EControls, Inc.
Control and Instrumentation Specialists

OEM End-of-Line Bulk Reprogramming for EControls Inc. Engine Control Modules

Revision 0.1

Nov 6, 2006

Table of Contents

1 Revision History

Version	Date	Description	Author
0.1	11/06/06	Initial Release	C. Lela

2 Overview

The bulk reprogramming utility is a software utility intended for use by Original Equipment Manufactures (OEMs) to automatically program Engine Control Modules (ECM) prior to End-of-Line (EOL) testing and product shipment. The utility can be configured to reprogram an ECM and/or load an application specific calibration, if necessary, based on the input of part numbers. The utility limits operator interaction by only requiring one or two barcode scans to select the proper files and initiate the programming/download process.

3 Installation

The 'Bulk Reprogram' feature is included in all EControls Display Interface Software (EDIS) installations. This feature is initially disabled as shown in Figure 1. In order to enable the bulk reprogramming functionality, for use through the PC display software, a configuration file (*edis_bulk_reprogram.dat*) must reside in the root directory of the PC display software directory (i.e. c:\GCP_dis for the GCP platform). A Microsoft Excel based software configuration utility is available from EControls Inc. to automatically generate this file (see section *4 Configuration* for details on how to configure the software). If the *edis_bulk_reprogram.dat* file exists in the root directory the 'Bulk Reprogram' feature will be enabled and the menu selection will be enabled through the File menu of EDIS. Figure 2 shows verification that the 'Bulk Reprogram' function is enabled.

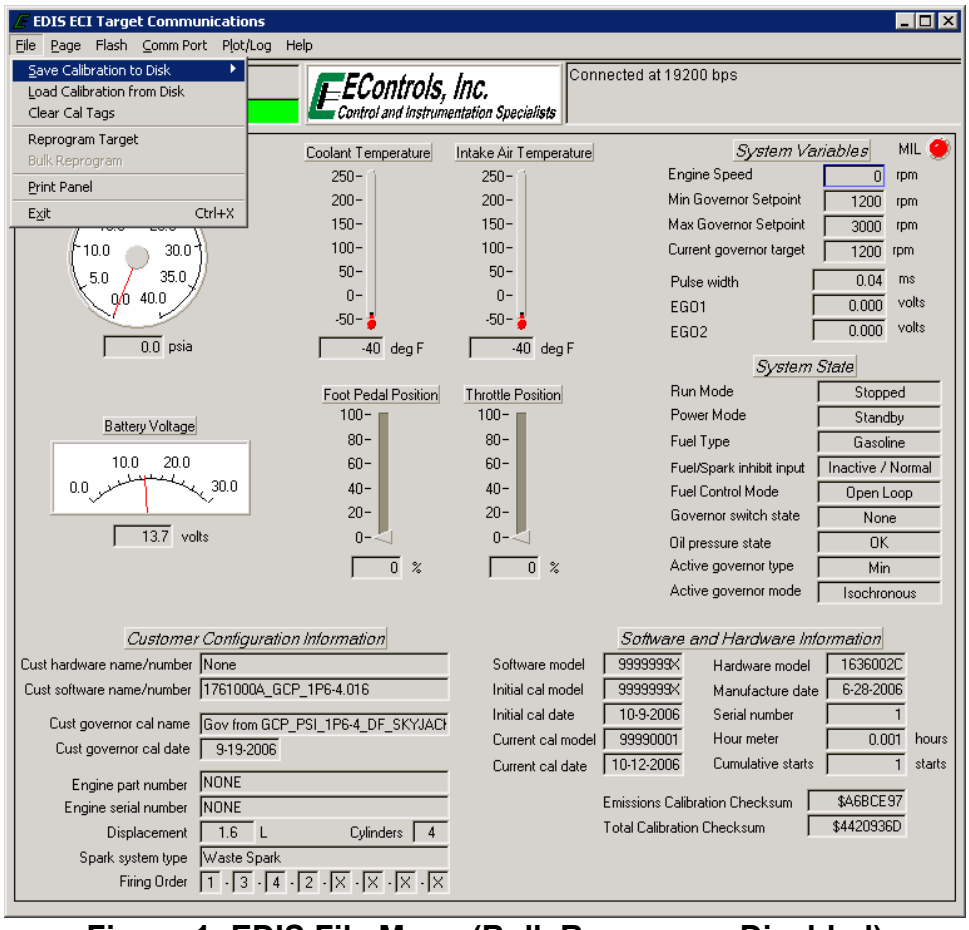

Figure 1: EDIS File Menu (Bulk Reprogram Disabled)

