

# **6100, 6500, 6600 Self-Propelled Sprayers**

**For complete service information also see:**

**3029, 4039, 4045,  
6059 and 6068 Engines . . . . . CTM8**

**Alternators and Starting Motors . . . . . CTM77**

**John Deere Des Moines Works  
TM1511 (05DEC97)**

LITHO IN U.S.A.  
ENGLISH

# Introduction

## FOREWORD

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

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*All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.*

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# Section 10 GENERAL INFORMATION

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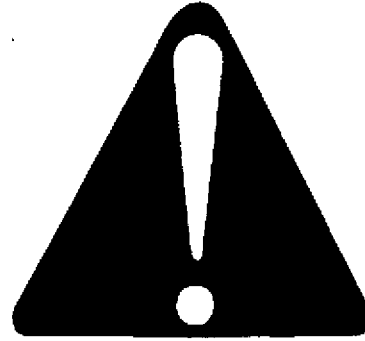
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## RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



DX,ALERT -19-03MAR93

10  
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T81389 -UN-07DEC88

## UNDERSTAND SIGNAL WORDS

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



DX,SIGNAL -19-03MAR93

TS187 -19-30SEP88

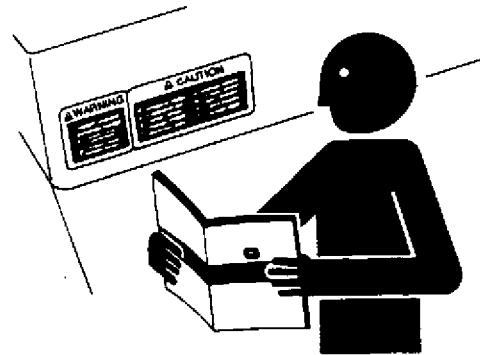
## FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



DX,READ -19-03MAR93

TS201 -UN-23AUG88

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### HANDLE FLUIDS SAFELY—AVOID FIRES

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



DX,FLAME -19-04JUN90

-JUN-23AUG88  
TS227

### PREVENT BATTERY EXPLOSIONS

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



DX,SPARKS -19-03MAR93

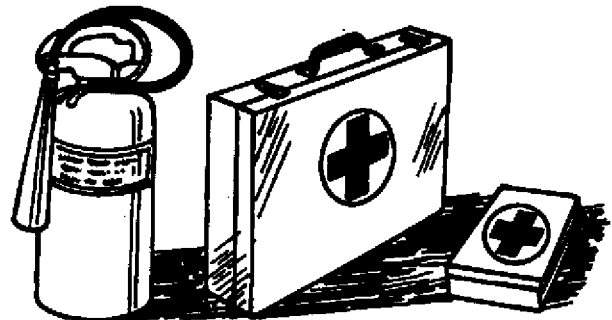
-JUN-23AUG88  
TS204

### PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

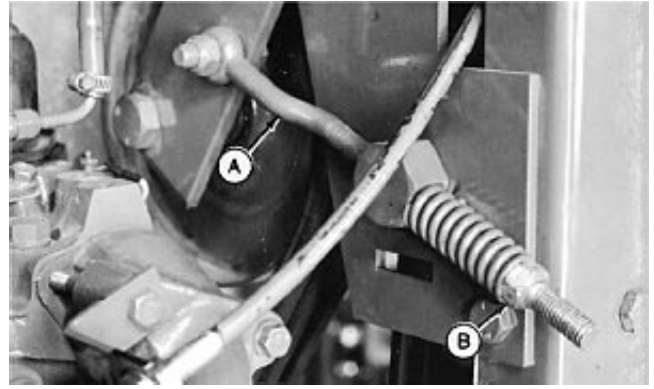


DX,FIRE2 -19-03MAR93

-JUN-23AUG88  
TS291

## REMOVE AND INSTALL MAIN DRIVE BELT

1. Remove wing nuts securing pump shield and lower shield to ground.
2. Move solution tank back. (See procedure in Section 80, Group 10.)
3. Remove solution pump drive belt. (See procedure in Section 80, Group 15.)
4. Loosen nut (B) on idler sheave tension rod (A) to release main drive belt tension.
5. Remove main drive belt.
6. Inspect main drive belt for wear or damage. Replace as necessary.
7. Install main drive belt.
8. Adjust main drive belt. (See procedure in Section 250, Group 20.)
9. Install solution pump drive belt. (See procedure in Section 80, Group 15.)
10. Move solution tank forward and install. (See procedure in Section 80, Group 10.)
11. Install pump shield and secure with wing nuts.



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-JUN-18JUN92

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NX1511,5005,C -19-21FEB94

## REMOVE HYDROSTATIC DRIVE PUMP

6500 (SN —6000) shown throughout. 6100, 6500 (SN 6001— ) and 6600 procedures the same except where noted.

1. Extend tread width to access components.
2. Remove the solution tank. (See procedure in Section 80, Group 10.)
3. Clean the hydrostatic drive pump and its line connections.

*NOTE: Approximate capacity of reservoir is 34 L (9 gal.)*

4. Drain the hydraulic reservoir.
5. Remove plug (I) to drain pump.

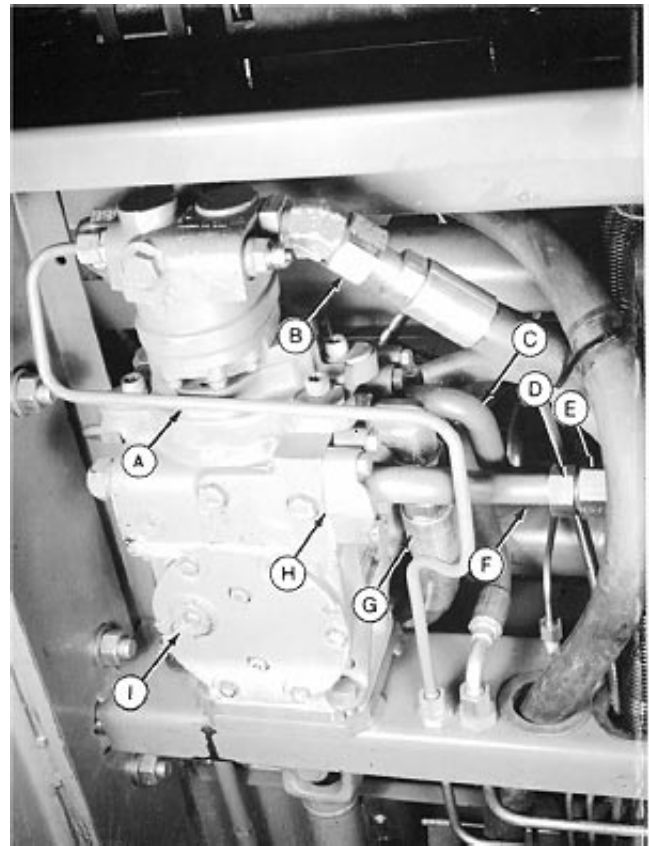
*NOTE: Close all openings using caps and plugs.*

6. Remove line (A).

For 6100, 6500 (SN 6001— ), 6600: A hose is used in this location.

