Modular Vehicle Communication Interface
User Guide
1 - Compliance

1.1 - Copyright
No part of this manual may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Honda Canada.

1.2 - Disclaimer
All information, illustrations and specifications contained in this User Guide are based on the latest information available at the time of publication. The right is reserved to make changes at any time without obligation to notify any person or organization of such revisions or changes. Further, Honda Canada shall not be liable for errors contained herein or for incidental or consequential damages (including lost profits) in connection with the furnishing, performance, or use of this material. Screens shown in this manual may vary in appearance due to the product software version at the time of shipment.

1.3 - US and Canada Regulatory and Compliance Information
This device complies with part 15 of the FCC Rules. Operation is subject to these two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation. In accordance with part 15 of the FCC rules, the user is cautioned that any changes or modifications not expressly approved by SPX Corporation could void the user’s authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user’s own expense.

1.4 - Canadian EMC Class A
This Class A digital apparatus complies with Canadian ICES-003.

1.5 - CE Mark EMC Directive
This MVCI has been marked with the CE mark. This mark indicates compliance with EEC Directives EN61326-1: 2006.

1.6 - ANATEL Regulatory and Compliance Information
This equipment operates on a secondary basis and, consequently, must accept harmful interference, including from stations of the same kind and may not cause harmful interference to systems operating on a primary basis.
# 2 - Contents

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3 - Safety

3.1 - Definitions
Follow all DANGER, WARNING, IMPORTANT and NOTE messages in this User Guide. These safety messages are defined and formatted as follows:

DANGER or WARNING: Means you risk bodily harm and/or possible loss of life.

IMPORTANT: Means the information demands special attention or that you risk damage to the vehicle or the tool.

NOTE: Provides clarity and helpful tips.

The safety messages cover situations SPX is aware of. SPX cannot know, evaluate, or advise you as to all of the possible hazards. You must be certain that any conditions or service procedures encountered do not jeopardize your personal safety. Consult the User Guide whenever the DANGER or WARNING symbol (!) appears on the MVCI. It is important to follow the actions detailed in the User Guide.

3.2 - Precautions

DANGER: When an engine is running, keep the service area WELL VENTILATED, or attach a building exhaust removal system to the engine exhaust system. Engines produce carbon monoxide, an odorless, poisonous gas that causes slower reaction time and can lead to serious personal injury or loss of life.

WARNING
- Wear approved eye shield when testing or repairing vehicles.
- Set the parking brake and block the wheels before testing or repairing a vehicle. It is especially important to block the wheels on front-wheel drive vehicles because the parking brake does not hold the drive wheels.
- Do not drive the vehicle and operate the tool at the same time. Any distractions may cause an accident. Have one person operate the tool as another person drives the vehicle.
- Maintain adequate clearance around moving components or belts during testing. Moving components and belts can catch loose clothing, body parts, or test equipment and cause serious damage or personal injury.
- Refer to the service manual for the vehicle being serviced. Adhere to all diagnostic procedures and precautions. Failure to do so could result in personal injury or otherwise unneeded repair.
- The MVCI vehicle I/O connector is to be connected to the vehicle Data Link Connector (DLC) only. Signals on these lines are limited to 32V DC (UL 61010-1 Category I) and are never to be connected to AC voltage (UL 61010-1 Category II, III and IV).
- Replace with rechargeable 2000mAh minimum AA Nickel-Metal Hydride (NiMH) batteries only.

IMPORTANT
- To avoid damaging the tool or generating false data, make sure the vehicle battery is fully charged and the connection to the vehicle DLC is clean and secure.
- Do not place the tool or communication cable near the vehicle’s ignition coils. Strong electromagnetic interference can damage the tool.
- Never disconnect or reconnect any electrical connector while the ignition is on. Control unit damage may result.
- The MVCI unit is designed to operate within -4°F to 140°F (-20°C to 60°C) ambient temperature range. The surface of the MVCI could appear warm after extended periods of use - this is normal. Users should be careful when holding a unit that has been exposed to very high ambient temperatures, over 104°F (40°C) for example.
4 - MVCI Maintenance and General Care

If you need to clean your MVCI, you can clean the unit by wiping it with a soft cloth. The soft cloth can be slightly damp with water or water and diluted mild detergent. Be sure to firmly wring excess water from the cloth. Do not use harsh chemical cleaners (benzene, thinner, rubbing alcohol, household cleaners, cosmetics, etc.) as these may damage the surface (for example, discoloration). Do not directly spray or add water to the surfaces of the MVCI. If liquid enters the MVCI, it may damage the unit.

