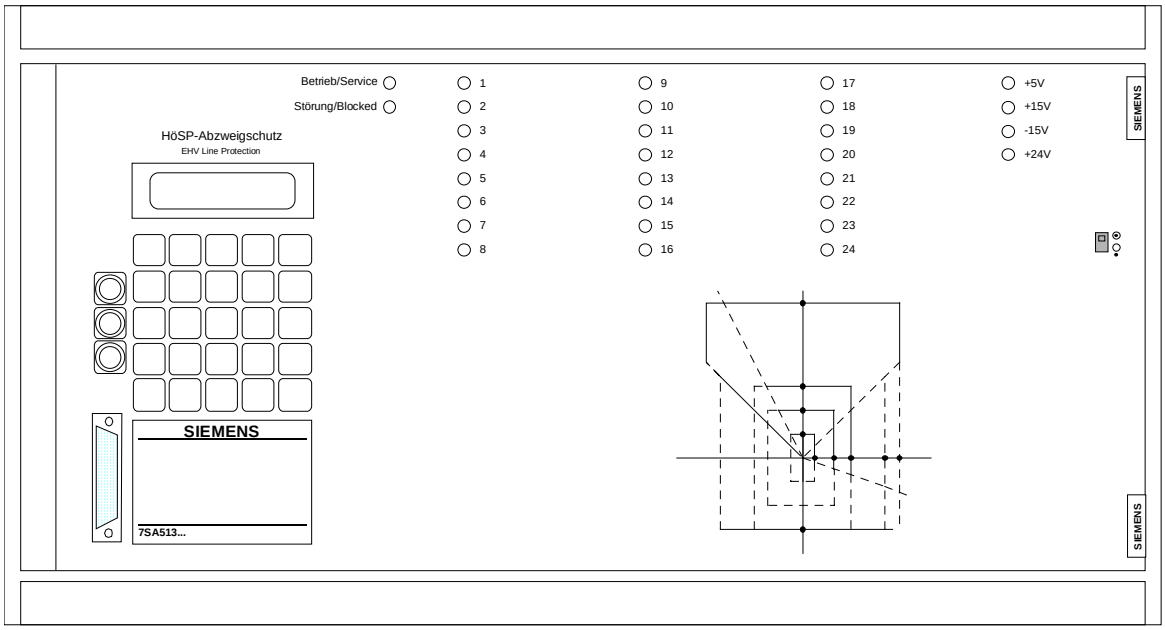
Service-Information 7SA513 /BB.../EE
Firmware Update to V3.31 (EPROM Exchange)



Firmware version **V3.31** for the line protection relay **7SA513** is available now.

- Affected are **only** devices with a **DVH**-module (see fig. 1), which are manufactured in the **release 5** or higher. Release 5 is already present in all devices with the hardware version /CD or higher. For devices up to hardware version /CC, the DVH-release (≥ 5) is decisive and has to be identified (compare to No. 8 of this service-information)!
  (Object number of the DVH-module: C73207-A272-A5-*with* ≥ **5)**.

  Attention! Devices with a DVH-module of an older release (≤ **4**), a firmware-upgrade is **only** possible by **replacing** the complete **DVH-module**! (Order procedure absolutely with declaration of the MLFB-No. of the device incl. hardware version (... /* *), Fab.-No. and required firmware version).

- Notice for devices 7SA513*-*****-*__**C****__ with serial **interface** to a central data processing station (e.g. LSA):
  The normal signal position for the data transmission is factory preset as „light off“. A change of the normal signal position to „light on“ by a jumper plug is only possible on **DVH**-modules with the **release 6** (or higher), and is already present in all devices with hardware version /DD and higher.

If operation with normal signal position „light on“ is necessary, for devices up to hardware version /CD the DVH-release (≥ **6**) is decisive and has to be identified (compare No. 8 of this service-information)!
In case the DVH-module has to be changed to a „light on/off - version (object-number: C73207-A272-A5-*with* ≥ **6**). Order procedure absolutely with declaration of the MLFB-No. of the device incl. hardware version (... / * *), Fab.-No. and required V3-firmware version.

Update-notice for DVH-modules with release 5 (or higher):

For devices 7SA513 with firmware, versions V2.1X/V2.2X/V3.XX the upgrade to version **V3.31** can be made with a loading program: Load the Flash-EPROM with the PC using the serial operator interface (described in service information **C53000-A1000-X016-1H-7620**). The upgrade kit to **V3.31** with the loading program and the disk (3,5“ DS HD for DOS-computers) can be ordered (see order data).

