

ABB Drives			ACS800 HINT Operating Instruction			3AXD00000168163 00168163_E.doc	
Dept.	Project	Date	Author	Status	Revision	Page	
	ACS800	2.Jan. 2012	PE-team	Approved	E	1 / 7	

EMC filter disconnection, ACS800-01, -U1, -04 frames R2-R6

Modifications to RFI filtering when used in IT (ungrounded/unearthed) Networks

ACS800 drive units in frame sizes R2-R6 with option codes (+E2xx) have an RRFC filter board for meeting the EMC requirements. These units with RFI filtering can be used in ungrounded/unearthed or high resistance-grounded/earthed (over 30 ohms) network, **if the grounding/earthing of the EMC filter capacitors is disconnected before installing the unit to the network.**

The instructions below describe the modifications required on drives with RFI filtering when used in IT (ungrounded networks).

Units with RFI filtering can be recognized from the option code in the drive type. The following RFI filter options exists with +E2xx option codes:

+E202 RFI filter option for earthed/grounded networks. Category C2 (first environment). Available with frame sizes R2-R6.

+E200 RFI filter option for earthed/grounded networks. Category C3 (second environment). Available with frame sizes R2-R5. (R6: +E210).

+E210 RFI filter option for earthed/grounded and ungrounded/unearthed networks. Category C3 (second environment). Available with frame size R6.

Note:

Drive units without +E2xx EMC filter option are suitable to be used in grounded/earthed and ungrounded/unearthed networks without modifications.

+E210 (second environment) EMC filter can be used both grounded and ungrounded network without filter disconnection.

If the EMC capacitors of the RRFC board are connected to ground/earth 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 drive unit.

ABB Drives			ACS800 HINT Operating Instruction			3AXD00000168163 00168163_E.doc	
Dept.	Project	Date	Author	Status	Revision	Page	
	ACS800	2.Jan. 2012	PE-team	Approved	E	2 / 7	

Frame R2, EMC filter disconnection, ACS800-01, -U1, -04

Modification needed to drives with option

+E202 RFI filter option for earthed/grounded networks. Category C2 (first environment)

or

+E200 RFI filter option for earthed/grounded networks. Category C3 (second environment).

The metal screw must be replaced by a plastic one delivered with the unit (figure 1.1).

The plastic screw is located in the control board installation fittings bag (figure 1.2) delivered with the drive. Spare part code for installation fittings is 64531484



Figure 1.1: The plastic screw delivered with inverters of frame size R2 and R3.



Figure 1.2: The plastic screw delivered with inverters of frame size R2 and 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 2 below.

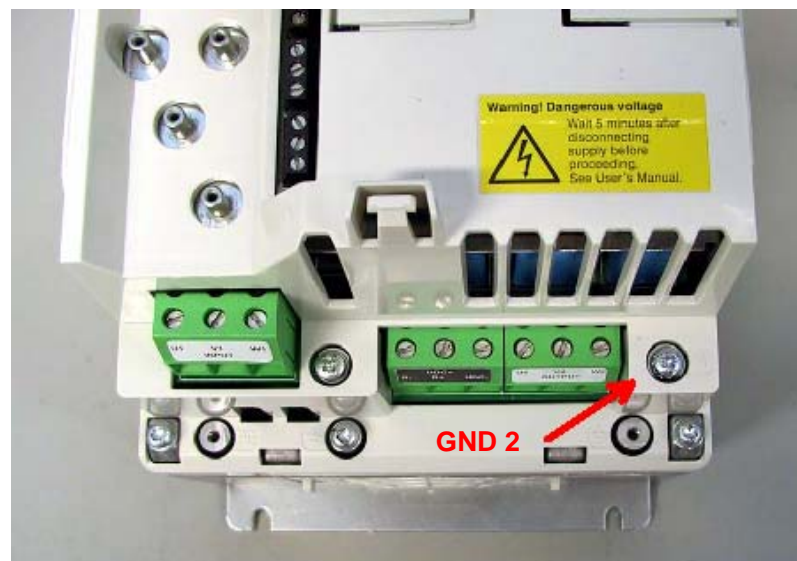


Figure 2: Earthing screw **GND2** of the EMC capacitors in ACS800-01 frame size R2.

