



Installation Instructions for EWD13 and EWF13 Sprocket Box Update

Before Getting Started

Before you begin installation of your Sprocket Box Update, read these instructions carefully and check that all parts and tools in kit are accounted for. All hand and specialty tools for installation are provided at owner's expense. Please retain these installation instructions for future reference and parts ordering information.

These installation instructions contain information for assembling the Sprocket Box Update to the main machine. Please read all instructions in your EWD13 and EWF13 operator manual thoroughly before proceeding. Your operator manual includes information on operation, adjustment, troubleshooting, and maintenance for this attachment (some manual sections do not apply to all accessories).

See page 8 and page 9 of these instructions to adjust the seeding rate with the new sprocket box. These instructions replace the "Seed Calibration" section in the operator's manual originally provided with your drill. As reference, save page 8 and page 9 of these instructions with your operator's manual. A copy of the updated parts manual is available through your Great Plains dealer.

General Information

These instructions explain how to install and adjust the sprocket- box update. The sprocket box replaces the original gearbox on Great Plains end-wheel drills. This modification improves the performance and reliability of the original equipment.

Sprocket Box Update	Reference Number
13-Foot EW Sprocket Box Update	152-207A

Refer to page 3 for a detailed list of parts included in these kits. Use these lists to inventory parts received.

Tools Required

The following tools are required for installation:

- General hand tools

Refer to page 11 for torque values chart.

Document Family

All manuals related to this kit are available free of charge by visiting www.greatplainsag.com. Have machine model and serial numbers available when looking for the manual you need.

175-083M 13-Foot EW Drill Operator's Manual

175-083P 13-Foot EW Parts Manual

Using This Manual

This manual was written to help you install and prepare your new kit. The manual includes instructions for installation and setup. Read this manual and follow the recommendations for safe, efficient, and proper assembly and setup.

Refer to the drill operator's manual for detailed information on safely operating, adjusting, troubleshooting and maintaining the drill. Refer to the drill parts manual for part identification.

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

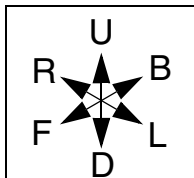
Use this kit only in conjunction with a Great Plains implement.

Safety & Symbol Information



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!

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



NOTICE

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.

Call-Outs

① to ⑨ Single-digit callouts identify components in the currently referenced Figure.

⑪ and up Two-digit callouts in the range 11 to 15 reference new parts from the list on <add page #>.

Be Aware of Signal Words

The following signal words designate a degree or level of hazard seriousness. Take the necessary precautions and exercise sound judgment.

DANGER

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

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

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.

Further Assistance

Great Plains Manufacturing, Inc. wants you to be satisfied with your new Implement Type. 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.
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.

Kit Contents

Callout	Part Number	Part Description	Qty.
11	123-004D	KEY 1/4 X 1	1
12	136-023D	CHAIN RL #40 84 PITCHES	1
13	136-055D	CHAIN RL #40 119 PITCHES	1
14	152-196K	13' SPROCKET BOX ASSEMBLY	1
15	152-208M	MANUAL 13 EW SPKT BOX UPDT	1
16	152-402D	13' IDLER SUPPORT PLATE	1
17	152-405D	13' EW LOWER JACK SHAFT	1
18	152-409D	13' LIFT LUG UPDATE	2
19	152-410D	13' LIFT LUG SPACER UPDATE	1
20	152-434D	SPKT BOX JS SUPPORT ARM	1
21	175-041H	MOUNTING STRAP WELDMENT	1
22	175-053D	OPENER LIFT LINK	1
23	175-054D	PIVOT ARM CHANNEL	1
24	802-004C	HHCS 1/4-20X3/4 GR5	1
25	802-017C	HHCS 3/8-16X1 GR5	2
26	802-055C	HHCS 5/8-11X2 GR5	3
27	802-159C	HHCS 5/16-18X1 GR5	4
28	802-282C	RHSNB 5/16-18X1 GR5	4
29	803-006C	NUT HEX 1/4-20 PLT	1
30	803-008C	NUT HEX 5/16-18 PLT	8
31	803-014C	NUT HEX 3/8-16 PLT	2
32	803-021C	NUT HEX 5/8-11 PLT	2
33	803-023C	NUT HEX JAM 5/8-11 PLT	6
34	804-006C	WASHER LOCK SPRING 1/4 PLT	1
35	804-009C	WASHER LOCK SPRING 5/16 PLT	8
36	804-010C	WASHER FLAT 5/16 USS PLT	8
37	804-011C	WASHER FLAT 3/8 USS PLT	2
38	804-013C	WASHER LOCK SPRING 3/8 PLT	2
39	804-021C	WASHER FLAT 5/8 SAE PLT	6
40	804-022C	WASHER LOCK SPRING 5/8 PLT	5
41	804-025C	WASHER FLAT 3/4 SAE PLT	2
42	804-075C	WASHER FLAT 1/4 USS PLT	1
43	805-045C	PIN COTTER 5/32 X 1 1/4 LG	2
44	805-083C	PIN CLVS .75X1.50 USBL HT	2
45	808-024C	SPKT 40B12 X 1 BORE	1
46	808-046C	SPKT 40A17 IDLER W/BRG	3
48	822-032C	FLANGETTE 52 MST	4
47	822-060C	BRG INS 1.00IDX2.04OD SPH	1
49	822-119C	BRG 7/8HEXX2.05OD SPH	1

