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Altivar 61-71

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1. In General

1.1 Objective

The present document defines the policies and the methods of implementation of local repair for the Altivar 61/71.

The repair will be done by the replacement of defective parts by new components furnished by SCHNEIDER. It lies exclusively within the scope of the GRAP (Guarantee Return Analysis Process) project.

1.2 Concerned Products

Catalogue number structure IP20:

ATV71 H D18 N4 Z
 1 2 3 4 5



1 – Product family

ATV71: variable speed drive for asynchronous three phase motors.
 ATV61: variable speed drive for asynchronous three phase motors.

2 – Variations of the technology

H: standard product on a heatsink.
 E5: ≤ 75 kW (with switch).
 E5: ≥ 90 kW (with switch + fast acting fuses).
 P: product on base plate (only for ATV71).

3- Rating

The rating is expressed in motor kW.
 The letter of the prefix gives the position of the decimal point.
 0: 0.01
 U: 0.1
 D: 1
 C: 10

4 – Distribution network

N4: 380- 480V three phase.
 M3: 200-240V three phase.
 Y: 690V three phase.

5 – Terminal

Nothing: Removable graphic terminal included.
 Z: Only integrated 7 segment terminal (only up to 75KW).

6 – EMC filter

Nothing: Class A EMC filter integrated.
 X: without integrated EMC filter.

7 – Specification for aggressive ambient

Nothing: standard protection.
 337: protected by conformable coating.

Catalogue number structure IP54:

ATV61 W U N4 Z
1 2 3 4 5



1 – Product family

ATV71: variable speed drive for asynchronous three phase motors.
 ATV61: variable speed drive for asynchronous three phase motors.

2 – Variations of the technology

W: IP54
 E5: ≤ 75 kW (with switch)
 E5: ≥ 90 kW (with switch + fast acting fuses)

3- Rating

The rating is expressed in motor kW. The letter of the prefix gives the position of the decimal point.

0: 0.01
 U: 0.1
 D: 1

4 – Distribution network

N4: 380- 480V three phase

5 – EMC filter

Nothing: Class A EMC filter integrated
 Z: Only integrated 7 segment terminal (only up to 75KW)
 C: Drive class B
 A24: Drive with power supply allowing an additional consumption of 250mA.
 C24: Drive class B with power supply allowing an additional consumption of 250mA.
 337: Protected by conformable coating.

IP20 Frame Size	Catalogue Number
T 2	ATV71H037M3, ATV71H075M3, ATV71HU15M3, ATV71H075N4, ATV71HU15N4, ATV71HU22N4 ATV61H075M3, ATV61HU15M3, ATV61H075N4, ATV61HU15N4, ATV61HU22N4
T 3	ATV71HU22M3, ATV71HU30M3, ATV71HU40M3, ATV71HU30N4, ATV71HU40N4 ATV61HU22M3, ATV61HU30M3, ATV61HU40M3, ATV61HU30N4, ATV61HU40N4
T 4	ATV71HU55M3, ATV71HU55N4, ATV71HU75N4, ATV61HU55M3, ATV61HU55N4, ATV61HU75N4
T 5A	ATV71HU75M3, ATV71HD11N4
T 5B	ATV71HD11M3X, ATV71HD15M3X, ATV71HD15N4, ATV71HD18N4 ATV61HD11M3X, ATV61HD15M3X, ATV61HD15N4, ATV61HD18N4
T 6	ATV71HD18M3X, ATV71HD22M3X, ATV71HD22N4 ATV61HD18M3, ATV61HD22M3, ATV61HD22N4
T 7A	ATV71HD30N4, ATV71HD37N4, ATV61HD30N4, ATV61HD37N4 ATV71HD30M3X, ATV71HD37M3X, ATV71HD45M3X, ATV61HD30M3X, ATV61HD37M3X, ATV61HD45M3X
T 7B	ATV71HD30M3X, ATV71HD37M3X, ATV71HD45M3X
T 8	ATV71HD45N4, ATV71HD55N4, ATV71HD75N4 ATV61HD45N4, ATV61HD55N4, ATV61HD75N4
T 9	ATV71HD55M3X, ATV71HD90N4 ATV61HD55M3X, ATV61HD75M3X, ATV61HD90N4, ATV61HC11N4
T 10	ATV71HD75M3X, ATV71HC11N4, ATV61HD90M3, ATV61HC13N4
T 11	ATV71HC13N4, ATV61HC16N4
T 12	ATV71HC16N4, ATV61HC22N4
T 13	ATV71HC20N4, ATV71HC25N4, ATV71HC28N4, ATV61HC25N4, ATV61HC31N4
T 14	ATV71HC31N4, ATV71HC40N4, ATV61HC40N4, ATV61HC50N4
T 15	ATV71HC50N4, ATV61HC63N4

IP54 Frame Size	Catalogue Number
A2	ATV71W0.37N4, ATV71WU15N4, ATV71WU22N4, ATV61W0.75N4, ATV61W0.75N4C, ATV61WU15N4, ATV61WU15N4C, ATV61WU22N4, ATV61WU22N4C, ATV61WU30N4, ATV61WU30N4C
A3	ATV71WU30N4, ATV71WU40N4, ATV61WU40N4, ATV61WU40N4C, ATV61WU55N4, ATV61WU55N4C
B	ATV71WU40N4, ATV71WU55N4, ATV61WU75N4, ATV61WU75N4, ATV61WU75N4C, ATV61WD11N4, ATV61WD11N4C
C	ATV71WD11N4, ATV61WD15N4, ATV61WD15N4C
D	ATV71WD15N4, ATV71WD18N4, ATV61WD18N4, ATV61WD18N4C, ATV61WD22N4, ATV61WD22N4C
SE	ATV61WD30N4, ATV61WD30N4C, ATV71WD22N4
SF	ATV61WD37N4, ATV61WD45N4, ATV61WD37N4C, ATV61WD45N4C, ATV71WD30N4, ATV71WD37N4
SG	ATV61WD55N4, ATV61WD75N4, ATV61WD90N4, ATV61WD55N4C, ATV61WD75N4C, ATV61WD90N4C ATV71WD45N4, ATV71WD55N4, ATV71WD75N4

690V Frame Size	Catalogue Number
S6	ATV71HU22Y, ATV71HU30Y, ATV71HU40Y, ATV71HU55Y, ATV71HU75Y, ATV71HD11Y, ATV71HD15Y, ATV71HD18Y, ATV71HD22Y, ATV71HD30Y, ATV61HU30Y, ATV61HU40Y, ATV61HU55Y, ATV61HU75Y, ATV61HD11Y, ATV61HD15Y, ATV61HD18Y, ATV61HD22Y, ATV61HD30Y
S8	ATV71HD37Y, ATV71HD45Y, ATV71HD55Y, ATV71HD75Y, ATV71HD90Y, ATV61HD37Y, ATV61HD45Y, ATV61HD55Y, ATV61HD75Y, ATV61HD90Y
S11	ATV71HC11Y, ATV71HC13Y, ATV71HC16Y, ATV61HC11Y, ATV61HC13Y, ATV61HC16Y, ATV61HC20Y
S13	ATV71HC20Y, ATV71HC25Y, ATV71HC31Y, ATV61HC25Y, ATV61HC31Y, ATV61HC40Y
S15	ATV71HC40Y, ATV71HC50Y, ATV71HC63Y, ATV61HC50Y, ATV61HC63Y, ATV61HC80Y

1.3 Product design and fabrication

All the modules as well as the accessories and software are conceived and developed by Schneider Electric or in collaboration with certain Schneider partners.

At every step of design and fabrication, the product is treated with the greatest care. The products are continually monitored to insure a high level of quality.

The ATV61/71 has been developed according to the principals of Eco-design. It meets the norms ISO-14001, ROHS, WEEE. It does not include any heavy metals, its components are recyclable.

1.4 Exchange, analysis and repair

The Altivar 61/71 is a repairable product by:

- Local repair for countries that have been trained.
- Factory repair for the other countries.

For factory repair, analysis or expert assistance, consult the Intranet site: (<http://planet.schneider-electric.com>) menu quality

1.5 Assistance

1.5.1 Intervention on site

On site, assistance will be provided by the technicians and engineers of the SCHNEIDER «services" group of the customer's country.

1.5.2 Technical support

The first level of technical support is done by the level 1 and 2 forums upon which the customer depends.

The third level of technical support is done by the Schneider Vantive intranet site: Vantive self service (<http://planet.schneider-electric.com>) then technical support & logistic or in case of emergency by the Global Help Desk direct line:

Tel: +33 (0)1 41 39 39 00

Fax: +33 (0)2 32 78 17 12

1.5.3 Customer Returns

The return of failed materials (complete products or sub-assemblies) is done following the guarantee policy of SCHNEIDER.

For any product return, fill-out and attach the following card. This form will soon be available on the Intranet.

1.5.4 Update of the installed base

In case of a major fault or the addition of new functionality, the update of products may become necessary.

In this case, information will be distributed throughout the SCHNEIDER network.

2. Required skills - training

2.1 Training

2.2.1. Customer and Schneider technical support level 1

The I.S.F. (Schneider Training Institute) organizes training courses on ATV for people to become familiar with these products and learn how to install them.

The catalogue for this course is available on the Internet site:

<http://www.schneiderformation.com>

ATV71 ISF inclass 3 days

Offer, programming and commissioning

ATV71 controller inside ISF inclass 3 days

Programming of controller inside board

2.2.2. Technical support level 2 and after sales services

The Expert training and After Sales Training are provided by STIE and reserved exclusively to Schneider people

The schedule is available on the Intranet site

<http://planet.schneider-electric.com/Intranet/planet-home.nsf>

ATV71 Expert STIE inclass 5 days

Advanced programming and commissioning, application functions

ATV71 After sales STIE inclass 3.5 days

Diagnostic, repairing, test

ATV71 After sales (690V) SEPD inclass 2 days

Diagnostic, repairing, test

ATV71 Communication GTS inclass 3 days

Communication bus applied to ATV

For more information contact STIE training department

Tel 00 33 (0) 2 32 78 11 00

Fax 00 33 (0) 2 32 78 11 64

2.2.4. Training material

Training materials are available from the following sources:

<http://planet.schneider-electric.com/Intranet/planet-home.nsf>

For more information, contact STIE training department

Tel 00 33 (0) 2 32 78 11 00

Fax 00 33 (0) 2 32 78 11 64

3. Documentation

3.1 Catalogue

English version : réf. DIA2ED2051209EN article number : 815133
 French version: ref. DIA2ED2051209FR article number: 815141

3.2 User's Guide:

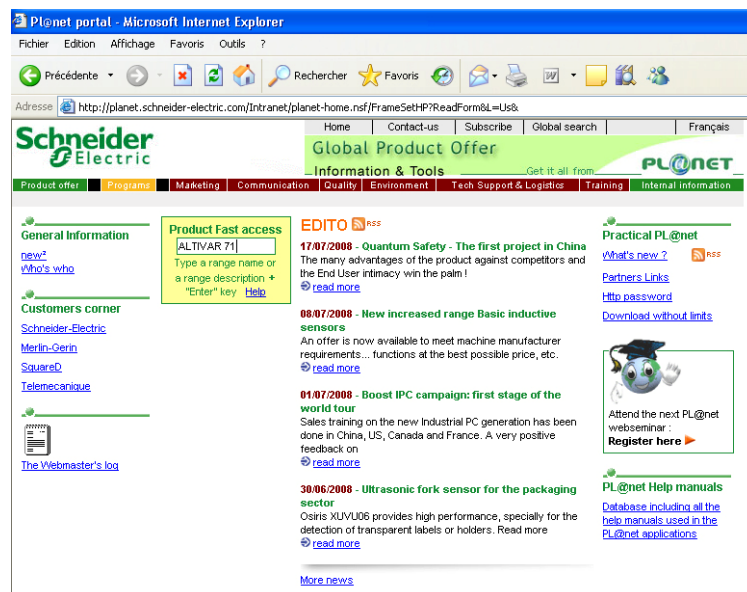
The user's guides exist on the CD-ROM delivered with the drive:

- Simplified manual
- Installation manual
- Programming manual
- Profibus manual
- Interbus manual
- Integred modbus manual
- Integred Canopen manual
- Controler inside manual
- Communication parameters

3.3 Intranet

There are two possibilities to access the data through the SCHNEIDER intranet:

- On the web site <http://planet.schneider-electric.com>
 Select "product offer", "products by organization", "Automation Business Unit", "Motion & drives".
- On the web site <http://planet.schneider-electric.com>
 Directly tape the product name



This site manages some technical and marketing information files concerning VVD products (software versions, application files ...).

3.4 Vantive

Access to this database is through the SCHNEIDER intranet.

- <http://planet.schneider-electric.com> , "technical support & logistic", "Access to Schneider Technical support".

Access to this database allows:

- Ask a precise question to have a personalised response.
 - For a country, consult its file of questions in course of response or completed.
 - Interrogate the database for all the questions already posed to find an appropriate response or a path for further research.
-

4. Repair service methods













4.1 Material








List of tools necessary to repair the ATV61-71:

➤ **General materials:**

Multimeter
Laptop

➤ **Tools**

Picture	Equipments	Reference RadioSpares	2008 Catalog Page
	Tools Box	611-4183	2-4496
	S/steel shackle brass padlock,40mm	339-9505	2-3864
	Bent nose insulated plier	539-621	2-4717
	Big pliers with beak isolated	162-1563	2-4717
	Combination insulated plier,185mm L	621-584	2-4717
	Big isolated sharp pliers	343-8953	2-4716
	Waterpump insulated plier,250mm L	621-635	2-4717
	Screwdriver insulate AY2,5X75VE	348-2843	2-4747
	Screwdriver insulate AY3,5X75VE	348-2859	2-4747
	Screwdriver insulate AY4X100VE	348-2871	2-4747
	Screwdriver insulate AY5,5X125VE	348-2887	2-4747
	Screwdriver insulate APY.0X75VE	348-2786	2-4747
	Screwdriver insulate APY.1X100VE	348-2792	2-4747
	Screwdriver insulate APY.2X125VE	348-2809	2-4747
	Screwdriver insulate ADY.0X75VE	348-2815	2-4747
	Screwdriver insulate ADY.1X100VE	348-2821	2-4747
	Screwdriver insulate ADY.2X125VE	348-2837	2-4747
	8 L-SHAPED Torx Drivers	250-4267	2-4786
	9pcs L-shape metric hex ball driver set	297-1544	2-4763
	12 flat keys mix	454-4201	2-4795
	Cartridges and tips	162-4360	2-4780
	Small presser	194-2652	2-4711
	Small sharp pliers	194-2618	2-4696

Picture	Equipments	Reference RadioSpares	2008 Catalog Page
	box spanners	454-4217	2-4795
	Bent Point Tweezers	192-2024	2-4720
	Standard Tweezers	420-5805	2-4720
	1 plier straight	269-4297	2-4720
	Toukan 2 lames	454-4239	2-4729
	Automatic wire stripper, 1-3.2mm strip	663-617	2-4735
	Magnetic inspection torch, 450mm long arm	493-7439	2-4664

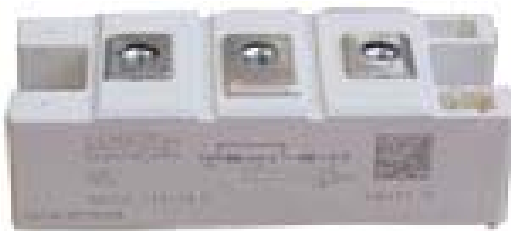
➤ **Mounting of power modules**

If semiconductor power modules (diodes, thyristors, IGBTs) are exchanged, it is very important to mount the new modules in the correct way. This refers to the use of thermal grease as well as the correct way to tighten the modules on the heat sink.

➤ **Thermal grease**

To ensure a good thermal connection of the modules to the heat sink, the use of thermal grease is mandatory.

The following pictures show, how the grease has to be smeared on the modules:



Thyristor

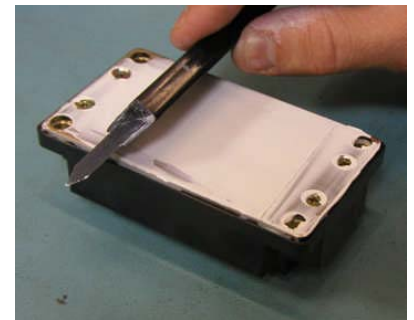
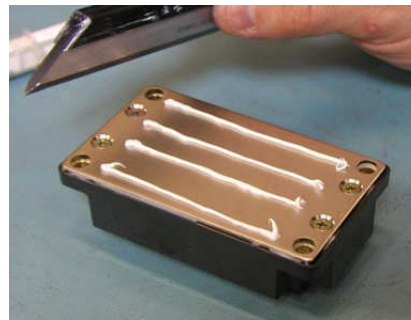


Transistor

Width of the module 5cm



Width of the module 6,2cm



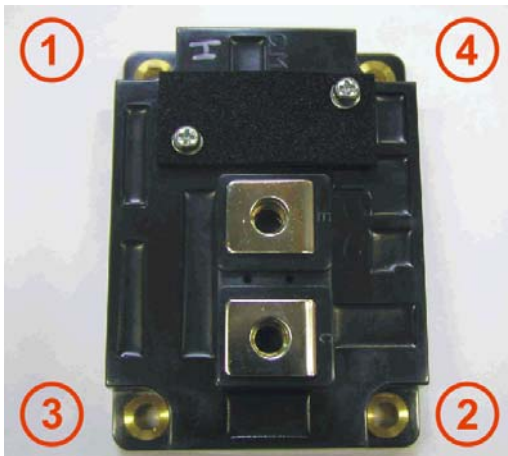
Put the grease in stripes on the module and dispense it evenly with a spatula to approx. 0.3 mm thickness.

Tightening of modules

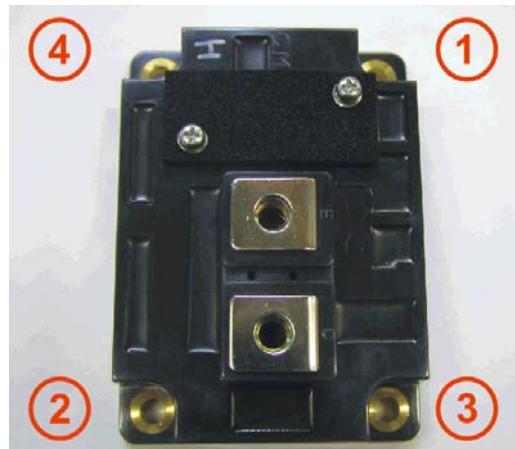
After putting thermal grease on the module, it is important to fasten the modules in the correct way and with the right torque.

The following table shows the necessary mounting torques and has to be followed exactly:

Size	Thyr/Diod. modul (M5)		Thyristor (M5)		Diode (M5)		Brake (M6)		IGBT (M6)	
	Nm (pre)	Nm (fix)	Nm (pre)	Nm (fix)	Nm (pre)	Nm (fix)	Nm (pre)	Nm (fix)	Nm (pre)	Nm (fix)
6	?	?	?	?	?	?	?	?	?	?
7	?	?	?	?	?	?	?	?	?	?
8	?	?	?	?	?	?	?	?	?	?
9	1.0	2.6	x	x	x	x	1.5	3.0	1.5	4.4
10	1.0	2.6	x	x	x	x	1.5	3.0	1.5	4.4
11	2.0	5.0	x	x	x	x	1.5	3.0	1.5	3.0
12	2.0	5.0	x	x	x	x	1.5	3.0	1.5	3.0
13	x	x	2.0	5.0	2.0	5.0	x	x	1.5	3.0
14	x	x	2.0	5.0	2.0	5.0	x	x	1.5	3.0
15	x	x	2.0	5.0	2.0	5.0	x	x	1.5	3.0
BU 13	x	x	x	x	x	x	1.5	3.0	1.5	3.0
BU 14/15	x	x	x	x	x	x	1.5	3.0	1.5	3.0



Pre-fix all screws in the correct order with the torque stated in the table: Nm (pre)



Fix the screws in the correct order with the torque stated in the table: Nm (fix)

➤ **Specific tools**

To update the software version of controls blocks and graphic terminal, there is a specific tool: **Flash KIT**

You will find in the catalog, the both commercial reference.