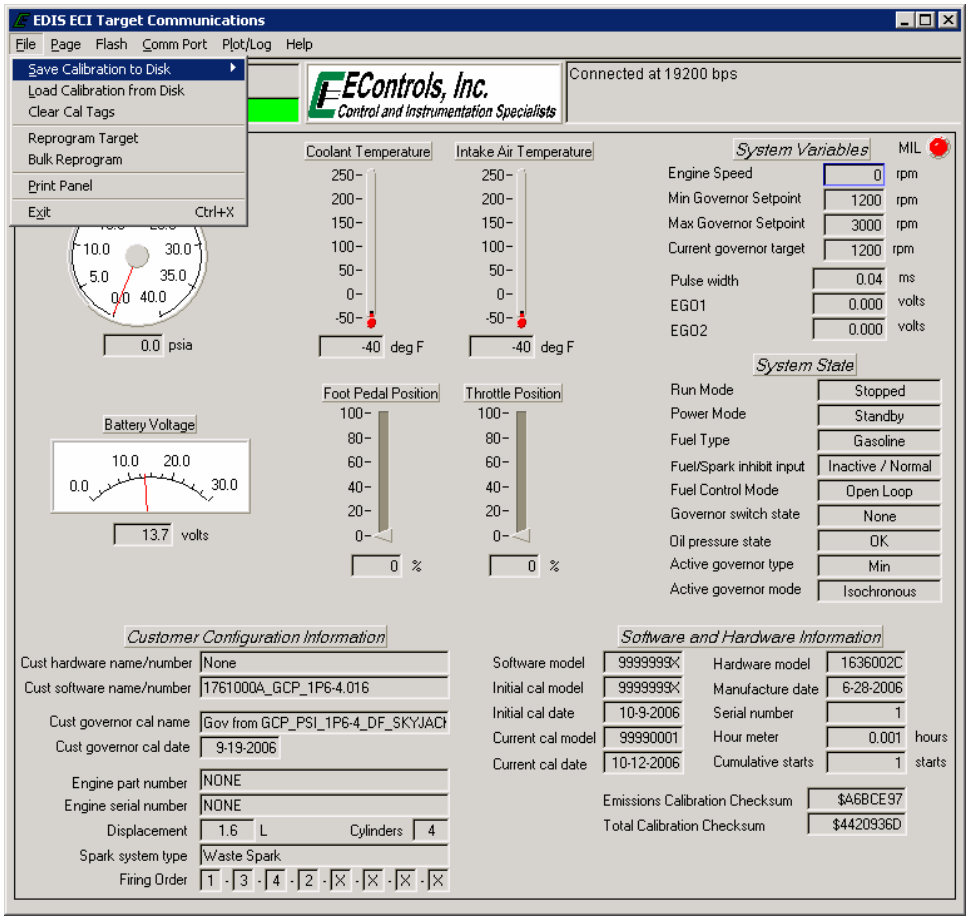

Figure 2: EDIS File Menu (Bulk Reprogram Enabled)

4 Configuration

As mentioned, in order to enable the bulk reprogramming feature through EDIS a configuration file (*edis_bulk_reprogram.dat*) must reside in the root directory of the PC display software directory (i.e. c:\LCI_dis for the LCI GCP platform) on the reprogramming/calibration download computer. This file can be automatically generated using a Microsoft Excel based utility. Figure 3 provides an example of the utility spreadsheet.

