DESCRIPTION AND MODIFICATIONS

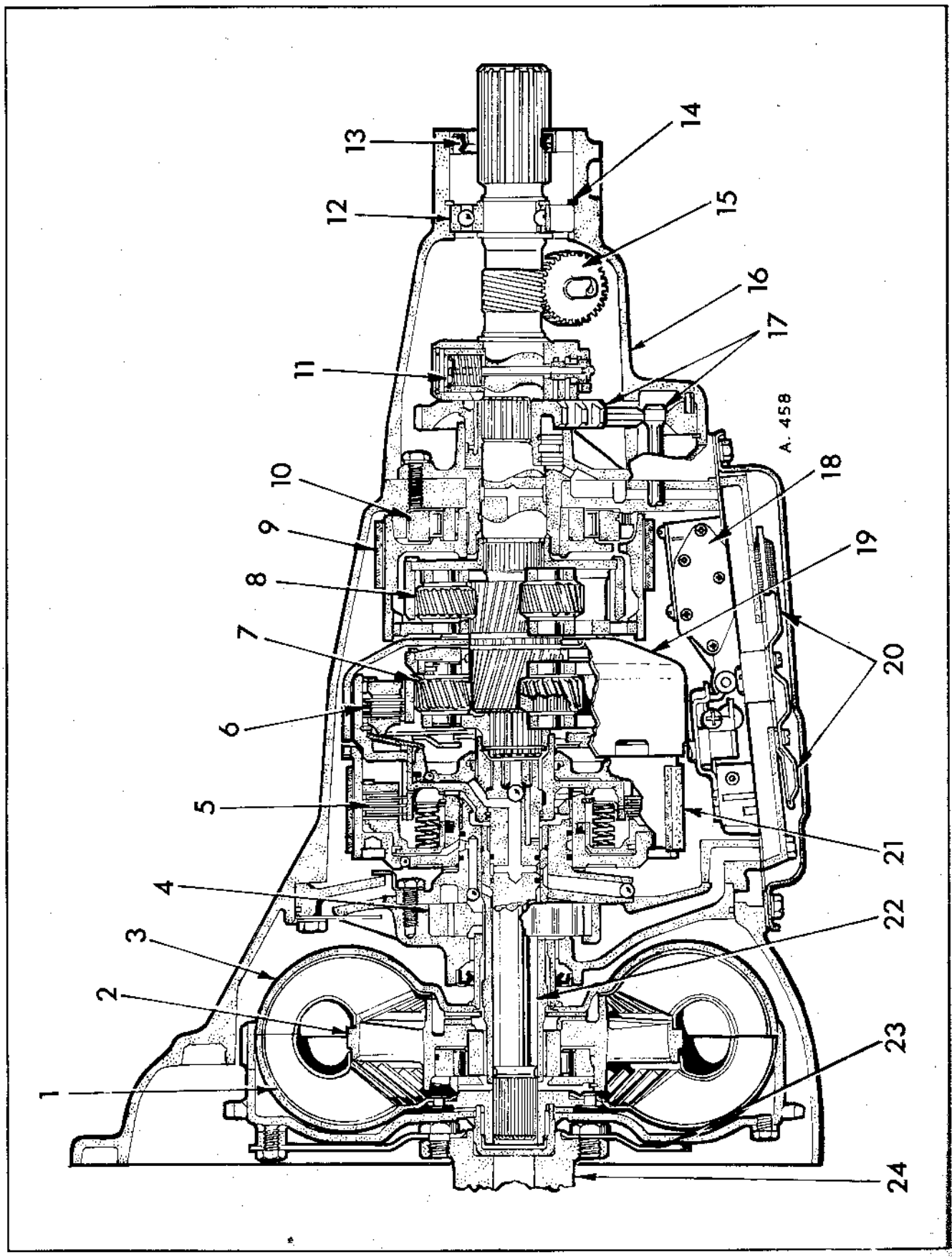


Fig. 1 *Londflite A-727 transmission and torque convertar detalls*

DESCRIPTION

The A-727 transmission (Fig. 1) combines a torque converter and a fully-automatic 3-speed gear system. The converter housing and transmission case are an integral aluminium casting. The transmission consists of two multiple disc clutches, an overrunning clutch, two servos and bands, and two planetary gear sets to provide three forward ratios and a reverse ratio. The common sun gear of the planetary gear sets is connected to the front clutch by a driving shell which is splined to the sun gear and to the front clutch retainer. The hydraulic system consists of an oil pump, and a single valve body which contains all of the valves except the governor valve.

Venting of the transmission is accomplished by a cast passage through the upper part of the oil pump housing.

The torque converter is attached to the crankshaft through a flexible driving plate. Cooling of the converter is accomplished by circulating the transmission fluid through an air type cooler, located in front of the radiator. The torque converter assembly is a sealed unit which cannot be disassembled.

The transmission fluid is filtered by an internal "Dacron Type" filter attached to the lower side of the valve body assembly.

Engine torque is transmitted to the torque converter then, through the input shaft to the multiple disc clutches in the transmission. The power flow depends on the application of the clutches and bands.

HYDRAULIC CONTROL SYSTEM

The hydraulic control circuits (Figs. 2 through 10) show the position of the various valves with symbol coded passages to indicate those under hydraulic pressure for all operations of the transmission.

The hydraulic control system makes the transmission fully automatic, and has four important functions to perform. In a general way, the components of any automatic control system may be grouped into the following basic groups:

The pressure supply system, the pressure regulating valves, the flow control valves, and the clutches and band servos.

Taking each of these basic groups or systems in turn, the control system may be described as follows:

Pressure Supply System

The pressure supply system consists of an oil pump driven by the engine through the torque converter. The front pump furnishes pressure for all the hydraulic and lubrication requirements.

Pressure Regulating Valves

The pressure regulating valves consist of a regulating valve which controls line pressure at a value dependent on throttle opening.

The torque converter control valve maintains torque converter operating pressure and transmission lubricating pressure.

