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.

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 Field Cultivator using blocks and supports provided.

▲ Detach and store Field Cultivator 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 Field Cultivator 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 Field Cultivator, is a three or five-section seedbed preparation tillage tool. Working width ranges from 23 to 60 feet. The implement is designed for secondary field operations to smooth, level, eliminate weeds and incorporate chemicals. Various finishing attachments are available to further smooth, redistribute residue, firm soil and break clods.

Models Covered

- FCC8308M 8.45 metre 3-section
- FCC8310M 9.9 metre 3-section
- FCC8312M 12.04 metre 5-section
- FCC8513M 13.41 metre 5-section

Document Family

- 620-163Q-ENG Assembly Manual (this document)
- 620-163M-ENG Operator Manual
- 620-163P Parts Manual

Tools Required

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

Pre-assembly Checklist

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

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

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

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

Definitions
The following terms are used throughout this manual.

**Notice**

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

Note: Useful information related to the preceding topic.

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

The machine will be shipped unassembled as shown in a large shipping rack and shipping boxes on pallets. The only parts that will be assembled are the reel attachment assemblies. The reel attachments (if equipped) will be banded together with the gang assemblies on pallet.

Refer to Figure 3
- All frame sections, hitch and torque tubes will be shipped in shipping container.

Refer to Figure 4
- Shank parts, small parts and bolts will be shipped in boxes. Rear attachment large parts will be banded to smaller parts box.

Shipping containers do not need to be returned to Great Plains.
Unloading
Once everything is unloaded from “storage pod” you may proceed with taking parts out of shipping containers. Carefully move everything to level site and prepare to unpack items.

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

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

Carefully un-band components.
Now unload individual components one at a time using a fork truck or overhead hoist.
Move each component out of the way so you have plenty of room to remove the next one.

Unload Smaller Items First
Unloading the frames is a potentially dangerous operation.
Reduce risk and complication by first unloading
1. the tyre wheel assemblies,
2. the smaller items
Place these components well out of the manoeuvring area needed for unloading the gang assemblies and frames.

3. Carefully unload the Frames and hitch out of shipping rack

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

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 UK Ltd. Service Department
Woodbridge Road
Sleaford
Lincolnshire
NG34 7HR, ENGLAND
simba@greatplainsmfg.com
+44 (0)1529 304654
Assembly

Install Centre Frame

Refer to Figure 5

3. Once the centre Frame has been uncrated and put on stands, the brace bar and trusses maybe installed.

4. Carefully move centre brace bar ② to front of centre frame ①, with overhead hoist or fork lift, secure with M20 x 55 hex bolts ③, M20 lock washers and M20 nuts.

5. Attach centre frame trusses ④ with M20 X 55 hex bolts ⑤ (front plates), M20 lock washers and M20 nuts, rear plates with M16 x 45 hex bolts ⑥, M16 lock washers and M16 nuts.

6. On models 8310-8513 attach the brace bar truss ⑦ (middle plates) with M16 x 45 hex bolts ⑧, M16 lock washers and M16 nuts, outside plates with M20 x 55 hex bolts ⑨, M20 lock washers and M20 nuts.

7. Attach light brackets, LH ⑩ and RH ⑪ with M12 x 121.5 x 110 u-bolts, M12 lock washers and M12 nuts.

Note: See machine layout section in this manual for proper light bracket placement.

8. Attach light mounting brackets ⑫ to rear centre frame tube with M12 x 121.5 x 110 u-bolt ⑬, M12 lock washers and M12 nuts.

9. Mount smv post ⑭ with M12 x 121.5 x 110 u-bolt ⑮, M12 lock washers and M12 nuts as close to centre of tube shown. Attach smv sign ⑯ to rear of smv post with M6 x 15 hex bolt ⑰, M6 lock washers and nuts.

10. All bolts may be tightened to specs, See “Torque Values Chart” on page 25. Attach plastic end caps ⑱ to all open ends of 100x100 tube.
Torque Tube & Level Bar

Refer to Figure 6

11. Carefully raise the torque tube (1) with an overhead hoist and secure with Ø40 x 125 pins (2), M10 x 80 hex bolts and M10 top lock nut.

