5105 and 5205 Tractors

For complete service information also see:

Component Technical Manuals 3029

Engine CTM8
Alternators and Starting Motors CTM77

John Deere Augusta Works
TM1792 (20MAR00)
LITHO IN U.S.A
ENGLISH

Contents

SECTION 10—General Information
- Group 05—Safety
- Group 10—General Specifications
- Group 20—Fuel and Lubricants
- Group 25—Serial Number Locations
- Group 30—Features and Accessories

SECTION 20—Engine Repair
- Group 05—Engine
- Group 10—Cooling System

SECTION 30—Fuel and Air Repair
- Group 05—Fuel System
- Group 10—Air Intake System
- Group 15—Speed Control Linkage

SECTION 40—Electrical Repair
- Group 05—Battery, Starter and Alternator
- Group 10—Electrical System Components
- Group 15—Wiring Harness

SECTION 50—Power Train Repair
- Group 05—Clutch Housing
- Group 10—Clutch Assembly
- Group 15—Transmission
- Group 20—Rear PTO
- Group 25—Differential
- Group 30—Final Drives
- Group 35—Mechanical Front Wheel Drive

SECTION 60—Steering and Brake Repair
- Group 05—Steering Repair
- Group 10—Brake Repair

SECTION 70—Hydraulic Repair
- Group 05—Hydraulic Pump and Filter
- Group 10—Rockshaft
- Group 15—Selective Control Valve (SCV)
- Group 20—Hydraulic Mid Mount Coupler

SECTION 80—Miscellaneous Repair
- Group 05—Front Axle—2WD
- Group 10—Wheels
- Group 15—3-Point Hitch

SECTION 90—Operator Station Repair
- Group 05—Seat and Support
- Group 10—ROLL-GARD
- Group 15—Operator Platform
- Group 20—Fenders

SECTION 210—Operational Checkout Procedures
- Group 10—Operational Checkout Procedures

SECTION 220—Engine Operation, Tests and Adjustments
- Group 05—Component Location
- Group 10—Theory of Operation
- Group 15—Diagnosis, Tests and Adjustments

SECTION 230—Fuel/Air Operation, Tests and Adjustments
- Group 05—Component Location
- Group 10—Theory of Operation
- Group 15—Diagnosis, Tests and Adjustments

SECTION 240—Electrical System Operation, Tests & Adjust
- Group 05—Component Location
- Group 10—Theory of Operation
- Group 15—Diagnosis, Test and Adjust
- Group 20—Wiring Schematics

SECTION 250—Power Train Operation, Tests & Adjustments
- Group 05—Component Location—Power Train
- Group 10—Theory of Operation—Transmission
- Group 15—Diagnosis, Tests and Adjustments—Power Train

SECTION 260—Steering and Brake Operation, Test & Adjust
- Group 05—Component Location
- Group 10—Theory of Operation
- Group 15—Diagnosis, Tests and Adjustments

SECTION 270—Hydraulic System Operation, Test &

Continued on next page

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A John Deere ILLUSTRUCTION® Manual

10
05
1

Recognize Safety Information

This is a 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.



T81389 –UN–07DEC88

DX,ALERT –19–29SEP98–1/1

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.



TS187 –19–30SEP88

DX,SIGNAL –19–03MAR93–1/1

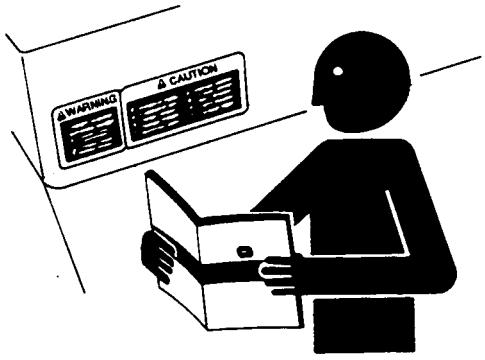
Follow Safety Instructions

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.



TS201 –UN–23AUG88

DX,READ –19–03MAR93–1/1

Machine Specifications

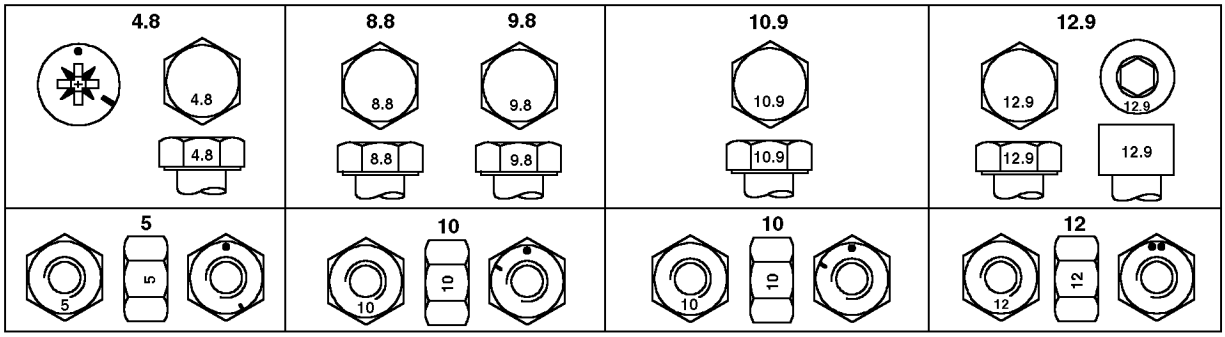
NOTE: (Specifications and design subject to change without notice.)

Item	Measurement	Specification
5105—3029D *POWERTECH*® Engine, Naturally Aspirated		
Factory Observed PTO	Power	29.8 kW (40 hp) at 2300 rpm
Maximum Engine	Torque	170 N•m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106 mm (4.17 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.4:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	825 ± 25 rpm
Fast Idle	Speed	2500 ± 25 rpm
Operating Range	Speed	1400—2300 rpm
Injection Pump Timing	Position	16.5° BTDC (TimeTrac)
5205—3029D *POWERTECH*® Engine, Naturally Aspirated		
Factory Observed PTO	Power	35.8 kW (48 hp) at 2300 rpm
Maximum Engine	Torque	188 N•m at 1400 rpm
Cylinders	Quantity	3

