2017-05 – U.S. Electronic Logging Devices

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Summary

This Inspection Bulletin reviews the requirements for devices used to record driver's hours of service (HOS) according to 49 CFR Part 395 Subpart B – Electronic Logging Devices (ELD). It also reviews and explains common issues with ELD output files transferred to electronic records of duty status (eRODS), which may lead to incorrect citing of violations during a roadside inspection.

An accompanying training video (Inspecting the Record of Duty Status) is available by logging into the CVSA member portal at www.cvsa.org/memberportal and selecting the "CVSA Learning" tab, and via the CVSA Out-of-Service Criteria app.

Background

After Dec. 16, 2019, all commercial motor vehicle (CMV) drivers required to have a record of duty status (RODS) that do not meet any of the exemptions, are required to use an ELD.

Definition

As defined in 49 CFR Part 395.2, ELD means a device or technology that automatically records a driver's driving time and facilitates the accurate recording of the driver's HOS and meets the requirements of 49 CFR Part 395 subpart B.

ELD Exemptions

A driver who is not required to keep a RODS (this could be short haul or a mechanic) is exempt from requiring an ELD. Exempt status may be indicated in the header file.

Other exemptions include the following:

- Drivers requiring completion of a RODS on not more than eight days within any 30-day period
- Drivers in a driveaway-towaway operation in which the vehicle being driven is part of the shipment being delivered
- Drivers in a driveaway-towaway operation in which the vehicle being transported is a motor home or a recreation vehicle trailer
- Drivers operating a CMV that was manufactured before model year 2000, as reflected in the vehicle identification number (VIN) as shown on the vehicle's registration. *

  ***NOTE:** Trucks manufactured according to the VIN prior to 2000 or engines manufactured prior to 2000 are exempt from the ELD mandate.

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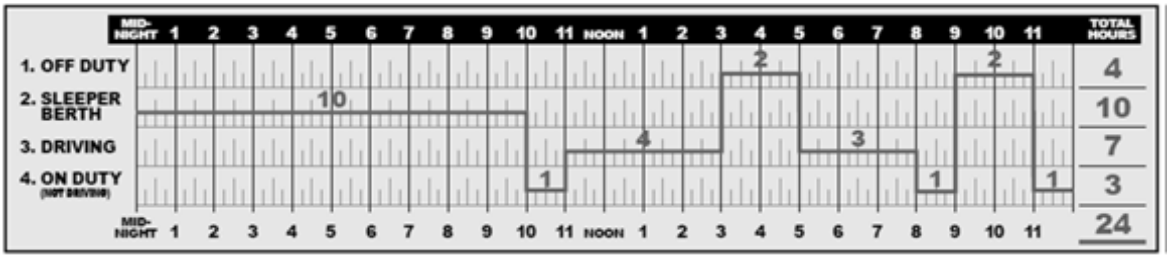
There are several HOS exemptions in 49 CFR Part 395.1, some of which relate to the use of an ELD. A driver operating under an exemption is not required to carry any documentation for the days they operated under the exempt status. Inspectors should always be aware of any additional temporary exemptions that may have been issued by the Federal Motor Carrier Safety Administration (FMCSA) by reviewing the Exemption Tracker on the CVSA website at www.cvsa.org/inspections/inspections/exemptions/.

Graph Grid

The graph grid should include the following information:



- Total hours – in working day so far
- Off duty (includes personal conveyance)
- Sleeper berth
- Driving
- On duty – not driving (includes yard move)

In addition to the graph, the ELD must also display log details. Note that the log details must be for each type of event and duty status.

