

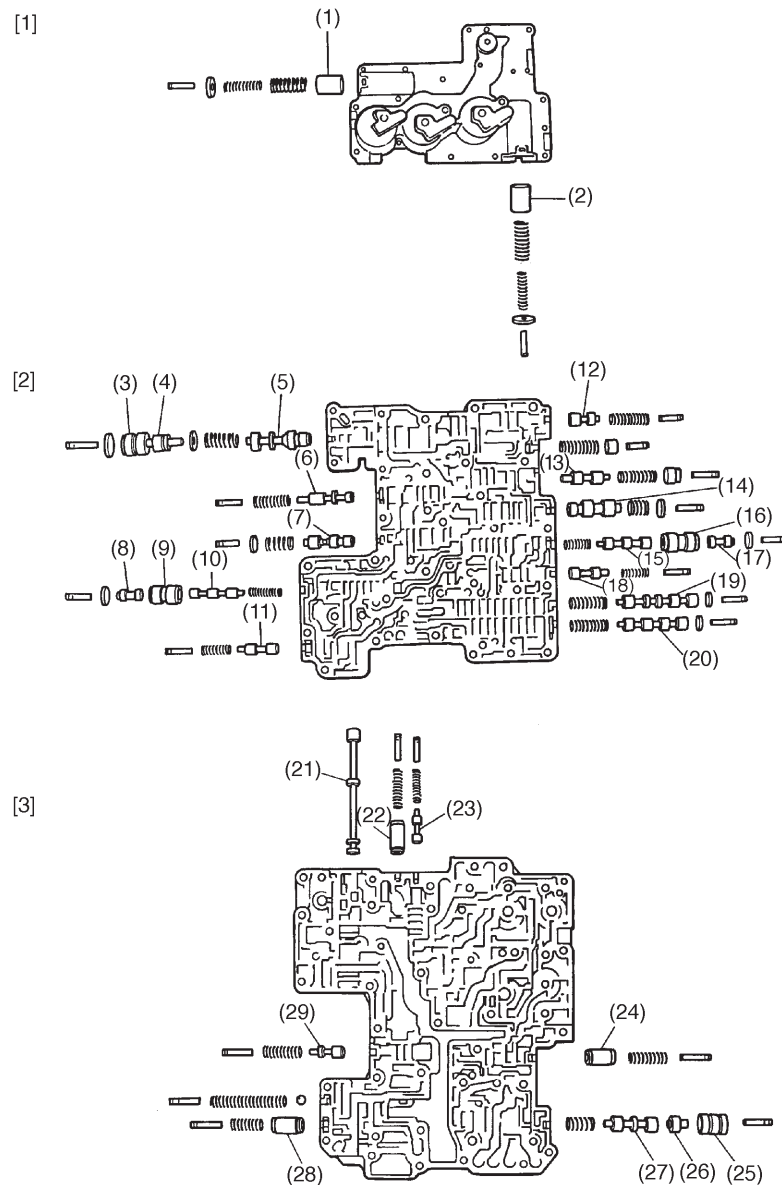
3-2 [M700] 7. Hydraulic Control Valve

MECHANISM AND FUNCTION

7. Hydraulic Control Valve

The hydraulic control system consists of an oil pump, control valve bodies, clutches and connecting passages and pipes. When it is activated manually, or automatically by the electronic control system, it hydraulically controls the gearshifting mechanism.

A: CONSTRUCTION



B3H0903B

- | | | |
|--------------------------------------|---------------------------------------|------------------------------------|
| (1) High clutch accumulator piston B | (12) Torque converter regulator valve | (23) 1st reducing valve |
| (2) 2-4 brake accumulator piston B | (13) Pressure modifier valve | (24) Throttle accumulator piston A |
| (3) Pressure regulator sleeve | (14) Accumulator control valve A | (25) Lock-up control sleeve |
| (4) Pressure regulator plug | (15) Low clutch timing valve A | (26) Lock-up control plug |
| (5) Pressure regulator valve | (16) Low clutch timing sleeve A | (27) Lock-up control valve |
| (6) Reverse inhibit valve | (17) Low clutch timing plug A | (28) Modifier accumulator piston |
| (7) Accumulator control valve B | (18) Low clutch timing valve B | (29) Pilot valve |
| (8) 2-4 brake timing plug A | (19) Shift valve B | |
| (9) 2-4 brake timing sleeve A | (20) Shift valve A | [1] Upper valve body |
| (10) 2-4 brake timing valve A | (21) Manual valve | [2] Middle valve body |
| (11) 2-4 brake timing valve B | (22) Throttle accumulator piston B | [3] Lower valve body |

