Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
Solenoid S1	P0973	Circuit continuity check	Short-cut ground Detect signal of the S1 monitor	"OFF"	DS Active V ¹ Time after solenoid output changed S1 driver outputs signal	TRUE >10 msec "ON"	500 msec Continuous	2nd
	P0974	-	Not connected or short-cut Ubatt Detect signal of the S1 monitor	"ON"	DS Active V ¹ Time after solenoid output changed	TRUE >10 msec	-	
Timing solenoid SLC1	P0966	Circuit continuity check	Short-cut ground or open Feedback current	< 20 mA	S1 driver outputs signal DS Active V ¹ Emergency mode No DTC set	"OFF" TRUE FALSE P0657 P0967 for 1 sec and over	500 msec Continuous	2nd
	P0967		Short-cut Ubatt (B+) Feedback current	>= 1358 mA	DS Active V ¹ Emergency mode No DTC set	TRUE FALSE P0657 P0966 for 1 sec and over	500 msec Continuous	2nd
ī	P0778		Feed Back Current Stuck(Electrical) Criteria1: ie	> 50 mA	Battery voltage Feedback current Emergency mode DS Active V ¹ No DTC set	> 10.5 V for 500 msec continuously < 1358 mA FALSE TRUE P0966 P0967 P0657	2000 msec Continuous	2nd
			Criteria2: sum_ie "ie" is added to "sum_ie" every 10 msec. "ie" : Difference of "ir" and "ifb". "ir": Target current "ifb": Feedback current "sum_ie" is cleared as follows: (1) or (2) or (3) (1): Detection window = FALSE (2): -50 mA <= ie <= 50 mA (3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie >0mA" ("ie < 0mA").	>20000 mA	Battery voltage Feedback current Emergency mode DS Active V ¹ No DTC set	> 10.5 V for 500 msec continuously < 1358 mA FALSE TRUE P0966 P0967 P0657	sum_ie > 60000mA	
Timing solenoid SLC2	P0970	Circuit continuity check	Short-cut ground or open Feedback current	< 20 mA	DS Active V ¹ Emergency mode No DTC set	TRUE FALSE P0657 P0971 for 1 sec and over	500 msec Continuous	2nd
	P0971		Short-cut Ubatt (B+) Feedback current	>= 1358 mA	DS Active V ¹ Emergency mode No DTC set	TRUE FALSE P0657	500 msec Continuous	2nd