ELD Data Found in the Header on the Display (Automatically Generated or Manually Entered by the Driver)

The ELD should display the following information:

1. Record date
2. 24-hour starting time
3. Time zone offset from UTC
4. Carrier's USDOT number
5. Carrier name
6. Driver name (last name, first name)
7. Driver ID (ELD username)
8. Driver license issuing state
9. Driver's license number
10. Co-driver (last name, first name), if applicable
11. Co-driver ID (ELD username), if applicable
12. Current odometer – current/total
13. Current engine hours – current/total
14. ELD ID
15. ELD provider
16. Truck tractor ID (CMV power unit number)
17. Truck tractor VIN (CMV VIN)
18. Shipping ID (shipping document number), if applicable
19. Current location
20. Unidentified driver record data diagnostic indicator
21. Exempt driver status
22. ELD data diagnostic indicator
23. ELD malfunction indicator
24. Trailer number, if applicable

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Location Requirements

There are location record requirements for each change of duty status that need to be noted. The location description should be the distance and direction from the nearest city, town or village with population of 5,000 or more. For each change of duty status (e.g., the place and time of reporting for work, starting to drive, on-duty not driving and where the driver was released from work), the name of the city, town or village, with state abbreviation shall be recorded. Motor carriers are permitted to use location codes in lieu of the name of the city, town, village or state. When using location codes, the list of codes showing all possible location identifiers must be carried in the CMV and made available to an enforcement official upon request.

ELD Diagnostics and Malfunctions

In the case of an ELD malfunction, a driver must provide written notice of the malfunction to the motor carrier within 24 hours. Many telematics providers do this automatically once the driver receives the alert, requiring no reporting activity by the driver. Motor carriers retrieve all this information electronically and perform all required recordkeeping processes. Due to this fact, drivers should not be cited if the ELD malfunction sheet does not contain reporting requirements or the recordkeeping process.

A driver needs to keep graph-grid paper log sheets or an electronic means to reconstruct the record of duty status for the current 24 hours and previous seven days that comply with 49 CFR Part 395.8, unless the records are retrievable from the ELD or the driver already possesses the records in another form.

If an ELD malfunctions in a manner that no longer accurately records the driver's HOS, the driver must use paper records of duty status. The ELD may go into malfunction mode for several reasons; however, the driver should continue to use the ELD to record his RODS unless it is no longer retrieving the driving status from the engine control module (ECM) or it does not allow the driver to indicate change in duty status.

Most ELDs have a support system (back office) used in conjunction with the in-cab ELD at a driver's home terminal or a motor carrier's principal place of business which can provide federal, state or local officials with summaries of a driver's HOS records at any time. This may be a method for the driver to produce previous days RODS in the event of a malfunction, rather than recreating them on paper.

ELD Inspection Guidance

If a driver cannot produce HOS records using any of the options described in the eRODS section of this bulletin and the device is not in an active malfunction, the driver shall be placed out of service for no RODS. See Footnote 12 in the CVSA North American Standard Out-of-Service Criteria before citing or placing a driver out of service.

Note: Retrieve the ELD user manual/instruction sheets (malfunction and transfer instructions) and adequate blank graph grids from the driver. These documents may be in electronic formats. When advising the driver to transfer eRODS using the telematics method, provide the driver with a unique safety official code to have the driver enter as the "Comment" when transferring the ELD output file using the device.

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eRODS

ELDs must transmit records to an authorized safety official upon request. eRODS reads and analyses the electronic RODS output file that is generated by the ELD and transferred at roadside. Most states will select one telematic option and one local option. Each ELD provider is required to select and support either the telematics or local transfer method.

- Telematics option – email and web services
- Local option – Bluetooth and USB

If the electronic data transfer does not work, use the display screen of the ELD or a printout from the ELD to verify the driver's HOS. However, the driver may be cited under 49 CFR Part 395.24(d) for not being able to transfer RODS electronically.

Telematics eRODS Transfer Option

ELDs designed with the telematics eRODS transfer option are required to prompt the driver to transfer the eRODS file using either web service or email. When using the email option to transfer the eRODS file, the file is transferred to FMCSA for review using eRODS software. Using a personal/work email address in the comment section does not direct where the file is delivered. All eRODS are sent to FMCSA servers and can only be viewed using the eRODS software.

Enforcement should always advise the driver to transfer the eRODS file using web services, rather than email, when the driver is using an ELD designed with the telematics eRODS transfer option. This is the fastest and most successful method for the ELD output file transfer. Email transfers could lead to delays in the safety official's abilities to view the driver's RODS and result in inappropriate violations.

