Switch on the Fly:

Cummins CM2350/2450

User Guide

HP Tuners, LLC.
700 Eastwood Lane
Buffalo Grove, IL 60089, USA

Switch on the Fly (Cummins)
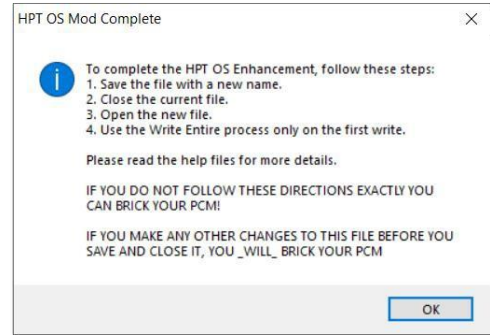**User Guide v1.6**
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HP Tuners' Switch on the Fly

We are proud to introduce "Switch on the Fly" (SOTF), HP Tuners' integrated ECM map switching solution for Cummins CM2350 and CM2450 applications! This feature has been designed to work seamlessly with your vehicle as if it were included from the factory. Follow these simple instructions to configure the feature on your calibration, and learn how to utilize the switching interface.
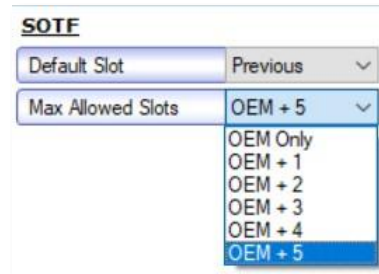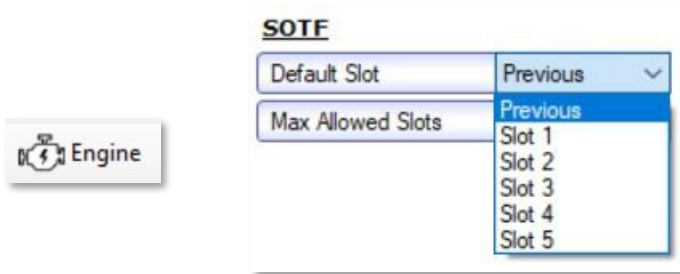
Please note, SOTF map slots may be limited due to PCM space. This varies by application, but it supports <u>UP TO 5 slots</u> on certain PCM operating systems.

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Preparing the ECM

Step 1: Apply the Operating System (OS) SOTF code modification, save as new, close, and reload your HPT calibration.
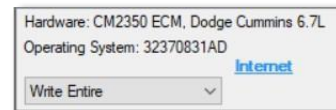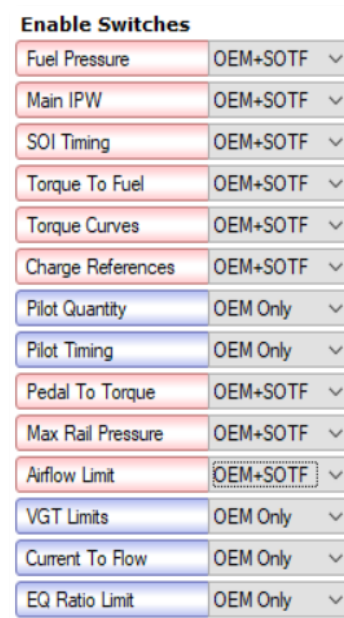

SOTF

HPT Switch On The Fly

Apply Code Modification

HPT OS Mod Complete ✕

To complete the HPT OS Enhancement, follow these steps:
1. Save the file with a new name.
2. Close the current file.
3. Open the new file.
4. Use the Write Entire process only on the first write.

Please read the help files for more details.

IF YOU DO NOT FOLLOW THESE DIRECTIONS EXACTLY YOU CAN BRICK YOUR PCM!

IF YOU MAKE ANY OTHER CHANGES TO THIS FILE BEFORE YOU SAVE AND CLOSE IT, YOU _WILL_ BRICK YOUR PCM

OK

Step 2: Configure SOTF feature settings*.

SOTF

Default Slot	Previous ⌄
Max Allowed Slots	Previous
	Slot 1
	Slot 2
	Slot 3
	Slot 4
	Slot 5

SOTF

Default Slot	Previous ⌄
Max Allowed Slots	OEM + 5 ⌄
	OEM Only
	OEM + 1
	OEM + 2
	OEM + 3
	OEM + 4
	OEM + 5

Step 3: Enable and Calibrate individual SOTF tables as desired.

Enable Switches

Fuel Pressure	OEM+SOTF ⌄
Main IPW	OEM+SOTF ⌄
SOI Timing	OEM+SOTF ⌄
Torque To Fuel	OEM+SOTF ⌄
Torque Curves	OEM+SOTF ⌄
Charge References	OEM+SOTF ⌄
Pilot Quantity	OEM Only ⌄
Pilot Timing	OEM Only ⌄
Pedal To Torque	OEM+SOTF ⌄
Max Rail Pressure	OEM+SOTF ⌄
Airflow Limit	OEM+SOTF ⌄
VGT Limits	OEM Only ⌄
Current To Flow	OEM Only ⌄
EQ Ratio Limit	OEM Only ⌄

Note: All default calibration data for Map Slots will be copied from the corresponding "Mode 1" table upon the first application of SOTF.

Note: By default, all switchable tables are disabled. and will use the OEM table lookup.

Step 4: Flash the ECM using Write Entire.

