

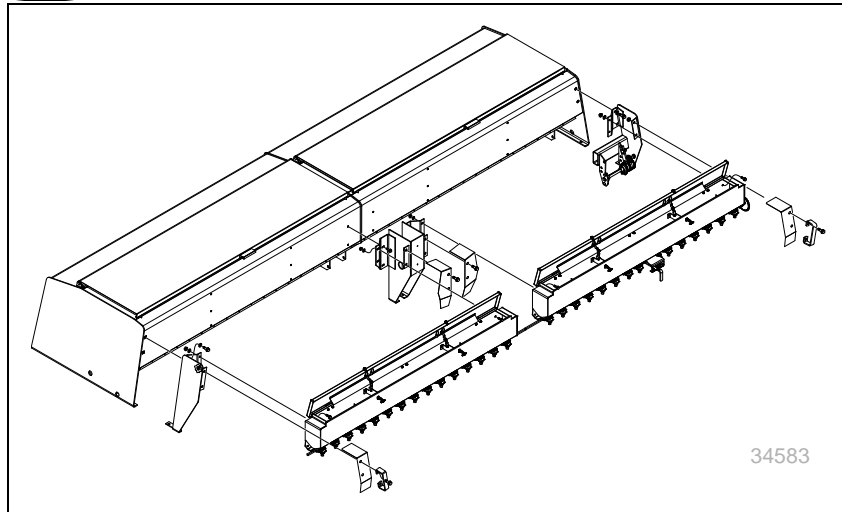
Installation Instructions

133-373A, 133-374A, 133-375A,
133-376A, 133-377A, and 133-378A

Products for 3S5000, 3S5000F,
3S5000HD and 3S5000HDF Drills



Read the installation 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!



Cover illustration shows only selected components for one section of one 3S5000 kit. Manual illustrations may show similar 3S-2600, 3S-3000 or 3S-4000 models where installation details are identical for the immediate topic.

ORIGINAL INSTRUCTIONS



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133-415M



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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.



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.*



Wear Protective Equipment

- ▲ *Wear protective clothing and equipment.*
- ▲ *Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection such as earmuffs or earplugs.*
- ▲ *Because working on equipment safely requires your full attention, avoid wearing entertainment headphones while perform the installation.*



Be Familiar with Safety Decals

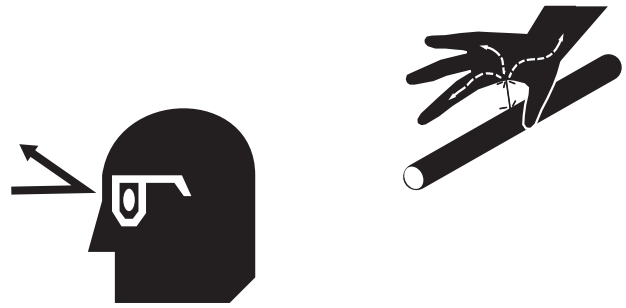
- ▲ *Read and understand "Safety Decals" in the Operator manual.*
- ▲ *Read all instructions noted on the decals.*
- ▲ *Keep decals clean. Replace damaged, faded and illegible decals.*



Avoid High Pressure Fluids

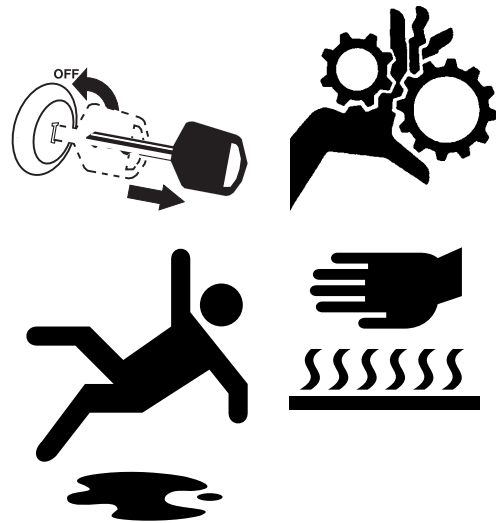
Observe normal precautions for hitch hydraulic connections and disconnections. Escaping fluid under pressure can penetrate the skin, causing serious injury.

- ▲ *Avoid the hazard by relieving pressure before disconnecting hydraulic lines.*
- ▲ *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.*



Practice Safe Maintenance

- ▲ *Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.*
- ▲ *Work in a clean, dry area.*
- ▲ *Lower the drill, put tractor in park, turn off engine, and remove key before performing maintenance.*
- ▲ *Make sure all moving parts have stopped and all system pressure is relieved.*
- ▲ *Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on drill.*
- ▲ *Inspect all parts. Make sure parts are in good condition and installed properly.*
- ▲ *Remove buildup of grease, oil or debris.*
- ▲ *Remove all tools and unused parts from drill before operation.*



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 implement functions.*
- ▲ *Operate machinery from the driver's seat only.*
- ▲ *Do not leave implement unattended with tractor engine running.*
- ▲ *Wear snug-fitting clothing to avoid entanglement with moving parts.*



Introduction

Description of Unit

These field-installed kits add small seeds planting capability to the 3S-5000 family of 50-foot 3-section drills. There are separate kits for drills with and without fertilizer capability. There are separate kits for each row spacing.

Compatible Drills

Refer to Figure 1, which depicts the left drill section. Components on center and right sections are similar.

Before installing any of these kits, inspect a seed box on any drill section, and the serial number plate.

- If the seed box has a divider ① and second lid ②, it is a Fertilizer model, and must use a “FERT” kit specifically for a 3S-5000F or 3S-5000HDF model. These kits rely on drive components present only on Fertilizer models.
- If the boxes lack dividers and second lids, the drill must use a standard (“non-fertilizer” “SMALL SEEDS” kit.

Compatible Kits

Part Number	Description and Compatible Drill Model
133-373A	3S-5000 10" SMALL SEEDS BUNDL for 3S-5000-6010, 3S-5000HD-6010
133-374A	3S-5000 7.5" SMALL SEEDS BUNDL for 3S-5000-8075, 3S-5000HD-8075
133-375A	3S-5000 6" SMALL SEEDS BUNDL for 3S-5000-1006, 3S-5000HD-1006
133-376A	3S-5000 6" FERT SM SEEDS BUNDL for 3S-5000F-1006, 3S5000HDF-1006
133-377A	3S-5000 7.5" FERT SM SEED BNDL for 3S-5000F-8075, 3S5000HDF-8075
133-378A	3S-5000 10" FERT SM SEED BNDL for 3S-5000F-6010, 3S5000HDF-6010

Each kit updates one drill.

Document Family

133-415M	Installation, Operation and Maintenance (this document)
195-325B	Multiple Drill Family Seed Rate Manual
195-325M	3S-5000/F/HD/HDF Operator Manual
195-325P	3S-5000/F/HD/HDF Parts Manual

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

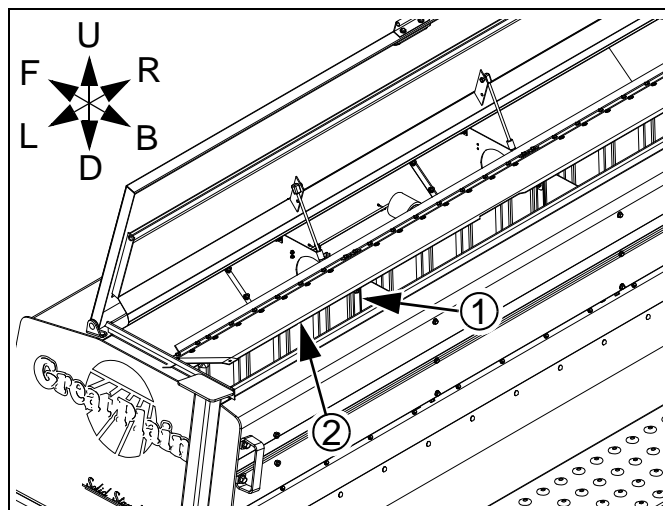


Figure 1:
Fertilizer Drill

34584

Using This Manual

This manual familiarizes you with safety, assembly, operation, adjustments and maintenance. Follow the recommendations to help ensure safe and efficient operation.

Definitions

The following terms are used throughout this manual.



NOTE:

Paragraphs in this format provide useful information related to the current topic.

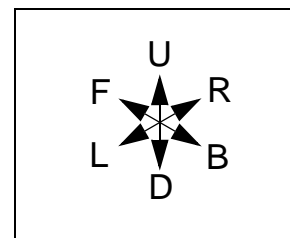
NOTICE

Liability, Economic and Results Risks:

Paragraphs in this format present a crucial point of information related to the current topic. Read and follow the directions to: remain safe, avoid serious damage to equipment and ensure desired field results.

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 (shown at right) depicts Up, Right, Back, Down, Left and Front.



Call-Outs

- (1) Single-digit callouts identify components in the currently referenced Figure or Figures. These numbers may be reused for different items from page to page.
- (11) to (36) Two-digit callouts in the range 11 to 34 reference existing parts removed and reused. They are listed on page 35.
- (101) to (269) Three-digit callouts in the range 101 to 269 reference new parts from the new parts list beginning on page 36. The descriptions match those on the parts, cartons, bags or item tags, as well as descriptions your updated Parts Manual.

Owner Assistance

If you need customer service or repair parts, contact a Great Plains dealer. They have trained personnel, repair parts and equipment specially designed for Great Plains products. Your machine's parts were specially designed and should only be replaced with Great Plains parts.

Record your product kit model number here for quick reference:

Model Number: _____

Date Purchased: _____

Further Assistance

Great Plains Manufacturing, Inc. and your Great Plains dealer want you to be satisfied with your new product. If for any reason you do not understand any part of this manual or are otherwise dissatisfied, please take the following actions first:

1. Discuss the matter with your dealership service manager. Make sure they are aware of any problems so they can assist you.
2. If you are still unsatisfied, seek out the owner or general manager of the dealership.

If your dealer is unable to resolve the problem or the issue is parts related, please contact:

Great Plains Service Department
1525 E. North St.
P.O. 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.



Installation Instructions

Before You Start

Most accidents are the result of negligence and carelessness, usually caused by failure of the operator to follow simple but necessary safety precautions. Allow no one to install the product before carefully reading this manual.

Some fasteners may be loosely assembled. Remove them before mounting that component. Due to evolving manufacturing practices, some sub-assemblies may already be completely pre-assembled. If so, check that fasteners are tight, and skip the unneeded assembly steps.

Tools Required

- a lift or hoist with a 150 pound (68 kg) capacity
- basic hand tools, including hose clamp pliers
- scaffold or ladder

Torque values for fasteners are shown on page 34.

1. Read and understand “**Important Safety Information**” starting on page 1.
2. Ensure drill is compatible with kit. See page 3.

Prepare Drill

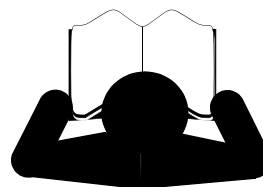
3. Clean-out the Fertilizer box, or Seed box if no Fertilizer box is present, per the instructions in the current drill Operator Manual.
4. Position the drill in a well lighted location suitable for the installation. A clear surface beneath makes it easier to recover any dropped parts.
5. Partially unfold the drill, to allow access to walkboard mount hardware.

Refer to Figure 2

6. Deploy all parking stands provided with the drill.
7. Lower the drill.
Lower the openers.

Other Options

8. If also installing any main seed box options, install them before Small Seeds. If this is a new delivery, defer installation of press wheels and other row unit options until after installing Small seeds. If also installing markers, install them after Small Seeds.
9. Swing down the walkboard ladders (if installed).



WARNING

Negative Tongue Weight:

Drill must be only partially unfolded, or hitched to a tractor, or fully lowered, with any parking stands installed, before commencing work. A fully unfolded raised drill can have a negative tongue weight of up to 1300 pounds.

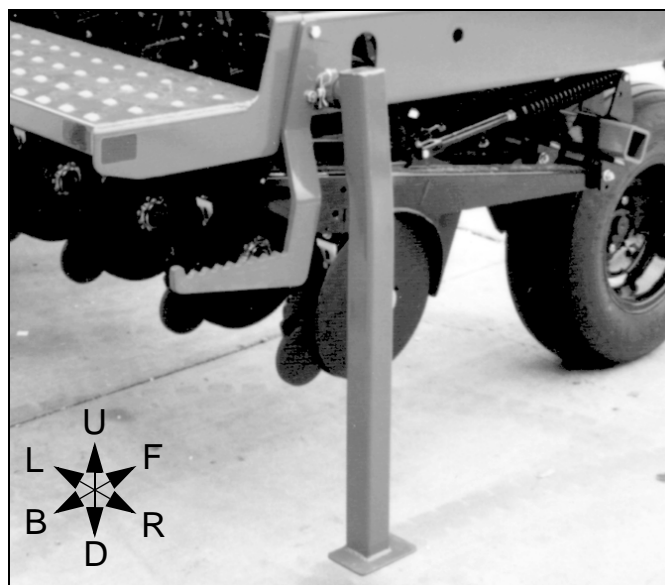


Figure 2:
Parking Stand

15565

Remove Corner Hardware

Left Section

Refer to Figure 3

10. Remove and save two pairs of:

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

(22) 802-203C HFSS 1/2-13X1 1/2 GR5

and one each:

(11) 119-190D HANDLE

(18) 248-251D MANUAL PAK MOUNTING PLATE



NOTE:

Do not further disassemble the manual pak.

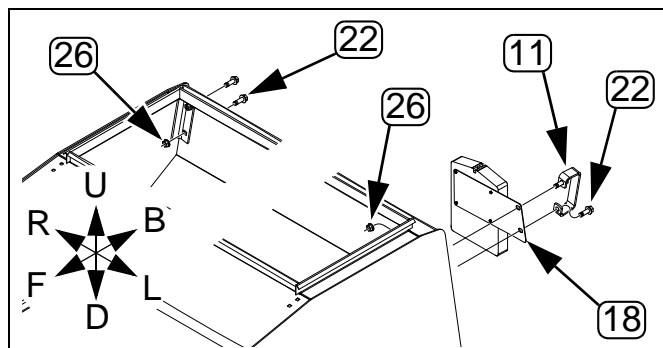


Figure 3:
Left Section Corner Hardware

27431

Right Section

Refer to Figure 4

11. Remove and save two pairs of:

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

(22) 802-203C HFSS 1/2-13X1 1/2 GR5

and one:

(11) 119-190D HANDLE

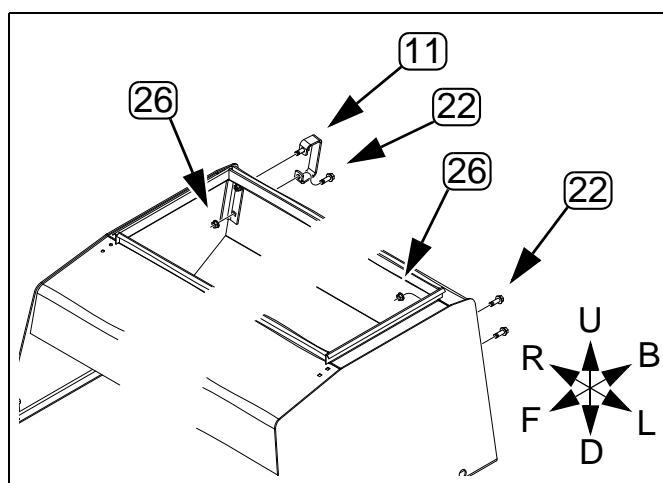


Figure 4:
Right Section Corner Hardware

27431

Center Section

Refer to Figure 5 (S/N C1304L-)

12. At the left end of the center section seed box, remove and save two sets of:

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

(22) 802-203C HFSS 1/2-13X1 1/2 GR5

two pairs (4 total):

(30) 804-016C WASHER FLAT 1/2 SAE PLT

and one:

(14) 195-417D (LH) 15' 3SMT LIGHT BRACKET (LH)

Mark the assembly as "LH" when removed.

Repeat step 12 for the right corner and:

(15) 195-417D (RH) 15' 3SMT LIGHT BRACKET (RH)

Mark the assembly as "RH" when removed.

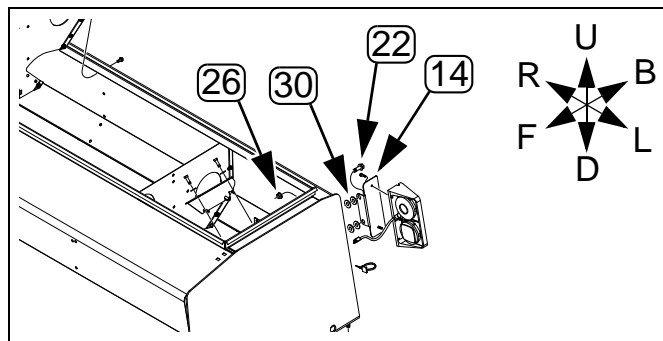


Figure 5:
Center Section Corner Hardware

34243



NOTE:

Do not further disassemble the lights (14,15). The cables may be left connected if there is a convenient location to position them during the remainder of the installation.