Flash kit: VW3A9703 (flash the main μ P, flash the motor control μ P)

Flash kit: VW3A9702 (flash the graphic terminal)

4.2 *Dialog and diagnostic tools*

4.2.1 *Dialog tools*

A first level of diagnostic is possible by using the graphic terminal or the commissioning software Powersuite.

These two tools allow to:

- Check the state of the inputs/outputs.
- Check the image of the communication words.
- Read the fault history and see the operating state when a fault appears.
- Save and transfer the drive configurations.
- Perform some product diagnostic checks.

4.3 *Test bench*

To test the ATV71 under power after repairing, you will find at the end of this chapter the diagrams of a test bench. The same was used to test the other ATV. Only the cable linking the board connector to the 15 point Sub-D connector is different.

5. Spare Parts List

5.1 General presentation

Introduction

This manual describes how to use the platform (Interface VBA) under Microsoft Office Excel for the ATV61-71.

The Spare Part Package

The spare part package is used by the platform. You will find the following elements:

- Pictures used by the platform.
- Drives Pictures.
- Pictures used for the spare parts (screws, boards, mechanic parts, wires, etc...).

Recommendation

We recommend for that the platform correctly run:

- A laptop with Microsoft Windows XP and Microsoft Office 2003.

5.2 Using of Platform

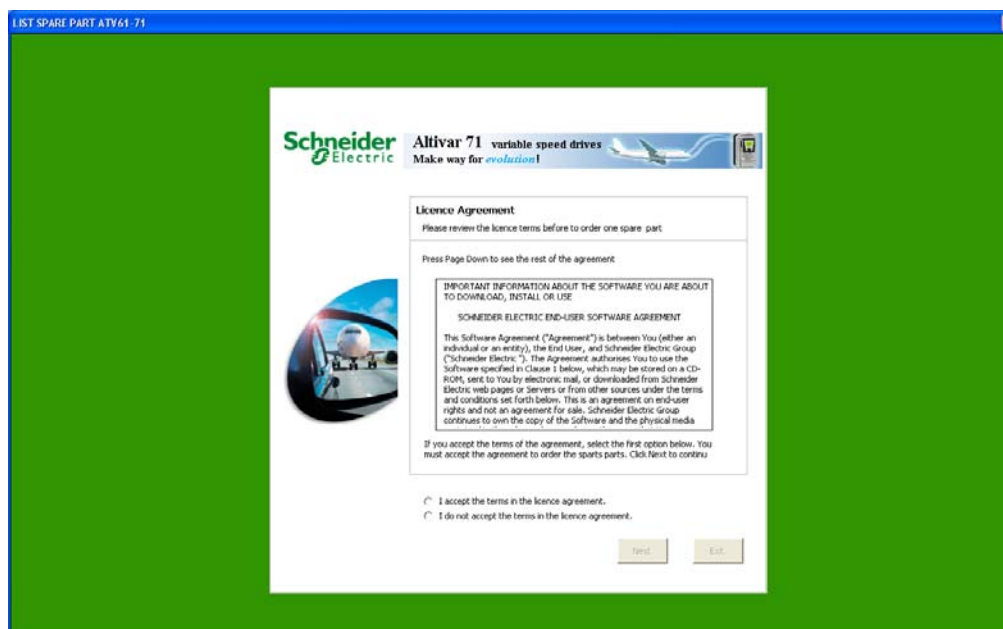
Introduction

This following section explains how to use the platform (Interface VBA) to find the reference of spares part on the ATV61-71 to order to repair them correctly.

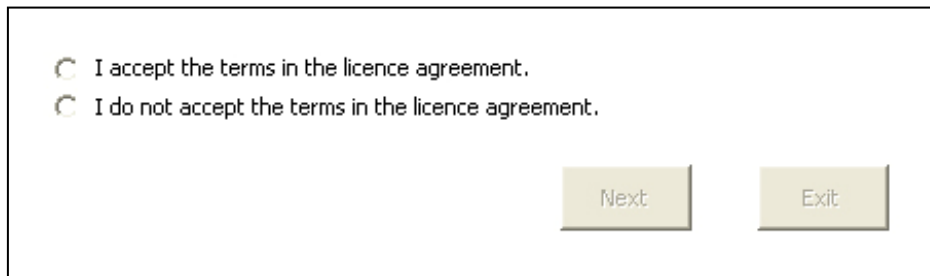
Using Interface

Warning, to use correctly the platform, you must configure your computer (display resolution: 1280 x 800).

- Launch the following file: Spare part list ATV61-71 Release V1.5.xls
- The following window appears.

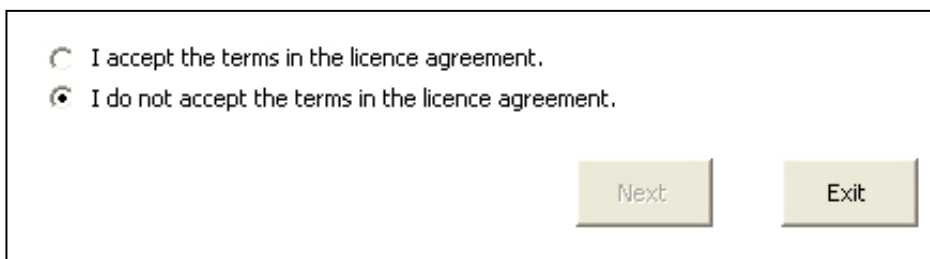


After to have read the licence agreement, you have two possibilities:



I accept the terms in the licence agreement.
 I do not accept the terms in the licence agreement.

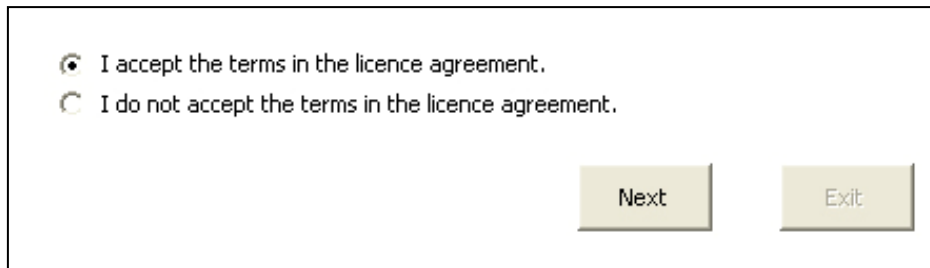
- One click on the button **“I do not accept the terms in the licence agreement”** allows validating **“EXIT”** button.



I accept the terms in the licence agreement.
 I do not accept the terms in the licence agreement.

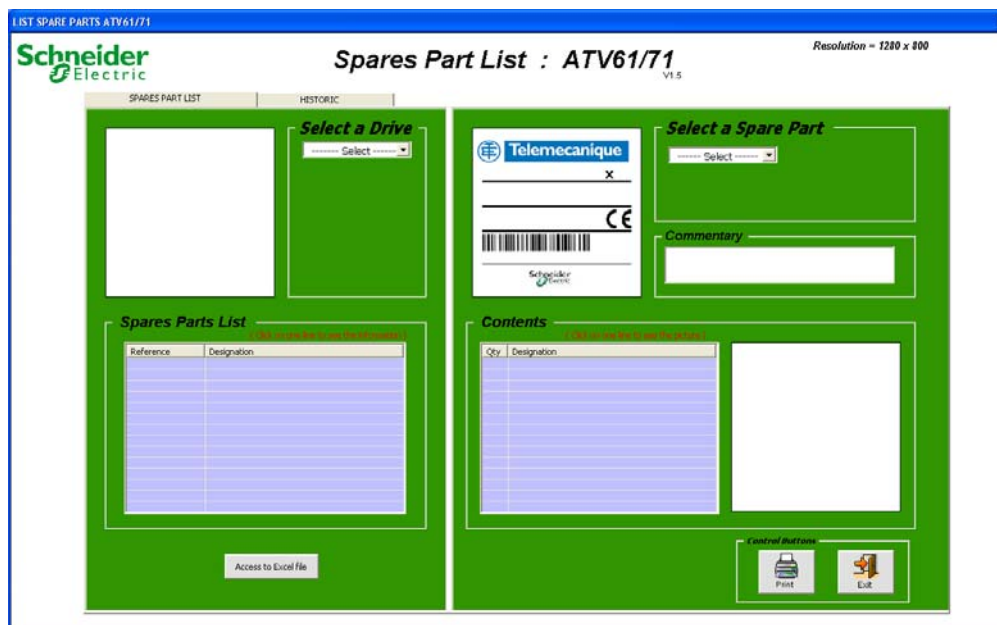
Warning, one click on the **“EXIT”** button closes the application.

- One click on the button **“I accept the terms in the licence agreement”** allows validating **“NEXT”** button.



I accept the terms in the licence agreement.
 I do not accept the terms in the licence agreement.

Warning, one click on the **“NEXT”** button allows opening the following window:

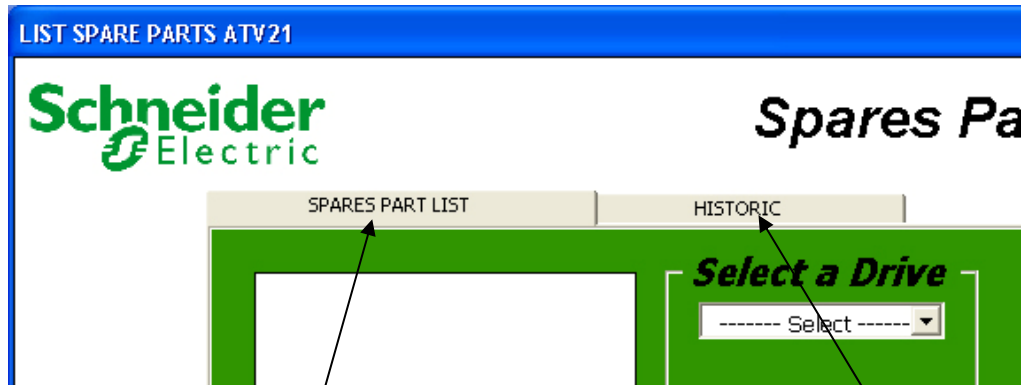


The screenshot shows a software window titled "LIST SPARE PARTS ATV61/71" with a resolution of 1280 x 800. The window features the Schneider Electric logo and the title "Spares Part List : ATV61/71 V1.5". It is divided into several sections:

- SPARES PART LIST** and **HISTORIC** tabs at the top.
- Select a Drive** section with a "Select" dropdown menu.
- Select a Spare Part** section with a "Select" dropdown menu, a "Telemecanique" logo, a barcode, and a "Commentary" text area.
- Spares Parts List** table with columns for Reference and Designation.
- Contents** table with columns for Qty and Designation.
- Access to Excel file** button at the bottom left.
- Control Buttons** (Print and Exit) at the bottom right.

Now, you can use the interface...

Descriptive Tabs



Select the tab « SPARES PART LIST » to get the commercial references of spares part.

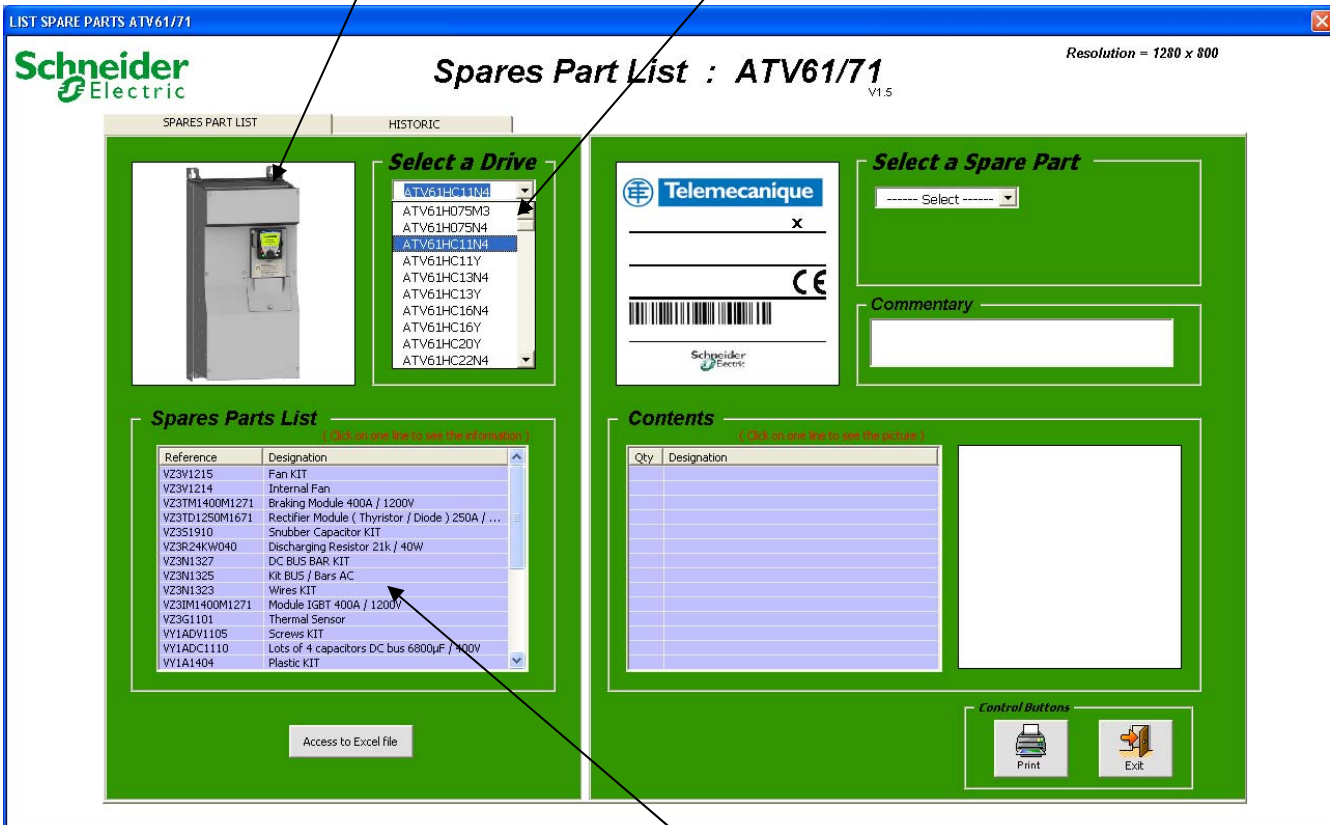
Select the tab « HISTORIC » to see updates.

Descriptive buttons

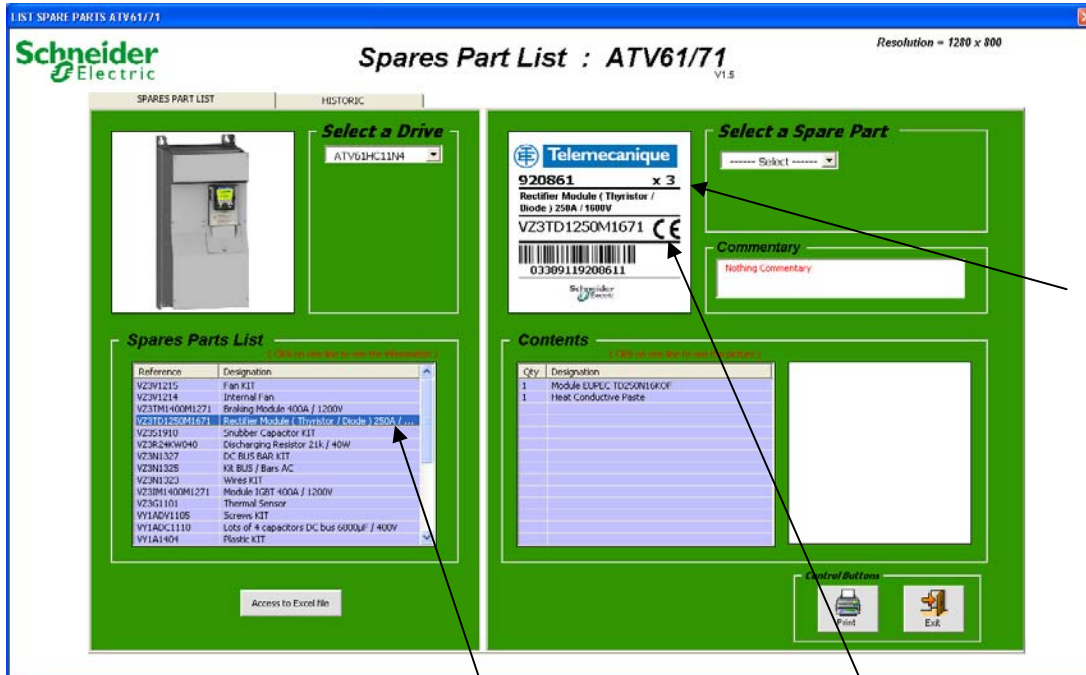
- One click on the “**Select one drive**” button allows to show the list of all drives.

The drive picture appears.

Choose the drive reference.



The references spares part appears with them designations.

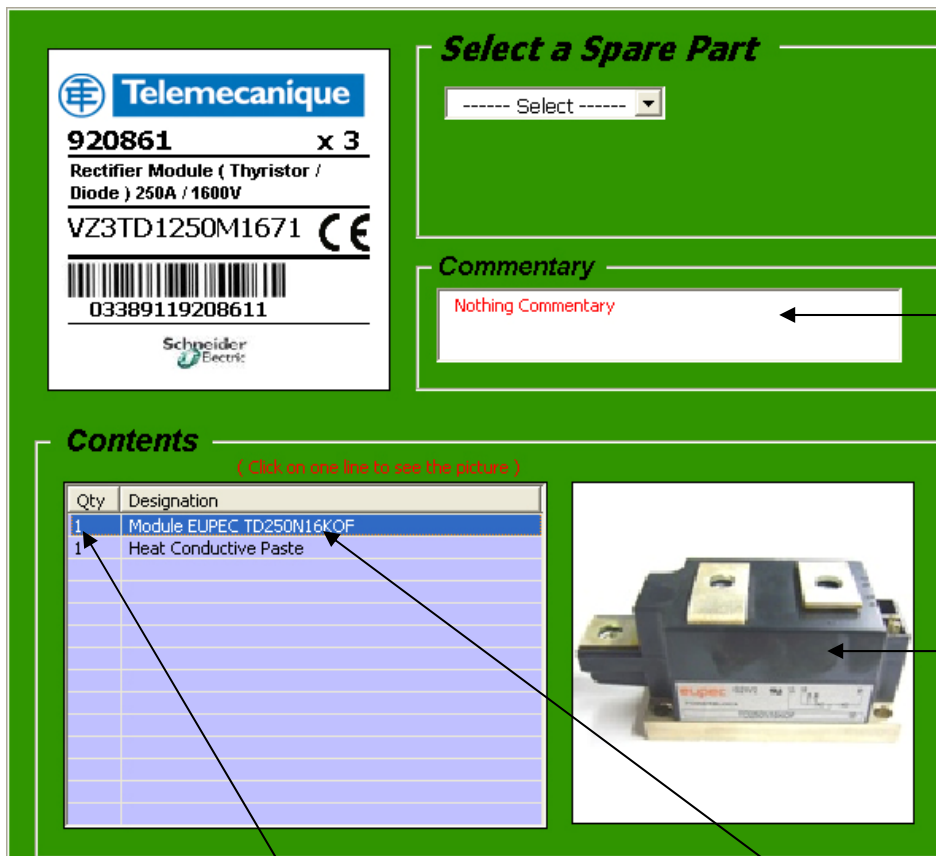


Unity of KIT. **Warning**, the number can also indicate the quantity of peace inside of the box.