ABB Drives			ACS800 HINT Operating Instruction			3AXD00000168163 00168163_E.doc	
Dept.	Project	Date	Author	Status	Revision	Page	
	ACS800	2.Jan. 2012	PE-team	Approved	E	3 / 7	

Frame R3, EMC filter disconnection, ACS800-01, -U1, -04

Modification needed to drives with option

+E202 RFI filter option for earthed/grounded networks. Category C2 (first environment)

or

+E200 RFI filter option for earthed/grounded networks. Category C3 (second environment).

The metal screw must be replaced by a plastic one delivered with the unit (figure 3.1).

The plastic screw is located in the control board installation fittings bag (figure 3.2) delivered with the drive. Spare part code for installation fittings is 64531484



Figure 3.1: The plastic screw delivered with inverters of frame size R2 and R3.



Figure 3.2: The plastic screw delivered with inverters of frame size R2 and 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 4.3 below.



Figure 4.3: Earthing screw **GND2** of the EMC capacitors in ACS800-01 frame size R3.

ABB Drives			ACS800 HINT		3AXD00000168163	
			Operating Instruction		00168163_E.doc	
Dept.	Project	Date	Author	Status	Revision	Page
	ACS800	2.Jan. 2012	PE-team	Approved	E	4 / 7

Frame R4, EMC filter disconnection, ACS800-01, -U1, -04

Modification needed to drives with option

+E202 RFI filter option for earthed/grounded networks. Category C2 (first environment)

or

+E200 RFI filter option for earthed/grounded networks. Category C3 (second environment).

Remove the RRFC board earthing screws **X5** and **X7**. See Figure 5 below.

