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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
TORQUE CONVERTER CLUTCH (TCC) SOLENOID	P2769	F	RETURN SIGNAL CHECK (LOW)	TCC SOLENOID RETURN SIGNAL (LEVEL)	SHORT	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V TCC ON	JUDGMENT FAULT: 1sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P2770		RETURN SIGNAL CHECK (HIGH)	TCC SOLENOID RETURN SIGNAL (LEVEL)	OPEN	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V TCC OFF		
TRANSMISSION RANGE (TR) SWITCH	P0705	F	EXISTENCE CHECK OF 2 OR MORE GEAR POSITION SIGNALS AT THE SAME TIME	TR SWITCH SIGNAL	CASE1: EXISTENCE OF 2 OR MORE GEAR POSITION SIGNALS (EXCEPT FWD POSITION) CASE2: FWD POSITION AND (P, R, N, 2 or 1 POSITION)	BATTERY VOLTAGE	>10.5V	JUDGMENT FAULT: 1sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P0706	E	SIGNAL EXISTENCE CHECK	FWD SIGNAL	NO FWD POSITION SIGNAL 3)	VEHICLE SPEED SHIFT POSITION	ACCELERATION AND DECELERATION 2) NO SIGNAL OF "P", "R", "N", "D3","2" OR "1"	JUDGMENT FAULT: 2) MONITORING RUNS CONTINUOUSLY	2 D/C
SHIFT SOLENOID (SS) A	P0973	F	RETURN SIGNAL CHECK (LOW)	SS A RETURN SIGNAL (LEVEL)	SHORT	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V SS A ON	JUDGMENT FAULT: 1sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P0974		RETURN SIGNAL CHECK (HIGH)	SS A RETURN SIGNAL (LEVEL)	OPEN	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V SS A OFF		
SHIFT SOLENOID (SS) B	P0976		RETURN SIGNAL CHECK (LOW)	SS B RETURN SIGNAL (LEVEL)	SHORT	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V SS A ON		
	P0977		RETURN SIGNAL CHECK (HIGH)	SS B RETURN SIGNAL (LEVEL)	OPEN	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V SS A OFF		
SHIFT SOLENOID (SS) C	P0979		RETURN SIGNAL CHECK (LOW)	SS C RETURN SIGNAL (LEVEL)	SHORT	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V SS A ON		
	P0980		RETURN SIGNAL CHECK (HIGH)	SS C RETURN SIGNAL (LEVEL)	OPEN	BATTERY VOLTAGE PCM COMMAND STATUS	>10.5V SS A OFF		

Note: 1): Refer to section 16.09.05.00(A logic flowchart describing the general method of detecting malfunctions for each monitored emission-related component or system).
2): Acceleration and deceleration (6 → 30 →6mph) are necessary in the driving cycle. Monitoring period depends on the driving pattern.
3): "FWD" position signal is on when A/T shift is in "D5" through "D3" position. If "FWD" position signal is missing at acceleration and deceleration driving, TR switch is regarded as open-circuit. (See the figure on the next page)

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AUTOMATIC TRANSMISSION (A/T) CLUTCH PRESSURE CONTROL SOLENOID A	P0962	F	RANGE CHECK (LOW)	OUTPUT CURRENT SIGNAL (ANALOG)	OUTPUT CURRENT SIGNALS WHICH ARE DESCRIBED BELOW CURRENT SIGNAL(A) / DUTY (%) <0.2 57~89 <0.4 89<	BATTERY VOLTAGE	>10.5V	JUDGMENT FAULT: 1sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P0963		RANGE CHECK (HIGH)	OUTPUT CURRENT SIGNAL (ANALOG)	OUTPUT CURRENT SIGNALS WHICH ARE DESCRIBED BELOW CURRENT SIGNAL(A) / DUTY (%) >0.6 <13 >0.9 13~27				
AUTOMATIC TRANSMISSION (A/T) CLUTCH PRESSURE CONTROL SOLENOID B	P0966		RANGE CHECK (LOW)	OUTPUT CURRENT SIGNAL (ANALOG)	OUTPUT CURRENT SIGNALS WHICH ARE DESCRIBED BELOW CURRENT SIGNAL(A) / DUTY (%) <0.2 57~89 <0.4 89<				
	P0967		RANGE CHECK (HIGH)	OUTPUT CURRENT SIGNAL (ANALOG)	OUTPUT CURRENT SIGNALS WHICH ARE DESCRIBED BELOW CURRENT SIGNAL(A) / DUTY (%) >0.6 <13 >0.9 13~27				
TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CIRCUIT	P2764		RANGE CHECK (LOW)	OUTPUT CURRENT SIGNAL (ANALOG)	OUTPUT CURRENT SIGNALS WHICH ARE DESCRIBED BELOW CURRENT SIGNAL(A) / DUTY (%) <0.2 57~89 <0.4 89<				
	P2763		RANGE CHECK (HIGH)	OUTPUT CURRENT SIGNAL (ANALOG)	OUTPUT CURRENT SIGNALS WHICH ARE DESCRIBED BELOW CURRENT SIGNAL(A) / DUTY (%) >0.6 <13 >0.9 13~27				

Note: 1): Refer to section 16.09.05.00(A logic flowchart describing the general method of detecting malfunctions for each monitored emission-related component or system).

