

VCM II Customer Flight Recorder

Operator's Manual

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Definitions, Acronyms, and Abbreviations

Acronym	Description
BCE	Body, Chassis and Electrical
CAN	Controller Area Network
CMDTC	Continuous Memory Diagnostic Trouble Code
DLC	Data Link Connector – vehicle diagnostic connector, SAE J1962
DTC	Diagnostic Trouble Code
DTC CNT	Diagnostic Trouble Code Count. Provides the number of Continuous DTCs.
ECU	Electronic Control Unit. An onboard electronic module that controls a vehicle subsystem function.
IDS	Integrated Diagnostic Software
ISO	International Standard Organization
ISO-9141	Serial communication protocol implemented in Ford vehicles.
LED	Light Emitting Diode
Parameter	Also known as PID's or DID's which are sensor, actuator, switch, etc. data stored in the vehicle module
PCM	Powertrain Control Module
PID	Parameter Identifier. An index number used to refer to a parameter within a module without knowing its storage location.
SCP	Standard Corporate Protocol
Sleep Mode	The VCM II - CFR will go into a Low Power/Standby Sleep Mode if the vehicle communications network becomes inactive for a certain period of time (typically 60 seconds). Any communication on the vehicle network being monitored, or depressing the Pendant button, will wake the CFR from Sleep Mode . When CFR wakes from Sleep Mode , the pendant will return to its previous state.
UART	Universal Asynchronous Receiver Transmitter
UBP	UART Based Protocol
VCM II - CFR	Customer Flight Recorder (Application Running On VCM II)
VIN	Vehicle Identification Number

Introduction

This guide has been developed to assist you in the installation and operation of the VCM II Customer Flight Recorder.

Please read and understand the important safety information contained in this guide before you install and use the VCM II - CFR. You are advised to keep this guide in a location where it will be readily accessible for reference and troubleshooting. The information contained in this document is supplementary to any Ford IDS Training Courses.

The CFR is an application that is designed to be installed and run on the VCM II. The VCM II - CFR tool is intended to be used for capturing and storing vehicle communications network data, without needing to have a continuous connection to the IDS PC. This tool will retrieve, via the vehicle's Diagnostic Link Connector (DLC), selected parameters for monitoring and recording. The CFR can be installed in the customer's vehicle for obtaining data when drivability symptoms (or other customer-complaint symptoms) are encountered. The CFR can be configured with vehicle specific information using the IDS software. The process of configuring the CFR is referenced as **Setup**. Upon completion of vehicle testing, the CFR will pass the recorded data and any associated information back to the IDS, (this process will be referenced as **Upload**). After the data has been uploaded from the CFR to the IDS PC, the data can be viewed in a similar application like **Datalogger Playback**.

System Components

These VCM II - CFR components are listed for information only. Some of the items may be optional based on the VCM II kits available for your market. Please check contents against the manifest list supplied with your VCM II. The following is a list of hardware items required to operate the VCM II as a Customer Flight Recorder.

Standard Equipment

Component	Part Number	Description
VCM II kit (Including CFR Pendant)	164-R9807	Contains the VCM II, DLC Cable , and Pendant
<i>(OR) The following Components</i>		
VCM II Kit	164-R9805	Contains the VCM II and DLC Cable (164-R9801)
VP-2	164-R9806	VCM II - CFR Pendant

Safety

You should read and understand this safety information before installing, assembling and using this equipment.

DO observe the safety warnings and notices in this document.



WARNING: This indicates the presence of a hazard that can cause serious personal injury if the hazard is not avoided.

NOTICE: This indicates the presence of a hazard that can cause damage to the VCM II – CFR, a vehicle; other equipment connected to the VCM II - CFR, or might corrupt software if the hazard is not avoided.

Proper Installation and Use of this Equipment

This equipment has been designed, manufactured and tested to meet the requirements of International Standards; however, like any apparatus, care must be taken in its installation and use.

NOTICE: This equipment must only be used by properly trained personnel.

NOTICE: Do not allow any cables of this equipment to be positioned where they can be trapped, snagged, stretched across sharp edges, or create any potential hazard.



WARNING: If the VCM II - CFR is being used in a moving vehicle, ensure that the VCM II - CFR and cables do not distract or interfere with the driver, or form a hazard in anyway.



WARNING: Do not allow any cables to become entangled with operator or driving controls. This can cause interference with driving and can cause injury. Please use the provided straps to secure cables as required.

DO use this equipment in accordance with the operating procedures.

DO NOT remove any fixed covers unless you are authorized/qualified to do so.

A defective electrical earth (ground) connection to any equipment may cause an electric shock hazard. This hazard may pass through the signal cabling and to any other equipment interconnected. It is recommended that you check electrical wiring at frequent intervals and whenever alterations are made. As a part of safety requirements, the manufacturer is required to define the intended operating environment.

DO keep the VCM II - CFR away from devices that generate radio interference.

NOTICE: Do ensure the VCM II - CFR is not subjected to extreme temperature or prolonged exposure to direct sunlight that may cause heating of the VCM II - CFR.

NOTICE: If any liquid is spilled on this equipment remove the power immediately and ensure that it is dried out completely before restoring power.

Equipment Precautions

The following warnings must be observed when using the VCM II - CFR:

IMPORTANT SAFETY INSTRUCTIONS



WARNING: Failure to follow these instructions will increase the risk of personal injury.

1. Read all instructions.
2. Care must be taken as burns can occur from touching hot parts or surfaces.
3. **DO NOT** operate equipment if damage to unit or cord is suspected.
4. **DO NOT** let cables hang over edge of table, bench or counter or come in contact with hot manifolds or moving fan blades.
5. **DO NOT** place tools or test equipment on vehicle fenders or other places inside the engine compartment.
6. Let equipment cool completely before putting away. Loop cables loosely around equipment when storing.
7. Adequate ventilation should be provided when working on operating internal combustion engines.
8. Keep hair, loose clothing, jewelry, fingers and all parts of body away from moving parts of the vehicle.
9. Use this equipment only as described in the manual. Use only manufacturer's recommended attachments.
10. **ALWAYS WEAR SAFETY GLASSES WHEN USING GARAGE EQUIPMENT.** Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.

SAVE THESE INSTRUCTIONS

Using the VCM II - CFR

VCM II - CFR Setup from IDS

VCM II - CFR *Setup* is a menu option selectable within the toolbox top tab after *Vehicle Identification* is complete. The VCM II - CFR setup will only be available on supported vehicles.

1. Select VCM II - CFR *Setup*.

When **Setup** is selected, a new top tab will appear displaying a Hook-up screen, as shown in Figure 2.0. Make all connections as shown.