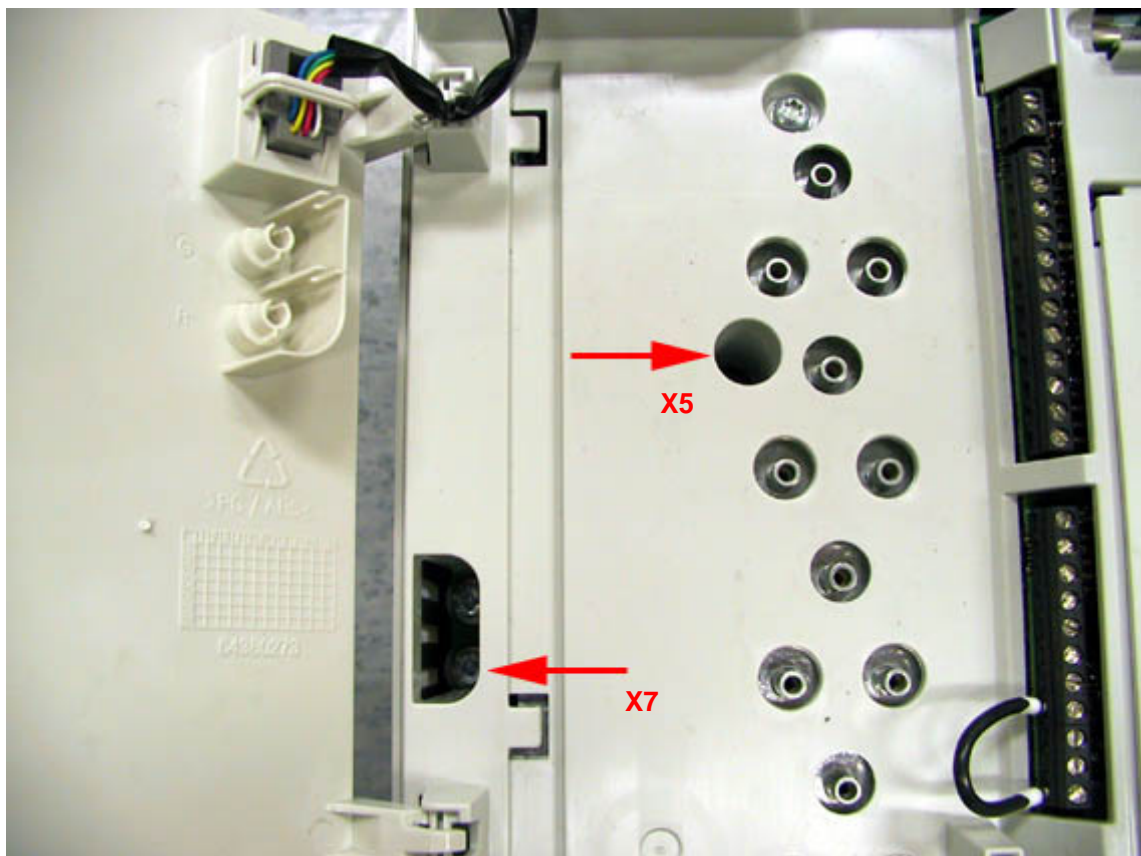


Figure 5: Earthing screws **X5** and **X7** of the EMC capacitors in ACS800-01 frame size R4.

Note:

X7 earthing screw is missing in some type/voltage rated drive units.

ABB Drives			ACS800 HINT Operating Instruction			3AXD00000168163 00168163_E.doc	
Dept.	Project	Date	Author	Status	Revision	Page	
	ACS800	2.Jan. 2012	PE-team	Approved	E	5 / 7	

Frame R5, EMC filter disconnection, ACS800-01, -U1, -04

Modification needed to drives with option

+E202 RFI filter option for earthed/grounded networks. Category C2 (first environment)

or

+E200 RFI filter option for earthed/grounded networks. Category C3 (second environment).

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 6 below.

