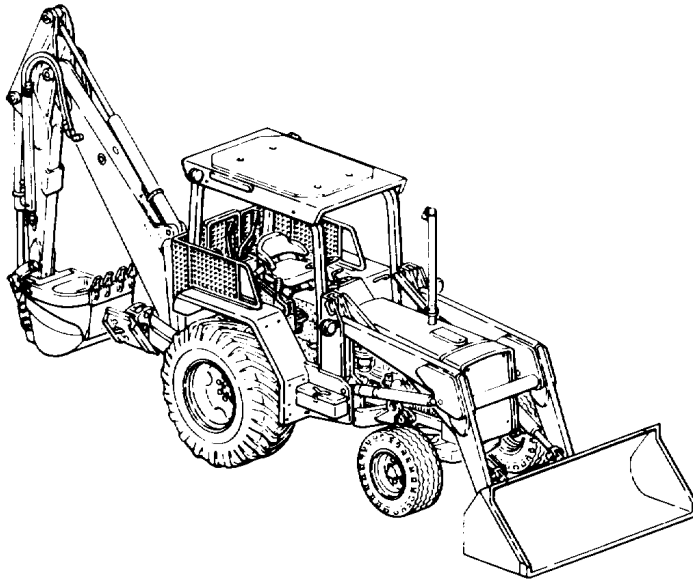


TECHNICAL MANUAL
ORGANIZATIONAL MAINTENANCE MANUAL
VOLUME 3 OF 3



**MAINTENANCE
INSTRUCTIONS -
CONTINUED
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**MAINTENANCE
ALLOCATION
CHART (MAC)
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**TRACTOR, WHEELED (DED)
LOADER BACKHOE
W/HYDRAULIC IMPACT TOOL AND
HYDRAULIC EARTH AUGER ATTACHMENT
JOHN DEERE MODEL JD 410 (CCE)
WITH BUCKET, IMPACTOR,
AND EARTH DRILL
(NSN 2420-00-567-1035)**

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**This copy is a reprint which includes current
pages from Change 1.**

Change 1

1 SEPTEMBER 1987

HEADQUARTERS, DEPARTMENT OF THE ARMY

WARNING

When operating loader backhoe, make sure that all personnel are cleared from vehicle and work area. Failure to observe this precaution could cause injury to personnel.

WARNING

Do not operate backhoe controls unless you are in operator's seat facing backhoe. Backhoe boom cylinder may be accidentally bumped, causing backhoe boom to move suddenly. Failure to observe this precaution could cause serious injury.

WARNING

Do not attempt to disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Hydraulic system pressure should be 0 psi (0 kPa) before lines are disconnected. A line or fitting disconnected under pressure will blow off with a lot of force and could cause serious injury to personnel.

WARNING

Be careful when draining hot fluids. Wear gloves to protect your hands from hot parts and fluids or severe burns could result.

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flashpoint is 100°F to 138°F (38° to 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

WARNING

Compressed air used for blowing away chips, dirt, etc., must leave nozzle at less than 30 psi (207 kPa) to prevent personal injury. Be certain that nozzle is rated to provide a maximum of 30 psi (207 kPa). Be sure to wear safety goggles when using compressed air. Compressed air and particles moved by compressed air can cause damage to your eyes.

WARNING

Be careful of moving parts when working near engine while it is running. Moving parts could catch on tools, clothing, or extremities causing serious injury.

WARNING

Keep clear of hydraulic components when raised and not supported. Sudden loss of hydraulic pressure could cause components to drop without warning.

WARNING

Surge relief valve plug is under strong spring tension. If plug is not supported, parts may fly off injuring personnel.

WARNING

Valve is under strong spring tension. If valve is not supported when mounting bolts are removed, parts may fly off injuring personnel.

WARNING

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

Change 1 b

CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 8 April 1992

ORGANIZATIONAL MAINTENANCE MANUAL

**TRACTOR, WHEELED,
DED, LOADER BACKHOE:
WITH HYDRAULIC IMPACT TOOL AND
WITH HYDRAULIC EARTH AUGER ATTACHMENT
JOHN DEERE MODEL JD410 (CCE)
WITH BUCKET, IMPACTOR,
AND EARTH DRILL
(NSN 2420-00-567-0135)**

TM 5-2420-222-20-3, 1 September 1987, is changed as follows:

1. Cover. The manual title is changed to read as shown above.
2. Remove old pages and insert new pages.
3. New or changed material is indicated by a vertical bar in the margin or by a vertical bar adjacent to the TA number.

