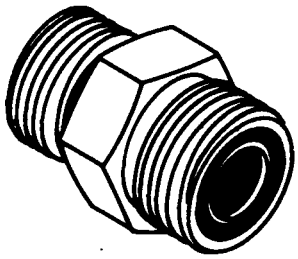
Contents

Continued on next page

Service Recommendations for Flat Face O-Ring Seal Fittings



T6243AD –UN–18OCT88

1. Inspect the fitting sealing surfaces. They must be free of dirt or defects.
2. Inspect the O-ring. It must be free of damage or defects.
3. Lubricate O-rings and install into groove using petroleum jelly to hold in place.
4. Push O-ring into the groove with plenty of petroleum jelly so O-ring is not displaced during assembly.
5. Index angle fittings and tighten by hand pressing joint together to insure O-ring remains in place.
6. Tighten fitting or nut to torque value shown on the chart per dash size stamped on the fitting. Do not allow hoses to twist when tightening fittings.

FLAT FACE O-RING SEAL FITTING TORQUE

Nominal Tube O.D.		Dash Size	Thread Size in.	Swivel Nut		Bulkhead Nut	
mm	in.	N•m	lb-ft	N•m	lb-ft		
6.35	0.250	-4	9/16-18	16	12	5.0	3.5
9.52	0.375	-6	11/16-16	24	18	9.0	6.5
12.70	0.500	-8	13/16-16	50	37	17.0	12.5
15.88	0.625	-10	1-14	69	51	17.0	12.5
19.05	0.750	-12	1 3/16-12	102	75	17.0	12.5
22.22	0.875	-14	1 3/16-12	102	75	17.0	12.5
25.40	1.000	-16	1 7/16-12	142	105	17.0	12.5
31.75	1.250	-20	1 11/16-12	190	140	17.0	12.5
38.10	1.500	-24	2-12	217	160	17.0	12.5

NOTE: Torque tolerance is +15 -20%.

04T,90,K67 –19–01AUG94–1/1

Specifications

Item	Measurement	Specification
Transmission Housing-to-Engine Cap Screws	Torque	225 N•m (165 lb-ft)

AG,OUO1023,555 –19–01MAR00–1/1

Separate Engine from Transmission Housing

CAUTION: Park tractor on level surface and place blocks in front and behind rear wheels.

1. Place blocks in front and behind rear wheels.
2. Remove MFWD drive shaft, if equipped. (See procedure in Group 35.)

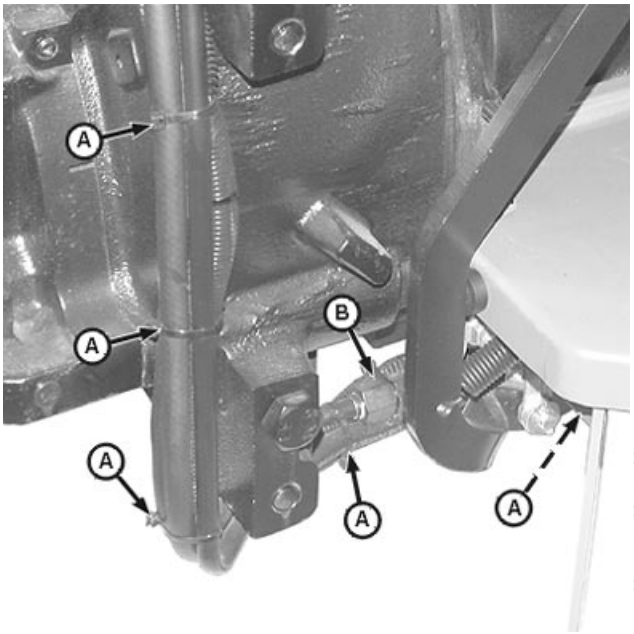
NOTE: The approximate capacity of transmission/differential is 33 L (8.7 U.S. gal)

3. Drain transmission/hydraulic oil.
4. Remove left- and right-hand dash panels.
5. Disconnect battery negative (—) cable from battery.
6. Cut all tie straps (A) along left side of tractor.

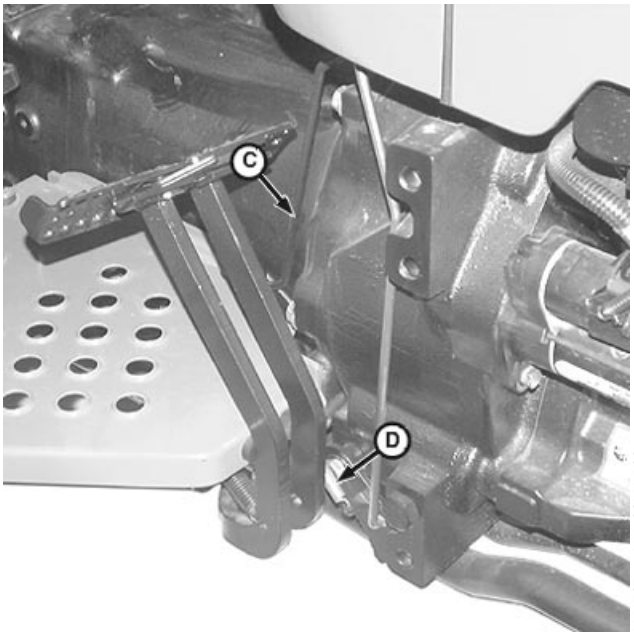
NOTE: Close all openings using caps and plugs.

