

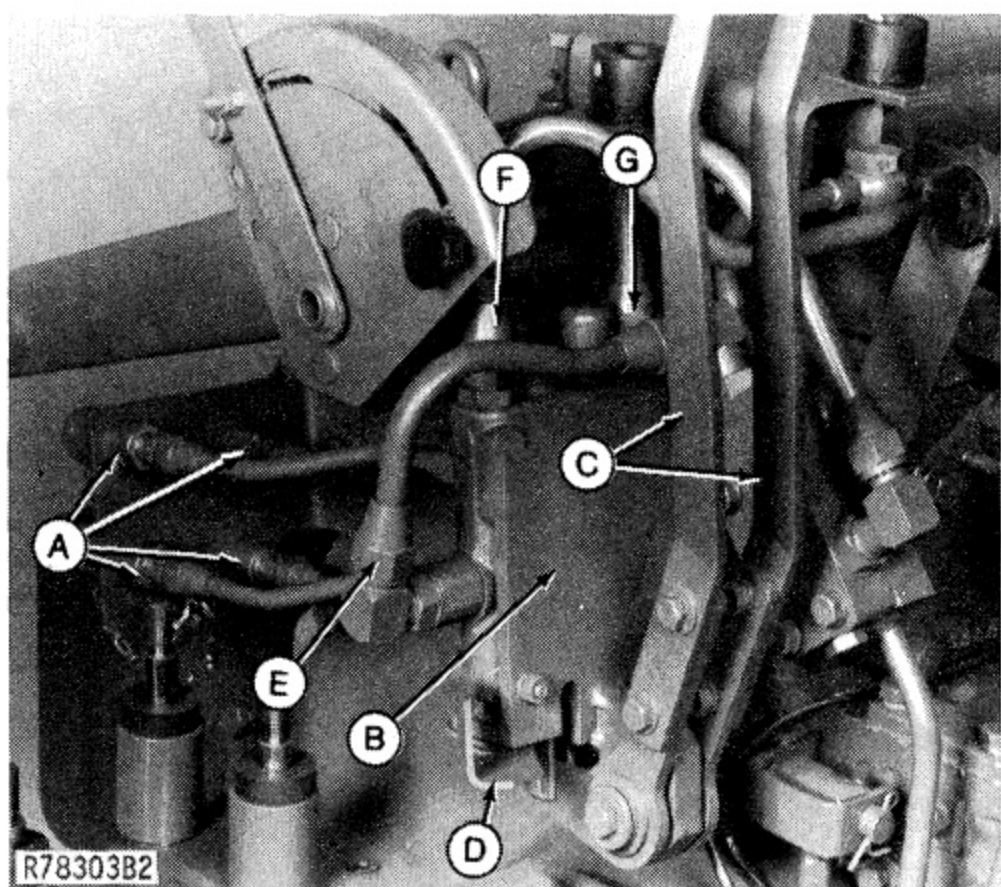
Group 30

SELECTIVE CONTROL VALVE

NOTE: The 850, 950 and 1050 selective control valves are basically the same in operation. The early model *850 and 950 couplers are mounted in a bracket, and connected with lines from the SCV housing ports. On late model **850, 950 tractors, and 1050 tractors, the couplers mount directly in the SCV outlet ports.

On early model *850 and 950 tractors, the SCV has its own relief valve. On late model **850, 950 tractors and on 1050 tractors, the main system relief valve protects the selective control valve from damage due to high pressures.