Click on one line.

Commercial Reference

- One click on one of lines of menu “contents” allows to show the picture of the part.



Commentary on the spare part.

Picture of selected part.

Quantity for the selected part.

Designation of the selected part.

- One click on the “**Select one spare part**” button allows to show the list of all spare parts.

Unity of KIT.
Warning, the number can also indicate the quantity of peace inside of the box.

Choose the spare part reference.

Commentary on the spare part.

Commercial Reference

Designation of the selected spare part.

Selected a product to see the quantity used in the drive.

The commercial reference (spare part) chooses is used by these products.

- One click on one of lines of menu “**contents**” allows to show the picture of the part.

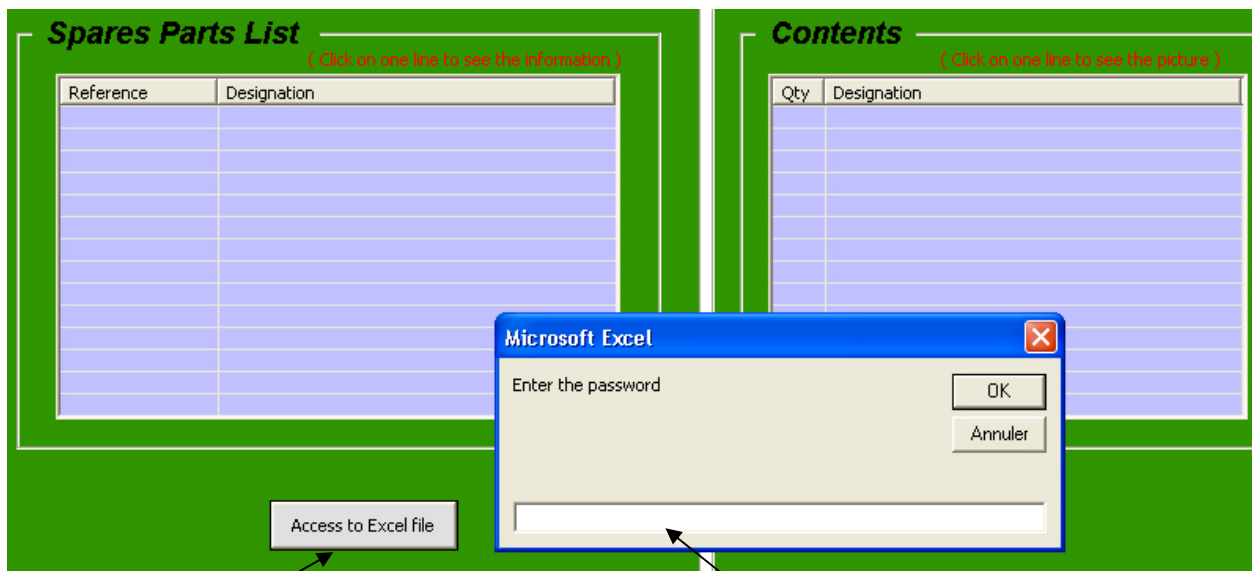
Qty	Designation
1	RJ45 Trap
3	Screw M3X8
1	Display Support
1	Control Trap
1	Display PCBA
1	Keyboard

Quantity for the selected part.

Designation of the selected part.

Picture of selected part.

- One click on the “**Access to Excel file**” button allows to show the content of excel file.



Click on the button.

The following window appears.
Warning, the password is used only by the developer.

6. Software

6.1 ATV61-71 Drive Software

Any anomalies corrected in a version IE x are also corrected in version IE x + 1.

➤ **Version of control block:**

ATV71 product release	Promotion Level	ATV71 Application SwVersion	ATV71 MotorControl SwVersion	ATV71 HHP MotorControl SwVersion	Product type	Short description	Known anomalies
V1.1IE01#7	PRODUCTION	A1.1IE01#9	A1.1IE01#9		Standard	First commercial release	Trip in 'INFE' fault if encoder board is installed with switching frequency 16 KHz and input phase loos to stop controlled. This problem solved in the version V1.1IE02. In torque control mode if the reference is negative after switch-on, the drive does not run with the first start command. This problem solved in the version V1.1IE02.
V1.1IE02#2	PRODUCTION	A1.1IE02#5	A1.1IE02#2		Standard		
V1.1IE04#2	PRODUCTION	A1.1IE03#21	A1.1IE03#9	P1.1IE02#1	Standard	Second commercial release for HHP	
V1.1IE05#6	PRODUCTION	A1.1IE04#25	A1.1IE04#9	P1.1IE03#44	Standard	HHP MotorControl with support of Sizes14/15, HHP200V, Standard Indus and Variable Torque for ATV61. Switching frequency fixed to 2,5kHz for HHP drives.	
V1.1IE06#2	PRODUCTION	A1.1IE05#9	A1.1IE06#3	P1.1IE04#48	Standard	New release for all sizes	
V1.1IE07#4	PRODUCTION	A1.1IE06#18	A1.1IE07#14	P1.1IE05#53	Standard	Commercial release with MotorControl Masked	
V1.1IE08#2	PRODUCTION	A1.1IE06#18	A1.1IE07#14	P1.1IE06#62	Standard	Correction HHP : - Use of Voltage Calibration - HDF fault if PowerRemoval asked while the motor is running - Suppress INFB fault when there is no brake module and BRA = No	

ATV71 product release	Promotion Level	ATV71 Application SwVersion	ATV71 MotorControl SwVersion	ATV71 HHP MotorControl SwVersion	Product type	Short description	Known anomalies
V1.1IE09#3	PRODUCTION	A1.1IE06#18	A1.1IE07#14	P1.1IE07#77	Standard	Correction HHP : - Unexpected interruption of fluxing - Unexpected BLF faults	
V1.1IE11#1	PRODUCTION	A1.1IE06#18	A1.1IE08#2	P1.1IE07#77	Standard	Standard release with correction for 75 kW 400V broken modules	
V1.2IE12#12	PRODUCTION	A1.2IE09#51	A1.2IE09#1	P1.2IE08#85	Standard	V1.2 Commercial release : iteration 12	
V1.3IE13#6	PRODUCTION	D1.3IE10#120	C1.3IE10#22	-	S383	RSX-C step 1 release (Resolver) : iteration 6 Based on ATV71 V1.2IE12#10 product	
V1.2IE16#2	PRODUCTION	A1.2IE13#1	A1.2IE09#1	P1.2IE09#87	Standard	V1.2 Commercial release : maintenance T15#2 Ré-integred in the standard version	
MC_FOR TSIJ	PRODUCTION	-	A1.2IE12#9	-	Standard	Based on MC LHP A1.2IE09#1 Specific corrections for TSIJ	
V1.2IE18#4	PRODUCTION	A1.2IE16#14	A1.2IE13#2	P1.2IE10#93	Standard	V1.2 Commercial release : maintenance mars	
V1.7IE20#2	PRODUCTION	D1.7IE18#2	C1.4IE14#2		S383	RSX-C release : step 2 (Univ Encoder)	
V1.9IE22#6	PRODUCTION	D1.9IE20#6	C1.6IE16#3	P1.3IE11#100	S383	RSX-C release : step 3	
V1.6IE25#2	PRODUCTION	A1.6IE23#1	A1.5IE17#2	P1.3IE11#100	Standard	V1.6 Commercial release : maintenance juin	
V2.3IE26#1	PRODUCTION	E2.3IE30#1	-	P1.2IE09#90	S381	Concast official release, iteration 2	
V2.4IE27#4	PRODUCTION	D2.4IE25#4	C1.7IE18#3	-	S383	RSX-C release : step 4, iteration 4	

ATV61 product release	Promotion Level	ATV61 Application SwVersion	ATV61 MotorControl SwVersion	ATV71 HHP MotorControl SwVersion	Product type	Short description	Known anomalies
V1.1IE02#2	PRODUCTION	B1.1IE02#2	A1.1IE05#1	P1.1IE03#45	Standard	Application based on ATV71 V1.1ie04#25 Target : first commercial release for ATV61 from size 2 up to size 12	
V1.1IE03#1	PRODUCTION	B1.1IE03#1	A1.1IE06#3	P1.1IE04#48	Standard	Application based on ATV71 V1.1ie05#9. Target : first commercial release for ATV61 HHP drives	
V1.1IE04#1	PRODUCTION	B1.1IE04#1	A1.1IE06#3	P1.1IE04#48	Standard		
V1.2IE05#3	PRODUCTION	B1.2IE05#12	A1.1IE07#14	P1.1IE06#62	Standard	Application based on ATV71 V1.1ie06#18. Target : Commercial release - supporting BACnet option board - using masked MotorControl software - External fault active at 0 - HHP : TR fixing : DSAT, INFB and use of calibration	
V1.2IE08#1	PRODUCTION	B1.2IE05#12	A1.1IE08#2	P1.1IE06#62	Standard	Standard release with correction for 75 kW 400V broken modules	
V1.4IE09#4	PRODUCTION	B1.4IE08#6	A1.2IE09#1	P1.2IE08#85	Standard	V1.4 Commercial release : iteration 4	
V1.4IE11#2	PRODUCTION	B1.4IE10#1	A1.2IE09#1	P1.2IE09#87	Standard	V1.4 Commercial release :Maintenance T15 Ré-integred in the standard version	
V1.4IE12#4	PRODUCTION	B1.4IE11#5	A1.2IE13#2	P1.2IE10#93	Standard	V1.4 Commercial release : version pour mars	
V1.5IE14#2	PRODUCTION	B1.5IE13#1	A1.5IE17#2	P1.3IE11#100	Standard	V1.5 Commercial release : version pour juin	

6.2 Graphic Terminal (VW3A1101):

The graphic terminal allows the viewing of the various parameters.

- It is the drive that authorizes the access to a particular parameter.
- It is the graphic terminal that writes the values if necessary.
- It is the graphic terminal that contains the messages in 5 languages.
- The graphic terminal is Modbus master in the exchanges with the drive

Graphic Terminal product release	Promotion Level	Graphic Terminal SwVersion	Product type	Short description	Known anomalies
V1.1IE03					None till today

6.3 Logic I/O Boards (VW3A3201):

The extended input output cards can only send information appearing on their terminals to the ATV71, except for the functions, which are only accessible if the option card is present.

Logic I/O option release	Promotion Level	Logic I/O option SwVersion	Product type	Short description	Known anomalies
					None till today

6.4 Software of the extended input/output boards (VW3A3202):

The extended input output cards can only send information appearing on their terminals to the ATV71, except for the functions, which are only accessible if the option card is present.

Extended Input / Output release	Promotion Level	Extended Input / Output SwVersion	Product type	Short description	Known anomalies
V1.1IE03					None till today

6.5 Fipio board software (VW3A3311 and VW3A3301):

Fipio Board release	Promotion Level	Fipio Board SwVersion	Product type	Short description	Known anomalies
V1.1IE01					None till today

6.6 Modbus Plus board software (VW3A3302):

Modbus Plus release	Promotion Level	Modbus Plus SwVersion	Product type	Short description	Known anomalies
V1.1IE02					None till today

6.7 Interbus-S board software (VW3A3304):

Interbus-S release	Promotion Level	Interbus-S SwVersion	Product type	Short description	Known anomalies
V1.1IE01					None till today

6.8 Ethernet board software (VW3A3310):

Ethernet release	Promotion Level	Ethernet SwVersion	Product type	Short description	Known anomalies
V1.1IE04					None till today

6.9 Unitelway / Modbus board software (VW3A3303):

Unitelway / Modbus release	Promotion Level	Unitelway / Modbus SwVersion	Product type	Short description	Known anomalies
V1.1IE01					None till today

6.10 Profibus-DP board software (VW3A3307):

6.11 Encoder interface board (VW3A3401 to VW3A3407):

Encoder release	Promotion Level	Product type	Short description	Known anomalies

6.12 Devicenet board software (VW3A3309):

Modbus Plus release	Promotion Level	Modbus Plus SwVersion	Product type	Short description	Known anomalies

6.13 Controller inside board software (VW3A3501):

Controller Inside release	Promotion Level	Controller Inside SwVersion	Product type	Short description	Known anomalies
V1.1IE03	Production				

7. Troubleshooting the Installation

7.1 Problem with the installation

7.1.1 Problem with the installation “UNSTABLE SPEED”

Possible causes	* Frequency reference signals unstable.	* Motor control algorithm parameters incorrect.	* Incorrect frequency feedback settings.	* Incorrect setting of the power supply, for example : 400V/87Hz	* Drive sized incorrectly for the motor. * Load changing.
Verification	* Verify the frequency reference signals.				* The torque fluctuates as a function of speed or whenever the machine is loaded. * The drive is in current limit when The speed is unstable.
Result	* Incorrect frequency reference. * Wired incorrectly.				* Torque point greater than the capability of the drive. * Current point greater than the capability of the drive.
Solution	* Correct the incorrect wiring. * Repair or replace the reference generator.	* In the motor control menu, enter the motor nameplate data and do an auto-tune.	* Review the setting of SPG (proportional gain) and of SIT (Integral time).	* Motor connected in star (230V), motor nameplate information in delta (460V).	* Re-size the drive. * Re-set the torque limit settings.

Problem with the installation “UNSTABLE SPEED” (continued)

Possible causes	* Oscillations due to mechanical interactions.	* Bad electrical coupling of the motor.	* Bad electrical coupling due to incorrect encoder feedback. * Number of pulses per turn too small.
Verification	* The mechanical couplings. * Resonant frequencies.	* Motor connected in star or delta.	* The mechanical attachment of the encoder to the motor. * The number of pulses per turn and the parameter PGI.
Result	* Torque, current, and motor speed oscillations.		
Solution	* Correct mechanical alignment. * Skip over the resonant frequency.	* Correct the motor connections.	* Align the encoder correctly. * Change the encoder to obtain more pulses per turn.

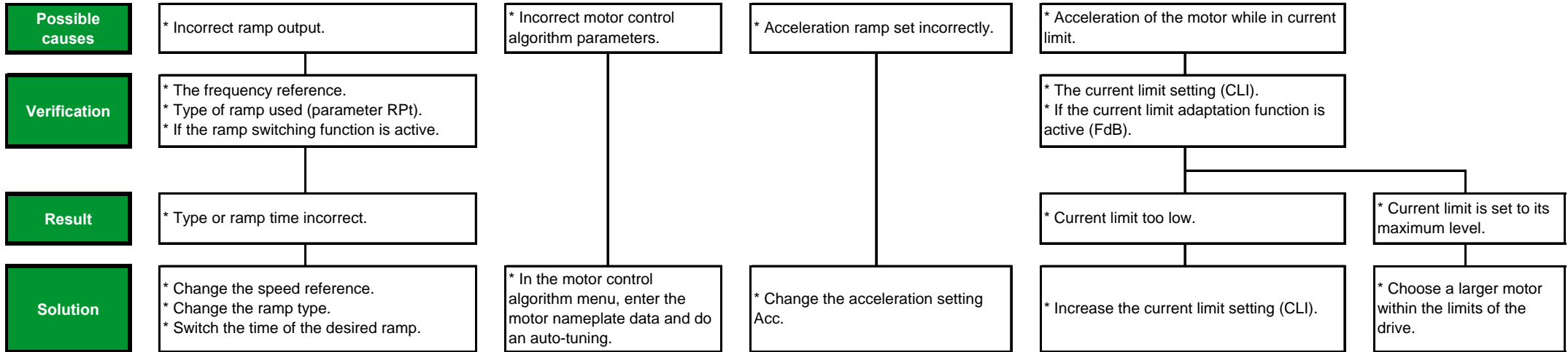
7.1.2 Problem with the installation “THE MOTOR TURNS THE WRONG WAY”

Possible causes	* Due to loading effects.	* Incorrect motor connections.	* Bad direction of rotation selected.	* Negative signal on the reference inputs.
Verification	* Is this a desired condition of use ? * Safety equipment.	* Output wiring. * Motor wiring.	* Check the direction of rotation on the terminal. * Verify the assignment of the logic inputs.	* Verify the sign and the assignment in the monitoring menu.
Result	* Incorrect frequency reference. * Wired incorrectly.		* Incorrect rotation direction or incorrect command.	
Solution	* If this use is normal, nothing to do. * Replace the damaged safety equipment.	* Respect the wiring of the U, V, and W phases.	* Correct the selection or the command.	* Correct the assignments. * Correct the reference signal * Inhibit reverse operation (Rrs) * Delinearize the ramp.

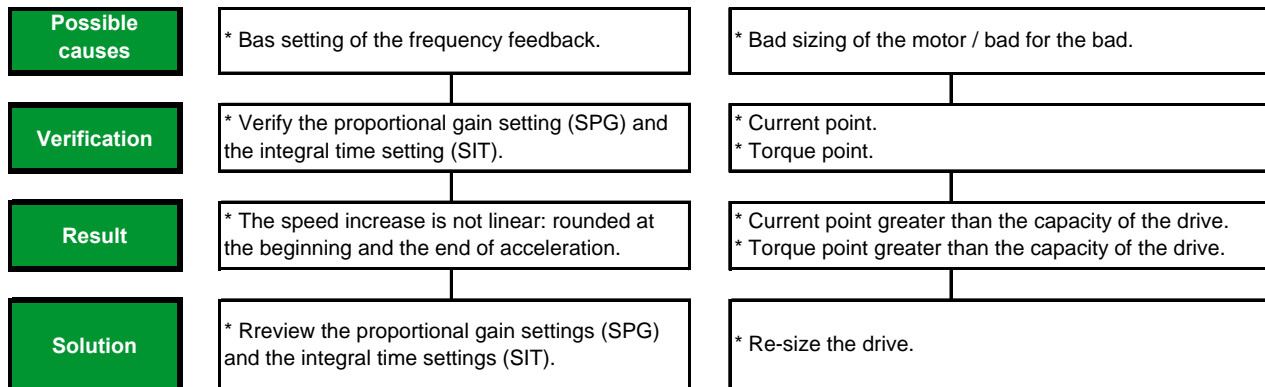
7.1.3 Problem with the installation “EXCESSIVE MOTOR TEMPERATURE”

Possible causes	* Motor temperature.	* Motor ambient temperature.	* The motor ventilation is blocked or damaged.	* Drive parameters incorrect.	* Bad sizing of the motor for the application.	* Ith protection incorrect.
Verification	* The motor insulation class. * The motor temperature using a thermocouple.	* The ambient air around the motor. * The motor class. * The motor insulation.			* Sizing.	* The value of Ith and the level of DC injection and its duration.
Result		* If the ambient temperature is within the specified allowable motor limits, verify the other causes of motor overtemperature.				
Solution	* If the motor temperature is incorrect, no action is necessary, replace the failed element.	* Use a motor rated for higher temperatures. * Use a forced ventilated motor. * Use a higher power motor.	* Clean out the air passages. * Verify that the fan motor operates correctly.	* In the Motor Control menu, enter the motor nameplate data and do an auto-tuning. * Switching frequency too high.	* Choose a higher power motor.	* Set Ith to the motor nameplate current. * Set Idc permanent < 0.5 In or set S d C.