7. Disconnect transmission return line (B). Close all openings using caps and plugs.
8. Disconnect park brake spring (D).
9. Disconnect throttle linkage (C) from foot pedal.

A—Tie Straps
B—Transmission Return Line
C—Throttle Pedal Linkage
D—Park Brake Spring



LV4726 –UN–03MAR00

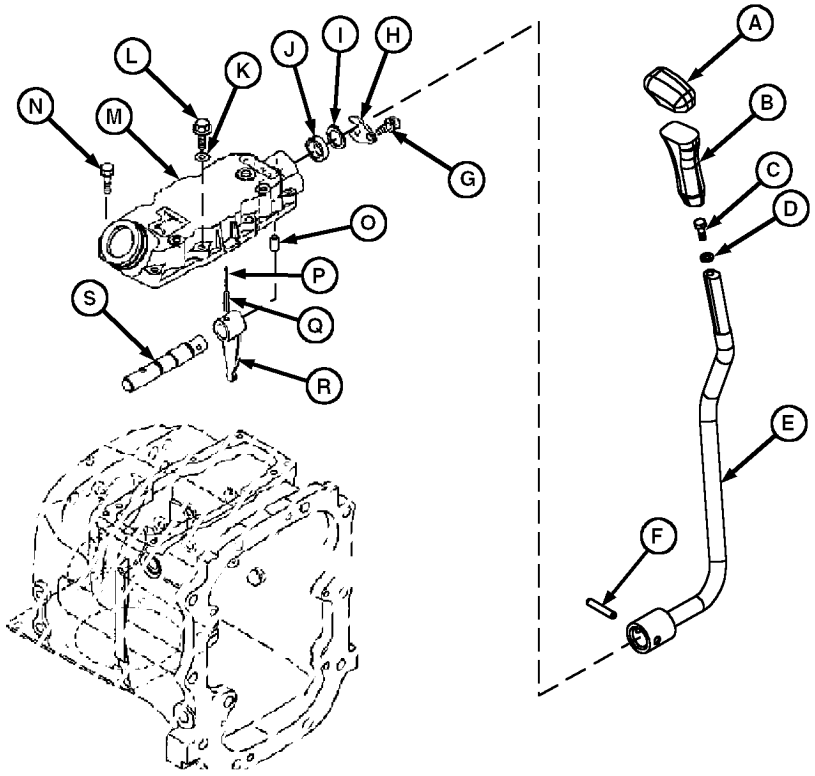


LV4727 –UN–03MAR00

Continued on next page

AG,OUO1023,495 –19–28JAN00–1/3

Remove, Inspect and Repair Gear Shift Lever And Cover



LV4641 –UN–28FEB00

A—Cap
B—Knob
C—Cap Screw
D—Washer
E—Lever
F—Spring Pin
G—Cap Screw
H—Plate
I—Washer
J—Seal
K—Washer (4 used)
L—Cap Screw (4 used)
M—Cover
N—Cap Screw and Washer (4 used)
O—Pin (2 used)
P—Pin
Q—Spring Pin
R—Arm
S—Shaft

1. Remove seat and support. (See procedure in Section 90, Group 05.)
2. Remove cap screws and washers (L, K, and N).
3. Remove cover (M).
4. Remove spring pin (F).
5. Remove and disassemble parts (A—E) as necessary.
6. Remove cap screw (G) and plate (H).
7. Remove and disassemble parts (P—S).
8. Remove washer (I) and seal (J) from cover (M), using a bushing, bearing and seal driver set.
9. Clean and inspect all parts for wear or damage. Replace as necessary.

IMPORTANT: Always use new seals. Damaged or used seals will leak.

10. Replace seal (J) using a bushing, bearing and seal driver set. Install seal with flat face toward cover (M) until seated.
11. Assemble and Install all parts to cover (M).

Continued on next page

AG,OUO1023,507 –19–28JAN00–1/2

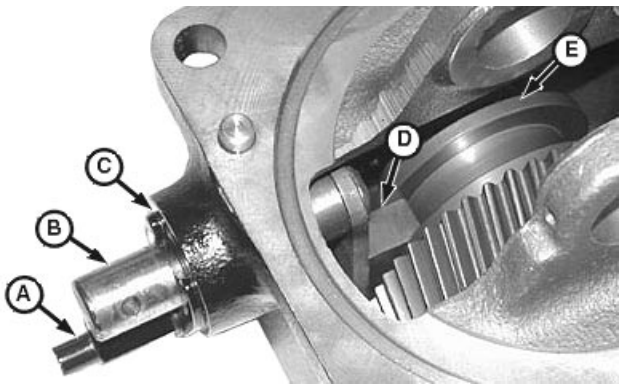
19. Turn arm assembly (B) and install chock block (D) into shift collar (E).

