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eControls Utility Instructions

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Interfacing with the Electronic Control Module on your Allied Winch Product

Allied®

WINCH

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Contents

The Electronic Control Module

The Electronic Control Module (ECM) controls winch operation using a program that is specific to each winch model and application. The ECM monitors control inputs and actuates cartridge valves as needed to achieve the desired winch operation.

If the winch is modified, serviced or installed on a different model of tractor, it may be necessary to re-program the ECM. Or it may be necessary to perform higher-level electronic control system troubleshooting through the ECM interface.

The ECM is accessed for programming or troubleshooting by way of the 'Program Loader/Monitor' (PL/M) utility. An EControls software package, which contains the PL/M utility and necessary winch control programs, can be obtained from Allied Systems either though the Publications Locator at the Allied Systems Company's website, **http://www.AlliedSystems.com** or by obtaining an eControls software USB drive from Allied Systems. Contact your Allied Parts representative for more information at 503-625-5132.

System Requirements

The computer used for the ECM interface must meet or exceed the following requirements:

- Windows Operating Platform
- Minimum of 8 MB RAM, 16 MB or more or RAM is recommended
- Functional Serial COM Port or USB port with a USB to Serial COM port adapter
- USB port or Internet connection

Additionally, the following hardware is required:

- A printed copy of document 2305227W along with these instructions (document 599035W). These documents are included in the eControls software package.
- A communication cable (P/N 2304603W) is required to connect the ECM to the computer.

Note: The communication cable 2304603W requires a serial COM port. If a serial COM port is not available on your computer, a USB port to serial COM port adapter is available from Allied Systems (P/N 2310409). If using a USB port to serial COM port adapter, install the adapter drivers included on the USB drive before attempting to program or interface with the ECM.

Downloading the eControls software package from the website

1) Connect to http://www.AlliedSystems.com

2) Select 'Publications Locator' -> Select 'Allied Winch' -> Select 'eControls Download'

3) Follow the instructions shown on the page for downloading the software to your computer.

Allied Systems recommends checking their website at http://AlliedSystems.com for the most up-to-date versions of utility software and ECM programs any time an ECM is serviced.

About programs and BIOS

The ECM (also known by the manufacturer's name 'DVC-10' or 'DVC-710') uses what is known as 'Flash memory' to store information. When the ECM is in 'Programming mode' it can write new programs or BIOS information to the flash memory. The terms 'Flash file' and 'Program' mean the same thing, as do 'flashing' and 'programming'.

The BIOS is the 'Basic Input/Output System'. The ECM uses the BIOS to know how to execute the program and utilize the full capabilities of the ECM. BIOS files for this ECM have a file name ending in '.sre'. It's not recommended that the BIOS be updated unless directed by Allied Systems or you experience a programming error as outlined in Allied Service Bulletin A99-Z-27. In the case that you do have to update the BIOS, the DVC-10 must use BIOS version 4.72 and the DVC-710 must use BIOS version 5.26. DO NOT use BIOS versions greater than 5.26 for the DVC-710.

Programs are used by the ECM to determine how the winch will operate. Different programs exist for different winch models, winch applications, and hydraulic or electronic design revisions.   Winch programs each consist of two files: one file name ending with '.pgm' and one file name ending with '.mem'.

> Example: program 2310941A consists of files 2310941A.pgm and 2310941A.mem.

When programming the ECM, only the '.pgm' file will be selected, but the ECM requires the '.mem' file as well. Both of these files must be located in the same computer directory.

 It is important to take care to install the correct program on your winch. Using the incorrect program could result in poor winch performance or physical injury and death.

Document 2305227 is included on the USB drive and in the download and can be used to determine the correct program for your winch. Contact Allied Systems if you have any questions or concerns about selecting the correct program.

Installing the Program Loader/Monitor

The current versions of the Program Loader/Monitor cannot be run from the USB drive and must be installed on the computer to be used for communication with the ECM.

Run the file 'Setup.exe' from the appropriate sub directory for your version of control module. For the DVC-10 control modules, use subdirectory 'PLM_v4p73_Installer' on the eControls USB drive and for the DVC-710 control module, use 'PLM700_v5.27_Installer' subdirectory. Note that the computer will need to be re-started to complete the installation.

ECM Access and Programming for a DVC-10 Control Module

1) Turn the tractor key switch to **RUN** so that the electronic control module is powered up (indicated by continuously illuminated Power and MS LEDs on the module). Make certain that the module is powered before connecting the communication cable in the next step. It is not necessary to start

the tractor or engage the hydraulics in order to interface with the ECM or diagnose eControls concerns.

NOTE: If the ECM automatically and unintentionally goes into programming mode when powered up (indicated by the MS and NS lights flashing alternately), see service bulletin A99-Z-27 for instructions as to how to correct this situation.

2) Attach the communications cable to the diagnostic plug on the winch external wiring harness and to one of the computer's COM ports or to a USB to serial COM port adapter. See Figure 1.

Figure 1 - Electronic Control Module and Diagnostic Plug

3) Run the file HCT Products\Intella\PLM v4.73 from the Windows Start Menu.

4) A window called "Program Loader Monitor v4.73" should appear (see Figure 2).