7.1.4 Problem with the installation “THE MOTOR ACCELERATES TOO SLOWLY”



Problem with the installation “THE MOTOR ACCELERATES TOO SLOWLY” (continued)



7.1.5 Problem with the installation “BAD CONTROL OF THE MOTOR STOP OF DECELERATION”

Possible causes	* Stop type inadequate.	* Run command or reference always present.	* Ramp not followed.	* Deceleration of the motor in current or torque limit.	* Drive / motor poorly sized the load.
Verification	* The time and the amplitude of DC current injection. * The selected stop type.	* Verify the logic and analog inputs in the monitoring menu.	* Braking torque.	* The current limit (CLI) or torque limit (TLA) settings. * If the Ilim Adaptation function is active (FdB).	* DC Bus Voltage. * Braking torque.
Result	* Stop the motor in free wheel or braking torque insufficient.			* Current or torque limit too low.	* Too much energy returned to the drive. * Drive braking torque insufficient.
Solution	* Adjust the time and amplitude of DC injection. * Select another stop type.	* Set the run command or the reference to 0.	* Adjust the decel time. * De-select the autoadaptation of the deceleration ramp function (BrA).	* Increase the current (CLI) or torque limit.	* Use a larger power drive.

7.1.6 Problem with the installation “THE MOTOR DOES NOT START”

Possible causes	* Drive not powered.	* Motor not connected to the drive.	* Drive in free wheel stop. * Drive in DC stop. * Drive in fast stop.	* Push the keypad Stop button	* In 3-wire command (Tct), the Stop logic input is at 0.
Verification	* The drive power supply and its voltage.	* The wires between the motor and the drive. * The command of the contactor between the drive and motor.	* The logic input assignments in the monitoring menu.		* The state of the LI1 input.
Result		* Motor not connected. * Wire damaged.			
Solution	* Apply power to the drive. * Correct the sequence.	* Connect the motor. * Verify its connections. * Correct the command of the output contactor.	* Set the inputs assigned to free wheel and rapid stop to 1. * Set the input assigned to DC stop to 0.	* Put the direction command inputs to 0 then reset them to 1.	* Set LI1 to 1.

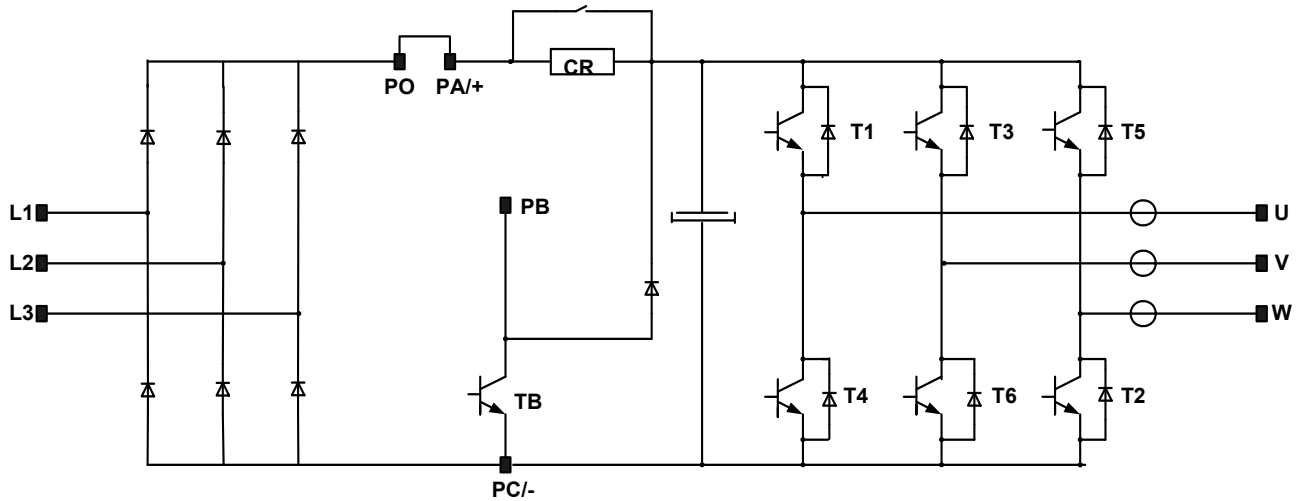
Problem with the installation “THE MOTOR DOES NOT START” (continued)

Possible causes	* The reference frequency is equal to 0.	* Terminal command selected.	* - In keypad command, the frequency reference is 0.	* Current or torque limit too low.	* Bad sizing of the motor / drive for the load.
Verification	* The signals on the analog inputs assigned to summed frequency references.	* If terminal command is active (LCC=ON).	* The parameter LFR in the surveillance menu.	* Limitation of current and torque.	* Current point * Torque point.
Result					* Current point greater than the drive capacity. * Torque point greater than the drive capacity.
Solution	* Send a non-zero frequency reference.	* De-select terminal command.	* Set LFR to a non-zero value and push the terminal run command.	* Increase the current or torque limit value.	* Re-size the drive or the motor.

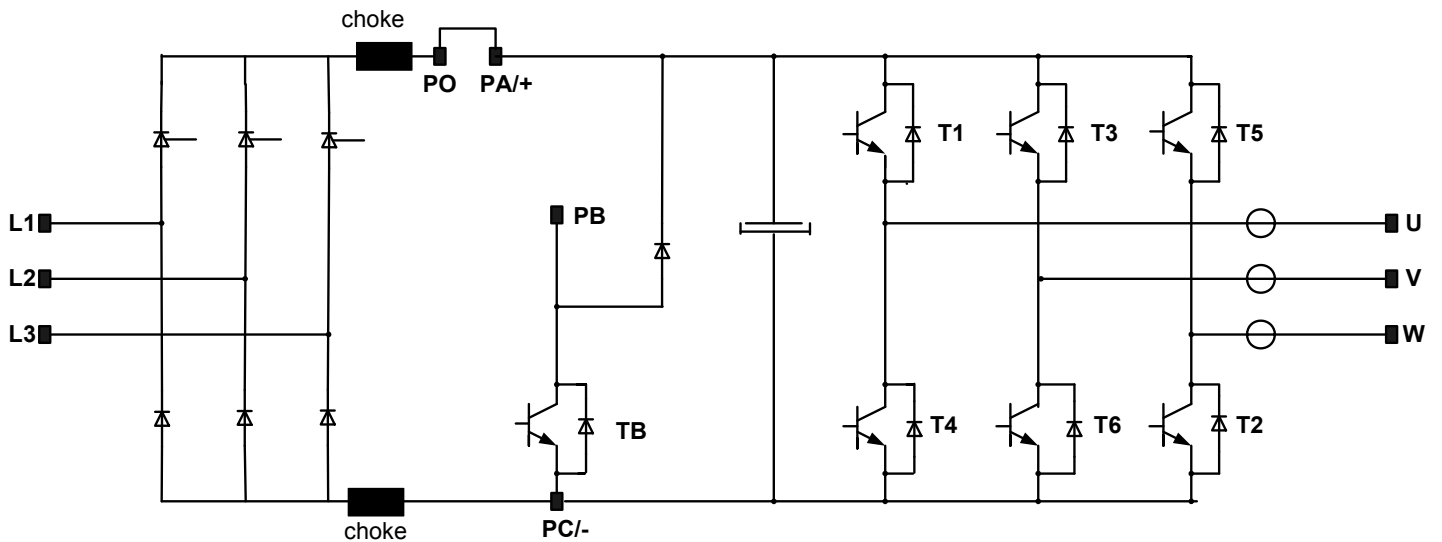
8. Troubleshooting and repair guide

8.1 Schematics

8.1.1 Power schematic for the Altivar < 18.5 kW (230V & 480V)



8.1.2 Power schematic for the Altivar >18.5 kW (230V, 480V & 690V (range up to 90kW))



8.2 Diagnostics

8.2.1 Introduction

Upon reception of the product, carefully note the following:

- The reference of option board and the software version if they exist.
- The software version of drive and of the graphic terminal.
Generally, the software version is indicated on the nameplate label.

Then, replace the components (the option board and the graphic terminal)

If the product is broken and has been returned with a description of the failure observed by the customer, use this information to determine the broken component.

In any other case, follow these instructions:

- Visually examine the product (before applying voltage).
 - Check the external state of the drive:
 - Look for traces of burning or overheating, parts that have been submitted to shocks.
 - Check the connectors.
 - Check the state of the internal screws to determine if a part of drive has been dismantled.

8.2.2 Preliminary static verification of an ATV

Before checking the power electronics, please make sure, that there exists no dangerous voltage in the DC-Link. So, please pay attention to the following security hints:

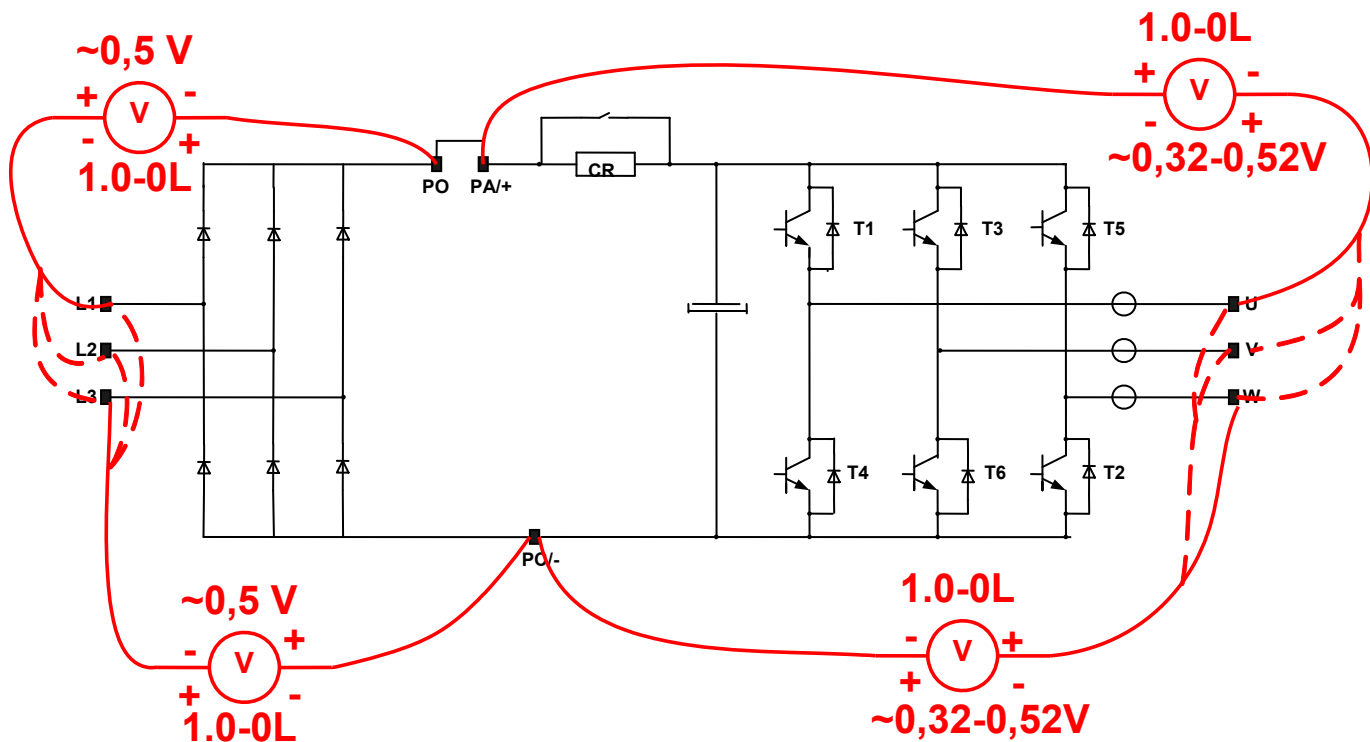
- Clear voltage.
- Wait for capacitor discharge.
- Check capacitors for neutrality.

When checking the power part, the following procedure is recommended:

- Disconnect mains and motor lines.
 - Test the diodes, thyristors and IGBTs using a universal tester with a diode test function and load-independent current.
-

8.2.3 Checking the input diode bridge and the output bridge:

This test is done using a digital multi-meter in diode test mode to check that the transistors and diodes are not short-circuited. The absolute values are not so important because they depend strongly on the test device. However, in function of each module, it is possible to find values include in like indicate the following schematic. The uniformity of the measured values is more important. Please further note, that the drives requires some time to load the intermediate circuit capacity. There are 24 measurements to be made:



8.2.4 Checking the thyristors of the input bridge:

(Only for drives > 15KW 230V, P > 18.5kW 480V, and 690V range up to 90kW)

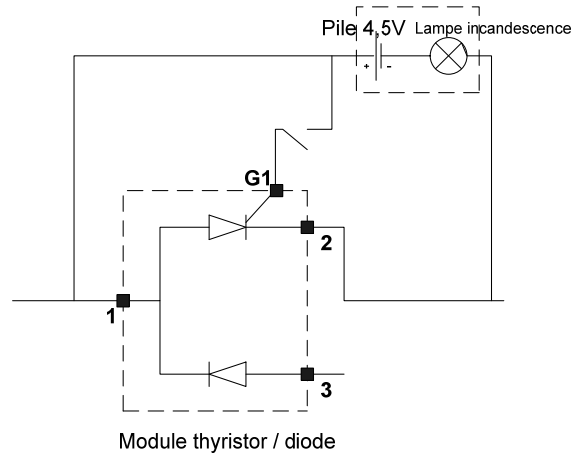
This test is done using a multi-meter in the ohmmeter position to check that the thyristors are not short-circuited. The test is done like the preceding test between PO and L1, L2, L3.

Checking of the thyristor module only:

This test is done using an incandescent lamp and a 4.5 V battery connected. Using the schematic below.

- Switch open ⇒ the thyristor is in open circuit (lamp off).
- Close the switch ⇒ the thyristor conducts (lamp on).
- Open the switch ⇒ the thyristor remains conductive (lamp on).
- Lower the voltage to turn off the thyristor.

If the operation is different than described, the thyristor is probably out of service.

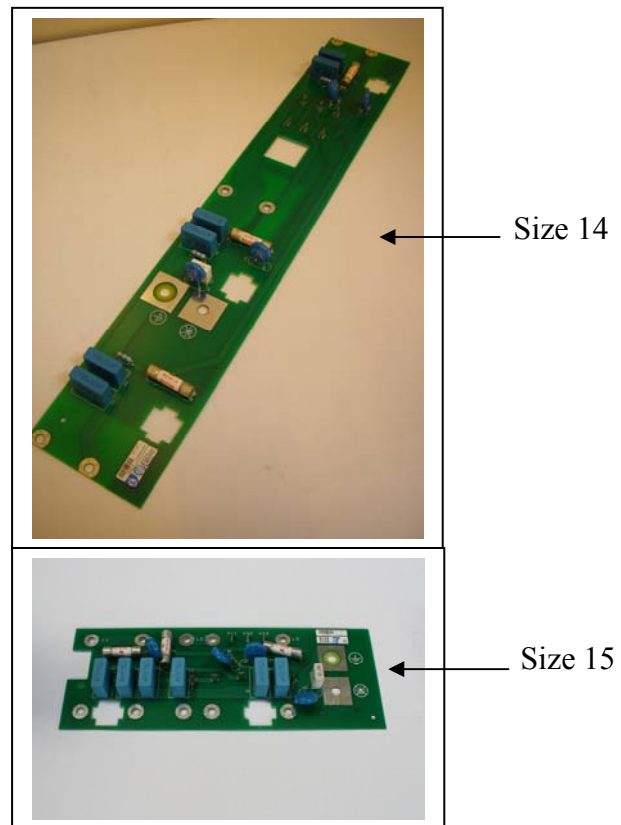
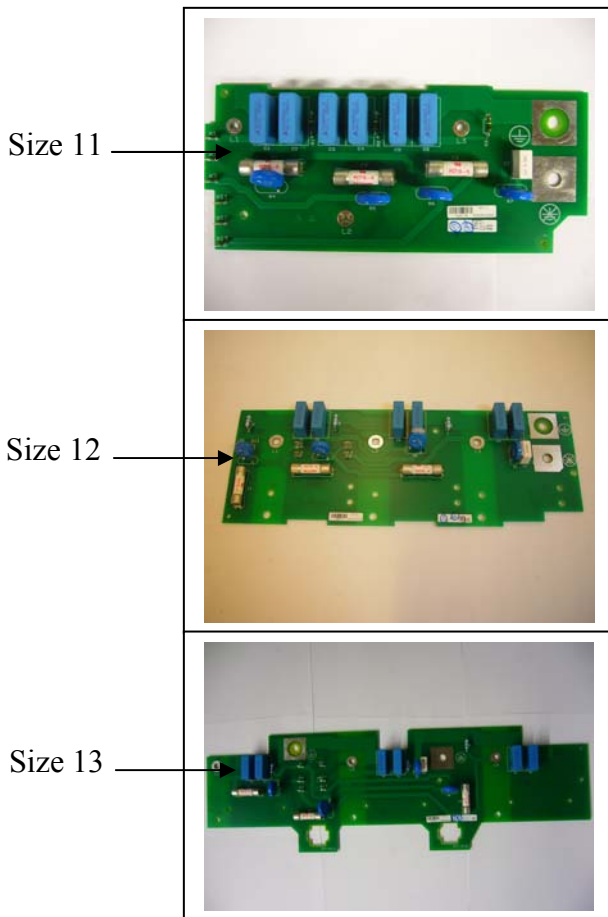


8.2.5 Checking the braking transistor and the free-wheeling diode.

To perform this test, disconnect the braking resistor. The test is done using a digital multi-meter in diode test mode. If the result is zero the transistor and/or diodes are shorted.

8.2.6 Checking the precharge fuses for drives > 110KW

The Fuses F1, F2 and F3 (precharge- accordingly varistor fuses) are located on the RFI filter board. The exact location where the fuses are placed depends on the size of inverter. The measurement of the fuses has to be done with a multi-meter in the ohmmeter position to have a value of zero Ohm:



8.2.7 Checking the DC bus capacitors:

Perform this test only if the converter bridge and inverter bridge tests are good.

Test the capacitors using a multi-meter in ohmmeter mode between the terminals PC and PA. The resistance should begin at a low level and should increase progressively (as the capacitors charge). If this does not happen, the charging resistor or the capacitors are defective.

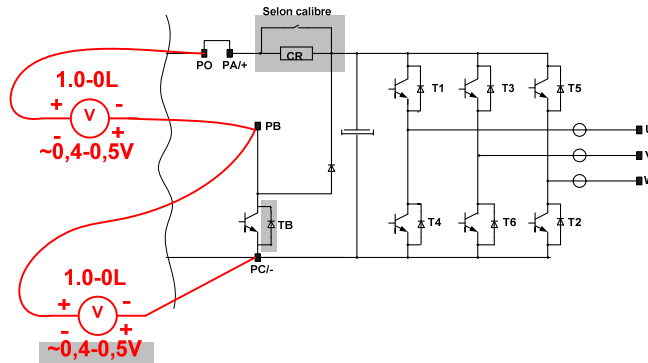


Table of capacitor values and discharge times.