Refer to Figure 6 (S/N C1305L+)

13. At the right end of the center section seed box, remove and save two of:

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT
(22) 802-203C HFSS 1/2-13X1 1/2 GR5

two pairs (4 total):

(30) 804-016C WASHER FLAT 1/2 SAE PLT

and one:

(17) 195-559D 3 SEC MIN TILL LIGHT BRACKET

with attached:

(35) 833-697C LIGHT, AMBER LAMP LED

14. Remove and save one:

(36) 833-696C LIGHT, RED LAMP - LED

and two:

(20) 802-004C HHCS 1/4-20X3/4 GR5

Repeat step 13 and step 14 for the left corner.

**NOTE:**

Do not disassemble the lights (36) from the brackets (17). The cables may be left connected if there is a convenient location to position them during the remainder of the installation.

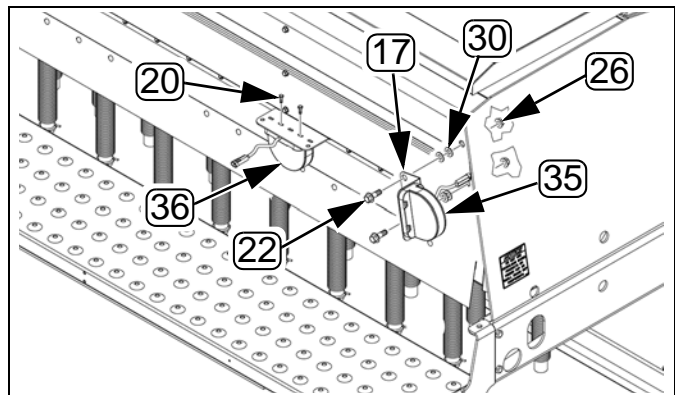


Figure 6:
Center Section Right Corner

68381A

Remove Section Center Fittings**Center Section: Remove SMV****Refer to Figure 7**

15. Remove and save two sets of fasteners:

(24) 803-006C NUT HEX 1/4-20 PLT
(28) 804-006C WASHER LOCK SPRING 1/4 PLT
(20) 802-004C HHCS 1/4-20X3/4 GR5

and one:

(34) 818-055C DECAL SLOW MOVING-GALV. BACKED

The SMV is re-installed at step 95 on page 32.

16. Remove four sets of fasteners:

(27) 803-199C NUT HEX FLANGE 5/16-18 PLT
(23) 802-387C HFS 5/16-18X3/4 GR5

and two:

(16) 195-420D DECAL BRACKET

The brackets are not re-used. The fasteners are replaced with identical new parts from the kit.

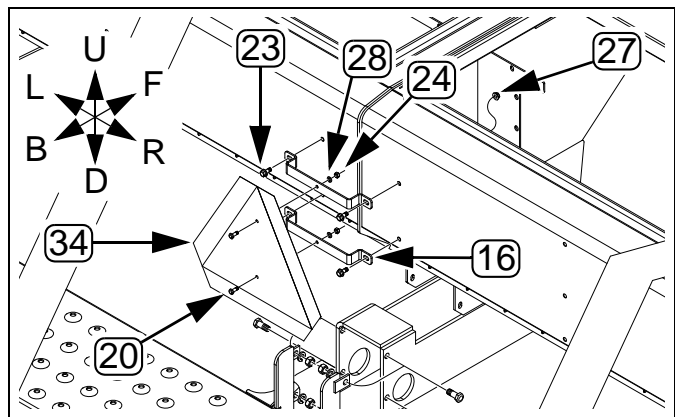


Figure 7:
Remove SMV

34306

Wings: Remove Fasteners

Refer to Figure 8

17. At the rear center of each wing box, remove four sets:

(27) 803-199C NUT HEX FLANGE 5/16-18 PLT
(23) 802-387C HFS 5/16-18X3/4 GR5

These fasteners are replaced with identical new parts from the kit.

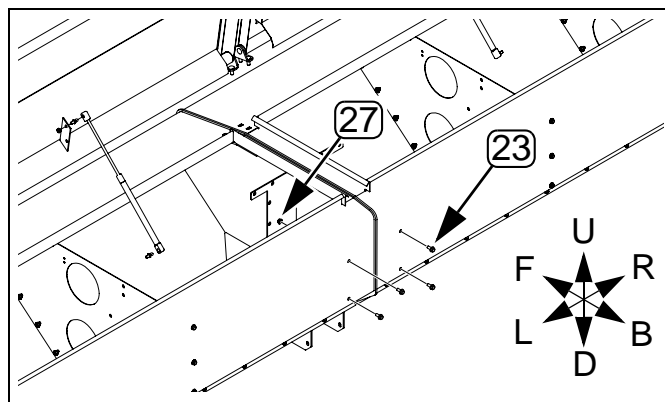


Figure 8:
Remove Center Fasteners

34585

Refer to Figure 9

18. At the inside end of each wing box, remove and save two sets:

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT
(22) 802-203C HFSS 1/2-13X1 1/2 GR5

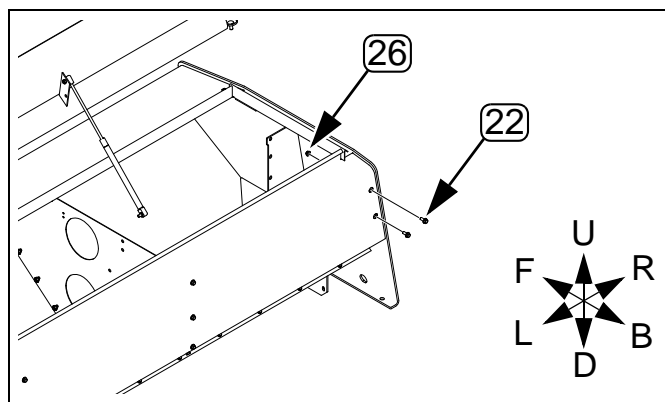


Figure 9:
Remove End Fasteners

34585

Remove Walkboards

There are two walkboards per section, six total. Due to length differences, ladders and decals, each is unique to its section and side of section. Mark each by position to aid in re-assembly.

Refer to Figure 10

19. Fold ladders (not shown) into storage/transport position on top of wing walkboards.

Start with the left wing section.

20. Position and attach lift or hoist to support the full weight of a walkboard.

21. At each end of the walkboard, remove and save two sets:

(25) 803-020C NUT HEX 1/2-13 PLT
(29) 804-015C WASHER LOCK SPRING 1/2 PLT
(21) 802-034C HHCS 1/2-13X1 1/4 GR5

Move the walkboard clear of the work area. Walkboards remain dismounted to ease access to the rear of the seed boxes. They are re-installed starting at step 93 on page 32.

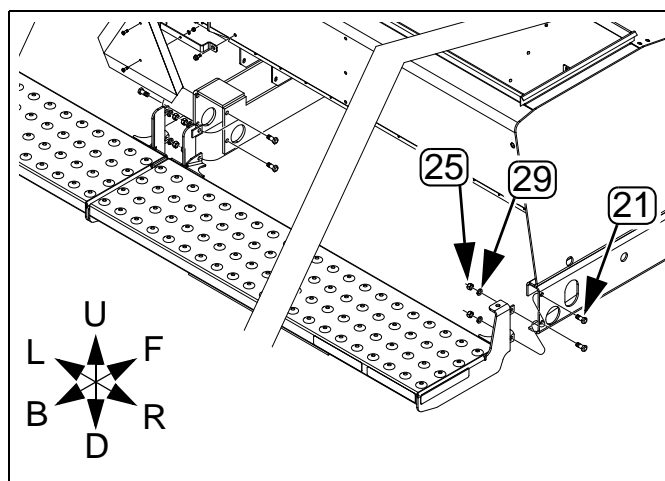


Figure 10:
Remove Walkboard

34306

Install Walkboard Extensions

These parts move the walkboards back, accounting for the space consumed by small seeds boxes. Start with the left section. Repeat the procedure for the right and center sections.

Refer to Figure 11

Install LH End Extension

22. Select one new:

(182) 195-310H WALKBOARD EXTENSION LH

and two sets saved:

(21) 802-034C HHCS 1/2-13X1 1/4 GR5

(29) 804-015C WASHER LOCK SPRING 1/2 PLT

(25) 803-020C NUT HEX 1/2-13 PLT

Align the extension (182) with the box frame channel. Insert a bolt (21) from the outside, and secure with lock washer (29) and nut (25).

Install RH Center Extension

23. Select one new:

(183) 195-311H WALKBOARD EXTENSION RH

and two sets saved:

(21) 802-034C HHCS 1/2-13X1 1/4 GR5

(29) 804-015C WASHER LOCK SPRING 1/2 PLT

(25) 803-020C NUT HEX 1/2-13 PLT

Align the extension (183) with the tabs to the left of the center box weldment. Insert a bolt (21) from the left, and secure with lock washer (29) and nut (25).

NOTE:

Walkboard extensions (182, 183) mount with the double-break (with one hole) side up, and the tabs forward. The LH (182) version has a tabs to the left, the RH (183) version has the tabs to the right.

Install LH Center Extension

24. Select one new:

(182) 195-310H WALKBOARD EXTENSION LH

and two sets saved:

(21) 802-034C HHCS 1/2-13X1 1/4 GR5

(29) 804-015C WASHER LOCK SPRING 1/2 PLT

(25) 803-020C NUT HEX 1/2-13 PLT

Align the extension (182) with the tabs to the right of the center box weldment. Insert a bolt (21) from the right, and secure with lock washer (29) and nut (25).

Install RH End Extension

25. Select one new:

(183) 195-311H WALKBOARD EXTENSION RH

and two sets saved:

(21) 802-034C HHCS 1/2-13X1 1/4 GR5

(29) 804-015C WASHER LOCK SPRING 1/2 PLT

(25) 803-020C NUT HEX 1/2-13 PLT

Align the extension (183) with the box frame channel. Insert a bolt (21) from the outside, and secure with lock washer (29) and nut (25).

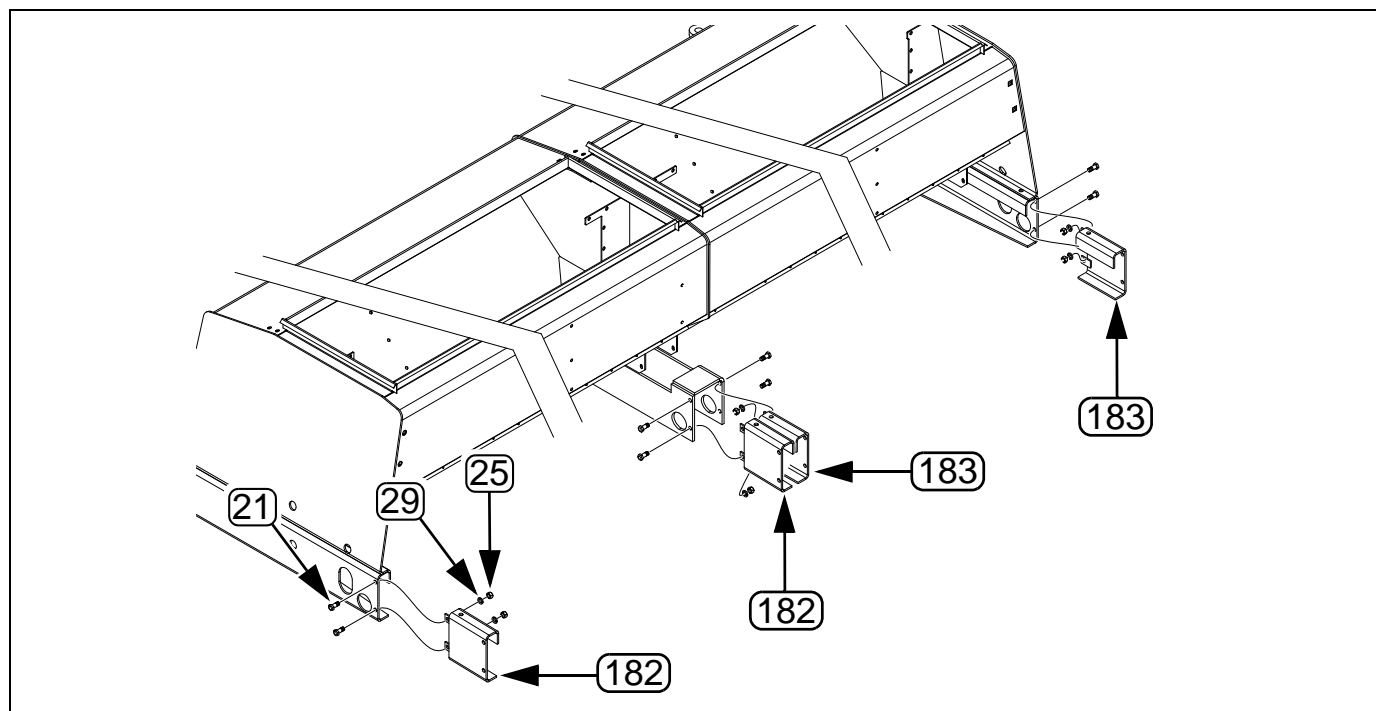


Figure 11:
Install Walkboard Extensions (Left Section Shown)

34587

Install Mounts & Meter Drives

Install Left Mounts

Begin with the left section.

Refer to Figure 12

26. At the lower rear left corner of the seed box side wall (1), remove one set:

(24) 803-020C NUT HEX 1/2-13 PLT
 (29) 804-015C WASHER LOCK SPRING 1/2 PLT
 (21) 802-034C HHCS 1/2-13X1 1/4 GR5

These fasteners are not re-used.

Select one new:

(137) 133-380H SML SDS LH MOUNT WLDM

and two sets new or saved:

(195) 802-034C HHCS 1/2-13X1 1/4 GR5
 (228) 804-015C WASHER LOCK SPRING 1/2 PLT
 (214) 803-020C NUT HEX 1/2-13 PLT

Position the mount (137) over the lower holes and drop the two bolts (195) in the holes to verify alignment. Add a lock washer (228) and nut (214). Tighten the nut finger tight.

27. Select two new:

(203) 802-203C HFSS 1/2-13X1 1/2 GR5

and two saved:

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

Using a flanged bolt (203) and flanged lock nut (26), secure the top end of the mount (137) to the left rear corner of the main seed box where the handles, manual pak, or lights were formerly mounted on the box.

28. Tighten all fasteners to torque specifications.

NOTE:

The handles, manual pak, and lights are not re-installed at this time.

Repeat step 26 through step 28 for the center and right sections.

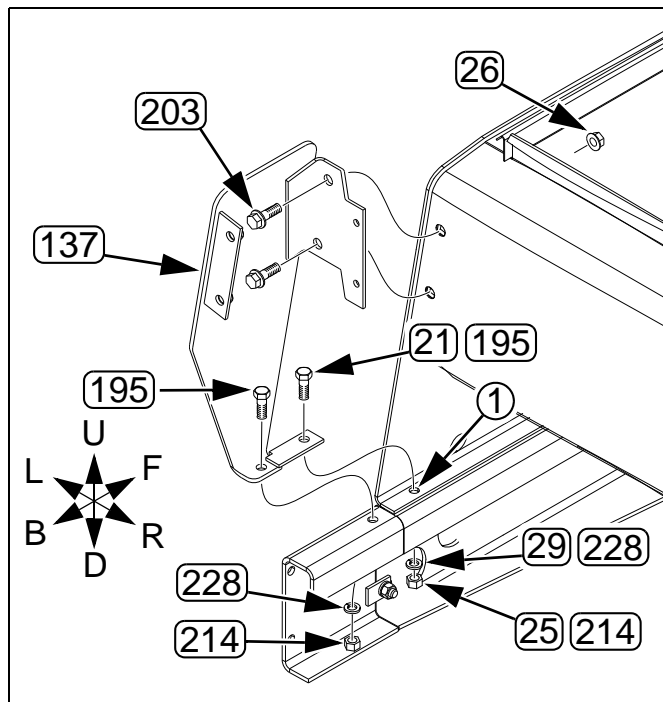


Figure 12:
Left Small Seeds Mount

34588

Install Section Center Mounts

Start with the left section.

Refer to Figure 13

29. Select one new:

(136) 133-379H SML SDS CTR MOUNT WLDM

and four sets new:

(206) 802-388C HFS 3/8-16X1 GR5

(227) 804-013C WASHER LOCK SPRING 3/8 PLT

(213) 803-014C NUT HEX 3/8-16 PLT

Install the mount at box center, nuts finger tight, centered on the joint between the box halves.

