

1800 Utility Vehicle

**John Deere Horicon Works
TM1527 (10APR92)**

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.

PThis 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 diagnostics. Repair sections tell how to repair the components. Diagnostic 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.

Binders, binder labels, and tab sets can be ordered by John Deere dealers direct from the John Deere Distribution Service Center.

This manual is part of a total product support program.

FOS MANUALS—REFERENCE

TECHNICAL MANUALS—MACHINE SERVICE

COMPONENT MANUALS—COMPONENT SERVICE

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

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

Component Technical Manuals are concise service guides for specific components. Component technical manuals are written as stand-alone manuals covering multiple machine applications.

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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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A John Deere ILLUSTRATION™ Manual

Section 10 GENERAL INFORMATION

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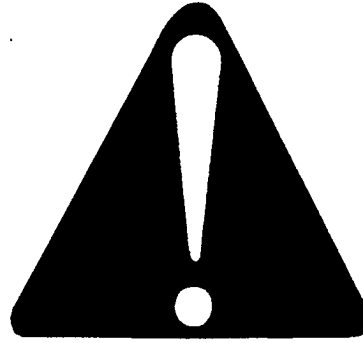
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RECOGNIZE SAFETY INFORMATION

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 -19-04JUN90

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T81389

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 -19-09JAN92

-19-30SEP88
TS187

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 -19-04JUN90

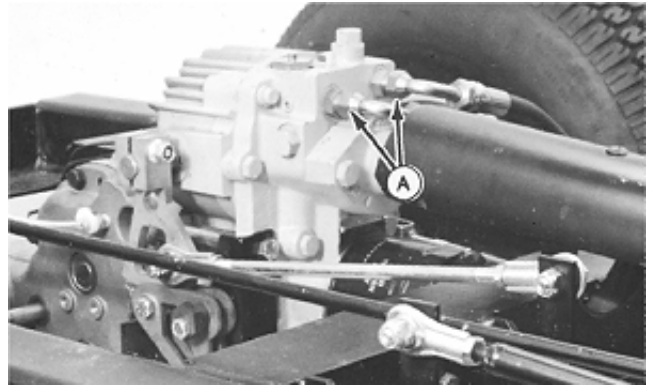
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REMOVE TRANSMISSION

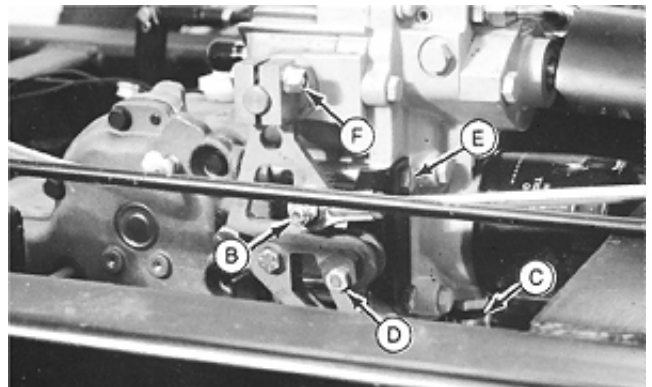
1. Drain hydrostatic fluid.
2. Disconnect return hose and pressure line (A). Close all openings with caps and plugs.

NOTE: Guards removed for photos.

3. Disconnect and remove drive shaft. (See Group 20 in this section)
4. Disconnect shift linkage control rod (B).
5. Disconnect suction hose (C).
6. Remove capscrew and eccentric (D).
7. Remove four capscrews and spacers to remove transmission (E).
8. Loosen nut and bolt and slide shift linkage off shaft (F).
9. Make repairs as necessary. (See procedures in this group.)



M46605 -UN-27MAR92



M46606 -UN-27MAR92

- A—Pressure and Return Lines
- B—Control Rod
- C—Suction Hose
- D—Eccentric
- E—Cap Screw
- F—Shift Linkage

MX,5005HJ,1 -19-14APR92

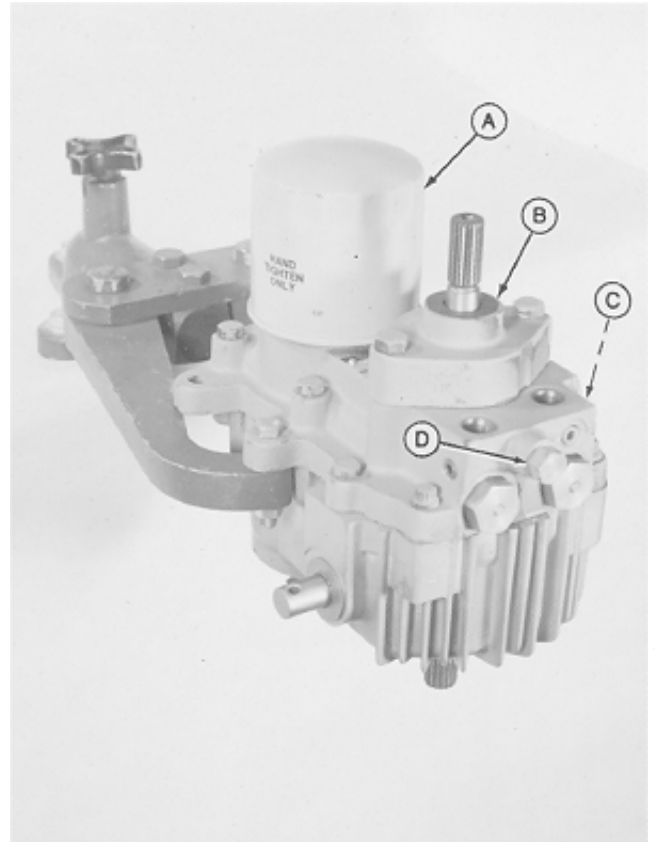
DISASSEMBLE AND INSPECT TRANSMISSION

1. Clean outside of transmission with steam cleaner or diesel fuel.
2. Install transmission on bench fixture.
3. Remove filter (A).
4. Remove charge pump (B). (See this group.)
5. Remove charge relief valve (C). (See this group.)