POWERTECH is a registered trademark of Deere & Company

Continued on next page

Metric Bolt and Cap Screw Torque Values



TORQ2 –UN–07SEP99

Top, Property Class and Head Markings; Bottom, Property Class and Nut Markings

	Class 4.8		Class 8.8 or 9.8		Class 10.9		Class 12.9	
Size	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**
M6	4.7 (3.5)	6 (4.4)	9 (6.6)	11.5 (8.5)	13 (9.5)	16.5 (12.2)	15.5 (11.5)	19.5 (14.5)
M8	11.5 (8.5)	14.5 (10.7)	22 (16)	28 (20.5)	32 (23.5)	40 (29.5)	37 (27.5)	47 (35)
M10	23 (17)	29 (21)	43 (32)	55 (40)	63 (46)	80 (59)	75 (55)	95 (70)
M12	40 (29.5)	50 (37)	75 (55)	95 (70)	110 (80)	140 (105)	130 (95)	165 (120)
M14	63 (46)	80 (59)	120 (88)	150 (110)	175 (130)	220 (165)	205 (150)	260 (190)
M16	100 (74)	125 (92)	190 (140)	240 (175)	275 (200)	350 (255)	320 (235)	400 (300)
M18	135 (100)	170 (125)	265 (195)	330 (245)	375 (275)	475 (350)	440 (325)	560 (410)
M20	190 (140)	245 (180)	375 (275)	475 (350)	530 (390)	675 (500)	625 (460)	790 (580)
M22	265 (195)	330 (245)	510 (375)	650 (480)	725 (535)	920 (680)	850 (625)	1080 (800)
M24	330 (245)	425 (315)	650 (480)	820 (600)	920 (680)	1150 (850)	1080 (800)	1350 (1000)
M27	490 (360)	625 (460)	950 (700)	1200 (885)	1350 (1000)	1700 (1250)	1580 (1160)	2000 (1475)
M30	660 (490)	850 (625)	1290 (950)	1630 (1200)	1850 (1350)	2300 (1700)	2140 (1580)	2700 (2000)
M33	900 (665)	1150 (850)	1750 (1300)	2200 (1625)	2500 (1850)	3150 (2325)	2900 (2150)	3700 (2730)
M36	1150 (850)	1450 (1075)	2250 (1650)	2850 (2100)	3200 (2350)	4050 (3000)	3750 (2770)	4750 (3500)

[a] *"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.*

[b] *"Dry" means plain or zinc plated without any lubrication.*

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

DX,TORQ2 –19–01OCT99–1/1

Item	Measurement	Specification
Pump Displacement—Implement	Displacement	20 cu cm (1.22 cu in.)
Steering[1]	Flow Rate	24.6 L/min. (6.5 gpm)
Implement[1]	Flow Rate	41.3 L/min. (10.9 gpm)
Steering (Maximum)	Pressure	13 000—13 500 kPa (130—135 bar) (1885—1955 psi)
Implement (Maximum)	Pressure	19 000—19 700 kPa (190—197 bar) (2755—2855 psi)
Hitch Lift	Capacity	1355 kg (2990 lb)

[1] Flow rate at 90% pump efficiency and engine at rated speed.

AG,OUO1032,2637 –19–15SEP99–3/3

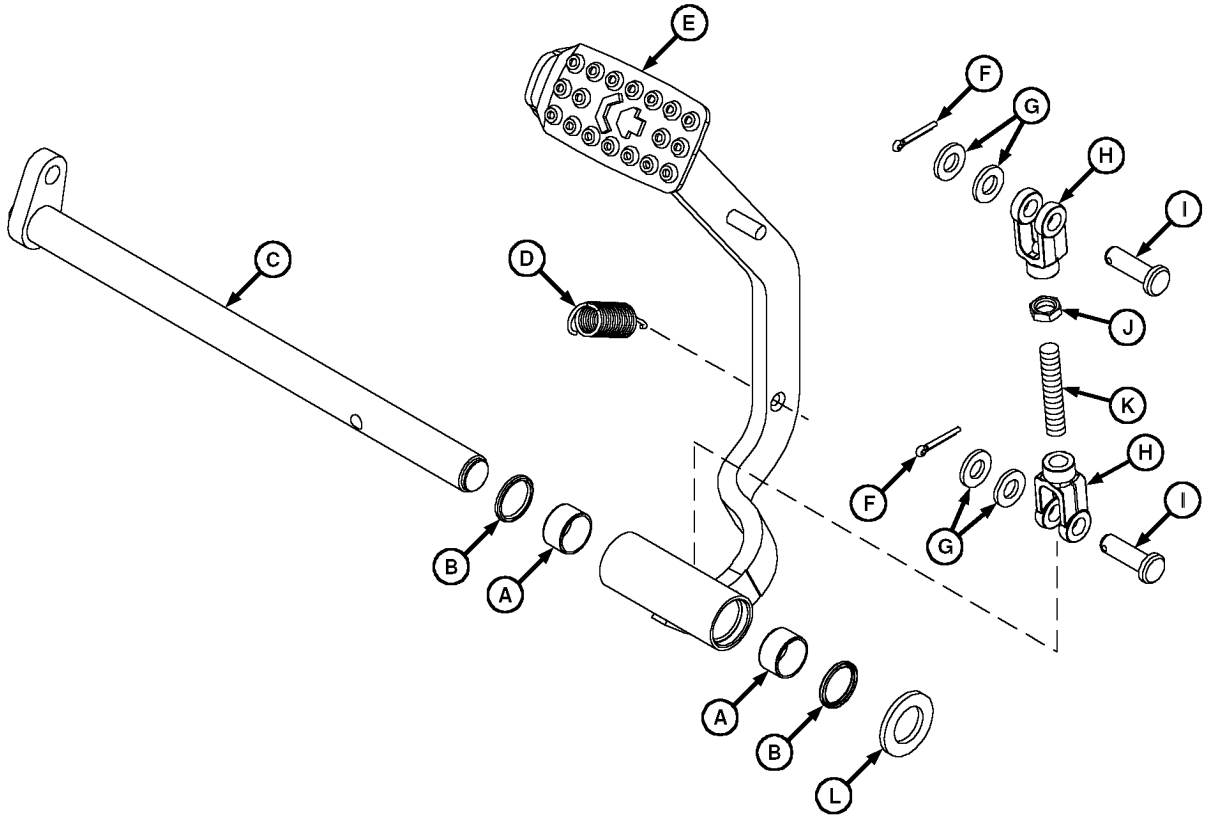
Drain and Refill Capacities

Item	Measurement	Specification
Fuel Tank	Capacity	85.5 L (22.6 gal) Approximate
Cooling System	Capacity	8.93 L (2.4 gal) Approximate
Crankcase (including filter change)	Capacity	7.5 L (7.9 qt) Approximate
SyncReverser™ Transmission	Capacity	33 L (8.7 gal) Approximate
Mechanical Front Wheel Drive (MFWD)—If Equipped		
Wheel Hubs (Each)	Capacity	0.5 L (0.53 qt) Approximate
Axle Housing	Capacity	4 L (4.2 qt) Approximate

SyncReverser is a trademark of Deere & Company

AG,OUO1032,2638 –19–15SEP99–1/1

Inspect and Repair Clutch Pedal and Linkage



LV4640 –UN–11FEB00

A—Bushing (2 used)
B—Seal (2 used)
C—Shaft
D—Extension Spring
E—Clutch Pedal
F—Cotter Pin (2 used)
G—Washer (4 used)
H—Yoke (2 used)
I—Pin (2 used)
J—Jam Nut
K—Threaded Rod
L—Spacer

1. Inspect all parts for wear or damage. Replace as necessary.
2. Remove brake pedals. (See procedure in Section 60, Group 10.)

