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Planter

EFFECTIVE S/N HT AND LATER

SERVICE MANUAL

4283411M1

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SPROCKETS

Sprocket Wear

A worn roller chain must never be used with new sprockets since the chain no longer fits the sprocket teeth properly. A worn roller chain rides high on the outer tips of the sprocket teeth, causing rapid wear on the outer tips of the sprocket teeth.

Chain tension that is not correct can cause wear that is not normal on the outer tips of the sprocket teeth.

Not enough lubrication can cause sprocket tooth wear that is not normal.

Worn sprockets must never be used with new roller chain. Worn roller chain must never be used with new sprockets.

Sprocket Alignment

Periodically check the alignment of all sprockets. Correct any problems that may be found. Sprocket alignment that is not correct is seen by wear on the sides of the sprocket teeth and on the inside of the chain links.

Correct sprocket alignment is important for long roller chain service life.

Make sure that:

The sprockets must be in line. Use a straightedge to check the sprockets.

Sprockets that are not in line will result in loading that is not even across the width of the chain and can cause early chain failure.

CHAIN GUARD (OPTIONAL)

FIG. 2: Some units are equipped with a chain guard (1).

To remove the chain guard, slide off the four clips.

Remove chain guard.

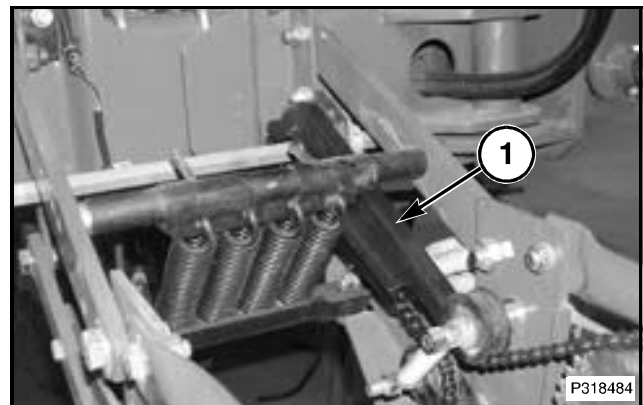


FIG. 2

Drive Chains and Sprockets

SEED METER DRIVE

General Information

FIG. 3: A spring-loaded idler assembly maintains the seed meter drive chain tension.

The chain must be aligned between the bearing assembly sprocket (1), idler pulleys (2), and clutch sprocket assembly (3). Shift the drive sprocket position on the drive shaft to attain correct alignment. Add shims at mounting bolts to align if necessary.

Regularly inspect chains and idlers for excessive wear. Replace as necessary.

Each seed meter is turned by a 20 tooth bearing assembly sprocket (1) on the drive shaft.

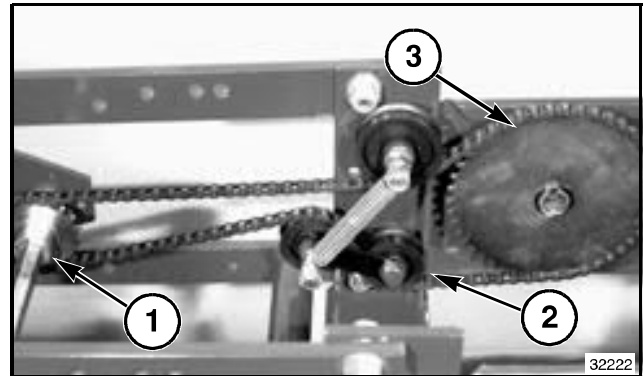


FIG. 3

Removal

FIG. 4: Push down on the idler pulley to relieve tension on the chain.

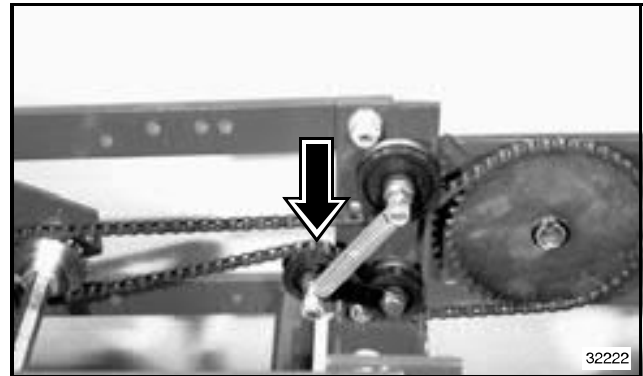


FIG. 4

FIG. 5: Remove the 116 link chain (1).
Inspect chain. Replace chain as required.
The chain has a spring clip to easily disconnect.

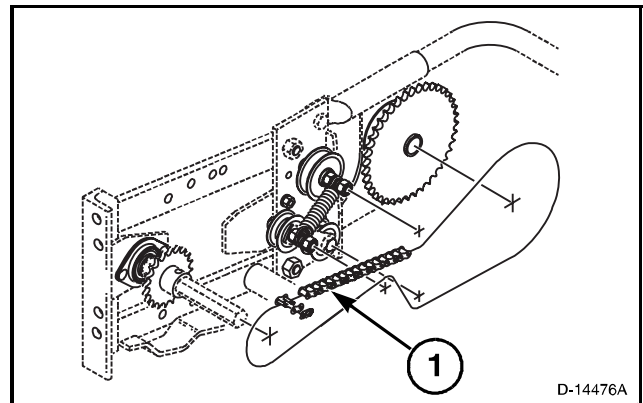


FIG. 5

Installation

Lubricate idler with grease.

Insert chain onto sprockets properly and through the idler assembly.

Push down on the idler pulley and slip chain over the idler pulley with the chain bearing under the other two idler pulleys.

Release idler pulley to increase tension.

IDLER PULLEY

Removal

FIG. 6: Remove the center lock nuts (1) then remove the spring (2).

Slide the top pulley (3), washers (4), and short (5) and long spacer (6) off the cap screw (7). Replace any components that are damaged or worn.

Remove center lock nuts (8).

Remove cap screws (9) and disassemble idler pulley assembly. Replace any components that are damaged or worn.

