

Description

Hydraulic Flow

General Chart of Hydraulic Pressure

Oil Pump → Regulator Valve → Line Pressure
Torque Converter Pressure
Lubrication Pressure

Distribution of Hydraulic Pressure

- Regulator Valve → Line Pressure
Torque Converter Pressure
Lubrication Pressure
- Manual Valve → To Select Line Pressure
- Modulator Valve → Modulator Pressure
- 1-2 Shift Valve
- 2-3 Shift Valve → Clutch Pressure
- 3-4 Shift Valve
- Throttle Valve A → Throttle A Pressure
- Throttle Valve B → Throttle B Pressure
- Governor Valve → Governor Pressure

NO.	DESCRIPTION OF PRESSURE	NO.	DESCRIPTION OF PRESSURE	NO.	DESCRIPTION OF PRESSURE
1	LINE	16	1ST-HOLD CLUTCH	57	THROTTLE B
2	LINE	18	LINE	58	THROTTLE B
3	LINE	20	2ND CLUTCH	60	GOVERNOR
3'	LINE	21	2ND CLUTCH	61	GOVERNOR
3''	LINE	25	LINE	90	TORQUE CONVERTER
4	LINE	30	3RD CLUTCH	91	TORQUE CONVERTER
4'	LINE	31	3RD CLUTCH	92	TORQUE CONVERTER
5	LINE	40	4TH CLUTCH	93	OIL COOLER
5'	LINE	41	4TH CLUTCH	94	TORQUE CONVERTER
