

ACS800 HOW TO REMOVE THE EMC-RFI FILTERING WHEN USED ON AN UNGROUNDED IT NETWORK

Description:

This will provide information on how to remove the EMC-RFI filtering in the ACS800 drive when used on an ungrounded IT network.

Answer:

ACS800-01/U1 units with RFI filtering can be used in ungrounded or high resistance-grounded (over 30 ohms) network, if the grounding of the EMC filter capacitors is disconnected before installing the unit to the network. This document describes the modifications required on ACS800 – 01/U1 units with RFI filtering. Units with RFI filtering can be recognized from the option code '**+E202**' (first environment) or '**+E200**' (second environment) in the type code key. For example

ACS800-01-0020-5+E202 or ACS800-U1-0020-5+E202

Note! In some types there could be also plus code **+E210** (second environment), which can be used both earthed and unearthed network (No modification needed). Units with these option codes have an RRFC filter board for meeting the EMC requirements. The instructions below describe how to find and remove the earthing screw(s) of the EMC capacitors on the RRFC board.

For the frame sizes, R2 and R3 the metal screw must be replaced by a plastic one delivered with the unit (figure 1). Units of frame size R6 ordered before 28.4.2003 with EMC-option +E200 have been delivered including the EMC-option +E202. In these units, the metal screws have to be removed in IT Networks. Units manufactured after this period (serial number starting from 10317xxxxx) are delivered without the EMC-option +E202, and therefore there is no need to remove the metal screws from these R6 units.

NOTE: If the EMC capacitors of the RRFC board are connected to ground via the earthing screw(s) and the ACS800 unit is installed in the IT (ungrounded or high resistance-grounded) network, the whole network will be grounded to earth potential via the EMC capacitor grounding of the unit. This may damage the unit.

Author: Jeff Fell – Application Eng.		Date: 10, 2012
External http://www.abb.us/drives .	Industry – Industrial, HVAC or PLC	Document #: LVD-EOTN32U-EN
Product Categories: ACS800		Revision: A

Figure 1: The plastic screw delivered with inverters of frame size R2 and R3.



Frame R2

Replace the screw **GND2** on the lower right corner of the RRFC board with the plastic one. Notice the letter 'i' beside the screw in the skeleton. See Figure 2 below.