Figure 1.0

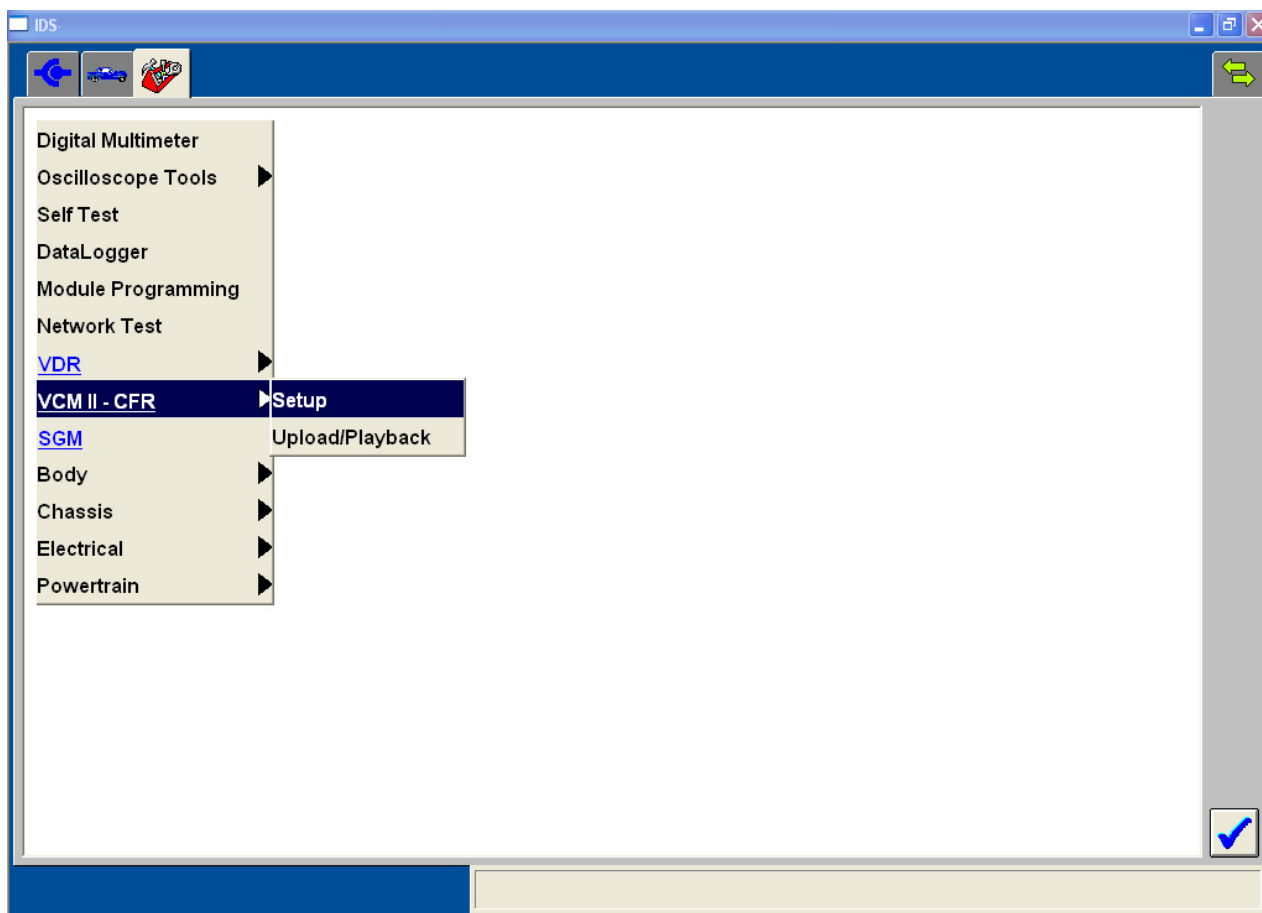
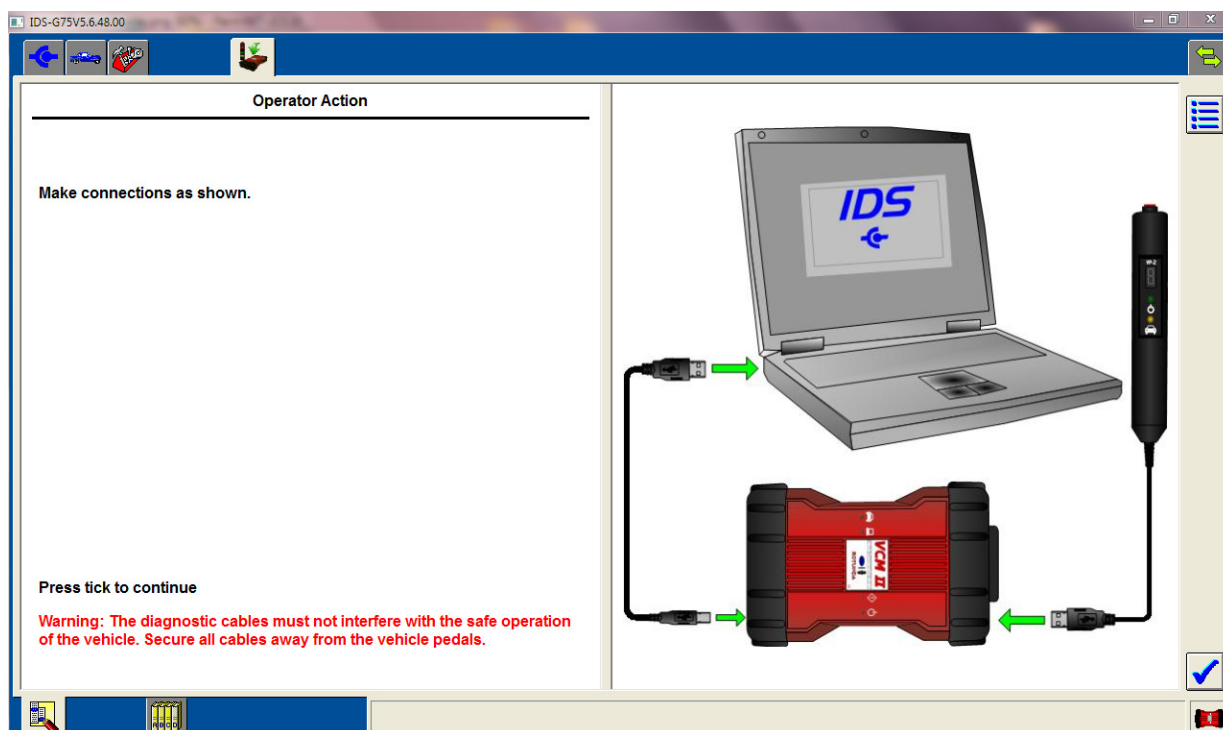


Figure 2.0



2. Press ***Tick*** to continue.

IDS will establish communication with VCM II and perform the following:

- If unsaved recordings are found on the VCM II, the user will be prompted to select ***Upload/Playback*** to save these recordings or the user can select ***Tick*** to continue with the Setup and NOT save the recordings.
 - If a later version of VCM II - CFR software is available, IDS will prompt the user to install the latest application on the VCM II.
3. Select vehicle system or module to record data from.
 5. Press ***Tick*** to continue.
 6. Select parameters (see ***Parameter Selection- Figure 3.0***).
 7. Select parameter settings (see ***Recording Time Setup and Trigger Setup – figure 4.0***).
 8. Press ***Tick*** to continue.
 9. The VCM II - CFR ***Download*** confirmation pop-up displays a summary of configuration settings.
 10. Press ***Tick*** to begin download process (see ***Download to VCM II – CFR – Figure 6.0***).
 - The CFR application, installed on the VCM II, will start after download process has completed.
 - The VCM II will continue to function as a CFR until either of the following occur:
 - a) Reconnect the VCM II to IDS, using the provided USB Cable, and select ***Upload*** from the IDS menu. (See ***VCM II - CFR Upload***).

- b) Anytime IDS connects to the VCM II, the CFR application will suspend and return the VCM II to IDS mode. When this occurs, all recordings will remain in memory until uploaded and the CFR will restart when disconnected from IDS.