OPERATION



A—Disconnect Couplers
B—Selective Control Valve
C—Operating Levers
D—Float Lockout Lever

E—To Rockshaft
F—To Sump
G—Inlet

Fig. 1-Selective Control Valve and Couplers
(Early Model *850/950 Shown)

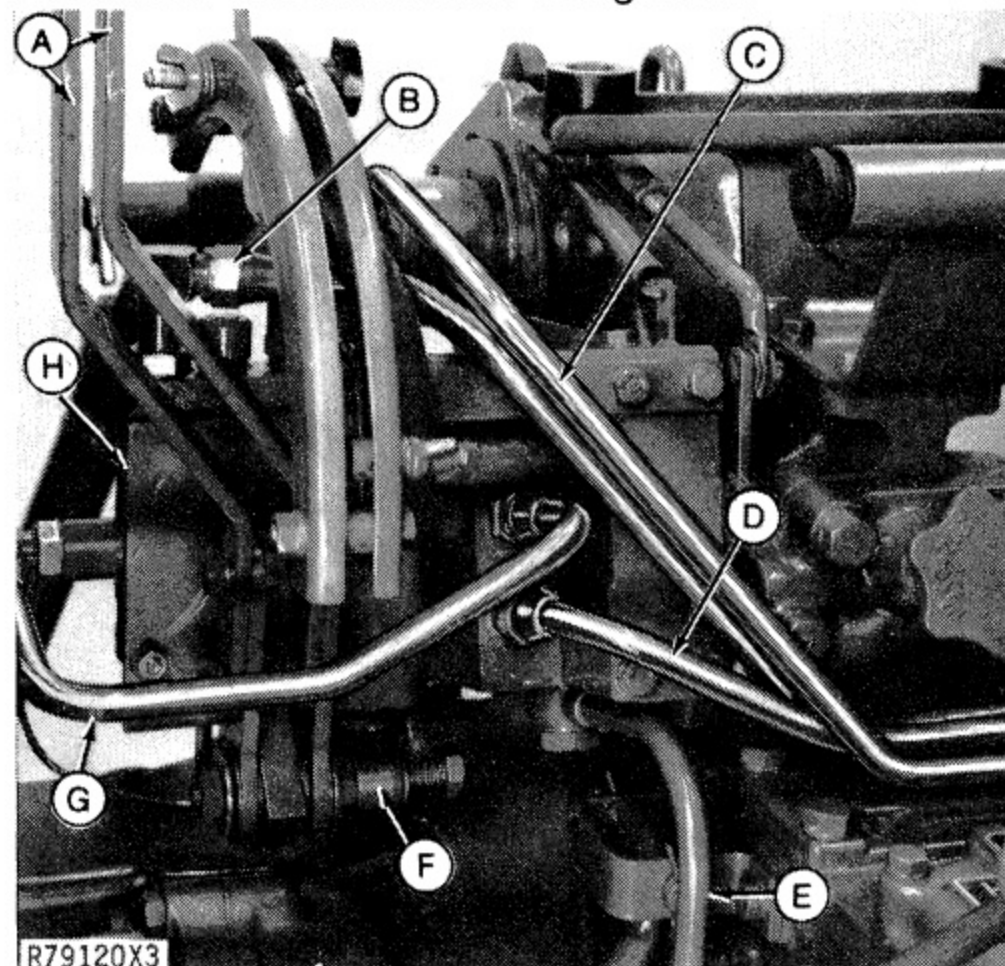
The selective control valve is a two-spool, series open-center valve.

A shim adjustable, relief valve at the selective control valve inlet (Early model *850/950 only) prevents excessive pressure in the hydraulic system whenever a spool is actuated.

On late model **850, 950 tractors and 1050 tractors, the main system relief valve is used to protect the system.

Inlet check valves between the work ports and the spools prevent reverse flow of oil as a spool is moved to allow pressure to a coupler.

With the control valve spools in "neutral", oil flows past both spools and to the rockshaft control valve. The oil flows past the rockshaft control valve to the reservoir unless the rockshaft is being used.