5''	LINE	50	THROTTLE A	95	LUBRICATION
6	MODULATOR	51	THROTTLE A	96	TORQUE CONVERTER
6'	MODULATOR	52	THROTTLE A	97	TORQUE CONVERTER
10	1ST CLUTCH	55	THROTTLE B	99	SUCTION
15	1ST-HOLD CLUTCH	56	THROTTLE B	X	BLEED

Description

Hydraulic Flow (cont'd)

1 Position

The line pressure (1) becomes the line pressure (4) and 1st-hold clutch pressure (16) as it passes through the manual valve. Also, the line pressure (1) goes to the governor valve and becomes the governor pressure (60). The governor pressure (60) is supplied to the 1-2 and 2-3 shift valves. The shift valves remain on the right side because the governor pressure is lower than the valve spring tension.

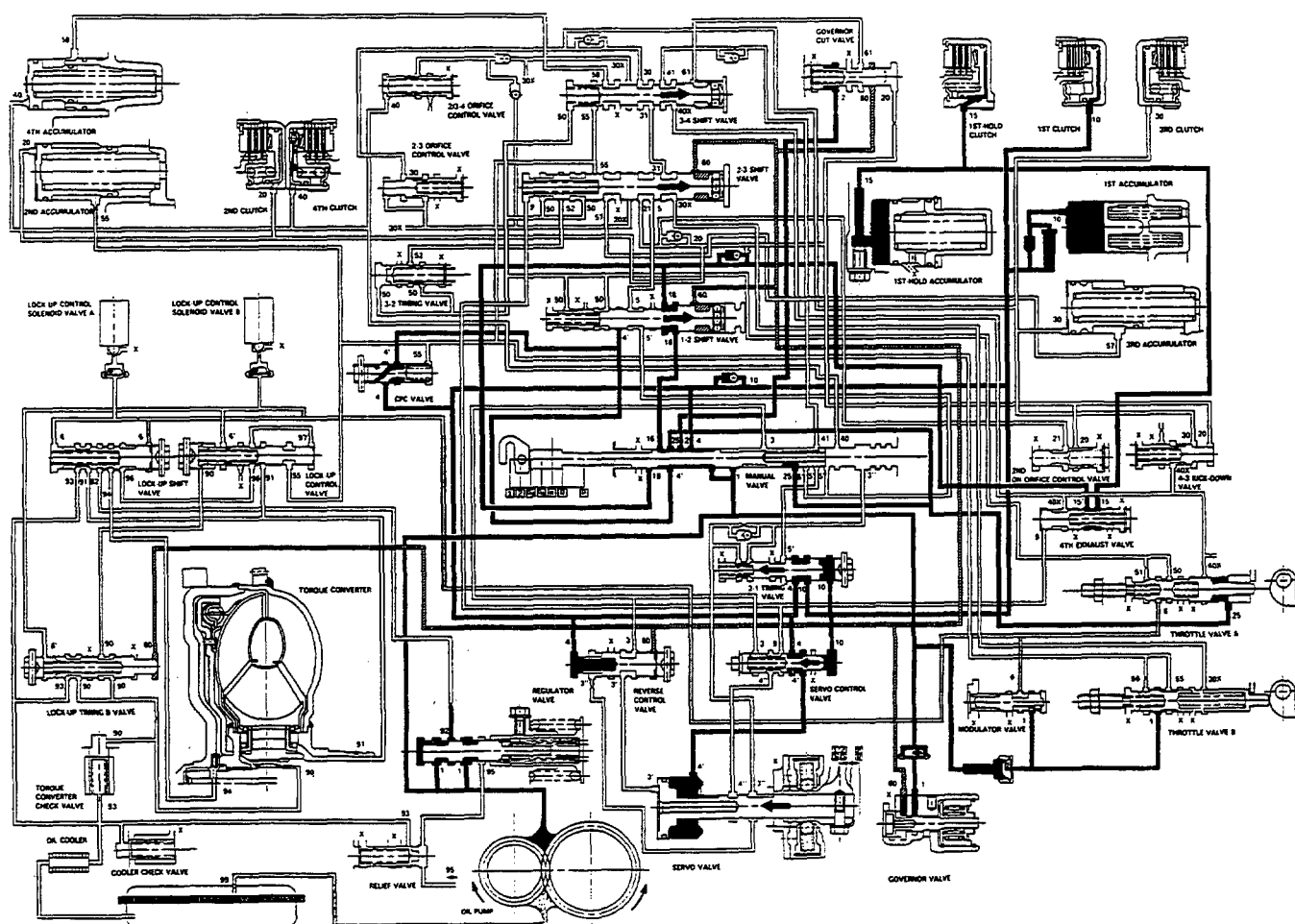
The line pressure (4) becomes the 1st clutch pressure (10) via the orifice, then goes to the 1st clutch. The 1st clutch pressure (10) is also supplied to the servo control valve and 2-1 timing valve to move them to the left side.