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumii
						P0970 for 1 sec and		
						over		
	_				-			
	P0798		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec	2000 msec	2nd
						continuously	Continuous	
			Criteria1:		Feedback current	< 1358 mA		
			ie	> 50 mA	Emergency mode	FALSE		
					DS_Active_V1	TRUE		
					No DTC set	P0970		
						P0971 P0657		
						F0037		
			Criteria2:		Battery voltage	> 10.5 V for 500 msec	sum_ie >	-
					, ,	continuously	60000mA	
			sum_ie	>20000 mA	Feedback current	< 1358 mA		
			"ie" is added to "sum_ie" every 10 msec.		Emergency mode	FALSE	1	
	1		"ie" : Difference of "ir" and "ifb".		DS_Active_V1	TRUE	1	
	1		"ir" : Target current		No DTC set	P0970	1	
			"ifb": Feedback current			P0971		
			"sum_ie" is cleared as follows:			P0657		
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie					
			>0mA" ("ie < 0mA").					
ing solenoid SLC3	P2720	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	< 20 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P2721 for 1 sec and		
						over		
	P2721		Short-cut Ubatt (B+)			TRUE	500 msec	2nd
	F2/21		Feedback current	>= 1358 mA	DS Active V ¹ Emergency mode	FALSE	Continuous	Znu
			Feedback current	>= 1556 IIIA		P0657	Continuous	
					No DTC set			
						P2720 for 1 sec and over		
	P2716		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec	2000 msec	2nd
	1					continuously	Continuous	
			Criteria1:		Feedback current	< 1358 mA	1	
			ie	> 50 mA	Emergency mode	FALSE	1	
	1				DS Active V ¹	TRUE	1	
					No DTC set	P2720	1	
						P2721	1	
						P0657		
				L	Dette mension	10.5.1/(-
			Criteria2:		Battery voltage		sum_ie > 60000mA	
			and the	00000	E It I	continuously	AMUUUUMA	
			sum_ie	>20000 mA	Feedback current	< 1358 mA	1	
			"ie" is added to "sum_ie" every 10 msec.		Emergency mode	FALSE	1	
			"ie" : Difference of "ir" and "ifb".		DS Active V ¹	TRUE	1	
	1	1	"ir" : Target current	1	No DTC set	P2720	1	1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin
			"ifb": Feedback current "sum_ie" is cleared as follows:			P2721 P0657		
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie					
			>0mA" ("ie < 0mA").					
ning solenoid SLB1	P2729	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	< 20 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P2730 for 1 sec and		
						over		
	P2730		Short-cut Ubatt (B+)		DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	>= 1358 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P2729 for 1 sec and		1
						over		
	P2727		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec	2000 msec	2nd
					, , , , , , , , , , , , , , , , , , , ,	continuously	Continuous	
			Criteria1:		Feedback current	< 1358 mA		
			ie	> 50 mA	Emergency mode	FALSE		
				> 50 MA	DS Active V ¹	TRUE		
					No DTC set	P2729		
				NO DIC Set				
						P2730 P0657		
			Criteria2:	+	Battery voltage	> 10.5 V for 500 msec	sum ie >	-
			Gillenaz.		Dattery voltage	continuously	60000mA	
			sum_ie	>20000 mA	Feedback current	< 1358 mA	000001111	
			"ie" is added to "sum_ie" every 10 msec.	>20000 mA	Emergency mode	FALSE		
			"ie" : Difference of "ir" and "ifb".			TRUE		
			"ir" : Target current		DS Active V ¹ No DTC set	P2729		
			0		NO DIC Set			
			"ifb": Feedback current			P2730		
			"sum_ie" is cleared as follows:			P0657		
			(1) or (2) or (3)					
			(1): Detection window = FALSE				1	1
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie >0mA" ("ie < 0mA").					
essure solenoid SLT	P0962	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	< 20 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P0963 for 1 sec and		
						over		
	P0963		Short-cut Ubatt (B+)	(050 A	DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	>= 1358 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P0962 for 1 sec and		
		1				over	1	1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumi
								1
	P0748		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec	2000 msec	2nd
					, ,	continuously	Continuous	
			Criteria1:		Feedback current	< 1358 mA		
			ie	> 50 mA	Emergency mode	FALSE		
				> 50 mA	DS Active V ¹	TRUE		
					No DTC set	P0962		
					NO DIC Set	P0963		
						P0983 P0657		
						P0657		
				_			·	-
			Criteria2:		Battery voltage	> 10.5 V for 500 msec	sum_ie >	
						continuously	60000mA	
			sum_ie	>20000 mA	Feedback current	< 1358 mA		
			"ie" is added to "sum_ie" every 10 msec.		Emergency mode	FALSE		
			"ie" : Difference of "ir" and "ifb".		DS Active V ¹	TRUE		
			"ir" : Target current		No DTC set	P0962		
			"ifb": Feedback current			P0963		
			"sum_ie" is cleared as follows:			P0657		
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value canness from "ie < 0 mA" ("ie >0 mA") to "ie					
			>0mA" ("ie < 0mA").					
e solenoid SLU P2764 Circuit continuity check	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE	500 msec	2nd	
			Feedback current	< 20 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P2763 for 1 sec and		
						over		
	00700					70.05	=	
	P2763		Short-cut Ubatt (B+)	1050 1	DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	>= 1358 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P2764 for 1 sec and		
						over		
	P2761		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec	2000 msec	2nd
						continuously	Continuous	
			Criteria1:		Feedback current	< 1358 mA		
			ie	> 50 mA	Emergency mode	FALSE		
			h		DS Active V ¹	TRUE		1
					No DTC set	P2764		
						P2763		1
						P0657		
						F 0007		
			Criteria2:		Battery voltage	> 10.5 V for 500 msec		1
						continuously	60000mA	1
			sum_ie	>20000 mA	Feedback current	< 1358 mA		
			"ie" is added to "sum_ie" every 10 msec.		Emergency mode	FALSE		
			"ie" : Difference of "ir" and "ifb".		DS Active V ¹	TRUE		1
			"ir" : Target current		No DTC set	P2764		1
			"ifb": Feedback current			P2763		
	1	1	"sum_ie" is cleared as follows:	1		P0657	1	1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin.
			(1) or (2) or (3)			1		
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie					
			>0mA" ("ie < 0mA").					
Linear solenoid driver	P0657		Malfunction		DS_Active_V ¹	TRUE	400 msec	2nd
			Linear solenoid driver status	= abnormal		-	Cntinuous	
							onundodo	
ransmission Output speed	D0700		Ne sules		16	TRUE	Denendent	2nd
	P0722		No pulse		DS Active EG V ¹⁶		Dependent	zna
ensor					Emergency mode		of Speed	
			Number of pulses from Transmission Output Speed		Shift position	RANGE_D(defined)		
			Sensor	0				
			Number of pulses from Transmission Input Speed	16	Not during Neutral control			
			Sensor		T_NConFin ¹⁴ msec after Neutral			
					control			1
					Not during shifting			
					T ShiftFin ¹⁴ msec after shifting			
					Not during garage control			
					T_GarageFin14 msec after garage			1
					control			1
					Not during C1 OFF control			
					T_C1ctrlFin ¹⁵ msec after C1 OFF			
					control			
					Not during C2 OFF control			
					T_C3ctrlFin ¹⁵ msec after C2 OFF			
					control			
					Not in Engine stall avoidance control			
					outRpmNC	>= 300 rpm		
					No DTC set	P0705		
						P0707		
						P0708		
						P0717		
						P0715		
						P0748		
						P0778		
						P0798		
						P0962		
						P0963		
						P0966		1
						P0967		
						P0970		
								1
						P0971		
						P0973		1
						P0974		1
						P2716		
						P2720		1
						P2721		
								1
						P2727		
						P0657		
	1					P0720	1	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
						P2730		
	P0720	Circuit continuity check	Electrical Failure (B+ short / GND short / Open) NINM-voltage (AD value)	< 0.206V or > 2.727V (< 45 or > 545)	DS Active V ¹	TRUE	1000 msec Consecutive	2nd
Fransmission input speed sensor	P0717		No pulse		DS_Active_EG_V ¹⁶ Emergency mode	TRUE FALSE	Dependent of Speed	2nd
			No of pulses from Transmission Input Speed Sensor No of pulses from Transmission Output Speed Sensor		Shift position CurrentGear Not during Neutral control T_NConFin ¹⁴ msec after Neutral control Not during shifting T_GarageFin ¹⁴ msec after garage control Not during C1 OFF control T_C1ctrlFin ¹⁵ msec after C1 OFF control Not in Engine stall avoidance control Transmission Output Speed No DTC set	RANGE_D(defined) >= 2nd gear >= 300 rpm P0705 P0707 P0708 P0722 P0720 P0728 P0722 P0720 P0748 P0778 P0798 P0963 P0963 P0963 P0966 P0967 P0971 P0971 P0971 P0973 P0974 P2716 P2720 P2721 P2727 P0657 P0715 P2729 P2730		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin.
	P0715	Circuit continuity check	Electrical Failure (B+ short / GND short / Open)		DS Active V ¹	TRUE	1000 msec	2nd
			NOUTM-voltage	< 0.206V or > 2.727V			Consecutive	
			(AD value)	(< 45 or > 545)				
ransmission Range	P0707	Voltage low	Input POS1 Voltage or Input POS2 Voltage	< 0.127V	Diagnosis Service mode	FALSE	200msec	2nd
ensor Circuit		-			Battery voltage	9V < Battery Voltage	Continuous	
					, ,	<= 18 V		
	P0708	Voltage high	Input POS1 Voltage or Input POS2 Voltage	> 4.84V	Diagnosis Service mode	FALSE	200 msec	2nd
		0 0			Battery voltage	9V < Battery Voltage	Continuous	
					, 0	<= 18 V		
	P0705	Signal out of range	Input POS1 Voltage + Input POS2 Voltage	< 5V -0.29V or > 5V +0.29V	Diagnosis Service mode	FALSE	200 msec	2nd
					Battery voltage			
					Dation, Voltago	< 18 V	Contandodo	
					No DTC set	P0707		
						P0708		
						1 0/00		
ransmission oil	P0711	Rationality	Criteria1:		Oil temperature	<= 20deg.C	10 min	2nd
emperature sensor		i totoriunty	Oil temperature change less than	10 (AD value)	DS Active EG V ¹⁶	TRUE		
inportaturo ocnoor			On temperature change less than	TO (AD Value)	AD value of oil temperature	>= 10		
					AD value of oil temperature	>= 10 <= 1010		
						FALSE		
					Emergency mode			
					Shift position	\neq (P, R or N)		
					Vehicle Speed	>= 40km/h once		
					No DTC set	P0705		
						P0707		
						P0708		
						P0711		
						P0712		
						P0713		
			Criteria2:		DS Active EG V ¹⁶	TRUE	1 time	
			Oil temperature	< 20deg.C	AD value of oil temperature	>= 10		
					AD value of oil temperature	<= 1010		
					Emergency mode	FALSE		
					Estimated heating value	>= MAP		
					Engine speed	Q NORMAL ¹⁶		
					No DTC set	P0717		
					NO DI C Set	P0715		
						P0715		
						P0712		
						P0712 P0713		
						PU/13		
		1	Object and second			TRUE	60 sec	2nd
	P0712	Circuit continuity chock			DS Active V ¹	INUE	UU SEC	2110
	P0712	Circuit continuity check	Short-cut ground	< 10 (More than 200deg C)				
			AD value of Oil temperature	< 10 (More than 200deg.C).		TRUE	12 sec	2nd
	P0712 P0713	Circuit continuity check Circuit continuity check	AD value of Oil temperature Short-cut Ubat or open circuit		DS Active EG V ¹⁶	TRUE	12 sec	2nd
anition Quitab Duo/Stat	P0713	Circuit continuity check	AD value of Oil temperature Short-cut Ubat or open circuit AD value of Oil temperature	> 1010 (less than -55deg.C)	DriveTime	> 1 min		
			AD value of Oil temperature Short-cut Ubat or open circuit		DriveTime DS Active ACC ⁴	> 1 min TRUE	12 sec 20 sec	2nd 2nd
	P0713	Circuit continuity check	AD value of Oil temperature Short-cut Ubat or open circuit AD value of Oil temperature	> 1010 (less than -55deg.C)	DriveTime DS Active ACC ⁴ Emergency mode	> 1 min TRUE FALSE		
	P0713	Circuit continuity check	AD value of Oil temperature Short-cut Ubat or open circuit AD value of Oil temperature	> 1010 (less than -55deg.C)	DriveTime DS Active ACC ⁴ Emergency mode Engine speed	> 1 min TRUE FALSE > 400rpm		
gnition Switch Run/Start Position	P0713	Circuit continuity check	AD value of Oil temperature Short-cut Ubat or open circuit AD value of Oil temperature	> 1010 (less than -55deg.C)	DriveTime DS Active ACC ⁴ Emergency mode	> 1 min TRUE FALSE		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin.
Memory			checksum calculation executed after IG ON and the correct checksum. If there are differences from the correct checksum value stored in the FLASH ROM, a second calculation is made.					
Control Module Programming	P0602	Control Module Programming	Calibration data is not downlord properly.		None		1 time	1st
Non volatile memory	P0603	Read / Write error	To detect calculated checksum in RAM is different from checksum value in EEPROM. TCM has two areas (main and sub) for EEPROM. This failure is detected when both areas are wrong.		Accessory	OFF->ON (only at T/M computer initialization function)	1 time	1st
Random access memory	P0604	Read / Write error	To detect different value between write and read (Step1 and Step2, Step3 and Step4) while TCM checks all RAM from step 1 to step 4 in initialize routine. Step 1. TCU writes 55(hex) data in the ram. Step 2. TCU reads 55(hex) data in the ram. Step 3. TCU writes AA(hex) data in the ram. Step 4. TCU reads AA(hex) data in the ram.		Accessory	OFF->ON (only at T/M computer initialization function) ON	1 time	1st
CAN Bus Off Counter Overrun	U0001	CAN controller continuity check	Receiving "BUS OFF" state from CAN controller		DS Active ACC ⁴	TRUE	8 times	2nd
Lost communication with ECM (Engine)	U0100	Frame missing from ECM	No CAN status frame from ECM detected		Diagnostic Service "Disable Norma detected Accessory DS Active CAN ² No DTC set	al Communication" not ON >5 sec TRUE U0001	4 sec Continuous	2nd
Gear error, hydraulic fault	P0731	Rationality	Calculation of actual gear ratio for 1st gear is not correct. abs(1 - GRCurrent/ 2nd GearRatio) or abs(1 - GRCurrent/ 3rd GearRatio) or	< 4% < 4%	Current Gear Transmission Output Speed EngineTorque_noACC Transmission Input Speed Transmission Input Speed ConditionA ¹³	1st > 60rpm >= 60Nm (GEAR_1ST) <=6000rpm (gasoline engine) <=4000rpm (dissel engine) TRUE	2.5sec Continuous	2nd
	P0732	Rationality	abs(1 - GRCurrent/ 4th GearRatio) Calculation of actual gear ratio for 2nd gear is not correct. (Criteria1 or Criteria2)	< 4%			12 sec Continuous	2nd
			Criteria1: abs(1-GRCurrent/GRExpected)	>20%	Current gear Transmission Output Speed ConditionA ¹³ No DTC set	2nd >= 60rpm TRUE P0732 (Criteria2)	Continuous	