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
COUNTERSHAFT SPEED SENSOR	P0501	F	PERFORMANCE CHECK BY COMPARING VNC WITH VNM	VNC AND VNM SIGNAL (PULSE)	VNC<VNM x 0.167	VEHICLE SPEED(VNM) SHIFT POSITION PCM COMMAND STATUS	VNM>13 mph D5, D4, D3, 2 OR 1 RANGE 2) EXCEPT 1ST GEAR OR CHANGING GEAR	JUDGMENT FAULT: 10sec. MONITORING RUNS CONTINUOUSLY	1D/C
	P0502		NO SIGNAL CHECK	VNC SIGNAL(PULSE)	VNC<1mph	BATTERY VOLTAGE ENGINE OPERATING STATUS	>10.5V RUNNING		
	P0503	E	NOISE CHECK	VEHICLE SPEED(VNC) DIFFERENCE	WHEN MORE THAN 3mph/10ms AND LESS THAN -3mph/10ms ARE REPEATED 3 TIMES IN 500msec.	VEHICLE SPEED(VNC) VEHICLE SPEED(VNM) DIFFERENCE	>13mph > -3mph /10ms < 3mph /10ms	JUDGMENT FAULT: 0.5sec. MONITORING RUNS CONTINUOUSLY	2 D/C
MAINSHAFT SPEED SENSOR	P0716	F	PERFORMANCE CHECK BY COMPARING VNM WITH VNC	VNC AND VNM SIGNAL (PULSE)	VNM<VNC x 0.156	VEHICLE SPEED(VNC) SHIFT POSITION PCM COMMAND STATUS	VNC>13 mph D5, D4, D3, 2 OR 1 RANGE 2) EXCEPT 1ST GEAR OR CHANGING GEAR	JUDGMENT FAULT: 10sec. 2) MONITORING RUNS CONTINUOUSLY	1D/C
	P0717		NO SIGNAL CHECK	VNM SIGNAL (PULSE)	VNM<1mph	BATTERY VOLTAGE ENGINE OPERATING STATUS	>10.5V RUNNING		
	P0718	E	NOISE CHECK	VEHICLE SPEED(VNM) DIFFERENCE	WHEN MORE THAN 3mph/10ms AND LESS THAN -3mph/10ms ARE REPEATED 3 TIMES IN 500msec.	VEHICLE SPEED(VNC) VEHICLE SPEED(VNC) DIFFERENCE	>13mph > -3mph /10ms < 3mph /10ms	JUDGMENT FAULT: 0.5sec. MONITORING RUNS CONTINUOUSLY	2 D/C

Note: VNC: Vehicle speed(mph) with countershaft speed sensor
VNM: Vehicle speed(mph) with mainshaft speed sensor
1): Refer to section 16.09.05.00(A logic flowchart describing the general method of detecting malfunctions for each monitored emission-related component or system).
2): The monitor is disabled whenever the PCM detects lack of TR switch signal.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
AUTOMATIC TRANSMISSION (A/T) LOCK-UP SYSTEM	P0741	B	RANGE CHECK	TORQUE CONVERTER SLIP RATIO (ETR)	TORQUE CONVERTER SLIP RATIO(ETR) IN THE FOLLOWING TABLE (i) 46<=VNC<59mph TH-ANGLE 3) (deg.) / ETR (%) 5.0 <95 OR >102 10.0 <89 OR >102 15.0 <84 OR >102 17.7 <80 OR >102 20.0 <79 OR >102 (ii) 59<=VNC<68mph TH-ANGLE 3) (deg.) / ETR (%) 5.0 <96 OR >102 7.7 <95 OR >102 10.0 <93 OR >102 12.7 <92 OR >102 20.0 <85 OR >102 (iii) 68<=VNC<75mph TH-ANGLE 3) (deg.) / ETR (%) 5.0 <97 OR >102 10.0 <94 OR >102 12.7 <94 OR >102 17.7 <90 OR >102 20.0 <88 OR >102	ECT VEHICLE SPEED(VNC) AND THROTTLE ANGLE PCM COMMAND STATUS DISABLE CONDITION: (INHIBIT 5TH GEAR) AUTOMATIC TRANSMISSION FLUID(ATF) TEMPERATURE VEHICLE SPEED INCLINATION OF SLOPE DISABLE CONDITION: (TCC OFF) ATF TEMPERATURE	70<ECT<100deg.C SEE FOLLOWING TABLE 4) 5TH GEAR 5) AND TCC ON >110deg.C (LOW TO HIGH TEMPERATURE) /105deg.C (HIGH TO LOW TEMPERATURE) >62.5mph (LOW TO HIGH SPEED) /50mph (HIGH TO LOW SPEED) >2.2% <135deg.C (LOW TO HIGH TEMPERATURE) /130deg.C (HIGH TO LOW TEMPERATURE)	JUDGMENT FAULT OR PASS: 22sec. 2) MONITORING RUNS ONCE PER DRIVING CYCLE	2D/C

Note: ETR: Mainshaft speed(rpm) / engine speed(rpm) x 100
VNC: Vehicle speed(mph) from countershaft speed sensor

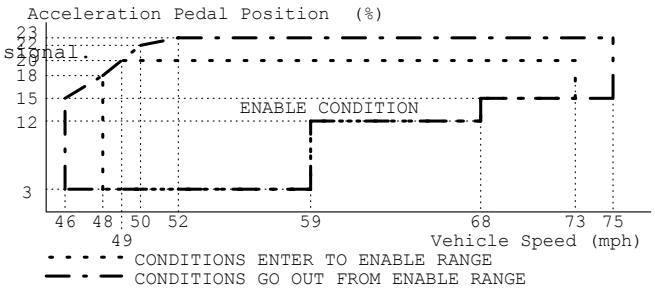
1): Refer to section 16.09.05.00(A logic flowchart describing the general method of detecting malfunctions for each monitored emission-related component or system).

2): Time counter is held when throttle condition is out. When counter resumes, 2sec. of stabling time is needed.

3): This "TH-ANGLE" is a peculiar parameter in order to control A/T. In engine idling status, the value is 0, in spite of the actual throttle position is positive value. Because, this model has electric throttle control system, and doesn't have idle air control valve. The "TH-ANGLE" value changes continuously, and correlative with the actual throttle position.

4): A/T lock-up system enable conditions are shown below.

5): The monitor is disabled whenever the PCM detects lack of TR switch signal.



