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.
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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 Turbo Max using blocks and supports provided.
▲ Detach and store Turbo Max 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 Turbo Max 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 850-1000TM Turbo Max is a one section “vertical” tillage tool. Working width ranges from 8.5 to 10 feet. The implement is designed to cut and size residue, till soil for faster seedbed warming, break up soil crust on hard dried fields while eliminating compaction layers. The front and rear gangs may be adjusted from 0-6 degree angle, depending on the aggressiveness desired. Various finishing attachments are also available to further smooth, redistribute residue, kill weeds, and break clods.

Models Covered

850TM 8’ 6” (7.5in) spacing
1000TM 10’ (7.5in) spacing

Document Family

586-592Q Pre-Delivery Manual
586-592M Operator Manual
586-592P Parts Manual
586-592Q-ENG Assembly Manual (this document)

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.

**Note:** 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 Inventory

The machine will be shipped unassembled as shown in a big shipping rack and shipping boxes on pallets. The only parts that will be assembled are the gang assemblies, reel and rolling harrow attachment assemblies.

Refer to Figure 3

- All frame sections, hitch and torque tubes will be shipped in shipping container rack.
- Small parts and bolts will be shipped in boxes.

Refer to Figure 4

- Rear attachments and gang assemblies will be shipped in shipping container rack.
- Shipping containers or racks do not need to be returned to Great Plains.
Unloading

Once everything is unloaded from “storage pod” you may proceed with taking parts out of shipping containers. Carefully move everything to level site and prepare to un-pack items.

Unpacking Components

Be sure you have read and understood the Important Safety Information, starting on page 1 of this manual, before you start unpacking components.

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

Carefully un-band components.

Now unload individual components one at a time using a fork truck or overhead hoist.

Move each component out of the way so you have plenty of room to remove the next one.

Unload Smaller Items First

Unloading the frames is a potentially dangerous operation.

Reduce risk and complication by first unloading
1. the tire wheel assemblies,
2. the smaller items

Place these components well out of the maneuvering area needed for unloading the gang assemblies and frames.
3. Carefully unload the frames and hitch out of shipping rack

Unpacking Boxes

1. Carefully remove banding and lids from boxes.
2. Locate and identify all components before assembling.

Further Assistance

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

Great Plains Service Department
1325 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

Center Frame & Lift Assembly

Refer to Figure 5

**Note:** Once the center frame has been uncrated and put on stands, the rest of components may be installed. See “Parts Manual” for part numbers and description of parts.

3. Carefully lower the torque tube 2 with an overhead hoist until holes are aligned with the holes on top of center frame 1 and secure with 1 3/4 x 7 pins 3, 3/8 x 2 1/4 Gr. 8, special thread bolts 4 and 3/8 top lock nuts.

4. Align hole in lift strap 5 and cylinder mount plate 6 in proper orientation shown in drawing. Secure lift strap 5 with 1 x 3 1/2 hex bolts 6 and 1 lock nuts, rear of cylinder mount plate 6 to plates of torque tube 2 with 1 x 4 hex bolt 7 and 1 lock nut.

5. Install the cylinders 9 using 1 x 3 1/8 pins 10, 1.5 x 1.0 x .075 machine washers and 3/16 x 2 cotter pin.

6. Install cylinder transport locks 11 to cylinders 9 using pins and clip pins.

7. Install the two, double block tees 12 in orientation and positions shown with 5/16 x 2 1/2 hex bolts 13, 5/16 lock washers (rear), 5/16 x 4 hex bolts 14, 5/16 lock washers and 5/16 nuts (front).

8. Install the counterbalance valve 15 to front tube with 5/16 x 3 1/2 hex bolts 16, 5/16 lock washers and 5/16 nuts.

9. Attach lock valve 17 to front tube with 1/4 x 2 hex bolts 18, 1/4 lock washers and 1/4 nuts.

10. Tighten all bolts with lock nuts snug, but do not torque. The rest of the bolts may be tightened to specs, See “Torque Values Chart” on page 23.
Center Transport

Refer to Figure 6

11. Slide hub/spindle assemblies 1 into torque tube 2 and align holes. Secure with 3/4 x 5, Gr. 5 hex bolts 3 and 3/4 top lock nut.


