TM2328
Energy Wood Harvester
1490D

TECHNICAL MANUAL
TM2328

TM2328 15JAN05 (ENGLISH)

For complete service information also see:

1490D Operator's Manual OMF069420
Deere engine 6068 HTJ77 Manual . . . . . CTM 104
Fuel system Manual for 4,5 and 6.8 l diesel engines . . . . . CTM 331
TMC Workshop OMF064497
Timbermatic 700 / 900 . . . . . OMF069483

Worldwide Construction And Forestry Division

Litho in Finland

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.

This technical manual is concise guide for specific machine type. This is on-the-job guide 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.

OUTJ003,0000344 –19–22JAN01–1/1

Serial Numbers

This Manual covers the following range of Forwarders serial numbers:

- WJ1490D002012...

JK11466,0000003 –19–14AUG03–1/1

John Deere Contact Information

Please, contact our web site: ***www.johndeere.com.***

EL62757,000015B –19–19APR02–1/1

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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.

Section 00
General Information

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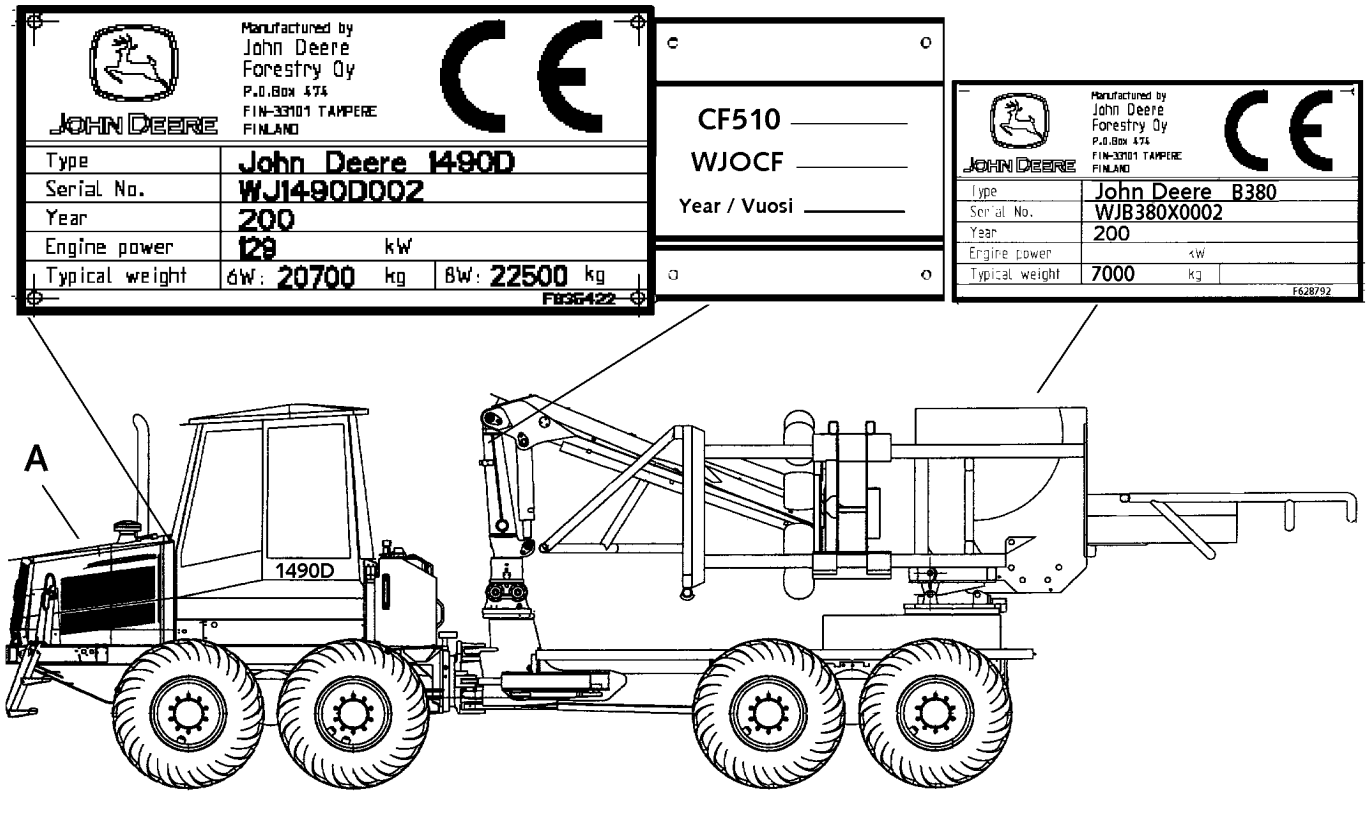
Decals and Signs



