VERUS VERDICT™
MODIS™ SOLUS Ultra® SOLUS PRO™

Holden VZ 3.6L 2004-2006
ECU & Powertrain Interface Module Linking Instructions

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The PIM reset function breaks the security link so that the used PIM can be installed and linked into another vehicle.

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The PIM & ECM Link function is used to security link a new or used (previously reset) PIM to the ECM.

VIN Program:
VIN Program is used to store the correct vehicle VIN into a new or used PIM.

PIM Configuration:
Once linked, a replacement PIM must be correctly configured to suit the vehicle it has been linked to. This includes configuration settings for ABS, Air Conditioning and other vehicle options.

In Brief – PIM Replacement

1. **Reset original PIM**
2. **Remove original PIM & fit replacement**
3. **Carry out BCM – PIM link (BCM menu)**
4. **Carry out PIM – ECM link (PIM menu)**
5. **Configure PIM using PIM configuration (PIM menu)**
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ECM Special Functions Overview:

ECM Reset:
The ECM reset function breaks the security link so that the used ECM can be installed and linked into another vehicle.
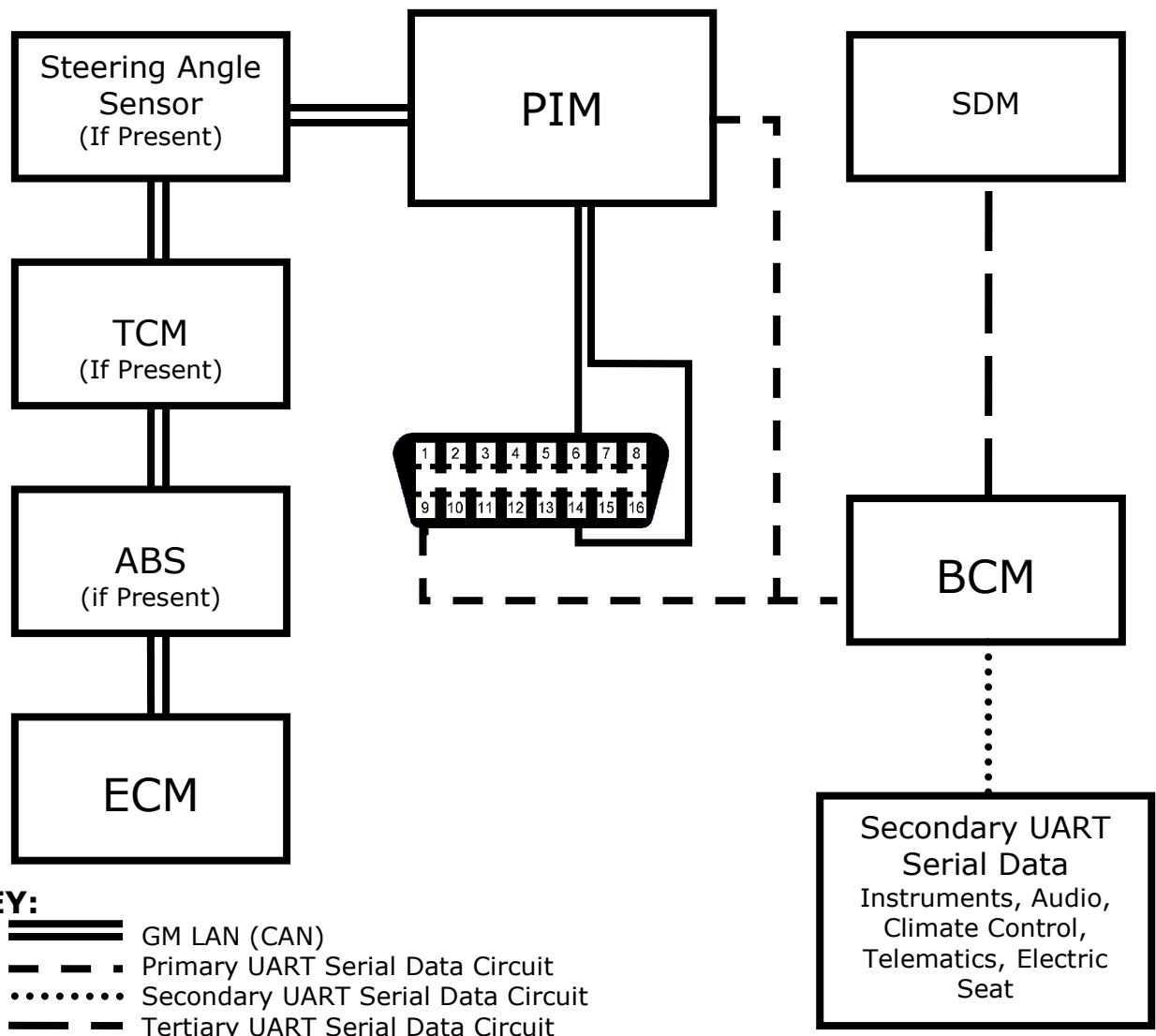
ECM Link:
The PIM - ECM Link function is used to security link a new or used (previously reset) ECM to the PIM.

In Brief – ECM Replacement

1. **Reset original ECM (ECM Menu)**
2. **Remove original ECM & fit programmed replacement**
3. **Carry out PIM – ECM Link (ECM Menu)**
4. **Ensure vehicle starts and check/clear any fault codes**

Introduction to PIM & ECU Linking

VZ 3.6L System Overview:

KEY:
- ═══════ GM LAN (CAN)
- ▬ ▬ ▬ ▪ Primary UART Serial Data Circuit
- •••••••• Secondary UART Serial Data Circuit
- ▬▬ ▬ ▬ Tertiary UART Serial Data Circuit

Holden VZ 3.6L models feature 2 communication serial data bus circuits that are used for module communication within the vehicle:

GM LAN Serial Data BUS (CAN):
- ECM (Engine Control Module)
- TCM (Transmission Control Module) – If Automatic Transmission is present
- Anti-lock Brake Electronic Control Unit – if ABS/Traction Control (TRC)/Stability Control is present
- Steering Angle Sensor – If stability control is present
- PIM (Powertrain Interface Module)

UART Serial Data BUS:
- BCM (Body Control Module): Also acts a UART Bus Master
- ICM (Instrument Control Module)
- AHU (Audio Head Unit)
- SDM (Occupant Protection System Sensing & Diagnostic Module)
- Climate Control (OCC)
- Telematics
- Electric Memory Seat
- PIM (Powertrain Interface Module)

Powertrain Interface Module:

Functions of the PIM:
- The PIM acts as a communication gateway, or "translator" between the high speed GM LAN serial data bus & UART serial data bus. This allows for bi-directional transmission of communication messages between both networks.
- Receives and converts analogue Cruise control, power/economy, transmission upshift and downshift & TRC/ESP switch inputs and converts into digital signals
- Reverse Lamp relay control.
- BCM & ECM Authentication (theft deterrent).

Location of the PIM:

PIM is located in the driver side of the dash, below the instrument panel, near the fuse box. It is accessible by lowering the lower trim panel assembly.

Engine Control Unit:

The Engine Control Module is located on the Right-Front of the engine assembly.

The Engine Control module monitors numerous input signals and switches and controls outputs such as injectors, ignition coils and control relays. The ECM communicates directly to other modules on the GM LAN network such as the TCM & ABS, as well as modules found on the UART Serial Data Bus via the PIM module such as the BCM or instrument cluster.

Theft Deterrent:

The ECM is a part of the theft deterrent system: when the ignition is switched on, the ECM, PIM & BCM complete an authentication process:
1. The BCM sends a security code to the PIM. The PIM Receives the security code and compare this to a security code programmed into the PIM.
2. Once the PIM receives and verifies the correct security code from the BCM, it then sends a security code to the ECM.
3. The ECM now receives the security code from the PIM and compares it to the security code programmed into the ECM.
4. Once the ECM receives the correct security code from the PIM within a specified time frame, the authentication process is complete.
5. The ECM will now allow normal vehicle operation including engine start.

Vehicle Security Code

Prior to the commencement of any PIM Functional Tests, please ensure that you have available the Vehicle Security Code.

The 4 digit security code is required for PIM reset & Link functional tests. This number was supplied with the vehicle on a vehicle security card (see example below). If this card is not available, contact your nearest Holden Service Centre for assistance.
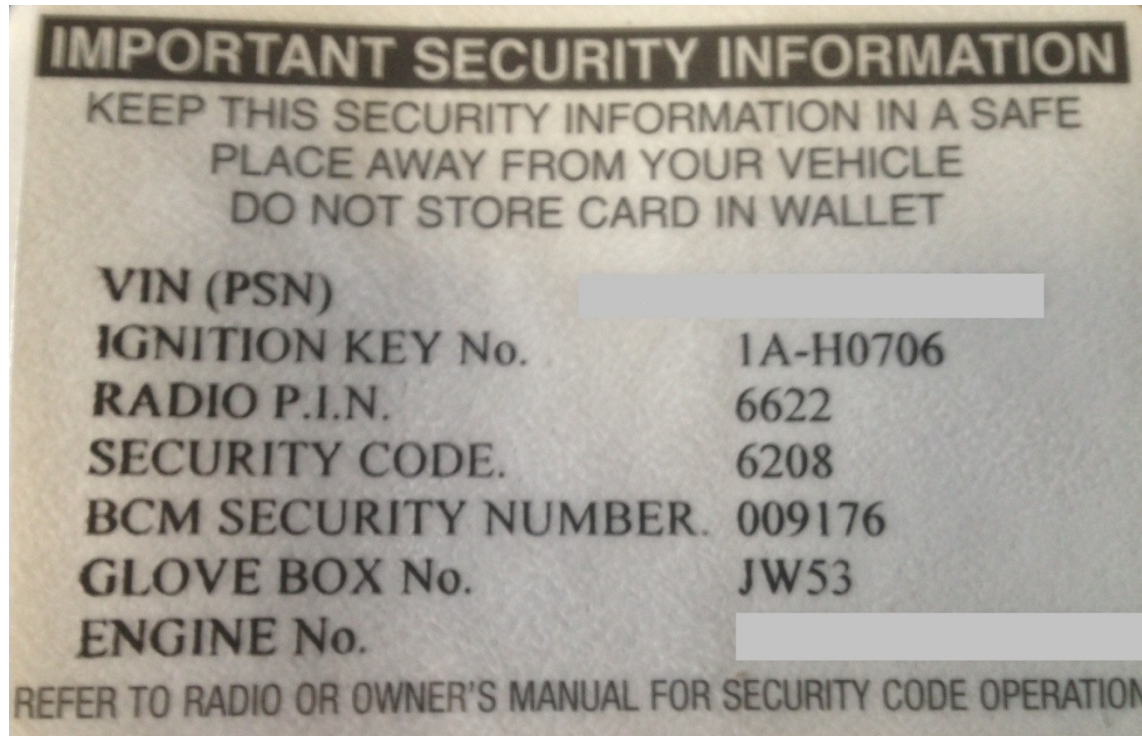
When prompted to enter the 4 digit security code, ensure the correct code has been entered or a security wait time will become active. This will prevent any further attempts to enter a security code until the wait time has elapsed:

Security Wait Time Periods:

Incorrect Attempt 1: 10 Seconds
Incorrect Attempt 2: 10 Seconds
Incorrect Attempt 3: 10 Minutes
Incorrect Attempt 4: 20 Minutes
Incorrect Attempt 5: 40 Minutes
Incorrect Attempt 6: 80 Minutes

Wait times will reset to 10 seconds after a security wait period has ended followed by a correct security code entered and accepted by the vehicle.

Powertrain Interface Module

A PIM that is installed and functional in a vehicle is security linked to both the BCM and the ECM. Once the PIM is linked to a vehicle, and cannot be removed and fitted to another vehicle unless the PIM reset has been carried out.

