Assembly Manual
Discovator (Disc & Coulter)
Series VIII 8321, 8324, 8326, 8328, 8333, 8537, 8544, 8548 & 8552

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 Discovator using blocks and supports provided.
- Detach and store Discovator 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 Discovator 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 Series VIII, 8321-8552DV Discovator is a three or five-section field finishing, one-pass tillage tool. Working width ranges from 21 to 52 feet. The implement is designed to combine discing/slicing, cultivating, harrowing and herbicide incorporation in a single pass. Various finishing attachments are available to customize your tillage and residue requirements for your operation.

Models Covered

8321DV  21-Foot  3-section
8324DV  24-Foot  3-section
8326DV  26-Foot  3-section
8328DV  28-Foot  3-section
8333DV  33-Foot  3-section
8537DV  37-Foot  5-section
8544DV  44-Foot  5-section
8548DV  48-Foot  5-section
8552DV  52-Foot  5-section

Document Family

550-353Q-ENG  Assembly Manual (this document)
550-353Q  Pre-Delivery Manual
550-353M  Operator Manual
550-353P  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 Discovator.
Using This Manual

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

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

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

Definitions

The following terms are used throughout this manual.

**NOTICE**

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

🔧 Useful information related to the preceding topic.

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

The discovator will be shipped unassembled as shown in a big shipping rack and shipping boxes on pallets. The only parts that will be assembled are the disc or coulter gang assemblies and 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 big parts will be banded to attachment 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.

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

Carefully un-band components.

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

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

Unload Smaller Items First

Unloading the frames is a potentially dangerous operation.

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

Place these components well out of the maneuvering area needed for unloading the gang assemblies and frames.

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

Unpacking Boxes

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

Further Assistance

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

Great Plains Service Department
1525 E. North St.
PO Box 5060
Salina, KS 67402-5060

Or go to www.greatplainsag.com and follow the contact information at the bottom of your screen for our service department.
Assembly

Center Brace Bar & Torque Tube

Refer to Figure 5

3. Once the center Frame has been uncrated and put on stands, the torque tube maybe installed.

4. Carefully raise the torque tube ① with an overhead hoist and secure with 1 1/4 x 6 pins ②, 3/8 x 2 1/4 Gr. 8 hex bolts and 3/8 top lock nut.

5. Install walking beams ③, See “Walking Beam Assembly” on page 26

6. Install pre-assembled hub assembly ④ using 5/16 x 4 bolts (models 8321-8537) or 1/2 x 4 1/2 bolts (models 8544-8552) ⑤, secure with lock washer and 1/2 nut.

7. Attach the tire/wheel assemblies ⑥ to hub assembly ④ and secure with lug nuts ⑦.

8. Now install the appropriate cylinders ⑧, see hydraulics section of “Parts Manual” for correct size, using 1 x 3 11/16 pins ⑨, 1.5 x 1.0 x.075 machine washers and 3/16 x 2 cotter pins.

9. Install cylinder transport locks ⑩ to cylinders ⑧ using the 3/8 x 3 pins and clip pin.

Install ¾ x 2 Gr. 5 hex bolts ⑪, back to front as shown.

10. Carefully move center brace bar ⑫ into position with fork truck or overhead hoist. Secure with 3/4 x 2 Gr. 5 hex bolts ⑫, ¾ lock washers and ¾ hex nuts.

11. All bolts may be tightened to specs, See “Torque Values Chart” on page 42. Attach plastic end caps ⑬ to all open ends of 4 x 3 tube.
Figure 5
Center Brace Bar & Torque Tube

Install Bolts from Back to Front as Shown
Cylinder Transport Lock Shown in Field Position
Cylinder Transport Lock Shown in Transport Position
Truss & Level Bar

Refer to Figure 6

12. Now the center frame trusses ① may be installed using $\frac{5}{8} \times 1\frac{1}{2}$ Gr. 5 hex bolts ②, secure with lock washers, $\frac{5}{8}$ hex nuts and $\frac{3}{4} \times 2$ Gr. 5 hex bolts ③, secure with lock washers and lock nuts.

13. Attach the h-bracket mounting plate ④ with $\frac{3}{4} \times 2$ Gr. 5 hex bolts ③, secure with $\frac{3}{4}$ lock washers and lock nuts.

14. Mount the bottom side of the h-bracket ⑤ using the $1 \times 2^{29/64}$ pins ⑥, 1.5 x 1.0 x.075 machine washers and $\frac{3}{16} \times 2$ cotter pins.

15. Attach the level bar slide tube assembly ⑦ into the top side of the h-bracket ⑤, secure with 1 x 9 Gr. 8 hex bolt ⑧ and 1 nylon lock nut.

Install level bar ⑧ with depth stop tube pin to left side of machine.

16. Now slide the front of the level bar ⑧ over the back side of the level bar slide tube assembly ⑦, secure with a $\frac{3}{4} \times 5\frac{1}{2}$ Gr. 5 hex bolt ⑨ and $\frac{3}{4}$ nylock nut.

17. Attach rear of level bar ⑨ to the torque tube with the $1 \times 6$ Gr. 8 special hex bolt ⑩ and 1 nylon lock nut.

18. Mount the level bar cross tube ⑪ to the level bar ⑧ side plates with $\frac{5}{8} \times 1\frac{1}{2}$ Gr. 5 hex bolts ②, secure with 5/8 lock washers and $\frac{5}{8}$ nuts.

19. All bolts may be tightened to specs, See “Torque Values Chart” on page 42.
Figure 6
Truss & Level Bar Assembly

Be Sure to Install Depth Stop Mount on Left Side
8321-8328, 8537-8544 Center Fold

Refer to Figure 7

20. Attach brace bar truss (models 8537 & 8544) to front of center brace bar, outside plates with \( \frac{3}{4} \times 2 \) \( \odot \), \( \frac{3}{4} \) lock washers and nuts, inside plates with \( \frac{5}{8} \times 1 \frac{1}{2} \) bolts \( \odot \), \( \frac{5}{8} \) lock washers and nuts.

21. Mount front and rear fold brackets to center frame with \( \frac{5}{8} \times 1 \frac{1}{2} \) bolts \( \odot \), \( \frac{5}{8} \) lock washers and nuts.

22. Attach inside plate of center wing stop, using \( \frac{5}{8} \times 1 \frac{1}{2} \) bolts \( \odot \), \( \frac{5}{8} \) lock washers and nuts.

23. Attach outside plate of center wing stop, with \( \frac{5}{8} \times 3 \frac{1}{32} \times 5 \frac{1}{2} \) u-bolts \( \odot \), \( \frac{5}{8} \) lock washers and nuts.