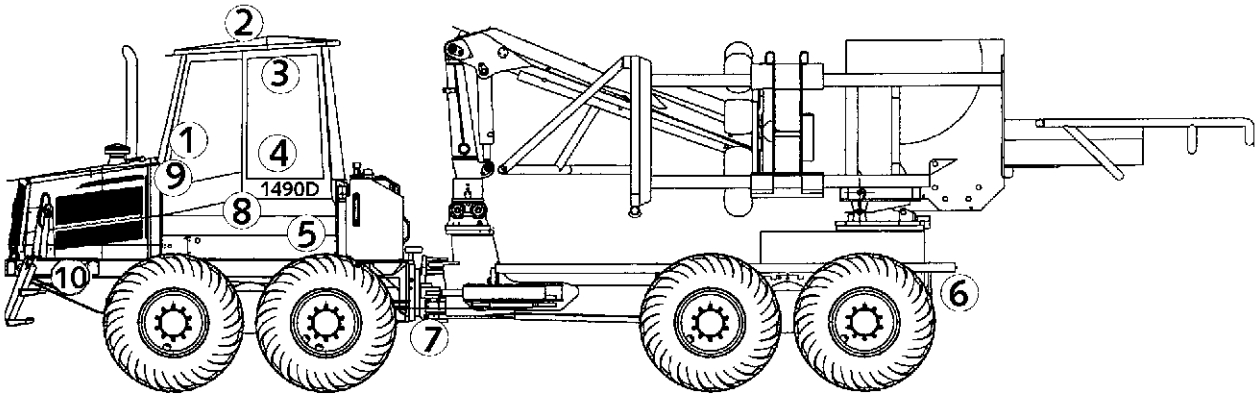
T164204 –UN–31MAY05

A—Serial number
On the front frame, on the right side of the machine

EL62757,00001E5 –19–22APR02–1/1

00
0010
2

1490D Safety Features



T164206 –UN–20JAN03

1—Secondary exit. The right-hand cap window can be used as a secondary exit from the cab.

2—ROPS. Integrated rollover and operator protective structures fully enclose and protect the operator

3—Central warning light and alarms (+buzzer). Alarm when malfunctions occur.

4—Seat safety switch. No function can be engaged before somebody sits on the seat.

5—Safety signs. Warn and give safety information for the operator.

6—Back-up alarm (opt). Alerts bystanders when machine is reversing.

7—Frame brake. Locks the horizontal hinge of the machine.

8—Hand-held fire extinguishers and fire extinguisher system (opt.)

9—Emergency stop Stops the machine and engages the parking brake.

10—Stairs, anti-slips on the steps, handrails. Help to climb into the machine.

Please remember, the Operator is the key to preventing accidents.

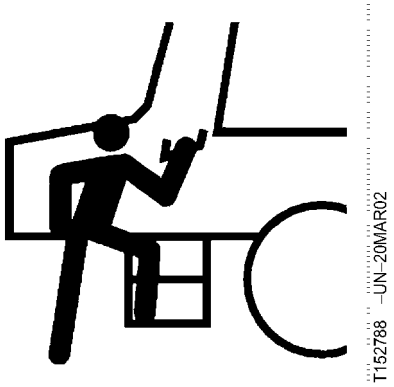
OUTJ003,00005CF –19–10MAY01–1/1

Driving and Service

The machine may only be used or repaired by personnel who have received training that is approved by John Deere.

IMPORTANT: Do not let an untrained person operate the machine.

- Carry no passengers. The vehicle is provided and approved with seating for the operator only.
- Use the handrails and steps provided when mounting and dismounting from the machine. Do not climb onto the machine in any other fashion.
- The machine must not be operated by anyone under the influence of alcohol or drugs.
- Avoid operating the machine if you are tired or ill, as there is a greater risk of accident. Take sufficient breaks and observe local regulations on working hours.



EL62757,000015F –19–19APR02–1/1

General

IMPORTANT: See Group 0030 for tightening torques. See also enclosed NAF and Rexroth manuals for detailed service instructions

IMPORTANT: Cleanliness procedures must be observed when working on any hydraulic component in order to prevent contamination of the hydraulic and hydrostatic systems.

Failure to follow these procedures may lead to equipment damage.

Use an air hose and wire brush to remove any loose dirt and debris from the outside of the motor before starting any work.

Plug all ports to prevent contamination.

JK11466,0000078 –19–03JAN03–1/1

Essential Tools

NOTE: Order tools according to information given in the U.S. SERVICEGARD™ Catalog or from the European Microfiche Tool Catalog (MTC).

Drive motor

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OUTJ003,0000313 –19–18JAN01–1/8

Driver, Drive Shaft Seal . . . . . Part Number N/A

Used to press fit Drive Shaft Seal on Hydrostatic Drive Motor.

OUTJ003,0000313 –19–18JAN01–2/8

Drive Pump

Continued on next page

OUTJ003,0000313 –19–18JAN01–3/8

Driver, Drive Shaft Seal . . . . . Part Number N/A

Used to press fit Drive Shaft Seal on Hydrostatic Drive Pump.

OUTJ003,0000313 –19–18JAN01–4/8

Spring Preloading Cylinder . . . . . Part number N/A

Used to preload spring while installing retaining rings on Hydrostatic Drive Pump Control Piston

OUTJ003,0000313 –19–18JAN01–5/8

Rotary Group Assembly Tool . . . . . Part Number N/A

Used to position cylinder during installation of Rotary Group in Hydrostatic Drive Pump housing.

OUTJ003,0000313 –19–18JAN01–6/8

Connecting Hose

Used to connect Ports X1 and X2 during Mechanical Centering of Hydrostatic Drive Pump procedure.

OUTJ003,0000313 –19–18JAN01–7/8

OUTJ003,0000313 –19–18JAN01–8/8

Service Equipment

Drive Motor

NOTE: Order tools according to information given in the U.S. SERVICEGARD™ Catalog or from the European Microfiche Tool Catalog (MTC). Some tools may be available from a local supplier.

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OUTJ003,0000314 –19–18JAN01–1/6

Gauge 5.0 MPa (1000 psi)

Used to measure hydraulic pressures at test ports.

