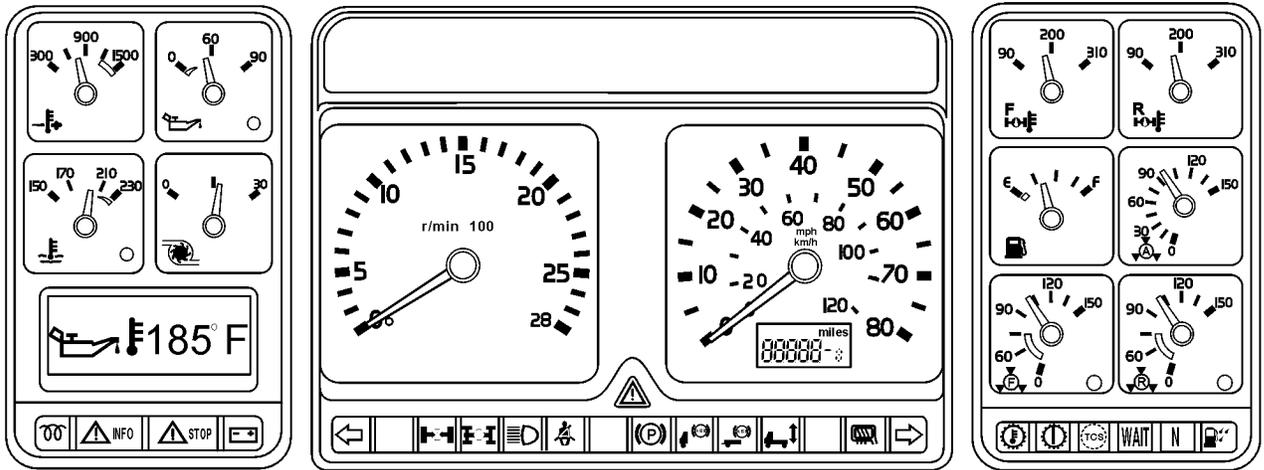


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This Service Bulletin is a supplement to Service Manual, Group 381-500, "Instrumentation, VN (from 03/1999) and VHD"

Instrument Cluster Programming VN (from 03/1999), VHD

Programming the '99 Instrument Cluster



W3004396

This service bulletin contains supplemental information to Service Manual 381-500 "Instrumentation". This information is applicable to the instrument cluster known as the '99 instrument cluster, which was installed in VHD and VN models built from March 1999 to November 2002.

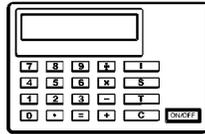
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- ["Special Tools" page 2](#)
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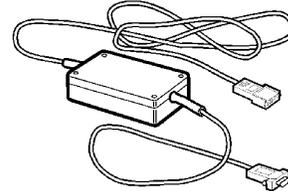
Special Tools



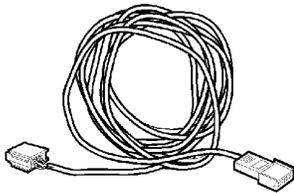
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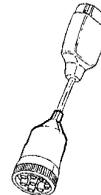
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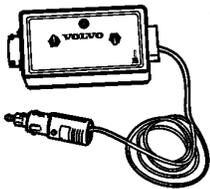


J-43999

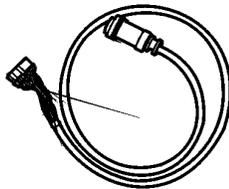


J-43939

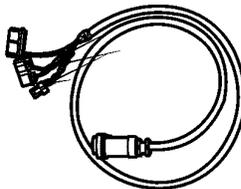
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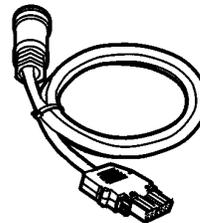
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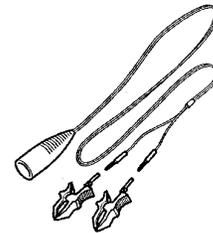
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9808561



