

Service Bulletin

Fault Tracing Repairs Maintenance



MODEL 200/700/900	GROUP 28	NUMBER 102
TITLE E-PROM EXCHANGE FOR COLD START LH 2.4/3.1 1990 - 91		
MARKET US and Canada	DATE May 1991	

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REFERENCE: TP 31354/2(ENGLISH); 01/91; FUEL INJECTION SYSTEMS
SB 25-202/704

Fuel control unit E-Prom exchange procedure

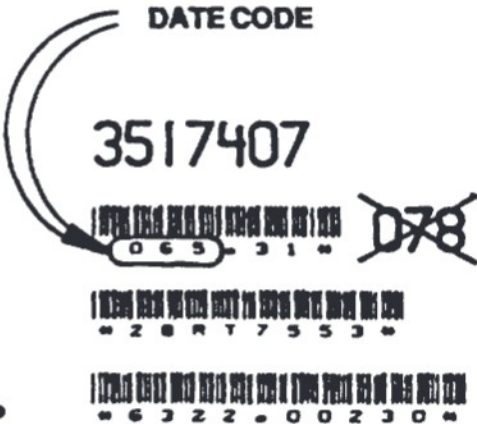
BACKGROUND: LH Control Unit programming was updated to provide improved cold starting characteristics. For engine types listed on the next page, installation of a new E-prom is the recommended procedure instead of replacing the complete control unit (ECU).

E-prom replacement is applicable only for vehicles with an ECU that has one of the following 3-digit BOSCH production date codes:

950	061	064	067	070
951	062	065	068	071
952	063	066	069	

DATE CODE

3517407



This time period partially covers 1990 and 1991 model year vehicles. This date code is located on the ECU sticker, as shown in the illustration. Model year 1989 and 1990 vehicles with ECU date codes of 949 or earlier must NOT have the E-prom replaced. If a confirmed customer complaint is diagnosed, the complete ECU must be replaced with a later version.

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Service Personnel: circulate, read, and initial.

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SERVICE MANAGER		SHOP FOREMAN		SERVICE ADVISOR		SERVICE TECHNICIANS						

The procedure that follows explains the proper method for installation of the E-PROM kit. The following procedures are to be used only when a confirmed customer complaint is diagnosed and the adjustments noted under "Vehicle Prep" (pg 4) have not resolved the condition. Unsubstantiated claims will be subject to debit.

CAUTION: It is critical to the success of this operation that this procedure is performed by a trained technician and followed exactly as written. Failure to do so may result in electrostatic discharge (ESD) causing damage to the E-PROM or other ECU components.

The following engine systems are covered by this procedure:

Note: Procedure does **not** apply to California version (Market Code 31).

Eng/Fuel Sys	ECU P/N (Exch.)	Prom Kit	Prom Type
B230F LH2.4	3517407-7 (5003782-9)	271626-4	V0362913 B3517407
B230FT LH2.4	3517370-7 (5003787-8)	271625-6	V0372923 B3517370
B230F LH3.1	3517885-4 (5003780-3)	271627-2	V0283550 B3517885

The new programming is installed in production from the following 1991 chassis numbers:

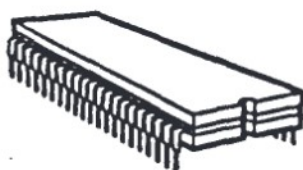
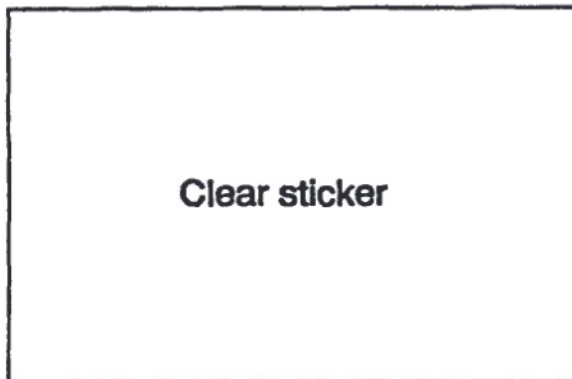
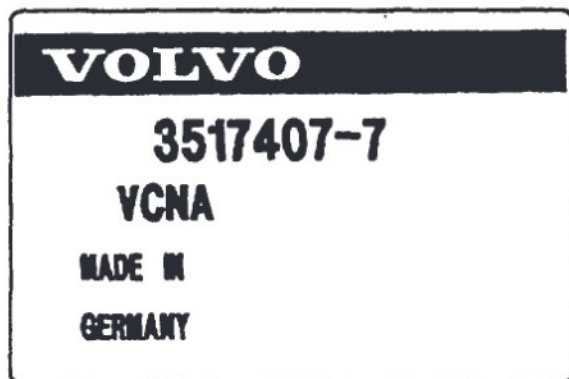
Plant Code	Model	ECU/PN	Starting Chassis No.
1	240 man	3517885	244 - 443563 245 - 897553
1	240 aut	3517407	244 - 443489 245 - 897469
1	740 turbo	3517370	745 - 327858
1	940 turbo	3517370	944 - 026563 945 - 015245
2	740 turbo	3517370	744 - 514523 745 - 326305
2	940 turbo	3517370	945 - 013508
0	940 SE	3517370	964 - 006760 965 - 002186
3	940 turbo	3517370	944 - 018538 945 - 010963
3	740 turbo	3517370	745 - 324747