omponent/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		M
System	Code	Description	Criteria	Value			Required	Illu
			Criteria2:				2.5 sec	-
			abs(1-Gear Ratio Current/ 3rd Gear Ratio)	<4%	Current goor	and	Accumulate	
				<4%	Current gear	2nd	Accumulate	
			or		Transmission Output Speed	>= 60rpm		
			abs(1-Gear Ratio Current/ 4th Gear Ratio)	<4%	ConditionA ¹³	TRUE		
			or		InTorque	>=30Nm or <=-20Nm		
			abs(1-Gear Ratio Current/ 6th Gear Ratio)	<4%				
	P0733	Rationality	Calculation of actual gear ratio for 3rd gear is not correct.				12 sec	2nd
	F 07 33	Rationality	(Criteria1 or Criteria2)					Znu
							Continuous	
			Criteria1:		Current gear	3rd		
			abs(1-GRCurrent/GRExpected)	>20%	Transmission Output Speed	>= 60rpm		
					ConditionA ¹³	TRUE		
					No DTC set	P0733		
						(Criteria2)		
						(Chienaz)		
				_			+	-
			Criteria2:		Current gear	3rd	2.5 sec	
			abs(1-Gear Ratio Current/ 2nd Gear Ratio)	<4%	Transmission Output Speed	>= 60rpm	Accumulate	1
			or		ConditionA ¹³	TRUE		1
			abs(1-Gear Ratio Current/ 4th Gear Ratio)	<4%	InTorque	>=30Nm or <=-20Nm		
			or		~ d ==			1
			abs(1-Gear Ratio Current/ 5th Gear Ratio)	<4%				
			abs(1-Geal Ratio Current, Still Geal Ratio)	<470				
	P0734	Rationality	Calculation of actual gear ratio for 4th gear is not correct.				12 sec	2nd
	F 07 34	Rationality	(Criteria1 or Criteria2)					Znu
							Continuous	
			Criteria1:		Current gear	4th		
			abs(1-GRCurrent/GRExpected)	>20%	Transmission Output Speed	>= 60rpm		
					ConditionA ¹³	TRUE		
					No DTC set	P0734		
						(Criteria2)		
						()		
			Criteria2:		Current gear	4th	2.5 sec	-
				- 40/				
			abs(1-Gear Ratio Current/ 2nd Gear Ratio)	<4%	Transmission Output Speed	>= 60rpm	Accumulate	
			or		ConditionA ¹³	TRUE		
			abs(1-Gear Ratio Current/ 3rd Gear Ratio)	<4%	InTorque	>=30Nm or <=-20Nm		
			or					
			abs(1-Gear Ratio Current/ 5th Gear Ratio)	<4%				
			or					1
			abs(1-Gear Ratio Current/ 6th Gear Ratio)	<4%				1
				10				1
							l	1
	P0735	Rationality	Calculation of actual gear ratio for 5th gear is not correct				12 sec	2nd
	P0735	Rationality	Calculation of actual gear ratio for 5th gear is not correct.				12 sec	2nd
	P0735	Rationality	(Criteria1 or Criteria2)				12 sec Continuous	2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1:		Current gear	5th		2nd
	P0735	Rationality	(Criteria1 or Criteria2)	>20%	Current gear Transmission Output Speed	>= 60rpm		2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1:	>20%	Transmission Output Speed			2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1:	>20%		>= 60rpm TRUE		2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1:	>20%	Transmission Output Speed ConditionA ¹³	>= 60rpm TRUE P0735		2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1:	>20%	Transmission Output Speed	>= 60rpm TRUE		2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1: abs(1-GRCurrent/GRExpected)	>20%	Transmission Output Speed ConditionA ¹³ No DTC set	>= 60rpm TRUE P0735 (Criteria2)	Continuous	2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1: abs(1-GRCurrent/GRExpected) Criteria2:		Transmission Output Speed ConditionA ¹³ No DTC set Current gear	>= 60rpm TRUE P0735 (Criteria2) 5th	Continuous 2.5 sec	2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1: abs(1-GRCurrent/GRExpected)	>20% <4%	Transmission Output Speed ConditionA ¹³ No DTC set Current gear Transmission Output Speed	>= 60rpm TRUE P0735 (Criteria2) 5th >= 60rpm	Continuous	2nd
	P0735	Rationality	(Criteria1 or Criteria2) Criteria1: abs(1-GRCurrent/GRExpected) Criteria2:		Transmission Output Speed ConditionA ¹³ No DTC set Current gear	>= 60rpm TRUE P0735 (Criteria2) 5th	Continuous 2.5 sec	2nd

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumir
			or					
			abs(1-Gear Ratio Current/ 6th Gear Ratio)	<4%				
	D 0700				_		10	
	P0729	Rationality	Calculation of actual gear ratio for 6th gear is not correct. (Criteria1 or Criteria2)				12 sec	2nd
			Criteria1:		Current gear	6th	Continuous	
			abs(1-GRCurrent/GRExpected)	> 20%	Transmission Output Speed	>= 60rpm		
			abs(1-Orcourtent Orcexpected)	2070	ConditionA ¹³	TRUE		
					ConditionA	P0729		
					No DTC set	(Criteria2)		
						· · · ·		
			Criteria2:		Current gear	6th	2.5 sec	
			abs(1-Gear Ratio Current/ 2nd Gear Ratio)	<4%	Transmission Output Speed	>= 60rpm	Accumulate	
			or		ConditionA ¹³	TRUE		
			abs(1-Gear Ratio Current/ 4th Gear Ratio)	<4%	InTorque	>=30Nm or <=-20Nm		
			or sho(1 Coor Potio Current/ 5th Coor Potio)	-49/				1
			abs(1-Gear Ratio Current/ 5th Gear Ratio)	<4%				1
orque Converter Clutch	P0741	Comparison of engine speed and	Converter is slipping with active lock-up on.		DS Active EG V ¹⁶	TRUE	12 sec	2nd
		transmission input speed	(Engine Speed - Transmission Input Speed)	> 300rpm	Fdetect inh ⁵	FALSE	Continuous	2.1.0
			(3		Shift position	RANGE_D(defined)		
					Time after N-D shifting control ¹⁰ ends	8 sec		
					Engine Torque	>= 0 Nm		
					Engine Speed	< 4000 rpm		
					Time after SLU target current (_ir) >= 1000 mA	Time_SLU_Full ¹⁸ sec		
					Oil temperature	>= -7deg.C		
					Lock-up	FALSE		
					Not during garage control			
					T_GarageFin ¹⁴ msec after garage			
					control			
					Not during shifting T_ShiftFin ¹⁴ msec after shifting			
					No DTC set	P2763		
						P2764		
						P2761		
						P0715		
						P0717		
						P0720		
						P0722		
-usual shifting	P0869	SLC1 MAX	count fail SLC1MAX usft 17	>= 5times	DS_Active_EG_V16	TRUE	1 time	2nd
addar drinning	1 0000		COUNT TAIL SECTIVIAN USIT		Fdetect inh ⁵	FALSE		210
					Time after N-D Shifting Control ¹⁰	This timer is based on		
					ends	oil temperature.		
					Not during garage control			
		SLC2 MAX	count_fail_SLC2MAX_usft 17	>= 5times	T_GarageFin ¹⁴ msec after garage			
					control			
					Shift position	RANGE_D(defined)		
	1				Not during Neutral control	1		1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin.
		SLC3 MAX	count_fail_SLC3MAX_usft ¹⁷	>= 5times	T_NConFin ¹⁴ msec after Neutral control Time after neutral control ends wheel spin condition	This timer is based on oil temperature. FALSE		
		SLB1 MAX	count fail SLB1MAX usft ¹⁷	>= 5times	Transmission Output Speed Oil temperature Tmr_inh_GE ¹⁴ sec after shift to safe gear No DTC set	>300rpm >= -20 °C P0715 P0717 P0720 P0722		
Neutral condition	P0965		Step 1: abs(Engine Speed - Transmission Input Speed) Transmission Input Speed (at D range)	<300rpm > Transmission Output Speed x (1st gear ratio at RANGE_D) + revNfaildet ¹⁹ rpm	DS Active EG V ¹⁶ Fdetect_Inh ⁵ Oil temperature Shift position Not during shifting T ShiftFin ¹⁴ msec after shifting Not during garage control(N-D) T_GarageFin ¹⁴ msec after garage control	TRUE FALSE >= -7deg.C RANGE_D(defined)	Step 1: at D range: 3.3 sec if (0 <= X <= 1500) 1.3 sec if (1501 <= X <= 3000)	2nd
			Step 2: Transmission Input Speed Engine Speed Shift position	<200rpm >600rpm RANGE_D(defined)	Not during Neutral control T_NConFin ¹⁴ msec after Neutral control Transmission Output Speed Lockup Current gear QS AirSuction ⁶ Prohibit Neutral Judgment flag No DTC set	<=500rpm FALSE 1 or 2 or 3 or 4 FALSE FALSE P0717 P0722 P0715 P0720	0.8 sec if (3001 <= X) Step 2: 0.3sec	-