ATV61/71 – Range 240V – IP00 / IP20

STANDARD PRODUCT ON A HEAT SINK					
Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.	Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.
ATV71H037M3	1*390 / 390	< 60 sec	ATV61H037M3	1*390 / 390	< 60 sec
ATV71H075M3	1*560 / 560	< 90 sec	ATV61H075M3	1*560 / 560	< 90 sec
ATV71HU15M3	2*390 P / 780	< 120 sec	ATV61HU15M3	2*390 P / 780	< 120 sec
ATV71HU22M3	2*780 / 1560	< 250 sec	ATV61HU22M3	2*780 / 1560	< 250 sec
ATV71HU30M3	2*1200 P / 2400	< 360 sec	ATV61HU30M3	2*1200 P / 2400	< 360 sec
ATV71HU40M3	2*1200 P / 2400	< 360 sec	ATV61HU40M3	2*1200 P / 2400	< 360 sec
ATV71HU55M3	6*550 P / 3300	< 560 sec	ATV61HU55M3	6*550 P / 3300	< 560 sec
ATV71HU75M3	4*950 P / 3800	< 650 sec	ATV61HU75M3	4*950 P / 3800	< 650 sec
ATV71HD11M3X	5*950 P / 4750	< 650 sec	ATV61HD11M3X	5*950 P / 4750	< 650 sec
ATV71HD15M3X	6*950 P / 5700	< 760 sec	ATV61HD15M3X	6*950 P / 5700	< 760 sec
ATV71HD18M3X	2*2700 P / 5400	< 294 sec	ATV61HD18M3X	2*2700 P / 5400	< 294 sec
ATV71HD22M3X	2*2700 P / 5400	< 294 sec	ATV61HD22M3X	2*2700 P / 5400	< 294 sec
ATV71HD30M3X	2*3900 P / 7800	< 212 sec	ATV61HD30M3X	2*3900 P / 7800	< 212 sec
ATV71HD37M3X	2*4800 P / 9600	< 261 sec	ATV61HD37M3X	2*4800 P / 9600	< 261 sec
ATV71HD45M3X	2*5700 P / 11400	< 310 sec	ATV61HD45M3X	2*5700 P / 11400	< 310 sec

ATV61/71 – Range 480V – IP00 / IP20

STANDARD PRODUCT ON A HEAT SINK					
Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.	Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.
ATV71H075N4	2*390 S / 195	≤ 80 sec	ATV61H075N4	2*390 S / 195	≤ 80 sec
ATV71HU15N4	2*390 S / 195	≤ 80 sec	ATV61HU15N4	2*390 S / 195	≤ 80 sec
ATV71HU22N4	2*560 S / 280	≤ 120 sec	ATV61HU22N4	2*560 S / 280	≤ 120 sec
ATV71HU30N4	2*780 S / 390	≤ 160 sec	ATV61HU30N4	2*780 S / 390	≤ 160 sec
ATV71HU40N4	2*1200 S / 600	≤ 240 sec	ATV61HU40N4	2*1200 S / 600	≤ 240 sec
ATV71HU55N4	3*(2*550 S) P / 825	≤ 360 sec	ATV61HU55N4	3*(2*550 S) P / 825	≤ 360 sec
ATV71HU75N4	4*(2*550 S) P / 1100	≤ 440 sec	ATV61HU75N4	4*(2*550 S) P / 1100	≤ 440 sec
ATV71HD11N4	3*(2*950 S) P / 1425	≤ 570 sec	ATV61HD11N4	3*(2*950 S) P / 1425	≤ 570 sec
ATV71HD15N4	4*(2*950 S) P / 1900	≤ 760 sec	ATV61HD15N4	4*(2*950 S) P / 1900	≤ 760 sec
ATV71HD18N4	4*(2*950 S) P / 1900	≤ 760 sec	ATV61HD18N4	4*(2*950 S) P / 1900	≤ 760 sec
ATV71HD22N4	2*2700 S / 1350	≤ 197 sec	ATV61HD22N4	2*2700 S / 1350	≤ 197 sec
ATV71HD30N4	2*3900 S / 1950	≤ 285 sec	ATV61HD30N4	2*3900 S / 1950	≤ 285 sec
ATV71HD37N4	2*4800 S / 2400	≤ 350 sec	ATV61HD37N4	2*4800 S / 2400	≤ 350 sec
ATV71HD45N4	2*(2*2700 S) P / 2700	≤ 197 sec	ATV61HD45N4	2*(2*2700 S) P / 2700	≤ 197 sec
ATV71HD55N4	2*(2*3900 S) P / 3900	≤ 285 sec	ATV61HD55N4	2*(2*3900 S) P / 3900	≤ 285 sec
ATV71HD75N4	2*(2*4800 S) P / 4800	≤ 350 sec	ATV61HD75N4	2*(2*4800 S) P / 4800	≤ 350 sec
ATV71HD90N4	3*(2*4700 S) P / 7050	≤ 900 sec	ATV61HD90N4	3*(2*4700 S) P / 7050	≤ 900 sec
ATV71HC11N4	3*(2*5200 S) P / 10200	≤ 900 sec	ATV61HC11N4	3*(2*5200 S) P / 10200	≤ 900 sec
ATV71HC13N4	3*(2*5200 S) P / 7800	≤ 900 sec	ATV61HC13N4	3*(2*5200 S) P / 7800	≤ 900 sec
ATV71HC16N4	4*(2*5200 S) P / 10400	≤ 900 sec	ATV61HC16N4	4*(2*5200 S) P / 10400	≤ 900 sec
ATV71HC22N4	6*(2*3600 S) P / 10800	≤ 900 sec	ATV61HC22N4	6*(2*3600 S) P / 10800	≤ 900 sec
ATV71HC25N4	6*(2*5200 S) P / 15600	≤ 900 sec	ATV61HC25N4	6*(2*5200 S) P / 15600	≤ 900 sec
ATV71HC28N4	6*(2*5200 S) P / 15600	≤ 900 sec	ATV61HC31N4	6*(2*5200 S) P / 15600	≤ 900 sec
ATV71HC31N4	9*(2*3600 S) P / 16200	≤ 900 sec	ATV61HC40N4	9*(2*3600 S) P / 16200	≤ 900 sec
ATV71HC40N4	9*(2*5200 S) P / 23400	≤ 900 sec	ATV61HC50N4	9*(2*5200 S) P / 23400	≤ 900 sec
ATV71HC50N4	12*(2*5200 S) P / 31200	≤ 900 sec	ATV61HC63N4	12*(2*5200 S) P / 31200	≤ 900 sec

ATV61/71 – Range 480V – IP54

STANDARD PRODUCT ON A HEAT SINK					
Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.	Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.
ATV71W075N4	2*390 S / 195	≤ 80 sec	ATV61W075N4	2*390 S / 195	≤ 80 sec
ATV71WU15N4	2*390 S / 195	≤ 80 sec	ATV61WU15N4	2*390 S / 195	≤ 80 sec
ATV71WU22N4	2*560 S / 280	≤ 120 sec	ATV61WU22N4	2*560 S / 280	≤ 120 sec
ATV71WU30N4	2*780 S / 390	≤ 160 sec	ATV61WU30N4	2*780 S / 390	≤ 160 sec
ATV71WU40N4	2*1200 S / 600	≤ 240 sec	ATV61WU40N4	2*1200 S / 600	≤ 240 sec
ATV71WU55N4	3*(2*550 S) P / 825	≤ 360 sec	ATV61WU55N4	3*(2*550 S) P / 825	≤ 360 sec
ATV71WU75N4	4*(2*550 S) P / 1100	≤ 440 sec	ATV61WU75N4	4*(2*550 S) P / 1100	≤ 440 sec
ATV71WD11N4	3*(2*950 S) P / 1425	≤ 570 sec	ATV61WD11N4	3*(2*950 S) P / 1425	≤ 570 sec
ATV71WD15N4	4*(2*950 S) P / 1900	≤ 760 sec	ATV61WD15N4	4*(2*950 S) P / 1900	≤ 760 sec

ATV61/71 – Range 480V – IP54 (continued)

STANDARD PRODUCT ON A HEAT SINK					
Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.	Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.
ATV71WD18N4	4*(2*950 S) P / 1900	≤ 760 sec	ATV61WD18N4	4*(2*950 S) P / 1900	≤ 760 sec
ATV71WD22N4	2*2700 S / 1350	≤ 197 sec	ATV61WD22N4	2*2700 S / 1350	≤ 197 sec
ATV71WD30N4	2*3900 S / 1950	≤ 285 sec	ATV61WD30N4	2*3900 S / 1950	≤ 285 sec
ATV71WD37N4	2*4800 S / 2400	≤ 350 sec	ATV61WD37N4	2*4800 S / 2400	≤ 350 sec
ATV71WD45N4	2*(2*2700 S) P / 2700	≤ 197 sec	ATV61WD45N4	2*(2*2700 S) P / 2700	≤ 197 sec
ATV71WD55N4	2*(2*3900 S) P / 3900	≤ 285 sec	ATV61WD55N4	2*(2*3900 S) P / 3900	≤ 285 sec
ATV71WD75N4	2*(2*4800 S) P / 4800	≤ 350 sec	ATV61WD75N4	2*(2*4800 S) P / 4800	≤ 350 sec
			ATV61WD90N4	2*(2*4800 S) P / 4800	≤ 350 sec

ATV61/71 – Range 690V

STANDARD PRODUCT ON A HEAT SINK					
Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.	Catalog Number	Number of capacitors and their value, wired in series (S) or in parallel (P) and the total value (in μF)	Discharge time from 412V (M3), 825V (N4) or 1127V (Y) to 50V.
ATV71HU22Y	2*1100 S / 550	≤ 130 sec	ATV61HU22Y	2*1100 S / 550	≤ 130 sec
ATV71HU30Y	2*1100 S / 550	≤ 130 sec	ATV61HU30Y	2*1100 S / 550	≤ 130 sec
ATV71HU40Y	2*1100 S / 550	≤ 130 sec	ATV61HU40Y	2*1100 S / 550	≤ 130 sec
ATV71HU55Y	2*1100 S / 550	≤ 130 sec	ATV61HU55Y	2*1100 S / 550	≤ 130 sec
ATV71HU75Y	2*1100 S / 550	≤ 130 sec	ATV61HU75Y	2*1100 S / 550	≤ 130 sec
ATV71HD11Y	2*1100 S / 550	≤ 130 sec	ATV61HD11Y	2*1100 S / 550	≤ 130 sec
ATV71HD15Y	2*1100 S / 550	≤ 130 sec	ATV61HD15Y	2*1100 S / 550	≤ 130 sec
ATV71HD18Y	2*1100 S / 550	≤ 130 sec	ATV61HD18Y	2*1100 S / 550	≤ 130 sec
ATV71HD22Y	2*1100 S / 550	≤ 130 sec	ATV61HD22Y	2*1100 S / 550	≤ 130 sec
ATV71HD30Y	2*1100 S / 550	≤ 130 sec	ATV61HD30Y	2*1100 S / 550	≤ 130 sec
ATV71HD37Y	2*(2*1800 S) P / 1800	≤ 180 sec	ATV61HD37Y	2*(2*1800 S) P / 1800	≤ 180 sec
ATV71HD45Y	2*(2*1800 S) P / 1800	≤ 180 sec	ATV61HD45Y	2*(2*1800 S) P / 1800	≤ 180 sec
ATV71HD55Y	2*(2*1800 S) P / 1800	≤ 180 sec	ATV61HD55Y	2*(2*1800 S) P / 1800	≤ 180 sec
ATV71HD75Y	2*(2*1800 S) P / 1800	≤ 180 sec	ATV61HD75Y	2*(2*1800 S) P / 1800	≤ 180 sec
ATV71HD90Y	2*(2*1800 S) P / 1800	≤ 180 sec	ATV61HD90Y	2*(2*1800 S) P / 1800	≤ 180 sec
ATV71HC11Y	3*(2*2100 S) P / 3150	> 900 sec	ATV61HC11Y	3*(2*2100 S) P / 3150	> 900 sec
ATV71HC13Y	3*(2*2100 S) P / 3150	> 900 sec	ATV61HC13Y	3*(2*2100 S) P / 3150	> 900 sec
ATV71HC16Y	3*(2*2100 S) P / 3150	> 900 sec	ATV61HC16Y	3*(2*2100 S) P / 3150	> 900 sec
ATV71HC20Y	6*(2*2100 S) P / 6300	> 900 sec	ATV61HC20Y	3*(2*2100 S) P / 3150	> 900 sec
ATV71HC25Y	6*(2*2100 S) P / 6300	> 900 sec	ATV61HC25Y	6*(2*2100 S) P / 6300	> 900 sec
ATV71HC31Y	6*(2*2100 S) P / 6300	> 900 sec	ATV61HC31Y	6*(2*2100 S) P / 6300	> 900 sec
ATV71HC40Y	12*(2*2100 S) P / 12600	> 900 sec	ATV61HC40Y	6*(2*2100 S) P / 6300	> 900 sec
ATV71HC50Y	12*(2*2100 S) P / 12600	> 900 sec	ATV61HC50Y	12*(2*2100 S) P / 12600	> 900 sec
ATV71HC63Y	12*(2*2100 S) P / 12600	> 900 sec	ATV61HC63Y	12*(2*2100 S) P / 12600	> 900 sec
			ATV61HC80Y	12*(2*2100 S) P / 12600	> 900 sec

Warning, concerning the ATV61/71 (range up to 90kW) there are two suppliers for the capacitors. If you change the capacitors, you should put the same supplier (don't mixed the capacitors). In the table, the values for the capacitors are the **end of lifetime values(C (END))**.

Example: You can see the picture above the nominal value as well as the end of lifetime value.



To order to gain time during diagnosis of a product, it is possible to discharge the capacitors after application of voltage by connecting a resistance of around 100 ohms 40 watts between terminals PA+ and PC-. A direct short circuit will pre-maturely age the capacitors.

Procedure for applying voltage to an ATV after long duration storage.

As a function of the length of storage, you must re-apply voltage progressively to the product to re-form the capacitors. Calculate the storage time from the date code of the product and not from the date of delivery.

Storage time	Procedure to re-apply voltage
≤ 1 year	Apply voltage in the normal way
Between 1 and 2	Apply voltage to the product for 1 hour
≥ 2 years	Use a variable AC power supply to <ul style="list-style-type: none"> - 25% of nominal voltage for 30 - 50% of nominal voltage for 30 - 75% of nominal voltage for 30 - 100% of nominal voltage for 210

8.3 Electrical verification of an ATV

If no short circuits have been discovered during the preliminary and static tests it is possible to apply voltage to the controller.

The ATV71 has functions, LEDs (>90KW) and menus that facilitate diagnosis of the product to determine breakdowns in the product or application.

The configuration of drive can be blocked with passwords in the code pin1 or the code pin2 (expert mode) .To disable this function without known the password:

- Enter 6969 for the code pin1.
- Enter 2663 for the code pin2.

These features allow:

- The product identification and its options.
- Monitoring of inputs-outputs and the communication words.
- The display of past faults as well as the state of the drive at the moment the fault appeared.
- Automatic testing of the drive (power and control circuits).
- The display of a maintenance message (customisable).

8.3.1 Product Identification.

This menu is only readable with the graphic terminal

Menu 1 – Drive menu

1.11 – Identification

It allows the determination of the identity of the drive boards and shows:

- The drive catalog number and its size.
- The software version drive.
- The application software version.
- The motor control software version.
- The drive serial number.
- The installed option boards.
- The software versions of the option boards (if present)

All the options are identified by the ATV71 but certain information is Only available for those options using a µP (software version....)

RUN +50.00Hz 1250A +50.00Hz
1.11 IDENTIFICATION
ATV71HU15N4
1,5 kW / 2 HP
380 /480 V
Application V0.4 IE 05
Motor Control V0.4 IE 05
<< >> Quick
6W0410xxxxxxxxxx
PDT V1.1 IE 04
OPTION 1
I/O EXTENSION CARD
Vx.x IE xx
OPTION 2
FIPIO CARD
Vx.x IE xx
CONSOLE
GRAPHIC S
Vx.x IE xx
ENCODER
RS 422

The board identities can be recovered by PowerSuite software and then exported (ASCII format) to be used by other software (maintenance management ...).

8.3.2 Input-output and communication word monitoring.

With the graphic terminal:

Menu 1 – Drive menu
1.2 - Monitoring (SUP)

This menu allows the monitoring of logic and analog inputs/outputs, the state of internal drive values, and data and communication values in order to help in diagnosing a wiring problem.

RUN Term + 50.00Hz 1250A
I/O IMAGE
LOGIC INPUTS IMAGE
ANALOGUE INPUTS IMAGE
LOGIC OUTPUTS IMAGE
ANALOGUE OUTPUTS IMAGE
FREQ. SIGNALS IMAGE
CODE << >> Quick

RUN Term + 50.00Hz 1250A
Logic Inputs MAP
PR LI1 LI2 LI3 LI4 LI5 LI6
1 0 1 0 1 0
LI7 LI8 LI9 LI10 LI11 LI12 LI13 LI14
1 0 1 0 1 0 1 0
<< >> Quick

RUN Term + 50.00Hz 1250A
LI1 ASSIGNMENT
FORWARD
SWITCHING RAMP 2
Delay time : 10 ms
<< >> Quick

RUN Term + 50.00Hz 1250A
LOGIC OUTPUTS IMAGE
R1 R2 LO1
<< >> Quick

RUN Term + 50.00Hz 1250A
LO1 CONFIGURATION
FAULT
Delay time : 10 ms
Active at : 1
Hold time : 20 ms
<< >> Quick

RUN Term. +50.00Hz 1250A
COM. IMAGE
CMD Channel : Modbus
CMD Value : 8001 Hex
REF. Channel : CANopen
REF. Value : 12,5 Hz
Status word : 2153 Hex
CODE << >> Quick

RUN Term. +50.00Hz 1250A
COM. IMAGE
W3142 : 6230 Hex
W1427 : F230 Hex
W1123 : +2343
W1487 : F230 Hex
COM.SCAN IN
CODE << >> Quick

RUN Term. +50.00Hz 1250A
COM. SCAN IN
Val Com Scan In1 : 64
Val Com Scan In2 : 8201 Hexa
Val Com Scan In3 : 0
Val Com Scan In4 : 0
Val Com Scan In5 : 0
CODE << >> Quick

Val Com Scan In6 :
 Val Com Scan In7 :
 Val Com Scan In8 :

8.3.3 Display of past faults and the state of the drive at the moment of the appearance of the fault.

Menu 1 – Drive Menu

1.10 - Diagnostics

Fault history

RUN Term. +50.00Hz 1250A
1.10- DIAGNOSTIC
FAULT HISTORY
PRESENT FAULT LIST
ADDITIONAL FAULT INFO
TEST PROCEDURE
SERVICES MESSAGE
HOME << >> Quick

Save 8 faults with 12 parameters saved at the time that the fault appeared:

- Drive state.
- Status word.
- Command word.
- Motor current.
- Output frequency.
- Elapsed time.
- Distribution network voltage.
- Motor thermal state.
- Command channel (terminal, modbus, ...).
- Reference channel.

RUN Term. +50.00Hz 1250A
FAULT HISTORY
SHORT CIRCUIT:40000 h
OVERCURRENT : 3500 h
EXTERNAL FLT : 3102 h
OVERVOLTAGE : 1312 h
UNDERVOLTAGE : 20 h
HELP << >> Quick

If the controller inside board (option) is installed it is possible to have a real-time clock and save the year, month, day, hour, and minute that a fault occurs.

For each saved fault, there is an indication of the probable cause via the Help button.

RUN Term. +50.00Hz 1250A
SHORT CIRCUIT
FREQUENCY REF: 20.0Hz
CURRENT : 200.0 A
MOTOR SPEED : 600 RPM
OUTPUT FREQ : 600 RPM
MACHINE SPEED: 1.2 ms
HELP << >> Quick

RUN Term. +50.00Hz 1250A
SHORT CIRCUIT FAULT
Check the connection cables with the speed controller disconnected, and the motor insulation. Check the speed controller transistor bridge
Quick

8.3.4 Drive Auto-test (power and control circuits).

Warning: Before performing these tests remove the terminal board to avoid having run commands present during the tests.

Tests available for the customer.