The driver is responsible for initiating the eRODS file transfer upon request. A comment field may be populated by the driver with the safety official code or investigation code provided by an authorized safety official. This can be in the form of a key phrase or code which may be used to link the requested data to an inspection, inquiry or other enforcement action. If eRODS fails or the file doesn't transfer, then use the display as backup to determine the driver's RODS. The driver may be cited under 49 CFR Part 395.24(d) for not being able to transfer RODS electronically.

eRODS Files

When inspecting the driver's RODS through eRODS, there are issues based on the ELD technical specifications (TS) that may occur, as outlined below, that inspectors should be aware of to prevent unnecessary violations being cited.

Vehicle Power Cycle Events

The TS indicate ELD output files must list the events created when a CMV's engine is powered up and shut down for the time period for which this file is generated.

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FMCSA's ELD TS FAQs contain the following information:

> *Regarding Section 4.8.2.1.9, which power-up and power-down events should be included?*
>
> *All power-up and power-down events for all CMVs used by the driver within the time period that is being requested should be included, including those events that belong to another driver (e.g., if the driver was not using the CMV on that day).*

Based on this TS requirement, there are times when enforcement will review the eRODS for a driver that will contain power-cycle events for a CMV that was not driven by the current driver. This will result in associated locations other than where the inspected driver currently is or has been. It is necessary for safety officials to examine the "Event Details" associated with each power-cycle event. The details will include the power unit number and VIN, providing insight to the power-cycle event contained in the driver's eRODS.

NOTE: As of September 2020, eRODS includes a feature that will automatically filter out unrelated power-up and power-down events to make it easier for safety officials to determine the relevant power-up and power-down events in a driver's RODS.

Odometer Jumps/Engine Hour Jumps

Actual vehicle odometer and engine hour values are recorded by an ELD when power-up, power-down, login, logout, diagnostic or malfunction events are recorded.

Accumulated vehicle odometer and engine hour values since the most recent power-up event are recorded by an ELD for all other events.

Per Section 7.19 and 7.43 of the TS, the accumulated odometer value and engine hour value is always based upon the most recent power-on event. Accumulated miles/elapsed engine hours don't get reset based on login/logout events. They are always based on the most recent power-up event, even if that event occurred several days prior to the recording of the accumulated miles/engine hours. Due to this requirement, there are instances when the ELD output file will not contain all events that pertain to an odometer or engine hour increase. Here are a couple of examples:

- If a vehicle is not powered down between drivers and only one driver is logged into the device at a time, the ELD output file will not contain any intermediate driving events for any driver except the current driver being inspected/audited.

Example: Driver A drives on day one, driver B drives on day two, then driver A drives on day three. While each driver logs in and out of the ELD, there are no vehicle shut-down or power-up events between drivers. There will be a gap in odometer/engine hour values in the RODS for driver A between day one and three. However, if driver A and driver B are co-drivers, both drivers must be logged into the ELD simultaneously and there would not be any odometer/engine hour gaps.

- If an ELD output file does not contain a power-up event prior to duty status events, all duty status events would still have accumulated miles/engine hours. However, eRODS will not be able to compute the total odometer and engine hours by adding the expected actual values from power up and the accumulated values from duty status events. Login/logout events and diagnostic/malfunction events still display the actual odometer and engine hours readings from the ECM, which can be of aid to the safety official when reviewing a driver's RODS.

Missing Power Unit Number, Trailer Number or Shipping Document Information (if applicable)

Power unit, shipping document or trailer number(s) are only included in the ELD output file transferred to eRODS if there is a power-up or shut-down event in the 24-hour period being reviewed. It will not be included if the shipping document or trailer number has been entered into an ELD after the last power-up or shut-down event is recorded.

Example: A driver enters the shipping document and trailer number(s) after powering up a vehicle at the beginning of the shift. The daily header or events details will not contain that shipping document number unless there is a subsequent power-down event in the same 24-hour period with an associated shipping document number. Likewise, the trailer number will not be displayed in the "Event Detail" associated with that initial power-up event. Also, if there are no vehicle power-up or shut-down events recorded in a 24-hour period, there will not be a power unit number displayed in the daily header for that day on the eRODS file.

If the CMV power unit number, trailer number or shipping document number is missing from the eRODS and is not displayed on the ELD, the driver should be cited under 49 CFR Part 395.24(c)(2). If at the time of inspection, the required information is displayed on the ELD but it does not appear in eRODS and eRODS does not display a power-up/power-down event* in that 24-hour period, do not cite the driver.