NOTE: Disassemble yokes (H), jam nut (J), and threaded rod (K) only if replacement is necessary.

3. Remove parts (D—J).
4. Remove shaft (C), pedal (E), and spacer (L).

NOTE: Bushings (A) are press fit, remove bushings and seals (B) only if replacement is necessary.

5. Inspect bushings (A) and seals (B) for wear or damage. Replace if necessary.

   Replace bushings using a bearing, bushing and seal driver set. Install bushings flush with inner bore lip.

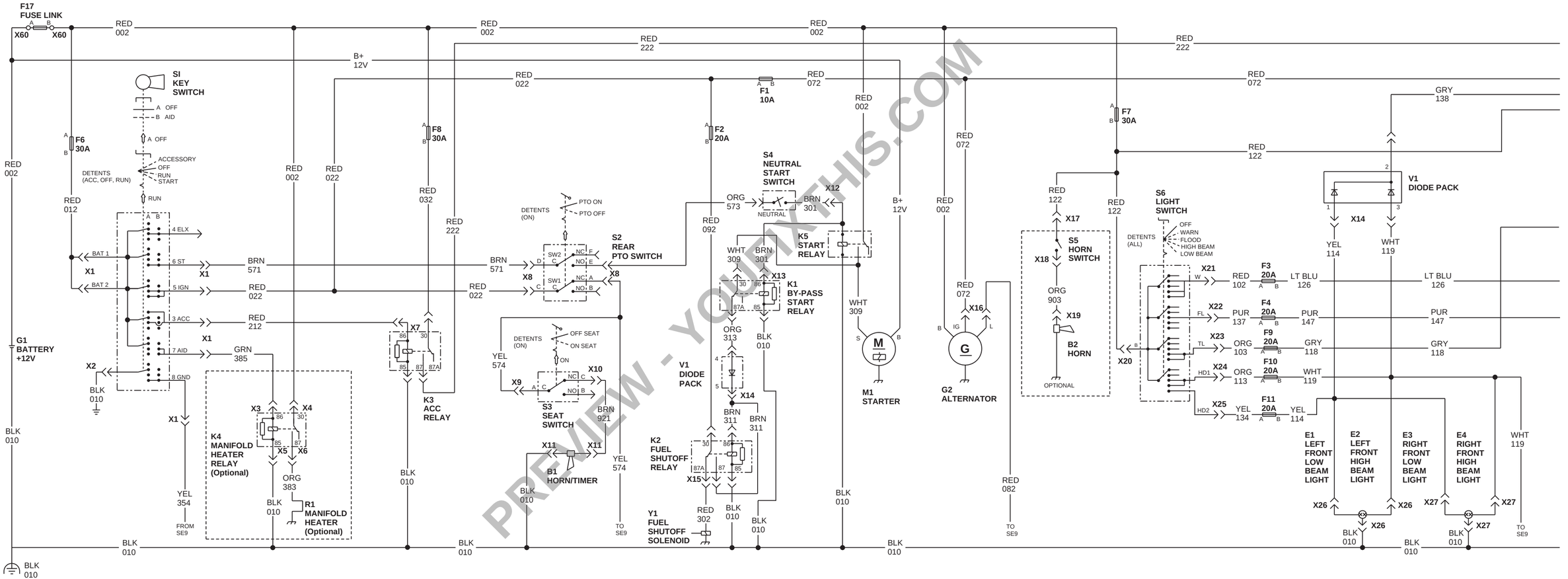
6. Apply Moly High Temperature EP Grease to ID of bushings.
7. Install seals (B) with spring side facing outward flush with pedal surface.
8. Install parts (C—L)

Continued on next page

AG,OUO1023,525 –19–01FEB00–1/2

5105 and 5205 Electrical Schematic Legend

LV4490 –19–26JAN00



LV4490

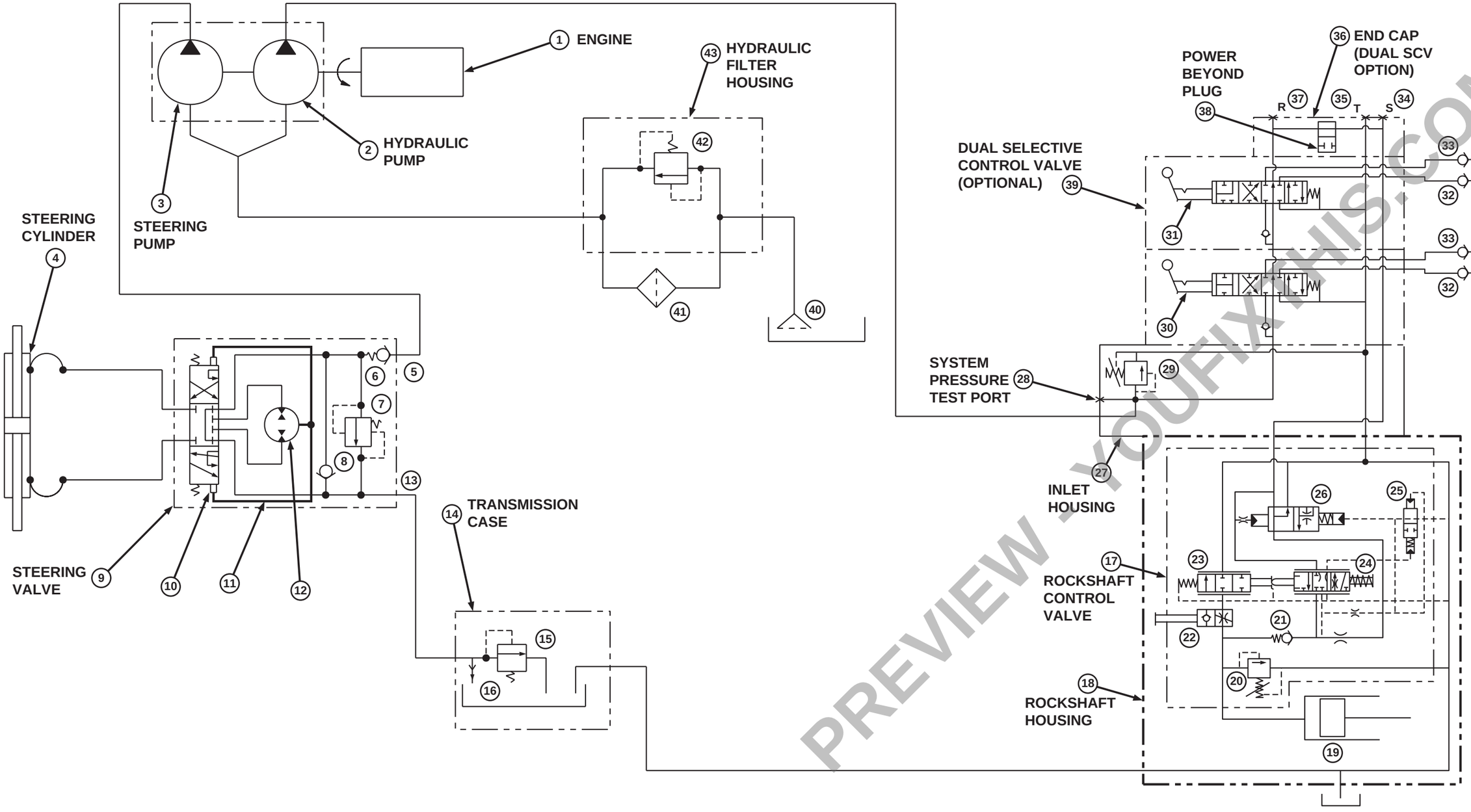
5105 AND 5205 ELECTRICAL SCHEMATIC – SHEET 1 OF 2

