Pre-Delivery Manual

1200TM, 1500TM, 1800TM, 2400TM, 3000TM, 3500TM & 4000TM Turbo Max

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 1200-4000TM Turbo Max is a one, three or five section “vertical” tillage tool. Working width ranges from 12 to 40 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

- 1200TM 12’ (7.5in) spacing
- 1500TM 15’ (7.5in) spacing
- 1800TM 18’ (7.5in) spacing
- 2400TM 24’ (7.5in) spacing
- 3000TM 30’ (7.5in) spacing
- 3500TM 35’ (7.5in) spacing
- 4000TM 40’ (7.5in) spacing

Document Family

- 586-288Q Pre-Delivery 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

The Turbo Max will be shipped partially pre-assembled. Models 1200-1500TM will be shipped with center frame completely assembled with hydraulics fully charged.

Refer to Figure 3
- Models 1200-4000TM center frames will be shipped partially pre-assembled. 1800-2400TM wings will be attached, folded in transport position and hydraulics fully charged. The 3000-4000TM wings will be shipped un-attached, stacked together. Refer to Figure 5.
- Models 3500-4000TM will have front gangs fully assembled but not assembled to machine.

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**

Note: 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.

**Assembly and Setup Assistance**

To order additional copies of pre-delivery instructions or operator’s and parts manuals, write to the following address. Include model numbers in all correspondence.

If you do not understand any part of this manual or have the assembly or setup questions, assistance is available. Contact:

**Product Support**

Great Plains Mfg. Inc., Service Department

PO Box 5060
Salina, KS 67402-5060

gp_web_cs@greatplainsmfg.com

(800)255-9215
Assembly

Center Brace Bar 1800-3000

Refer to Figure 6

Note: The center brace bar, front trusses, level bar and hitch may need to be installed on truck so machine may 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 36.

Center Brace Bar 3500-4000

Refer to Figure 7

Note: The center brace bar, front trusses, level bar and hitch may need to be installed on truck so machine may 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.

19. 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.

20. Both outside plates (bottom holes only, 4 total) will require 3/4 x 7 hex bolts ④, 3/4 lock washers and 3/4 nuts.

21. Bolts may be tightened to specs, See “Torque Values Chart” on page 36.
Valve Brackets & Hoses 1800-3000

Refer to Figure 8

Note: The hoses will be shipped hooked up to valves and cylinders. The front valves and hoses (that will need routed through front brace bar, trusses and up hitch to tractor) will be rolled up and tied to front of center frame during shipping. The wing fold two way ①, bypass ② and lock valves ③ will need mounted in proper location as shown and hoses routed correctly before front trusses ④ and hitch are installed so front weight kits may be installed or removed without taking hoses or valves loose. The hoses need to route in locations shown with arrows, on top of wing brace ⑤ to outside of tubes then back to inside. Install front trusses ③ on top of hoses as shown. The two valve plates will be mounted in correct location but will need turned around 180 degrees on tube so they are facing forward on machine. Set them 1” from truss plates as shown. See “Valve Brackets & Valves 1800-3000” on page 10 for proper mounting instructions.

Valve Brackets & Hoses 3500-4000

Refer to Figure 9

Note: The hoses will be shipped hooked up to valves and cylinders. The front valves and hoses (that will need routed through front brace bar, trusses and up hitch to tractor) will be rolled up and tied to front of center frame during shipping. The bypass ① and lock valves ② will need mounted in proper location as shown and hoses routed correctly before front trusses ③ and hitch are installed so front weight kits may be installed or removed without taking hoses or valves loose. The hoses need to route in locations shown with arrows, on top of wing brace ④ to outside of tubes then back to inside. Install front trusses ③ on top of hoses as shown. Set them 1 11/16” (bypass valve bracket) and 3” (lock valve bracket) from truss plates as shown. See “Valve Brackets & Valves 3500-4000” on page 11 for proper mounting instructions.
Valves 1200-1500

Refer to Figure 10

Note: Bolts needed in these next steps will be bolted on parts or located in a bag on center frame.

22. Install the counter balance valve ① to block on center frame with 5/16 x 3 1/2 hex bolts ② and 5/16 lock washers.

23. Align holes in double block tee ③ in position shown, secure with 5/16 x 4 bolts ④, 5/16 lock washers and 5/16 nuts.

24. Install the lock valve ⑤ to the top of the bracket on center frame with 1/4 x 2 Gr. 5 hex bolts ⑥, 1/4 lock washers and 1/4 nuts.