Disassembling the Gearbox

1. Remove end-wheel-output and gearbox-output chains.
2. If your drill has 7-, 8- or 10-inch row spacings, you must install a new opener-lift arm and remove the existing arm. If your drill has 6- or 7.5-inch row spacings, proceed to step 3.

To reposition the opener-lift arm, refer to Figure 1.

- a. Assemble the clamp on the square opener shaft (1). Place the channel bracket (2) over the link arms (3). Position the clamp $6 \frac{7}{16}$ inches from the frame plate. Secure to shaft with the mounting strap (4), 5/8-inch washers and bolts.
- b. Using a 3/4-inch clevis and cotter pin, pin the link arm (5) to the newly installed clamp.

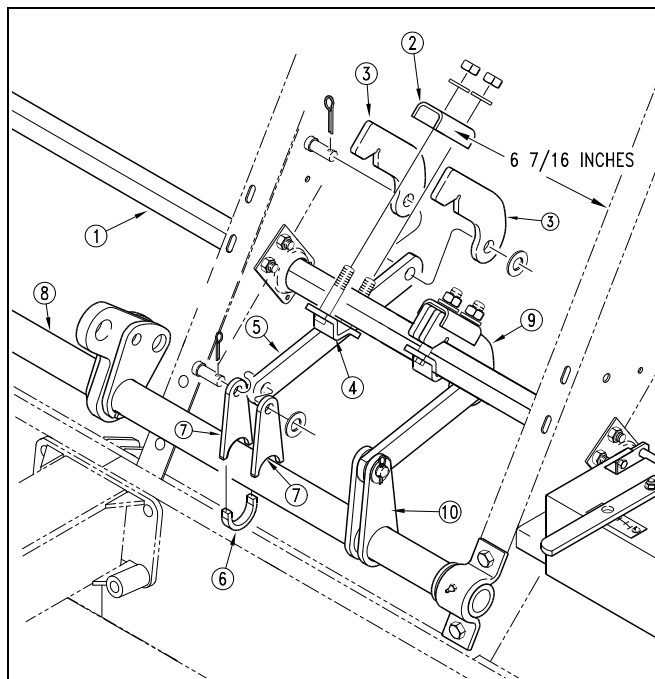


Figure 1
Opener Lift Arm

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- c. Weld the mount collar (6) and double ears (7) on the pivot tube (8) so you can pin the link arm to the ears. Use the link arm as a guide to properly position the collar and ears on the tube. Refer to Figure 2 for general dimensions.
- d. Pin the link arm to the double ears using the 3/4-inch clevis and cotter pins.
- e. Remove existing opener-lift arm (9) by torching off the double ears (10). Cut the ears 1/4 inch above the pivot tube. Disassemble the existing opener-shaft clamp. Discard all disassembled parts.
- f. Spray paint the pivot tube with the paint provided. Thoroughly cover the welds and any paint damage.

