



# Harvesting Units



JOHN DEERE

## TECHNICAL MANUAL Harvesting Units

TM1295 (01AUG83) English

**John Deere Ottumwa Works**  
**TM1295 (01AUG83)**

LITHO IN U.S.A.  
ENGLISH





## INTRODUCTION

This technical manual is part of a twin concept of service:

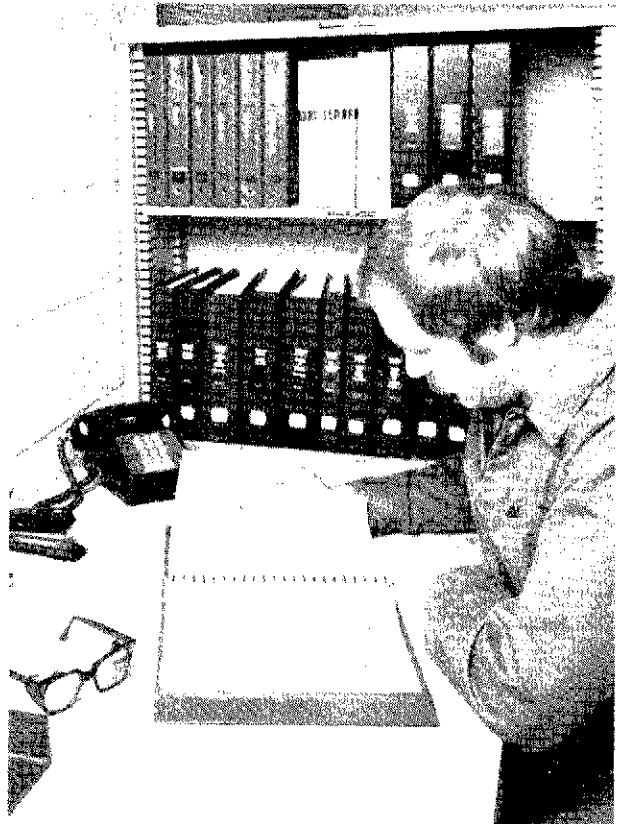
**FOS Manuals — for reference**

**Technical Manuals — for actual service**

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

*Fundamentals of Service (FOS) Manuals* cover basic theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new people and for reference by experienced technicians.

*Technical Manuals* are *concise* service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by an experienced technician.



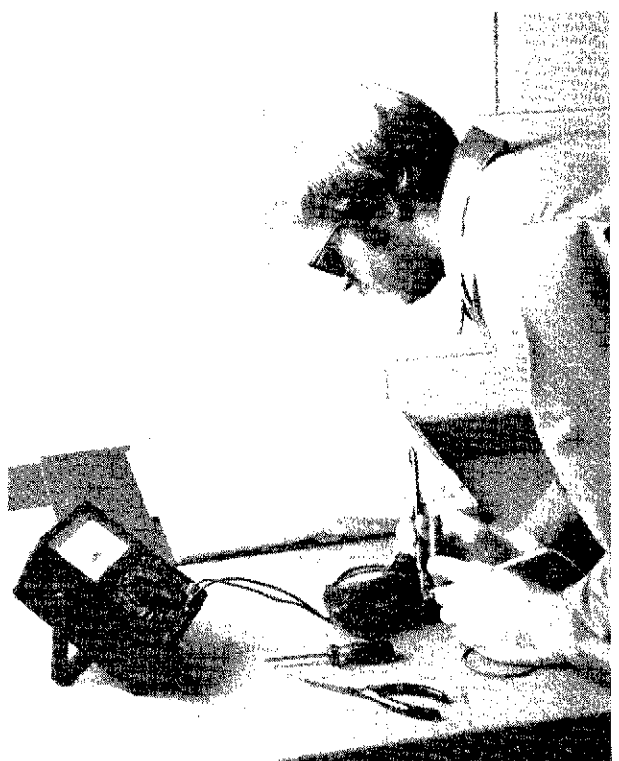
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## FEATURES OF THIS TECHNICAL MANUAL

- John Deere ILLUSTRATION format emphasizing more detailed pictures and fewer words.
- Instructions and illustrations grouped together in easy-to-use modules.
- Removal and installation groups preceding some repair groups. These groups show how to remove and install components from the machine rather than from major components. They also show how to acquire access to major components of a machine.
- *Exploded views showing parts relationship.*

This technical manual was planned and written for you — an experienced technician. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



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Hello dear friend!

Thank you very much for reading.

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The full manual is available for immediate download.

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## SAFETY MESSAGES



This safety alert symbol and the word **CAUTION** identify important safety messages in this manual and on the machine. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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## NOTES

The word *NOTE* is followed by a statement that identifies a qualification or exception to a previous statement. A "NOTE" may also identify nice-to-know information pertinent to, but not directly related to the previous statement.

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## OBSERVE SAFETY RULES



**CAUTION:** This safety alert symbol identifies important safety messages in this manual and on the machine. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

Avoid loose clothing that can catch in moving parts and put you out of work.

Wear your safety glasses while on the job.

Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running, **ALWAYS USE TWO PEOPLE** — with the operator, at the controls, able to see the person doing the checking. Also, place the transmission in neutral and set the brake. **KEEP HANDS AWAY FROM MOVING PARTS.**

Keep transmission and brake control units properly adjusted at all times. Before making adjustments, stop engine.

Before removing any housing covers, stop engine. Take all objects from your pockets which could fall into the opened housings. Don't let adjusting wrenches fall into opened housings.

Don't attempt to check belt tension while the engine is running.

Don't adjust the fuel system while the machine is in motion.



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## SERVICE TIRES SAFELY



**CAUTION:** Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

When sealing tire beads on rims, never exceed 240 kPa (2.4 bar) (35 psi) or maximum inflation pressures specified by tire manufacturers for mounting tires. Inflation beyond this maximum pressure may break the bead, or even the rim, with dangerous explosive force. If both beads are not seated when the maximum recommended pressure is reached, deflate, reposition tire, relubricate bead, and reinflate.

Detailed agricultural tire mounting instructions, including necessary safety precautions, are contained in John Deere Fundamentals of Service (FOS) Manual 55. Such information is also available from the Rubber Manufacturers Association and from tire manufacturers.

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## USE ADEQUATE SERVICE FACILITIES

Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment.

Make sure the service area is adequately vented.

Periodically check the shop exhaust system for leakage. Engine exhaust gas is dangerous.

Be sure electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.

Service the machine on a level, hard-surfaced area.

Use lifting equipment and safety stands which have adequate strength for the job being performed.