PIM Reset Precautions

- **The PIM cannot be installed into any other vehicle unless it has been reset prior to removal.**

- **A PIM can only be reset a total of 8 times, then must be replaced.**

- **A used PIM that has been removed from a vehicle cannot be reset after being fitted to another – it MUST be reset whilst it is still fitted to the original vehicle it was linked to.**

- **Once the PIM is reset, vehicle will not start until the PIM-BCM & PIM-ECM Link tests carried out.**

- **A correct vehicle security code is required for PIM Reset & PIM Linking.**

- **Do not attempt to perform the PIM reset within 60 seconds of turning the ignition switch on or the PIM may fail to reset.**

- **Ensure vehicle has a fully charged battery.**
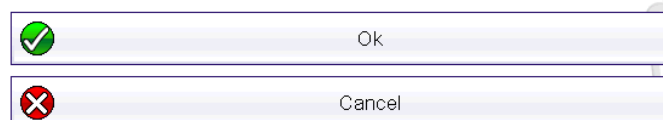
PIM Replacement - 1: PIM Reset

Procedure:

(Procedure screenshots shown utilise a Solus Ultra – other Snap-on scan tools that support this procedure will only have minor screen differences)

1: Correctly identify the vehicle, then select **PIM**. Connect the correct adaptor lead (and key if applicable to your system) to the diagnostic port. Select Functional Tests.
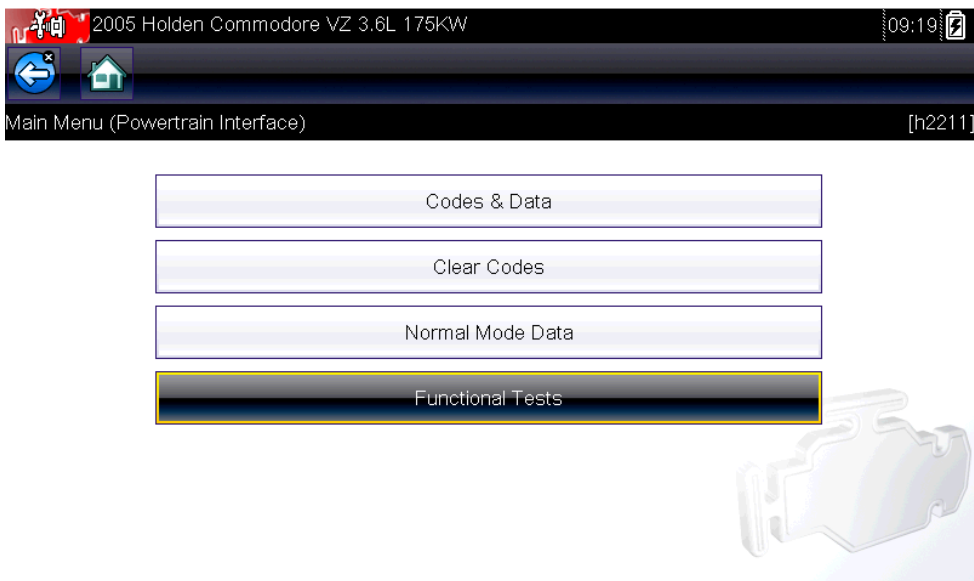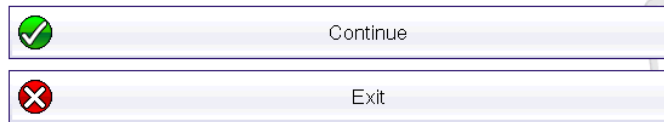
Snap-on Diagnostics

2005 Holden Commodore VZ 3.6L 175KW   09:18

Select System:

| Engine |
| Transmission |
| Powertrain Interface |
| Antilock Brakes |
| Airbag |
| Alarm |

2005 Holden Commodore VZ 3.6L 175KW   09:19

Connect: DA-4 Cable.
Location: Under Drivers Dash.

| ✓ | Continue |
| ✗ | Exit |

2005 Holden Commodore VZ 3.6L 175KW   09:19

Main Menu (Powertrain Interface)   [h2211]

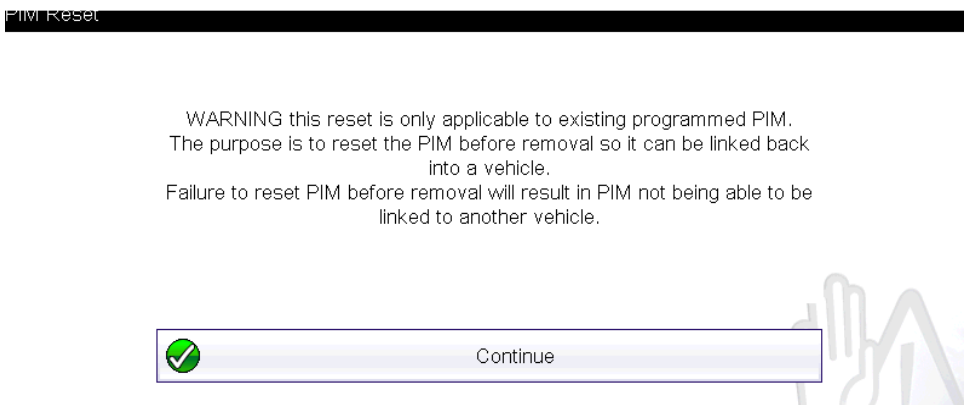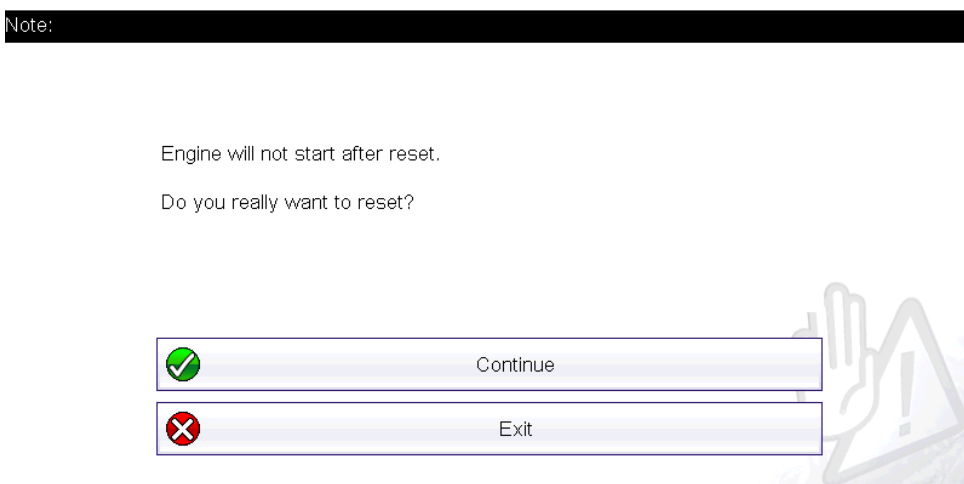| Codes & Data |
| Clear Codes |
| Normal Mode Data |
| Functional Tests |

**2:** Ensure the ignition is switched on. Select PIM Reset:
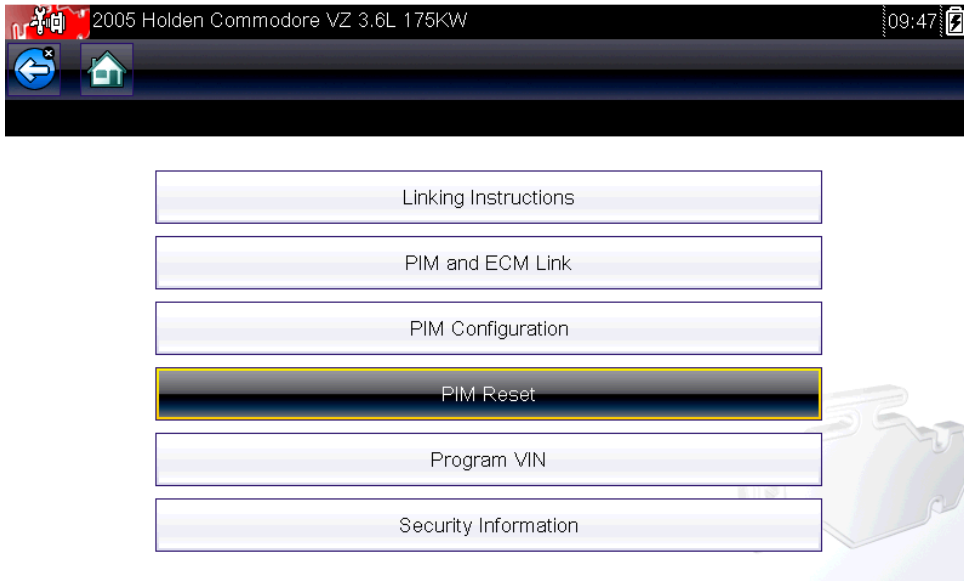
3: An information screen similar to below will appear. **Carefully read all screens before proceeding.**

4(a): Select Continue. **IF PIM has not been previously reset,** the confirmation screen below will appear. If you would like to begin, select continue.

4(b): Select Continue. **IF PIM has already been reset**, the following message screen will appear. There is no need to continue past this point with the PIM reset test. Exit to PIM main menu.

Note:
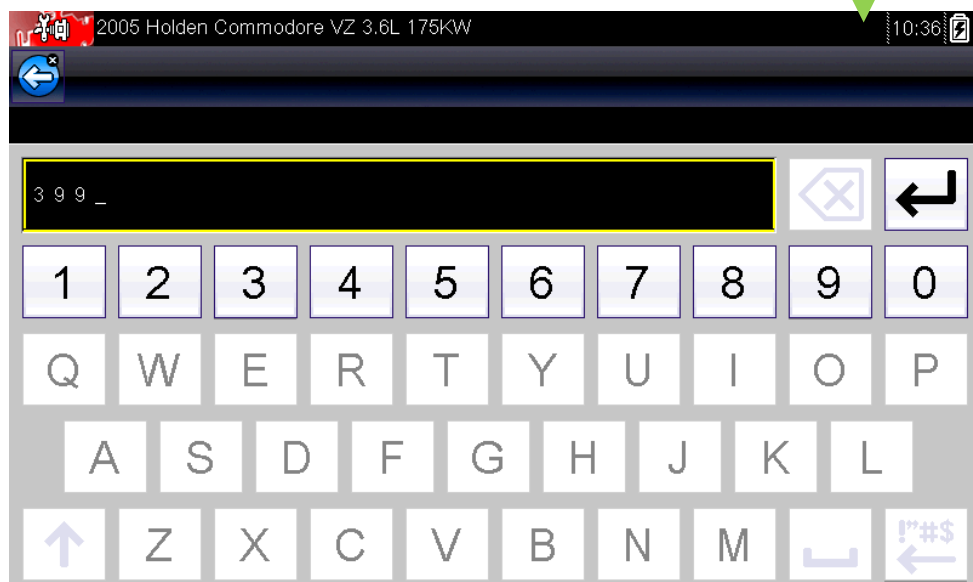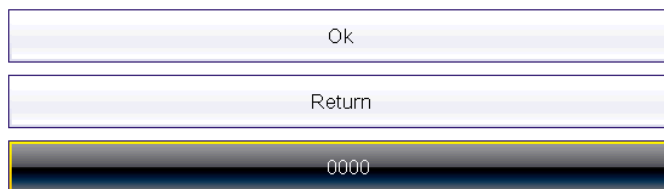
PIM module is already reset!

| ⊗ | Exit |
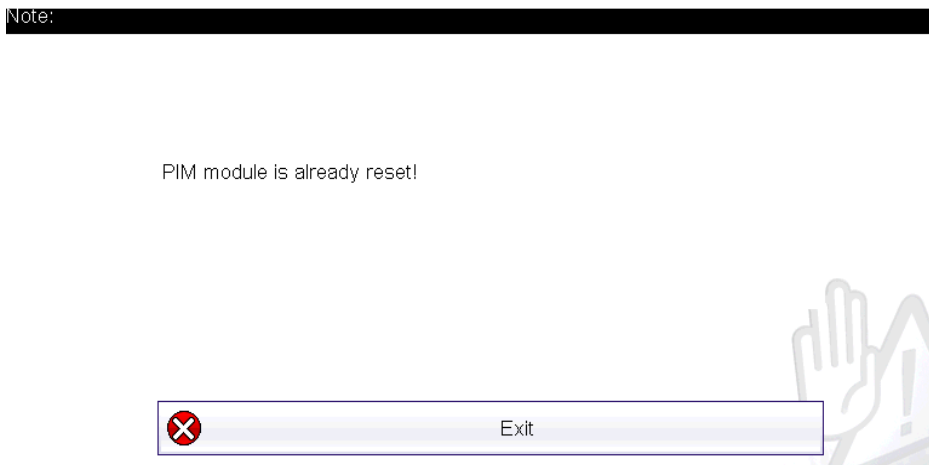
5: Select continue from step 4(a). Now you will require the 4 digit security code mentioned earlier in this guide. Select the security code entry line and enter the correct numbers.