25. Bolts may be tightened to specs, See “Torque Values Chart” on page 36.

Valve Brackets & Valves 1800-3000

Refer to Figure 11 or Refer to Figure 12

Note: Bolts needed in these next steps will be bolted on parts or located in a bag on front of center frame.

26. Remove the 1/2 x 3 1/32 x 6 u-bolts ⑦ from the valve brackets ① and ②, Attach bypass and counterbalance valve bracket ① and lock valve bracket ② to center brace bar ③ in proper locations, shown, See “Valve Brackets & Hoses 1800-3000” on page 9 or See “Valve Brackets & Hoses 3500-4000” on page 9, with the same 1/2 x 3 1/32 x 6 u-bolts ④, 1/2 lock washers and 1/2 nuts.

27. Be sure hoses are routed as shown in, See “Valve Brackets & Hoses 1800-3000” on page 9 or See “Valve Brackets & Hoses 3500-4000” on page 9.

28. Install bypass valve ⑧ on top of valve bracket ① with 5/16 x 3 Gr. 5 hex bolts ⑨, 5/16 lock washers and 5/16 nuts.

29. Fasten the counter balance valve ⑩ to side of valve bracket ① with 5/16 x 4 Gr. 5 hex bolts ⑪, 5/16 lock washers and 5/16 nuts.

30. Install the lock valve ⑫ to the top of the valve bracket ② with 1/4 x 2 Gr. 5 hex bolts ⑬, 1/4 lock washers and 1/4 nuts.

31. Fasten the two way fold valve ⑭ to top of plate on tube of center brace bar ③ with 5/16 x 1 3/8 x 2 3/16 u-bolts ⑮ and 5/16 top lock nuts.

32. Attach depth control valve ⑯ to top of depth stop bracket (plunger forward), with 5/16 x 2 Gr. 5 hex bolts ⑰ and 5/16 lock washers.

33. Bolts may be tightened to specs, See “Torque Values Chart” on page 36.
Valve Brackets & Valves 3500-4000

Refer to Figure 12

Note: Follow same procedure as previous steps of Valve Brackets & Valves 1800-3000, except do not attach the two way fold valve ⑪, as it is pre-assembled to the bypass valve and hoses on models 3500-4000.

Hitch Truss & H-Bracket 1200-1500

Refer to Figure 13

34. Align holes on truss plates ① and center frame plates. Install the 3/4 x 2 hex bolts ② (front and rear plates) and 3/4 x 2 1/2 hex bolts ③ (middle plates), 3/4 lock washers and 3/4 nuts of trusses ①.

35. Align rear holes of level bar ④ between ears of torque tube, secure the 1 x 9 1/2 pin ⑤. Align hole in pin with holes in torque tube collar, secure with the 3/8 x 2 1/4 Gr. 8 hex bolt ⑥ and 3/8 nylon lock nut.

36. Align holes in rear plate of h-bracket spring assembly ⑦ and front plate of level bar ④, secure with 3/4 x 2 Gr. 8 hex bolts ⑧, 3/4 lock washers and 3/4 nuts.

37. Align bottom holes on h-bracket spring assembly ⑦ with ears on front of center frame, secure with 1 x 3 1/4 usable pins ⑨, 1.5 x 1.0 x.075 machine washers ⑩ and 3/16 x 2 cotter pin.

38. Bolts may be tightened to specs, See “Torque Values Chart” on page 36.
Front Trusses 1800-3000

Refer to Figure 14

Note: Be sure hoses are routed as shown in See “Valve Brackets & Hoses 1800-3000” on page 9. before mounting front trusses.

39. Remove the eight, 3/4 lock washers and 3/4 nuts from the 3/4 x 2 1/2 Gr. 5 hex bolts in front plates of rear truss plates. Leave 3/4 x 2 1/2 Gr. 5 hex bolts in plates for ease of installation of front trusses.

40. Align rear plates of front trusses with front plates of rear truss plates onto the 3/4 x 2 1/2 Gr. 5 hex bolts. Re-install the eight 3/4 lock washers and 3/4 nuts to the 3/4 x 2 1/2 Gr. 5 hex bolts of the rear truss plates, secure with the 3/4 lock washers and 3/4 nuts. Secure two hole plate of front trusses with 3/4 x 2 1/2 hex bolts Gr. 5, 3/4 lock washers and 3/4 nuts.