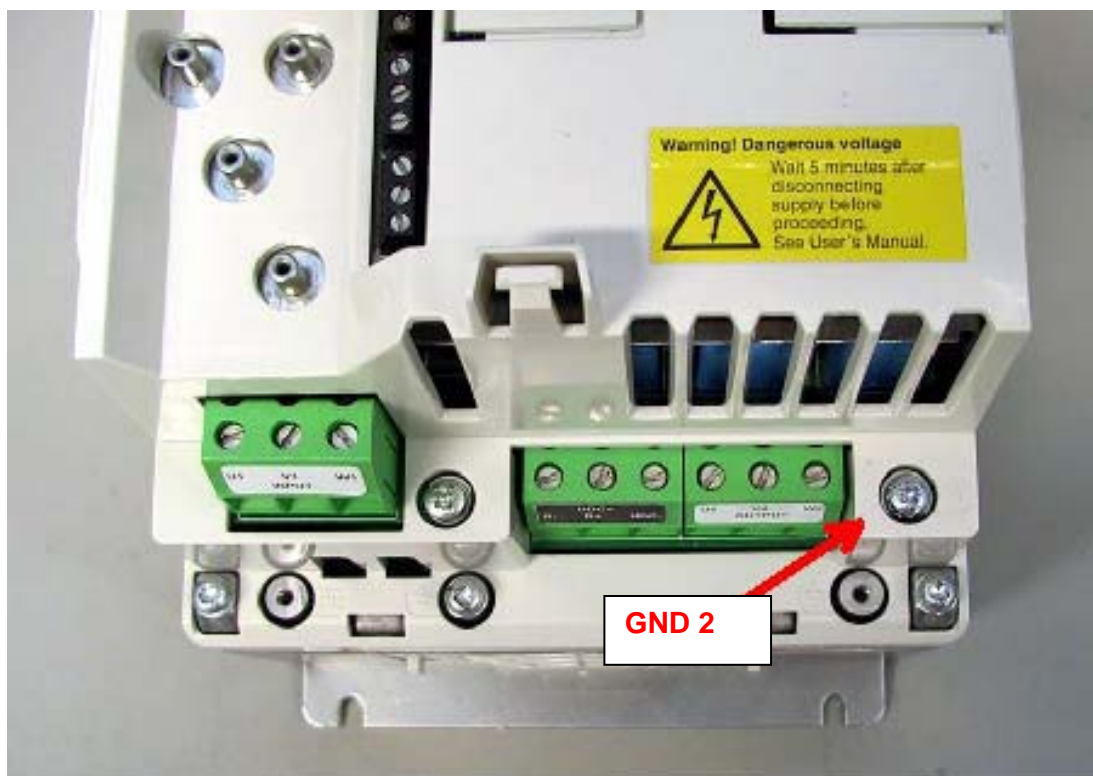


Figure 2: Earthing screw **GND2** of the EMC capacitors in ACS800-01/U1 frame size R2.

Author: Jeff Fell – Application Eng.		Date: 10, 2012
External http://www.abb.us/drives .	Industry – Industrial, HVAC or PLC	Document #: LVD-EOTN32U-EN
Product Categories: ACS800		Revision: A

Frame R3

Replace the screw **GND2** on the lower right corner of the RRFC board with the plastic one. Notice the letter 'i' beside the screw in the skeleton. See Figure 3 below.



Figure 3: Earthing screw **GND2** of the EMC capacitors in ACS800-01/U1 frame size R3.

Author: Jeff Fell – Application Eng.		Date: 10, 2012
External http://www.abb.us/drives .	Industry – Industrial, HVAC or PLC	Document #: LVD-EOTN32U-EN
Product Categories: ACS800		Revision: A

Frame R4

Remove the RRFC board earthing screws **X5** and **X7**. See Figure 4 below.

