Pre-Delivery Manual
Turbo Max (S/N GP-C2411H+)
1800TM, 2400TM & 3000TM

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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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 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 1800-3000TM Turbo Max is a three section “vertical” tillage tool. Working width ranges from 18 to 30 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

1800TM 18’ (7.5in) spacing
2400TM 24’ (7.5in) spacing
3000TM 30’ (7.5in) spacing

Document Family

586-536Q-ENG Assembly Manual
586-536Q Pre-Delivery Manual (this document)
586-536M Operator Manual
586-536P 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.

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

Refer to Figure 3

- Models 1800-3000TM center frames will be shipped partially pre-assembled. 1800-2400TM wings will be attached, folded in transport position and hydraulics fully charged. The 3000TM wings will be shipped un-attached and stacked together.

Refer to Figure 4

- The attachment frames (if equipped) will be stacked on pallets and banded together.
- Finishing attachments (if equipped), will be shipped with mounted brackets assembled, reel assemblies 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 stands do not need to be returned to Great Plains.

Unloading

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

CAUTION

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 Turbo Max is a potentially dangerous operation.
1. Reduce risk and complications by first unloading
2. the gangs and finishing attachments
3. the misc. boxes
4. Place these components well out of the maneuvering area needed for unloading the Turbo Max.
5. the Turbo Max (described in the next section)

Unload Turbo Max

6. The center brace bar, front trusses and hitch assembly may be attached to center section on trailer if heavy fork lift is not available to unload machine. See “Assembly” on page 8 to install components needed to pull off side of trailer.
7. If heavy fork lift or two fork lifts are available the machine may be lifted off the truck before assembling rest of machine. Double-check that all chains and tie-down straps have been released and stowed.

8. Set parking brake on tractor and trailer.

9. Slowly lift the Turbo Max off trailer bed using two fork lifts.

10. Stop lifting about 12” above the bed.

11. Have the truck driver slowly pull the trailer straight out from under the Turbo Max.

12. Making sure to keep level from front to back and side to side, slowly lower the Turbo Max.

13. Slowly lower Turbo Max until it is resting on the coulter gangs.

**Unpacking Boxes**

- Position boxes in area that you can maneuver components up to machine to assembly.

14. Carefully remove banding from boxes.

15. Carefully remove banding from brace bars and finishing reels.

16. 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 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

Center Brace Bar

Refer to Figure 5

The center brace bar, level bar and hitch may need to be installed on truck if the machine is to be pulled off side of truck. The bolt kit needed for assembling the rest of machine will be shipped in a bag tied to front of center frame. The center will be shipped partially pre-assembled. See “Parts Manual” for part numbers and description of parts.

17. Align holes in plates of the center brace bar (1) with holes on front of center frame (2), secure with 3/4 x 2 hex bolts (3), 3/4 lock washers and 3/4 nuts.

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

Valve Brackets & Valves

Refer to Figure 6

The valves and brackets should be installed in the correct locations on your machine. If for some reason they are not follow the steps below to install.

19. Use 5/16 x 4 1/2 Gr. 5 hex bolt (3), 5/16 lock nuts and washers to secure the bypass valve (1) to the bypass valve bracket (2).

20. The bypass valve bracket (2) is attached to the center frame using 3/8 x 1 1/4 hex bolts (4), 3/8 lock washers and hex nuts.

21. The lock valve (5) is attached to a mounting plate that is welded to the frame. Use 1/4 x 2 Gr. 5 hex bolts (6) to secure to the frame.

22. Depth control valve (7) is secured to the frame using 5/16 x 2 hex bolts (8) and 5/16 lock washers.

23. Be sure hoses are routed as shown in, See “Valve Brackets & Hoses” on page 9.

Bolts may be tightened to specs, See “Torque Values Chart” on page 29.
Valve Brackets & Hoses

Refer to Figure 7

The hoses will be shipped hooked up to valves, cylinders, bulkhead fittings, and will be routed on the machine in the proper places. The hoses from the hitch will need to be connected to the bulkhead fittings on the center brace bar. The bypass (1), lock valve (2), and depth control valve (3) hoses will be routed underneath or around the weight kits (4) so that they may be installed or removed without taking hoses or valves lose. The hoses will be secured to the frames using hose holders and P-clips. If any of the hoses are not already secured to the frame route the hoses along the path with the hose holders to the bulkhead brackets and fittings. See “Appendix - Reference Information” on page 29 for proper mounting instructions.