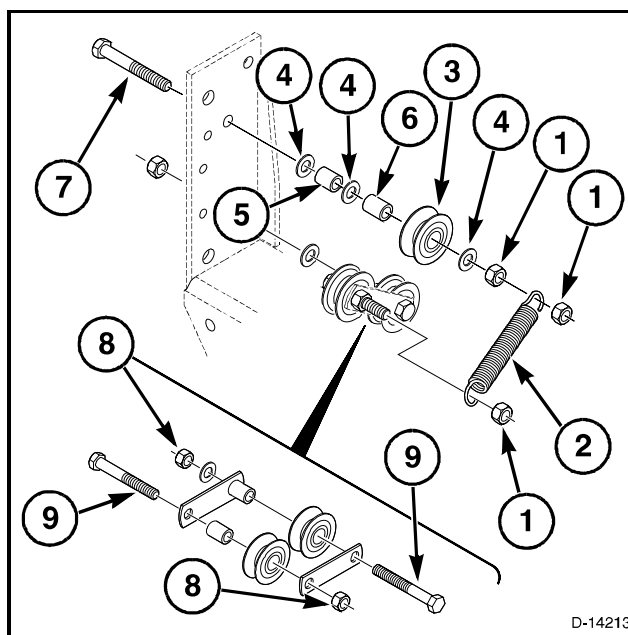


FIG. 6

Installation

FIG. 7: Grease idler pulleys.

Insert cap screw (1) through tightener strap (2), idler (3), spacer (4), chain tightener (5), washer (6), and center lock nut (7). Do not tighten center lock nut. The cap screw must turn freely after assembled.

Install idler pulley and insert cap screw (8) through other half of assemble. When tightening the center lock nut, hold the inner center lock nut, not the cap screw, so that the center lock nuts are tight, but the idler pulley assembly is able to pivot.

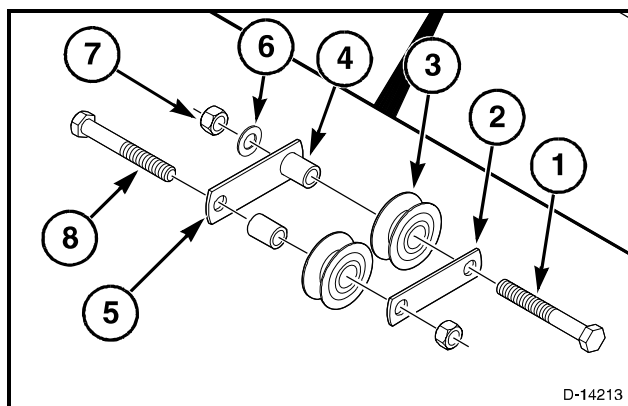


FIG. 7

Drive Chains and Sprockets

FIG. 8: Install idler pulley onto bracket and tighten the center lock nut (1).

Slide the cap screw (2) through the bracket, the washer (3), spacer (4), washer (5), spacer (6), idler (7), washer (8), and tighten on the center lock nut (9). Do not over tighten.

Install spring (10) and the center lock nuts (11).

Install the chain.

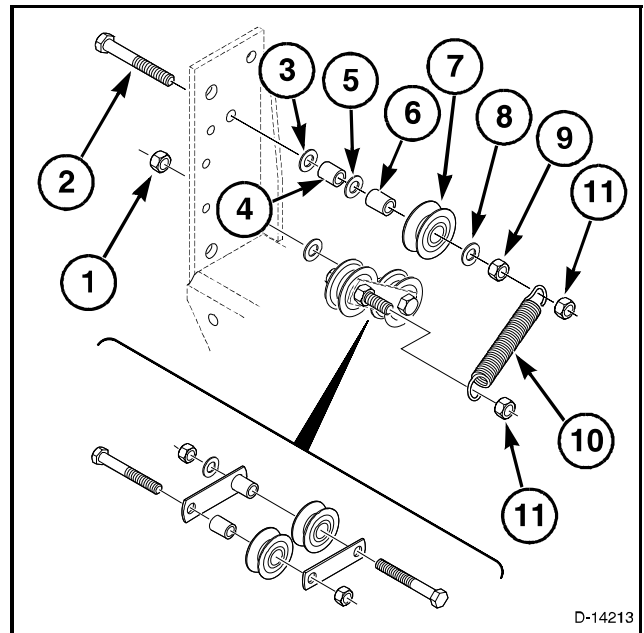


FIG. 8

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SPROCKET ASSEMBLY

Removal

FIG. 9: Remove roller chain (1) from sprocket assembly (2).

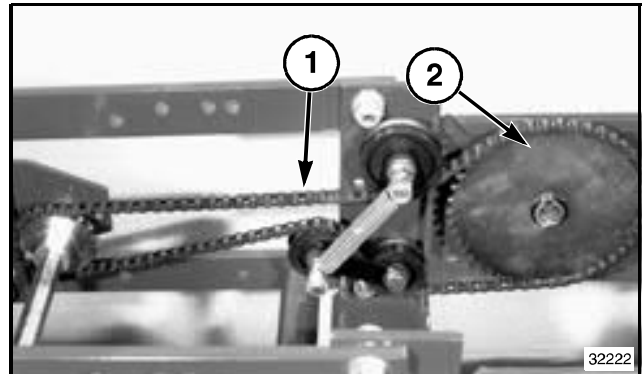


FIG. 9

FIG. 10: Remove the three flange screws (1) from sprocket assembly (2).

Remove the snap ring (3).

Remove the handle ring (4) and second snap ring (5).

Remove the sprocket assembly.

Replace sprocket assembly damaged or worn.

NOTE: The sprocket assembly cannot be serviced separately.

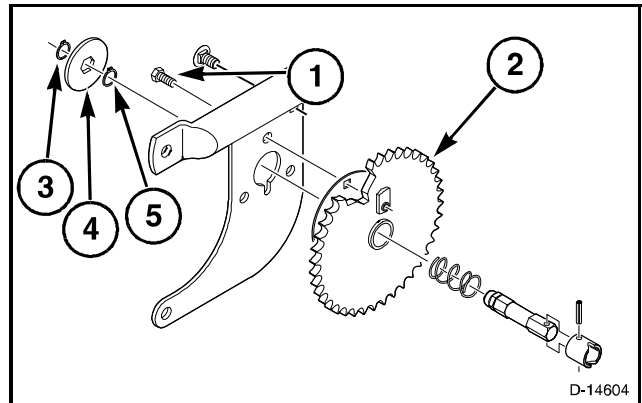


FIG. 10

Installation

FIG. 11: Insert the sprocket assembly (1).

Attach the snap ring (2) onto the shaft.

Install the handle ring (3) and the snap ring (4).

Insert the three flange screws (5) into the sprocket assembly and tighten.

Install roller chain.