24. Insert the \( 1 \frac{1}{2} \times 4 \frac{1}{2} \) pin w/keepers \( \odot \) into round tubes on rear of wing stop \( \odot \).

25. Mount cylinder rest pads, (Models 8321-8324 only) to center frame, with \( 1 \frac{1}{2} \times 3 \frac{1}{32} \times 5 \) u-bolts \( \odot \), \( 1 \frac{1}{2} \) lock washers and nuts.

\( \bigstar \) Position cylinder rest pad \( \odot \) 12" from inside of outer tube to plate on pad as shown.

26. All bolts may be tightened to specs, See “Torque Values Chart” on page 42.
Figure 7
8321-8324, 8537-8544 Center Fold
833, 8548-8552 Center Fold

Refer to Figure 8

27. Mount front ① and rear ② fold brackets to center frame with ⁵⁄₈ x 1⅛ bolts ③, ⁵⁄₈ lock washers and nuts.

28. Attach plates of front wing stop ④, with ⁵⁄₈ x 3⅓ x 4⅛ u-bolts ⑤, ⁵⁄₈ lock washers and nuts. Position plates of wing stop over truss mounting tube as shown.

29. Insert the ⅓ x 4⅛ pin w/keepers ⑥ into round tubes on rear of wing stop ⑥.

30. Attach rear wing stop ⑦ on center frame tubes as shown, with ⁵⁄₈ x 3⅓ x 5⅜ u-bolts ⑧, ⁵⁄₈ lock washers and nuts.

31. Mount the SMV sign ⑨ to wing stop, with ¼ x ¾ pan head screws ⑩, ¼ lock washers and nuts.

32. All bolts may be tightened to specs, See “Torque Values Chart” on page 42.
Models 8548-8552 Only

Position Wing Stop with One U-Bolt on each Side of Truss Mounting Tube

Models 8333 Only

Figure 8
8333, 8548-8552 Center Fold
Connect Hitch

Refer to Figure 9

33. Attach hitch ① to center brace bar using 1 1/4 x 7 Gr. 8 hex bolt ② and top lock nut.

34. Mount square jack ③ to front mount on hitch ① with pin provided with jack.
   • Use jack to help support front of hitch for rest of hitch assembly.

35. Attach rear of turnbuckle assembly ④ to h-bracket with 1 x 9 Gr. 8 hex bolt ⑤ and 1 nylon lock nut.

36. Attach front of turnbuckle assembly ⑥ to hitch ① using 1 x 3 3/8 pin ⑦, 1.5 x 1.0 x.075 machine washer and 3/16 x 2 cotter pin.

37. Slip holes in turnbuckle wrench ⑧ over pegs on inside (left) side of hitch ①.

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

39. 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 nut.

40. Install safety chain ⑫ on bottom side of hitch ①, secure with 1 x 7 Gr. 8 hex bolt ⑬, 1 3/4 OD x 1 1/32 ID x 1/2 round tube ⑭, fold roller ⑮, 1 lock washer and 1 nut.

41. Route safety chain ⑯ through safety chain support ⑩.

42. Mount spring hose loop ⑰ to top side of hitch ①, with 1/2 x 1 1/2 bolt ⑱, 1/2 flat washer, 1/2 lock washer and nut.

43. Mount the manual pack ⑲ to hitch ① with 1/4 x 3/4 pan screws ⑳, rubber spacers ⑳, 1/4 lock washers and nuts.

44. All bolts may be tightened to specs, See “Torque Values Chart” on page 42.
Figure 9
Hitch Assembly
Install 8321-8324 Wings

Refer to Figure 10
45. Carefully align holes in wing frame LH ① with holes in center frame. Secure with 1 x 7 Gr. 8 special thread hex bolt ② and 1 nylon lock nut.

Be sure and install the 1 x 6 hex bolts ② as shown with arrows with head against plate on side of hinge.

46. Attach wing brace ③ to the front of the wing frame LH ① with 3/4 x 2 Gr. 5 hex bolts ④, 3/4 lock washers and hex nuts.

47. Install 1 x 6 Gr. 5 hex bolts ② and 1 nylon lock nuts through hinge in center wing brace.

Refer to Figure 11

If you have a model 8324, go to Refer to Figure 12.

48. Align holes in wheel arm L ⑤, secure with 1 1/4 x 6 pins ⑥, 3/8 x 2 1/4 hex bolts ⑦ and 3/8 top lock nuts.

49. Model 8321, align hole in 6-bolt spindle assembly ⑧ with wheel arm tube, secure with 5/16 x 2 13/16 clevis pin ⑨ and 1/8 x 1 cotter pin, bend over to secure.

50. Attach tire/wheel assembly ⑩ with lug nuts ⑪.

51. Repeat same procedure for right wing.

Refer to Figure 12

52. Align holes in wheel arm L ⑫, secure with 1 1/4 x 6 pins ⑬, 3/8 x 2 1/4 hex bolts ⑭ and 3/8 top lock nuts.


54. Model 8324, align hole in 6-bolt spindle assembly ⑯ with tube of walking beam, secure with 5/16 x 2 13/16 clevis pin ⑰ and 1/8 x 1 cotter pin, bend over to secure.

55. Attach tire/wheel assembly ⑱ with lug nuts ⑲.

56. Install hub/wheel on other side of walking beam ⑳.

57. Repeat same procedure for right wing.

58. Tighten all bolts to specs, See “Torque Values Chart” on page 42.
Install 8321-8324 Wing Fold

Refer to Figure 13

59. Attach 1\(\frac{1}{4}\) x 9\(\frac{1}{2}\) eye bolt 3, secure with 1\(\frac{1}{4}\) jam nuts 2 (one on each side of plate).

60. Mount 3.5 x 8 x 1.25 cylinder 3 to eye bolt 1 and wheel arm L with 1 x 3\(\frac{11}{16}\) pins 4, 1.5 x 1.0 x .075 machine washers and 3\(\frac{1}{16}\) x 2 cotter pins.

61. Mount rocker bracket 5 to wing plate with 3\(\frac{1}{4}\) x 3 Gr. 5 hex bolts 6, 3\(\frac{1}{4}\) lock washers and hex nuts.

62. Attach one end of rocker 7 to rocker bracket 5 using 1 x 3\(\frac{7}{8}\) pin 8, 1.5 x 1.0 x.075 machine washer and 3\(\frac{1}{16}\) x 2 cotter pin.