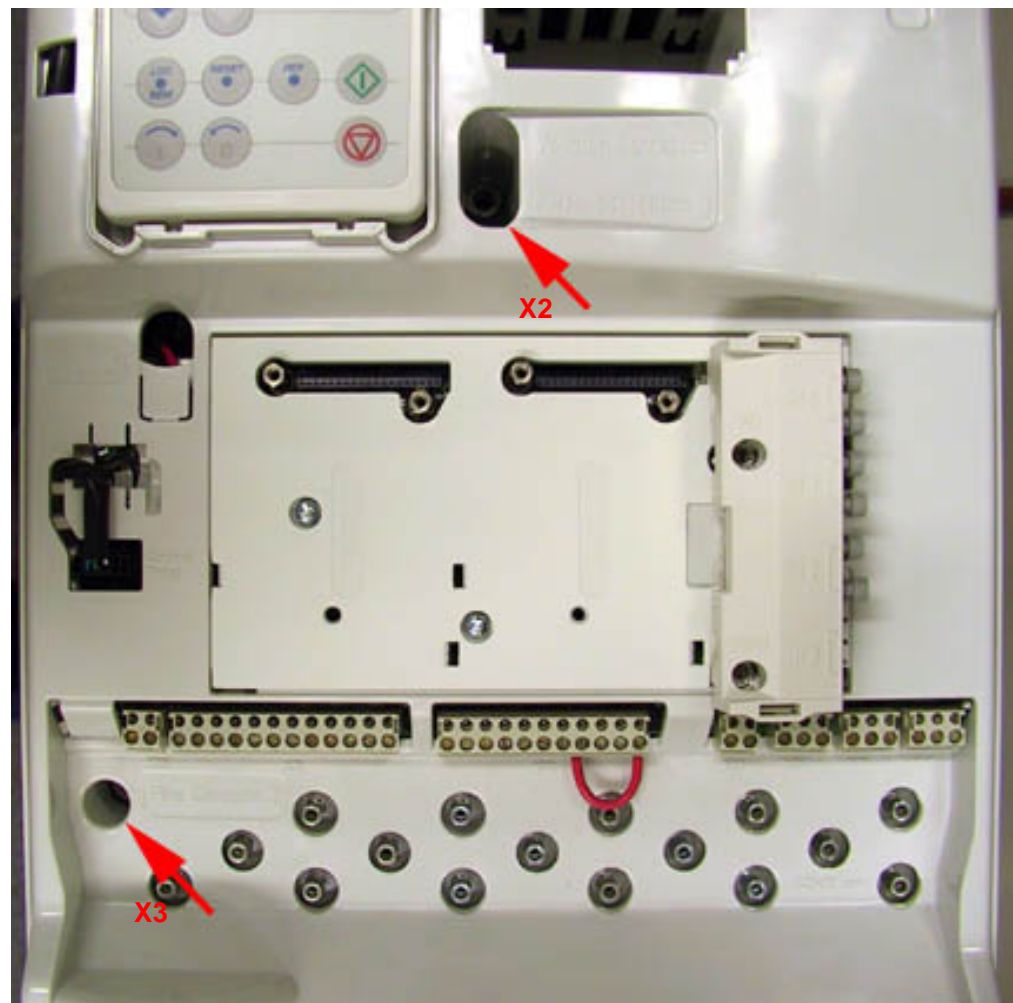


Figure 6: Earthing screws **X2** and **X3** of the EMC capacitors in ACS800-01 frame size R5.

Note:

X3 earthing screw is missing in some type/voltage rated drive units.

ABB Drives			ACS800 HINT Operating Instruction			3AXD00000168163 00168163_E.doc	
Dept.	Project	Date	Author	Status	Revision	Page	
	ACS800	2.Jan. 2012	PE-team	Approved	E	6 / 7	

Frame R6, EMC filter disconnection, ACS800-01, -U1, -04

Modification not possible or needed to drives with option

+E210 RFI filter option for earthed/grounded and ungrounded/unearthed networks. Category C3 (second environment). Available with frame size R6.

Note:

+E210 (second environment) EMC filter can be used both grounded and ungrounded network without filter disconnection.

Modification needed to drives with option

+E202 RFI filter option for earthed/grounded networks. Category C2 (first environment).

+E200 RFI filter option not available with R6 frame. See exception below.

Exception:

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. Follow the disconnection procedure described below.

R6 units with EMC-option +E200 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.

Remove the RRFC board earthing screws "**Filter Connector 1**" and "**Filter Connector 2**". The position of the screws is shown in figures 7.1 - 7.3 below.

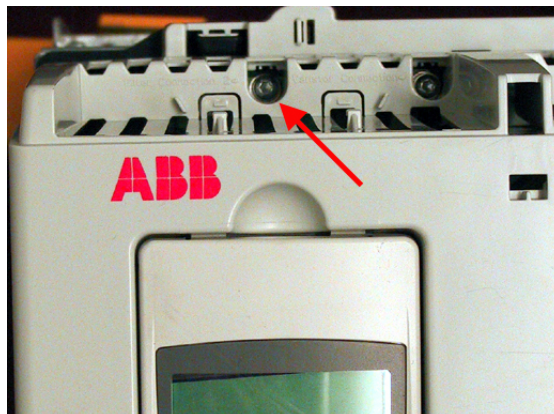


Figure 7.1: Filter Connector 2.

ABB Drives			ACS800 HINT		3AXD00000168163	
			Operating Instruction		00168163_E.doc	
Dept.	Project	Date	Author	Status	Revision	Page
	ACS800	2.Jan. 2012	PE-team	Approved	E	7 / 7

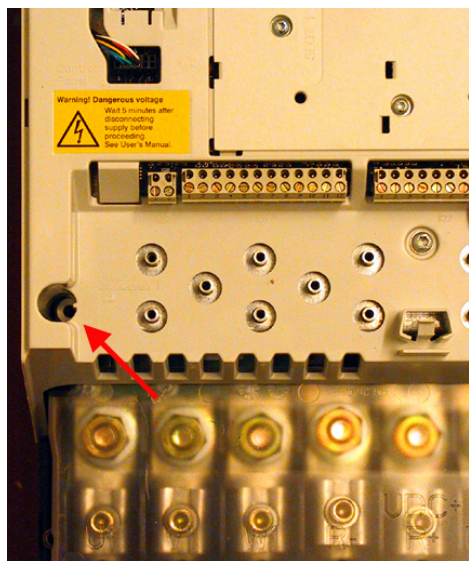


Figure 7.2: Filter Connector 1.



Figure 7.3: RFI earthing screws in the frame R6.

Note:

Earthing screw or screws may be missing in some type/voltage rated drive units.