**IMPORTANT: Do not attempt to turn nut (D). Nut is brazed to line. Loosen nut (E) to disconnect lines (C) and (F).**

7. Remove retainers (H) and lines (C) and (F).
8. Disconnect hoses (B) and (G).



6500 (SN —6000) Shown

- A—Hydraulic Line 6500 (SN —6000)  
Hydraulic Hose 6100, 6500 (SN 6001— ),  
6600
- B—Hydraulic Hose
- C—Hydraulic Line
- D—Fixed Nut
- E—Connector Nut
- F—Hydraulic Line
- G—Hydraulic Hose
- H—Retainer (4 used)
- I—Drain Plug

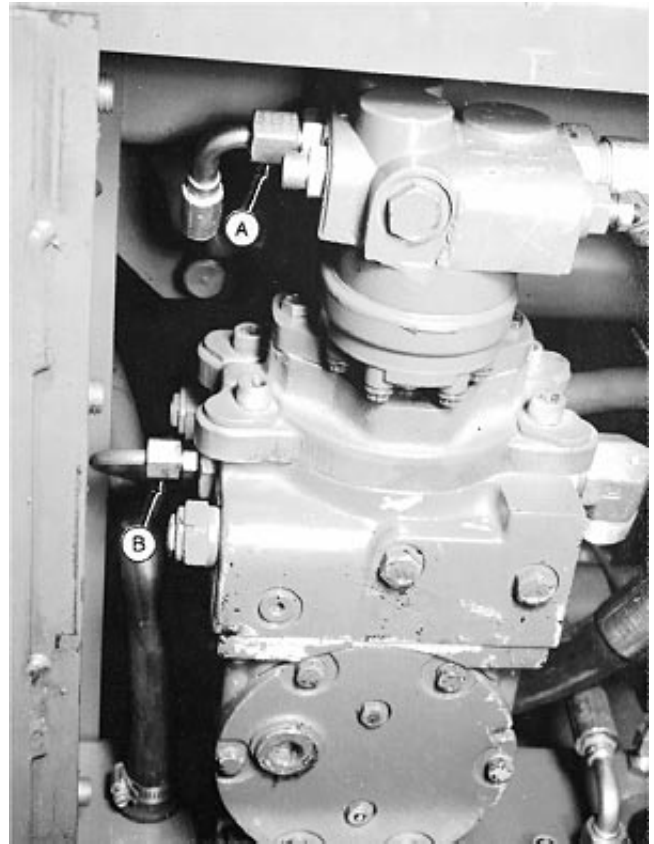
NX1511,5005,D -19-25JUN97

Remove and Install Hydrostatic Components/Hydrostatic Drive Pump

9. Disconnect hose (A).

10. Disconnect line (B).

For 6100, 6500 (SN 6001— ), 6600: A hose is used in this location.



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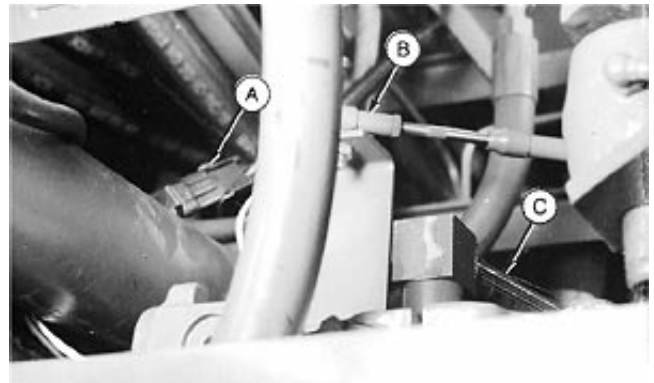
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11. Disconnect neutral switch wiring connector (A).  
(Located at top of pump.)

12. Disconnect control cable (B).

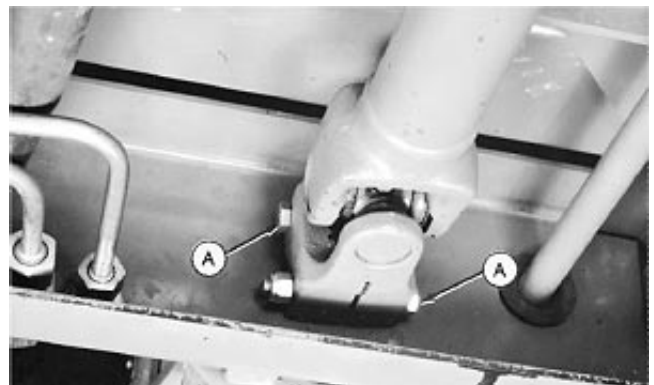
13. Disconnect pump-to-oil cooler hose (C).



NX1511,5005,F -19-02NOV92

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14. Loosen cap screws (A).



NX1511,5005,G -19-02NOV92

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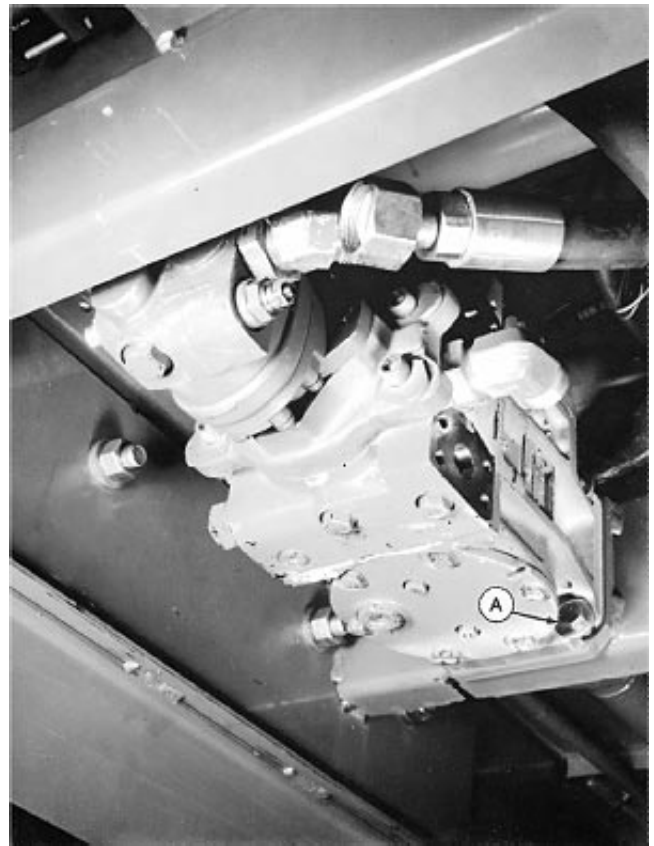
15. Remove three hydrostatic pump mounting cap screws and washers. Leave mounting cap screw (A) in place.

