LET'S PLAY BALL



An Overview of the JATCO RE5R05A

tarting in mid-2002, JATCO introduced the RE5R05A: a rear-wheel drive, 5-speed automatic transmission used in the Infiniti Q45. Since then, this unit has appeared in Infiniti and Nissan drivetrains. Infiniti uses it in CX25, FX35, FX45, G35, M35/35x, Q45, and QX56 vehicles. Nissan uses it in the 350Z, Frontier, Pathfinder, Armada, Titan, and Xterra.

Let's start by looking at the initial

failure modes this unit can experience. Some DTCs may be displayed at the same time; that is, it's possible to have multiple codes set for the same failure. Perform the necessary inspections one by one based on the priority descriptions covered in this article.

DTC U1000

Before going any further, there's one thing you should be aware of: DTC U1000. This is a CAN communication code that needs to be addressed before checking any other codes in memory.

Failsafe Function

The TCM, which is part of the valve body (Figure 1), has an electrical failsafe mode. This mode makes it possible to operate even if there's an error in a main electronic control input or output signal circuit. If the computer detects any faults in the systems sensors or solenoids, it switches to failsafe



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2. Low Coast Brake Solenoid 3. High and Low Solenoid

operation. Failsafe allows the transmission to continue operating under limited conditions to make it possible to continue driving without damaging the transmission.

In failsafe mode, the transmission is fixed in 2nd, 4th or 5th, so the customer should be complaining of a slip or poor acceleration. Under special conditions (such as if you slam on the brakes while the wheels are spinning, stopping the tire rotation suddenly), the transmission can go into failsafe even when the computer controls are working properly. This is normal.

If this happens, you can reset the computer like this:

- Key off for about 10 seconds.
- Turn the key back to the On-Run

5. Input clutch Control Solenoid 6. Direct Clutch Solenoid

position.

7. TCC solenoid

This should return the transmission to a normal shift pattern. But be careful: Just because the transmission's shifting normally doesn't mean the problem's fixed. Always handle the situation according to the conditions present, using a standard diagnostic procedure.

Here are some of the sensors and switches and their codes (Figure 2) that can cause failsafe, and a description of their failures.

Vehicle Speed Sensor Signal - Vehicle Speed Sensor signals are provided by two separate systems: the vehicle speed sensor A/T (revolution sensor) installed on the transmission, and the combination meter. So normal driving is possible even if there's a problem in one of these systems. If the vehicle speed sensor A/T (revolution sensor) fails, 5th gear and manual mode won't be possible.

Accelerator Pedal Position Sensor - If there's a failure in one of the systems, TCM or ECM the accelerator opening angle is controlled by ECM according to a predetermined accelerator angle. And if there are failures in TCM and ECM, the engine is fixed to a predetermined RPM by the ECM (idle).

Throttle Position Sensor - If there's a failure in one of the systems, the accelerator opening angle is controlled by ECM according to a predetermined accelerator angle. And if there are failures in TCM and ECM, the accelerator opening angle is controlled



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by the idle signal sent from the ECM, based on an input indicating either idle or off-idle (predetermined accelerator opening).

PNP Switch — In the unlikely event that a faulty signal enters the TCM:

- the position indicator is switched off,
- the starter relay is switched off (starting circuit is disabled),
- the backup lamp relay is switched off (backup lights are off),

...and the position is fixed to the D range.

Starter Relay — The PNP switch indicates the start signal status as being

either on or off. The ECM determines this signal based on engine RPM and battery voltage. If the starter relay is switched off, the start circuit to the starter is disabled.

A/T Interlock — If there's an A/T interlock judgment failure, the transmission is fixed in 2nd gear.

NOTE: When the vehicle is driven fixed in 2nd gear, a turbine revolution sensor DTC will set, but this doesn't indicate a turbine revolution sensor failure. When the pressure switch assembly is in failsafe, the failsafe action corresponding to the pattern listed occurs (Figure 3). **1st Gear Engine Braking** — When there's a 1st gear engine brake judgment fault, the low coast brake solenoid is switched off to prevent engine braking.

Line Pressure Solenoid — The solenoid is switched off and the line pressure is set to maximum to prevent damage to the transmission during operation.

Torque Converter Clutch Solenoid — The solenoid is switched off to release the converter clutch.

Low Coast Brake Solenoid — When an electrical or functional failure occurs, the engine brake isn't applied in 1st or 2nd gears.

												Figur	re 2
Gear Position		ATF Pressure Switch Output					Fail-safe	Clutch Pressure Output Pattern After Fail-safe Function					
		SW3 (I/C)	SW6 (HLR/C)	SW5 (D/C)	SW1 (FR/B)	SW2 (LC/B)	Function	I/C	HLR/C	D/C	FR/B	LC/B	L/U
A/T Interlock	3rd	NG	Х	Х	NG		Held in 2nd Gear	OFF	OFF	ON	OFF	OFF	OFF
Coupling	4th	NG	Х	Х	NG		Held in 2nd Gear	OFF	OFF	ON	OFF	OFF	OFF
Pattern	5th	Х	NG	NG	Х		Held in 2nd Gear	OFF	OFF	ON	OFF	OFF	OFF
						NG= NO	Good						
						V = C	NK						

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Input Clutch Solenoid — If an electrical or functional failure occurs, the transmission is held in 4th gear.

Figure 3

Direct Clutch Solenoid — If an electrical or functional failure occurs, the transmission is held in 4th gear.

Front Brake Clutch Solenoid — If an electrical or functional failure occurs with the solenoid on, the transmission is held in 5th gear; if the solenoid is off, 4th gear.

High and Low Reverse Clutch Solenoid — If an electrical or functional failure occurs, the transmission is held in 4th gear.

Turbine Revolution Sensor 1 or 2 — The control is the same as if there were no turbine revolution sensor signals: 5th gear and manual mode are prohibited.

As you can see, there are plenty of potential problems with this transmission operating system. Having the correct information will help you get the vehicle back on the road. In the next issue of *GEARS*, we'll cover the valve body, case and some other internal failures that you may have to deal with.

D	TC						
OBD-II	Except OBD-II	Items (Consult-II Screen Terms)					
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 J201	2					
*2: These malfunctions	cannot be displayed MI	L if another malfunction is assigned to MIL					



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