The 1st-hold clutch pressure (16) goes to the 1st-hold clutch via the 1-2 shift valve, orifice and 4th exhaust valve.

In the **1** position, the 1st clutch and 1st-hold clutch are engaged.

The line pressure (4) also goes to the servo valve via the servo control valve, and holds on the servo valve in the driving range.

NOTE: When used, "left" and "right" indicates direction on the flowchart.



Description

Hydraulic Flow (cont'd)

D₄ or D₃ Position

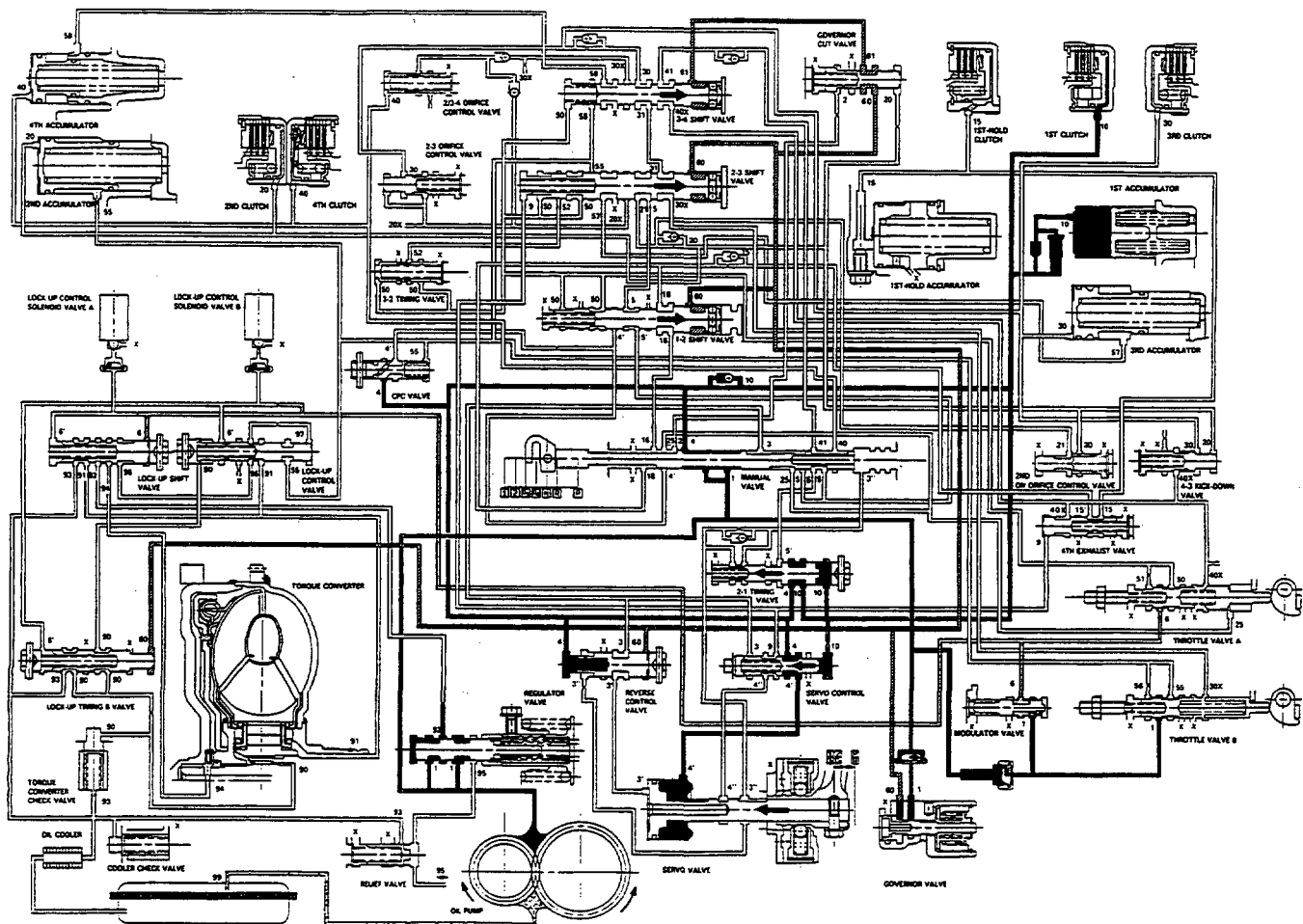
1. 1st speed

The flow of fluid through the torque converter is the same as in the **N** position. The line pressure (1) becomes the line pressure (4). The line pressure (4) becomes the 1st clutch pressure (10) as it passes through the orifice. The 1st clutch pressure (10) is supplied to the 1st clutch and 1st accumulator, consequently the vehicle will move as the engine power is transmitted.

The line pressure (1) becomes the governor pressure (60) by the governor valve and travels to each shift valve. But, all shift valves remain on the right side because the governor pressure (60) is lower than the shift valve spring tension. The line pressure (1) also flows to the modulator valve and throttle valve B.

In the **D₄** or **D₃** position, the line pressure (4') flows to the servo valve and holds it on in the driving range as in the **1** and **2** position

NOTE: When used, "left" or "right" indicates direction on the flowchart.