Menu 1 – Drive menu

1.10 - Diagnostics

Test Procedure

RUN Term. +50.00Hz 1250A
1.10- DIAGNOSTIC
FAULT HISTORY
PRESENT FAULT LIST
ADDITIONAL FAULT INFO
TEST PROCEDURE
SERVICES MESSAGE
HOME << >> Quick

Allows the diagnosis of a failed element through various tests such as:

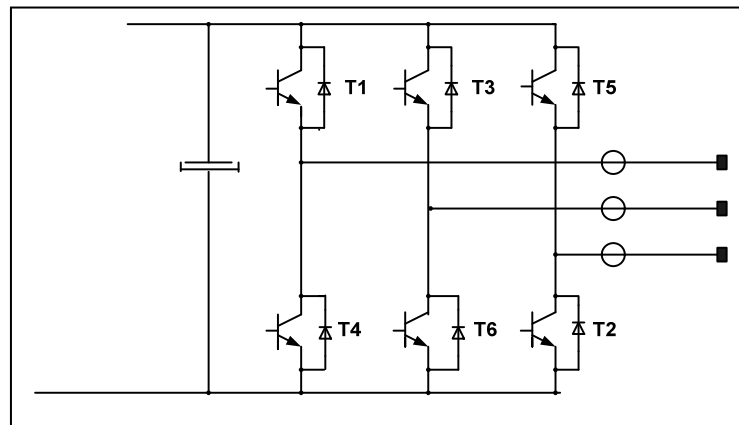
- Thyristor test.
- Transistor test.

RDY	Term	0.00Hz	0A
TEST PROCEDURES			
TRANSISTOR TEST			
THYRISTOR TEST			
Quick			

Transistor test

For this test a motor must be connected and the motor nameplate data entered into the “motor control” menu. The result depends upon the proper matching between the motor and the current information entered. It uses injected DC (**warning**, to the current level, which must be representative of the full load motor current).

Principle:



To detect a short circuit each transistor are command during 6 μ S, if the opposite transistor is in short circuit, there are a short circuit in the DC bus.

To detect an open transistor 2 transistors are command (ex: T1 and T6), the motor is used, and the current is measured via the current sensor. If one is open it's checked by combination (T1/T6 then T1/T2 then T3 / T4 then T3 / T2 then T5 / T4 and finally T5 / T6).

The results only apply to the IGBTs: possible results are OK, short circuit and open.

If an output contactor is present, be sure it is closed for the test.

To start the test you must push the ENT button for ~2 sec.

RDY	Term	00.0Hz	0A
TRANSISTOR RESULT			
IGBT 1	:		OK
IGBT 1	:		Open
IGBT 2	:		OK
IGBT 2	:		OK
IGBT 3	:		OK
Quick			

If the test result is short circuit or open transistor the fault can be caused by:

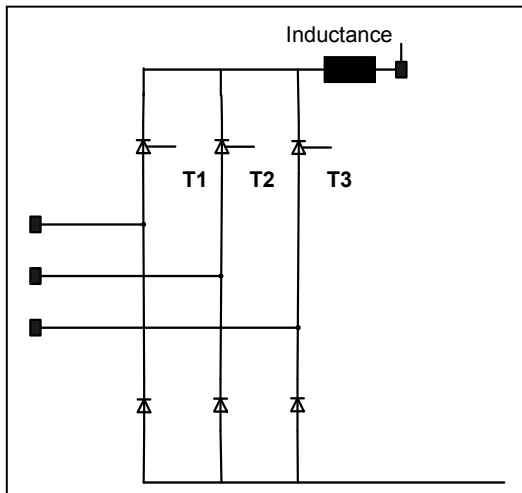
- Bad motor connection = check the wiring.
- Problem with the transistor command = change the power board or the gate drive board.
- Problem with the transistor = change the transistor.

Thyristor test

This menu is only present for sizes larger than 18.5 kW (230V, 480V and 690V range).

The test does not require any specific wiring by the customer: it is only necessary that the product be powered by three-phase power.

Principle:



Each thyristors are blocked one by one then open, the discharging time is measured. If the thyristor is bad the level of the DC bus is not the same.

This test can work for a long time because it depends of the time discharge.

The result generated is a number of pulses that corresponds to an OK / NOK result depending on whether the power supply is 50 / 60 Hz.

RDY	Term	00.0Hz	0A
THYRISTORS RESULT			
Thyristor 1	:		OK
Thyristor 2	:		Fault
Thyristor 3	:		OK
			Quick

Warning, the diodes are never tested.

8.3.5 Tests available only for SCHNEIDER services.

These tests are only available through the hidden menu and for drive < ATV71HC90N4

Procedure to access the hidden menu:

Menu 1 – Drive menu

1.11 - Identification

Graphic terminal

V#.#IE## Bottom

RDY	Term	0.00Hz	0A
1.11 IDENTIFICATION			
GRAPHIC TERMINAL			
GRAPHIC S			
V#.#IE## Bottom			
12WOP4200			
ENCODER			
<<		>>	
			Quick

Place the cursor on the version (V#.#IE##) then push the ENT button for 3 seconds. The display automatically returns to the Identification menu.

Go into the Test procedures menu, some new tests appear:

- Input / Output test.
- Current calibration.
- LIC test.
- Voltage calibration.
- Braking transistor test.

RDY	Term	0.00Hz	0A
TEST PROCEDURES			
I/O TEST			
TRANSISTOR TEST			
I CALIBRATION RESULT			
LIC TEST			
U CALIBRATION RESULT			
			Quick

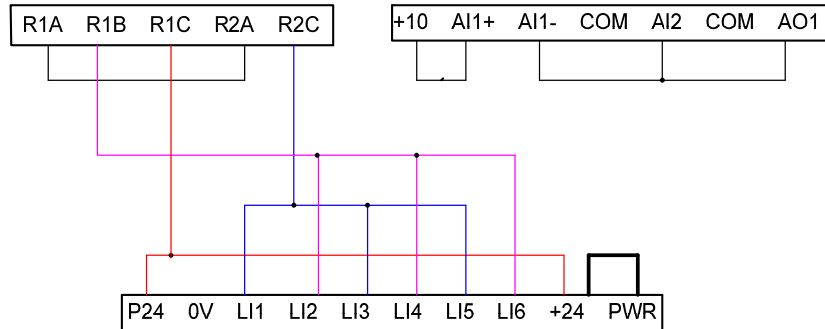
BRAKING TRANS.TEST
ETR

Warning, after switching-ON/OFF the hidden

8.3.5.1 I / O Test

The target of this test is to check the logic input, the output relay, and the visualisation of the LIs directly on the microprocessor and the calibration of the analog input and output.

To do this test, insert the following jumpers on the terminal block.



Warning: The logic input switch SW1 must be in source mode and SW2 to LI6 to avoid having a “Failed result” for the logic input test.

During this test procedure the motor can’t start (IGBTs are locked)

To launch the test press ENT for a long time.

If a fault is discovered, change the contro block or the terminal board.

RDY	Term	50.0Hz	0A
I/O RESULT			
LI2			OK
LI3			OK
LI4			OK
LI5			Failed
LI6			OK
Quick			

8.3.5.2 Current calibration

This test must be done with precaution.

The target of this test is to adjust the gain and the offset of each of the output phases.

For this test a motor must be connected and the motor nameplate data entered into the “motor control” menu.

For each output phases, there are two parameters, gain and offset.

The offsets are set automatically when the motor run. When the motor is running, the offset can be saved with the calibration test and will available for the next switch-on of the drive.

RDY	Term	00.0Hz	0A
I CALIBRATION RESULT			
Current phase U/T1:			- 10
Current phase V/T2:			0
Current phase W/T3:			0
IPUW	:		0
IPVW	:		0
Quick			

The gain allows to calibrate the output current in each phase. This test must be done if there is an unbalance of the output current.

To make this test configure the DC current injection on a logic input.

During the current injection measure with a current probe calibrated the output current phase by phase (IU, IV, and IW).

This value must be multiplied by Q12 ($2^{12} = 4096$) and divided by the I_{max} (See on the sheet below). Be careful to notice the sign of the values. The result must be entered on the menu (IPUW, IPVW, IPWW).

$$IP \bullet W = I \bullet \times 4096 / I_{max}$$

To finish the test run the “current calibration” with DC injection together. The sign between “current phase U, V, W must be the same as $IP \bullet W$.”

I_{max} values

Rating	240V	480V	690V
ATV71H037	9,1		
ATV71H075	14,8	7	
ATV71HU15	25	12,5	
ATV71HU22	33,3	16,8	12,3
ATV71HU30	42,2	23,8	13,8
ATV71HU40	53,6	32,7	17,8
ATV71HU55	84,4	44,3	23,1
ATV71HU75	100,5	53,6	30,7
ATV71HD11	165,6	84,7	41,5
ATV71HD15	200,7	100,5	56,9

Rating	240V	480V	690V
ATV71HD18	226,1	127	73,8
ATV71HD22	268,3	146,6	89,2
ATV71HD30	336	201,2	107,6
ATV71HD37	442,7	243	144,5
ATV71HD45	538,2	287,3	181,4
ATV71HD55		357,8	209,1
ATV71HD75		489,2	261,3
ATV71HD90			319,7

8.3.5.3 LIC test

Allows the testing of the max current value ($2 \times \sqrt{2} \times I_n$) to be sure that the drive trips on OCF.

The transistors T3/T4/T2 are commanded on. The time of the test is 50 LIC point with the nominal voltage. The LIC current on the result is the average of the current during the duration of the test.

If the LIC test is failed that's mean the LIC level has been not reach. The causes are a problem with motor or with the current feedback.

Connect a motor to the drive. If the motor is used on an application, uncouple the motor because it can turn. The motor size must match the drive size.

To start the test you must push the ENT button for ~2sec.

RDY	Term	00.0Hz	0A
LIC RESULT			
LIC test			OK
LIC current			##,##A
Quick			

8.3.5.4 Voltage calibration

This test is necessary if there are inconsistency between ULN on the display and the measurement with multimeter.

Before making the calibration measure the input voltage with multimeter.

Indicate in the second line (mains voltage) the value read on the multimeter. If the value entered is bad, do the calibration again until to have the correct value.

Start the voltage calibration.

RDY	Term	00.0Hz	0A
U CALIBRATION RESULT			
Mains voltage		395.5 v	
Mains voltage		395.5 v	
VOLTAGE CALIBRATION			
Quick			

8.3.5.5 Braking transistor test

The target of this test is to test the braking transistor.

Principle: The braking transistor is command during 5 seconds. There are no results for the test. The user must check with a multimeter the voltage to the terminal PA/PB.

When there is no command of the transistor the voltage is 0V

When the transistor is command the voltage is the DC bus voltage.

If there are nothing (voltage = 0V) it is a problem with the braking transistor, power board or control board.

8.3.5.6 ETR

This menu allows to reset the run time and the KWh of the drive.

RDY	Term	00.0Hz	0A
Operating t.reset			
No			
reset KWh			
rst. Runtime			
Quick			

8.3.5.7 Displaying a maintenance message (customisable).

Menu 1 – Drive Menu

1.10 - Diagnostics

Maintenance Message

Allows the display of a customised message in case of fault (5 lines of 23 characters max).

To write a maintenance message, follow the procedure in chapter 7 of the programming guide – display configuration.


RUN	Term.	+50.00Hz	1250A
1.10- DIAGNOSTIC			
FAULT HISTORY			
PRESENT FAULT LIST			
ADDITIONAL FAULT INFO			
TEST PROCEDURE			
SERVICES MESSAGE			
HOME	<<	>>	Quick

8.4 Description of LEDs status (size > 10KW)

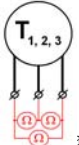
8.4.1 Power board and measuring board

The LED's, placed for size 12 and 13 on the power board (VX5A1HC1622 and VX5A1HC2025) or for size 11 on the measurement board and power board (VX5A1500 and VX5A1HC1316) are indicating the function of power supply of the related part. If a LED is not lighting, the power supply for the corresponding part is defective or the relative supplied part is defective and burdens the supply too much.

Warning, for security and personal safety, do not depend on the displayed LED signals. A no lit LED does not guarantee that no power is supplied to the unit.

Name of board		LED number	Functionality	Indicated supply voltage	Name of connector	Name of target connector
Size 11	Size 12 & 13					
Measuring board VX5A1500	Power board VX5A1HC1622 & VX5A1HC2025	LED 1	Indicates a supplied DC-Link on the auxiliary circuit. LED 1 will be lighted, if the voltage in the Auxiliary-DC-Link is over a range of 60V and will be dim out under 10V.	560 VDC to 740 VDC	-----	-----
		LED 2	Indicates a functioning power supply for the FCB-Card (Fan Control Board).	+ 15 VDC	X14	A7 - FCB X2
		LED 3	Indicates a functioning power supply for the application circuit.	+ 24 VDC	X4	A10 - HHP_I1 X4
		LED 4	Indicates a functioning power supply for the internal fan, to cool the control electronic parts of the frequency inverter.	- 24 VDC	X21 + X22 (size 12 & 13)	Cooling Fan X31
		LED 5 & LED 6	Indicates a functioning power supply for the current transformers.	+ 15 VDC (size 11) +24VDC (size 12 & 13) - 15 VDC (size 11) -24VDC (size 12 & 13)	X11	T1, T2, T3
		LED 7	Indicates a functioning power supply for powering the Motor control MC1.	+ 5 VDC	X1	A2 - HHP_MC1 X1
		Power board VX5A1HC1316	LED 8	Indicates a functioning power supply for the SCB-Card (Soft Charge Board).	+ 15 VDC	X30
	LED 9 LED 10	Indicates a functioning power supply for the BUD (Breaking Unit Device).	+ 15 VDC - 15 VDC	X91 & X92	A20 BUD12	

If you detect a non lighting LED on your supply boards due the troubleshooting, then you will get information for each indicator as follows:

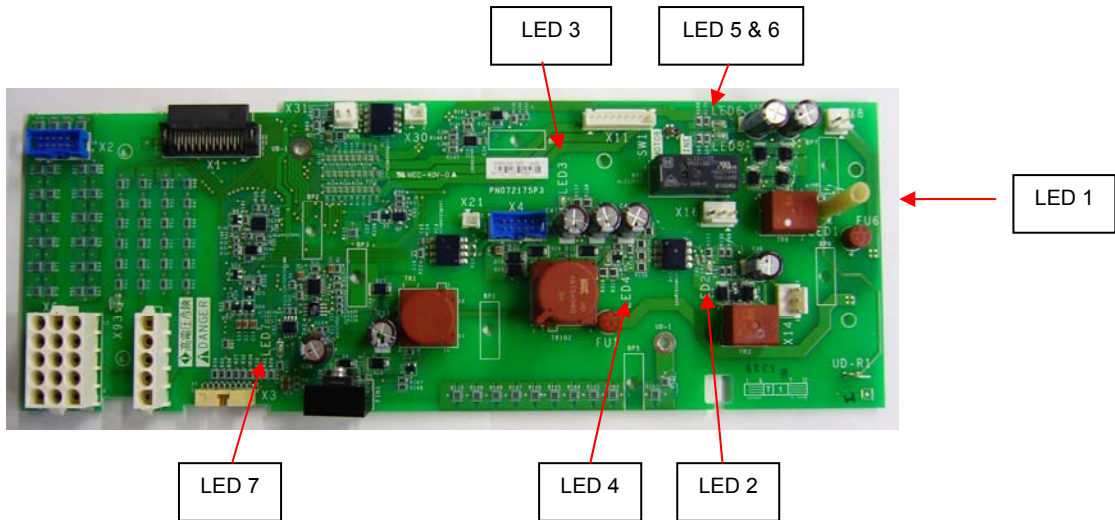
Name of board		LED number	Possible cause	Remedy	
Size 11	Size 12 & 13				
Measuring board VX5A1500	Power board VX5A1HC1622 & VX5A1HC2025	LED 1	Power Supply for Auxiliary-DC-Link is defective.	Change the corresponding board.	
		LED 2	The fan control board (VX5A1400) is defective and burdens the supply too much.	Disconnect the terminal X14 and supply the inverter again. If the LED2 is now lighting, change only the fan control board (VX5A1400).	
			The supply on the corresponding board is defective.	If the LED2 is not lighting for all that (disconnected X14), change the corresponding board and the fan control board (VX5A1400) for sure.	
		LED 3	The fault is located in the control block and burdens the supply too much.	Disconnect the terminal X4 and supply the inverter again. If the LED3 is now lighting, change only control block (VX4A71101Y) if option board present remove it step by step.	
			The supply on the corresponding board is defective.	If the LED3 is not lighting for all that (disconnected X4), change the corresponding board	
		LED 4	The internal cooling Fan (cooling of the control electronic parts) is mechanical blocked or has an electrical defect and burdens the supply too much.	Check the smooth running of the fan. Further, disconnect the terminal X21 or X22 on the corresponding board and supply the inverter again. If the LED4 is now lighting, change only the internal fan 24 VDC.	
		LED 5 & LED 6	The current transformers are defective and burden the supply too much.	Disconnect the terminal X11 on the corresponding board and supply the inverter again. If both LED5 and LED 6 are lighting now, change only the current transformers.	
			The supply on MB11 is defective.	If both LED5 and LED 6 are not lighting for all that (disconnected X11), change the corresponding board. Make sure, that the current transformers are not electrically damaged. Use an Ohmmeter to have comparison measurements on each transformer as follow: <div style="text-align: center;">  </div> <p>The comparison measurements have to be same on all 3 installed current transformers. If you can find irregular values, please change the transformers, too.</p>	
		Measuring board VX5A1500	LED 7	The motor control is defective and burdens the supply too much.	Disconnect the terminal X1 on the corresponding board and supply the inverter again. If the LED7 is now lighting, change only the motor control board.
		X	X	LED 8	The soft charge board (VX5A1300) is defective and burdens the supply too much.
The supply on power board is defective.	If the LED8 is not lighting for all that (disconnected X30), change the power board and the soft charge board (VX5A1300) for sure.				
LED 9 LED 10	The Breaking Unit is defective and burdens the supply too much or the supply on the power board is defective.			If one or both LED's are not lighting, it will be advisable to change the power board and the braking unit kit (VZ3F1110) together, for security reasons.	