Verus, Verdict & Solus Ultra users: Enter the correct number using the on-screen keyboard. Select Enter when complete.

2005 Holden Commodore VZ 3.6L 175KW

Enter Security Code (4-digit number)

Enter Security Code (4-digit number)

| Ok |
| Return |
| 0000 |

2005 Holden Commodore VZ 3.6L 175KW   10:36

3 9 9 _

1	2	3	4	5	6	7	8	9	0
Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L
↑	Z	X	C	V	B	N	M

(Continued next page)

<u>Solus Pro & Modis users:</u> Scroll up and down using the thumb pad to select the correct number, then select Y to select the next digit. Repeat the procedure until complete. Select N to return back to a previous digit.
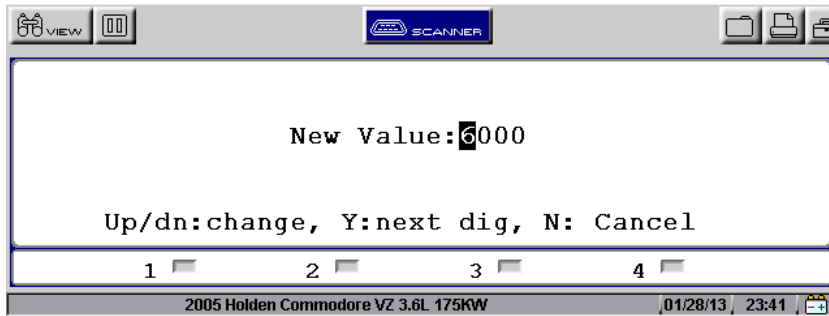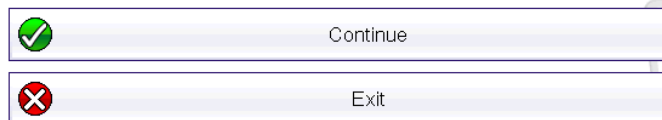

Ensure the correct code has been entered or a security wait time will become active.

6: The following security code confirmation screen will appear. Select continue to proceed, or exit to return to main menu.
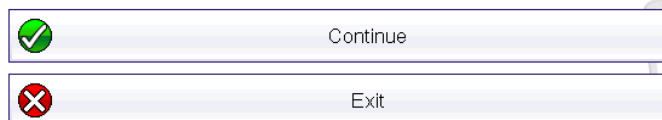

7: A final confirmation screen will now appear. Select continue to proceed or exit to return to main menu.

8: If continue has been selected, an "In Process, please wait.." screen will appear. A short time wait later, the following "Please turn off ignition key" message will appear. After the ignition key is off, select OK.

Please turn off ignition key.

| ✓ | Ok |

9: Following a short "Please wait" period indicated on screen, the following message requesting that the ignition key is switched on will appear. After the key is switched on, select OK.

Please turn on ignition key.

| ✓ | Ok |

10: The PIM Reset procedure is now complete when "Reset Successful" appears on screen. Select exit to return to main menu. **Do not switch the ignition off within 60 seconds of resetting the PIM.** After more than 60 seconds of performing the PIM reset, the ignition can be switched off, vehicle battery disconnected & PIM removed from the vehicle.

Reset Successful

| ✗ | Exit |

PIM Replacement - 2: PIM Link

When a PIM has been replaced, it must be security linked to both the ECM & BCM. Failure to carry these tests out will prevent the engine from starting.

PIM Link Precautions

- **A successful PIM link requires 2 separate procedures: Link to BCM & Link to ECM, otherwise vehicle will not start.**

- **A used PIM that has been removed from a vehicle must be reset before it can be linked to the new vehicle. It cannot be reset after being fitted – it MUST be reset whilst it is still fitted to the original vehicle it was linked to. Failure to do this will prevent a successful link into the second vehicle.**

- **A correct vehicle security code is required for PIM Reset & PIM Linking.**

- **Ensure vehicle has a fully charged battery.**

- **Do not attempt to perform the PIM link within 60 seconds of turning the ignition switch on or the PIM may fail to link.**
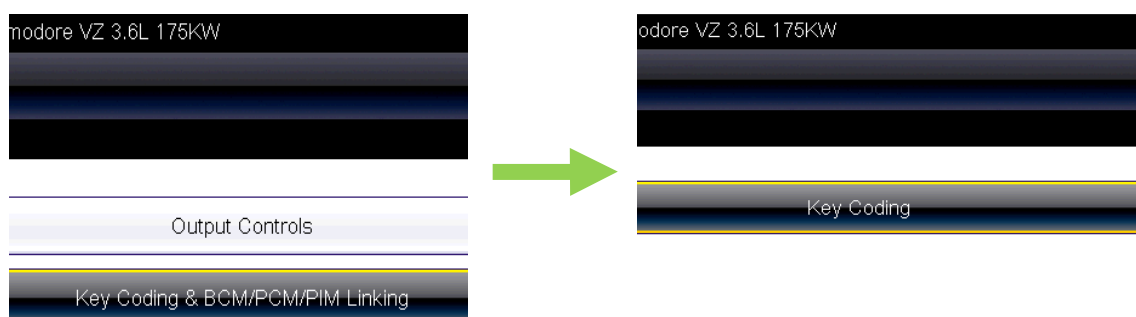
Procedure:

1: Fit new or used (previously reset) PIM into vehicle.

2: Correctly identify vehicle in your Snap-on scan tool.
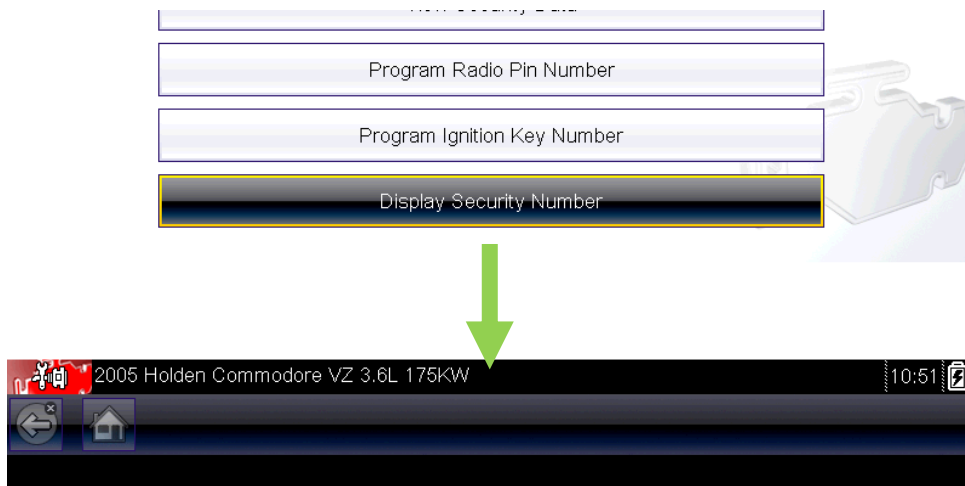
3: Turn the ignition switch on. **Select Body Control Module** and connect to the diagnostic port using the correct lead (and key if applicable to your system).
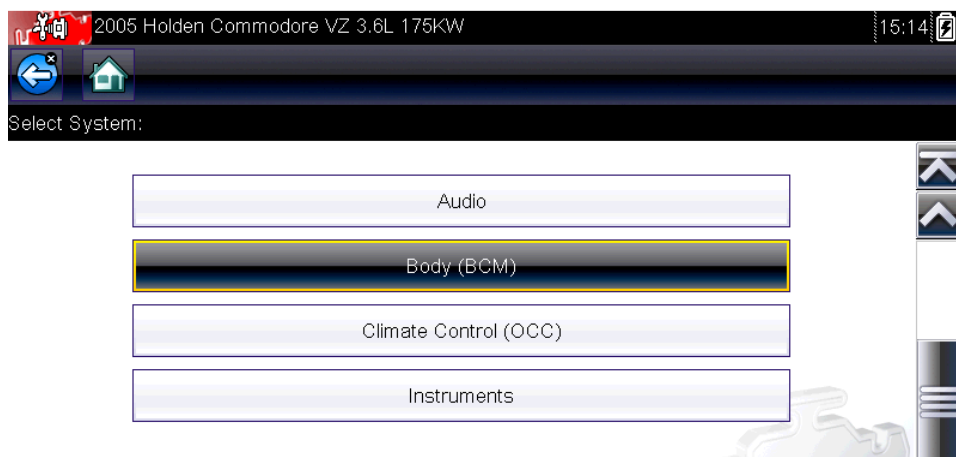
4: Select Functional Tests >> Key Coding & BCM/PCM/PIM Linking >> Key Coding

5: BCM Key code Main Menu. Select <u>Display Security Number.</u> Record the security number displayed on screen & select exit.
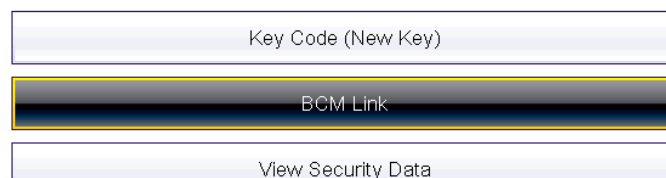
Program Radio Pin Number

Program Ignition Key Number

Display Security Number

2005 Holden Commodore VZ 3.6L 175KW   10:51
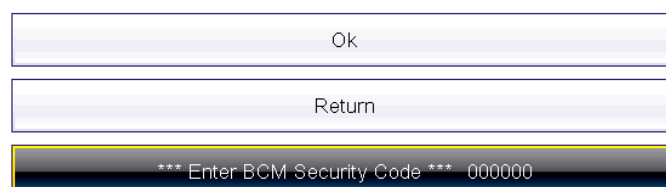
BCM Security Number is: 163453

Exit

6: On the BCM Key Code Main Menu, now select <u>BCM Link</u>, then <u>Enter BCM Security Code</u> (previously retrieved in step 5).
<u>Note:</u> The BCM Security Code must have 6 digits. If the BCM security code is less than 6 digits, use 0 or 00 at the start to fill out. Example: If BCM security code 4563 was retrieved in step 5, 004563 must be entered in this step.

Select Test:

Key Code (New Key)

BCM Link

View Security Data

*** Enter BCM Security Code ***

*** Enter BCM Security Code ***

Ok

Return

*** Enter BCM Security Code ***   000000

Verus, Verdict & Solus Ultra users: Enter the correct number using the on-screen keyboard. Select Enter when complete.


Solus Pro & Modis users: Scroll up and down using the thumb pad to select the correct number, then select Y to select the next digit. Repeat the procedure until complete. Select N to return back to a previous digit.
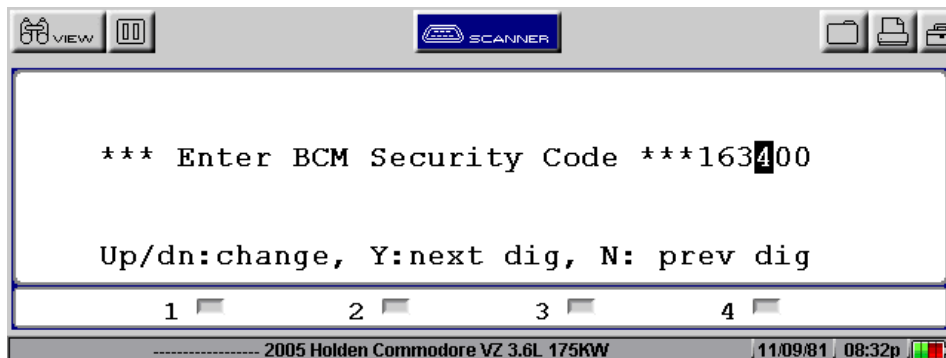
7: Once the correct BCM security number has been entered, select OK on the Enter BCM Security Code screen.
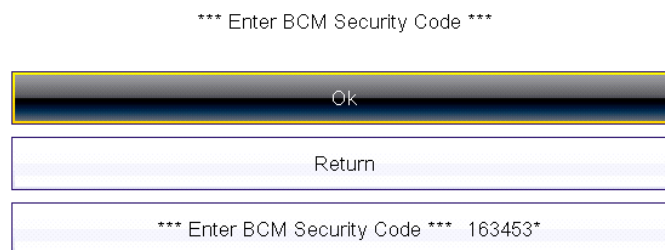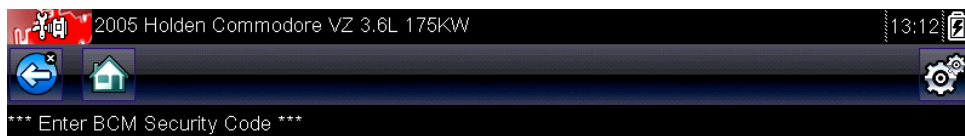
8: Follow the on-screen prompts – ensure a key is in the ignition and switched on (must be previously coded to the BCM), wait 30 seconds then select continue.