2. 2nd speed

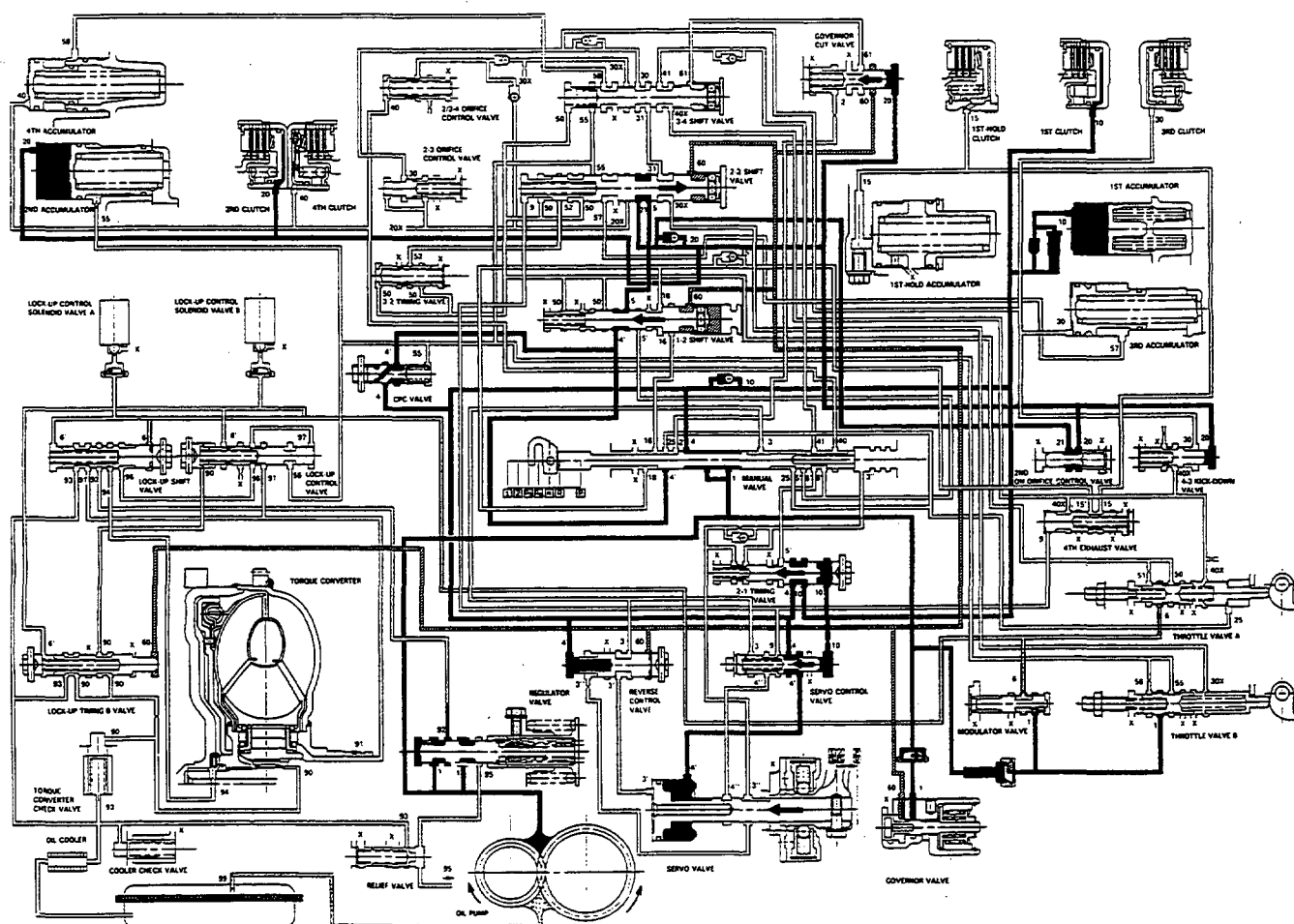
The flow of fluid up to the 1-2 and 2-3 shift valves is the same as the 1st speed range. As the speed of the car reaches the prescribed value, the 1-2 shift valve is moved to the left side by the governor pressure (60) and uncovers the oil port leading to the 2nd clutch; the 2nd clutch is engaged.

Fluid flows by way of:

Line Pressure (4) → CPC Valve-Line Pressure (4') → 1-2 Shift Valve-Line Pressure (5) → 2-3 Shift Valve-2nd Clutch Pressure (21) → Orifice-2nd Clutch Pressure (20) → 2nd Clutch.

The 2nd clutch pressure (20) is also supplied to the governor cut valve. The governor cut valve is moved to the left side to cover the oil port of the governor pressure (60) to the 3-4 shift valve. The hydraulic pressure also flows to the 1st clutch. However, no power is transmitted by means of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the flowchart.



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Description

Hydraulic Flow (cont'd)