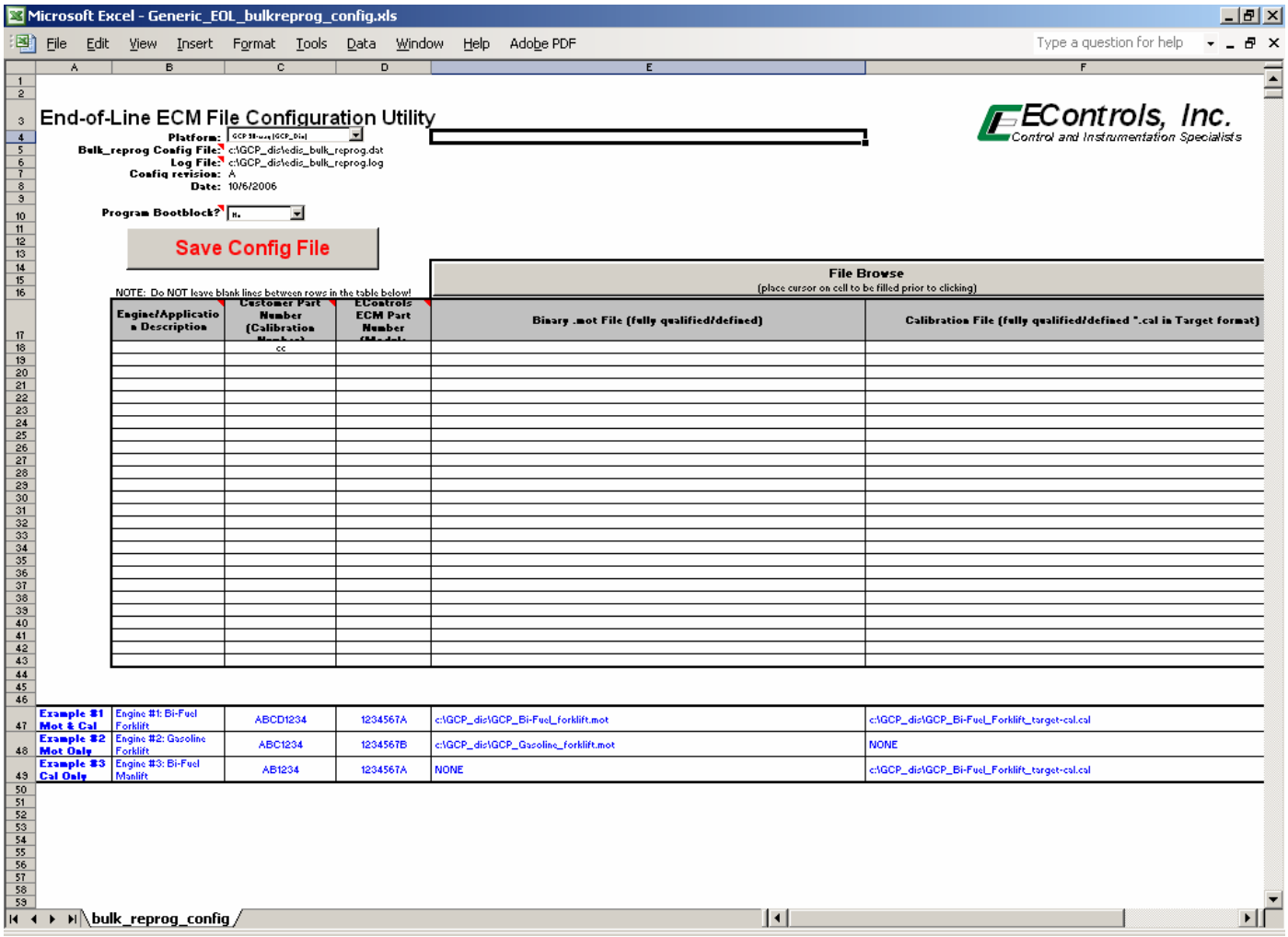

Figure 3: Configuration Spreadsheet

The spreadsheet uses Microsoft Visual Basic macros to perform various functions (Filepath generation, file browsing, and configuration file export). As a result, your MS Excel software needs to be configured to permit the usage of macros. If your macro security level is set too high (see Figure 4 and Figure 5), the spreadsheet functions will not be enabled and the spreadsheet will not provide the necessary functions.

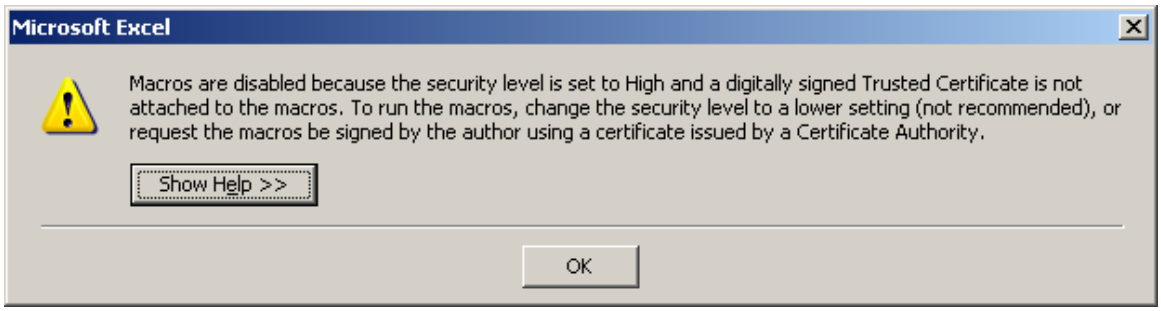

Figure 4: Macro Level Prompt-High

Figure 5: Macro Level Prompt-Very High

To setup your MS Excel software to permit macros usage, go to *Tools* → *Macro* → *Security* (see Figure 6) and set the security level to Medium or Low.