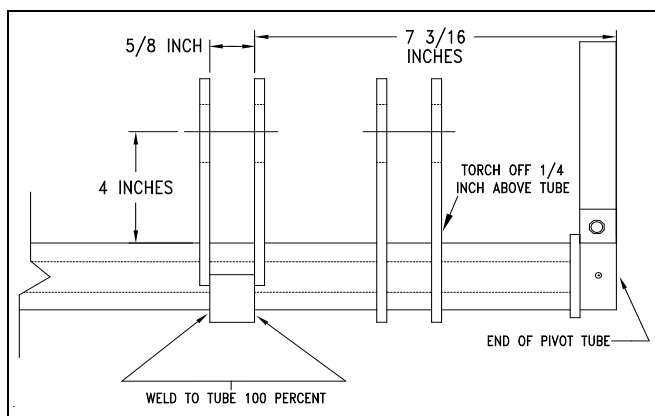


Figure 2
Weld and Torch Diagram

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Refer to Figure 3

3. Disassemble acrometer. Unscrew acrometer (1) off shaft. Remove the 5/16-inch bolts (2), washers and nuts (3). Remove bearings (4). Save acrometer, bolts, washers, nuts and bearings for later reinstallation.

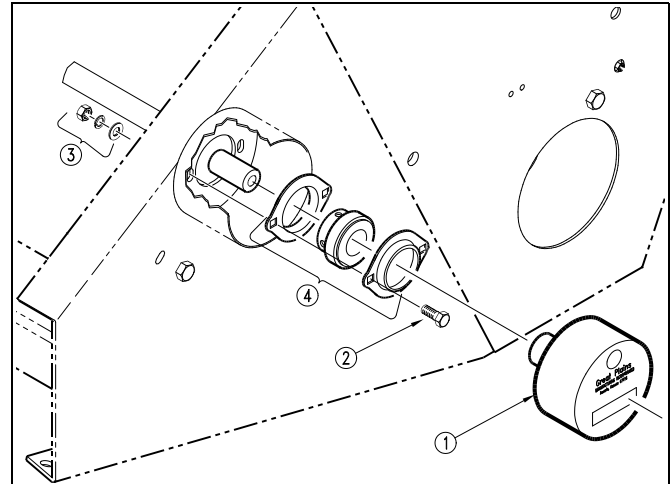


Figure 3
Acrometer Disassembly

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Refer to Figure 4

4. Remove jackshaft. Remove snap ring and miter gear (1) from gearbox end of shaft. Disconnect clutch link arm (2) from clutch (3). Slide shaft (4) out of bearings, clutch and side wall. Save clutch for later reinstallation.

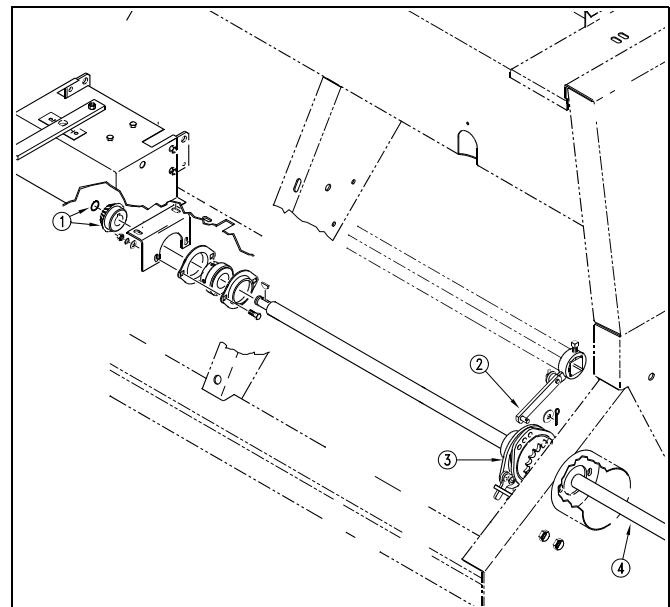


Figure 4
Jackshaft Removal

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Refer to Figure 5

5. Remove gearbox. Remove 1/4-inch bolts (1), washers and nuts (2) that hold the gearbox cover on mounting plate. Remove the bolts and washers (3) that hold the bearing bracket to the mounting plate and gearbox transmission. Remove the snap ring and miter gear (4). Lift the gearbox off the mounting plate.