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Hydraulic Schematic—With Selective Control Valve

LV4540 –19–03MAR00



LV4540

HYDRAULIC SCHEMATIC — WITH SELECTIVE CONTROL VALVE

Slide LV4540

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Diagnostic Information

The diagnostic information in this group is used to test components related to a specific problem. Select the appropriate symptom from the list that best matches your problem and follow the test procedures under that heading. The symptom headings are:

- Engine turns over but will not start or starts hard
- Engine runs irregularly or stalls frequently
- Engine runs rough
- Engine has low power
- Engine smokes—black or grey
- Engine smokes excessively—white
- Engine uses excess fuel
- Engine has excess noise or vibration
- Engine uses excess oil or smokes blue
- Engine has low oil pressure
- Engine coolant operating temperature incorrect
- Oil in coolant or coolant in oil

The diagnostic procedure lists:

- Test conditions
- Test sequence
- Test location
- Normal reading
- Check or test to perform if reading is not normal

When performing the test or check, be sure to set your machine up to the test conditions listed and follow the sequence carefully. The middle “Normal” column gives the specification or condition that should be obtained when performing the test or check. If the results are not normal, perform the test, check, or adjustment listed in the third “If Not Normal” column to repair the malfunction. The detailed tests or adjustments referred to in the “If Not Normal” column are located at the end of this group.

LV,22015HA,A1 –19–04JUN96–1/1

Remove Engine

1. Disconnect battery. (See procedure in Section 40, Group 10.)
2. Remove air cleaner.
3. Remove radiator. (See procedure in Group 10.)

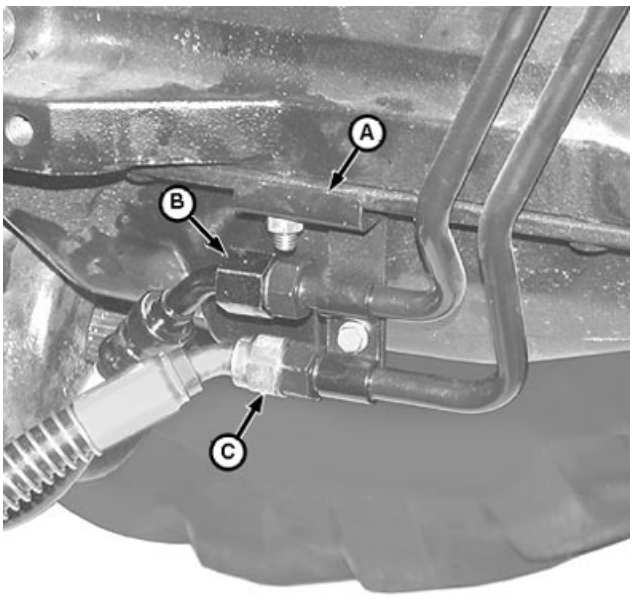
NOTE: The approximate capacity of transmission is 33 L (8.7 U.S. gal).

4. Drain transmission/hydraulic oil.
5. Remove dash panels and hood.
6. Remove muffler and exhaust stack.

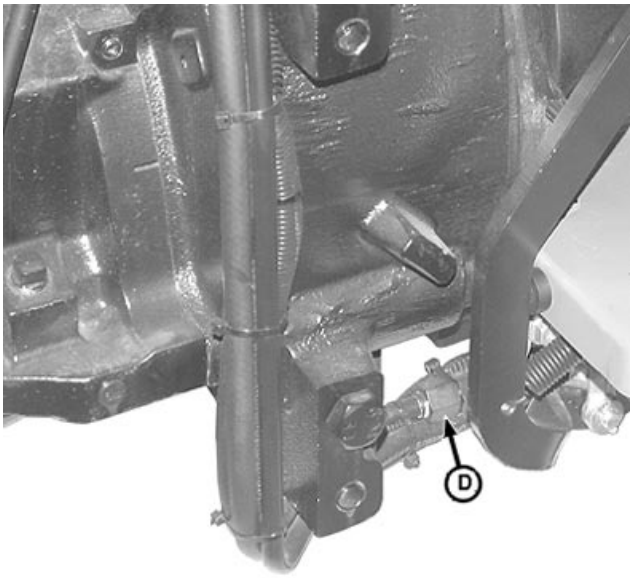
NOTE: Close all openings using caps and plugs.

7. Mark and disconnect hydraulic steering hoses (B and C).
8. Remove steering line bracket (A) from engine.
9. Disconnect steering return line (D).

A—Steering Line Bracket
B—Hydraulic Steering Hose
C—Hydraulic Steering Hose
D—Hydraulic Steering Return Line