A firmware update via loading program from version V1.XX and V2.0X to version **V3.31** is **not** possible!
Devices with version V1.X or V2.0X can **only** be upgraded to **V3.31** via EPROM-exchange.

If required, the upgrade to firmware version **V3.31** can occur by EPROM-exchange (described in this service information **C53000-A1000-X015-1H-7620**). For that the EPROM-update kit for **V3.31** is indispensable (see order data).

This service information ´**C53000-A1000-X015-1H-7620**´ describes the update by exchanging the EPROMs.

The update set can be ordered at:

SIEMENS AG
PTD PA PTL 1
Wernerwerkdamm 5
13623 Berlin
Germany

Order number for update sets 7SA513:

Firmware	EPROM-set	Loading program
V3.31	**C73207-A272-D515-2**	C73207-A272-W522-2

Please specify in your Order:

- Number of devices
- MLFB No.
- Fab.-No.
- Previous firmware version
- Required firmware version (**V3.31**)
- Clarification, if full VDEW-compatible DVH-module is required („light on / light off“- jumper plug)

Ordering procedure via AGAVE, LABIV, SAP etc.
Order forms to UMWB

The firmware exchange may only be carried out by qualified persons.

We recommend observing the following procedure when updating the firmware:

Observe the ESD guidelines.

W A R N I N G

When carrying out modifications locally, it is absolutely necessary to observe the guidelines for handling electrostatic sensitive devices (ESD).

Update to firmware **V3.31**:

1. After the firmware exchange, the device will revert to the original factory settings.

2. Observe the relevant ESD (Electrostatic Sensitive Devices) precautions.

3. Remove the front cover of the device (turn up the folds that cover the rack both at the top and at the bottom and remove the four screws under the folds).

4. Before exchanging the firmware, read out or write down the settings and marshallings of the protection device by using an operator panel/display, 7XR50 or laptop/PC with DIGSI.

5. Switch off the device (e.g. at the front-side slide-switch).

6. Loosen the screws on the right hand side of the front door and open the front door of the relay.

7. Carefully remove the ribbon cables which connect the DVH-module (see fig. 1, pos (2) on page 12) with the other modules, that the DVH-module can be pulled out.

   Afterwards remove the other ribbon cables which connect the front panel with the
   - operational interface
   - LCD-display
   - membrane keyboard

8. Pull the DVH module out of the relay (see fig. 1, pos (2) on page 12) and place it on the conductive surface.

On the DVH-module a label with **-A272-A5-*** is fixed. This label characterises the complete module as a DVH-module. The release is labeled at the point of the star (*).
Example: -A272-A5-**5**).
The release of the module has to be checked.

--> **The release of the DVH-module must be 5 or higher !**

Note:

- The firmware update as shown in this service-information is only possible with a DVH-module having a release of 5 or higher (≥ 5).
- Devices with a DVH-module of an older release (≤ 4), a firmware-upgrade is only possible by replacing the complete DVH-module! (Order procedure absolutely with declaration of the MLFB-No. of the device incl. hardware version .../**(!), Fab.-No. and required firmware version).

Notice for devices 7SA513*-***-*C** with serial interface to a central data processing station (LSA):**

- The normal signal position for the data transmission is factory preset as „light off“.
- A change of the normal signal position to „light on“ by a jumper plug is only possible on DVH-modules with the **release 6** (or higher).
- If operation with normal signal position „light on“ is necessary, the DVH-module has to be changed to a „light on/off - version (DVH-release ≥ 6).
  Order procedure absolutely with declaration of the MLFB-No. of the device incl. hardware version .../* *(!), Fab.-No. and required firmware version.

9. The DVH-module has to be opened:
   - The DVH module has to be placed on the conductive surface with the **ZPH**-board (DVH module-part with the red and green LED) **facing to the conductive surface**.

   - Now the **MVH**-board is facing upwards (see fig. 2 on page 12) and the 3 screws C, D a. E and screws A and B of the plug-module have to be removed.

   - Turn up the two module-parts of the **DVH**-module (**ZPH** and **MVH** module) and put them side by side as shown in fig. 3 on page 13.