A—Operating Levers
B—SCV "OUT"
C—SCV "IN"
D—To Power Steering

E—From Hydraulic Pump
F—Float Lockout Lever
G—"BYD" To Rockshaft
H—Selective Control Valve

Fig. 2-1050 Selective Control Valve
(With Power Steering)

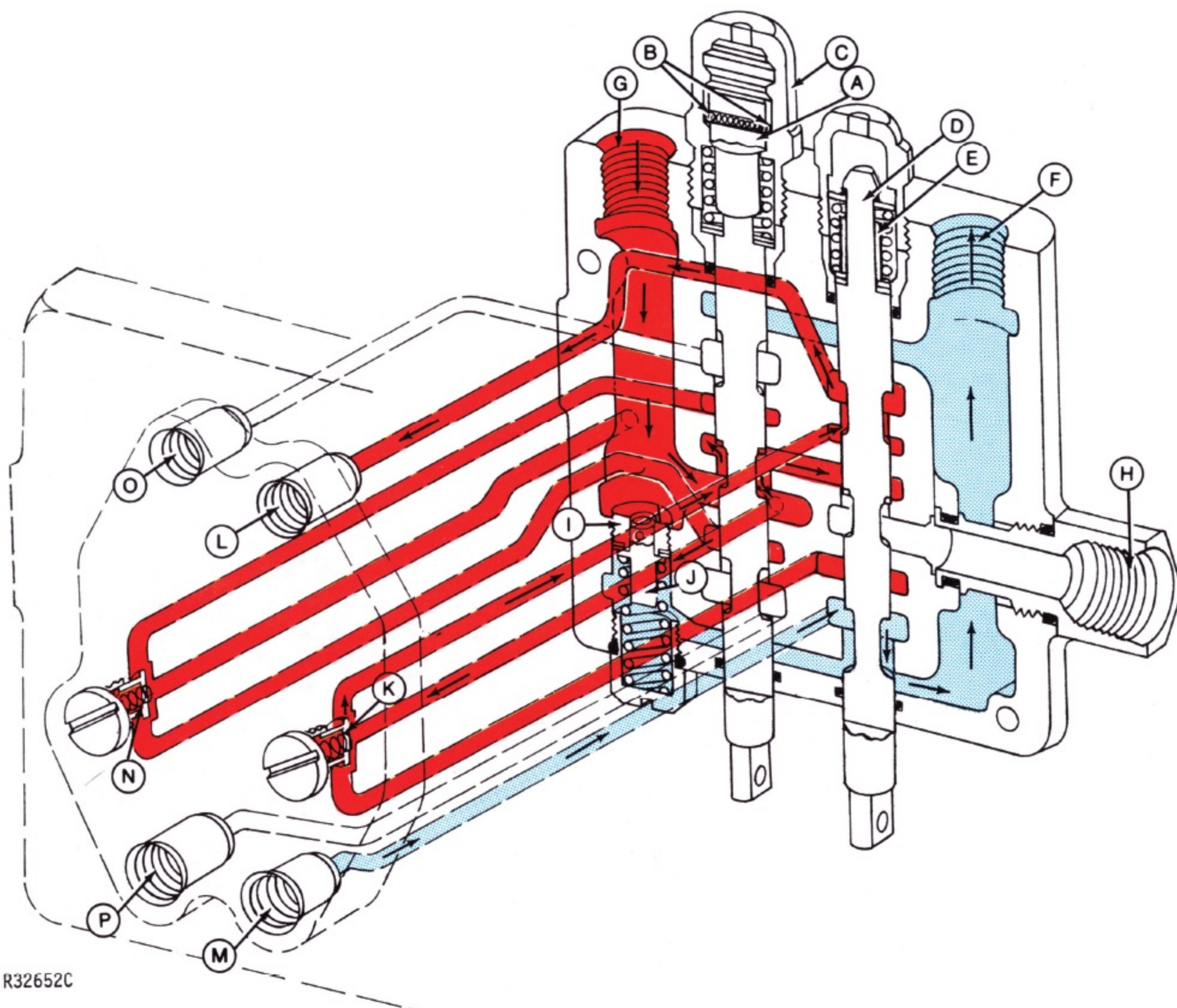
Flow from the main pump enters the control valve at port marked "IN" (G, Fig. 1 or C, Fig. 2). If both spool valves are in the centered or neutral position, oil flows past both spools and out of the housing at the "BYD" port (E) where it continues on for rockshaft usage.