13. Tighten all bolts with lock nuts snug, but do not torque. The rest of the bolts may be tightened to specs, See “Torque Values Chart” on page 23.

Figure 6
Center Transport
Trusses & Level Bar

Refer to Figure 7

14. Attach hitch trusses ① with $\frac{3}{4} \times 2$ hex bolt ② (front & rear plates), $\frac{3}{4} \times 2\frac{1}{2}$ hex bolt ③ (middle plates), $\frac{3}{4}$ lock washers and $\frac{3}{4}$ nuts.

15. Install level bar ④ to torque tube with 1.0 x 8.67 USBL hardened pin ⑤, $\frac{3}{8} \times 2\frac{1}{4}$, Gr. 8 hex bolts ⑥ and $\frac{3}{8}$ nylon lock nut.

16. Install h-bracket assembly ⑦ to front of level bar ④ with $\frac{3}{4} \times 2$, Gr. 8 hex bolts ⑧, $\frac{3}{4}$ lock washers and $\frac{3}{4}$ nuts.

17. Install bottom of h-bracket assembly ⑦ to front of center frame with 1 x $3\frac{1}{4}$ clevis pin ⑨, 1.5 x 1.00 x.075 machine washer ⑩ and $\frac{1}{16} \times 2$ cotter pin.

18. Tighten all bolts with lock nuts snug, but do not torque. The rest of the bolts may be tightened to specs, See “Torque Values Chart” on page 23.
Hitch

Refer to Figure 8

19. Bolt the hitch frame ① to front trusses with the 1 1/4 x 8 Gr. 8 bolts ②, 1 1/4 flat washer ③, and 1 1/4 top lock nuts. Tighten bolts snug, do not torque, as the hitch must pivot freely.

20. Install jack ④ on the front of the hitch.

21. Attach h-bracket ⑤ in orientation shown below with 1 x 2 29/64 clevis pins ⑥, 1.5 x 1.00 x 0.075 machine washers and 3/16 x 2 cotter pins.

22. Attach level bar tube ⑦ with 1 1/4 x 8 1/2 Gr. 8 special thread bolts ⑧, rear bolt from left side, front bolt from right side and secure with 1 1/4 top lock nuts.

23. Attach rear of level turnbuckle ⑨ with 1 x 8 Gr. 8 special thread bolts ⑩, front with 1 x 6, Gr. 8 special thread bolt ⑪ and 1 top lock nuts.

24. Attach two, 1 3/4 gang wrenches ⑫ and one, 2 5/16 - 1 15/16 turnbuckle wrench ⑬ over pegs on back of hitch, secure with Lynch pin w/cotter/chain.

25. Install the spring hose holder ⑭ to welded nut on front of hitch with 1/2 x 1 Gr. 5 bolt ⑮, 1/2 lock washer and 1/2 flat washer.

26. Align holes in hitch base ⑯ with holes on front of hitch frame ①. Align holes of safety chain support ⑰ in orientation shown, secure with two, 1 x 8 Gr. 8 special thread bolts ⑱, six, 1 flat washers ⑲ (4 right side, 2 left side), 1 lock washers and 1 nuts.

27. Attach safety chain ⑳ to bottom side of hitch frame ①, secure with 7/8 x 3 hex bolt ㉑, 7/8 flat washer, 7/8 lock washer and 7/8 nut.

28. Mount manual pack ㉒ with 1/4 x 1 hex bolts ㉓, mini end wheel press wheels ㉔, 1/4 lock washers and 1/4 nuts.

29. Tighten all bolts with lock nuts snug, but do not torque. The rest of the bolts may be tightened to specs, See “Torque Values Chart” on page 23.
Depth Stop & Angle Gauge

Refer to Figure 9

**Note:** See machine layout drawings in Appendix for proper gang gauge placement for each model.

30. Slide depth stop tube (1) from rear of machine through square hole on depth control bracket on center wing frame. Align rear holes over lever on torque tube, secure with $\frac{1}{2} \times 3$ hex bolt (2), $\frac{1}{2}$ top lock nut.