Level Bar

Refer to Figure 8

24. Attach level bar (1) with 1 x 9\(\frac{1}{2}\) pin (2). Align hole in pin and holes in collars on outside of torque tube ears, install \(\frac{3}{8}\) x 2\(\frac{1}{4}\) Gr. 8 bolts (3) and \(\frac{3}{8}\) nylock lock nuts.

25. Align bottom holes on h-bracket spring assembly (4) with ears on front of center brace bar, secure with 1 x 3\(\frac{1}{4}\) usable pins (5), 1.5 x 1.0 x 0.075 machine washers (6) and \(\frac{3}{16}\) x 2 cotter pin.

26. Attach front plate of level bar (1) with rear plate of h-bracket spring assembly (4) with \(\frac{3}{4}\) x 2 Gr. 8 hex bolts (7), \(\frac{3}{4}\) lock washers and \(\frac{3}{4}\) nuts.

27. Bolts may be tightened to specs. See “Torque Values Chart” on page 29 and cotter pins bent
**Hitch Assembly**

*Refer to Figure 9*

28. Remove the $1\frac{3}{4} \times 8$ Gr. 8 bolts (2) from the rear of hitch assembly (1). Bolt the hitch assembly (1) to center frame with the $1\frac{3}{4} \times 8$ Gr. 8 bolts (2), $1\frac{3}{4}$ flat washer (3) (one side of uniball to take up space) and $1\frac{3}{4}$ top lock nuts. Tighten bolts snug, do not torque, as the hitch must pivot freely.

29. Install jack (4) on front outside of hitch to support the front of hitch (1) for the rest of assembly.

30. Remove $1\frac{3}{4} \times 8\frac{1}{2}$ Gr. 8 special thread bolt (5) from front short level bar tube (6). Align holes in rear of level bar tube (6) and center hole of h-bracket (7). Install the $1\frac{3}{4} \times 8\frac{1}{2}$ Gr. 8 special thread bolt (5) from the left side and secure with $1\frac{3}{4}$ top lock nut.

31. Bolt the spring hose holder (8) to welded nut on front of hitch with $\frac{1}{2} \times 1$ Gr. 5 bolt (9), $\frac{1}{2}$ flat washer and $\frac{1}{2}$ lock washer.

32. The front of the level turnbuckle (10) may need attached to ears on hitch assembly (1) with $1 \times 6$ hex bolt (11) and 1 top lock nut.

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

**Hose Routing Hitch**

*Refer to Figure 10*

34. Route hydraulic hoses (1) from valves (2), on center brace bar, under manual pak bracket (3), under front of hitch turnbuckle (4) along all hose clamp blocks and through spring hose holder loop (5) to front of hitch (6) as shown. Secure hoses with hose clamps (7), $\frac{5}{16}$ hex bolts and $\frac{5}{16}$ lock washers.

35. The light Harness will need routed with hydraulic hoses along hitch. Be sure all bolts are tight.
Refer to Figure 11

36. If your machine is equipped with the hydraulic hitch option, the hoses will be already attached to the cylinder on the hitch and the lock valve. It will need to be attached to the center frame brace bar the same way as the turnbuckle hitch option.

Wing & Brace Bar

Refer to Figure 12

The wings (3) will come partially pre-assembled. Models 1800-2400 will be shipped with wings (3) attached in folded position but will need wing braces (1) attached as shown. Un-fold wings before attaching wing braces. On models 3000, place wing frame assemblies (3) on stands next to center frame.

37. Attach wing brace (1) to front of wing frame with \(3/4\) x 2 Gr. 5 hex bolts (2), \(3/4\) lock washers and \(3/4\) nuts.