11. Connect VCM II - CFR to Vehicle, as indicated by the IDS connection screen.

CFR Application Management

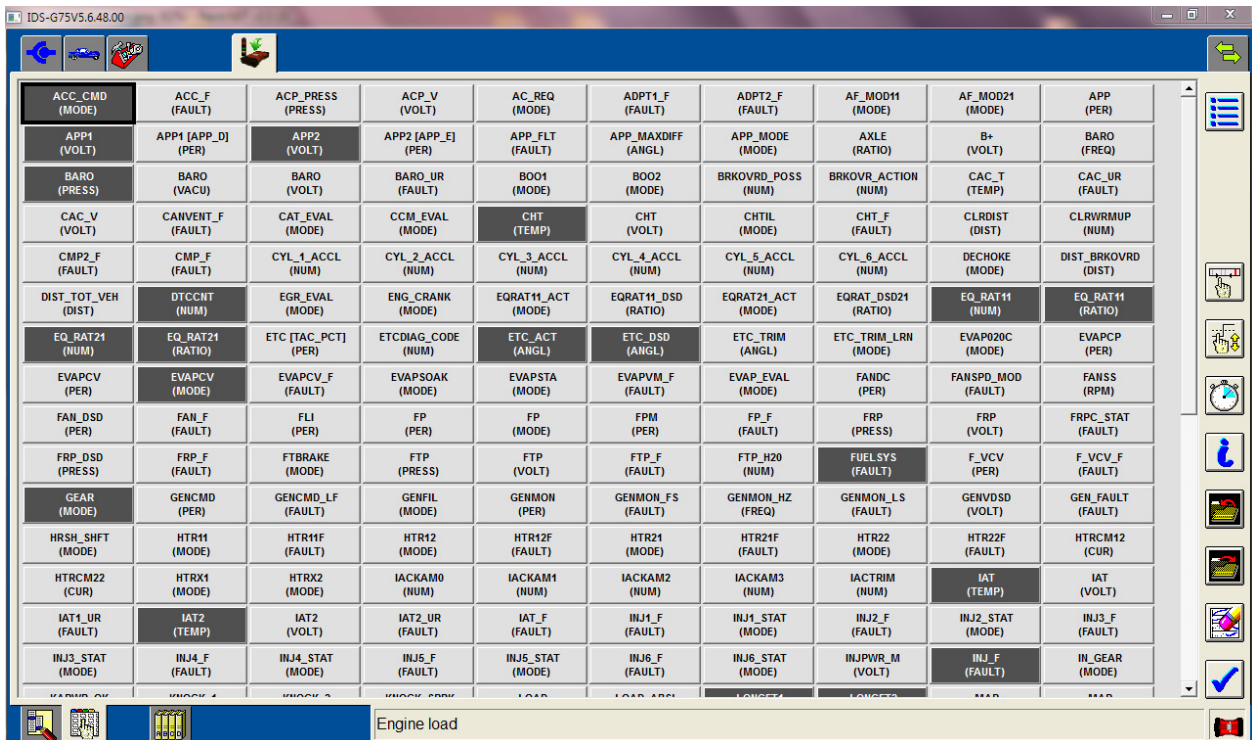
IDS will manage CFR application versions. In general, the CFR application resident on the PC will be installed on the VCM II.

Parameter Selection

The **Parameter Selection** screen will appear with the default parameters and units selected. This screen allows the selection of parameters and units, the selection from previously saved settings, capture times, and select and deselect triggers.

The Diagnostic Trouble Code Count parameter, when available, is a pre-selected, pre-defined trigger used for auto-capture, and cannot be deselected.

Figure 3.0



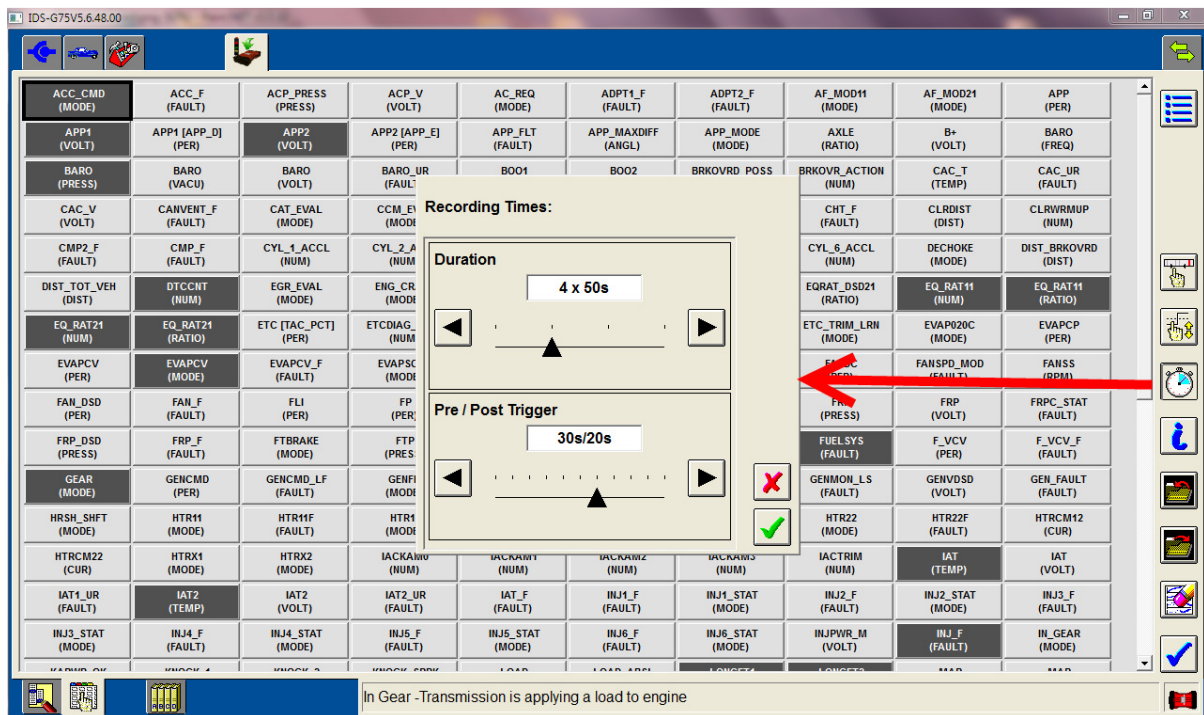
To select parameters or units:

1. Select **Parameter Selection** tab.
2. Select desired parameters and units to record.
3. To save parameter, trigger, and recording time settings:
 - Select upper **File** icon to view a list of previously saved settings.
 - Enter a file name.
 - Enter an optional description.
4. To load pre-defined parameters with triggers and recording times:
 - Select lower **File** Icon to view a list of pre-defined configurations.
 - Select a saved configuration.
 - Press **Tick** to load configuration.
5. Press **Tick** when parameter selection is complete.

Recording Time Setup

The VCM II - CFR can record up to 200 seconds of data. The number and duration of recordings as well as the pre/post trigger times will be available by selecting the **Stopwatch** icon located on the right side of the **Parameter** screen.

Figure 4.0



1. Select **Stopwatch** icon.

2. Set *Recordings/Duration* time.

- Recording duration options are 25, 50, 100, and 200 seconds.

Since the VCM II - CFR can store up to 200 seconds, the number of recordings will vary based on the duration selection.

3. Set *Pre/Post Trigger* time.

- Pre/Post trigger times are adjustable and vary with the recording duration selection.