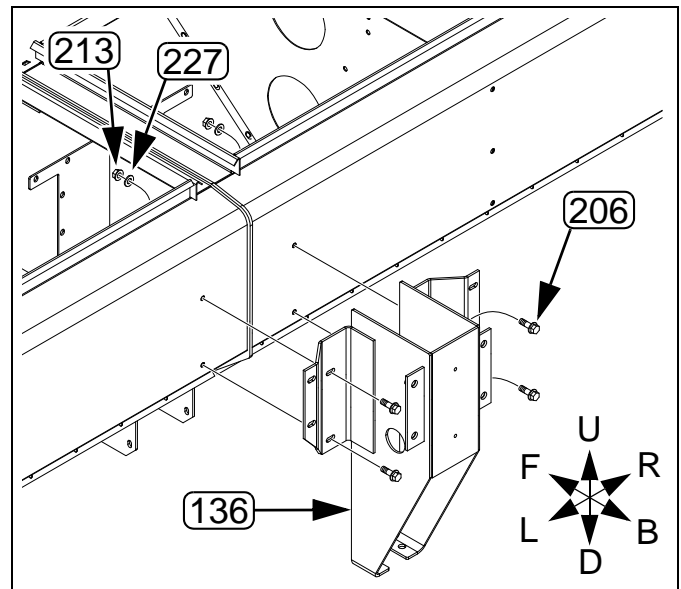


Figure 13:
Section Center Mount: 1 of 2

34590

Refer to Figure 14

30. Select two sets new:

(195) 802-034C HHCS 1/2-13X1 1/4 GR5

(228) 804-015C WASHER LOCK SPRING 1/2 PLT

(214) 803-020C NUT HEX 1/2-13 PLT

Install the bolts (195) into the weldment feet and into the walkboard extensions. Add lock washers (228) and nuts (214). Check weldment centering. Secure all nuts to torque specification.

Repeat step 29 and step 30 for the center and right drill sections.

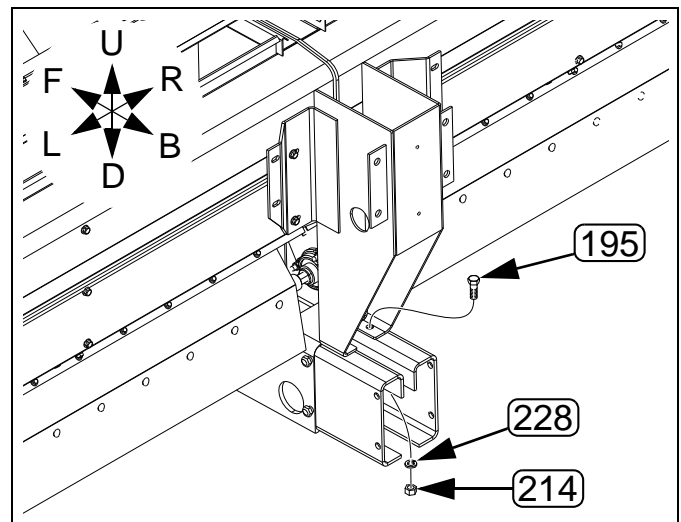


Figure 14:
Section Center Mount: 2 of 2

34591

Install Meter Drives

Start with the left section.

Refer to Figure 15

31. At the lower rear right corner of the seed box side wall (2), remove one each:

(25) 803-020C NUT HEX 1/2-13 PLT
 (29) 804-015C WASHER LOCK SPRING 1/2 PLT
 (21) 802-034C HHCS 1/2-13X1 1/4 GR5

These fasteners are not re-used.

32. Select one new:

(138) 133-381K 5000 SMLS DS RH MOUNT&DRIVE ASY
 and two sets new:

(203) 802-203C HFSS 1/2-13X1 1/2 GR5
 (238) 804-113C WASHER FLAT 1/2 USS HARD PLT
 (214) 803-020C NUT HEX 1/2-13 PLT

Position the mount (138) over the lower holes and install the two bolts (203) in the holes to verify alignment. Add a washer (238) and nut (214). Tighten the nut finger tight.

33. Select two sets new:

(203) 802-203C HFSS 1/2-13X1 1/2 GR5
 (238) 804-113C WASHER FLAT 1/2 USS HARD PLT
 (214) 803-020C NUT HEX 1/2-13 PLT

Using a flanged bolt (203), lock washer (238), and nut (214), secure the top end of the mount (138) to the right rear corner of the main seed box where the handles or lights were formerly mounted on the box.

34. Tighten all fasteners to torque specifications.

NOTE:

The handles and lights are not re-installed at this time.

Repeat step 31 through step 34 for the center and right sections.

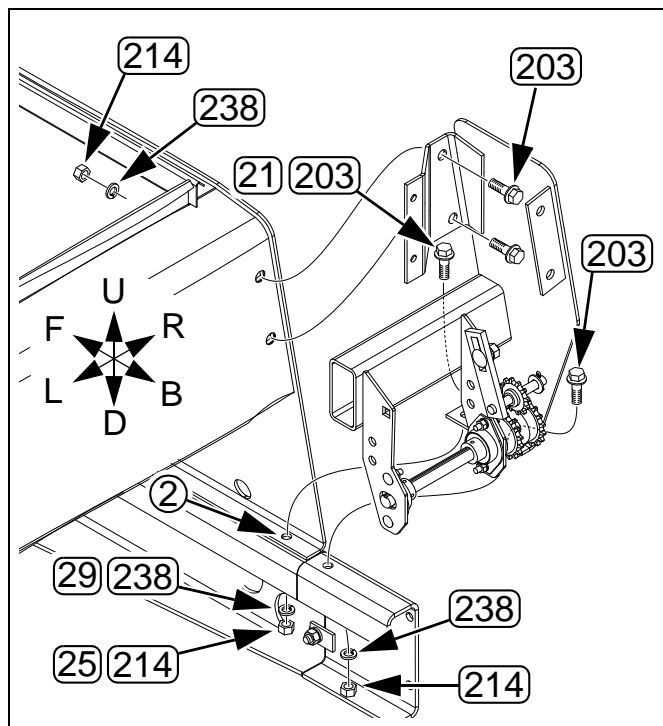


Figure 15:
Install a Meter Drive

34589

Install Front Components

Front component installation is different for each section, and is different for drills with and without the Fertilizer option. The front Small Seeds drive assembly is installed in all cases.

Page 13 step 35: If the drill does not have fertilizer, your Small Seeds kit includes an empty Fertilizer drive mount, bearing, jackshaft, sprockets, idler and chain for each drill section.

Page 18 step 51: With Fertilizer installed, the Small Seeds front drives mount on top of the existing Fertilizer drive mounts. The jackshaft is already installed, and only requires adding a sprocket to each jackshaft.

Front Drives without Fertilizer

Clutch Bearing Plate Components

Start with the left section. This work is similar for all sections.

Refer to Figure 16, which shows the clutch bearing plate with components removed for clarity.

35. Select one new:

(263) 822-119C BRG 7/8HEXX2.05OD SPH

and two sets new:

(262) 822-032C FLANGETTE 52 MST

(205) 802-282C RHSNB 5/16-18X1 GR5

(225) 804-009C WASHER LOCK SPRING 5/16 PLT

(212) 803-008C NUT HEX 5/16-18 PLT

Place the bearing (263) between the flangettes (262), and mount the assembly at the low open flangette hole(1) of the clutch bearing plate. Mount from the left, with the bolts (205) inserted from the right. Secure with lock washers (225) and nuts (212).

36. Select one each new:

(197) 802-041C HHCS 1/2-13X3 1/2 GR5

(254) 817-025C NO. 40 12T IDLER SPKT.

(228) 804-015C WASHER LOCK SPRING 1/2 PLT

two each new:

(217) 803-036C NUT HEX JAM 1/2-13 PLT

(238) 804-113C WASHER FLAT 1/2 USS HARD PLT

Slide idler (254) onto the bolt (197), secured by a jam nut (217) installed finger tight. Add flat washer (238).

From the right side, insert the idler assembly into the forward idler slot (2) of the clutch bearing plate. Loosely secure it with another flat washer (238), lock washer (228) and the second jam nut (217).

Repeat step 35 and step 36 for the center and right sections.

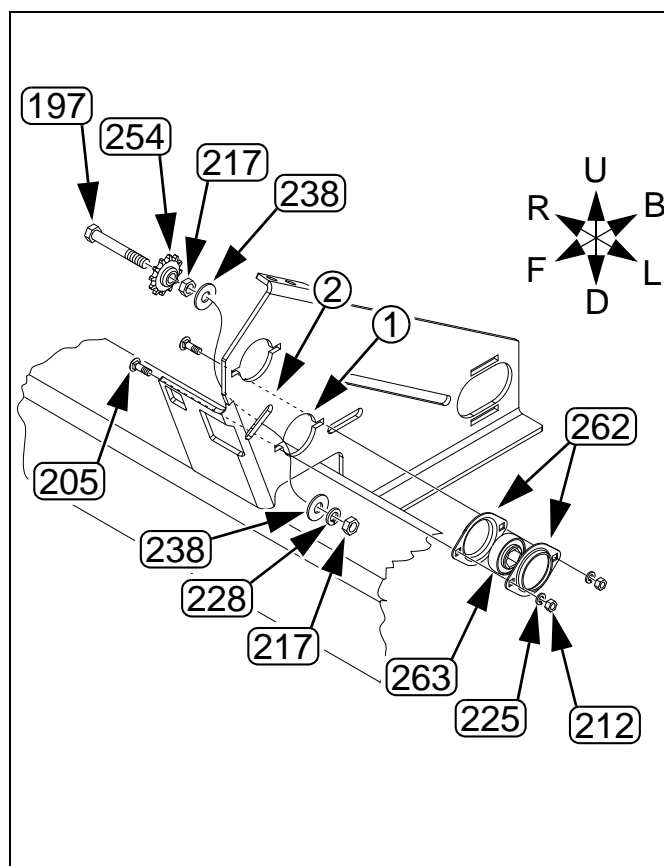


Figure 16:
Clutch Bearing Plate

27440

Refer to Figure 17, which shows the clutch bearing plate with numerous components removed for clarity.

Jackshafts are different lengths for each section. These steps are otherwise identical. Start with the left section.

37. Select one each new:

For the left section, the 90 inch shaft:

(184) 195-422D HEX SHAFT 7/8,5000 FERT JS CTR

For the center section, the 72.75 inch shaft:

(185) 195-430D HEX SHAFT 7/8,5000 FERT JS LH

For the right section, the 48.5 inch shaft:

(181) 195-271D HEX SHAFT 7/8,4000 FERT JS RH

Select one each new:

(242) 805-180C PIN ROLL 1/4 X 1 1/2 LG PLT

From the right side of the clutch bearing plate, insert the shaft end with the pin holes through the bearing (1) installed at step 35.

Drive the roll pin (242) through the hole nearest the end of the shaft.



NOTE:

Leave the other pin hole (2) open until step 49. The shaft needs to slide aside to mount the Small Seeds drive and accept the other end of the shaft.

38. Select two new:

(235) 804-061C WASHER MACH 1.50 X 1.00 X 18GA

Slide them onto the shaft from the right side.

39. Select one new:

(247) 808-256C SPKT 40C23 X 7/8 HEX BORE

Orient the sprocket with the side having the wider hub to the drill left (toward the clutch bearing plate). Slide it onto the shaft from the right side.

Refer to Figure 18

40. Select one new:

(246) 808-194C SPKT 40B22 7/8 HEX BORE & SS

Orient the sprocket with the set screw hub to the drill right and slide it onto the shaft. Use the set screws to temporarily secure it about 10 inches (25 cm) from the end of the shaft.

Repeat step 37 through step 40 for the center and right drill sections.

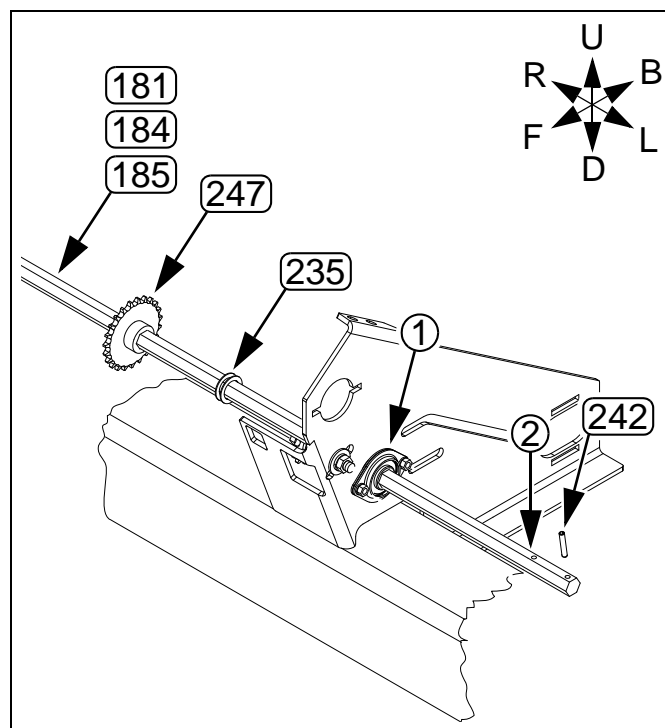


Figure 17:
Jackshaft at Clutch Bearing Plate

27441

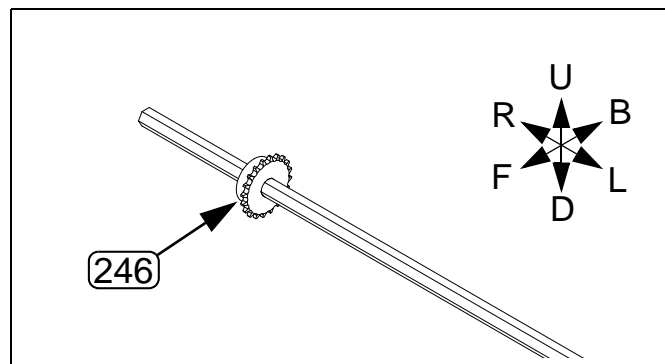


Figure 18:
B22 Sprocket on Jackshaft

27441

Front Drive, Left Section

Refer to Figure 19

41. Select one each new:

- (180) 195-269H 40'-3S FERT DRIVE WELDMENT RH
- (195) 802-034C HHCS 1/2-13X1 1/4 GR5
- (228) 804-015C WASHER LOCK SPRING 1/2 PLT
- (214) 803-020C NUT HEX 1/2-13 PLT

Position the weldment (180) at the front right corner of the mainframe. Align the right edge of the weldment against the frame side rail, and position the front right base hole over the hole (1) in the frame web.

Insert a bolt (195) through rear hole (2) of the weldment base and frame gusset (3). Loosely secure with a lock washer (228) and nut (214).

42. Select one each new:

- (135) 133-324K SML SDS ON FERT JS MNT ASY
- four each new:
- (238) 804-113C WASHER FLAT 1/2 USS HARD PLT
- and three sets new of:
- (195) 802-034C HHCS 1/2-13X1 1/4 GR5
 - (228) 804-015C WASHER LOCK SPRING 1/2 PLT
 - (214) 803-020C NUT HEX 1/2-13 PLT

Position the Small Seeds drive (135) on top of the fertilizer weldment (180) and secure with bolts (195), flat washers (238), lock washers (228) and nuts (214). The front left bolt in the slotted hole takes two flat washers (238), one under bolt head and one above lock washer.

Refer to Figure 20 (drive shown without frame)

43. Select one new:

- (263) 822-119C BRG 7/8HEXX2.05OD SPH
- and two sets new:
- (262) 822-032C FLANGETTE 52 MST
 - (205) 802-282C RHSNB 5/16-18X1 GR5
 - (225) 804-009C WASHER LOCK SPRING 5/16 PLT
 - (212) 803-008C NUT HEX 5/16-18 PLT

At the installed Small Seeds drive, place the bearing (263) between the flangettes (262), and mount the assembly at the forward open flangette hole (4) of the fertilizer weldment (180). Mount from the left (outside the drive), with the bolts (205) inserted from the right. Secure with lock washers (225) and nuts (212).