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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
AUTOMATIC TRANSMISSION (A/T) HYDRAULIC CIRCUIT	P0780	E	HOLDS INCORRECT LOWER GEAR POSITION DURING PCM COMMAND STATUS	GRATIO 2)	<44 (DURING 3RD TO 4TH STATUS) AND 3D<GRATIO<42 (DURING 4TH GEAR STATUS)	A/T FLUID TEMPERATURE PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 3rd TO 4th GEAR OR STAYING 4th GEAR	JUDGMENT FAULT: (MAX): 4.5sec. MONITORING RUNS CONTINUOUSLY	2D/C

Note: 1): Refer to section 16.09.05.00(A logic flowchart describing the general method of detecting malfunctions for each monitored emission-related component or system).

2): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).

GRATIO = k x NC / NM (k: compensation factor)

In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0

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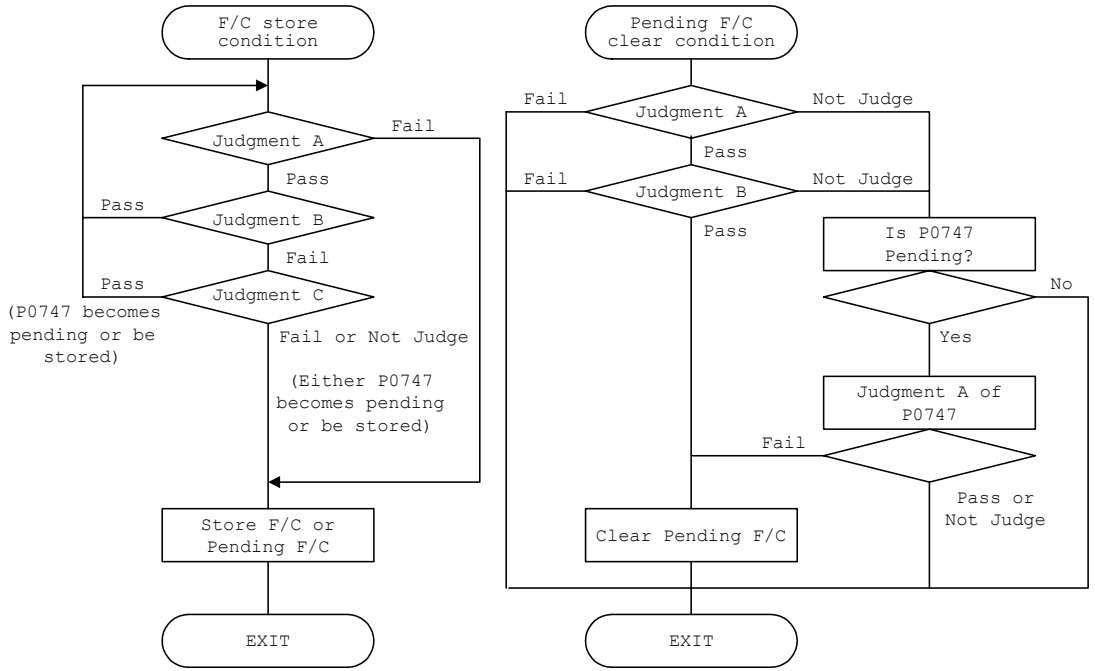
COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
SHIFT SOLENOID (SS) A	P0751		STUCK OFF CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1) GRATIO 4)	JUDGMENT A: 5D<GRATIO<62	A/T FLUID TEMPERATURE (ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 1st TO 2nd GEAR	JUDGMENT FAULT: (MAX): 20sec.(ATFT<0deg.C) (MAX): 13sec.(ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 2) GRATIO 4)	JUDGMENT B: 7D<GRATIO<82	A/T FLUID TEMPERATURE(ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 4th TO 5th GEAR	JUDGMENT FAULT: (MAX): 20sec.(ATFT<0deg.C) (MAX): 13sec.(ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	
				JUDGMENT C: 3) SHIFT TIME	JUDGMENT C: AP TIME 19% >0.8sec. 38% >0.8sec. 63% >0.8sec.	PCM COMMAND STATUS ACCELERATION PEDAL POSITION	SHIFT CHANGE FROM 3rd TO 4th GEAR >5%	JUDGMENT FAULT: (MAX): 2.5sec. MONITORING RUNS CONTINUOUSLY	

Note: AP: Acceleration Pedal Position
1): If Judgment A fails, SS A stuck off is detected and limp home mode (4th gear) is activated..
2): If Judgment B fails, it is suspected that one or more of the following has occurred:
SS A stuck off or A/T pressure control solenoid A stuck on (P0747).
However, it's impossible to specify which one. (See the diagram on the next page) Limp home mode (4th gear) is activated..
3): When Judgment B has failed, if Judgment C fails or not judges, it's still impossible to specify one and both P0751 and P0747 become pending or are stored. If Judgment C passes, A/T pressure control solenoid A stuck on (P0747) is detected. (See the diagram on the next page)
4): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0


F/C store condition
Judgment A
Fail
Pass
Judgment B
Pass
Fail
Judgment C
Pass
(P0747 becomes pending or be stored)
Fail or Not Judge
(Either P0747 becomes pending or be stored)
Store F/C or Pending F/C
EXIT
Pending F/C clear condition
Judgment A
Fail
Not Judge
Pass
Judgment B
Fail
Not Judge
Pass
Is P0747 Pending?
No
Yes
Judgment A of P0747
Fail
Pass or Not Judge
Clear Pending F/C
EXIT