1)DS_Active_V

DS_Active_V = TRUE when start condition for failure detection is fulfilled for 2.0 sec continuously.

DS_Active_V = FALSE when permission condition for failure detection is not fulfilled.

Start Condition for failure detection: Ignition ON and 10.2V < Battery Voltage <= 18V and Not in service mode and Reading EEPROM finish Permission condition for failure detection:

Ignition ON and

9.0V < Battery Voltage <= 18V and Not in service mode

2) DS_Active_CAN

DS_Active_CAN = TRUE when the start condition for CAN failure detection is fulfilled for 5.0 sec continously.

DS_Active_CAN = FALSE when the permission condition for CAN failure detection is not fulfilled.

Start Condition for failure detection:

Ignition ON and 10.2V < Battery Voltage <= 18V and Not in service mode and Reading EEPROM finish Permission condition for failure detection: Ignition ON and

9.0V < Battery Voltage <= 18V and Not in service mode

3)DS_Active_EG_V

DS_Active_EG_V = TRUE when start condition for failure detection is fulfilled for 2.0 sec continuously.

DS_Active_EG_V = FALSE when permission condition for failure detection is not fulfilled.

Start Condition for failure detection:

Ignition ON and 10.2V < Battery Voltage <= 18V and Not in service mode and Reading EEPROM finish and Egrpm > 400rpm and Egrpm = Q_NORMAL¹⁶ Bus off, ECU no communication = Q_NORMAL¹⁶

Permission condition for failure detection:

Ignition ON and 9.0V < Battery Voltage <= 18V and Not in service mode and Egrpm > 400rpm and Egrpm = Q_NORMAL¹⁶ Bus off, ECU no communication = Q_NORMAL¹⁶

4) DS_Active_ACC

DS_Active_ACC = TRUE when the start condition for failure detection is fulfilled for 2.0 sec continously. DS_Active_ACC = FALSE when the permission condition for failure detection is not fulfilled. Start Condition for failure detection:

Accessory ON or Ignition OX and 10.2V < Battery Voltage <= 18V and Not in service mode and Reading EEPROM finish Permission condition for failure detection: Accessory ON or Ignition ON and 9.0V < Battery Voltage <= 18V and Not in service mode

⁵⁾ Fdetech_Inh = TRUE if:

In Emergency mode or Spinning⁷ = TRUE or within 10.0 sec after spinning⁷ detection end or DTC set: P0973, P0974, P0966, P0967, P0970, P0971, P2720, P2721, P2729, P2730, P0962, P0963, P2763, P0717, P0722, P0705, P0707, P0708, P0562, P0563, U0001, U0100, P0601, P0711, P0712, P0713, P2534, P0604, P0778, P0798, P2716, P0748, P2761, P2727, P0657, P0720, P0715,

Not in Neutral avoidance control Not in Engine stall avoidance control

Not in Engine stall avoidance contr Egrpm = Q NORMAL¹⁶ Egtrq = Q NORMAL¹⁶

Accel = Q NORMAL¹⁶

⁶⁾QS_AirSuction : Quick stop detection flag for the prevention of failure misdetection for Air suction, is set if the vehicle brakes hard.

⁽⁾ Spinning: If "LateralACC > 7.00m/s^2", Spinning is TRUE.

LateralACC[m/s^2] = (WheelDiff[m/s] WheelSpeedABS[m/s]) / WheelWidth[m]) WheelDiff ... "WheelSpeed RR" - "WheelSpeed RL" WheelWidth... The width of the Wheel.

8) Wheel spin condition

(1) 300 rpm < outRpm < 3000rpm
(2) Egtorque_noACC > -500Nm
(3) ABS (vehicle front wheels average speed - vehicle rear wheels average speed) > 5.0 km/h
(4) Throttle > 70 %
(5) outRpmSpeed < -50rpm/sec
{1(1)and(2)and(3)or{ (1)and(4)and(5)}continuously detected for 300 msec
After that, Wheel spin condition = TRUE continuously 10000 msec

9) EngineTorque_noACC

Engine output torque, acceleration inertia torque not included.

¹⁰⁾ Shifting Control

"Shifting Control" is activated when the transmission is in between two gears (undefined gear ratio), until applied pressure has reached to full

11) "Neutral Control"

Neutral Control is activated if the vehicle is at stand still and in range D with the brake pressed for 2 seconds until the brake is released.

12) "Garage Shifting"

"Garage Shifting Control" is activated when the range selector changes from N to D or R until appropriate Gear Ratio is detected.

¹³⁾ ConditionA = TRUE if:

DS Active EG V³ = TRUE and Fdetect_Inh⁵ = FALSE and Garage shifting control¹²(N-D or N-R) = FALSE and T_GarageFin sec¹⁴ after garage shift control¹² end and Neutral control¹¹ = FALSE and T_NConFin¹⁴ after neutral control¹¹ end and Shifting control¹⁰ = FALSE and T_ShiftFin¹⁴ after shifting control¹⁰ end and RANGE_D (defined signal) and Oil temperature >= -20 deg.C and QS_AirSuction⁶ = FALSE and No DTC set: PO717, PO715, PO722, PO720

14)

Const Data	< -20	>= -20 deg.C< -10	>= -10 deg.C< 20	
	deg.C	deg.C	deg.C	>= 20 deg.C
T_GarageFin [msec]	50000	8000	2000	1000
T_NConFin [msec]	50000	8000	2000	1000
T_ShiftFin [msec]	50000	2000	1000	500
Tmr_inh_GE [msec]	50000	2000	1000	500

15)			
Const Data	< GE_OT	>= GE_OT1	>=
	1	< GE_OT2	GE_OT2
T_C1ctrlFin [msec]	50000	20000	8000
T_C3ctrlFin [msec]	50000	20000	8000

16) Q_NORMAL

Q_NORMAL menas that no failure is detected

¹⁷⁾ count_fail_SLC1MAX_usft, count_fail_SLC2MAX_usft, count_fail_SLB1MAX_usft When the following shift conditions are satisfied, increments the counter of count_fail_SLXXMAX_usft.

ndition	A-1*	A-2*	B-1*	B-2*	D*	E*
	4-5, 4-6,	772	51	52	5	L
SLC1MAX_usft	2-6, 3-5	-	-	-	6-2, 5-3	5-6, 6-5, 6-4, 5-4
		4-3, 4-2,				1-2, 1-3, 2-3, 2-4,
SLC2MAX_usft	-	5-3, 6-2	-	-	2-6, 3-5, 2-1, 1-1EB	3-4, 3-2, 3-1, 2-1
						1-2, 1-3, 2-3, 2-4, 4-3,
						4-2, 2-1, 2-1EB, 1EB-1,
SLC3MAX_usft	3-4, 5-6	5-4, 3-2	-	-	2-6, 4-5, 4-6, 4-2 4-3, 6-2	1-1EB, 4-5, 4-6, 6-5, 6-4
						1-2, 1-3, 3-4, 3-2,
						3-1, 1EB-1,1-1EB,
SLB1MAX_usft	2-3, 2-4	6-5, 6-4, 2-1EB	3-4	4-3	3-5, 4-5, 4-6, 5-6, 3-1, 3-2, 4-2, 5-3, 5-4	4-5, 4-6, 5-6, 5-4, 4-2

*Refer to Un-usual shifting Condition for the detail of "A-1, A-2, B-1, B-2, D, E"