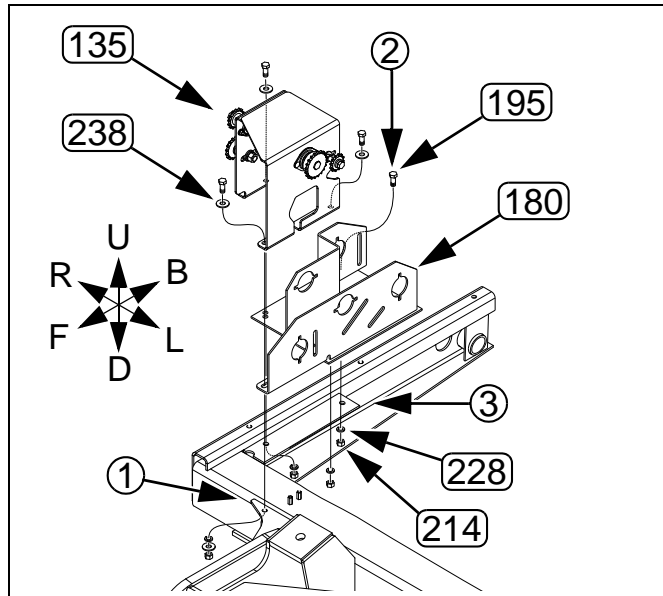


Figure 19:
Small Seeds Drive
Left Section w/o Fertilizer

27437

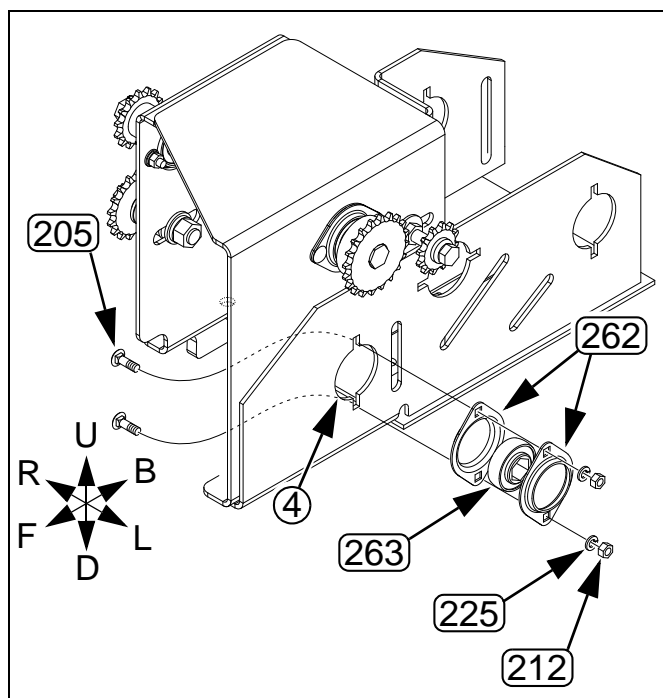


Figure 20:
Small Seeds Input Bearing

27442

Front Drive, Center and Right Sections

Refer to Figure 21

44. Select one each new:

- (180) 195-269H 40'-3S FERT DRIVE WELDMENT RH
- (195) 802-034C HHCS 1/2-13X1 1/4 GR5
- (228) 804-015C WASHER LOCK SPRING 1/2 PLT
- (214) 803-020C NUT HEX 1/2-13 PLT

Position the weldment (180) at the front right corner of the mainframe. Align the right edge of the weldment against the frame side rail, and position the right rear hole over a hole (1) in the frame gusset. Make sure both left base holes are on either side of the front frame tube (to accept U-bolt at step). Insert a bolt (195) through the right rear hole (1) of the weldment base. Loosely secure with a lock washer (228) and nut (214).

45. Select one each new:

- (135) 133-324K SML SDS ON FERT JS MNT ASY
- (243) 806-060C U-BOLT 1/2-13 X 6 1/32 X 7 1/4
- (195) 802-034C HHCS 1/2-13X1 1/4 GR5

and three sets new of:

- (238) 804-113C WASHER FLAT 1/2 USS HARD PLT
- (228) 804-015C WASHER LOCK SPRING 1/2 PLT
- (214) 803-020C NUT HEX 1/2-13 PLT

Position the Small Seeds drive (135) on top of the fertilizer weldment (180).

Install the U-bolt (243) up through the left side holes of the drive and loosely secure with flat washers (238), lock washers (228), and nuts (214). Insert bolt (195) through washer (238), and right forward hole of drive (not visible in Figure). Add lock washer (228), another flat washer (238), and nut (214). Tighten all nuts.

Refer to Figure 22 (drive shown without frame)

46. Select one new:

- (263) 822-119C BRG 7/8HEXX2.05OD SPH
- and two sets new:
- (262) 822-032C FLANGETTE 52 MST
 - (205) 802-282C RHSNB 5/16-18X1 GR5
 - (225) 804-009C WASHER LOCK SPRING 5/16 PLT
 - (212) 803-008C NUT HEX 5/16-18 PLT

At the Small Seeds drive, place the bearing (263) between the flangettes (262), and mount the assembly at the forward open flangette hole (4) of the fertilizer weldment (180). Mount from the left (outside the drive), with the bolts (205) inserted from the right. Secure with lock washers (225) and nuts (212).

Repeat step 44 through step 46 for the right section.

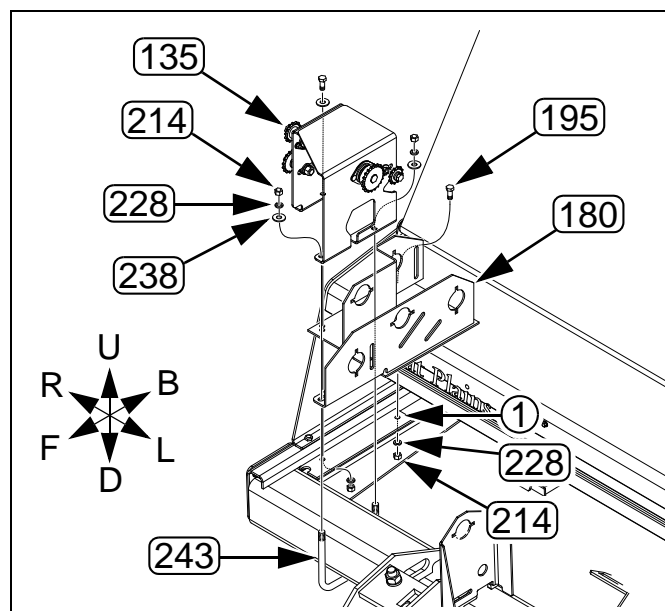


Figure 21:
Small Seeds Drive
Center Section w/o Fertilizer

34592

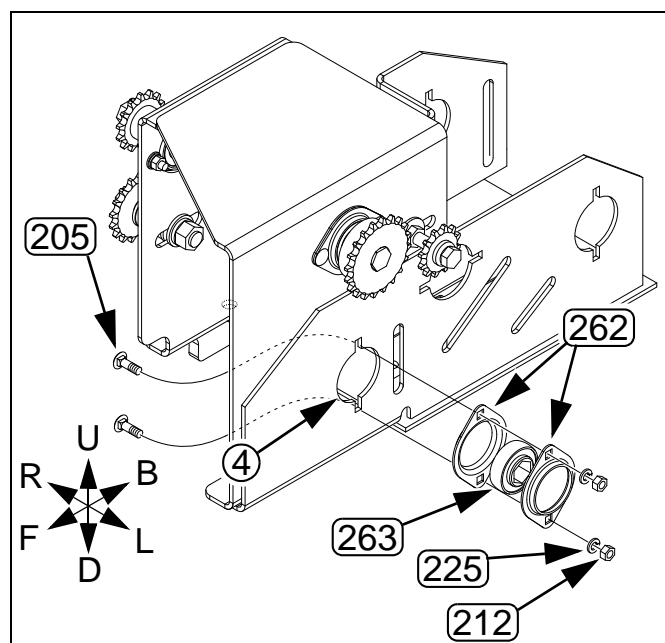


Figure 22:
Small Seeds Input Bearing

27442

Align Jackshafts

Start with the left section.

Refer to Figure 23, which shows a 3S-4000 center section

47. Slide the left end of the jackshaft (1) into the input bearing (2) of the Small Seeds drive. Move the shaft left until travel is stopped at the far end of the shaft by the roll pin reaching the new bearing in the clutch plate.

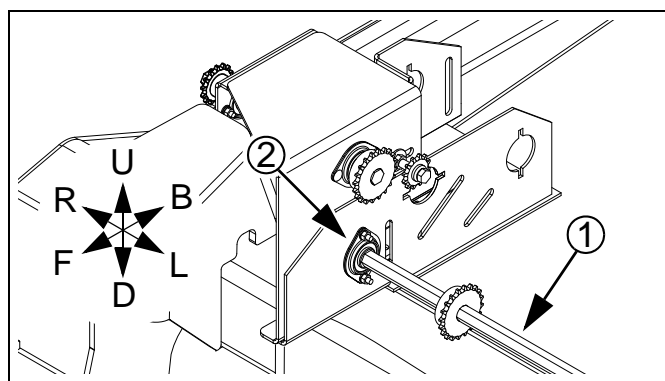


Figure 23:
Small Seeds Jackshaft Install

27443

Refer to Figure 24. Striped arrows show chain direction.

48. At the clutch plate, slide the jackshaft input sprocket (247) and washers left, until they reach the new bearing.

49. Select one each new:

(242) 805-180C PIN ROLL 1/4 X 1 1/2 LG PLT

Drive the roll pin (242) into the shaft just to the right of the sprocket (247).

50. Select one new:

(173) 136-064D CHAIN RL #40 51 PITCHES

Install chain from clutch output above, behind idler (254), to jackshaft input sprocket (247). Orient chain clip per Figure 25. Tighten idler when longest span of chain has 1/4 inch (6 mm) slack.

Repeat step 47 through step 50 for the center and right sections.

Skip to step 68 on page 20

(steps 51 through are for drills with Fertilizer).

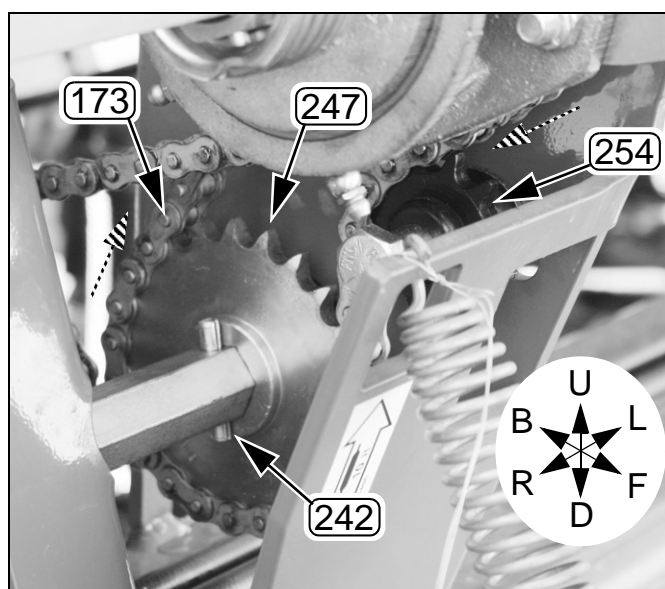


Figure 24:
Jackshaft Input Sprocket

27444

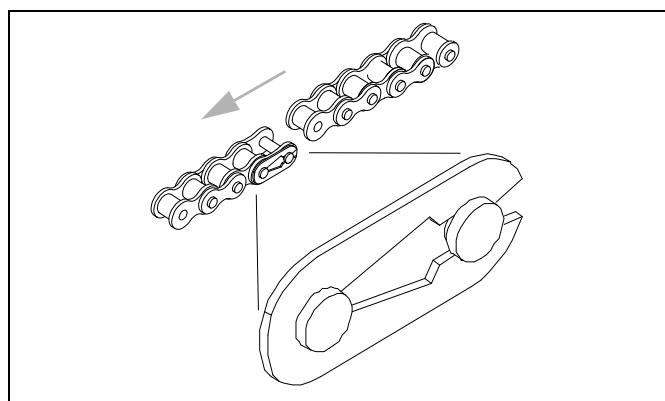


Figure 25:
Chain Clip Orientation

26482

Front Drives with Fertilizer

If the drill does not have fertilizer, use the steps at “**Front Drives without Fertilizer**” on page 13.

Start with the left section, at the clutch bearing plate.

Refer to Figure 26

51. Locate the fertilizer jackshaft input sprocket (1) below the clutch output sprocket.
52. Loosen the idler (2).
53. Drive out and save:
(32) 805-180C PIN ROLL 1/4 X 1 1/2 LG PLT

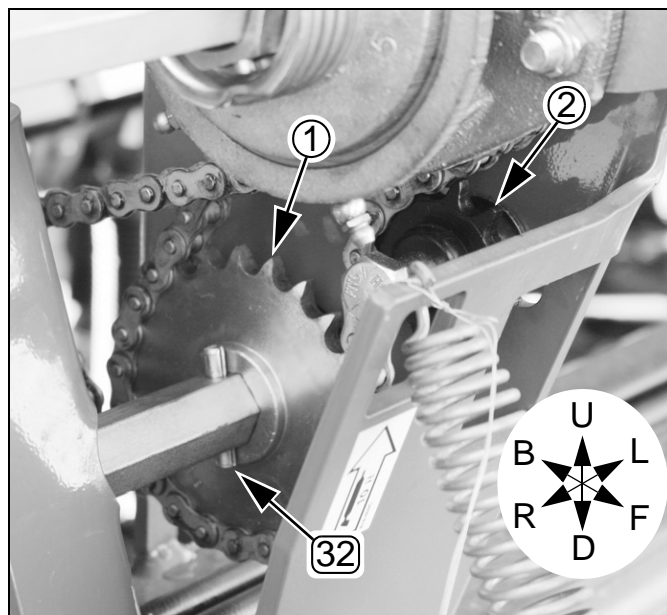


Figure 26:
Fertilizer Jackshaft Input Sprocket

27444

Refer to Figure 27, which shows corner drive mounting for center and right sections.

54. At the right front corner of the frame, locate:
(13) 195-273S 40'-3S FERT DR SUBASSY LH
Loosen and relax all idlers.
55. Loosen set screws, remove and save:
(33) 808-143C SPKT 40B12 7/8 HEX BORE W/SS
56. Slide fertilizer jackshaft (3) left, out of fertilizer assembly (13).
57. Select one new:
(246) 808-194C SPKT 40B22 7/8 HEX BORE & SS

Orient it with the set screw hub to drill right and slide it onto the jackshaft (3). Use the set screws to temporarily secure it about 10 inches (25 cm) from the end of the shaft. Do not re-install the shaft at this time.

NOTE:

In the next step, leave the mounting bolt at right rear (4) of the fertilizer drive assembly (not visible in figure). It keeps the drive in place and correctly aligned.

58. Remove and save the 2 or 3 sets of front and left fasteners (5) that secure the fertilizer drive assembly (13) to the frame. These fasteners may be bolts and/or U-bolts, depending on section.

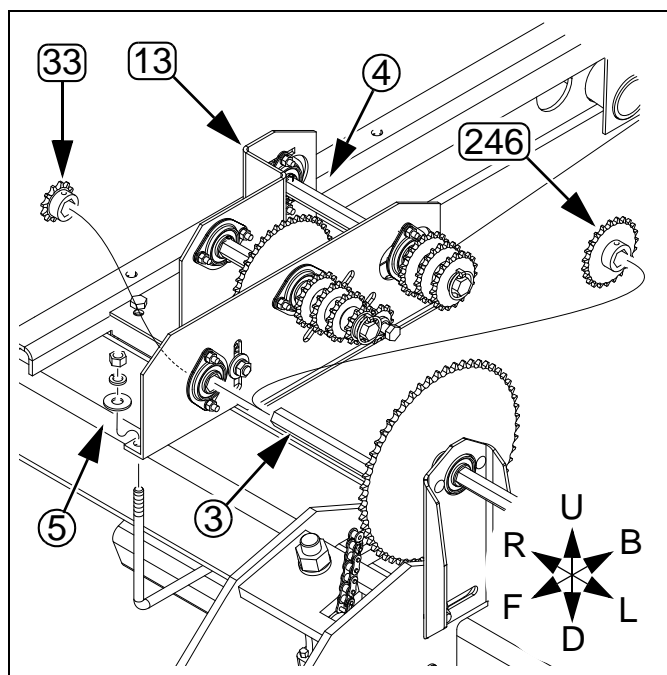


Figure 27:
Add Sprocket to Jackshaft

27445

Refer to Figure 28, which shows the fertilizer drive weldment elevated and without fertilizer drive components.

59. Select one new:

(135) 133-324K SML SDS ON FERT JS MNT ASY

Position the Small Seeds drive over the Fertilizer drive (13), and align the mounting holes.

60. Select the 2 or 3 sets of saved fasteners (6) from step 58. Re-install them.

61. For the left section only, select one set new of:

(195) 802-034C HHCS 1/2-13X1 1/4 GR5

(238) 804-113C WASHER FLAT 1/2 USS HARD PLT

(228) 804-015C WASHER LOCK SPRING 1/2 PLT

(214) 803-020C NUT HEX 1/2-13 PLT

Install these at the left rear mounting hole of the Small Seeds drive.

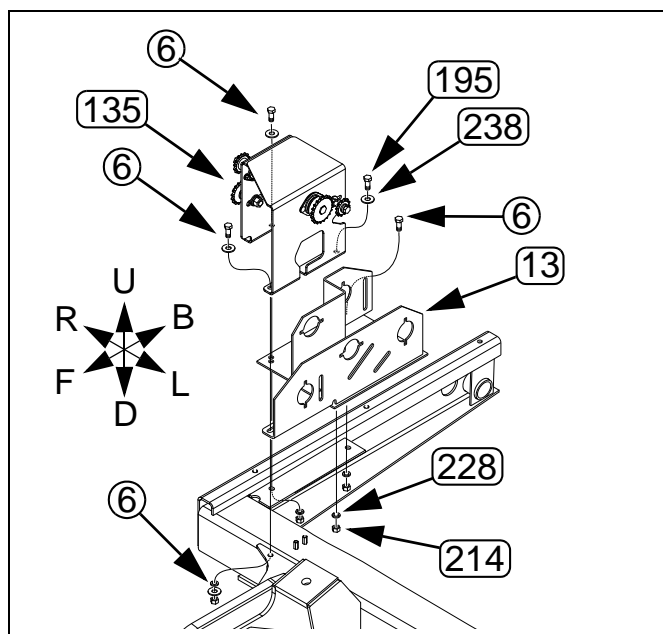


Figure 28:
Small Seeds Drive
Left Section with Fertilizer

27437

Refer to Figure 29 which shows a 3S-4000 center section

62. Slide the left end of the jackshaft (1) into the input bearing of the Fertilizer and Small Seeds drive. Move the shaft left until travel is stopped at the far end of the shaft by the roll pin reaching the bearing in the clutch bearing plate.