12. Attach the h-bracket mounting plate (3) with M20 x 55 hex bolts (4), secure with M20 lock washers and M20 nuts.

13. Attach the h-bracket (5) into the h-bracket mounting plate (3), secure with Ø25 x 65 clevis pins (6), Ø46 machine washers and Ø4.6 x 45 cotter pins.

14. Attach level bar slide tube assembly (7) to top hole of h-bracket (5) with M24 x 220 hex bolt (8) and M24 lock washer and nut.

15. Now slide the front of the level bar (9) over the back side of the level bar slide tube assembly (7), secure with an M20 x 150 hex bolt (10) and M20 lock washer and nut.

16. Attach rear of level bar (9) to the torque tube with the Ø24 threaded pin (11) and M24 nut.

17. Mount the level bar cross tube (12) to the level bar side plates with M16 x 45 hex bolts (13), secure with M16 lock washers and M16 nuts.

18. Now install the cylinders (14) using Ø30 pins (15), Ø60 x Ø33 x 2 machine washers and Ø10 x 50 roll pin.

19. Install cylinder transport locks (16) to cylinders (14) using Ø10mm pins and clip pins.

20. All bolts may be tightened to specs, See “Torque Values Chart” on page 25.

Centre Fold

Refer to Figure 7

Note: Models 8308 wing stop goes on rear plates of centre frame trusses. All other models go on front plates as shown.

21. Attach inside plates of centre wing stop (1), to centre frame trusses using M16 x 45 bolts (2), M16 lock washers and nuts.

22. Attach outside plates of centre wing stop (1), to outside tubes of centre frame with M16 x 101 x155 ubolts (3), M16 lock washers and nuts.

23. Mount front (4) and rear (5) fold brackets to centre frame plates with M16 x 45 bolts (6), M16 lock washers and nuts.

24. Insert the Ø15 x 155 pin (6) into round tubes on rear of wing stop (1).

25. All bolts may be tightened to specs, See “Torque Values Chart” on page 25.
Connect Hitch

Refer to Figure 8

26. Attach hitch ① to centre brace bar using Ø31.75 threaded pin ②, and nut.

27. Mount square jack ④ to front mount on hitch ① with pin provided with jack.

Note: Use jack to help support front of hitch for rest of hitch assembly.

28. Attach rear of turnbuckle assembly ⑤ to h-bracket with M24 x 220 hex bolt ⑥ and M24 lock washer and nut.

29. Attach front of turnbuckle assembly ⑤ to hitch ① using 1 x 4 1/2 pin ⑦, Ø40 x Ø26.5 x 2 machine washer and Ø4.6 x 45 cotter pin.

30. Align holes in hitch base ⑨ with holes in front of hitch ①.

31. Align holes in safety chain support ⑩ with holes on left side of hitch ①, secure with 1 x 8 Gr. 8 special hex bolts ⑪, 1 lock washers and 1 nuts.

32. Install safety chain ⑪ on bottom side of hitch ①, secure with M24 x 75 hex bolt ⑫, M24 flat washer, M24 lock washer and M24 nut.

33. Route safety chain ⑪ through safety chain support ⑩.

34. Mount spring hose loop ⑬ to top side of hitch ①, with M12 x 20 bolt ⑭, M12 lock washer and M12 flat washer.

35. Mount the manual tube ⑮ to hitch ① with M6 x 30 hex bolts ⑯, M6 lock washers and M6 nuts.

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

Install Wing Cylinder Mount

Refer to Figure 9

Note: The wing cylinder mount assemblies will be installed as shown below for all wings.

37. Attach cylinder mount plate ① to inside of tube weldment of wing frame, with M24 x 220 hex bolt ② and M24 top lock nut. Tighten bolt down snug.

38. Slide adjustment bolt assembly ③ through front side of ball joint on wing frame, secure with M24 castle nut ④ and Cat. 0 lynch pin. Attach clevis end of adjustment bolt assembly ③ to rear hole of cylinder mount plate ⑤ with Ø30 x 83 clevis pin ⑥, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

Note: See side to side leveling in “Operator’s Manual” for proper adjustment of wing when machine is completely assembled.
Install 8308 Wings

Refer to Figure 10

Note: Be sure to install the Ø40mm hinge pins as shown with roll pin in slot on front side of hinge.

39. Carefully align holes in wing frame LH with holes in centre frame. Secure with Ø40mm hinge pins, Ø10 x 65 roll pins, M36 top lock nut.