Continued on next page

OUTJ003,0000314 –19–18JAN01–2/6

NOTE: See Section 00, group 0020 for all specifications

Drive Pump

NOTE: Order tools according to information given in the U.S. SERVICEGARD™ Catalog or from the European Microfiche Tool Catalog (MTC). Some tools may be available from a local supplier.

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OUTJ003,0000314 –19–18JAN01–3/6

Two Gauges 60 MPa (9000 psi)

To measure hydraulic pressure at test port.

OUTJ003,0000314 –19–18JAN01–4/6

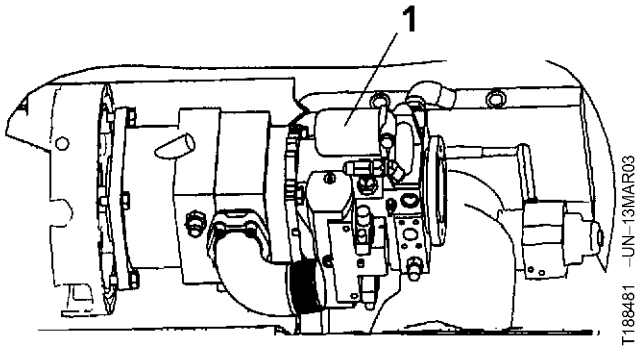
Gauge 5.0 MPa (1000 psi)

To measure hydraulic pressure at test port.

OUTJ003,0000314 –19–18JAN01–5/6

OUTJ003,0000314 –19–18JAN01–6/6

Renew the pressure filter of the drive hydraulic system



1—Pressure filter

1. Lift the cabin. The transmission filter is located above the transmission pump.
2. Turn filter counterclockwise to remove.
3. Clean mounting surface. Apply thin film of oil to gasket of new filter.
4. Install new filter. Turn the filter by hand until the seal makes contact with the base. Use a filter wrench to turn the filter 30° further.
5. Start engine. Check for leaks around the filter base. Tighten filter only enough to stop leaks.
6. Stop engine.
7. Check oil level at sight glass on hydraulic tank. Add oil, if necessary. See Section 6-1, for recommended hydraulic fluids.

03
0320
4

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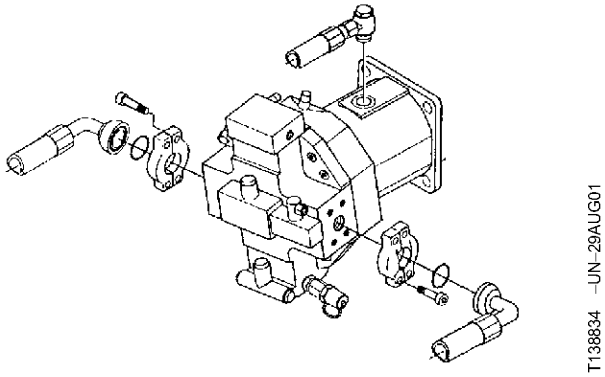
Drive Motor Removal And Installation

CAUTION: Ensure that the engine is stopped and the main switch is in the 'OFF' position. Remove handle from the main switch before disconnecting any hydraulic components. Securely block the wheels to prevent machine movement. Failure to observe proper safety precautions can lead to risk of personal injury.

NOTE: Following service instructions are general only. For detailed instructions for each Forwarder model, see group 0020 page 13 and enclosed Rexroth manuals.



Hydrostatic Drive Motor, Hoses

To remove the Hydrostatic Drive Motor:

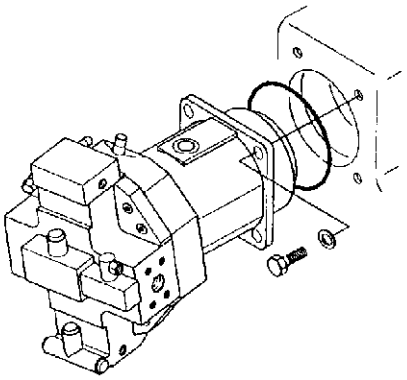
1. Tag and disconnect the hoses from the hydrostatic drive motor.
2. Attach a suitable lifting device to the Hydrostatic Drive Motor.

Continued on next page

OUTJ003,0000304 –19–18JAN01–1/3

3. To remove the hydrostatic motor from the transfer case, remove the four socket head capscrews and slide the motor back 75 mm (3") to clear the spline. When the bolts are removed, ensure that the motor is adequately supported at all times to prevent damage to the spline and seals.

To install the hydrostatic Drive Motor:



T138835 –UN–29AUG01

Hydrostatic Drive Motor Removal

OUTJ003,0000304 –19–18JAN01–2/3

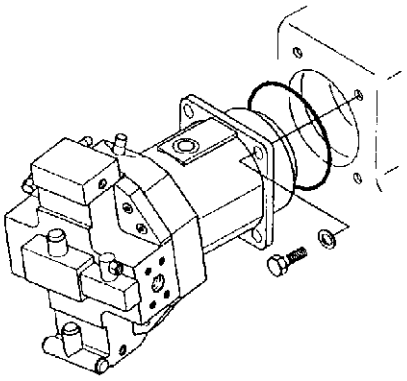
1. Replace O-ring before assembly.

   Attach the hydrostatic motor to the transfer case with the four socket head capscrews. Tighten screws to specified torque.