LV4736 –UN–09MAR00



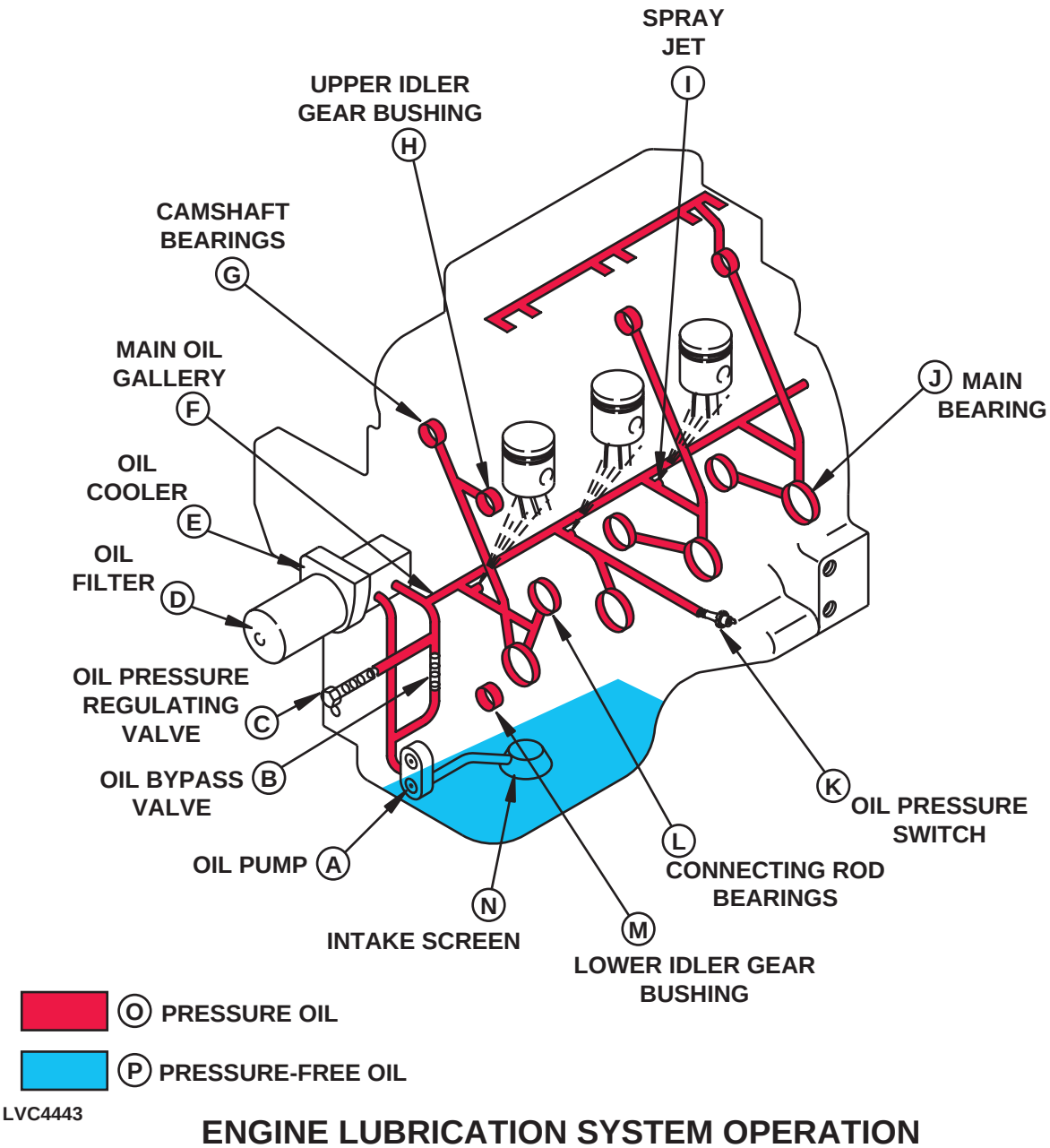
LV4732 –UN–09MAR00

Continued on next page

AG,OUO1008,224 –19–12OCT99–1/9

Engine Lubrication System Operation

220
10
2



LVC4443 –19–22OCT99

ENGINE LUBRICATION SYSTEM OPERATION

Slide LVC4443

A—Oil Pump
B—Oil Bypass Valve
C—Oil Pressure Regulating Valve
D—Oil Filter
E—Oil Cooler (Model 5205 Only)
F—Main Oil Gallery
G—Camshaft Bearings
H—Upper Idler Gear Bushing
I—Spray Jet (3 used)
J—Main Bearings
K—Oil Pressure Switch
L—Connecting Rod Bearings
M—Lower Idler Gear Bushing
N—Intake Screen
O—Pressure Oil
P—Pressure-Free Oil

FUNCTION:

Continued on next page

Specifications

Item	Measurement	Specification
Radiator Cap Pressure Valve	Opening Pressure	43—53 kPa (0.43—0.53 bar) (6.25—7.75 psi)
Engine Oil Temperature at 825 rpm Engine Speed	Temperature	93°C (200°F)
Engine Oil Temperature at 2500 rpm Engine Speed	Temperature	105°C (220°F)
Minimum Oil Pressure at 825 rpm Engine Speed	Pressure	100 kPa (1 bar) (15 psi)
Minimum Oil Pressure at 2500 rpm Engine Speed	Pressure	277—483 kPa (2.77—4.83 bar) (40—70 psi)
Cylinder		
Cylinder	Pressure	2400 kPa (24 bar) (350 psi) Minimum
Maximum Difference Between Cylinders	Pressure	350 kPa (3.50 bar) (50 psi)
Engine—Slow Idle	Speed	825 ± 25 rpm
Engine—Fast Idle	Speed	2500 ± 25 rpm
Fuel injection pump mounting nuts	Torque	25 N•m (216 lb-in.)
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
New Standard V-Belt—JDG529 Gauge Method	Tension	578—622 N (130—140 lb force)
Used Standard V-Belt—JDG529 Gauge Method	Tension	378—423 N (85—94 lb force)
Standard V-Belt—JDST28 Gauge/Straight Edge Method	Belt Deflection at 89 N (20 lb force)	19 mm (0.750 in.) (A)
New Poly V-Belt—JT05975 Gauge Method	Tension	890—1068 N (200—240 lb force)

Continued on next page

Specification	
Intake Valve Clearance	0.35 mm (0.014 in.)
Exhaust Valve Clearance	0.45 mm (0.018 in.)

220
15
28

RESULTS:

- To adjust valve clearance, turn cap screw (I) to correct clearance.

AG,OUO1023,396 –19–23NOV99–2/2

10
20
8

Grease

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

The following greases are preferred:

- John Deere SD POLYUREA GREASE

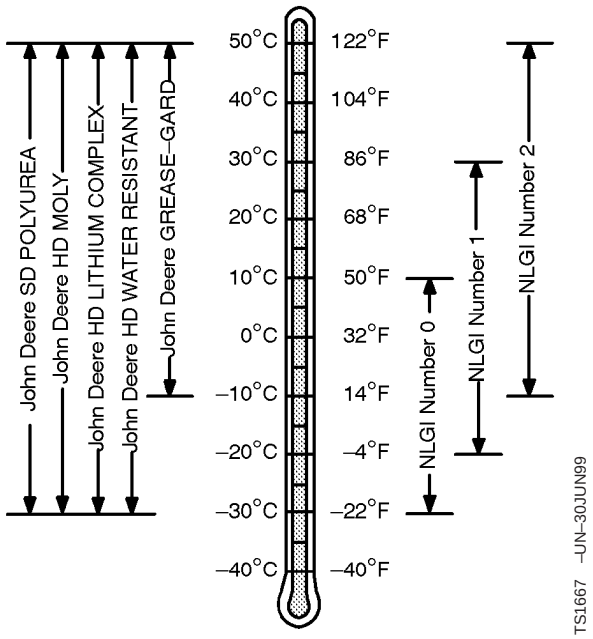
The following greases are also recommended:

- John Deere HD MOLY GREASE
- John Deere HD LITHIUM COMPLEX GREASE
- John Deere HD WATER RESISTANT GREASE
- John Deere GREASE-GARD

Other greases may be used if they meet the following:

- NLGI Performance Classification GC-LB

IMPORTANT: Some types of grease thickener are not compatible with others.