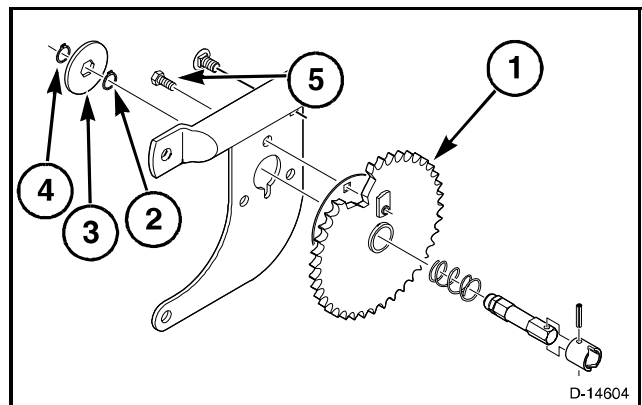


FIG. 11

NOTES

CLUTCH AND COUPLERS

GENERAL INFORMATION

When any one of the clutch or couplers are disassembled refer to the Drive Clutch or the Drive Shaft Couplers section for assembly.

DRIVE CLUTCH

FIG. 12: If any of the drive clutches are disassembled, compress the spring (1) to 64 mm (2-1/2 in) (A) during assembly of clutch.

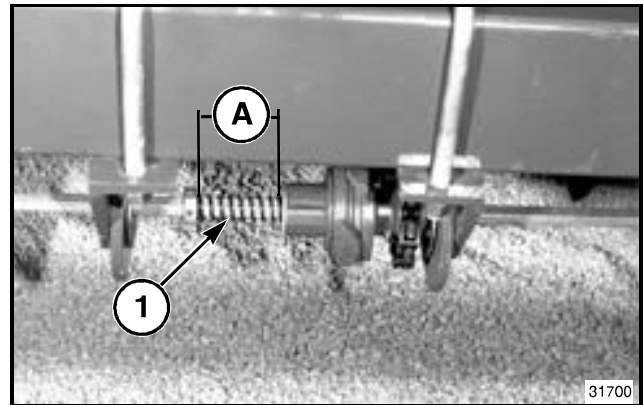


FIG. 12

FIG. 13: Assembly

- (1) Lock collar
- (2) Compression spring
- (3) 15/16 x 2-1/4 x 5/32 hardened washer
- (4) Drive hub
- (5) 1/8-27 grease zerk
- (6) Clutch Stationary
- (7) 3/8-16 x 1-1/4 capscrew, 3/8 spring washer, 3/8 plain wide washer, spacer
- (8) Anchor Strap
- (9) 1/8 x 1-1/4 cotter pin
- (10) Throwout arm
- (11) 2-1/2 x 3-12 x 1/16 washer
- (12) Clutch sprocket hub
- (13) 1/4-20 x 1 capscrew, 1/4 spring washer, 1/4-20 nut
- (14) 22 tooth 50 pitch sprocket
- (15) 1-13/32 x 2-3/16 x 1/16 washers
- (16) Clutch sleeve
- (17) 5/16 x 5/16 x 1-1/2 square key
- (18) Clutch sleeve spacer

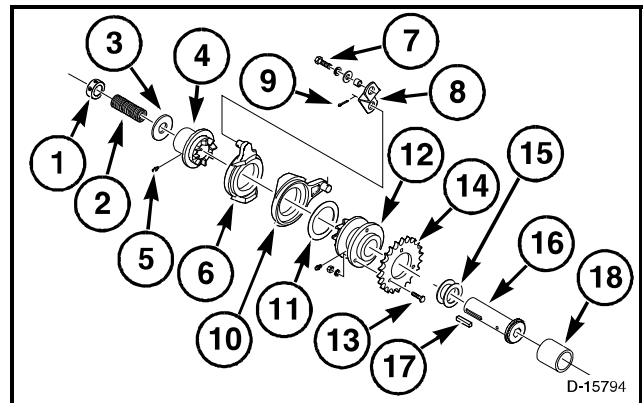


FIG. 13

Clutch and Couplers

DRIVE SHAFT COUPLERS

FIG. 14: The following list of measurements are used for assembly of the drive shaft coupler.

- compress the spring (2) to 63 mm (2.5 in) (A).
- the 5/16 x 2-1/2 roll pin (3) must be a distance of 15 mm (.6 in) (B) from the bottom of the slotted hole.
- adjust the distance between the male coupler (4) and the roll pin to 75.5 mm (3 in) (C).

Wing Shaft (5).

Center Shaft (6).

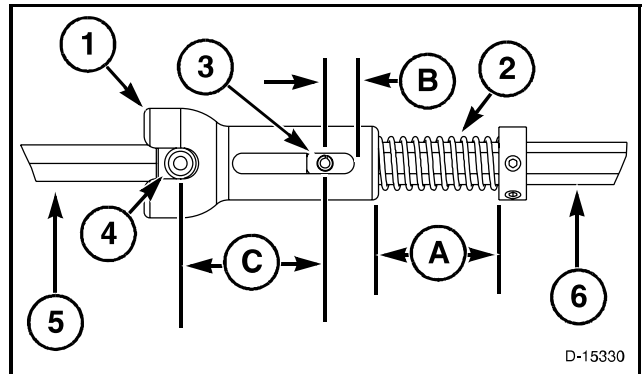


FIG. 14

FIG. 15: The following distances are used for assembly of drive lines.

- 225 - 235 mm (8.9 - 9.3 in.) (A)
Measured from hinge plate (1) to bearing support plate (2) for lower shaft.
- 75 mm (3 in.) (B)
Measured from hinge plate to roll pin (3) hole in row unit shaft.
- 87 mm (3.43 in.) (C)
Measured from hinge plate to roll pin (4) hole in lower shaft.