The two **DVH**-modules composing of modules **MVH** and **ZPH** are labeled as follows:

MVH ---> - A272 - B20 - * ZPH ---> - A272 - B30 - *

10. Carefully remove the EPROMs (previous firmware version) with the enclosed PLCC - extraction tool out of the IC-locations (see fig. 3 on page 13) by levering out of its IC bases.
The EPROM´s are located at the following positions:
- **ZPH module**: **D11** and **D12**
- **MVH** module: **D28**, **D29**, **D30** and **D31**

W A R N I N G !

Improper handling of the PLCC-extraction tool or false EPROM-placing causes injury for the EPROM-sockets.

11. Carefully insert the new EPROMs in the sockets of the ZPH and MVH module (see fig. 3 on page 13). Make sure that the IC identifier corresponds to the base identifier and that no terminal pins of the EPROMs suffer injury (bending) during insertion.

Module (No.)	IC-Position	**V3.31** EPROM labeled with
ZPH (-A272-B30-*)	D11	P73509-B1-A191-2
	D12	P73509-B1-A192-2
MVH (-A272-B20-*)	D28	P73509-B1-A185-2
	D29	P73509-B1-A186-2
	D30	P73509-B1-A187-2
	D31	P73509-B1-A188-2

12. The DVH module has to be assembled again (reverse order as described under 9):

- Place the MVH-module on the top of ZPH module.
- Bring the drilled holes of the DVH-board in accordance with the tapped holes and the plug-module.
- The three screws C, D, E and screws A and B of the plug-module, which is facing upwards (see fig. 2 on page 12) have to be fixed.

13. To indicate that the firmware has been updated, a label should be attached to the lower side of the ZPH-processor board. Use the supplied label and fix it on a suitable location (e.g. covering the former label).

14. Insert the DVH module into the housing; ensure that the module is firmly pushed in.

15. Carefully re-connect the ribbon cables which connect the DVH-module (see fig. 1, pos (2) on page 12) with the other modules.
    Then re-connect the ribbon cables from the front panel; take care for correct polarity:
    - from the operational interface
    - from the LCD-display
    - from the membrane keyboard

16. The update should now also be indicated externally by the appropriate label on the inner side of the door of the housing. Use the supplied new label to replace the previous invalidated label.

    If the firmware is updated from V2.** to version V3.**, the MLFB-code on the nameplate (underneath the operator panel) should be modified. Correct the 11th position of the MLFB code in accordance with the newly installed version V3 (using a water-resistant pen):

    - for Version V3.** ---> 11th MLFB position = 2 : 7SA513*-***2*-****

17. Close the front door of the relay.

18. The two screws of the front door have to be fixed (see No. 6).

19. Switch on the device.

    After switching on the DC power supply, there are two possibilities of response:

20. **Possibility 1:** The device switches into monitor mode (after 30 sec. max.).

Display:	MONITOR-EINSTIEG FEHLERREAKTION	MONITOR-START ORIG. START NEC.

    Continue with No. 22

21. **Possibility 2:** Start-up of device:

Press:	CW	CW
Display:	CODEWORTEINGABE:	ENTER CODEWORD
Press:	333333	333333
Display:	@@@@@@	@@@@@@
Press:	E	E
Display:	CW AKZEPTIERT	CW ACCEPTED
Press:	DA	DA
Display:	DIREKTE ADRESSE	DIRECT ADDRESS
Press:	9802	9802

	E	E
Display:	9802 MONITOR START ?	9802 MONITOR START ?
Press:	J/Y	J/Y

On the display appears:

Display:	MONITOR EINSTIEG BEDIENUNG	MONITOR-START INTEGR. OPERAT.

22. In the monitor mode, please press down the keys slowly and firmly.

Press:	CW	CW
Display:	CODEWORTEINGABE:	ENTER CODEWORD:
Press:	000000	000000
Display:	@@@@@@	@@@@@@
Press:	E	E
Display:	CW AKZEPTIERT	CW ACCEPTED
Press:	E	E
Display:	MONITOR V3.1 FUNKTIONSAUSWAHL	MONITOR V3.1 FUNCT. CHOICE
Press:	⇑	⇑

several times until

Display:	FUNKTIONSAUSWAHL URANLAUF	FUNCT. CHOICE ORIGINAL START

appears

Press:	E	E
Display:	CODEWORTEINGABE:	ENTER CODEWORD:
Press:	333333	333333
Display:	@@@@@@	@@@@@@
Press:	E	E
Display:	CW AKZEPTIERT	CW ACCEPTED
Press:	E	E
Display:	URANLAUF START	ORIGINAL START BEGIN

Within the next 90 sec. the display changes to

Display:	URANLAUF ENDE	ORIGINAL START END

After approx. 20 sec. the relay starts automatically and on the display appears:

Display:	0 7SA513 V3.31 7SA513****2*****	0 7SA513 V3.31 7SA513****2*****

The display indicates the new implemented firmware version (according to **V3.31** and the MLFB number *) of the device.