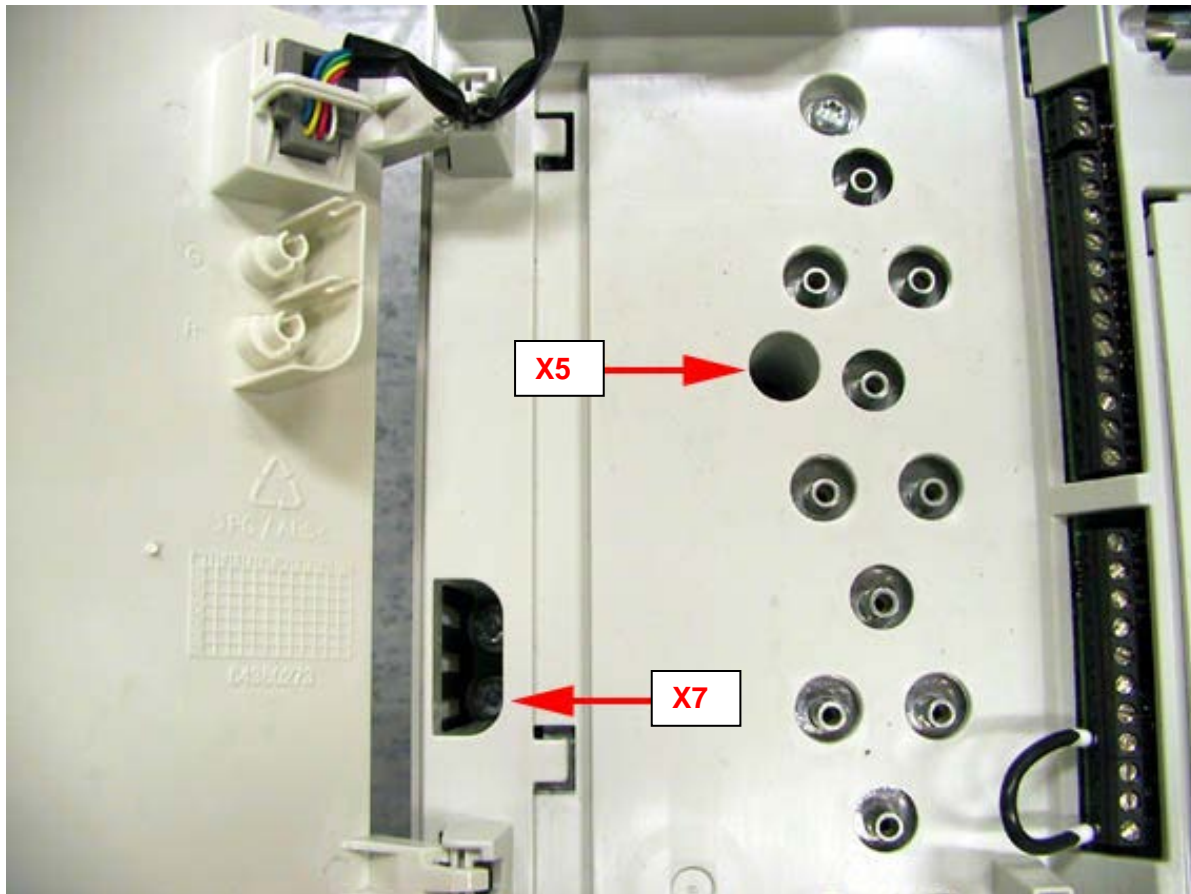


Figure 4: Earthing screws **X5** and **X7** of the EMC capacitors in ACS800-01/U1 frame size R4.

Author: Jeff Fell – Application Eng.		Date: 10, 2012
External http://www.abb.us/drives .	Industry – Industrial, HVAC or PLC	Document #: LVD-EOTN32U-EN
Product Categories: ACS800		Revision: A

Frame R5

Remove the RRFC board earthing screws **X2** and **X3**. Notice texts “**Filter Connector 1**” and “**Filter Connector 2**” in the skeleton beside these screws. See Figure 5 below.

