

24 August, 2000

AVT-716 Firmware version 5.1

Introduction

Yet again, a new version of firmware for the AVT-716 has been released. Version 5.1 contains some significant changes that users need to be aware of. Some of these changes are subtle in their affects to existing applications. Most, but not all, changes affect operations in KWP (Keyword Protocol 2000) mode.

This document describes the changes in detail. The user should consult the “Master Commands and Responses” document; revision 23, for details on all commands and messages.

Remember: The AVT-716 is considered an off-board tester or ‘client’.

Change #1

All times are now in 0.5 millisecond increments.

This change affects all modes of operation.

Apologies are offered to Users who’s applications are affected by this change.

All messages, notifications, commands, responses, etc. are now in 0.5 millisecond increments. There are only two exceptions to this. For legacy reasons the following two commands still use 1.0 millisecond resolution:

- 5x 02: Buffer time out.
- VPW message playback function.

The change in time resolution was done for two reasons.

1. The AVT-716 actually uses a timer with 0.5 millisecond resolution and conversions back and forth were a source of confusion and errors.
2. Some Keyword Protocol 2000 timing parameters call for 0.5 millisecond resolution.

Change #2

A new timer has been implemented.

This change affects all modes of operation.

The original 11-bit timer with 0.5 millisecond resolution is designated as TIMER0.

TIMER0 is the default timer for all modes of operation.

The rollover value for TIMER0 is \$07FF.

The rollover time period is 1.0235 seconds.

A new 16-bit timer with 0.5 millisecond resolution is designated TIMER1.

The rollover value for TIMER1 is \$0FFFF.

The rollover time period is: 32.7675 seconds.

When TIMER1 is selected for use, it is cleared to \$0000.

Command summary

51 29:	Status query.
52 29 00:	Select and use TIMER0 (default).
52 29 01:	Select and use TIMER1.

Response summary

62 29 00:	TIMER0 being used.
62 29 01:	TIMER1 being used.

Note: Only one timer is permitted to be enabled at a time.

(If TIMER1 is selected; TIMER0 is disabled; Time Alert function is disabled.)

Change #3

A minor hardware modification is required to use the TIMER1 function.

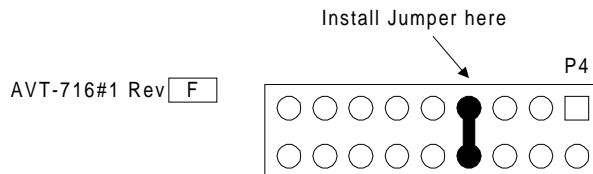
Implementation of this modification changes the hardware revision level of the board to "F".

This is a relatively simple modification to perform and may be done by the User at their site. If the User does not want to make this modification (for whatever reason), AVT will upgrade both hardware and software of a User's unit for no charge (shipping and handling may be extra). Contact AVT directly for more information.

The modification consists of adding a small jumper wire between pins #7 and #8 of P4 on the AVT-716 #1 board (top board).

P4 is a set of 18 holes arranged on a 9x2 grid (0.1 inch grid) near the [bottom] edge of the AVT-716#1 board. Ordinarily, there is nothing installed in P4. The square hole is pin #1. The holes are arranged in odd and even rows.

A sketch of P4 and vicinity is provided here.



Change #4

Added 5x 2A command to set and query timing parameter “P3_MIN”.

This change affects only KWP mode of operation.

P3_MIN is the timing parameter used by the 716 firmware for KWP 2000 timing parameter P3; The time between end of ECU responses and start of new tester request.

Command summary

51 2A: Status query.

53 2A xx yy: Set P3_MIN to \$xx yy in 0.5 millisecond increments.
Default is \$00 6E = 110 = 55 milliseconds.

Response summary

63 2A xx yy: P3_MIN time interval is \$xx yy in 0.5 millisecond increments.

Change #5

Added 5x 2B command to set and query buffer time out parameter, in 0.5 millisecond increments.

This change affects only KWP mode of operation.

This command is identical to the 5x 02 command except that it is in 0.5 millisecond resolution. The old 5x 02 command was left available to be compatible with existing User applications.

The 5x 2B command should be used to be consistent with all other timing parameters.

Command summary

51 2B: Status query.

53 2B xx yy: Set buffer time out to \$xx yy in 0.5 millisecond increments.
Default is \$00 2E = 46 = 23 milliseconds.

Response summary

63 2B xx yy: Buffer time out is \$xx yy in 0.5 millisecond increments.

Change #6

Added the 51 2C query for Keywords.

This change affects only KWP mode of operation.

During an initialization attempt the ECU sends Keyword #1 and Keyword #2 as part of the initialization sequence. This query will report the Keywords received during the most recent initialization attempt. At the start of an initialization attempt both Keywords are cleared to \$00.

Command summary

51 2C: Keyword status query.

Response summary

63 2C xx yy: Keyword report. xx - Keyword #1. yy - Keyword #2.

Change #7

Added the 5x 2D command to enable/disable first byte notification.

This change affects only KWP mode of operation.

When this function is enabled, the AVT-716 will generate the status message 93 15 xx yy whenever the first byte of a message is received. The bytes xx yy are the time stamp of when the first byte was received.

Command summary

51 2D: Status query.

52 2D 00: Disable first byte notification (default).

52 2D 01: Enable first byte notification.

Response summary

62 2D 00: First byte notification is disabled.

62 2D 01: First byte notification is enabled.

Notification summary

93 15 xx yy: First byte received at time xx yy in 0.5 millisecond increments.

Change #8

Changed the 21 4A error message.

This change affects only KWP mode of operation.

The error message is now: 22 4A xx where xx is the one byte that was received.

The 4A error message indicates the reception of a one byte message.