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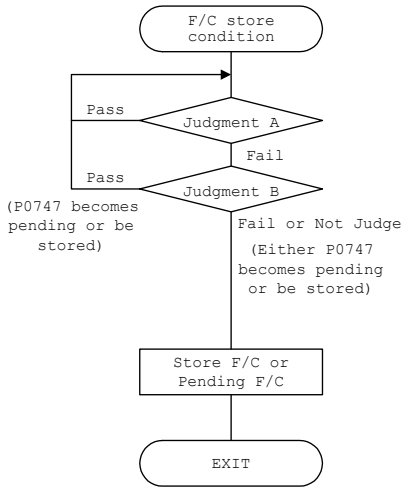
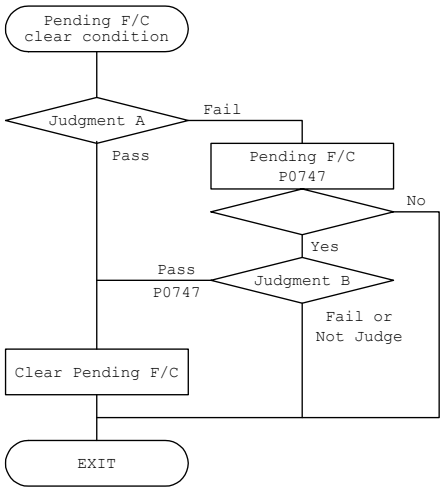
SHIFT SOLENOID (SS) A	P0752		STUCK ON CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1) GRATIO 3)	JUDGMENT A: 3D<GRATIO<42	A/T FLUID TEMPERATURE (ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 2nd TO 3rd GEAR	JUDGMENT FAULT: (MAX): 20sec. (ATFT<0deg.C) (MAX): 13sec. (ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 2) GRATIO 3)	JUDGMENT B: <3D OR >42	PCM COMMAND STATUS VEHICLE SPEED CUMULATIVE TIME AFTER ABOVE CONDITIONS ARE MET	1st GEAR VNC>4mph >1.2sec.	JUDGMENT FAULT: 0.01sec MONITORING RUNS CONTINUOUSLY	

Note: 1): If Judgment A fails, it is suspected that one or more of the following has occurred:
SS A stuck on or A/T pressure control solenoid A stuck on (P0747).
However, it's impossible to specify which one. (See the diagram below) Limp home mode (1st and 2nd gear) is activated.
2): When Judgment A has failed, if judgment B passes, A/T clutch pressure control solenoid A stuck on (P0747) is detected. If judgment B fails or not judges, it's still impossible to specify one and both P0752 and P0747 become pending or are stored. (See the diagram below)
3): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0





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SHIFT SOLENOID (SS) B	P0756	E	STUCK OFF CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 2) GRATIO 4)	JUDGMENT A: 9D<GRATIO<A2	PCM COMMAND STATUS VEHICLE SPEED	1st GEAR VNC>4mph	JUDGMENT FAULT: >1.2sec. AND DURING 1st GEAR 3) MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 2) GRATIO 4)	JUDGMENT B: 7D<GRATIO<82	PCM COMMAND STATUS VEHICLE SPEED	2nd GEAR VNC>4mph	JUDGMENT FAULT: >1.2sec. And DURING 2nd GEAR 3) MONITORING RUNS CONTINUOUSLY	

Note: 1): Refer to section 16.09.05.00(A logic flowchart describing the general method of detecting malfunctions for each monitored emission-related component or system).

2): If both Judgment A and Judgment B fail, SS B stuck off is detected.

3): If GRATIO continues being in the threshold value during PCM command status is at 1st/2nd gear, Judgment A/B fails. However, if the time which PCM command status is at 1st/2nd gear is less than 1.2sec., Judgment A/B does not decide.

4): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0

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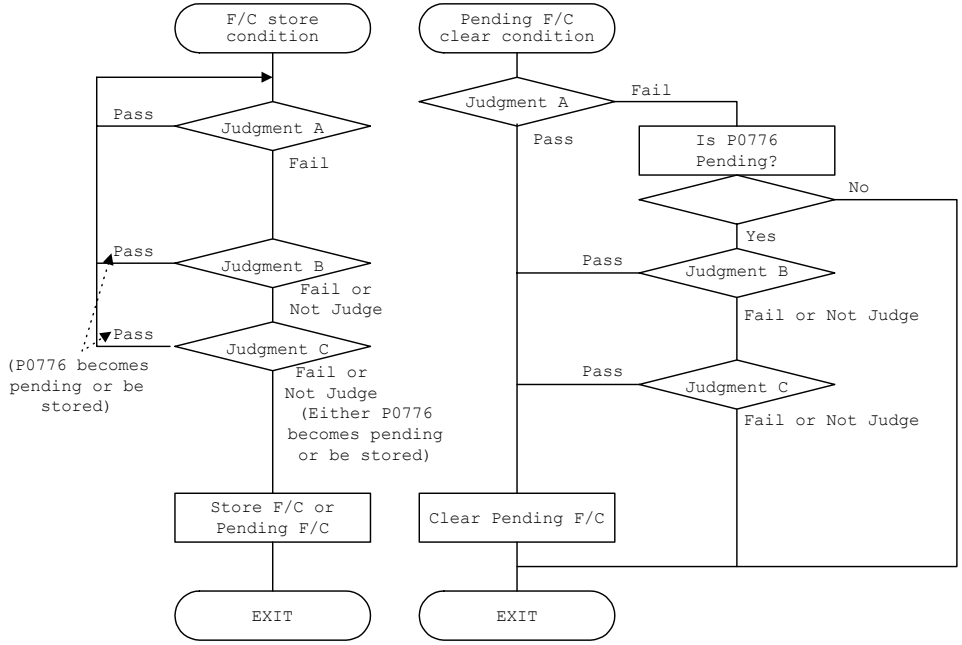
SHIFT SOLENOID (SS) B	P0757		STUCK ON CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1)2) GRATIO 3)	JUDGMENT A: 5D<GRATIO<62	A/T FLUID TEMPERATURE(ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 3rd TO 4th GEAR	JUDGMENT FAULT: (MAX): 20sec.(ATFT<0deg.C) (MAX): 13sec.(ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 2) SHIFT TIME	JUDGMENT B: AP TIME 19% >0.8sec. 38% >0.8sec. 63% >0.8sec.	PCM COMMAND STATUS ACCELERATION PEDAL POSITION	SHIFT CHANGE FROM 2nd TO 3rd GEAR >5%	JUDGMENT FAULT: (MAX):2.5sec. MONITORING RUNS CONTINUOUSLY	
				JUDGMENT C: 2) SHIFT TIME	JUDGMENT C: AP TIME 19% >0.8sec. 38% >0.8sec. 63% >0.8sec.	PCM COMMAND STATUS ACCELERATION PEDAL POSITION	SHIFT CHANGE FROM 4th TO 5th GEAR >5%	JUDGMENT FAULT: (MAX):2.5sec. MONITORING RUNS CONTINUOUSLY	

