

DIGITALLY ENCODED SECURITY SYSTEM (D.E.S.S.)

GENERAL

SYSTEM DESCRIPTION

The following components are specially designed for this system: ECM, D.E.S.S. key (inside tether cord cap) and engine cut-off switch.

This system allows the engine to reach pulley engagement speed only if a D.E.S.S. key is installed on engine cut-off switch and the key is recognized as valid by the ECM.

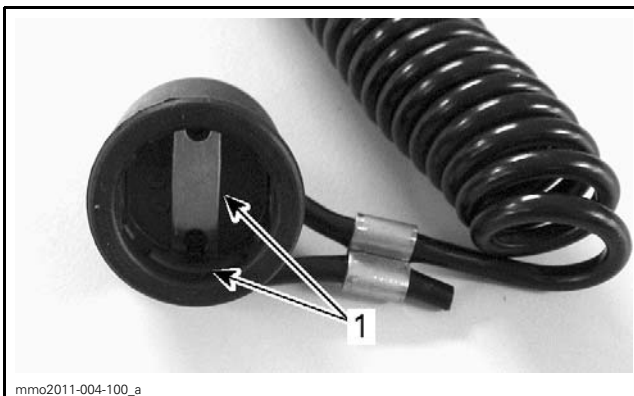
The D.E.S.S. key contains a magnet and a ROM chip.

- The magnet closes the reed switch inside the engine cut-off switch. It is the equivalent of a rotary mechanical ignition switch.
- The ROM chip contains a unique digital code. It is the equivalent of the tooth-pattern cut on a conventional ignition key.

The D.E.S.S. system is quite flexible. Up to 8 D.E.S.S. keys may be programmed in the ECM memory using the B.U.D.S. software. The keys can also be erased individually.

NOTE: If desired, a D.E.S.S. key can be used on another vehicle equipped with the D.E.S.S. system. It only needs to be programmed for that vehicle.

D.E.S.S. Key Types



TETHER CORD CAP
1. Free of dirt or snow

In addition to the normal D.E.S.S. key, other special keys can be programmed so that the vehicle can only be operated at a limited speed. Such a feature is ideal for first time riders or renters.

Two types of keys can be used:

- Normal key
- Learning key.

To ease key type recognition, the tether cord comes in different colors.

KEY TYPE	COLOR
Normal	Black
Learning	Green

The Ski-Doo learning key, limits the speed of the snowmobile and the engine torque, therefore enabling first time users and less experienced operators to learn how to operate the snowmobile while gaining the necessary confidence and control.

NOTE: The initial learning key programming can limit the speed to 40 km/h (25 MPH) or 70 km/h (43 MPH).

Subsection 10 (DIGITALLY ENCODED SECURITY SYSTEM (D.E.S.S.))

D.E.S.S. Key Beeper Codes

When starting the engine with a D.E.S.S. key on the engine cut-off switch, the key is read by the ECM and D.E.S.S. signals will be issued according to the key recognition. See table.

D.E.S.S. SIGNAL		DESCRIPTION	COMMENT
BEEPER	DISPLAYED MESSAGE ⁽¹⁾		
2 shorts beeps	SKI-DOO	Welcome message, good key	Working D.E.S.S. key.
Shorts beeps repeating slowly	CHECK KEY	Unable to read key (bad connection)	<ul style="list-style-type: none">– Make sure the key contacts are free of dirt, snow or ice.– Reinstall key and restart engine.– Vehicle can not be driven.
Shorts beeps repeating rapidly	BAD KEY	Invalid key or key not programmed	<ul style="list-style-type: none">– Use the proper key for this vehicle or have the key programmed.– Vehicle can not be driven.

⁽¹⁾ Only available on premium gauge.

TROUBLESHOOTING

DIAGNOSTIC GUIDELINES

The following is provided to help in diagnosing the probable cause of a problem. It is a guideline and should not be assumed to list all possible causes.