When excessive pressure is present at the SCV, the SCV relief valve (early model *850/950 only) or main system relief valve (late model **850/950, and 1050) opens to allow pressure to relieve. Oil is allowed to flow through the port marked "Out" Fig. 1 for early model *850/950 tractors, or through the rockshaft control valve and rockshaft housing on late model *850/950 tractors and 1050 tractors.

An external line connected to outlet port (F, Fig. 1 or B, Fig. 2) returns oil from both single- and double-acting cylinders to sump (reservoir) on the left side of the transmission case. A float lockout lever (D, Fig. 1 or F, Fig. 2) attached to the mounting bracket may be engaged to prevent the inner (float spool) spool from going into the float detent position.

*850 (01000-09000) and 950 (01000-12000)
**850 (09001-) and 950 (12001-)

OPERATION—Continued



A—Float Spool
B—Detent Balls
C—Float Spool
Vent Cap
D—Lift Spool

E—Spacer
F—To Sump
G—Inlet
H—To Rockshaft
I—Relief Valve Seat*

J—Relief Poppet*
K—Lift Check Plunger
L—Port
M—Port
N—Lift Check Plunger

O—Port
P—Port
■ High Pressure Oil
■ Return or Pressure Free Oil

Fig. 3-Selective Control Valve Oil Flow - Extend

Extend

Extension of a cylinder is accomplished by moving the control lever rearward. This movement positions the valve (D, Fig. 3) and blocks the open-center passage.

As pressure builds in the open-center passage, the lift check plunger (K) is unseated and oil flows through the passage and out the port uncovered by the spool to the top coupler (L). The oil in turn extends the double-acting cylinder.

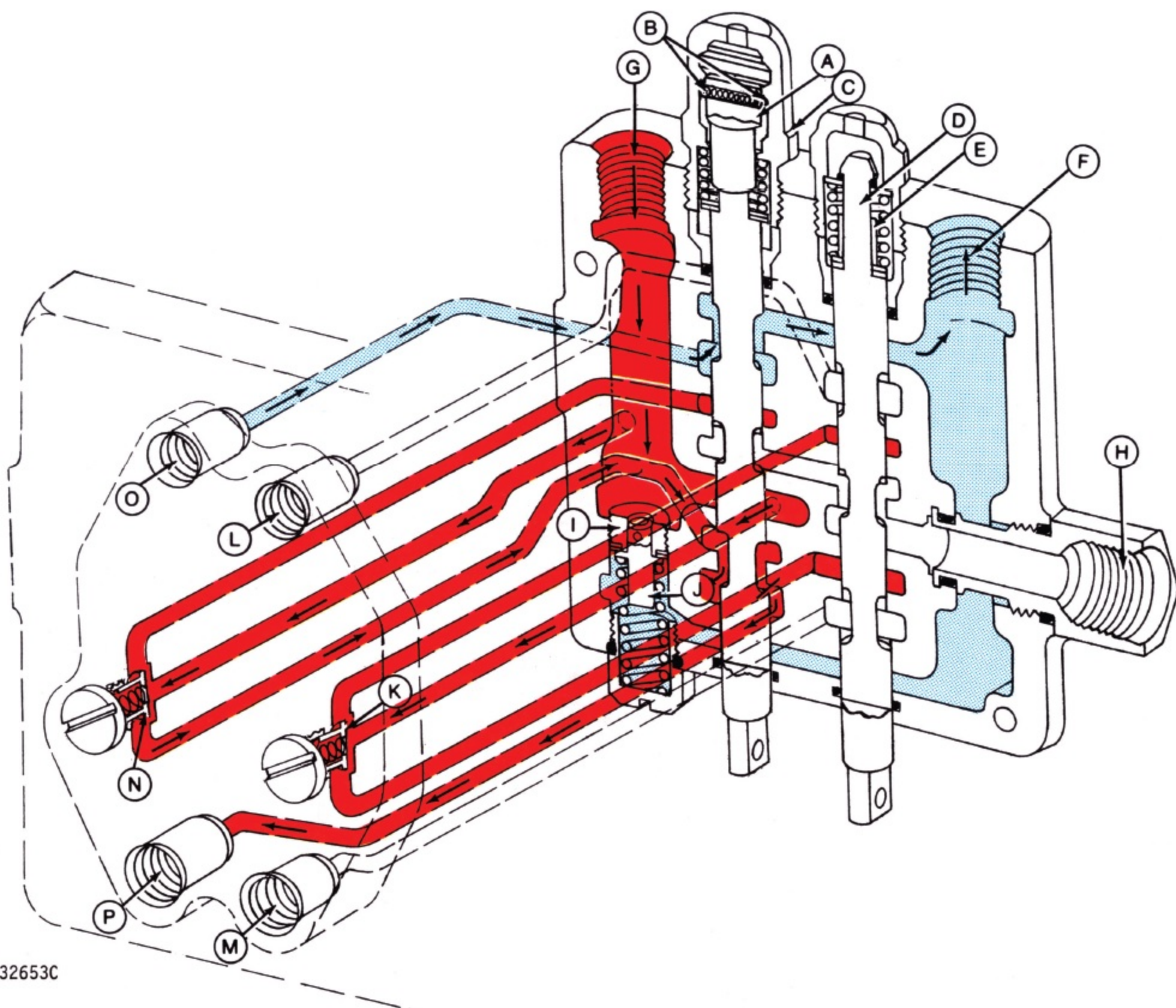
Oil displaced from the rod-side of the double-acting cylinder returns to the housing cavity at port (M) and from there to port marked "OUT" (F) to the reservoir.