9808562



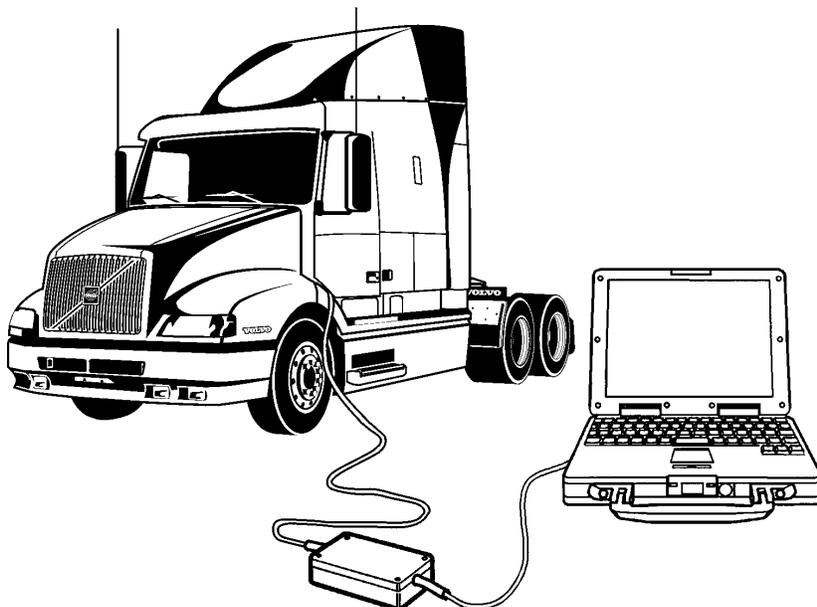
9808563

W0001709

1	VCADS PRO tool.*	9998617	
2	Digipass password generator*		Programming Kit; contains the following
9998555	Communication interface unit: for connection between the laptop PC and the vehicle's diagnostic connector.*	9808635	Programming Unit.*
9812331	Extension cable: for communication (22 yards). Optional.	9808560	Cable for direct connection to Engine ECU.
J-43999	6-pin Diagnostic Adaptor: for vehicles built prior to 1999.	9808561	Cable for direct connection to Vehicle ECU.
J-43939	9-pin Diagnostic Adaptor: for vehicles built after January 1999.*	9808562	Cable for direct connection to Instrument Cluster.*
		9808563	Power Supply Cable.*

Note: *- Tools needed for the procedures covered in this bulletin.

3811-22-02-01 Instrument Cluster, Programming



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This instrument cluster must be programmed when it is installed in a vehicle. This programming ensures that the instrument cluster is properly configured with software and settings that are specific to the vehicle that it is being installed into. Previously, it was necessary to order a pre-programmed replacement instrument cluster in certain cases because programming in the dealer workshop was not possible. VCADS Pro version 2.07.00 (available mid-June, 2003) contains an updated programming process that enables these instrument clusters to be programmed in cases that were not possible before. This Service Bulletin contains information about this programming procedure.

Most electronic control units (ECU's) require programming when they are replaced, including the '99 Instrument Cluster. It is important to note that software used in this programming should be treated as a chargeable part. The dealership performing the programming will receive an invoice for this software at a later date. It is therefore important that this charge is added to the customer's invoice at the time of service. For details, refer to Parts Product Alert Bulletin PA03U29, issued April 3, 2003 (Keyword: Price Update).

Each instrument cluster is programmed to correspond to the customer-ordered options for a particular vehicle. This programming makes the instrument cluster unique to each vehicle. For this reason, a replacement instrument cluster must be programmed prior to its installation. Replacement instrument clusters can be ordered pre-programmed, or blank. A blank instrument cluster must be programmed for the vehicle it is to be installed in using VCADS Pro.

Programming Steps

You must read and understand the precautions and guidelines in Service Information, group 300, "General Safety Practices, Electrical and Electronics" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

Check Hardware Number

When replacing any ECU, including the instrument cluster, it is important to check the hardware number (part number) of the replacement ECU and compare it with the hardware number of the ECU that is being replaced. This number can be found on a label on the bottom of the instrument cluster or it can be read out electronically as described in "Check Status of Existing Instrument Cluster" page 4. These numbers must match, or a hardware number mismatch error will occur when an attempt is made to program the replacement. If the numbers do not match, it is likely that the replacement is a newer version than what the vehicle was originally built with. If this is the case, a Conversion Kit must be performed in order to update the vehicle's build record in Volvo Data Administration (VDA). Refer to Service Bulletin 030 600 02 "VCADS Pro Conversion Kit Numbers" for the correct Conversion Kit number to use and for instructions on performing the Conversion Kit procedure.

Check Status of Existing Instrument Cluster

When an instrument cluster is being replaced, one of two situations may exist:

- The instrument cluster being replaced is still capable of powering up and communicating on the vehicle's data link (operational).
- The instrument cluster being replaced is completely dead, or unavailable (not operational).

In either case, take note of the odometer reading. It is possible that the center portion of the instrument cluster containing the odometer will be operational even though the left side is not. The odometer reading will be needed for programming into the replacement instrument cluster.