DX,GREA1 –19–07JUL99–1/1

Alternative and Synthetic Lubricants

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some John Deere brand coolants and lubricants may not be available in your location.

Consult your John Deere dealer to obtain information and recommendations.

Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic oils.

Re—refined base stock products may be used if the finished lubricant meets the performance requirements.

DX,ALTER –19–18MAR96–1/1

Operational Checkout Procedure Information

The procedures covered in this group are used to give a quick checkout of all the systems and components on the unit. These checkouts should be run to insure proper operation after any extended storage, when the unit comes in for service, and after repairs have been made on the unit. They can also be helpful in determining the value of the unit at trade-in time. The unit should be placed on a level surface to run the checkouts. All the checkouts should be done and all of the steps of each checkout should be followed.

Each checkout lists:

- Conditions—How the unit should be set up for the checkout.
- Procedure—The specific action to be done.
- Normal—What should happen or be heard or be seen.
- If Not Normal—Where to go if other tests or adjustments are needed.

When performing the checkout, be sure to set your machine up to the test conditions listed and follow the sequence carefully. The “Normal” paragraph gives the result that should happen when performing the checkout. If the results are not normal, go to the Section and Group listed in the “If Not Normal” paragraph to determine the cause and repair the malfunction.

The photograph that accompanies each checkout procedure is included to help conduct the checkout.

MX,21010HE,1A –19–08MAY96–1/1

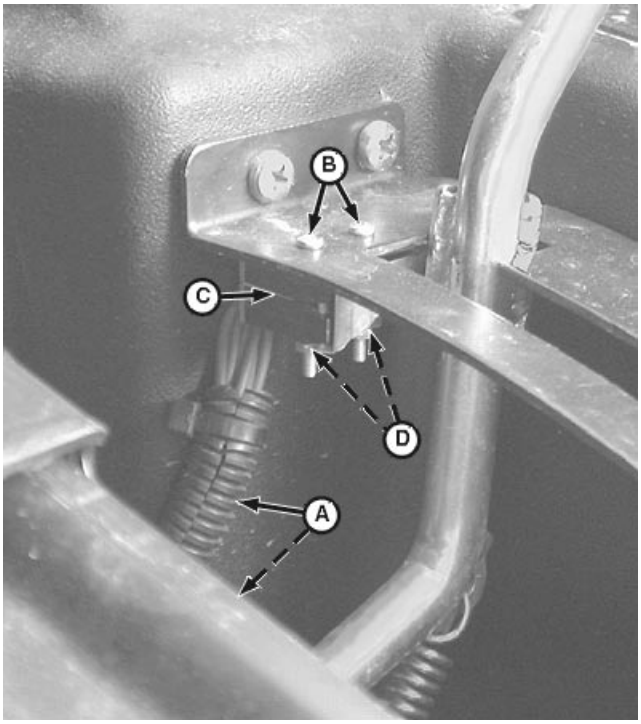
Adjust
Group 05—Component Location
Group 10—Theory of Operation
Group 15—Diagnosis
Group 16—Hydraulic Tests—Without SCV
Group 17—Hydraulic Tests—With SCV
Group 18—Hydraulic Tests—With Mid Mount Control Valve
Group 19—Hydraulic Tests—All
Group 20—Adjustments
Group 21—Hydraulic Schematics

SECTION 299—Dealer Fabricated Tools
Group 00—Dealer Fabricated Tools

Replace Rear PTO Switch

1. Disconnect wiring connector (A).
2. Remove two screws (B) and nuts (D).
3. Replace rear PTO switch (C).
4. Install mounting hardware and tighten securely.
5. Connect wiring connector.

A—Wiring Connector
B—Screw (2 used)
C—Rear PTO Switch
D—Nut (2 used)



LV4504 –UN–07DEC99

AG,OUO1023,346 –19–01NOV99–1/1

Replace Neutral Start Switch

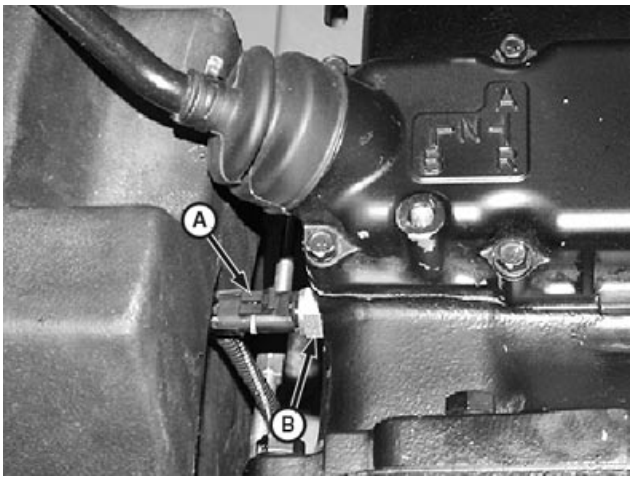
NOTE: Seat removed for clarity of photo.

1. Disconnect wiring connector (A).

NOTE: Apply petroleum jelly to O-ring before installing new neutral start switch.