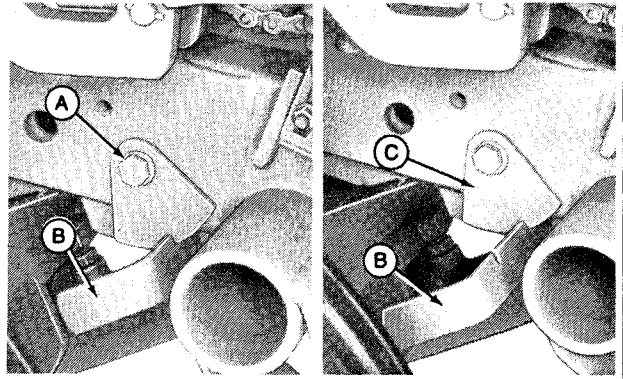
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## Introduction

ALWAYS engage the lift cylinder stop to the locked (A) position when working on or under the pull-type harvester with the harvesting unit in the raised position.

Always return lever (B) to the unlocked (C) position before operating.

If attached to self-propelled, lower support stands to the ground and pin to prevent accidental lowering of unit. Disengage power and make sure all moving parts have stopped before servicing machine.

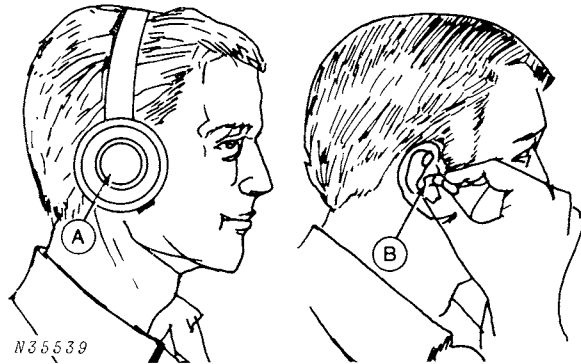


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## PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noises.



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## DO NOT MODIFY MACHINE

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

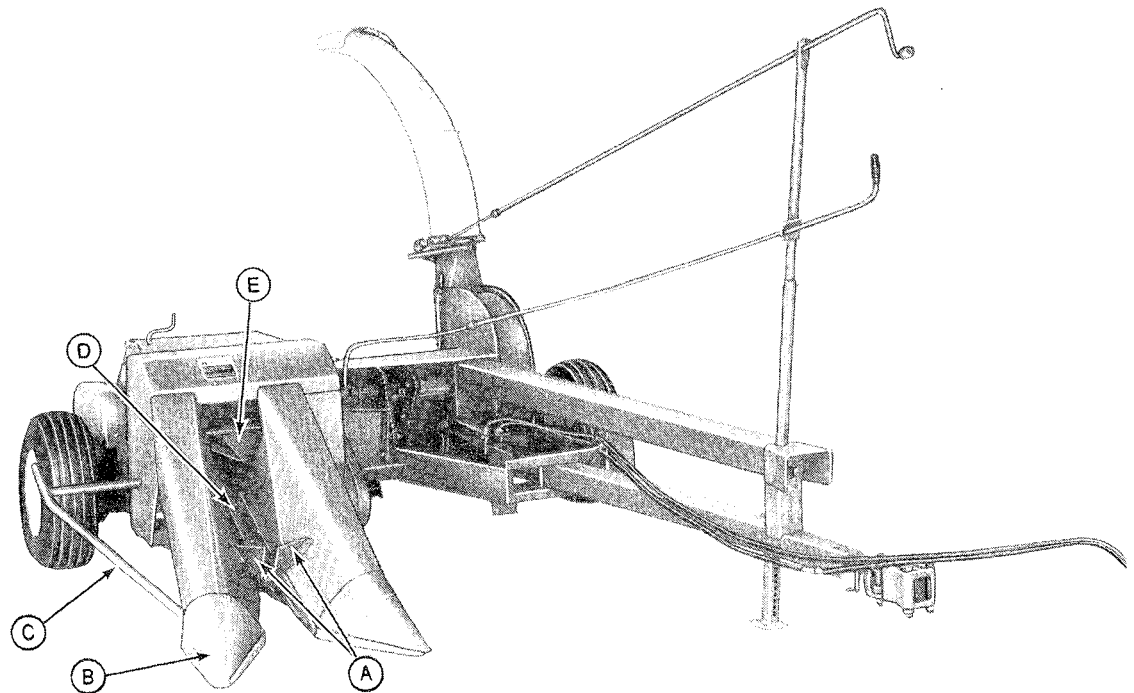
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# Section 10 EAR CORN UNITS

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A—Ear Savers

B—Gatherer Point

C—Crop Divider

D—Gatherer Chain

E—Feeder

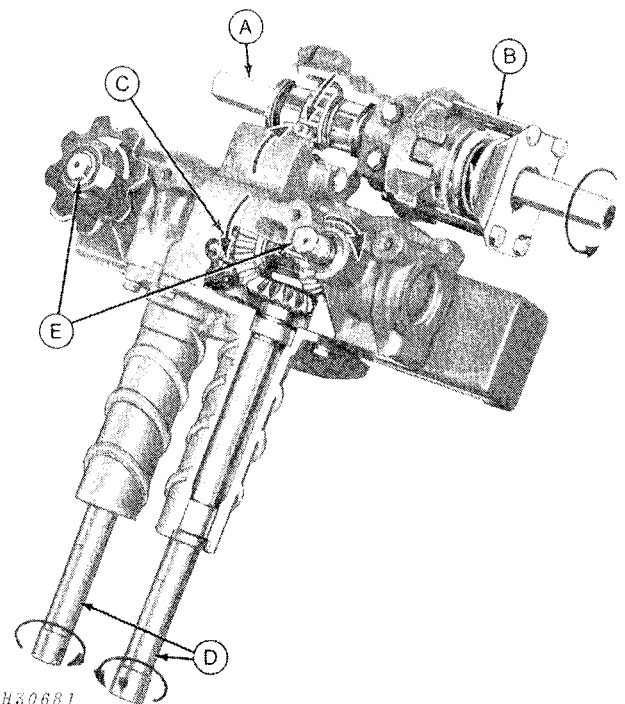
The snapper roll unit is the same design as the 40 Series Corn Head.

The row unit is driven by its own gear-type drive. The drive is in a fully enclosed case located under the row unit.

A row unit input shaft (A) is driven from the feed roll drive case of machine. This shaft drives the slip clutch (B) which in turn drives the input gear located in the gear case.

This input gear drives an idler spur gear, which drives the main countershaft (C). The main countershaft has two sets of bevel gears. The inner set, which consists of two bevel gears welded to the driving spur gear, drives the stalk roll shafts (D). The outer set of bevel gears drive the gatherer shaft (E).