16. Install transmission jack under pump.

17. Remove remaining mounting cap screw (A) and washer.

*NOTE: Clearance is very close during pump removal. Remove hydraulic pump from hydrostatic pump, if necessary, to ease removal. (See procedure in Section 70, Group 05.)*

18. Remove hydrostatic pump.



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NX1511,5005,H -19-25JUN97

## INSTALL HYDROSTATIC DRIVE PUMP

6500 (SN —6000) shown throughout. Procedures for 6100, 6500 (SN 6001— ), 6600 are the same except where noted.

1. Coat splines of hydrostatic pump input shaft with John Deere NEVER-SEEZ<sup>®</sup> Lubricant, or equivalent.

2. Use a transmission jack to install hydrostatic pump. (Pump input shaft must be connected to driveshaft yoke during pump installation.)

3. Install four washers and cap screws (A).

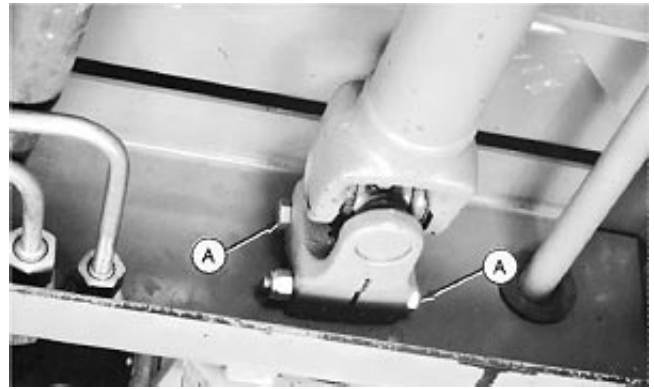


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NX1511,5005,I -19-25JUN97

Remove and Install Hydrostatic Components/Hydrostatic Drive Pump

4. Tighten cap screws (A).



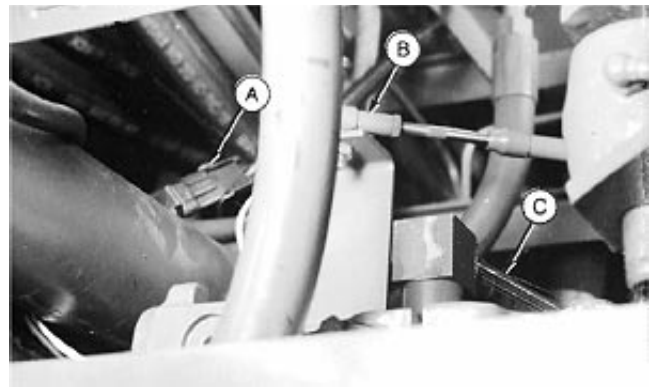
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5. Connect pump-to-oil cooler hose (C).

6. Connect control cable (B).

7. Connect wiring connector (A).



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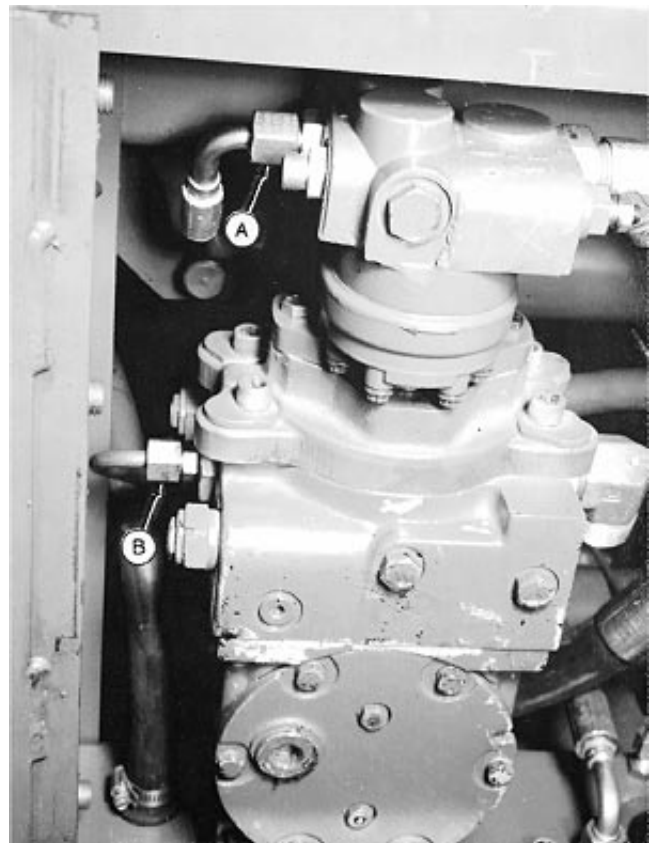
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**IMPORTANT: Replace all O-rings. Used or damaged O-rings can leak.**

8. Connect line (B), using new O-ring.

For 6100, 6500 (SN 6001— ), 6600: A hose is used in this location.

9. Connect hose (A), using new O-ring.



NX1511,5005,L -19-25JUN97

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10. Connect hoses (B) and (G) using new O-rings.
11. Install lines (C) and (F) using new O-rings, and retainers (H).
12. Install line (A) using new O-rings.

For 6100, 6500 (SN 6001— ) 6600: A hose is used in this location.

13. Tighten plug (I) to 27 N·m (20 lb-ft).

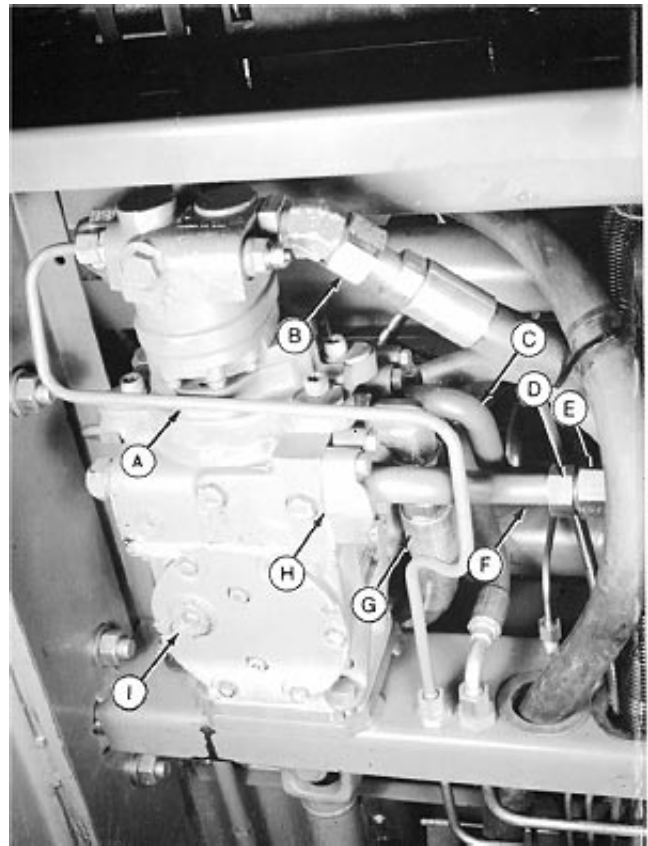
*NOTE: To prevent overfilling reservoir, retract all hydraulic cylinders before completely filling reservoir.*