41. Secure the front plates of the front trusses to plates on center brace bar plates, with 3/4 x 2 Gr. 5 hex bolts, 3/4 lock washers and 3/4 nuts.

42. Bolts may be tightened to specs, See “Torque Values Chart” on page 36.

Level Bar 1800-3000

Refer to Figure 15

43. Attach level bar with 1 x 9 1/2 pin. Align hole in pin and holes in collars on outside of torque tube ears, install 3/8 x 2 1/4 Gr. 8 bolts and 3/8 nylock lock nuts.

44. Align bottom holes on h-bracket spring assembly with ears on front of center brace bar, secure with 1 x 3 1/4 usable pins, 1.5 x 1.0 x .075 machine washers and 3/16 x 2 cotter pin.

45. Attach front plate of level bar with rear plate of h-bracket spring assembly with 3/4 x 2 Gr. 8 hex bolts, 3/4 lock washers and 3/4 nuts.

46. Bolts may be tightened to specs, See “Torque Values Chart” on page 36 and cotter pins bent.
Center Fold & H-Bracket 3500-4000

Refer to Figure 16

Note: Be sure hoses are routed as shown in, See “Valve Brackets & Hoses 3500-4000” on page 9, before mounting front trusses (1).

47. Align plates of front trusses (1) with front plates of rear truss plates. Install the 3/4 x 2 hex bolts (2) (front and rear plates) and 3/4 x 2 1/2 hex bolts (3) (middle, 2 hole truss plates), secure with the 3/4 lock washers and 3/4 nuts.

48. Attach level bar (4) with 1 x 9 1/2 pin (5). Align hole in pin and holes in collars on outside of torque tube ears, install 3/8 x 2 1/4 Gr. 8 hex bolts (6) and 3/8 nylock lock nuts.

49. Attach front plate of level bar (4) with rear plate of h-bracket spring assembly (7) with 3/4 x 2 1/2 Gr. 8 hex bolts (6), 3/4 lock washers and 3/4 nuts.

50. Align bottom holes on h-bracket spring assembly (7) with ears on front of center brace bar, secure with 1 x 3 1/4 usable pins (9), 1.5 x 1.0 x.075 machine washers (10) and 3/16 x 2 cotter pin.

51. Attach center wing stops (11) to center brace bar plates with 5/8 x 1 1/2 hex bolts (12), 5/8 lock washers and 5/8 nuts.

52. Attach rear wing stop (13) to center frame with 5/8 x 3 1/32 x 5 1/2 u-bolts (14), 5/8 lock washers and 5/8 nuts.

53. Attach the base end of the four fold cylinders (15) to the fold brackets with the 1 x 3 1/8 pins (16), 1.5 x 1.00 x.075 machine washer (17) and 3/16 x 2 cotter pin.

54. Do not hook up rod end of fold cylinders (15) until system is purged of air. See “Purging Hydraulic System 3000-4000” on page 27.

55. Bolts may be tightened to specs, See “Torque Values Chart” on page 36.
Hitch Assembly

Refer to Figure 17

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

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

58. Remove 1 1/4 x 8 1/2 Gr. 8 special thread bolt ⑥ from front short level bar tube ⑤. Align holes in rear of level bar tube ⑥ and center hole of h-bracket ⑦. Install the 1 1/4 x 8 1/2 Gr. 8 special thread bolt ⑥ from the left side and secure with 1 1/4 top lock nut.

59. Bolt the spring hose holder ⑨ to welded nut on front of hitch with 1/2 x 1 Gr. 5 bolt ⑧, 1/2 flat washer and 1/2 lock washer.

60. The front of the level turnbuckle ⑩ may need attached to ears on hitch assembly ① with 1 x 6 hex bolt ⑪ and 1 top lock nut.

61. Bolts may be tightened to specs, See “Torque Values Chart” on page 36.

Hose Routing Hitch

Refer to Figure 18

62. Route hydraulic hoses ① from valves ②, on center frame (models 1200-1500) or center brace bar (1800-4000), 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, 5/16 hex bolts and 5/16 lock washers.

63. The light Harness will need routed with hydraulic hoses along hitch. Be sure all bolts are tight.
Wing & Brace Bar 1800-3000 & 4000

Refer to Figure 19

Note: 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. Model 4000, See “Wing, Brace Bar & Fold 3500-4000” on page 16 before installing outside wing.

64. 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.

65. 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 1/4 flat washers (6) (rear side of wing hinge tubes only, do not use on wing brace bar) and 1 top lock nuts.