Note: 1): If judgment A fails, it is suspected that one or more of the following has occurred:
SS B stuck on or A/T pressure control solenoid B stuck off (P0776).
However, it's impossible to specify which one. (See the diagram on the next page)
Limp home mode (1st, 2nd and 3rd gear) is activated.

2): When Judgment A has failed, if both Judgment B and Judgment C fail or not judge, it is still impossible to specify one and both P0776 and P0757 become pending or are stored.
If judgment B or Judgment C passes, A/T clutch pressure control solenoid B stuck off (P0776) is detected. (See the diagram on the next page)

3): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0


F/C store condition
Judgment A
Pass
Fail
Judgment B
Pass
Fail or Not Judge
Judgment C
Pass
(P0776 becomes pending or be stored)
Fail or Not Judge (Either P0776 becomes pending or be stored)
Store F/C or Pending F/C
EXIT
Pending F/C clear condition
Judgment A
Fail
Pass
Is P0776 Pending?
No
Yes
Judgment B
Pass
Fail or Not Judge
Judgment C
Pass
Fail or Not Judge
Clear Pending F/C
EXIT

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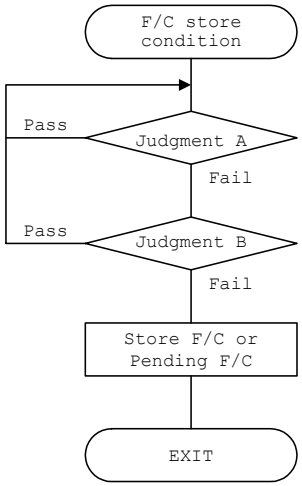
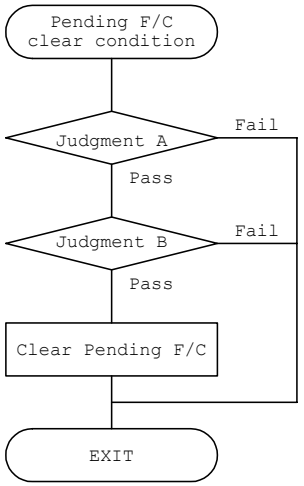
SHIFT SOLENOID (SS) C	P0761		STUCK OFF CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1) GRATIO 3)	JUDGMENT A: 3D<GRATIO<42	PCM COMMAND STATUS VEHICLE SPEED	1st GEAR VNC>4 mph	JUDGMENT FAULT: >1.2sec. AND DURING 1st GEAR 2) MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 1) SHIFT TIME	JUDGMENT B: AP TIME 19% <0.8sec. 38% <0.8sec. 63% <0.8sec.	PCM COMMAND STATUS ACCELERATION PEDAL POSITION	SHIFT CHANGE FROM 3rd TO 4th GEAR >5%	JUDGMENT FAULT: (MAX):2.5sec. MONITORING RUNS CONTINUOUSLY	

Note: 1): When Judgment A has failed, if Judgment B fails, SS C stuck off is detected. (See the diagram below)
2): If GRATIO continues being in the threshold value during PCM command status is at 1st gear, Judgment A fails. However, if the time which PCM command status is at 1st gear is less than 1.2sec., Judgment A does not decide.
3): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0





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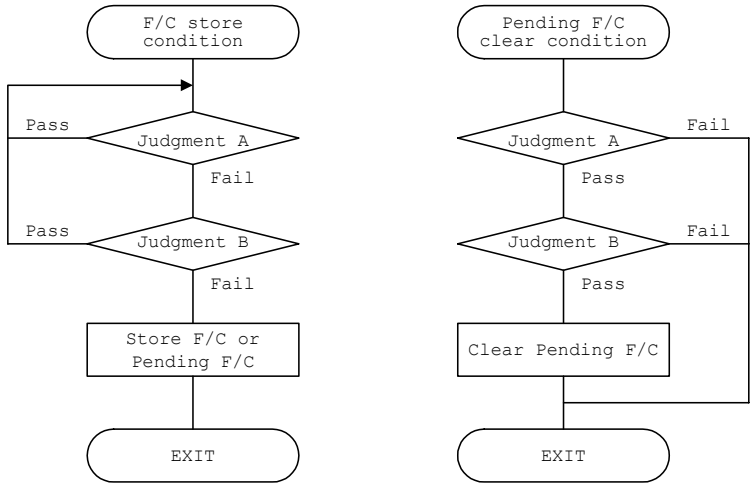
COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
SHIFT SOLENOID (SS) C	P0762		STUCK ON CHECK BY GEAR RATIO (GRATIO) 2)	JUDGMENT A: 1) SHIFT TIME	JUDGMENT A: AP TIME 19% >0.8sec. 38% >0.8sec. 63% >0.8sec.	PCM COMMAND STATUS ACCELERATION PEDAL POSITION	SHIFT CHANGE FROM 2nd TO 3rd GEAR >5%	JUDGMENT FAULT: (MAX):2.5sec. MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 1) SHIFT TIME	JUDGMENT B: AP TIME 19% <0.8sec. 38% <0.8sec. 63% <0.8sec.	PCM COMMAND STATUS ACCELERATION PEDAL POSITION	SHIFT CHANGE FROM 4th TO 5th GEAR >5%	JUDGMENT FAULT: (MAX):2.5sec. MONITORING RUNS CONTINUOUSLY	