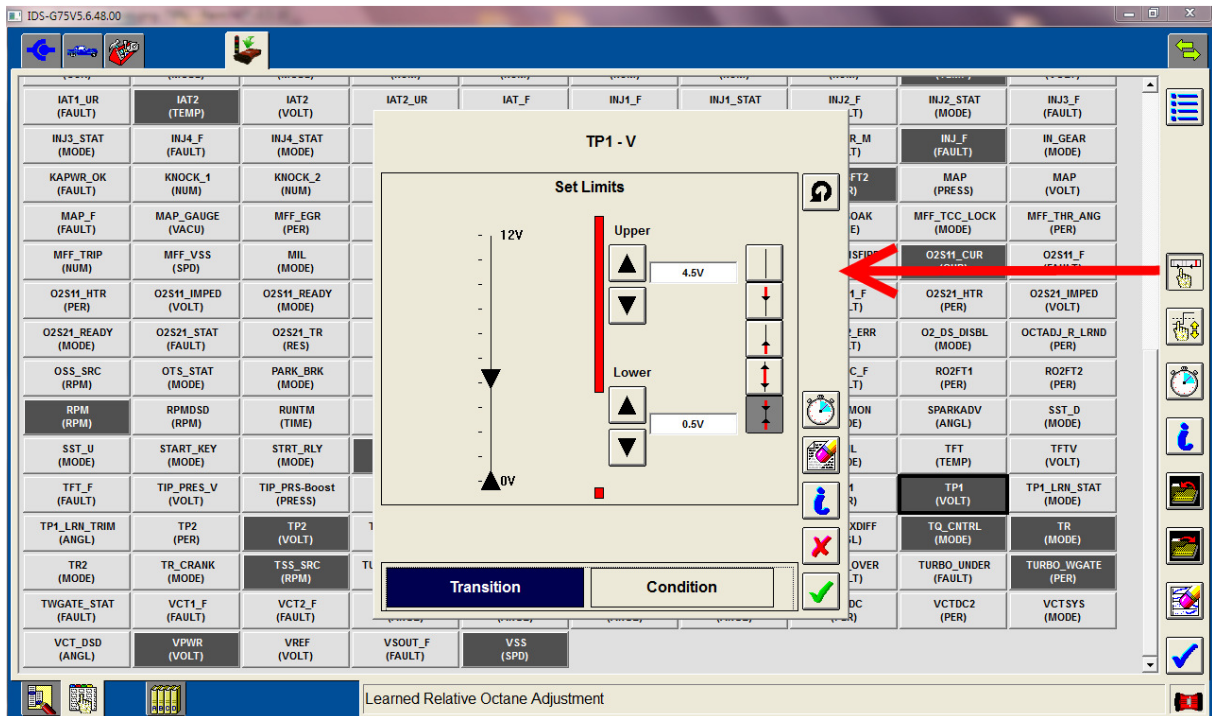
1. Press *Tick* to continue.

Trigger Setup

Trigger limits can be set on five parameters. Diagnostic Trouble Code Counts will always be selected, when available. DTC Count parameters are pre-defined to make a recording when a DTC occurs.

3. Select *Trigger* icon.

Figure 5.0



2. To set trigger limits select the **Plots Limit** and **Format** icon.

- Pressing ***Tick*** after selecting limits will set the trigger for auto capture.
- If you attempt to set limits on a 6th parameter, a message stating the maximum number of parameters that can be defined as triggers has been exceeded.
- Selecting ***Cancel*** will return user to the Parameter Selection screen.

- Deselecting a parameter and continuing allows you to set the trigger limits on the new parameter.

3. Press **Tick** to continue.

Download to VCM II - CFR

To download to the VCM II - CFR press the **Tick** on the Parameter Selection screen.

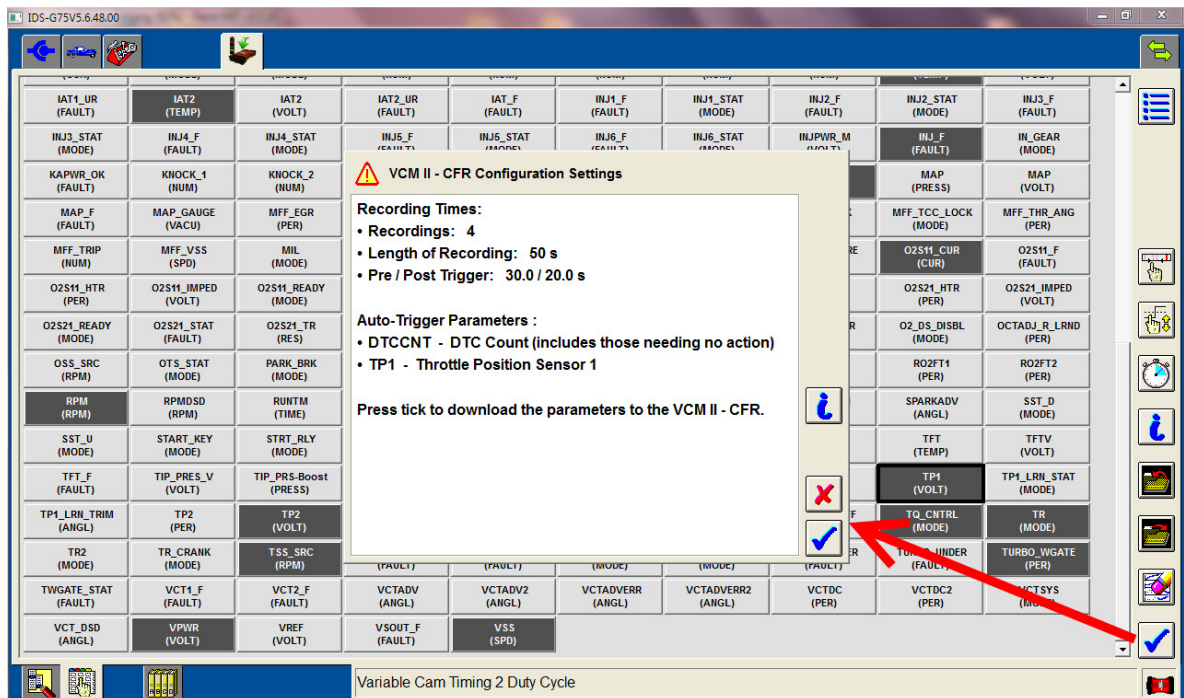
When **Download** has been selected, a message screen will be displayed showing the configuration selections to be downloaded to the VCM II - CFR.

1. Press **Tick** if configuration settings are correct.
 - Select **Cancel** to make changes.

Once the VCM II - CFR is downloaded the user can make changes to the parameters, triggers or number of recordings at the Parameter Select screen. The VCM II - CFR can be downloaded again with the new configuration by selecting the **Tick**. The configuration will be retained by the VCM II - CFR until the next download.

An audible tone will sound for at least 20 seconds when the VCM II - CFR is disconnected from the **power source**. Press the Trigger Button on the Pendant to stop the tone.