NO BEEP CODE WHEN KEY IS INSTALLED ON ENGINE CUT-OFF SWITCH — ENGINE CAN NOT BE STARTED

1. Gauge shuts-down after its WOW test: Defective engine cut-off switch
 - Check engine cut-off switch. Refer to *IGNITION SYSTEM* subsection.

NO BEEP CODE WHEN KEY IS INSTALLED ON ENGINE CUT-OFF SWITCH — ENGINE CAN BE STARTED

1. Defective gauge beeper
 - Check gauge beeper. Refer to *INFORMATION CENTER (GAUGE)*.

GAUGE DISPLAYS "CHECK KEY" AND THERE IS NO KEY INSTALLED ON ENGINE CUT-OFF SWITCH

1. Gauge shuts-down after 3 minutes: Defective engine cut-off switch
 - Check engine cut-off switch.

PROCEDURES

D.E.S.S. KEY

D.E.S.S. Key Recognition

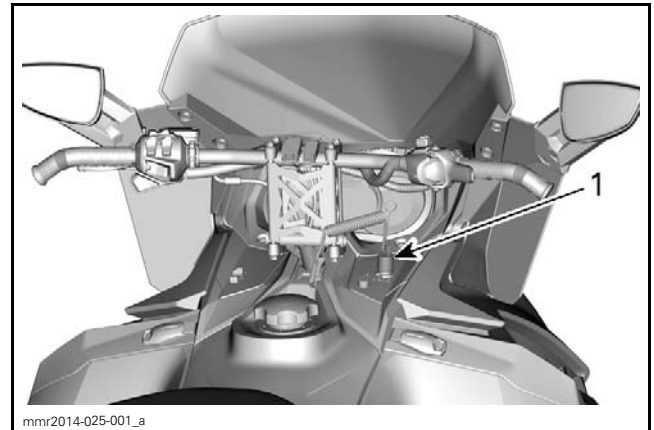
To allow key recognition, carry out the following steps:

1. Briefly press the START/STOP button to wake up the ECM.
2. Securely install the tether cord on snowmobile engine cut-off switch.
3. Press and hold the START/STOP button to start engine.

D.E.S.S. Key Programming

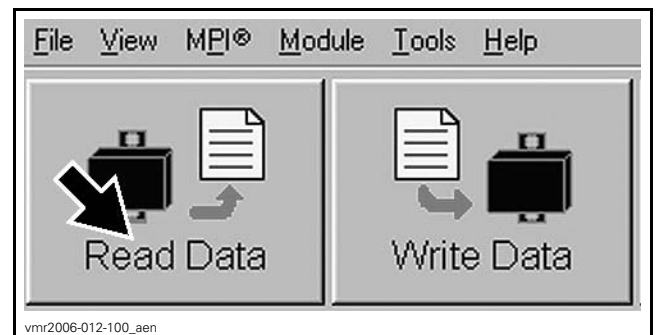
1. Connect the snowmobile to latest applicable B.U.D.S. Refer to *COMMUNICATION TOOLS AND B.U.D.S.* subsection.
2. **IMPORTANT:** Ensure all connections have been made **before starting B.U.D.S.** to allow proper operation.
3. Briefly press START/STOP button to power the ECM.