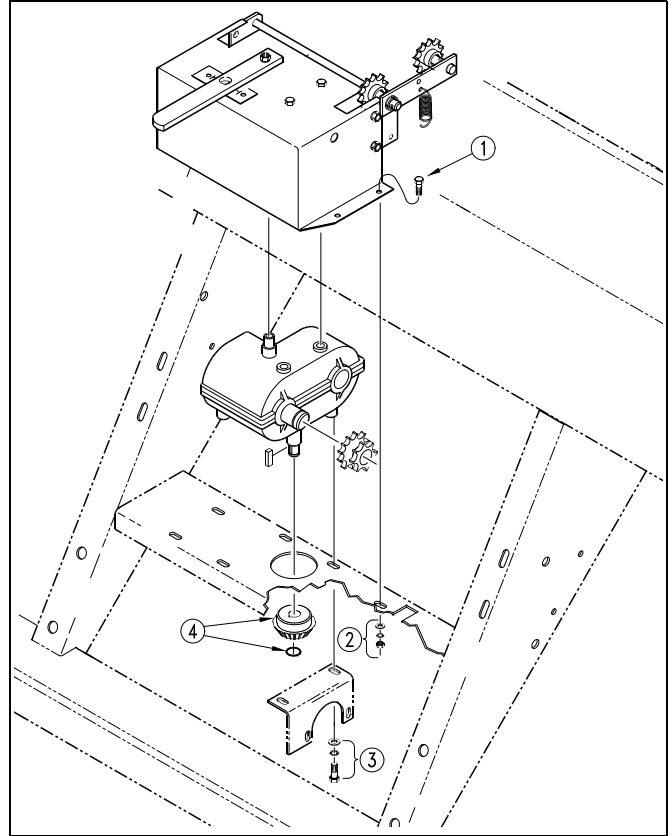


Figure 5
Gearbox Removal

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Installing the Sprocket Box

Refer to Figure 6

1. Drill two 13/32-inch holes for idler bracket. First, bolt the idler bracket (1) to the mounting plate (2) using a 1/4-inch bolt (3), washer, lock washer and nut (4) at the location shown. The idler bracket will wrap around the right-hand side of the frame plate (5). Use the two bolt holes (6) in the bracket as a guide for where to drill. When finished drilling, unbolt the idler bracket from the mounting plate.
2. Assemble bearings (7) on the idler bracket using 5/16-inch bolts (8), washers, lock washers and nuts (9).
3. Assemble idlers (10) on idler bracket. Bolt the idlers to the bracket in the order shown (sprocket, 5/8-inch nut, flat washer, bracket, flat washer, lock washer, nut).
4. Mount the idler bracket on the mounting plate and through the frame-plate holes drilled in step 1. Mount the idler bracket to the frame plate using 3/8-inch bolts (11), washers, lock washers and nuts (12).
5. Install sprocket box. Bolt the box (13) to the mounting plate through four holes using 5/16-inch bolts (14), washers, lock washers and nuts (15).
6. Install new jackshaft. Slide jackshaft (16) through side wall and clutch, under mounting plate and through idler bracket. Install the 12-tooth sprocket (17) on the end of the shaft and secure with the 1/4-inch key (18).
7. Route 119-pitch chain (19) over sprocket-box input and idlers as shown. Route 84-pitch chain (20) over gearbox output, idler and seed-cup-shaft input as shown.
8. Reconnect clutch-link arm and reinstall gauge-wheel-to-jackshaft chain. Reassemble acremeter.