Existing Instrument Cluster is Operational

Before the existing instrument cluster is removed from the vehicle, determine whether or not it is capable of powering up and communicating the vehicle identification number (VIN) on the vehicle's data link. The simplest method of doing this is to turn the vehicle's ignition switch to the ON position and check that the instrument cluster's graphic display (at the lower left) illuminates and/or displays information. Even if this is not the case, the instrument cluster may still be capable of communicating the VIN over the vehicle's data link. This can be checked by performing the Vehicle Information Test in VCADS Pro. Start the operation and check that MID 234- Driver Information Display appears in the list of ECU's. Expand the information for this ECU by clicking on the + sign to the left of the ECU name and check that the VIN shown is correct for the vehicle that the instrument cluster is installed in. **If the existing instrument cluster is operational according to the explanation above, leave it connected to the vehicle and proceed with "Begin Programming Operation" page 6.**

Existing Instrument Cluster is not Operational

If the existing instrument cluster is not operational according to the explanation above, disconnect it from the vehicle and connect the replacement following the instructions for Instrument Cluster Replacement in Service Manual 381-500 "Instrumentation".

Note: It is only necessary to connect the electrical connections at this time. Installation of the replacement instrument cluster can be finished after programming has been completed.

Begin Programming Operation

1

Connect the VCADS Pro PC to the vehicle's communication connector using communication interface 9998555 and adapter J-43939.

2

Start the VCADS Pro application and identify the vehicle in the vehicle identification dialog (Electrical system: "Vehicle Electronics '98", Model: VN or VHD.)

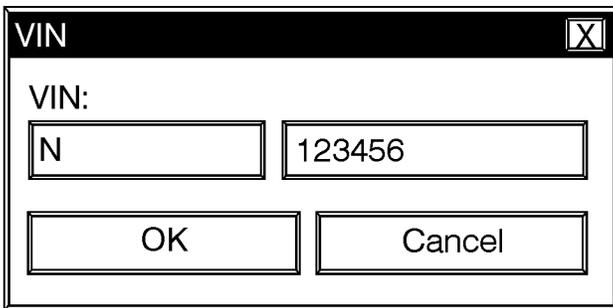
3

Select "MID 234 ECU Programming" from the function group 3 menu. At this point, information will be read from the vehicle.

- If the replacement instrument cluster was connected to the vehicle in "Check Status of Existing Instrument Cluster" page 4 and the vehicle has a non-Volvo engine (Cummins or Detroit Diesel), a dialog box will appear to ask for the vehicle's VIN:

In the first blank, enter the 7th to last digit of the vehicle's VIN (for North American vehicles, this will be the letter "N"). In the second blank, enter the last 6 digits of the vehicle's VIN. This combination is sometimes referred to as the vehicle's chassis ID.

- If the original instrument cluster is still installed in the vehicle, or if the vehicle has a Volvo engine, the dialog box above will not appear. Instead, the VIN will be read from the original instrument cluster or another Volvo ECU installed on the vehicle.



The image shows a dialog box titled "VIN". It contains a label "VIN:" followed by two text input fields. The first field contains the letter "N" and the second field contains the number "123456". Below the input fields are two buttons labeled "OK" and "Cancel".

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4

Start the programming operation by pressing the space bar or clicking the start button.

Connect Programming Equipment

After the programming operation has read information from the vehicle, a prompt will appear asking for a connection directly to the new ECU. At this time do the following:

1

Turn the vehicle's ignition switch OFF.

2

Connect programming cable 9808562 to connector LX on the back of the replacement instrument cluster.

3

Connect the programming cable to the programming unit (9808635).

4

Disconnect the communication interface from the diagnostic adapter and connect it to the programming unit.

5

Connect the programming unit to a 12V power supply.

Note: It is recommended that power supply cable 9808563 is used to connect directly to the vehicle's batteries in order to avoid an unexpected loss of power that may occur during programming on vehicles equipped with a low-voltage disconnect system.

6

Place the A/B selector switch on the programming unit in position B.

7

Switch the programming unit power switch ON. The graphic display on the replacement cluster should illuminate. If not, recheck the connections as described above, especially the A/B switch position and the power supply cable. Note that the green indicator light on the programming unit does not always illuminate when power to the unit has been switched ON. The intended purpose of this light is to indicate that the connected ECU is in programming mode, not that the programming unit is receiving power.

8

Click the OK button on the screen.

Follow the prompts that appear in the programming procedure. This will include entering a generated password from the digipass, waiting for software to be downloaded from Volvo and turning the programming unit power switch OFF and ON at various points during the process.

When the programming process has been completed, connect the remainder of the electrical connections to the replacement instrument cluster if they are not already connected and program the odometer according to Service Manual 381-500 "Instrumentation".

Complete installation of the replacement instrument cluster according to the replacement instructions in Service Manual 381-500 "Instrumentation".