38. Remove wing hinge pins (4) from center frame hinge (5). Attach wing frame assemblies (3) to center frame (5) with the wing hinge pins (4), \(1\frac{1}{4}\) flat washers (6) (rear side of wing hinge tubes only, do not use on wing brace bar) and 1 top lock nuts.

39. Do not hook up rod end of fold cylinder (7) until system is purged of air. See “Purging Hydraulic System 3000” on page 13.

40. Bolt may be tightened to specs, See “Torque Values Chart” on page 29.
3000 Hydraulic Wing Lift & Gangs
Refer to 13

The hydraulic hoses are fastened to correct center frame cylinders, valves and double block tees. The hoses will need unrolled and routed to wings. The hose ends and fittings on cylinders will also have color coded plastic ties to help get the hoses hooked up correctly as it is very important to get them hooked up correctly or hydraulic system will not function properly. Be sure hose ends and fittings are clean before assembling hoses. Be sure 196-430D orifice is installed on rod end outside gang cylinder between cylinder port and 811-063C elbow.

41. Attach hoses to cylinders on wings as shown, See "Hydraulic Lift Layout (S/N GP-C6545H+)" on page 32 See “3000TM Hydraulic Gang Angle Layout (S/N GP-C6545H+)” on page 41.

Do not over tighten hoses as this could cause damage to valves, See “Hydraulic Connector ID” on page 31

42. Fasten hoses to wings with bolts and clamps (provided). Attach hose wraps on hoses to prevent hoses from dragging or getting pinched.

43. Also see Hydraulic Layouts in “Appendix Section” for all hose routing.

Attach Hose Clamps and Hose Wraps
Refer to Figure 13

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

45. 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

46. 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>Gang Adjustment (2 hoses)</td>
</tr>
<tr>
<td>Yellow</td>
<td>Hydraulic Reel Att. (2 hoses) (Optional)</td>
</tr>
</tbody>
</table>

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.
Refer to Figure 14

Hose Handles

47. 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.

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

Purging Hydraulic System 3000

Be sure to remove the cylinder retainers from the lift cylinders before purging air from hoses.

Refer to Figure 15

49. 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 store on lift straps (3). Raise and lower the lift system several times to purge air from system. Retract and extend the gang system (4) (Red Handles) several times to purge air from system. Watch for leaks and re-tighten fittings if necessary.

50. You may now charge the fold system. Before charging the fold cylinders (5), make sure the rod end of the cylinders (are un-bolted or un-pinned and block is placed under cylinders as shown, so that when the rod is extended, it will clear the wing fold brackets. Extend the fold cylinders (5) (green ends) completely and then close them. Extend and retract the cylinders several times to purge air from the system.

51. Now the rod end of fold cylinders (5) may be hooked up to wing with the 1 x 3\(\frac{1}{8}\) usable pin (6), 1.5 x 1.0 x.075 machine washer and 3\(\frac{7}{16}\) x 2 cotter pin. Bend cotter pin over to secure.
Depth Stop & Angle Gauge

Refer to Figure 16

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

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

53. 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.

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

55. Attach gauge link (7) to ear on front of center frame and gauge bracket assembly (5), secure with \( \frac{3}{8} \times 1\frac{1}{4} \) hex bolts (8) and \( \frac{3}{8} \) top lock nuts.
56. Bolt may be tightened to specs, See “Torque Values Chart” on page 29.

Figure 16
Depth Stop & Angle Gauge
Lights & SMV

Refer to Figure 17

See layout drawings in Appendix for proper light bracket placement as all four brackets are different. If machine is equipped with a rear attachment the rear light brackets (7) will need to be mounted to the rear tube of the center drag frame. The SMV sign will be shipped in a bag and will need installed on the rear of the machine.

57. Remove u-bolts from light brackets. Install the light brackets (1) and (2) with the \(1\frac{1}{2} \times 3\frac{1}{32} \times 6\) u-bolts (3), \(1\frac{1}{2}\) lock washers and \(1\frac{1}{2}\) nuts.

58. Attach the SMV sign (4) to the rear of the smv bracket (5) with \(1\frac{3}{4} \times \frac{3}{4}\) pan head screws (6), \(1\frac{3}{4}\) lock washers and \(1\frac{3}{4}\) nuts.