63. Select the saved:

(33) 808-143C SPKT 40B12 7/8 HEX BORE W/SS

Orient the set screw hub to the left, and place the sprocket (33) back on the jackshaft (1). Align it with the Fertilizer drive sprocket it drives and tighten the set screws. Re-mount the chain.

64. Retighten idlers in Fertilizer drive assembly.

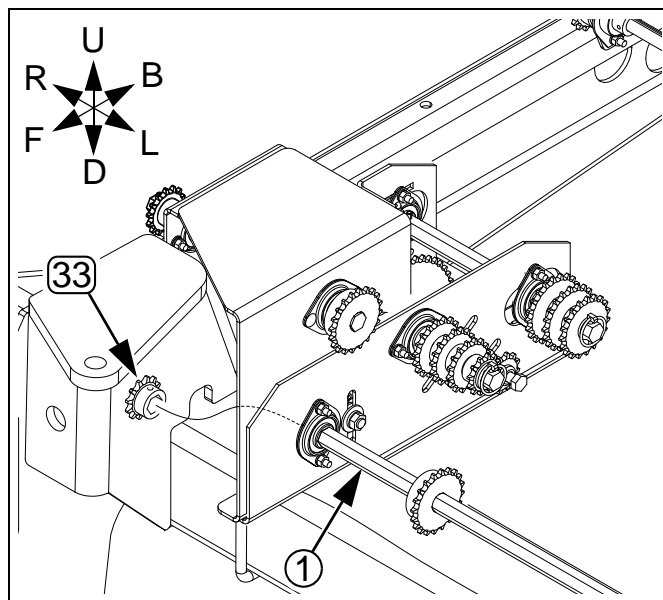


Figure 29:
Small Seeds and Fertilizer
Input Sprockets

27447

Refer to Figure 30. Striped arrows show chain direction.

65. At the clutch plate, slide the jackshaft input sprocket (1) and washers left, until they reach the bearing.

66. Select the saved:

(32) 805-180C PIN ROLL 1/4 X 1 1/2 LG PLT

Drive the roll pin (32) into the shaft just to the right of the sprocket (1).

67. Tighten input idler when longest span of chain has 1/4 inch (6 mm) slack.

Repeat step 51 through step 67 for the center and right drill sections.

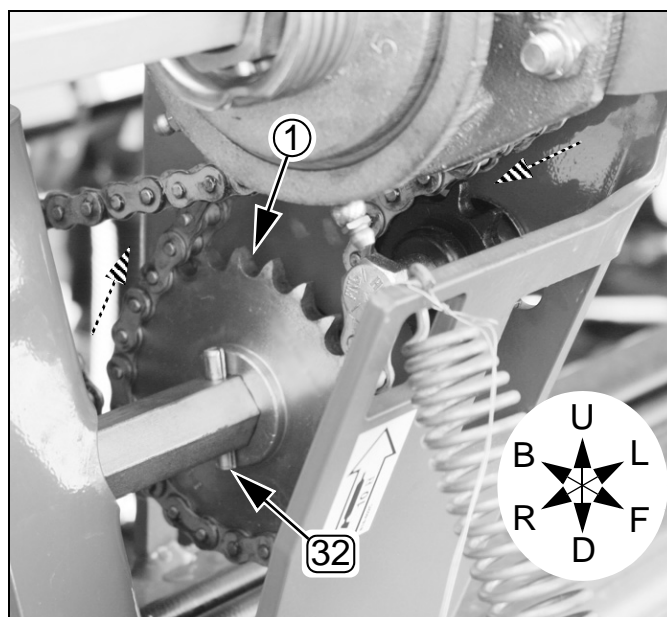


Figure 30:
Fert. Jackshaft Input Sprocket

27444

Small Seeds Drive Chains

This and all remaining steps are the same with or without Fertilizer installed. Start with left section.

Refer to Figure 31. Striped arrow shows chain direction.

68. Loosen the set screws on:

(246) 808-194C SPKT 40B22 7/8 HEX BORE & SS

Slide it to the right and align it in the same plane as the Small Seeds drive input sprocket (2) and idler.

69. Select one new:

(174) 136-078D CHAIN RL #40 52 PITCHES

Route chain around jackshaft output sprocket, Small Seeds input sprocket and Small Seeds input idler. Make sure chain clip opening faces away from direction of chain travel, as shown in Figure 25 on page 17.

70. Tighten set screws on output sprocket. Adjust chain slack to 1/4 inch (6 mm).

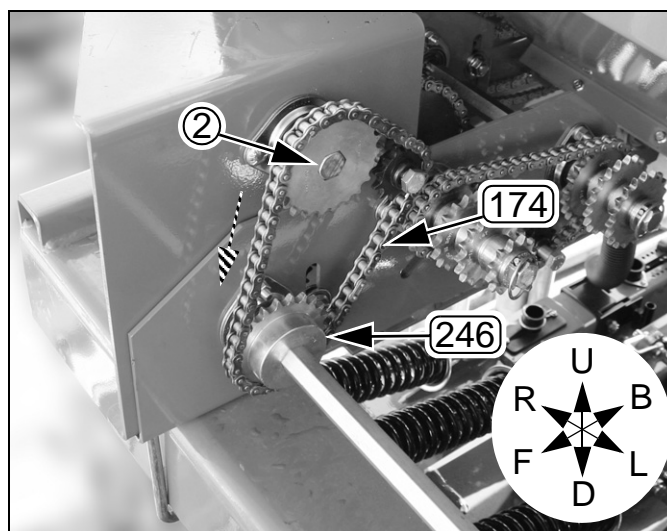


Figure 31:
Small Seeds Drive Input

27448

Refer to Figure 32. Striped arrows show chain direction.

71. Select one new:

(176) 136-154D CHAIN RL #40 214 PITCHES

Route chain (176) around Small Seeds drive output sprocket (1) and meter drive input sprocket (2). Make sure chain clip opening faces away from direction of chain travel, as shown in *Figure 25* on page 17.

Chain routes *forward* of and *under* both 17-tooth idlers (3).

72. Adjust idlers (3) for $\frac{1}{2}$ inch (13 mm) slack in longest (bottom) span of chain.

Repeat step 71 and step 72 for center and right sections.

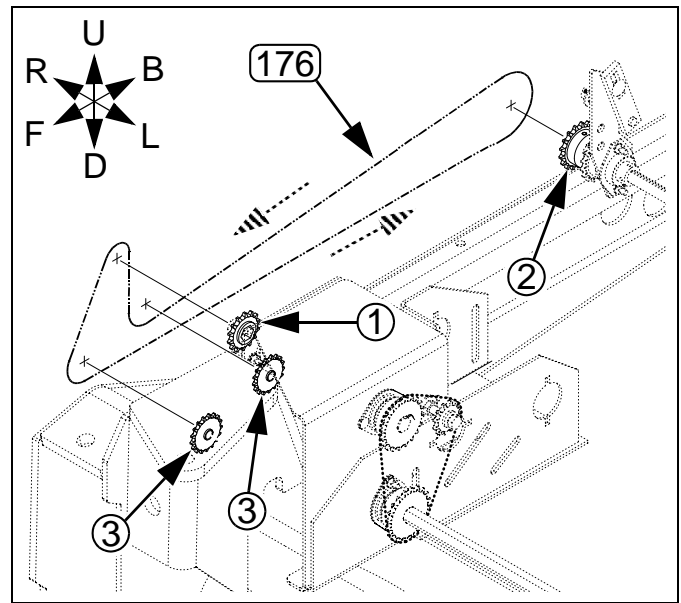


Figure 32:
Small Seeds Drive Output Chain

27449

Install Seed Boxes

Identify Box Assemblies

There are six small seed box assemblies, two for each section, and LH and RH for each section.

Due to box widths, drive input, setting handle location, mounting holes, and decals, there are distinct part numbers for each section and side (6 unique assemblies per row spacing).

Look for tags or grease pen markings on the assemblies, or use the tips at right.

- Wing boxes are longer than center section boxes.
- RH boxes have a sprocket on the right end of the shaft.
- LH boxes have a bare hex shaft (with hole for coupler pin) on the right end of the shaft.
- The left wing RH box has the rate handle.
- The right wing LH box has the rate handle.

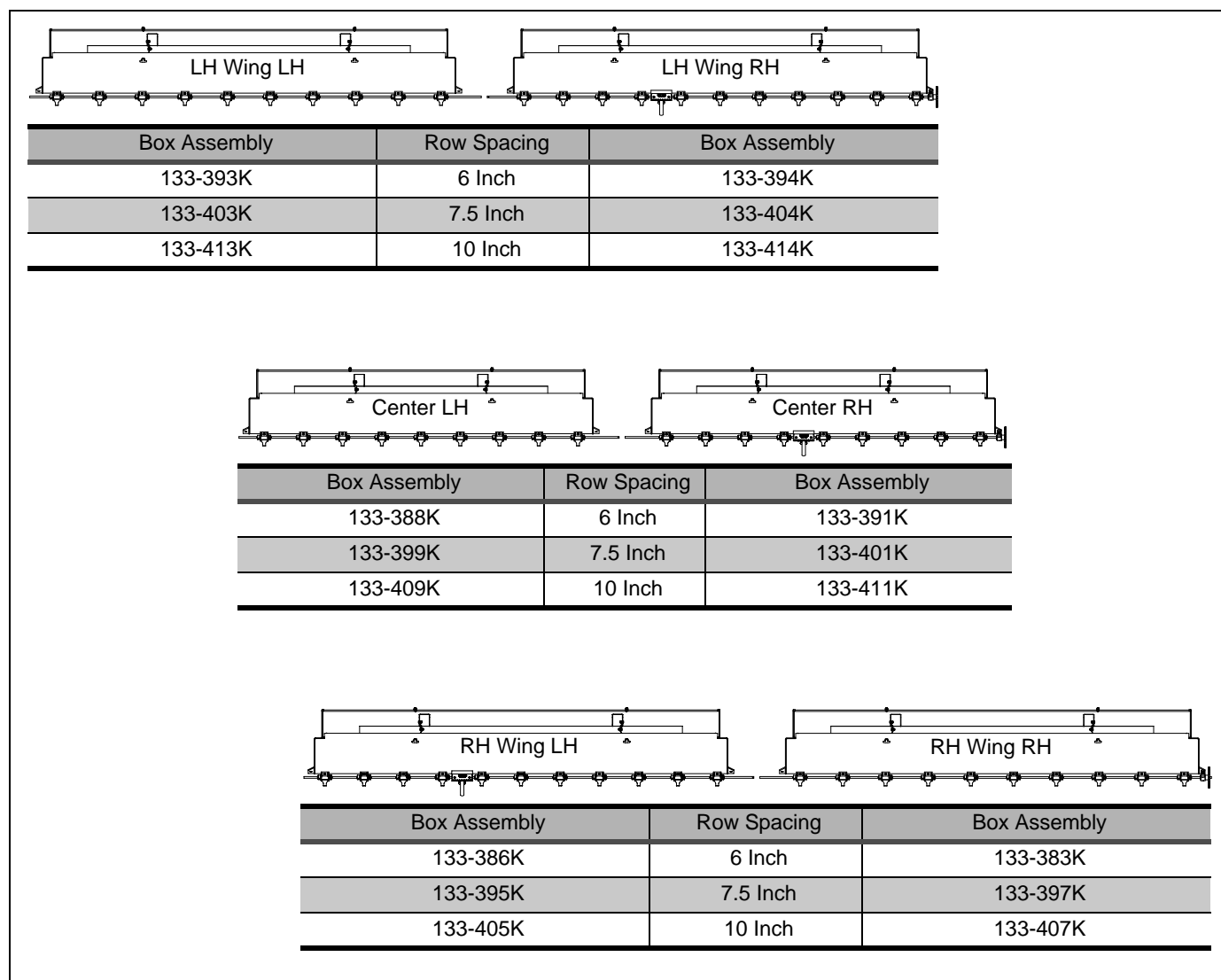


Figure 33:
Small Seeds Box Assemblies (10 inch row spacing shown)

34593

Remove Wind Shields

Refer to Figure 34

73. If the wind shields (260) are pre-installed on the seed cups, remove and save them to prevent loss or damage during seed box installation.

Squeeze the tabs at the top. Tilt the shield backward and out. These are re-installed at step 96 on page 33.

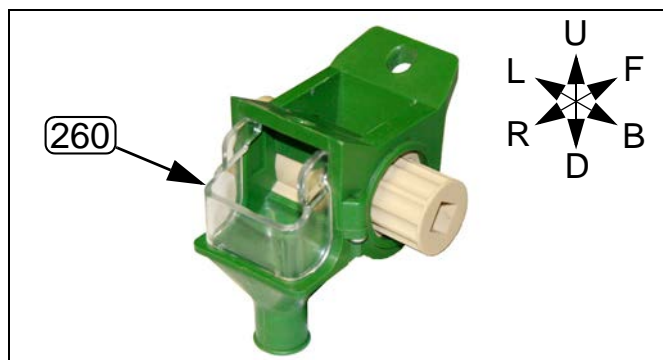


Figure 34:
817-806C Wind Shield

34582

Install Light Bracket Extension (S/N C1305L+)

These instructions are to install extensions to the rear light brackets for the red LED lights on the center section.

Refer to Figure 35

74. Select two new:

(179) 171-059D 3/16 LIGHT PLATE MIN TILL

and four new:

(194) 802-004C HHCS 1/4-20X3/4 GR5

(236) 804-075C WASHER FLAT 1/4 USS PLT

(224) 804-006C WASHER LOCK SPRING 1/4 PLT

(210) 803-006C NUT HEX 1/4-20 PLT

Install a light plate (179) to the existing right light bracket (12) and secure with two bolts (194), flat washers (236), lock washers (224), and nuts (210).

The light plate may need to be adjusted to fit with the hose layout of the small seeds box. Use the necessary combination of holes on the bracket and plate.

NOTE:

The red lights, when installed, should not be more than 5 feet apart.

Repeat step 74 for the left light bracket.

NOTE:

Do not re-install the lights at this time. They will be installed after the small seed boxes are mounted.

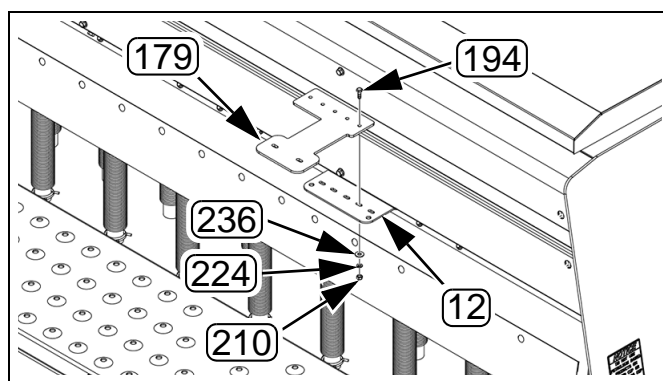


Figure 35:
Light Bracket Extension

68381B

Mount a RH Box Assembly

Boxes are installed, RH box first, on each section.
Start with the left section:

Refer to Figure 36

75. For a left wing, Select one of the following small seed box assemblies (1), new:

- (151) 133-394K 3S5000 SGS LW RH BOX ASY 6 IN
- (161) 133-404K 3S5000 SGS LW RH BOX ASY 7.5 IN
- (171) 133-414K 3S5000 SGS LW RH BOX ASY 10 IN

For a center section, select one of (1) new:

- (148) 133-391K 3S5000 SGS CT RH BOX ASY 6 IN
- (158) 133-401K 3S5000 SGS CT RH BOX ASY 7.5 IN
- (168) 133-411K 3S5000 SGS CT RH BOX ASY 10 IN

For a right wing, select one of (1) new:

- (140) 133-383K 3S5000 SGS RW RH BOX ASY 6 IN
- (154) 133-397K 3S5000 SGS RW RH BOX ASY 7.5 IN
- (164) 133-407K 3S5000 SGS RW RH BOX ASY 10 IN

Select four sets of new:

- (206) 802-388C HFS 3/8-16X1 GR5
- (227) 804-013C WASHER LOCK SPRING 3/8 PLT
- (213) 803-014C NUT HEX 3/8-16 PLT

Mount the box (1) at the forward set of open holes in the mounts and drives just installed.

Repeat step 75 for the center and right sections.