40. Attach wing brace to the front of the wing frame LH with M20 x 55 hex bolts, M20 lock washers and M20 hex nuts.

41. Align holes in wheel arm L, secure with Ø40 x 145 pins, M10 x 80 hex bolts and M10 top lock nuts.

42. Mount wing fold bracket to wing with M20 x 130 hex bolts, M20 lock washers and M20 hex nuts, M16 x 101 x 145 u-bolts, M16 lock washers and M16 hex nuts.

43. Attach base end of 80x203x40 lift cylinder to front hole of cylinder mount plate with Ø30 x 113 pin, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin. Attach rod end of 80x203x40 cylinder to wheel arm L with Ø30 x 102 pin, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

44. Attach base end of 100x762x40 fold cylinder to hole of centre fold bracket with Ø40 x 113 pin, Ø77 x Ø42 x 2 machine washer and Ø5 x 75 cotter pin.

45. Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 22

46. Repeat same procedure for right wing.

47. Tighten all bolts to specs, See “Torque Values Chart” on page 25.
Install 8310 Wings

Refer to Figure 11

Note: Be sure to install the Ø40 hinge pins as shown with roll pin in slot on front side of hinge.

48. Carefully align holes in wing frame LH with holes in centre frame. Secure with Ø40 hinge pins, Ø10 x 65 roll pins, M36 top lock nut.

49. Attach wing brace to the front of the wing frame LH with M20 x 55 hex bolts, M20 lock washers and M20 hex nuts.

50. Align holes in wheel arm L, secure with Ø40 x 145 pins, M10 x 80 hex bolts and M10 top lock nuts.

51. Fasten LH wing truss to wing with M16 x 45 hex bolts, M16 lock washers and M16 hex nuts.

52. Mount wing extension to outside of wing and wing brace with M16 x 45 hex bolts, M16 lock washers and M16 hex nuts.

53. Mount wing fold bracket to wing with M20 x 130 hex bolts, M20 lock washers and M20 hex nuts, M16 x 101 x 145 u-bolts, M16 lock washers and M16 hex nuts.

54. Attach base end of 90x203x40 lift cylinder to front hole of cylinder mount plate with Ø30 x 113 pin, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin. Attach rod end of 90x203x40 cylinder to wheel arm L with Ø30 x 102 pin, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

55. Attach base end of 100x762x40 fold cylinder to hole of centre fold bracket with Ø40 x 113 pin, Ø77 x Ø42 x 2 machine washer and Ø5 x 75 cotter pin.

56. Attach stub to outside of wing extension, with M16 x 45 hex bolts, M16 lock washers and M16 hex nuts.

57. Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 22.

58. Repeat same procedure for right wing.

59. Tighten all bolts to specs, See “Torque Values Chart” on page 25.
Install 5-Section Wing

Refer to Figure 12

Note: Be sure to install the Ø40 hinge pins ② as shown with roll pin in slot on front side of hinge.

60. Carefully align holes in wing frame LH ① with holes in centre frame. Secure with Ø40 hinge pins ②, Ø10 x 65 roll pins, M36 top lock nut.

61. Attach wing brace ③ to the front of the wing frame LH ① with M20 x 55 hex bolts ④, M20 lock washers and M20 hex nuts.

62. Align holes in wheel arm L ⑤, secure with Ø40 x 45 pins ⑥, M10 x 80 hex bolts and M10 top lock nuts.

63. Fasten LH wing truss ⑦ to wing with M16 x 45 hex bolts ⑧, M16 lock washers and M16 hex nuts.

64. Attach base end of 90x203x40 lift cylinder ⑨ to front hole of cylinder mount plate ⑩ with Ø30 x 113 pin ⑪, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin. Attach rod end of cylinder ⑤ to wheel arm L ③ with Ø30 x 102 pin ⑬, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

65. Tighten all bolts to specs, See “Torque Values Chart” on page 25.

Install 5-Section Wing Fold

Refer to Figure 13

66. Mount wing folding brackets ① to wing with M20 x 130 hex bolts ②, M20 lock washers and M20 hex nuts, M16 x 101 x 145 u-bolts ③, M16 lock washers and M16 nut, M20 nuts, M20 x 180 hex bolt ④, M20 lock washer and M20 nut.