63. Bolt the connecting link 9, with 1 x 3 Gr. 5 bolts 10, 1 lock washers and nuts.

64. Attach base end of 3.5 x 24 x 1.25 cylinders 11 to center fold bracket with 1 x 3\(\frac{11}{16}\) pin 4, 1.5 x 1.0 x .075 machine washer and 3\(\frac{1}{16}\) x 2 cotter pin.

\(\Box\) Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 35.

65. Repeat same procedure for right wing.

66. Tighten all bolts to specs, See “Torque Values Chart” on page 42.

Install 8326-8333 Wings

Refer to Figure 14

67. Carefully align holes in wing frame LH 1 with holes in center frame. Secure with 1 x 7 Gr. 8 special thread hex bolt 2 and 1 nylon lock nut.

\(\Box\) Be sure and install the 1 x 6 hex bolts 2 as shown with arrows with head against plate on side of hinge.

68. Align holes in wheel arm L 3, secure with 1\(\frac{1}{4}\) x 6 pin 9, 3\(\frac{1}{8}\) x 2\(\frac{1}{4}\) hex bolts 5 and 3\(\frac{1}{8}\) top lock nuts.

69. Install walking beams 6, See “Walking Beam Assembly” on page 26.

70. Align hole in 6-bolt spindle assembly 7, secure with 5\(\frac{1}{16}\) x 2\(\frac{13}{16}\) clevis pin 8 and 1\(\frac{1}{8}\) x 1 cotter pin, bend over to secure.

71. Attach tire/wheel assembly 9 with lug nuts 10.

72. Attach wing brace 11 to the front of the wing frame LH 1 with 3\(\frac{1}{4}\) x 2 Gr. 5 hex bolts 12, 3\(\frac{1}{4}\) lock washers and hex nuts.

73. Install 1 x 6 Gr. 5 hex bolt 2 and 1 nylon lock nut through hinge in center wing brace.

74. Attach 1\(\frac{1}{4}\) x 9\(\frac{1}{2}\) eye bolt 13, secure with 1\(\frac{1}{4}\) jam nut 13 (one on each side plate).

75. Mount 3.25 x 8 x 1.25 cylinder (models 8326-8328) or 3.75 x 8 x 1.38 (models 8333) 15 to eye bolt 13 and wheel arm L 3 with 1 x 3\(\frac{11}{16}\) pins 16, 1.5 x 1.0 x .075 machine washers and 3\(\frac{1}{16}\) x 2 cotter pins.

76. Mount wing fold bracket 17 to wing with 3\(\frac{1}{4}\) x 5 Gr. 5 hex bolts 18, 3\(\frac{1}{4}\) lock washers and hex nuts, 5\(\frac{1}{8}\) x 3\(\frac{1}{32}\) x 5\(\frac{1}{2}\) u-bolts 19, 3\(\frac{1}{8}\) lock washers and hex nuts.

77. Attach base end of 4 x 30 x 1.5 cylinders 20 to center fold bracket 21 with 1 x 3\(\frac{11}{16}\) pin 16, 1.5 x 1.0 x.075 machine washer and 3\(\frac{1}{16}\) x 2 cotter pin.

\(\Box\) Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 35.

78. Repeat same procedure for right wing.

79. Tighten all bolts to specs, See “Torque Values Chart” on page 42.
Figure 14
8326-8333 Wing
Install 8537-8552 Inside Wings

Refer to Figure 15

80. Carefully align holes in wing frame LH (1) with holes in center frame. Secure with 1 x 7 Gr. 8 special thread hex bolt (2) and 1 nylon lock nut.

Be sure and install the 1 x 6 hex bolts (2) as shown with arrows with head against plate on side of hinge.

81. Attach wheel arm L (3), to wing frame (1) secure with 1\(\frac{1}{4}\) x 6 pin (4), 3\(\frac{3}{8}\) x 2\(\frac{1}{4}\) hex bolts (5) and 3\(\frac{3}{8}\) top lock nuts.

82. Install walking beams (6), See "Walking Beam Assembly" on page 26.

83. Align hole in 6-bolt spindle assembly (7), secure with 5\(\frac{1}{16}\) x 2\(\frac{13}{16}\) clevis pin (8) and 1\(\frac{1}{8}\) x 1 cotter pin, bend over to secure.

84. Attach tire/wheel assembly (9) with lug nuts (10).

85. Attach wing brace (11) to the front of the wing frame LH (1) with 3\(\frac{3}{4}\) x 2 Gr. 5 hex bolts (12), 3\(\frac{3}{4}\) lock washers and hex nuts.

86. Attach wing lock mount (13) with 1\(\frac{1}{2}\) x 3\(\frac{1}{32}\) x 5 u-bolts (14), 1\(\frac{1}{2}\) lock washers and nuts.

See layout section for proper placement of lock mount (13).

87. Mount automatic wing latch (15), using 3\(\frac{1}{4}\) x 4\(\frac{1}{2}\) hex bolt (16) and lock nut.

88. Attach bolt-on stub (17), to wing frame plate, using 5\(\frac{5}{6}\) x 1\(\frac{1}{2}\) hex bolts (18), 5\(\frac{5}{6}\) lock washers and nuts.

89. Repeat same procedure for right wing.

90. Tighten all bolts to specs, See "Torque Values Chart" on page 42.
Figure 15
8537-8552 Wing
Install 8537-8552 Wing Fold

Refer to Figure 16

91. Attach 1\(\frac{1}{4}\) x 9\(\frac{1}{2}\) eye bolt 1, secure with 1\(\frac{1}{4}\) jam nuts 2 (one on each side of plate).

92. Mount cylinder 3 to eye bolt 1 and wheel arm L with 1 x 3\(\frac{11}{16}\) pins 4, 1.5 x 1.0 x 0.075 machine washers and 3\(\frac{1}{16}\) x 2 cotter pins.

See hydraulic section of “Part’s Manual” for proper cylinders.

93. Mount front fold bracket 5 to wing plate with 3\(\frac{1}{4}\) x 3 Gr. 5 hex bolts 6, 3\(\frac{1}{4}\) x 5\(\frac{1}{2}\) hex bolt 7, 3\(\frac{1}{4}\) lock washers and hex nuts, 5\(\frac{1}{8}\) x 3\(\frac{1}{32}\) x 5\(\frac{1}{2}\) u-bolts 8, 5\(\frac{1}{8}\) lock washers and nuts.

94. Mount rear fold bracket 9 to wing plate with 3\(\frac{1}{4}\) x 3 Gr. 5 hex bolts 6, 3\(\frac{1}{4}\) lock washers and hex nuts, 5\(\frac{1}{8}\) x 3\(\frac{1}{32}\) x 5\(\frac{1}{2}\) u-bolts 8, 5\(\frac{1}{8}\) x 2 hex bolts 10, 5\(\frac{1}{8}\) lock washers and nuts.