11	B)		

	OT < 20	
OilTemp [deg.C]	deg.C	OT >= 20 deg.C
Time_SLU_Full [msec]	3000	3000

19)

OilTemp [deg.C]		OT < 0 deg.C	OT >= 0 deg.C	
revNfaildet [rpm]	R range	1200	1000	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
	Daart					70.15	500	
Solenoid S1	P0973	Circuit continuity check	Short-cut ground		DS_Active_V ¹	TRUE	500 msec	2nd
			Detect signal of the S1 monitor	"OFF"	Time after solenoid output changed	>10 msec	Continuous	
	P0974		Not connected or short-cut Ubatt		S1 driver outputs signal	"ON" TRUE		
			Detect signal of the S1 monitor	"ON"	Time after solenoid output changed	>10 msec		
					S1 driver outputs signal	"OFF"		
Timing solenoid SLC1	P0966	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE		2nd
			Feedback current	< 20 mA	Emergency mode No DTC set	FALSE P0657 P0967 for 1 sec and over	Continuous	
	P0967		Short-cut Ubatt (B+)		DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	>= 1358 mA	Emergency mode No DTC set	FALSE P0657 P0966 for 1 sec and over	Continuous	
	P0778		Feed Back Current Stuck(Electrical)		Battery voltage		2000 msec Continuous	2nd
			Criteria1:	> 50 mA	Feedback current Emergency mode	< 1358 mA FALSE		
					DS_Active_V ¹	TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
System	Code	Description	Giteria	Value	No DTC set	P0966 P0967 P0657	Required	
			Criteria2:		Battery voltage	> 10.5 V for 500 msec continuously	sum_ie > 60000mA	
			sum_ie	>20000 mA	Feedback current Emergency mode	< 1358 mA FALSE		
			"ie" is added to "sum_ie" every 10 msec.		DS_Active_V ¹	TRUE		
			"ie" : Difference of "ir" and "ifb". "ir" : Target current		No DTC set	P0966		
			"ifb": Feedback current			P0967 P0657		
			"sum_ie" is cleared as follows:					
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie >0mA" ("ie < 0mA").					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
Timing solenoid SLC2	P0970	Circuit continuity check	Short-cut ground or open Feedback current	< 20 mA	DS Active V ¹ Emergency mode No DTC set	TRUE FALSE P0657 P0971 for 1 sec and	500 msec Continuous	2nd
	P0971		Short-cut Ubatt (B+)		DS Active V ¹	over	500 msec	2nd
			Feedback current	>= 1358 mA	Emergency mode No DTC set	FALSE P0657 P0970 for 1 sec and over	Continuous	
	P0798		Feed Back Current Stuck(Electrical) Criteria1:		Battery voltage Feedback current	> 10.5 V for 500 msec continuously < 1358 mA	2000 msec Continuous	2nd
			ie	> 50 mA	Emergency mode DS_Active_V1	FALSE TRUE		
					No DTC set	P0970 P0971 P0657		
			Criteria2:		Battery voltage	> 10.5 V for 500 msec continuously	sum_ie > 60000mA	
			sum_ie	>20000 mA	Feedback current	< 1358 mA		
			"ie" is added to "sum_ie" every 10 msec.		Emergency mode DS_Active_V1	FALSE TRUE		
			"ie" : Difference of "ir" and "ifb". "ir" : Target current		No DTC set	P0970		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
						P0971		
			"ifb": Feedback current			P0657		
						P0657		
			"sum_ie" is cleared as follows:					
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie >0mA" ("ie < 0mA").					
iming solenoid SLC3	P2720	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE	500 msec	2nd
0		,	Feedback current	< 20 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657 P2721 for 1 sec and		
						over		
	P2721		Short-cut Ubatt (B+)		DS Active V ¹	TRUE	500 msec	2nd
			Feedback current		Emergency mode	FALSE	Continuous	
				>= 1358 mA	No DTC set	P0657		
					No DTC set	P0057 P2720 for 1 sec and		
						over		
	P2716		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec		2nd
						continuously	Continuous	
			Criteria1:		Feedback current	< 1358 mA		
					Emergency mode	FALSE		
			ie	> 50 mA			1	
					DS_Active_V ¹	TRUE		