Note: 1): When Judgment A has failed, if Judgment B fails, SS C stuck on is detected. (See the diagram below)
2): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0



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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
A/T PRESSURE CONTROL SOLENOID A	P0746		STUCK OFF CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1) GRATIO 4)	JUDGMENT A: 1D<GRATIO<22	A/T FLUID TEMPERATURE(ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE 1st TO 2nd GEAR	JUDGMENT FAULT: (MAX): 20sec.(ATFT<0deg.C) (MAX): 13sec.(ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 2) GRATIO 4)	JUDGMENT B: REFER TO THE FOLLOWING TABLE 3)	A/T FLUID TEMPERATURE(ATFT) ECT VEHICLE SPEED ACCELERATION PEDAL DIFFERENCE ACCELERATION PEDAL CONDITION PCM COMMAND STATUS	>-20deg.C >10deg.C >0mph <6%/20msec. NOT CLOSED SHIFT CHANGING	JUDGMENT FAULT: IT REQUIRES THAT CONDITIONS a), b) AND c) ARE MET. (IN ANY ORDER) 3) MONITORING RUNS CONTINUOUSLY	

Note: 1): If Judgment A fails, A/T pressure control solenoid A stuck off is detected. (See the diagram on the next page)

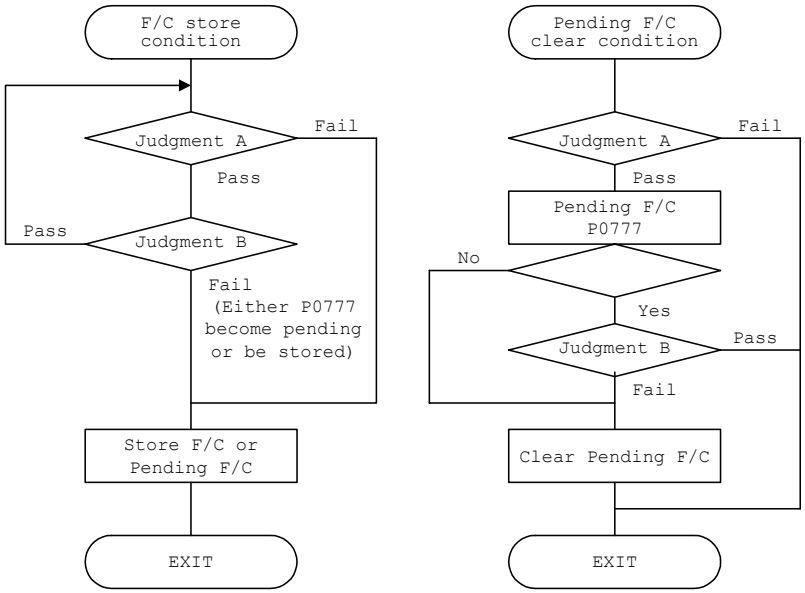
2): If Judgment B fails, it is suspected that one or more of the following has occurred:
A/T pressure control solenoid A stuck off or A/T pressure control solenoid B stuck on (P0777).
However, it's impossible to specify which one. In this case, both P0746 and P0777 become pending or are stored. (See the diagram on the next page)

3)

	THRESHOLD VALUE(GRATIO(HEX)) 4)	PCM COMMAND STATUSS
a)	<38 (@ more than 0.45sec.)	DURING 2ND TO 3RD
b)	<58 (@ more than 0.60sec.)	DURING 3RD TO 4TH
c)	<78 (@ more than 0.50sec.)	DURING 4TH TO 5TH

4): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0


F/C store condition
Judgment A
Fail
Pass
Pass
Judgment B
Fail (Either P0777 become pending or be stored)
Store F/C or Pending F/C
EXIT
Pending F/C clear condition
Judgment A
Fail
Pass
Pending F/C P0777
No
Yes
Judgment B
Pass
Fail
Clear Pending F/C
EXIT