If a verified owner complaint necessitates this repair, you must ensure that the upgrade has not already been performed on the vehicle. Previously upgraded cars with a chassis number earlier than listed above will have a label indicating "ECU 91" on the front passenger door.



CONTENTS OF E-PROM KIT

The E-PROM kit consists of the following components:



VEHICLE PREPARATION

If installed, remove the cold start kit (p/n 3531106-7, ref. SB 23-204/708; April 1989) before exchanging the E-PROM. Read out any fault codes in diagnostic memory and correct any out-of-line conditions before beginning the E-PROM exchange. Also verify adjustment of throttle plate, link rod and idle switch according to Service Bulletin Group 25-202/704 to ensure that E-prom replacement is necessary.

WORK AREA AND SPECIAL TOOLS

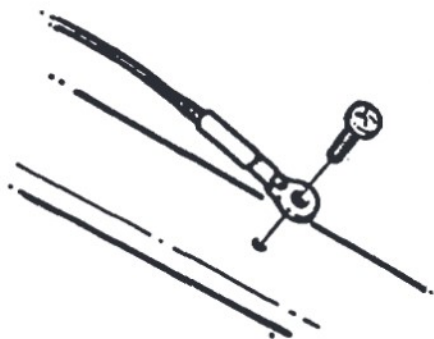
The exchange of the E-PROM must be done in a fixed workbay and in a separate location. The location must be clean, e.g. free from dust, dirt, oil, solvents, etc. The work must be done on a static dissipative mat, which must be **kept clean!** The mat must be connected to a ground point (electric grounding system, waterpipe or other safe groundpoint).

See Special Tool Bulletin #18 for applicable equipment which is commercially available. All tools used must be ESD-approved.

METHOD

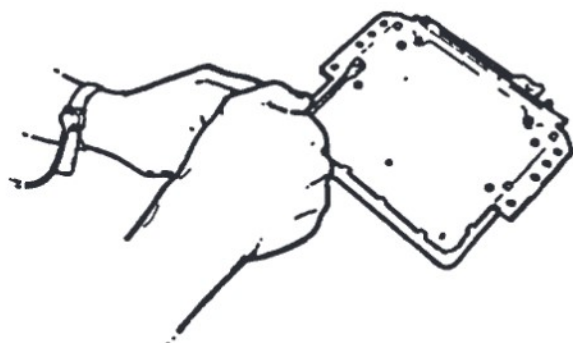
Remove ECU from vehicle (ref. TP No. 31354/2).
The control unit must have been at ambient room temperature, 72°F, for at least one hour before opening (to prevent condensation inside).

Place the static dissipative mat on a clean surface.
Connect the ground wire to a suitable ground point (according to previous page).



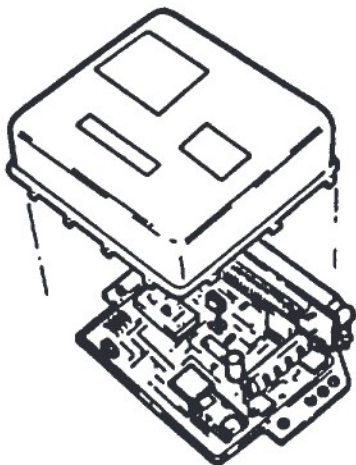
Wash your hands in warm water with soap. Hand lotion must not be used after washing.

Fit the wrist strap around one wrist (to eliminate static electricity).