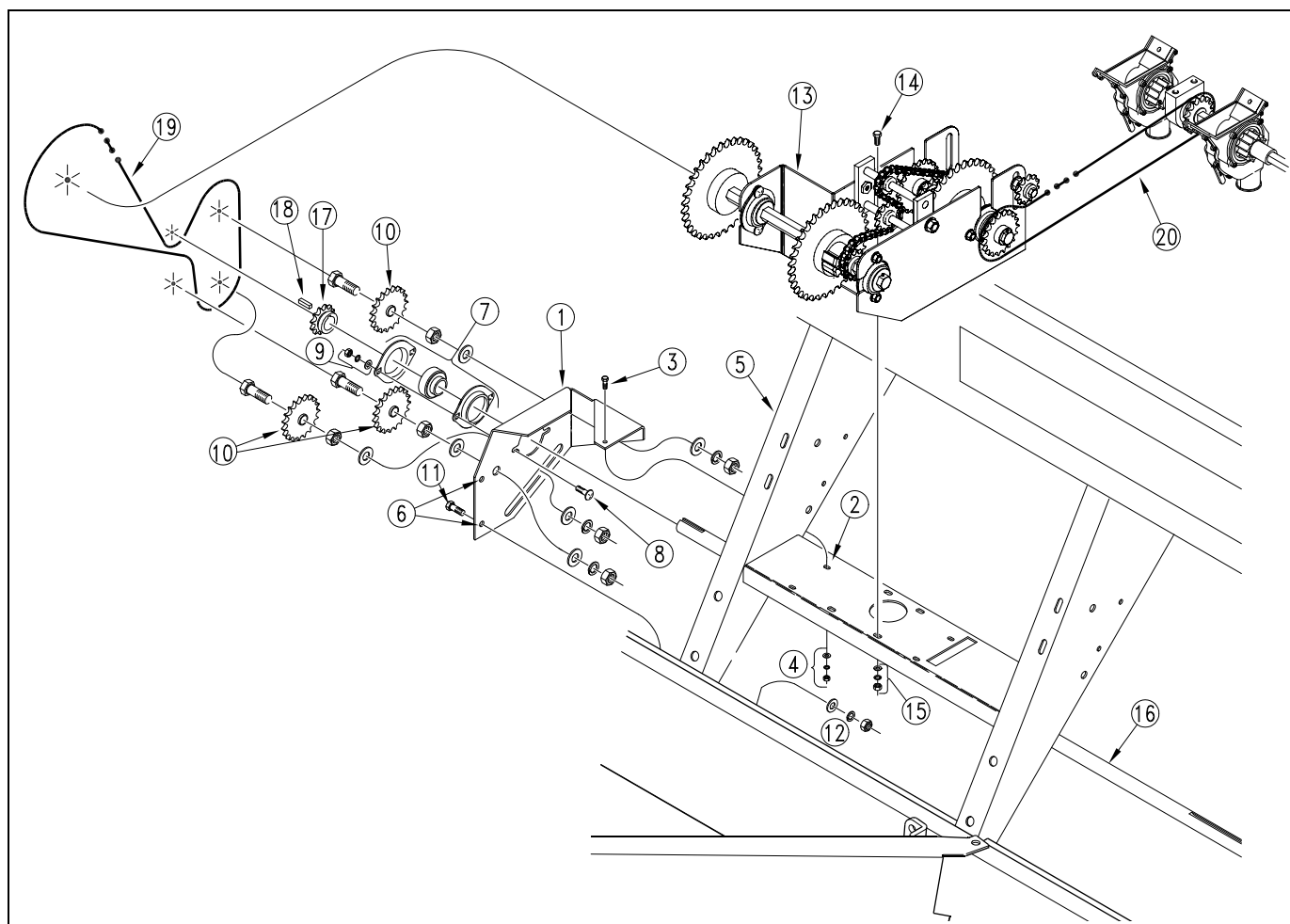


Figure 6
Idler Plate and Gearbox Installation

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Seeding Adjustment

Calibrating the seeding rate requires four steps: arranging the drive sprockets, setting the seed-rate handle, positioning the seed-cup doors, and checking the seeding rate.

Refer to the seed-rate charts. These charts list the proper sprocket sizes and seed-rate-handle settings for various seeds and seeding rates.

The seed-rate charts are based on cleaned, untreated seed of average size and test weight. The charts are based on 9.5 x 20 rib implement tires. Many factors will affect seeding rates including foreign material, seed treatment, seed size, field conditions, tire pressure and test weight. You likely will need to make minor adjustments. Set and check the seeding rate using the procedures below, then re-adjust the rate as necessary.

Note: A pea-drive adaptor kit is available for the 13-foot end-wheel drill. Different seed-rate charts are included in the pea-drive kit.

