



300 Corn Husker



TECHNICAL MANUAL 300 Corn Husker

TM1121 (01APR79) English

TM1121 (01APR79)

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ENGLISH



300 CORN HUSKER Technical Manual TM-1121 (Apr-79)

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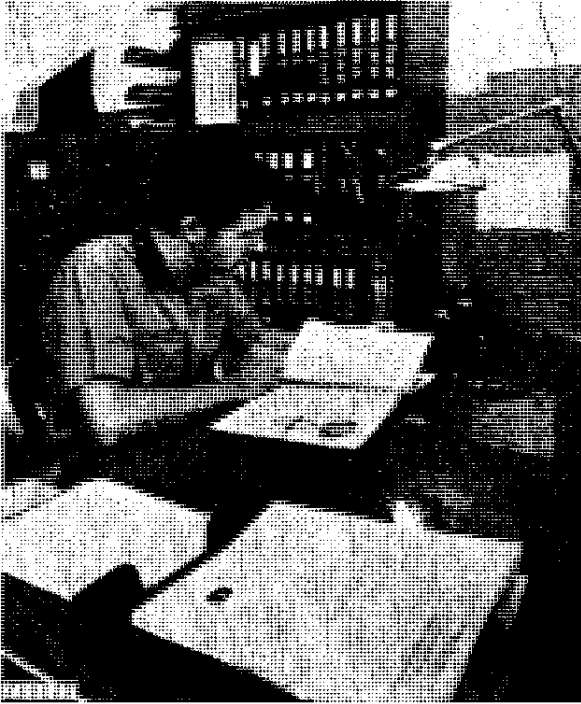
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INTRODUCTION



Use FOS Manuals for Reference

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.

NOTE: Whenever the service technician may need to refer to a FOS Manual for additional information, a specific manual number is given.

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Use Technical Manuals for Actual Service

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

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.

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

Because John Deere sells its products world-wide, U.S. units of measure are shown with their respective Metric equivalents throughout this technical manual. These equivalents are the SI (International System) Units of Measure.

FOR YOUR CONVENIENCE


Vertical lines appear in the margins of many of the pages. These lines identify new material and revised information that affects specifications, procedures, and other important instructions.

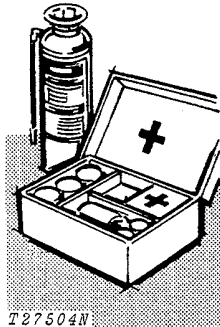
SAFETY AND YOU



T27999N

INTRODUCTION

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



T27504N

Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located—know how to use them.

PERSONAL SAFETY

Shut off tractor engine and remove switch key before working on the husker when it is attached to the tractor.

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, put the transmission in neutral, set the brake, and apply any safety locks provided. KEEP HANDS AWAY FROM MOVING PARTS.

RIGHT



Always avoid loose clothing or any accessory — flopping cuffs, dangling neckties and scarves — that can catch in moving parts and put you out of work.

Always wear your safety glasses while on the job.

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.

FLUIDS UNDER PRESSURE

Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and lines, pipes and hoses are not damaged.

Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

GENERAL INFORMATION

DESCRIPTION

The John Deere 300 Corn Husker consists of two basic units: the snapping unit (corn head), and the husking unit.

The husker is driven by the tractor PTO shaft (1000 rpm only) which is controlled by the tractor PTO clutch lever. (See tractor operator's manual.)

The corn head is raised and lowered by a single-acting remote tractor hydraulic cylinder which is controlled by one of the operating levers on the tractor console. (See tractor operator's manual.)

The wagon elevator conveyor is engaged and disengaged by the electrical control system from the tractor operator's station.

Wagon elevator hood attachments are available, which may be manually adjusted, or electrically operated, to control corn placement in the wagon. Other attachments are: Unit stands (for corn head), husk roll pegs, axle guard, rear wheel shield, front wheel shield, wagon elevator extension, and high-speed 39-tooth wagon elevator sprocket.

NOTE: This technical manual covers corn husker service only. For corn head service, consult the corn head operator's manual or technical manual (TM-1027).