59. Tighten all bolts to specs, See “Torque Values Chart” on page 29.

Rear Lights

Refer to Figure 18

See layout drawings in Appendix for proper light bracket placement. If machine is not equipped with a rear attachment the rear light brackets will need to be mounted to the rear plate of the center frame with the \(\frac{3}{4} \times 2\) bolts (3).

60. Remove bolts from light brackets. Install the LH (1) and RH (2) light brackets to plates of center drag frame (4) with the \(\frac{3}{4} \times 2\) bolts (3), \(\frac{3}{4}\) lock washers and \(\frac{3}{4}\) nuts.

61. Tighten all bolts to specs, See “Torque Values Chart” on page 29.
3000 Wing Fold Assist

Refer to Figure 19

1. Wings need to be folded up when installing the proximity sensor (4) to prevent damage to sensor and brackets. Be sure wing safety lock pins are installed.

62. Slide proximity mount bracket (1) over hinge pin (2) in orientation shown, secure with 1 lock nut (3). Tighten 1 lock nut (3) snug but do not torque.

63. Slide proximity sensor (4) through inside, big hole of proximity mount bracket (1) from rear. Be sure there is a nut (5) on back side of bracket and secure with a nut (5) on front side. Route leads of proximity sensor (4) towards center of machine on front tube of center frame as shown.

64. Plug short leads of the fold assist harness (6), one end to the light harness lead w/valve (7) and the other end into the lead from the bypass down pressure valve solenoid (8).

65. Route the rest of fold assist harness (6) as shown back to front tube of center frame and attach plugs to the proximity sensor (4) leads.

66. 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.
Proximity Sensor Adjustment

Refer to Figure 20

Wings need to be folded up when adjusting the proximity sensor (1) to prevent damage to sensor and bracket. Be sure and adjust proximity sensors before unfolding. Be sure wing safety lock pins are installed.

67. Loosen nuts (2) (one on front and one on back side of sensor bracket, adjust the proximity sensor (1) to \( \frac{1}{8} \)" to \( \frac{1}{4} \)", from front of proximity sensor (3) to rear of wing tube (4) as shown.

68. Re-tighten nuts (2) to secure proximity sensor (1).

Figure 20
Priority Sensor Adjustment
Install Decals

Refer to Figure 21

The center brace bar decals will need installed in locations shown. Clean the area on which the decal is to be placed. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.

69. Install two, 838-615C amber decals (1) (one each side).

70. Install one 838-611C hand crushing decal (2) on front of brace bar (right side).

Refer to Figure 22

71. Install one, 848-972C bypass valve operating instruction decal (3) on front of truss (left side) (5).

72. Install one, 848-844C fold valve decal (4) on front tube of center brace bar (left side) (6) with arrow pointing towards two way fold valve (7).
Rolling Harrow (optional)

Refer to Figure 23

All rolling harrow brackets (3) and ball joint brackets (6) and (7) should be already installed in proper locations. You will simply need to connect the rolling harrow assemblies (9) with the ball joints to the brackets on the drag frame (1). Each spike tube (8) will have a letter decal on the top of the tube. The letter A starts on the far left side of the unit and proceeds to the right.

73. Start by installing the drag frames (1) with \( \frac{3}{4} \times 2 \) hex bolts (2), \( \frac{3}{4} \) lock washers and nuts. Torque bolts to 265 ft-lb.

74. Carefully lower machine down or use fork lift (if available) to raise rolling harrow assemblies (9) to rolling harrow brackets (3). Align ball joint brackets (6) and (7) with rolling harrow brackets (3), secure with 1 x 4 hex bolts (5) and 1 nylon lock nut. Tighten the 1 x 4 hex bolt (5), only until lock nut is against side of bracket, if over tightened damage to the ball joint brackets will occur.

If you should have to remove these brackets, re-attach all the ball joints with \( \frac{5}{8} \times 3 \frac{1}{32} \times 4 \frac{1}{2} \) u-bolts (4). It is very important to install the rolling harrow assembly in the proper location, see “Layout Section” of this manual for proper dimensions where it is marked xxx in drawing below. The rolling harrow bracket (3) dimensions are coming off of rear, front tube of drag frame (1) to front of plate of rolling harrow bracket (3). The ball joint bracket (6) is dimensioned off of end of rolling spike tube (8) 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.