20. Install plate (C) and bolt (A). Tighten to specification.

Specification

MFWD Drop Gearbox Arm Bolt ..... 26 N•m (230 lb-in.) Torque

A—Bolt
B—Arm
C—Plate
D—Chock Block
E—Shift Collar



LV4431 –UN–04NOV99

AG,OUO1008,220 –19–06OCT99–9/11

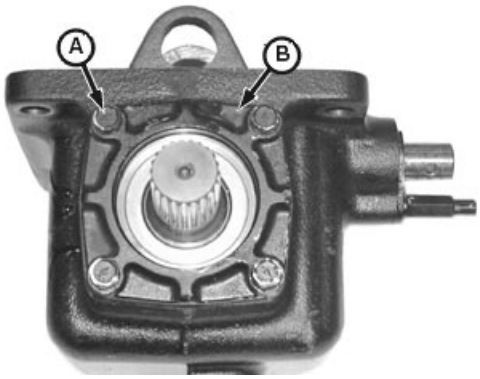
50
35
12

21. Install cover (B) using four cap screws (A). Tighten to specification.

Specification

MFWD Drop Gearbox Cover Cap ..... 26 N•m (230 lb-in.) Screws Torque

A—Cap Screw (4 used)
B—Cover

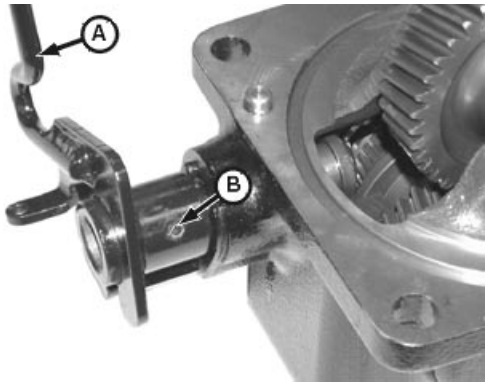


LV4428 –UN–04NOV99

AG,OUO1008,220 –19–06OCT99–10/11

22. Install lever (A) with spring pin (B).

A—Lever
B—Spring Pin



LV4426 –UN–04NOV99

AG,OUO1008,220 –19–06OCT99–11/11

Remove and Install Regenerative Selective Control Valve (SCV)

1. Open rate-of-drop valve and lower rockshaft arms completely.
2. Operate SCV levers through all positions to relieve pressure in the system.
3. Remove seat. (See procedure in Section 90, Group 05.)
4. Remove line clamp (A).

NOTE: Remove line (E) for clearance to line (B). Close all openings using caps and plugs.

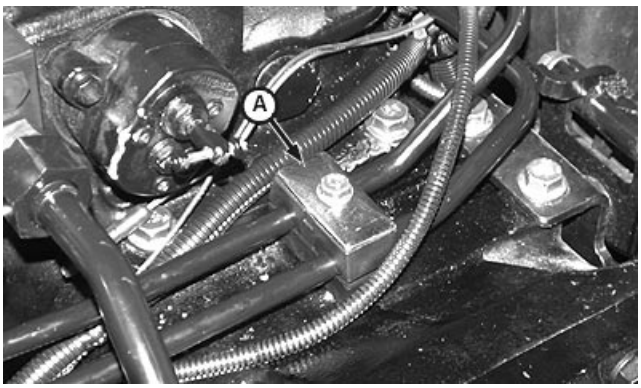
5. Remove line (E) and disconnect lines (B—D).
6. Remove cap screws (F), end cap (I), and SCV valves (G and H).
7. Make repairs as necessary. (See procedure in this group.)
8. Clean threads of cap screws (F) with cure primer.
9. Apply 242 thread sealer to threads of cap screws.

IMPORTANT: Always use new O-rings and seals. Damaged or used parts will leak.

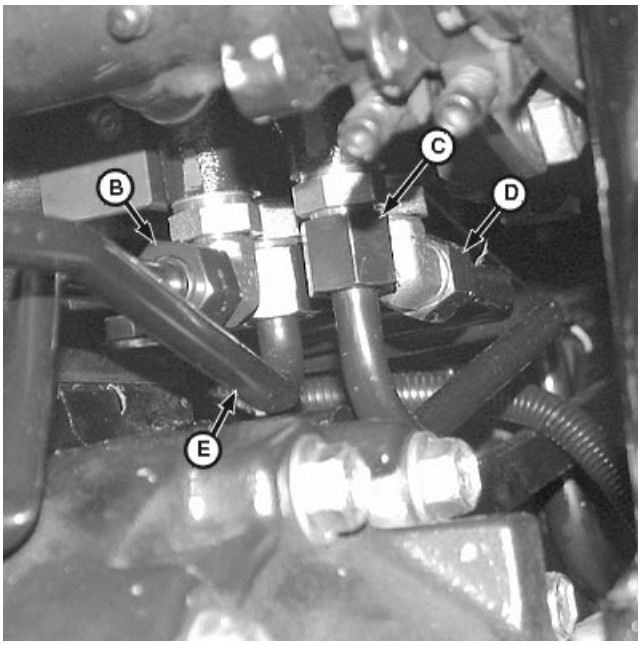
NOTE: Valve (H) single SCV valve-float, has the detent position and longer spool cover.