**Per the ELD output file format of the TS, shipping and trailer information are contained only in the power-up and shut-down events. Therefore, if no power-up or shut-down events are included in the ELD output file, the file will not contain the shipping information. Likewise, if the trailer number is added or removed prior to a power-up or shut-down event, the "Event Detail" of the associated event will not display a trailer number.*

Missing or Invalid VIN

A VIN is only required to be presented in the header of the eRODS display ***if it is available*** from the ECM. 49 CFR Part 395, Subpart B, App. A, 4.3.1.7 states: CMV VIN – the VIN for the CMV must be automatically obtained from the engine ECM and recorded if it is available on the vehicle databus. 49 CFR Part 395, Subpart B, App. A, 7.5 CMV VIN, under "Disposition" indicates that the VIN is optional if not available from the ECM and can be left blank.

Driver's Indication of Acceptance or Rejection of Unassigned Driving

To be a compliant with 49 CFR Part 395.32, when logging into an ELD, the driver must review any unassigned driving time associated with the CMV, when prompted by the ELD. The driver must accept records that belong to him/her or indicate that the records are not attributable to him/her. It should be noted that per 49 CFR Part 395, Subpart B, App. A, 4.8.2.1.10, the ELD output file transferred to eRODS will include all unassigned driving events from all the CMVs driven by the driver during the period of the file.

49 CFR Part 395, Subpart B, App. A, 4.4.4.2.4 is very specific on the requirements for handling the driver's acceptance of unidentified driving records. The ELD TS do not provide guidance on how the driver is to indicate the records are not attributable. In most cases, the ELD is programmed to allow the driver to select a dialogue box as the required indication. The driver is unable to proceed beyond this acceptance/rejection stage when logging on without providing the required input.

Once the unidentified driving record has been reviewed and the driver has indicated whether the event is attributed to him/her, the original records reflecting the unidentified driving will remain on the ELD and will be transferred with the eRODS file.

If the driver accepts the event, the original unidentified driving records will reflect an "inactive" status as shown in the "Event Details" section of the eRODS display. Any rejected unidentified driving events must remain available for review at roadside for eight days and are included in the eRODS display. The persistence of these unidentified driving events in the eRODS display does not mean the driver failed to review the records or to accept or reject them as belonging to him/her.

FMCSA's ELD TS FAQs includes the following guidance:

> *If the driver rejects unidentified driving, should that be displayed on the ELD for the roadside inspection view and output review?*
>
> *The rejected unidentified driving events must remain available for review at roadside for eight days and should be included in the output file.*

Unassigned driving events that have been rejected by the driver require further adjudication by the motor carrier. These events may be assigned to the appropriate driver to correctly reflect the driver's hours of service or annotated in the record explaining why the time is unassigned (e.g., low-speed yard move).

Once the unassigned driving time has been reviewed and only certain records were attributable to and accepted by the driver in accordance with 49 CFR Part 395.32, it is expected that some events will remain associated with the unidentified driving profile. These event types include intermediate logs, power-up/shut-down and malfunction/diagnostic, which cannot be edited.

"Miles Driven" in the eRODS Daily Header

"Miles Driven" is not the total miles driven by a driver in a day, but rather the total miles the CMV has travelled in a day. Multiple drivers may use a single CMV in a 24-hour period. Therefore, if there is a driver and a co-driver who added miles, or there are multiple drivers who drove the vehicle in the same day, the "miles driven" will be the total miles the CMV has traveled.

> Definition of "vehicle miles" in 49 CFR 395, Subpart B, Appendix A 7.43:
>
> "This data element refers to the distance traveled using the CMV in whole miles…." and "this parameter is a placeholder for <(Total Miles) Vehicle Miles>, which refers to the odometer reading and is used in recording "engine power on" and "engine shut down" events…"

49 CFR 395, Subpart B, App. A, 4.8.2.1.9 CMV's Engine Power-Up and Shut Down Activity indicates that all vehicle power-cycles must be listed (rank ordered) for the time period generated. However, the data elements that must be included do not include a list of users of the CMV. Therefore, there is no way to identify who powered-up or down the CMV.