67. Attach base end of 100x762x40 cylinders ⑤ to centre fold bracket with Ø30 x 102 pin ⑥, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

68. Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 22.

69. Attach inside wing hinge ⑦ to wing brace with M16 x 45 hex bolts ⑧, M16 lock washers and M16 hex nuts, M16 x 101 x 145 u-bolt ⑨, M16 lock washers and M16 nuts.

70. Attach wing lock mount ⑩, on top of wing frame tube, with M16 x 101 x 145 u-bolts ⑪, M16 lock washers and M16 nuts.

Note: See layout section in “Operator’s Manual” for proper placement of wing lock mount ⑩ and wing rest ⑪.

71. Bolt the automatic wing latch ⑫, wing lock mount ⑩, with M16 x 120 hex bolts ⑬, M20 lock washers and M20 nuts.

72. Tighten all bolts to specs, See “Torque Values Chart” on page 25.

73. Repeat same procedure for right wing.
Install 5-Section Outside Wings

Refer to Figure 14

74. Align holes in outside wing hinge ① with hole in LH and RH outside wing ②, secure with M24 x 160 hex bolt ④, M16 lock washers, M16 nuts and two M16 x 101 x 145 u-bolts ⑤, M16 lock nuts. Fasten the front outside wing hinge ① to wing brace the same way.

75. Carefully align holes in wing hinges ① with holes in fold brackets. Secure with Ø40mm pin ⑥ and M36 top lock nut.

76. Attach outside wing brace ③ to front side of wing frame with M20 x 55 hex bolts ⑦, M20 lock washers, M20 hex nuts.

77. Attach bolt-on stub ⑧ to side of wing brace and front of wing frame with M16 x 101 x 145 u-bolts ⑨, M16 lock washers and M16 nuts.

78. Attach holes in wheel arm L ⑩ to wing frame ②, secure with 1 1/4 x 6 pin ⑪, M10 x 80 hex bolts and M10 top lock nuts.

79. Attach base end of 80x203x40 lift cylinder ⑫ to front hole of cylinder mount ⑬ plate with Ø30 x 102 pin ⑭, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin. Attach rod end of cylinder ⑫ to torque tube lever with Ø30 x 102 pin ⑭, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

80. Mount bottom of 180 fold rocker ⑮ to wing hinge ① with Ø25 clevis pin ⑯, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

81. Attach base end of 100x406x40 cylinders ⑰ to centre fold bracket with Ø30 x 102 pin ⑱, Ø60 x Ø33 x 2 machine washer and Ø4.6 x 45 cotter pin.

82. Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 22.

83. Attach T bracket ⑲ to wing frame with M16 x 101 x145 u-bolts ⑳, M16 lock washers and M16 nuts.

Note: See layout section in “Operator’s Manual” for proper placement of lock mount ⑳.

84. Tighten all bolts to specs, See “Torque Values Chart” on page 25.
**Centre Transport**

Note: See “Tyre Inflation Chart” on page 26 for proper tyre sizes for tyre/wheel assembly ⑤.

Refer to Figure 15

Note: See transport section of “Parts Manual” for proper parts breakdown for centre walking beam assemblies (left hand and right hand) for model of machine purchased.

85. Install the axles ③ on the walking beam assembly ① with correct plates ② and M16 bolts and nuts (see parts manual for details).

86. Mount tire/wheel assembly ⑥ to spindle/hub assembly ⑧ with M18x1.5x50 studs.

87. Tighten wheel nuts ④.

Note: Right hand shown is shown. Repeat same procedure for left side.

88. Tighten all bolts to specs, See “Torque Values Chart” on page 25.

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**Wing Transport**

Refer to Figure 16

Note: See transport section of “Parts Manual” for proper parts breakdown for wing walking beam assemblies.

89. Install the axles ③ on the walking beam assembly ① with correct plates ② and M16 bolts and nuts (see parts manual for details).

90. Mount tire/wheel assembly ⑥ to spindle/hub assembly ⑧ with M18x1.5x50 studs.

91. Tighten wheel nuts ④.

Note: Right hand shown is shown. Repeat same procedure for left side.

92. Tighten all bolts to specs, See “Torque Values Chart” on page 25.
Install Gauge Wheel

Refer to Figure 17

93. Start by installing the wheel arm mount ① to the plates on wing frame with M16 x 45 hex bolts ②, M16 lock washers and M16 nuts.