2. Connect the hoses to the hydrostatic motor.

NOTE: After re-installing or replacing motor, see Hydrostatic Drive Motor Start-up procedure in Section 03, Group 0320 page 47.

1—Drive Pressure Hose
2—Drive Pressure Hose
3—Case Drain Hose



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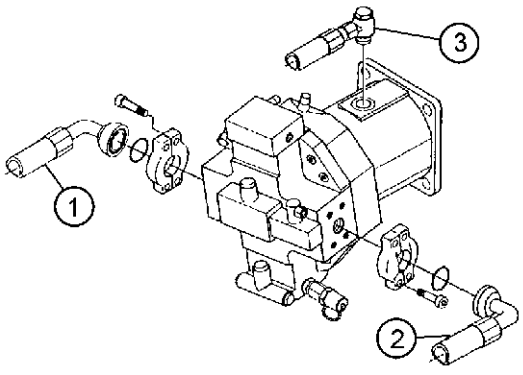
Hydrostatic drive motor Installation



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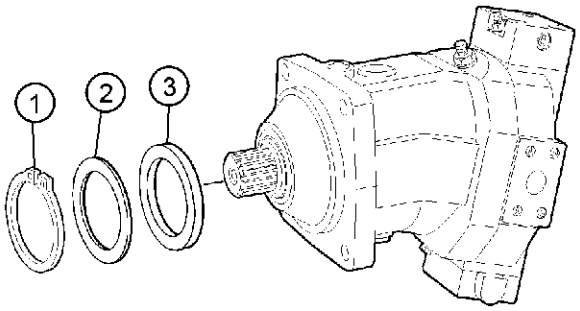
Hydrostatic Drive Motor Hoses

OUTJ003,0000304 –19–18JAN01–3/3

Servicing Drive Motor

Drive Shaft Seals Replacement

1—Retaining Ring
2—Shim
3—Drive Shaft Seal



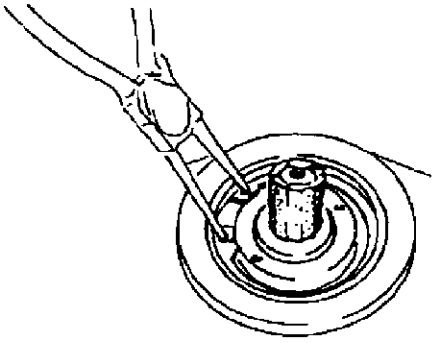
T138838 –UN–29AUG01

Hydrostatic Drive Motor, Drive Shaft Seal, Shim, Retaining Ring

JK11466,00000CE –19–09APR03–1/9

1. Protect the spline by wrapping it with tape.

   Remove the retaining ring and shim.



T138839 –UN–29AUG01

Drive Shaft, Retaining Ring, Pliers

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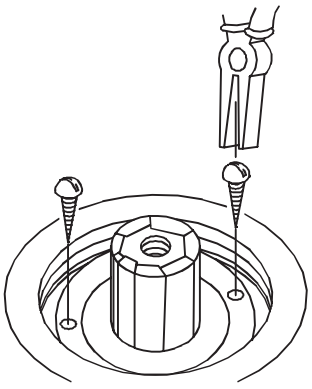
JK11466,00000CE –19–09APR03–2/9

2. Insert two sheet metal screws into the rubber showing at the two holes in the metal backing of the seal. Use the screws as handles to lift out the seal.



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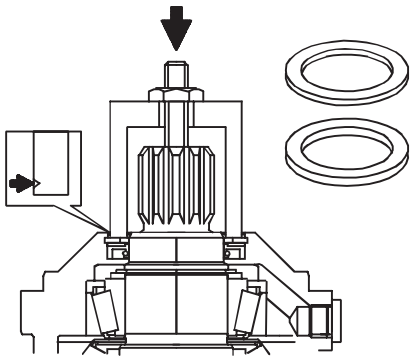
Drive Shaft Seal, Screws, Pliers

JK11466,00000CE –19–09APR03–3/9

3. Use Seal Driver to press in new seal.

NOTE: Mark the seal depth on the bushing before pressing in the seal.

4. Install the retaining ring and shim.



T138804 –UN–20JUL01

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Constant Pressure Control Valve or Valve Seals Replacement

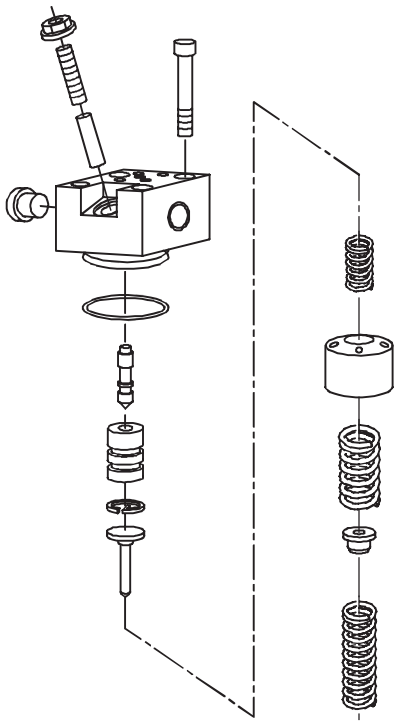
1. Remove mounting screws to remove valve.

NOTE: Use care when removing valve. Valve is under spring load.

Note the length of the adjustment screw.