*) Please note: For updates V2.XX --> V3.XX, the 11th position of the MLFB-code for V3 has changed to cipher „ **2** “ (for V2 cipher „ 1 “). The other positions are unchanged.

Note:

The modules have to be ordered in accordance to the MLFB-No. of the device!

As against the versions V2.1X/V2.2X the monitoring functions (which are preventing readiness of service of the device in case of respond) concerning auxiliary supply monitoring and hardware extension have been intensified. Therefore, the following point has to be checked prophylactically.

- 5V-auxiliary supply: At some devices SA513, the 5V-auxiliary supply has been balanced at the upper tolerance limit. This can effect; that in certain circumstances the internal supply monitoring is responding.
  Up to V12, only registrations in the process signal buffer were ensued, but the functions of the device were without affection.
  With versions V2.2X/V3.XX, the device is switching in the blocking mode when the 5V-monitoring is responding.
  Help: Check/adjustment of the 5V-auxiliary supply (see No. 26).

23. After successful start, the green LED is illuminated to indicate readiness of service.
    The display shows the MLFB-code of the device indicating the newly installed firmware.

    The settings stored in the device are the **original factory settings**.

24. The device is now ready for normal commissioning.

25. The replaced EPROMs must be properly disposed of.

In written inquiries, please always specify the serial number and the complete MLFB code for the device/component in question.

26. **Measures for note-position „5V-auxiliary supply“ (No. 23 of this information):**

For check/adjustment of the 5V-auxiliary supply, the door of the housing must be opened.

26.1 Switch off the primary power supply.

26.2 Remove the bus plug **-X11** from the power supply module **SVH** (see fig. 1).

26.3 Connect a digital-voltmeter to pin 2 (positive pole ´+5V) and pin 5 (negative pole ´M5V) of the plug connector X11 (SVH-module). Pin-location see fig. 1.

26.4 Switch on the power supply.

26.5 The measured voltage must be **5,00 Volt**. The tolerance is **+ 0,150 Volt**.

26.6 If the voltage is within the tolerance, go to No. **26.14**.

26.7 Voltage too high or too low?

26.8 Switch off the power supply.

26.9 Pull out the SVH-module out of the housing for approx. 6 cm.

26.10 Adjust **potentiometer R15** with a suitable screwdriver or balancing pin threw the drilled hole of the right SVH-module:

- Voltage too high --> Adjust the potentiometer approx. 5° clockwise.
- Voltage too low --> Adjust the potentiometer approx. 5° anti-clockwise.