If you spill any liquids on the MVCI, wipe them off immediately with a soft cloth.

5 - General Information

The MVCI (Modular Vehicle Communications Interface) is an interface box used to connect to a vehicle’s data link connector (DLC). The MVCI is required to perform vehicle diagnostics and control module rewrites. It acts as a gateway between a vehicle and the PC, used to read information from a vehicle’s electronic control units and send this information to the HDS application. The HDS software sends commands to the MVCI to read diagnostic trouble codes, read data from the vehicle’s ECUs, or do special device control tests on the vehicle.

The MVCI is typically used in the service garage. It is used in and around the vehicle, including the passenger compartment and/or the engine compartment. Read and understand the Safety Precautions section before using the MVCI on a vehicle.

Connect the MVCI to the DLC to communicate with the vehicle. See Connecting to the MVCI to the Vehicle section for additional information. The MVCI requires power from the vehicle to operate properly.

The MVCI contains two (2) rechargeable NiMH AA batteries. These batteries are charged whenever power is applied to the MVCI through the vehicle DLC. The internal batteries may also be recharged by supplying power to the MVCI from the Power Adapter Port. Use the supplied AC Power Adapter only. If the batteries need to be replaced, replace them with 2000mAh NiMH AA batteries. See the MVCI Component Descriptions section for battery location information. Make sure the batteries are oriented properly when installing.

Failure to operate the MVCI as stated in this User Guide may impair the protection mechanisms designed into the MVCI.
6 - MVCI Component Descriptions

- Top port cover
- Wi-Fi SDIO slot
- Memory SDIO slot
- DLC Port
- Vehicle Communication light
- Wireless Connection light
- Battery Discharging light
- Escape / Off button
- Enter button
- Power adapter port
- USB port
- USB On-The-Go port
- Ethernet port
- Arrow pad: Scrolls Up, Down, Left, Right
- Bottom port covers
7 - Cables and Cable Connections

To avoid damaging the MVCI, the cards, or the cables, use the following information to help when attaching cables or connectors to the MVCI, or plugging in the SDIO or the SD memory cards:

NOTE: Do not remove the SD card unless it is faulty and needs to be replaced (see SD Card Removal/Installation for more information).

- Use only parts supplied or recommended for use with your MVCI.
- Make sure the connector is properly oriented to make sure the terminals fit properly.
- Do not try to force a connector. If it doesn't connect properly, check the condition and the orientation of the connector. Also check the alignment of the terminals to make sure they are not bent or broken. If they are, replace the applicable cable or tool.
- If a connector has screws for locking the connection, fasten the screws firmly.
- Do not carry the MVCI by attached cables or forcefully pull on the cables.

8 - Battery Information and Replacement

The MVCI contains two (2) rechargeable NiMH AA batteries. The MVCI is not designed to operate on these batteries. They are a back-up power source when the MVCI is disconnected from the vehicle DLC or its external power adapter.
These batteries are charged whenever the MVCI is connected to a vehicle and receiving power from the vehicle or plugged in using the AC power adapter. Use the supplied AC Power Adapter only. If the batteries need replacing, use 2000mAh NiMH AA batteries.

**NOTE:** The batteries do not come installed in the MVCI.

To install or replace the batteries:
1. With a Phillips screwdriver, remove the battery cover.

**IMPORTANT:** Do not remove the rivets securing the MVCI. Removing these rivets may damage the MVCI and void your warranty.