Re-installation instructions are to place left ball joint brackets (6) 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 while you bolt up the left rolling harrow bracket (3).

Figure 23
Rolling Harrow
Reel Following Rolling Harrow (optional)

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 24

75. Install mounting reel arm assemblies (1) in position shown in reel following rolling harrow placement drawing with 5/8 x 31/32 x 41/2 u-bolts (2), 5/8 lock washers and 5/8 nuts. Torque u-bolts to 150ft-lb.

76. Attach reel tube assemblies (3) in direction shown in circle and place them in position shown (with arrow towards machine) with 5/8 x 217/32 x 31/2 u-bolts (4), secure with 5/8 lock washers and 5/8 nuts. Torque u-bolts to 150ft-lb.

77. Check to see that all bolts have been tightened to specs, See “Torque Values Chart” on page 29.
Hydraulic Reel Down Pressure Kit

Figure 2

Note: The center cylinder has a 3\(\frac{1}{4}\)" bore, on all the center locations. On models 1800-3500 the right hand cylinder has a 3" bore, and the left hand cylinder has a 2\(\frac{3}{4}\)" bore. On the 4000 & 4800 the inside wings have a 3" bore and the outside wings have a 2\(\frac{3}{4}\)" bore. These cylinders must be put in the correct place for the hydraulics to work correctly. Hydraulic hoses should be delivered attached and plumbed to the hydraulic cylinders and mounted on the cylinder mount bars.

78. Mount the rear drag arm assemblies (10) onto the proper section of the rear attachment frames using u-bolt (26), lock washer (22) and hex nut (23).

79. Attach the hydraulic cylinder mount brackets (5) to the rear attachment frame using u-bolt (26), lock washer (22) and hex nut (23) for models 1200 and 1500. Use bolts (21), lock washer (22) and hex nut (23) on models 1800 thru 4800 these bolts will only be used on the rear of the attachment frame and will also secure the drag arm mounts to the drag frame. Use u-bolt (45), lock washer (18) and hex nut (19) to attach the hydraulic cylinder bracket to the front of the drag frame.

80. Hook up the hydraulics as shown in Figure 1, the bottom bulkhead fitting the runs to the cylinder on each one of the brackets is plumbed to the base end of the cylinders, while the top fitting is plumbed to the rod end of the cylinder. The bottom bulkhead fitting on the center cylinder runs directly to the extend handle and is hooked to the tractor. The top bulkhead fitting on the cylinder needs to be plumbed to the bottom fitting on the right hand side cylinder. The top bulkhead fitting on the right hand cylinder runs over to the bottom bulkhead fitting on the left cylinder. The top bulkhead fitting on the left cylinder runs directly to the retract handle and is hooked to the tractor.

81. If the reel arm assemblies (1) are not already on the drag arms then they will need to be installed into the drag arm brackets (10) and secured with bolt (25) and (24) lock nut. See Layout Section for dimensions and proper placement.

82. You may need to install the spring bolt assemblies (2), (3), (4), (24). Thread the bottom of the spring bolt (2) thru the collar on the bottom end of the reel arm assemblies (1), and secure with a top lock nut (24), secure the top of the spring bolt to the drag arm mounting brackets with snap ring pin (41), flat washer (42) and snap ring (43).

83. Attach the reel mounting tubes (28) onto the reel arm assemblies (1) using u-bolts (27), lock washers (23) and hex nuts (22). The same mounting tubes and hardware that was previously installed on your implement will be used to reinstall it onto the new reel arms. Reels should come attached to the mounting tubes in the proper place.

84. Mount the depth gauge bracket (12) to the rear tube of the drag frame using (11), lock washer (18) and hex nut (19). You may need to install the depth gauge if it is not already attached to the bracket. Do not install the depth gauge link (14) yet.