Change Drive Sprockets

The seed-rate charts in your operator's manual and in your drill box list drive types as 1, 1A, 2 or 2A. Refer to the seed-rate charts for the correct drive type.

Figure 7 shows sprocket sizes for each drive type.

Drive Types
Type 2 is Slowest
Type 2A is Two Times Faster than Type 2
Type 1 is Three Times Faster Than Type 2
Type 1A is Five Times Faster than Type 2

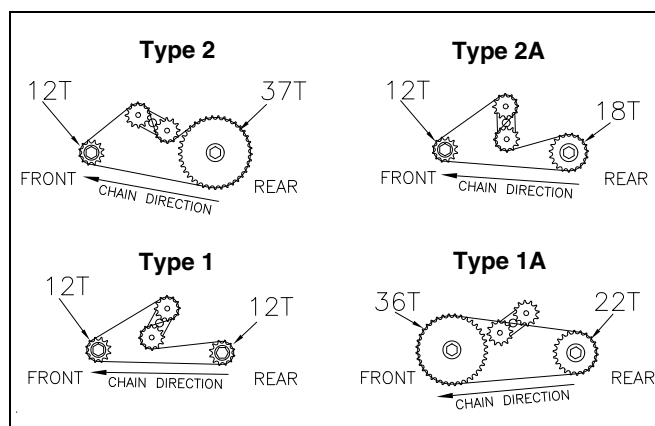


Figure 7
Sprocket-Box Drive Types

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To change the drive types:

1. Refer to Figure 8. Loosen the nut (1) holding the idler arm (2) and turn arm so chain is slack. Remove chain from sprockets.

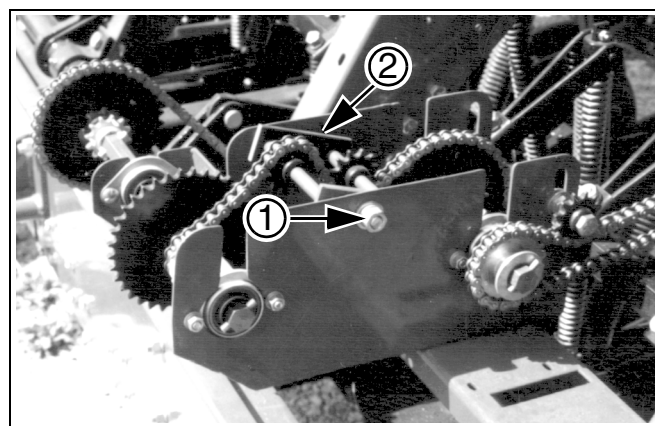


Figure 8
Loosen Idler Spacer

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2. Refer to Figure 9. Rearrange sprocket (1) and plastic spacers (2) on front shaft so the proper front and rear sprockets are aligned according to drive type.
3. Slide idlers on idler arms so they are aligned with correct sprockets. Reinstall chain.
4. Turn idler arm as indicated by drive type to remove slack from chain. Retighten nut that holds idler arm.

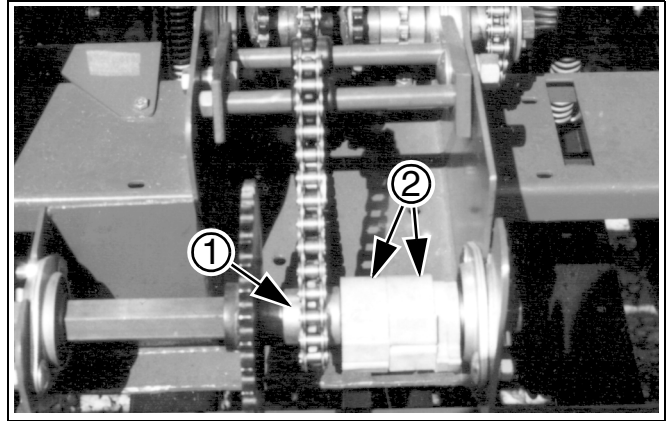


Figure 9
Loosen Idler Spacer

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Set Seed-Rate Handle

Position the handle shown in Figure 10 to the setting indicated on the chart. To adjust the handle, loosen the wing nut under the handle and slide until the indicator lines up with the correct setting.