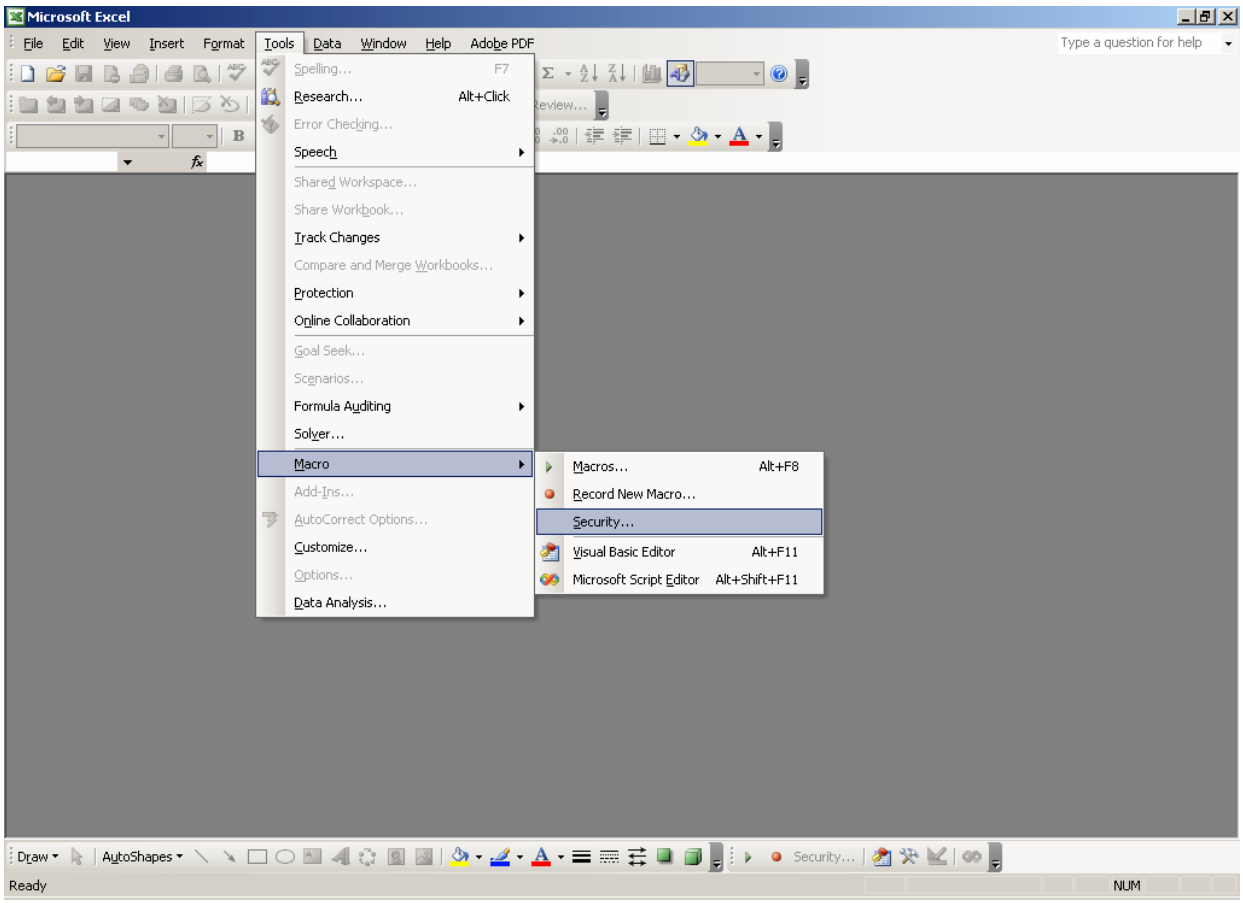

Figure 6: Macro Security Level Setup

If the MS Excel software is setup with Medium level macro security, enable macros when prompted upon initialization of the spreadsheet (see Figure 7).