A slip clutch (B), located on the input shaft at the upper end of the gear case helps protect the gear case.



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Cutaway View of Gear Case

A—Input Shaft  
B—Slip Clutch  
C—Main Countershaft  
D—Stalk Roll Shafts  
E—Gatherer Shafts

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## LUBRICATION

Carefully written and illustrated lubrication instructions are included in the operator's manual furnished with your customer's ear corn unit. Remind the customer to follow these instructions.

For your convenience, the following chart shows capacities and types of lubricants for the One Row Ear Corn Unit. Specifications for lubricants follow the chart.

Component	Capacity	Type of Lubricant	Interval of Service
Roller Chains	—	John Deere PT 508 Special Lubricant or SAE 30 engine oil	Daily
Gears	—	John Deere Multi-Purpose Lubricant or an equivalent SAE multi-purpose-type grease.	Every 50 Hours
Gear Case	1.62L (56 oz)	John Deere Gear Case Lubricant or an equivalent type "0" (zero) extreme pressure lubricant.	Every 50 Hours

## GREASES

John Deere Multi-Purpose Lubricant or an equivalent SAE multipurpose-type grease is recommended for the gears. Application of grease as instructed in the lubrication chart will provide proper lubrication and will prevent contamination of bearings.

## STORING LUBRICANTS

The One Row Ear Corn Unit can operate efficiently only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contaminants.

Problem	Cause	Rememdy	Group Reference
<b>Loss Of Ear Corn In The Field</b>	Gatherer points set too high.	Adjust gatherer points to just touching the ground. When picking low hanging ears, raise front tip of gatherer points and run ear corn unit with the skids close to the ground.	15
	Ground speed too fast or too slow.	Operate at a speed to meet field and ground conditions. Excessive ground speed can cause ears to fall off the stalks ahead of the gatherer chains. Too slow ground speed can cause the ears to slide forward out of the unit. Operate at a speed where the gatherer chains merely help guide the stalks into the rolls.	—
<b>Ears Sliding Out Through Throat</b>	Ear savers not properly adjusted.	Adjust ear savers. See operator's manual.	
<b>Pulling Up Cornstalks</b>	Deck plates set too close together.	Spread deck plates, a little at a time, until stalks feed through rolls more freely.	15
	Traveling too fast for gatherer chain speed.	Slow down to meet crop conditions or increase row unit drive speed.	—
	Improper harvester drive sprocket.	Check for 42 tooth on 35 and 38 Harvesters and 30 tooth on 3800 Harvesters. Use the 17 tooth on 3940 and 3950 machines.	—
	Gatherer chain lugs digging into cornstalk roots.	Lower gatherer points.	15
	Corn extremely dry or down.	Remove ear savers.	—
	Worn stalk rolls.	Replace rolls.	15
<b>Barrel Assembly Leaking Grease</b>	Defective seal under stalk roll.	Replace seals.	15
	Defective bearing.	Replace bearings, check seals.	15

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*Diagnosing Malfunctions*

Problem	Cause	Remedy	Group Reference
<b>Plugging</b>	Stalks breaking in stalk rolls or deck plates.	Adjust the opening of deck plates.	15
	Trash winds around stalk rolls.	Set trash knives closer to stalk rolls.	15
	Loose gatherer chains.	Adjust gatherer chains.	15
	Material catching on sheet metal.	Check for broken or bent sheet metal that may prevent flow of material.	—
	Ground speed too fast, causing too much material to go into unit too fast.	Slow down. Operate at a speed to meet the yield and ground conditions. Faster speeds will cause plugging.	—
	Corn stalks plugging in gatherer throat opening.	Remove ear savers.	—
	Worn stalk rolls.	Replace rolls.	15
<b>Stalk Rolls Clashing</b>	Stalk roll shafts not properly timed.	Remove and re-time shafts.	15
	Stalk rolls striking trash knives.	Adjust knives to proper clearance.	15
<b>Gear Case Noisy</b>	Lack of lubricant.	Fill to correct level. Check for leakage. See operator's manual.	—
	Gears not meshing properly.	Check backlash.	15
	Excessive backlash.	Adjust backlash of gears.	15
	Binding of gears.	Refer to "Assemble Gear Case".	15
<b>Gear Case or Barrel Assembly Excessively Hot</b>	Seal failure causing loss of grease.	Replace seals.	15
	Lack of lubricant.	Fill to correct level. Check for breakage. See operator's manual.	—
	Binding of gears.	Check for correct assembly.	15
	Defective bearings or bushings.	Replace bearings or bushings.	15
	Improperly installed bearing caps.	Refer to "Assemble Gear Case".	—
	Dirt packed in stalk roll and on barrel.	Keep dirt and chaff removed around stalk rolls.	—

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### SPECIAL TOOLS

The following tools, or their equivalents, are recommended when performing this job. For increased efficiency, gather the tools before beginning the job.

*NOTE: See Section 60 for additional information.*

Number	Name	Use
D-01243 AA	Puller	To remove bearing from stalk roll shaft.
JDC-400-1	Seal Installer	To install gatherer shaft seals.
JDC-400-2	Plug Installer	To install expansion plugs.
JDC-400-3	Spacer	To install gatherer drive shaft bushings.
JDC-400-4	Spacer	To install input shaft needle bearing.
JDC-400-5	Seal Installer	To install barrel seals.
JDC-400-6	Seal Driver	To install input shaft seal.
JDC-400-7	Handle	Used with the various drivers and spacers.
JDC-400-8	Spacer	To install barrel bearings.
JDC-400-10	Stalk Roll Timing Tool	To set correct timing of stalk rolls.
D-01045 AA	Master Bushing and Seal Drive Set	Some of the drivers in this set are required for use with the JDC-400 series tools.
D-01046 AA	Tool Organizer Board	Keeps D-01045 AA set components in proper order and safe from loss. Tools not included.

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### FABRICATED TOOLS

The following tools can be made for ease in repairing the following component. Specifications for making the tools can be located in Section 60.

Name	Use
Gear Case Support Bracket	To hold the gear case firmly in a vise.
Dowel Studs	To help install the barrel assembly on the gear case.
Stalk Roll Timing Tool	Can be used if JDC-400-10 is not available.