26.11 Push the SVH-module back into the housing.

26.12 Switch on the power supply.

26.13 Go on with No. 26.5.

26.14 Switch off the power supply.

26.15 Replace the bus plug **-X11** to the plug connector X11 of the power supply module **SVH** (see fig. 1).

26.16 The check/adjustment of the 5V-auxiliary supply is finished.

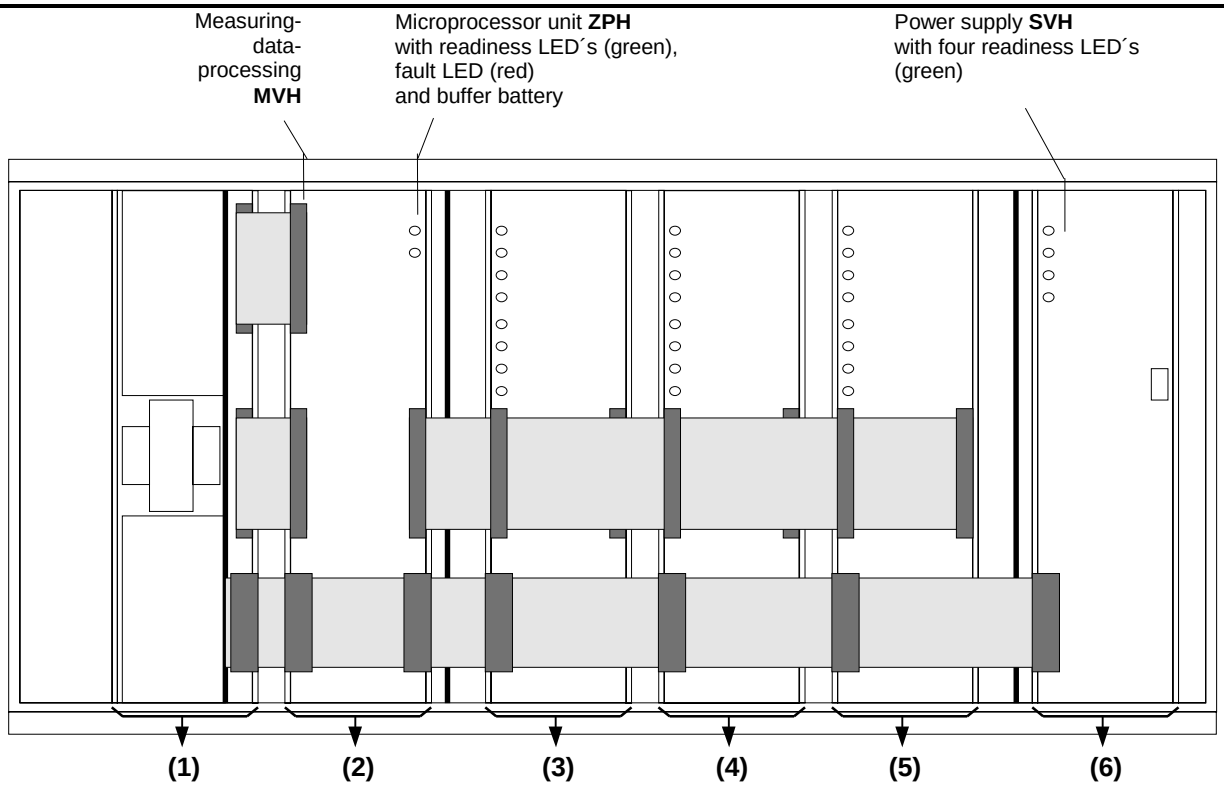


Figure 1: Front view of 7SA513 with open front door (simplified and reduced),
Module **(2)** ---> **DVH** (Digitale Verarbeitung Höchstspannung)