85. On the center drag arm assembly be sure that the depth gauge link attachment ear is on the right hand side of the center arm. This ear will be attached to the depth gauge link using hex bolt (15) and top lock (16), this hardware will also be used to attach the link to the gauge.

86. Purge the hydraulics of air and check for leaks.

Note: Please see layouts for dimensions and placement, and Part Manual for a complete list of parts.
Hydraulic Reel Attachment
Install Rear Hitch (optional)

The rear tow hitch will be shipped with big components banded together and the hardware will be installed on hitch components. Carefully un-band the components. There are two different types of rear hitches, rear hitch extended or a-frame style. See appropriate mounting directions listed below.

Extended Rear Hitch

Refer to Figure 25

87. Attach middle of rear hitch arms (1) to rear tube of drag frame with \( \frac{5}{8} \times 3\frac{1}{32} \times 4\frac{1}{2} \) u-bolts (2), \( \frac{5}{8} \) lock washers and \( \frac{5}{8} \) nuts. Attach front plates of rear hitch arms (1) to rear tube of center frame with \( \frac{3}{4} \times 5\frac{1}{32} \times 4\frac{1}{2} \) u-bolts (3), \( \frac{3}{4} \) lock washers and \( \frac{3}{4} \) nuts.

88. Attach 46" cross arm (4) to bottom side of rear hitch truss plates with \( \frac{5}{8} \times 3\frac{1}{32} \times 4\frac{1}{2} \) u-bolts (2), secure with \( \frac{5}{8} \) lock washers and \( \frac{5}{8} \) nuts.

Do not tighten any bolts until every thing is installed.

89. The bolt on sleeve assembly with rigid (5) or flex slide (6) may be fastened using \( \frac{5}{8} \times 3\frac{1}{32} \times 4\frac{1}{2} \) u-bolt (2), secure with \( \frac{5}{8} \) lock washers and \( \frac{5}{8} \) nuts.

90. If machine is equipped with rolling harrow only, attach rigid or flex slide (7) to rear tube of drag frame, with \( \frac{5}{8} \times 3\frac{1}{32} \times 4\frac{1}{2} \) u-bolts (2), secure with \( \frac{5}{8} \) lock washers and \( \frac{5}{8} \) nut.

91. Tighten all bolts to specs, See "Torque Values Chart" on page 29.
A-Frame Hitch

Refer to Figure 26

92. Attach rear mounting bar (1) to rear of center frame with $\frac{3}{4} \times 2$ bolts (2), $\frac{3}{4}$ lock washers and $\frac{3}{4}$ nuts.

93. Attach a-frame hitch (3) to rear of center frame with $\frac{5}{8} \times 4\frac{1}{32} \times 4\frac{1}{4}$ u-bolts (4), $\frac{5}{8}$ lock washers and $\frac{5}{8}$ nuts.

94. Hitch will have either the flex slide assembly (5) or the rigid slide assembly (6). There will be a $\frac{3}{4} \times 1\frac{1}{2}$ hex bolt (7) and $\frac{3}{4}$ jam nut in front hole of assembly to keep the slide assembly from sliding clear out.

95. If machine is equipped with optional rear hitch accessory kit may be installed as shown in “Parts Manual”.

96. Tighten all bolts to specs, See “Torque Values Chart” on page 29.

97. Route hoses and light harness along hitch and frame with hose clamps and hose wraps, provided.

Be sure hoses and light harness is fastened securely so they don’t drag or get pinched.
Rear Hitch Accessory Kit

**WARNING**

If Rear Hitch Accessory Kit is not installed correctly damage to you tractor and implement may occur. The dual machine harness needs to be plugged into the light harness that runs directly from the tractor.

**Refer to Figure 28**

98. Plug the female end of the dual machine harness (1) in to the male end of the lead harness (2).

99. Locate the enhance module (3), plug the female end of the module (3) into the male end of the dual machine harness (2).

100. Plug the male end of the enhance module (3) into the wishbone light harness (4). The wishbone light harness attaches to the amber and red LED lights on your implement.

Please refer to the parts manual for part numbers and descriptions.