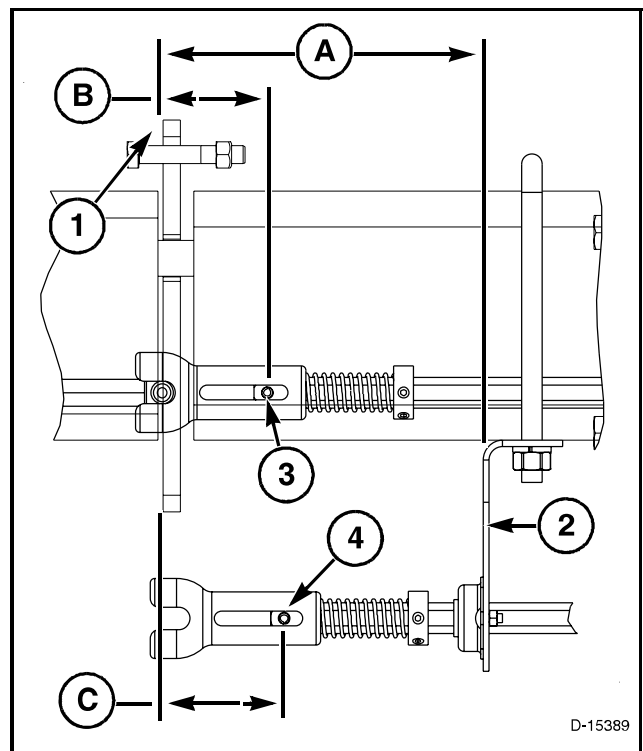
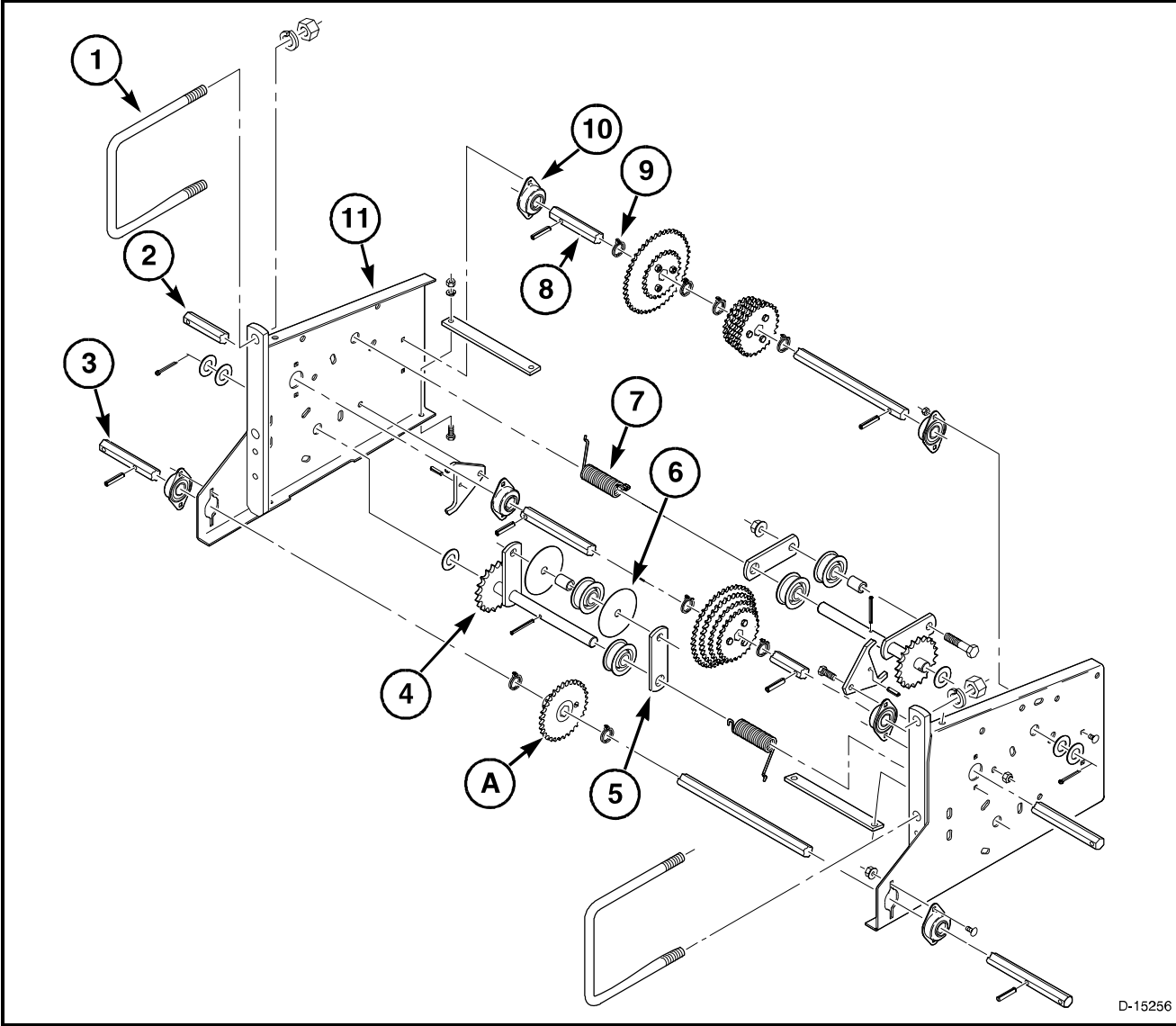


FIG. 15

SEED RATE TRANSMISSION

GROUND DRIVE



D-15256

FIG. 16

FIG. 16: Transmission is ground driven powered.

This sprocket (A) is powered by the wheel on the ground via clutch. Standard 32 tooth comes from the factory. A 16 tooth sprocket is available to slow the transmission rate in half for special applications.

Different sized sprockets in the transmission accommodate for various applications.

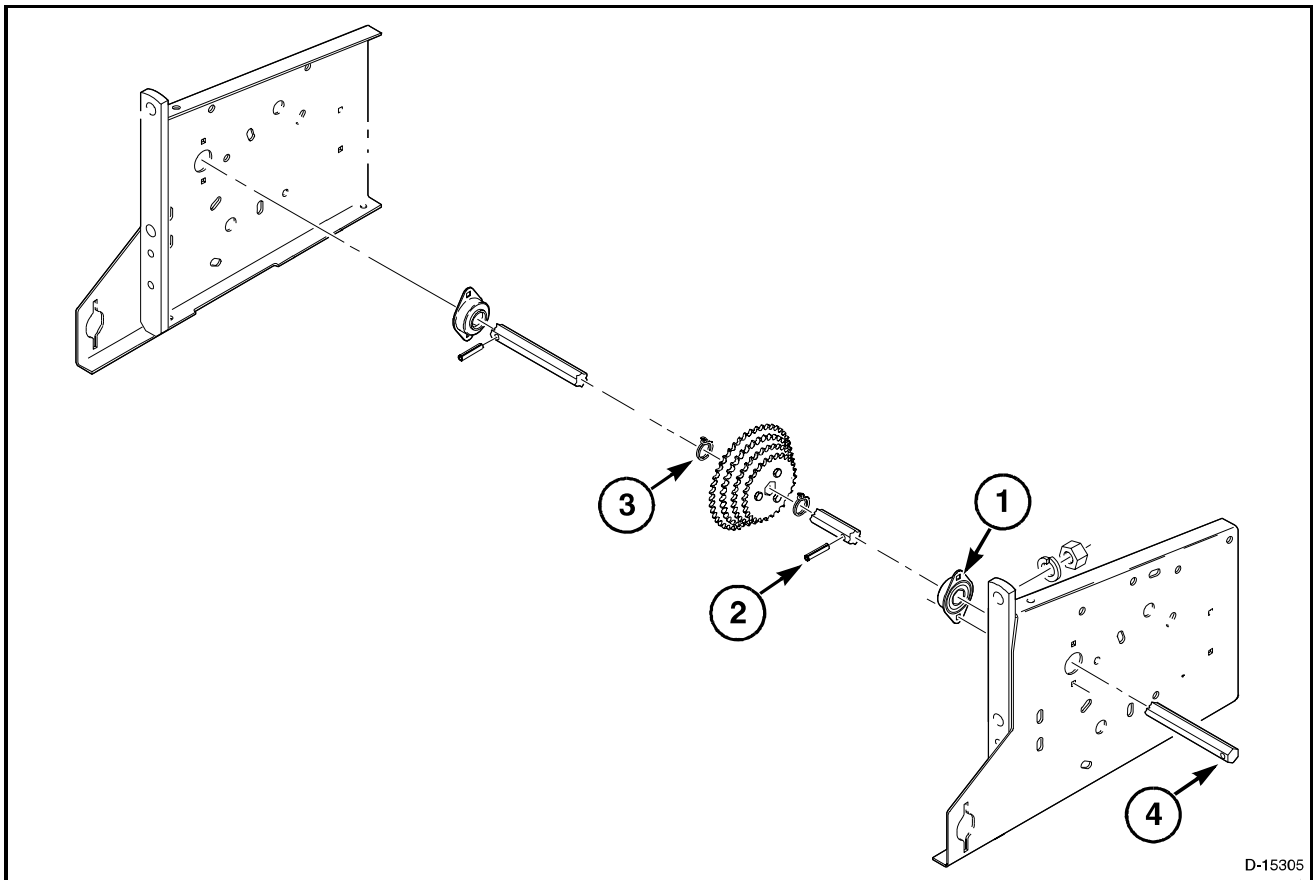
IMPORTANT: If the planter has two seed rate transmissions adjust both seed rate transmissions equally.