95. Attach wing rest 11, on top of front fold bracket 5, wing rest plate 12, bottom of fold bracket, with 1\(\frac{1}{2}\) x 4\(\frac{1}{2}\) hex bolts 13, 1\(\frac{1}{2}\) lock washers and nuts.

See layout section for proper placement of wing rest pad 14.

96. Bolt the 180-degree fold bracket 15, with 5\(\frac{1}{8}\) x 2 hex bolts 16, 5\(\frac{1}{8}\) x 3\(\frac{1}{32}\) x 5\(\frac{1}{2}\) u-bolts 8, 5\(\frac{1}{8}\) lock washers and nuts.

97. Attach base end of 4 x 30 x 1.5 cylinders 17 to center fold bracket with 1 x 3\(\frac{11}{16}\) pin 4, 1.5 x 1.0 x 0.075 machine washer and 3\(\frac{1}{16}\) x 2 cotter pin.

Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 35.

99. Repeat same procedure for right wing.

100. Tighten all bolts to specs, See “Torque Values Chart” on page 42.
Figure 16
8537-8552 Wing Fold
Install 8537-8552 Outside Wings

Refer to Figure 17

101. Attach outside wing hinges ①, to wing frame ② and wing brace ③, with 1 x 5 1/2 Gr. 5 hex bolt ④, 1 nylon lock, 5/8 x 3 1/32 x 5 1/2 u-bolts ⑤, 5/8 lock washers and nuts.

102. Attach wing brace ③ to the front of the wing frame LH ② with 3/4 x 2 Gr. 5 hex bolts ⑤, 3/4 lock washers and hex nuts and 1 x 6 Gr. 8 hex bolt ⑦ and 1 nylon lock nut.

103. Carefully align holes in wing hinges ① with holes in inside wing fold brackets. Secure rear two hinges with 1 1/4 x 8 Gr. 8 hex bolt ⑤ and 1 1/4 nylon lock nut, front hinge with 1 x 6 Gr. 8 hex bolt ⑦ and 1 nylon lock nut.

104. Repeat same procedure for right wing.

Refer to Figure 18

For Models 8548-8552, See “8548-8552 Outside Wing Transport” on page 25

105. Attach holes in wheel arm L ⑩ to wing frame ②, secure with 1 1/4 x 6 pin ⑪, 3/8 x 2 1/4 hex bolts ⑫ and 3/8 top lock nuts.

106. Align hole in 6-bolt spindle assembly ⑬, to wheel arm ⑩, secure with 5/16 x 2 1/16 pin ⑭ and 1/8 x 1 cotter pin.

107. Attach pre-assembled tire/wheel assembly ⑮ with lug nuts ⑯.

108. Repeat same procedure for right wing.

Refer to Figure 19

109. Attach holes in wheel arm L ⑭, to wing frame ②, secure with 1 1/4 x 6 pin ⑪, 3/8 x 2 1/4 hex bolts ⑫ and 3/8 top lock nuts.


111. Align hole in 6-bolt spindle assembly ⑲, to walking beam ⑯, secure with 5/16 x 2 13/16 clevis pin ⑳ and 1/8 x 1 cotter pin, bend over to secure.

112. Attach pre-assembled tire/wheel assembly ⑮ with lug nuts ⑯.

113. Repeat same procedure for right wing.

114. Tighten all bolts to specs, See “Torque Values Chart” on page 42.
Install 8537-8552 Outside Wing Fold

Refer to Figure 20

115. Attach $1\frac{1}{4} \times 9\frac{1}{2}$ eye bolt (1), secure with $1\frac{1}{4}$ jam nut (2) (one on each side plate).

116. Mount 3.5 x 8 x 1.25 cylinder (models 8537-8544) or 4 x 8 x 1.38 (models 8548-8552) (3) to eye bolt (1) and wheel arm L with 1 x 3\(\frac{3}{16}\) pins (4), 1.5 x 1.0 x .075 machine washers and \(\frac{3}{16}\) x 2 cotter pins.

117. Mount bottom of rocker (5) to wing hinge with 1 \(x 3\frac{3}{8}\) clevis pin (6), 1.5 x 1.0 x .075 machine washer and \(\frac{3}{16}\) x 2 cotter pin, bend cotter pin over to secure.

118. Attach base end of 3.5 x 24 x 1.25 cylinders (7) to fold bracket with 1 \(x 3\frac{11}{16}\) pin (8), 1.5 x 1.0 x .075 machine washer and \(\frac{3}{16}\) x 2 cotter pin.

119. Do not attach rod end of fold cylinders until fold system has been purged, See “Purging Hydraulic System” on page 35.

120. When fold system is purged, attach rod end of cylinders (7), to top of rockers (5), with 1 x 7 hinge pin (9), 1 flat washers, 1\(\frac{3}{4}\) OD rollers and \(\frac{3}{8}\) x 2 roll pins in order shown.

121. Mount wing lock T brackets (10), with \(\frac{1}{2} \times 3\frac{1}{32} \times 5\) u-bolts (10), \(\frac{1}{2}\) lock washers and nuts.

See layout section for proper placement of wing lock T brackets (10).

122. Repeat same procedure for right wing.

123. Tighten all bolts to specs, See “Torque Values Chart” on page 42.

Walking Beam Assembly

The center and wing walking beams install the same way as shown below.

Install Bearings and Seals

Refer to Figure 21

124. Pack bearings (2) with grease and put one on each side of torque tube (1).

125. Carefully drive grease seals (3) (metal part of seal to outside) into torque tube (1) until it flush with the outside of torque tube.
Install Spindle Sleeves

Refer to Figure 22

126. Slide one spindle sleeve ④ through the back side of torque tube seal ③ until it goes against bearing ②. The rubber part of seal will hold it in place until the walking beam is installed.

127. Slide the other spindle sleeve ④ as far on to the pivot spindle ⑤ as it will go.

Be sure spindle sleeve ④ stay in position when installing walking beam ⑥, if not installed properly it will not pivot correctly or will cause excessive wear.

Install Walking Beam

Refer to Figure 23

Be sure spindle sleeves ④ stay in correct positions.

128. Now align holes in walking beam ⑥ with holes in grease seals ⑤.

129. Secure with center pivot spindle ⑤, two, machine washers ⑥, and slotted nut ⑦.

Tighten slotted nut ⑦ snug until all the end play is out of bearings. If necessary to align slot with hole in spindle, then back off nut a $\frac{1}{2}$ slot (maximum) and install cotter pin, bend over to secure.