1015/F/090683

Power Train

**SPECIFICATIONS**

Item	Measurement	Specification
Gear Case	Capacity	1.62 kg (56 oz.) John Deere Corn-Head Lube or equivalent
Slip Clutch	Coil-to-Coil	71 mm (2 13/16-in)
Trash Knife to highest flute on stalk roll	Clearance	1.5 mm (1/16-in)
Gear Case Input Shaft	End Play	0.13 mm to 0.38 mm (0.005 to 0.015-in)
Gear Case Input Shaft	Backlash	0.13 mm (0.005-in) min.
Gatherer Drive Shafts	Backlash	0.20 to 0.36 mm (0.008 to 0.014-in)
Stalk Roll Shafts	Backlash	0.20 to 0.36 mm (0.008 to 0.014-in)
Gatherer Cap Gaskets	Thickness	0.18 to 0.25 mm (0.007 to 0.010-in)
Barrel Assembly Gaskets	Thickness	0.18 to 0.25 mm (0.007 to 0.010-in)
Deck Plate	Clearance	3 mm (1/8-in) wider at rear than front

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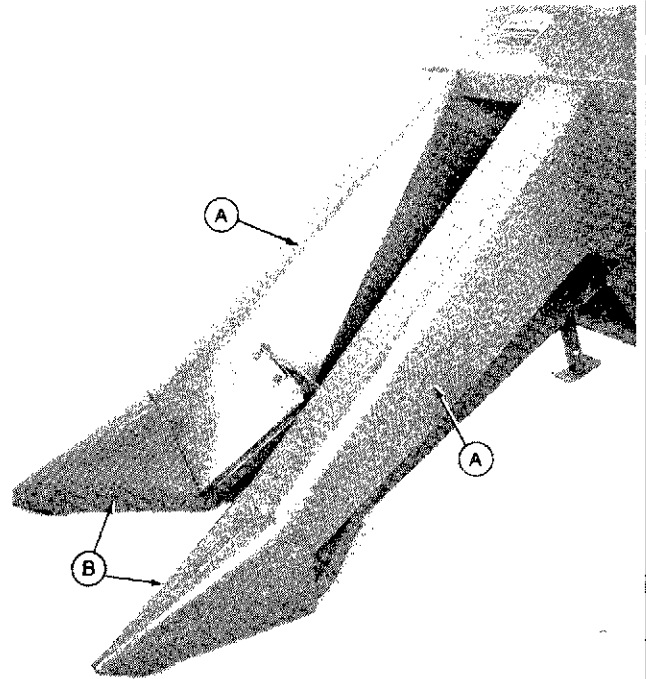
**TORQUES**

Item	Torque
Countersunk Head Cap Screws (by gatherer chain sprockets)	110 N·m (80 lb-ft)
Gatherer Chain Guide Cap Screws	115 N·m (85 lb-ft)
Trash Knife Cap Screws	115 N·m (85 lb-ft)
Stalk Roll to Shaft "F" Grade Cap Screws	150 N·m (110 lb-ft)

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## REMOVE ROW UNIT FRAME

1. Remove fender (A) and gatherer point (B) to completely expose the row unit.



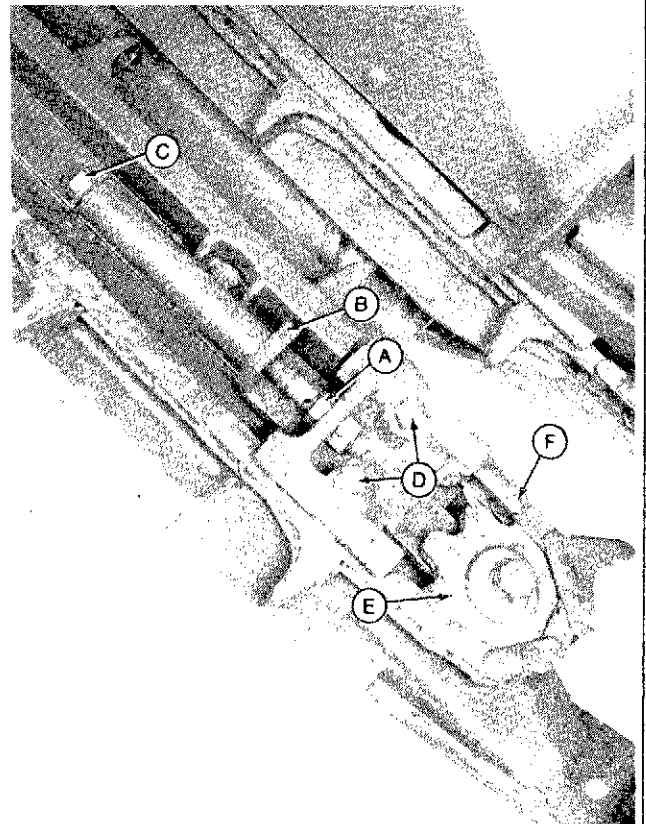
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**CAUTION:** Never service any part of the gatherer chain mechanism or idler sprocket until nut (A) is tight against the leg of the idler support strap.

2. Relieve gatherer chain tension by turning nut (A) until it is against the leg of the idler support strap (B).
3. Loosen bolt (C), until tension is off gatherer chain.
4. Remove bolts (D). This will allow the idler sprocket (E) to move back so the gatherer chain (F), can be removed.

*NOTE: If idler sprocket will not slide back, remove entire idler assembly and clean idler support strap and the slot in the idler support bracket.*

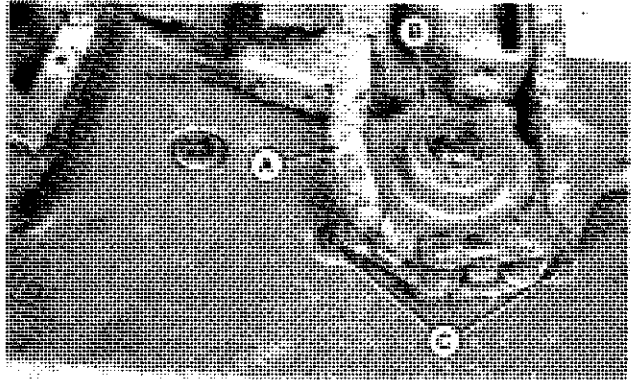


- A—Nut
- B—Leg of Idler Support Strap
- C—Bolt
- D—Bolt
- E—Idler Sprocket
- F—Gatherer Chain

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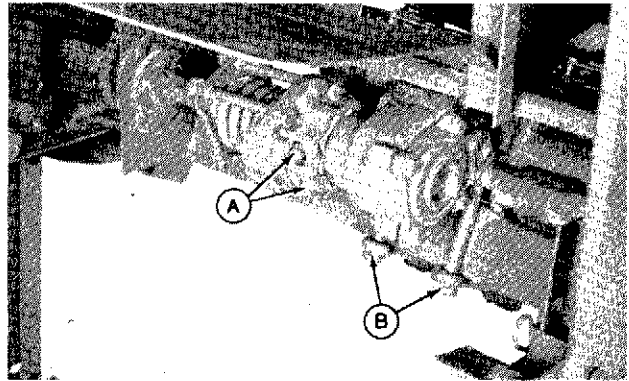
## Power Train