- (1) 5/8 -11 x 7-1/16 U-Bolt
- (2) 3/4 x 13-3/4 Output Shaft

- (3) 3/4 x 18 inch Input-Shaft
- (4) Lower Tightener Arm
- (5) Idler Arm
- (6) Chain-Shield
- (7) Spring
- (8) 3/4 x 8-3/4 inch Rear Shaft
- (9) Hose CLamp
- (10) Bearing Assembly
- (11) Right-Hand Plate

Seed Rate Transmission

Disassembly/Assembly



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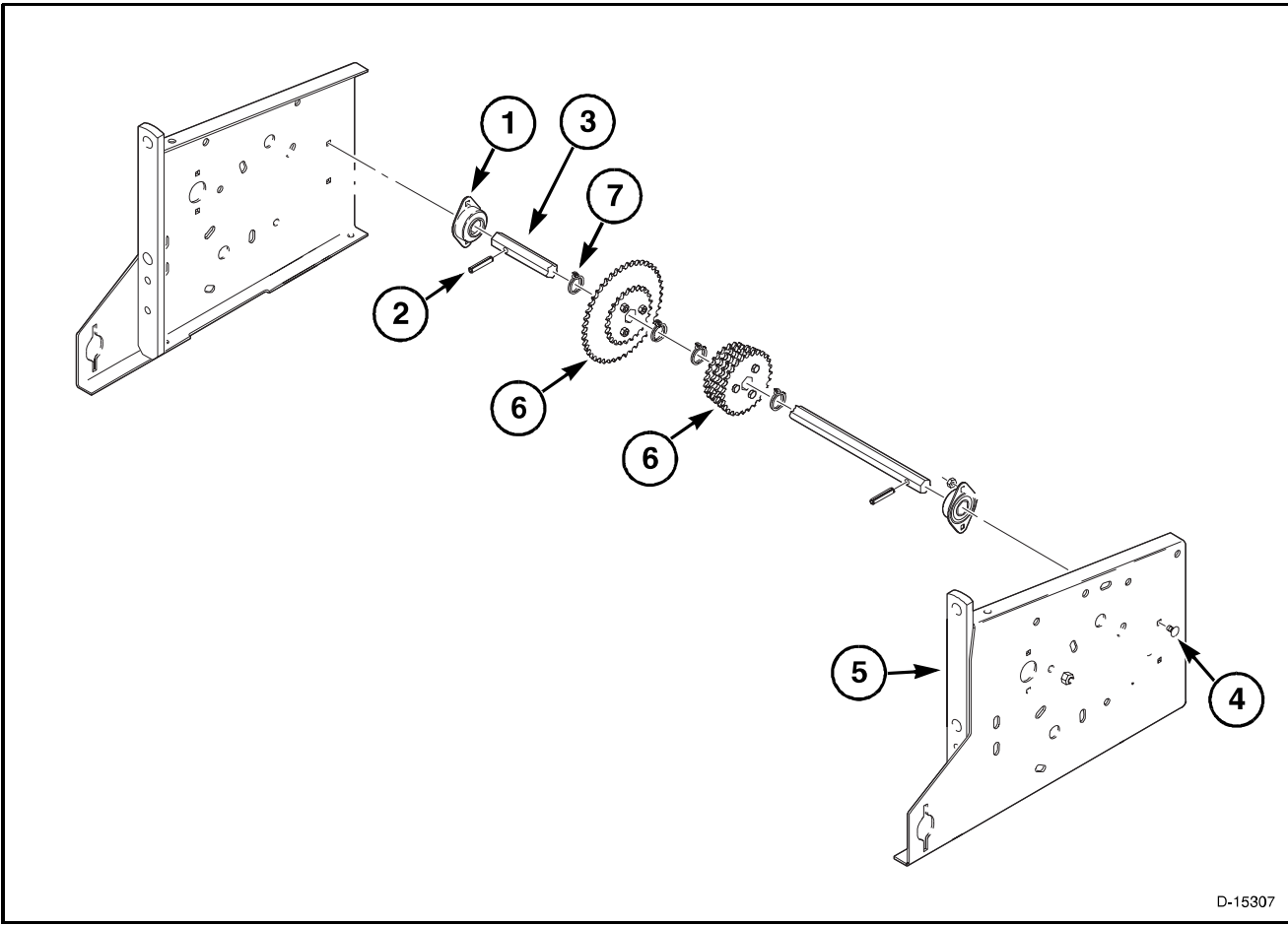
FIG. 17

FIG. 17: Output Shaft/Row Unit Shaft

Bearing Replacement

To replace the bearings (1) remove the chains, roll pins (2) and loosen the hose clamps (3). Remove the bolts or cotter pins (4) on both ends of the shafts. Remove the shaft.

Reverse procedures to assemble.



D-15307

FIG. 18

FIG. 18: Counter Shaft

Bearing (1) Replacement

To replace the bearings remove the cotter pins (2) from both sides of the rear shaft (3).

Remove the bolts (4) from the bearing housing.