31. Fasten depth stop assembly (3) on top of depth stop tube with $\frac{1}{2} \times 2\frac{1}{2}$ hex bolts (4), $\frac{1}{2}$ lock washers and nuts.

32. Attach angle gauge bracket assembly (5) to front of center frame with $\frac{1}{2} \times 3\frac{3}{32} \times 6$ u-bolts (6), $\frac{1}{2}$ lock washers and $\frac{1}{2}$ nuts.

33. Attach gauge link (7) to gauge bracket assembly (5) with $\frac{3}{4} \times 1\frac{1}{4}$ hex bolt (8) and $\frac{3}{8}$ top lock nut, Do not attach other end of gauge link (7) until gang assemblies are installed, See “Center Gang Bar” on page 16,

34. Attach depth control valve (9) to top of depth stop bracket (plunger forward), with $\frac{5}{16} \times 2$ hex bolts (10) and $\frac{5}{16}$ lock washers.

35. Tighten all bolts with lock nuts snug, but do not torque. The rest of the bolts may be tightened to specs, See “Torque Values Chart” on page 23.
Attach Hose Clamps and Hose Wraps

**Note:** Refer to hydraulic layouts in “Appendix” section of this manual for proper lift and fold hose routing on center and wings. Do not clamp hoses on hitch until gang hoses are hooked up. See “**Gang Cylinder Purging**” on page 14. See “**Hydraulic Connector ID**” on page 24 for proper fitting installation.

**Refer to Figure 10**

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

37. Install hose wraps on hoses as needed.

**Note:** 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**

38. 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 Adjustment (2 hoses) (Optional)</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 11**

39. 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.

40. Once all hoses are tightened, hook hoses to tractor.
Purging Lift System

Note: When lift hoses are routed and hooked up to cylinders and valves the systems will need purged of air. Purging the lift system now will allow the machine to be raised up or down for ease of gang assembly installation.

Refer to Figure 12

41. Charge the lift system first. Extend the lift cylinders (black handles) until the center section is fully raised. Remove the $\frac{3}{8} \times 3$ transport lock pins from transport locks and store on lift straps. Raise and lower the lift system several times to purge air from system. Watch for leaks and re-tighten fittings if necessary.

42. The gang angle system may not be purged until after hoses and valves are hooked up when gang assemblies and cylinders are installed. See "Gang Cylinder Purging (optional)" on page 14 for purging gang system.

Gang Cylinder Purging (optional)

Refer to Figure 13

Note: Refer to hydraulic layouts in “Appendix” section of this manual for proper gang hose routing on the center frame. See “Hydraulic Connector ID” on page 24 for proper fitting installation. See “Hose Clamp Assembly” on page 13 for proper clamping of hoses.

43. Retract and extend the gang system (Red Handles) several times to purge air from system. Watch for leaks and re-tighten fittings if necessary.
Hose Routing Hitch

Refer to Figure 14

44. Route hydraulic hoses ② from valves ③, on center frame, gang hoses and light harness, under manual pak bracket ④, under front of hitch turnbuckle ⑤ along all hose clamp blocks and through spring hose holder loop to front of hitch ⑥ as shown. Secure hoses with hose clamps ⑦, 5/16 hex bolts and 5/16 lock washers.

45. Be sure all hose clamp bolts are tight. Attach hose wraps ⑧ as needed. Check that all hoses on machine are fastened properly and they won’t get pinched at hinge points or drag on ground. Check all connections again for leaks.
Center Gang Bar

**Note:** Refer to center gang bar assembly in “Parts Manual” for correct part numbers of all components. Refer to machine layout drawings in this manual for correct gang assembly placement.

Refer to Figure 15

46. Position gang assemblies ① in proper locations. Install the gang pivot bolt ② through tubes of gang bars and tubes on center frame, secure with 11/4 flat washers ③ (one on top and one on bottom), 11/4 slotted nut ④ (one on top and one on bottom). Tighten bolts snug, torque to 350 to 400ft-lbs. Install the 3/16 x 2 cotter pins ⑤ through 11/4 slotted nuts ④ and bend over to secure.