Remove Pages

*a and b
i and ii
A-1 and A-2
Appendix B (in its entirety)
C-3 and C-4
Cover 1 and 2*

Insert Pages

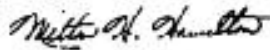
*a and b
i and ii
A-1 and A-2
Appendix B (in its entirety)
C-3 and C-4
Cover 1 and 2*

4. File this change sheet in front of the publication for reference purposes.

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By Order of the Secretary of the Army:

Official



MILTON H. HAMILTON
*Administrative Assistant to the
Secretary of the Army*
00776

GORDON R. SULLIVAN
*General, United States Army
Chief of Staff*

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TECHNICAL MANUAL

NO. 5-2420-222-20-3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 1 September 1987

ORGANIZATIONAL MAINTENANCE MANUAL

TRACTOR, WHEELED,
DED, LOADER BACKHOE:
WITH HYDRAULIC IMPACT TOOL AND
WITH HYDRAULIC EARTH AUGER ATTACHMENT
JOHN DEERE MODEL JD410 (CCE)
WITH BUCKET, IMPACTOR,
AND EARTH DRILL
(NSN 2420-00-567-0135)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 20282 located in the back of this manual direct to: Commander, US Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be sent to you.

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*This manual supersedes Organizational portion of TM 5-2420-222-14&P1 and TM 5-2420-222-14&P2 dated October 1982, including all changes.

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HYDRAULIC SYSTEM PRESSURE RELEASE

This task covers:

Hydraulic System Pressure Release (page 2-1191)

INITIAL SETUP

Personnel Required

One

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

HYDRAULIC SYSTEM PRESSURE RELEASE

NOTE

Hydraulic system pressure must be released before disconnecting hydraulic lines and fittings. A line or fitting disconnected under pressure will blow off with a lot of force and could cause injury to personnel.

When engine is running, hydraulic system is under pressure. In order to release hydraulic system pressure, engine must be shut down.

There are three ways to release hydraulic system pressure. Perform any one of the following three steps to release hydraulic system pressure.

HYDRAULIC SYSTEM PRESSURE RELEASE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

HYDRAULIC SYSTEM PRESSURE RELEASE - CONTINUED

- | | | | |
|---------------|-----------------------------------|--|--|
| 1. Operator's | Steering wheel (1)
compartment | Turn from side to side until steering is hard. | |
|---------------|-----------------------------------|--|--|

WARNING

When operating loader backhoe, make sure that all personnel are cleared from vehicle and work area. Failure to observe this precaution could cause injury to personnel.

- | | | | |
|----|------------------------------------|---|--|
| 2. | Loader bucket
control lever (2) | a. Pull back until loader bucket (3) stops raising.

b. Push forward until loader bucket (3) rests on ground. | |
|----|------------------------------------|---|--|