5. Remove gatherer chain (A).
6. Remove snap ring and drive sprocket (B).
7. Remove two allen head screws (C).



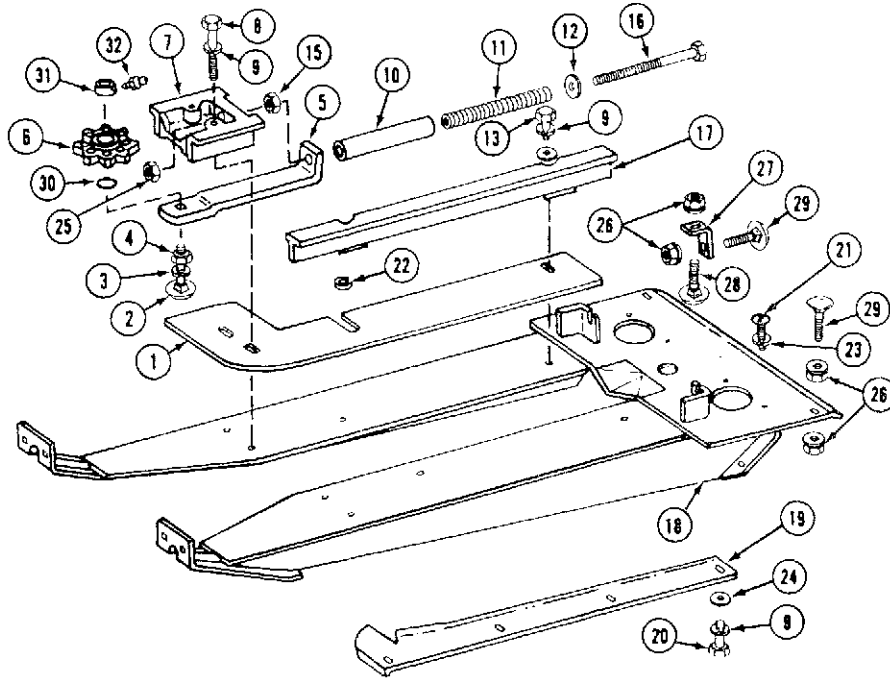
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8. Loosen two 3/8-in. cap screws (A) and slide slip clutch on drive shaft.
9. Remove two eyebolt nuts (B) and 5/8-in. cap screws holding gear case.
10. Remove gear case and row unit.



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Power Train



- |                                     |                         |                              |                                   |
|-------------------------------------|-------------------------|------------------------------|-----------------------------------|
| 1—Plate (2 used)                    | 8—Cap Screw (4 used)    | 17—Guide (2 used)            | 24—Washer (8 used)                |
| 2—Bolt (2 used)                     | 9—Lock Washer (16 used) | 18—Frame                     | 25—Nut (2 used)                   |
| 3—Lock Washer (2 used) (-588190)    | 10—Bushing (2 used)     | 19—Knife                     | 26—Lock Nut (8 used)              |
| 4—Nut (2 used)                      | 11—Spring (2 used)      | 20—Cap Screw (8 used)        | 27—Clip (2 used)                  |
| 5—Strap (2 used)                    | 12—Washer (2 used)      | 21—Socket Screw (4 used)     | 28—Bolt (2 used)                  |
| 6—Chain Sprocket (8-Tooth) (2 used) | 13—Cap Screw (4 used)   | 22—Washer (-588190) (2 used) | 29—Bolt (4 used)                  |
| 7—Support (2 used)                  | 14—Washer (4 used)      | 23—Lock Washer (4 used)      | 30—O-Ring (588191- )              |
|                                     | 15—Nut (2 used)         |                              | 31—Washer (588191- )              |
|                                     | 16—Cap Screw (2 used)   |                              | 32—Lubrication Fitting (588181- ) |

11. Refer to illustration and remove idler sprocket (6), idler support (7), idler support strap (5), idler stop (10), spring (11), flat washer (12), and machine bolt (16).

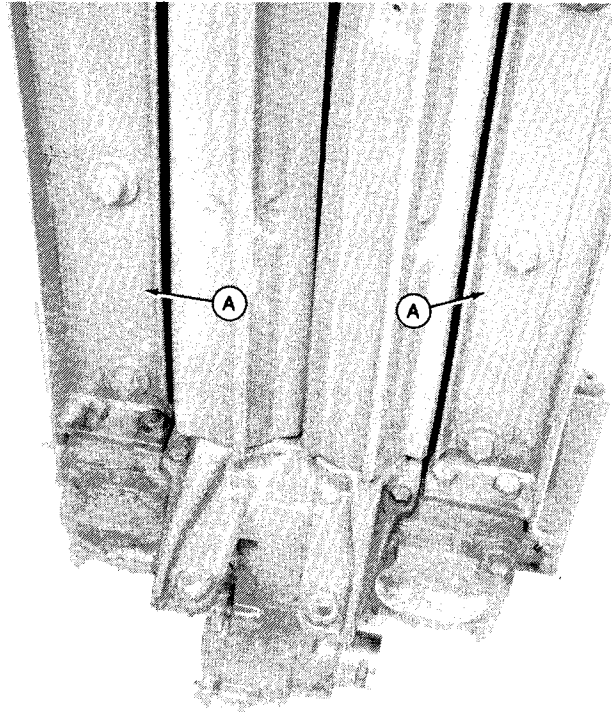
12. Remove the two cap screws (13), lock washers (9), and flat washers (14), attaching chain guide (17) to row units frame (18). Remove deck plate (1).



**CAUTION:** Approximate weight of the row unit frame is 23 kg (50 lbs), use two people to remove it from the unit.

13. Remove 8 cap screws and trash knives (A).

*NOTE:* Refer to "Remove Gear Case" for complete information concerning removal, service and installation of the gear case.



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## INSPECT ROW UNIT FRAME

Inspect all parts removed from the row unit frame for damage or excessive wear. Replace parts as necessary.