Figure 27
Rear Hitch Accessory Kit
Rear Stand
Refer to Figure 28

NOTICE
If machine is equipped with a rear attachment, be sure you install the rear jack stand so machine doesn’t tip backwards when unhooking machine from tractor.

101. Attach the rear stand bracket (1) to the center of the rear tube of the drag frame with 5/8 x 3 1/32 x 4 1/2 u-bolts (2), 5/8 lock washers and 5/8 nuts.

102. Tighten u-bolts specs, See “Torque Values Chart” on page 29.

103. Slide the rear stand (3) through the rear stand bracket (1), secure with the 3/4 x 5 1/4 pin (4) and retainer.

104. Once the options are installed, fold the Turbo Max 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 29. Consult the “Operator’s Manual”, for the first time field adjustments before going to the field.

Weight Package Assembly (Optional)
Refer to Figure 29

CAUTION
Lower machine until coulters are on ground and pressure is off leveling system. Do not add weights to 1800TM.

● Models 2400TM-3000TM, up to 2 sets of weights (4 weights) may be installed in positions shown.

105. Start by removing the 3/4 x 2 Gr. 8 bolts (1) from level bar assembly.

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

107. Pivot level bar spring assembly (3) forward.

108. Carefully lower the 750 pound weight assemblies (4) (4 maximum) onto center frame trusses (5), two on front side of fold cylinders and two on rear side of fold cylinders.

109. 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 1/2 x 4 1/32 x 5 1/4 u-bolt (7), 1/2 lock washers and 1/2 nuts.

110. Torque bolts to 85 ft-lbs.
Refer to Figure 30

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

112. Re-install 3/4 x 2 Gr. 8 bolts (1), secure with 3/4 lock washers and 3/4 nuts.

113. Torque 3/4 x 2 Gr. 8 bolts (1) to 375 ft-lbs to be sure bolts do not work loose and cause damage to machine.

Hydraulic Reel/Hitch Combo (Optional)

Refer to Figure 31

The Fore/Aft Splitter Switch Bracket will be shipped in place on the bulkhead bracket located on the front center brace bar, it should be on the rear of the bulkhead bracket and facing forward.

114. The Fore/Aft decal (4) will need to be applied to the front of the bracket, and the hydraulic split valve harness switch will need to be installed in its location on the bracket (5).

Refer to Figure 32

The splitter valve bracket (6) and splitter valve (7) will be shipped in place on the center front fold bracket.

115. Connect the hydraulic split valve harness to the splitter valve solenoids, the lead that hooks to the tractor, and to the wing fold solenoids wiring. The ends of the harness should be labeled with the connections.
### Appendix - Reference Information

#### Torque Values Chart

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- 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.

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**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 websites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.

- Manufacturer/Web site
  - Firestone: [www.firestoneag.com](http://www.firestoneag.com)
  - Gleason: [www.gleasonwheel.com](http://www.gleasonwheel.com)
  - Titan: [www.titan-intl.com](http://www.titan-intl.com)
  - Galaxy: [www.atgtire.com](http://www.atgtire.com)
  - BKT: [www.bkt-tire.com](http://www.bkt-tire.com)
Hydraulic Connectors and Torque

Refer to Figure 33 (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 (4) and the 37° cone (5) 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 (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.

<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>17/32-18 JIC</td>
<td>24-27</td>
<td>18-20</td>
</tr>
<tr>
<td>-6</td>
<td>17/32-18 ORB w/jam nut</td>
<td>16-22</td>
<td>12-16</td>
</tr>
<tr>
<td>-6</td>
<td>17/32-18 ORB straight</td>
<td>24-22</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>
Hydraulic Lift Layout (S/N GP-C6545H+)
1800-2400TM Hydraulic Fold Layout (S/N GP-C6545H+)

TP-69115

Extend to IN on Bypass Valve

Retract to T on Bypass Valve

Clamp

Bypass Valve

Fold Lock Valve

T of Bypass Valve to Lock Valve

Double Block Tee

Bottom Hole of Double Tee Block to Base End Cylinder

Reg of Bypass Valve to Bottom Rear Port of Double Tee Block

Top Holes of Double Block Tee to Rod End Cylinders

Top Port of Double Tee Block to Tee Fitting under Relief Valve to Rod End of Cylinder