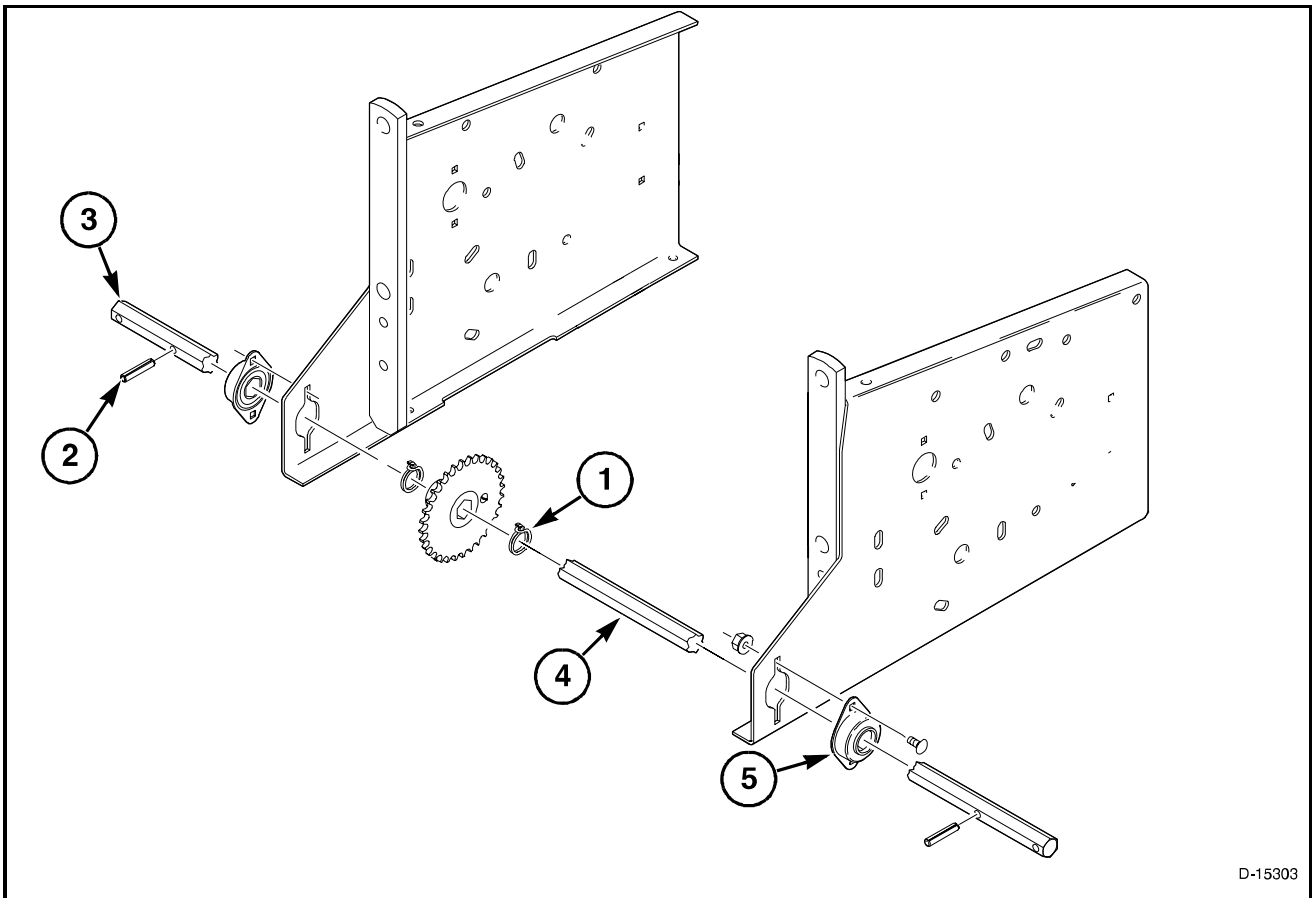
Shift the rear shaft side to side to remove from panels (5).

Mark the sprockets (6) location on the shaft before loosening the hose clamps (7).

NOTE: Removing the sprockets from the rear shaft does not have to be completed for replacement of bearings.

Replace the bearings and reverse procedures for assembly.

Seed Rate Transmission



D-15303

FIG. 19

FIG. 19: Input Shaft

Bearing (5) Replacement

Remove the chains.

Loosen the hose clamps on both sides (1).

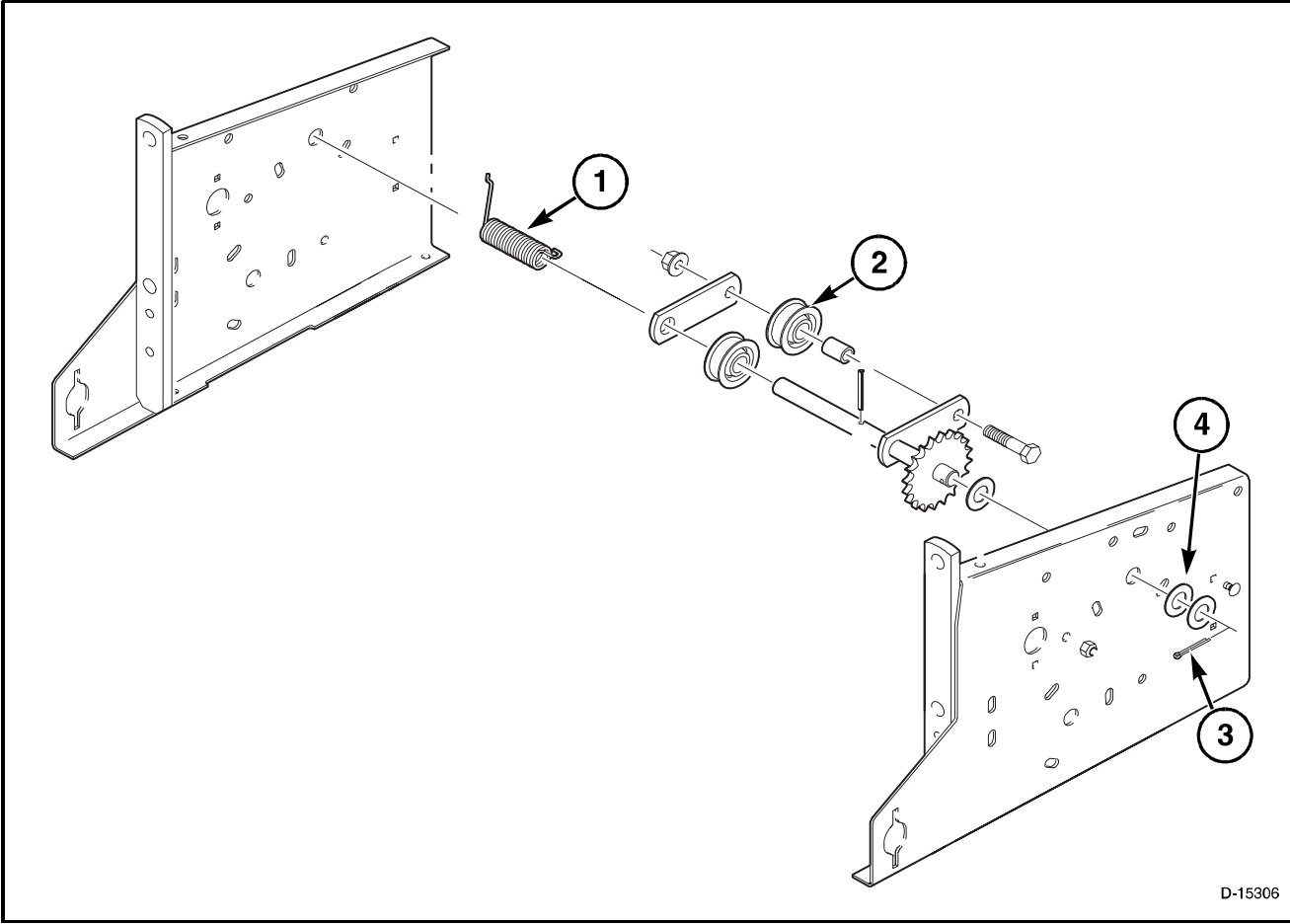
Remove the slotted pin springs on both sides (2)