2. Replace neutral start switch and O-ring (B).
3. Connect wiring connector.

A—Wiring Connector
B—Neutral Start Switch

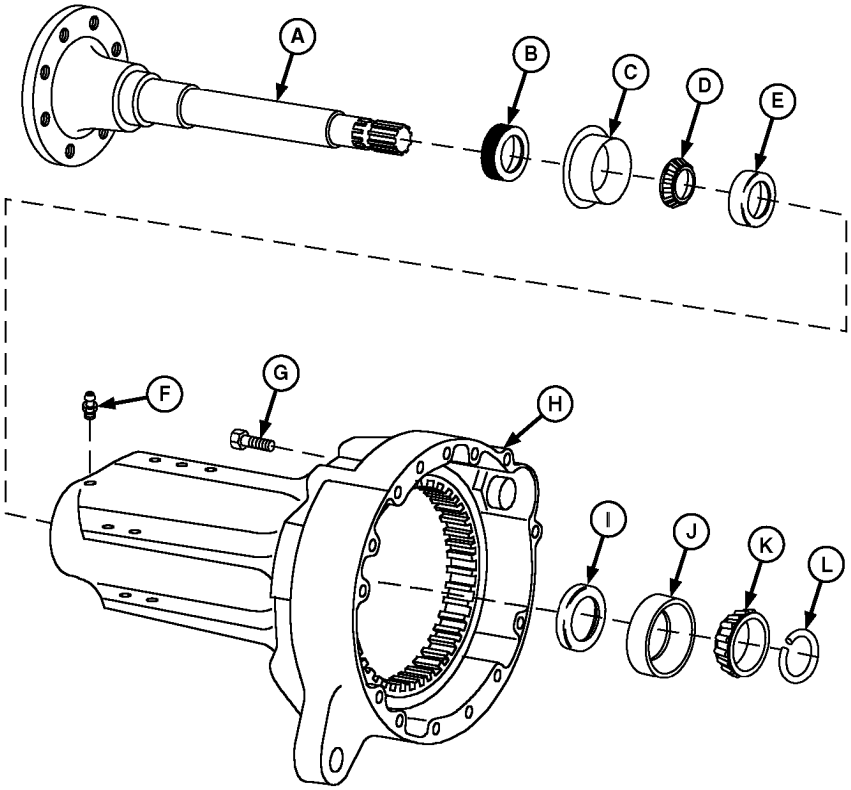


LV4425 –UN–13OCT99

Left Side of Transmission Housing Shown

AG,OUO1023,263 –19–06OCT99–1/1

Remove, Inspect, and Install Axle Shaft Assembly



LV4016 –UN–09JUN99

50
30
7

A—Axle Shaft
B—Seal
C—Wear Ring
D—Bearing Cone
E—Bearing Cup
F—Grease Fitting
G—Plug (2 used)
H—Final Drive Housing
I—Seal
J—Bearing Cup
K—Bearing Cone
L—Retaining Ring

1. Remove planetary drive assembly. (See procedure in this group.)
2. Remove retaining ring (L).
3. Remove axle shaft (A) using a nylon or plastic tipped hammer on splined end of shaft.

NOTE: Bearing cone (D) is press fit on axle shaft. Bearing cups (E and J) are press fit in final drive housing.

4. Remove bearing cone (D) using a knife-edge puller and a press.
5. Remove seal (B) and wear ring (C).
6. Remove bearing cup (J) and seal (I).
7. Inspect all parts for wear or damage. Replace as necessary.

NOTE: Remove bearing cup (E) only if replacement is necessary.

8. Remove bearing cups (E and J), if necessary, using an inside puller and a slide hammer.

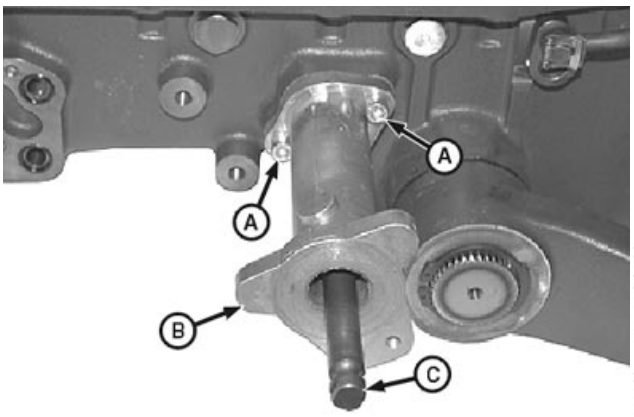
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AG,OUO1020,3454 –19–27MAY99–1/4

IMPORTANT: Always use new O-rings. Used or damaged O-rings will leak.

12. Install new O-ring onto shaft (C).
13. Apply multipurpose grease to shaft (C).
14. Install support tube over shaft and tighten two cap screws.

A—Socket Head Screw (2 used)
B—Support Tube
C—Shaft



LV4160 –UN–11OCT99

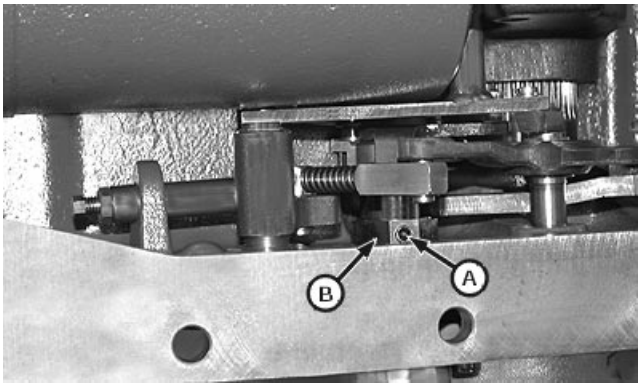
Rockshaft Upside Down

AG,OUO1008,189 –19–24SEP99–7/11

IMPORTANT: Always use new O-rings. Used or damaged O-rings will leak.

15. Install new O-ring on pitman arm assembly.
16. Install pitman arm assembly into support tube and align flats of arm to flats in link (B).
17. Clean threads of set screw (A) with cure primer.
18. Apply 242 thread sealer to set screw. Install and tighten.

A—Set Screw
B—Link



LV4159 –UN–02SEP99

Bottom View

70
10
9

Continued on next page

AG,OUO1008,189 –19–24SEP99–8/11

MFWD Oil Check

CONDITIONS:

- Machine parked on level ground.
- OIL LEVEL arrow (A) parallel to ground.
- Range shift lever in neutral.
- Park brake engaged.
- Key switch in off position.

PROCEDURE:

- Remove filler plug (B).
- Observe level of oil.

NORMAL:

- Oil level even with bottom of filler plug hole.

IF NOT NORMAL:

- Drain excess oil or add oil to proper level.



LV4494 –UN–02NOV99

A—Level Arrow
B—Filler Plug

AG,OUO1023,336 –19–27OCT99–1/1

Relays

FUNCTION:

Control current flow through circuits with high current loads.

MAJOR COMPONENTS:

- Manifold Heater Relay, K4 (Mounted on Engine Intake Manifold)
- Fuel Shut-Off Relay, K2
- Bypass Start Relay, K1
- Start Relay, K5
- Accessory Relay, K3
- Enhanced Turn Signal Relay #1, K6
- Enhanced Turn Signal Relay #2, K7
- Enhanced Turn Signal Relay #3, K8
- Enhanced Turn Signal Relay #4, K9

THEORY OF OPERATION:

Relays vary slightly in configuration and terminals, but work the same way. As current passes through relay windings, a magnetic field develops which draws contacts together. This activates controlled circuit and reduces current flow through system switches.

NOTE: Specific operation of each relay is covered in theory of operation for that circuit.

AG,OUO1023,398 –19–23NOV99–1/1

Instrument Panel System Test Points—Fuel Gauge

CONDITIONS:

- Range shift lever in N, neutral position.
- Park brake engaged.
- PTO disengaged.
- Key switch in run position.
- Meter positive lead (red) on numbered test points.
- Meter negative lead (black) on battery negative (—) post.
- Meter on DC volts.
- Electrical tests and adjustments in this Section and Group.