66. Do not hook up rod end of fold cylinder (7) until system is purged of air. See “Purging Hydraulic System 3000-4000” on page 27.

67. Bolt may be tightened to specs, See “Torque Values Chart” on page 36.
Wing, Brace Bar & Fold 3500-4000

Refer to Figure 20

68. Attach wing brace  ➊ to front of wing frame assemblies ➋ with 3/4 x 2 hex bolts ➌ and 3/4 x 7 hex bolts ➍ (inside plates, bottom holes) and (outside plate, bottom outside hole, model 4000 only), 3/4 lock washers and 3/4 nuts.

69. Attach wing frame assemblies ➋ to center frame ➌ with the wing hinge pins ➍, 1 1/4 flat washers ➎ (rear side of wing hinge tubes only, do not use on wing brace bar) and 1 lock nuts.

70. Attach front ➌ and rear ➍ wing stops to plates on wing frame assemblies ➋ with 5/8 x 1 1/2 hex bolts ➎, 5/8 lock washers and 5/8 nuts.

71. On models 4000, attach base end of fold cylinders ➊ to wing frame assemblies ➋ with 1 x 3 1/8 pins ➋, 1.5 x 1.00 x .075 machine washer ➌ and 3/16 x 2 cotter pin.

72. Do not hook up rod end of fold cylinders ➊ until system is purged of air. See “Purging Hydraulic System 3000-4000” on page 27.

73. Bolt may be tightened to specs, See “Torque Values Chart” on page 36.

74. Model 4000, attach outside wing, See “Wing & Brace Bar 1800-3000 & 4000” on page 15.

Figure 20
Wing, Brace Bar & Fold 3500-4000
Front Gang Assembly 3500-4000

Note: The center and wing gang assemblies will install the same. The only difference is, that the gang assemblies and turnbuckles will be different from center to wings. Cylinder base end will be hooked to ear on center and wing frames. See machine layouts in appendix section for proper gang locations. See wing gang bar & fold assembly 3500-4000 for complete parts breakdown. You will probably need to hook all hydraulics up, See “3000 Hydraulic Wing Lift & Gangs” on page 18 through See “4000 Hydraulic Fold” on page 24 and charge systems before installing gang assemblies, See “Purging Hydraulic System 3000-4000” on page 27.

Refer to Figure 21
75. Position gang assemblies 1 in correct location on floor or ground and carefully lower machine down to gang assemblies.
76. Install the gang pivot bolt 2 through aligned tubes on gang bars and brace bars. Secure with 1 1/4 flat washers 3 (one on top and one on bottom), 1 1/4 slotted nut 4 (one on top and one on bottom) and two 3/16 x 2 cotter pins 5. Tighten bolts snug, torque to 350 to 400ft-lbs. Cotter pins may be bent over to secure.
77. Install the round tubes 6 (four on each gang bar) between bottom front plate 7 (slotted hole toward rear) and plate on brace bars. Install the 3/4 x 6 hex bolts 8, 3/4 lock washers and 3/4 nuts.
78. Install bracket 9 on bottom side of gang bar plate, secure with 5/8 x 3 1/2 hex bolts 10, 5/8 lock washers and 5/8 nuts.
79. Install either 586-444S turnbuckle assembly (center section) or 586-445S (wing sections) 11, adjustable end on ear on front of rear gang bars and fixed end on ear of front gang bars. Secure with 1 x 3 1/4 clevis pin 12, 1.5 x 1.00 x 0.075 machine washer 13 and 3/16 x 2 cotter pin 5.
80. Now the rod end of gang cylinders 14 may be hooked up with the 1 x 3 1/8 clevis pin, 1.5 x 1.00 x 0.075 machine washer 13 and 3/16 x 2 cotter pin 5.
81. Bolt may be tightened to specs, See “Torque Values Chart” on page 36 and all cotter pins may be bent.
3000 Hydraulic Wing Lift & Gangs

Refer to Figure 22

Note: 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.

82. Attach hoses to cylinders on wings as shown, See "3000 Hydraulic Wing Lift & Gang" on page 19.

Note: Do not over tighten hoses as this could cause damage to valves, See “Hydraulic Connector ID” on page 38

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

84. Also see Hydraulic Layouts in “Appendix Section” for all hose routing.
Figure 22
3000 Hydraulic Wing Lift & Gang
3500 Hydraulic Wing Lift & Gangs

Refer to Figure 23

Note: 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.