Refer to Figure 24

Orientate the 8544-8552 walking beam as shown. Be sure spindle sleeves ④ stay in correct positions.

130. Now align holes in walking beam ⑥ with holes in grease seals ⑤.

131. Secure with center pivot spindle ⑤, two, machine washers ⑥, and slotted nut ⑦.

Tighten slotted nut ⑦ snug until all the end play is out of bearings. If necessary to align slot with hole in spindle, then back off nut a $\frac{1}{2}$ slot (maximum) and install cotter pin, bend over to secure.
Install K-Flex

- See layout section for proper shank placement. If machine is equipped with magnum shanks,

Refer to Figure 25

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

133. Align top hole in k-flex clip ③ with top hole in k-flex clamp ②, secure with \( \frac{1}{2} \times 1 \frac{1}{2} \) Gr. 5 hex bolt ④, \( \frac{1}{2} \) lock washer and nut. Install \( \frac{1}{2} \times 5 \) Gr. 5 hex bolts ⑤, \( \frac{1}{2} \) lock washers and 1/2 nuts.

134. Slide shank ⑥ through slotted hole in k-flex shank mount ①, secure with \( \frac{5}{8} \times 2 \) Gr. 5 hex bolt ⑦ and \( \frac{5}{8} \) top lock nut. Attach sweep ⑧ with \( \frac{7}{16} \times 1 \frac{3}{4} \) Gr. 5 plow bolts ⑨, one, \( \frac{7}{16} \) flat washer ⑩ (top slotted hole) and \( \frac{1}{16} \) nylock nuts.

135. Tighten all bolts to specs, See "Torque Values Chart" on page 42.

Install Magnum Shank

- See layout section for proper shank placement.

Refer to Figure 26

136. Loosen \( \frac{1}{2} \times 1 \frac{1}{2} \) hex bolt ③ clear up to get \( \frac{5}{8} \times 2 \) Gr. 5 hex bolt ⑥ installed.

137. Position pre-assembled shank mount assembly ① over front of frame tube in proper location. Secure with \( \frac{5}{8} \times 4 \frac{1}{32} \times 4 \frac{3}{4} \) u-bolt ② and \( \frac{5}{8} \) top lock nut.

138. Be sure the \( \frac{3}{4} \) nylock jam nut ③ is loose enough for shank cradle to pivot.

139. Slide shank ⑤ into shank cradle until holes are aligned, secure with \( \frac{5}{8} \times 2 \) Gr. 5 hex bolt ⑥ and \( \frac{5}{8} \) top lock nut.

140. Align sweep ⑦ with holes on shank ⑤, secure with \( \frac{7}{16} \times 1 \frac{3}{4} \) plow bolts ⑧, one, \( \frac{7}{16} \) flat washer ⑨ (top slotted hole) and \( \frac{1}{16} \) nylock nuts.

141. Re-tighten \( \frac{1}{2} \times 1 \frac{1}{2} \) hex bolt ③ until threads bottom out.

IMPORTANT(!) Be sure and tighten \( \frac{3}{4} \) nylock jam nut ③ until threads bottom out to insure that hole doesn’t wear excessively.

142. Tighten rest of bolts to specs, See "Torque Values Chart" on page 42.
Gang Hangers

Install Gang Hangers

Refer to Figure 27

See layout section for proper gang hanger placement of wing.

143. Install gang hanger to proper frame tube with \( \frac{5}{8} \times 3\frac{1}{32} \times 5\frac{1}{2} \) u-bolts, \( \frac{5}{8} \) lock washers and nuts.

144. Slide cupped washer and spring over gang spring bolt. Slide gang spring bolt through gang hanger tube, secure with 1 flat washer, 1 hex nut and 1 jam nut.

145. Install gang lift cylinders, as shown, with 1 \( \times 3\frac{1}{16} \) pins, 1.5 x 1.0 x 0.075 machine washer and \( \frac{3}{16} \times 2 \) cotter pin.

146. Tighten rest of bolts to specs, See “Torque Values Chart” on page 42.

Gang Hanger Spring Adjustment

Refer to Figure 28

147. Tighten 1 hex nut to preload of 8\( \frac{3}{4} \) (22.23cm)

148. Tighten down 1 jam nut, See “Refer to Figure 27” on page 29.

149. Tighten rest of bolts to specs and bend cotter pins.

Install 8321-8537 Gauge Wheel

Refer to Figure 29

Standard on model 8537 and optional on models 8321-8333, 8544-8552.

150. Install gauge wheel bracket, using \( \frac{5}{8} \times 4\frac{1}{32} \times 4\frac{1}{4} \) u-bolts or \( \frac{5}{8} \times 1\frac{1}{2} \) hex bolt, secure with 5/8 lock washers and 5/8 nuts.

151. Attach optional angle stub extension between gauge wheel bracket and outside wing frame with same bolts and u-bolts.

152. Slide gauge wheel arm assembly into gauge wheel bracket, secure with \( \frac{3}{4} \times 4\frac{3}{8} \) hitch pin and keeper. Attach the \( \frac{1}{2} \times 1 \) hex bolts into gauge wheel bracket.

153. Attach wheel/tire assembly, gauge wheel arm assembly, secure with \( \frac{1}{2} \times 1 \) wheel bolts.

154. Tighten rest of bolts to specs, See “Torque Values Chart” on page 42.
Install 8544-8552 Hydraulic Gauge Wheel

Refer to Figure 30

155. Install gauge wheel arm mounts ①, to plates on front of wing brace, using $\frac{5}{8} \times 1\frac{1}{2}$ hex bolt ②, secure with $\frac{5}{8}$ lock washers and nuts.

156. Align holes in gauge wheel arm LH ③, with top holes of gauge wheel arm mounts ④, secure with 1 x 6 hex bolts ⑤ and 1 nylon lock nuts.

157. Align holes in gauge wheel arm w/lever LH ⑤ with top holes of gauge wheel arm mounts ④, secure with 1 x 6 hex bolts ⑤ and 1 nylon lock nuts.

158. Attach 1 x $8\frac{1}{2}$ eye bolt ⑥, secure with 1 jam nut ⑦ (one on each side plate).

159. Mount 3.25 x 8 x 1.25 (model 8544) or 3.75 x 8 x 1.38 (models 8548-8552) cylinder ⑧ to gauge wheel arm w/lever LH ⑤, with 1 x 311/16 pins ⑨, 1.5 x 1.0 x 0.75 machine washers and $\frac{3}{16} \times 2$ cotter pins.