94. Slide screw jack ③ down through the wheel arm mount plate, secure with M12 x 30 hex bolts ④ and 1/2 top lock nuts.

95. Slide the spindle receiver ⑤ inside the wheel arm mount, align holes, secure with M16 x 90 hex bolt ⑥, M16 lock washer and M16 nut. Install three M16 x 30 hex bolts ⑦ to welded nuts on wheel arm mount.

96. Fit 6-bolt hub assembly ⑧ to spindle receiver ⑤, using plate ⑨ and M16 bolts and nuts (see parts manual).

97. Attach the 10.0x1/75-15.3, 14 ply, wheel/tyre assembly ⑩ to 6-bolt hub assembly and secure with wheel nuts ⑪.

98. Tighten bolts to specs, See “Torque Values Chart” on page 25.

Install K-Flex

Note: See layout section in appendix section for proper shank placement.

Refer to Figure 18

99. Slide k-flex shank mount ① through slot in k-flex clamp ②. Slide these two parts over frame tube in proper location.

100. Align top hole in k-flex clip ③ with top hole in k-flex clamp ②, secure with M12 x 40 hex bolt ④, M12 lock washer and M12 nut. Install M12 x 160 hex bolts ⑤, M12 lock washers and M12 nuts.

101. Slide shank ⑥ through slotted hole in k-flex shank mount (1), secure with M16 x 45 hex bolt ⑦ and M16 top lock nut. Attach sweep ⑧ with 7/16 x 1 3/4 plow bolts ⑨, one, 7/16 flat washer ⑩ (top slotted hole) and 7/16 nylock nuts.

102. Tighten all bolts to specs, See “Torque Values Chart” on page 25.
Install Magnum Shank

Note: See layout section in appendix section for proper shank placement.

Refer to Figure 19

103. Loosen M12 x 40 hex bolt ④ clear up to get M16 x 45 hex bolt ⑤ installed.

104. Position pre-assembled shank mount assembly ① over front of frame tube in proper location. Secure with M16 x 101 x 145 u-bolt ② and M16 top lock nut.

105. Be sure the 3/4 nylock jam nut ③ is loose enough for shank cradle to pivot.

106. Slide shank ⑤ into shank cradle until holes are aligned, secure with M16 x 45 hex bolt ⑥ and M16 top lock nut.

107. Align sweep ⑦ with holes on shank ⑤, secure with 7/16 x 1 3/4 plow bolts ⑧, one, 7/16 flat washer ⑨ (top slotted hole) and 7/16 nylock nuts.

108. Re-tighten M12 x 40 hex bolt ④ until threads bottom out.

Note: IMPORTANT(!) Be sure to tighten lock jam nut ③ until threads bottom out to ensure that hole doesn’t wear excessively.

109. Tighten rest of bolts to specs, See “Torque Values Chart” on page 25.

Install Hydraulic Valves

Refer to Figure 20

110. Align holes in depth control valve ① to top of depth stop valve mounting bracket ② using M8 x 55 hex bolts ③ and M8 lock washers.

111. Slide one end of depth stop tube ④ (with 2 holes) through slotted hole in depth stop valve mounting bracket. Slide other end of depth stop tube ⑤ lever on torque tube, secure with M12x70 hex bolt ⑥ and M12 lock nut.

112. Bolt depth stop screw assembly ⑦ to front of depth stop tube ⑤ with M12 x 65 hex bolts ⑧, M12 lock washers and M12 nuts.

113. Mount rebound valve ⑨ to bracket, with M8 x 100 hex bolts ⑩, M8 lock washers and M8 nuts.

114. Tighten rest of bolts to specs, See “Torque Values Chart” on page 25 and bend cotter pin.

Note: Install all hydraulic fittings as shown in steps on following pages. Refer to appendix section for complete hydraulic layouts.
Install Rebound Valve and Fittings

Refer to Figure 21

115. Thread straight fittings ③ through bonded washers ② into ports V1, V2 and C1, C2 of rebound valve ①.

Note: Tighten as shown below. Do not over tighten as this could cause damage to valves.

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

b. Turn fitting into port until finger tight, See “Fittings Torque Values” on page 27 for proper torque value.