14. Fill reservoir to sight glass with proper hydraulic oil. (See Section 10, Group 15.)

15. Adjust hydrostatic neutral linkage, if necessary. (See procedure in Section 250, Group 20.)

16. Install the solution tank. (See procedure in Section 80, Group 10.)

- |   |                  |
|---|------------------|
| A—Hydraulic Line 6500 (SN —6000)            | D—Fixed Nut      |
| Hydraulic Hose 6100, 6500 (SN 6001— ), 6600 | E—Connector Nut  |
| B—Hydraulic Hose                            | F—Hydraulic Line |
| C—Hydraulic Line                            | G—Hydraulic Hose |
|   | H—Retainer       |
|   | I—Drain Plug     |

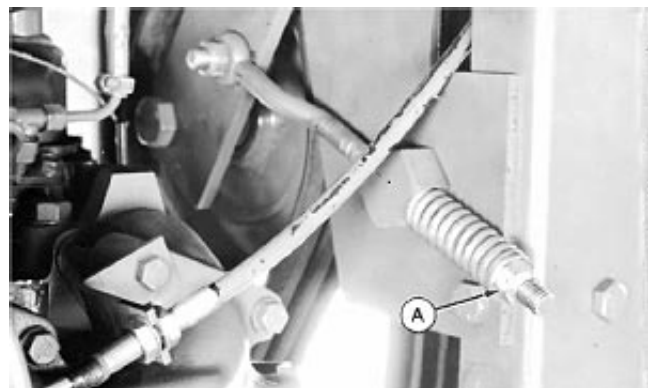


6500 (SN —6000) shown

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## REMOVE DRIVE SHAFT

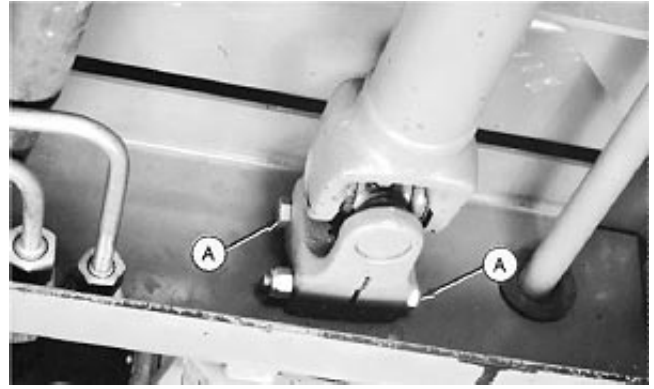
1. Remove solution tank. (See procedure in Section 80, Group 10.)
2. Remove nut (A) and spring.
3. Remove drive belt from drive shaft sheave.



NX1511,5005,N -19-21FEB94

Remove and Install Hydrostatic Components/Drive Shaft

4. Loosen cap screws (A).



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5. Remove nut and cap screw from hose clamp (C).

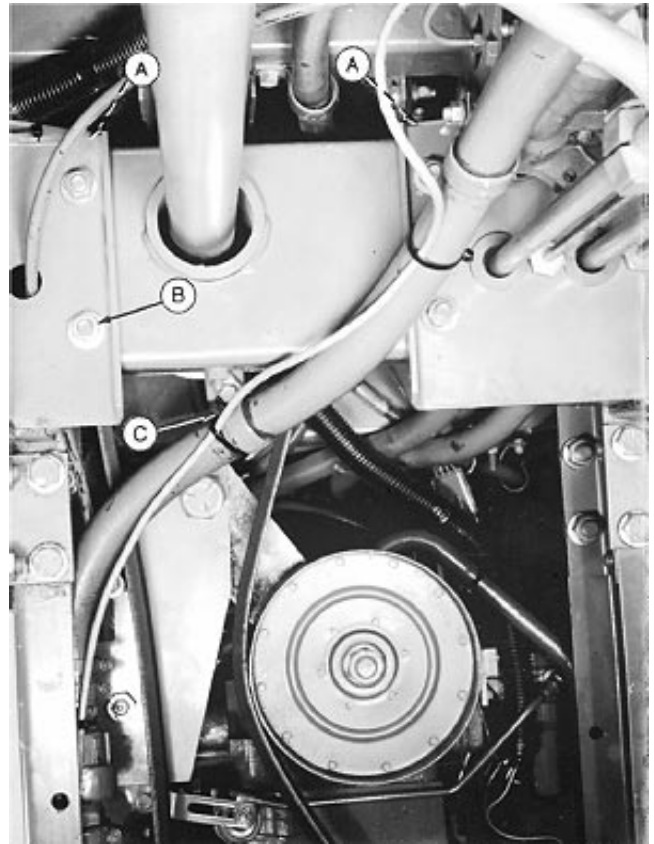
For 6500 (SN 6001— ): Remove sheave bracket retainer (D), cap screws (F), washers, nuts and bracket (E).

6. Remove nut and cap screw (A).

7. Remove four nuts (B), cap screws and washers.

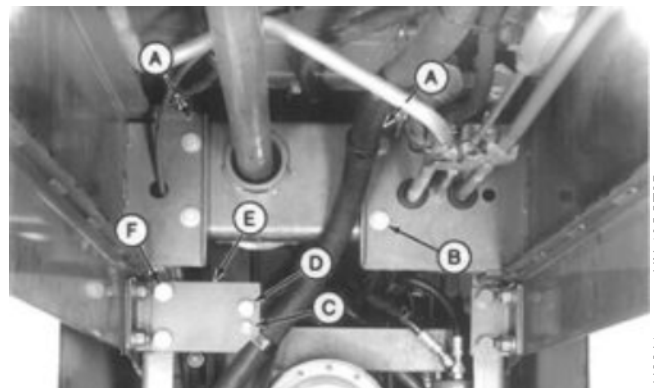
8. Remove drive shaft assembly.

