

# Q-169-R3



## SVE BULLETIN

### SPECIAL VEHICLE ENGINEERING – BODY BUILDERS ADVISORY SERVICE

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QVM Bulletin: Q-169-R3

Date: January 29., 2009

| Revision | Update  | Revision Date |
|----------|---|---------------|
| Q-169-R1 | Updated Renkim Phone Number   | 5/2/2008      |
| Q-169-R2 | Updated green state verbiage, clarify CDIM module name, update production cutoff for adding module  | 12/12/2008    |
| Q-169-R3 | <b>Update CDIM requirements</b><br><b>Restrict 2009 model year because of wiring harness changes</b><br><b>Clarify vehicle eligibility for enable/certification process</b> | 1/29/2009     |

## Diesel Engine Idle Shutdown

**Models Affected:** 2008 and Later MY F450-550 with 6.4L Diesel engines, built after January 1, 2008 (2008 Job 3 or later) to be registered in California and select California Emission states.

### **Description:**

#### **CALIFORNIA HEAVY-DUTY DIESEL ENGINE IDLING REQUIREMENTS**

The California Air Resources Board approved a regulatory measure, effective January 1, 2008, to further reduce emissions of toxics and criteria pollutants by limiting idling of new Diesel engine trucks with a gross vehicle weight rating (GVWR) greater than 14,000 pounds, with vocational exemptions for certain buses, school buses, recreational vehicles, medium duty vehicles, military tactical vehicles and authorized emergency vehicles, as defined in various California Vehicle Code sections. The regulation primarily requires manufacturers of new California certified 2008 and subsequent model-year Diesel engines in these trucks to incorporate a system that automatically shuts the engine down after five minutes of continuous idling or to certify the engine to an oxides of nitrogen (NOx) idling emission standard of 30 grams per hour.

The E-Series 6.0L Diesel engine does not incorporate idle shut-down capability. The 2008 calendar year E-Series Diesel-engine vehicles, as manufactured by Ford Motor Company to be sold as California emission labeled vehicles in California Emissions States, are either under 14,000 lb. GVWR or are in exempt vehicle categories and are not required to meet this requirement.

Super Duty F-Series 6.4L vehicles with a GVWR greater than 14,000 pounds, as manufactured by Ford Motor Company to be sold as California emission labeled vehicles, have an idle shut-down feature (option code 63T) on Diesel engines manufactured on or after January 1, 2008. Diesel Idle Shutdown is not available for ordering on vehicles either with rear parking aid modules or with manual transmissions (and therefore >14k GVWR 6.4L Diesel applications with rear parking aid modules and/or a manual transmission cannot be sold in states requiring CA emissions except for the specified exempt vehicles).

**NOTE: Should modifications made by the final stage manufacturer or alterer or the importation of an out-of-state Diesel-engine vehicle with a GVWR greater than 14,000 pounds make the requirement applicable, it is the responsibility of the final stage manufacturer or alterer to comply with the California emission regulations.**

### **Super Duty F-Series**

- Vehicles over 14K GVWR with 6.4L Diesel engines must be equipped with an Engine Shutdown System (ESS) in California and select California Emissions States (Connecticut, Delaware, Georgia, Maine, North Carolina, New Jersey, New York and Pennsylvania).
- Automatically ordered for vehicles being delivered to states with Diesel engine idle regulations.
- Not available for ordering on vehicles with rear parking aid modules or manual transmissions.
- ESS automatically shuts down the engine after 5 min of continuous idling operation with the parking brake engaged (15 min if the parking brake is not engaged) and the transmission set in "neutral" or "park".
- Engines used in buses, RVs, military tactical vehicles and select authorized emergency vehicles are exempt when ordered with option code 63E.
- ESS overrides:
  - Engine is operating in power take-off (PTO) mode
  - Engine coolant temperature is below 60F
  - Exhaust emission control device (DPF) is regenerating
- During operation, a warning message appears in the cluster 30 seconds prior to shutdown and begins counting down to zero.
- The ESS timer can be reset during this period by changing the position of the accelerator, brake pedal or parking brake.
- The PCM automatically shuts down the engine if the end of the timed idle period is reached. A message is displayed in the cluster.
- 60 sec after engine shutdown, the California Diesel Ignition Module (CDIM) simulates key off, if originally equipped, or if added to job 3 units built after 1/3/2009 that were not originally equipped. The normal accessory delay period is then initiated.
- For vehicles to be registered in California or a state adopting California heavy-duty Diesel emission requirement, vehicle orders must include one of the following configurations: ESS (63T) or Exempt w/o ESS (63E) if the vehicle usage meets an exemption category.
- The California compliant vehicles with shutdown enabled (63T) or vehicles meeting an exemption category (63E) are certified 50 state for emissions.

### **DIESEL ENGINE IDLE SHUTDOWN ENABLE PROCEDURE**

For vehicles ordered without a shutdown system installed (633 for Federal state orders, or 63E if the vehicle meets an exemption category), the following procedure may be used to enable the "Engine Idle shutdown" feature if the customer desires this feature. Some vehicles built in early 2008 with a manual transmission may not activate properly. If activation is unsuccessful, it may be necessary to flash the PCM to the latest calibration level with an IDS.

1. Stop the vehicle in a safe place.
  2. Apply parking brake.
  3. Turn Ignition key to the ON position. Keep engine off (KOEO).
- WARNING: make sure the engine is off before proceeding to Step 4. Failure to do so could result in vehicle movement and serious personal injury.
4. FULLY depress the Service Brake and Accelerator pedals simultaneously for 240 seconds. Hold pedals until 'Wrench' starts to flash.