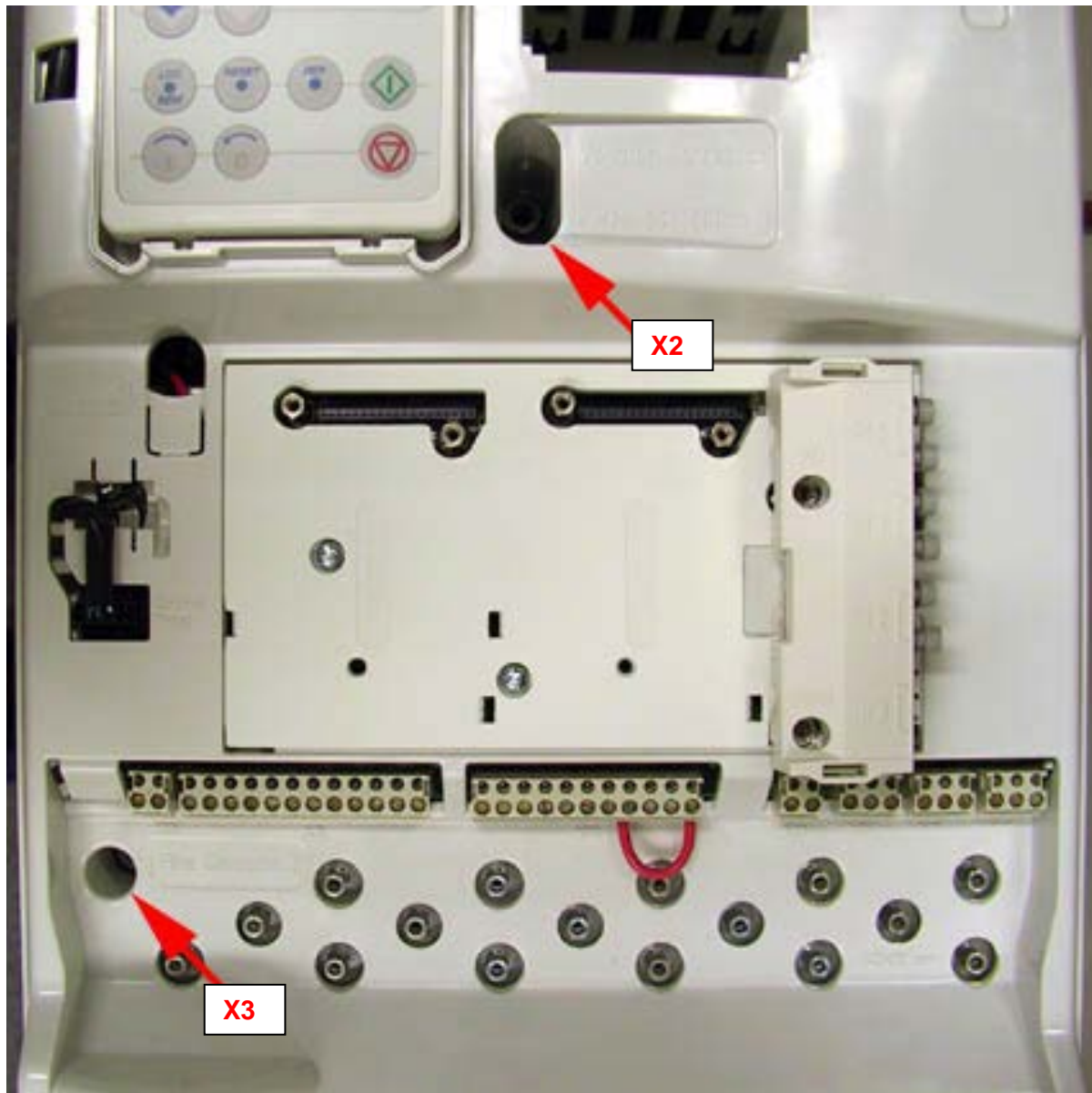


Figure 5: Earthing screws **X2** and **X3** of the EMC capacitors in ACS800-01/U1 frame size R5.

Author: Jeff Fell – Application Eng.		Date: 10, 2012
External http://www.abb.us/drives .	Industry – Industrial, HVAC or PLC	Document #: LVD-EOTN32U-EN
Product Categories: ACS800		Revision: A

Frame R6

Remove the RRFC board earthing screws “**Filter Connector 1**” and “**Filter Connector 2**”. The position of the screws is shown in figures 6.1 - 6.3 below.



Figure 6.1: RFI earthing screws in frame R6.

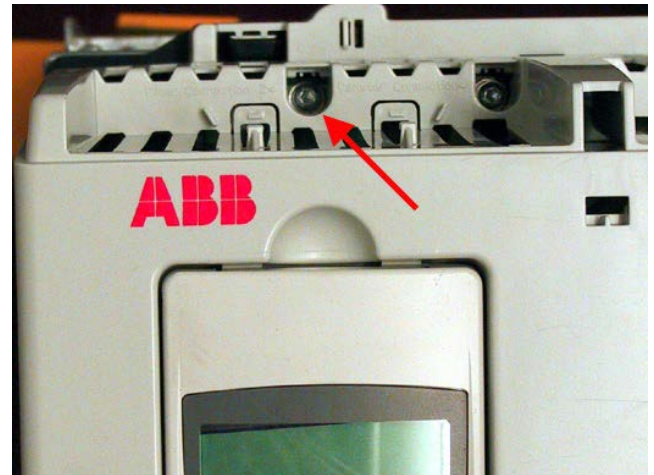


Figure 6.2: RFI earthing screws in frame R6

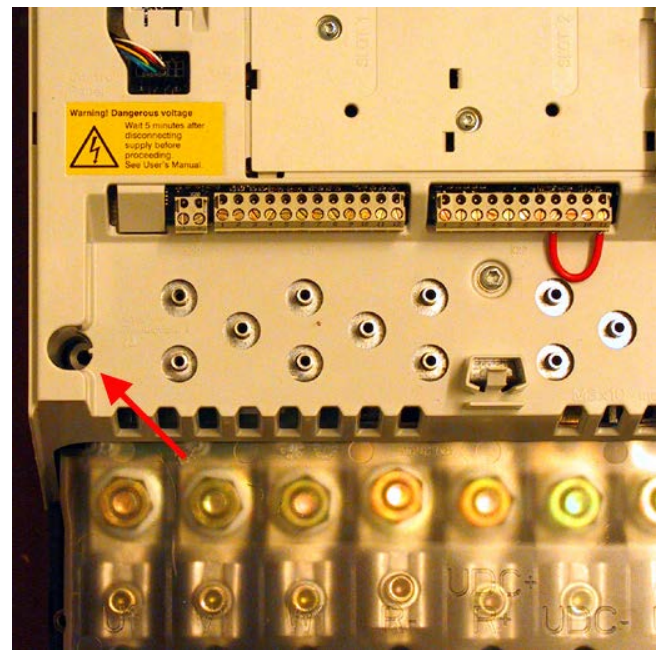


Figure 6.3: RFI earthing screws in frame R6.

Author: Jeff Fell – Application Eng.		Date: 10, 2012
External http://www.abb.us/drives .	Industry – Industrial, HVAC or PLC	Document #: LVD-EOTN32U-EN
Product Categories: ACS800		Revision: A

Documents or other reference material:

None

Corrective Actions:

None

Author: Jeff Fell – Application Eng.		Date: 10, 2012
External http://www.abb.us/drives .	Industry – Industrial, HVAC or PLC	Document #: LVD-EOTN32U-EN
		Revision: A
Product Categories: ACS800		