160. Align holes in pivot bracket ⑩ to holes in gauge wheel arm LH ③ and gauge wheel arm w/lever LH ⑤, secure with $\frac{3}{4} \times 4\frac{1}{2}$ hex bolts ⑪, $\frac{3}{4}$ lock washers and nuts.

161. Slide gauge wheel arm spindle LH assembly ⑫ up through pivot bracket ⑩, slide friction cap ⑬, spring ⑭, spring cover ⑮, secure with $\frac{3}{4}$ hex nut and $\frac{3}{4}$ jam nut.

162. Attach wheel/tire assembly ⑯ to gauge wheel arm spindle LH assembly ⑫, secure with $\frac{1}{2} \times 1\frac{1}{4}$ wheel bolts gauge wheel arm spindle LH assembly ⑱.

163. Tighten rest of bolts to specs, See “Torque Values Chart” on page 42.

Hydraulic Gauge Wheel Spring Adjustment

Refer to Figure 31

164. Adjust spring cover ⑰ with $\frac{3}{4} = $ hex nut until there is a $\frac{1}{4}$" gap between friction cap ⑬ and spring cover ⑯.

165. Tighten $\frac{3}{4}$ jam nut down against $\frac{3}{4}$ hex nut to secure.
Install Hydraulic Valves

Refer to Figure 32

166. Attach depth stop valve mounting bracket ➀ with 5/8 x 31/32 x 51/2 u-bolts ❼, 5/8 lock washers and nuts.

167. Align holes in depth control valve ➁ to top of depth stop valve mounting bracket ➀ using 5/16 x 2 Gr. 5 hex bolts ⪭ and 5/16 lock washers.

168. Slide one end of depth stop tube ⪭ (with 2 holes) through slotted hole in depth stop valve mounting bracket ➀. Slide other end of depth stop tube ⪭ over peg on left side of level bar, secure with 1/2 flat washer ⪬ and 1/8 x 1 cotter pin ⪯.

169. Bolt depth stop screw assembly ⪮ to front of depth stop tube ⪭ with 1/2 x 21/2 Gr. 5 hex bolts ⪰, 1/2 lock washers and nuts.

170. Align holes of rebound bracket ⪰ on front side of center frame tube (to right of level bar mount assembly. Align holes in rebound mount plate ⪪ with holes on rebound bracket ⪰ (back side of side of center frame tube, secure with 1/2 x 41/2 Gr. 5 hex bolts ⪬, 1/2 lock washers and nuts.

171. Mount rebound valve ⪭ in position shown, with 5/16 x 4 Gr. 5 hex bolts ⪰, 5/16 lock washers and nuts.

172. Tighten rest of bolts to specs, See "Torque Values Chart" on page 42 and bend cotter pin.

173. Install all hydraulic fittings as shown in steps below.
Install Rebound Valve and O-Ring Fittings

Refer to Figure 33

174. Thread straight (non-adjustable stud) fittings ③ into ports V1, V2 and C2 of rebound valve ①.

- 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. Lubricate o-ring and threads on fitting.
  c. Turn fitting into port until finger tight, See "Hydraulic Connectors and Torque" on page 44 or proper torque value.

175. Thread elbow (adjustable stud) fitting ② into port C1 of rebound valve ①.

  a. Follow steps a and b from the foregoing instructions, then proceed with the following steps below.
  b. Looking from fitting from end with nut/washer/o-ring assembly, turn nut clockwise as far as possible.
  c. Using wrench, turn fitting into port until the washer touches the port spot face. Continue turning fitting until washer touches thread nearest wrench pad.
  d. Back off fitting counterclockwise not exceeding one revolution until it is oriented in the correct position.
  e. Place wrench on the wrench pad of fitting to prevent fitting from turning, and See "Hydraulic Connectors and Torque" on page 44 for proper torque value.

Install Depth Control Valve

Refer to Figure 34

176. Thread elbow (adjustable stud) fitting ② into rear port of depth stop valve ①. Thread straight (non-adjustable stud) fittings ③ into right port of depth control valve ①.

177. Tighten ORB fittings as shown in, See "Rebound Valve Fittings" on page 32.
Install Hose Handles

Refer to Figure 35

Hose handles are color coded. See “Hydraulic Hose Hookup” on page 34 for proper placement on hoses.

178. Install fittings ① to end of hoses ① running to front of hitch. Attach poppet fittings ③ to fittings ②.

179. Tighten ORB fittings as shown in, See “Rebound Valve Fittings” on page 32.

180. Align the grooves in the front of the hose handles ④ to the back two ribs of fittings ⑤ as shown and install the self threading screws ⑤ through holes.

181. Route hoses as shown in layout section.

Install JIC Fittings

Refer to Figure 36

182. Install JIC female hose ① to male fitting.

183. When the JIC 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. Annular tool marks of (100uin) concentric with thread permissible.
   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, See “Hydraulic Connectors and Torque” on page 44. 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.

184. Alternate Assembly Method for JIC.
   a. If torqued method not possible, follow steps a-c (step 166), 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 37

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

186. Install hose wraps on hoses as needed.

Be sure and get hoses and light wiring harness fastened properly so they do not drag. Check to be sure there is enough slack in hinge area when folding machine the first time.

Hydraulic Hose Hookup

187. Great Plains hydraulic hoses are color coded to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

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

**WARNING** Hose Clamp Assembly

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

Refer to Figure 38
188. 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.

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

Purging Hydraulic System

Refer to Figure 39
190. Charge the lift system first. Extend the lift cylinders (black handles) until the center section is fully raised. Remove the cylinder transport locks. The wings will not start to rise until the center 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.

191. You may now charge the fold system. Before charging the fold cylinders (green ends), make sure the rod end of the cylinders are un pinned and block is under cylinder as shown, so that when the rod is extended, it will clear the wing fold brackets. Extend the fold cylinders (green ends) 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. Remove wood block and install 1 x 3 11/16 pin, 1.5 x 1.0 x 0.75 machine washer and 3/16 x 2 cotter pin.

192. The gang lift system (red handles), will need purged like the lift system. Raise and lower the gang system several times to purge air from system.
Figure 39
Hydraulic Purging

Important:
Do not connect rod end of fold cylinders to wings until hydraulic system is charged and purged.
Block up cylinders and cycle cylinders back and forth 3 or 4 times.
Install Gang Assembly

See layout section for proper gang assembly placement.

Refer to Figure 40

The disc or coulter gang assemblies will be shipped banded together. Carefully un-band the assemblies. The L bundle number will be written on a blade of each gang assembly.