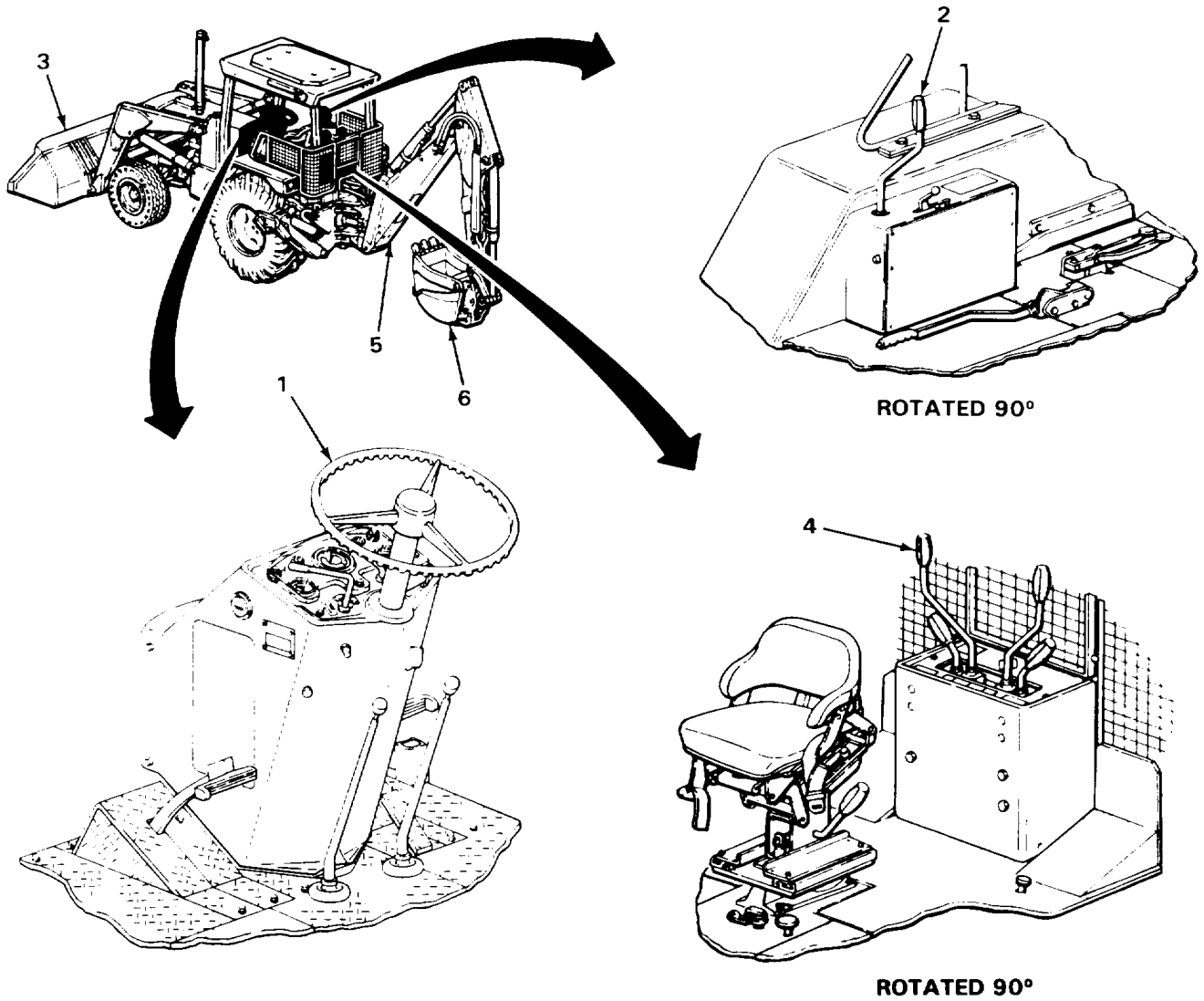
WARNING

Do not operate backhoe controls unless you are in operator's seat facing backhoe. Backhoe boom cylinder may be accidentally bumped, causing backhoe boom to move suddenly. Failure to observe this precaution could cause serious injury.

- | | | | |
|----|-----------------------------------|---|--|
| 3. | Backhoe boom
control lever (4) | a. Pull back until boom (5) stops raising.

b. Push forward until backhoe bucket (6) rests on ground. | |
|----|-----------------------------------|---|--|

HYDRAULIC SYSTEM PRESSURE RELEASE - CONTINUED



TASK ENDS HERE

TA243304

HYDRAULIC ACCUMULATOR CHARGING

This task covers:

Charging (page 2-1194)

INITIAL SETUP

Tools

Charging kit, accumulator,
Nudie ND-925-0 (-W)
Connector, John Deere R40617
Hose, John Deere AR47753
Knife, pocket
Wrench, box, 5/8-inch

Materials/Parts

Nitrogen, technical (item 17, Appendix C)
Packing, plug

Personnel Required

One

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

CHARGING

- | | | | |
|---|-----------------|-------------------------------------|--|
| 1 | Accumulator (1) | Plug (2) with assembled packing (3) | Using 5/8-inch box wrench, unscrew and take out. |
| 2 | Plug (2) | Packing (3) | a Using pocket knife, take off.
b Get rid of. |