*NOTE: Implement relief valve (D) is non-functional.
Functional valve is located in steering valve.*

6. Remove implement relief valve (D).

- A—Oil Filter
- B—Charge Pump
- C—Charge Relief Valve
- D—Implement Relief Valve (Non-Functional)

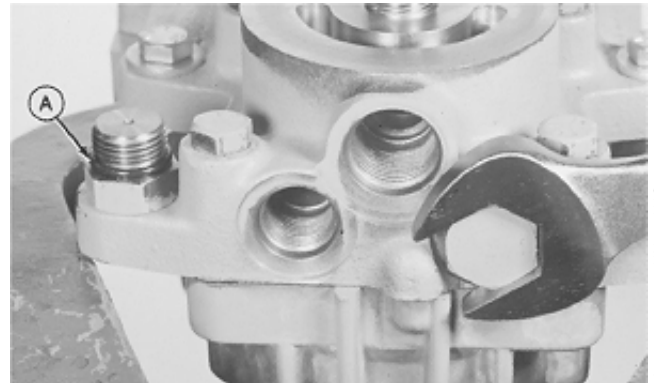


MX,5005FH,A9 -19-21NOV90

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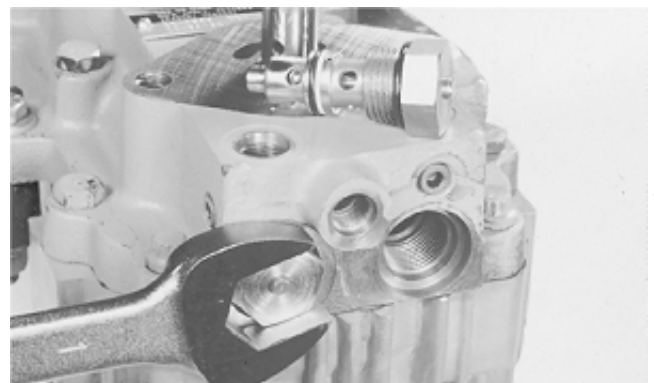
7. Remove two plugs and O-rings (A).



M45,5005A,41 -19-21NOV90

M36100 -JUN-29AUG88

8. Remove two check valves.



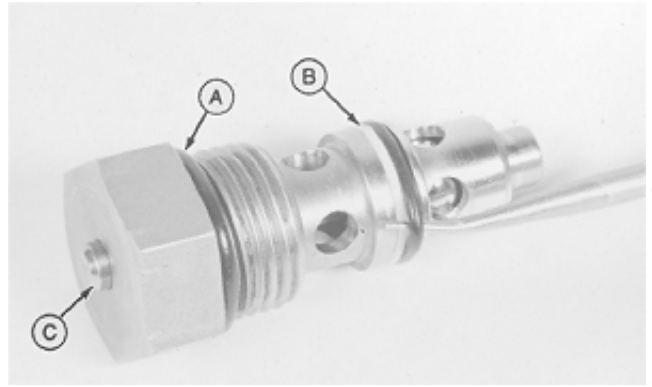
M45,5005A,42 -19-21NOV90

M36101 -JUN-29AUG88

Transmission/Remove Transmission

9. Remove O-ring, backup ring (B), and O-ring (A).

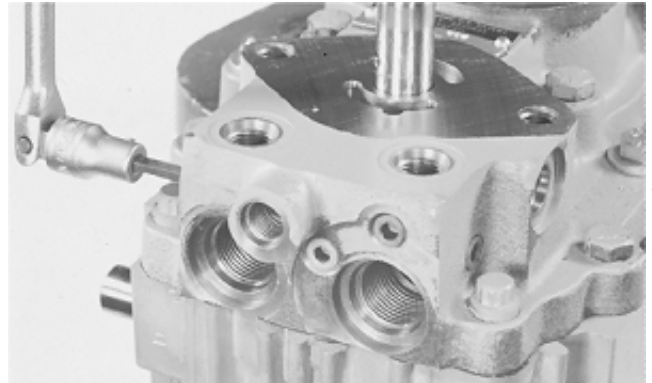
10. Internal valve (C) must move freely inside check valve.



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M36102 -UN-29AUG88

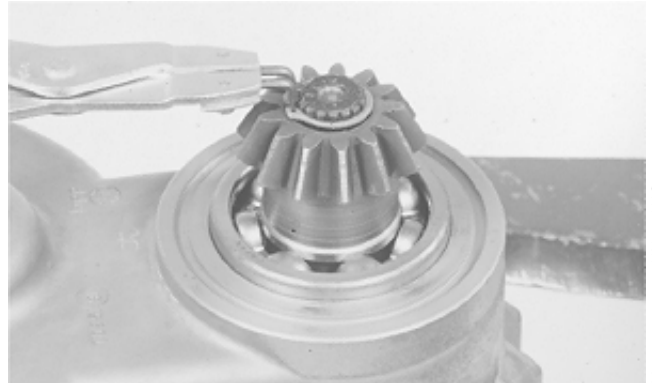
11. Remove four pipe plugs.



M45,5005A,44 -19-21NOV90

M36103 -UN-29AUG88

12. Remove snap ring to remove output shaft drive gear.

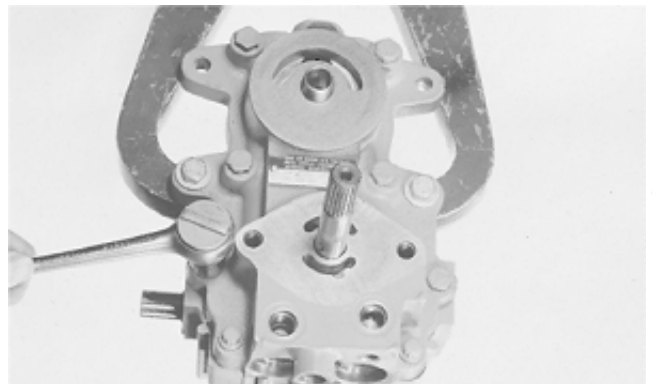


M45,5005A,45 -19-21NOV90

M36104 -UN-29AUG88

IMPORTANT: Do not disassemble the transmission any further while in the bench fixture.

13. LOOSEN eight cap screws (do not remove). Remove transmission from bench fixture.

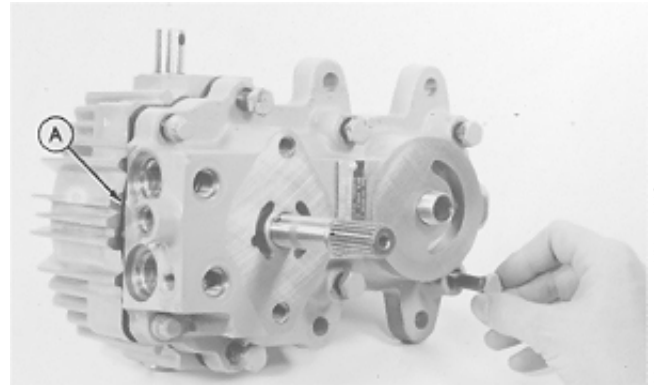


M45,5005C,41 -19-21NOV90

M36105 -UN-29AUG88

IMPORTANT: Do not allow internal parts to fall when removing center section.