2. Insert the batteries, making sure they are properly oriented.
3. Reinstall the battery cover.

**IMPORTANT:** Do not use screws longer than 0.375” to secure cover. This will damage the MVCI and void the warranty.

9 - SD Card Removal/Installation

**NOTE:** Do not remove the SD card or the SD wireless card unless it is faulty and needs to be replaced.

**NOTE:** The SD wireless card has a retainer clip. To remove it, have the MVCI keypad facing you and slide the retainer clip to the right.

If you need to remove the SD card or the SD wireless card, do this:
1. Remove the top port cover.
2. Push the SD card inward and release. The SD card releases and partially ejects.
3. Remove the SD card.

10 - MVCI Screen Icon Descriptions

**NOTE:** Screens shown in this manual may vary in appearance due to the product software version at the time of shipment.

The LCD screen is divided into two parts: the title bar and the body.

The title bar is divided into three parts:
- Wireless signal strength (left side)
- Current screen being viewed (center)
- Internal battery condition (right side)

The wireless icon appears when a wireless profile is detected.
10.1 - Battery Icon Descriptions
The battery icon displays as an internal charging symbol when the MVCI is powered by an external power source.

**NOTE:** The MVCI battery charger employs a temperature-controlled charging algorithm. It is normal to display battery charging animation when the MVCI is powered by an external power source, even if the batteries are fully charged.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Battery Charging Animation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Battery Charging Animation" /></td>
<td>The MVCI is charging the batteries.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Icon</th>
<th>Charged Battery Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Charged Battery Icon" /></td>
<td>The charge cycle is completed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Icon</th>
<th>Battery Idle Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Battery Idle Symbol" /></td>
<td>Appears when the MVCI is powered by the external adapter or the vehicle’s power and the MVCI battery charger is turned off because the internal temperature of the MVCI is above 140°F (60°C).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Icon</th>
<th>No Internal Battery Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="No Internal Battery Symbol" /></td>
<td>If the MVCI is plugged into a vehicle or using the external adapter, but does not have internal batteries installed, the battery icon has an ‘X’ on it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Icon</th>
<th>Vehicle’s 12V Battery State-of-charge</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Vehicle's 12V Battery State-of-charge" /></td>
<td>If the MVCI is plugged into a vehicle or using the external adapter, the battery icon shows a relative state-of-charge for the vehicle’s 12V battery.</td>
</tr>
</tbody>
</table>
10.2 - MVCI LED Descriptions

**Vehicle Communication light**
This LED flashes green when the MVCI is communicating with the vehicle.

**Wireless Connection light**
This LED is solid blue when the wireless card is configured.

**Battery Discharging LED**
When the MVCI is unplugged from its power source (the DLC or the external adapter) this LED first lights solid orange for 30 seconds, then flashes for 30 seconds. If you do not plug it back in, the MVCI turns off after 1 minute.
11 - Software

11.1 - MVCI Software
Install the Honda Diagnostic System (HDS) software according to the Installation Instructions. The MVCI does not come with a CD. The software and updates are included in the HDS software, and are installed to your PC with the HDS software. You will be prompted to update your MVCI when you use it with the HDS software on your PC.

11.2 - HDS Software
1. Double-click the HDS shortcut icon on the PC desktop to start the HDS.

2. On the HDS Welcome screen, click the F12 tab.

3. On the Set-up Details screen, check for HDS software version. Make sure the latest version of HDS software is installed. Check the latest version by logging onto the ServiceExpress website.
12 - HDS MVCI Firmware Update

The MVCI software can be updated automatically or manually. If the MVCI does not have the latest software installed, the HDS automatically takes you to the MVCI reprogramming screen.

**IMPORTANT:** Do NOT unplug the external power plug while the MVCI is being reprogrammed. Do not interrupt the reprogramming procedure as you may damage the MVCI. The firmware update process takes about 7 minutes.