CAUTION

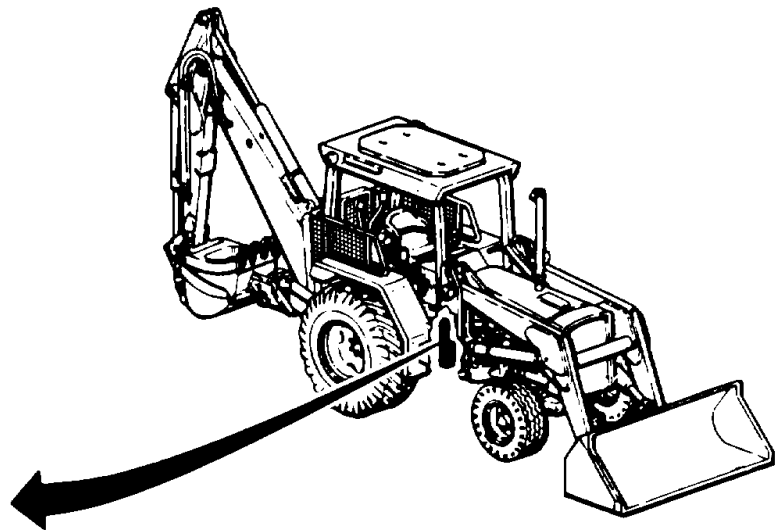
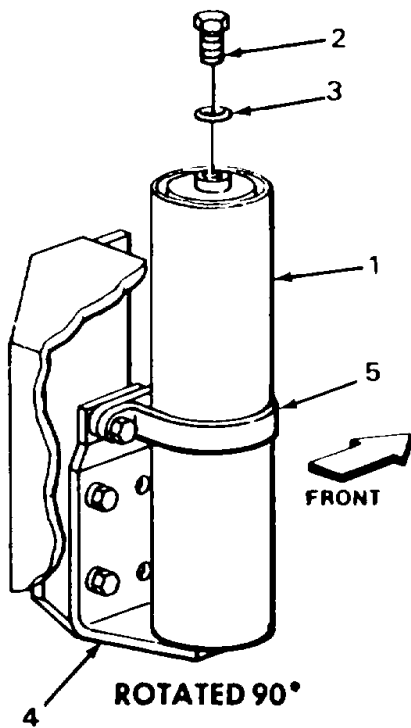
Use only dry nitrogen to charge hydraulic accumulator. Using air or any combustible gas may cause damage to internal parts.

When charging accumulator, be careful not to exceed specified pressure or damage to internal parts may occur.

- | | | | |
|---|---------------------------|-----------------|---|
| 3 | Bracket (4) and clamp (5) | Accumulator (1) | a Using Nuday ND925-0 (-W) accumulator charging kit, John Deere R40617 connector, and John Deere AR47753 hose connected to charging port, charge.
Accumulator is charged when gage on charging kit reads 475 to 525 psi (3275 to 3620 kPa).
b. If overcharged, use Nuday ND925-0 (-W) accumulator charging kit with gage and valve disconnected from technical nitrogen tank to bleed off any excess pressure. |
|---|---------------------------|-----------------|---|

HYDRAULIC ACCUMULATOR CHARGING - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
4 Plug (2)	New packing (3)	Place in position.	c Disconnect Nuday ND925-0 (-W) accumulator charging kit, John Deere R40617 connector, and John Deere AR47753 hose.
5 Accumulator (1)	Plug (2) with assembled packing (3)	Screw in and tighten using 5/8-inch box wrench.	



TASK ENDS HERE

TA243305

PUMP STROKE CONTROL VALVE FILTER ELEMENT

This task covers:

- a. Removal (page 2-1196)
 - b. Cleaning (page 2-1197)
 - c. Inspection/Replacement (page 2-1198)
 - d. Installation (page 2-1198)
-

INITIAL SETUP

Tools

- Knife, pocket
- Pan, drain
- Screwdriver, flat-tip, 1/8-inch
- Wrench, box and open-end, combination, 1 1/4 - inch

Materials/Parts

- Filter element
- Packing, filter element (two required)
- Packing, filter plug

Materials/Parts - Continued

- Rags, wiping (item 21, Appendix C)
- Solvent, drycleaning (item 28, Appendix C)

Personnel Required

Two

Equipment Condition

1. Hydraulic system pressure released (page 2-1191)
 2. Right side grille removed (TM 5-2420-222-10)
-

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

REMOVAL


WARNING

Do not attempt to disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Hydraulic system pressure should be 0 psi (0 kPa) before lines are disconnected. A line or fitting disconnected under pressure will blow off with a lot of force and could cause serious injury to personnel.

Be careful when draining hot fluids. Wear gloves to protect your hands from hot parts and fluids or severe burns could result.

- | | | |
|----------------|-------------------------------------|--|
| 1. Housing (1) | Plug (2) with assembled packing (3) | <ul style="list-style-type: none"> a. Place drain pan underneath to catch draining fluid. b. Using 1 1/4-inch combination box and open-end wrench, unscrew and take out. |
|----------------|-------------------------------------|--|

PUMP STROKE CONTROL VALVE FILTER ELEMENT - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
2.	Filter element (4) and two packings (5)	a. Using 1/8-inch flat-tip screwdriver, take out. b. Get rid of packing (5). c. Plug housing (1) (page 2-137). d. Get rid of drained fluid (page 2-137).	
3. Plug (2)	Packing (3)	a. Using pocket knife, take off. b. Get rid of.	