Hardware: CM2350 ECM, Dodge Cummins 6.7L
Operating System: 32370831AD
Internet

Write Entire ⌄

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Using Switch on the Fly (Cruise Control Method)
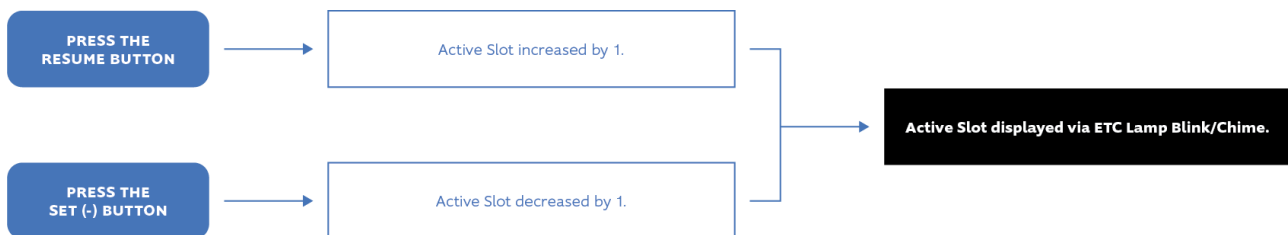
Step 1: Meet switching requirements

- Vehicle must be equipped with OEM cruise control hardware and steering wheel.
- Vehicle must be On or Running, and Cruise Control must be deactivated.

Step 2: Activate the Switching Menu

PRESS THE CANCEL (X) BUTTON	→	Active Slot displayed via ETC Lamp Blink/Chime.

Once activated, or when a slot is changed, map switching is available for 10 seconds.

Step 3: Now that we are activated.

PRESS THE RESUME BUTTON	→	Active Slot increased by 1.
PRESS THE SET (-) BUTTON	→	Active Slot decreased by 1.

Active Slot displayed via ETC Lamp Blink/Chime.
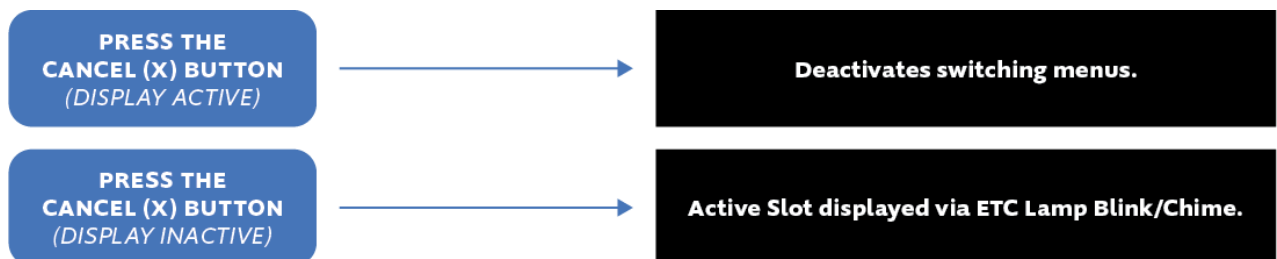
Active Slot will be limited to the Max Allowed Slots calibration setting.

Step 4: Deactivate the Switching Menu

The switching menu will automatically deactivate after 10 seconds if no buttons are pressed.

PRESS THE CANCEL (X) BUTTON (DISPLAY ACTIVE)	→	Deactivates switching menus.
PRESS THE CANCEL (X) BUTTON (DISPLAY INACTIVE)	→	Active Slot displayed via ETC Lamp Blink/Chime.

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Switch on the Fly FAQs

Q: Can I use this feature with an aftermarket steering wheel?
A: Yes! This feature is available when using the HPT Diesel Switch.

Q: I forgot what slot I'm currently in, how can I tell which slot is active?
A: Use VCM Scanner to monitor the "Active Slot" parameter or press the "Coast" button.

Q: I made a bunch of calibration changes, but nothing seems to change when I switch slots?
A: Make sure that each set of SOTF tables has the SOTF Enable set to "OEM+SOTF".

Q: I set my **Default Slot** to 4 but when I start the car it is Slot 0, what's going on?
A: If the **Default Slot** is greater than the **Max Allowed Slots** it will default to Slot 0.

Q: I shut off the car in Slot 3, and when I started it back up the *Active Slot* was 3! How did that happen?
A: We thought it'd be cool if this feature remembered your previous slot and restored it for you on startup.

Q: I've tried everything, I just can't get this to work! Can you tell me what I'm doing wrong?
A: Yes! Contact us at https://support.hptuners.com to proceed with diagnosing the cause.

Q: Will this work in my (insert currently unsupported application here)?
A: We will be adding more applications based on demand and availability!

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Combustion/Engine Mode Override

The combustion mode override is an HP Tuners exclusive per-slot configurable feature! Due to the severe complexity of the engine controller, the combustion/engine mode can have upwards of 14 different and unique profiles. At times, these modes can switch unexpectedly and cause tables that may not be calibrated or desired to be used. We have made this a breeze to configure to ensure that calibration data in the SOTF tables is used by the ECM under the exact conditions you expect.

The Cummins SOTF feature requires that any of the <u>Engine Mode Based</u> tables must meet the override conditions for SOTF to become active when in *Map Slot* 1 through 5. The following groups of tables <u>do not</u> use the override and are always active in *Map Slot* 1 through 5: *Torque Curves, Pedal To Torque, Main IPW, Max Rail Pressure, Airflow Limit, VGT Limits, Current To Flow, and EQ Ratio Limit*.

To use this feature simply open the *Configuration* table corresponding to the *Map Slot* and set any conflicting mode to a value of 1 (On). Then adjust the minimum activation and hysteresis requirements as needed to activate/deactivate the override. The example below *Map Slot* 2 will override Modes 2, 5, and 7 when the temperature requirements are met, and will ignore the *Accelerator Pedal Position* requirement.

<div align="center">Configuration Example (Override Modes 2, 5, and 7)</div>

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