12.1 - Automatic Firmware Updates

1. Make sure the MVCI is powered through the vehicle DLC or the external power source.
2. To start a new vehicle diagnostic session, click the **Select a new vehicle** button.
3. A screen that states the “SPX-MVCI software needs to be updated” appears when the MVCI needs its firmware updated. Click **YES** to continue. If the MVCI has the latest software installed, this screen does not appear.
4. Wait for the MVCI firmware update to start.
5. The MVCI automatically reboots. Follow the directions on the HDS screen. Do not disconnect the external power source. After the MVCI reboots, it displays the following messages to indicate which files are being updated:

<table>
<thead>
<tr>
<th>Upgrade</th>
<th>Upgrade</th>
<th>Upgrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>**Upgrading *******</td>
<td><strong>MD5SUM success...</strong></td>
<td><strong>Verifying MD5SUM...</strong></td>
</tr>
<tr>
<td>Do not power off MVCI</td>
<td>Do not power off MVCI</td>
<td>Do not power off MVCI</td>
</tr>
</tbody>
</table>

After the MVCI updates its firmware, the MVCI restarts and goes through its normal boot up sequence.

6. When the MVCI firmware update is done, the screen will show that “Updating the SPX-MVCI has completed successfully.” Press **Enter** on your keyboard or click the green check mark in the lower right corner. HDS will start a new vehicle diagnostic session.
12.2 - Manual Firmware Updates

1. Make sure the MVCI is powered through the vehicle DLC or the external power source.

2. To start a new vehicle diagnostic session, click the Program the SPX-MVCI button.

3. A screen that states the “SPX-MVCI software needs to be updated” appears when the MVCI needs its firmware updated. Click YES to continue. If the MVCI has the latest software installed, this screen does not appear.

4. Wait for the MVCI firmware update to start.

5. The MVCI automatically reboots. Follow the directions on the HDS screen. Do not disconnect the external power source. After the MVCI reboots, it displays the following messages to indicate which files are being updated:

<table>
<thead>
<tr>
<th>Upgrade</th>
<th>Upgrade</th>
<th>Upgrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrading ******</td>
<td>MD5SUM success...</td>
<td>Verifying MD5SUM...</td>
</tr>
<tr>
<td>Do not power off MVCI</td>
<td>Do not power off MVCI</td>
<td>Do not power off MVCI</td>
</tr>
</tbody>
</table>

6. After the MVCI updates its firmware, the MVCI restarts and goes through its normal boot up sequence.

7. When the MVCI firmware update is done, the screen will show that “Updating the SPX-MVCI has completed successfully.” Press Enter on your keyboard or click the green check mark in the lower right corner.
13 - Connecting the MVCI to the Vehicle

1. Connect the data link connector (DLC) cable to the MVCI and to the DLC on the vehicle (as shown below).

2. When you plug the MVCI into the vehicle’s DLC and turn the ignition switch to ON (II), the MVCI automatically boots up.

3. To turn off the MVCI, disconnect it from the DLC, then press and hold the ESC button for about 5 seconds. The MVCI also turns off after being disconnected from an external power source for 30 seconds.

   **NOTE:** *To reboot the MVCI while it is connected to a power source, press and hold the ESC button for about 5 seconds.*
14 - User Config – Explanations, Set-up and Customizing Settings

After the MVCI receives power and boots up, the HOST STATUS screen appears. Press the ENTER button to open the User Config menu. Under the User Config menu, you find the following choices (refer to the applicable page for more detailed information explaining the functions, proper tool setup and user customization):

- DLC Voltage
- MVCI Setup
- User Customize
- MVCI Status
- Software Version
- Hardware test

**NOTE:** If the MVCI is left idle for 20 seconds, it will return to the MVCI STATUS screen.

14.1 - DLC Voltage

The DLC Voltage screen checks the vehicle’s 12V battery state-of-charge. To do this:

1. Power up the MVCI by connecting it to the vehicle diagnostic link connector (DLC) and turning the ignition switch to ON (II). After the MVCI boots up, press ENTER to access the User Config screen.

   **NOTE:** Make sure the vehicle’s 12V battery is fully charged. If the battery has a low state-of-charge, this may affect communication with the MVCI.