Figure 2 – Program Loader Monitor v4.73

5) Select the 'DVC 10B Master Button'. This will launch the monitor window (see Figure 3).
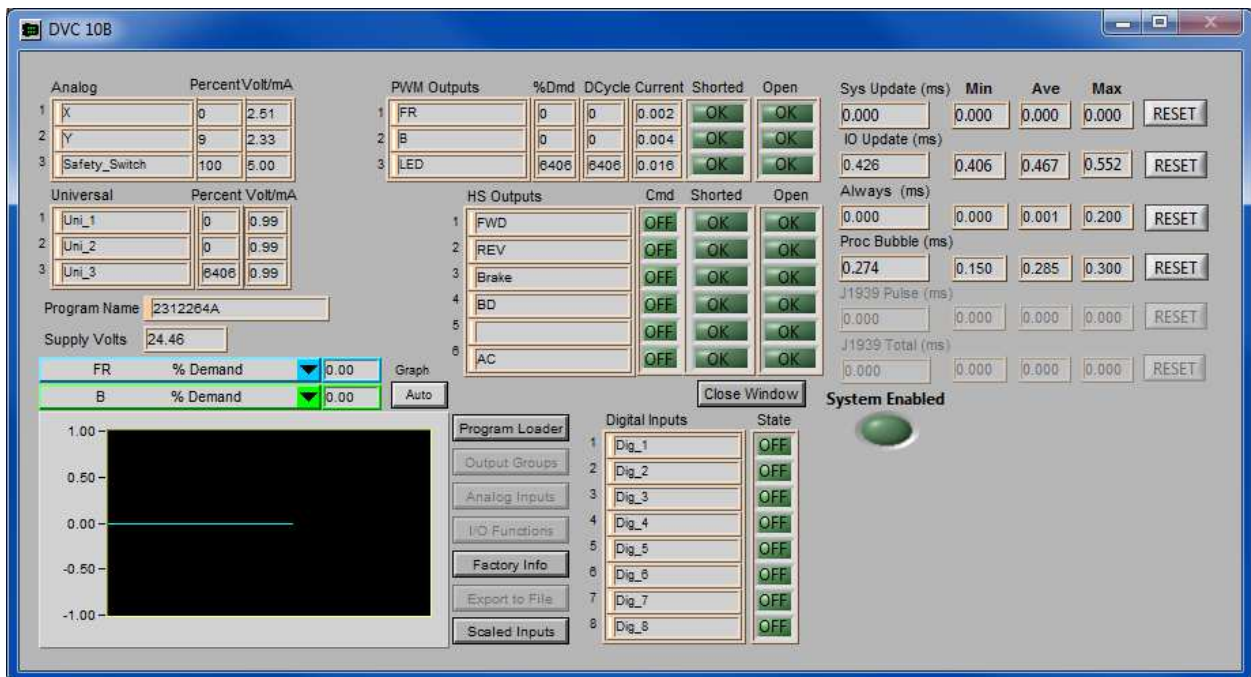
Figure 3 – DVC 10B Monitor Window

Note that advanced system troubleshooting can be performed at this level when the tractor key switch is 'on'. Detailed troubleshooting information can be found in the service manual for your model of winch.

"Program Name" identifies which program is currently loaded on your DVC-10

6) To flash a new program or BIOS, select the Program Loader button in the DVC10 monitor window. You will then see the 'Program Loader' window (see Figure 4).
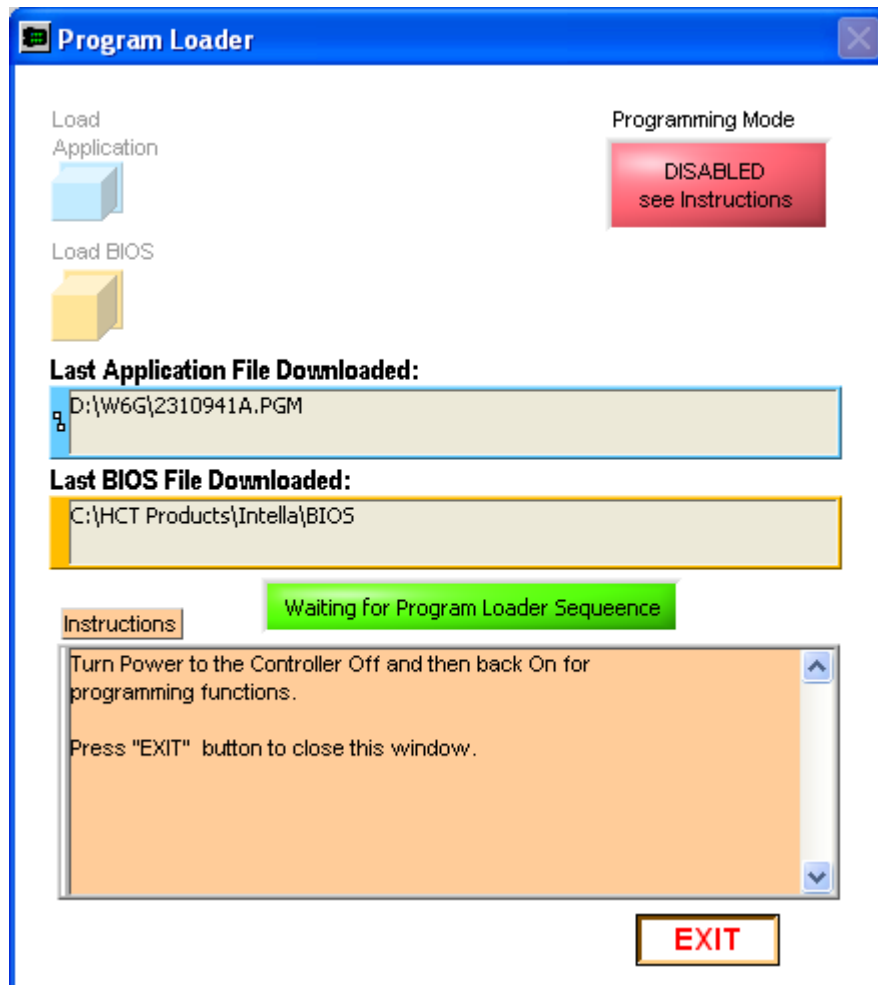
Figure 4 – Program Loader

7) To exit this screen and retain the old program, select the Exit button instead of proceeding to the next step.

8) To enter 'Programming Mode', switch the power to the ECM off and wait five seconds to allow the ECM to completely power down. Then turn the power back on to enter programming mode. The MS and NS lights will flash alternately when the ECM is in 'Programming Mode'. Note that the ECM must completely power down before being re-activated for the ECM to enter 'Programming Mode'.

9) When the Program Loader sees the ECM enter programming mode, the "Load Application" and the "Load BIOS" buttons will no longer be grayed out and the Programming Mode light will turn green and say "Enabled" as shown in Figure 5.