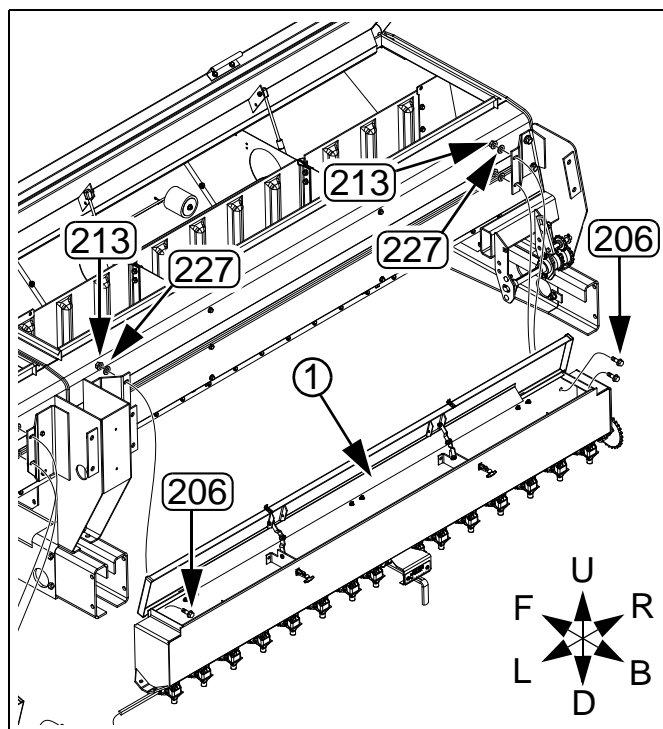


Figure 36:
Mount RH Small Seeds Assembly

34596

Place Coupler

The LH seed box meter shaft (not shown) is driven by the RH box (1) meter shaft (2). These two shafts are connected inside the center mount weldment by a coupler (120).

The coupler is pinned to the LH shaft (not shown, completed at step 79) after the LH box is installed. The coupler is secured to the RH shaft by set screws (3) after meter synchronization at step 82.

Start with the left wing.

Refer to Figure 37

76. Select one new:

- (120) 133-120D 3S-5000 SML SDS DRIVE CPLG

Remove and save any roll pin (240) present.

Rotate the set screws (3) counter-clockwise until their tips are clear of the square bore of the coupler.

Place the coupler (120), set screw end first, onto the RH box meter shaft (2). Orient the coupler so that the set screws are accessible to tools, from the bottom or the top of the center mount weldment (not shown). Do not tighten the set screws.

Repeat step 76 for the center and right sections.

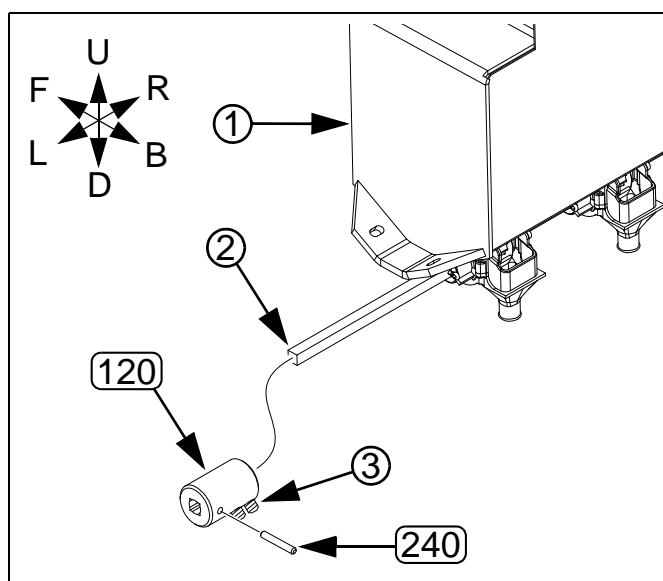


Figure 37:
Place a Drive Coupler

34597

Mount a LH Box Assembly

Refer to Figure 38

77. For a left wing, select one of the following small seed box assemblies (4), new:

- (150) 133-393K 3S5000 SGS LW LH BOX ASY 6 IN
- (160) 133-403K 3S5000 SGS LW LH BOX ASY 7.5IN
- (170) 133-413K 3S5000 SGS LW LH BOX ASY 10 IN

For a center section, select one of ④ new:

- (145) 133-388K 3S5000 SGS CT LH BOX ASY 6 IN
- (156) 133-399K 3S5000 SGS CT LH BOX ASY 7.5IN
- (166) 133-409K 3S5000 SGS CT LH BOX ASY 10 IN

For a right wing, select one of ④ new:

- (143) 133-386K 3S5000 SGS RW LH BOX ASY 6 IN
- (152) 133-395K 3S5000 SGS RW LH BOX ASY 7.5IN
- (162) 133-405K 3S5000 SGS RW LH BOX ASY 10 IN

Select four sets of new:

- (206) 802-388C HFS 3/8-16X1 GR5
- (227) 804-013C WASHER LOCK SPRING 3/8 PLT
- (213) 803-014C NUT HEX 3/8-16 PLT

Rotate the LH box meter shaft (5) so that the hole in the shaft is aligned with the hole in the coupler (120) installed at step 76.

Mount the box ④ at the forward set of open holes in the mounts and drives just installed.

Repeat step 77 for the center and right sections.

Pin Coupler

Start with the left wing.

Refer to Figure 39

78. Slide the coupler (120) left, until the coupler pin hole aligns with the LH meter shaft pin hole.

79. Select one new:

- (240) 805-023C PIN ROLL 3/16X1 1/4 PLT

Drive the pin into the coupler, securing it to the LH shaft.



NOTE:

Do not tighten set screws (3) at this time.

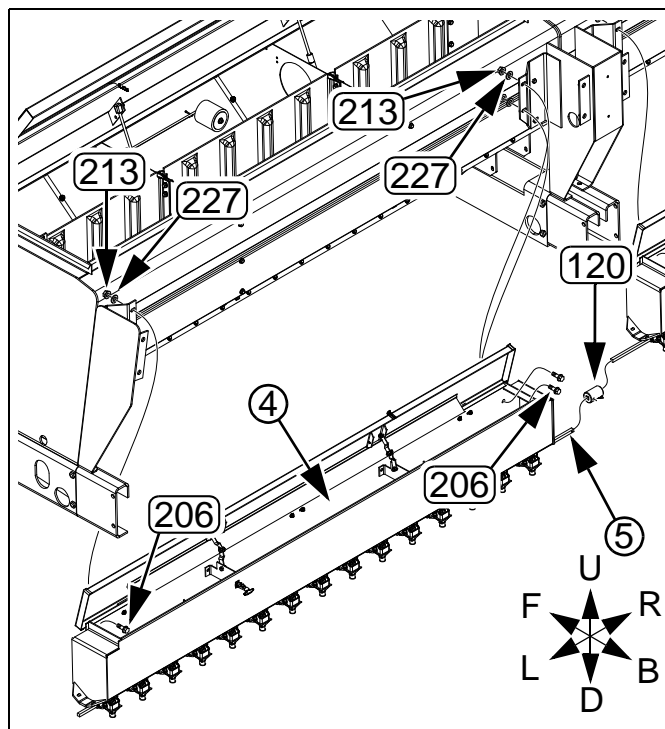


Figure 38:
Mount LH Small Seeds Assembly

34596

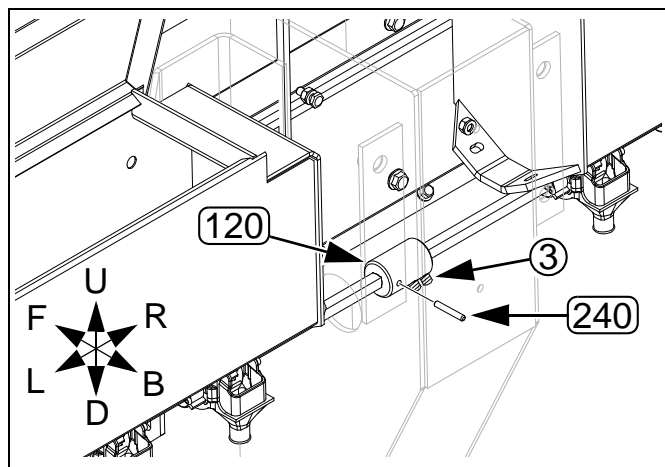


Figure 39:
Pin a Drive Coupler

34598

Synchronize Meters

All meters must be at 50% flute engagement prior to connecting drive shafts. Box assemblies with rate handles are normally set to 50% at the factory, but need to be checked.

Check/Set RH Meters at 50%

Refer to Figure 40 and Figure 41

80. On the RH box, check that the rate handle is set to 50 on the 0-100 scale (4), and that the wing nut (5) is tight. Verify by meter cup inspection that feed regions (7) are showing 50% filler (left) and 50% flutes (right).

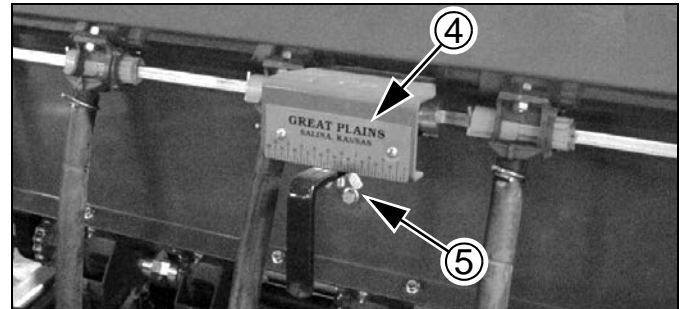


Figure 40:
Small Seeds Rate Handle

18511

Adjust LH Shaft to 50%

Refer to Figure 41 and Figure 39

81. Move the LH shaft (6) left or right until the LH small seed meter feed regions (7) are at 50%.

NOTE:

If the shaft cannot be moved far enough right to obtain 50%, loosen the mounting bolts for the boxes, or the mounts, and move them apart to obtain additional slack.

Secure Coupler

Refer to Figure 39

82. Tighten the set screws (3) at the coupler (120).

Repeat step 78 through step 82 for the center and right sections

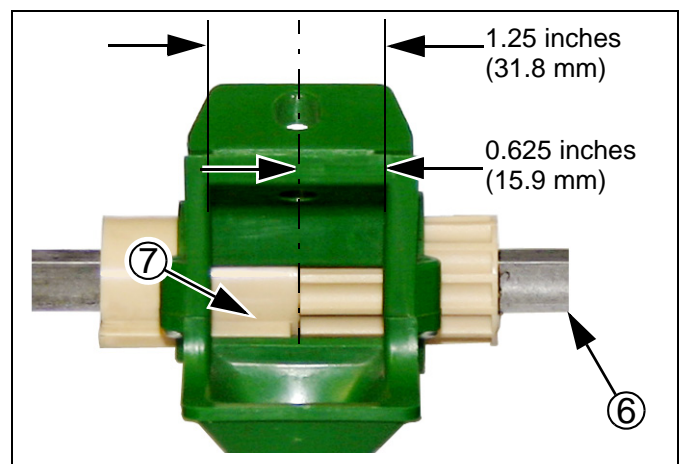


Figure 41:
Meter Flutes at 50%

34599

Install Left/Right Section Guards and Handles

Start with the left section.

Left Small Seeds Box

Refer to Figure 42.

83. Select one saved:

(11) 119-190D HANDLE

and if it was present, one saved:

(18) 248-251D MANUAL PAK MOUNTING PLATE

Select two new or saved:

(22) 802-203C HFSS 1/2-13X1 1/2 GR5

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

and four new:

(229) 804-016C WASHER FLAT 1/2 SAE PLT

or HHCS bolts, flat washers and plain nuts.

Select one new:

(111) 123-491D HANDLE MOUNT LH CHAIN GUARD

Position the chain guard (111) on the left small seed box mount. Position the manual pak mount (18) (if any), then the handle (11), and secure with bolts (22), nuts (26) and washers (if any).

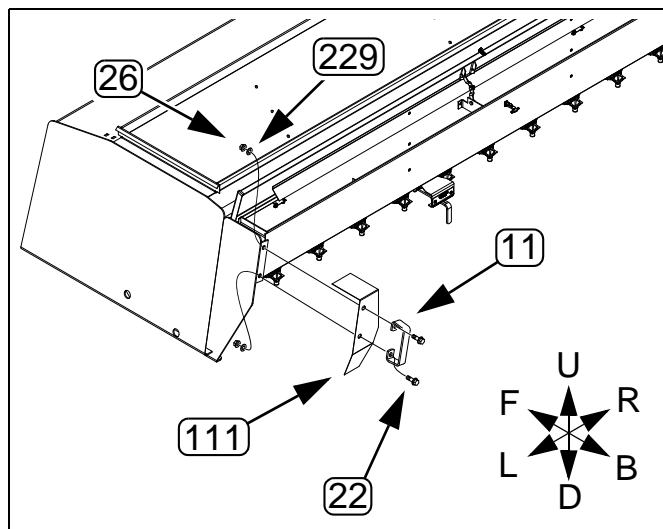


Figure 42:
Mount Left Guard

27435

Right Small Seeds Box

Refer to Figure 43.

84. Select two sets saved:

(26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

(22) 802-203C HFSS 1/2-13X1 1/2 GR5

or HHCS bolts, flat washers and plain nuts.

Select one new:

(112) 123-492D HANDLE MOUNT RH CHAIN GUARD

Position the chain guard (112) on the small seed box drive mount. Secure with bolts (22), nuts (26) and washers (if any).

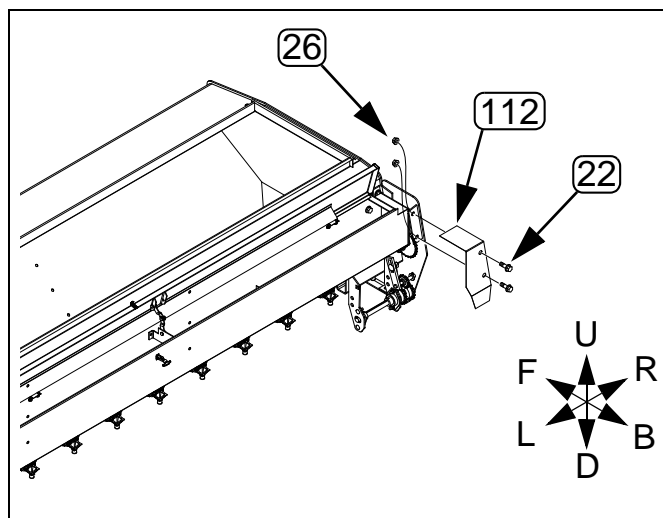


Figure 43:
Mount RH Guard, Corner Fittings

27435

Install Center Mount Guards

Refer to Figure 44

85. Select one new:

(101) 123-020D HANDLE MOUNT RH GUARD

(102) 123-021D HANDLE MOUNT LH GUARD

and four:

(203) 802-203C HFSS 1/2-13X1 1/2 GR5

Install right guard (101) to the right-hand side of the center mount (136) with two flange bolts (203).

Install left guard (102) to the left-hand side of the center mount (136) with two flange bolts (203).

Repeat step 83 through step 85 for the right section. Instead of installing the handle on the left small seeds box (step 83), install the handle on the right chain guard (101) on the right small seeds box (step 84).

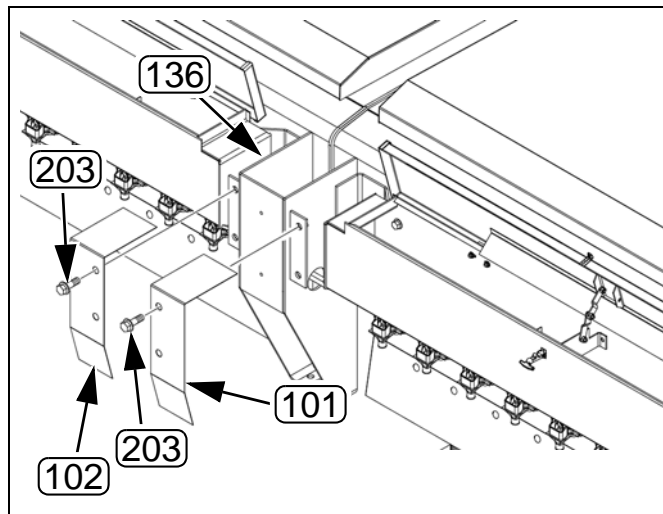


Figure 44:
Center Mount Guards

68381D

Install Center Section Guards and Lights

For S/N C1304L-

- Center section, right end:

1 (112) 123-492D HANDLE MOUNT RH CHAIN GUARD

1 (15) 195-417D (RH) 15' 3SMT LIGHT BRACKET (RH)

2 (22) 802-203C HFSS 1/2-13X1 1/2 GR5

2 (26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

4 (30) 804-016C WASHER FLAT 1/2 SAE PLT

- Center section, left end:

1 (111) 123-491D HANDLE MOUNT LH CHAIN GUARD

1 (14) 195-417D (LH) 15' 3SMT LIGHT BRACKET (LH)

2 (22) 802-203C HFSS 1/2-13X1 1/2 GR5

2 (26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT

4 (30) 804-016C WASHER FLAT 1/2 SAE PLT

86. Install the chain guard (112) and light bracket (15) to the small seeds box mount. Secure with hex flange bolts (22), flat washers (30), and hex flange nuts (26).