14. Put transmission on work bench and remove eight cap screws, center section, and gasket (A).



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M45,5005C,42 -19-21NOV90

IMPORTANT: Do not nick or scratch lapped or machined surfaces of the center section, valve plates or cylinder blocks.

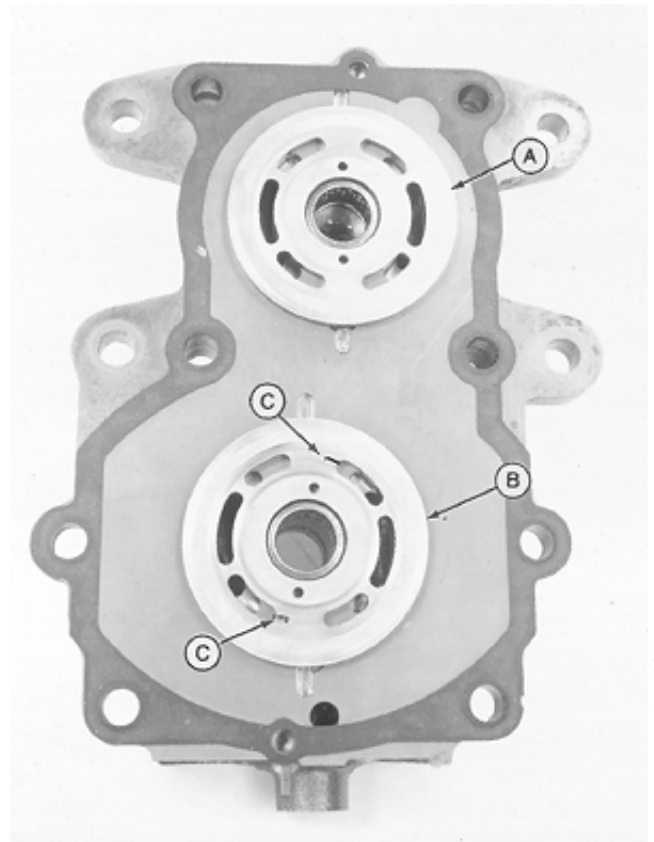
Keep pump and motor components separate. They are not interchangeable.

15. Remove valve plates (A and B). If necessary to pry valve plates loose, use only a non-metallic tool and pry only at dowel pin grooves.

Diesel fuel can be applied between valve plate and cylinder block to cut oil film.

NOTE: Scratches that can be felt with a fingernail or pencil lead indicate that valve plate should be replaced.

16. Clean and inspect valve plates. Replace plates that are warped, scratched, nicked or worn around ports; or if the bronze surface is scratched or discolored. Check that slotted ports (C) in pump valve plate are free of debris.

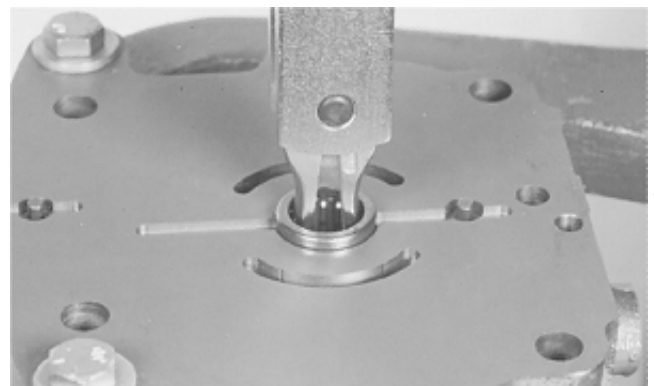


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MX,5005FH,A10 -19-21NOV90

17. Inspect both bearings in center section, replace if necessary.

18. Install center section in bench fixture and remove bearing using a 2-jaw puller and a slide hammer.



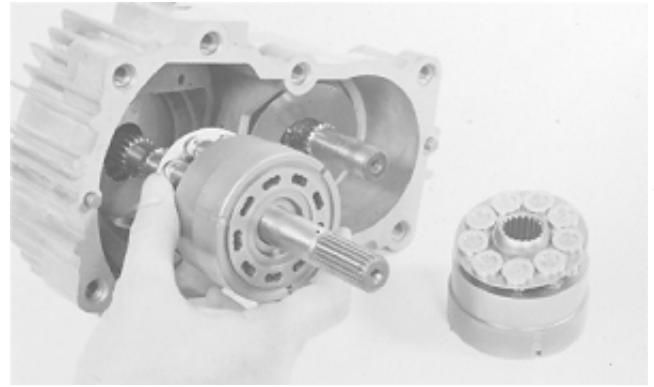
M36109
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M45,5005A,49 -19-21NOV90

IMPORTANT: Do not nick or scratch lapped surface of cylinder blocks.

Piston-to-bore relationship need not be maintained; keep pump and motor components separate, they are not interchangeable.

19. Remove motor and pump cylinder blocks.



MX,5005FH,A11 -19-21NOV90

M36110 -UN-29AUG88

20. Inspect cylinder block assemblies.

IMPORTANT: Do not interchange pistons between motor and pump cylinder blocks. Pistons and cylinder blocks are matched.

Lift piston retainer and pistons from cylinder block. Check for free movement of pistons in cylinder bores.



MX,5005FH,A12 -19-21NOV90

M36111 -UN-29AUG88

21. Remove and inspect all pistons.

Check barrel (B) for scoring, discoloration, or any signs of separation of slippers.

Check slipper (A) for scoring, smearing, rolled edges and a full 360° free rotation on barrel.

Check lubrication hole (C) for blockage. Clean with compressed air.

If any component of the piston is damaged, the cylinder block assembly must be replaced.



MX,5005FH,A13 -19-21NOV90

M36112 -UN-29AUG88

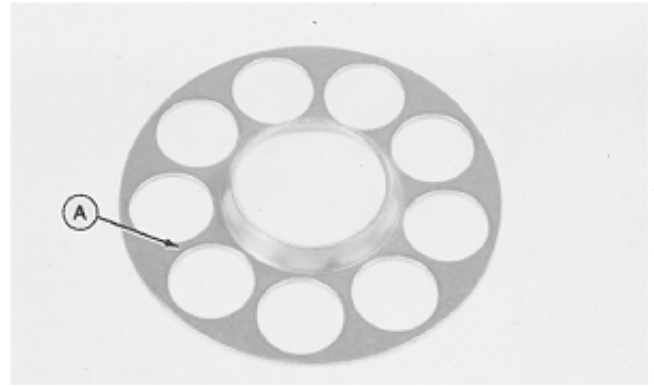
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22. Remove and inspect both piston retainers.