If both valves are operated simultaneously, the cylinder with the least resistance against it will operate first. After extension is completed, the other cylinder will receive oil.

Upon the completion of cylinder extension, if the lever is held to the rear, the poppet relief valve (J)* or the main system relief on late model **850/950 tractors and 1050 tractors opens, allowing oil to be diverted to sump until spool is neutralized.

*850 (01000-09000) and 950 (01000-12000) only.

**850 (09001-) and 950 (12001-).



R32653C

A—Float Spool
B—Detent Balls
C—Float Spool
Vent Cap
D—Lift Spool

E—Spacer
F—To Sump
G—Inlet
H—To Rockshaft
I—Relief Valve Seat*

J—Relief Poppet*
K—Lift Check Plunger
L—Port
M—Port
N—Lift Check Plunger

O—Port
P—Port
■ High Pressure Oil
■ Return or Pressure Free Oil

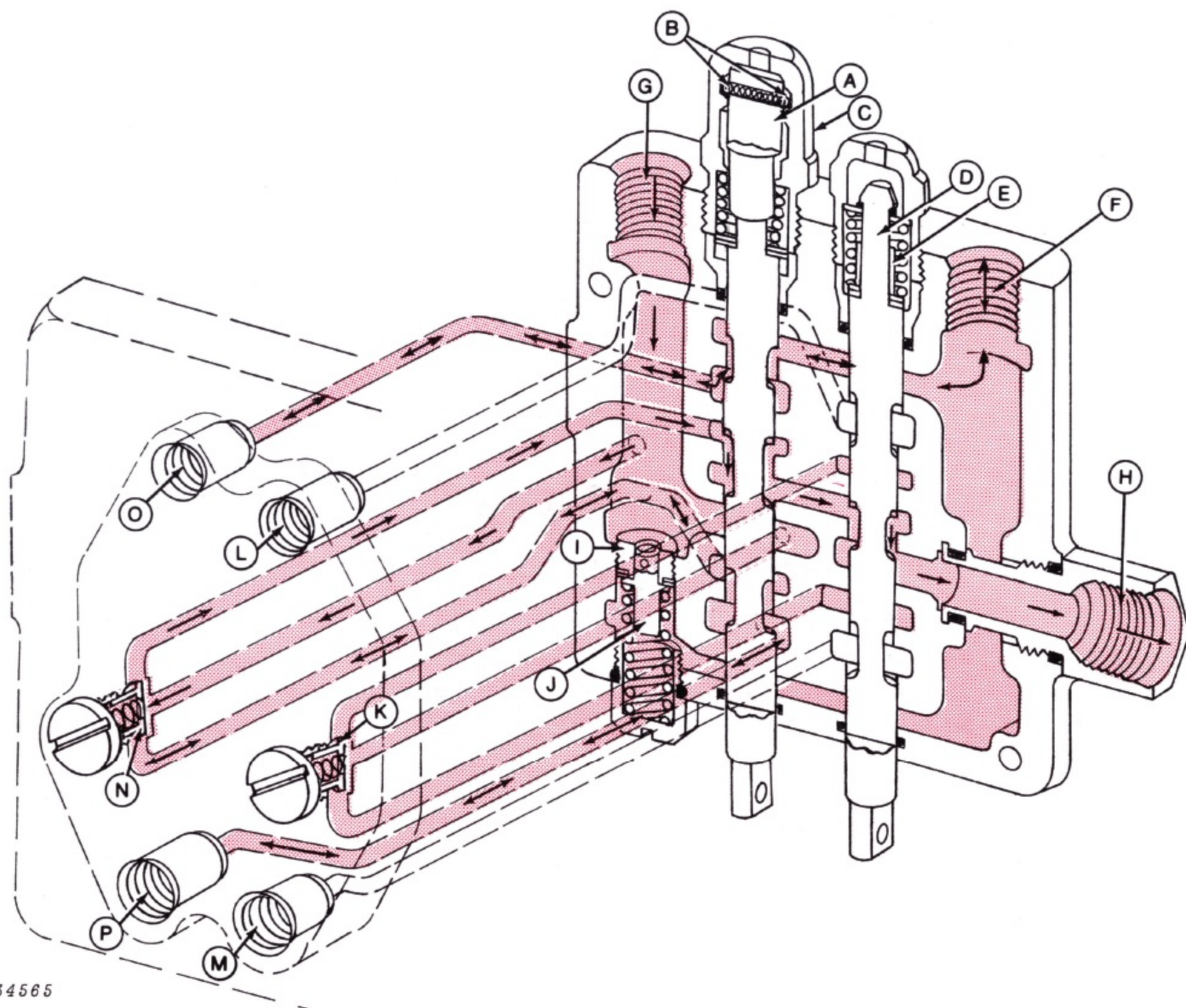
*850 (01000-09000) and 950 (01000-12000) only.

Fig. 4-Selective Control Valve Oil Flow - Retract

Retract

To retract a cylinder, move the control lever forward. This moves the spool valve (A, Fig. 4) inward. The spool is positioned so that port (P) is the pressure port, in turn changing outlet (O) to the return port. The control lever must be held forward to achieve full lower as the lever automatically returns to neutral when there is no resistance against it.

When the spool is moved to full retract, pressure builds in the open-center passage and unseats lift check plunger (N). Oil flow is directed out port (P) to the remote cylinder.



R34565

A—Float Spool
B—Detent Balls
C—Float Spool Vent Cap
D—Lift Spool

E—Spacer
F—To Sump
G—Inlet
H—To Rockshaft
I—Relief Valve Seat*

J—Relief Poppet*
K—Lift Check Plunger
L—Port
M—Port
N—Lift Check Plunger

O—Port
P—Port
Low Pressure Oil

*850 (01000-09000) and 950 (01000-12000) only.