Figure 5 – Enabled Program Loader

> **NOTE: If at any time the ECM/DVC10 loses power while in programming mode, the module can become locked in programming mode. See Service Bulletin A99-Z-27 for correcting this situation.**

10) Click on the "Load Application" button as shown in Figure 5 and navigate to the correct program folder on the USB drive or in C:\WINCH if the software was downloaded from the Allied website. Programs are winch model specific and will be found in a directory named after the winch model in question as shown in Figure 6. Note that the only files that will be shown for selection are the '.pgm' files.
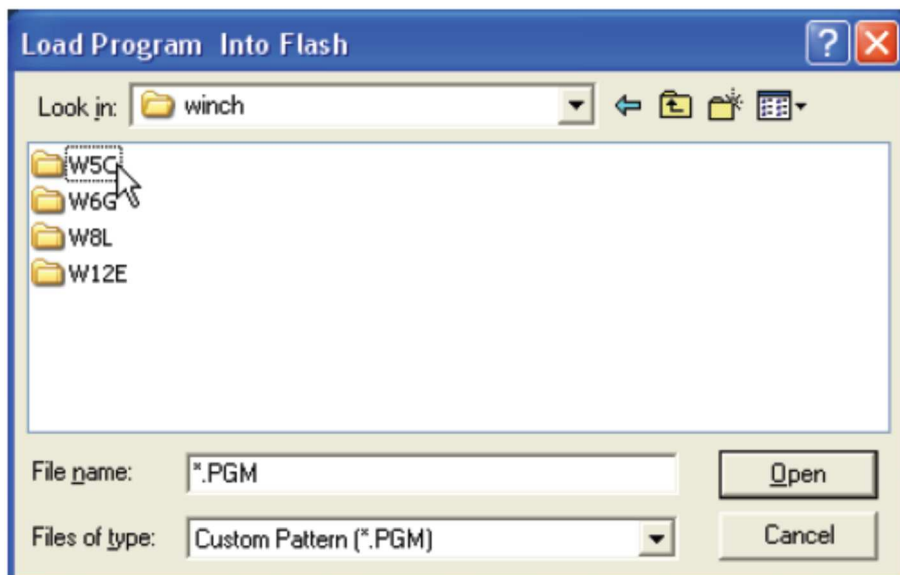
Figure 6 – Selection window

11) Select the program, as shown in Figure 7, as an example, then select "Open" and wait for the file to be flashed onto the ECM. Depending on the speed of your computer, this may take several minutes (see Figure 8). When the process of flashing the ECM module is complete, the screen will be as shown in Figure 9.
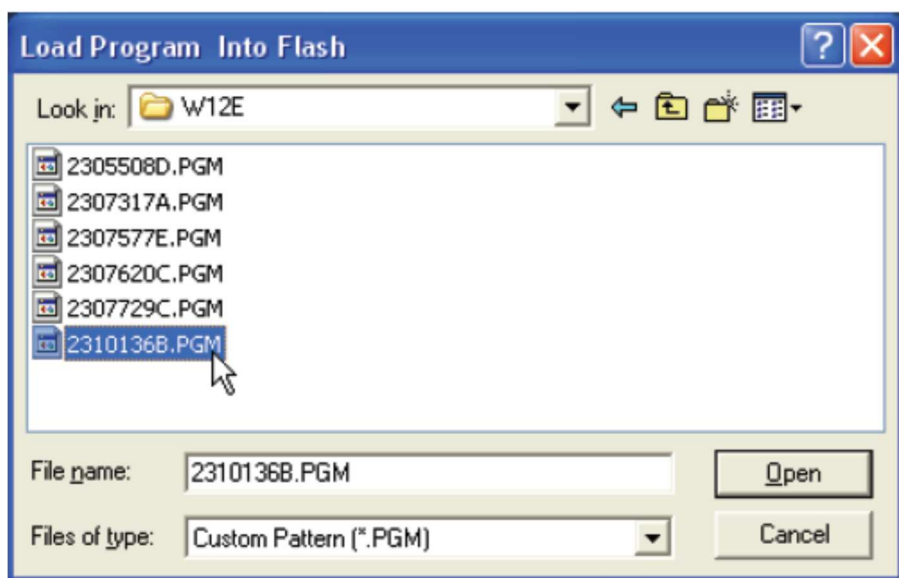
Figure 7 – Program selection
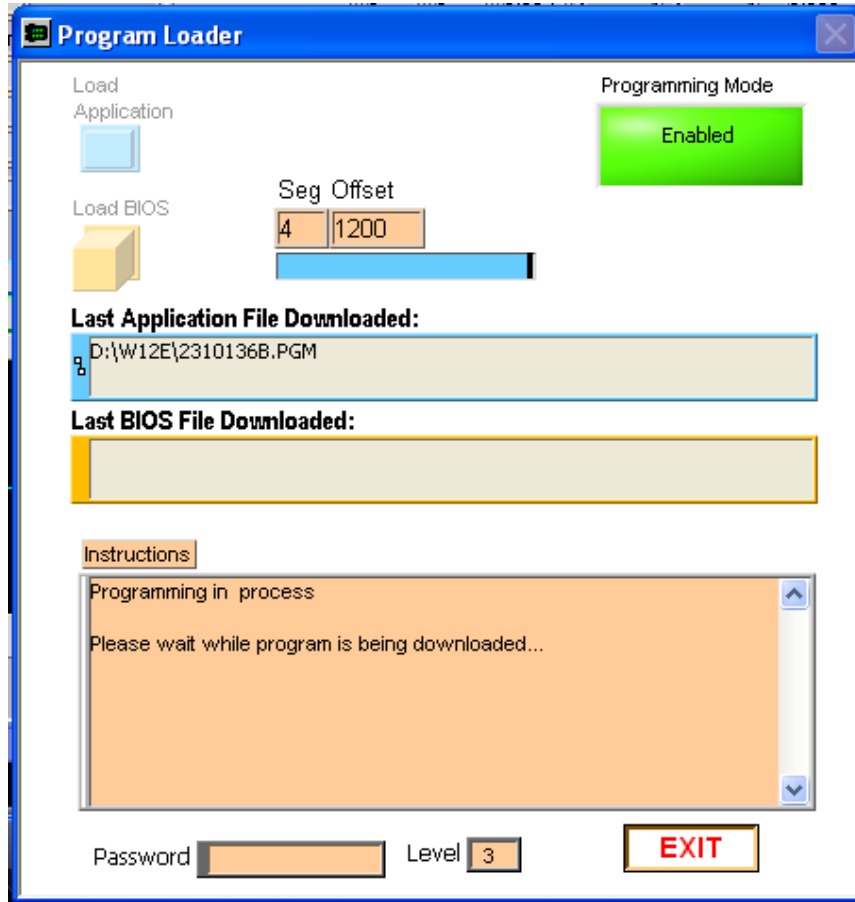
Figure 8 – Program loading in process
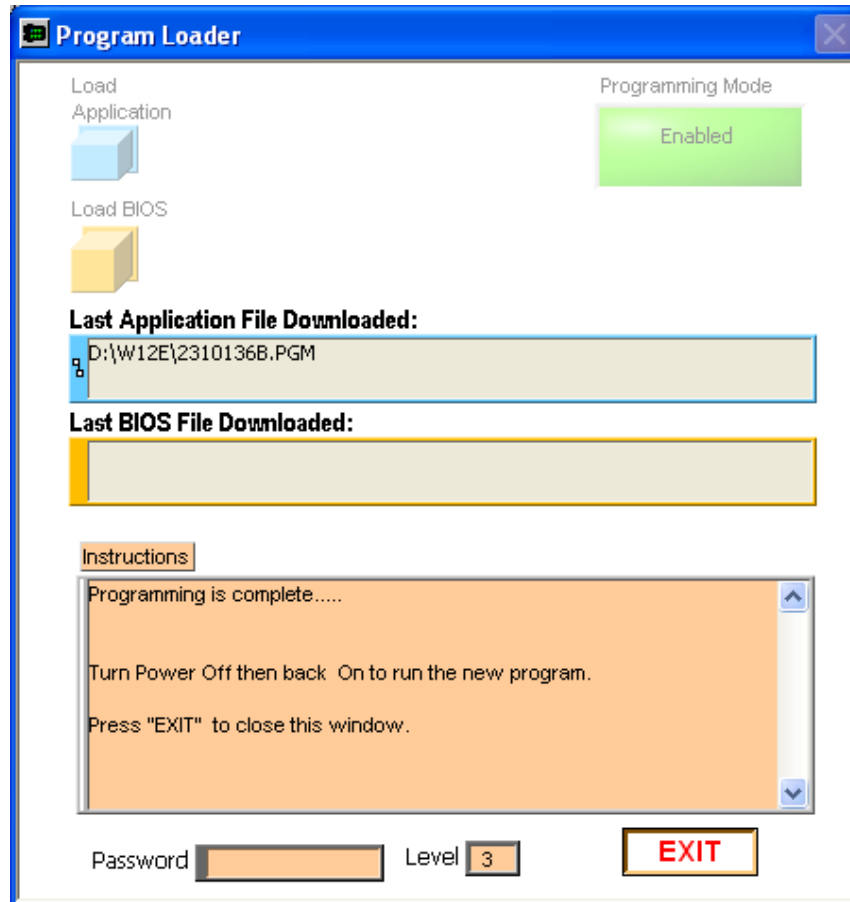
Figure 9 – Program loading complete