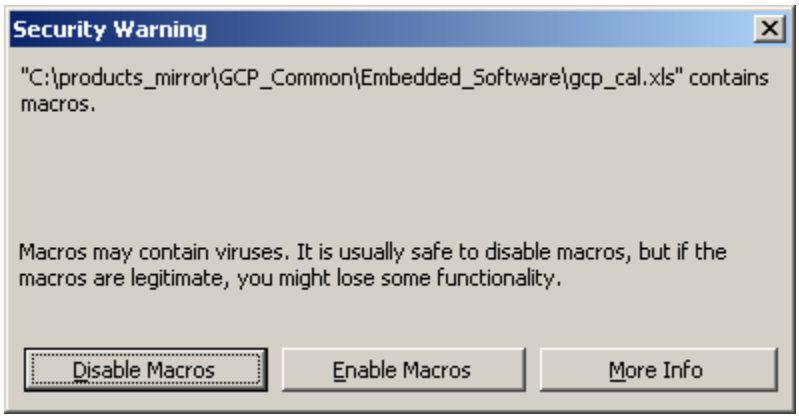

Figure 7: Macro Enable Prompt

The spreadsheet provides 3 main functions:

1. Sets the platform and generates the appropriate file paths for the configuration file(s)
2. Assigns part numbers and arranges the binary files (*.mot) and calibration files (*.cal) in the proper order
3. Exports the configuration file (*.dat) to the appropriate directory

If multiple EDIS software installations (i.e. GCP_dis, and LCI_dis, and FPP_dis) packages reside on the programming computer, multiple *edis_bulk_reprogram.dat* files must reside in each root directory.

Once the configurations have been defined for each part number combination, the configuration file need be exported by clicking "Save Config File." For additional details on using the spreadsheet, please refer to the comments embedded within the cell headers.

5 Operation

The bulk reprogram software feature can be initiated/activated in two ways:

- ☐ Launch EDIS by selecting *Start Menu→Programs→EDIS_Dis* or by selecting a EDIS_Dis shortcut icon, enter a valid password and select *File→Bulk Reprogram* (see Figure 2).

  NOTE: The password entered into EDIS must have both Reprogram and Calibration Download capabilities in order to function properly!

- ☐ Launch EDIS by selecting an EDIS_Dis shortcut that is configured to activate the 'Bulk Reprogram' feature. This shortcut can be configured by right-clicking the shortcut icon, selecting *Properties*, and entering *–bulkreprog* at the end of the *Target:* field. Figure 8 shows an example of the shortcut icon's *Properties* configuration.

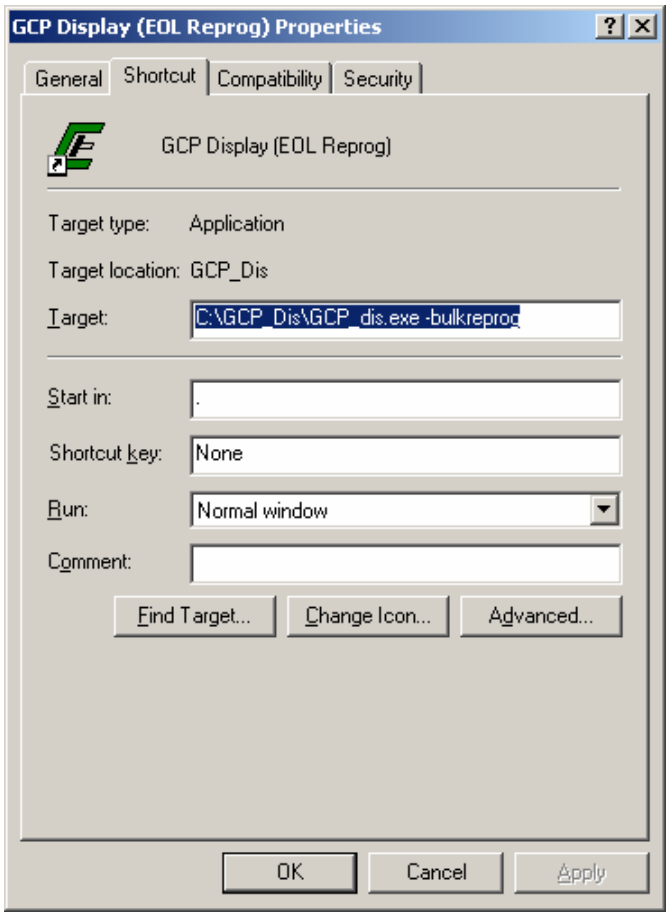

Figure 8: EDIS Shortcut Configured for Bulk Reprogramming

Once the Bulk Reprogramming feature has been selected, the password dialog prompt shown in Figure 9 will be displayed. The password field will be empty the first time that this prompt is shown and a valid reprogramming and download password will need to be entered. Once this password has been entered, select the 'Save password and S/N' to keep the password saved for the next software session.