Test Location	Normal	If Not Normal
1. Battery positive post.	Minimum 11.8 VDC.	Test battery and charge if good. Replace bad battery.
2. Starter battery terminal.	Battery voltage.	Check for corroded connections or break in wire between battery and starter.
3. Left (large) post of fuse link junction block.	Battery voltage.	Check for corroded terminal or break in wire between battery and fuse link.
4. Right (small) post of fuse link junction block.	Battery voltage.	Check for loose or corroded terminal or replace fuse link.
5. Bottom terminal of fuse, F6.	Battery voltage.	Check for corroded connections or break in wire or splice between fuse link and 30-amp fuse F6.
6. Top terminal of fuse, F6.	Battery voltage.	Check for failed fuse, F6. If fuse is good, check for corroded or loose terminals.
7. Terminal 1 of key switch	Battery voltage.	Check for corroded connections or break in wire between fuse block and key switch.

240
15
59

Continued on next page

A—Range Reduction Shaft
B—A Range and Reverse Drive Gear Synchronizer
C—Return Oil from Steering Valve
D—Relief Valve
E—PTO Drive Shaft
F—PTO Shaft
G—Drive Gears
H—Transmission Top Driven Shaft
I—Pressure (Lubrication) Oil
J—Pressure Free Oil

FUNCTION:

The transmission case serves as the main oil reservoir for the hydraulic system and steering system. The oil also acts as lubrication oil for transmission and differential components.

MAJOR COMPONENTS:

- Transmission Case
- Power Steering System Return/Transmission Lubrication Line
- Relief Valve
- Range Reduction Shaft
- Transmission Top Driven Shaft
- Transmission Drive Gears

THEORY OF OPERATION:

During operation, pressure free oil (J) in the transmission case is thrown up by the turning drive gears (G) to lubricate the transmission components.

Pressurized return oil from the steering valve (C) enters the left side of the transmission case via the transmission lubrication line.

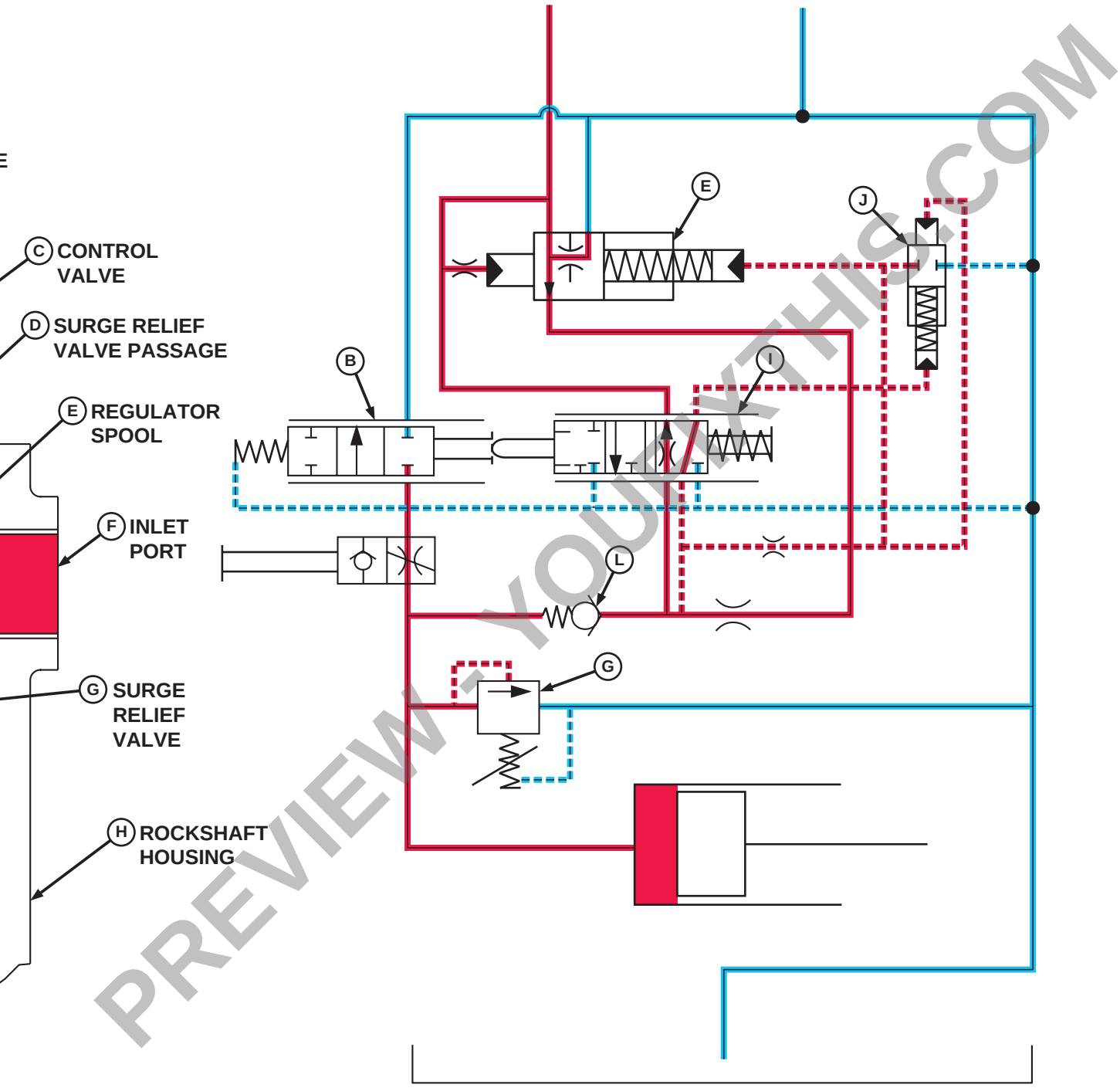
A passage in the transmission case intersects the bearing bores at the end of range reduction shaft (A) and transmission top driven shaft (H). The pressurized lube oil (I) flows through the hollow range reduction shaft (A). Passages in the shaft provide lubrication for the A range and reverse drive gear synchronizer (B). The bearings on the range reduction shaft are also lubricated by this pressurized oil. Pressurized lube oil (I) also flows down the transmission top driven shaft (H) to the B range gear and bearings on both ends of shaft.

A transmission lube relief valve (D) is located between return oil inlet and range reduction shaft bearing bore in the transmission case. An increase in oil pressure causes the relief valve spring to compress, unseating a poppet, allowing return oil to flow directly into the transmission case.

AG,OUO1023,433 –19–22DEC99–2/2

Rockshaft Control Valve Operation—Raise Position

LVC4619 –19–05MAR00



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ATION — RAISE POSITION

Slide LVC4619

AG,OUO1023,490 –19–27JAN00–1/2

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