85. Attach hoses to cylinders on wings as shown, See “3500 Hydraulic Wing Lift & Gang” on page 21.
Note: Do not over tighten hoses as this could cause damage to valves, See “Hydraulic Connector ID” on page 38

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

87. Also see Hydraulic Layouts in “Appendix Section” for all hose routing.
Figure 23
3500 Hydraulic Wing Lift & Gang
4000 Hydraulic Wing Lift & Gangs

Refer to Figure 24

Note: 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.

88. Attach hoses to cylinders on wings as shown, See “4000 Hydraulic Wing Lift & Gang” on page 23.

Note: Do not over tighten hoses as this could cause damage to valves, See “Hydraulic Connector ID” on page 38

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

90. Also see Hydraulic Layouts in “Appendix Section” for all hose routing.
Figure 24
4000 Hydraulic Wing Lift & Gang
4000 Hydraulic Fold

Refer to Figure 25

Note: 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 wing fold cylinder between cylinder port and 811-063C elbow.

91. Attach hoses to cylinders on wings as shown, See “4000 Hydraulic Fold” on page 25.

Note: Do not over tighten hoses as this could cause damage to valves, See “Hydraulic Connector ID” on page 38

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

93. Also see Hydraulic Layouts in “Appendix Section” for all hose routing.
Attach Hose Clamps and Hose Wraps

Refer to Figure 26

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

95. 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

96. 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>
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<th>Color</th>
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<tr>
<td>Black</td>
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<td>Fold (2 hoses)</td>
</tr>
<tr>
<td>Red</td>
<td>Gang Adjustment (2 hoses)</td>
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</tbody>
</table>

Refer to Figure 27

Hose Handles

97. 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.

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

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**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 3000-4000

Refer to Figure 28

99. 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 retighten fittings if necessary.

100. You may now charge the fold system. Before charging the fold cylinders ⑤, make sure the rod end of the cylinders (model 4000 will have two fold cylinders on front on both sides of machine) 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 ⑥ (green ends) completely and then close them. Extend and retract the cylinders several times to purge air from the system.

101. Now the rod end of fold cylinders ⑥ may be hooked up to wing with the 1 x 3 1/8 usable pin ⑥, 1.5 x 1.0 x 0.075 machine washer and 3/16 x 2 cotter pin. Bend cotter pin over to secure.

Figure 28
Purging Hyd. System 3000-4000
Depth Stop & Angle Gauge

Refer to Figure 29

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

102. 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 1/2 x 3 hex bolt ②, 1/2 top lock nut.

103. Fasten depth stop assembly ③ on top of depth stop tube with 1/2 x 2 1/2 hex bolts ④, 1/2 lock washers and nuts.

104. Attach angle gauge bracket assembly ⑤ to front of center frame with 1/2 x 3 1/32 x 6 u-bolts ⑥, 1/2 lock washers and 1/2 nuts.

105. Attach gauge link ⑦ to ear on front of center frame and gauge bracket assembly ⑧, secure with 3/8 x 1 1/4 hex bolts ⑨ and 3/8 top lock nuts.

106. Bolt may be tightened to specs, See “Torque Values Chart” on page 36.
Lights & SMV 1200-1500

Refer to Figure 30

Note: See layout drawings in Appendix for proper light bracket placement. The SMV sign will be shipped in a bag and will need installed on the rear of the machine.

107. Remove u-bolts from light brackets and rotate 180 degrees. Re-install the LH and RH light brackets with the 1/2 x 3 1/32 x 6 u-bolts, 1/2 lock washers and 1/2 nuts.

108. Attach the SMV sign to the rear of the smv bracket with 1/4 x 3/4 pan head screws, 1/4 lock washers and 1/4 nuts.

109. Tighten all bolts to specs, See “Torque Values Chart” on page 36.

Lights & SMV 1800-3000

Refer to Figure 31

Note: The light bracket assemblies and SMV sign will be shipped in a bag and will need installed on the machine.

110. Install the LH and RH light brackets with the 1/2 x 1 1/2 hex bolts, 1/2 lock washers and 1/2 nuts.

111. Attach the SMV sign to the rear of the smv bracket with 1/4 x 3/4 pan head screws, 1/4 lock washers and 1/4 nuts.

112. Tighten all bolts to specs, See “Torque Values Chart” on page 36.

Front Lights & SMV 3500-4000

Refer to Figure 32

Note: See layout drawings in Appendix for proper light bracket placement. If machine is equipped with a rear attachment the rear light brackets 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.