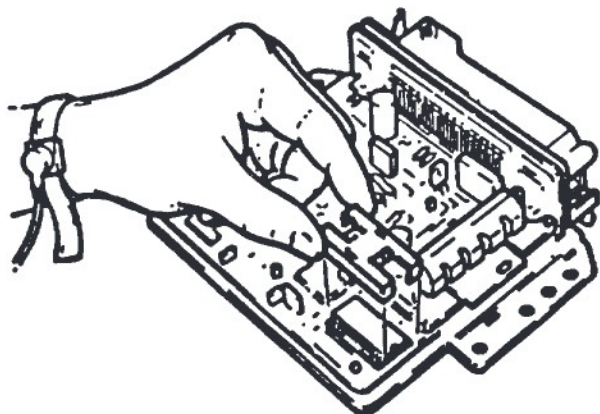
Put the control unit upside down on the static dissipative table mat. With a small screwdriver, open the control unit by bending the tabs up. Fully open them with pliers. All tools must be ESD-approved.





Turn the control unit over so that the cover is up. Place the control unit so the connector is away from you.

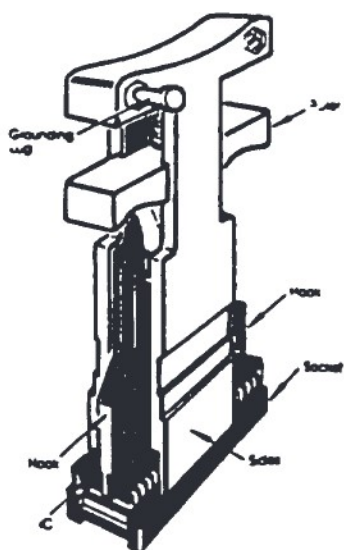
Carefully lift the cover so that it will not come in contact with the components on the circuit board.



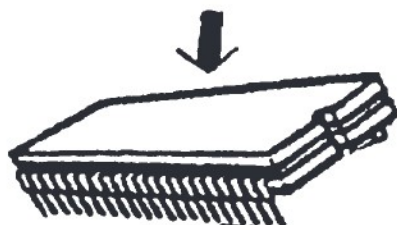
Remove the E-PROM cover.

Insert a small screwdriver (ESD-approved) in each slot on the cover and pry carefully.

When the cover is loose, lift it.



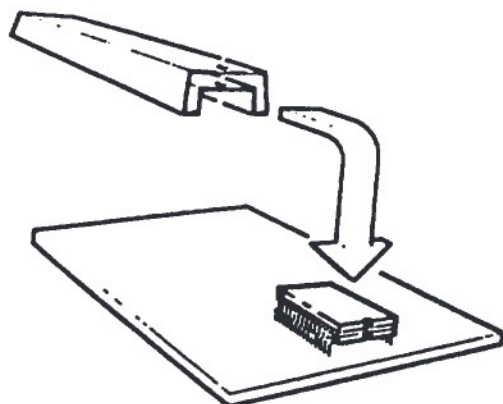
Locate the extractor over the prom to be removed, pressing the lever together until the prom pops up.

SCRAP

Mark the old E-PROM that was removed with the "scrap" sticker provided in the kit (so that it will not be re-installed in error) .

Put the old E-PROM aside.

Note: Do not re-use the replaced E-PROM. Return it according to separate instructions. (ref. Parts Information Bulletin Grp. 28 - No. 24)



Take the tube with the E-PROM and shake it out on the static dissipative mat.

Verify correct E-prom type against list on page 2.



Pick up the new E-PROM with the inserter tool (press in the button on the side of the tool when applying the tool over the E-PROM).



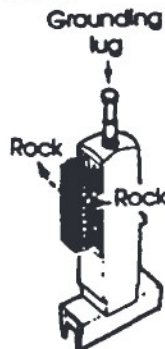
If Pins are bent in



1. Push IC into pin straightener.

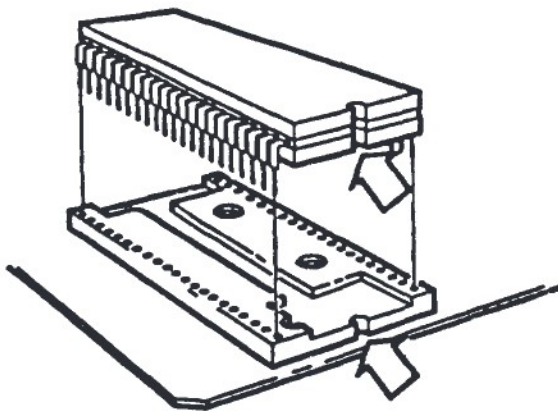
2. "Rock" IC back and forth.

3. Remove IC.



Check that all pins on the new E-PROM are in good order.