FMCSA's ELD TS FAQs includes the following guidance:

> *Regarding 4.8.2.1.9, which power-up and power-down events should be included?*
> *All power-up and power-down events for all CMVs used by the driver within the time period that is being requested should be included, including those events that belong to another driver (e.g., if the driver was not using that CMV on that day)."*

"Miles Driven" in the daily header of the eRODS file are not limited to those miles associated with the driver who initiates the eRODS file transfer.

eRODS has an additional display in the daily header which includes a "Miles in Driving Status." This display consists of the total miles recorded while the driver was in the driving status for the 24-hour period. For this calculation, the associated power-up events must be included within the ELD output file. Since the "miles driven" calculations are based on events included within the ELD file, if driving time bridges a 24-hour period start time, the engine hours and miles recorded between the last event on the first day and the first event on the second day are not included in any summary counts.

Example: The 24-hour period begins at midnight and the ELD records an intermediate log at 11:30 p.m. and at 12:30 a.m., the drive time between 11:30 p.m. and 12:30 a.m. is not accounted for in the daily header calculation of "Miles in Driving Status."

Graph Grid and Event List Not Complete for First Cycle Day Upon Review in eRODS

The TS for the ELD in 49 CFR 395, Subpart B, Appendix A 4.8.2.1.4 – ELD Event List for driver's RODS provides detailed requirements for populating the ELD output file transferred to eRODS. The file must list all event record status types and all event record origins for the driver, rank ordered with the most current log on top in accordance with the date and time fields of the record. The amount of information in the file will vary depending on the number of ELD events recorded for the driver over the time period for which the ELD file transferred to eRODS is generated.

There are times when an event record status for the driver was initiated outside of the time period for which the ELD file transferred to eRODS is generated (e.g., initiated on the previous eighth day). This may result in the eRODS graph grid for the previous seventh day of the period under review showing no "duty status line" from the beginning of the 24-hour period until the first event record status that is included in the ELD file transferred to eRODS.

> Roadside Example: A driver entered an off-duty status 10 days prior to the stop and had no other duty status changes until entering an on-duty status at 11 a.m. seven days prior to the inspection. The ELD file transferred to eRODS at the time of the inspection would not contain any duty-status information for the driver until the first event recorded within the time period generated (e.g., seven previous days plus the current day). As a result, the eRODS would not display the off-duty

"duty status line" from the beginning of the eight-day period under review until the driver goes on-duty at 11 a.m. Additionally, the first event in the "Event List" will be the on-duty status at 11 a.m. Similarly, if the driver was in a driving status at the end of the eighth day prior to an inspection, the first event included in the ELD file transferred to eRODS may be an "Intermediate Log" event resulting in no graph grid duty status line indicating the driving event prior to that "Intermediate Log" event being recorded.

While some ELDs have been programmed to split a duty status at the beginning of a 24-hour period or include the last duty status from prior days in order to prevent this issue, if the eRODS graph grid does not display all duty status events on the first day in the cycle under review, it is not a requirement of the functional specifications for the ELD and the driver should not be cited and the inspector can verify the duty status information on the ELD display.

Verifying the Engine Model Year

Truck Chassis vs. Engine Model Year

Engines are manufactured separately from the vehicle chassis and are certified to meet the standards for the year of manufacture. Due to this, engines are often certified to an earlier model year than the truck body. It is important to determine an engine's specific model year by checking the emission control label.

Engine Model Year

The engine model year is also on the emission control label. If the emission control label is missing or illegible, consider contacting the engine dealer or the manufacturer; you will need to provide the engine serial number to obtain the model year. Typically, the engine model is one year older than the chassis model year. For example, a 2007 vehicle typically has a 2006 model year engine installed. Rebuilt engines keep their original identity and engine serial number.

Pre-2000 engines remanufactured and/or rebuilt after 2000 will retain the original engine model year for the purposes of the ELD exemption.

Remanufactured engines may lose their original serial number and will instead have an engine label identifying it as a remanufactured engine. The local installer, dealer and/or manufacturer can be contacted for more information.

The images below and on the following page indicate where the emission control label can be found on engines.