Fig. 5-Selective Control Valve Oil Flow - Float

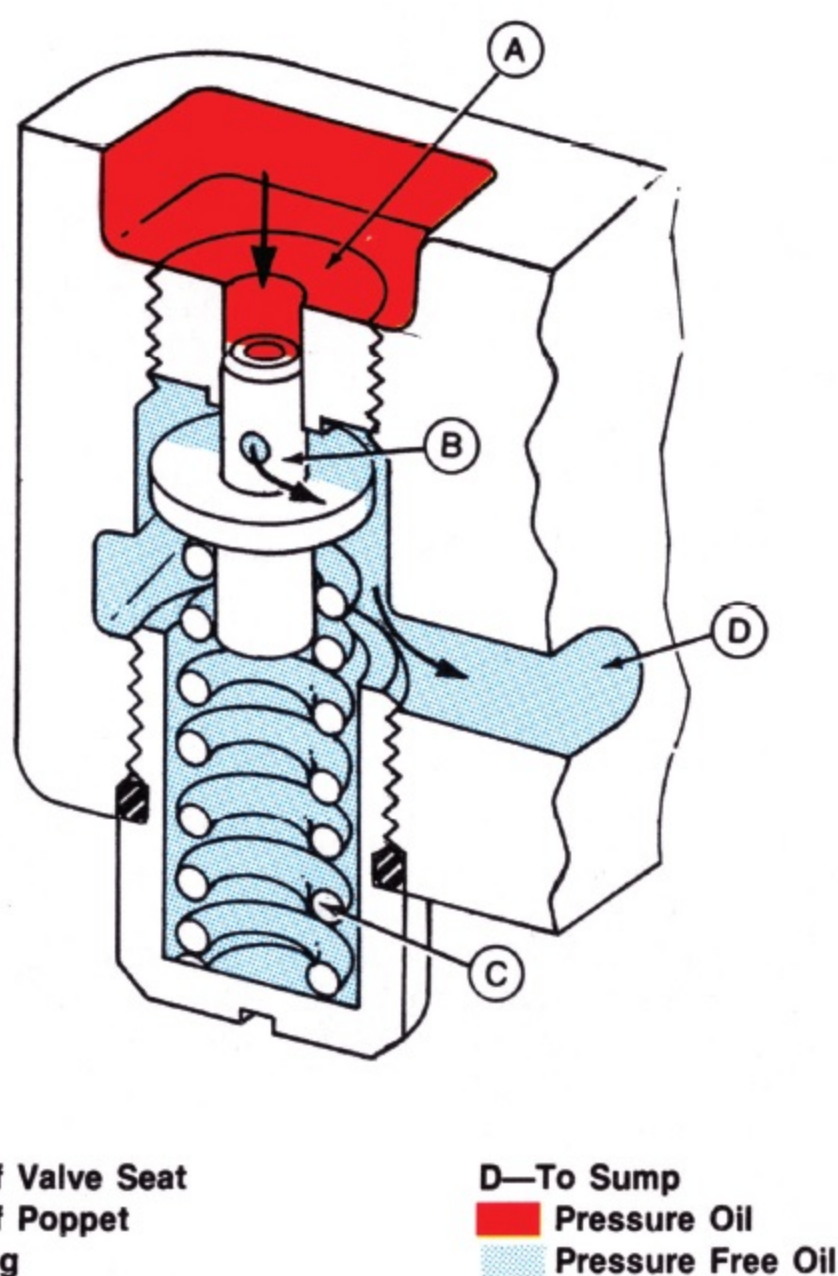
Float

A float position is available on the inside spool valve (A, Fig. 5) only. By moving the operating lever fully into the valve detent, balls (B) under spring pressure move into groove in cap to hold spool in float. The spool has to manually be taken out of Float.

This movement opens both pressure and return passages to sump. Since no pressure is available to the cylinder on either end, the cylinder is free to extend or retract according to ground contour. A float lock-out lever is mounted to the SCV bracket and may be moved to prevent the float spool from going into the float detent position.