47. Install turnbuckle assembly ⑥, adjustable end on ear of rear gang bars and fixed end on rear of front gang bar. Secure with 1 x 31/4 clevis pin ⑦, 1.5 x 1.00 x 0.075 machine washer ⑧ and 3/16 x 2 cotter pin ⑤.

**Note:** See gang angle adjustment in “Operator Manual” before going to field.

48. Install two round tubes ⑨, between bottom front plate ⑩ (slotted hole toward rear), rear plates ⑪ and plates on center frame. Install the 3/4 x 6 hex bolts ⑫, 3/4 lock washers and 3/4 nuts. Attach other ends of plates ⑪ and ⑫ to bottom of center frame with 3/4 x 2 hex bolts ⑬ and 3/4 lock washers.

49. Install bracket ⑭ on bottom side of gang bar plate, secure with 5/8 x 31/2 hex bolts ⑮, 5/8 lock washers and 5/8 nuts.

**Note:** If your machine is equipped with hydraulic gang adjustment continue with these steps.

50. Now the ratchet jacks ⑮, may be installed using 1 x 31/8 clevis pin ⑬, 1.5 x 1.00 x 0.075 machine washer ⑪ and 3/16 x 2 cotter pin ⑤.

**Note:** If your machine is equipped with hydraulic gang adjustment, install the hydraulic cylinders with the same hardware that is used to install the ratchet jacks, 1 x 31/8 clevis pin ⑬, 1.5 x 1.00 x 0.075 machine washer ⑪ and 3/16 x 2 cotter pin ⑤. Complete step 51.

51. Install other end of gauge link ⑭ to ear on front of the left, front gang tube, secure with 3/8 x 11/4 hex bolt ⑯, 3/8 top lock nut.

52. Bolts may be tightened to specs, See “Torque Values Chart” on page 23 and all cotter pins may be bent.

53. Hook gang cylinder hoses to gang cylinders, be sure all fittings are tightened to specs, See “Hydraulic Connector ID” on page 24. Now the gang system may be purged of air, See “Gang Cylinder Purging” on page 14.

54. Bolts may be tightened to specs, See “Torque Values Chart” on page 23 and all cotter pins may be bent.
Figure 15
Center Gang Bar

43934
Lights and SMV Assembly

Refer to Figure 16

55. Fasten LH ① and RH ② light brackets to center frame with \(1/2 \times 5\frac{1}{32} \times 4\) u-bolts ③, \(1/2\) lock washers and \(1/2\) nuts.

56. Attach smv mount ④ to rear tube of center frame, with \(1/2 \times 3\frac{1}{32} \times 6\) u-bolts ⑤, \(1/2\) lock washers and \(1/2\) nuts. Attach smv sign ⑥ to back side of smv mount ④, secure with \(1/4 \times 3/4\) pan head screws ⑦, \(1/4\) lock washers and \(1/4\) nuts.

57. Route light harness 30’ lead ⑦ from front of hitch (tractor plug to front), along same route as hydraulic hose (fasten in same clamps and hose wraps as hoses). Plug one end of enhance light harness ⑧ to small end of light harness 30’ lead ⑦. Plug bigger end of wishbone light harness ⑨ into other end of enhance light module ⑧. Route other ends over towards (marked left and right) the light mounting brackets as shown.

58. Mount red ⑩ and amber lamps ⑪ to top of light brackets ① and ②, with \(1/4 \times 1\frac{1}{4}\) Gr. 5 hex bolts ⑫ and \(1/4\) lock nuts.

59. Tighten all bolts with lock nuts snug, but do not torque. The rest of the bolts may be tightened to specs, See “Torque Values Chart” on page 23. Be sure and get all wiring harnesses fastened up securely with hose wraps or clamps (if routed close to hydraulic hoses) or use cable ties ⑬.
Figure 16
Lights & SMV
Rolling Harrow (optional)

**Note:** It is very important to install the rolling harrow assembly in the order shown below and go to the rolling harrow placement drawing, see “Layout Section” of this manual for proper dimensions where it is marked xxx in drawing below. The rolling harrow bracket dimensions are coming off of rear, front tube of drag frame 1 to front of plate of rolling harrow bracket 2. The ball joint bracket 8 is dimensioned off of end of rolling spike tube 3 to side of plate on ball joint bracket 6 (dimensions in layout drawings may come off either end of tube). For complete parts breakdown see “Attachment Section” of Parts Manual.