Check retainer for flatness, nicks, burrs and discoloration.

Check area around piston slippers (A) for scoring.

If any part of the piston retainer is damaged, the cylinder block assembly must be replaced.



MX,5005FH,A14 -19-21NOV90

M36113 -UN-29AUG88

23. Inspect both cylinder blocks.

Check ball guide area (A) for scoring, wear and damage.

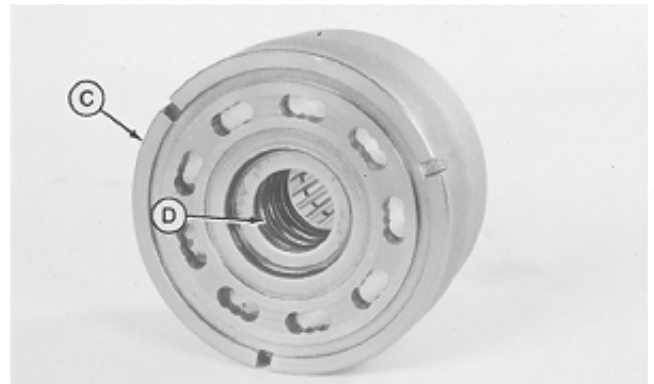
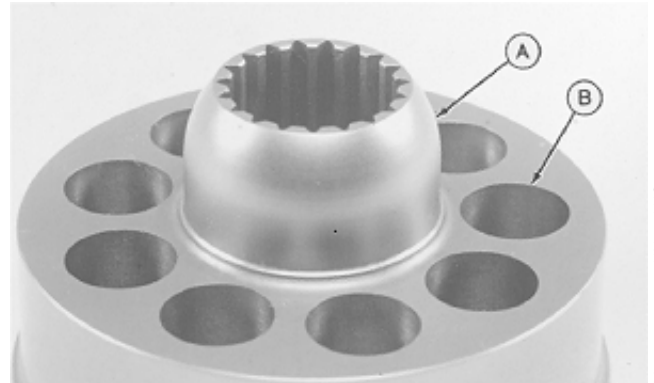
Check nine cylinder bores (B) for burrs and scoring.

Check lapped surface (C) for wear and damage.

Check spring assembly (D) for damage and free movement.

If any part of the cylinder block is damaged, the cylinder block assembly must be replaced.

- A—Ball Guide
- B—Cylinder Bores
- C—Lapped Surface
- D—Spring Assembly



MX,5005FH,A15 -19-21NOV90

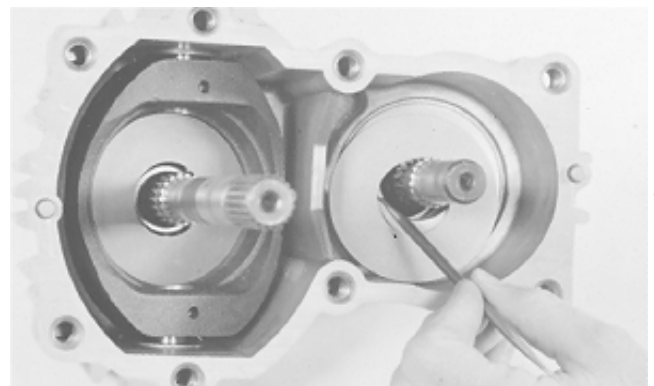
M36114 -UN-29AUG88

M36115 -UN-29AUG88

IMPORTANT: Do not scratch machined surfaces of thrust plates or swashplates.

24. Remove pump and motor thrust plates using a brass O-ring pick.

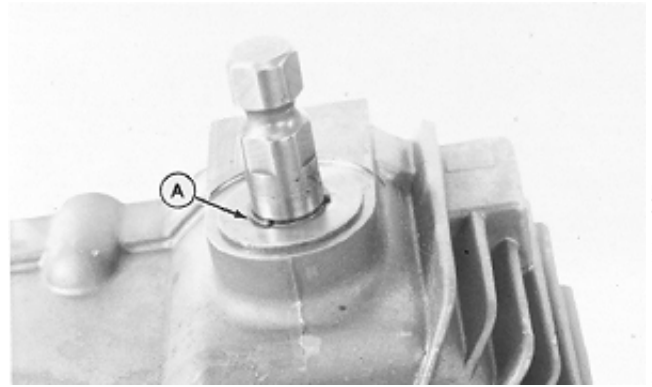
25. Inspect thrust plates. Check plates for scoring and smeared bronze material.



MX,5005FH,A16 -19-21NOV90

M36116 -UN-29AUG88

26. Remove snap ring and washer (A) from both trunion shafts.

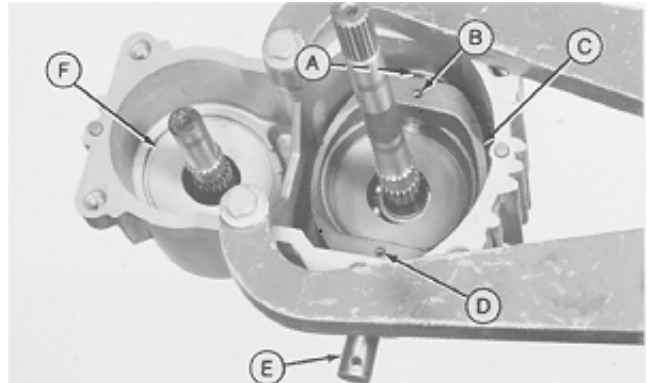


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MX,5005FH,A17 -19-21NOV90

IMPORTANT: Pump shaft and bearing assembly could restrict movement of swashplate. Full swashplate movement is approximately 25 mm (1 in.) in each direction. If necessary tap shaft with a soft faced hammer.

27. Push top of swashplate (C) down until it contacts the stops in the housing.



M36118 -JUN-29AUG88

IMPORTANT: DO NOT drive pins after they bottom. Housing damage will result.