CLEANING

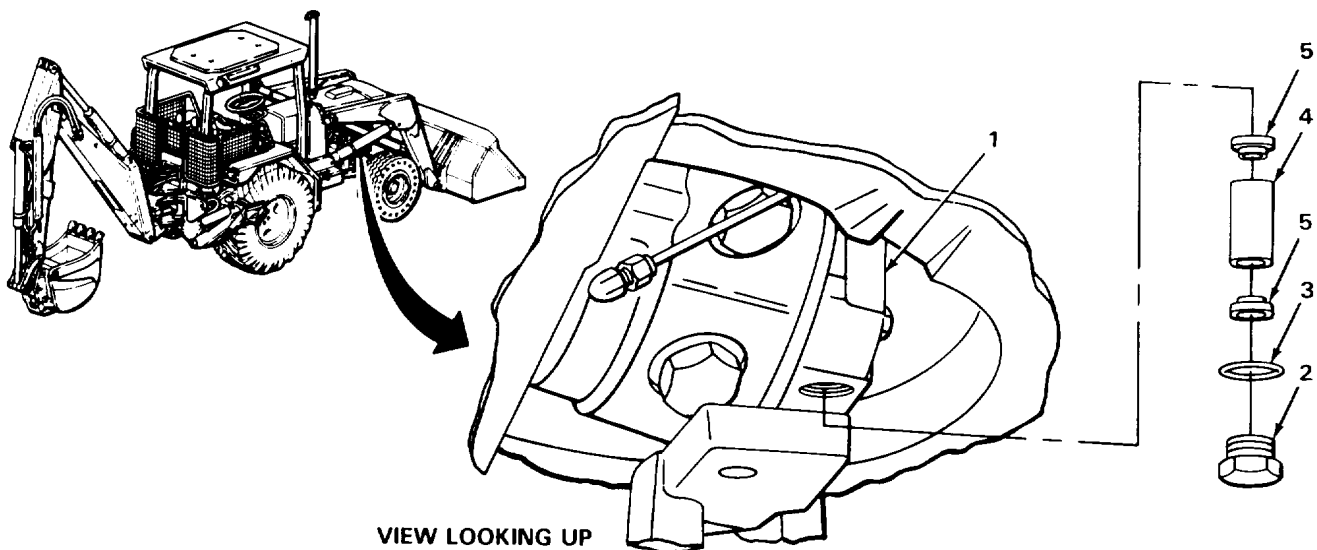
NOTE

For more information on how to clean parts, go to **General Maintenance Instructions (page 2-137)**.

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flashpoint is 100°F to 138°F (38° to 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

- | | | |
|----|------------------------------------|---|
| 4. | Plug (2) and
filter element (4) | a. Clean in drycleaning solvent.
b. Using clean, dry rags, wipe dry. |
|----|------------------------------------|---|