**Refer to Figure 17**

60. Start by installing the drag frames 1 with 3/4 x 2 hex bolts 2, 3/4 lock washers and 3/4 nuts. Torque bolts to 265 ft-lb.

61. Attach rolling harrow brackets 3 in appropriate location with 5/8 x 3 1/32 x 4 1/2 u-bolts 4, secure with 5/8 lock washers and 5/8 nuts. Adjust the bracket to dimensions shown in layout drawings and torque u-bolts to 150 ft-lb.

62. Attach ball joint brackets 6 and 7 to rolling spike tube assembly 8 with 5/8 x 3 1/32 x 4 1/2 u-bolts 4, secure with 5/8 lock washers and 5/8 nuts. Place left ball joint brackets 8 in proper location from layout drawing and torque u-bolts to 150 ft-lb. Leave right ball joint bracket 7 loose, as it may need move a little to bolt up to right rolling harrow bracket 3.

63. Align ball joint brackets 6 and 7 to rolling harrow brackets 3, secure with 1 x 4 hex bolts 5 and 1 nylon lock nut. Torque bolts to 645 ft-lb. Also torque the 5/8 x 3 1/32 x 4 1/2 u-bolts 4 in right ball joint brackets 7 to 150 ft-lb.

64. Tighten all bolts with lock nuts snug, but do not torque. The rest of the bolts may be tightened to specs, See “Torque Values Chart” on page 23.
Reel Following Rolling Harrow (optional)

**Note:** It is very important to install the reel assembly in the order shown below and go to the rolling harrow placement drawing, see “Layout Section” of this manual for proper dimensions where it is marked xxx in drawing below. The reel arm assemblies 1 dimensions are coming off of rear tube of drag frame to side of plate of reel arm assemblies 1. The reel tube assemblies 3 are dimensioned off of end of reel tube to side of plate on reel arm assembly 1 (dimensions in layout drawings may come off either end of tube). For complete parts breakdown see “Attachment Section” of Parts Manual.

**Refer to Figure 18**

65. Install mounting reel arm assemblies 1 in position shown in reel following rolling harrow placement drawing with \(5/8 \times 3\frac{1}{32} \times 4\frac{1}{2}\) u-bolts 2, \(5/8\) lock washers and 5/8 nuts. Torque u-bolts to 150ft-lb.

66. Attach reel tube assemblies 3 in direction shown in circle and place them in position shown (with arrow towards machine) with \(5/8 \times 2\ 17/32 \times 3\frac{1}{2}\) u-bolts 3, secure with \(5/8\) lock washers and \(5/8\) nuts. Torque u-bolts to 150ft-lb.

67. Check to see that all bolts have been tightened to specs, See “Torque Values Chart” on page 23.
Weight Package Assembly (optional)

Refer to Figure 19

**CAUTION**

Lower machine until coulters are on ground and pressure is off leveling system.

**Note:** Up to 1 set of weights (2 weights) may be used in positions shown.

68. Start by removing the \( \frac{3}{4} \times 2 \) Gr. 8 bolts 1 from level bar assembly.

69. Pivot level bar 2 up so there will be clearance to set the 750 pound weight assemblies 4 into place.

70. Pivot level bar spring assembly 3 forward.

71. Carefully lower the 750 pound weight assemblies 4 onto center frame trusses 5.

72. Slide rear weights as far forward as possible and install weight box stops 6 on inside of trusses as close to weight as possible (rear weights), secure with \( \frac{1}{2} \times 4 \frac{1}{2} \times 5 \frac{1}{8} \) u-bolt 7, \( \frac{1}{2} \) lock washers and \( \frac{1}{2} \) nuts.

73. Torque u-bolts to 85 ft-lbs.

Refer to Figure 20

74. Pivot level bar 2 and the level bar spring assembly 3 until holes in plates are aligned.

75. Re-install \( \frac{3}{4} \times 2 \) Gr. 8 bolts 1, secure with \( \frac{3}{4} \) lock washers and \( \frac{3}{4} \) nuts.