28. Drive pin (B) until it bottoms in housing.

29. Drive two pins (D) until the lower one bottoms in housing.

30. Turn swashplate to the neutral position. Pins should fall into housing.

31. Repeat the above steps to remove second pin (D).

32. Remove control shaft (E) and trunion shaft (A) to remove swashplate.

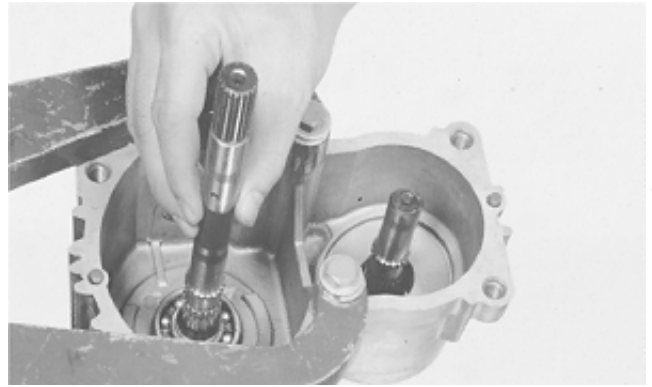
33. Inspect swashplate and motor housing (F).

- A—Trunion Shaft
- B—Spring Pin
- C—Pump Swashplate
- D—Spring Pin (2 used)
- E—Control Shaft
- F—Motor Housing

MX,5005FH,A18 -19-21NOV90

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34. Remove pump shaft.



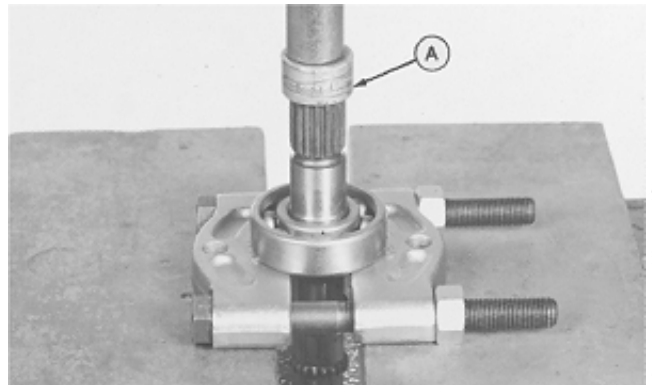
M36119
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MX,5005FH,A19 -19-21NOV90

35. Inspect bearing, replace if necessary.

IMPORTANT: Be sure to hold shaft while removing bearing.

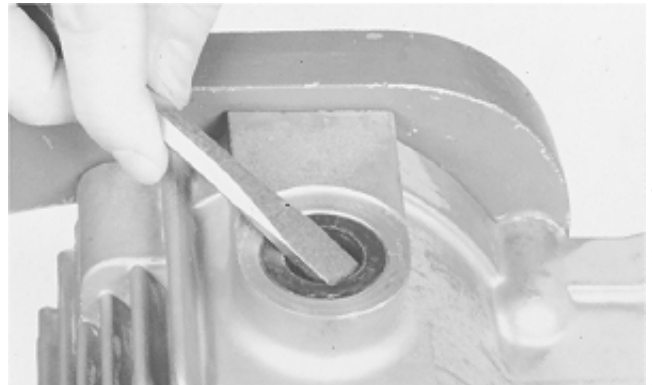
36. Remove bearing using a 1 in. driver disk (A), bearing puller attachment and a press.



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MX,5005FH,A20 -19-21NOV90

37. Remove three seals from housing.

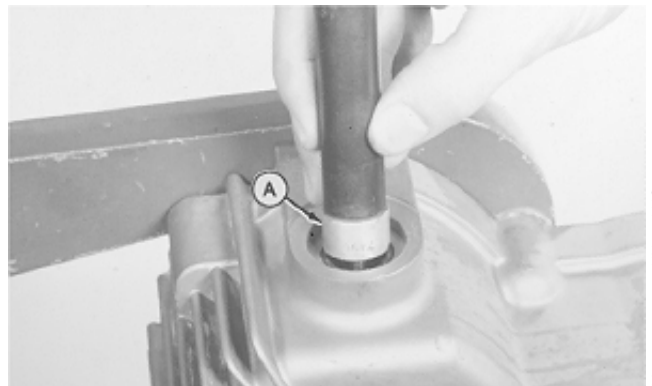


M36121
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MX,5005FH,A21 -19-21NOV90

38. Inspect both trunion bearings, replace if necessary.

39. Drive bearings through housing using a 13/16 in. driver disk (A).

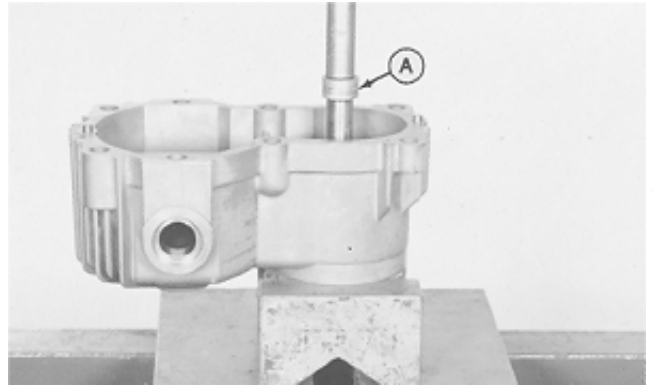


M36122
-UN-29AUG88

MX,5005FH,A22 -19-21NOV90

IMPORTANT: Be sure to hold shaft and bearing when removing from housing.

40. Remove motor shaft and bearing. Using a 1 in. driver disk (A), and a press.



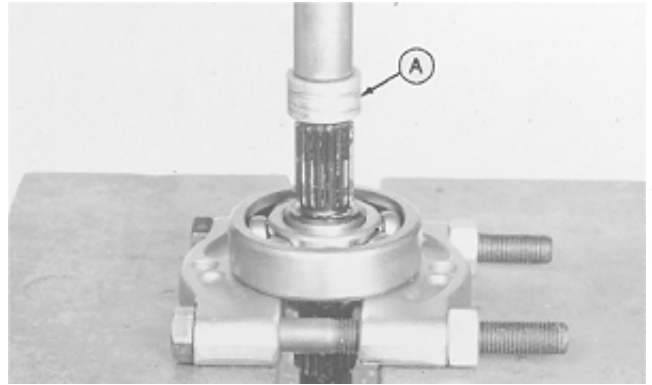
MX,5005FH,A23 -19-21NOV90

M36123
-UN-29AUG88

41. Inspect bearing, replace if necessary.

IMPORTANT: Be sure to hold shaft while removing bearing.