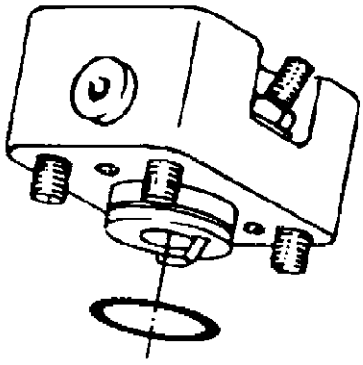
NOTE: Do not remove adjustment screw.

2. Replace the o-ring.
3. Lubricate the alignment pin with grease. Install pin on valve.
4. Install valve on Hydrostatic Drive Motor.



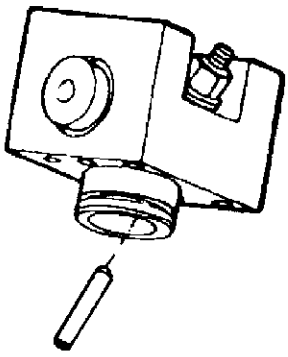
T138843 –UN–20JUL01

Constant pressure control valve, O-ring



T138844 –UN–29AUG01

Constant Pressure Control Valve



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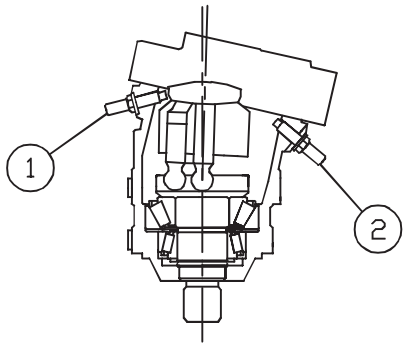
Port Plate Seal Replacement

NOTE: In order to disassemble the motor, the rotary group must be swiveled to line up with the output shaft (zero position).

1. Measure and record the setting of the Displacement Limiter Adjustment Screws.

1—Minimum Displacement Limiter Screw
2—Maximum Displacement Limiter Screw



T138846 –UN–20JUL01

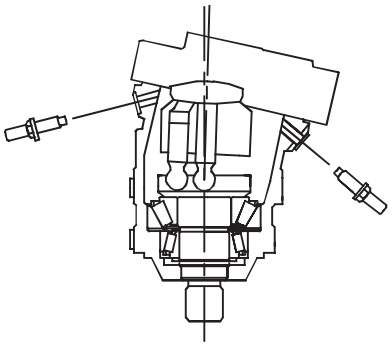
Hydrostatic Drive Motor Section View, Displacement Limiter Screws

JK11466,00000CE –19–09APR03–6/9

2. Remove the Minimum Displacement Limiter Screw and plug the port.

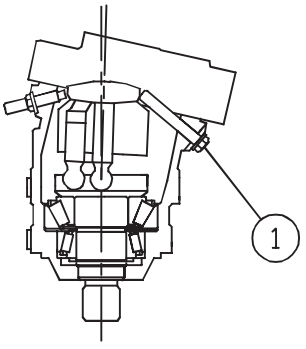
   Remove the Maximum Displacement Limiter Adjustment Screw.

3. Install a long screw in the maximum displacement limiter port and swivel the rotary group to the zero position.



T138847 –UN–20JUL01

Hydrostatic Drive Motor Section View, Displacement Limiter Screws Removal



T138850 –UN–20JUL01

Hydrostatic Drive Motor Section View, Long Screw, Swivel Rotary Group

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JK11466,00000CE –19–09APR03–7/9

4. Mark the position of the port plate to ease re-assembly.

   Remove the mounting screws.

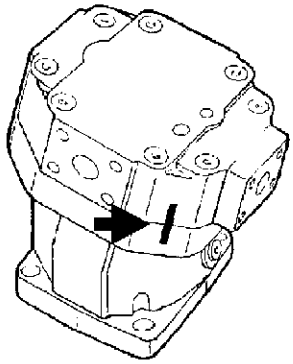
   Remove the port plate.

5. Replace the o-ring. Apply a coating of grease to new o-ring to hold it in place.

NOTE: Keep the rotary group vertical. The piston rings should project beyond the cylinder bores.

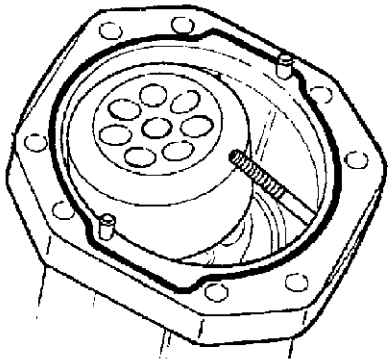
6. Inspect the sliding surfaces of the control lens and port plate.