76. Torque \( \frac{3}{4} \times 2 \) Gr. 8 bolts 1 to 375 ft lbs to be sure bolts do not work loose and cause damage to machine.

**Completing Setup**

77. The decals may now be installed.

78. See appropriate pages for decals in the “Parts Manual” for decal placement.

79. To install new decals:
   a. Clean the area on which the decal is to be placed.
   b. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.
   c. Slowly peel away top protective covering being careful not to pull decal from implement.

80. If machine has an optional finishing attachment or rear hitch, refer to the “Parts Manual” for parts break down and attachment layout drawings of this manual.

81. Be sure to consult the operating instructions, in “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>Grade 2</th>
<th>Grade 5</th>
<th>Grade 8</th>
</tr>
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<tbody>
<tr>
<td>1/2-20</td>
<td>11</td>
<td>8</td>
<td>12</td>
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<tr>
<td>1/4-28</td>
<td>13</td>
<td>10</td>
<td>14</td>
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<tr>
<td>5/16-18</td>
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<td>13</td>
<td>17</td>
</tr>
<tr>
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<td>27</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>5/16-14</td>
<td>31</td>
<td>22</td>
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<tr>
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<td>36</td>
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<tr>
<td>1/2-13</td>
<td>66</td>
<td>49</td>
<td>54</td>
</tr>
<tr>
<td>9/16-12</td>
<td>75</td>
<td>55</td>
<td>57</td>
</tr>
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<td>95</td>
<td>70</td>
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<td>81</td>
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<td>3/4-10</td>
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<td>97</td>
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<td>3/4-16</td>
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<td>11/16-7</td>
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<table>
<thead>
<tr>
<th>Bolt Head Identification</th>
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<tbody>
<tr>
<td>N-m ft-lb</td>
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<tr>
<td>N-m ft-lb</td>
</tr>
<tr>
<td>N-m ft-lb</td>
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</table>

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Class 5.8</th>
<th>Class 8.8</th>
<th>Class 10.9</th>
</tr>
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<tbody>
<tr>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
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</tr>
<tr>
<td>M 5 X 0.8</td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>M 5 X 1</td>
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<td>5</td>
<td>11</td>
</tr>
<tr>
<td>M 8 X 1.5</td>
<td>17</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>M 8 X 1.5</td>
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<td>28</td>
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<td>M 10 X 1.5</td>
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<td>M 10 X 0.75</td>
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<td>M 16 X 2</td>
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<td>M 16 X 1.5</td>
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<td>185</td>
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<td>M 24 X 3</td>
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<td>M 30 X 3.5</td>
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<td>M 36 X 3.5</td>
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<tr>
<td>M 36 X 2</td>
<td>199</td>
<td>134</td>
<td>270</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 torquing values. Unless otherwise specified use torque values listed above.

### Torque Values Chart

<table>
<thead>
<tr>
<th>Torque Values</th>
<th>5/8&quot;-18 (85-100ft-lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gang Bolt Torque 1 3/4&quot;-5</td>
<td>850 Foot-pounds (165 lbs on 5’ cheater).</td>
</tr>
<tr>
<td>Rolling Harrow Spike Bolt 1 1/2&quot;-6</td>
<td>650-750 Foot-pounds (175 lbs on 4’ cheater).</td>
</tr>
<tr>
<td>Wheel Bolt Torque Values</td>
<td>5/8&quot;-18 (85-100ft-lbs)</td>
</tr>
</tbody>
</table>
Tire Inflation Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<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.

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

Hydraulic Connectors and Torque

Refer to Figure 21 (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 and the 37° cone 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 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.

4. 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.
Hydraulic Lift Layout
Hydraulic Gang Angle Layout (optional)
850TM Machine Layout
1000TM Machine Layout
850TM Rolling Harrow Layout
850TM Heavy Reel Following Rolling Harrow Layout
1000TM Rolling Harrow Layout
1000TM Heavy Reel Following Rolling Harrow Layout
Great Plains, Mfg.
1525 E. North St.
P.O. Box 5060
Salina, KS 67402

“Harvest Starts Here.”