42. Remove bearing using a 1 in. driver disk (A), bearing puller attachment and a press.

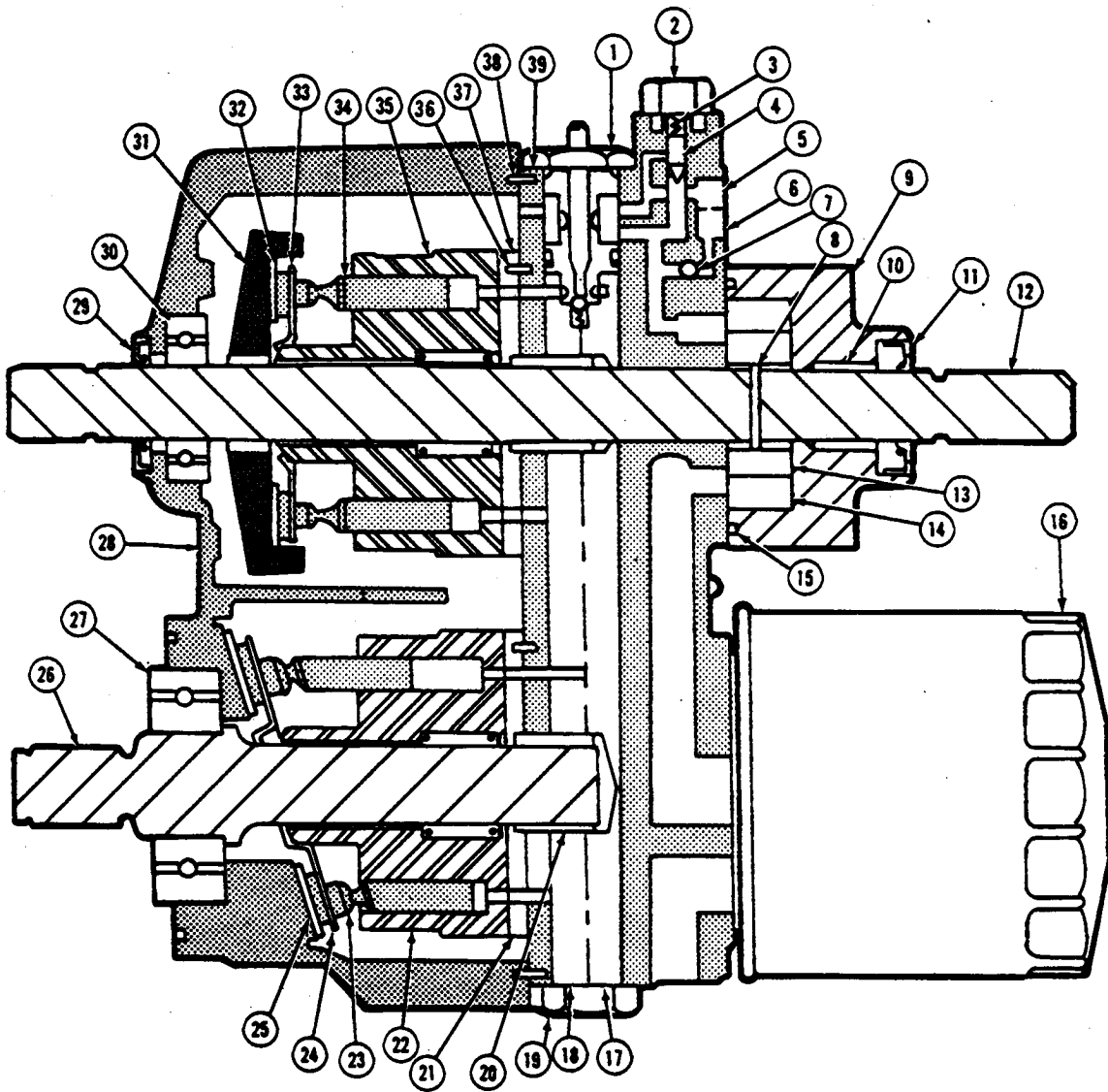


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CROSS SECTION OF TRANSMISSION

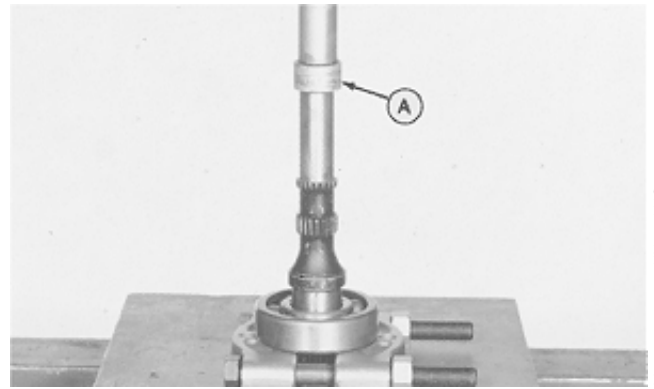


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|--------------------------------|---------------------|----------------------------|----------------------------|
| 1—Check Valve Assembly | 10—Bearing | 21—Valve Plate | 30—Bearing |
| 2—Implement Relief Valve Plug | 11—Seal | 22—Cylinder Block Assembly | 31—Swashplate |
| 3—Spring | 12—Pump Shaft | 23—Pistons (9 used) | 32—Thrust Washer |
| 4—Relief Valve | 13—Inner Rotor | 24—Piston Retainer | 33—Piston Retainer |
| 5—Return Port | 14—Rotor Ring | 25—Thrust Plate | 34—Piston (9 used) |
| 6—Pressure Port | 15—O-Ring | 26—Motor Shaft | 35—Cylinder Block Assembly |
| 7—Charge Relief Valve Assembly | 16—Oil Filter | 27—Bearing | 36—Dowel Pin (2 used) |
| 8—Pin | 17—Oil Passage | 28—Pump and Motor Housing | 37—Valve Plate |
| 9—Charge Pump Housing | 18—Oil Passage | 29—Seal | 38—Dowel Pin (2 used) |
| | 19—Plug (2 used) | | 39—Center Section |
| | 20—Bearing (2 used) | | |

ASSEMBLE TRANSMISSION

1. Support bearing on bearing puller. Use a 1 in. driver disk (A) and press motor shaft into bearing until it is on shaft shoulder.



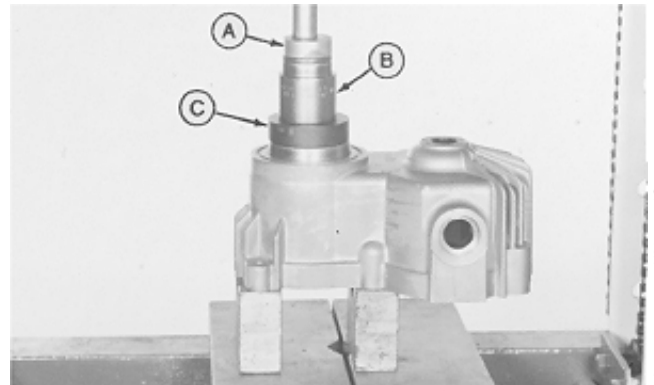
MX,5005FH,A25 -19-21NOV90

M36126 -UN-29AUG88

IMPORTANT: To prevent bearing damage, press only on outer race of bearing.