Make sure all lights are plugged in to the drill harness.

Repeat step 86 for left end chain guard (111).

For S/N C1305L+**Refer to Figure 45.**

- Center section, right end:
 - 1 (112) 123-492D HANDLE MOUNT RH CHAIN GUARD
 - 1 (179) 171-059D 3/16 LIGHT PLATE MIN TILL
 - 1 (17) 195-559D 3 SEC MIN TILL LIGHT BRACKET
 - 2 (19) 801-081C SCREW HEX SELF TAP 1/4-20X3/4
 - 2 (22) 802-203C HFSS 1/2-13X1 1/2 GR5
 - 2 (26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT
 - 4 (30) 804-016C WASHER FLAT 1/2 SAE PLT
 - 1 (35) 833-697C LIGHT, AMBER LAMP LED
 - 1 (36) 833-696C LIGHT, RED LAMP - LED
- Center section, left end:
 - 1 (111) 123-491D HANDLE MOUNT LH CHAIN GUARD
 - 1 (179) 171-059D 3/16 LIGHT PLATE MIN TILL
 - 1 (17) 195-559D 3 SEC MIN TILL LIGHT BRACKET
 - 2 (19) 801-081C SCREW HEX SELF TAP 1/4-20X3/4
 - 2 (22) 802-203C HFSS 1/2-13X1 1/2 GR5
 - 2 (26) 803-169C NUT HEX FLG LOCK 1/2-13 PLT
 - 4 (30) 804-016C WASHER FLAT 1/2 SAE PLT
 - 1 (35) 833-697C LIGHT, AMBER LAMP LED
 - 1 (36) 833-696C LIGHT, RED LAMP - LED

87. Install the chain guard (112) and light bracket (17), with amber lamp (35), to the small seeds box mount. Secure with hex flange bolts (22), flat washers (30), and hex flange nuts (26).

Adjust the light bracket (179), if necessary, and install a red lamp (36) to the bracket with self-tapping screws (19).

Make sure all lights are plugged in to the drill harness.

Repeat step 87 to install the left end chain guard (111).

Install Meter Shaft Chains

Start with the left section.

Refer to Figure 46, which is shown with some parts removed. Gray arrows show direction of chain motion.

88. Select one new:

(175) 136-104D CHAIN RL #40 62 PITCHES

Route chain (175) around lower jackshaft driving sprocket, around upper final meter shaft sprocket, and forward of idler (1).

Make sure chain clip opening faces away from direction of chain motion. See Figure 25 on page 17.

Engage idler arm and tighten bolt (2) when longest span of chain has $\frac{1}{4}$ inch (6 mm) slack.

Repeat step 88 for the center and right sections.

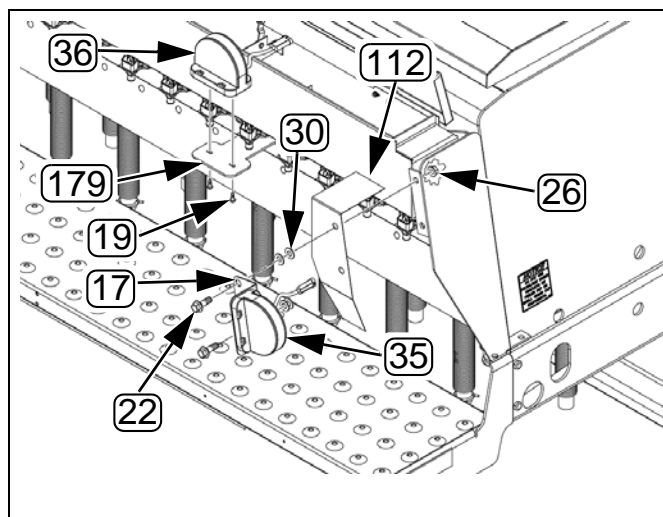


Figure 45:
Center Section Right End

68381C

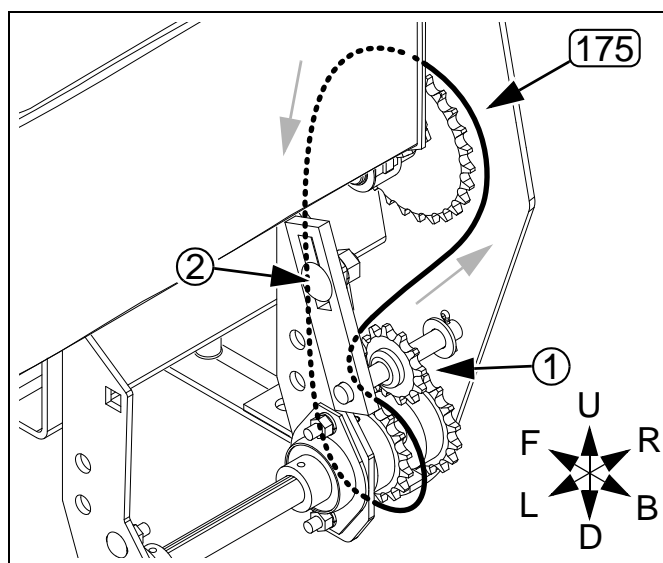


Figure 46:
Final Drive Chain

27436

Install Seed Tubes

Seed tube installation is different for drills with and without the Fertilizer option. With Fertilizer installed, the row unit frame opening behind the main seed tube is occupied by the fertilizer drop tube. A side delivery tube is used for Small Seeds in that case.

If Fertilizer is installed, skip to step 91 on page 30.

Delivery Tube - No Fertilizer

Start with the left-most row unit.

Refer to Figure 47

89. Select one each new:

(115) 123-939H SMALL SEEDS TUBE WELDMENT
and two new:

(190) 801-002C SCREW HEX SLT10-16X1/2P.THD CT

Insert the long end of the delivery tube (115) through the row unit frame hole (1) in between the T-handle slot and the main seed tube hole. The bent lower section of the delivery tube angles forward. Secure tube with two screws (190).

Repeat step 89 for each row unit.

90. Skip to step 92.

Delivery Tube - with Fertilizer

Start with the left-most row unit.

Refer to Figure 48, which does not depict the fertilizer delivery tube in the hole.

91. Select one each new:

(126) 133-128H SGS SIDE DELIVERY TUBE

(207) 802-427C HFS 3/8-16X3 3/4 SPTH

(220) 803-209C NUT FLANGE LOCK 3/8-16 PLT

Orient the side tube weldment with the delivery tube to the left of the row unit, and the mount ahead of the fertilizer delivery tube hole (2).

Insert a bolt (207) through mount and the row unit frame at hole (3). Secure with lock nut (220).

Repeat step 91 for each row unit.

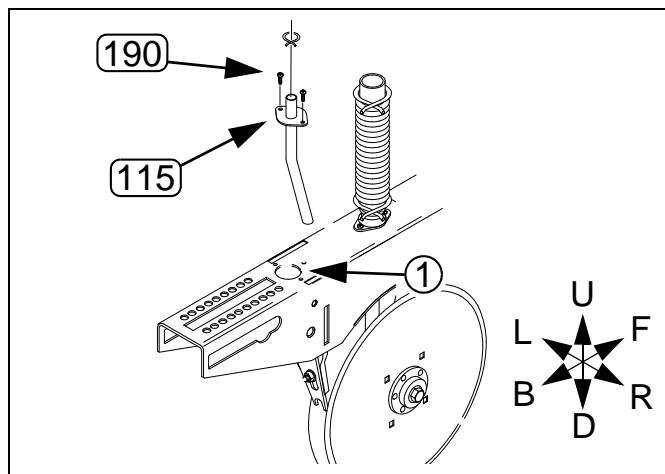


Figure 47:
Small Seeds Delivery Tube
without Fertilizer

27470

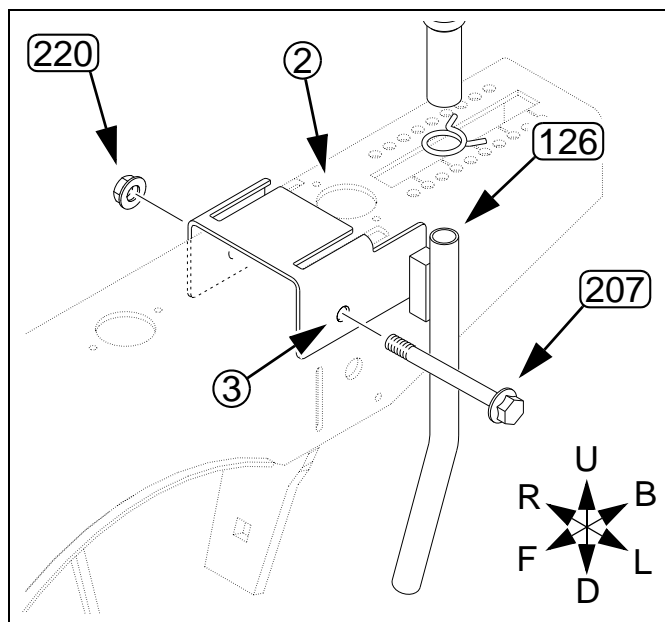


Figure 48:
Small Seeds Side Delivery Tube
with Fertilizer

27450

Install Drop Tubes (all Kits)

Start with the left-most row unit.

NOTE:

Feeder cups may not be directly above the row unit to which their hose connects.

Refer to Figure 49

92. Select one new:

(251) 816-358C SGS HOSE 122 RIBS

and two new:

(188) 800-321C HOSE CLAMP NO.12 3/4 ID

NOTE:

The end of the hose with the shorter smooth section is the top end.

Open a hose clamp (188) and place it over the top end of the hose (251). Move the clamp down to the start of the ribbed section.

Slide the top of the hose (251) onto the drop tube (4) of the fluted feed cup for that row, so that the hose completely covers the straight portion of the exit tube. Open the clamp and position it about 1/4 inch (6 mm) above the bottom of the exit tube.

Open a hose clamp (188) and place it over the other end of the hose (251). Move the clamp up from the end of the hose.

Slide the bottom end of the hose (251) onto the top of the delivery tube (5), so that it completely covers the exposed portion of the tube. Open the clamp and position it about 1/2 inch (13 mm) from the end of the hose.

Repeat step 92 for each row unit.

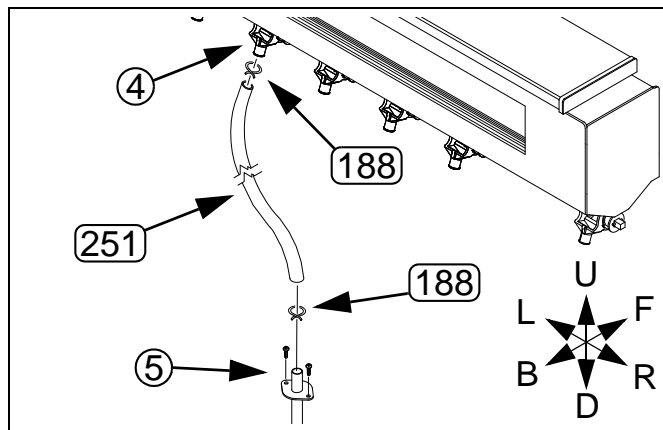


Figure 49:
Small Seeds Drop Tubes

27470

Re-Install Walkboards

Start with the LH side of the left wing.

Refer to Figure 50 (showing the right wing, LH side)

93. Select the removed walkboard (6) that is marked for the current section and side. Use the lift or hoist to align it with the extensions (182 or 183).

NOTE:

Align the walkboard with the outside end of the section, as the part mating is more obvious there.

94. Select four (4) sets saved or new:

(25) 803-020C NUT HEX 1/2-13 PLT

(29) 804-015C WASHER LOCK SPRING 1/2 PLT

(21) 802-034C HHCS 1/2-13X1 1/4 GR5

Insert the bolts (25) from the left, through both aligned parts. Secure with lock washers (29), and nuts (21).

Repeat step 93 and step 94 for each section side.

Fold down ladders when all walkboards are installed.

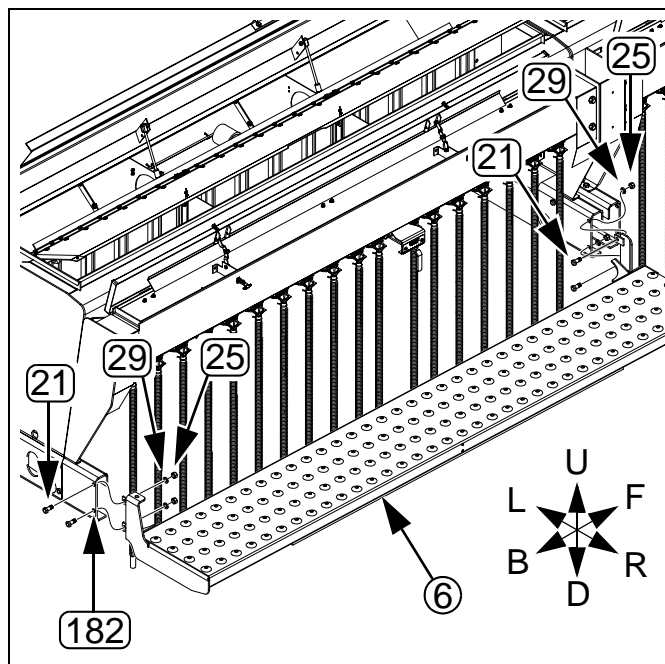


Figure 50:
Re-Install Walkboard

34601

Re-Install SMV Reflector

Refer to Figure 51

95. Select one saved:

(34) 818-055C DECAL SLOW MOVING-GALV. BACKED and two sets saved or new:

(20) 802-004C HHCS 1/4-20X3/4 GR5

(28) 804-006C WASHER LOCK SPRING 1/4 PLT

(24) 803-006C NUT HEX 1/4-20 PLT

Position the SMV (34) on the center small seed box mount weldment (136) of the center section. Secure with bolts (20), lock washers (28), and nuts (24).

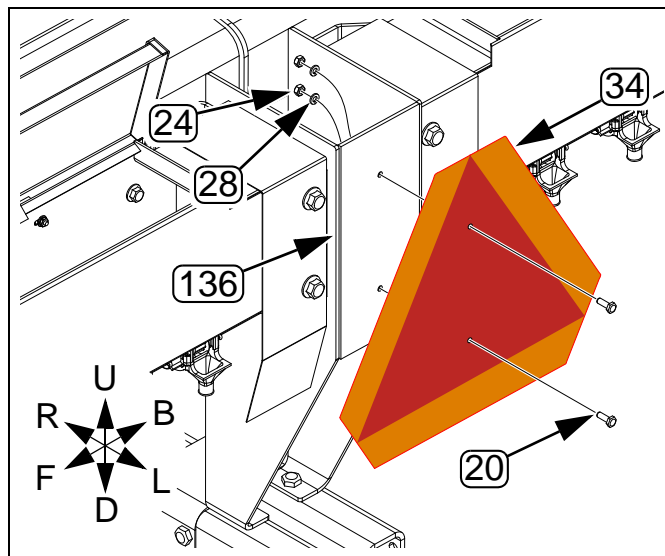


Figure 51:
SMV Mount

34600

Re-Install Wind Shields

Refer to Figure 52

96. For each row, select one new:

(260) 817-806C SMALL SEEDS CUP WIND SHIELD

Insert the bottom edge of the rear face of the shield (260) into the funnel. Snap the ears into the inside vertical grooves of the meter cup.

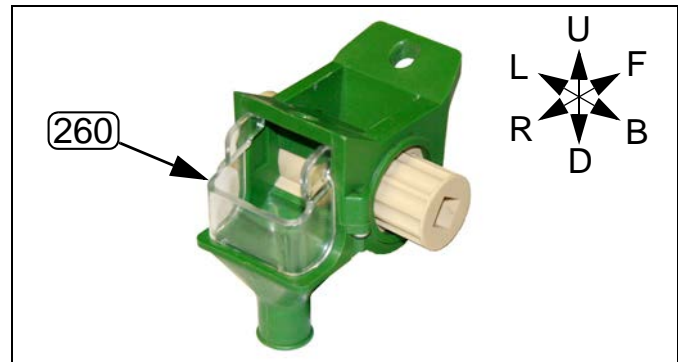





Figure 52:
817-806C Wind Shield Installed




34582

Close-Out

97. See Operator Manual. Hitch and raise drill. Lower the openers. Rotate gauge wheels. Check that all drives and box meter shafts are rotating freely.
98. Close lids on all seed boxes.
99. See page 26. Set Small Seeds rate adjusters to 0 to discourage pest entry and prevent seed loss in transport.