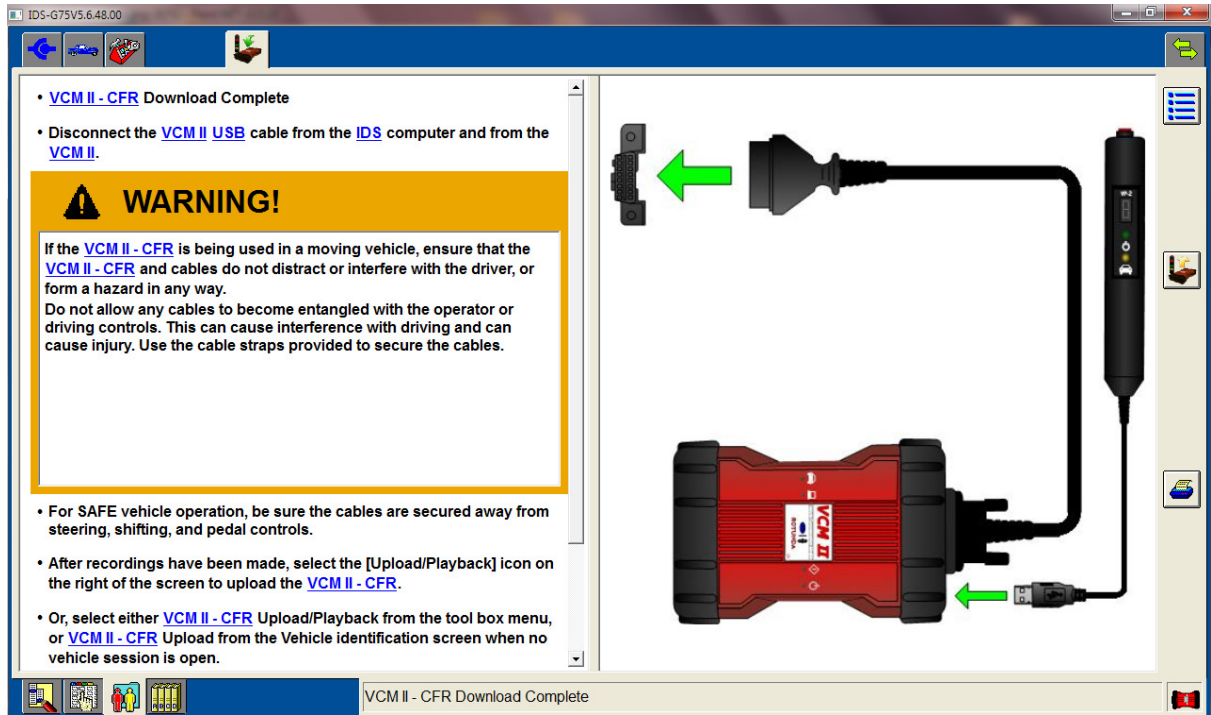
Figure 6.0



Hook-up to Vehicle

After the VCM II - CFR download process has been completed; a screen will appear instructing the user how to connect VCM II - CFR to vehicle.

Figure 7.0



1. Connect the VP-2, Pendant Cable to the VCM II - CFR.

NOTICE: NEVER connect or disconnect the vehicle cable from the VCM II - CFR while it is connected to the DLC. Failure to do so may result in a DLC fuse failure.



WARNING: If the VCM II - CFR is being used in a moving vehicle, ensure that the VCM II - CFR and cables do not distract or interfere with the driver, or form a hazard in any way.

2. Placement of the VCM II - CFR will require some discretion, as vehicle configurations vary. Secure the device in the vehicle in such a way that it DOES NOT become entangled with the driver or vehicle controls.
 - Position the VCM II - CFR on the front passenger floor area of vehicle (or) under the front passenger seat. If placed under the seat, remember to secure, using the provided straps, in such a way that it DOES NOT interfere with proper seat operation.
3. When connecting DLC to the vehicle, route cable above column as shown in figure 7.1.

Figure 7.1



4. Connect VCM II DLC cable to the VCM II
5. Placement of the pendant will require some discretion, as vehicle configurations vary. Ultimately the Pendant should be secured, inside vehicle, within easy reach of the operator. In general, it is recommended that the pendant should be placed on the front passenger seat using the provided straps to secure excess cable as required.

Control of VCM II – CFR / Recording Data

If customer is to drive vehicle and capture recordings on VCM II - CFR, technician should inform them how many recordings can be captured, see ***Recording Time Setup*** on page 13.

- Drive vehicle as normal and make sure both indicator lights on the VCM II - CFR Pendant are solid ON. VCM II - CFR will not record data if Pendant lights are not solid ON. If the Pendant lights are OFF Press *Trigger Button* on Pendant to wake up device and activate lights.
- Press Pendant *Trigger Button* when vehicle exhibits customer complaint(s).
- A recording will automatically begin once auto-trigger condition has been met.

Note: If hard start conditions are being evaluated, Pendant vehicle communication LED must be solid ON before attempting to start the vehicle. VCM II - CFR will not record data if both Pendant lights are not solid ON. If the lights are OFF, Press *Trigger Button* on Pendant to wake up device and activate lights.

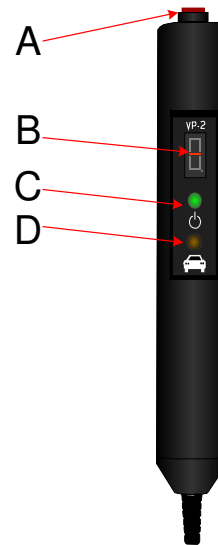
Recorded data will be retained by the VCM II - CFR until it is overwritten or the user selects ***VCM II - CFR Setup***.

User Interface (Pendant)

There are five (5) different functions on the Pendant; a manual Trigger Button, a seven (7) segment LED display, a GREEN Power LED, a YELLOW vehicle communication LED, and an audible Buzzer.

Figure 8.0

- A - Manual Trigger Button
- B - LED (seven segment)
Display
- C - Green Power LED
- D - Yellow Vehicle Communication LED



Manual Trigger Button (A)

This is used to manually trigger a recording of vehicle information. Once the VCM II - CFR has been configured, each time the Trigger Button is depressed a recording will be made.

Note: Once all recordings have been captured, pressing the Trigger Button again will overwrite the first captured recording.

- On certain vehicle applications the Trigger Button may need to be pressed to wake the VCM II - CFR up from **Sleep Mode** before a vehicle recording can be made.
- On certain vehicle applications the VCM II - CFR may not automatically wake up when the ignition key is turned ON or the vehicle is started. This is determined if the GREEN and YELLOW LEDs and the digital display window do not light up when the key is turned to the ON or RUN position. If the VCM II - CFR does not automatically wake up, press the Trigger Button on the end of the Pendant to wake up the VCM II - CFR. Once the Trigger Button is pressed the YELLOW Vehicle Communication LED will flash while the VCM II - CFR attempts to establish communication with the vehicle. If communication is established, the YELLOW Vehicle Communication LED will stop flashing and the LED display window will illuminate. If the VCM II - CFR is unable to establish communications with the vehicle, it will go back to sleep in approximately 60 seconds. If the VCM II - CFR goes back to sleep, check the connections at the VCM II - CFR and the DLC connection on the vehicle. If all the connections are good and secure, the ignition key is in the ON or RUN position and the VCM II - CFR still does not wake up, see VCM II - CFR Support Section for instructions.

LED (seven segment) Display (B)

This digital display window shows the number of recordings that have been made since the VCM II - CFR was Setup for a particular vehicle. Once the maximum number of recordings have been made with the CFR, the display number will flash. While making a recording the display segments will rotate in a clockwise direction, and when the VCM II - CFR is being uploaded the display segments will rotate in a counterclockwise direction. When the VCM II - CFR is in **Sleep Mode** the display will be blank.

The VCM II - CFR Pendant may also display other codes in certain situations. After updating the VCM II - CFR software, the display window may show a "C". A "C" displayed on the Pendant indicates that the configuration file downloaded to the VCM II - CFR has been lost and is normal after performing a software update to the VCM II - CFR.

GREEN Power LED (C)

This LED will illuminate when the VCM II - CFR is connected to a power source and the VCM II is completely booted up. This LED will be off when the VCM II is in sleep mode.