Remove the bolts on both sides (3).

Slide the front shaft (4) out.

Remove the bearings (5) if necessary.

Reverse procedures to assemble.



D-15306

FIG. 20

FIG. 20: Idler Assembly

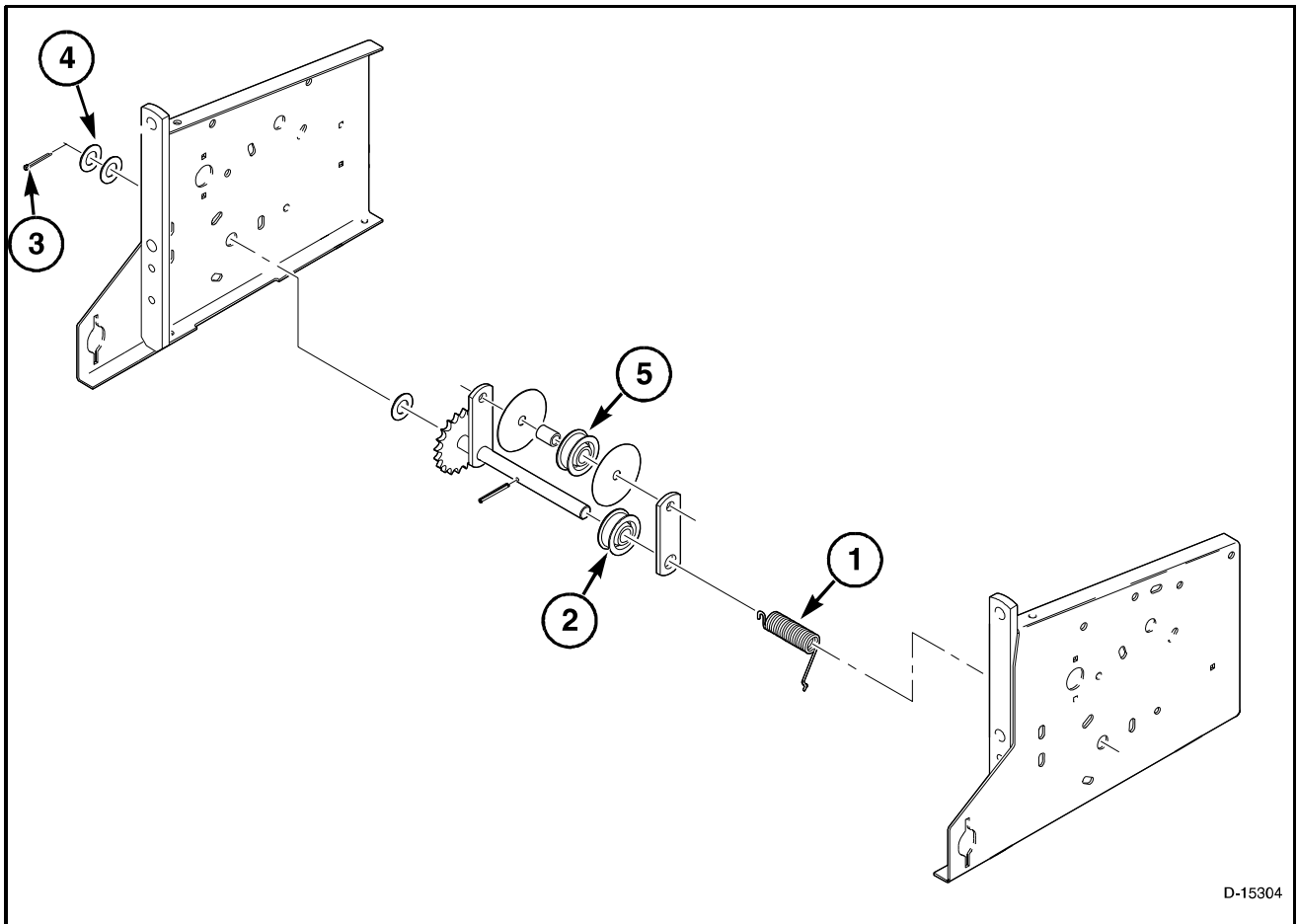
To replace the spring (1) or the Idler pulley bearing (2) remove the chains off of the idler pulleys.

Remove the cotter pins (3) and the washers (4) from both sides.

Slide the spring off and the idler pulleys.

Reverse procedures for assembly.

Seed Rate Transmission



D-15304

FIG. 21

FIG. 21: To replace the spring (1) or the idler pulley bearings (2) remove the chain off the pulleys.

Remove the cotter pins (3) and washers (4).

Pull the spring off and remove the bolts that attach the pulleys.

Reverse procedures for assembly.

NOTE: To replace the pulley (5) does not require removal of spring, cotter pin and washers.

Sprocket Cluster Assembly

Insert the cap screws in the largest sprocket and lay on the bench. Using a sprocket shaft as a guide, install the smaller sprockets in descending order. Tighten the nuts to 13.6 Nm (120 in lb).