Torque Values

Bolt Size in-tpi ^a	Bolt Head Identification					
						
	Grade 2	Grade 5	Grade 8			
	N-m ^b	ft-lb ^d	N-m	ft-lb	N-m	ft-lb
1/4-20	7.4	5.6	11	8	16	12
1/4-28	8.5	6	13	10	18	14
5/16-18	15	11	24	17	33	25
5/16-24	17	13	26	19	37	27
3/8-16	27	20	42	31	59	44
3/8-24	31	22	47	35	67	49
7/16-14	43	32	67	49	95	70
7/16-20	49	36	75	55	105	78
1/2-13	66	49	105	76	145	105
1/2-20	75	55	115	85	165	120
9/16-12	95	70	150	110	210	155
9/16-18	105	79	165	120	235	170
5/8-11	130	97	205	150	285	210
5/8-18	150	110	230	170	325	240
3/4-10	235	170	360	265	510	375
3/4-16	260	190	405	295	570	420
7/8-9	225	165	585	430	820	605
7/8-14	250	185	640	475	905	670
1-8	340	250	875	645	1230	910
1-12	370	275	955	705	1350	995
1 1/8-7	480	355	1080	795	1750	1290
1 1/8-12	540	395	1210	890	1960	1440
1 1/4-7	680	500	1520	1120	2460	1820
1 1/4-12	750	555	1680	1240	2730	2010
1 3/8-6	890	655	1990	1470	3230	2380
1 3/8-12	1010	745	2270	1670	3680	2710
1 1/2-6	1180	870	2640	1950	4290	3160
1 1/2-12	1330	980	2970	2190	4820	3560

Bolt Size mm x pitch ^c	Bolt Head Identification					
						
	Class 5.8	Class 8.8	Class 10.9			
	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

a. in-tpi = nominal thread diameter in inches-threads per inch

b. N·m = newton-meters

c. mm x pitch = nominal thread diameter in mm x thread pitch

d. ft-lb = foot pounds

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

25199

Part Lists

Existing Parts Affected

Callout	Part Number	Part Description
11	119-190D	HANDLE
12	171-057D	140 DEGREE 10 GA LIGHT BRACKET
13	195-273S	40'-3S FERT DR SUBASSY LH
14	195-417D (LH)	15' 3SMT LIGHT BRACKET (LH)
15	195-417D (RH)	15' 3SMT LIGHT BRACKET (RH)
16	195-420D	DECAL BRACKET
17	195-559D	3 SEC MIN TILL LIGHT BRACKET
18	248-251D	MANUAL PAK MOUNTING PLATE
19	801-081C	SCREW HEX SELF TAP 1/4-20X3/4
20	802-004C	HHCS 1/4-20X3/4 GR5
21	802-034C	HHCS 1/2-13X1 1/4 GR5
22	802-203C	HFSS 1/2-13X1 1/2 GR5
23	802-387C	HFS 5/16-18X3/4 GR5
24	803-006C	NUT HEX 1/4-20 PLT
25	803-020C	NUT HEX 1/2-13 PLT
26	803-169C	NUT HEX FLG LOCK 1/2-13 PLT
27	803-199C	NUT HEX FLANGE 5/16-18 PLT
28	804-006C	WASHER LOCK SPRING 1/4 PLT
29	804-015C	WASHER LOCK SPRING 1/2 PLT
30	804-016C	WASHER FLAT 1/2 SAE PLT
31	804-113C	WASHER FLAT 1/2 USS HARD PLT
32	805-180C	PIN ROLL 1/4 X 1 1/2 LG PLT
33	808-143C	SPKT 40B12 7/8 HEX BORE W/SS
34	818-055C	DECAL SLOW MOVING-GALV. BACKED
35	833-697C	LIGHT, AMBER LAMP LED
36	833-696C	LIGHT, RED LAMP - LED

New Parts

Kits: 133-373A 3S-5000 10" SMALL SEEDS BUNDL
 133-374A 3S-5000 7.5" SMALL SEEDS BUNDL
 133-375A 3S-5000 6" SMALL SEEDS BUNDL
 133-376A 3S-5000 6" FERT SM SEEDS BUNDL
 133-377A 3S-5000 7.5" FERT SM SEED BNDL
 133-378A 3S-5000 10" FERT SM SEED BNDL

Call-out	Part Number	Part Description
101	123-020D	HANDLE MOUNT RH GUARD
102	123-021D	HANDLE MOUNT LH GUARD
103	123-050H	ADJUSTMENT HANDLE PIVOT
104	123-113D	LOCK TAB
105	123-116D	SEED ADJUSTMENT SPOOL
106	123-118D	SEED ADJUSTMENT SUPPORT
107	123-356D	10' EWNT SGS LID LATCH
108	123-409D	RMVBL SMALL SEED BOX PARTITION
109	123-410D	GAUGE MOUNTING BRACKET
110	123-476H	REAR SEED RATE ADJ HANDLE WLD
111	123-491D	HANDLE MOUNT LH CHAIN GUARD
112	123-492D	HANDLE MOUNT RH CHAIN GUARD
113	133-051H	SLOTTED IDLER ARM 1/2 X 3 5/16
114	123-834H	SML SDS DRIVE SPKT HUB 27T
115	123-939H	SMALL SEEDS TUBE WELDMENT
116	133-024D	RND SHAFT 3/4 X 11 W/KW
117	133-101D	SML SDS ON FERT JS
118	133-116D	5000 SML SDS CUP DRV SHAFT 6"
119	133-118D	5000 SML SDS CUP SHAFT 6"
120	133-120D	3S-5000 SML SDS DRIVE CPLG
121	133-121D	SPACER BRACKET
122	133-122D	5000 CTR SML SDS CUP SHAFT 6"
123	133-125D	5000 CTR SML SDS CUP SHAFT 6"
124	133-126D	5000 LH SML SDS CUP SHAFT 6"
125	133-128D	5000 SML SDS CUP SHAFT 7.5"
126	133-128H	SGS SIDE DELIVERY TUBE
127	133-130D	5000 SML SDS CUP DRV SHAFT 7.5
128	133-132D	5000 CTR SML SDS CUP SHAFT 7.5
129	133-134D	5000 CTR SML SDS CUP SHAFT 7.5
130	133-136D	5000 SML SDS CUP SHAFT 10"
131	133-138D	5000 SML SDS CUP DRV SHAFT 10
132	133-140D	5000 CTR SML SDS CUP SHAFT 10
133	133-142D	5000 CTR SML SDS CUP SHAFT 10

Call-out	Part Number	Part Description
134	133-323H	SML SDS ON FERT JS MNT WLMT
135	133-324K	SML SDS ON FERT JS MNT ASY
136	133-379H	SML SDS CTR MOUNT WLDM
137	133-380H	SML SDS LH MOUNT WLDM
138	133-381K	5000 SMLSDS RH MOUNT&DRIVE ASY
139	133-382H	SML SDS RH MOUNT WLDM W/ DRIVE
140	133-383K	3S5000 SGS RW RH BOX ASY 6 IN
141	133-384H	5000 SML SDS BOX 6 IN LH
142	133-385H	5000 LH SML SDS LID
143	133-386K	3S5000 SGS RW LH BOX ASY 6 IN
144	133-387H	5000 SML SDS BOX 6 IN LH
145	133-388K	3S5000 SGS CT LH BOX ASY 6 IN
146	133-389H	5000 SML SDS BOX 6 IN CTR
147	133-390H	5000 CTR SML SDS LID
148	133-391K	3S5000 SGS CT RH BOX ASY 6 IN
149	133-392H	5000 SML SDS BOX 6 IN CTR
150	133-393K	3S5000 SGS LW LH BOX ASY 6 IN
151	133-394K	3S5000 SGS LW RH BOX ASY 6 IN
152	133-395K	3S5000 SGS RW LH BOX ASY 7.5IN
153	133-396H	5000 SML SDS BOX 7.5 IN LH
154	133-397K	3S5000 SGS RW RH BOX ASY 7.5IN
155	133-398H	5000 SML SDS BOX 7.5 IN RH
156	133-399K	3S5000 SGS CT LH BOX ASY 7.5IN
157	133-400H	5000 SML SDS BOX 7.5 IN CTR
158	133-401K	3S5000 SGS CT RH BOX ASY 7.5IN
159	133-402H	5000 SML SDS BOX 7.5 IN CTR
160	133-403K	3S5000 SGS LW LH BOX ASY 7.5IN
161	133-404K	3S5000 SGS LW RH BOX ASY 7.5IN
162	133-405K	3S5000 SGS RW LH BOX ASY 10 IN
163	133-406H	5000 SML SDS BOX 10 IN LH
164	133-407K	3S5000 SGS RW RH BOX ASY 10 IN
165	133-408H	5000 SML SDS BOX 10 IN RH
166	133-409K	3S5000 SGS CT LH BOX ASY 10 IN

Call-out	Part Number	Part Description
167	133-410H	5000 SML SDS BOX 10 IN CRT
168	133-411K	3S5000 SGS CT RH BOX ASY 10 IN
169	133-412H	5000 SML SDS BOX 10 IN CTR
170	133-413K	3S5000 SGS LW LH BOX ASY 10 IN
171	133-414K	3S5000 SGS LW RH BOX ASY 10 IN
172	133-415M	MANUAL 3S5000 SMALL SEEDS
173	136-064D	CHAIN RL #40 51 PITCHES
174	136-078D	CHAIN RL #40 52 PITCHES
175	136-104D	CHAIN RL #40 62 PITCHES
176	136-154D	CHAIN RL #40 214 PITCHES
177	166-389D	AUGER PIVOT ARM LOCK TUBE
178	168-127D	3/16 X 1 KEY
179	171-059D	3/16 LIGHT PLATE MIN TILL
180	195-269H	40'-3S FERT DRIVE WELDMENT RH
181	195-271D	HEX SHAFT 7/8,4000 FERT JS RH
182	195-310H	WALKBOARD EXTENSION LH
183	195-311H	WALKBOARD EXTENSION RH
184	195-422D	HEX SHAFT 7/8,5000 FERT JS CTR
185	195-430D	HEX SHAFT 7/8,5000 FERT JS LH
186	800-028C	SNAP RING .875
187	800-101C	RIVET POP 1/8 .125 AD42BSLF
188	800-321C	HOSE CLAMP NO.12 3/4 ID
189	801-001C	SCREW RD HD 8-32 X 3/8 BRASS
190	801-002C	SCREW HEX SLT10-16X1/2P.THD CT
191	801-003C	SCREW RD HD SLT 10-24X1/2 PLT
192	801-035C	SCREW SET 5/16-18 SKT KP X 3/8
193	801-170C	SCREW PAN HD 4X3/8 TYPE 25
194	802-004C	HHCS 1/4-20X3/4 GR5
195	802-034C	HHCS 1/2-13X1 1/4 GR5
196	802-039C	HHCS 1/2-13X3 GR5
197	802-041C	HHCS 1/2-13X3 1/2 GR5
198	802-078C	HHCS 1/4-20X5/8 GR5
199	802-092C	RHSNB 5/16-18X3/4 GR5
200	802-128C	HHCS 1/2-13X2 GR5
201	802-148C	HFSS 1/4-20X1/2 GR5
202	802-162C	HHCS 5/8-11X3 1/2 GR5
203	802-203C	HFSS 1/2-13X1 1/2 GR5
204	802-214C	RHSNB 1/2-13X1 1/4 GR5
205	802-282C	RHSNB 5/16-18X1 GR5
206	802-388C	HFS 3/8-16X1 GR5

Call-out	Part Number	Part Description
207	802-427C	HFS 3/8-16X3 3/4 SPTHD
208	802-815C	HFS 5/16-18X1 1/2 GR5
209	803-001C	NUT HEX 10-24 PLT
210	803-006C	NUT HEX 1/4-20 PLT
211	803-007C	NUT LOCK 1/4-20 PLT
212	803-008C	NUT HEX 5/16-18 PLT
213	803-014C	NUT HEX 3/8-16 PLT
214	803-020C	NUT HEX 1/2-13 PLT
215	803-021C	NUT HEX 5/8-11 PLT
216	803-035C	NUT HEX 8-32 BRASS
217	803-036C	NUT HEX JAM 1/2-13 PLT
218	803-058C	NUT WING 5/16-18
219	803-199C	NUT HEX FLANGE 5/16-18 PLT
220	803-209C	NUT FLANGE LOCK 3/8-16 PLT
221	804-002C	WASHER INTERNAL STAR #8 BRASS
222	804-003C	WASHER FLAT #8 BRASS
223	804-004C	WASHER INTERNAL STAR #10 PLT
224	804-006C	WASHER LOCK SPRING 1/4 PLT
225	804-009C	WASHER LOCK SPRING 5/16 PLT
226	804-012C	WASHER FLAT 3/8 SAE PLT
227	804-013C	WASHER LOCK SPRING 3/8 PLT
228	804-015C	WASHER LOCK SPRING 1/2 PLT
229	804-016C	WASHER FLAT 1/2 SAE PLT
230	804-022C	WASHER LOCK SPRING 5/8 PLT
231	804-036C	WASHER FLAT 5/16 SAE PLT
232	804-042C	WASHER GRASS SEEDER CUP SHAFT
233	804-044C	WASHER MACH 1.38 X .876 X .048
234	804-046C	WASHER FLAT #10 SAE PLT
235	804-061C	WASHER MACH 1.50 X 1.00 X 18GA
236	804-075C	WASHER FLAT 1/4 USS PLT
237	804-095C	WASHER FLAT 5/8 HARD ASTM F436
238	804-113C	WASHER FLAT 1/2 USS HARD PLT
239	805-019C	PIN COTTER 5/32 X 1 PLT
240	805-023C	PIN ROLL 3/16X1 1/4 PLT
241	805-067C	PIN COTTER 1/8 X 3/4
242	805-180C	PIN ROLL 1/4 X 1 1/2 LG PLT
243	806-060C	U-BOLT 1/2-13 X 6 1/32 X 7 1/4
244	808-046C	SPKT 40A17 IDLER
245	808-170C	SPKT 40B17 X 3/4BORE W/KW&SS
246	808-194C	SPKT 40B22 7/8 HEX BORE & SS

Call -out	Part Number	Part Description
247	808-256C	SPKT 40C23 X 7/8 HEX BORE
248	808-259C	SPKT 40B14 X 7/8 HEX BORE
249	816-112C	RUBBER LATCH 37-11-065-10
250	816-113C	LATCH KEEPER 37-15-061-17
251	816-358C	SGS HOSE 122 RIBS
252	817-009C	GRASS SEEDER SLEEVE
253	817-010C	GRASS SEEDER SPROCKET
254	817-025C	NO. 40 12T IDLER SPKT.
255	817-026C	HANGER DRIVE SHAFT
256	817-501C	SML SEED FEEDER CUP TOP HALF
257	817-502C	SML SEED FEEDER CUP BOTOM HALF
258	817-504C	SML SEED FEEDER CUP ASSY
259	817-511C	SEEDER CUP SPROCKET WASHER
260	817-806C	SMALL SEEDS CUP WIND SHIELD
261	819-041C	SEED ADJUSTMENT GUIDE
262	822-032C	FLANGETTE 52 MST
263	822-119C	BRG 7/8HEXX2.05OD SPH
264	822-126C	BRG FLG .75ID 2BOLT
265	838-160C	DECAL 3 COLOR STRIPE 2.50 WIDE
266	838-467C	DECAL SMALL SEEDS DANGER
267	848-811C	DECAL, 3S-5000
268	848-911C	DECAL GP&LOGO HARVEST/3X20 STR
269	890-349C	3/8 SHAFT LOCKING COLLAR

Abbreviations

11T	Number of sprocket teeth	MST	Metric Spherical Two-hole
3S	Three Section	OD	Outside Diameter
#40	Number 40 chain size	PLT	Plated
ADJ	Adjustment	RD	Round
ASTM	American Society of Testing & Materials (stds)	RH	Right Hand
ASY	Assembly	RHSNB	Round Head Square Neck Bolt
BRG	Bearing	RL	Roller
CPLG	Coupling	RMVBL	Removable
CT	Cutting or Center	RND	Round
CTR	Center	RW	Right Wing
DR	Drive	SAE	Society of Automotive Engineers (standards)
EWNT	End Wheel No Till	SDS	Seeds
FERT	Fertilizer	SGS	Small Grass Seeds
FLG	Flanged	SLT	Slotted
GALV	Galvanized	SML	Small
GP	Great Plains	SMV	Slow Moving Vehicle
GR5	Grade 5	SPH	Spherical
HD	Heavy Duty	SPKT	Sprocket
HEX	Hexagonal (6-sided)	SPTHD	Special Thread
HFS	Hex Flange Screw	SS	Set Screw
HFSS	Hex Flange Serrated Screw	STR	Stripe
HHCS	Hex Head Cap Screw (Bolt)	TB	Tube
ID	Inside Diameter	THD	Thread
IN	Inch	THD CT	Thread Cutting (self-tapping)
JS	Jackshaft	USS	United States Standard (heavy duty standard)
KW	Keyway	W/	with
LG	Long	WLD	Weldment
LH	Left Hand	WLDM	Weldment
LW	Left Wing	WLMT	Weldment
MACH	Machine	X	by
MNT	Mount		



Great Plains, Mfg.
1525 E. North St.
P.O. Box 5060
Salina, KS 67402