12) When programming is complete, switch the ECM power off and wait five seconds for the ECM to completely power down. Then switch the power back on to activate the newly programmed ECM.

13) The DVC10 Monitor screen will appear, and the newly flashed program name along with other variables will be visible. Verify that the "Program Name" on the newly flashed ECM matches the intended program.

14) The winch can be operated at this point. The DVC 10 Monitor window can be left running for diagnostics and troubleshooting.

15) Click the "Close Window" button on the right of the screen to bring up the Main Menu window to exit the Monitor (see Figure 11). Select the Quit button to exit the Program Loader.

16) Detach the communication cable from the winch harness and insert the plug into the harness diagnostic connector.

17) The winch is now ready for use. It is recommended that the winch be tested without load for proper function prior to returning the winch to service.
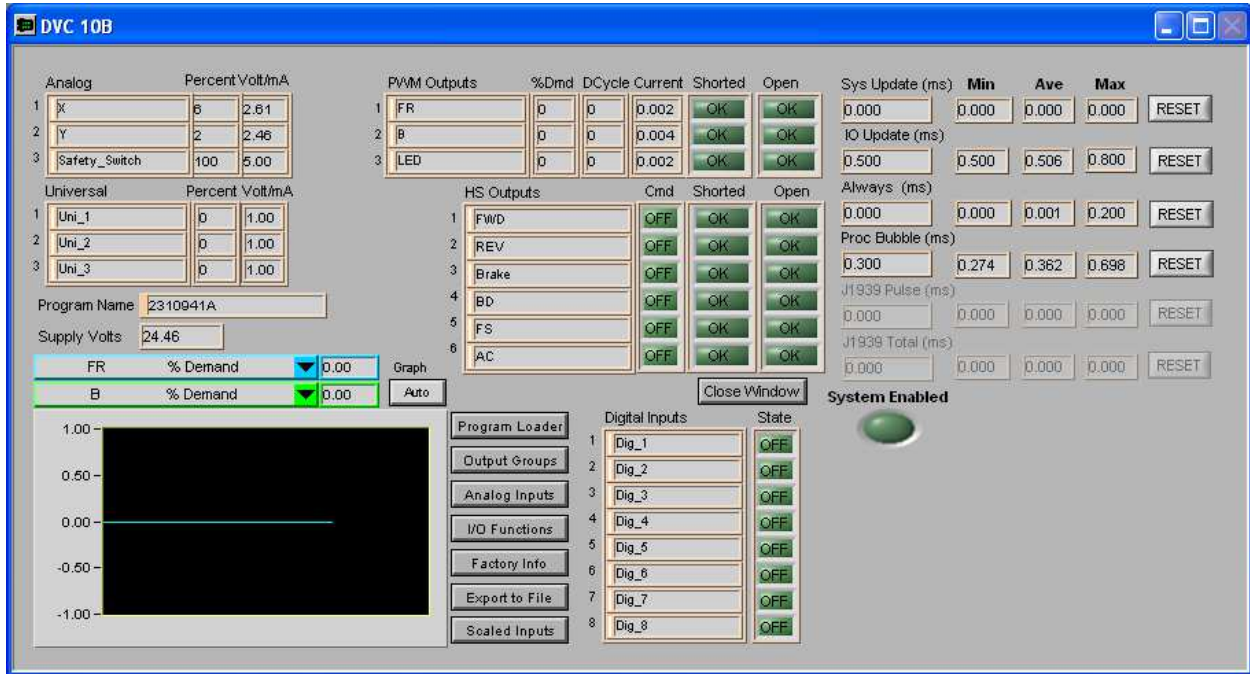
Figure 11 – DVC-10 Monitor Window