2005 Holden Commodore VZ 3.6L 175KW	11:07
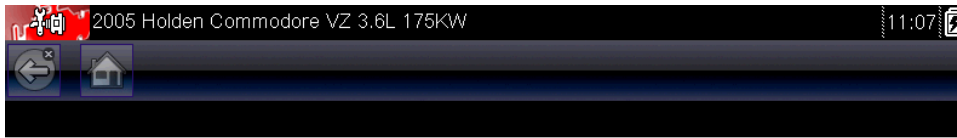
Ensure a BCM coded key is in the
ignition and it is switched to
the "on" position. Wait 30 seconds

[✓] Continue

9: When conditions are correctly met (coded key in ignition & switched on), one final confirmation screen will appear – select continue and the linking procedure will now be carried out.

Select Continue now to begin linking. Test takes about 1 minute.

[✓] Continue

10: Once the test is complete, a test completed screen as shown below will appear. Cycle the ignition key off for 15 seconds, back on then select exit.
The PIM is now security linked to the BCM, however the vehicle will not start. You must now complete the PIM – ECM Link procedure.

2005 Holden Commodore VZ 3.6L 175KW	07:57

BCM/PCM Link test completed. Ensure ignition has been cycled off for
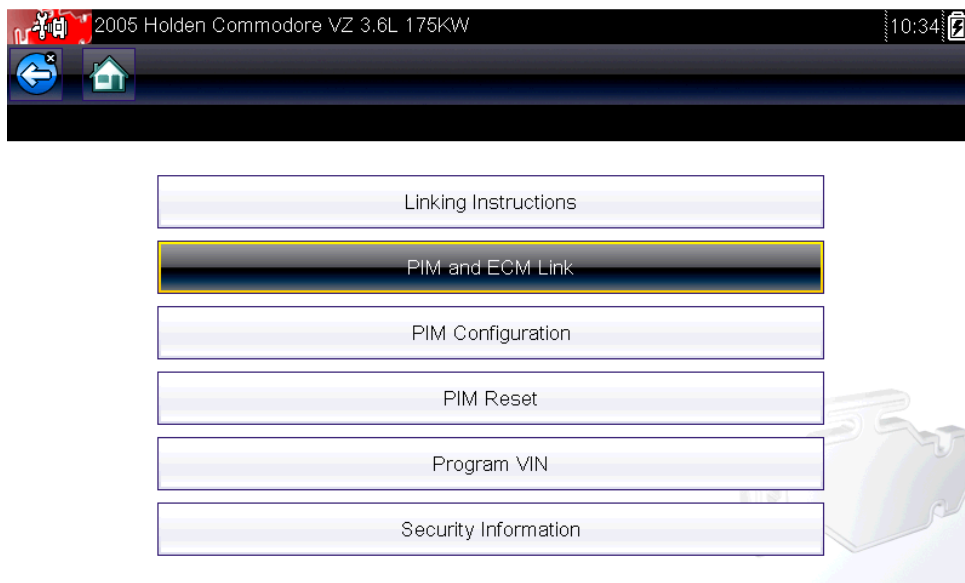15 seconds then back on.

[✗] Exit

11: Exit the BCM menu. From the main vehicle system menu shown below, select the **Powertrain Interface Module.**

12: Select <u>Functional Tests</u> >> **PIM & ECM Link**

13: Ensure the scan tool is connected to the diagnostic port using the correct adaptor lead (and key if applicable to your system).

TIP for Modis, Solus Pro & Verus (wired) Users Only

As the PIM to ECM link procedure uses 2 different communication protocols during this procedure, customers using "keyed" platforms (Modis, Solus Pro & Verus wired) will require the use of 2 different 16 Pin adaptors & Keys (OBDII Adaptor & K17 Key, DL16 Adaptor & S16 Key). The software will prompt you to change the adaptor & Key when necessary with a connector screen. <u>Follow the on screen instructions at all times.</u>

The DL16 & S16 combination will be required first.

14: After reading the information screen below, select Yes to continue.

15: When the below menu loads on screen, select "PIM Replaced."

16: A PIM installed confirmation screen will now load. Select Yes to confirm that the PIM is installed to continue with the procedure.
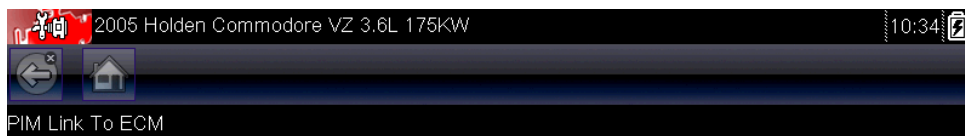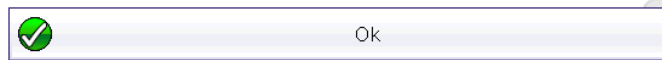
17 (a): <u>IF PIM has already been linked to the ECM</u>, the following message screen will appear. There is no need to continue past this point with the PIM Link test. Exit to the PIM main menu.

| 2005 Holden Commodore VZ 3.6L 175KW | 10:34 |

Note:

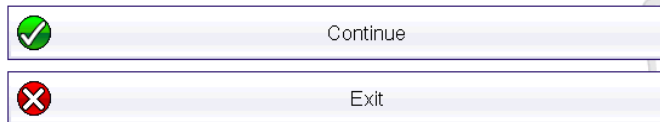PIM module is already link!

| ✓ | Ok |

17 (b): <u>IF the PIM is not yet linked to the ECM,</u> select continue on the confirmation screen below.

Caution!

Use this function only after replacing the ECU.
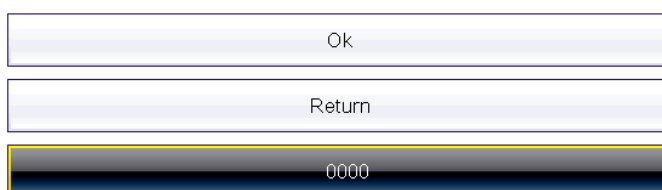This function works only with a V6 engine.

Do you want to continue?

| ✓ | Continue |
| ✗ | Exit |

18: Enter the 4 digit vehicle security code (input method remains the same as shown elsewhere within this user guide.

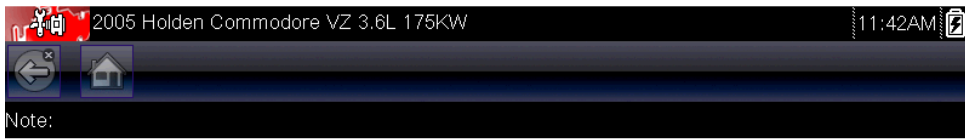| 2005 Holden Commodore VZ 3.6L 175KW | 11:42AM |

Enter Security Code (4-digit number)

Enter Security Code (4-digit number)
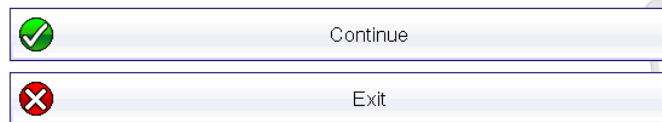
| Ok |
| Return |
| 0000 |

19: The following security code confirmation screen will appear. Select continue to proceed, or exit to return to main menu.

Ensure the correct code has been entered or a security wait time will become active.

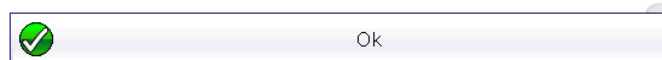### TIP for Modis, Solus Pro & Verus (wired) Users Only

Pay attention to any screens that appear requesting a change in adaptor & key connections to the diagnostic port!

20: Select continue to begin the link procedure.

21: After a short wait, the following screen should appear requesting the vehicle ignition switch is turned off. Turn the ignition off, then select ok.

22: After another short time wait, a screen will appear requesting that the vehicle ignition is turned on. Turn the ignition switch on then select ok.

23: The final test screen will now appear when the test is complete. Select OK to return to the PIM main menu.


- **Wait a further 60 after completing the procedure before switching the ignition off.**

- **You should now be able to start and run the engine.**

- **Check, clear & re-check for any fault codes in all systems.**

- **You must now perform the <u>PIM Configuration</u> & <u>Program VIN</u> procedures.**
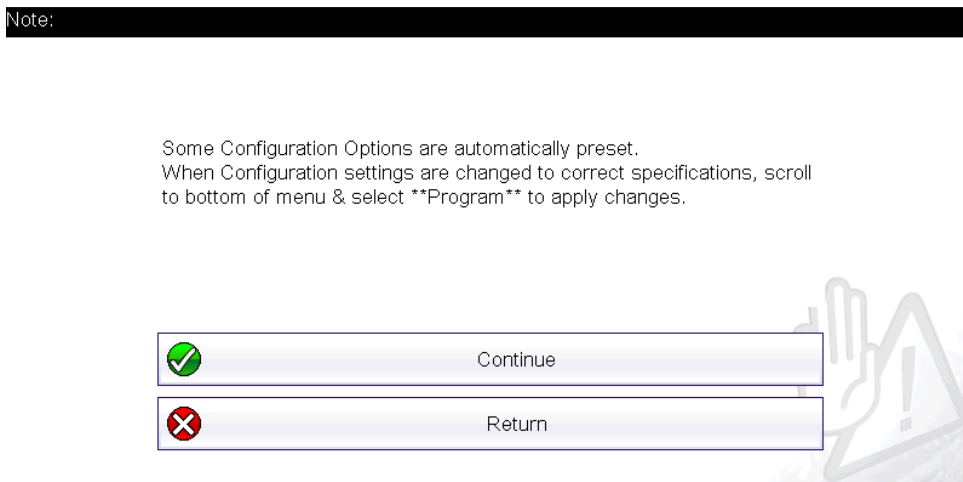
PIM Replacement – 3: PIM Configuration

1: Correctly identify the vehicle, then select PIM. Connect the correct adaptor lead (and key if applicable to your system) to the diagnostic port. Select <u>Functional Tests.</u>
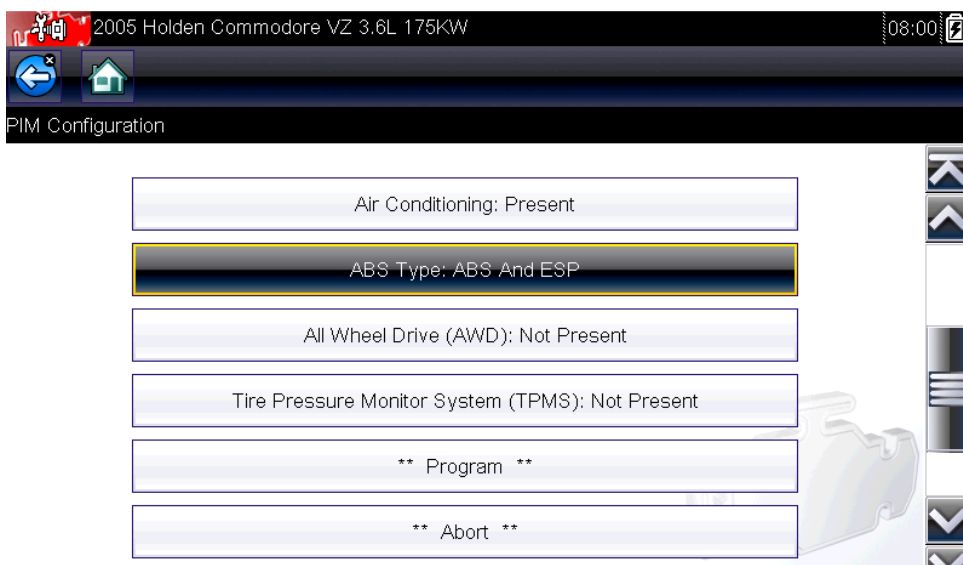
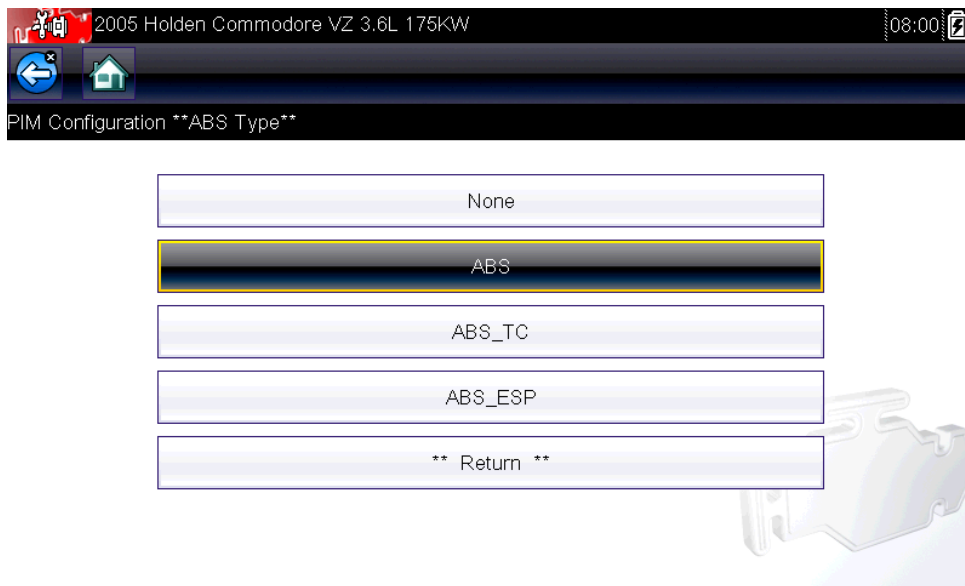**2:** Select **PIM Configuration** from the PIM Functional Tests Menu.