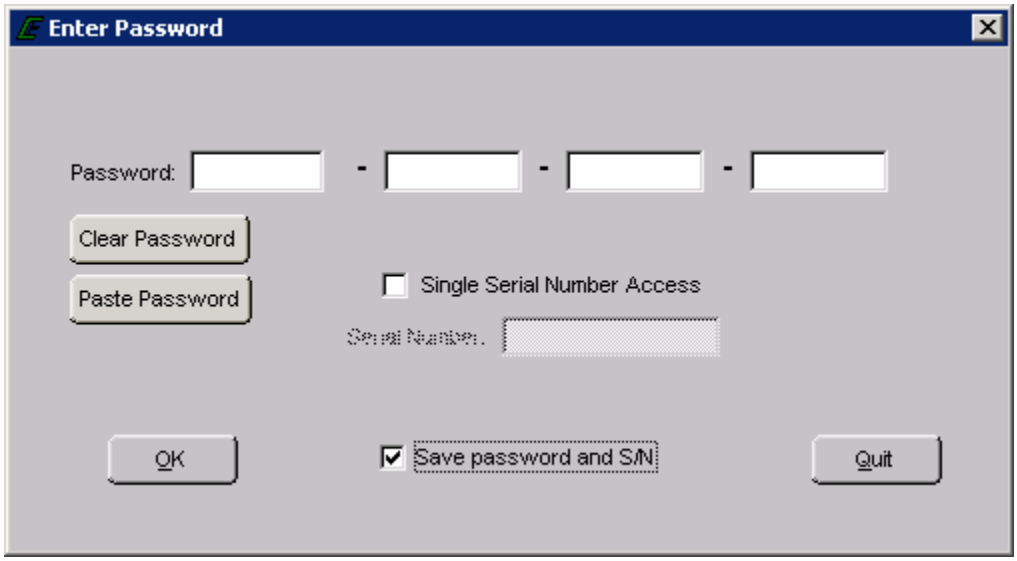

Figure 9: Password Dialog Prompt

NOTE: If the computer that is performing the reprogramming will also be used for end-of-line engine testing, use an appropriate password to enable access to required pages/variables.

Upon entering a valid password, the dialog box shown in Figure 10 will be displayed. At this stage, the barcode(s) should be scanned. If each application has its own ECM hardware part number and barcode, only the 'Model Number' barcode is necessary to select the appropriate file(s). Otherwise, two barcodes are necessary to uniquely identify the appropriate file(s) for programming into the module. Barcodes may be scanned in any order as long as they are unique with respect to one another. In all cases, the 'Model Number' part number shall follow the EControl Inc. format of 1234567X.