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## ASSEMBLE ROW UNIT FRAME

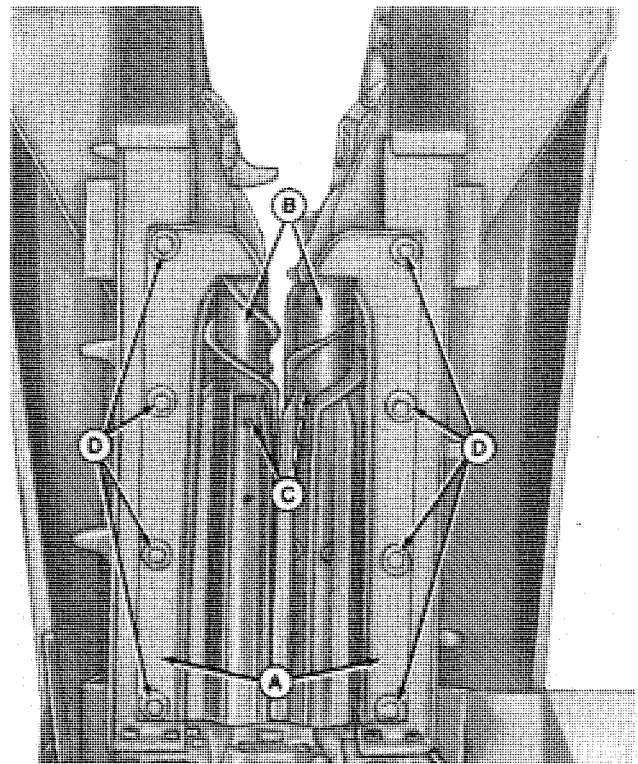
1. Refer to "Install Gear Case" if it has been removed for service.
2. Refer to "Install Stalk Rolls" on gear case and assemble.
3. Install row unit frame with four countersunk head cap screws and four cap screws. After all cap screws are installed, torque to 110 N·m (80 lb-ft).
4. Install drive sprockets on hex. shafts and secure with snap rings. Refer to exploded view of row unit frame.
5. Install deck plates (1) and chain guides (17). Do not tighten cap screws at this time.
6. Install machine bolt (13), flat washer (14), spring (11), idler stop (10), idler support strap (5), idler support (7), and idler sprocket (6).

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## REMOVE STALK ROLLS

**CAUTION:** Stalk rolls can rotate during removal. Exercise care.

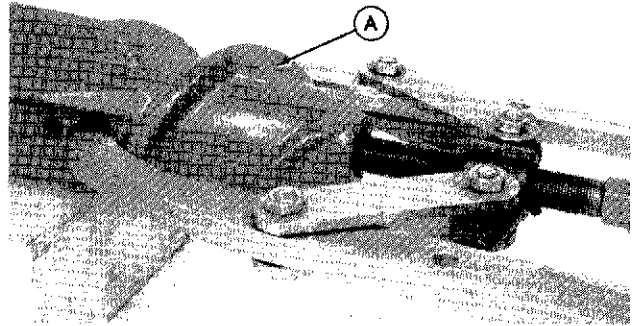
1. Remove trash knives (A) from underside of row unit frame.
2. Remove stalk rolls (B) from shafts by driving out double spring pins (C) and removing F grade cap screws (D).



A—Trash Knives  
 B—Stalk Rolls  
 C—Spring Pins  
 D—Cap Screws (8 used)

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3. Use puller to remove roll (A) half way. Complete removal using rubber mallet.



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### INSPECT STALK ROLLS

Inspect stalk rolls for wear or damage. Hard-faced stalk rolls are available as service parts.

**IMPORTANT:** Be certain to replace stalk rolls in pairs. Do not install a hard-faced stalk roll with a soft one.

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### INSTALL STALK ROLLS

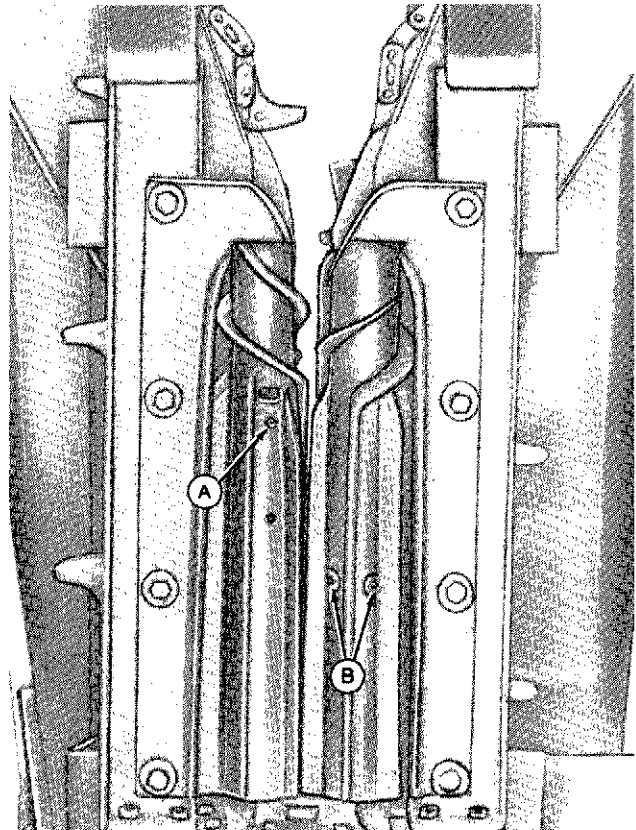
1. Clean stalk roll shaft and outside of barrel. Coat shaft with grease before sliding on new roll.

*NOTE: The spirals on the FRONT rotate to move materials to the rear of the stalk roll. The flutes turn down and toward the opposite stalk roll.*

2. Secure stalk roll to shaft with double spring pins (A) and two F grade cap screws (B). Torque cap screws to 150 N·m (110 lb-ft).

**IMPORTANT:** If stalk roll cap screws are replaced, use only 19H2735 1/2 x 2-inch F grade cap screws.

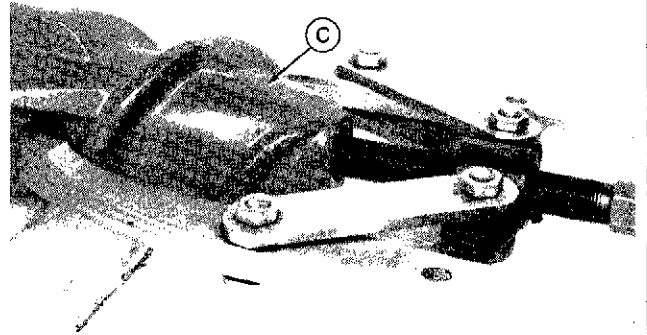
3. Adjust trash knives.