YELLOW Vehicle Communication LED (D)

This LED indicates that the VCM II - CFR is communicating with the vehicle. When the VCM II - CFR is communicating with the vehicle, the Link LED will be ON. If communications between the vehicle and the VCM II - CFR are lost, the YELLOW Link LED will FLASH for at least 20 seconds and then turn OFF when the VCM II - CFR goes into *Sleep Mode*. The Link LED will also FLASH when uploading recording files from the VCM II - CFR to the IDS.

An audible tone will sound once when the VCM II - CFR is powered up and when a recording is triggered. This audible tone will also sound for at least 20 seconds after power to the VCM II - CFR is lost. To stop the tone from sounding following power loss, press the Trigger Button on the Pendant.

Note: In the event of power loss to the VCM II - CFR, the configuration and recorded data are retained.

Pendant Events and Indicators

STATE	POWER (Green)	LINK (Yellow)	DISPLAY	BUZZER
VCM II - CFR powered, no configuration File	ON	OFF	Display "C"	OFF
VCM II - CFR powered, IDS downloading configuration	ON	OFF	Display "0"	OFF
VCM II - CFR powered, uploading data to IDS	ON	OFF	# of recordings* stored on the VCM II	OFF
VCM II - CFR powered, valid configuration Available	ON	OFF	# of recordings*	OFF
Initializing communication w/the vehicle	ON	Flashing	# of recordings*	OFF
Normal operation w/the vehicle	ON	ON	# of recordings*	OFF
Trigger detected	ON	ON	# of recordings*	Beep Once
Saving file in response to trigger	ON	ON	Clockwise rotating segment display, then display # of recordings at the end of capture	OFF

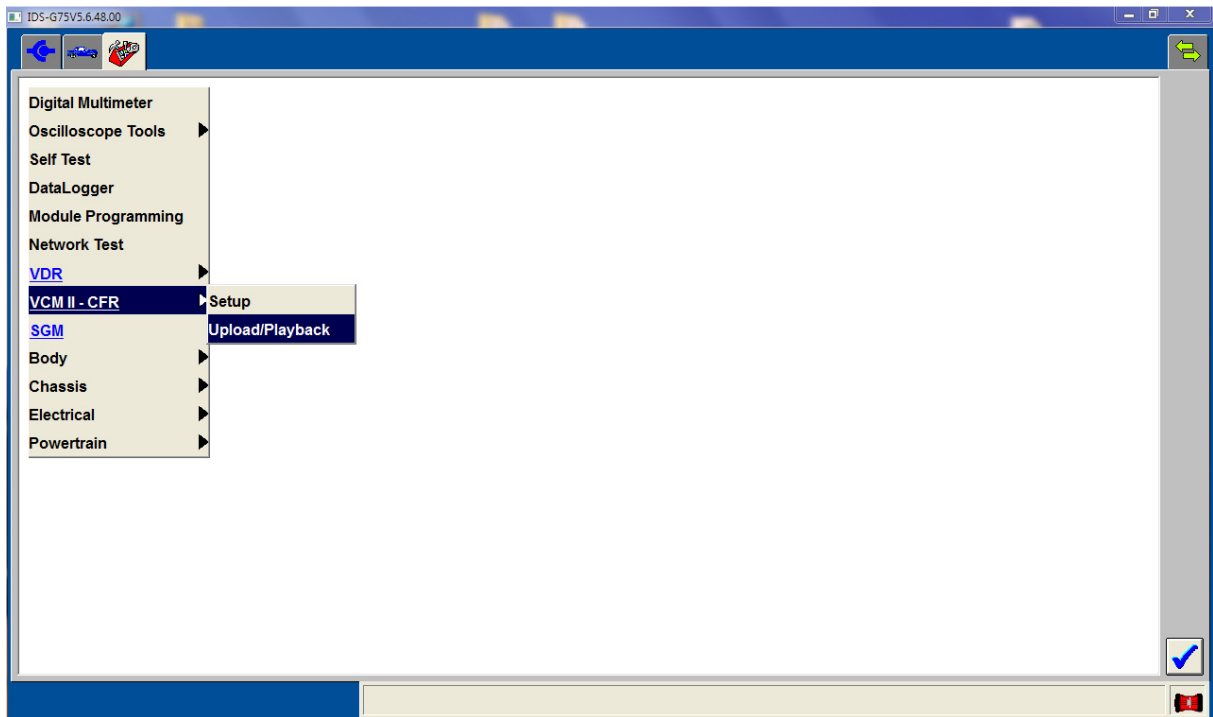
VCM II - CFR in sleep mode	OFF	OFF	Blank	OFF
Waking up from sleep	ON	Flashing	# of recordings*	OFF
Wake-up to sleep transition	OFF	OFF	Blank	OFF
VCM II powered up, CFR application not running on the PC or VCM II	ON	OFF	Display "-" (middle segment on)	OFF
Power to no-power transition	OFF	OFF	Blank	Beep for at least 20 sec. stop if trigger button pressed

* The 7-segment LED, in addition to displaying the number of recordings will flash if the maximum number of recordings has been reached.

VCM II - CFR Upload to IDS

VCM II - CFR Upload/Playback is used to retrieve recorded vehicle data from the VCM II. Upload can be initiated from *VCM II - CFR Upload/Playback* in the tool box menu, or by selecting *VCM II - CFR Upload* from the *Vehicle Identification Page*.

Figure 9.0



1. Select *VCM II - CFR Upload*.
 - VCM II - CFR to IDS Connection screen appears.
2. Connect the VCM II - CFR to IDS as shown on the IDS screen.