2. Select **DLC Voltage**.

3. Wait for the MVCI to display the vehicle’s battery voltage. If the vehicle battery is below a required threshold, check the vehicle’s battery using a Honda approved battery diagnostic tool.

14.2 - MVCI Setup

From the User Config menu, select **MVCI Setup** and press ENTER.

These options are available:

- **Contrast Control**
- **Font Size**
14.2.1 - Contrast Control
To change the MVCI screen contrast (brightness), select View & Set under Contrast Control and press ENTER.

<table>
<thead>
<tr>
<th>MVCI Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast Control:</td>
</tr>
<tr>
<td>View &amp; Set</td>
</tr>
<tr>
<td>Font Size:</td>
</tr>
<tr>
<td>Small Font</td>
</tr>
</tbody>
</table>

Use the left/right buttons to change the contrast percentage. Press ENTER to save the changes, or ESC to cancel.

<table>
<thead>
<tr>
<th>Contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast Control:</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>46%</td>
</tr>
</tbody>
</table>

14.2.2 - Font Size
The MVCI can display a large font or a small font.

To change the font size, select Small Font under Font Size and press ENTER.

NOTE: The factory default is Small Font. Large font is not available on all screens.

<table>
<thead>
<tr>
<th>MVCI Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast Control:</td>
</tr>
<tr>
<td>View &amp; Set</td>
</tr>
<tr>
<td>Font Size:</td>
</tr>
<tr>
<td>Small Font</td>
</tr>
</tbody>
</table>

Highlight the desired option, then press ENTER to save the changes, or press ESC to cancel.

You can also use the keypad buttons to change the font size:
- To display large font, hold the right arrow for at least one second. The MVCI changes to large font.
- To display small font, hold the left arrow for at least one second. The MVCI changes back to small font.

14.3 - User Customize
From the User Config menu, select User Customize and press ENTER.

The following options are available:
- Language
- Beep Menu

14.3.1 - Language
The MVCI supports several languages. Please use only American English (default) or Français (Canada), because these two languages are currently the only supported languages if technical support is needed.
To change the language setting, select **Language** under **User Customize** and press **ENTER**.

<table>
<thead>
<tr>
<th>User Customize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
</tr>
<tr>
<td>Beep Menu</td>
</tr>
</tbody>
</table>

Select the applicable language from the list, then press **ENTER** to save or **ESC** to cancel.

14.3.2 - Beep Menu

There are three types of audio notifications (beeps) that you can configure in the **Beep Menu**. When you are using the MVCI CM Update, keep these beep notifications enabled:

- **CMU Notice** - The MVCI indicates when the CM reprogramming is complete.
- **Low Voltage** - The MVCI indicates that it has disconnected from the DLC and the vehicle battery state-of-charge is low.

To change the beep settings, select **Beep Menu** under **User Customize**.

Select **Beep Menu** on the **User Customize** screen, and then press **ENTER**.

Highlight **Key Beep** and press **ENTER** to change the setting.

<table>
<thead>
<tr>
<th>User Customize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
</tr>
<tr>
<td>Beep Menu</td>
</tr>
</tbody>
</table>

**Enable** is the default setting for each beep type.
- Press **ENTER** under a selected menu to change the settings as desired.

> **NOTE:** Change only the **Key beep** under the **Beep Menu**.

Select the applicable setting from the list, then press **ENTER** to save or **ESC** to cancel.

<table>
<thead>
<tr>
<th>Beep Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key beep:</td>
</tr>
<tr>
<td>Low Voltage:</td>
</tr>
<tr>
<td>CMU Notice:</td>
</tr>
</tbody>
</table>

14.4 - MVCI Status

From the **User Config** menu, select **System Status** and press **ENTER**.

These status options are available:
- **SDIO-1**
- **SDIO-2**
- **Battery Charger**
- **Host Status**

14.4.1 - SDIO-1

The SDIO-1 slot has the SD memory card inserted. It holds all the calibration files needed for updating control modules/units.
**NOTE:** Do not remove the SD card unless it is faulty and needs to be replaced.