**NOTE: Manual transmission vehicles will activate the shutdown system after 240 seconds but may not flash the "Wrench" light**

**NOTE: While the feature is being enabled, do not change the pedal positions. Change in pedal positions during learning will reset the enabling function, and the timer (240 seconds) will re-start from 0 seconds.**

**NOTE: The following conditions will not initiate the enabling function:**

**Any DTCs that are set related to:**

- Park Brake
- Service Brake
- Accelerator pedal
- If code P0602 (Powertrain Control Module Program Error) is set.
- If "Engine Idle Shutdown" feature is already enabled.

**NOTE: The engine idle shutdown idle timer will not start if:**

- 1) The engine is operating in power take-off (PTO) mode.
- 2) The engine coolant temperature is below 60° F (16° C).
- 3) The exhaust emission control device (DPF) is regenerating.

**NOTE: Simply activating the shutdown system without also removing the original under hood emission label and affixing a replacement label indicating compliance with California regulations will not allow the owner to register the vehicle in California or a California emission state.**

**NOTE: Only new vehicles that have not been yet delivered to the final customer, and for which the shutdown feature is active with the CDIM installed or if the vehicle meets an exemption category are eligible to request from Renkim a replacement under hood label that indicates the vehicle meets California requirements. Ford Motor Company will not take responsibility if an owner is denied registration, and the owner should not expect successful registration if registration was previously attempted and rejected.**

**NOTE: To prevent battery drain after a shutdown event and shortened battery life, it is necessary to install a CDIM module when enabling idle shutdown. Idle shutdown will operate normally without the CDIM module installed but it is possible to drain the battery in as quickly as 30 minutes depending on accessories being operated.**

**NOTE: The CDIM can only be added to 2008 Model Year vehicles built after 1/3/2008 that were not originally equipped with rear Parking Aid Modules. If the vehicle was built before 1/3/08 a CDIM cannot be added. Also, a change was made to the 14401 wiring harness beginning with the 2009 model year that will not allow the installation of a CDIM on vehicles ordered and built without an ESS system (ordered without 63T). For 2009.5 builds, some vehicles built without ESS do have a wiring harness that can accept a CDIM depending on certain ordering options; as such, we will need to evaluate conversion requests on a case-by-case basis.**

CDIM part number for the Super Duty F450-550 is 8C3Z-12C527-A. The module is installed in the same location as the Parking Aid Module (parking aid option is not available when Diesel idle shutdown option is original equipment.) The activation procedure is also published in Workshop Manual Section 303-14B.

### ***PROCEDURE TO REQUEST A REPLACEMENT LABEL***

Following is the process for dealers to document that the Diesel shutdown strategy has been turned ON: Dealer, with authorization of the FCSD Zone Manager, contacts Renkim (734-374-8353) to order the new "Diesel engine idle shutdown" certification label (this is no different than other emission labels that dealers/zone managers order today).

- Renkim will require written confirmation that the vehicle is either exempt or the shutdown system is active with the CDIM installed, and will require confirmation that the new vehicle has not yet been delivered to the final customer.
- Renkim keeps a log of VINs that have requested the new cert label.
- Renkim sends the list of VINs on a quarterly basis to FCSD's DSP department to update "as built" data.

### ***ENGINE IDLE SHUTDOWN DISABLE PROCEDURE***

**NOTE: This disable engine idle shutdown procedure can only be performed on vehicles that had it enabled some time after they were originally delivered for sale to non-California Emissions State customers, and for which a replacement label was not requested. California Emissions State vehicles can NOT have the idle shut down disabled, and doing so could subject the person to civil penalties (California, Connecticut, Delaware, Georgia, Maine, North Carolina, New Jersey, New York and Pennsylvania).**

This procedure will put back the as-built data in the VID block, restoring the vehicle to its originally manufactured condition. However, if a replacement label was provided, and the vehicle was converted to activate the shutdown system, the Ford as-built data also will be modified to reflect permanent shutdown activation.

Final Stage Manufacturers can restore a vehicles as-built data with a laptop computer by obtaining their own IDS Kit (Integrated Diagnostic Software) sold by Ford. Below are two areas of the Motorcraft® Technical Resource Access website for the description and ordering of tools and kits.

Diagnostic Tool Support (product detail in left hand navigation menu):

[http://www.motorcraftservice.com/vdirs/retail/default.asp?pageid=wds\\_retail&gutsid=wds&menuIndex1=8](http://www.motorcraftservice.com/vdirs/retail/default.asp?pageid=wds_retail&gutsid=wds&menuIndex1=8)

Tools & Equipment (how to order):

[http://www.motorcraftservice.com/vdirs/retail/default.asp?pageid=pubs\\_rotunda&gutsid=pubs\\_rotunda](http://www.motorcraftservice.com/vdirs/retail/default.asp?pageid=pubs_rotunda&gutsid=pubs_rotunda)

Up-fitters will be asked to call **1-800-ROTUNDA Option #1** to order the kits. Another option is through the Ford Fleet website, [www.fleet.ford.com](http://www.fleet.ford.com), if they have a FIN Code.

Once the service laptop has been obtained, and IDS installed, following are the basic steps to restore as-built data in the VID block.

|   |                          |
|---|--------------------------|
| 1. Ensure that the IDS is updated to B54 Database or higher | 4. Select " <i>PCM</i> " |
| 2. Select " <i>Module Programming</i> " in the IDS Toolbox  |                          |
| 3. Select " <i>As-Built</i> "                               |                          |

If you have any questions, please contact the Ford Truck Body Builders Advisory Service as shown in the header of this bulletin.