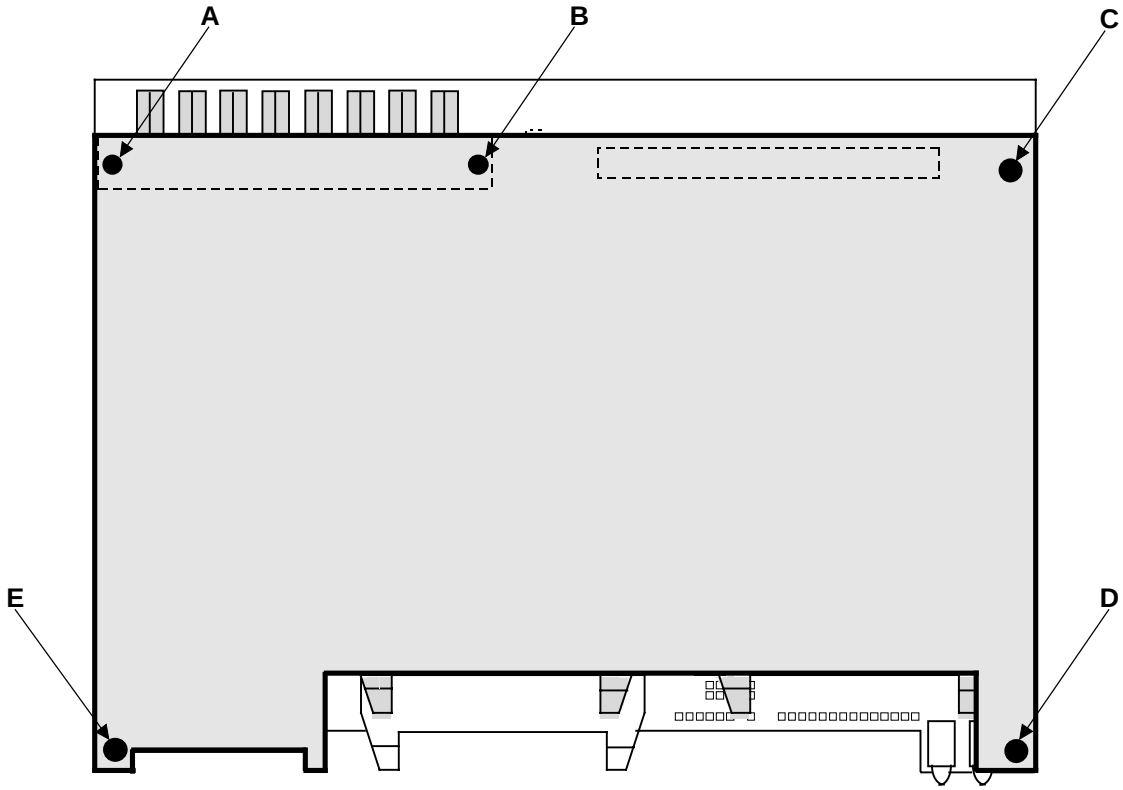


Figure 2: DVH module, view to MVH-p-c board (flow-soldered side)
Position of the screws (C, D, and E) and plug connector (A, B)

				Date	22.04.1999
				Name	Röse
1H	firmware	26.06.01	ZC	Tested	Claus
1G	firmware	11.04.01	ZC	Stand.	
1D	firmware	22.04.99	Rö	(readme_EPROM_BB_EE.doc)	
1C	firmware	07.01.99	Rö	**SIEMENS AG**	
1B	firmware	07.01.99	Rö	PTD PA D SI	
1A	first issue	06.01.99	Rö	Power Transmission and Distribution	
Iss.	Type of notice	Date	Name		

Service-Information

7SA513 /BB.../EE V1/V2/V3.XX --> V3.31

Firmware update via EPROM exchange

C53000-A1000-X015-1H-7620

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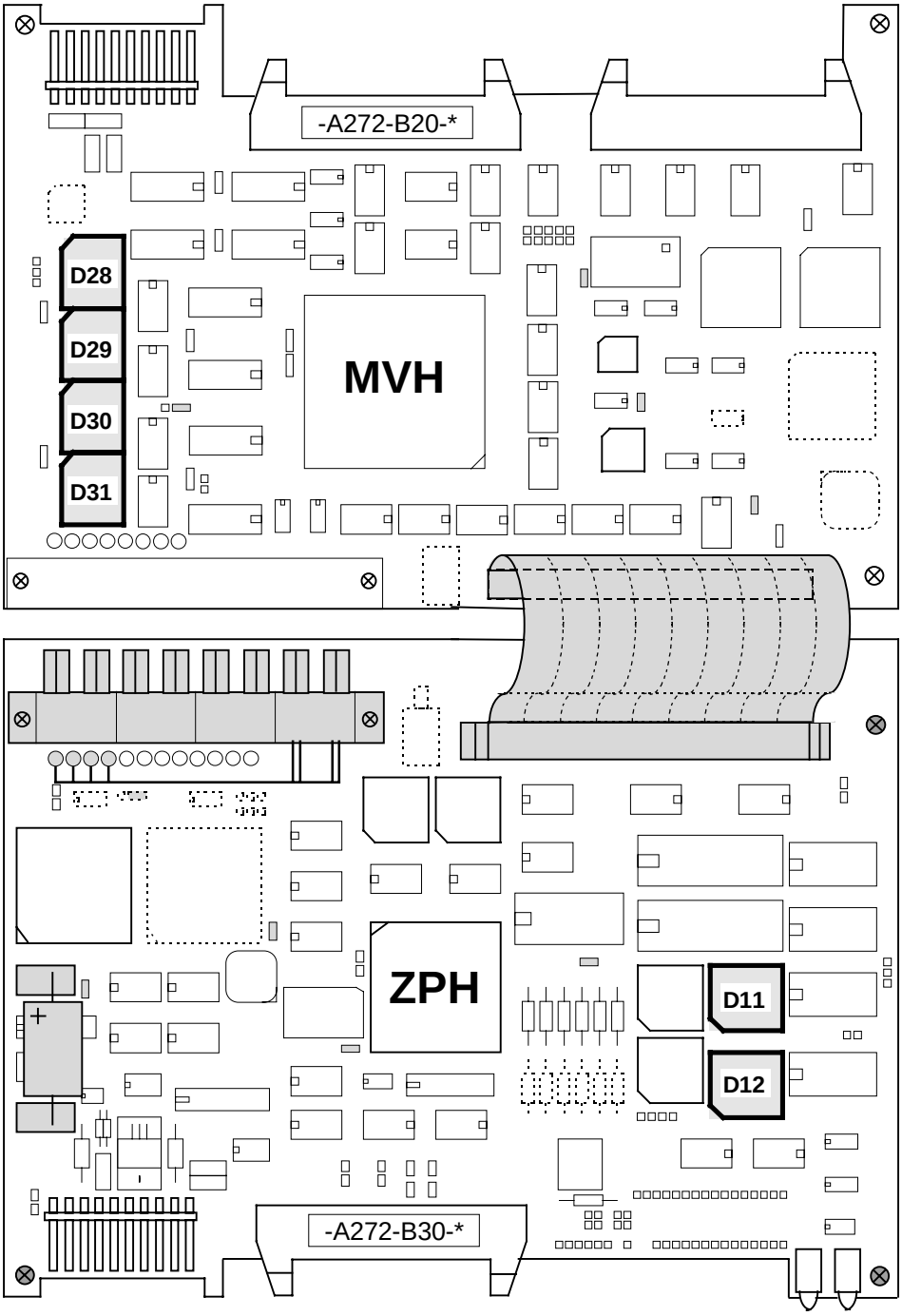