- A—Cap Screw (2 used)
- B—Nuts (4 used)
- C—Hose Clamp
- D—Sheave Bracket Retainer
- E—Bracket
- F—Cap Screws (2 used)



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6500 (SN —6000) Shown



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6500 (SN 6001— ) Shown

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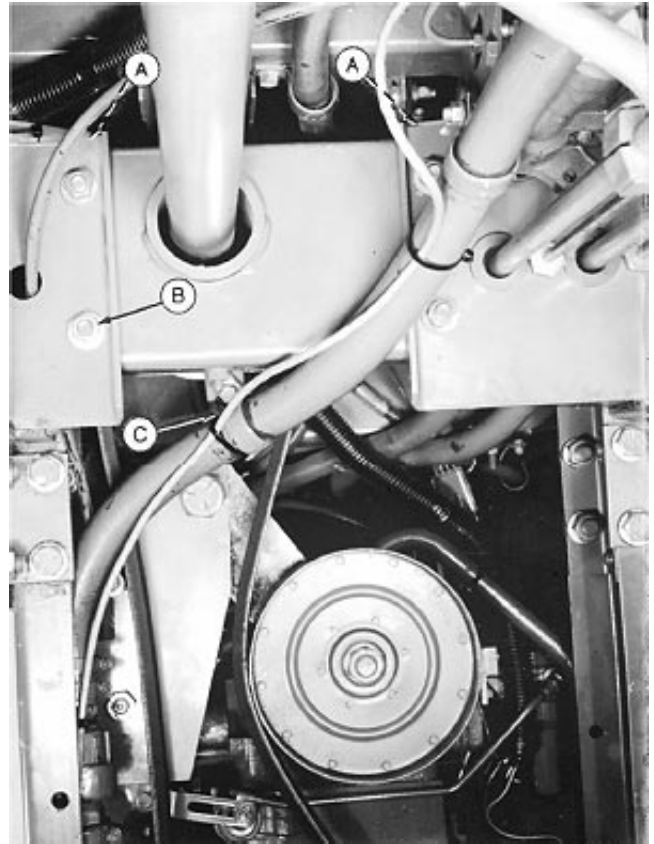
## INSTALL DRIVE SHAFT

1. Coat splines of drive shaft yoke with John Deere NEVER-SEEZ<sup>®</sup> lubricant or equivalent.
2. Install drive shaft assembly. Install yoke on hydrostatic pump input shaft.
3. Install cap screws, washers and nuts (B).
4. Install cap screws (A) and nuts.

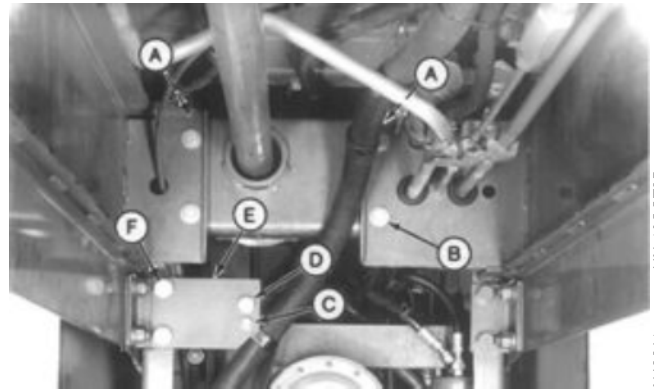
For 6100, 6500 (SN 6001— ), 6600: Install bracket (E) using cap screws (F), washers and nuts. Install sheave bracket retainer (D).

5. Install clamp (C) using nut and cap screw.

- A—Cap Screws (2 used)
- B—Nuts (4 used)
- C—Hose Clamp
- D—Sheave Bracket Retainer
- E—Bracket
- F—Cap Screws (2 used)

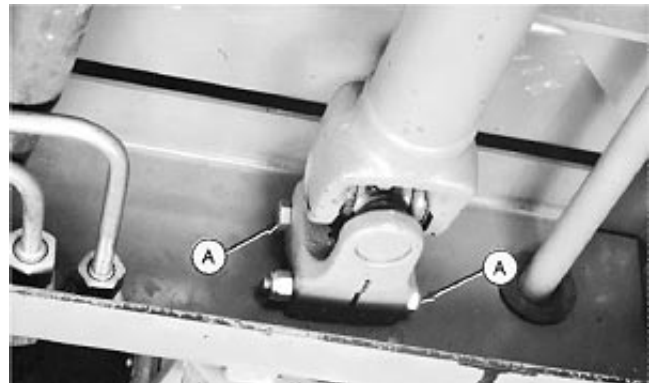


6500 (SN —6000) Shown



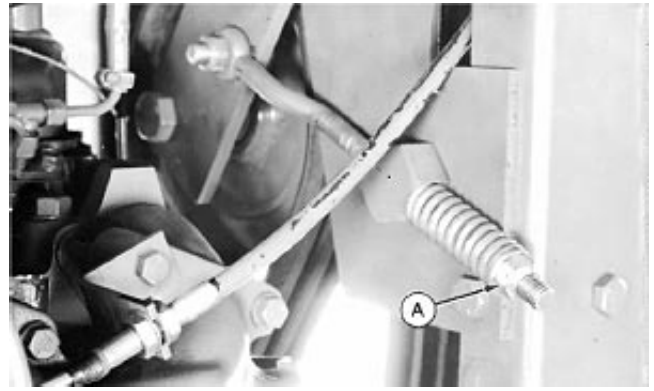
6500 (SN 6001— ) Shown  
NX1511,5005,Q -19-25JUN97

6. Tighten cap screws (A).



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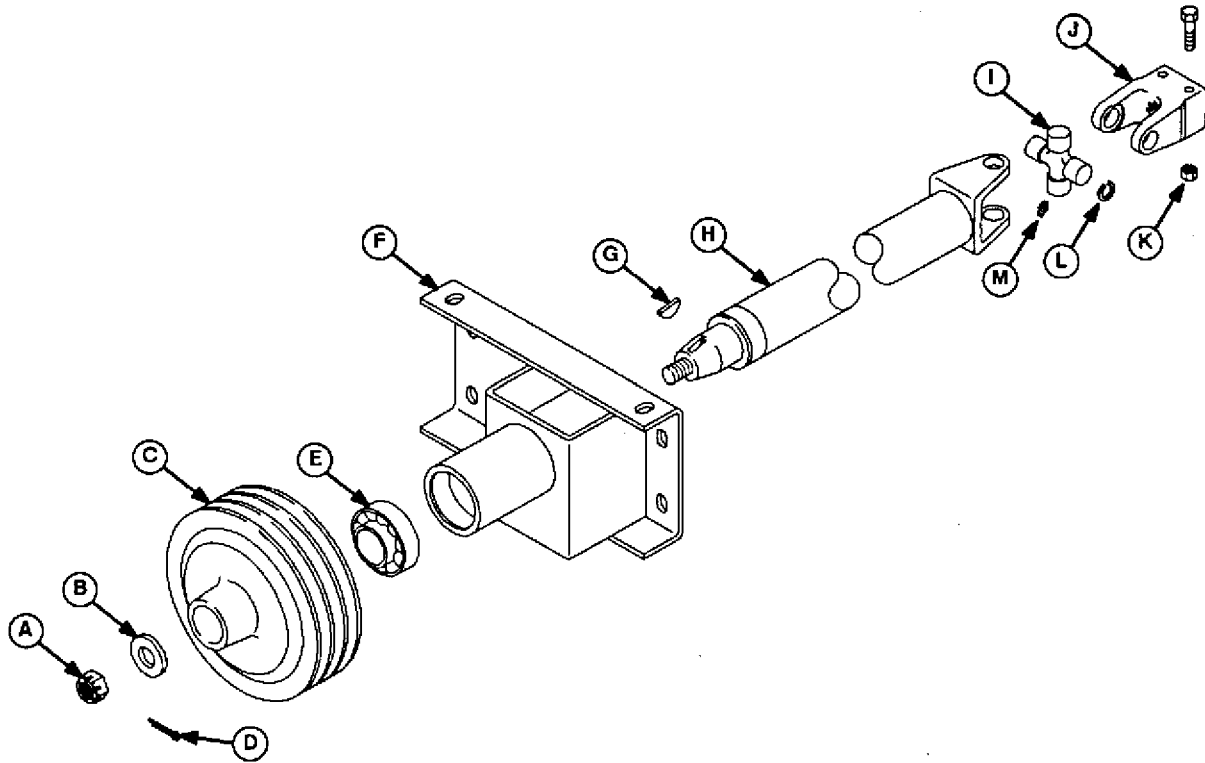
7. Install drive belt on drive shaft sheave.
8. Install spring and nut (A). Tighten nut to adjust idler spring to 61 mm (2.4 in.) and tension main drive belt.
9. Install solution tank. (See procedure in Section 80, Group 10.)