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Denvined	MIL Illumin.
System	Code	Description	Criteria	Value	No DTC set	P2720 P2721 P0657	Required	illumin.
			Criteria2:		Battery voltage	> 10.5 V for 500 msec continuously	sum_ie > 60000mA	
			sum_ie	>20000 mA	Feedback current Emergency mode	< 1358 mA FALSE		
			"ie" is added to "sum_ie" every 10 msec.		DS_Active_V ¹	TRUE		
			"ie" : Difference of "ir" and "ifb". "ir" : Target current		No DTC set	P2720 P2721		
			"ifb": Feedback current			P0657		
			"sum_ie" is cleared as follows:					
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie >0mA" ("ie < 0mA").					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
Timing solenoid SLB1	P2729	Circuit continuity check	Short-cut ground or open Feedback current	< 20 mA	DS Active V ¹ Emergency mode No DTC set	TRUE FALSE P0657 P2730 for 1 sec and over	500 msec Continuous	2nd
	P2730		Short-cut Ubatt (B+) Feedback current	>= 1358 mA	DS Active V ¹ Emergency mode No DTC set	TRUE FALSE P0657 P2729 for 1 sec and over	500 msec Continuous	2nd
	P2727		Feed Back Current Stuck(Electrical) Criteria1: ie	> 50 mA	Battery voltage Feedback current Emergency mode DS_Active_V ¹ No DTC set	 > 10.5 V for 500 msec continuously < 1358 mA FALSE TRUE P2729 P2730 P0657 	2000 msec Continuous	2nd
			Criteria2:	>20000 mA	Battery voltage Feedback current Emergency mode	> 10.5 V for 500 msec continuously < 1358 mA FALSE	sum_ie > 60000mA	
			"ie" is added to "sum_ie" every 10 msec.		DS_Active_V ¹	TRUE		
			"ie" : Difference of "ir" and "ifb". "ir" : Target current		No DTC set	P2729		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin
				1		P2730		
			"ifb": Feedback current					
						P0657		
			"sum_ie" is cleared as follows:					
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(1). Detection window = 1 ALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie					
			>0mA" ("ie < 0mA").					
essure solenoid SLT	P0962	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE		2nd
			Feedback current	< 20 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P0963 for 1 sec and		
						over		
	P0963	L	Short-cut Ubatt (B+)		DS Active V ¹	TRUE	500 msec	2nd
	1 0303		Feedback current		Emergency mode	FALSE	Continuous	2110
				>= 1358 mA	Emergency mode	I ALOL	Continuous	
				2 1000 m/t	No DTC set	P0657		
						P0962 for 1 sec and		
						over		
	P0748		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec	2000 msec	2nd
			```'			continuously	Continuous	
			Criteria1:					
					Feedback current	< 1358 mA		
			Liel	50 mA	Emergency mode	FALSE	1	
			ie	> 50 mA				1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value		TRUE	Required	Illumin.
					DS_Active_V ¹	IRUE		
					No DTC set	P0962		
						P0963		
						P0657		
			Criteria2:		Battery voltage	> 10.5 V for 500 msec	sum ie >	
			ontonaz.		Dattory voltage	continuously	60000mA	
			sum_ie	>20000 mA				
					Feedback current	< 1358 mA		
					Emergency mode	FALSE		
			"ie" is added to "sum_ie" every 10 msec.					
					DS_Active_V ¹	TRUE		
			"ie" : Difference of "ir" and "ifb".					
					No DTC set	P0962		
			"ir" : Target current					
						P0963		
			"ifb": Feedback current					
						P0657		
			"sum_ie" is cleared as follows:					
			(1) or (2) or (3)					
			(,, -, (-, -, (-)					
			(1): Detection window = FALSE					
			(1). Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Demuined	MIL Illumin.
System	Code	Description	Criteria	value			Required	iliumin.
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie					
			>0mA" ("ie < 0mA").					
Pressure solenoid SLU	P2764	Circuit continuity check	Short-cut ground or open		DS Active V ¹	TRUE	500 msec	2nd
			Feedback current	< 20 mA	Emergency mode	FALSE	Continuous	
					No DTC set	P0657		
						P2763 for 1 sec and over		
						000		
	P2763			ļ		TRUE	500 msec	2nd
	P2763		Short-cut Ubatt (B+) Feedback current		DS Active V ¹ Emergency mode	FALSE	500 msec Continuous	2nd
				>= 1358 mA				
					No DTC set	P0657 P2764 for 1 sec and		
						over		
	P2761		Feed Back Current Stuck(Electrical)		Battery voltage	> 10.5 V for 500 msec	2000 msec	2nd
						continuously	Continuous	
			Criteria1:		Feedback current	< 1358 mA		
			ie	> 50 mA	Emergency mode	FALSE		
					DS_Active_V ¹	TRUE		
					No DTC set	P2764 P2763		
						P2763 P0657		
				<b> </b>				
			Criteria2:		Battery voltage	> 10.5 V for 500 msec continuously	sum_ie > 60000mA	
						,		
			sum_ie	>20000 mA				
		1			Feedback current	< 1358 mA		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
cyclos		2000.10100			Emergency mode	FALSE	licquireu	
			"ie" is added to "sum_ie" every 10 msec.			TRUE		
					DS_Active_V ¹	TRUE		
			"ie" : Difference of "ir" and "ifb".					
					No DTC set	P2764		
			"ir" : Target current			P2763		
						P2763		
			"ifb": Feedback current			P0657		
						P0657		
			"sum_ie" is cleared as follows:					
			(1) or (2) or (3)					
			(1): Detection window = FALSE					
			(2): -50 mA <= ie <= 50 mA					
			(3): ie value cahnges from "ie < 0mA" ("ie >0mA") to "ie >0mA" ("ie < 0mA").					
Linear solenoid driver	P0657		Malfunction		DS_Active_V ¹	TRUE	400 msec	2nd
				= abnormal			Cntinuous	
			Linear solenoid driver status					
ransmission Output speed	1 P0722		No pulse		DS Active EG V ¹⁶	TRUE	Dependent	2nd
ensor						EALSE	of Speed	
	1				Emergency mode	FALSE	1	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
Cystem		Decemption	ontoita	Value	Shift position	RANGE_D(defined)	rioquirou	
			Number of pulses from Transmission Output Speed Sensor	0				
			Number of pulses from Transmission Input Speed	16	Not during Neutral control			
			Sensor					
					T_NConFin ¹⁴ msec after Neutral control			
					Not during shifting			
					T_ShiftFin ¹⁴ msec after shifting			
					T_OMIT IN TISEC after stimuling			
					Not during garage control			
					T_GarageFin ¹⁴ msec after garage			
					control Not during C1 OFF control			
					·····g •· •··			
					T_C1ctrlFin ¹⁵ msec after C1 OFF			
					control			
					Not during C2 OFF control			
					T_C3ctrlFin ¹⁵ msec after C2 OFF control			
					Control			
					Not in Engine stall avoidance control			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumi
					outRpmNC	>= 300 rpm		
					No DTC set	P0705		
						P0707		
						P0708		
						P0717		
						P0715		
						P0748		
						P0778		
						P0798		
						P0962		
						P0963		
						P0966		
						P0967		
						P0970		
						P0971		
						P0971 P0973		1
						P0974		
						P2716		
						P2720		
						P2721		
						P2727		
						P0657		
						P0720		
						P2729		
						P2730		
	P0720	Circuit continuity check	Electrical Failure (B+ short / GND short / Open)		DS Active V ¹	TRUE	1000 msec	2nd
			NINM-voltage	< 0.206V or > 2.727V			Consecutive	
			(AD value)	(< 45 or > 545 )				
smission input speed or	P0717		No pulse		DS_Active_EG_V ¹⁶	TRUE	Dependent of Speed	2nd
					Emergency mode	FALSE		
			No of pulses from Transmission Input Speed Sensor No of pulses from Transmission Output Speed Sensor	0 24	Shift position CurrentGear Not during Neutral control	RANGE_D(defined) >= 2nd gear		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin.
					T_NConFin ¹⁴ msec after Neutral			
					control			
					Not during shifting			
					T_ShiftFin ¹⁴ msec after shifting			
					1_Shift-in msec after shifting			
					Not during garage control			
					T_GarageFin ¹⁴ msec after garage			
					control			
					Not during C1 OFF control			
					T_C1ctrlFin ¹⁵ msec after C1 OFF			
					control			
					T_C3ctrlFin ¹⁵ msec after C2 OFF			
					control			
					Not in Engine stall avoidance control			
					-			
					Transmission Output Speed	>= 300 rpm		
					No DTC set	P0705 P0707		
						P0708		
						P0722		
						P0720		
						P0748		
						P0778		
						P0798 P0962		
1	I	I		l	1		l I	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin
						P0963		
						P0966		
						P0967		
						P0970		
						P0971		
						P0973		
						P0974		
						P2716		
						P2720		
						P2721		
						P2727		
						P0657		
						P0715		
						P2729		
						P2729 P2730		
						PZ/30		
	P0715	Circuit continuity check	Electrical Failure (B+ short / GND short / Open)		DS Active V ¹	TRUE	1000 msec	2nd
		,	NOUTM-voltage	< 0.206V or > 2.727V			Consecutive	
			(AD value)	(< 45 or > 545 )				
			()					
ansmission Range	P0707	Voltage low	Input POS1 Voltage or Input POS2 Voltage	< 0.127V	Diagnosis Service mode	FALSE	200msec	2nd
ensor Circuit								
							o	
					Battery voltage	9V < Battery Voltage	Continuous	
						<= 18 V		
	P0708	Voltage high	Input POS1 Voltage or Input POS2 Voltage	> 4.84V	Diagnosis Service mode	FALSE	200 msec	2nd
					Battery voltage	9V < Battery Voltage	Continuous	
						<= 18 V		
	P0705	Signal out of range	Input POS1 Voltage + Input POS2 Voltage	< 5V -0.29V or > 5V	Diagnosis Service mode	FALSE	200 msec	2nd
	1 07 05	Signal out of range	input OOT vollage + input i OO2 vollage	+0.29V	Battery voltage	9 V <= Battery Voltage		2110
				10.201	Dattery voltage	< 18 V	Continuous	
					No DTC set	P0707		
						P0708		
ansmission oil	P0711	Rationality	Criteria1:		Oil temperature	<= 20deg.C	10 min	2nd
mperature sensor	10/11	reationality	Oil temperature change less than	10 (AD value)		TRUE		2110
mporatare 301301			on temperature change less than		DS_Active_EG_V ¹⁶	INOL		
		1			1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumir
					AD value of oil temperature	>= 10		
					AD value of oil temperature	<= 1010		
					AD value of oil temperature	<= 1010		
					Emergency mode Shift position	FALSE ≠ (P, R or N)		
					Vehicle Speed	>= 40km/h once		
					No DTC set	P0705		
						P0707 P0708		
						P0711		
						P0712		
						P0713		
			Criteria2:		DS_Active_EG_V ¹⁶	TRUE	1 time	-
			Oil temperature	< 20deg.C	AD value of oil temperature	>= 10		
						1010		
					AD value of oil temperature	<= 1010		
					Emergency mode	FALSE >= MAP		
					Estimated heating value	>= MAP		
					Engine speed	Q_NORMAL ¹⁶		
					No DTC set	P0717 P0715		
						P0711		
						P0712		
						P0713		