Install Depth Control Valve

Refer to Figure 22

116. Thread straight fitting ② into ports of depth stop valve ①. Install blanking plug ③ into left port of depth control valve ①.
Install 3-Section Double Tee Block

*Refer to Figure 23*

117. Thread straight fittings through bonded washers into ports of double tee block.

![Figure 23](image)

3-Section Double Tee Block

46031

Install 5-Section Double Tee Block

*Refer to Figure 24*

118. Thread straight fittings through bonded washers into ports of double tee block.

119. Fasten BSP tee’s ☟ between hoses as shown.

Note: See “Install BSP Fittings” on page 20 for proper installation.

![Figure 24](image)

5-Section Double Tee Block

46029

Install Hose Handles

*Refer to Figure 25*

Note: Hose handles are color coded. See “Hydraulic Hose Hookup” on page 21 for proper placement on hoses.

120. Install fittings to end of hoses running to front of hitch. Attach coupling fittings ensuring bonded washers are in place.

121. Tighten fittings.

122. Route hoses as shown in the hydraulics section in the Parts Manual.

![Figure 25](image)

Hose Handle Assembly

46029
Install BSP Fittings

Refer to Figure 26

123. Install BSP female hose ① to male fitting.

124. When the BSP hoses are routed, follow the following procedure for hooking up and tightening.
   
   a. Inspect for possible contamination or damage from shipping or handling. Sealing surface should be smooth.

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

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

   d. Torque nut to the values shown in “Torque Value Chart” page 27. If a wrench pad is provided next to nut, place a second wrench on pad to prevent flare from rotating while being torqued.

   e. When torquing nut onto a straight flared fitting, it may be necessary to also place a wrench on the flared fitting wrench pad to prevent it from turning during assembly.

125. Alternate Assembly Method for BSP.

   a. If torqued method not possible, follow steps a-c above, then proceed to the steps below.

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

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

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

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

Refer to Figure 27
126. When all the hoses are hooked up and tightened properly, put hose clamps on hoses as shown.
127. Install hose wraps on hoses as needed.
Note: Be sure to 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
128. Great Plains hydraulic hoses are colour coded to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same colour.

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Lift (2 hoses)</td>
</tr>
<tr>
<td>Yellow</td>
<td>Fold (2 hoses)</td>
</tr>
</tbody>
</table>

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

Hose Handles

Refer to Figure 28
129. To distinguish hoses on the same hydraulic circuit, refer to coloured hose caps. The hose with one cable tie feeds a cylinder base end. The hose with two cable ties feeds a cylinder rod end.
130. Once all hoses are tightened, hook hoses to tractor
Purging Hydraulic System

Refer to Figure 29

131. Charge the lift system first. Extend the lift cylinders ① until the centre section is fully raised. Remove the cylinder transport locks ②. The wings will not start to raise until the centre cylinders are fully extended and the master cylinders begin to bypass oil through the rephasing ports, to the wing cylinders. Watch for leaks and retighten fittings if necessary. Continue to pump oil to the lift system until the wing cylinders are also fully extended. At this point, reverse the flow and lower the unit to the ground, retracting all cylinders. Raise and lower the unit several times to purge air from the system.

132. You may now charge the fold system. Before charging the fold cylinders ③, make sure the rod end of the cylinders are un pinned and block is under cylinders as shown on rear cylinders, so that when the rod is extended, it will clear the wing fold brackets. Extend the fold cylinders ③ completely and then close them. Extend and retract the cylinders several times to purge air from the system. Now the cylinders may be extended far enough to be connected to the wing fold brackets.

133. Remove wood blocks and install Ø40mm pin ④, Ø77 x Ø42 x 2 washers and M36 x 4 top lock nut to rod end of inside wing cylinders and slot in fold bracket. Note: Tighten nut ⑤ down to where there is 1.5mm to 3mm gap. Be sure bolt will still turn freely.

134. Remove wood blocks and install Ø30mm hinge pins ⑥, Ø60 x Ø33 x 2 flat washers, Ø45mm rollers and Ø10 x 50 roll pins to base end of outer wing cylinders and rocker.
Light Assembly

Refer to Figure 30

135. Route light harness lead ① from front of hitch (tractor plug to front), along same route as hydraulic hose (fasten in same clamps and hose wraps as hoses). Route harness as shown.