NX1511,5005,S -19-02NOV92

N44773 -JUN-30JUL92

## INSPECT DRIVE SHAFT



A—Castellated Nut  
B—Washer  
C—Sheave  
D—Cotter Pin

E—Bearing  
F—Bracket  
G—Woodruff Key

H—Drive Shaft  
I—Cross  
J—Yoke

K—Lock Nut (2 used)  
L—Snap Ring  
M—Lubrication Fitting

Inspect parts (A—M) for wear or damage. Inspect bearing (E) for smooth operation, driveshaft for

straightness and splines of yoke (J) for damage. Replace parts as necessary.

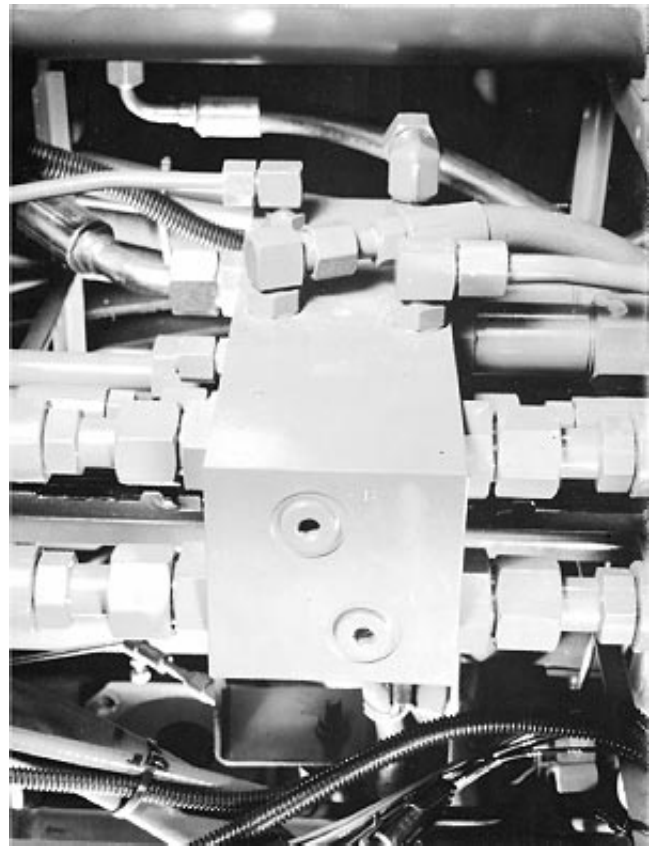
NX1511,5005,T -19-21NOV95

N44775 -JUN-03AUG92

## REMOVE AND INSTALL MANIFOLD—6500 (SN —6000)

*NOTE: Approximate capacity of reservoir is 34 L (9 gal.).*

1. Drain reservoir.
2. Remove walking cover.
3. Label lines and hoses to aid in connection. Disconnect all lines and hoses from manifold. Close all openings using caps and plugs.



NX1511,5005,U -19-25JUN97

N44776 -JUN-30JUL92

50-05-11

4. Disconnect solenoid valve wiring connector (B), located at bottom of manifold.
5. Remove four cap screws (A). Remove manifold.
6. Inspect manifold for cracks or damage. Remove ground speed solenoid valve, if necessary. (See procedure in this group.)
7. Install manifold using cap screws.
8. Connect wiring connector.



NX1511,5005,V -19-21NOV95

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**IMPORTANT: Replace all O-rings. Used or damaged O-rings can leak.**

9. Connect all lines and hoses using new O-rings, as shown.

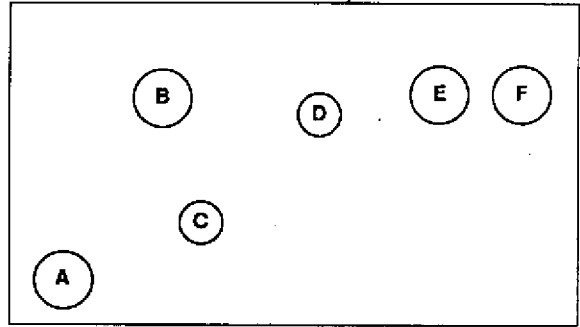
*NOTE: To prevent overfilling, retract all hydraulic cylinders before completely filling reservoir.*

10. Fill reservoir to sight glass with proper hydraulic oil. (See Section 10, Group 15.)

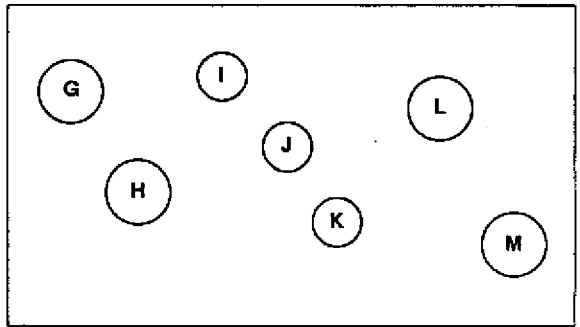
11. Operate all hydraulic functions and check manifold connections for leaks.