NOTE: The sprocket hubs on the sprocket cluster must face the center of the transmission to permit the chain alignment when the cluster is moved to the left.

FIG. 22: Sprocket Clusters

- (1) Connector Link
- (2) 45 Tooth Sprocket
- (3) 25 Tooth Sprocket
- (4) Idler Pulley
- (5) 1/4-20 x 1 Grade 2 shear bolt
- (6) 32 Tooth Sprocket

NOTE: There is a 16 tooth sprocket available to replace the 32 tooth sprocket to slow the rate of the transmission by half for special applications.

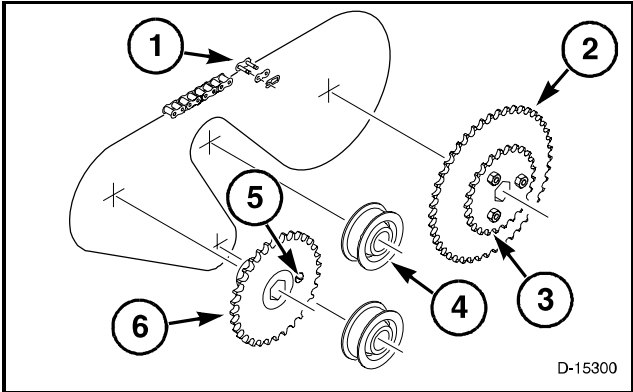


FIG. 22

FIG. 23: Sprocket Clusters

- (1) 44 Tooth Sprocket
- (2) 38 Tooth Sprocket
- (3) 33 Tooth Sprocket
- (4) 28 Tooth Sprocket
- (5) Idler Pulley
- (6) 28 Tooth Sprocket
- (7) 27 Tooth Sprocket
- (8) 26 Tooth Sprocket
- (9) 25 Tooth Sprocket
- (10) Connector Link

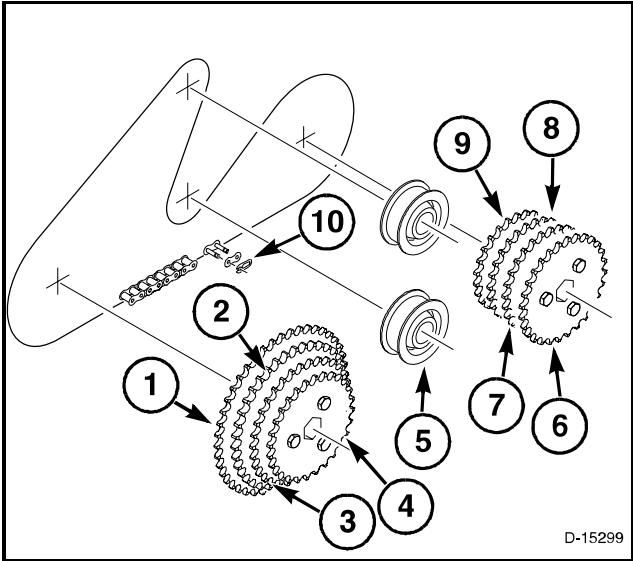


FIG. 23

Seed Rate Transmission

Torsion Spring

FIG. 24: Transmission Chains - Left Side View

- (1) Main drive shaft
- (2) Row unit drive shaft
- (3) Counter-shaft
- (4) Pivoting idler
- (5) Chain, 90-links
- (6) Chain, 122-links

Install the 90-link and 122-link chains as illustrated.

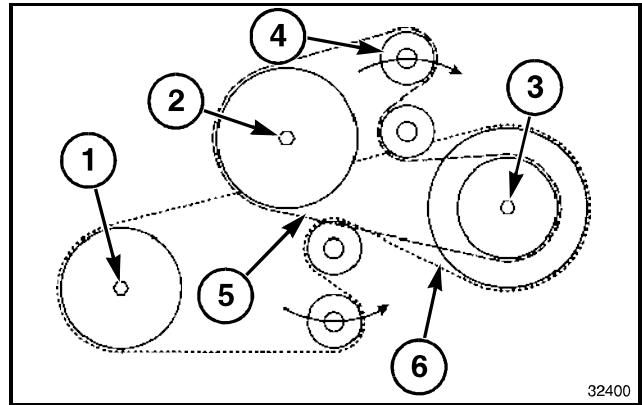


FIG. 24

FIG. 25: See the illustration for the proper chain and idler position.

IMPORTANT: Excessive torsion force on the idlers will reduce the idler roller service life.

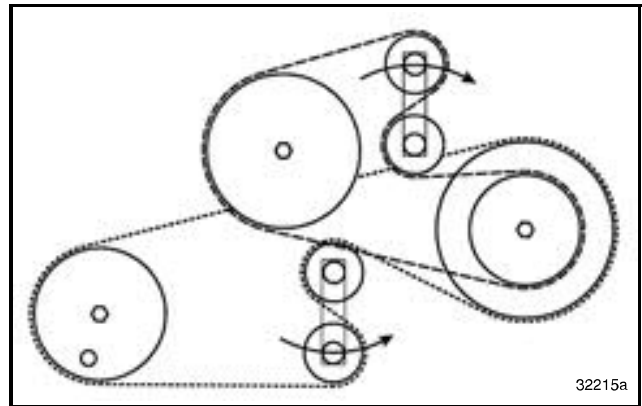


FIG. 25

FIG. 26: Upper idler: With the idler arm (1) straight up, connect a spring scale to the upper idler bolt (2). The force required to move the idler arm must be 4.5 to 9.0 kg (10 to 20 lb).

If the reading is not correct, adjust the hook on one or both ends of the torsion spring (3). The outer end of the hook can be installed in one of the three holes (4) on the transmission plate.

On the inner end adjust the hook on the roll pin (5).

Lower idler (not shown): With the idler arm straight down, repeat the procedure for the upper idler.

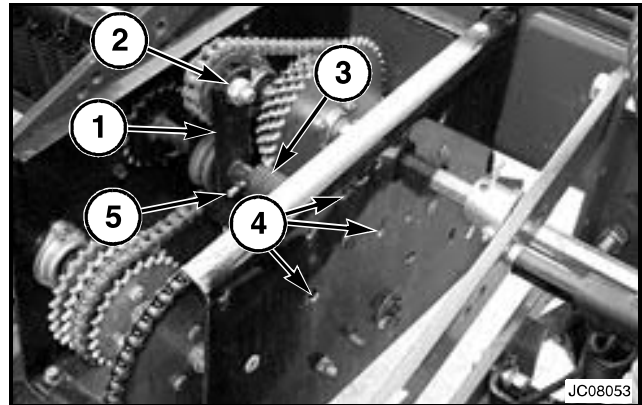


FIG. 26

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