Relief Valve 2400TM Only
1800-2400TM Hydraulic Fold Layout (S/N GP-C6544-)

- Green Extend to IN on Bypass Valve
- Green Retract to T on Bypass Valve
- Bypass Valve
- Hose Wrap
- Clamps
- T of Bypass Valve to Lock Valve
- Hose Wrap
- Cold Lock Valve
- Double Block Tee
- Hose Wrap
- Hose Wrap
- Hose Wrap
- Top Holes of Double Block Tee to Rod End Cylinders
- Bottom Hole of Double Block Tee to Base End Cylinder
- Hose Wrap
- Hose Wrap
- Lock Valve to Top Hole of Block Tee
- Bottom Hole of Double Block Tee to Base End Cylinder
- Hose Wrap
3000TM Hydraulic Fold Layout (S/N GP-C6545+)

TP-69119

Extend to IN on Bypass Valve

T of Bypass Valve to Lock Valve

Bottom Hole on Double Tee Block to Base End Cylinder

Top Holes of Double Block Tee to Rod End Cylinders

Rear Bulkhead Fitting to Bottom Front Double Tee Block Port

Front Bulkhead Fitting to Top Front Double Tee Block Port

Rear Bulkhead Fitting to Bottom Rear Port of Double Tee Block

Bottom Hole on Double Tee Block to Base End Cylinder

Double Block Tee
3000TM Hydraulic Fold Layout (S/N GP-C6544H-)

- Green Extend to N on Bypass Valve
- Green Retract to T on Bypass Valve
- Hose Wrap
- Clamps
- Bypass Valve
- Hose Wrap
- Tee to Top Hole of Double Block Tee
- Tee to Bottom Hole of Double Block Tee
- Double Block Tee
- Tee to Bottom Hole of Double Block Tee
- Top Holes of Double Block Tee to Rod End Cylinders
- Top Holes of Double Block Tee to Rod End Cylinders
- Double Block Tee
- Bottom Holes of Double Block Tee to Base End Cylinder
- Bottom Holes of Double Block Tee to Base End Cylinder
- Hose Wrap
3000TM Hydraulic Gang Angle Layout (S/N GP-C6545H+)

TP-69117
3000TM Hydraulic Gang Angle Layout (S/N GP-C6545H+)

TP-69118
3000TM Hydraulic Gang Angle Layout (S/N GP-C6544H-)

Diagram of 3000TM Hydraulic Gang Angle Layout.
Hydraulic Reel/Hitch Combo Layout (Option)

TP-69515

[Diagram of Hydraulic Reel/Hitch Combo Layout (Option)]

- Rod End to 14 on top of Splitter Valve.
- Base End to 24 on top of Splitter Valve.
- Yellow Extend to Right Hand Bulkhead fitting.
- Bracket mounts on top of old bracket.
- Top Bulkhead Fitting to Rod end of Cylinder.
- Bottom Bulkhead Fitting to Base end of Cylinder.
1800TM Machine Layout
2400TM Machine Layout
3000TM Machine Layout
1800TM Rolling Harrow Layout
1800TM Heavy Reel Following Rolling Harrow Layout
1800TM Hydraulic Reel Layout
2400TM Rolling Harrow Layout
2400TM Heavy Reel Following Rolling Harrow Layout
2400TM Hydraulic Reel Layout

TP-69049

Yellow Retract to Left Hand Bulkhead fitting

Yellow Retract to Top Bulkhead fitting on Wing

Bottom Bulkhead Fitting to Base end of Cylinder

Hyd Ctrl 650-263C

28\(\frac{1}{4}\)

-23\(\frac{1}{8}\)

44\(\frac{1}{4}\)

-20\(\frac{5}{8}\)

5

7' Reel Assembly 589-499V

6' Reel Assembly 589-498V

5' Reel Assembly 589-
2400TM Hydraulic Reel Layout
3000TM Rolling Harrow Layout
3000TM Heavy Reel Following Rolling Harrow Layout
3000TM Hydraulic Reel Layout
3000TM Hydraulic Reel Layout
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