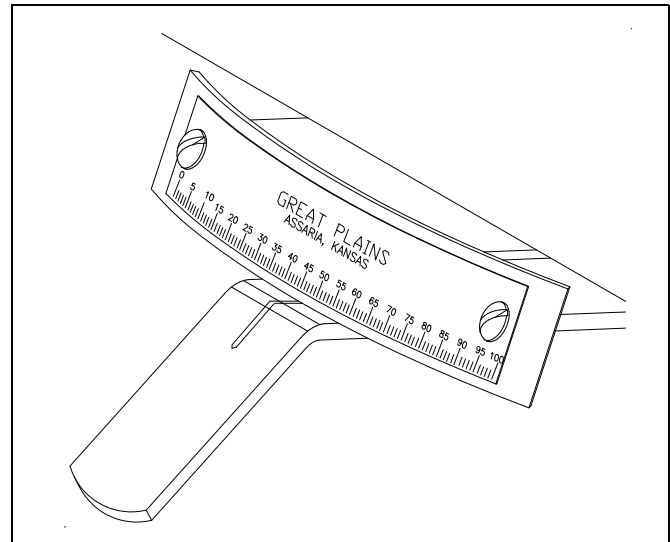


Figure 10
Seed-Rate Handle

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Position Seed-Cup Doors

For wheat and other small seeds, move the seed-cup-door handles to the highest position. For soybeans and other large seeds, lower the handles to the second position. If excessive seed cracking occurs, lower the handles to the third position. Move the handles to the fourth, wide-open position for seed-cup clean out. Make sure all handles are in the same position before drilling.

Check Seeding Rate

1. Hydraulically lower the drill to planting position to activate clutch.
 2. Check that your gauge-wheel tires are 9.5 x 20 rib implement and properly inflated. Refer to *Tire Inflation Chart* in your operator's manual.
 3. Jack the drive (left) end wheel off the ground. Rotate the wheel to see that the drive system is working properly and seed cups are free from foreign material.
 4. Record the weight of an empty container large enough to hold the seed metered for one acre.
 5. Place several pounds of seed over three seed cups on an outside end of the drill box. Pull the seed tubes off of these three openers.
 6. Turn the drive wheel several times to fill the seed cups. Turn wheel until seed drops to the ground from each seed cup.
 7. Place a container under the three tubes to gather metered seed.
 8. Rotate the drive wheel until one acre has been tallied on the acremeter. This will be 348 rotations on a 13-foot drill. Check that the three seed cups have plenty of seed coming into them.
 9. Weigh the metered seed. Subtract the initial weight of the container. Divide by three. Multiply by the number of openers on your drill to determine total pounds-per-acre seeded. If this figure is different than desired, reset sprockets accordingly.
- Note: You may want to repeat the calibration procedure if your results vary greatly from the seed-rate chart.
10. When drilling, check the rate by noting acres drilled, amount of seed added to drill and seed level in drill box. If you are seeding more or less than desired, adjust the rate slightly to compensate for field conditions.

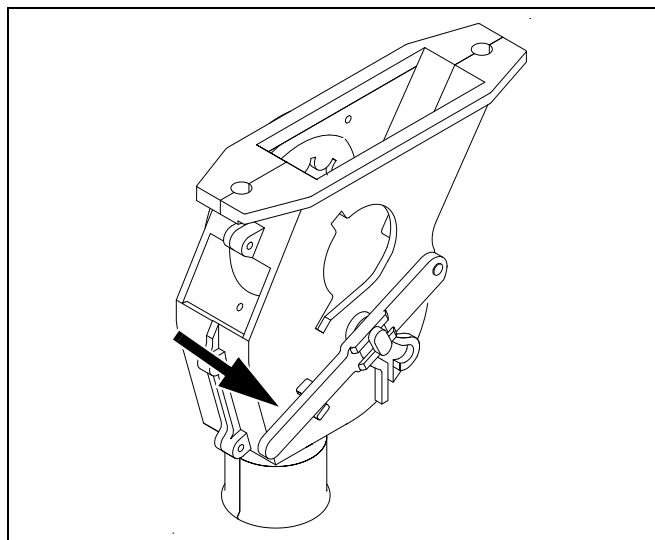








Figure 11
Seed-Cup-Door Handle

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Torque Values Chart

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.

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