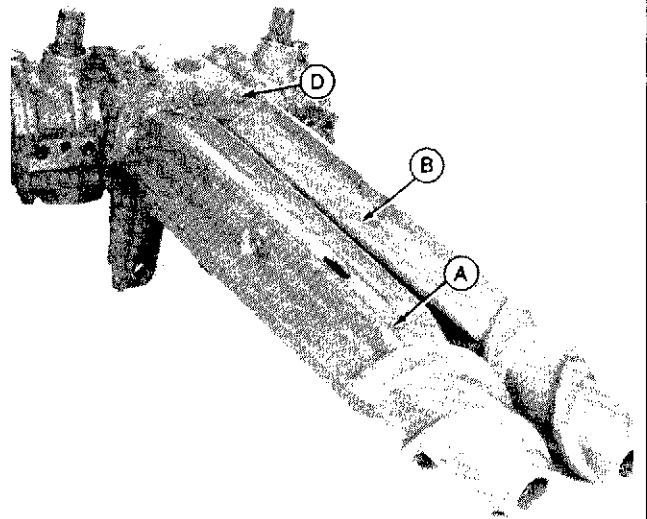
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## REMOVE GEAR CASE

1. Remove gatherer chains and sprockets. See "Remove Row Unit Frame".
2. Remove stalk rolls (C, if replacement is necessary) from shafts by driving out double spring pins (A) and removing F grade cap screws (B).
3. Use puller to remove roll (C) halfway. Complete removal using rubber mallet.
4. Remove eight cap screws (D), housing and shafts.



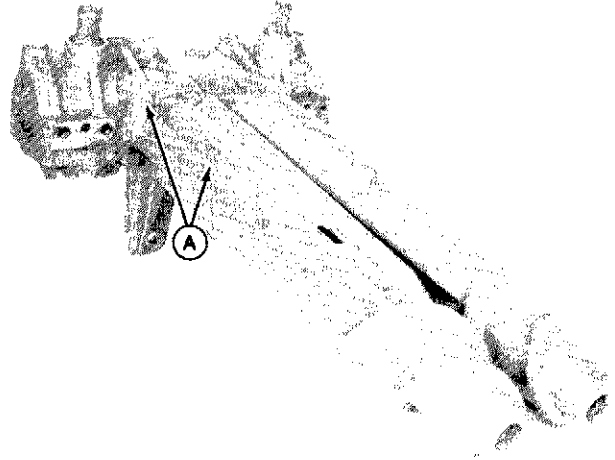
A—Spring Pins  
B—Cap Screws  
C—Stalk Roll  
D—Cap Screws



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## DISASSEMBLE GEAR CASE

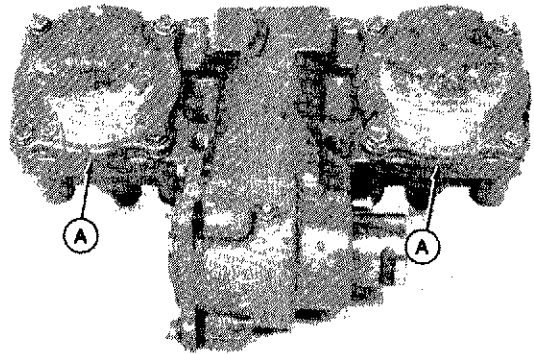
1. Remove six cap screws (A), washers and barrel assembly.



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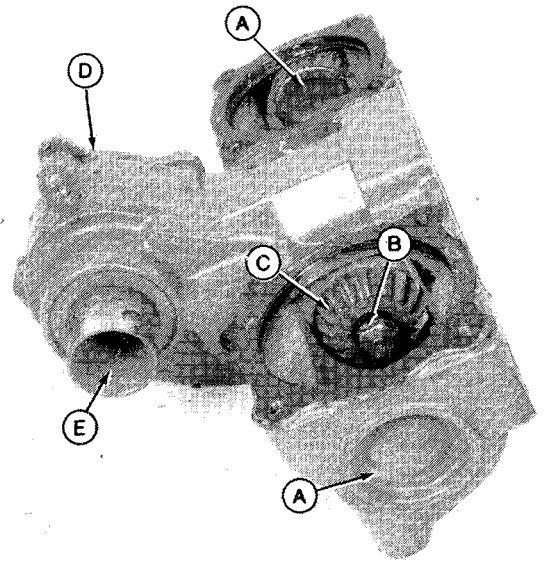
2. Scribe line on gear case and each drive shaft assembly (A). Remove drive shaft assemblies.

*NOTE: During re-assembly, match scribe marks. Assemble gatherer drive shaft assemblies on same side as they were removed.*



E22759\*10\*5/U/090683

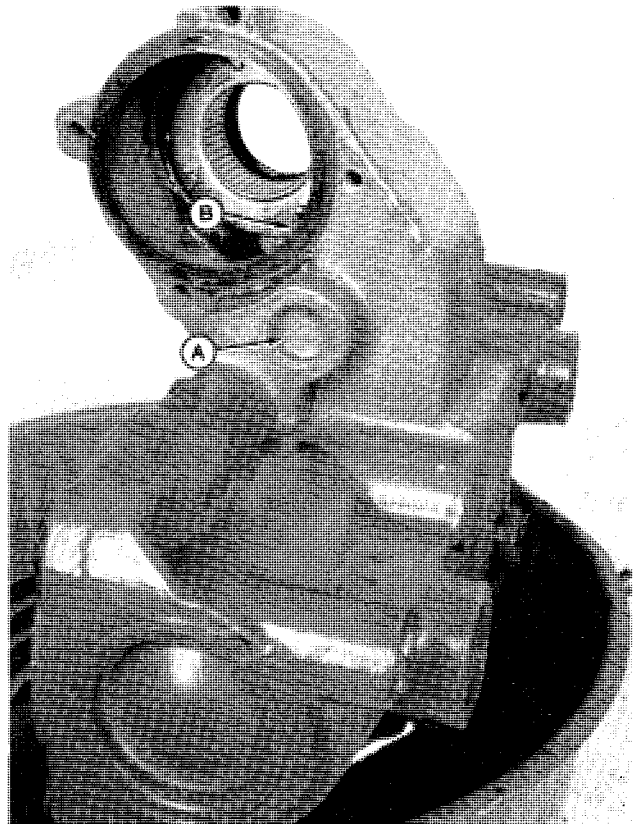
3. Remove end caps (A) from end of gear case. Drive caps from inside of case or pry out with a screwdriver. Be careful not to damage sealing surface of cap.
4. Remove snap ring (B) from either end of hex shaft.
5. Remove hex shaft and both bevel gears (C).
6. Remove end cap (D).
7. Push hollow shaft (E) and gear out of gear case.



A—End Cap  
B—Snap Ring  
C—Bevel Gear  
D—End Cap  
E—Hollow Shaft

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8. Drive in plug (A) until the opposite plug is loose. Remove plug. Drive shaft back until the remaining plug is loose. Remove remaining plug.
9. Exercise care when driving out idler shaft. Try not to damage tolerance ring. Do not drive tolerance ring through idler gear bearings. Drive shaft from same side as cap removed in step 6 and out opposite side.
10. Remove idler gear (B) from gear case.