The governor valve transmits regulated pressure to the transmission (in conjunction with vehicle speed) to control upshift and downshift speeds.

The throttle valve transmits regulated pressure to the transmission (in conjunction with throttle position) to control upshift and downshift speeds.

Flow Control Valves

The manual valve provides the different transmission drive ranges as selected by the vehicle operator.

The 1-2 shift valve automatically shifts the transmission from low to second or from second to low depending on the vehicle operation.

Key to Fig 1

1. TURBINE
2. STATOR
3. IMPELLER
4. OIL PUMP
5. FRONT CLUTCH
6. REAR CLUTCH
7. FRONT PLANETARY GEAR SET
8. REAR PLANETARY GEAR SET
9. LOW AND REVERSE BAND
10. OVERRUNNING CLUTCH
11. GOVERNOR
12. BEARING
13. SEAL
14. SNAP RING
15. SPEEDOMETER PINION
16. EXTENSION HOUSING
17. PARKING LOCK ASSEMBLY
18. VALVE BODY
19. SUN GEAR DRIVING SHELL
20. FILTER
21. KICKDOWN BAND
22. INPUT SHAFT
23. FLEXIBLE DRIVE PLATE
24. ENGINE CRANKSHAFT

The 2-3 shift valve automatically shifts the transmission from second to direct or from direct to second depending on the vehicle operation.

The kickdown valve makes possible a forced downshift from direct to second-second to breakaway or direct to breakaway (depending on vehicle speed) by depressing the accelerator pedal past the detent "feel" near wide open throttle.

The throttle pressure plug at the end of the 2-3 shift valve, provides a 3-2 downshift with varying throttle openings depending upon vehicle speed.

The 1-2 shift control valve transmits 1-2 shift control pressure to the transmission accumulator piston to control the kickdown band capacity on 1-2 upshifts and 3-2 downshifts. The limit valve determines the maximum speed at which a 3-2 part throttle downshift can be made.

The shuttle valve has two separate functions and performs each independently of the other. The first is that of providing fast release of the kickdown band, and smooth front clutch engagement when the driver makes a "lift-foot" upshift from second to direct. The second function of the shuttle valve is to regulate the application of the kickdown servo and band when making direct to second kickdowns.

Clutches, Band Servos, and Accumulator

The front and rear clutch pistons, and both servo pistons are moved hydraulically to engage the clutches and apply the bands. The pistons are released by spring tension when hydraulic pressure is released. On the 2-3 upshift, the kickdown servo piston is released by spring tension and hydraulic pressure.

The accumulator controls the hydraulic pressure on the apply side of the kickdown servo during the 1-2 shift; thereby, cushioning the kickdown band application at any throttle position.

OPERATING INSTRUCTIONS

The transmission will automatically upshift and downshift at approximately the speeds shown in the "Automatic Shift Speed Chart". All shift speeds given in the "Chart" may vary somewhat due to production tolerances and rear axle ratios. The quality of the shifts is very important. All shifts should be smooth and positive with no noticeable engine runaway. See "Diagnosis" for chart.

Gearshift and Parking Lock Controls

The transmission is controlled by a "lever type" gearshift mounted on the cab floor.

The control has six selector lever positions: P (park), R (reverse), N (neutral), and D (drive), 2 (second) and 1 (low). The parking lock is applied by moving the selector lever past a gate to the P position.

Never apply the parking lock until the vehicle has stopped; otherwise, a severe ratcheting noise will occur.

Starting the Engine

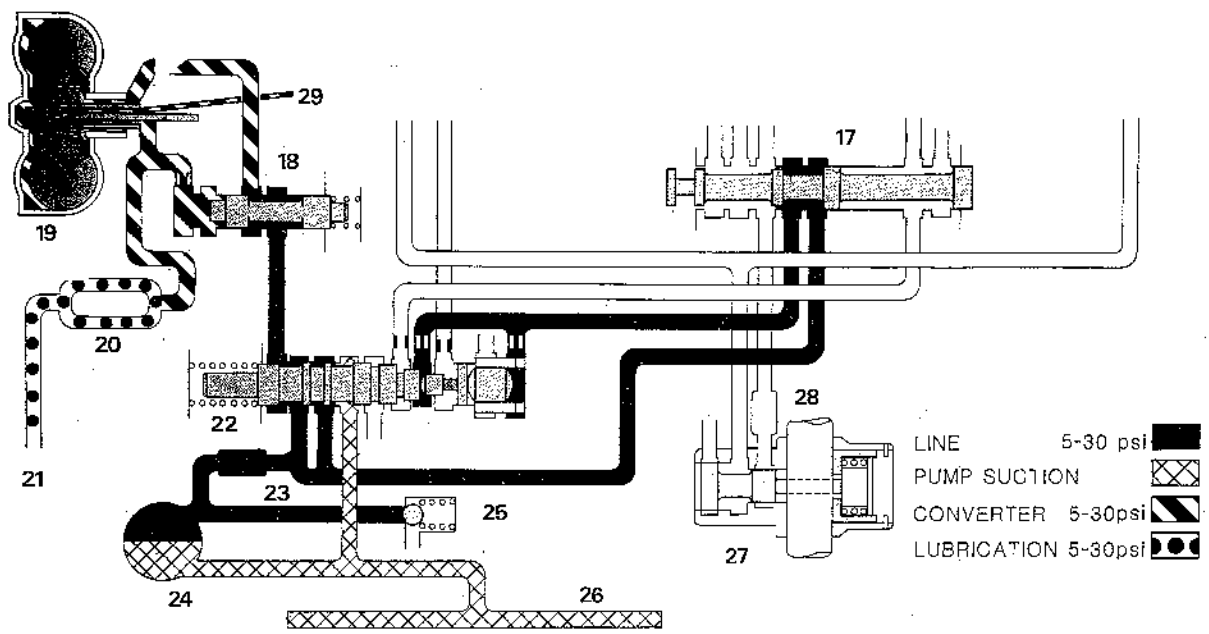
The engine will start with the selector lever in either the P (park) or N (neutral) positions.