SERIAL NUMBERS

The serial number for the husker is located on the left side of the machine—on the top part of the outer mast plate.

The serial number for the corn head is located on the right-hand side of the corn head frame.

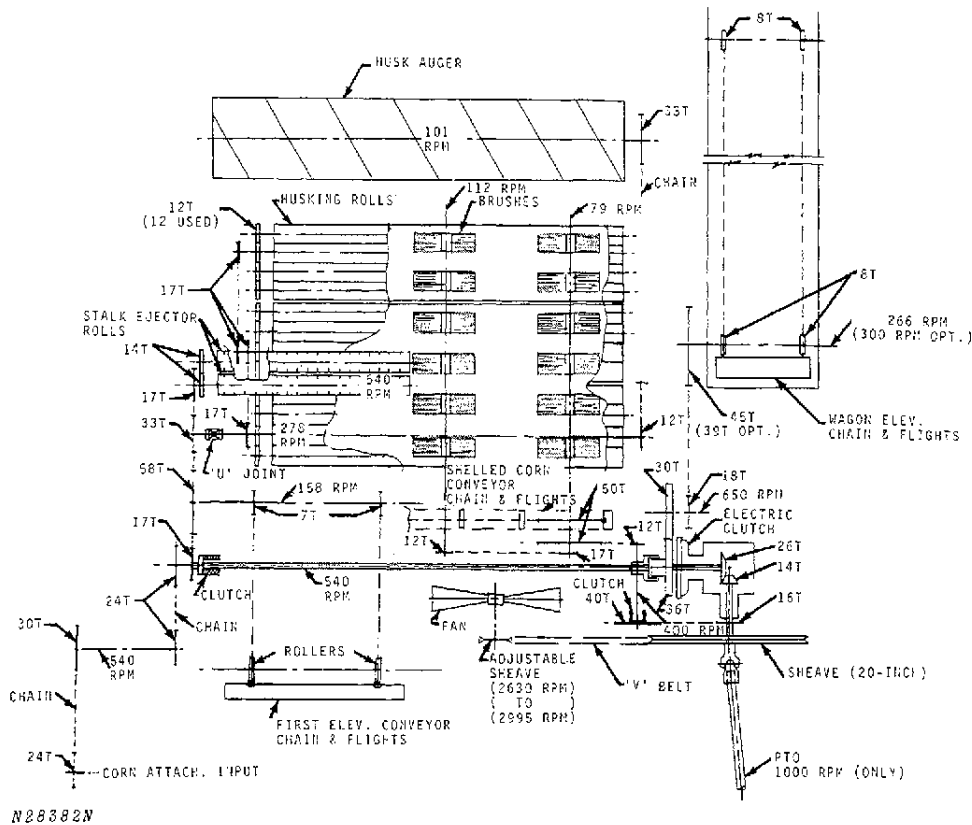


Fig. 1-Drive Train Diagram

NOTE: Refer to page 24 for diagram of right-hand drives and chain.

LUBRICATION

System	Capacity	Type of Lubrication
Husker Gear Case	2-1/2 lbs. (1 kg)	John Deere SAE 90 Gear Lubricant or an equivalent SCL Multi-purpose-type gear oil
Cross Drive Slip Clutch	----	Lubricate with John Deere Multi-Purpose Lubricant or an equivalent SAE multi-purpose-type grease
Husk Box Drive Universal Joint	*	Lubricate with John Deere Multi-Purpose Lubricant or an equivalent SAE multi-purpose-type grease
Telescoping PTO Shaft	*	Lubricate with John Deere Multi-Purpose Lubricant or an equivalent SAE multi-purpose-type grease
Drive Shaft Bearing Blocks	----	John Deere TORQ-GARD SUPREME® or an equivalent SAE 30 oil
Wheel Bearings	----	Lubricate with John Deere Multi-Purpose Lubricant or an equivalent SAE multi-purpose-type grease
Roller Chains	----	Lubricate with John Deere TY6240 Chain Lube or an equivalent SAE lubricant
Telescoping End of Drive Shaft	*	Lubricate with John Deere Multi-Purpose Lubricant or an equivalent SAE multi-purpose-type grease
Corn Head Gear Case	3 pints (1.4 L)	John Deere Corn Head Lube or an equivalent multi-purpose extreme-pressure Grade 0 (zero) lubricant
Corn Head Gatherer Chains	----	John Deere TY6240 Chain Lube or SAE 30 oil