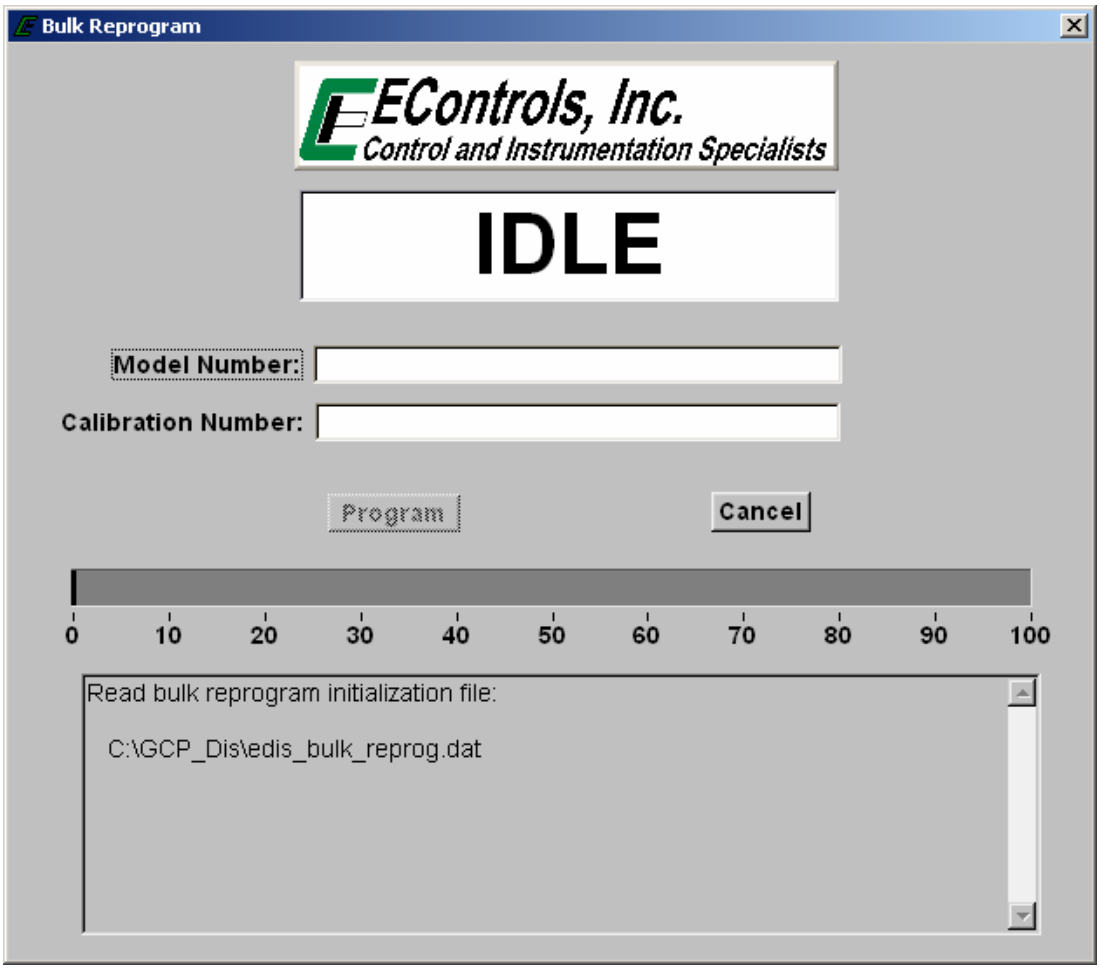

Figure 10: Bulk Reprogram Dialog Box

Should a file not exist in the directory called out in the *.dat file, the error prompt in Figure 11 will be displayed.

NOTE: The barcode scanner must be a type that includes a carriage return at the end of the scan.

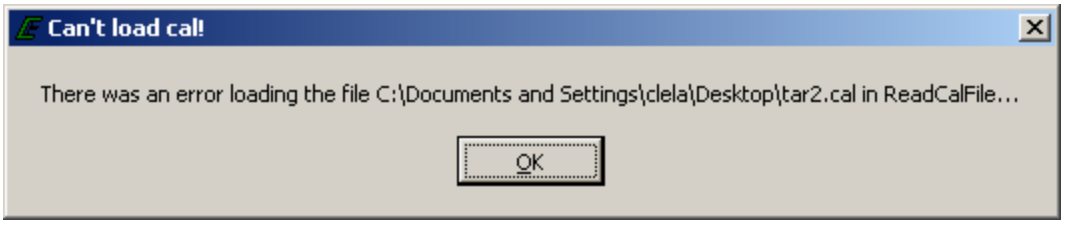

Figure 11: MOT/CAL File Read Error

Once both barcodes have been identified and the files have been located, the programmer will begin. During the reprogramming/download process, the window shown in Figure 12 will be displayed.