10. Install selective control valve and end cap using new O-rings and seal with cap screws (F). Tighten to specification.

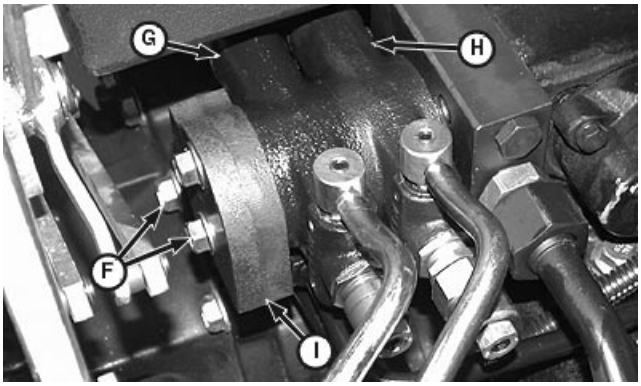
A—Line Clamp
B—Hydraulic Line
C—Hydraulic Line
D—Hydraulic Line
E—Hydraulic Line
F—Cap Screw (2 used)
G—Regenerative SCV Valve (Outer)
H—Float SCV Valve (Inner)
I—End Cap



LV4394 –UN–15OCT99



LV4393 –UN–15OCT99



LV4392 –UN–15OCT99

70
15
2

Continued on next page
AG,OUO1008,214 –19–01OCT99–1/2

Coolant Level and Condition Check

CONDITIONS:

- Key switch in OFF position.
- Machine parked on level surface.
- Radiator cap cool to the touch.

PROCEDURE:

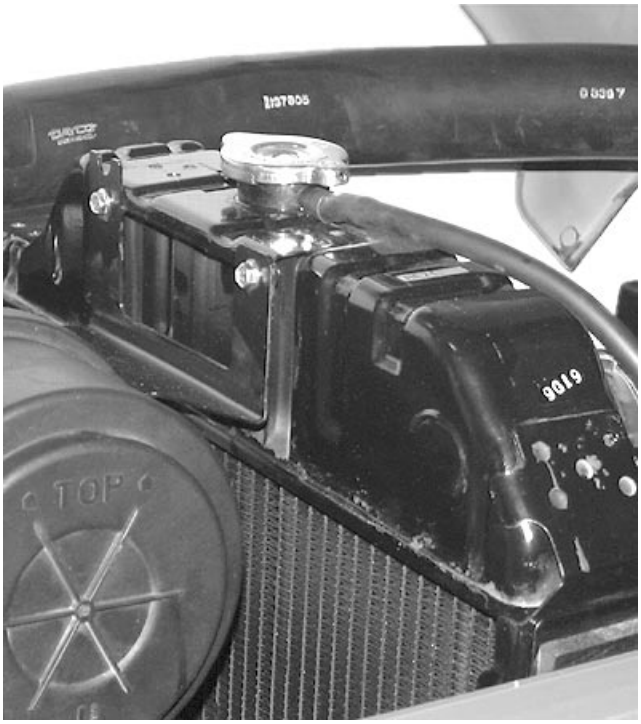
- Turn radiator cap to the first stop to relieve pressure in radiator.
- Remove radiator cap from radiator.
- Observe level and condition of coolant in radiator.
- Check condition of radiator and hoses.
- Check condition of cooling fan

NORMAL:

- Radiator and hoses in good condition, no holes or cracks.
- Coolant at bottom of fill neck with engine at operating temperature.
- Coolant clean; no oil, rust-like discoloration or foreign material in fluid.

IF NOT NORMAL:

- Replace or repair radiator
- Replace hoses .
- Add coolant to bottom of fill neck.
- Change coolant and flush cooling system.
- Go to Section 220, Group 15 for diagnosis, tests and adjustments.



LV4477 –UN–02NOV99

AG,OUO1023,328 –19–21OCT99–1/1

220
15
20

IMPORTANT: If pressure reading is below 72 kPa (0.72 bar) (10.5 psi), STOP ENGINE.

4. Install JDG282 Temperature Gauge (A) on engine oil filter.

NOTE: Tolerance extremes in engine and gauge can result in the gauge reading up to 582 kPa (5.82 bar) (85 psi). This is not detrimental to the engine.

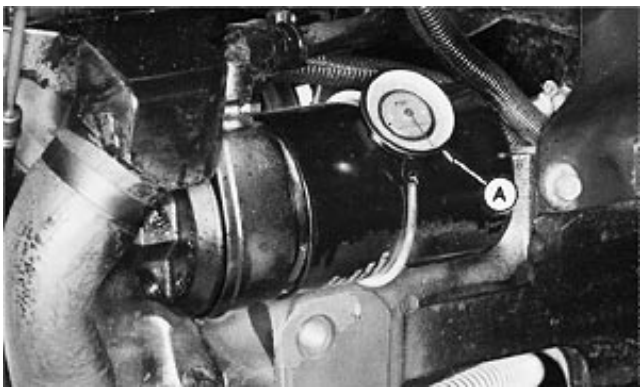
5. Run engine approximately five minutes to heat oil to specifications, then check oil pressure.