***IMPORTANT:** Lubricate universal joints only two full grease gun strokes. Over-lubrication will damage seals.

DIAGNOSING MALFUNCTIONS AND TESTING

ORGANIZING THE DIAGNOSIS

1. Know the unit

Study this manual to know how the individual components work and their function in the over-all system.

Keep up with the latest service information. Read it and file for future reference.

2. Consult the operator

Ask the operator how the unit was performing when the problem occurred. Find out if any corrective measures were already taken. Ask if the unit was serviced regularly as prescribed in the operators manual.

3. Operate the unit

If the unit can be safely operated, see for yourself how it malfunctions—don't completely rely on the operator's diagnosis.

4. Inspect the unit

Visually check the unit. Look at the components for any cracked welds, loose hardware, damaged linkages, worn or broken lines, or anything that looks out of the ordinary.

5. List the probable causes

Write down the information you have learned by steps 1 through 4. What are the signs you found while inspecting the unit and what are the most probable causes as outlined under "Diagnosing"?

6. Reach some conclusions

Look over the possible causes and decide which ones are most likely. Reach your decision on the most probable cause and plan to check it first.

7. Test your conclusions

Before disassembling any components, test your conclusions to see which are correct. Tests narrow the possibilities and soon the actual cause will be pinpointed.

DIAGNOSING

Powershafts

Machine vibrates

Drive shaft bearing block loose—page 10, Fig. 12.
Powershaft sections not properly aligned—page 10.

Twisted PTO shaft

Overload on PTO shaft—Reduce load
Improper hitch setting—See Operator's Manual

PTO shaft not telescoping properly

Worn bearings—page 8
Spinner shields rusted—page 8
Poor lubrication—page 5
Shaft packed with dirt—Disassemble and clean

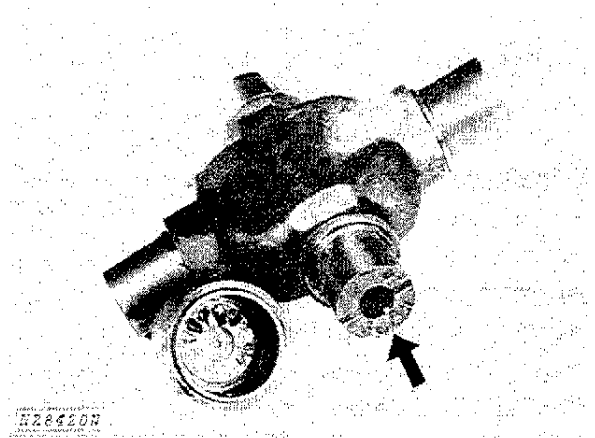


Fig. 2—Universal Joint Damage

Galling of U-Joint journal (Fig. 2)

Drive shaft rpm too high—See Operator's Manual
Excessive vibration—See above, "Machine vibrates"

Main powershaft U-joints damaged

Powershaft sections not properly aligned—page 10
Insufficient lubrication—page 5

DIAGNOSING—Continued

Journal cross end and cup chipping

Powershaft not properly aligned—page 10

Abrasive corrosion on PTO shaft

Extreme low angle operation—Reduce angle

Corn Head

NOTE: See Corn Head Operator's Manual for correction of following problems, except as noted.

Excess trash in load

- Slow down
- Remove center shield extensions
- Adjust deck spacing
- Change sprockets on head/husker (see decal)

Ear shelling at stalk rolls

Adjust deck plates

Plugging

- Trash winding around stalk rolls
- Loose gatherer chains
- Stalks breaking in stalk rolls or deck plates

Loss of ear corn in field

- Gatherer chain speed too fast or too slow
- Excessive air blast—page 16 of this manual

Pulling up corn stalks

Deck plates too close (see decal)

Breaking stalks at the joints (green stalks)

Change sprockets on head/husker (see decal)

Corn Head Gear Case

NOTE: See Corn Head Technical Manual for correction of following problems.

