



Technical Information...

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AW55-50 Nissan Electronic Functions

Normal Shifting Programs

Economy Mode - Under normal acceleration, TCM provides earliest possible upshifts & lock-up for best economy. Adjusts oil pressure to provide smooth shifts & engagements.

Sport Mode - If accelerator is pressed quickly & speed exceeds 31MPH, shift points are raised to provide best performance. Downshift occurs @ lower engine RPM. If accelerator is moved less quickly, TCM automatically resumes economy mode.

Extreme Mode - Another way of saying "kick-down." TCM selects lowest gear for vehicle speed when throttle is depressed to the floor.

Winter Mode - Use "W" button on top panel of gear selector assembly. A warning lamp on instrument cluster illuminates & transmission starts in 3rd gear to provide maximum traction. Depending on gear selected, the following can occur: **D**-starts in 3rd & automatically shifts between 3rd, 4th, & 5th. **4**-starts in 3rd & automatically shifts to 4th earlier than economy in D range w/5th gear locked out. **3**-starts in 3rd w/no up/downshifts. **L**-starts in 2nd w/no up/downshifts. At wide-open throttle in winter mode, all gears are used for max performance.

Catalytic Converter Start - Helps reach operating temp, prevents converter lock-up & delays 1-2 & 2-3 upshift when cold. **This is normal function.**

Temperature Controlled Lock-up - If temp rises excessively due to heavy load w/high ambient temp conditions, torque converter clutch applies to reduce heat. If temp drops below 20C(68F), lock-up is inhibited.

Slipping Lock-up - Gives smoother lock-up & reduces vibration/noise. Computer maintains 50-200 RPM torque converter clutch slip. The following conditions must be met: Gear shift must be in D, 4, or 3. Trans must be in 3rd, 4th, or 5th. Trans input speed must be 1100 RPM or higher & throttle opening must be 35% or less. Engine coolant must reach certain temp. Trans oil temp must be 40C(104F) but not exceed 120C(248F). **NO TE** Friction properties of this trans fluid are different due to large amount of converter clutch slip. Failure to use correct fluid will cause transmission damage & codes.

Driving Uphill - To reduce shift business, TCM may change the shift pattern slightly when driving uphill.

Neutral Control - **Not available on all models.** TCM disengages forward clutch(C1) @ stop w/brake applied to reduce load. Reduces vibration/improves fuel economy. When brake released, forward clutch engages. The following conditions must be met: Manual shift must be in D, 4 or 3. Does **NOT** work in Winter Mode or Geartronic. Trans oil temp must be above 10C(50F). Throttle position must be less than 3%. Brake must be pressed. Speed must be 0 MPH. Engine speed must be less than 1500 RPM. There's a 2 second delay once vehicle has stopped in D & a 5 second delay from N-D.

Shifting using Geartronic

When shifter is moved to Geartronic, trans remains in hydraulic "D" position. When shifter is moved to + or - positions, gear selector module sends signal to TCM to shift trans up or down. Driver information module changes symbol on instrument panel from D to gear that's selected & a signal is sent to gear selector module to light M & turn off other LED's on shifter console. TCM determines if shift can be carried out & activates appropriate solenoids. TCM overrides driver's command under certain circumstances. The following applies during Geartronic shifting:

Nissan Shift Adapts

To clear the shift adapts, a Nissan factory specific scanner (**Consult Scan Tool**) must be used. The EEPROM in the TCM is erased and reset to the default settings during a process that Nissan refers to as "**TCM Initialization**". Following is a list of things that can be adapted and must be learned by the TCM for proper shift and engagement feel.

- **Up/Down Shift Control** - the TCM learns the correct pressure for each shift.
- **N-D engagement** - the TCM learns the correct forward clutch pressure for a good forward engagement.
- **N-R engagement** - the TCM learns the correct direct clutch pressure for a good reverse engagement.
- **Torque reduction control** - the TCM learns the correct amount of engine torque reduction to request during up and down shifting, as well as N-D and N-R engagements.

At this time, no aftermarket scan tool is capable of performing the TCM Initialization, nor is there a manual reset procedure.

PLEASE NOTE:

After resetting the shift adapts the vehicle must be driven 70 to 100 shift cycles through all of the gears at about 20% throttle angle while at operating temperature. This procedure will relearn the shift adapts.

Follow the Saturn relearn procedure to relearn the engagements.

Nissan Service Bulletin # NTB05-026

TCM Reprogramming Needed When Replacing A 5-Speed A/T.

This bulletin applies to 2004-05 Maxima and 2005 Altima with 5-speed automatic transaxle.

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