12. Install walking cover.

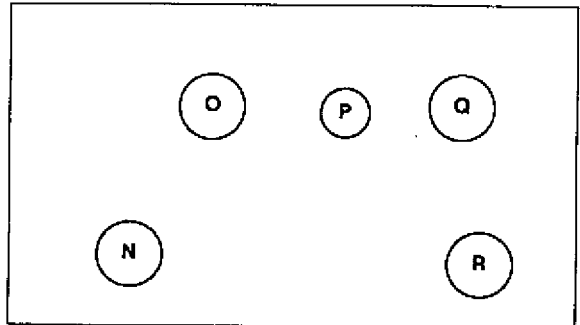
- A—LMA Port-to-Left Wheel Motor (rear fitting)
- B—LMB Port-to-Left Wheel Motor (front fitting)
- C—LC Port-to-Left Wheel Motor (lower fitting)
- D—LT Port-to-Left Wheel Motor (upper fitting)
- E—PA Port-to-Hydrostatic Pump A Port
- F—PB Port-to-Hydrostatic Pump B Port
- G—T Port-to-Reservoir
- H—R Port-to-Filter
- I—GR Plug
- J—RT Port-to-Right Wheel Motor (upper fitting)
- K—RC Port-to-Right Wheel Motor (lower fitting)
- L—RMA Port-to-Right Wheel Motor (front fitting)
- M—RMB Port-to-Right Wheel Motor (rear fitting)
- N—R Port-to-Tread Adjust Valve T Port
- O—R Port-to-Auxiliary Valve T Port
- P—GC Plug
- Q—C Port-to-Hydrostatic Pump
- R—R Port-to-Boom Control Valve T Port
- S—Plug
- T—Plug
- U—Ground Speed Solenoid Valve
- V—R Port-to-Steering Return Line (at crossmember)



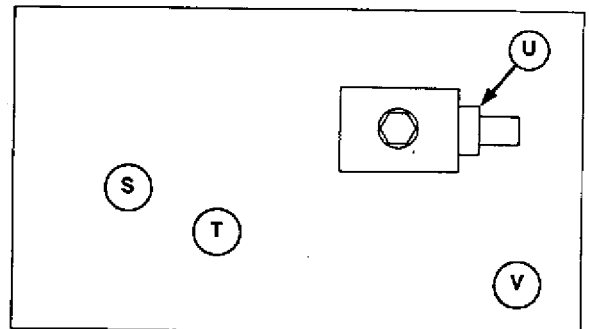
Right Side



Left Side



Top



Bottom

-UN-03AUG92  
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## REMOVE AND INSTALL GROUND SPEED SOLENOID VALVE—6500 (SN —6000)

*NOTE: Approximate capacity of reservoir is 34 L (9 gal).*

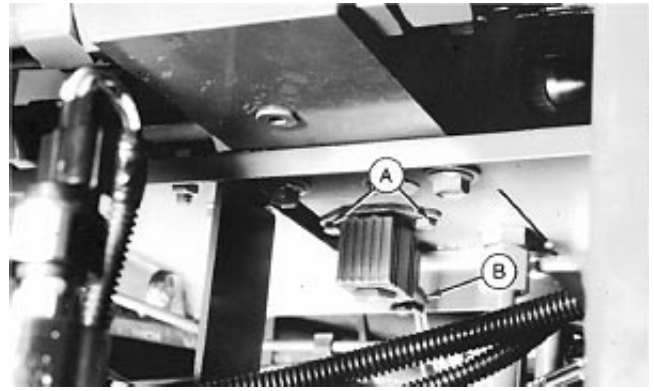
1. Drain the hydraulic reservoir.

*NOTE: Ground speed solenoid valve is located on bottom of manifold.*

2. Disconnect wiring connector (B).
3. Remove two cap screws (A). Remove valve.
4. Inspect valve. (See procedure in this group.) Replace if necessary.
5. Install valve.
6. Connect wiring connector.

*NOTE: To prevent overfilling, retract all hydraulic cylinders before completely filling reservoir.*

7. Fill reservoir to level of sight glass using proper hydraulic oil. (See Section 10, Group 15.)

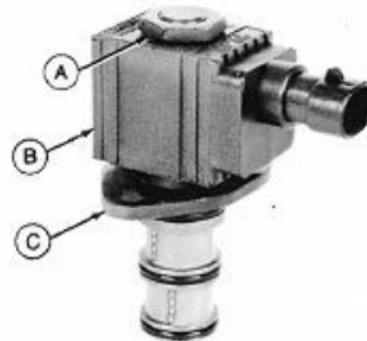


N44782 -UN-30JUL92

NX1511,5005.X -19-25JUN97

## INSPECT GROUND SPEED SOLENOID VALVE—6500 (SN —6000)

1. Remove nut (A).
2. Remove solenoid (B) and clamp (C).



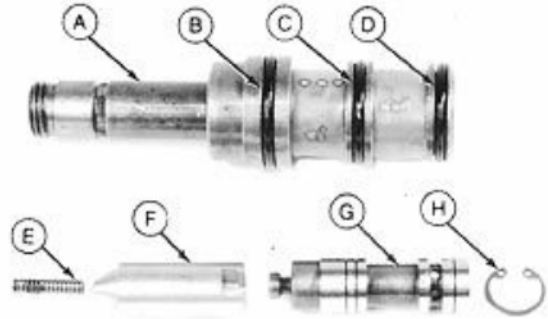
N44783 -UN-30JUL92

NX1511,5005.Y -19-25JUN97

Remove and Install Hydrostatic Components/Ground Speed Solenoid Valve

3. Remove parts (A—H).
4. Clean and inspect parts for wear or damage. Replace valve if necessary.
5. Replace all O-rings.
6. Install parts.

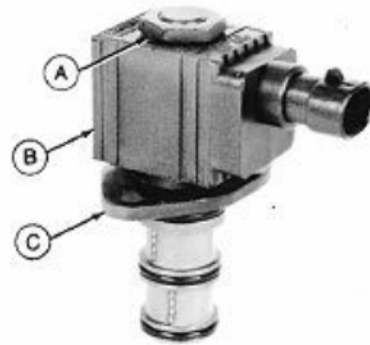
- A—Valve Body
- B—O-Ring
- C—O-Ring
- D—O-Ring
- E—Spring
- F—Plunger
- G—Spool
- H—Snap Ring



NX1511,5005,Z -19-21NOV95

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7. Install parts (A—C). Tighten nut (A) to 6 N·m (53 lb-in.).



NX1511,5005,AA -19-02NOV92

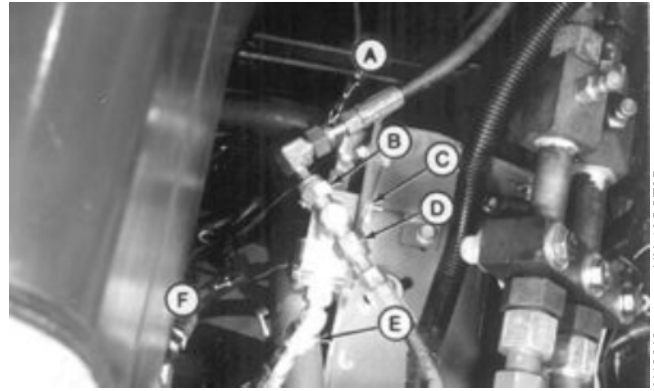
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## REMOVE AND INSTALL GROUND SPEED SOLENOID VALVE—6100, 6500 (SN 6001— ), 6600

*NOTE: Approximate capacity of reservoir is 34 L (9 gal).*

1. Drain the hydraulic reservoir.
2. Disconnect wiring connector (F).
3. Remove hoses (A, B, D and E). Cap and plug all openings.
4. Remove cap screws, washers, nuts (C) and valve.
5. Install valve using cap screws, washers and nuts.
6. Install all hoses and wiring connector.
7. Fill hydraulic reservoir to center of sight glass with recommended oil. (See Section 10, Group 15.)



