## 9. General Diagnostics Table

1. FOR ENGINE

		1	2	3	4	5	6	7	8	9	10	11	12	13
Sympto	Problem parts	Mass air flow sensor	Engine coolant temperature sensor (*1)	Throttle position sensor	Crankshaft position sensor & Camshaft position sensor (*2)	Idle air control solenoid valve	Knock sensor	Purge control solenoid valve	EGR valve	Fuel injection parts (*3)	Ignition parts (*4)	Fuel pump and relay	A/C switch and A/C cut relay	Engine torque control signal circuit
1	Engine stalls during idling.	0	Δ			0			0	0	0			
2	Rough idling	0	Δ	0		0			0					
3	Engine does not return to idle.	0		0		0								
4	Poor acceleration	0	Δ							0		0	0	0
5	Engine stalls or engine sags or hesi- tates at acceleration.	0	Δ	0				0	0	0		0		
6	Surge	0	Δ	0					0	0		0		
7	Spark knock	0					0			0		0		
8	After burning in exhaust system	0	Δ							0		0		

\*1: The mark,  $\triangle$ , indicates the symptom occurring only in cold temperatures.

\*2: For items with the mark,  $\Box$ , ensure the secure installation of crankshaft position sensor and camshaft position sensor. Replacement is not necessary.

\*3: Check fuel injector, fuel pressure regulator and fuel filter.

\*4: Check igniter, ignition coil and spark plug.

NOTE:

Malfunction of parts other than the above is also possible. Refer to 1. Engine Trouble in General [T100] in Repair Section 2-3 of the Service Manual.

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Problem parts	Inhibitor switch	Control module	Vehicle speed sensor 1	Vehicle speed sensor 2	Select cable	Select lever	FWD switch	Starter motor and harness	Throttle position sensor	Hold switch	Accumulator ("N" — "D")	Accumulator (2A)	Accumulator (4A)	Accumulator (3R)	ATF temperature sensor	Strainer	Duty solenoid A	Duty solenoid B	Shift solenoid 1	Shift solenoid 2	Shift solenoid 3	Control valve	Detent spring	Manual plate	Transfer clutch	Transfer valve	Transfer pipe	Duty solenoid C	Forward clutch
Symptom	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Starter does not rotate when select lever is in "P" or "N."; starter rotates when select lever is "R", "D", "3" or "2."	0				0	0		0																					
Abnormal noise when select lever is in "P" or "N."																0												0	
Hissing noise occurs during standing starts.	$\vdash$	$\vdash$								-	-		$\vdash$			0					$\vdash$	$\vdash$	$\vdash$	$\vdash$	-	-		$\vdash$	-
Noise occurs while driving in "D <sub>1</sub> " range.		<u> </u>																					1						
Noise occurs while driving in "D <sub>2</sub> " range.																													
Noise occurs while driving in "D <sub>3</sub> " range.																													
Noise occurs while driving in "D <sub>4</sub> " range.																													
Engine stalls while shifting from one range to another.																						0							
Vehicle moves when select lever is in "N."																													0
Shock occurs when select lever is moved from "N" to "D."		0									0											0							
Excessive time lag occurs when select lever is moved from "N" to "D."																						0							0
Shock occurs when select lever is moved from "N" to "R."		0											0									0							
Excessive time lag occurs when select lever is moved from "N" to "R."																						0							
Vehicle does not start in any shift range (engine revving up).																0						0							
Vehicle does not start in any shift range (engine stall).																													
Vehicle does not start in "R" range only (engine revving up).					0	0																0							
Vehicle does not start in "R" range only (engine stall).																													0
Vehicle does not start in "D" or "3" range (engine revving up).																													0
Vehicle does not start in "D", "3" or "2" range (engine revving up). Vehicle does not start in "D", "3" or "2" range																													0
Vehicle does not start in "D", "3" or "2" range (engine stall). Vehicle starts in "R" range only (engine rev-																													$\vdash$
ving up).																						0							
Acceleration during standing starts is poor (high stall rpm). Acceleration during standing starts is poor									<u> </u>													0	-	-	-				0
Acceleration during standing starts is poor (low stall rpm). Acceleration is poor when select lever is in																							-	-	-				$\vdash$
"D", "3" or "2" range (normal stall rpm). Acceleration is poor when select lever is in	-	0																				0	-	-	-				$\vdash$
"R" (normal stall rpm).																						0							
No shift occurs from 1st to 2nd gear.	<u> </u>	0	0	0					0										0	0		0							
No shift occurs from 2nd to 3rd gear.	<u> </u>	0												-	-						-	0	<u> </u>	<u> </u>	<u> </u>				<u> </u>
No shift occurs from 3rd to 4th gear.	_	0												0	0						0	0	-						<u> </u>
No "kick-down" shifts occur.	<u> </u>	0							0													-		-	-	-			
Engine brake is not effected when select lever is in "3" range.	0	0		4	-				0	10	44	10	10	14	45	10	47	10	10	20	04	0		24	05	20	07	20	20
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