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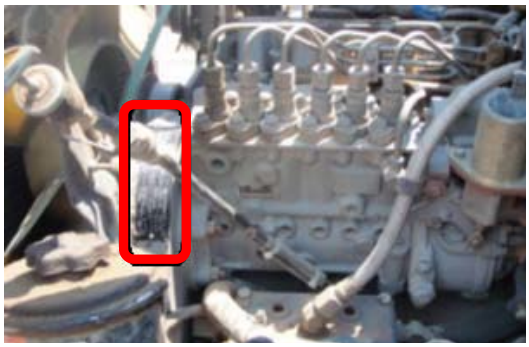
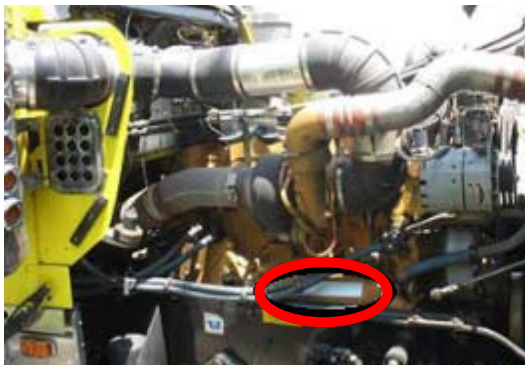
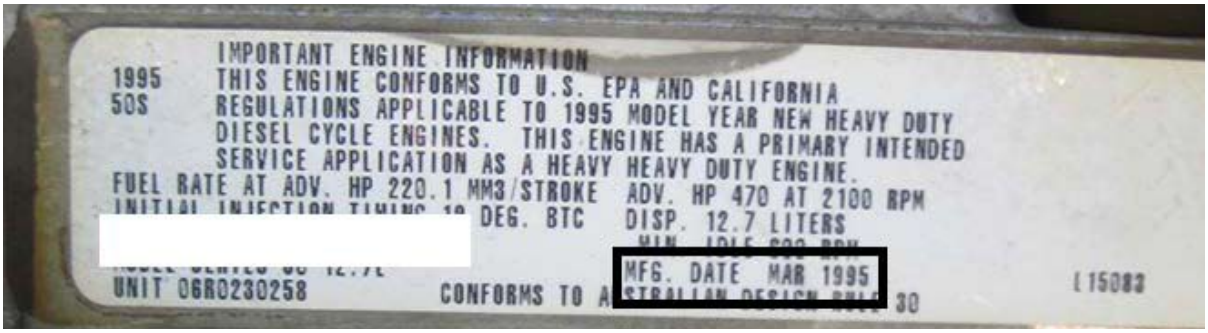
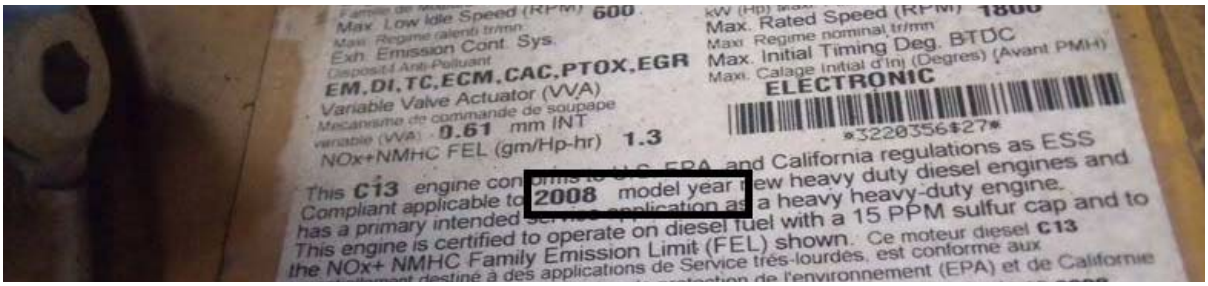
Step 1: Locate the Engine Control Label



