DH Finishing Reel Layout
HS2100-29DH Finishing Reel Layout
HS2100-30 Finishing Reel Layout
HS2100-33 Finishing Reel Layout
HS2100-36 Finishing Reel Layout
A
address, Great Plains .................6
Assembly ....................................7
B
banding .....................................6
C
CAUTION, defined ....................1
chains and tie-downs .................6
children ....................................2
clothing ....................................2
color code, hose .........................14
components ................................6
contact Great Plains ..................6
covered models ..........................4
C-shank alignment .....................18
D
DANGER, defined ......................1
decals .......................................1
definitions ..................................5
directions ....................................5
E
e-mail, Great Plains .....................6
F
finishing attachments ..................6
fire ...........................................1
fork truck ..................................6
G
gangs ........................................6
gauge wheel ...............................17
H
headphones ................................2
hearing .....................................2
high pressure fluids ....................2
hitch lever link assembly .............11
hose clamps ................................14
hose handles ..............................14
hydraulic assembly .....................13
hydraulic connectors .................20
hydraulic hoses .........................14
hydraulic safety .........................2
I
IMPORTANT!, defined .................5
inflation ....................................20
J
JIC ..........................................20
Joint Industry Conference ..........20
J514 ........................................20
L
layout
   HS2100 Hydraulic Reel Layout .....27
   HS2100-23 finishing reel ..........40
   HS2100-23 hydraulic fold ..........24
   HS2100-23 machine .................28, 29
   HS2100-26 finishing reel ..........41
   HS2100-26 machine ..................30, 31
   HS2100-29 finishing reel ..........42
   HS2100-29 machine ..................32, 33
   HS2100-30 finishing reel ..........43
   HS2100-30 machine ..................34, 35
   HS2100-33 finishing reel ..........44
   HS2100-33 machine ..................36, 37
   HS2100-36 finishing reel ..........45
   HS2100-36 machine ..................38, 39
   hydraulic fold-26-36 ...............25
   hydraulic hitch level ...............26
   hydraulic lift-narrow center ........22
   hydraulic lift-wide center ..........23
   leaks ........................................2
   left-hand, defined .....................5
   level ........................................6
   lifters .....................................1
   light brackets ...........................16
   lights .......................................2
   medical assistance ..................2, 14
   misc boxes ................................6
   National Pipe Thread ...............20
   Note, defined ............................5
   NPT .........................................20
   O
   ORB ..........................................20
   orientation rose .......................5
   O-Ring Boss ..............................20
   P
   parking brakes ..........................6
   pre-assembly checklist .............4
   protective equipment ...............2
   purging
      fold system ............................15
      lift system ............................15
   R
   riders ......................................2
   right-hand, defined ..................5
   rose, orientation .....................5
   S
   SAE J514 ..................................20
   safety symbol ............................1
   shipping stands .......................6
   shutdown ..................................2
   storage ....................................2
   support ....................................6
   symbol, safety ...........................1
   T
   tables
document family .......................4
   fittings torque .........................20
   hose color code .......................14
   models covered .......................4
   tire inflation ............................20
   torque values ...........................19
   tire inflation ............................20
   tires ........................................3
   torque value chart ...................19
   trailer bed ..............................6
   truck driver .............................6
   U
   Unloading .................................6
   unloading .................................6
   URLs, tires ..............................20
   W
   WARNING, defined ....................1
   warranty ..................................20
   wings ......................................6
   www .........................................20

Numerics
12.5Lx15 SL ..............................20
30x8.8x15 ..................................20
556-428M, manual .....................4
556-428P, manual .....................4
556-428Q, manual .....................4