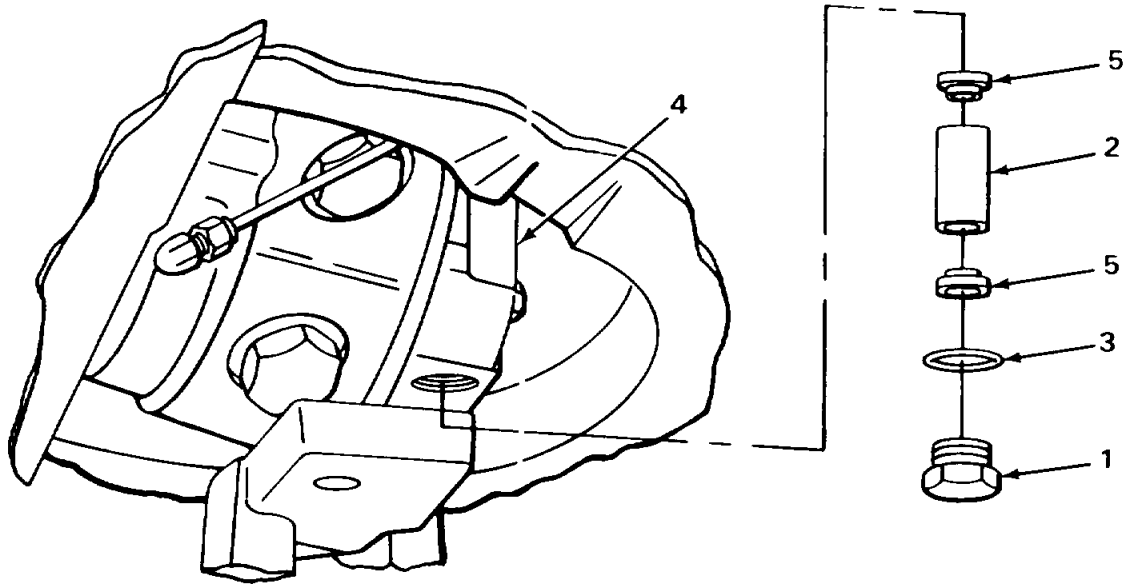


TA243306

PUMP STROKE CONTROL VALVE FILTER ELEMENT - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSPECTION/REPLACEMENT			
NOTE			
For more information on how to inspect parts, go to General Maintenance Instructions (page 2-137).			
Replace defective parts as needed.			
5.	Plug (1)	a. Look for cracks and breaks. b. Look for damaged threads.	
6.	Filter element (2) dents.	a. Look for cracks, breaks, bends, and b. Look for plugged wire mesh which cannot be cleaned. c. Look for enlarged holes in wire mesh.	
INSTALLATION			
7.	Plug (1)	New packing (3)	Place in position.
8.	Housing (4)	Filter element (2) and two new packings (5)	a. Unplug housing (4). b. Place in position.
9.		Plug (1) with assembled packing (3)	Screw in and tighten using 1 1/4-inch combination box and open-end wrench.
10.	Loader backhoe	Transmission	Check fluid level and add proper amount and grade (TM 5-2420-222-10).
11.		Engine	Start and run at high idle (TM 5-2420-222-10).
12.	Housing (4)	Plug (1)	a. Check for leaks. b. If leaking, tighten using 1 1/4-inch combination box and open-end wrench. c. If leaking does not stop, shut down engine (TM 5-2420-222-10) and replace defective packing or plug as outlined in this task. d. If found leaking, repeat steps 10 thru 12.
13.	Loader backhoe	Engine	If still running, shut down (TM 5-2420-222-10).

PUMP STROKE CONTROL VALVE FILTER ELEMENT - CONTINUED



VIEW FROM UNDERNEATH

NOTE

FOLLOW-ON MAINTENANCE: Install right side grille (TM 5-2420-222-10).

TASK ENDS HERE

TA 243307

PRESSURE CONTROL VALVE

This task covers:

- | | |
|--|-------------------------------|
| a. Removal (page 2-1200) | e. Repair (page 2-1206) |
| b. Disassembly (page 2-1202) | f. Assembly (page 2-1206) |
| c. Cleaning (page 2-1204) | g. Installation (page 2-1208) |
| d. Inspection/Replacement(page 2-1205) | h. Adjustment (page 2-1210) |
-

INITIAL SETUP

Tools

- Caliper, micrometer, outside, 0 to 1-inch
- Caps, vise jaw (pair)
- Compressor, reciprocating air
- Extension, 3/8-inch drive, 5-inch
- Fitting kit, tube and pipe
- Gage, multi-range, pressure
- Gun, air blow
- Handle, ratchet, 3/8-inch drive
- Hose, air compressor
- Knife, pocket
- Pan, drain
- Pliers, long roundnose
- Press, arbor
- Remover and installer, 0.250-inch outside diameter
- Socket, 3/8-inch drive, 1/2-inch
- Socket, 3/8-inch drive, 9/16-inch
- Tester, spring, 4 to 400-pound capacity
- Thread set, pipe
- Vise, machinist's
- Universal-joint, 3/8-inch drive
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 7/8-inch
- Wrench, open-end, 1-inch
- Wrench, open-end, 1 1/16-inch

Tools - Continued

- Wrench, open-end, 1 1/4-inch (two required)
- Wrench, open-end, 1 3/8-inch
- Wrench, torque, 1/2-inch drive, 0 to 150 foot-pound capacity

Materials/Parts

- Lockwasher, valve screw (three required)
- Packing, adapter union-to-valve
- Packing, connector-to-valve
- Packing, elbow-to-valve
- Packing, plug-to-pump
- Packing, plug-to-valve
- Packing, plug-to-valve
- Packing, valve-to-transmission case
- Packing, valve-to-transmission case
- Solvent, drycleaning (item 28, Appendix C)
- Tags, marking (item 30, Appendix C)

Personnel Required

Two

Equipment Condition

Right side grille removed
(TM 5-2420-222-10)