113. Remove u-bolts from light brackets. Install the RF/LR and LF/RR light brackets with the 1/2 x 3 1/32 x 6 u-bolts, 1/2 lock washers and 1/2 nuts.

114. Attach the SMV sign to the rear of the smv bracket with 1/4 x 3/4 pan head screws, 1/4 lock washers and 1/4 nuts.

115. Tighten all bolts to specs, See “Torque Values Chart” on page 36.
Rear Lights 3500-4000

Refer to Figure 33

Note: 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 tube of the center frame with 1/2 x 3 1/32 x 6 u-bolts.

116. Remove u-bolts from light brackets. Install the RF/LR 1 and LF/RR 2 light brackets with the 1/2 x 3 1/32 x 4 u-bolts 3, 1/2 lock washers and 1/2 nuts.

117. Tighten all bolts to specs, See “Torque Values Chart” on page 36.

Install Decals

Refer to Figure 34

Note: 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.

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

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

Refer to Figure 35

120. Install one, 848-829C (Models 1800-3000), 848-972C (Model 3500) or 858-002C (Model 4000) bypass valve operating instruction decal 3 on front of truss (left side).

121. Install one, models 1800-3000, 848-844C fold valve decal 4 on front tube of center brace bar (left side) with arrow pointing towards two way fold valve 5. On models 3500-4000 mount on top of left, front torque tube 6, arrow facing towards two way fold valve 7 on bypass valve.
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 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.

Refer to Figure 36

122. 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.

123. 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 brackets to dimensions shown in layout drawings and torque u-bolts to 150 ft-lb.

124. Attach ball joint brackets 5 and 7 to rolling spike tubes 8 with 5/8 x 3 1/32 x 4 1/2 u-bolts 6, secure with 5/8 lock washers and 5/8 nuts. Place left ball joint brackets 5 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.

125. Carefully lower machine down or use fork lift (if available) to raise rolling harrow assemblies 9 to attach rolling harrow brackets 3. Align ball joint brackets 5 and 7 to rolling harrow assemblies 9, secure with 1 x 4 hex bolts 6 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.

126. Check to see that all bolts have been tightened to specs. See “Torque Values Chart” on page 36.
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 are coming off of rear tube of drag frame to side of plate of reel arm assemblies. The reel assemblies are dimensioned off of end of reel assembly tube to side of plate on reel arm assembly (dimensions in layout drawings may come off either end of tube). For complete parts breakdown see “Attachment Section” of Parts Manual.

Refer to Figure 37

127. Install mounting reel arm assemblies in position shown in reel following rolling harrow placement drawing with 5/8 x 3 1/32 x 4 1/2 u-bolts, 5/8 lock washers and 5/8 nuts. Torque u-bolts to 150ft-lb.

128. Attach reel tube with 5/8 x 2 17/32 x 3 1/2 u-bolts, secure with 5/8 lock washers and 5/8 nuts. Torque u-bolts to 150ft-lb.

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

130. Check to see that all bolts have been tightened to specs, See “Torque Values Chart” on page 36.
Install Rear Hitch (optional)

Note: 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 38

131. Attach middle of rear hitch arms (1) to rear tube of drag frame with 5/8 x 3 1/32 x 4 1/2 u-bolts (2), 5/8 lock washers and 5/8 nuts. Attach front plates of rear hitch arms (1) to rear tube of center frame with 3/4 x 5 1/32 x 4 1/2 u-bolts (3), 3/4 lock washers and 3/4 nuts.

132. Attach 46" cross arm (4) to bottom side of rear hitch truss plates with 5/8 x 3 1/32 x 4 1/2 u-bolts (5), secure with 5/8 lock washers and 5/8 nuts.

Note: Do not tighten any bolts until every thing is installed.

133. The bolt on sleeve assembly with rigid (6) or flex slide (7) may be fastened using 5/8 x 3 1/32 x 4 1/2 u-bolt (8), secure with 5/8 lock washers and 5/8 nuts.

134. If machine is equipped with rolling harrow only, attach rigid or flex slide (7) to rear tube of drag frame, with 5/8 x 3 1/32 x 4 1/2 u-bolts (9), secure with 5/8 lock washers and 5/8 nut.

135. Tighten all bolts to specs, See “Torque Values Chart” on page 36.

A-Frame Hitch

Refer to Figure 39

136. Attach rear mounting bar (1) to rear of center frame with 3/4 x 2 bolts (2), 3/4 lock washers and 3/4 nuts.

137. Attach a-frame hitch (3) to rear of center frame with 5/8 x 4 1/32 x 4 1/4 u-bolts (4), 5/8 lock washers and 5/8 nuts.