To view the status of SD-1 slot, select **View Status** and press **ENTER**.

<table>
<thead>
<tr>
<th>MVCI Status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SD-1:</td>
<td>View Status</td>
</tr>
<tr>
<td>SD-2:</td>
<td>View Status</td>
</tr>
</tbody>
</table>

The status screens appear. Scroll down to see all status items.

<table>
<thead>
<tr>
<th>SD-1</th>
<th>SD-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power: On</td>
<td>Write Protected: Off</td>
</tr>
<tr>
<td>Card Status: Inserted</td>
<td>Over Current: No</td>
</tr>
</tbody>
</table>

These screens are for information only. You cannot change the settings on these screens. Press **ESC** to return to the previous menu.

14.4.2 - SD-2

The SD-2 slot has the MVCI wireless card inserted. It allows the MVCI to communicate on a wireless network.

**NOTE:** Do not remove the MVCI wireless card unless it is faulty and needs to be replaced.

To view the status of SD-2 slot, select **View Status** and press **ENTER**.

<table>
<thead>
<tr>
<th>MVCI Status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SD-1:</td>
<td>View Status</td>
</tr>
<tr>
<td>SD-2:</td>
<td>View Status</td>
</tr>
</tbody>
</table>

The status screens appear. Scroll down to see all status items.

<table>
<thead>
<tr>
<th>SD-2</th>
<th>SD-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power: On</td>
<td>Write Protected: Off</td>
</tr>
<tr>
<td>Card Status: Inserted</td>
<td>Over Current: No</td>
</tr>
</tbody>
</table>

These screens are for information only. You cannot change the settings on these screens. Press **ESC** to return to the previous menu.

14.4.3 - Battery Charger

This screen indicates if the MVCI batteries are being charged. You cannot change this setting.

**NOTE:** To extend the battery life, the MVCI stops charging the batteries when the MVCI’s internal temperature is 140°F (60°C) or more. Battery charging continues after the MVCI is rebooted and the temperature is below 140°F (60°C).
14.4.4 - Host Status
Not applicable. The status always appears **Inactive**.

<table>
<thead>
<tr>
<th>MVCI Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery Charger: On</td>
</tr>
<tr>
<td>Host Status: <strong>Inactive</strong></td>
</tr>
</tbody>
</table>

14.5 - Software Version
From the **User Config** menu, select **Software Version** and press **ENTER**.

<table>
<thead>
<tr>
<th>User Config</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVCI Setup</td>
</tr>
<tr>
<td>User Customize</td>
</tr>
<tr>
<td>MVCI Status</td>
</tr>
<tr>
<td>Software Version</td>
</tr>
</tbody>
</table>

The MVCI displays the software versions.

> **NOTE:** These screens are examples only. Actual data will vary.

<table>
<thead>
<tr>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>BootLoader: 1.0</td>
</tr>
<tr>
<td>Kernel(A): 1.0</td>
</tr>
<tr>
<td>Kernel: 1.0</td>
</tr>
<tr>
<td>RFS(A): 1.1</td>
</tr>
</tbody>
</table>

14.6 - Hardware Test
The MVCI includes several hardware tests that can check to make sure your MVCI is operating properly. From the **User Config** menu, select **Hardware Test** and press **ENTER**.

These options are available:
- Beep Test
- LED Test
- LCD Test
- Keypad Test
- Serial Number
- Device Loopback Test
- SDMEM Card Test

14.6.1 - Beep Test
This test turns on the beep for 3 seconds. Select **Beep Test** and press **ENTER**.

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14.6.2 - LED Test
This test turns on the three LEDs for 3 seconds.
Select LED Test and press ENTER.