MECHANISM AND FUNCTION**B: FUNCTION**

Name	Function																																													
Pressure regulator valve	Regulates the pressure of ATF delivered from the oil pump to an optimum level (line pressure) corresponding to vehicle running conditions.																																													
Pressure modifier valve	Adjusts the pressure modifier pressure depending on the driving condition to keep the line pressure at the optimum level.																																													
Pressure modifier accumulator piston	Smooths the pressure regulated by the pressure modifier valve to prevent pulsation in line pressure.																																													
Line pressure relief valve	Prevents excessive rise of the line pressure.																																													
Manual valve	<p>Delivers line pressure to each circuit corresponding to the selected position.</p> <table border="1"> <thead> <tr> <th>Circuit</th> <th>(1)</th> <th>(2)</th> <th>(3)</th> <th>(4)</th> </tr> </thead> <tbody> <tr> <td>Range</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>P</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>R</td> <td></td> <td></td> <td></td> <td>○</td> </tr> <tr> <td>N</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td>○</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>○</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>○</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>○</td> <td>○</td> <td>○</td> <td></td> </tr> </tbody> </table> <p style="text-align: right;">B3H0504</p> <p>When the valve is set in the “line pressure no delivery” position, the pressure is relieved.</p>	Circuit	(1)	(2)	(3)	(4)	Range					P					R				○	N					D	○				3	○				2	○	○			1	○	○	○	
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Pilot valve	Generates by reducing the line pressure a constant pressure (pilot pressure) use for controlling the line pressure, lock-up pressure, clutch/brake pressure during shifting and the transfer.																																													
Torque converter clutch regulator valve	Prevents excessive rise of torque converter clutch pressure.																																													
Lock-up control valve	Engages or disengages the lock-up clutch. Also regulates the lock-up clutch engaging pressure to prevent lock-up shocks.																																													
Shift valve A	Simultaneously changes three different ATF passages using shift solenoid 1 output pressure corresponding to such operating conditions as vehicle speed and throttle position. Combined with shift valve B, this valve permits automatic shifting of 1st 2nd 3rd 4th speeds.																																													
Shift valve B	Simultaneously changes three different ATF passages using shift solenoid 2 output pressure corresponding to such operating conditions as vehicle speed and throttle position. Combined with shift valve A, this valve permits automatic shifting of 1st 2nd 3rd 4th speeds.																																													
Low clutch timing valve A	Switches the ATF passages when the 2-4 brake pressure rises to a certain level during upshifting from 3rd to 4th speed, in order to drain the low clutch accumulator back-pressure and to release the low clutch. This operation ensures smoother shifting.																																													
Low clutch timing valve B	Returns the low clutch timing valve A to the original position after 3rd to 4th speed upshifting.																																													
2-4 brake timing valve A	Switches the ATF passages when the high clutch pressure rises to a certain level during upshifting from 2nd to 3rd speed, in order to drain the 2-4 brake accumulator A back-pressure and to release the 2-4 brake. This operation ensures smoother shiftings.																																													
2-4 brake timing valve B	Returns the 2-4 brake timing valve A to the original position after 2nd to 3rd speed upshifting.																																													
Reverse inhibit valve	Allows ATF in the low & reverse brake circuit to drain during forward driving at a speed higher than the predetermined value, preventing shifting into reverse even if “R” range is selected.																																													
“1st” Reducing valve	Reduces the low-reverse brake operating pressure so as to relieve engine braking shock when changing from 2 range 2nd speed to 1st speed.																																													

3-2 [M7B0]

7. Hydraulic Control Valve

MECHANISM AND FUNCTION

Name	Function
Accumulator control valve A	Regulates the accumulator control A pressure (low clutch accumulator A back-pressure, high clutch accumulator A back-pressure, 2-4 brake timing control signal pressure) depending upon driving conditions.
Accumulator control valve B	Regulates the accumulator control B pressure (2-4 brake accumulator A back-pressure, low clutch timing control signal pressure) depending upon driving conditions.
Low clutch accumulator	Modulates the low clutch pressure gradually to damper the shifting shocks when the low clutch is engaged and disengaged.
2-4 brake accumulator A	Modulates the 2-4 brake clutch pressure gradually to damper the shifting shocks when the 2-4 brake clutch is engaged and disengaged.
2-4 brake accumulator B	Slows down the 2-4 brake clutch pressure increase speed during 3rd to 4th speed upshifting to prevent the timing variations which may occur when the low clutch timing valve A is switched (to damper shifting shocks).
High clutch accumulator A	Modulates the high clutch pressure gradually to damper the shifting shocks when the high clutch is engaged and disengaged.
High clutch accumulator B	Slows down the high clutch pressure increase speed during 2nd to 3rd speed upshifting to prevent the timing variations which may occur when the 2-4 brake clutch timing valve A is switched (to damper shifting shocks).
Throttle accumulator A	Smooths the output pressure of the line pressure duty solenoid valve to prevent the pulsation.
Throttle accumulator B	Smooths the output pressure of the 2-4 brake duty solenoid valve to prevent the pulsation.