Stalk rolls clashing

- Stalk roll shafts not properly timed
- Stalk rolls striking trash knives

Gear case noisy

- Lack of lubricant
- Gears not meshing properly
- Excessive backlash
- Binding of gears

Gear case or barrel assembly excessively hot

- Lack of lubricant
- Binding of gears
- Defective bushings or bearings
- Improperly installed bearing cups

Barrel assembly leaking grease

- Defective seal under stalk roll
- Defective bearing

Husker

Vibration of corn head drive

Add washers to spacer bolt—page 24

Poor husking

- Husk rolls not touching—page 27
- Husks tightly wrapped—install pegs (see operator's manual.)
- Insufficient air blast—page 20
- Clean out first elevator air chamber (see operator's manual.)

First elevator shafts breaking

- Excessive trash build-up—adjust stripper, page 24
- Conveyor chain not adjusted properly—page 25

Husk roll pivot brackets breaking

Brackets not adjusted properly—check play, page 27

Shelled corn chain breaking

- Chain not adjusted properly—check tension, page 28
- Slip clutch not adjusted properly, page 26

Wagon elevator chain breaking

Chain not adjusted properly—check tension, page 29

Gear case noisy

- Lack of lubricant—page 5
- Backlash set improperly—page 14
- Leaking grease—page 13
- Bearing worn or not seated—page 12
- Unequal rolling torque on both shafts—page 14

Electromagnetic clutch not working

- Insufficient power to clutch—page 15
- Field coil burned out—page 16
- Clutch gear frozen on studs—page 15
- Defective switch—page 18