7. Install port plate. Use a coating of grease to hold the control lens in position. Install mounting screws.



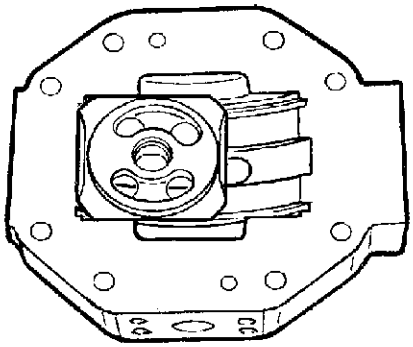
T138851 –UN–29AUG01

Hydrostatic drive Motor, Alignment Mark



T138852 –UN–29AUG01

Hydrostatic Drive Motor Housing, Port Plate Removed, Seal



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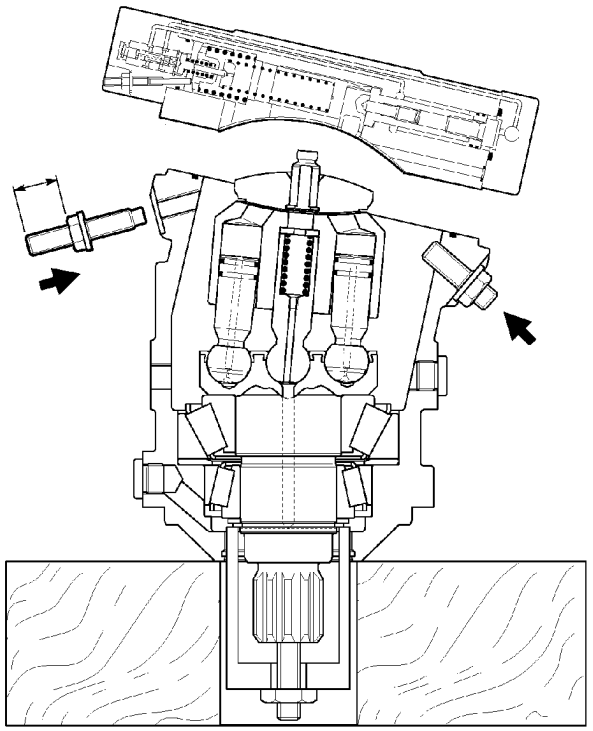
JK11466,00000CE –19–09APR03–8/9

8. Install Minimum Displacement Limiter. Confirm that it is installed to the correct depth.

   Remove long screw from Maximum Displacement Limiter port. Install Maximum Displacement Limiter. Confirm that it is installed to the correct depth.

NOTE: The start-up procedure should always be followed when the hydrostatic pump or motor has been removed or replaced.

See the Hydrostatic Pump and Motor Start-up Procedure in Group 0320.



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Hydrostatic Drive Motor Section View, Displacement Limiter Installation

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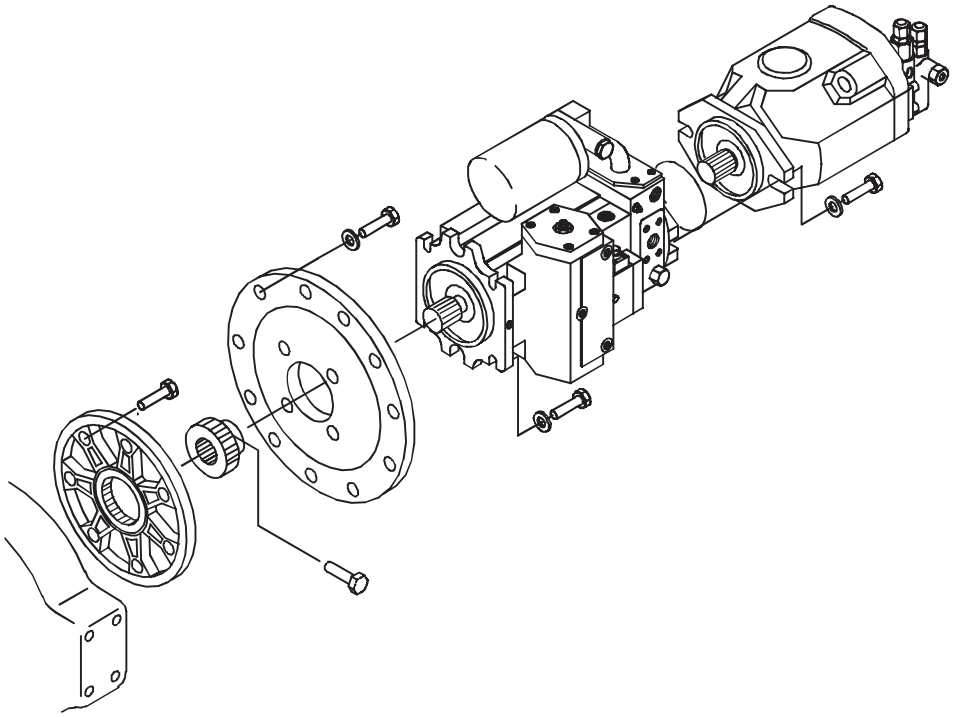
Drive Pump Removal and Installation



T138747 –UN–20JUL01

Coupling, Hydrostatic Drive Pump, Work Pump

IMPORTANT: Cleanliness procedures must be observed when working on any hydraulic component in order to prevent contamination of the hydraulic and hydrostatic systems.

Failure to follow these procedures may lead to equipment damage.

The hydrostatic drive pump and the working pump are removed from the machine as an assembly. See Section 02, Group Drive Coupling Removal and Installation, for details.

It is recommended that the machine be completely washed down before removal begins.

Tag all hoses before removal to ease re-assembly.

Cap hoses and plug ports.

The hydrostatic pump must be taken to a hydraulic repair shop for repair where all the tools and expertise are available.