14.6.3 - LCD Test
This test checks the LCD function by turning on all the pixels, showing two patterns, then turning off all the pixels. You can exit the LCD test by pressing ESC.
1. Select LCD Test then press ENTER.
2. Press ENTER to turn on all the pixels.
3. After 5 seconds, you are prompted to press ENTER to see the first test pattern. Press ENTER.
4. After 5 seconds, you are prompted to press ENTER to see the second test pattern. Press ENTER.
5. After 5 seconds, you are prompted to press ENTER to turn off all the pixels. Press ENTER.

14.6.4 - Keypad Test
This test checks the up, the down, the left, the right and the ENTER button. It does not check the ESC button which is used to exit the test.
Select Keypad Test and press ENTER.
Check the five buttons. When you press each button, the applicable LCD should briefly light on the screen.

14.6.5 - Serial Number
The serial number is printed on the back of the battery cover. However, if you can’t read it, or if your battery covers were accidentally exchanged, you can get the MVCI’s serial number electronically.
Select Serial Number and press ENTER.

14.6.6 - Device Loopback Test
This test checks the MVCI’s communication lines and analog circuits.
1. Make sure the MVCI is not connected to a vehicle. Select Device Loopback Test and press ENTER.
2. A warning screen directing you to remove the DLC cable from the MVCI appears. Remove the cable and press ENTER to start the test, or press ESC to exit.

   NOTE: Do not run the test with the MVCI connected to a vehicle. You can damage a control unit or the MVCI.

<table>
<thead>
<tr>
<th>Device Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the vehicle cable from the MVCI and then perform the test</td>
</tr>
<tr>
<td>&lt;Enter&gt; to continue</td>
</tr>
</tbody>
</table>

   Device Test
   Test is in progress...
   Do not connect to Vehicle

When the test is complete, a results screen appears indicating Test Passed or Test Failed. You can view the log file by pressing ENTER, or press ESC to exit.

14.6.7 - SDMEM Card Test
This test checks the SD card inserted in the SDIO-1 slot.

   NOTE: Do not remove the SD card unless it is faulty and needs to be replaced.
Select the SDMEM Card Test and press ENTER.

<table>
<thead>
<tr>
<th>SDMEM Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDMemory Card Test in Progress...</td>
</tr>
</tbody>
</table>

When the test is complete, a results screen appears, indicating if the SD card passed, or if there is an error.
15 - Troubleshooting

15.1 - Cannot Communicate with PC
1. Check that the MVCI is connected correctly to the vehicle OBD II connector with the DLC cable and that it is powered up.
2. Check that the proper MVCI has been selected from the MVCI Connection Manager (colours are associated to MVCIs within a dealership, and serial numbers should correspond between the HDS software and the MVCI itself).
3. Verify that the latest version of HDS and CM Update are installed.
4. HDS only: Check that the market and dealer number are setup correctly.
5. Verify all tablets at the dealership have been installed to the latest version of HDS and CM Update.
6. Restart the server session or local session (depending on which is in use).

15.2 - Cannot Communicate with Vehicle
1. Check that the MVCI is connected correctly to the vehicle OBD II connector with the DLC cable and that it is powered up.
2. Check that the MVCI connection is OK via the MVCI Dashboard.
3. Check that the ignition is on.
4. Check the vehicle system voltage level.
5. Verify that the latest version of HDS or CM Update is installed.
6. HDS only: Check that the market and dealer number are setup correctly.
7. Check that the MVCI is selected as the communications device.
8. Check for broken or missing terminal pins on the DLC cable.
9. Restart the software and power off and on the MVCI.
16 - Frequently Asked Questions

Why doesn’t the MVCI power on?
Make sure that the MVCI is connected to the vehicle with the DLC cable or connected to the external power adapter. If the MVCI is connected to a vehicle and the MVCI doesn’t turn on, make sure the vehicle’s 12V battery has a good state-of-charge. If the battery is good, make sure the DLC has 12 volts between terminal number 16 and terminal numbers 4 or 5 (they are grounds). If the DLC lacks power or ground, use the external power supply to power the MVCI.

Why doesn’t the MVCI power off?
To turn off the MVCI, disconnect it from all power sources then press and hold the ESC button until the screen goes blank (5 seconds). The MVCI powers off 60 seconds after being disconnected from a vehicle or the external power.