## **ON-BOARD DIAGNOSTICS II SYSTEM**

30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 68 Symptom   1	
Image: Second	then extent lower in
Image: Construction of the second	ites when select
Image: Construction of the second	lect lever is in "P" or
Image: Construction of the image in the	ing standing starts.
Image: Construction of the construc	
Image: Constraint of the constraint	
Image: Second	
Image: Second	<u> </u>
Image: Shock occurs when select le from "N" to "D."   Image: Shock occurs when select le from "N" to "D."   Image: Shock occurs when select le from "N" to "D."   Image: Shock occurs when select le from "N" to "D."   Image: Shock occurs when select le from "N" to "D."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs when select le from "N" to "R."   Image: Shock occurs shock occurs when select le from "N" to "R."   Image: Shock occurs shoc	ect lever is in "N "
Image: Constraint of the constraint	
Image: Solution of the start in the sta	s when select lever
O O O O O O O Vehicle does not start in any (engine reving up).   Vehicle does not start in any (engine reving up). O O O Vehicle does not start in any (engine reving up).   Vehicle does not start in any (engine reving up). O O O Vehicle does not start in any (engine reving up).   Vehicle does not start in "R" (engine reving up). O O O Vehicle does not start in "R" (engine reving up).   Vehicle does not start in "R" O O O Vehicle does not start in "R" (engine reving up).   Vehicle does not start in "D" (engine reving up). O O O Vehicle does not start in "D" (engine reving up).   Vehicle does not start in "D" (engine reving up). O O O Vehicle does not start in "D" (engine reving up).   Vehicle does not start in "D" (engine reving up). O O O Vehicle does not start in "D" (engine reving up).   Vehicle does not start in "D" (engine reving up). O O O Vehicle does not start in "D" (engine reving up).   Vehicle does not start in "D" (engine reving up). O O O Vehicle does not start in "D" (engine reving up).   Vehicle does not start in "D" (e	ct lever is moved
0 0	s when select lever
Image: Constraint of the constraint	, ,
Image: Constraint of the constraint	
Image: Color Colo	
Image: Constraint of the constraint	
Image: Constraint of the constraint	
Image: Constraint of the constraint	_
Image: Sector of the sector	, 0
Image: Construction of the stall reprint	
Image: Constraint of the second state of the second sta	· ·
Image: Constraint of the second state of the seco	· ·
Image: Comparison of the second stall rpm).	mal stall rpm).
No shift occurs from 1st to 2	
No shift occurs from 2nd to 2	
Image: Construction of the second	
No "kick-down" shifts occur.	°
Engine brake is not effected lever is in "3" range.	
30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58	