Name of board		LED number	Functionality	Indicated supply voltage	Name of connector	Name of target connector
Size 14	Size 15					
Power board VX5A1HC3140 & VX5A1HC4050	Power board VX5A1HC5063	LED 1	Indicates a supplied DC-Link on the auxiliary circuit. LED 1 will be lighted, if the voltage in the Auxiliary-DC-Link is over a range of 60V and will be dim out under 10V.	560 VDC to 740 VDC	-----	-----
		LED 2	Indicates a functioning power supply for the FCB-Card (Fan Control Board).	+ 15 VDC	X14 & X15	A70 & A71 – FCB X2
		LED 3	Indicates a functioning power supply for the application circuit.	+ 24 VDC	X4	A10 - HHP_I1 X4
		LED 4	Indicates a functioning power supply for the internal fan, to cool the control electronic parts of the frequency inverter.	- 24 VDC	X21 & X22	Cooling Fan X30,X31,X32
		LED 5 & LED 6	Indicates a functioning power supply for the current transformers.	+ 24VDC - 24VDC	X11	T1, T2, T3
		LED 7	Indicates a functioning power supply for powering the Motor control MC1.	+ 5 VDC	X1	A2 - HHP_MC1 X1
		LED 8	Indicates a functioning power supply for the SCB-Card (Soft Charge Board).	+ 15 VDC	X40	A61 – SCB CN2A
		LED 9 LED 10	Indicates a functioning power supply for the BUD (Breaking Unit Device).	+ 15 VDC - 15 VDC	X30	A60 – SCB CN2A

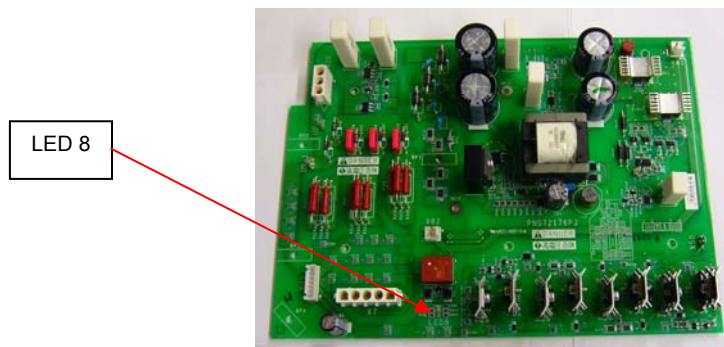
Name of board	Fuse Number	Functionality	Fused supply voltage
Power board VX5A1HC3140 VX5A1HC4050 VX5A1HC5063	FU2	Fuse for the supply Applicative circuit and internal cooling fan.	+/- 24 V=
	FU3	Fuse for the supply of FCB, Motor control and SCB - Charging DS2.	+ 15 V= + 7V=
	FU6	Fuse for the supply of current transformers.	+/- 24 V=
	FU7	Fuse for the supply of SCB - Charging D1.	+ 15 V=

8.4.2 LED location on the power board or measuring board

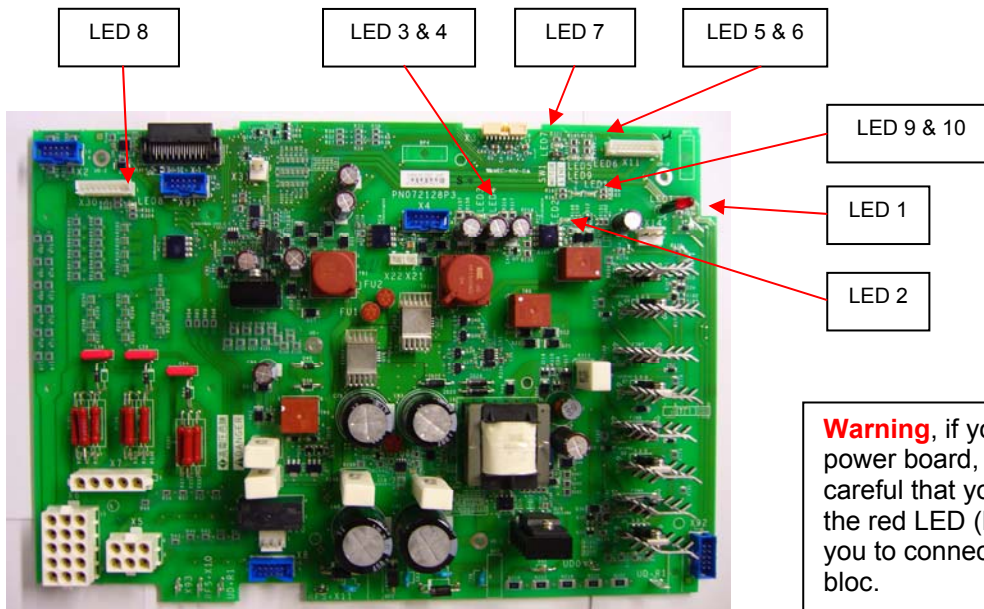
8.4.2.1 Measuring Board (VX5A71HC13N4, only size 11)



8.4.2.2 Power board VX5A1HC1316 (size 11)

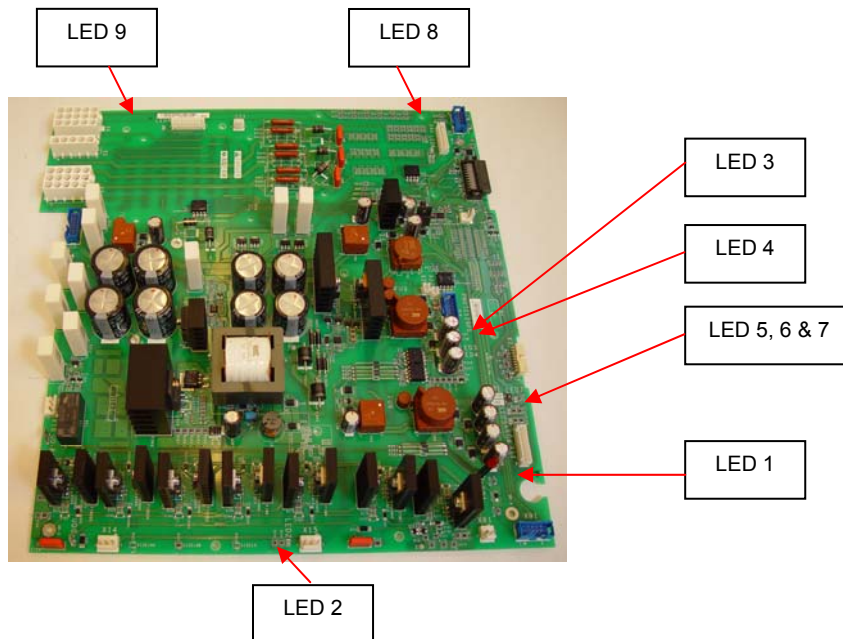


8.4.2.3 Power board VX5A1HC1622 & VX5A1HC2025 (size 12 & 13)



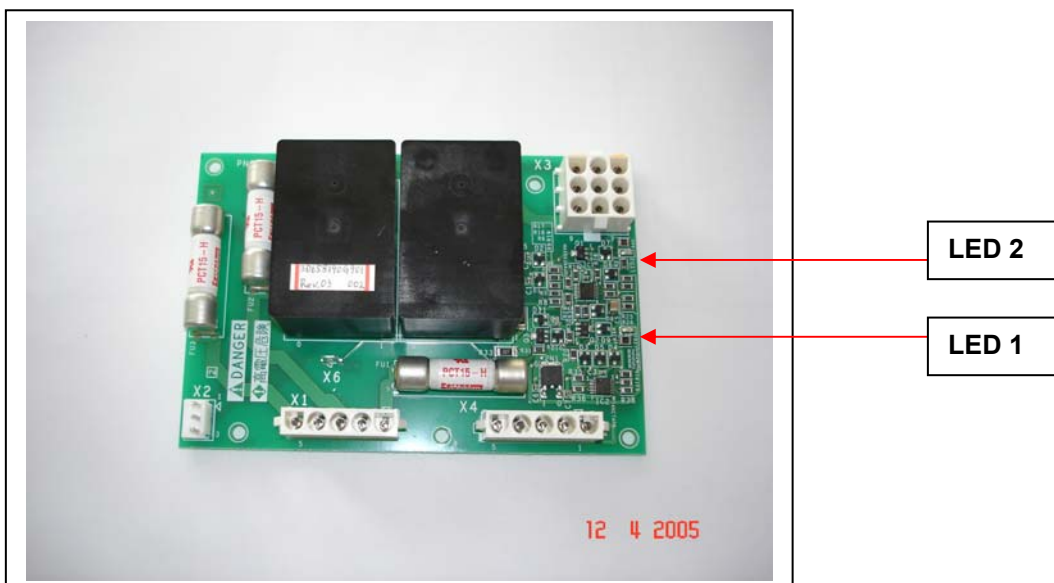
Warning, if you change the power board, you must pay careful that you don't break the red LED (LED1) when you to connect the control bloc.

8.4.2.4 Power board VX5A1HC3140 & VX5A1HC4050 (size 14 & 15)



8.4.3 Fan Control Board (VX5A1400)

Size	Status LED 1	Status LED 2	Functionality	Possible cause	Remedy
11 & 12	1	X	Temperature of the fan is OK.	Mechanically blocked due to defective bearings or dirt.	Exchange the fan or clean.
13 to 15	0	X	The fan motor is overheated;		
	1	1	The fan M1 and M2 are OK;		
	0	0	The fan M1 is overheated		
	0	1	The fan M2 is overheated		
	1	0	LED 2 on the fan control board is defect		



8.5 Keypad Contrast Calibration

These tests are only available through a hidden menu. Procedure to access to this hidden menu.

On the graphic terminal:

- Press the both key ESC and ENT (Wheel) during 5 seconds.
- Select 'Other' and press wheel button.
- Select 'Contrast' and press wheel button.
- Select 'Contrast 128' and press wheel button.
- Adjust value with the wheel to reach the contrast value needed then press on wheel button to valid. Push on " Enter " button in order to valid. The displayed value is in reverse video and is written in external "Flash".
- Finally disconnect keypad.

8.6 Drives State

The following codes are drive states and not fault codes.

<i>Code</i>	<i>Designation</i>
ACC	Acceleration.
CLI	Current limit.
CTL	Controlled stop upon input phase loss.
DCB	Braking by DC injection.
DCFE	Transfer Configuration Impossible.
DEC	Deceleration.
FLU	Motor fluxing in progress.
FST	Fast stop.
NLP	Power not supplied (no input power).
NST	Free wheel stop.
OBR	Automatically adapted deceleration.
PRA	Power Removal Function Active (drive locked out).
RDY	Drive ready.
SOC	Controlled output cut-off in progress.
TUN	Auto-tuning in progress.
USA	Under-voltage alarm.

8.7 Displayed Faults

List of faults that can be read on the display or graphic terminal.

<i>Code</i>	<i>Designation</i>
AI2F	Analogue Input Fault
AnF	Load slipping
APF	Application fault
BUF	Braking unit failure
bLF	Brake command
brF	Mechanical brake
CFF	Incorrect configuration
CF1	Invalid configuration
CnF	Communication network fault
COF	CANopen fault
CrF	Precharge fault
Ecf	Mechanical encoder link
EEFx	Control EEPROM fault

Code	Designation
ENF	Encoder fault
EPFx	External fault
FCF1	Output contactor welded
FCF2	Output contactor open
HCF	Card pairing
HDF	IGBT desaturation.
ILF	Internal link fault
InFx	Internal fault
LCF	Line contactor fault
LFF	4-20mA loss
ObF	Excessive braking
OCF	Overcurrent fault
OHF	Drive overheating
OLF	Motor overheating
OPFx	Motor phase loss
OSF	Input overvoltage
OtFx	PTCx overheating
PHF	Input phase loss
PrF	Power removal
PrtF	
PtFx	PTCx fault
SCFx	Short circuit
SLFx	Serial link fault
SOF	Overspeed
SPF	Loss of speed feedback
SSF	Torque / current limit
TJF	IGBT overheating
tnF	Auto-tuning fault
USF	Under voltage

Finding the failure beginning with the displayed fault

The display terminal does not illuminate

Experiences Knew:

Change the display terminal board.

The motor noise is abnormal

Experiences Knew:

The motor nameplate data has not been entered into the motor state and an auto tuning has not been done

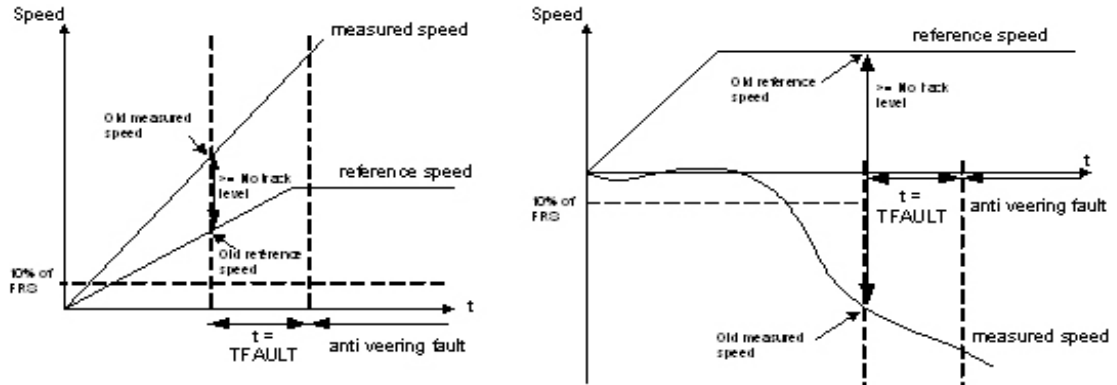
AI2F : Analog Input Fault		Automatic Restart : YES
Principe	This fault appears when the current is over at 30mA on the input AI2.	
Probable causes		
Remedies	<ul style="list-style-type: none"> * Correct mechanical alignment. * Skip over the resonant frequency. 	
Experience Knew	Nothing	

AnF : Load Slipping Automatic Restart : YES

Principe

The fault appears when the drive has detected a load slipping.
 In case of a fault, the drive goes to free wheel stop, if the brake function is configured the brake is closed.
 This fault appears when:

- The no following of the ramp is over 10% of the nominal motor frequency(FRS).
- The sign of the speed error is constant.
- The sign of the speed error is opposite of the sign of the feedback variation.
- The measured speed is over 10% of the nominal motor frequency (FRS).



TFAULT = 500mSec

Probable causes

- * Not following the ramp. The speed feedback doesn't match the speed reference.
- * The sign of the speed feedback is different from the sign of the reference.
- * The speed is greater than 10% of nominal speed (FRS).

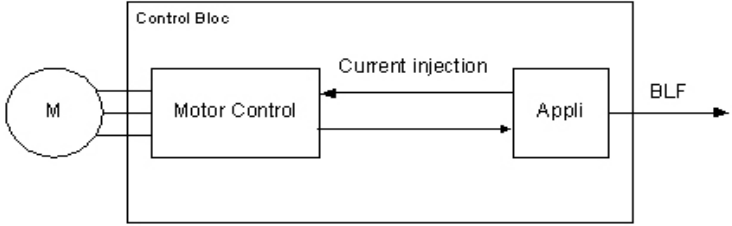
Remedies

- * Check the motor parameters, gain and stability.
- * Add a braking resistor if the fault appeared during generator mode.
- * Check the compatibility motor / drive / load.
- * Check the mechanical coupling of the encoder and its wiring.

Experience Knew Nothing

APF : Application Fault		Automatic Restart : YES
Principe	This fault appears when the controller inside board is present. It is generated by the controller inside program (define by the programmer).	
Probable causes	* Controller inside board fault. * The program of the controller inside board generates an application fault.	
Remedy	See the board programming and documentation.	

BUF : Braking Unit Fault		Automatic Restart : YES
Principe	<ul style="list-style-type: none"> * This fault appears only for the drives > 90kW. * This fault appears when there is a short-circuit on the output of the braking transistor (desaturation of the braking IGBT). 	
Probable causes	<ul style="list-style-type: none"> * Short circuit inside the braking module. * Braking resistor in short circuit. * Short circuit to the ground. * BRA=NO (ramp autoadaptation) and no braking resistor. 	
Remedies	<ul style="list-style-type: none"> * Check the wiring of the braking unit and the resistor. * Check the configuration of the drive. 	
Experience Knew	<p>Use macro configuration in hosting, in this case the BRA is set automatically to NO. If the braking resistor is not connected the next switch-on the drive trip on a BUF fault.</p> <p>With the version V1.1 IE02: separate control supply 24V then switch-on the drive after less than 1sec with DC bus completely discharged the drive trip on a BUF.</p>	

bIF : Brake Logic Fault		Automatic Restart : YES
Principe	<p>This fault appears when the brake logic is used and the conditions to open the brake are not present. If the brake release current (parameter IBR) is not attained after a delay (parameter BRR+100ms) or it is impossible to flux the motor during $5 \cdot tr$ (tr = Rotor time constant) then the fault appears.</p>	
 <pre> graph LR subgraph ControlBloc [Control Bloc] MotorControl[Motor Control] Appli[Appli] MotorControl -- "Current injection" --> Appli Appli --> MotorControl end M((M)) --- MotorControl Appli -- BLF --> BLFOut[] </pre>		
Probable causes	<ul style="list-style-type: none"> * Check the parameter IBR. * Bad fluxing of motor ($5 \cdot tr$).(tr = Rotor time constant). * Incorrect values of autotuning (check in expert mode TRM). 	
Remedies	<ul style="list-style-type: none"> * Check the drive/motor connections. * Check the motor winding. * Check the IBR (current for brake opening while ascending) and IRD (current for brake opening while descending) settings. * Check the setting of bEn (brake closing frequency). * Check the parameter BRR <input type="checkbox"/> Current ramp time (only in expert mode). 	
Experience Knew	<ul style="list-style-type: none"> * Old motor was rewound (name plate wrong compared to the autotune result). 	

brF : Brake Fault		Automatic Restart : YES
Principe	<p>The diagram shows a motor (M) connected to an ATV71 inverter. The inverter contains a 'Brake Cmd' block and a 'BLC Appli BCI' block. A 'Brake State' signal is fed back from the motor to the inverter. The inverter outputs a 'BRF' signal.</p>	
Probable causes	<ul style="list-style-type: none"> * The brake feedback (brake contact assign to a LI) does not match the brake command. 	
Remedies	<ul style="list-style-type: none"> * Check the brake feedback and command circuits. * Check the mechanical state of the brake. * Check the parameter BCI -> Brake contact. * Check the parameter BLC -> Brake contactor control. * Check the parameters BRT -> Brake release time. * Check the parameters BET -> Brake engage time. 	
Experience Knew	Nothing	

CFF : Incorrect Configuration Fault		Automatic Restart : YES
Principe	At the power ON, the drive checks its configuration. If it detects an anomaly, it triggers a CFF fault.	
Probable causes	<ul style="list-style-type: none"> * Option Card changed or removed (I/O ; Encoder ; COM ; Application ; ...). * Control card replaced by a control card configured on a drive with a different rating. * The current configuration is inconsistent. 	
Remedies	<ul style="list-style-type: none"> * Check that there are not card errors. * In the event of the option card being changed/removed deliberately. * Return to factory settings or retrieve the backup configuration. 	
Experience Knew	With the software version product V1.1IE02, trip on a CFF fault after switch-off the drive. To resolve the problem changed one of these parameters NCR, ITH, FRS, THT or change to a previous version.	

CFI : Invalid Configuration		Automatic Restart : YES
Principe	<p>If a configuration which has been downloaded is inconsistent (invalid parameter value, the functions configured are incompatible, etc.), the drive will trip on CFI fault.</p> <p>This fault will be reset automatically once a consistent configuration has been downloaded or the fault disappears as soon as one of the parameters of the configuration is written at the correct value.</p>	
Probable causes	<p>* The configuration loaded into the drive via serial link is incoherent (parameters outside limits for example).</p>	
Remedies	<p>* Check the previously loaded configuration.</p> <p>* Load a coherent configuration.</p>	
Experience Knew	<p>Nothing.</p>	

CnF : Communication Network Fault		Automatic Restart : YES
Principe	This fault appears when the Modbus communication between the option card and the master (PLC) is interrupted.	
Probable causes	* Communication fault between option card and the master (protocol interrupted).	
Remedies	<ul style="list-style-type: none"> * Check the environment (electromagnetic compatibility). * Check the wiring. * Replace the option board. * Check the menu "diagnostic" (more information on the fault). 	
Experience Knew	Nothing.	

COF : CANOpen Fault		Automatic Restart : YES
Principe	This fault appears when the CANopen communication between the option card and the master (PLC) is interrupted.	
Probable causes	<ul style="list-style-type: none"> * Interruption of communication on the CANopen. * Communication driver on the control bloc defect. * Time out in the program too small. 	
Remedies	<ul style="list-style-type: none"> * Check the communication bus. * Check the code error in the menu monitoring. * Check the PLC program. 	
Experience Knew	With the first version of terminal board if it is disconnected when the drive is ON, the communication driver are damaged.If this happens, change the control bloc.	