4. Install a tether cord on the engine cut-off switch to program a D.E.S.S. key.

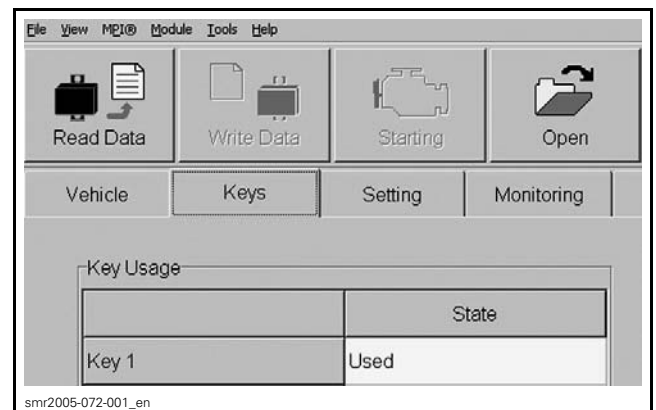


1. Tether cord on engine cut-off switch

5. Read ECM using **Read Data** button.



6. Click on **Keys** tab.



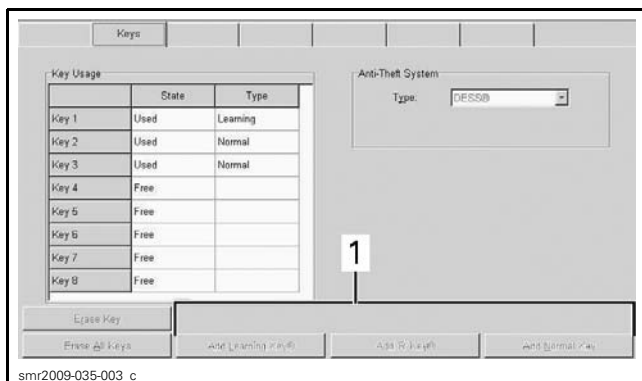
Adding a Key

1. Click on the **Add Key** button at the bottom of the screen according to the key type you want to program.

WARNING

If programming a Learning key, be sure to use the proper key type (color) to avoid possible confusion.

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1. Add Key buttons

- After approximately 10 seconds, the following window will pop up confirming the new key has been saved in the PC computer.



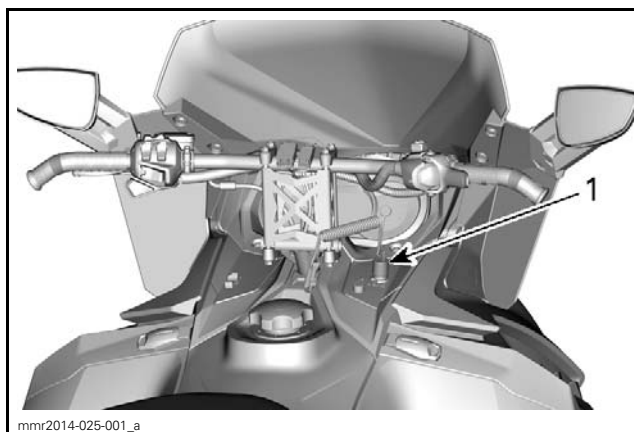
- If programming is complete, write the changes to the ECM. Refer to *WRITING CHANGES TO ECM* in this subsection.

Adding Another Key

- Remove the tether cord from the engine cut-off switch.
- Install the next tether cord on the engine cut-off switch.
- Click on the **Add Key** button.
- If programming is complete, write the changes to the ECM. Refer to *WRITING CHANGES TO ECM* in this subsection.

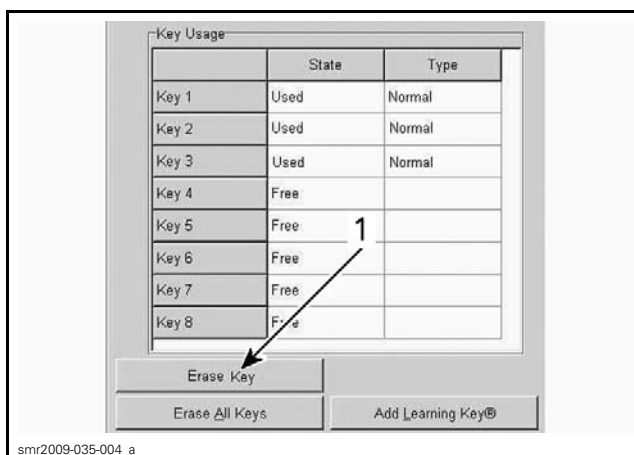
Erasing a Key

- Install the tether cord on the engine cut-off switch.



