Technical Bulletin # 1188

Transmission: *RE5R05A*
Subject: *Computer Diagnostics*
Application: *Nissan, Infinity*
Issue Date: *July, 2008*

RE5R05A

Computer Diagnostics

There are two separate controller systems that are used for the RE5R05A transmission applications. The TCM and the ECM are separate controllers that share information through a multiplex type system.

The TCM is located in the transmission on the later vehicles and on the right kick panel on earlier model vehicles. The TCM includes all of the Transmission electronics, the TCM, Solenoids, TRS, ISS, OSS and Pressure switch circuit board. This makes diagnosing
the RE5R05A difficult if you don't have the correct scan tool or the proper adapters for the scan tool. The Function of the TCM is to:

- Receive information from the input signals sent from the various switches and sensors mounted on the transmission and share information from the ECM.
- Determine required pressures, shift points, lock-up operation, and engine breaking operation based on the various switches and sensors.

TCM Function
The TCM is constantly learning, this is called adaptive strategy. During this process the TCM is constantly monitoring the driving conditions and driver behavior.

Adaptive Strategy allows the customer to feel a flawless shift until the transmission is not capable of that shift. Typically this is at about the 75,000-100,000 mile marker. During and up until that time of repair the TCM is constantly raising and lowering pressures.

This could cause you problems after an overhaul, if the computer is not reset.
NOTE: It is always recommended to reset the adaptive strategies before test driving the vehicle after overhaul.

Before the transmission can start its adaptive learning process, the TCM must first relearn some very important parameters. The vehicle must be cleared of codes and at normal operating temperature. The following Relearn procedures MUST be done if the Battery, Sensor connector, TCM or ECM is disconnected!

Adaptive Strategies
All of these relearns can be done using the Consult 2 or manually. Be aware that all of the manual relearn procedures are done using time specifications.

NOTE: The technician must use a clock to determine the time sequences.
1. Accelerator Pedal Released Position Learning:
This is an operation to learn the fully released position of the Accelerator Pedal Position by monitoring the output signal.

Operation Procedure:
1. Make sure the accelerator pedal is fully released.
2. Turn the ignition switch to the ON position, wait at least 2 seconds.
3. Turn the ignition switch to the OFF position, wait at least 10 seconds.
4. Turn the ignition switch to the ON position, wait at least 2 seconds.
5. Turn the ignition switch to the OFF position, wait at least 10 seconds.

2. Throttle Valve Closed Position Learning:
This is an operation to learn the fully closed position of the Throttle Valve Position by monitoring the output signal.

Operation Procedure:
1. Make sure the accelerator pedal is fully released.
2. Turn the ignition switch to the ON position.
3. Turn the ignition switch to the OFF position, wait at least 10 seconds. (make sure the throttle valve moves during the 10 seconds in the OFF position by confirming the operating sound.)

3. Idle Air Volume Learning:
Before performing Idle Air Volume Learning, make sure the following conditions are met. The learning procedure will stop if any of the following are not met prior to starting the procedure.
1. Battery Charging Voltage: More then 12.9V
2. Engine Coolant: (70 - 100°C) 158 - 212°F
3. PNP Switch: ON:
4. Electrical Loads: OFF (A/C, Head lamps, Rear Window Defogger) NOTE: On vehicles equipped with daytime running light systems, apply the parking brake BEFORE you turn the ignition switch to the on position, this will keep the lights OFF.
5. Steering Wheel: Neutral (Straight-ahead position)
6. Vehicle Speed: Stopped
7. Transmission: Operation temperature

1. Perform the Accelerator Pedal Released Position Relearn procedure.
2. Perform the Throttle Valve Closed Position Relearning procedure.
3. Start the engine and run it until it reaches operation temperature.
4. Once the engine is at operating temperature, turn the ignition OFF and wait for 10 second
5. Confirm the Accelerator Pedal is fully released, turn the ignition ON and wait for 3 seconds.
6. Repeat the following procedures below QUICKLY five times within five seconds. (A. Fully depress the accelerator pedal.) (B. Fully release the accelerator pedal..)
7. Wait 7 seconds, fully depress the accelerator pedal and keep it there for approximately
8. 20 seconds until the MIL stops blinking and turned ON.
9. Fully release the accelerator pedal within 3 seconds after the MIL light goes OUT.
10. Start the engine and let it idle.
11. Wait 20 seconds
12. Rev the engine two or three times and make sure the idle speed and ignition timing
13. are within the specifications. (In the P or N position Idle 650 RPM +/- 50, 15 BTDC)
14. If the engine is not idling properly, the relearn procedure did not take or there is a problem with other engine related components.