(1) As a safety precaution when starting in the N (neutral) position, apply the parking or foot brake.

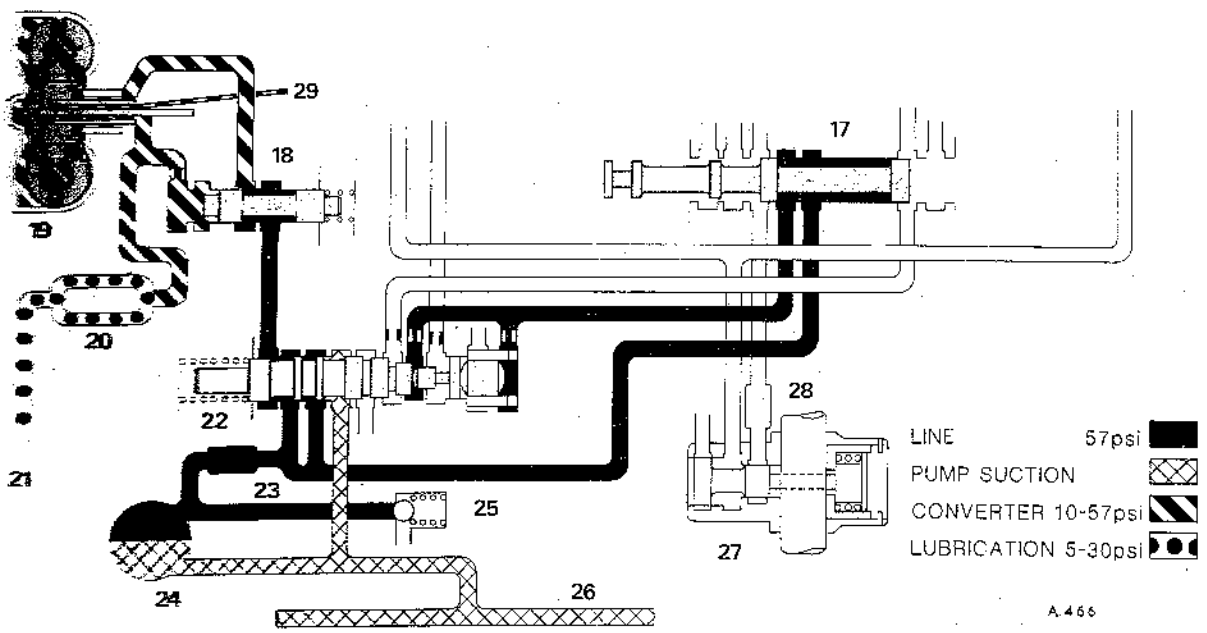
(2) Turn the ignition key all the way to the right to START position. When the engine starts, release the key and it will return to the ON position. The Load-Flite transmission will not permit starting the engine by pushing or towing.

Key to Fig 2

17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN
29. TO FRONT CLUTCH LUBRICATION