1. Key to be erased

- Click on **Erase Key** button at bottom of B.U.D.S. screen.



1. Click on this button

After approximately 10 seconds the following message will appear.



The key is now erased in the PC computer.

- If programming is complete, write the changes to the ECM. Refer to *WRITING CHANGES TO ECM* in this subsection.

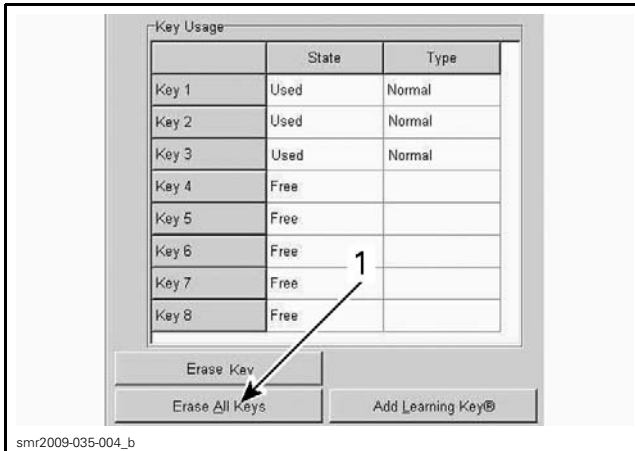
Erasing Another Key

- Remove the tether cord from the engine cut-off switch.
- Install the next tether cord to be erased on the engine cut-off switch.
- Click on **Erase Key** button.

4. If programming is complete, write the changes to the ECM. Refer to *WRITING CHANGES TO ECM* in this subsection.

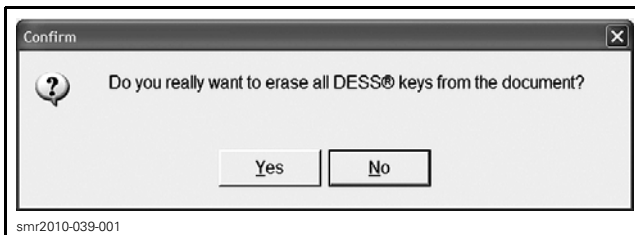
Erasing All Keys

1. Click on **Erase All Keys** button at bottom of screen.



1. Click on this button

NOTE: The following message will be displayed in B.U.D.S.



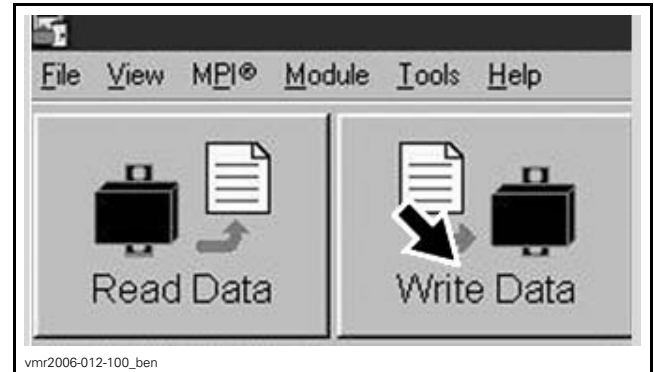
2. Click **Yes** to proceed with erasing all keys.
3. When done, program at least one new key to the vehicle. Refer to *ADDING A KEY* in this subsection.
4. When programming is complete, write the changes to the ECM. Refer to *WRITING CHANGES TO ECM* in this subsection.

NOTE: If there isn't at least one key programmed to the snowmobile, B.U.D.S. will not allow you to write the changes to the ECM and will prompt you to add a key.

Writing Changes to ECM

Save the changes made in B.U.D.S. into the ECM as follows.

1. Click the **Write Data** button.



NOTE: If for some reason the writing operation fails, exit B.U.D.S. Restart B.U.D.S. and reenter all the previously lost information.

2. After the write operation, remove key from D.E.S.S. post.
3. Try the key(s) on the snowmobile.