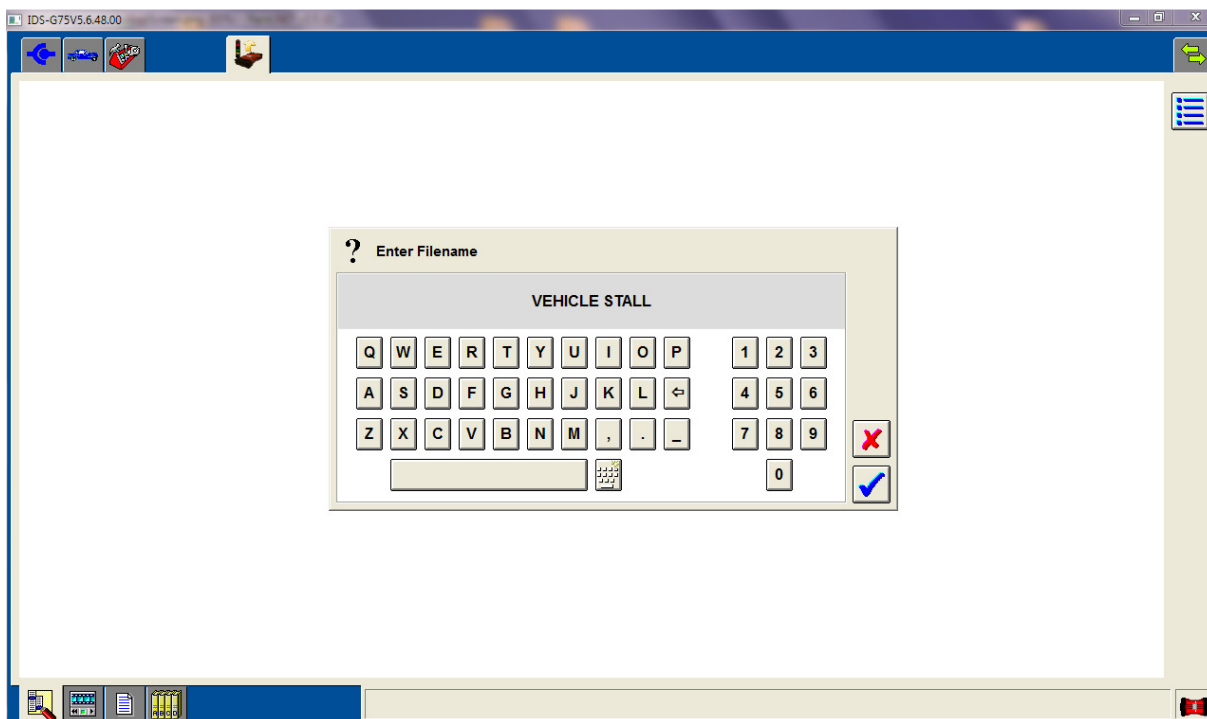
- Anytime IDS connects to a VCM II that is running the CFR application, IDS will switch the VCM II from CFR to IDS mode.
3. Press ***Tick*** to continue.
- The VCM II - CFR application will be configured OFF and will not auto-start when VCM II is power cycled.
 - The VCM II will continue to function in IDS Mode until the ***VCM II - CFR Setup*** process is completed once again.
 - The IDS will establish communications with, and check vehicle information from the VCM II - CFR against the vehicle information from the current active session on IDS.
 - a) If the vehicle information on the VCM II - CFR matches the active session on the IDS, the data will be uploaded and saved with the current session (see step 4).
 - b) If the vehicle information on the VCM II - CFR does not match the active session on IDS:
 - i. Place the current vehicle session on hold, complete, or delete the session.
 - ii. Select ***VCM II - CFR Upload*** from ***Vehicle Identification***. This will automatically open the previously saved vehicle session, if available, or create a new session as required.
4. When upload is complete, save the recordings by entering a filename followed by a description of the file (see ***File Naming***).

Parameters and modules selected during VCM II - CFR Setup, not available on the vehicle or not responding, will be listed on an information screen during the upload process.

File Naming

After all files have been uploaded from the VCM II - CFR, a dialog box will appear to name the recordings. File management procedures and any necessary data transformations will also be done at this time.

Figure 10.0



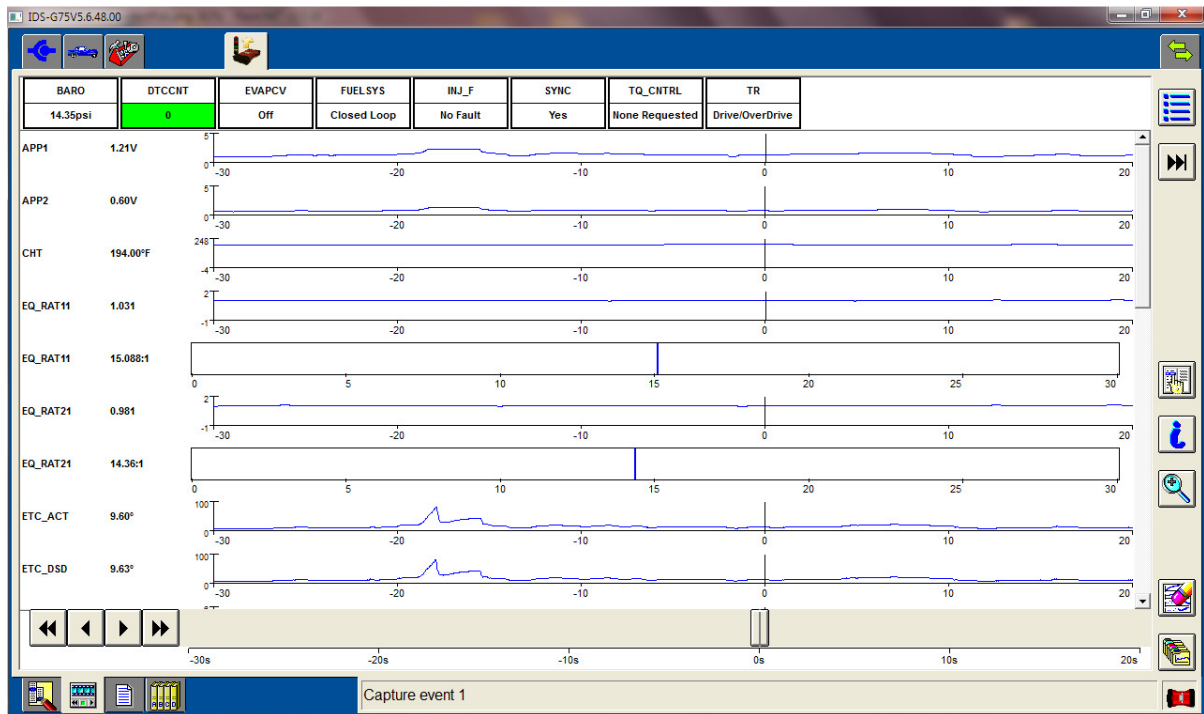
Playback

Playback will immediately be displayed upon completion of **File Naming**. For recordings previously saved, follow these steps to view:

1. Select **VCM II - CFR Upload/Playback** from toolbox.
2. Select **Playback** sub-tab.
3. Select a saved recording to view. Each recording will display the PID data, as well as any associated DTCs that were retrieved during that recording.

Parameters on the Playback screen are displayed in standard Datalogger display formats. The display range can be adjusted and resized. The parameter view may be changed to display digital, x-y plot, histogram, or bar graph as appropriate for the signal selected.

Figure 11.0

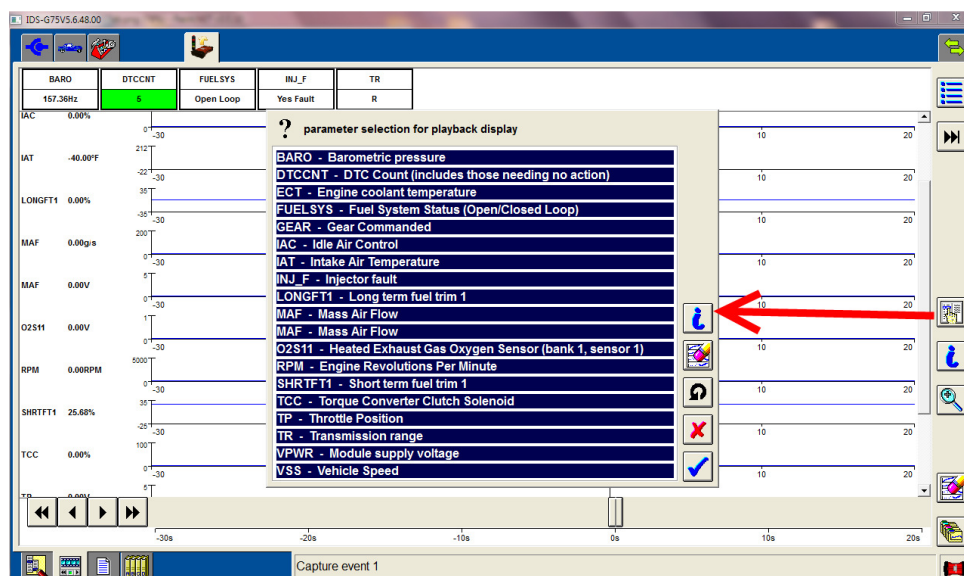


Parameters can also be temporarily removed from the current display. This feature only temporarily removes the parameter from the display; it does not remove the parameter from the recording or delete the data for that parameter.