193. Carefully slide gang assembly under gang hanger and slowly lower machine down until front holes line up, secure with 1 x 5 1/2 pin, 3/8 x 2 1/4 Gr. 8 hex bolt and 3/8 top lock nut. Slide clevis end of gang spring bolt over rear hole of gang frame, secure with 3/4 x 2 1/2 pin, 3/4 flat washer and 5/32 x 1 1/2 cotter pin.

194. Tighten rest of bolts to specs, See "Torque Values Chart" on page 42.

Straight Gang Depth Indicator Installation

See layout section for proper depth indicator tower placement.

Refer to Figure 41

195. Attach depth indicator tower (models 8321D-8552D) to angled tube or (models 8321C-8328C) to straight front tube of center wing brace as shown, secure with 1/2 x 3 1/32 x 5 u-bolts, 1/2 lock washers and nuts.

196. Align holes on one end of the depth indicator links (one on each side) of the lever on the gang hanger, secure with a 1/2 x 1 1/2 Gr. 5 hex bolt and 1/2 top lock nut. Slide bent end of depth indicator pointer through slot in depth indicator tower. Slide other end of depth indicator pointer over peg on center wing brace, secure with 1/2 flat washer and 1/8 x 1 1/2 cotter pin. Slide other end of depth indicator links over depth indicator pointer, secure with two, 1/2 flat washers, 1/2 x 1/2 Gr. 5 hex bolt and 1/2 top lock nut.

197. Torque u-bolts to specs, See "Torque Values Chart" on page 42. Tighten 1/2 x 1 1/2 Gr. 5 hex bolts down snug but leave loose enough to pivot. Bend 1/8 x 1 1/2 cotter pin over.

Angled Gang Depth Indicator Installation

See layout section for proper depth indicator tower @ placement.

Refer to Figure 42

199. Attach depth indicator tower @ (models 8333C-8552C) to tube of center wing brace as shown, secure with $\frac{1}{2} \times 3\frac{1}{32} \times 3$ u-bolts @, $\frac{1}{2}$ lock washers and nuts.

200. The rest of the parts install like, See "Straight Gang Depth Indicator" on page 37.

Install Depth Guide Decal

Refer to Figure 43

201. Be sure the spring preload is set at dimension shown. Move the top of the gang blades to the dimension shown. Clean the front of the plate on the tower and place the decal with the pointer at "O".

Lights and SMV Assembly

*Refer to Figure 44*

203. Fasten light bracket LH ① to stub plate of center frame with 1/2 x 1 1/2 Gr. 5 hex bolts ③, 1/2 lock washers and nuts. Repeat same procedure for light bracket RH ②.

204. Attach light mounting brackets ④ to rear side tube as shown, of center frame, with 1/2 x 4 1/32 x 4 u-bolts ⑤, 1/2 lock washers and nuts.

205. Attach smv post ⑥ (models 8321-8333) to back side of same tube as light mounting brackets ④, as close to center as possible. Secure with 1/2 x 4 1/32 x 4 u-bolts ⑤, 1/2 lock washers and nuts. Attach smv sign ⑦ to back side of smv post ⑥, secure with 1/4 x 3/4 pan head screws ⑧, 1/4 lock washers and nuts.

206. Route light harness 30' lead ⑨ from front of hitch (tractor plug to front), along same route as hydraulic hose (fasten in same clamps and hose wraps as hoses). Plug one end of enhance light harness ⑩ to small end of light harness 30' lead ⑨. Plug bigger end of wishbone light harness ⑪ into other end of enhance light module ⑩. Route other ends over towards (marked left and right) the light mounting brackets as shown.

207. Mount red lamp lights ⑫ to top of light mounting brackets ④, with 1/4 x 1 Gr. 5 hex bolts ⑬ and 1/4 lock nuts.

208. Mount amber lamp lights ⑭ to top of light brackets ① and ②, with 1/4 x 1 Gr. 5 hex bolts ⑭ and 1/4 lock nuts.

209. Tighten all bolts to specs. Be sure and get all wiring harnesses fastened up securely with hose wraps or clamps (if routed close to hydraulic hoses) or use cable ties ⑮.
Rear Hitch Assembly (optional)

Refer to Figure 45

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

210. Attach left (2) and right (1) rear hitch arms, rear hitch truss (4), rear truss support (5) to center frame using 5/8 x 1 1/2 bolts (6), 5/8 x 3 1/32 x 5 1/2 u-bolts (7), secure with 5/8 lock washers and nuts.

Do not tighten any bolts until every thing is installed.

211. Now install the rear hitch frame (3) using 5/8 x 1 1/2 bolts (6), 5/8 x 4 1/32 x 4 1/2 u-bolts (8), secure with 5/8 lock washers and nuts.

212. The bolt on sleeve assembly with rigid or flex slide (9) may be fastened using 5/8 x 3 1/32 x 4 1/2 u-bolt (10), secure with 5/8 lock washers and nuts.

213. Tighten all bolts to specs, See “Torque Values Chart” on page 42.

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

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

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

Completing Setup

216. If the Discovator is equipped with an optional finishing attachment, refer to “Parts Manual” for parts breakdown.

217. Once the options are installed, fold the Discovator to check for clearance and interferences. Slowly fold Discovator while watching that hoses and wiring harnesses do not become pinched or kinked while watching for interferences.

Double check that all bolts are tightened to specs, See “Torque Values Chart” on page 42. 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 Survey</th>
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<th>Bolt Survey</th>
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<td>M 36 X 2</td>
<td>1880</td>
<td>1380</td>
<td>2960</td>
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Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

Disc or Coulter Gang Bolt Torque 1½"-6 650-750 Foot-pounds (175 lbs on 4’ cheater).
## Tire Inflation and Warranty

### Tire Inflation Chart

<table>
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<tr>
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<th>Tire Size</th>
<th>Inflation</th>
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<td>Transport/ Center</td>
<td>12.5L x Load F</td>
<td>90 psi (621 kPa)</td>
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<tr>
<td>12.5L x 16.5&quot; Load G</td>
<td>105 psi (724 kPa)</td>
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### Tire Warranty Information

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

Manufacturer/Web site
- Firestonewww.firestoneag.com
- Gleasonwww.gleasonwheel.com
- Titanwww.titan-intl.com
Hydraulic Connectors and Torque

Refer to Figure 46 (a hypothetical fitting)

Leave any protective caps in place until immediately prior to making a connection.

1. **NPT** - National Pipe Thread
   - Note tapered threads, no cone/flare, and no O-ring.
   - Apply liquid pipe sealant for hydraulic applications.
   - Do not use tape sealant, which can clog a filter and/or plug an orifice.