3. 3rd speed

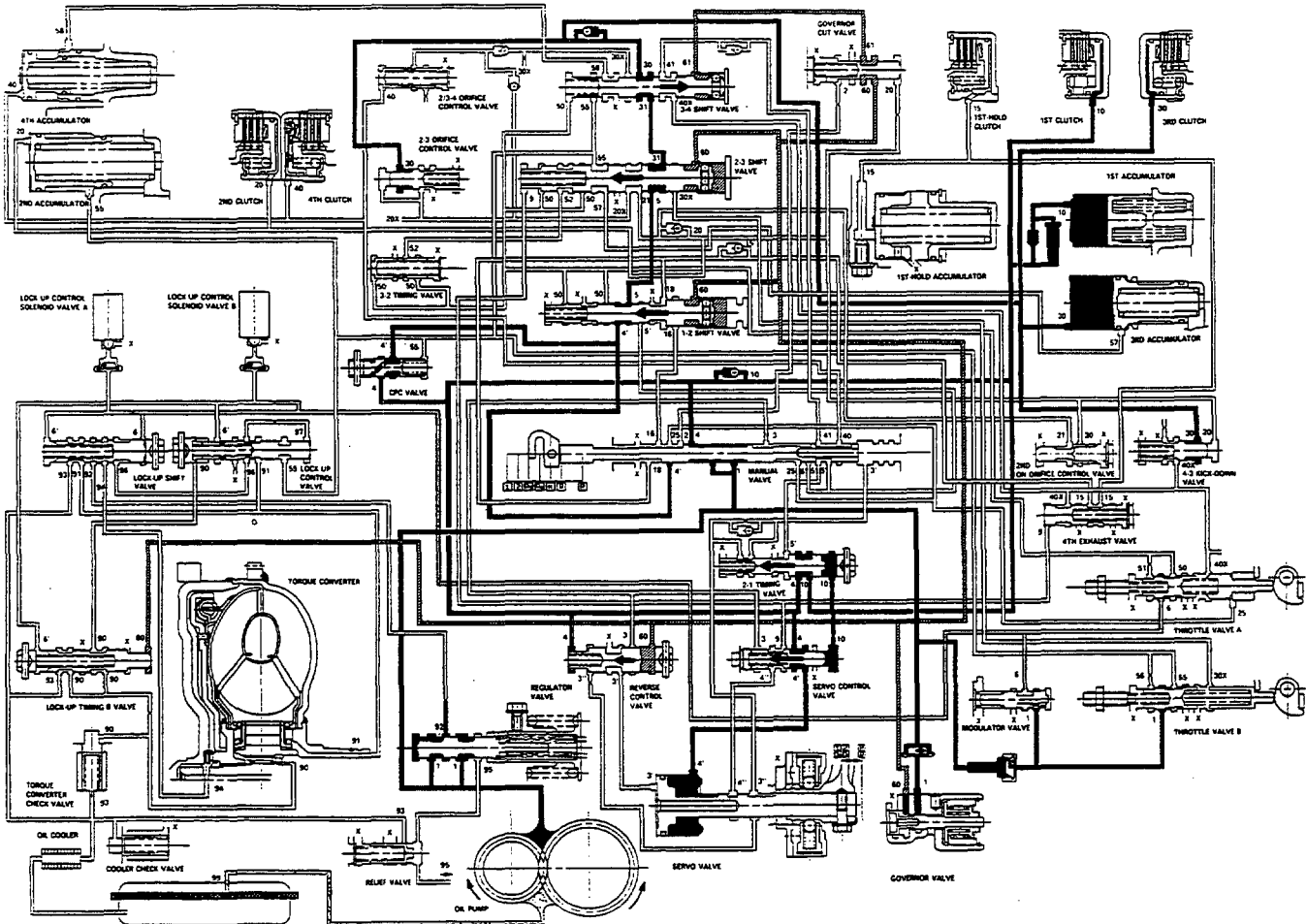
The flow of fluid up to the 1-2, 2-3 and 3-4 shift valves is the same as the 2nd speed range. As the speed of the car reaches the prescribed value, the 2-3 shift valve is moved to the left side by the governor pressure (60) and uncovers the oil port leading to the 3rd clutch. Since the 1-2 shift valve is kept on the left side, and the 3-4 shift valve is on the right side to uncover the oil port leading to the 3rd clutch, the 3rd clutch is engaged.

Fluid flows by way of:

Line Pressure (4) → CPC Valve-Line Pressure (4') → 1-2 Shift Valve-Line Pressure (5) → 2-3 Shift Valve-3rd Clutch Pressure (31) → 3-4 Shift Valve-3rd Clutch Pressure (30) → Orifice → 3rd Clutch.

The hydraulic pressure also flows to the 1st clutch. However, no power is transmitted by means of the one-way clutch as in the 2nd speed.

NOTE: When used, "left" and "right" indicates direction on the flowchart.



Description

Hydraulic Flow (cont'd)

R Position

The flow of fluid through the torque converter circuit is the same as in the **N** position. The line pressure (1) becomes the line pressure (3) as it passes the manual valve. It then flows through the reverse control valve to the servo valve, causing the reverse shift fork shaft to be moved to the reverse position. The line pressure (3'') from the servo valve goes to the manual valve and becomes the 4th clutch pressure (40). Then it goes to the 4th clutch; the power is transmitted through the 4th clutch.

When the **R** position is selected while the vehicle is moving forward at more than a certain speed, the line pressure (3) is cut by the governor pressure (60) which activates the reverse control valve.

When shifting to **R** from **D₄**, **D₃**, **2** or **1** position, the servo control valve is moved to the left side by 1st clutch pressure (10). The servo control valve combines with the reverse shift fork shaft detent system to control movement of the servo valve.

NOTE: When used, "left" and "right" indicates direction on the flowchart.

