



Technical Information..

Technical Information..

By: Jeff Parlee, Director of Product Support

AW55-50 (AF33-5) GM/Saturn Electronic Functions

GM/Saturn Shift Modes

Protection Mode - This is like *failsafe* or *limp-in* in other vehicles. When protection mode is tripped you will have 5th gear in drive and intermediate. In manual low you will have 2nd. Cycling the ignition will give you normal mode again until the code is set again.

Cold Mode - When the engine coolant temperature is less than 122F, the shifts will occur at a higher speed.

Hot Mode - When the transmission oil temperature reaches 284F, the computer applies the converter clutch at lower than normal speeds & raises shift points to a high speed. When the temperature drops below 270F, normal mode will resume.

Downhill Mode - When throttle angle is less than 3% & speed increases, the computer will command higher shift speeds to provide more engine braking.

Uphill Mode - When engine load is high & speed decreases, the computer will command higher shift speeds.

High Altitude Mode - When the barometric pressure is less than 12.76, the computer will command higher shift speeds.

Traffic Jam Mode - When vehicle stops & starts with less than 10% throttle angle, computer commands 2nd gear starts to increase fuel economy & reduce shift busyness. Normal mode resumes when the throttle angle is greater than 30% or speed is greater than 18.6 MPH.

Emergency Mode - This is commanded when a serious transmission trouble code has been set. All (5) shift solenoids are turned off and 5th gear is the only forward gear available in this mode.

PLEASE NOTE: Some GM vehicles, like the Pontiac Torrent, use a transaxle oil life monitor. The computer calculates the useful life left in the ATF. When the useful life falls below 10% the "Service Engine Soon" comes on & code P1868 sets. **ONLY USE T-IV, GM P/N 88900925 ATF in this transaxle. Do not use Dexron III or Dexron VI as shift quality will be compromised.** Don't forget to reset the oil life monitor after a fluid change or transmission rebuild/replacement. You will need to use a scan tool to reset the oil life monitor.

Resetting Shift Adapts

The AW55-50/AF33-5 transmission has adaptive learn strategy. Whenever the TCM is replaced, valve body is replaced, transaxle is replaced or rebuilt, or software is upgraded in the TCM, the adaptive relearn procedure must be performed. Chevrolet Equinox & Pontiac Torrent require a scan tool to initiate relearn procedure once transmission oil temperature reaches 150F. Clear old shift adapts & initiate relearn procedure with the scan tool, then adapts can be relearned as follows:

Neutral Position Adaptation - follow scan tool instructions. **N-D Engagement Adaptation** - Shift from neutral to drive, wait 3 seconds, shift back to neutral. Repeat 5 times. **N-R Engagement Adaptation** - Shift neutral to reverse, wait 3 seconds, shift back to neutral. Repeat 5 times. **Up Shift & Down Shift Adaptation** - In drive position, accelerate from stop at light throttle, about 15-20% throttle angle, to 4th gear. Decelerate while braking lightly, using a minimum of 14 seconds to come to full stop. Repeat 5 times. In drive position, accelerate from stop at a throttle opening of 50-55% all the way to 5th gear. Decelerate while braking lightly so each down shift is felt. Repeat 5 times. **2-1 Down Shift Adaptation** - With shifter in intermediate range, accelerate above 16 MPH, release throttle, then manually shift to low range and come to a stop. Repeat 10 times.

The scan tool of choice for GM is the *Tech 2*. The *Tech 2* works on Saturn vehicles too. There is a manual relearn procedure that can be used on Saturn if a scan tool is not available. With key off, "brain dead" the TCM by disconnecting both battery cables, (remove negative cable first), and connecting them together. Turn on some electrical components like headlights and heater fan to drain power from the TCM. If you turned the key on to drain the TCM, make sure you turn the key off before reconnecting battery. Reconnect the battery, (positive 1st negative last). By draining the power from the TCM, the adaptive learn is cleared to the default level. You can then perform shift adapts as shown above.

It's always a good idea to check to see if the computer has the latest software upgrades. On GM vehicles, this is made easy for the aftermarket technician. All you need is the software calibration number, which can be retrieved by your scanner, and the VIN#. Go to the **FREE** GM calibration web site, enter the VIN# and all of the software upgrades that are available for that vehicle will appear. Check to see if your calibration # is current. The web address is: cali.dgm.com.

Special thanks to ATSG for the Saturn relearn procedures.