	P0712	Circuit continuity check	Short-cut ground		DS Active V ¹	TRUE	60 sec	2nd

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
			AD value of Oil temperature	< 10 (More than 200deg.C).				
	P0713	Circuit continuity check	Short-cut Ubat or open circuit AD value of Oil temperature	> 1010 ( less than - 55deg.C)	DS Active EG V ¹⁶ DriveTime	TRUE > 1 min	12 sec	2nd
Ignition Switch Run/Start Position	P2534	Circuit Low	Ignition voltage	< 9V	DS Active ACC ⁴ Emergency mode	TRUE FALSE	20 sec	2nd
					Engine speed No DTC set	> 400rpm U0001 U0100		
Internal Control Module Memory	P0601	Check Sum Error	Detectin of differences between the result of the checksum calculation executed after IG ON and the correct checksum. If there are differences from the correct checksum value stored in the FLASH ROM, a second calculation is made.		Ignition	OFF->ON	1 time	2nd
Control Module Programming	P0602	Control Module Programming	Calibration data is not downlord properly.		None		1 time	1st
Non volatile memory	P0603	Read / Write error	To detect calculated checksum in RAM is different from checksum value in EEPROM. TCM has two areas (main and sub) for EEPROM. This failure is detected when both areas are wrong.		Accessory	OFF->ON (only at T/M computer initialization function)	1 time	1st
					Ignition	ON		
Random access memory	P0604	Read / Write error	To detect different value between write and read (Step1 and Step2, Step3 and Step4) while TCM checks all RAM from step 1 to step 4 in initialize routine.	1	Accessory	OFF->ON (only at T/M computer initialization function)	1 time	1st
			Step 1. TCU writes 55(hex) data in the ram. Step 2. TCU reads 55(hex) data in the ram. Step 3. TCU writes AA(hex) data in the ram. Step 4. TCU reads AA(hex) data in the ram.		Ignition	ON		
CAN Bus Off Counter	U0001	CAN controller continuity check	Receiving "BUS OFF" state from CAN controller		DS Active ACC ⁴	TRUE	8 times	2nd

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
Overrun								
Lost communication with ECM (Engine)	U0100	Frame missing from ECM	No CAN status frame from ECM detected		Diagnostic Service "Disable Normal detected Accessory DS_Active_CAN ² No DTC set	Communication" not ON >5 sec TRUE U0001	4 sec Continuous	2nd
Gear error, hydraulic fault	P0731	Rationality	Calculation of actual gear ratio for 1st gear is not correct.		Current Gear Transmission Output Speed	1st > 60rpm	2.5sec Continuous	2nd
			abs( 1 - GRCurrent/ 2nd GearRatio)	< 4%	EngineTorque_noACC	>= 60Nm (GEAR_1ST)		
			or		Transmission Input Speed	<=6000rpm (gasoline engine)		
			abs(1 - GRCurrent/ 3rd GearRatio)	< 4%	Transmission Input Speed	<=4000rpm ( diesel engine)		
			<b>or</b> abs(1 - GRCurrent/ 4th GearRatio)	< 4%	ConditionA ¹³	TRUE		
	P0732	Rationality	Calculation of actual gear ratio for 2nd gear is not correct. (Criteria1 or Criteria2) Criteria1:		Current gear	2nd	12 sec Continuous	2nd
			abs(1-GRCurrent/GRExpected)	>20%	Transmission Output Speed	>= 60rpm		
					ConditionA ¹³ No DTC set	TRUE P0732 (Criteria2)		
			Criteria2:				2.5 sec	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
			abs(1-Gear Ratio Current/ 3rd Gear Ratio)	<4%		Current gear	2nd	Accumulate	
			or			Transmission Output Speed			
			abs(1-Gear Ratio Current/ 4th Gear Ratio)	<4%		ConditionA ¹³	>= 60rpm TRUE		
			<b>or</b> abs(1-Gear Ratio Current/ 6th Gear Ratio)	<4%		InTorque	>=30Nm or <=-20Nm		
				<4%					
	P0733	Rationality	Calculation of actual gear ratio for 3rd gear is not correct. (Criteria1 or Criteria2)					12 sec Continuous	2nd
			Criteria1: abs(1-GRCurrent/GRExpected)	>20%		Current gear Transmission Output Speed	3rd >= 60rpm		
						ConditionA ¹³	TRUE		
						No DTC set	P0733 (Criteria2)		
			<b>Criteria2:</b> abs(1-Gear Ratio Current/ 2nd Gear Ratio)	<4%		Current gear Transmission Output Speed	3rd	2.5 sec Accumulate	
			or			ConditionA ¹³	>= 60rpm TRUE		
			abs(1-Gear Ratio Current/ 4th Gear Ratio)	<4%		InTorque	>=30Nm or <=-20Nm		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumi
			<b>or</b> abs(1-Gear Ratio Current/ 5th Gear Ratio)	<4%				
	P0734	Rationality	Calculation of actual gear ratio for 4th gear is not	_			12 sec	2nd
			correct. (Criteria1 or Criteria2)		Current gear	4th	Continuous	
			Criteria1: abs(1-GRCurrent/GRExpected)	>20%	Transmission Output Speed	>= 60rpm		
					ConditionA ¹³	TRUE		
					No DTC set	P0734 (Criteria2)		
			Criteria2:		Current gear	4th	2.5 sec	1
			abs(1-Gear Ratio Current/ 2nd Gear Ratio)	<4%	Transmission Output Speed		Accumulate	
			or		ConditionA ¹³	>= 60rpm TRUE		
			abs(1-Gear Ratio Current/ 3rd Gear Ratio)	<4%	InTorque	>=30Nm or <=-20Nm		
			or					
			abs(1-Gear Ratio Current/ 5th Gear Ratio)	<4%				
			<b>or</b> abs(1-Gear Ratio Current/ 6th Gear Ratio)	<4%				
	P0735	Rationality	Calculation of actual gear ratio for 5th gear is not				12 sec	2nd

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumir
			correct. (Criteria1 or Criteria2) Criteria1: abs(1-GRCurrent/GRExpected)	>20%	Current gear Transmission Output Speed	5th >= 60rpm	Continuous	
					ConditionA ¹³	TRUE P0735		
			 Criteria2:		No DTC set Current gear	(Criteria2) 5th	2.5 sec	
			abs(1-Gear Ratio Current/ 3rd Gear Ratio)	<4%	Transmission Output Speed		Accumulate	
			<b>or</b> abs(1-Gear Ratio Current/ 4th Gear Ratio)	<4%	ConditionA ¹³ InTorque	>= 60rpm TRUE >=30Nm or <=-20Nm		
			or abs(1-Gear Ratio Current/ 6th Gear Ratio)	<4%				
				<4 /0				
	P0729	Rationality	Calculation of actual gear ratio for 6th gear is not correct. (Criteria1 or Criteria2) Criteria1:		Current gear	6th	12 sec Continuous	2nd
			abs(1-GRCurrent/GRExpected)	> 20%	Transmission Output Speed	>= 60rpm		
					ConditionA ¹³	TRUE P0729		
					No DTC set	(Criteria2)		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
-,			Criteria2:		Current gear	6th	2.5 sec	
			abs(1-Gear Ratio Current/ 2nd Gear Ratio)	<4%	Transmission Output Speed		Accumulate	
			<b>or</b> abs(1-Gear Ratio Current/ 4th Gear Ratio)	<4%	ConditionA ¹³ InTorque	>= 60rpm TRUE >=30Nm or <=-20Nm		
			<b>or</b> abs(1-Gear Ratio Current/ 5th Gear Ratio)	<4%				
Torque Converter Clutch	P0741	Comparison of engine speed and transmission input speed	Converter is slipping with active lock-up on. (Engine Speed - Transmission Input Speed)	> 300rpm	DS Active EG V ¹⁶ Fdetect_inh ⁵	TRUE FALSE	12 sec Continuous	2nd
						RANGE_D(defined)		
					Time after N-D shifting control ¹⁰ ends			
					Engine Torque	>= 0 Nm		
					Engine Speed	< 4000 rpm		
					Time after SLU target current (_ir) >= 1000 mA	Time_SLU_Full ¹⁸ sec		
					Oil temperature	>= -7deg.C		
					Lock-up	FALSE		
					Not during garage control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
					T_GarageFin ¹⁴ msec after garage control Not during shifting			
					T_ShiftFin ¹⁴ msec after shifting No DTC set	P2763 P2764 P2761 P0715 P0717 P0720 P0722		
Un-usual shifting P086	P0869	SLC1 MAX	count fail SLC1MAX usft ¹⁷	>= 5times	DS_Active_EG_V16 Fdetect inh ⁵ Time after N-D Shifting Control ¹⁰ ends Not during garage control	TRUE FALSE This timer is based on oil temperature.	1 time	2nd
		SLC2 MAX	count_fail_SLC2MAX_usft ¹⁷	>= 5times	T_GarageFin ¹⁴ msec after garage control Shift position Not during Neutral control	RANGE_D(defined)		
		SLC3 MAX	count_fail_SLC3MAX_usft ¹⁷	>= 5times	T_NConFin ¹⁴ msec after Neutral control Time after neutral control ends wheel spin condition	This timer is based on oil temperature. FALSE		
		SLB1 MAX	count fail SLB1MAX usft ¹⁷	>= 5times	Transmission Output Speed Oil temperature Tmr_inh_GE ¹⁴ sec after shift to safe gear No DTC set	>300rpm >= -20 °C P0715 P0717 P0720 P0722		
eutral condition	P0965		Step 1:		DS_Active_EG_V ¹⁶	TRUE	Step 1:	2nd

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Required	MIL Illumin.
System	Code	Description	Criteria	<300rpm		FALSE	Required	iliumin.
			abs(Engine Speed - Transmission Input Speed) Transmission Input Speed (at D range)	<ul> <li>&gt; Transmission Output</li> <li>Speed x (1st gear ratio at RANGE_D) + revNfaildet¹⁹ rpm</li> </ul>	Fdetect_Inh ⁵ Oil temperature	>= -7deg.C RANGE_D(defined)	at D range: 3.3 sec if (0 <= X <= 1500) 1.3 sec if (1501 <= X <= 3000)	
			 Step 2: Transmission Input Speed	<200rpm	T_GarageFin ¹⁴ msec after garage control Not during Neutral control			
			Engine Speed Shift position	>600rpm RANGE_D(defined)	Current gear		0.8 sec if (3001 <= X)	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Parameters	Enable Conditions		MIL
System	Code	Description	Criteria	Value			Required	Illumin.
		· · · · · · · · · · · · · · · · · · ·			No DTC set	FALSE	Step 2: 0.3sec	

#### ¹⁾DS_Active_V

DS_Active_V = TRUE when start condition for failure detection is fulfilled for 2.0 sec continuously.

DS_Active_V = FALSE when permission condition for failure detection is not fulfilled.

#### Start Condition for failure detection:

Ignition ON and 10.2V < Battery Voltage <= 18V and Not in service mode and Reading EEPROM finish remission condition for failure detection

#### Permission condition for failure detection:

Ignition ON and 9.0V < Battery Voltage <= 18V and Not in service mode

#### 2) DS_Active_CAN

DS_Active_CAN = TRUE when the start condition for CAN failure detection is fulfilled for 5.0 sec continously. DS_Active_CAN = FALSE when the permission condition for CAN failure detection is not fulfilled.

#### Start Condition for failure detection:

Ignition ON and 10.2V < Battery Voltage <= 18V and Not in service mode and Reading EEPROM finish Permission condition for failure detection: Ignition ON and 9.0V < Battery Voltage <= 18V and Not in service mode

#### ³⁾DS_Active_EG_V

 $DS_Active_EG_V = TRUE$  when start condition for failure detection is fulfilled for 2.0 sec continuously.  $DS_Active_EG_V = FALSE$  when permission condition for failure detection is not fulfilled.

#### Start Condition for failure detection:

Ignition ON and 10.2V < Battery Voltage <= 18V and Not in service mode and Reading EEPROM finish and Egrpm > 400rpm and Egrpm = Q_NORMAL¹⁶