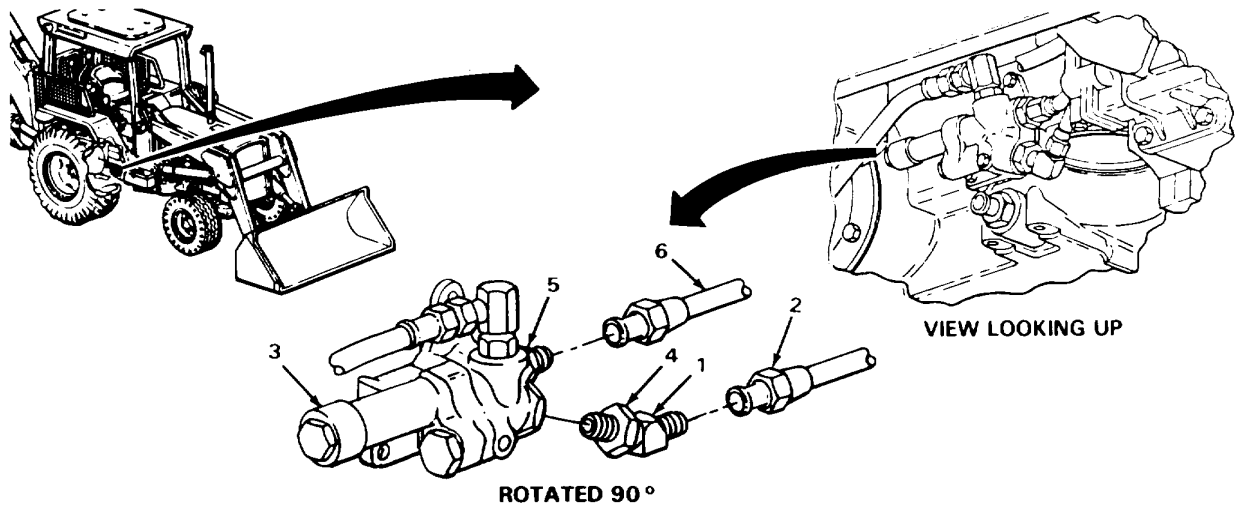
LOCATION	ITEM	ACTION REMARKS
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REMOVAL

- | | | |
|-------------------|-----------------------------------|-----------------------|
| 1. Loader backhoe | Hydraulic oil filter relief valve | Remove (page 2-1217). |
|-------------------|-----------------------------------|-----------------------|

PRESSURE CONTROL VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
2.	Transmission oil filter	Remove (page 2-836).
3. Elbow (1)	Line (2)	<ul style="list-style-type: none"> a. Place drain pan underneath to catch draining fluid. b. Using 1-inch open-end wrench, unscrew and take off. c. Cap (page 2-137). d. Tag (page 2-137).
4. Valve assembly (3) and elbow (1)	Nut (4)	Using 1 1/16 and 1 1/4-inch open-end wrenches, loosen.
5. Valve assembly (3)	Elbow (1) with assembled parts	<ul style="list-style-type: none"> a. Note relative position for proper placement during installation. b. Using 1 1/16-inch open-end wrench, unscrew and take out.
6. Connector (5)	Line (6)	<ul style="list-style-type: none"> a. Place drain pan underneath to catch draining fluid. b. Using 1 3/8-inch open-end wrench, unscrew and take off. c. Cap (page 2-137). d. Tag (page 2-137).



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PRESSURE CONTROL VALVE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
REMOVAL - CONTINUED			
NOTE			
Pressure control valve mounting screws are three different lengths. Note position of screws for proper placement during installation.			
7.	Valve assembly (1) and transmission case (2)	Three screws (3, 4, and 5) and three lockwashers (6)	<ul style="list-style-type: none"> a. Place drain pan underneath to catch draining fluid. b. Using 9/16-inch, 3/8-inch drive socket, 5-inch extension, universal joint, ratchet handle, and 9/16-inch open end wrench, unscrew and take out. c. Get rid of lockwashers (6).
8.	Transmission case (2)	Valve assembly (1) with assembled parts	<ul style="list-style-type: none"> a. Take off. b. Allow to drain in drain pan.
9.	Valve assembly (1)	Two packings (7 and 8)	<ul style="list-style-type: none"> a. Using pocket knife, take off. b. Get rid of.
10.	Union adapter (9)	Hose (10)	<ul style="list-style-type: none"> a. Position over drain pan to catch draining fluid. b. Using 1 1/16-inch and 1 1/4-inch open-end wrenches, unscrew and take out. c. Cap (page 2-137). d. Tag (page 2-137). e. Get rid of drained fluid (page 2-137).
11.	Elbow (11)	Packing (12)	<ul style="list-style-type: none"> a. Using pocket knife, take off. b. Get rid of.
DISASSEMBLY			
12.	Pressure housing (13) and union adapter (9)	Nut (14)	<ul style="list-style-type: none"> a. Place housing (13) in machinist's vise with vise jaw caps. b. Using two 1 1/4-inch open-end wrenches, loosen.
13.	Pressure housing (13)	Union adapter (9) with assembled parts	<ul style="list-style-type: none"> a. Note relative position for proper placement during assembly. b. Using 1 1/4-inch open-end wrench, unscrew and take out.
14.	Union adapter (9)	Packing (15)	<ul style="list-style-type: none"> a. Using pocket knife, take off. b. Get rid of.