NOTE: There should be approximately 5 mm (0.187 in.) of bearing race above mounting surface.

2. Press motor shaft assembly into housing until bearing is at bottom of bore. Use a 1-7/16 driver disk (A), socket (B) and donut type disk (C).

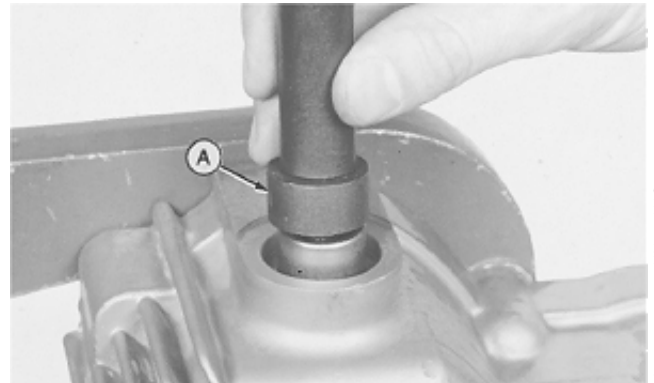


MX,5005FH,A26 -19-21NOV90

M36127 -UN-29AUG88

3. Install housing on bench fixture.

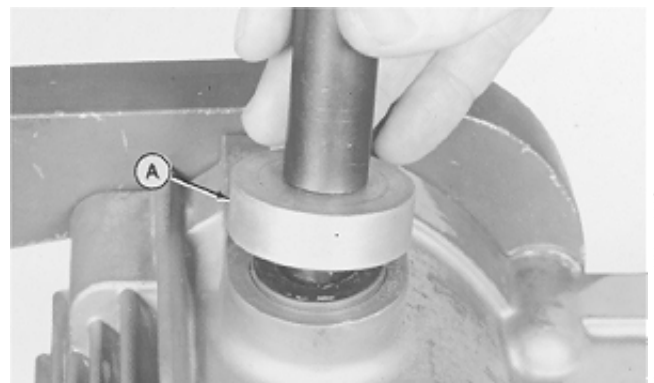
4. Install two needle bearings. Drive bearings into housing until they are flush with surface using a 1 in. driver disk (A).



M45,5005A,67 -19-21NOV90

M36128 -UN-29AUG88

5. Install oil seals with spring side of seal towards inside of housing using a 1-7/16 in. driver disk (A).

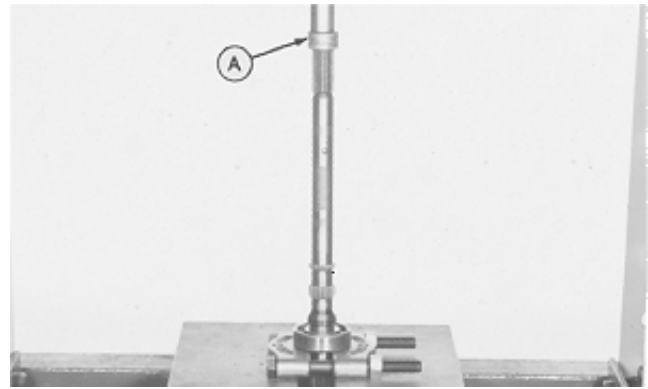


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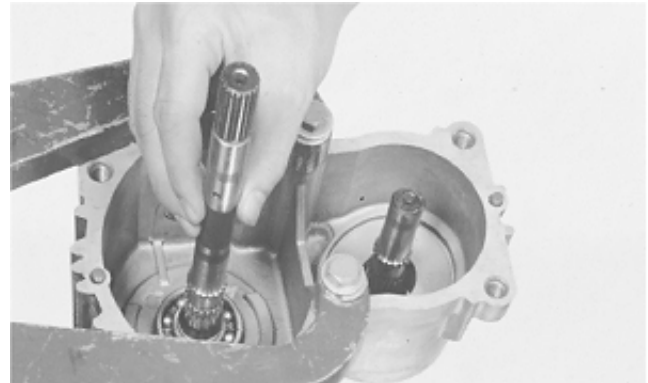
6. Push pump shaft into bearing until it is on the shaft shoulder using a 1-in. driver disk (A) bearing puller attachment and a press.



M45,5005A,69 -19-13MAR85

M36130 -UN-29AUG88

7. Install pump shaft.



M45,5005A,70 -19-21NOV90

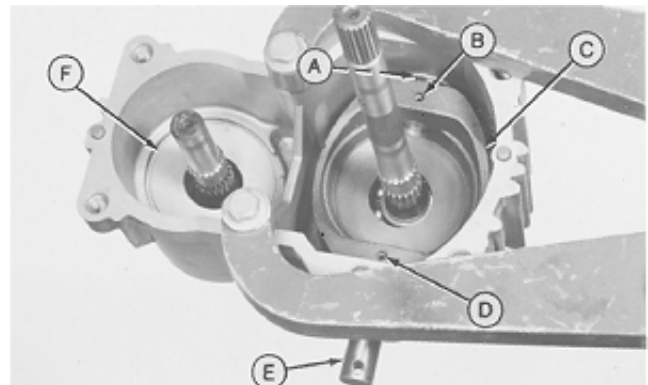
M36119 -UN-29AUG88

8. Install swashplate (C), shaft (E) and shaft (A).

IMPORTANT: Pump shaft and bearing assembly could restrict movement of swashplate. Full swashplate movement is approximately 25 mm (1 in.) in each direction. Tap shaft with soft faced hammer to seat bearing, if necessary.