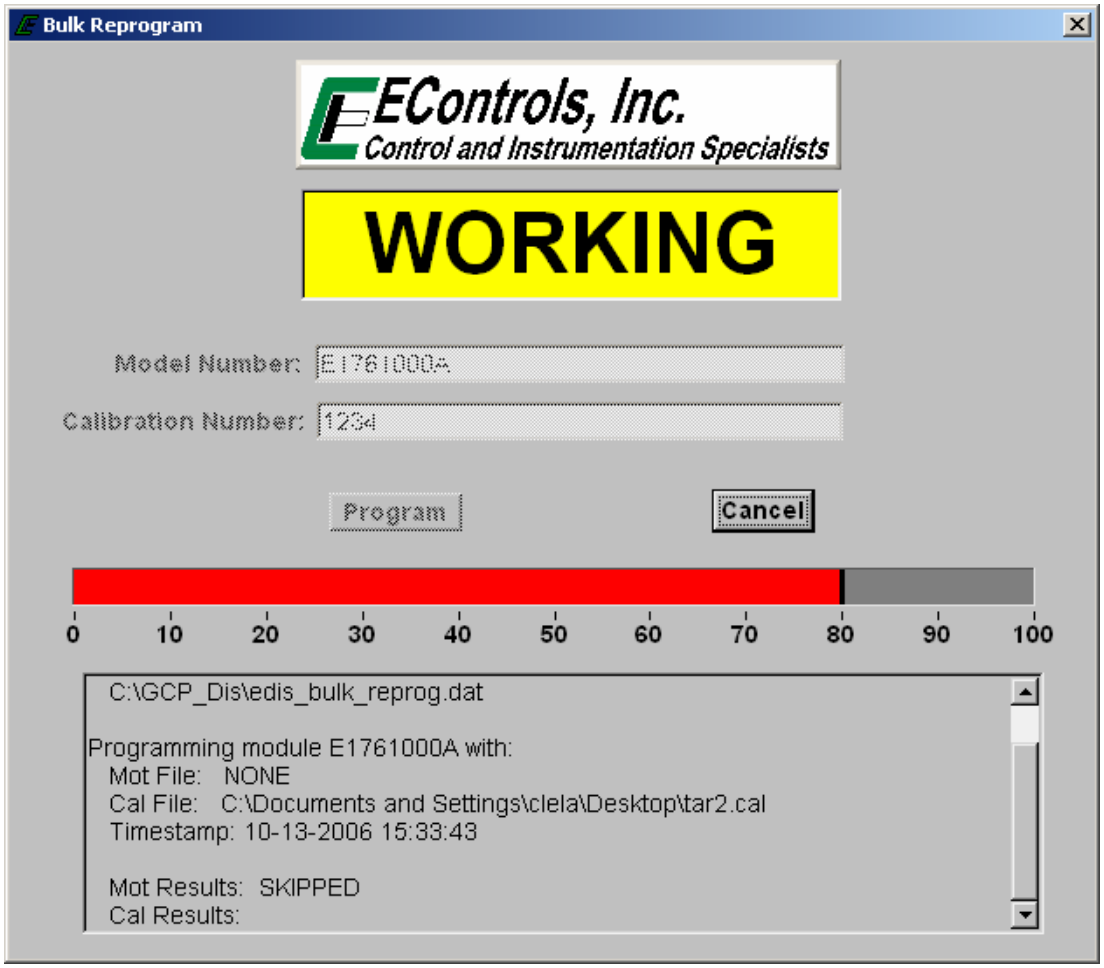

Figure 12: Programming in Process

Once programming has complete both the mot file programming and the calibration download sequence are successful, the window shown in Figure 13 will be displayed. The status area of this window will display the files loaded and will then reset for the next module. If the either the mot file or the calibration file are marked for part numbers that are inconsistent with what is in the module, the 'Incompatible Cal/Mot' error prompt will be displayed. This prompt is shown in Figure 14. Should this prompt arise, Cancel the prompt and rescan the part numbers. If the prompt reoccurs, verify that the scanner is properly populating the part numbers into the appropriate fields and/or check with the calibration manager to ensure part numbers are proper for the ECM hardware.

If the calibration file contains variables that are unknown to the PC display program (i.e. variables that are not displayed on any page in EDIS) the error prompt in will be displayed. While this prompt identifies the user that there are variables unknown to the PC program, the appropriate variables WILL BE PROPERLY loaded.

Figure 13: Programming Successful

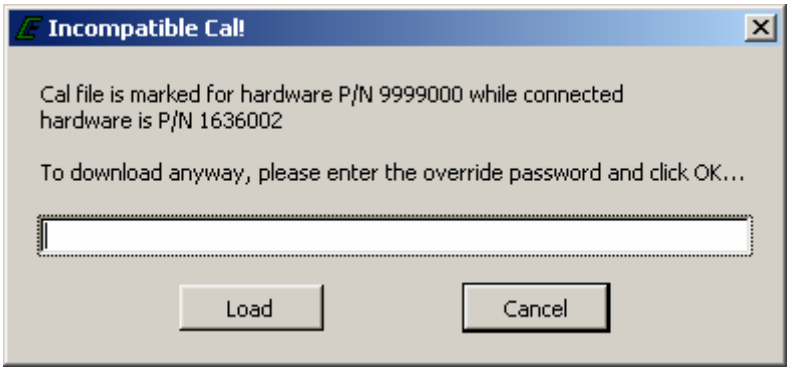

Figure 14: Incompatible File Error Prompt

Figure 15: Variable Error Prompt