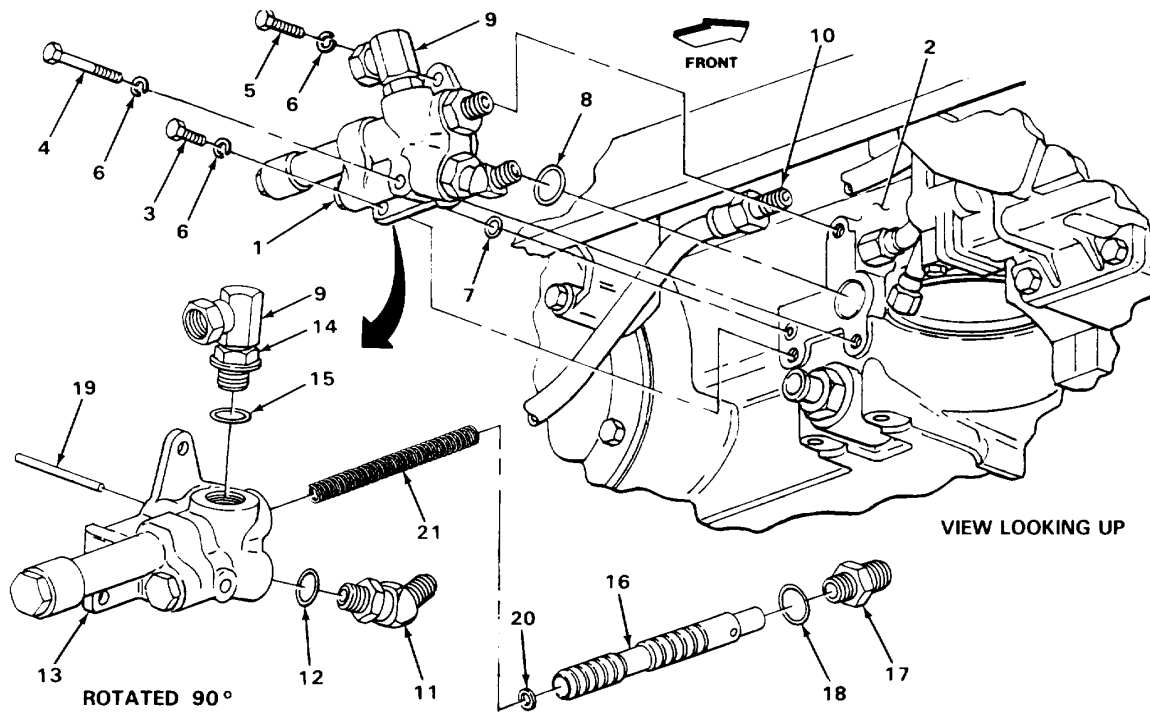
PRESSURE CONTROL VALVE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
15. Pressure housing (13) and valve (16)	Connector (17) with assembled packing (18)	Using 1 3/8-inch open-end wrench, unscrew and take out.	
16. Connector (17)	Packing (18)	a. Using pocket knife, take off. b. Get rid of.	
17. Pressure housing (13) and valve (16)	Pin (19)	a. Depress valve (16) by hand to relieve spring tension. b. Using long roundnose pliers, take out.	

NOTE

Loader backhoes with Serial Numbers 235786 thru 235999 use one or more washers between spring and orifice. Loader backhoes with Serial Numbers 319995 thru 342573 do not use washers in this position.

18. Pressure housing (13)	Valve (16), washers (20), if present, and spring (21)	a. Take out. b. If found, note quantity of washers (20) so same number can be used during assembly.
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