SELECTOR LEVER IN PARK ENGINE RUNNING



SELECTOR LEVER IN NEUTRAL ENGINE RUNNING

Fig. 2 *Park and neutral*

AUTOMATIC TRANSMISSION

Description and Modifications

Key to Fig 3

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN

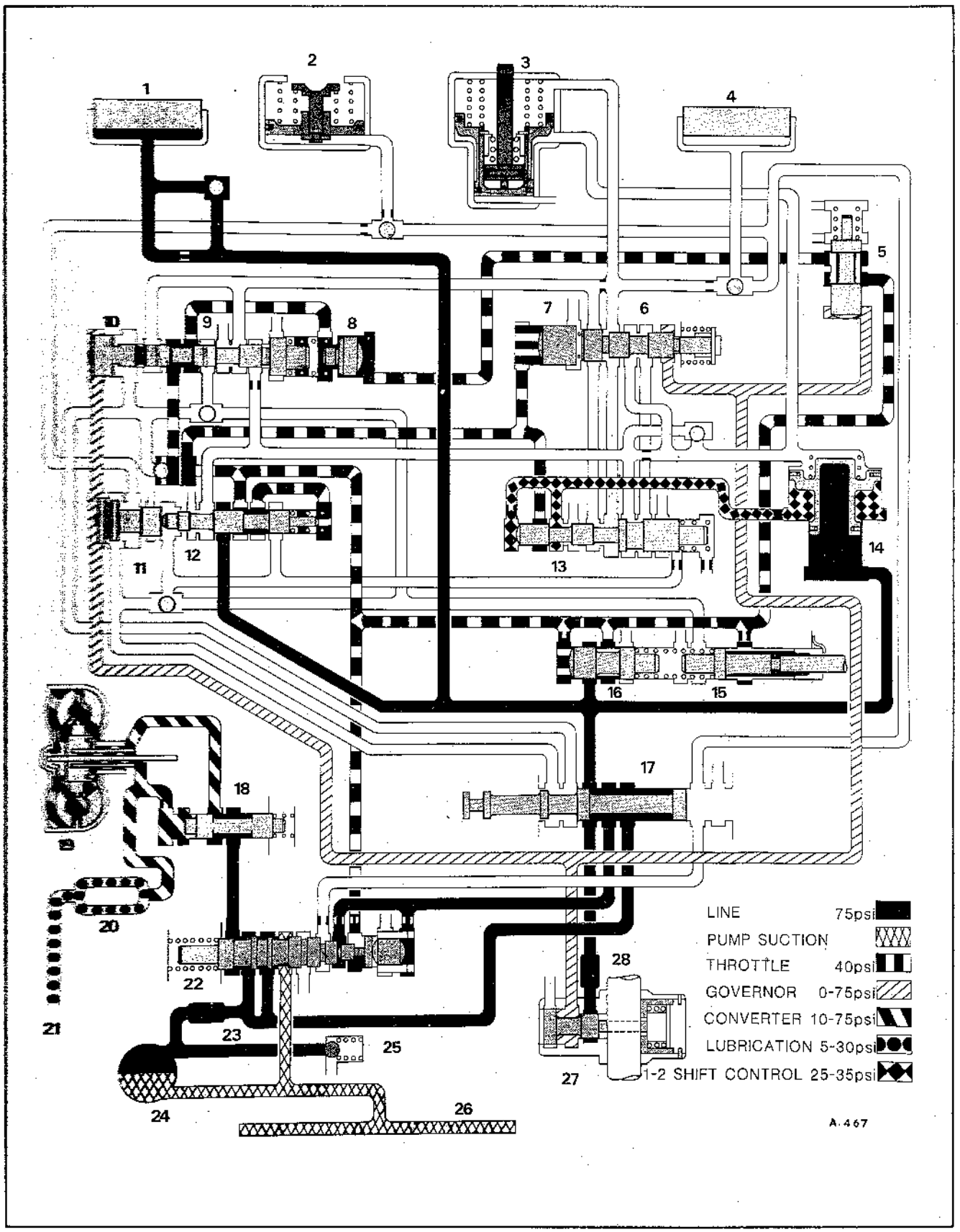


Fig. 3 *Drive — breakaway Selector lever in drive (breakaway) half throttle*

Key to Fig 4

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN

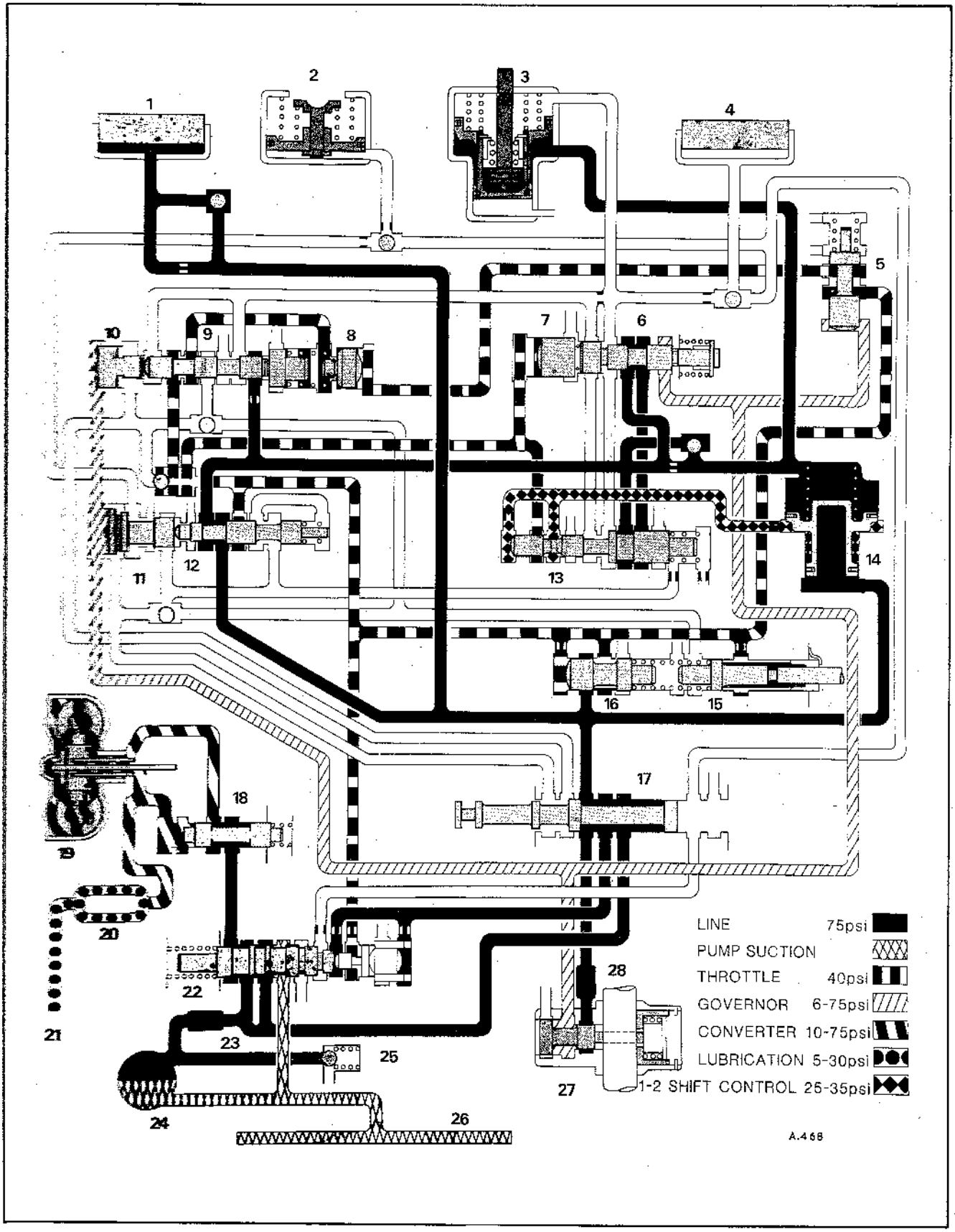


Fig. 4 *Drive — second* *Selected lever in drive (second) half throttle*

Key to Fig 5

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN

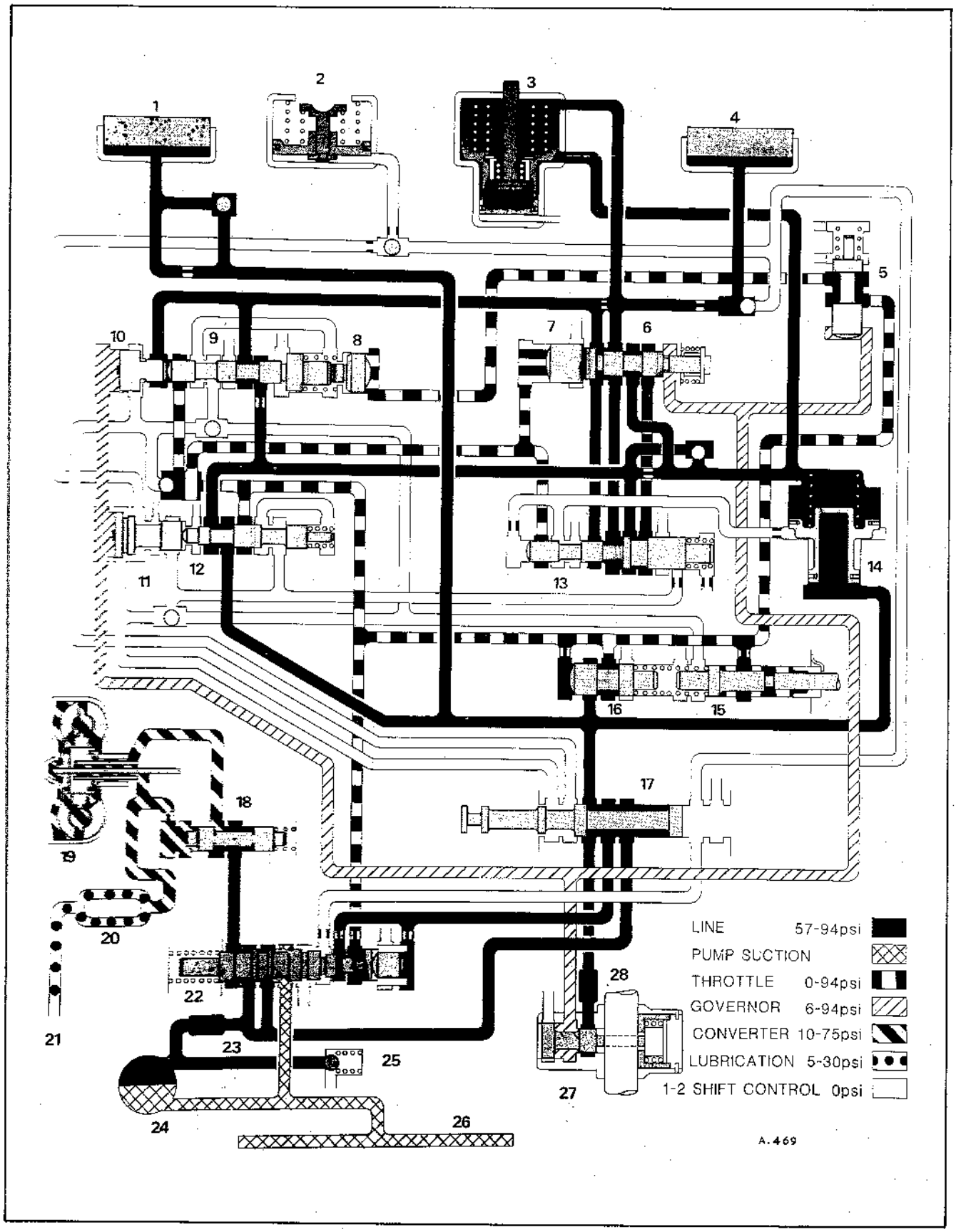


Fig. 5 *Drive – direct Selector lever in drive (direct)*

Key to Fig 6

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN

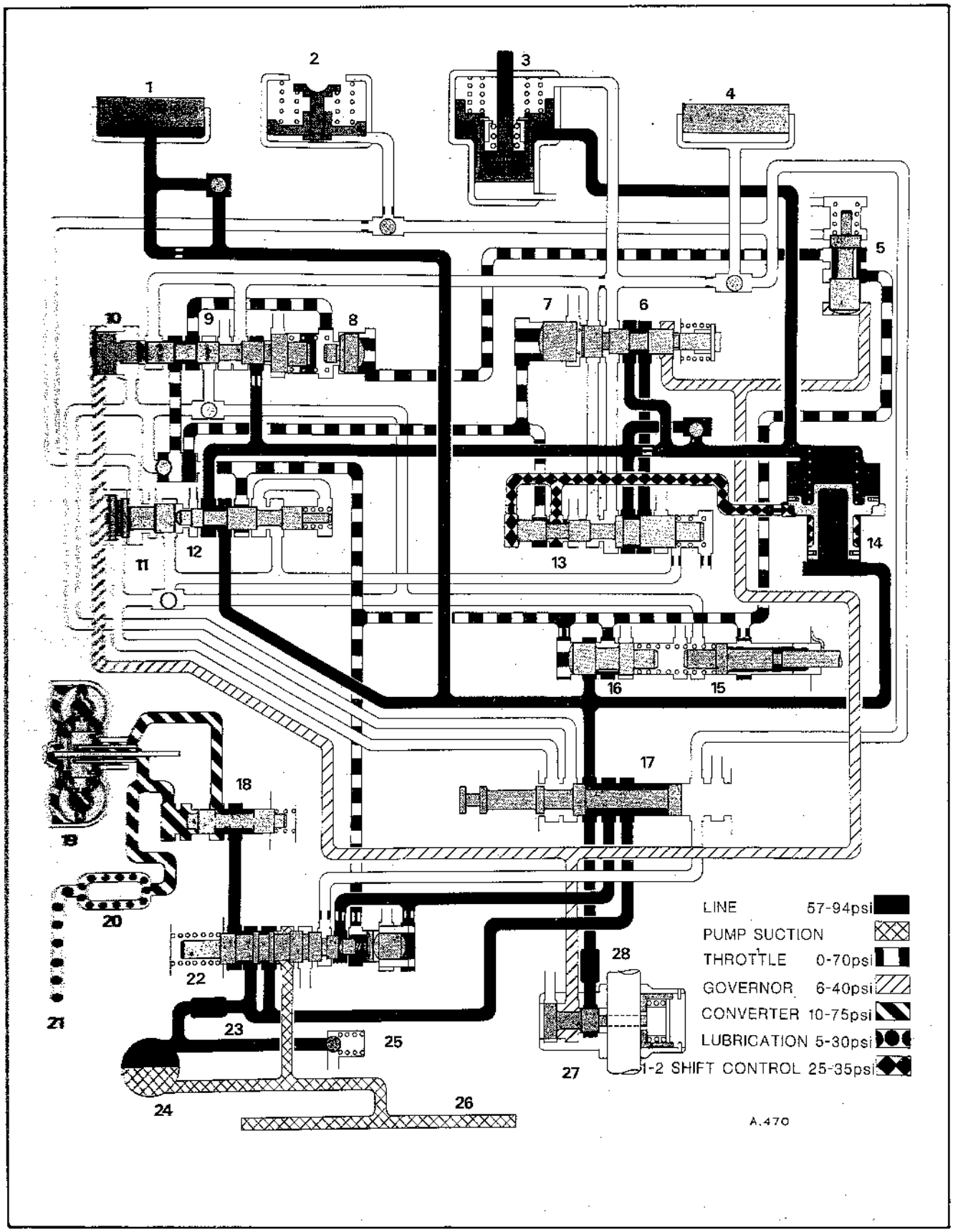


Fig. 6 *Drive — part throttle kickdown Selector lever in drive (part throttle kickdown) below 40 mph*

AUTOMATIC TRANSMISSION

Description and Modifications

Key to Fig 7

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN

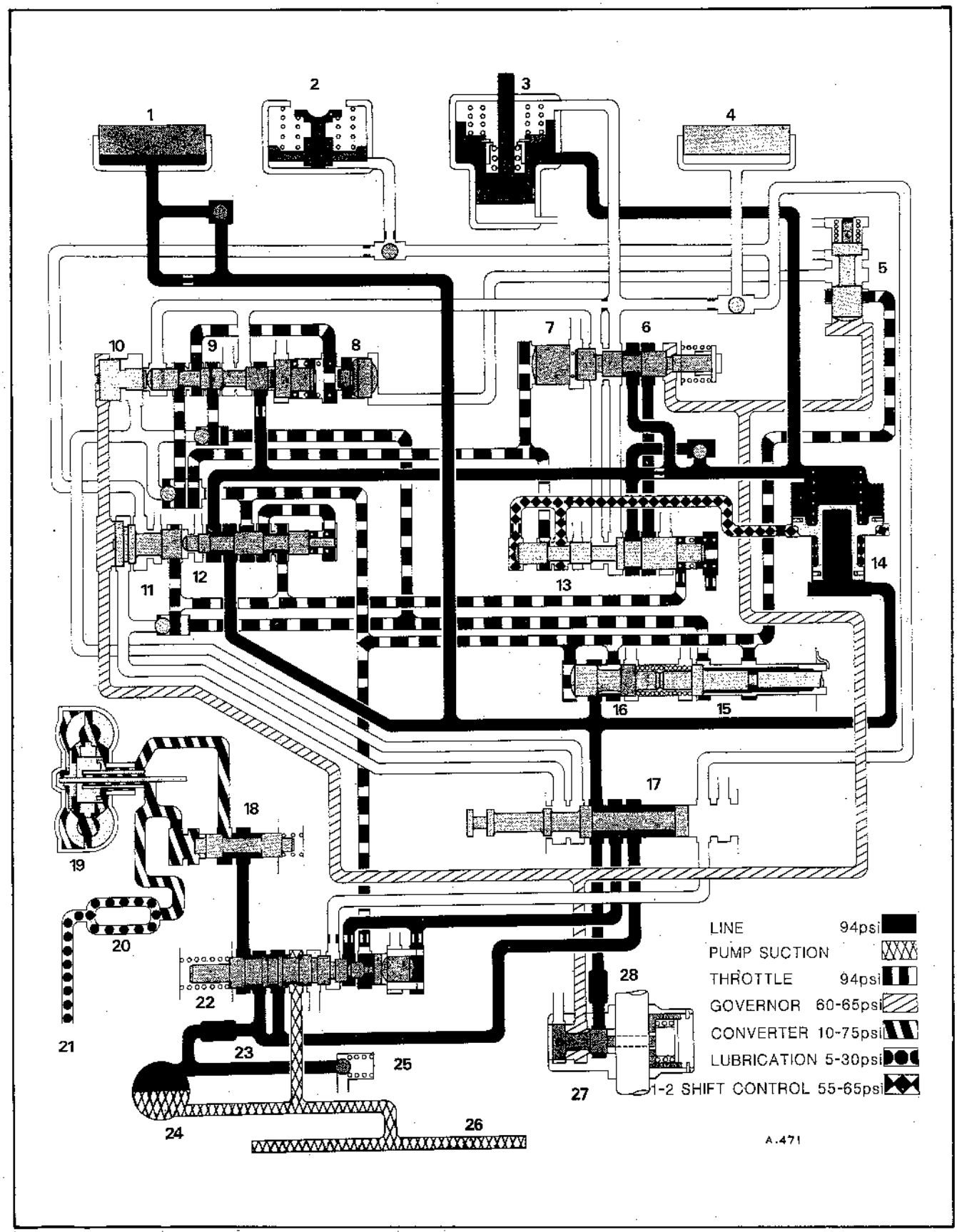


Fig. 7 *Drive — full throttle kickdown Selector lever in drive (full throttle kickdown) above 50 mph*