Linking Instructions

PIM and ECM Link

PIM Configuration

PIM Reset

Program VIN
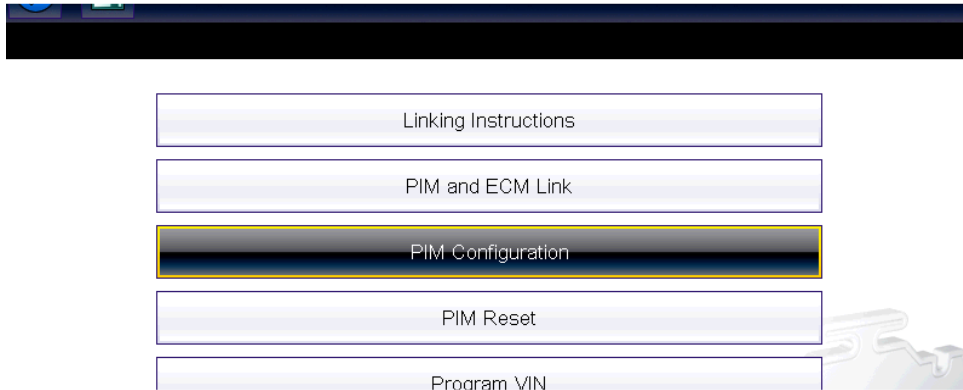
3: The instruction screen shown below will now appear, selecting continue will begin the process

Note:

Some Configuration Options are automatically preset.
When Configuration settings are changed to correct specifications, scroll to bottom of menu & select **Program** to apply changes.

✓ Continue

✗ Return

4: An options list will now appear. Select any item that displays incorrect information in relation to the vehicle specification. Example below is re-selecting different ABS system options.
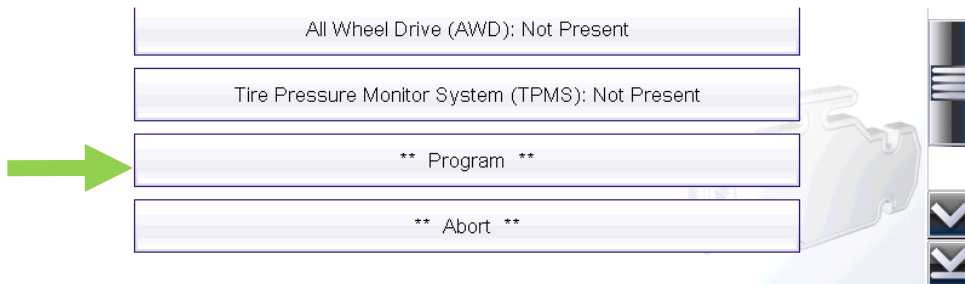
2005 Holden Commodore VZ 3.6L 175KW   08:00

PIM Configuration

Air Conditioning: Present

ABS Type: ABS And ESP

All Wheel Drive (AWD): Not Present

Tire Pressure Monitor System (TPMS): Not Present

** Program **

** Abort **

5: In the example below, ABS Type has been selected; now an ABS Type list is available – choose the correct ABS type & select <u>Return.</u>

2005 Holden Commodore VZ 3.6L 175KW	08:00

PIM Configuration **ABS Type**

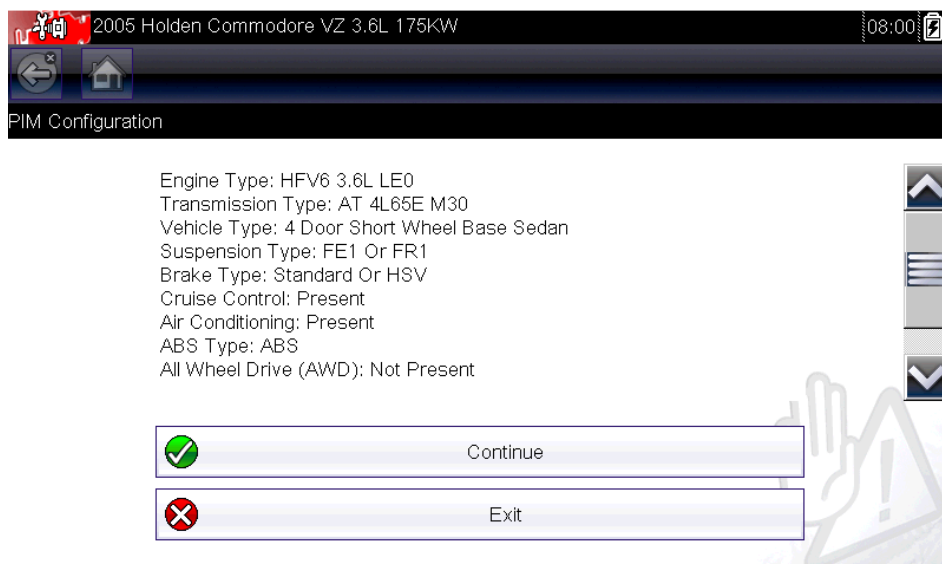| None |
| --- |
| ABS |
| ABS_TC |
| ABS_ESP |
| ** Return ** |

6: Repeat steps 4 & 5 for any other vehicle configuration item that requires a configuration change.

7: Once all necessary changes have been made, select "Program."

| All Wheel Drive (AWD): Not Present |
| --- |
| Tire Pressure Monitor System (TPMS): Not Present |
| ** Program ** |
| ** Abort ** |

8: A confirmation screen will now appear. Verify that all information is correct, then select continue to save the information into the PIM. PIM Configuration is now complete. **Do not switch off the ignition within 60 seconds of programming the PIM or changes may fail to save.**
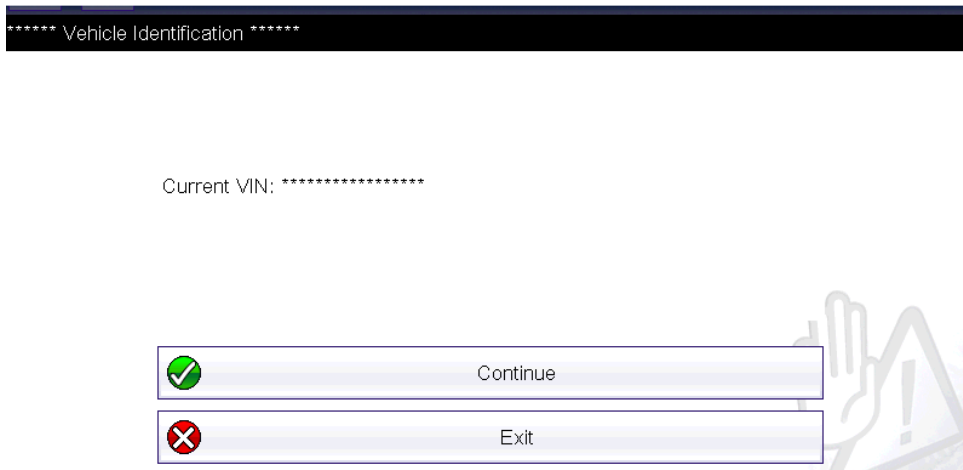
2005 Holden Commodore VZ 3.6L 175KW	08:00

PIM Configuration

Engine Type: HFV6 3.6L LE0
Transmission Type: AT 4L65E M30
Vehicle Type: 4 Door Short Wheel Base Sedan
Suspension Type: FE1 Or FR1
Brake Type: Standard Or HSV
Cruise Control: Present
Air Conditioning: Present
ABS Type: ABS
All Wheel Drive (AWD): Not Present

✓	Continue
✗	Exit

PIM Replacement - 4: PIM Program VIN

1: Correctly identify the vehicle, then select PIM. Connect the correct adaptor lead (and key if applicable to your system) to the diagnostic port. Select <u>Functional Tests.</u>
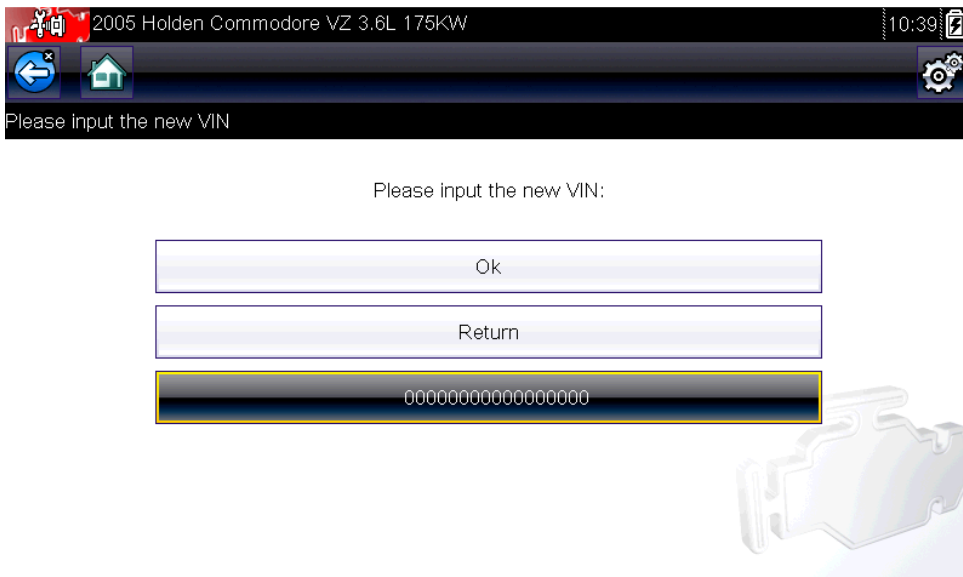
2: Select **Program VIN** from the PIM Functional Tests Menu.

Linking Instructions
PIM and ECM Link
PIM Configuration
PIM Reset
Program VIN
Security Information
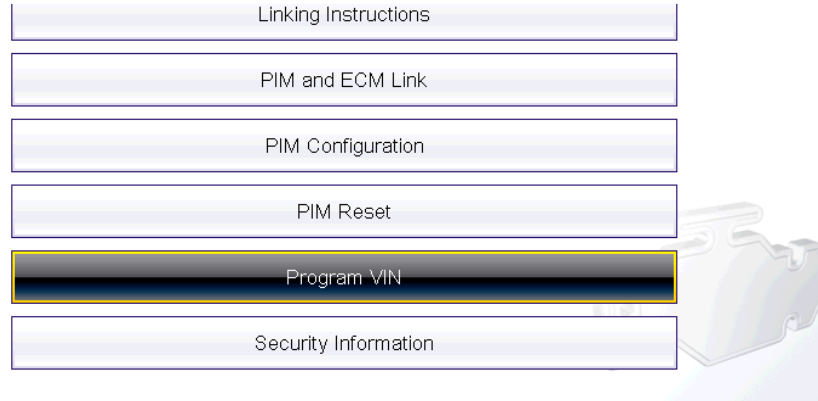
3: On the next screen, the VIN currently stored in the PIM will be displayed (If PIM was new, then it will be blank. Select continue to proceed with VIN Programming.