Figure 12 – DVC-10 LED Indicators

ECM Access and Programming for a DVC-710 Control Module

1) Turn the tractor key switch to **RUN** so that the electronic control module is powered up (indicated by continuously illuminated Power and MS LEDs on the module). Make certain that the module is powered before connecting the communication cable in the next step. It is not necessary to start the tractor or engage the hydraulics in order to interface with the ECM or diagnose eControls concerns.

   NOTE: If the ECM automatically and unintentionally goes into programming mode when powered up (indicated by the MS and NS lights flashing alternately), see service bulletin A99-Z-27 for instructions as to how to correct this situation.

2) Attach the communications cable to the diagnostic plug on the winch external wiring harness and to one of the computer's COM ports or to a USB to serial COM port adapter. See Figure 13.
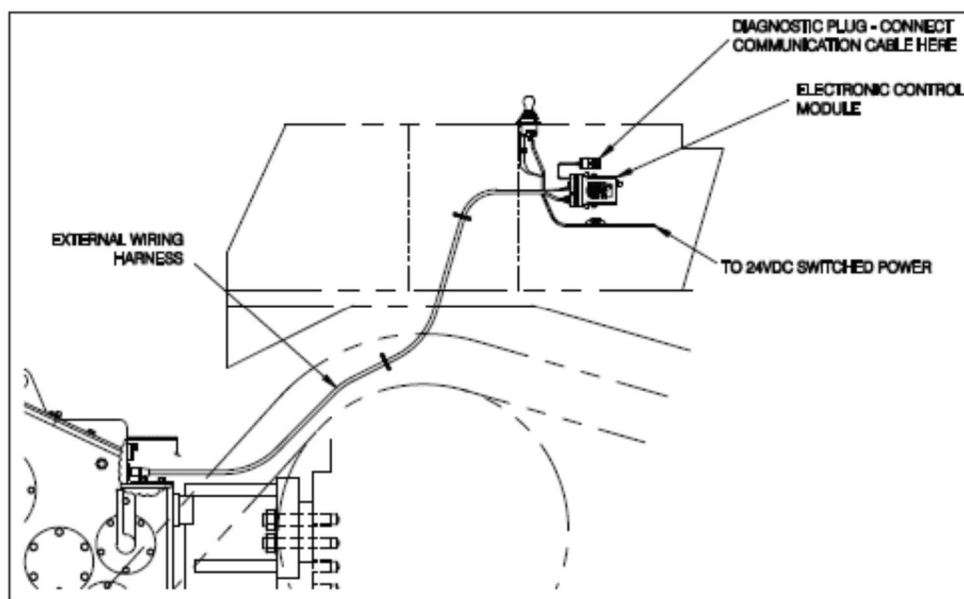

Figure 13 - Electronic Control Module and Diagnostic Plug

3) Run the file HCT Products\PLM700 from the Windows Start Menu.

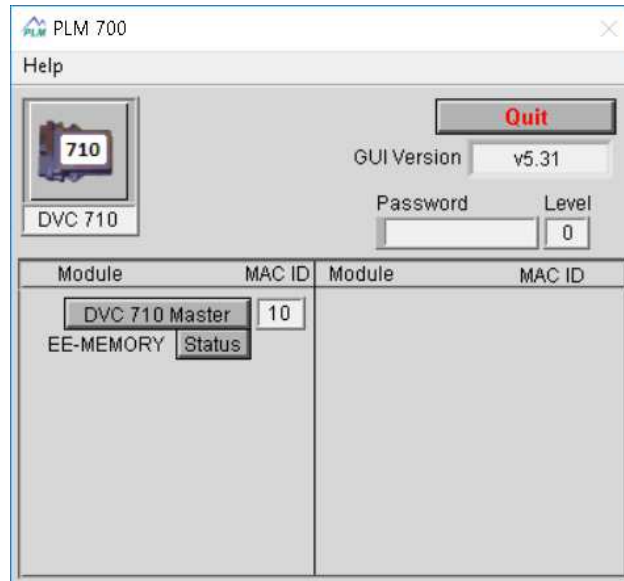4) A window called "PLM 700" should appear (see Figure 14).

Figure 14 – Program Loader Monitor (PLM700)