AUTOMATIC TRANSMISSION

Description and Modifications

Key to Fig 8

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN

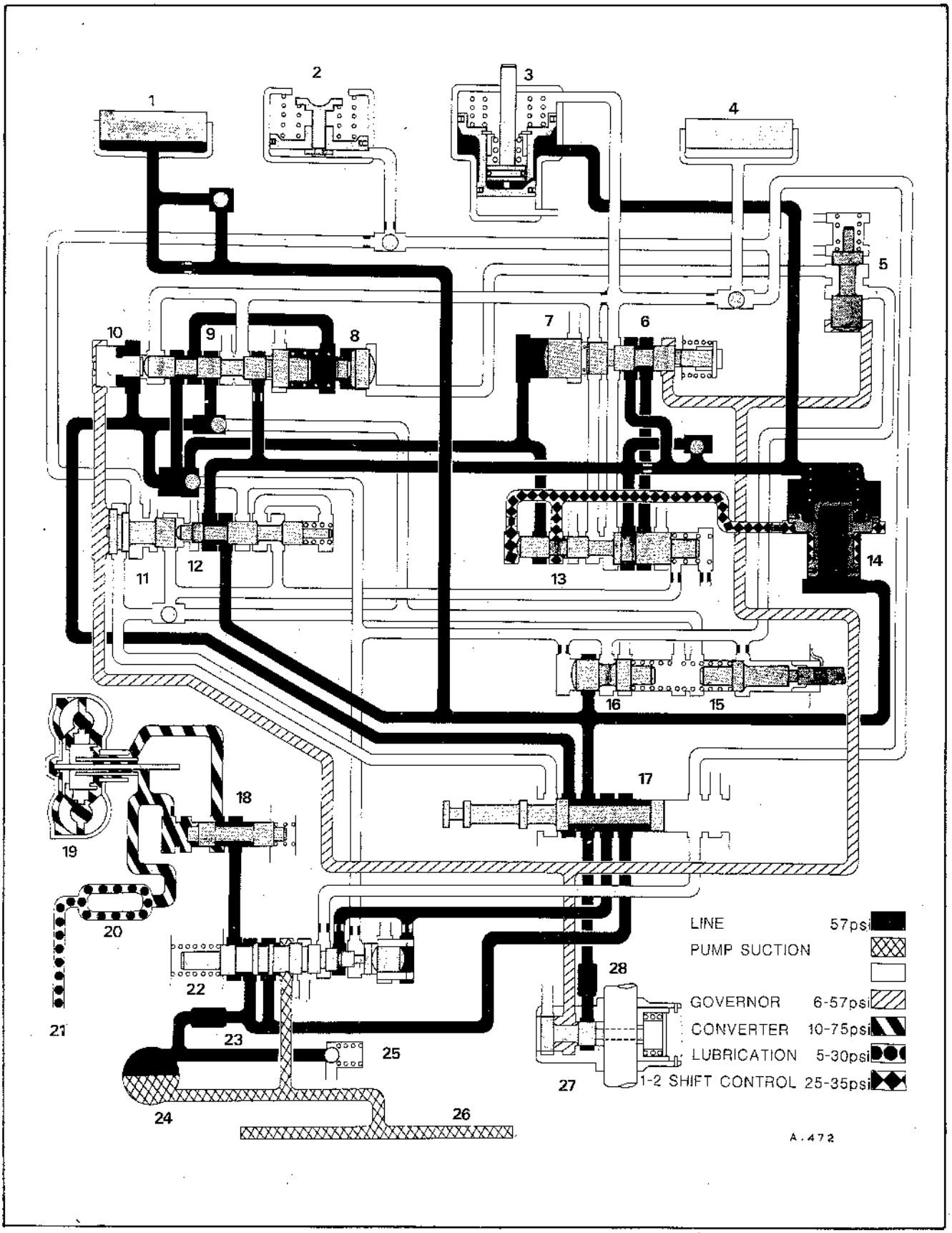


Fig. 8 *Selector lever — 2 Selector lever in 2 (manual second) closed throttle*

Key to Fig 9

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
23. SCREEN
24. PUMP
25. HIGH PRESSURE RELIEF VALVE
26. FILTER
27. GOVERNOR
28. SCREEN