A—Hose to Reservoir  
B—Hose to Right Wheel Motor  
C—Nut (2 used)  
D—Hose to Left Wheel Motor  
E—Hose from Hydrostatic Pump  
F—Wire Connector to Solenoid

NX1511,5005,AC -19-25JUN97

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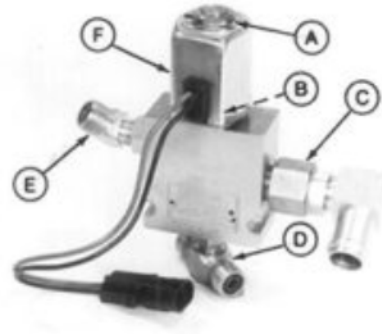
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## DISASSEMBLE AND ASSEMBLE GROUND SPEED SOLENOID VALVE—6100, 6500 (SN 6001— ), 6600

*NOTE: Record orientation of fittings-to-valve housing before removing them, to aid in assembly.*

1. Remove fittings (C—E).
2. Remove nut (A) and solenoid coil assembly (F).
3. Remove solenoid valve (B).

A—Nut  
B—Solenoid Valve  
C—90° Fitting  
D—T-Fitting  
E—45° Fitting  
F—Coil Assembly



NX1511,5005,AD -19-25JUN97

N48649 -JUN-10OCT95

Remove and Install Hydrostatic Components/Ground Speed Solenoid Valve

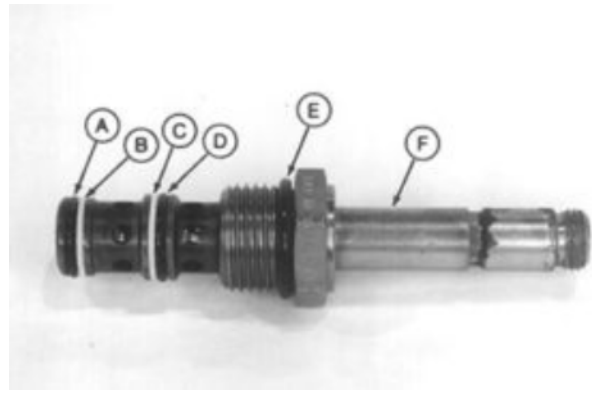
4. Remove parts (A—E).

5. Clean and inspect solenoid valve (F) for wear or damage. Replace valve if necessary.

6. Replace all O-rings and backup rings with new. Used or damaged O-rings will leak.

7. Clean and inspect valve housing for cracks or damaged threads. Replace valve housing if necessary.

- A—O-Ring
- B—Backup Ring
- C—Backup Ring
- D—O-Ring
- E—O-Ring
- F—Solenoid Valve



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NX1511,5005,AE -19-21NOV95

8. Install fittings into valve housing (A). Position fittings as they were before removal.

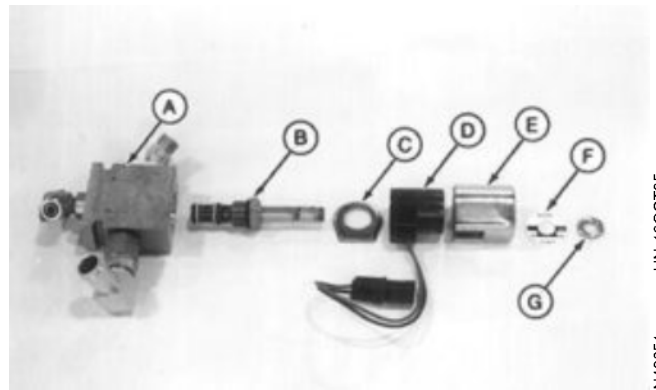
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9. Lubricate solenoid valve (B) to top of threads using clean hydraulic oil.

10. Install valve and tighten to 47 N·m (35 lb-ft).

*NOTE: Tighten solenoid valve nut to specifications. Overtightening nut can cause valve failure.*

11. Install parts (C—G). Tighten nut (G) to 6.5 N·m (60 lb-in.) maximum.



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N48651

- A—Valve Housing
- B—Solenoid Valve
- C—Base Plate
- D—Coil
- E—Coil Housing
- F—Identification Plate
- G—Nut

NX1511,5005,AF -19-21NOV95



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## REMOVE AND INSTALL HYDROSTATIC DRIVE MOTOR

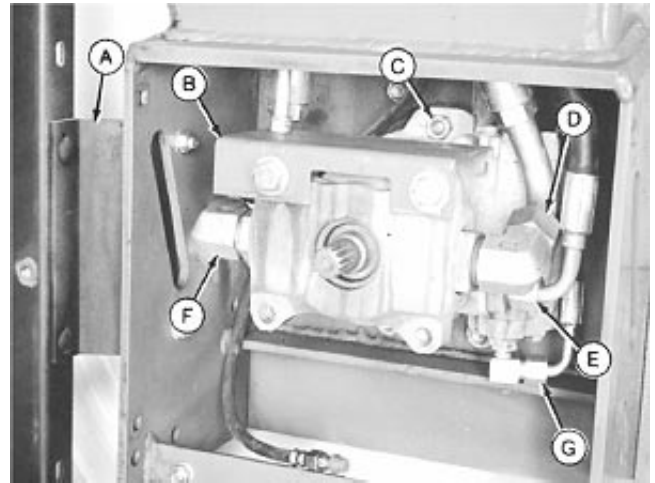
1. Remove brake disc and caliper. (See procedure in Section 60, Group 30.)
2. Remove bracket (B) (if equipped).

*NOTE: When disconnecting hose (G), be careful not to lose restrictor plate with O-ring (H).*

3. Disconnect hose (G). Remove restrictor plate with O-ring (H).
4. Disconnect hoses (D—F). Close all openings with caps and plugs.

**CAUTION:** Approximate weight of motor is 23 kg (51 lbs).

5. Remove two nuts (C).
6. Remove motor and O-ring.
7. Apply petroleum jelly to new O-ring and install motor.
8. Install nuts and tighten to 115 N·m (85 lb-ft).
9. Connect hoses (D—F).
10. Connect hose (G), making sure restrictor plate with O-ring (H) is installed in fitting.
11. Install bracket (B) (if equipped).
12. Install brake disk and caliper. (See procedure in Section 60, Group 30.)



Right Side Shown



- A—Support
- B—Park Brake Cable Bracket (if equipped)
- C—Nut (2 used)
- D—Hydraulic Hose
- E—Hydraulic Hose
- F—Hydraulic Hose
- G—Hydraulic Hose
- H—.028 in. Orifice Restrictor Plate with O-Ring

NX1511,5005,AB -19-21NOV95

N44245 -JUN-18JUN92

-JUN-18JUN92

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