****** Vehicle Identification ******

Current VIN: *****************

Continue
Exit

4: On the Input New VIN screen shown below, select the data entry selection.

2005 Holden Commodore VZ 3.6L 175KW   10:39

Please input the new VIN

Please input the new VIN:
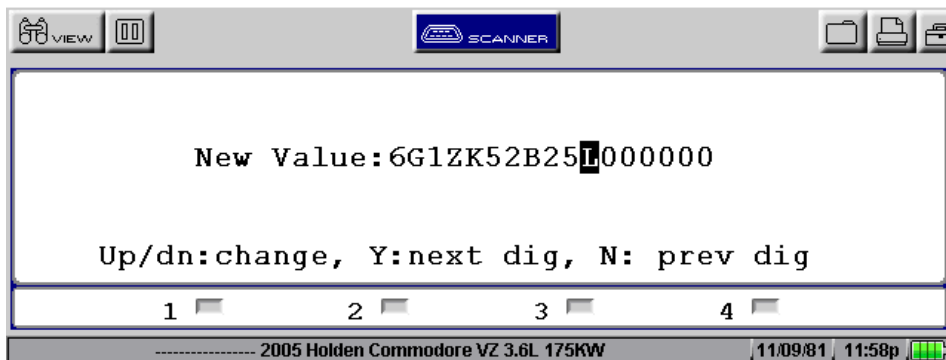
Ok
Return
00000000000000000

5: Verus, Verdict, Solus Ultra: Enter the correct VIN using the on-screen keyboard. Select Enter when complete.

Modis & Solus Pro: Scroll up and down using the thumb pad to select the correct number, then select Y to select the next digit. Repeat the procedure until complete. Select N to return back to a previous digit.

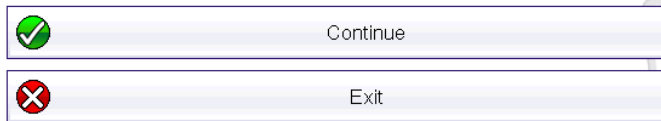**6:** Now select OK on the Input New VIN Screen.
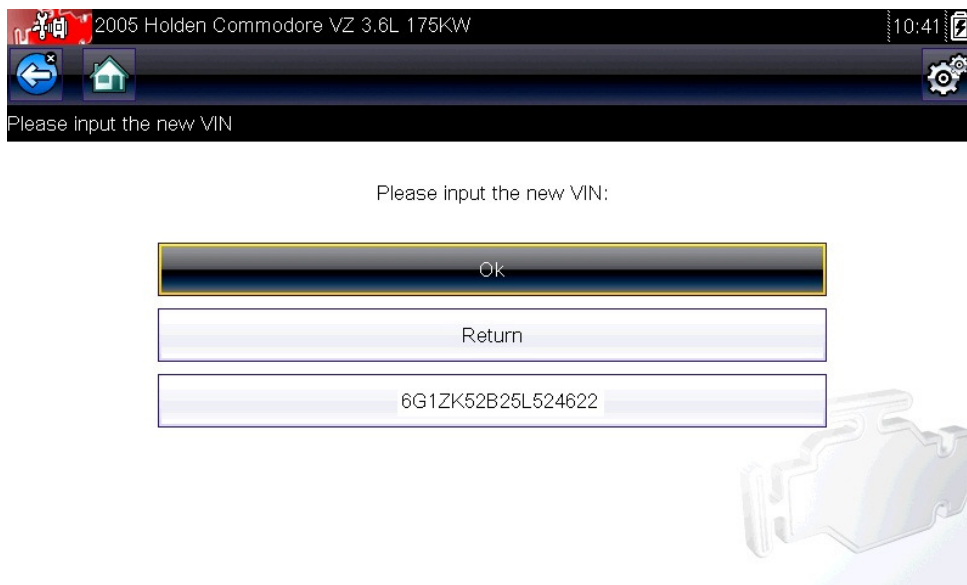
7: The screen below will now load. Confirm that the VIN entered is correct, then select Continue to save. If incorrect, select Exit.

```
2005 Holden Commodore VZ 3.6L 175KW                    16:09

****** Vehicle Identification ******



        The New Entered VIN: 6G1ZK52B25L524622

        Do you confirm it?




              ✓          Continue

              ✗          Exit
```

8: After a short wait, the screen below will load requesting that the vehicle ignition is switched off. After switching the ignition off, select OK.

```



        Please turn off ignition key.




              ✓                Ok
```

9: After a few seconds, the screen below will now load requesting that the vehicle ignition is switched on. After switching the ignition on, select OK.

```



        Please turn on ignition key.




              ✓                Ok
```
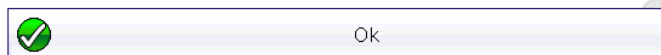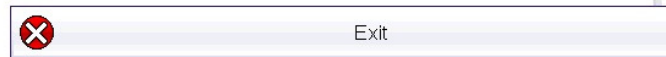
10: A final screen will now appear displaying the new stored value in the PIM. Select Exit to return to the PIM main menu. **Do not switch off the ignition within 60 seconds of programming the VIN or the new VIN details may fail to save.**

(ECU Reset & Link procedure next page)

ECM Reset & Linking

The ECM reset & Linking functions allow for the reset of an ECU prior to removal from a vehicle and the ability to link a <u>programmed ECM</u> (ie. used) to the vehicle.

Precautions

- **This function does not program a new <u>blank ECM</u> – the ECM being fitted to the car must be pre-programmed such as an ECM that has been repaired, a new pre-programmed ECM or from an ECM from a used vehicle.**

- **Many brand-new ECM's (such as from a dealer) are shipped blank - these require programming through the factory Holden service portal using dealership equipment**

- **An ECM must be reset prior to removal or it cannot be linked into another vehicle. A used ECM may require repair if an attempt is made to reset or link in a different vehicle when a reset was not first carried out before it was removed from the donor vehicle. When purchasing a used ECM, it is important to verify that the ECM has been reset prior to being sold to you.**

- **A used ECM that has been removed cannot be reset when fitted to a different vehicle. You must ensure that a used ECM has been reset prior to fitment into another vehicle. Do not fit a used ECM to your vehicle and power the vehicle up unless you are certain that it has been reset.**

- **If replacing both the ECM & PIM, <u>you must only reset one controller at a time!</u> If you have reset the PIM fitted to the vehicle, do not reset the ECM until the replacement (or original PIM) is linked and completely functional. Resetting the ECM whilst the vehicle is in this state may damage your ECM!**

- **Ensure that the 4 digit vehicle security number is available prior to attempting any ECM Reset or Link functions.**

- **When a used ECM is fitted, use the 4 digit security number for the vehicle that the ECM is being fitted to.**

- **Do not attempt an ECM reset or ECM link unless that vehicle battery is fully charged. Ensure that the battery is disconnected while disconnecting and replacing the ECM.**

(ECM Reset & Link Procedure begins next page)

ECM Replacement – 1: ECM Reset

An operational ECM fitted to a working vehicle is security linked to the PIM. If an ECM needs to be removed, the ECM reset procedure must first be carried out. Once an ECM is reset, the engine can no longer be started until an ECM is linked back to the PIM.

If a used ECM is not reset prior to removal from a donor vehicle, the ECM cannot be linked into any other vehicle from here on! If an attempt is made to fit, reset or link a used ECM to a vehicle when it has not been reset prior to removal from its original vehicle, then it may no longer have the ability to link into any vehicle at all!

If removing an ECM to be repaired, please check with your ECM repair service provider if an ECM reset is required prior to removal.

Do not perform the ECM reset within 60 seconds of switching the ignition on.

Procedure:

1: Correctly identify the vehicle, then select **Engine**. Connect the correct adaptor lead (and key if applicable to your system) to the diagnostic port. Select <u>Functional Tests.</u>
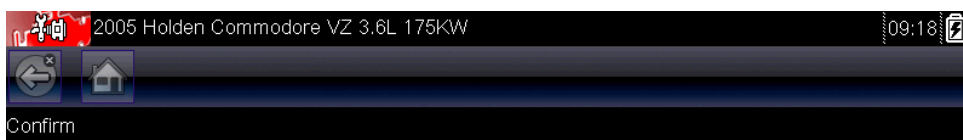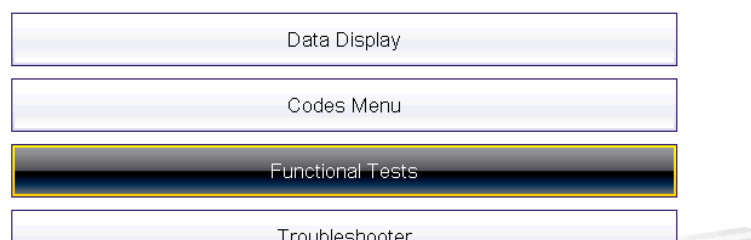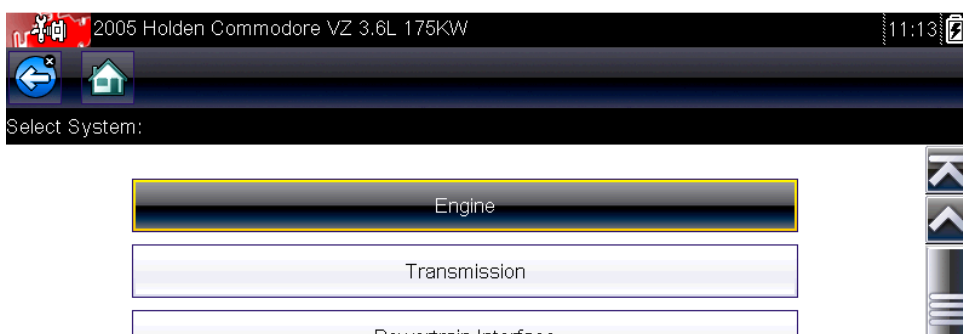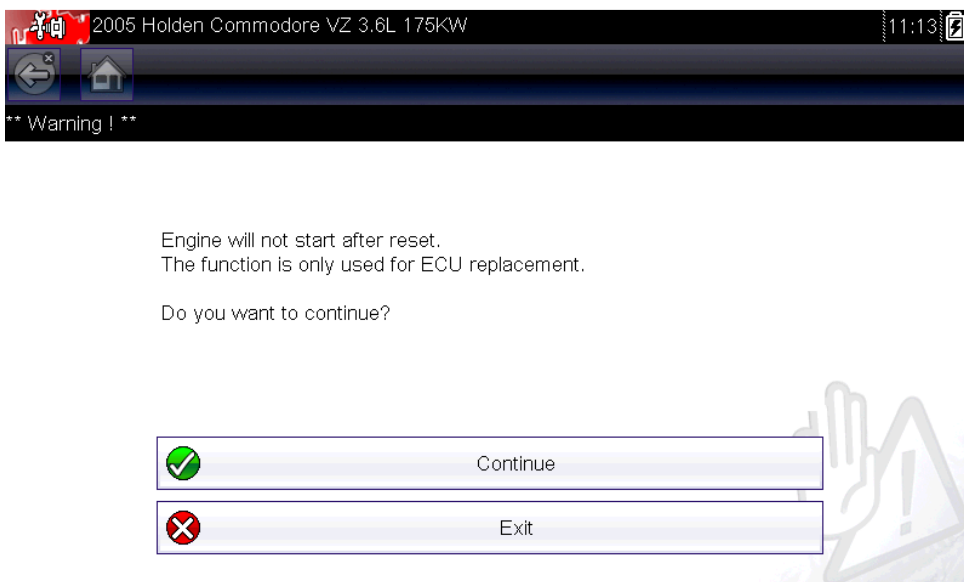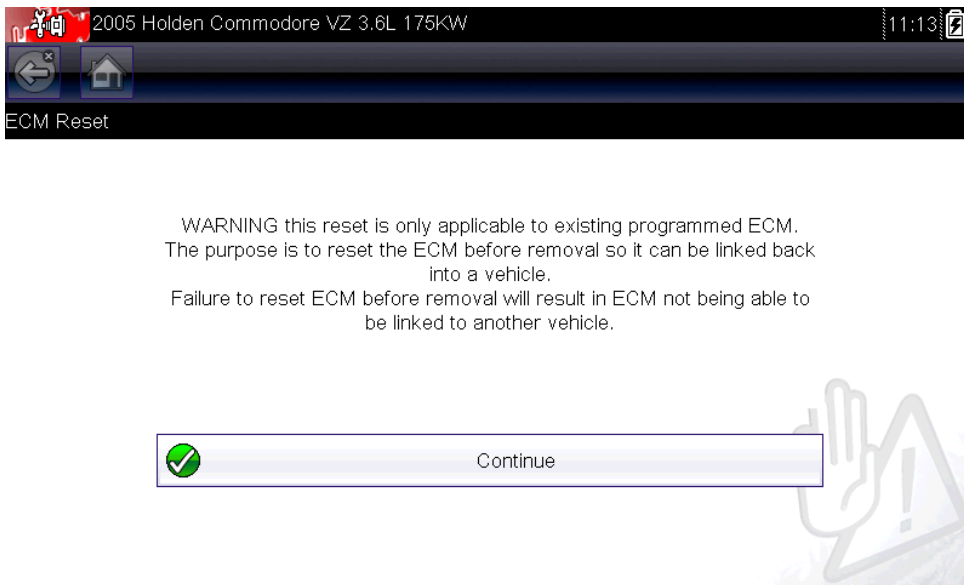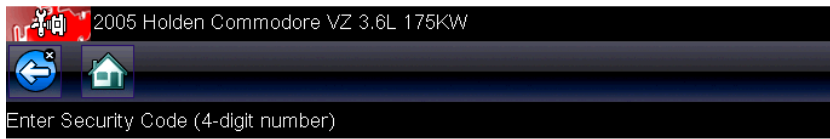
2: Select ECM Reset.
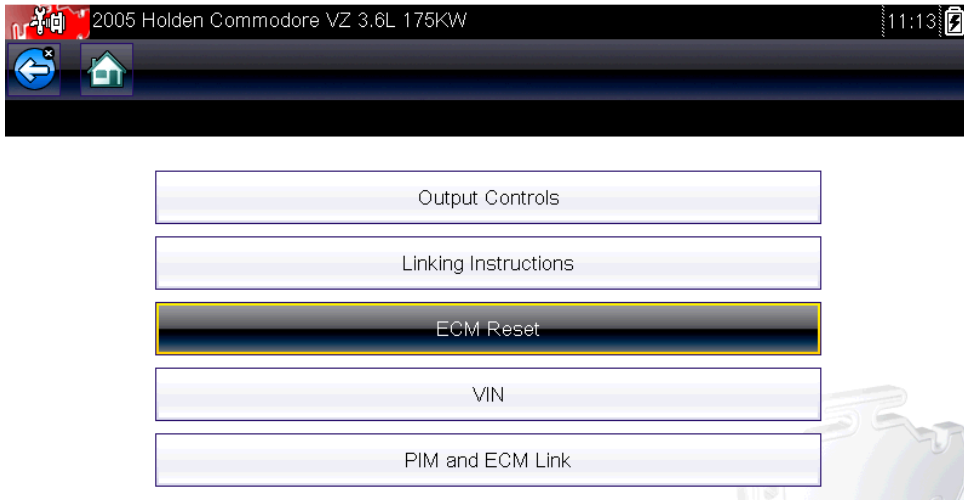
3: The information & warning screens shown below will now load. After reading and understanding each screen, select continue.
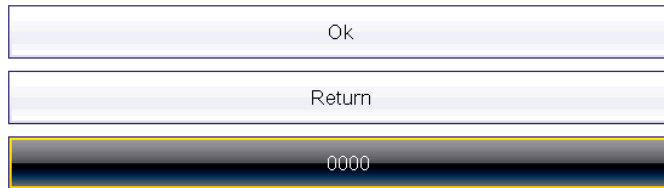
4: Now you will require the 4 digit security code mentioned earlier in this guide. Select the security code entry line and enter the correct numbers.
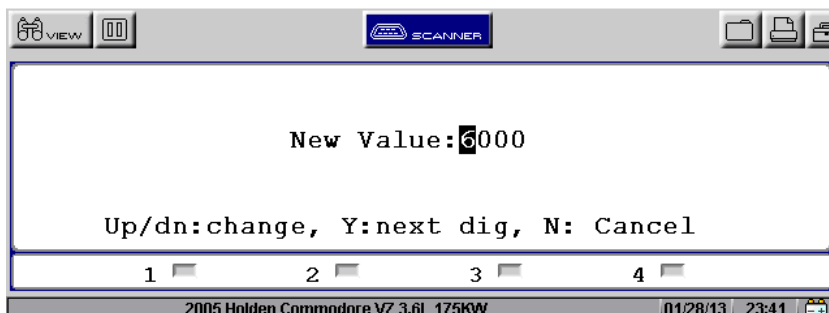
Verus, Verdict & Solus Ultra users: Enter the correct number using the on-screen keyboard. Select Enter when complete.


Solus Pro & Modis users: Scroll up and down using the thumb pad to select the correct number, then select Y to select the next digit. Repeat the procedure until complete. Select N to return back to a previous digit.

Ensure the correct code has been entered or a security wait time will become active.

5: Once the correct 4 digit security number has been entered, select <u>OK</u> on the <u>Enter Security Code</u> screen.
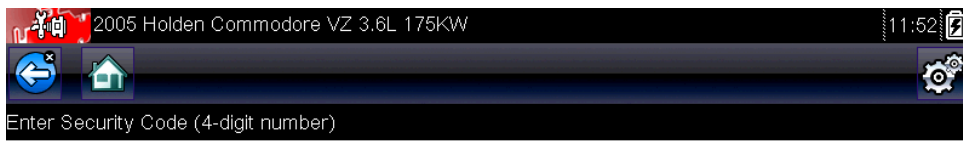
6: The following security code confirmation screen will appear. Select continue to proceed, or exit to return to main menu.

Ensure the correct code has been entered or a security wait time will become active.

7: After the vehicle security code has been accepted, a final confirmation screen will appear. Selecting continue will begin the procedure.

8: After a short wait, the screen below will load requesting that the vehicle ignition is switched off. After switching the ignition off, select OK.
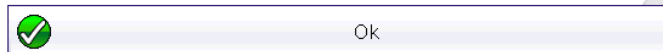
Please turn off ignition key.

Ok

9: After a few seconds, the screen below will now load requesting that the vehicle ignition is switched on. After switching the ignition on, select OK.

Please turn on ignition key.

Ok

10: ECM Reset is complete. The engine will no longer crank or run until an ECM is linked to the vehicle. **Wait a further 60 seconds before switching the ignition back off.** Select exit to return to the Engine main menu.

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Reset Successful

Exit

ECM Replacement – 2: ECM Link

After an ECM has been fitted to the vehicle, it must now be linked to security linked to the PIM before the engine will crank and run.

- Do not begin the ECM Link procedure until the ECM is securely bolted to the engine, earth lead connected to the ECM & connectors correctly plugged in.
- Do not begin the ECM Link procedure within 60 seconds of switching on the ignition.

1: Correctly identify the vehicle, then select **Engine**. Connect the correct adaptor lead (and key if applicable to your system) to the diagnostic port. Select Functional Tests.
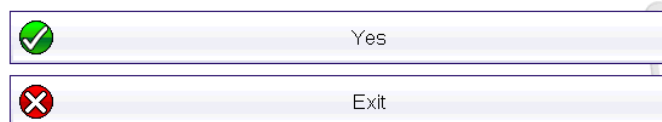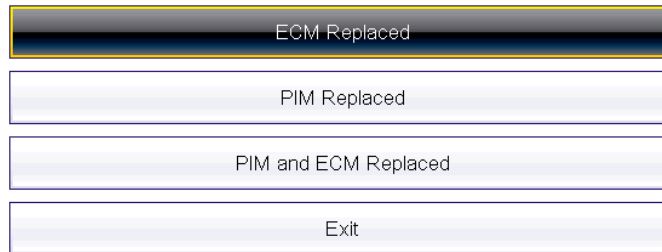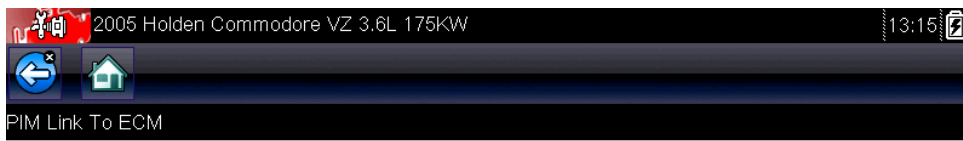
2: Select PIM and ECM Link.
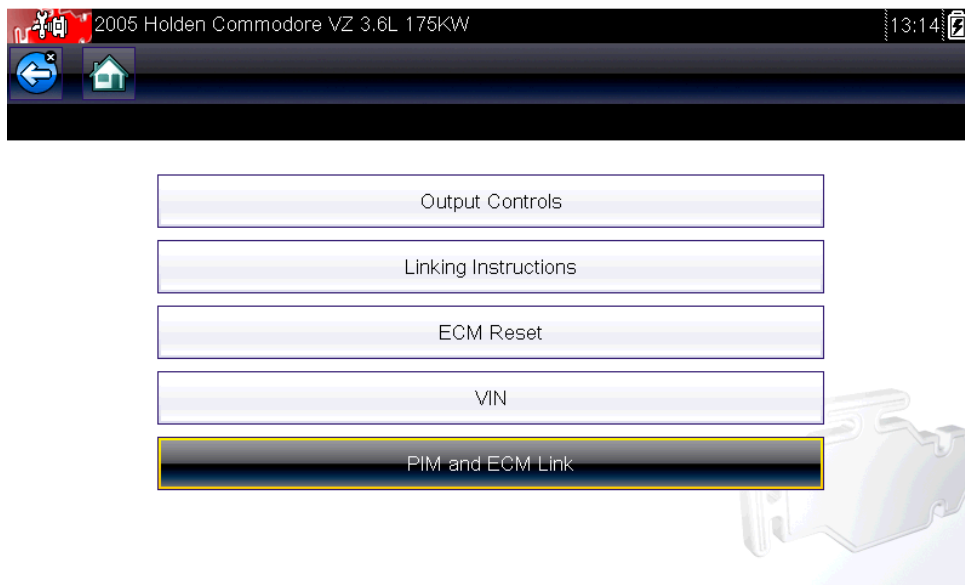
3: The information screen below will be displayed. After reading and understanding the screen, select Yes.

4: A PIM Link to ECM selection menu will now load on screen. Select <u>ECM Replaced</u> as shown below.
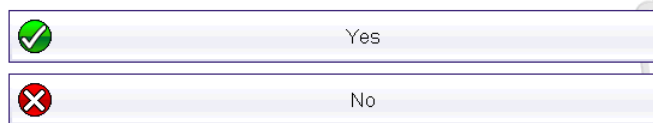

TIP for Modis, Solus Pro & Verus (wired) Users Only

Pay attention to any screens that appear indicating a change in adaptor & key connections to the diagnostic port!