5) Select the 'DVC 710 Master Button'. This will launch the monitor window (see Figure 15).
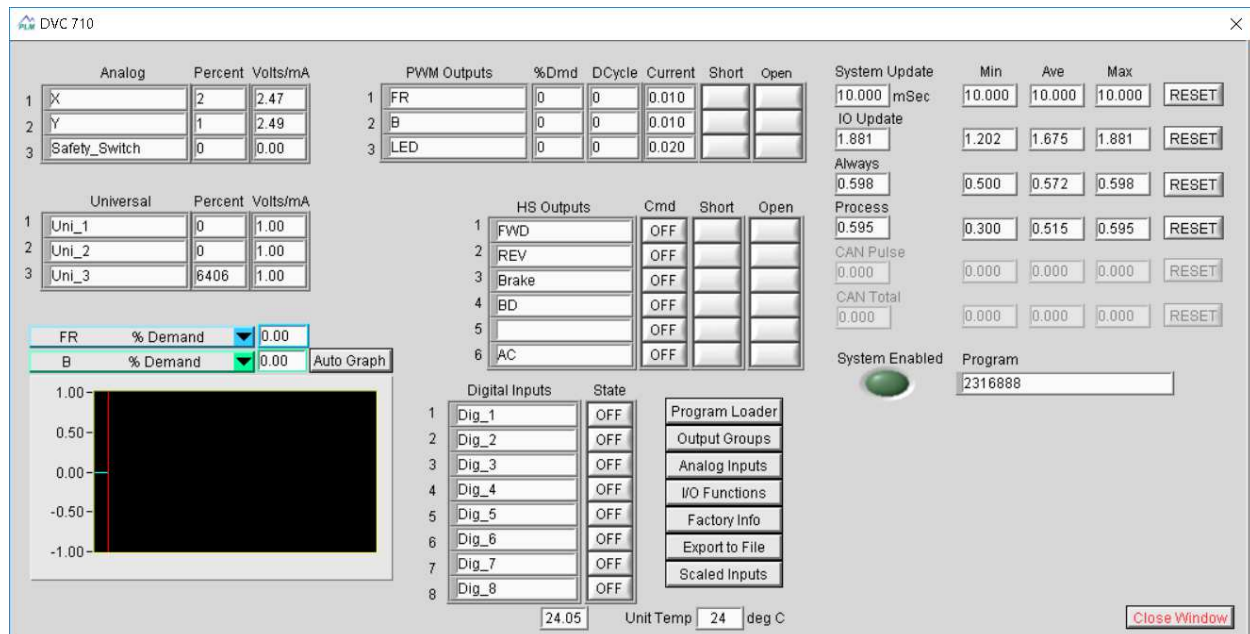

Figure 15 – DVC 710 Monitor Window

Note that advanced system troubleshooting can be performed at this level when the tractor key switch is 'on'. Detailed troubleshooting information can be found in the service manual for your model of winch.

The "Program" field identifies which program is currently loaded on your DVC-710

6) To flash a new program or BIOS, select the Program Loader button in the DVC-710 monitor window. You will then see the 'Program Loader' window (see Figure 16).
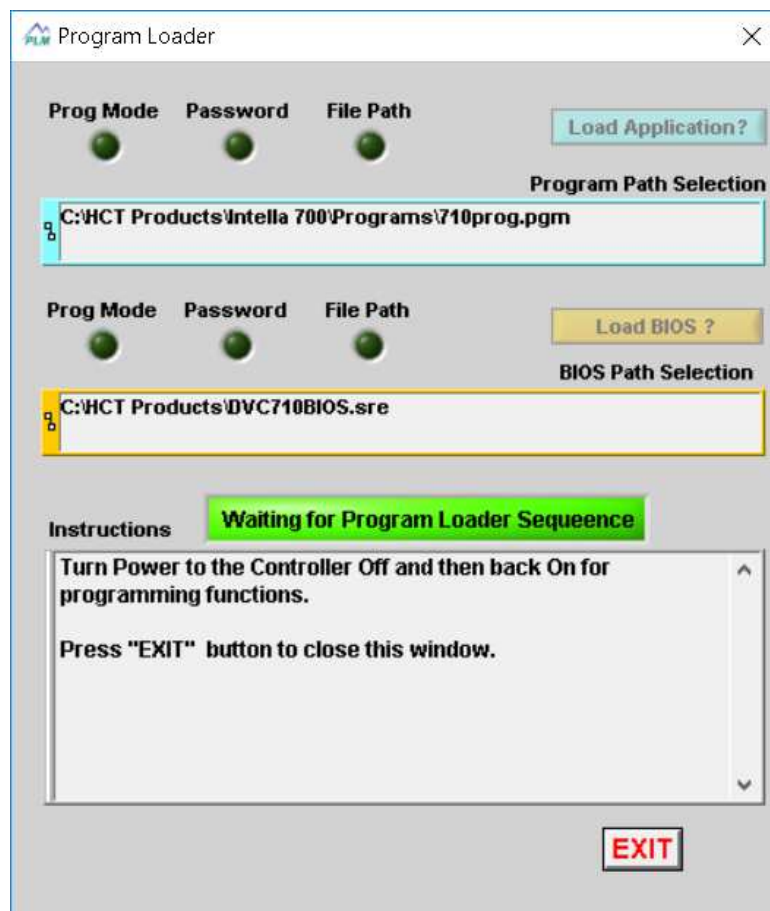
Figure 16 – Program Loader

7) To exit this screen and retain the old program, select the Exit button instead of proceeding to the next step.

8) To enter 'Programming Mode', switch the power to the ECM off and wait five seconds to allow the ECM to completely power down. Then turn the power back on to enter programming mode. The MS and NS lights will flash alternately when the ECM is in 'Programming Mode'. Note that the ECM must completely power down before being re-activated for the ECM to enter 'Programming Mode'.

9) When the Program Loader sees the ECM enter programming mode, the "Load Application" and the "Load BIOS" buttons will no longer be grayed out and the <u>Prog Mode</u> light will turn green as shown in Figure 17.
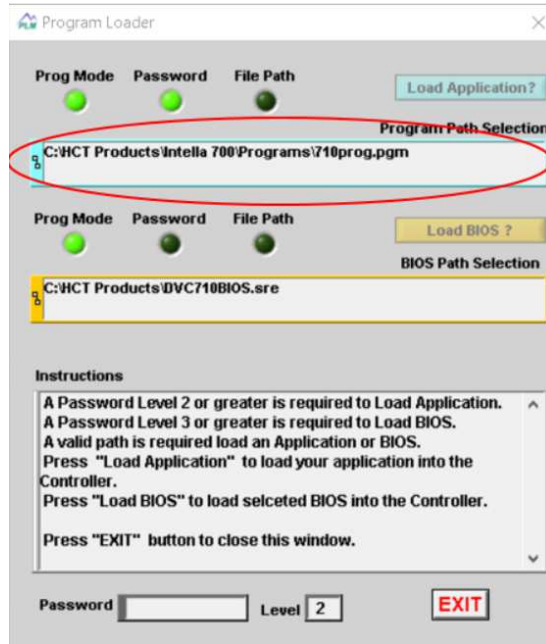
Figure 17 – Enabled Program Loader

NOTE: If at any time the ECM/DVC-710 loses power while in programming mode, the module can become locked in programming mode. See Service Bulletin A99-Z-27 for correcting this situation.