Specification

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)

RESULTS:

- If oil pressure is not within specifications, inspect oil pressure regulating valve for broken or worn spring, stuck or damaged valve. (Go to CTM8 and service as needed.)
- If pressure does not increase, go to Engine Has Low Oil Pressure in this group and service as needed.

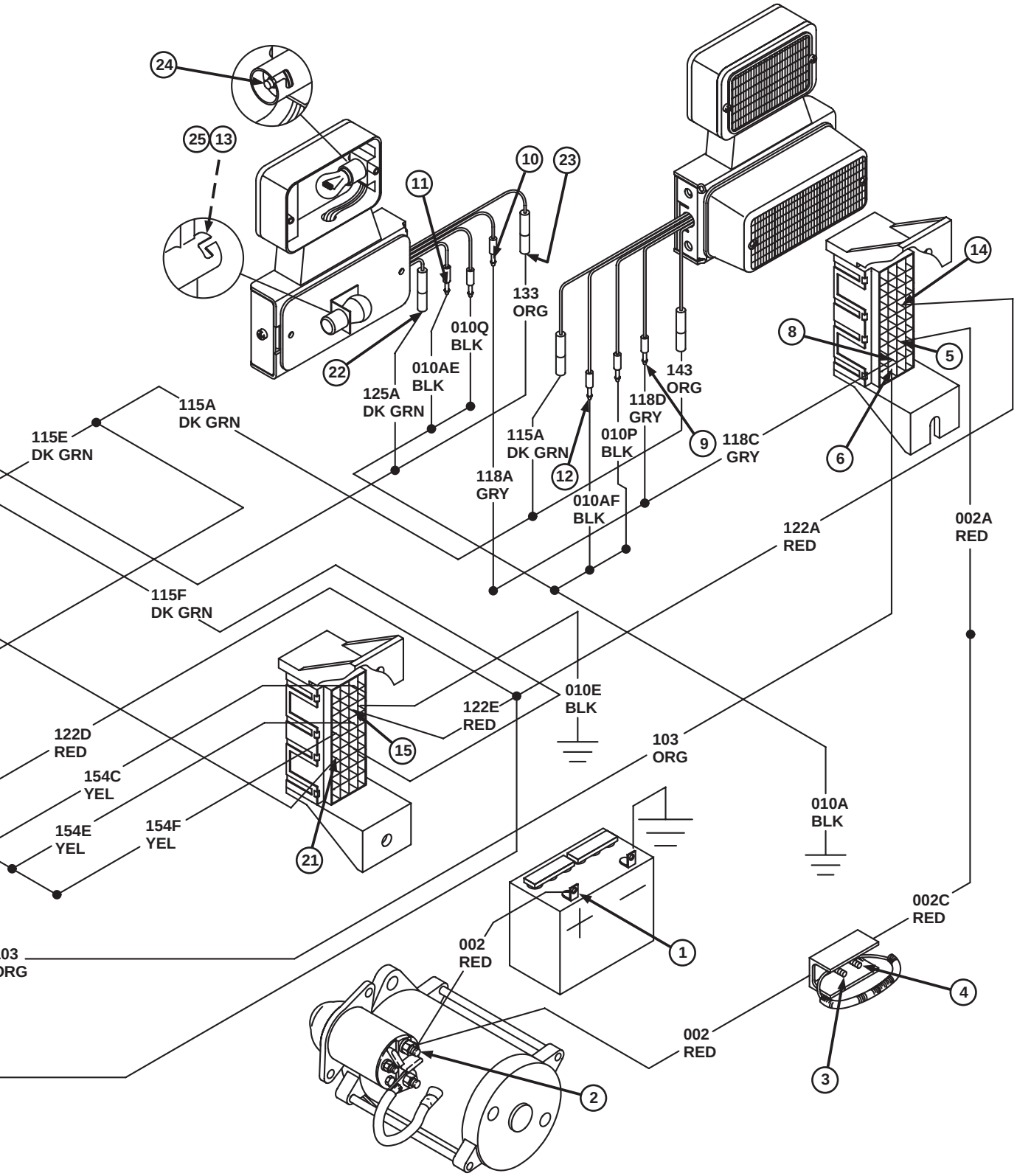


Slide LV403

A—JDG282 Temperature Gauge

AG,OUO1023,333 –19–25OCT99–2/2

LV4573 –19–31JAN00



NALS AND ENHANCED TAILLIGHTS

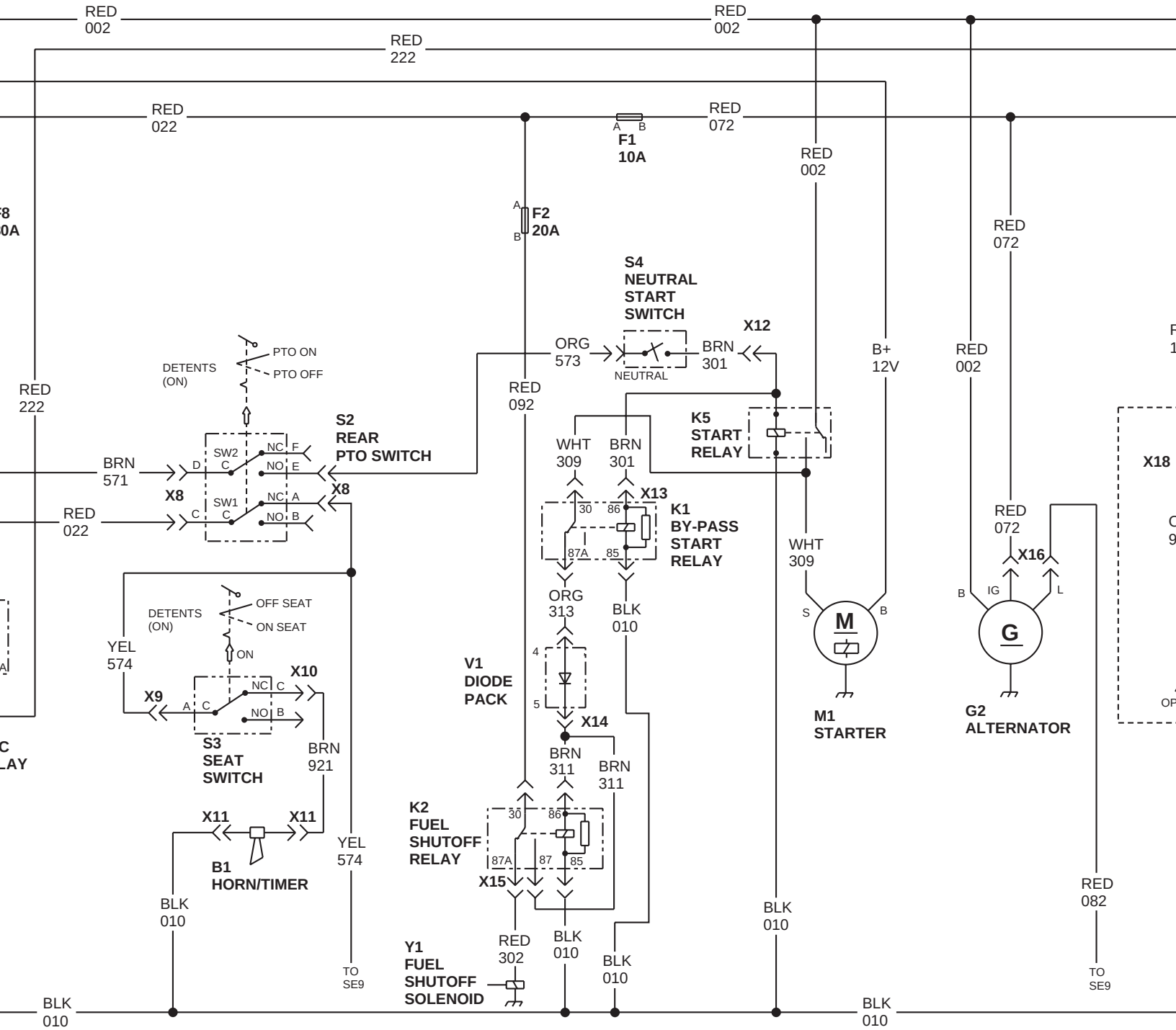
Slide LV4573

CONDITIONS:

- Remove left and right side dash panels.

Continued on next page

AG,OUO1023,420 –19–09DEC99–2/9



	SE2 – PTO	SE3 – STARTING	SE4 – CHARGE	SE

5105 AND 5205 ELECTRICAL SCHEMATIC – SHEET 1 OF 2

A—Valve Body
B—Return Port
C—Steering Relief Valve
D—Inlet Port
E—Inlet Check
F—Manual Steer Check
G—Neutral Mode
H—Manual Turning (Left)
I—Pressure Oil
J—Return Oil
K—Trapped Oil

FUNCTION:

To block pressurized oil flow to the steering cylinder when no turning action is desired. To allow for manual turning of the machine when no power is available.

MAJOR COMPONENTS:

- Inlet Check
- Valve Body
- Manual Steer Check
- Spool
- Sleeve
- Gerotor
- Relief Valve

THEORY OF OPERATION:

Pressurized oil (I) opens the spring loaded inlet check (E) and flows into the valve body (A) through the inlet port (D). Oil then flows through the inlet passage to close the manual steer check (F) and reach the feed holes. The feed holes direct oil flow through the sleeve inlet groove to the spool inlet.