138. Hitch will have either the flex slide assembly (5) or the rigid slide assembly (6). There will be a 3/4 x 1 1/2 hex bolt (7) and 3/4 jam nut in front hole of assembly to keep the slide assembly from sliding clear out.

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

140. Tighten all bolts to specs, See “Torque Values Chart” on page 36.

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

Note: Be sure hoses and light harness is fastened securely so they don’t drag or get pinched.
Rear Stand

Refer to Figure 40

**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.

142. 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.

143. Tighten u-bolts specs, See “Torque Values Chart” on page 36.

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

145. Once the options are installed, fold the Turbo Max to check for clearance and interferences, also watch that hoses do not get pinched.

Note: Double check that all bolts are tightened to specs, See “Torque Values Chart” on page 36. Consult the “Operator’s Manual” for the first time field adjustments before going to the field.

Weight Package Assembly (Optional)

Refer to Figure 41

**CAUTION**

Lower machine until coulters are on ground and pressure is off leveling system. Do not add weights to 1800TM unless the rear attachment is removed, as this will exceed the tire rating and could cause severe damage to machine.

Note: Models 3500-4000, all 4 sets of weights must be installed in the rear position behind wing stops. All other models may use up to 4 sets of weights in positions shown.

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

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

148. Pivot level bar spring assembly 3 forward.

149. 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.

150. 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.

151. Torque bolts to 85 ft-lbs.
Refer to Figure 42

152. Pivot level bar ① and the level bar spring assembly ③ until holes in plates are aligned.

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

154. Torque 5/8 x 2 Gr. 8 bolts ① to 375 ft-lbs to be sure bolts do not work loose and cause damage to machine.
## Appendix - Reference Information

### Torque Values Chart

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<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>N-m</th>
<th>ft-lb</th>
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<td>3</td>
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<td>M 6 X 1</td>
<td>Grade 5.8</td>
<td>7</td>
<td>5</td>
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<td>M 8 X 1.25</td>
<td>Grade 8.8</td>
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<td>12</td>
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<tr>
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<td>13</td>
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<td>M 10 X 0.75</td>
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<td>60</td>
<td>44</td>
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<td>Grade 10.9</td>
<td>90</td>
<td>66</td>
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<td>99</td>
<td>73</td>
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<td>M 16 X 2</td>
<td>Grade 10.9</td>
<td>145</td>
<td>105</td>
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<td>M 16 X 1.5</td>
<td>Grade 10.9</td>
<td>155</td>
<td>115</td>
</tr>
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<td>M 18 X 2.5</td>
<td>Grade 10.9</td>
<td>195</td>
<td>145</td>
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<td>M 18 X 1.5</td>
<td>Grade 10.9</td>
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<td>165</td>
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<td>280</td>
<td>205</td>
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<td>M 20 X 1.5</td>
<td>Grade 10.9</td>
<td>310</td>
<td>230</td>
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<td>Grade 10.9</td>
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<td>M 30 X 3.5</td>
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<td>705</td>
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<td>815</td>
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<td>M 36 X 3.5</td>
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<td>M 36 X 2</td>
<td>Grade 10.9</td>
<td>1880</td>
<td>1380</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.
# Tire Inflation Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
<th>notes</th>
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<tbody>
<tr>
<td>Gauge Wheel</td>
<td>9.5L x 15” 8-Ply</td>
<td>44 psi</td>
<td>(303 kPa)</td>
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<tr>
<td>Transport/</td>
<td>12.5L x 15” F-Ply</td>
<td>90 psi</td>
<td>(621 kPa)</td>
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<tr>
<td>Center</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Transport/</td>
<td>12.5Lx16.5 Load G</td>
<td>105 psi</td>
<td>(724 kPa)</td>
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<tr>
<td>Center</td>
<td>Galaxy</td>
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<td></td>
</tr>
<tr>
<td>Transport/</td>
<td>380/55R x 16.5</td>
<td>73 psi</td>
<td>(503 kPa)</td>
</tr>
<tr>
<td>Center</td>
<td>Load F RI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport/</td>
<td>11L-15SL 12-Ply</td>
<td>52 psi</td>
<td>(359 kPa)</td>
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<tr>
<td>Wings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport/</td>
<td>12.5L x 15” 12-Ply</td>
<td>55 psi</td>
<td>(379 kPa)</td>
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<tr>
<td>Wings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport/</td>
<td>440/55R18 Load 159A8/B Titan</td>
<td>73 psi</td>
<td>(503 kPa)</td>
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</table>

# Tire Warranty Information

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

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

Refer to Figure 43 (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.
   - 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.