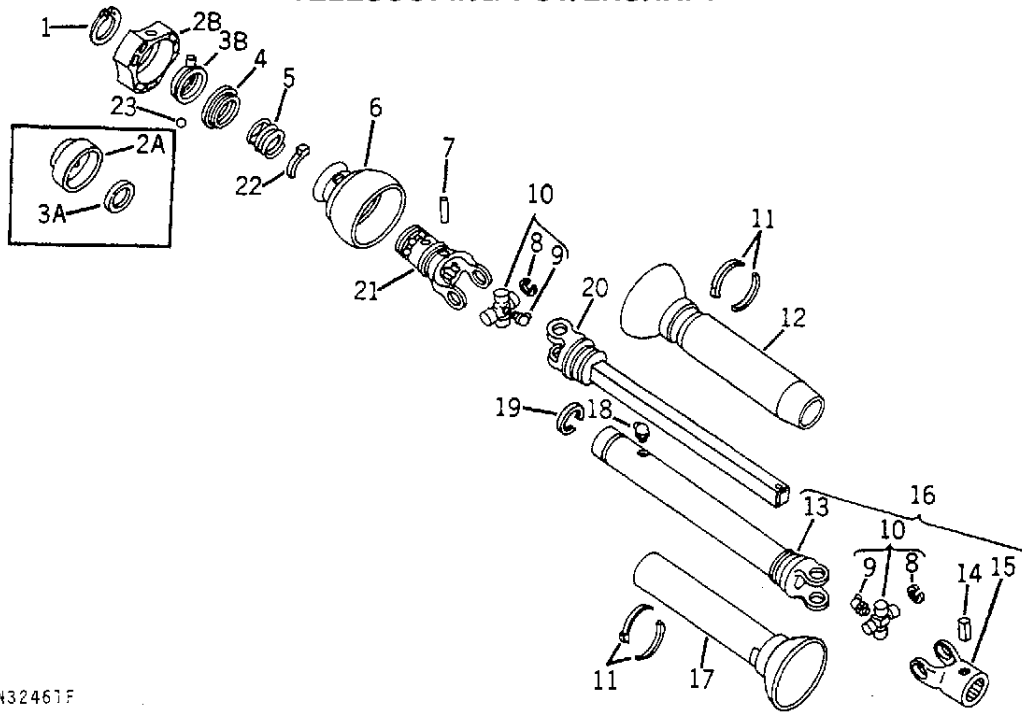
STANDARD TORQUE VALUE CHART

Recommended Torque Value in Foot-Pounds (Nm [kgm])
Coarse and Fine Threads

Bolt Diameter	Three Radial Dashes	Six Radial Dashes
1/4	10 (14 [1.4])	14 (19 [1.9])
5/16	20 (27 [2.8])	30 (41 [4.1])
3/8	35 (47 [4.8])	50 (68 [6.9])
7/16	55 (75 [7.6])	80 (108 [11])
1/2	85 (115 [12])	120 (163 [17])
9/16	130 (176 [18])	175 (237 [24])
5/8	170 (230 [23])	240 (325 [33])
3/4	300 (407 [41])	425 (576 [59])
7/8	445 (603 [61])	685 (928 [95])
1	670 (908 [92])	1030 (1396 [142])

POWERSHAFTS

TELESCOPING POWERSHAFT



N32461F

- | | | | | | |
|---------------|-------------|-----------------|------------|------------|------------|
| 1 — Snap Ring | 3B—Latch | 7—Pin | 11—Bearing | 15—Yoke | 19—Bearing |
| 2A—Collar | 4 —Retainer | 8—Snap Ring (2) | 12—Shield | 16—Tube | 20—Shaft |
| 2B—Collar | 5 —Spring | 9—Fitting (2) | 13—Tube | 17—Shield | 21—Yoke |
| 3A—Spacer | 6 —Shield | 10—Cross (2) | 14—Pin | 18—Fitting | 22—Bearing |
| | | | | | 23—Ball |

Fig. 3-Telescoping Powershaft Components

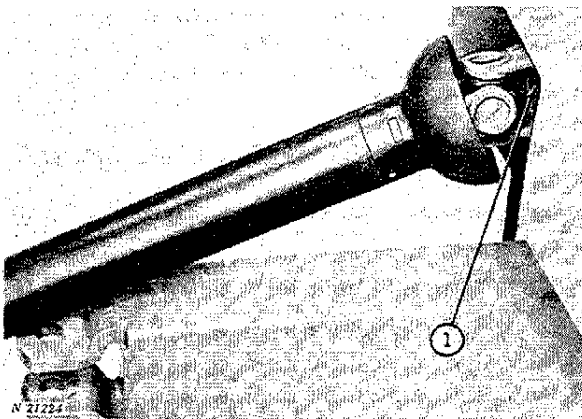
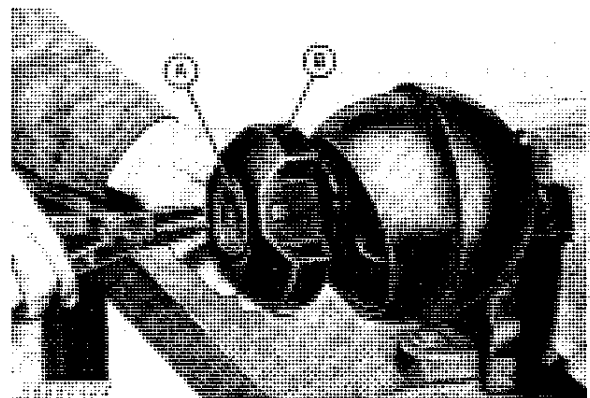