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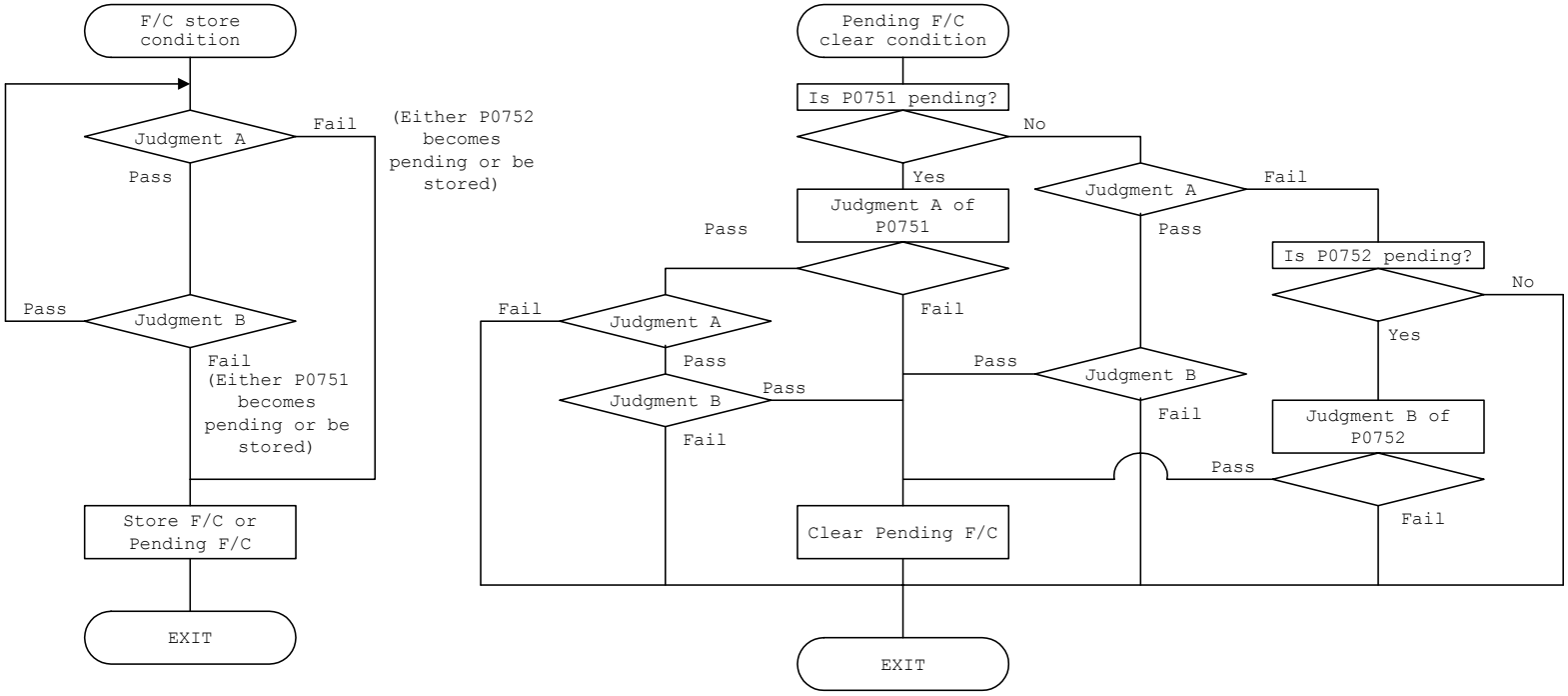
COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
A/T PRESSURE CONTROL SOLENOID A	P0747		STUCK ON CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1) GRATIO 3)	JUDGMENT A: 3D<GRATIO<42	A/T FLUID TEMPERATURE(ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 2nd TO 3rd GEAR	JUDGMENT FAULT: (MAX): 20sec. (ATFT<0deg.C) 13sec. (ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	2 D/C
				JUDGMENT B: 2) GRATIO 3)	JUDGMENT B: 7D<GRATIO<82	A/T FLUID TEMPERATURE(ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 4th TO 5th GEAR	JUDGMENT FAULT: (MAX): 20sec.(ATFT<0deg.C) (MAX): 13sec.(ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	

Note: 1): If Judgment A fails, it is suspected that one or more of the following has occurred:
SS A stuck on (P0752) or A/T pressure control solenoid A stuck on.
However, it's impossible to specify which one. In this case, both P0747 and P0752 become pending or are stored, and limp home mode (1st and 2nd gear) is activated. (See the diagram on the next page)

2): If Judgment B fails, it is suspected that one or more of the following has occurred:
SS A stuck off (P0751) or A/T pressure control solenoid A stuck on.
However, it's impossible to specify which one. In this case, both P0747 and P0751 become pending or are stored, and limp home mode (4th gear) is activated. (See the diagram on the next page)

3): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0


F/C store condition
Judgment A
Fail
Pass
Judgment B
Pass
Fail
(Either P0751 becomes pending or be stored)
(Either P0752 becomes pending or be stored)
Store F/C or Pending F/C
EXIT
Pending F/C clear condition
Is P0751 pending?
No
Yes
Judgment A of P0751
Pass
Fail
Judgment A
Pass
Fail
Judgment B
Pass
Fail
Judgment A
Fail
Pass
Judgment B
Pass
Fail
Is P0752 pending?
No
Yes
Judgment B of P0752
Pass
Fail
Clear Pending F/C
EXIT

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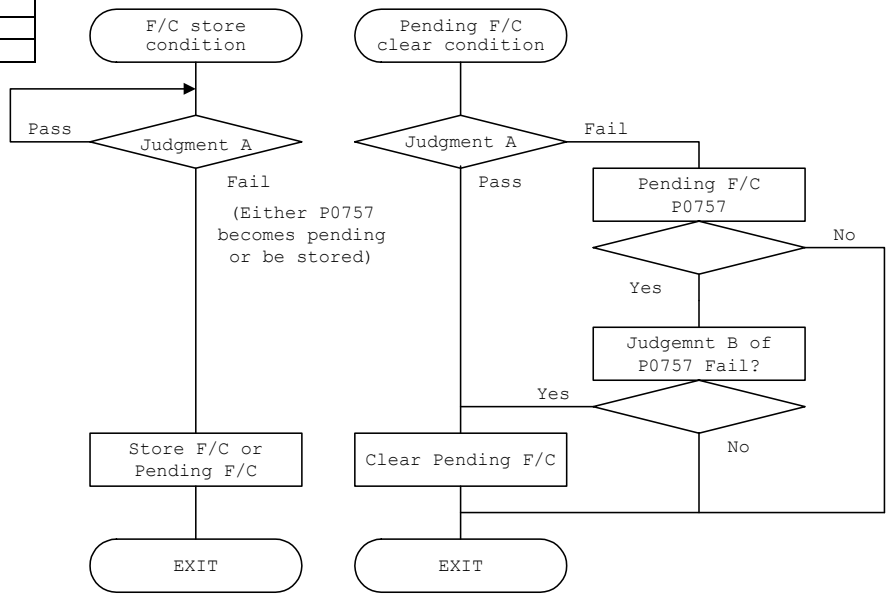
COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
A/T PRESSURE CONTROL SOLENOID B	P0776		STUCK OFF CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1) GRATIO 2)	JUDGMENT A: 5D<GRATIO<62	A/T FLUID TEMPERATURE(ATFT) PCM COMMAND STATUS	>-25deg.C SHIFT CHANGE FROM 3rd TO 4th GEAR	JUDGMENT FAULT: (MAX): 20sec.(ATFT<0deg.C) (MAX): 13sec.(ATFT>0deg.C) MONITORING RUNS CONTINUOUSLY	2 D/C