---

**Table 43**

<table>
<thead>
<tr>
<th>Dash Size</th>
<th>Fitting</th>
<th>N-m</th>
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<td>1/4-18 NPT</td>
<td>1.5-3.0 turns past finger tight</td>
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<td>-5</td>
<td>1/2-20 JIC</td>
<td>19-20</td>
<td>14-15</td>
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<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>5/16-18 JIC</td>
<td>19-26</td>
<td>14-19</td>
</tr>
<tr>
<td>-6</td>
<td>5/16-18 ORB w/jam nut</td>
<td>16-22</td>
<td>12-16</td>
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<td>-6</td>
<td>5/16-18 ORB straight</td>
<td>24-33</td>
<td>18-24</td>
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<td>-8</td>
<td>3/4 -16 JIC</td>
<td>37-53</td>
<td>27-39</td>
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<tr>
<td>-8</td>
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<tr>
<td>-8</td>
<td>3/4-16 ORB straight</td>
<td>37-58</td>
<td>27-43</td>
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</table>
1200TM-1500TM Hydraulic Lift Layout

- Black Retract to V2 on Counter Balance Valve
- Black Extend to V1 on Counter Balance Valve
- Hose Wrap
- Clamps
- Depth Stop Valve
- Rebound Valve
- C2 to Top, Front Holes of Double Block Tee
- C1 to Rear Port of Depth Stop Valve
- Front Hole of Double Block Tee to Rod End of Lift Cylinders
- Double Block Tee
- Rear Hole of Double Block Tee to Base End of Lift Cylinders
- Hose Wrap
1800TM-3500TM Hydraulic Lift Layout
4000TM Hydraulic Lift Layout
4000TM Hydraulic Lift Layout

Diagram of 4000TM Hydraulic Lift Layout with various labeled parts and connections, including:
- Counter Balance Valve
- Depth Stop Valve
- Hose Wrench
- Clamp
- Double Block 4000
- Red End Center Cylinder to Base End of Inside Wing Cylinder
- Red End Inside Wing Cylinder to Base End of Outside Wing Cylinder
- Front Hose of Double Block Tire to Base End of Center Cylinder

Legend:
- Block Profile to 1/2 on Counter Balance Valve
- Block Extend to 1/1 on Counter Balance Valve

11/06/2012
1800-2400TM Hydraulic Fold Layout
3000TM Hydraulic Fold Layout
3500TM Hydraulic Fold Layout
4000TM Hydraulic Fold Layout
1200-1500TM Hydraulic Gang Angle Layout
1800-2400TM Hydraulic Gang Angle Layout
3000TM Hydraulic Gang Angle Layout
3500TM Hydraulic Gang Angle Layout
3500TM Hydraulic Gang Angle Layout

Diagram showing various components and connections related to the hydraulic system of the 3500TM.
4000TM Hydraulic Gang Angle Layout
4000TM Hydraulic Gang Angle Layout
1200TM Machine Layout
1500TM Machine Layout
1800TM Machine Layout
2400TM Machine Layout
3000TM Machine Layout
3500TM Machine Layout
3500TM Machine Layout
4000TM Machine Layout
4000TM Machine Layout
1200TM Rolling Harrow Layout
1200TM Heavy Reel Following Rolling Harrow Layout
1500TM Rolling Harrow Layout

Diagram of the 1500TM Rolling Harrow Layout with various dimensions and labels indicating different parts of the equipment.
1500TM Heavy Reel Following Rolling Harrow Layout
1800TM Rolling Harrow Layout

42397
1800TM Heavy Reel Following Rolling Harrow Layout
2400TM Rolling Harrow Layout
2400TM Heavy Reel Following Rolling Harrow Layout
3000TM Rolling Harrow Layout
3000TM Heavy Reel Following Rolling Harrow Layout
3500TM Rolling Harrow Layout
3500TM Rolling Harrow Layout
3500TM Heavy Reel Following Rolling Harrow Layout
3500TM Heavy Reel Following Rolling Harrow Layout
4000TM Rolling Harrow Layout
4000TM Rolling Harrow Layout
4000TM Heavy Reel Following Rolling Harrow Layout
4000TM Heavy Reel Following Rolling Harrow Layout