Fig. 4-Removing Telescoping Powershaft

1. Remove spring pin holding yoke to main powershaft and pull yoke from shaft.

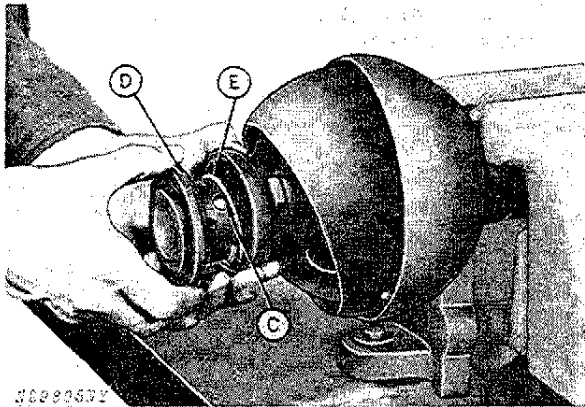


A—Snap Ring B—Push-Collar Assembly

Fig. 5-Removing Snap Ring

2. Place the front section in a vise and remove the snap ring (A, Fig. 5).

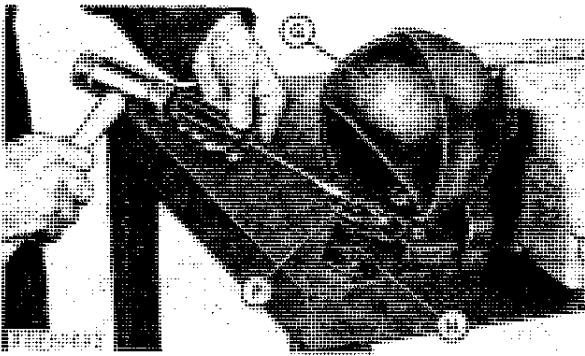
3. Remove the push-collar assembly (B).



C—Steel Ball D—Collar Retainer E—Spring

Fig. 6-Removing Collar Retainer

4. Remove the three steel balls (C, Fig. 6) from the push button yoke; then remove the collar retainer (D) and spring (E).

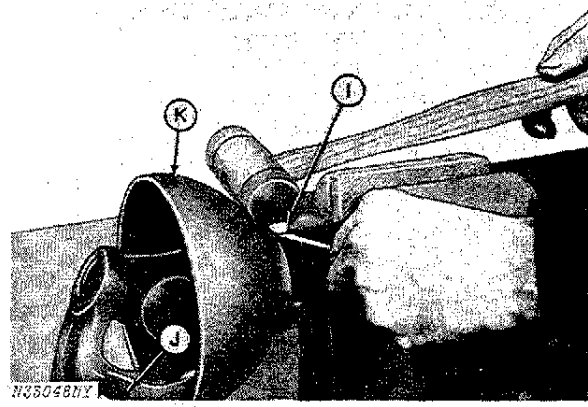


F—Locking Bearing G—Closure Shield
H—Push-Button Yoke

Fig. 7-Removing Front Closure Shield

5. Lift the locking bearing (F, Fig. 7) up and out of the assembly with a screwdriver; drive the bearings out.

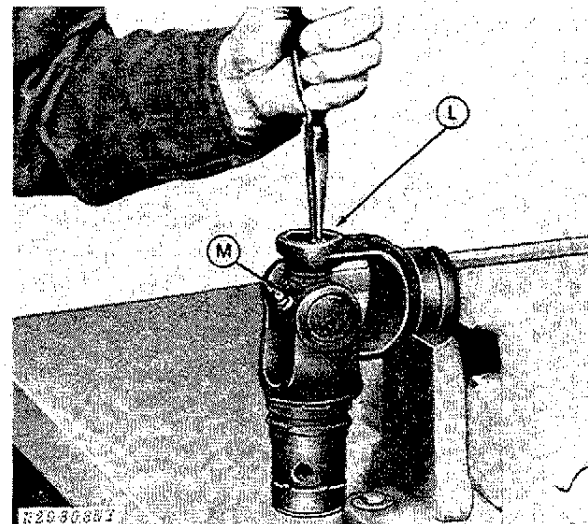
6. Remove the closure shield (G) from the push-button yoke (H).



I—Locking Bearing J—Yoke and Shaft Assembly
K—Rear Shield

Fig. 8-Removing Rear Shield

7. Remove the locking bearings (I, Fig. 8) from the rear shield (J) in the same manner; then remove the yoke and shaft assembly (K).



L—Retaining Ring M—Spider and Bearing Assembly

Fig. 9-Removing Retaining Rings

8. Support the yoke and shaft assembly (front or rear) in a vise; then remove the retaining rings (L, Fig. 9) from the spider and bearing assembly (M).