Why does the MVCI power off if I didn’t press the ESC button?
The MVCI is not designed to run on its internal batteries. The batteries act as a backup power source in case the MVCI is accidentally disconnected or loses power. It must be connected to a vehicle or an external power source. The MVCI powers off after 60 seconds without external power.

Why does the MVCI keep rebooting when the external power is disconnected?
The MVCI batteries are low on power. Connect the external power adapter, and allow the batteries to charge for 4 hours.

Why does the MVCI reboot when the vehicle is started?
The MVCI batteries are low on power. Connect the external power adapter, and allow the batteries to charge for 4 hours.

The screen message is hard to see. What can I do to make it easier to read?
You can make the font larger by pressing and holding the MVCI’s right key (>>) for 3 seconds.

Why does the MVCI beep every time the scroll pad is pressed?
This is normal. The beep can be disabled. Refer to the Beep Menu for information about enabling and disabling the beep.

When using the menu functions, why does my MVCI return to the MVCI Status display?
The MVCI always returns to the MVCI Status display after 20 seconds without user interaction.

When changing the wireless settings, why do the settings go back to the previous value before they are saved?
The MVCI always returns to the MVCI Status display after 20 seconds of no user interaction. If this happens, all wireless changes made are lost. All changes must be saved before the MVCI returns to the MVCI Status display.

Why does the battery icon on the MVCI Status screen have an ‘X’ in it?
The batteries in the MVCI are not installed or they are installed incorrectly, or they are defective.

Why does the battery icon on the MVCI Status screen have a ‘ZZ’ in it?
Battery charging stops when the MVCI’s internal temperature rises above 140°F or 60°C. Battery charging resumes after the MVCI power is cycled (turned off and on) and the temperature is below 140°F or 60°C.

Can I quickly perform a CM Update on multiple vehicles of the same type?
Yes. When after a CM Update is complete, the screen will prompt asking to repeat this operation on another vehicle. Refer to Instructions for Updating Control Modules/Units for more information.
### 17 - Specifications

| Electrical                  | 32.739kHz Real Time Clock  
|                            | 400Mhz CPU (Software determined) |
| Display                    | 65 x 128 pixel LCD Graphic Display  
|                            | Backlight  
|                            | Supports a maximum of 4 lines of text |
| Status Lights              | Vehicle Communication Indicator  
|                            | Wireless Connection Indicator  
|                            | Battery Discharging Indicator  |
| Keypad                     | Escape/Off Button  
|                            | Enter Button  
|                            | Arrow pad (Up/Down/Left/Right) |
| Interface                  | SDIO/SD Memory Card Slots (2)  
|                            | Vehicle I/O Connector  
|                            | USB Device Port  
|                            | Ethernet Port  
|                            | USB On-The-Go Port  |
| Battery                    | AA Rechargeable NiMH - 2000mAh  |
| AC Adapter                 | Input: 100 - 240V AC 50/60Hz  
|                            | Output: 15V DC, 1.2A |
| Vehicle I/O                | 26 pin Connector  
|                            | The MVCI is capable of taking voltage measurements on the vehicle diagnostic Link I/O lines. These lines are limited to measurements between 0 - 32V DC, therefore, are considered in Measurement Category I (UL 61010-1). |
| Power Input                | Power Adapter Port  
|                            | Vehicle I/O Port  
|                            | 8 - 32V DC |
| Environment                | Operation of MVCI (readable LCD):  
|                            | 32°F to 140°F (0°C to 60°C)  
|                            | Operation of MVCI (non-readable LCD):  
|                            | -4°F to 140°F (-20°C to 60°C)  
|                            | Storage of MVCI: -4°F to 160°F (-20°C to 70°C)  
|                            | Operation Humidity: 20% to 85% RH at 100°F (38°C) |
| Physical                   | Approximate Size: 6.25" x 5" x 2"  
|                            | Approximate Weight: 1.5 lbs. |

### 18 - Software

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