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## INSPECT GEAR CASE COMPONENTS

Wash all parts thoroughly in clean solvent. Clean all grease out of gear case.

Inspect all parts for wear or damage, especially bushings, bearings and seals.

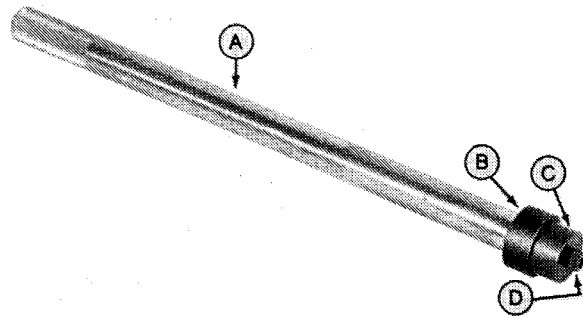
E03;;1015 L 270684

## REPLACE BEARINGS AND BUSHINGS

*NOTE: The part number is stamped into each special tool.*

Assemble tool as shown.

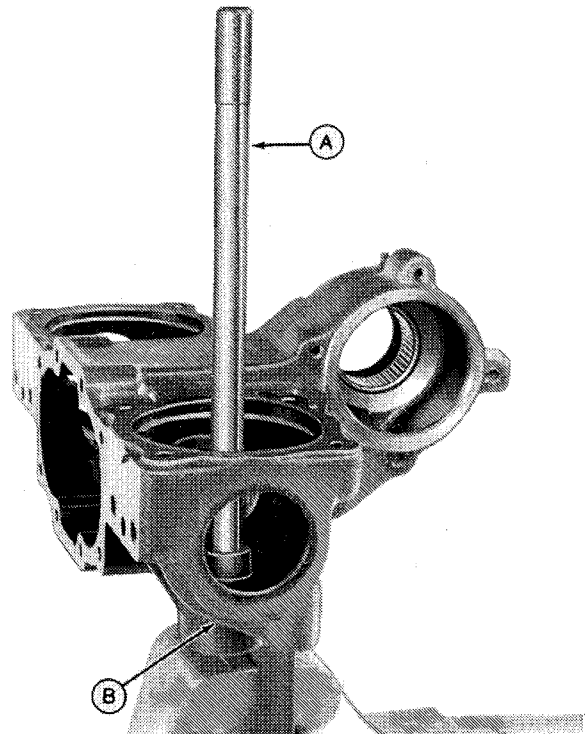
A—JDC-400-7 Handle  
B—27502 1-3/16-inch Disk  
C—27499 1-inch Disk  
D—10020 Screw



AA5;H30689 E03;;1015 M 270684

## REMOVE GATHERER DRIVE SHAFT BUSHING AND SEAL

1. Use tool and drive through gatherer cap opening in gear case against bushing. Drive out both bushing and seal.



A—Special Tool  
B—Bushing and Seal

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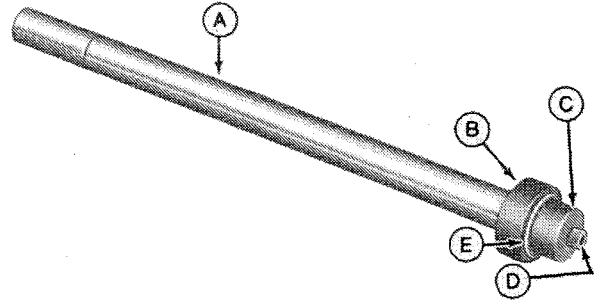
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**Thank you so much for reading**

### INSTALL GATHERER DRIVE SHAFT BUSHING

1. Assemble tool as shown.

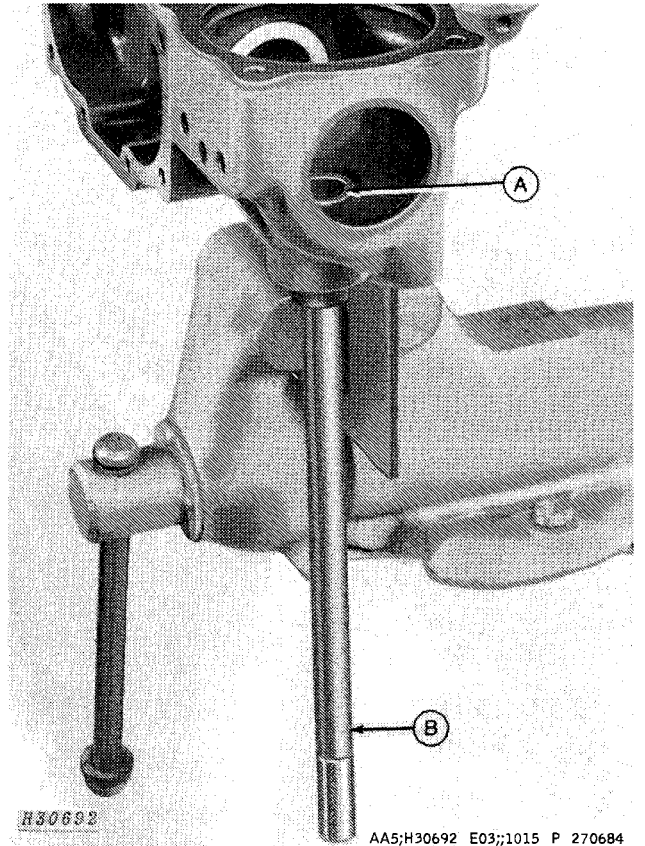
- A—JDC-400-7 Handle
- B—27506 1-7/16-inch Disk
- C—27499 1-inch Disk
- D—10020 Screw
- E—JDC-400-3 Spacer



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2. Use tool to install bushing. Drive bushing from bottom to obtain proper location of bushing in case.

*NOTE: Do not install seat at this time.*



- A—Bushing
- B—Special Tool

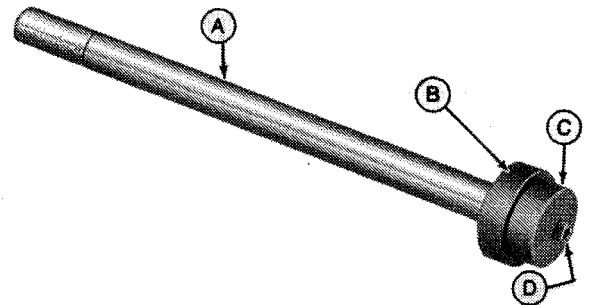
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### REMOVE INPUT SHAFT NEEDLE BEARINGS AND SEALS

1. Assemble tool as shown.

- A—JDC-400-7 Handle
- B—27520 2-5/16-inch Disk
- C—27515 2-inch Disk
- D—10020 Screw



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