Problem parts Symptom	Inhibitor switch	2 Control module	ω Vehicle speed sensor 1	+ Vehicle speed sensor 2	G Select cable	Ø Select lever	2 FWD switch	∞ Starter motor and harness	ω Throttle position sensor	D Hold switch	☐ Accumulator ("N" — "D")	당 Accumulator (2A)	다 Accumulator (4A)	국 Accumulator (3R)	더 ATF temperature sensor	5 Strainer	1 Duty solenoid A		G Shift solenoid 1	8 Shift solenoid 2	2 Shift solenoid 3	25 Control valve	2 Detent spring	Ranual plate	S Transfer clutch	ର Transfer valve	Z Transfer pipe	Duty solenoid C	6 Forward clutch
Engine brake is not effected when select lever is in "3" or "2" range.																													
Engine brake is not effected when select lever is in "1" range.																						0							
Shift characteristics are erroneous.	0	0	0	0					0													0							
No lock-up occurs.	-	0							0						0							0							-
Vehicle cannot be set in "D" range power mode.		0							0																				
"D" range power mode cannot be released.		0							0						0														
Parking brake is not effected.					0	0																							
Shift lever cannot be moved or is hard to move from "P" range.					0	0																							
Select lever is hard to move.					0	0																	0	0					-
Select lever is too light to move (unreason- able resistance).																							0	0					_
ATF spurts out. Differential oil spurts out.																													$\neg$
Differential oil level changes excessively.																													$\neg$
Odor is produced from oil supply pipe.																									0				$\bigcirc$
Shock occurs when select lever is moved from "1" to "2" range.		0							0			0			0		0					0							
Slippage occurs when select lever is moved from "1" to "2" range.		0							0			0			0		0					0							
Shock occurs when select lever is moved from "2" to "3" range.		0							0					0	0		0					0							
Slippage occurs when select lever is moved from "2" to "3" range.		0							0					0	0		0					0							
Shock occurs when select lever is moved from "3" to "4" range.		0							0				0		0		0					0							
Slippage occurs when select lever is moved from "3" to "4" range.		0							0				0		0		0					0							
Shock occurs when select lever is moved from "3" to "2" range.		0							0						0		0					0							
Shock occurs when select lever is moved from "D" to "1" range.		0							0						0		0					0							
Shock occurs when select lever is moved from "2" to "1" range.		0							0						0		0					0							
Shock occurs when accelerator pedal is released at medium speeds.		0							0						0		0					0							
Vibration occurs during straight-forward operation.		0																0											
Select lever slips out of position during acceleration or while driving on rough terrain.					0	0																	0	0					
Vibration occurs during turns (tight corner "braking" phenomenon).		0	0	0					0	0					0										0	0		0	
Front wheel slippage occurs during standing starts.		0		0			0		0	0					0							0			0	0	0	0	
Vehicle is not set in FWD mode.		0					0															_	_	_	0	0		0	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

## **ON-BOARD DIAGNOSTICS II SYSTEM**

Overrunning clutch	Drive pinion	Crown gear		Differential gear	Final gear		Oil pump		Band brake	Low & reverse clutch	Reverse clutch	One-way clutch (1-2)	One-way clutch (3-4)	Double oil seal	Input shaft	Output shaft	Planetary gear	Reduction gear	Drive plate	Torque converter one-way clutch	Lock-up facing	Lock-up damper	ATF deterioration	ATF level too high or too low	Differential gear oil level too high or too low	Engine performance	Engine speed signal		Problem parts
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	
$ \circ $																													Engine brake is not effected when select lever is in "3" or "2" range.
										0																			Engine brake is not effected when select lever is in "1" range.
																													Shift characteristics are erroneous.
								<u> </u>			<u> </u>										0						0		No lock-up occurs.
																													Vehicle cannot be set in "D" range power mode.
																													"D" range power mode cannot be released.
																												0	Parking brake is not effected.
																												0	Shift lever cannot be moved or is hard to move from "P" range.
																													Select lever is hard to move.
																													Select lever is too light to move (unreason- able resistance).
																								0					ATF spurts out.
																									0				Differential oil spurts out.
						0								0											-				Differential oil level changes excessively.
0								0	0	0	0			-							0		0						Odor is produced from oil supply pipe.
									0														0			0			Shock occurs when select lever is moved from "1" to "2" range.
									0																				Slippage occurs when select lever is moved from "1" to "2" range.
								0	0														0			0			Shock occurs when select lever is moved from "2" to "3" range.
								0	0																				Slippage occurs when select lever is moved from "2" to "3" range.
0									0														0			0			Shock occurs when select lever is moved from "3" to "4" range.
									0																				Slippage occurs when select lever is moved from "3" to "4" range.
0									0														0						Shock occurs when select lever is moved from "3" to "2" range.
																							0						Shock occurs when select lever is moved from "D" to "1" range.
										0													0						Shock occurs when select lever is moved from "2" to "1" range.
																						0				0			Shock occurs when accelerator pedal is released at medium speeds.
																					0	0							Vibration occurs during straight-forward operation.
																													Select lever slips out of position during acceleration or while driving on rough terrain.
																							0						Vibration occurs during turns (tight corner "braking" phenomenon).
																													Front wheel slippage occurs during standing starts.
		00	00	<u>.</u>	0.5	00	0-	000	00	40		40	40		45	10	4-	40	10	50	<b>F</b> /	50		- ·				50	Vehicle is not set in FWD mode.
30	31	зz	33	34	35	30	31	38	39	40	41	42	43	44	45	46	41	48	49	50	21	52	ეკ	54	55	56	5/	58	