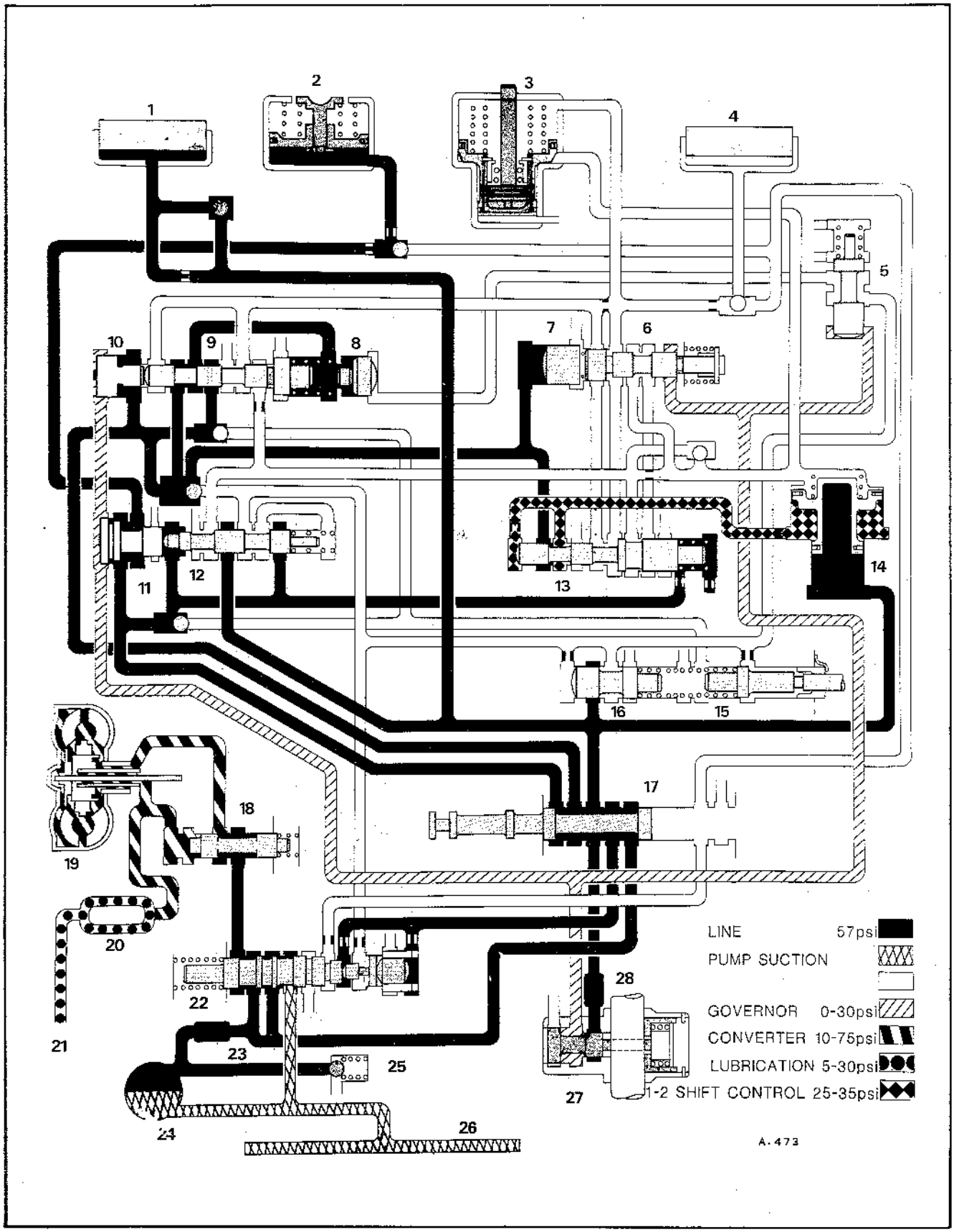


Fig. 9 *Selector lever — 1 Selector lever in 1 (manual low) closed throttle*

Key to Fig 10

1. REAR CLUTCH
2. REAR SERVO
3. FRONT SERVO
4. FRONT CLUTCH
5. LIMIT VALVE
6. SHUTTLE VALVE
7. THROTTLE PLUG
8. THROTTLE PLUG
9. 2-3 SHIFT VALVE
10. GOVERNOR PLUG
11. GOVERNOR PLUG
12. 1-2 SHIFT VALVE
13. 1-2 SHIFT CONTROL VALVE
14. ACCUMULATOR
15. KICKDOWN VALVE
16. THROTTLE VALVE
17. MANUAL VALVE
18. CONTROL VALVE
19. CONVERTER
20. COOLER
21. TO LUBRICATION
22. PRESSURE REGULATOR VALVE
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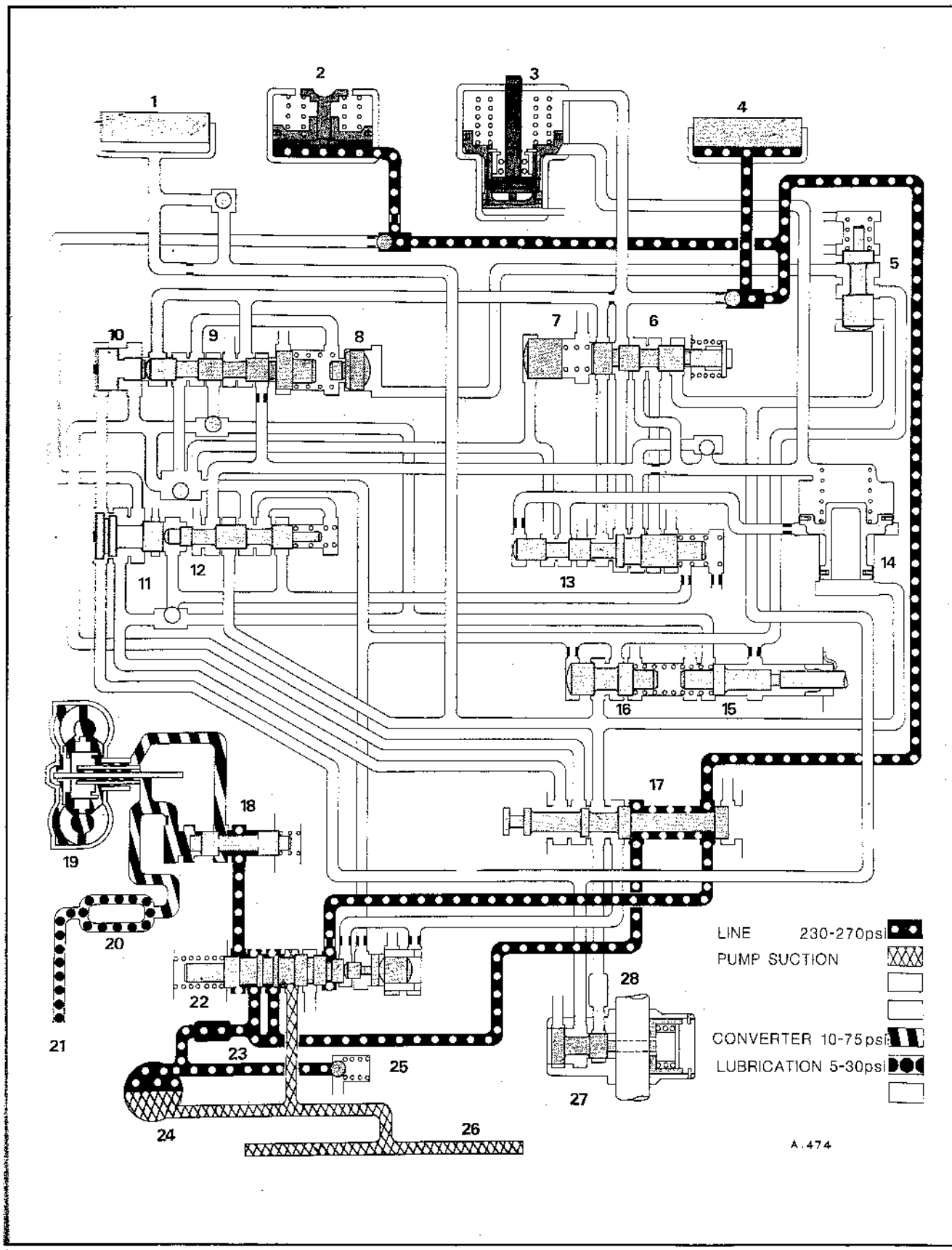

Fig. 10 *Reverse Selector lever in reverse*