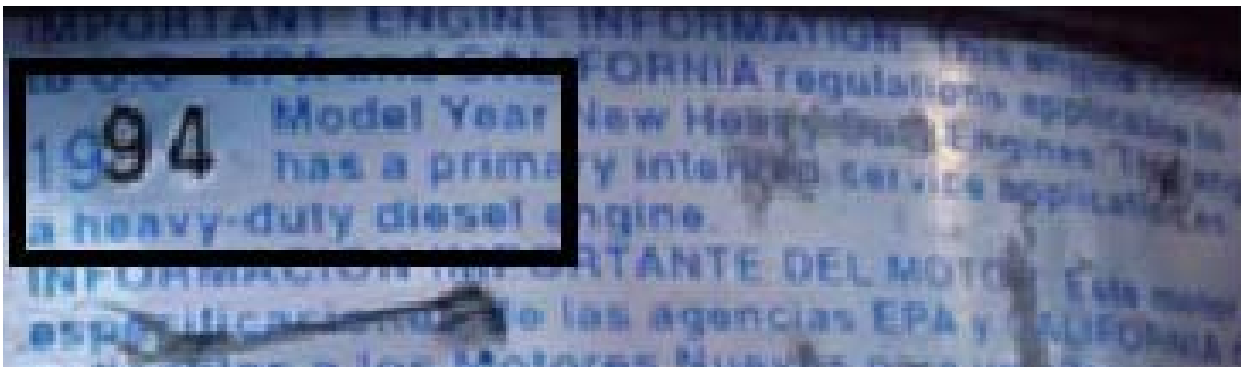


Step 2: Identify the Engine Model Year





As shown in the picture above, a barcode or QR code is often an indicator that the model year is newer than year 2000.



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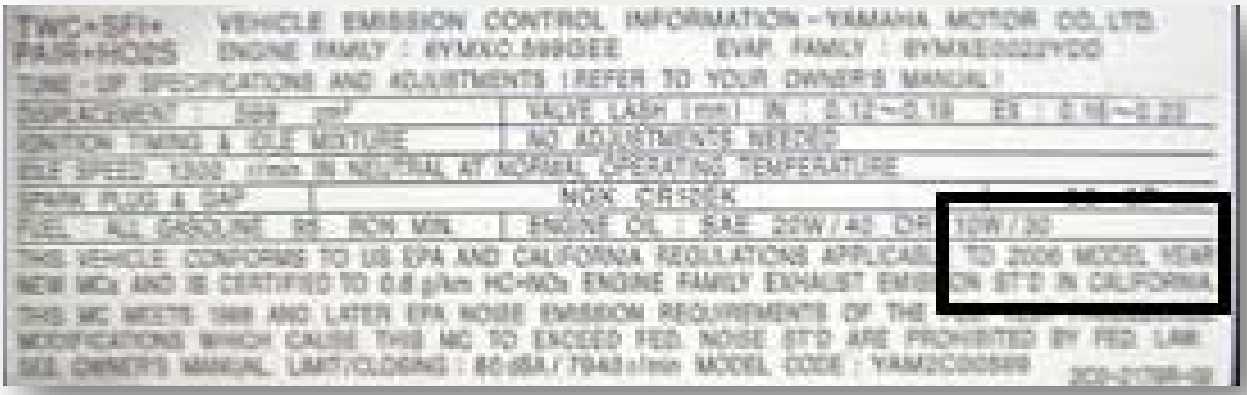

Roadside Inspections

Federal, state and local officials need to check for the following when conducting roadside inspections when an ELD is being used:

- Verify that the ELD is registered with FMCSA, either by going to the FMCSA list or retrieving the ELD data during the file transfer.
- Ensure the device can display or print the RODS for the last seven days, plus the current day.
- Each CMV with an ELD installed must have on-board an information packet containing an instruction sheet describing, how data may be stored and retrieved from the recording system, how to deal with a malfunctioning ELD, the user manual and a supply of blank driver's RODS graph-grids sufficient to record the driver's duty status and other related information for a minimum of eight days in the event of a malfunction.
- The on-board information packet may be any electronic device (including the ELD) or hard copies.
- The driver can demonstrate the use of the device.
- Have the driver transfer the ELD output file by either web services or local transfer (see eRODS section of this bulletin).
- Take into consideration all the TS issues outlined in this bulletin when reviewing the ELD output file on eRODS. Ensure the information is contained on the display and if so, do not cite the driver.