TELESCOPING POWERSHAFT— Continued

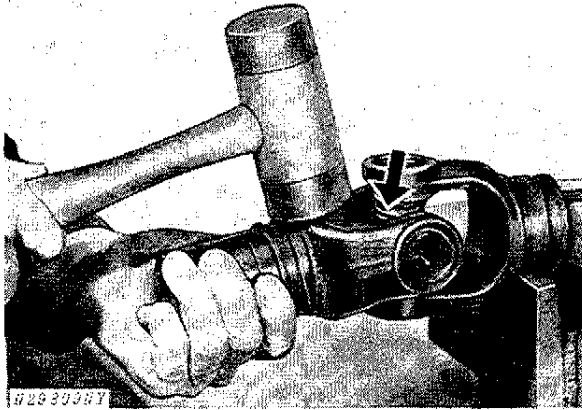


Fig. 10-Removing Spider and Bearing Assembly

9. Drive the spider and bearing assembly from the yoke with a rubber hammer (Fig. 10). Repeat the procedure for the other two bearings, and the other yoke.

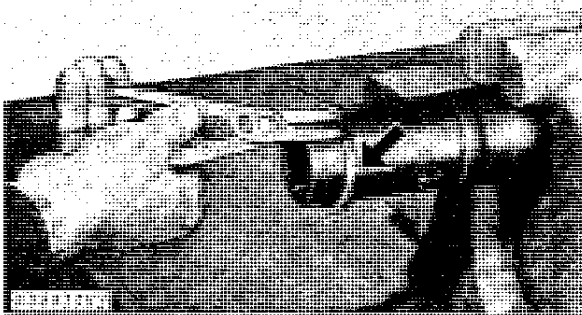


Fig. 11-Removing Nylon Bearing

10. Remove the nylon bearing from the rear section by spreading the ends apart and lifting off (Fig. 11).

11. Check the cross assemblies (10, Fig. 3) for wear. Replace if defects are found.

12. Check the yoke tube (13) and yoke shaft (20) for straightness. Replace if defects are found.

13. Check the compression spring (5) for cracks or rust. Replace if defects are found.

14. Check the nylon locking bearings (11, 22) for wear. Replace if defects are found.

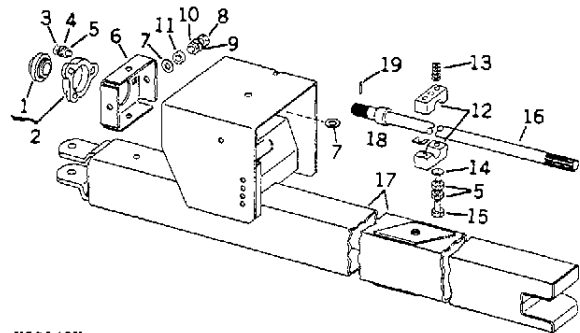
15. Apply molydisulfide grease to locking bearing grooves before assembly. Locking bearings may be softened by soaking in boiling water.

16. Install shields (12, 17, Fig. 3) and lock in place with locking bearings (11).

17. Grease shaft (20) (See page 5) and slide two sections of powershaft together.

IMPORTANT: Make sure locating tab is installed in shaft, to assure proper phasing of powershaft sections.

MAIN POWERSHAFT



N33049N

- | | |
|------------------|--------------------|
| 1—Bearing | 11—Spacer (4) |
| 2—Bearing | 12—Block |
| 3—Rd Hd Bolt (3) | 13—Spring (2) |
| 4—Washer | 14—Washer (2) |
| 5—Nut | 15—Cap Screw (2) |
| 6—Plate | 16—Shaft |
| 7—Washer (4) | 17—Tongue |
| 8—Cap Screw (4) | 18—Shim (As Req'd) |
| 9—Washer | 19—Pin |
| 10—Nut | |

Fig. 12-Powershaft

1. To remove powershaft (16, Fig. 12), remove bolts from bearing (2, Fig. 12) and pull shaft out. If necessary, loosen cap screws through bearing block (12).

2. Examine bearings and shaft. Replace worn or damaged parts.

3. Install shaft, being sure to align slot in U-joint with two bridged teeth on powershaft as they are assembled. This aligns front and rear joints to insure maximum life.