9. Drive pin (B) into swashplate and shaft until pin is about 6 mm (0.250 in.) below surface.

10. Drive two pins (D) into swashplate and shaft until top pin is about 6 mm (0.250 in.) below surface.



- A—Trunion Shaft
- B—Spring Pin
- C—Pump Swashplate
- D—Spring Pin (2 used)
- E—Control Shaft
- F—Motor Housing

MX,5005FH,A28 -19-21NOV90

M36118 -UN-29AUG88

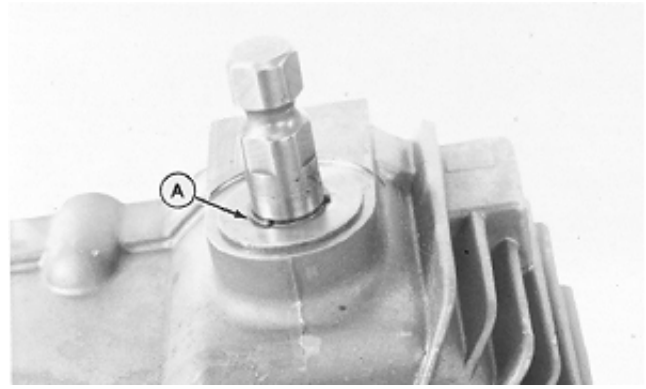
**Thank you very much for
your reading. Please Click
Here. Then Get COMPLETE
MANUAL. NO WAITING**



NOTE:

**If there is no response to
click on the link above,
please download the PDF
document first and then
click on it.**

11. Install washer and snap ring (A) on both trunion shafts.
12. Remove housing from bench fixture.



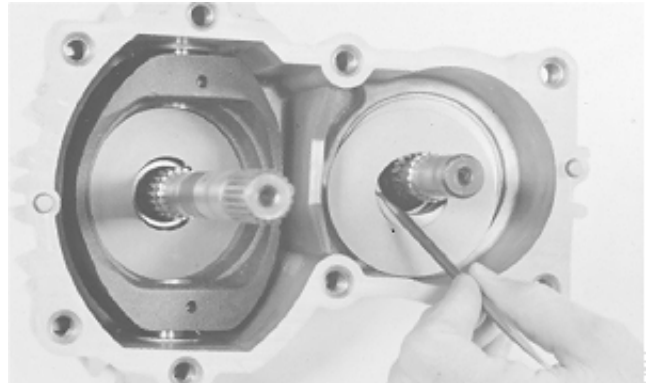
M54228 -UN-05OCT90

MX,5005FH,A29 -19-21NOV90

IMPORTANT: Do not nick or scratch lapped surface of cylinder blocks.

Piston-to-bore relationship need not be maintained; keep pump and motor components separate, they are not interchangeable.

13. Coat all parts with John Deere All-Weather Hydrostatic Fluid or equivalent.
14. Install pump and motor thrust plates.



M36116 -JUN-29AUG88

MX,5005FH,A30 -19-21NOV90

15. Install pistons and piston retainer.

Lift piston retainer and piston from cylinder block. Check for free movement of pistons in cylinder block before installing in housing.

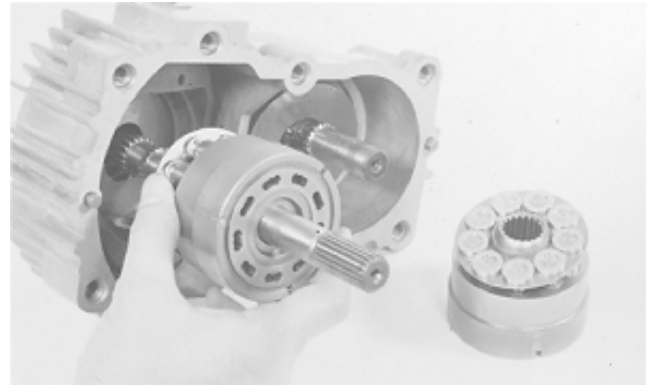


M36111 -JUN-29AUG88

MX,5005FH,A31 -19-21NOV90

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16. Install pump and motor cylinder blocks.



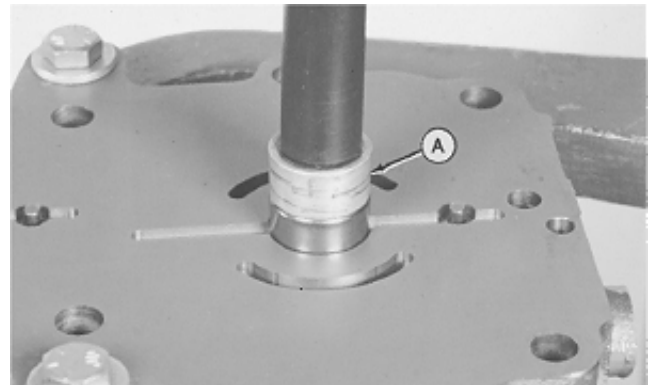
MX,5005FH,A32 -19-21NOV90

M36110 -UN-29AUG88

IMPORTANT: Do not nick or scratch lapped or machined surfaces of the center section, valve plates or cylinder blocks.

Keep pump and motor components separate. They are not interchangeable.

17. Install needle bearing using 5/8 in. driver disk (A). Bearings should protrude 3 mm (0.109 in.) above housing surface.



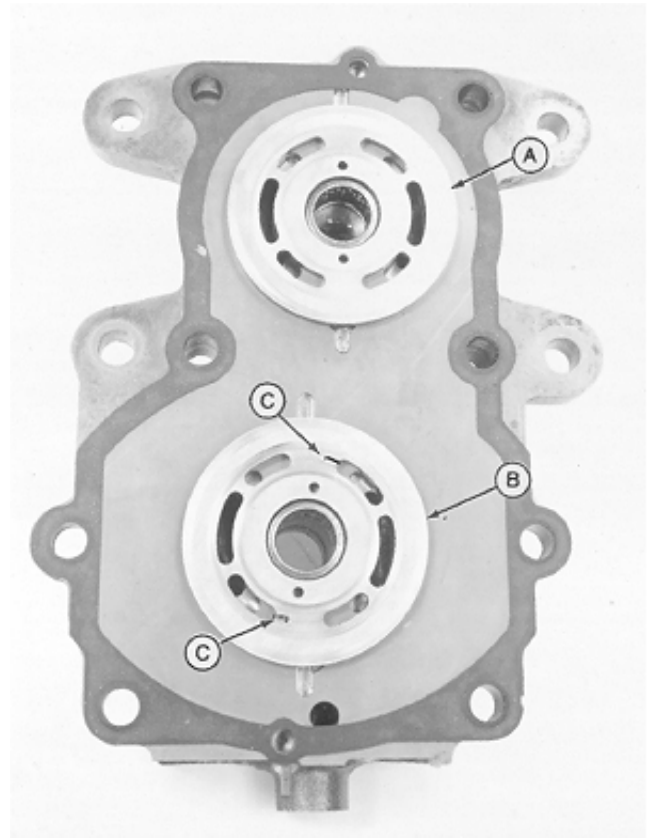
MX,5005FH,A33 -19-21NOV90

M36132 -UN-29AUG88

18. Coat valve plates with clean hydrostatic oil.

NOTE: Pump valve plate has two slotted ports (C).

19. Install motor valve plate (A) and pump valve plate (B) on bearings. Align slots in plates with pins in housing.



MX,5005FH,A34 -19-21NOV90

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