```
Bus off, ECU no communication = Q NORMAL
 Permission condition for failure detection:
 Ignition ON and
 9.0V < Battery Voltage <= 18V and
 Not in service mode and
 Egrpm > 400rpm and Egrpm = Q_NORMAL<sup>16</sup>
 Bus off, ECU no communication = Q_NORMAL<sup>16</sup>
4) DS_Active_ACC
 DS_Active_ACC = TRUE when the start condition for failure detection is fulfilled for 2.0 sec continously.
 DS_Active_ACC = FALSE when the permission condition for failure detection is not fulfilled.
 Start Condition for failure detection:
 Accessory ON or Ignition ON and
 10.2V < Battery Voltage <= 18V and
 Not in service mode and
 Reading EEPROM finish
 Permission condition for failure detection:
 Accessory ON or Ignition ON and
 9.0V < Battery Voltage <= 18V and
 Not in service mode
<sup>5)</sup> Fdetech_Inh = TRUE if:
 In Emergency mode or
 Spinning' = TRUE or
 within 10.0 sec after spinning' detection end or
 DTC set: P0973, P0974, P0966, P0967, P0970, P0971, P2720, P2721, P2729, P2730, P0962, P0963, P2763, P0717, P0722, P0705, P0707, P0708, P0562,
 P0563, U0001, U0100, P0601, P0711, P0712, P0713, P2534, P0604, P0778, P0798, P2716, P0748, P2761, P2727, P0657, P0720, P0715,
 Not in Neutral avoidance control
 Not in Engine stall avoidance control
 Egrpm = Q NORMAL<sup>16</sup>
 Egtrq = Q NORMAL<sup>16</sup>
 Accel = Q NORMAL<sup>16</sup>
<sup>6)</sup>QS_AirSuction : Quick stop detection flag for the prevention of failure misdetection for Air suction, is set if the vehicle brakes hard.
<sup>()</sup> Spinning: If "LateralACC > 7.00m/s^2", Spinning is TRUE.
 LateralACC[m/s^2] = (WheelDiff[m/s] * WheelSpeedABS[m/s]) / WheelWidth[m])
 WheelDiff ... "WheelSpeed RR" - "WheelSpeed RL"
 WheelWidth... The width of the Wheel.
<sup>8)</sup> Wheel spin condition
 (1) 300 rpm < outRpm < 3000rpm
```

(2) Egtorque_noACC > -500Nm

(3) ABS (vehicle front wheels average speed - vehicle rear wheels average speed) > 5.0 km/h

#### (4) Throttle > 70 %

(5) outRpmSpeed < -50rpm/sec {(1)and(2)and(3)}or{ (1)and(4)and(5)}continuously detected for 300 msec After that, Wheel spin condition = TRUE continuously 10000 msec

#### 9) EngineTorque_noACC

Engine output torque, acceleration inertia torque not included.

#### ¹⁰⁾ Shifting Control

"Shifting Control" is activated when the transmission is in between two gears (undefined gear ratio), until applied pressure has reached to full

#### ¹¹⁾ "Neutral Control"

Neutral Control is activated if the vehicle is at stand still and in range D with the brake pressed for 2 seconds until the brake is released.

#### 12) "Garage Shifting"

"Garage Shifting Control" is activated when the range selector changes from N to D or R until appropriate Gear Ratio is detected.

#### ¹³⁾ ConditionA = TRUE if:

DS Active EG V³ = TRUE and Fdetect_Inh⁵ = FALSE and Garage shifting control¹²(N-D or N-R) = FALSE and T_GarageFin sec ¹⁴ after garage shift control¹² end and Neutral control¹¹ = FALSE and T_NConFin¹⁴ after neutral control¹¹ end and Shifting control¹⁰ = FALSE and T_ShiftFin¹⁴ after shifting control¹⁰ end and RANGE_D (defined signal) and Oil temperature >= -20 deg.C and QS_AirSuction⁶ = FALSE and No DTC set: P0717, P0715, P0722, P0720

14)

Const Data	< -20	>= -20 deg.C< -10	>= -10 deg.C< 20	
	deg.C	deg.C	deg.C	>= 20 deg.C
T_GarageFin [msec]	50000	8000	2000	1000
T_NConFin [msec]	50000	8000	2000	1000
T_ShiftFin [msec]	50000	2000	1000	500
Tmr_inh_GE [msec]	50000	2000	1000	500

15)

Const Data	< GE_OT	>= GE_OT1	>=
oiltemp	1	< GE_OT2	GE_OT2
T_C1ctrlFin [msec]	50000	20000	8000
T_C3ctrlFin [msec]	50000	20000	8000

TE) Q_NORMAL

Q_NORMAL menas that no failure is detected

^{17/} count_fail_SLC1MAX_usft, count_fail_SLC2MAX_usft, count_fail_SLC3MAX_usft, count_fail_SLB1MAX_usft When the following shift conditions are satisfied, increments the counter of count_fail_SLXXMAX_usft.

Conditio	on					
unt	A-1*	A-2*	B-1*	B-2*	D*	E*
	4-5, 4-6,					
SLC1MAX_usft	2-6, 3-5	-	-	-	6-2, 5-3	5-6, 6-5, 6-4, 5-4
		4-3, 4-2,				1-2, 1-3, 2-3, 2-4,
SLC2MAX_usft	-	5-3, 6-2	-	-	2-6, 3-5, 2-1, 1-1EB	3-4, 3-2, 3-1, 2-1
						1-2, 1-3, 2-3, 2-4, 4-3,
					2-6, 4-5, 4-6, 4-2 4-3, 6-	4-2, 2-1, 2-1EB, 1EB-1,
SLC3MAX_usft	3-4, 5-6	5-4, 3-2	-	-	2	1-1EB, 4-5, 4-6, 6-5, 6-4
						1-2, 1-3, 3-4, 3-2,
					3-5, 4-5, 4-6, 5-6, 3-1, 3-	3-1, 1EB-1,1-1EB,
SLB1MAX_usft	2-3, 2-4	6-5, 6-4, 2-1EB	3-4	4-3	2, 4-2, 5-3, 5-4	4-5, 4-6, 5-6, 5-4, 4-2

*Refer to Un-usual shifting Condition for the detail of "A-1, A-2, B-1, B-2, D, E"

18)

	OT < 20	
OilTemp [deg.C]	deg.C	OT >= 20 deg.C
Time_SLU_Full [msec]	3000	3000

19)

OilTemp [deg.C]		OT < 0 deg.C	OT >= 0 deg.C	
revNfaildet [rpm]	R range	1200	1000	
	D range	400	400	