10) Click in the program selection field as shown in Figure 17 and navigate to the correct program folder on the USB drive or in C:\WINCH if the software was downloaded from the Allied website. Programs are winch model specific and will be found in a directory named after the winch model in question as shown in Figure 18. Note that the only files that will be shown for selection are the '.pgm' files.
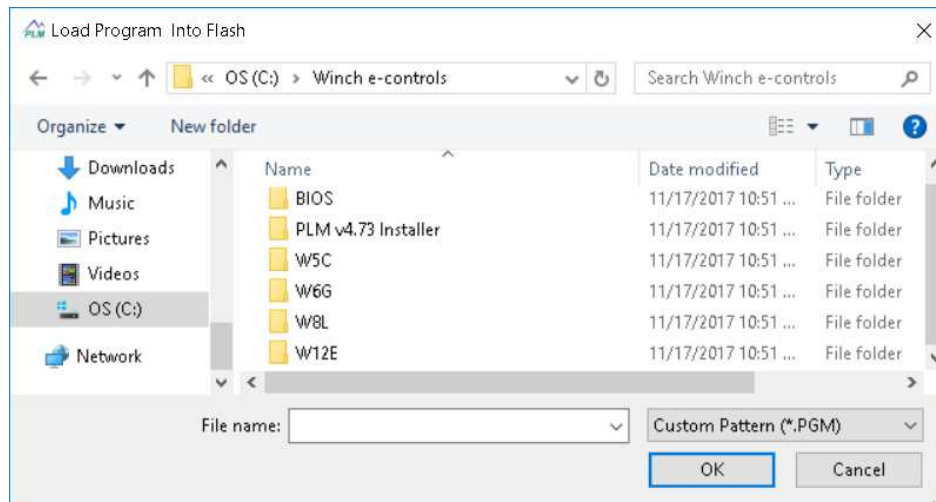

Figure 18 – Selection window

11) Select the program, as shown in Figure 19, then select "Open" and wait for the file to be flashed onto the ECM. Depending on the speed of your computer, this may take several minutes (see Figure 20). When the process of flashing the ECM module is complete, the screen will be as shown in Figure 21.
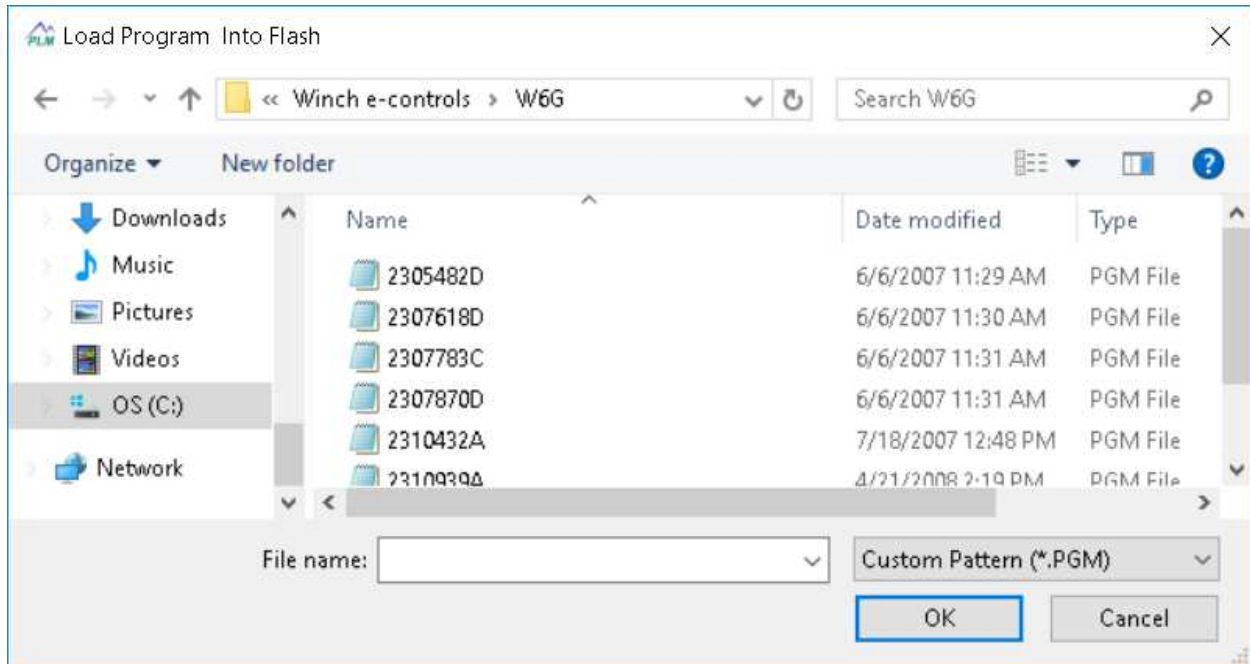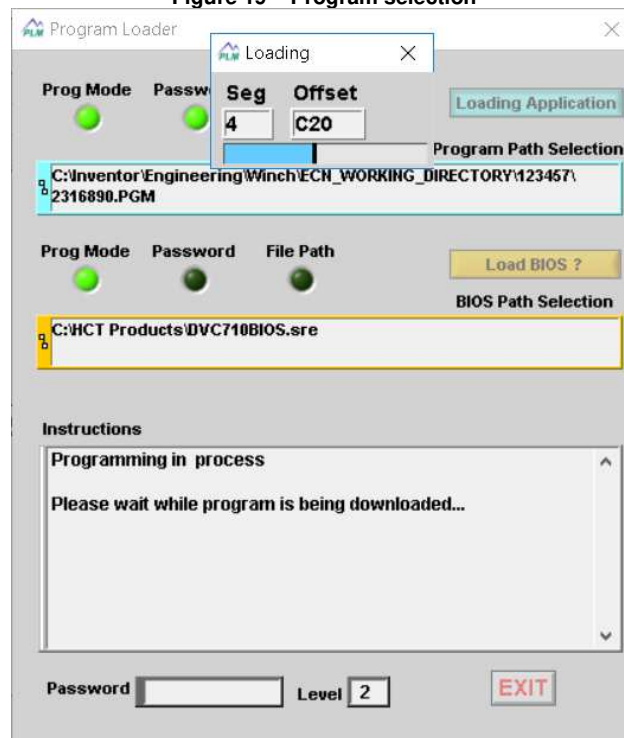