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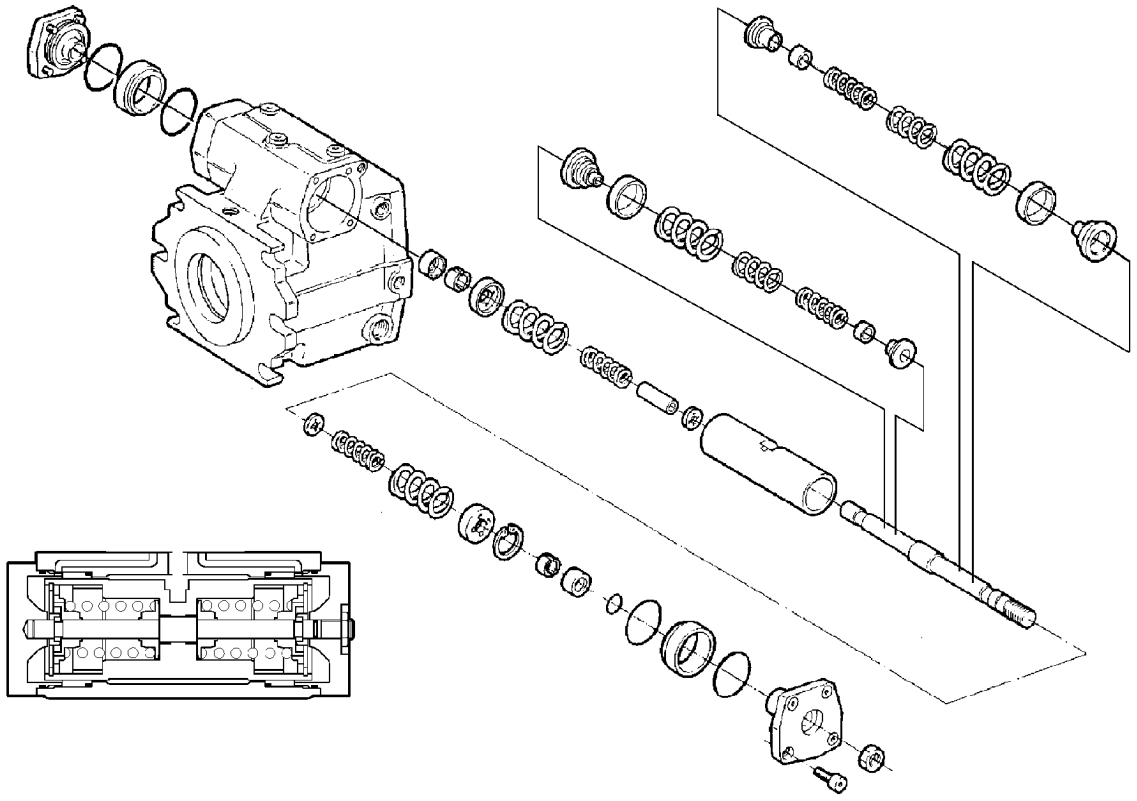
Servicing Drive Pump



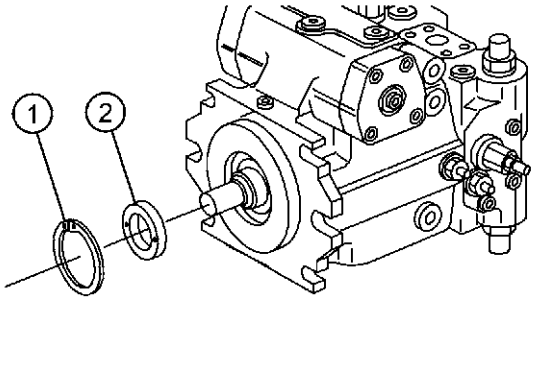
T138784 –UN–13AUG01

An example of drive pump assembly

JK11466,00000CF –19–09APR03–1/78

Drive Shaft Seal Replacement

1—Retaining Ring
2—Drive Shaft Seal



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Hydrostatic Drive Pump - Drive Shaft Seal

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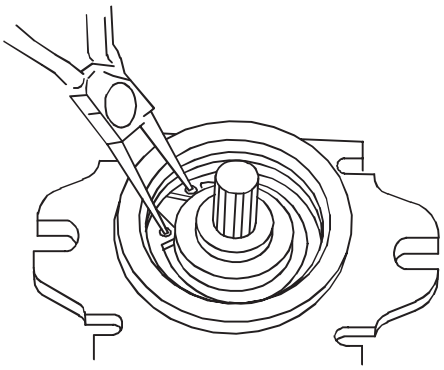
JK11466,00000CF –19–09APR03–2/78

1. Protect the drive shaft spline by wrapping it with tape.
2. Use pliers to remove the retaining ring.

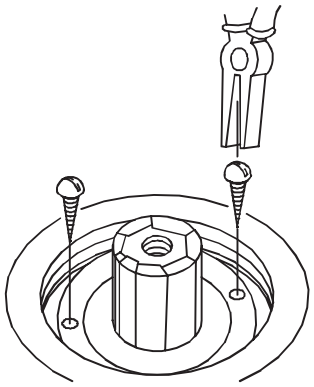


T138749 –UN–20JUL01

Retaining Ring Removal

JK11466,00000CF –19–09APR03–3/78

3. Insert two sheet metal screws into the rubber showing at the two holes in the metal backing of the seal. Use the screws as handles to lift out the seal.