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

3. **ORB** - O-Ring Boss (SAE J514)
   - Note straight threads and elastomer O-Ring.
   - Prior to installation, to prevent abrasion during tightening, lubricate O-Ring with clean hydraulic fluid.
   - Use no sealants (tape or liquid) on ORB fittings.

4. ORB fittings that need orientation, such as the ell depicted, also have a washer and jam nut (“adjustable thread port stud”). Back jam nut away from washer. Thread fitting into receptacle until O-Ring contacts seat. Unscrew fitting to desired orientation. Tighten jam nut to torque specification.

---

### Fittings Torque Values

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<th>Ft-Lbs</th>
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<td>1.5-3.0 turns past finger tight</td>
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<td>1/2&quot;-20 JIC</td>
<td>19-20</td>
<td>14-15</td>
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<td>1/2&quot;-20 ORB w/jam nut</td>
<td>12-16</td>
<td>9-12</td>
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Figure 46
Hydraulic Connector ID

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<td>Hydraulic Connector ID</td>
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8321-8333 Lift & Gang Layout
8321-8333 Fold Layout
8537 Lift & Gang Layout
8537 Lift & Gang Layout
8544-8552 Lift & Gang Layout
8544-8552 Lift & Gang Layout
8537-8552 Fold Layout
8537-8552 Fold Layout

- Green Retract to Cross Rod End Cylinders
- Green Extend to Cross Base End Cylinders
- Hose Wrap
- Clamps
- Rod End Cross to Tee Rod End Rear Cylinders
- Base End Cross to Tee Base End Rear Cylinders
- Clamps
8321D Machine Layout, Disc
8321C Machine Layout, Coulter
8324D Machine Layout, Disc
8324C Machine Layout, Coulter

Gang Hanger 62 RH, 8324
551-701H

Gang Hanger 62 LH, 8324
551-701H

7 Blade Gang
551-631L (CT) LI LEFT
551-631L (CR) RI RIGHT

7 Blade Gang
551-632L (CT) LI LEFT
551-632L (CR) RI RIGHT

11 Blade Gang
551-592L (CT) LI LEFT
551-592L (CR) RI RIGHT

11 Blade Gang
551-591L (CT) RI RIGHT
551-611L (CR) RI RIGHT

41468
8326D Machine Layout, Disc
8326C Machine Layout, Coulter
8328D Machine Layout, Disc
8328C Machine Layout, Coulter
8333D Machine Layout, Disc
8333C Machine Layout, Coulter
8537D Machine Layout, Disc

Gang Hanger 551-640H

6 Blade Gang 551-615L RH

Gang Hanger 551-637H LH

8 Blade Gang 551-627L RH

18" Filler Blade

Gang Hanger 551-636H

6 Blade Gang 551-617L RH

7 Blade Gang 551-656L LH

18" Filler Blade

40944
8537D Machine Layout, Disc

8537D Discovator Series VIII
Shank Layout 7” K-Flex Shown
8537C Machine Layout, Coulter

T-Turbo Gang
R-Ripple Gang

6 Blade Gang
551-576L LH T
551-596L LH R

Gang Hanger
551-640H

Gang Hanger
551-637H

7 Blade Gang
551-580L LH T
551-600L LH R

7 Blade Gang
551-631L RH T
551-633L RH R

8 Blade Gang
551-582L LH T
551-602L LH R

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8544D Discovator Series VIII
8544C Machine Layout, Coulter
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8548C Machine Layout, Coulter

T-Turbo Gang
R-Ripple Gang

Gang Hanger 551-666H

9 Blade Gang
551-586L LH T
551-606L LH R

Gang Hanger 551-665H

8 Blade Gang
551-583L RH T
551-603L RH R

Gang Hanger 551-662H

10 Blade Gang
551-587L RH T
551-607L RH R

22 TYP

8 TYP

13 1/2 TYP

28 TYP

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8552D Discovator Series VIII
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T-Turbo Gang
R=Ripple Gang

8 Blade Gang
551-582L LH T
551-602L LH R

Gang Hanger
551-664H

7 Blade Gang
551-578L LH T
551-598L LH R

6 Blade Gang
551-574L LH T
551-594L LH R

10 Blade Gang
551-589L RH T
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SPECIAL BRACKET WITH NOTCH AND 5/8" STOP BOLT (OUTSIDE WINGS)

6' Reel Assembly 589-373S

7' Reel Assembly 589-374S
8537DV CH3A Coil Tine W/Reel

SPECIAL BRACKET WITH NOTCH AND 5/8" STOP BOLT (OUTSIDE WINGS)

10' Reel Assembly 589-377S

7' Reel Assembly 589-374S

6' Reel Assembly 589-373S
8544DV HD 3 Bar Spike W/Reel
8544DV HD 3 Bar Spike W/Reel
8544DV S7T Spike Drag
8544DV S7T Spike Drag
8544DV S5T HR Spike Drag
8544DV S4T Spike Drag W/ Reel

TP-69169

7° Reel Assembly 589-374S
9° Reel Assembly 589-376S
8544DV CH4B Coil Tine
8544DV CH4B Coil Tine
8544DV CH3A Coil Tine W/Reel

7” Reel Assembly 569–3745

9” Reel Assembly 569–3755
8544DV CH3A Coil Tine W/Reel

Diagram showing dimensions and parts for CH3A coil tine with reel.
8548DV HD 3 Bar Spike W/Reel

42926
8548DV HD 3 Bar Spike W/Reel
8548DV S7T Spike Drag
8548DV S7T Spike Drag
8548DV S5T HR Spike Drag
8548DV S5T HR Spike Drag
8548DV S4T Spike Drag W/ Reel

6' Reel Assembly
599–5735

11' Reel Assembly
599–3785
8548DV S4T Spike Drag W/ Reel

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8548DV CH4B Coil Tine
8548DV CH4B Coil Tine
8548DV CH3A Coil Tine W/Reel

6' Reel Assembly
589-3725

11' Reel Assembly
589-3782
8548DV CH3A Coil Tine W/Reel
8552DV HD 3 Bar Spike W/Reel
8552DV HD 3 Bar Spike W/Reel
8552DV S7T Spike Drag
8552DV S7T Spike Drag
8552DV S5T HR Spike Drag

42938
8552DV S5T HR Spike Drag
8552DV S4T Spike Drag W/ Reel

TP-69173
8552DV S4T Spike Drag W/ Reel
8552DV CH4B Coil Tine
8552DV CH3A Coil Tine W/ Reel
8552DV CH3A Coil Tine W/ Reel

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