Figure 19 – Program selection

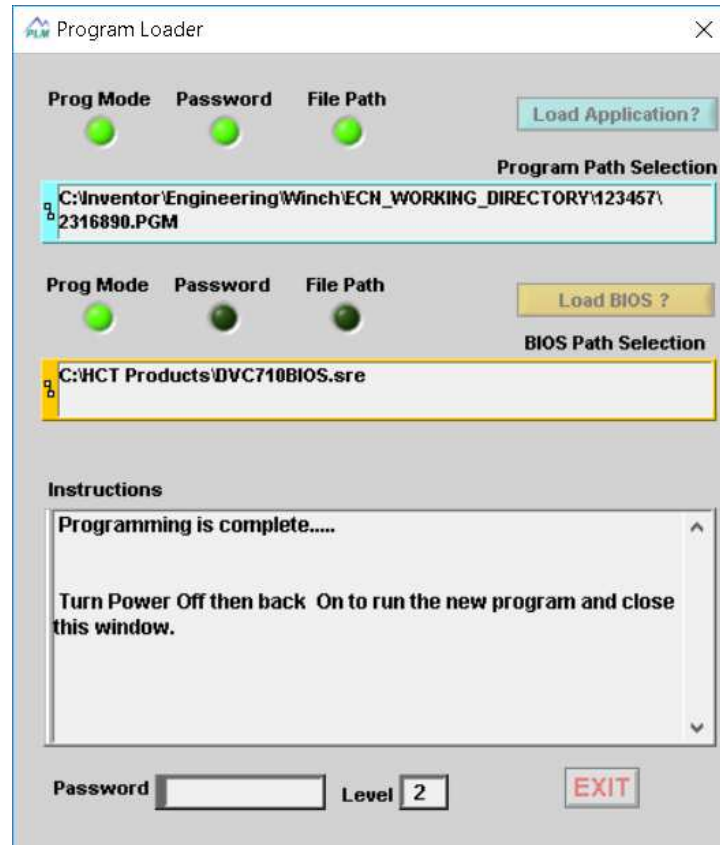**Figure 20 – Program loading in process**

Figure 21 – Program loading complete

12) When programming is complete, switch the ECM power off and wait five seconds for the ECM to completely power down. Then switch the power back on to activate the newly programmed ECM.

13) The DVC-710 Monitor screen will appear, and the newly flashed program name along with other variables will be visible. Verify that the program name in the "Program" field for the newly flashed ECM matches the intended program.

14) The winch can be operated at this point. The DVC 10 Monitor window can be left running for diagnostics and troubleshooting.

15) Click the "Close Window" button on the right of the screen to bring up the Main Menu window to exit the Monitor (see Figure 22). Select the Quit button to exit the Program Loader.

16) Detach the communication cable from the winch harness and insert the plug into the harness diagnostic connector.

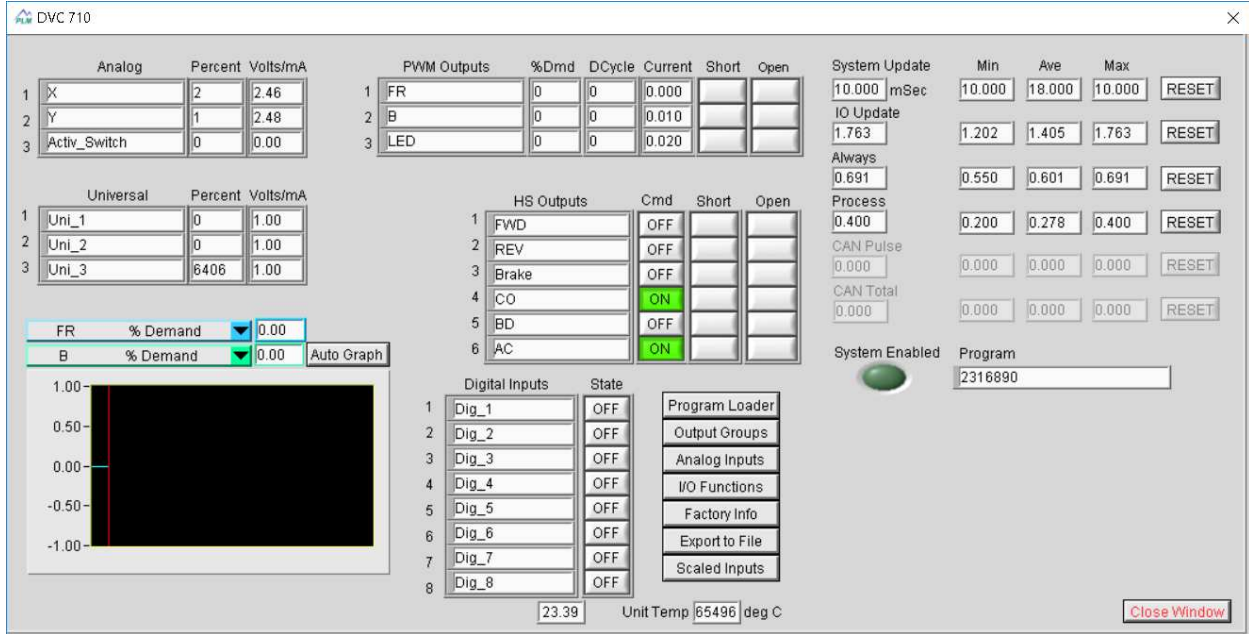17) The winch is now ready for use. It is recommended that the winch be tested without load for proper function prior to returning the winch to service.

Figure 22 – DVC 710 Monitor Window