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Drive Shaft Seal Removal

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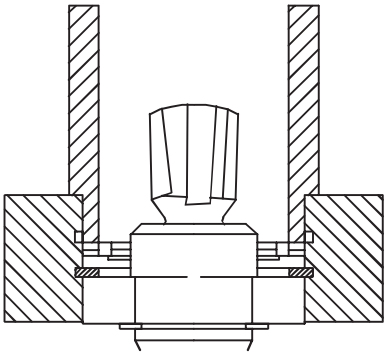
JK11466,00000CF –19–09APR03–4/78

4. Use seal driver to press in the new seal.



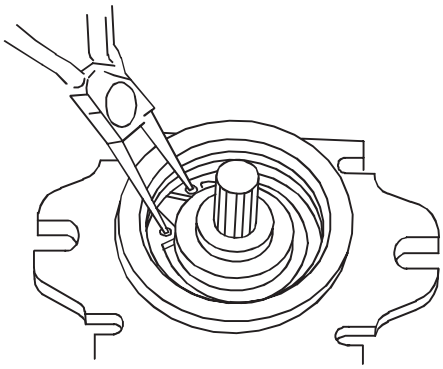
T138751 –UN–20JUL01

Drive Shaft Seal Installation

JK11466,00000CF –19–09APR03–5/78

5. Use pliers to install the retaining ring.

6. Remove the tape from the drive shaft spline.



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Retaining Ring Installation

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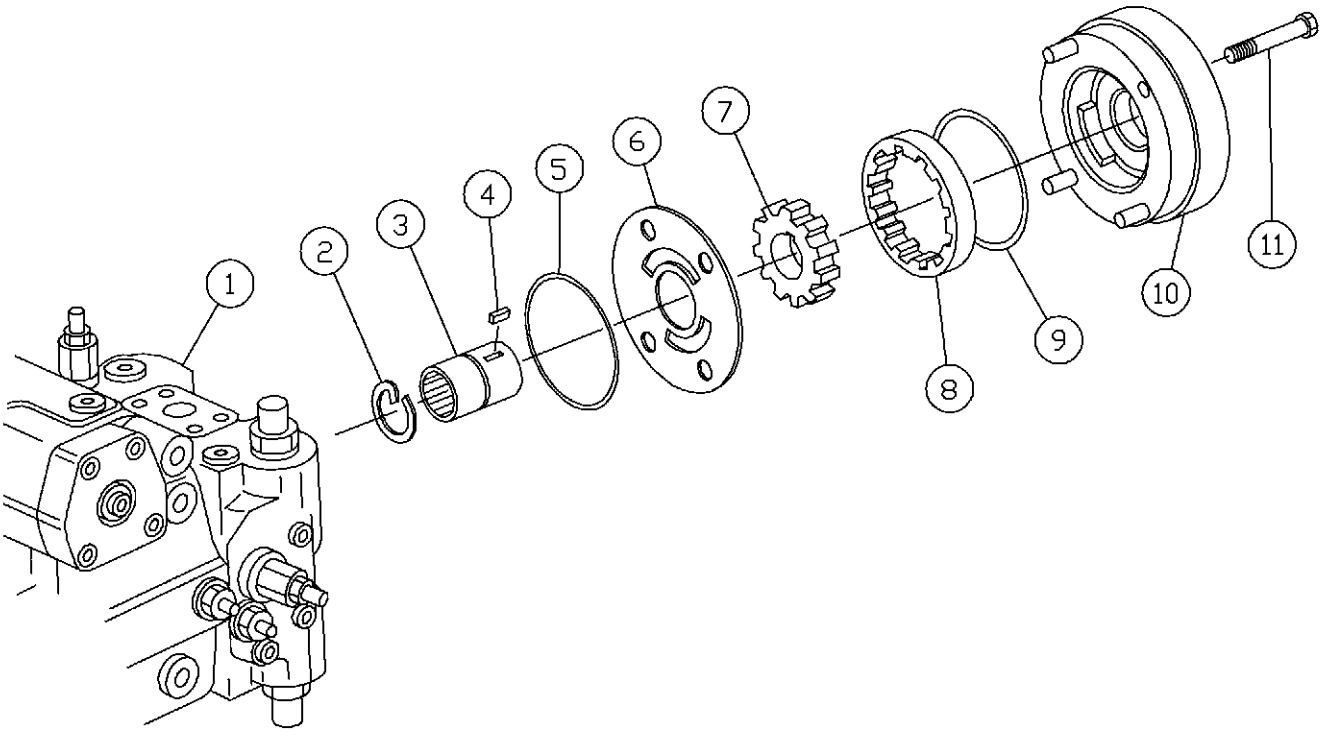


T138753 –UN–13AUG01

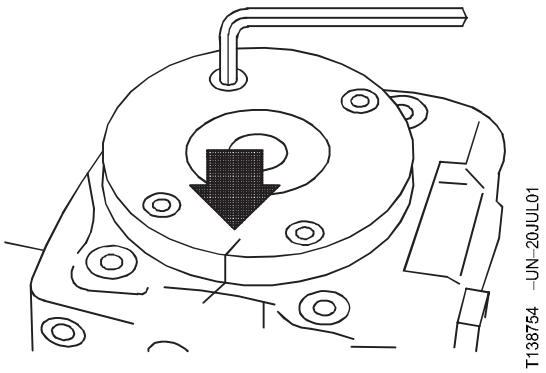
Charge Pump

1—Hydrostatic Drive Pump	**4—Key**	**7—Pinion Gear**	**10—Housing**
2—Retaining Ring	**5—O-ring**	**8—Driven Gear**	**11—Screw**
3—Pinion Gear Shaft	**6—Valve Plate**	**9—O-ring**	

Charge Pump

JK11466,00000CF –19–09APR03–7/78

1. Mark the position of the cover plate to ease re-assembly.
2. Remove the mounting screws.
3. Pry off the cover.
4. Remove and discard the seals.



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Charge Pump Hosing Alignment Mark

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