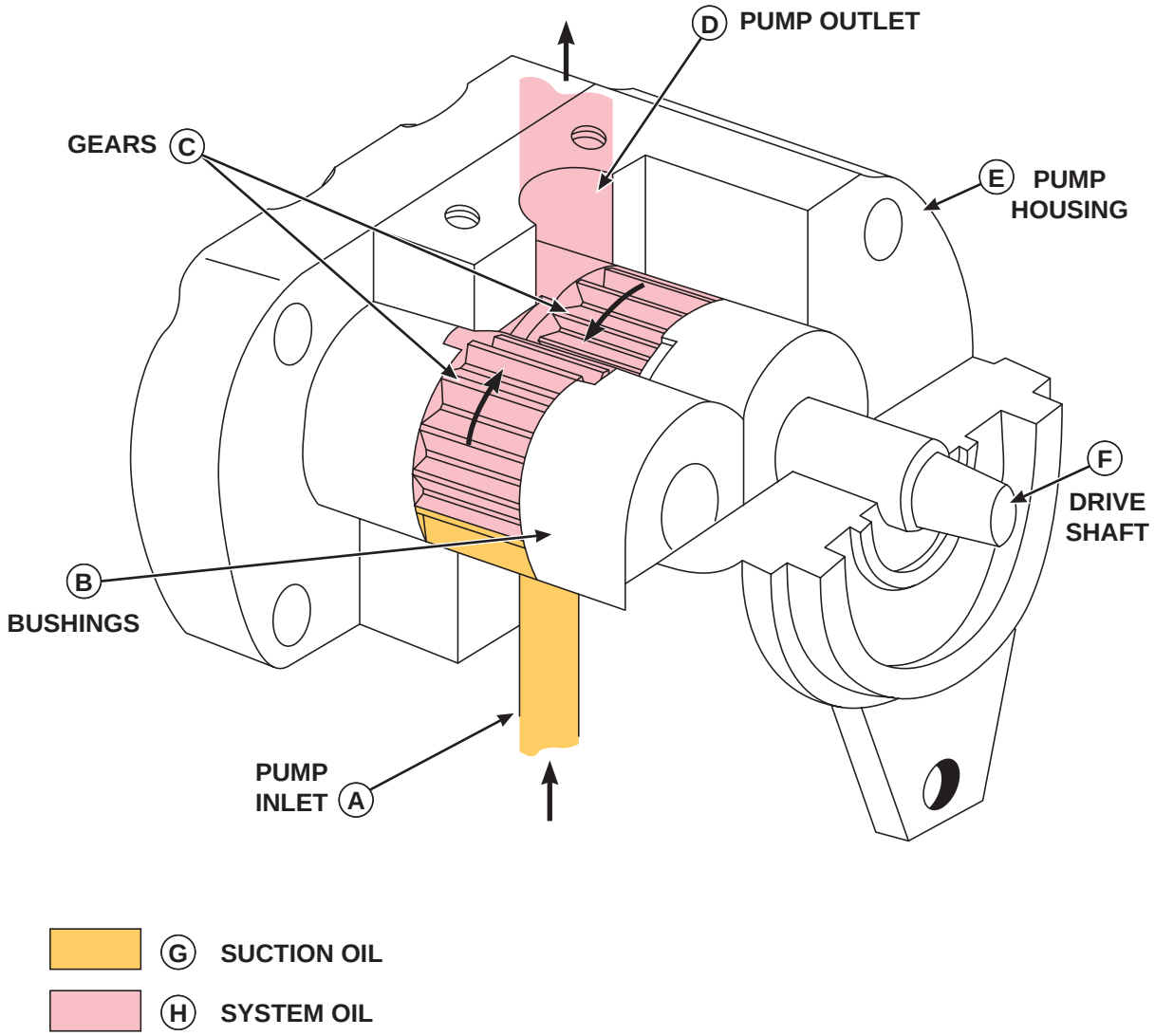
When the valve is in neutral mode (G), the return oil passages of the sleeve and spool are aligned and open, while the right turn and left turn passages are blocked and closed. The open passage allows return oil (J) to travel through the center of the spool and leave the valve through the return port (B). Blocking the turn passages traps oil (K) in the gerotor cavities, hydraulic lines and the steering cylinder.

Should hydraulic pressure be lost (engine off or pump failure), the inlet check closes and manual steer check opens to create a closed-loop steering system. The closed-loop steering system uses trapped oil to allow for manual steering of the machine (no power). As the steering wheel is turned (right or left), trapped oil is forced from the gerotor cavities through the now-aligned turn passages of the sleeve and spool, and out of the valve to the pressure side of the steering cylinder piston, which moves the front wheels. Movement of the piston forces trapped oil from the non-pressure side of the piston to the return passage of the spool and sleeve and then to the gerotor cavities, where it replenishes the system and completes the closed-loop.

To prevent damage to hydraulic system components a relief valve (C) is installed in the valve body. Should the oil flow be blocked and hydraulic pressure rise above relief pressure, the relief valve will open and direct all oil flow to the return port.