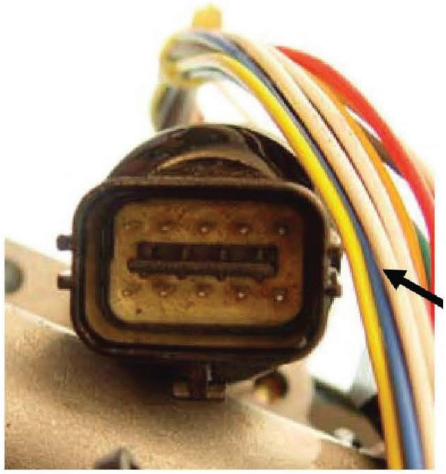
Input/Output Signal of TCM

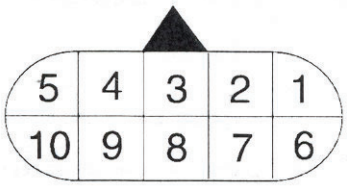
Control item			Line pressure control	Vehicle speed control	Shift control	Lock-up control	Engine brake control	Fail-safe function (*3)	Self-diagnostics function
Input	Accelerator pedal position signal (*4)		X	X	X	X	X	X	X
	Vehicle speed sensor A/T (revolution sensor)		X	X	X	X		X	X
	Vehicle speed sensor MTR(*1) (*4)		X	X	X	X			X
	Closed throttle position signal(*4)		(*2) X	(*2) X		X	(*2) X		X
	Wide open throttle position signal(*4)		(*2) X	(*2) X			(*2) X		X
	Turbine revolution sensor 1		X	X		X		X	X
	Turbine revolution sensor 2 (for 4th speed only)		X	X		X		X	X
	Engine speed signals(*4)					X			X
	PNP switch		X	X	X	X	X	X	X
	A/T fluid temperature sensors 1, 2		X	X	X	X	X	X	X
	ASCD	Operation signal(*4)		X	X	X	X		
		Overdrive cancel signal(*4)		X		X	X		
	TCM power supply voltage signal		X	X	X	X	X		X
Output	Direct clutch solenoid (ATF pressure switch 5)			X	X			X	X
	Input clutch solenoid (ATF pressure switch 3)			X	X			X	X
	High & low reverse clutch solenoid (ATF pressure switch 6)			X	X			X	X
	Front brake solenoid (ATF pressure switch 1)			X	X			X	X
	Low coast brake solenoid (ATF pressure switch 2)			X	X		X	X	X
	Line pressure solenoid		X	X	X	X	X	X	X
	TCC solenoid					X		X	X
	Self-diagnostics table(*4)								X
	Starter relay							X	X

*1: Spare for vehicle speed sensor·A/T (revolution sensor)
*2: Spare for accelerator pedal position signal
*3: If these input and output signals are different, the TCM triggers the fail-safe function.
*4: CAN communications

DTC		Items (Consult-II Screen Terms)
OBD-II	Except OBD-II	
Consult-II GST (*1)	Consult-II only "A/T"	
N/A	P0615	Starter Relay Circuit
P0700	P0700	TCM
P0705	P0705	PNP Switch Circuit
P0710	P1710	ATF Temperature Sensor Circuit
P0717	P0717	Turbine Revolution Speed Sensor
P0720	P0720	Vehicle Speed Sensor Circuit A/T
N/A	P0725	Engine Speed Signal
P0740	P0740	TCC Solenoid Circuit
P0744	P0744	A/T TCC Solenoid Voltage Function
P0745	P0745	Line Pressure Solenoid Circuit
N/A	P1705	Throttle Position Sensor Circuit Meter
N/A	P1721	Vehicle Speed Sensor Circuit Meter
P1730	P1730	A/T Interlock
N/A	P1731	A/T 1st Braking
P1752	P1752	I/C Solenoid Circuit
P1754 (*2)	P1754	I/C Solenoid Function
P1757	P1757	FR/B Solenoid Circuit
P1759 (*2)	P1759	FR/B Solenoid Function
P1762	P1762	D/C Solenoid Circuit
P1764 (*2)	P1764	D/C Solenoid Function
P1767	P1767	HLR/C Solenoid Circuit
P1769	P1769	HLR/C Solenoid Function
P1772	P1772	LC/B Solenoid Circuit
P1774	P1774	LC/B Solenoid Function
N/A	P1815	Manual Mode Switch Circuit
N/A	P1841	ATF Pressure Switch #1 Circuit
N/A	P1843	ATF Pressure Switch #3 Circuit
N/A	P1845	ATF Pressure Switch #5 Circuit
N/A	P1846	ATF Pressure Switch #6 Circuit
U1000	U1000	CAN Communication Circuit
*1: These Numbers are prescribed by SAE J2012		
*2: These malfunctions cannot be displayed MIL if another malfunction is assigned to MIL		

TCM pins for late model units with the TCM in the transmission.





TCM INSPECTION TABLE

Data are reference value and are measured between each terminal and ground.

Terminal No.	Wire color	Item	Condition		Data (Approx.)
1	P	Power supply (Memory back-up)	Always		Battery voltage
2	P	Power supply (Memory back-up)	Always		Battery voltage
3	L	CAN-H	–		–
4	V	K-line (CONSULT-II signal)	The terminal is connected to the data link connector for CONSULT-II.		–
5	B	Ground	Always		0V
6	BR *1 Y/R *2	Power supply		–	Battery voltage
				–	0V
7	R	Back-up lamp relay		Selector lever in "R" position.	0V
				Selector lever in other positions.	Battery voltage
8	P	CAN-L	–		–

Terminal No.	Wire color	Item	Condition		Data (Approx.)
9	B/R	Starter relay		Selector lever in "N"," P" positions.	Battery voltage
				Selector lever in other positions.	0V
10	B	Ground	Always		0V

*1: Column shift
*2: Floor shift