Figure 3: Opened DVH module: ZPH- and MVH module, component-side
Position of ZPH-EPROM´s: D11, D12
Position of MVH-EPROM´s: D28, D29, D30, and D31

				Date	22.04.1999
				Name	Röse
1H	firmware	26.06.01	ZC	Tested	Claus
1G	firmware	11.04.01	ZC	Stand.	
1D	firmware	22.04.99	Rö	(readme_EPROM_BB_EE.doc)	
1C	firmware	07.01.99	Rö	**SIEMENS AG**	
1B	firmware	07.01.99	Rö	PTD PA D SI	
1A	first issue	06.01.99	Rö	Power Transmission and Distribution	
Iss.	Type of notice	Date	Name		

Service-Information

7SA513 /BB.../EE V1/V2/V3.XX --> V3.31

Firmware update via EPROM exchange

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WARNING !

Dangerous voltages may occur in devices and modules during operation depending on the design and application. Incorrect use of these devices can therefore result in severe personal injury or substantial damage to property.

Only suitably qualified staff should work on this device.

Correct and safe operation of this device is dependent on proper handling, installation, operation and maintenance.

Should you require further information, or should particular problems occur which are not handled in sufficient depth in the Instructions, help can be requested through your local SIEMENS Office or representative.

QUALIFIED PERSON

A "qualified person" is one who is familiar with the installation, construction and operation of the device and who has the appropriate qualifications, e.g.

- is trained and authorized to operate and maintain devices/systems in accordance with established safety practices for devices with electrical circuits.
- is trained in the proper care and use of protective equipment in accordance with established safety practices.
- is trained in first aid.

WARNUNG !

Beim Betrieb können in Geräten und Baugruppen je nach Ausführung und Anwendung gefährliche elektrische Spannungen. Unsachgemäßer Umgang mit diesen Geräten kann deshalb zu schweren Körperverletzungen oder erheblichen Sachschäden führen.

Nur entsprechend qualifiziertes Personal sollte an diesem Gerät arbeiten.

Der einwandfreie und sichere Betrieb dieses Gerätes setzt sachgemäßen Transport, fachgerechte Lagerung, Aufstellung und Montage sowie sorgfältige Bedienung und Instandhaltung voraus.

Sollten Sie weitere Informationen wünschen, oder sollten besondere Probleme auftreten, die in der Anleitung nicht ausführlich genug behandelt werden, können Sie die erforderliche Auskunft über die örtliche Siemens-Niederlassung anfordern.

QUALIFIZIERTES PERSONAL

sind Personen, die mit Aufstellung, Montage, Inbetriebsetzung und Betrieb des Produktes vertraut sind und über entsprechende Qualifikationen verfügen, wie z.B.:

- Ausbildung oder Unterweisung bzw. Berechtigung Geräte/Systeme gemäß den Standards der Sicherheitstechnik für elektrische Stromkreise zu betreiben und zu warten.
- Ausbildung oder Unterweisung gemäß den Standards der Sicherheitstechnik in Pflege und Gebrauch angemessener Sicherheitsausrüstung
- Schulung in Erster Hilfe

Subject to change without prior notice !