4. Pin telescoping shaft U-joint to powershaft (Fig. 4).

5. **IMPORTANT: Assemble bearing blocks (12) to shaft and tighten cap screws until a drag is felt when the telescoping shaft is turned by hand. If necessary, remove shims (18). DO NOT OVERTIGHTEN UNTIL SHAFT CANNOT BE TURNED BY HAND. Lubricate blocks with a few drops of oil through the center hole in the top block.**

GEAR CASE

GENERAL INFORMATION



Fig. 13-Gear Case (Idler Sheave Removed)

The gear case (Fig. 13) is located behind the front screen, and is driven by the powershaft through the telescoping rear universal joint.

The gear case consists primarily of the input shaft, which is driven at 1000 rpm; and the output shaft, which is driven at 540 rpm. The output shaft provides power to the wagon elevator through an electric clutch, and to the corn attachment, stalk ejector rolls, husk rolls, and husk auger through the cross drive shaft.

REMOVAL

1. Remove the 2 spring pins from the front screen; then lift off the screen.

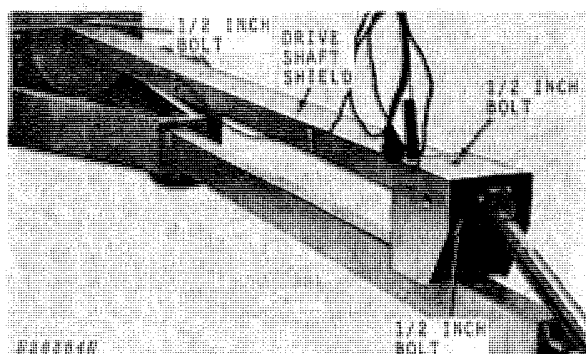


Fig. 14-Drive Shaft and Shield

2. Pull away the drive shaft and shield after removing 3 bolts (Fig. 14): 2 from the top and bottom of front bearing support plate and 1 from the support channel.

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IMPORTANT: Before pulling the drive shaft and shield away from the gear case, make sure there is enough slack in the electrical and hydraulic lines to prevent damage to them.

3. Remove the 4 bolts securing the support channel.

4. Loosen the fan idler spring bolt (A, Fig. 32, page 18) to relieve tension on the fan belt; then remove the belt.

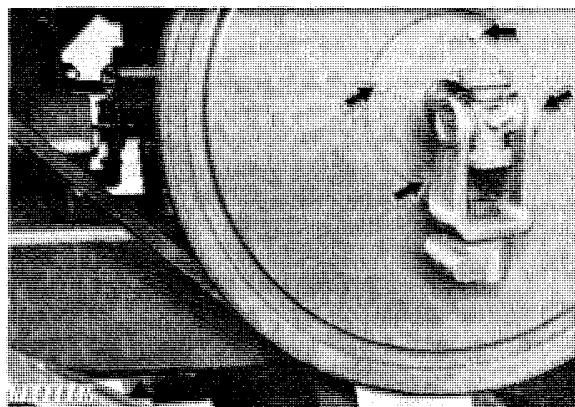


Fig. 15-Fan Sheave Bolts

5. Remove the 4 bolts securing the fan drive sheave to hub. (Fig. 15).

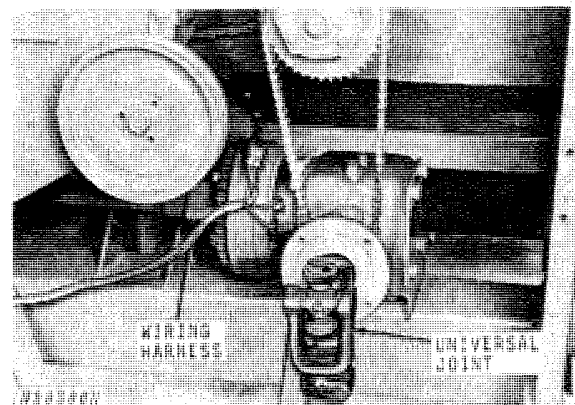


Fig. 16-Fan Sheave Removed

6. Pull the sheave over the universal joint (Fig. 16).

7. Remove the clutch wiring harness from the clutch terminals.