When operating with the inner spool (A) in float, the outer spool (D) and the rockshaft should not be actuated. If the other spools are moved, oil flow will back up into the cylinder operated by the float spool and, as pressure increases, the cylinder will extend or retract depending on cylinder hose hook-up.

Early Model* 850/950 SCV Relief Valve



R32696C

Fig. 6-Early Model* 850/950 SCV Relief Valve Oil Flow

A pressure relief valve (B, Fig. 6) is located in the inlet passage of the selective control valve housing. It is a poppet type valve and shim adjustable.

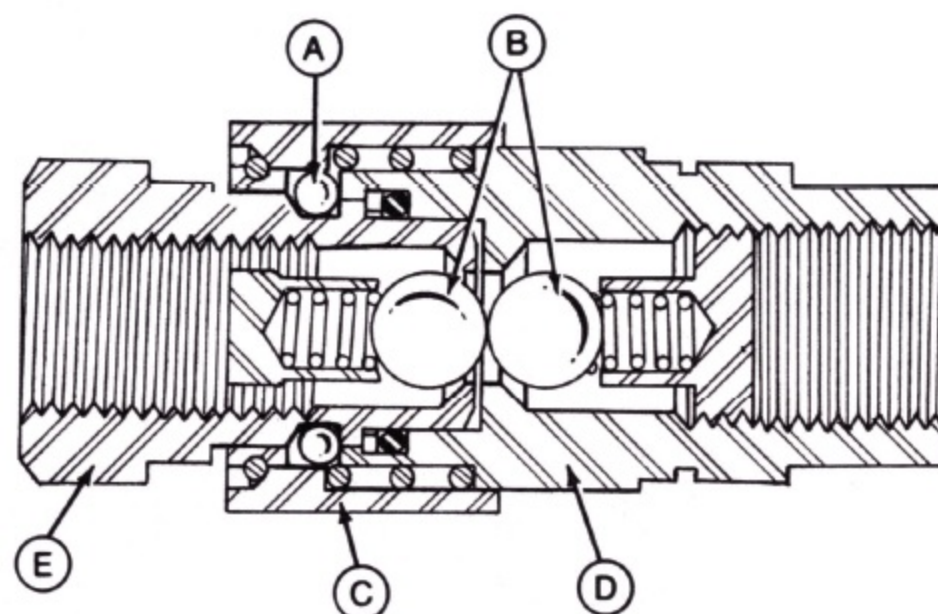
When pressure in the inlet gallery becomes greater than a specified value, the poppet (B) is lifted from its seat (A) to allow oil to flow to sump (D), thus relieving excess pressure.

As a cylinder(s) reaches the end of its travel, or is held for any reason with the control valve spool in a power position, the relief valve (B) will open to protect the hydraulic system from damage.

Refer to page 270-10-9 for early model* 850 and 950 SCV Relief Valve Test.

*850 (01000-09000)
 950 (01000-12000)

Disconnect Couplers



R32649

**A—Coupler Retaining
 Balls**
B—Shut-off Balls

C—Sleeve
D—Coupler
E—Hose Plug

Fig. 7-Disconnect Coupler

To connect a remote cylinder hose to the coupler, pressure must be relieved from the coupler (D, Fig. 7) and from the cylinder. Slide sleeve (C) forward on coupler and insert hose plug (E) into coupler. Move the sleeve to the rear, permitting balls (A) to seat thus locking hose plug into the coupler.

When hose plug and coupler are connected, check to see that balls (B) in hose plug and coupler are unseated allowing oil a path to the remote cylinder.

The hose plug is locked in place by a ring of balls (A) which is held in a groove on the inserted plug (E) by an outer sleeve. This arrangement creates an automatic lock release in case the cylinder lines are accidentally pulled loose.

Before disconnecting hoses, move control levers forward and rearward a few times to relieve pressure from the cylinder.