LV,26010HA,A5 –19–03MAR00–2/2

Hydraulic Pump Operation



LVC127AE

HYDRAULIC PUMP OPERATION

LVC127AE –19–07APR97

A—Pump Inlet
B—Bushings
C—Gears
D—Pump Outlet
E—Pump Housing
F—Drive Shaft
G—Suction Oil
H—System Oil

FUNCTION:

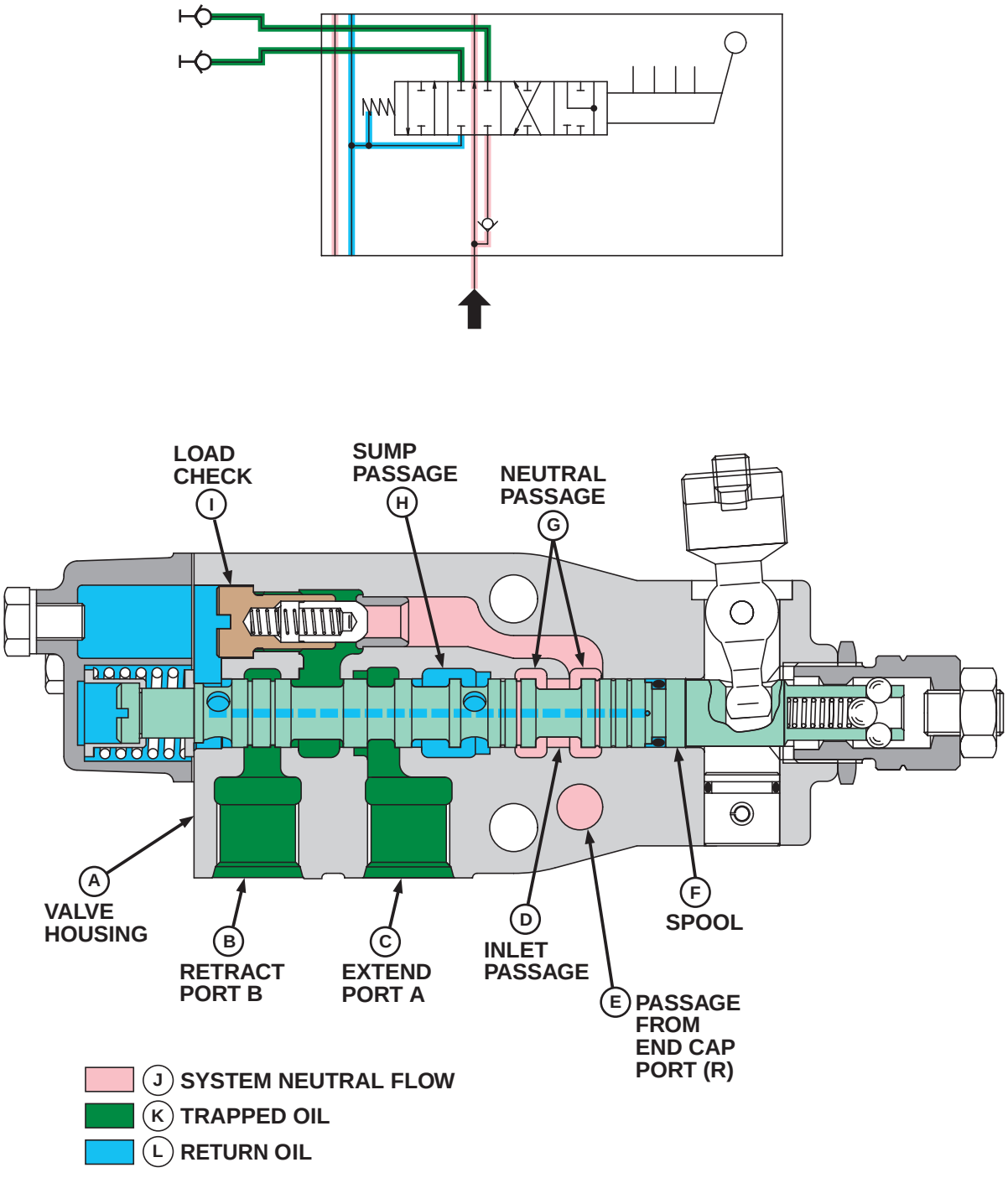
Supplies a continuous flow of oil to operate the rockshaft and implements connected to optional selective control valves. Also supplies oil for transmission lubrication and power steering.

MAJOR COMPONENTS:

Continued on next page

AG,OUO1023,538 –19–28FEB00–1/2

Regenerative Selective Control Valve Operation—Neutral Position



LVC4578

REGENERATIVE SELECTIVE CONTROL VALVE — NEUTRAL POSITION

LVC4578 –19–02MAR00

Slide LVC4578

Continued on next page

AG,OUO1008,353 –19–07FEB00–1/2

Neutral Position Unstable, Rockshaft Drops after Engine Shut Down

CONDITIONS:

- Machine parked on level surface.
- Park brake engaged.
- Hydraulic tests and adjustments in this section.

Test Location	Normal	If Not Normal
1. Rockshaft.	Leakage within specifications.	Replace rockshaft piston O-ring.
	Attachment installed correctly.	Install as instructed by Operator's Manual or Installation Instruction.
2. Rate-of-drop valve.	Closes completely without leaks.	Repair or replace valve as needed.

CONDITIONS:

- Rockshaft lift arm fully raised.
- Rate-of-drop valve fully closed

Test Location	Normal	If Not Normal
1. Rockshaft lift arms.	Rockshaft lift arms remain in the raised postion..	Replace all rockshaft control valve seals and O-rings.

AG,OUO1008,279 –19–08NOV99–1/1

270
15
8