136. Mount red lamp lights ④ to top of light mounting brackets, with M12 x 101 x 130 bolts and M12 lock nuts.

137. Mount side lamp lights ⑤ to light brackets with M6 x 30 hex bolts ⑥ and M6 lock nuts.

138. Tighten all bolts to specs. Be sure to get all wiring harnesses fastened up securely with hose wraps or clamps (if routed close to hydraulic hoses) or use cable ties.

Install Rear Hitch (optional)

Refer to Figure 31

Note: The rear tow hitch will be shipped with big components banded together and bolts will be in a box. Carefully un-band the components.

139. Attach left ② and right ③ rear hitch arms, rear hitch truss ④, rear truss support ⑤ to centre frame using M16 x 45 bolts ⑥, M16 x 101 x 145 u-bolts ⑦, secure with M16 lock washers and M16 nuts.

Note: Do not tighten any bolts until everything is installed.

140. Now install the rear hitch frame ③ using M16 x 45 bolts ⑥, M16 x 101 x 145 u-bolts ⑧, secure with M16 lock washers and M16 nuts.

141. The bolt on sleeve assembly with rigid or flex slide ⑨, may be fastened using M16 x 101 x 145 u-bolt ⑩, secure with M16 lock washers and M16 nuts.

142. Tighten all bolts to specs. See “Torque Values Chart” on page 25.

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

144. 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.
Completing Setup

145. The decals may now be installed.
146. See appropriate pages for decals in the “Parts Manual” for decal placement.
147. To install new decals:
148. Clean the area on which the decal is to be placed.
149. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.
150. Slowly peel away top protective covering being careful not to pull decal from implement.
151. If machine has an optional finishing attachment, refer to the “Parts Manual” for parts break down, and attachment layout drawings of this manual.
152. Be sure to consult the operating instructions, “Operator’s Manual”, for the first time field adjustments before going to the field.
# Appendix

## Torque Values Chart

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
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<td>Grade 5</td>
<td>Grade 8</td>
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<td>ft-lb</td>
<td>N-m</td>
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- in-tpi = nominal thread diameter in inches-threads per inch
- N·m = newton-meters
- mm x pitch = nominal thread diameter in mm x thread pitch
- ft-lb = foot pounds

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

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<td>87 psi 6.0 bar</td>
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## Tyre Warranty Information

All tyres are warranted by the original manufacturer of the tyre. Tyre 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 Tyre Retailer.

<table>
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<th>Manufacturer</th>
<th>Web site</th>
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<tbody>
<tr>
<td>BKT</td>
<td><a href="http://www.bkt-tire.com">www.bkt-tire.com</a></td>
</tr>
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</table>
Hydraulic Connectors and Torque

Refer to Figure 32
All hoses and fitting on the machine are BSPP (British Standard Parallel Pipe). Leave any protective caps in place until immediately prior to making a connection.

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<th>Torque N-m</th>
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FCC8308M Machine Layout
FCC8310M Machine Layout
FCC8512M Machine Layout
FCC8513M Machine Layout
FCC8308M S4T Spike Drag HR Layout
FCC8310M S4T Spike Drag HR Layout
FCC8512M S4T Spike Drag HR Layout
FCC8512M S4T Spike Drag HR Layout
FCC8513M S4T Spike Drag HR Layout
FCC8513M S4T Spike Drag HR Layout
FCC8310M S5T Spike Drag Layout
FCC8512M S5T Spike Drag Layout
FCC8513M S5T Spike Drag Layout
FCC8308M S3T Spike Drag w/Reel Layout
FCC8512M S3T Spike Drag w/Reel Layout
FCC8512M S3T Spike Drag w/Reel Layout
FCC8513M S3T Spike Drag w/Reel Layout
FCC8310M CH4B Coil Tine Drag Layout
FCC8512M CH4B Coil Tine Drag Layout
FCC8512M CH4B Coil Tine Drag Layout
FCC8513M CH4B Coil Tine Drag Layout
FCC8308M CH3A Coil Tine w/ Reel Drag Layout
FCC8310MFCC8513M CH3A Coil Tine w/ Reel Drag Layout
FCC8512M CH3A Coil Tine w/ Reel Drag Layout
FCC8512M CH3A Coil Tine w/ Reel Drag Layout
FCC8513M CH3A Coil Tine w/ Reel Drag Layout
FCC8513M CH3A Coil Tine w/ Reel Drag Layout
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