To remove a parameter from the playback display:

1. Select the **Parameter Selection** from right margin, as shown in Figure 12.0.
2. Select a parameter to un-highlight that parameter.

Figure 12.0

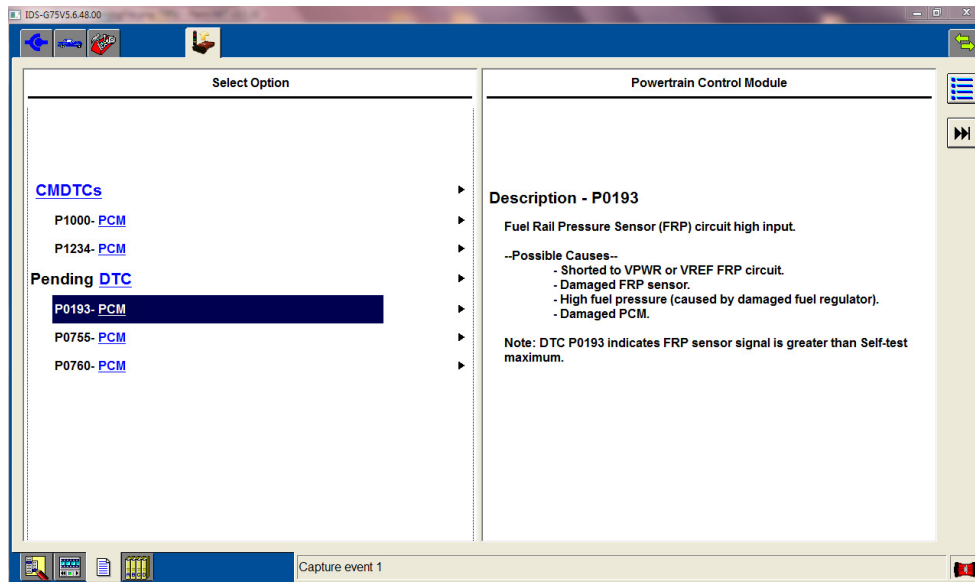


To redisplay a parameter:

1. Select the Parameter Selection from right margin, as shown in Figure 12.0.
2. Select a parameter to highlight and redisplay that parameter.

The DTC screen is also available to view any DTCs that were present before or after the recording was made. Any new DTC will have an asterisk next to it. Codes are listed under CMDTCs and Pending DTCs, and the code descriptions appear when the DTC is highlighted. If DTCs appear on this tab, it is advised that the technician run Selftest on the module or system to retrieve more information related to the DTCs such as freeze frame, snap shot, etc.

Figure 13.0



Technical Specifications

Supported Vehicle Protocols

<u>Protocol</u>
CAN
ISO
SCP
UBP

VCM II Connectors

Please refer to VCM II Hardware Manual for information regarding VCM II connectors.

Updating VCM II Firmware

VCM II firmware updates will be automated using the IDS software. Please refer to the IDS User Manual for information regarding this procedure.

Care and Maintenance

See VCM II Hardware Manual.

Troubleshooting

Users should perform the following simple checks to determine if they can resolve any problems with the VCM II - CFR.

<u>Problem Symptoms</u>	<u>Checks & Possible Causes</u>
VCM II - CFR will not power On (No LED's turn On)	<ul style="list-style-type: none"> • Verify that secure cable connections have been established between the VCM II - CFR and vehicle DLC or PC USB port • Make sure that the cables do not have any bent, broken, missing, or dirty/corroded cable connector pins • Make sure that the VCM II - CFR unit does not have any bent, broken, missing, or dirty/corroded connector pins • Verify battery voltage at the vehicle DLC powering the VCM II - CFR is sufficient (12V nominal) • If powering VCM II - CFR from PC USB port verify that USB port power is available (check port using USB memory stick) or try a different USB port on the PC • If after power is applied for 5 seconds and the VCM II

	<ul style="list-style-type: none"> - CFR power On boot-up fails, attempt to recover the software, on the VCM II and retry, (refer to IDS User Manual). • If VCM II - CFR fails to power On after making all the checks above, contact your regional technical support
VCM II - CFR powers On, but operates abnormally	<ul style="list-style-type: none"> • Cycle (remove/reconnect) power to the VCM II - CFR • Make sure that the VCM II - CFR performs the power On boot-up successfully. • If the VCM II - CFR power On boot-up fails, attempt to recover the software on the device and retry power On boot-up. • If the VCM II - CFR power On boot-up problem persists, contact your regional technical support
VCM II - CFR Power LED is on, but no 1 second beep	<ul style="list-style-type: none"> • USB issue. Attempt to recover the software on the VCM II – CFR, (refer to IDS User Manual). • If VCM II - CFR error persists, contact your regional technical support
VCM II - CFR Error LED is red immediately after it is booted	<ul style="list-style-type: none"> • Reboot the PC • Attempt to recover the software, on the VCM II – CFR, (refer to IDS User Manual). • Restart the Firmware Update Process • Attempt a recovery on a different PC (may be a PC related issue) • If the VCM II - CFR boot-up problem persists, contact your regional technical support
VCM II - CFR Error LED blinks and Speaker beeps for 15 seconds, and Power LED is illuminated	<ul style="list-style-type: none"> • Prior firmware update failure. Attempt to recover the software on the VCM II, (refer to IDS User Manual). • If VCM II - CFR error persists after making the check above, contact your regional technical support
VCM II - CFR PC Interface LED blinks for 30 seconds, and the Power LED is illuminated	<ul style="list-style-type: none"> • VCM II will continue to operate, but VCM II – CFR will not be usable • Contact your regional technical support. (SD-Card is corrupt/damaged and needs to be re-initialized by the manufacturer)
VCM II - CFR turns off (shuts-down/suspends-operation, all LEDs off) immediately after being powered by the USB cable or DLC cable	<ul style="list-style-type: none"> • Verify the ambient temperature is within the acceptable operating range for the VCM II - CFR device: -20°C to 70°C (-4°F to 158°F) • If the ambient temperature is outside this range allow the temperature to return to the acceptable operating range and the VCM II – CFR will automatically resume operation • If VCM II – CFR error persists when the ambient temperature returns to its operating range, contact your regional technical support
VCM II - CFR will not Wake up from Sleep Mode	<p>On certain vehicle applications the VCM II - CFR may not automatically wake up when the ignition key is turned to the ON or RUN position. If this should happen, press the Trigger button on the end of the Pendant to wake up the VCM II - CFR. The VCM II - CFR will then attempt to establish communication with the vehicle. If the VCM II - CFR is unable to establish communications with the</p>

	vehicle, it will go back to sleep after approximately 60 seconds, (some vehicles may take longer). If the VCM II - CFR goes back to sleep, check the connections at the VCM II - CFR and the DLC connection on the vehicle. If all the connections are good and secure, the ignition key is in the ON or RUN position and the VCM II - CFR still does not wake up, select <i>VCM II - CFR Setup</i> from the IDS menu to reconfigure device.
Pendant Displays a "C" or Flashing "C"	After updating the VCM II - CFR software, the display window on the Pendant may show a flashing "C". The flashing "C" indicates the configuration files downloaded to the VCM II - CFR is either (1) not available or (2) has been corrupted. Please select <i>VCM II - CFR Setup</i> from the IDS menu to resolve this condition.

VCM II - CFR Support

If the VCM II is still inoperable after performing these checks, contact your regional technical support for assistance.