Note: 1): If Judgment A fails, it is suspected that one or more of the following has occurred:
SS B stuck on (P0757) or A/T pressure control solenoid B stuck off.
However, it's impossible to specify which one. In this case, both P0757 and P0776 become pending or are stored and limp home mode (1st, 2nd and 3rd gear) is activated. (See the diagram below)
2): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0



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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
A/T PRESSURE CONTROL SOLENOID B	P0777		STUCK ON CHECK BY GEAR RATIO (GRATIO)	JUDGMENT A: 1) GRATIO 3)	JUDGMENT A: REFER TO THE FOLLOWING TABLE 2)	A/T FLUID TEMPERATURE(ATFT) ECT VEHICLE SPEED ACCELERATION PEDAL DIFFERENCE ACCELERATION PEDAL CONDITION PCM COMMAND STATUS	>-20deg.C >10deg.C >0mph <6%/20msec. NOT CLOSED SHIFT CHANGING	JUDGMENT FAULT: IT REQUIRES THAT CONDITIONS a), b) AND c) ARE MET. (IN ANY ORDER) 3) MONITORING RUNS CONTINUOUSLY	2 D/C

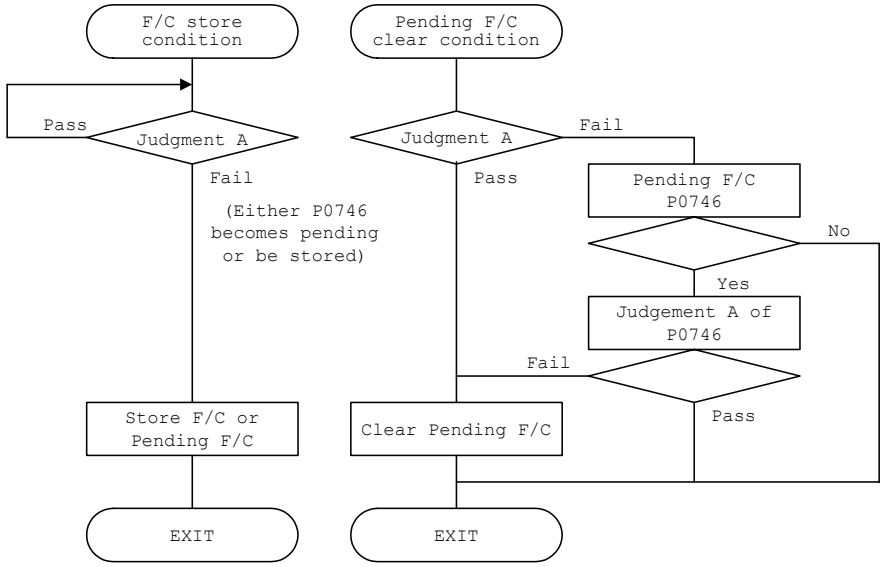
Note: 1): If Judgment A fails, it is suspected that one or more of the following has occurred:
A/T pressure control solenoid A stuck off (P0746) or A/T pressure control solenoid B stuck on
However, it's impossible to specify which one. In this case, both P0746 and P0777 become pending or are stored and limp home mode (4th gear) is activated. (See the diagram below)

2)

	THRESHOLD VALUE(sec.) GRATIO(HEX) 3)	PCM COMMAND STATUSS
a)	<38 (@ more than 0.45sec.)	DURING 2ND TO 3RD
b)	<58 (@ more than 0.60sec.)	DURING 3RD TO 4TH
c)	<78 (@ more than 0.50sec.)	DURING 4TH TO 5TH

3): GRATIO: The index indicated actual transmission gear ratio. It calculated from the countershaft speed (NC(rpm)) and the mainshaft speed (NM(rpm)).
GRATIO = k x NC / NM (k: compensation factor)
In normal A/T condition, relationship between the gear position and GRATIO is below.

Gear condition	GRATIO (HEX)
1st	20
2nd	40
3rd	60
4th	80
5th	A0



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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
A/T FLUID (ATF) TEMPERATURE SENSOR	P0711	F	STUCK CHECK HIGH	ATF Temp (ANALOG) ATF Temp DIFFERENCE	> 110deg.C > -5deg.C	ECT (ENGINE OFF) (before D/C) ECT (ENGINE START) ECT	>70deg.C <35deg.C >70deg.C	JUDGMENT FAULT OR PASS: 20 sec. MONITORING RUNS ONCE PER DRIVING CYCLE	STORING F/C: 1 D/C MIL ISN'T ILLUMINATED (IF FAILURE IS DETECTED, DEFAULT VALUE OF ATF TEMP IS TAKEN INSTEAD OF ACTUAL ATF TEMP SENSOR OUTPUT SO THAT OTHER OBD SYSTEMS USING ATF TEMP AS DISABLE CONDITION CAN CONTINUE RUNNING.)
			STUCK CHECK LOW	ATF Temp (ANALOG) ATF Temp DIFFERENCE	<-20deg.C <5deg.C	ECT (ENGINE START) ECT VEHICLE SPEED THROTTLE CONDITION	<35deg.C >70deg.C >19mph >4deg	JUDGMENT FAULT OR PASS: 300 sec. MONITORING RUNS ONCE PER DRIVING CYCLE	
	P0712		RANGE CHECK (LOW)	ATF Temp (ANALOG)	<0.07V (153deg.C)			JUDGMENT FAULT: 10 sec. MONITORING RUNS CONTINUOUSLY	
	P0713		RANGE CHECK (HIGH)	ATF Temp (ANALOG)	>4.93V (-45deg.C)				

Note: 1): Refer to section 16.09.05.00(A logic flowchart describing the general method of detecting malfunctions for each monitored emission-related component or system).