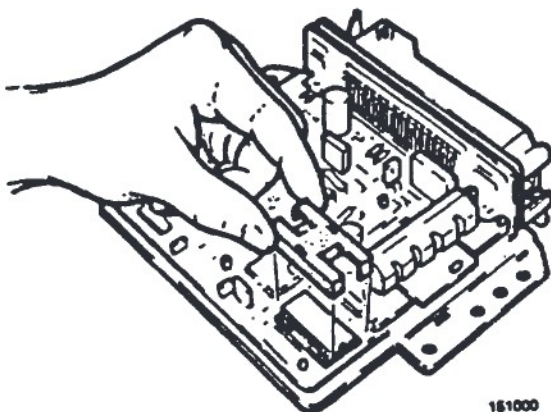
(If bent in, loosen the E-PROM, set the prom over the gray part of the shaft on the tool, straighten the pins).



Important!

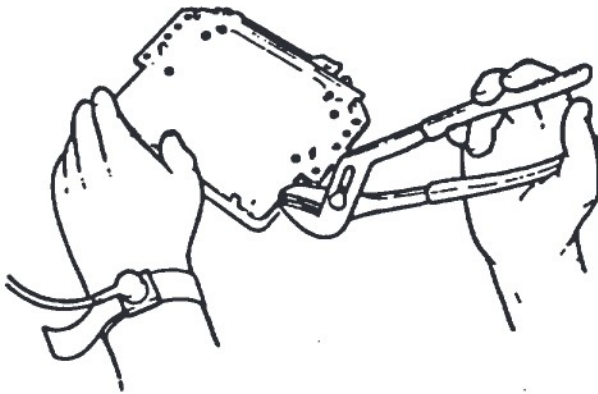
Align the notch in the prom with the notch in the socket base.

Carefully locate the E-PROM and press it down with the inserter tool without pressing the button. Remove the tool. Check that all pins are in their proper location.



Install the E-PROM cover. It must be securely closed.

161000



Install the control unit cover carefully.

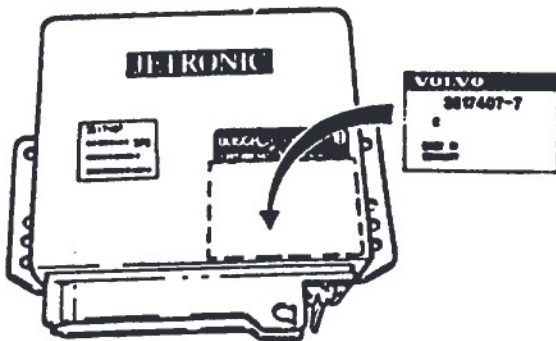
Bend the tabs down using ESD-approved pliers.

CAUTION:

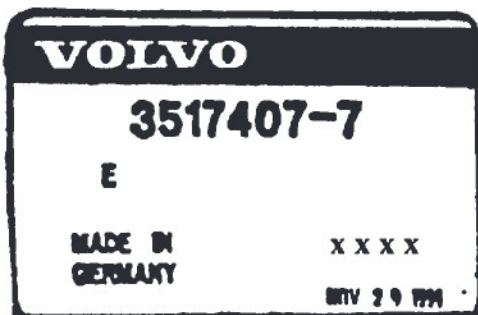
To avoid damaging internal components, do not press on the case with excess force.

Do not under any condition pound or hammer on the control unit or place it in a vise.

Make sure that the cover is secure and all tabs are tight.

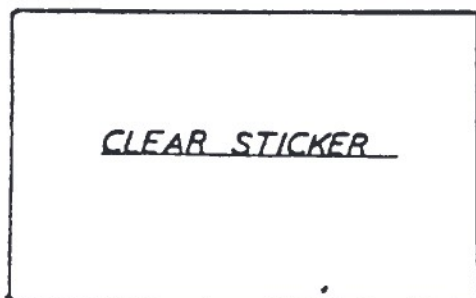


Place a new Volvo label with the proper control unit P/N over the old label. Leave part of the old label visible; however, cover the bar code. (See illustration)



Stamp the date and dealer code in the lower right-hand corner of the label.

Place the clear sticker over the label to protect it.





Attach 'ECU' sticker to inside rear-facing edge of passenger-side door as shown.

ECU 91

WARRANTY INFORMATION: E-PROM replacement may be performed once under the Emission Control System Warranty as follows:

Operation No.	Labor Description	Time Allowance
238603	Replace E-PROM (includes r&r ECU)	0.5 hr.