5: You will now need to confirm that the ECM has been installed on the "ECM Install?" screen. Select Yes. This will be followed by a further screen instructing the user on when this function is to be used. Select continue.
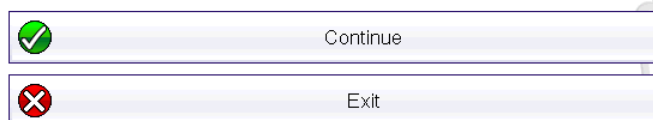
6: Now you will require the 4 digit security code mentioned earlier in this guide. Select the security code entry line and enter the correct numbers.
TIP: If a used ECM is fitted, use the security code for the vehicle that the ECM is being fitted to, not the vehicle that the used ECM was removed from.
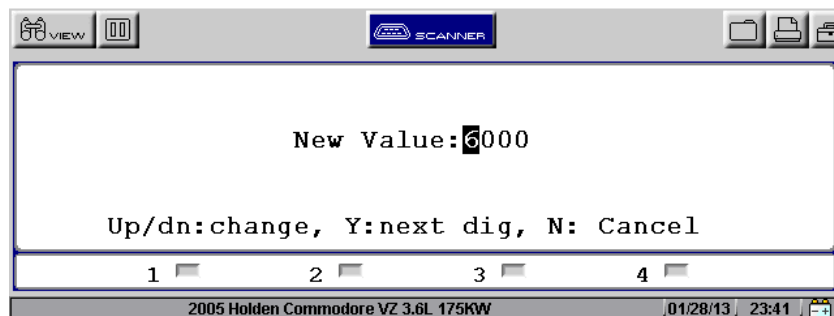Verus, Verdict & Solus Ultra users: Enter the correct number using the on-screen keyboard. Select Enter when complete.
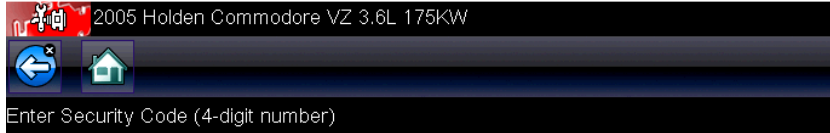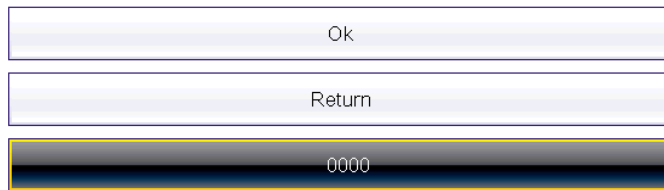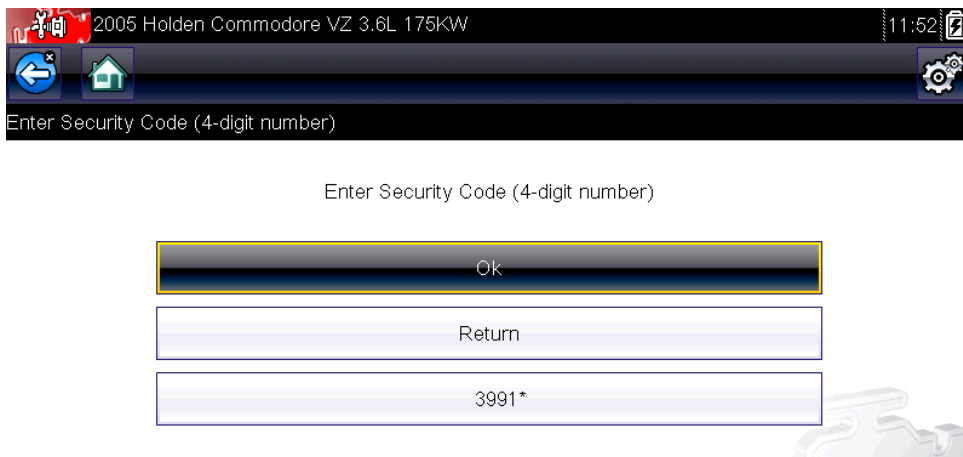
Solus Pro & Modis users: Scroll up and down using the thumb pad to select the correct number, then select Y to select the next digit. Repeat the procedure until complete. Select N to return back to a previous digit.

Ensure the correct code has been entered or a security wait time will become active.

7: Once the correct 4 digit security number has been entered, select <u>OK</u> on the <u>Enter Security Code</u> screen.

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Enter Security Code (4-digit number)

Enter Security Code (4-digit number)

Ok
Return
3991*

8: The following security code confirmation screen will appear. Select continue to proceed, or exit to return to main menu.

Note:

Confirm Security Code: 3991

✅	Continue
❌	Exit

9: The ECM Link procedure is now underway. After a short wait, the screen below will load requesting that the vehicle ignition is switched off. After switching the ignition off, select OK.

2005 Holden Commodore VZ 3.6L 175KW	16:09

Please turn off ignition key.

✅	Ok

**10:** After a few seconds, the screen below will now load requesting that the vehicle ignition is switched on. After switching the ignition on, select OK.

Please turn on ignition key.
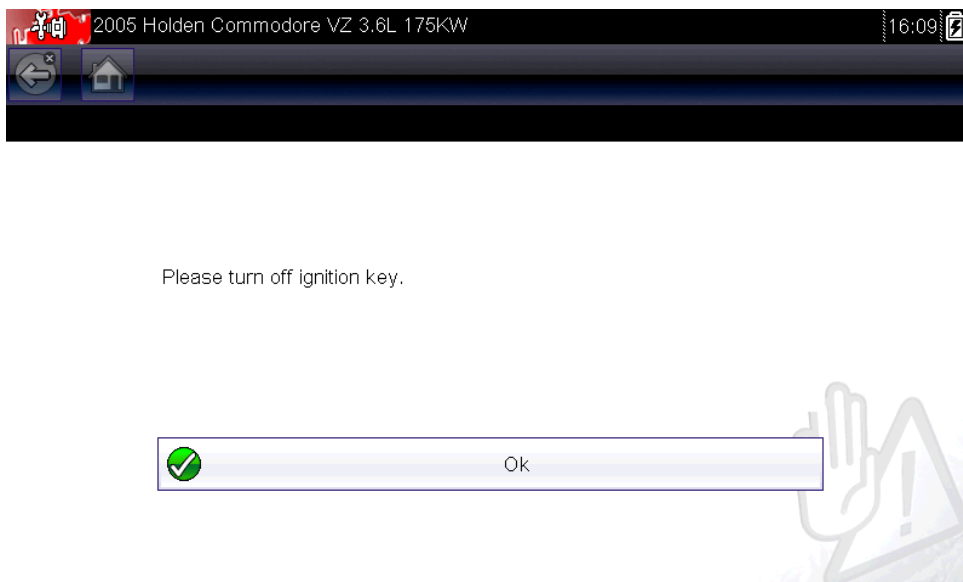
Ok
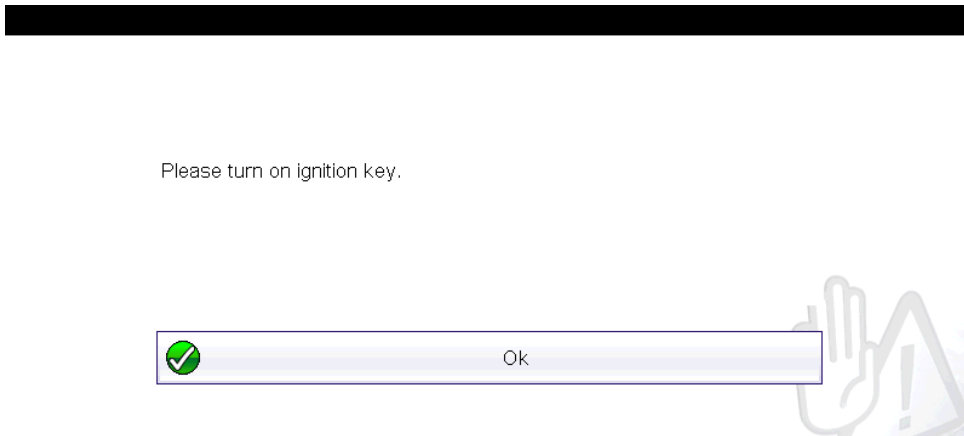
11: ECM – PIM Link is complete. **Do not switch off the ignition within 60 seconds of completing the procedure.** The engine should now crank & run. Select OK to exit to the engine main functional tests menu.

2005 Holden Commodore VZ 3.6L 175KW   13:16

PIM Link To ECM
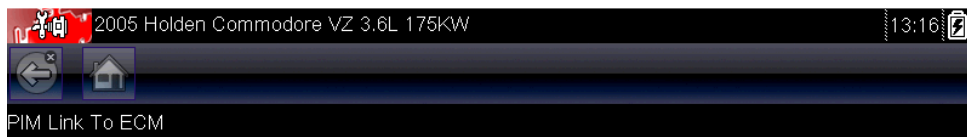
Successful Link!

Ok
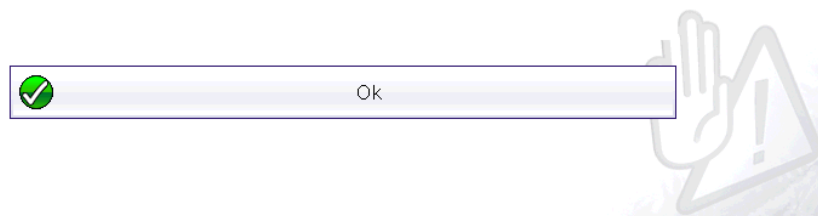
12: Check, clear and re-check all systems for fault codes.


ECM Replacement – VIN Information

The vehicle VIN number stored is stored in the ECM as part of a flash programming procedure when the ECM is new or stored calibration update. If the stored VIN needs to be changed, the ECM will require programming by a Holden dealer or by using dealer level flash programming software. This is not currently a scan-tool function.

Appendix

Frequently Asked Questions

- **I have fitted a new ECM and receive "no communication" when attempting to link. I was able to communicate with the old ECM ok.**
  The ECM must be programmed before you are able to link it to the vehicle. This can only be carried out by a Holden dealer or by using dealer level flash programming software.

- **I am attempting to link a used ECM and receive the following error - "Procedure Failed! Please Check Conditions"**
  Cycle the ignition key on – off and start the procedure again from the beginning ensuring that you carefully read and follow all steps in the procedure. If the method you are using is correct, it is possible that the ECM was not reset prior to being fitted to the vehicle you are attempting to link it to. The ECM cannot be reset once fitted to another vehicle.

- **How do i know if my PIM is correctly linked to my vehicle?**
  Select Powertrain Interface >> Functional Tests >> Security Information.

  The screen below was captured from a programmed PIM in a running vehicle. If the BCM/PIM status is "not ok to start" or the Security code programmed PID displays "No" you must ensure that both the BCM – PIM & ECM – PIM link tests have been carried out. You must also ensure that there are no issues with the BCM, key reader & key.
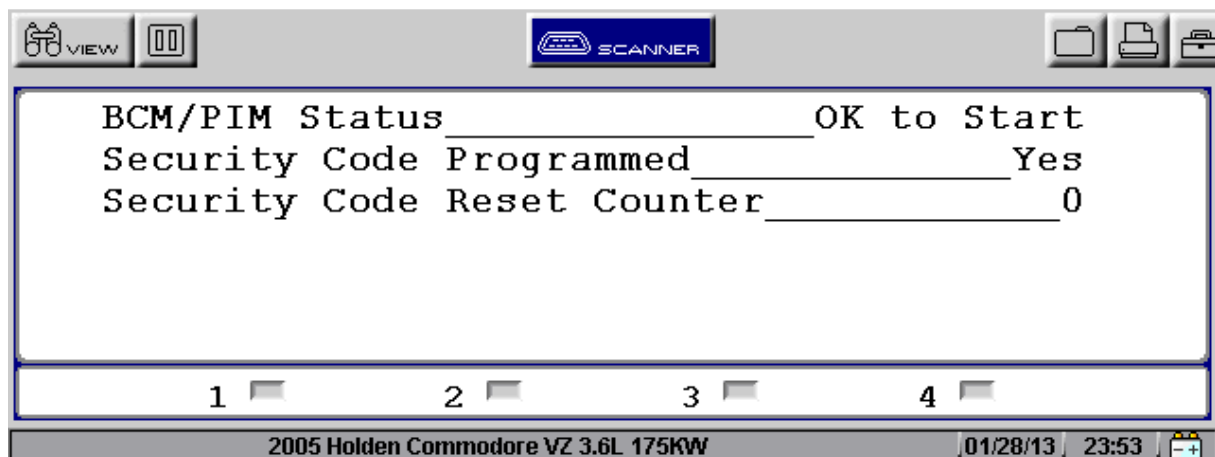
Appendix

Abbreviations

ABS – Anti-lock Braking System
AHU – Audio Head Unit
BCM – Body Control Module
DLC – Diagnostic Communication Link
ECM – Engine Control Module
ECU – Electronic Control Unit
GM LAN – General Motors Local Area Network
ICM – Instrument Cluster Module
OCC – Occupant Climate Control
PIM – Powertrain Interface Module
SDM – Occupant Protection System Sensing & Diagnostic Module
TCM – Transmission Control Module
TRC – Traction Control
UART – Universal Asynchronous Receive & Transmit
VIN – Vehicle Identification Number