CRF1 : Pre-charge relay Fault		Automatic Restart : YES
Principe	<p>The purpose of this function is to check the closing of the pre-charge relay/contacteur.</p> <p>This fault appears only for the size 2 to 5B.</p> <p>If the bus voltage is unstable (5Vdc) after the command to close the relay, with a time of 5s then the fault CRF1 appears.</p>	
Probable causes	<ul style="list-style-type: none"> * Failure of the command of the pre-charge relay or deterioration of the charge function (resistor). * Unstable DC bus voltage. 	
Remedies	<ul style="list-style-type: none"> * Change the power section or the power board. * Change the control bloc. * Check input voltage. 	
Experience Knew	Nothing.	

CRF2 : Thyristor Soft Charge Fault		Automatic Restart : YES
Principe	<ul style="list-style-type: none"> * This fault appears when DC bus charging is bad. * This fault appears for the size 6 to 15. * On the size 9 to 15, this is the soft charge board which realizes this function. 	
Probable causes	<ul style="list-style-type: none"> * Thyristor, control bloc, soft charge board. 	
Remedies	<ul style="list-style-type: none"> * Change the power section or the power board. * Change the control bloc. * Made a thyristor test. 	
Experience Knew	<p>On the size 6 (22kW).</p> <p>Verify where is positioned the cable supplying the control block.</p> <p>If the cable is just situated above the cristal then the product trips in CRF2. To resolve the problem, change the place of the cable.</p>	

Ecf : Encoder Mechanical Link Fault		Automatic Restart : YES
Principe	<p>This fault appears when there is mechanical loss of the coupling between the motor and the encoder. The detection is programmable with the ECC parameter. The product trips if the speed feedback is 0 and the drive is in torque or current limitation during ECT delay. The threshold of feedback speed is: min = 5hz ; maxi = 10% FRS. The detection of this fault is incompatible with an application operating in current or torque limit.</p>	
Probable causes	<p>* Braking of the mechanical coupling of the encoder.</p>	
Remedies	<p>* Check the mechanical encoder coupling. * Check the parameter -> ECC (Encoder coupling check configuration). * Check the parameter -> ECT (Encoder coupling detection time).</p>	
Experience Knew	<p>Nothing.</p>	

EEF1 : Control EEprom Fault		Automatic Restart : YES
Principe	At starting, the microprocessor on the application board tries to read and write to the EEPROM. If it is impossible, the drive trips in EEF1 fault.	
Probable causes	* Internal memory failure.	
Remedies	<ul style="list-style-type: none"> * Check the environment (electromagnetic compatibility). * Switch off / on the drive, return to factory settings. * Change the control bloc. 	
Experience Knew	Nothing	

EEF2 : Power EEprom Fault		Automatic Restart : YES
Principe	At starting, the microprocessor on the control motor board tries to read and write to the EEPROM on the power board. If it is impossible, the drive trips in EEF2 fault.	
Probable causes	* Internal memory failure.	
Remedies	<ul style="list-style-type: none"> * Check the environment (electromagnetic compatibility). * Switch off / on the drive, return to factory settings. * Change the Power board and check the ribbon cables (40 points). 	
Experience Knew	Nothing.	

ENF : Encoder Fault		Automatic Restart : YES
Principe	<p>This fault appears when the encoder test is faulty. The motor is running in open loop (motor control SVCU or SVCI).</p>	
Probable causes	<ul style="list-style-type: none"> * The difference between the measured and the estimated speed is greater than 4% FRS. * The sign of the encoder feedback (measured speed) in case of AABB and AB hardware signals must be the same as the estimated speed. * The reference must be 10% FRS and stable during 3s. 	
Remedies	<ul style="list-style-type: none"> * Check the encoder board. * Check the encoder wiring. * Check the encoder type and supply. 	
Experience Knew	<p>To replace ATV58F the signal A and B or A/ and B/ wiring must be reverse.</p>	

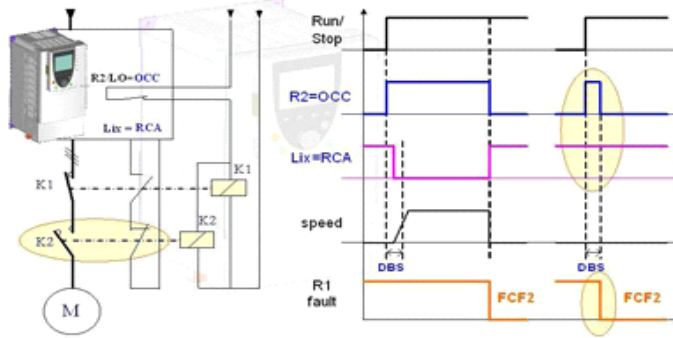
EPF1 : External Fault - LI / Bit		Automatic Restart : YES
Principe	<p>The fault can only appear if a logic input has been configured as ETF (external fault). The stop type when the fault appears is configurable. The acquisition time of LI is 2ms.</p>	
Probable causes	<p>* Fault caused can come from external circuit.</p>	
Remedies	<p>* Check the external circuit in the installation which has caused the fault. * Check the parameter ETF => External fault. * Made I/O diagnostic.</p>	
Experience Knew	<p>* Change the control bloc * Change the I/O terminal.</p>	

EPF2 : External Communication Fault		Automatic Restart : YES
Principe	<p>This fault is generated by the communication or application program (defined by the programmer) The stop type when the fault appears is configurable. Warning, the Controller inside, Ethernet, Devicenet boards can generate the EPF2 fault.</p>	
Probable causes	<p>* Fault caused by the communication or application program.</p>	
Remedies	<p>* Check the external circuit in the installation which has caused the fault. * Check the communication parameters.</p>	
Experience Knew	<p>Nothing.</p>	

FCF1 : Output Contactor Welded		Automatic Restart : YES
Principe	<p>The auxiliary contact (mirror) of the contactor must be connected to a logic input configured for this effect (RCA=Lix, inverted logic). Following a run or stop command, the function tests that the contactor is closed (or open) after a settable time (TRC).</p>	
Probable causes	<p>* The output contactor remains closed when the conditions required for opening are fulfilled.</p>	
Remedies	<ul style="list-style-type: none"> * Check the contactor and its wiring. * Check the feedback circuit. * Check the parameter RCA -> Output Contact Fdbk. * Check the parameter DBS -> Time to motor run. * Check the parameter DAS -> Time to open contactor. 	
Experience Knew	<p>Nothing.</p>	

FCF2 : Output Contactor Blocked Open **Automatic Restart : YES**

Principe The auxiliary contact (mirror) of the contactor must be connected to a logic input configured for this effect (RCA=Lix, inverted logic). Following a run or stop command, the function tests that the contactor is closed (or open) after a settable time (TRC). FCF2 corresponds to a contactor-blocked open, this fault is resettable by a simple re-cycling of the run command.



Probable causes * The output contactor remains open although the conditions for closure have been fulfilled.

Remedies

- * Check the contactor and its wiring.
- * Check the feedback circuit.
- * Check the parameter RCA -> Output Contact Fdbk.
- * Check the parameter DBS -> Time to motor run.
- * Check the parameter DAS -> Time to open contactor.

Experience Knew Nothing.

HCF : Card Pairing Fault **Automatic Restart : YES**

Principe	This fault appears when the parameter PPI is active (see steps following).		
	<p>This function is used to detect whenever a card has been replaced or the software has been modified in any way. When a pairing password is entered, the parameters of the cards currently inserted are stored. On the power up, these parameters are verified and if there is a difference then the fault HCF appears.</p>		
Probable causes	<ul style="list-style-type: none"> * A card has been changed. * The parameter PPI is active. 		
Remedies	<ul style="list-style-type: none"> * Reinsert the original card. * Validate the configuration in entering the pairing password. * To disable this function without knowing the password, enter 7171 in parameter PPI in expert mode. 		
Experience Knew	Nothing.		

HDF : IGBT Desaturation		Automatic Restart : YES
Principe	This fault appears only on the drive >90KW when a short-circuit is present on the IGBT module by measurement of the transistor desaturation.	
Probable causes	<ul style="list-style-type: none"> * Short circuit or grounding on the output phases. * Transistor IGBT in short circuit. 	
Remedies	<ul style="list-style-type: none"> * Check the insulation motor and the wiring. * Made transistor diagnostic. * Change power board, gate drive board or transistors. 	
Experience Knew	Nothing.	

ILF : Internal Link Fault		Automatic Restart : YES
Principe	This fault appears when the communication between the option board and drive is interrupted.	
Probable causes	* Communication fault between the option board and drive.	
Remedies	<ul style="list-style-type: none"> * Check the environment (electromagnetic compatibility). * Check the connections. * Replace the option board. * Change the control bloc. 	
Experience Knew	No 24V supply on the option board (like controller inside) when switch-on the drive.	

INF1 : Rating Error		Automatic Restart : YES
Probable causes	The value saved in the EEPROM power is incorrect regarding the part number of the power board.	
Remedies	<ul style="list-style-type: none"> * Check the part number of the power board. * Check with the graphic terminal the size and the voltage of product. 	
Experience Knew	Nothing.	

INF2 : Incompatible Power Board		Automatic Restart : YES
Probable causes	The drive trips in InF2 fault when the software version is incompatible with the application and control motor boards.	
Remedies	<ul style="list-style-type: none"> * Check the reference of the power board and its compatibility. * Re-flash the control bloc or change it. 	
Experience Knew	Nothing.	

INF3 : Internal Serial Link		Automatic Restart : YES
Principe		
Probable causes	Communication fault between the internal boards (Power, motor control, application).	
Remedies	<ul style="list-style-type: none"> * Check the internal connections (check the small ribbon cable). * Change the control bloc or version software or terminal board (with the capacitor). 	
Experience Knew	<p>With the first version of terminal board if the internal 24V have some disturbances there are a reset of microprocessor (application) and trip in fault. The solution is to modify the wiring (shielded cable) or use a new terminal board (add capacitor C112).</p> <p>With the first version V1.1IE01of ATV71HO37M3DEMO for demo case, INF3 when download a configuration from an-other drive with an other software version. Connection to Power Suite ATV71.</p>	

INF4 : Internal Zone Fabrication Error		Automatic Restart : YES
Principe	This fault appears when the microprocessor doesn't read the reserved industrialisation zone EEPROM.	
Probable causes	Incoherent internal data (EEPROM □ HS).	
Remedies	<ul style="list-style-type: none"> * Recalibrate the drive using the diagnostic menu. * Change the control bloc or power board. 	
Experience Knew	Nothing.	

INF6 : Incompatible Power Board		Automatic Restart : YES
Probable causes	<ul style="list-style-type: none"> * The option installed in the drive is unknown or incompatible * The terminal board is not connected properly. 	
Remedies	<ul style="list-style-type: none"> * Check the part number and the compatibility of the option. * Change the control bloc or power board. 	
Experience Knew	The I/O terminal board is not connected properly.	

INF7 : Internal Hardware Initialisation		Automatic Restart : YES
Probable causes	The initialisation of the drive is incomplete.	
Remedies	<ul style="list-style-type: none"> * Switch ON/OFF the drive. * Check the ribbon cable (40 points). * Change control bloc or power board. 	
Experience Knew	Nothing.	

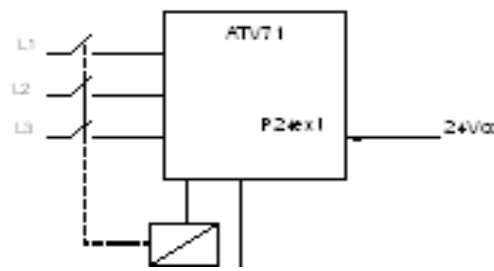
INF8 : Internal Power Supply Fault		Automatic Restart : YES
Principe	This fault appears when the voltage input P24ext of the terminal board or the supply 24Vcc of the power board is over to 32Vcc.	
Probable causes	The control power supply is not correct.	
Remedies	<ul style="list-style-type: none"> * Check the control power supply. * Check the supply 24Vcc internal or external. 	
Experience Knew	Nothing.	

INF9 : Current Transformer Fault		Automatic Restart : YES
Principe	This fault detect only a bad supply of the current sensor.	
Probable causes	* Current measurements are incorrect.	
Remedies	<ul style="list-style-type: none"> * Check the current sensors. * Check the power board. 	
Experience Knew	The I/O terminal board is not connected properly.	

INFB : Internal Thermal Sensor Fault		Automatic Restart : YES
Principe	The IGBT sensor for the size 2 to 6 and probe PTC for the size 7 to 15 gives this fault.	
Probable causes	The thermal probe is not operating correctly or IGBT bad.	
Remedies	<ul style="list-style-type: none"> * Replace or change the power bloc sub-assembly for the size 2 to 5. * Replace or change the bus board for the size 6. * Change the control bloc, power board or others board as below. * Simulate thermal sensor at the Temperature of 25°C: <ul style="list-style-type: none"> * For the size 7 & 8, connected on S700 of the power board a resistor of 2,2kOhms. * For the size 9 & 10, connected on CN22 of the power board a resistor of 5kOhms. * For the size 11 & 12, connected on X4 of the braking unit kit a resistor of 5kOhms. * For the size 13, connected on X4 of the gate drive board a resistor of 5kOhms. * For the size 14, connected on X4 of the gate drive board a resistor of 5kOhms. * For the size 15, connected on X4 of the gate drive board a resistor of 5kOhms. 	
Experience Knew	Nothing.	

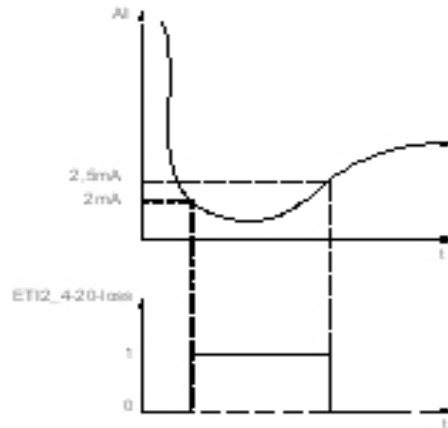
INFC : Moto Thermal State Estimation Fault		Automatic Restart : YES
Principe	<p>The thermal state of the motor is estimated even when the drive is turned off.</p> <p>The function is realised by a capacitor and a counter on the application board.</p> <p>The fault trips if the counter is faulty.</p>	
Probable causes	* Fault on the electronic counter for motor thermal state estimation during turn off.	
Remedy	* Replace the control bloc.	
Experience Knew	Nothing.	

INFE : Internal CPU		Automatic Restart : YES
Principe	The fault appears when the microprocessor can't check his program and data.	
Probable causes	Bad initialisation between motor control board and application board and asic COMPRIV of the power board.	
Remedy	Replace the control bloc.	
Experience Knew	Nothing.	

LCF : Line Contactor Fault		Automatic Restart : YES
Principe	<p>A function allows to close the line contactor and open it when the motor is no longer on. The drive's control must be supplied by external 24V. This fault trips if the line contactor is not closed after a settable time.</p>	
		
Probable causes	* Voltage is not applied to the drive although the time set by LCT (line voltage time out) has passed.	
Remedies	* Check the contactor and wiring. * Check the time-out period □ parameter LCT.	
Experience Knew	Nothing.	

LFF2 : Loss of 4-20mA Signal LFF3 : Loss of 4-20mA Signal LFF4 : Loss of 4-20mA Signal	Automatic Restart : YES
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Principe	<p>This fault appears when one of input (AI2, AI3 and AI4) has loss of the 4-20mA signal.</p> <p>If the inputs are configured in 0-20 mA or 0-10 V the fault doesn't appear.</p> <p>The drive trips in fault if the inputs current is bellow 2 mA.</p>
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Probable causes	<p>* Loss of the 4-20 mA signal on an analog input AI2 on the terminal board and AI3, AI4 on the option board.</p>
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Remedies	<ul style="list-style-type: none"> * Check the connection on the analog input. * Check the parameter AI2T -> AI2T Type * Check the parameter AI3T -> AI3T Type * Check the parameter AI4T -> AI4T Type * Check the parameters LFL2, LFL3, LFL4 -> Validate the AI fault.
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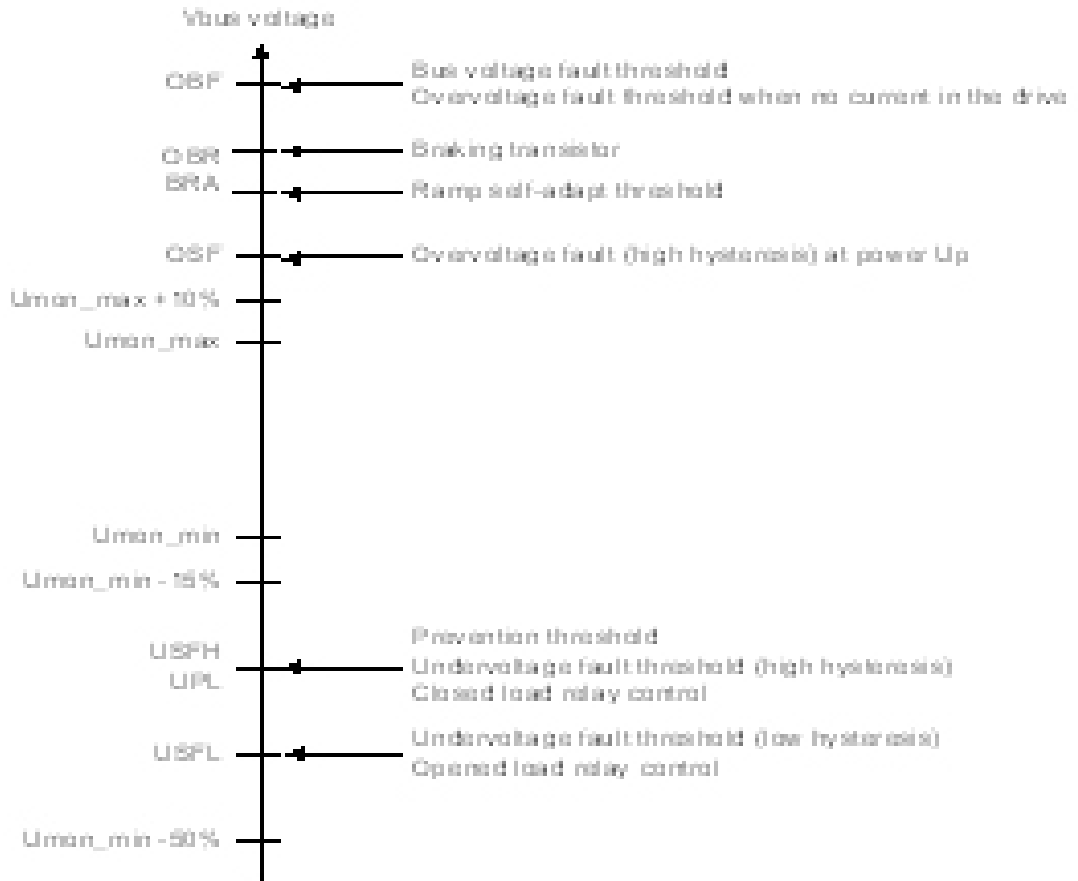
Experience Knew	<p>Nothing.</p>
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Obf : Over Braking Fault

Automatic Restart : YES

Principe

The fault appears when ramp adaptation is not assigned (BRA=NO), the drive is running and the DC bus voltage pass the OBF level.



		230V range DC Volts	480V range DC Volts	690V range DC Volts
OBF	Bus voltage fault threshold Over-voltage fault threshold when no current in drive	412	825	1174
OBR	Braking transistor external control.	403	805	1127
BRA	Ramp self-adapt threshold.	393	786	1105

Probable causes

* Too much braking energy or overhauling load.

Remedies

- * Increase the deceleration time.
- * Add or adapt a braking resistor.
- * Activate the BRA function (ramp adaptation during braking) if the application permits it.
- * Made diagnostic of braking transistor.
- * Change the braking transistor or IGBT or power board.
- * For P > HC20N4 check the connection with the braking unit.

Experience Knew

Nothing.

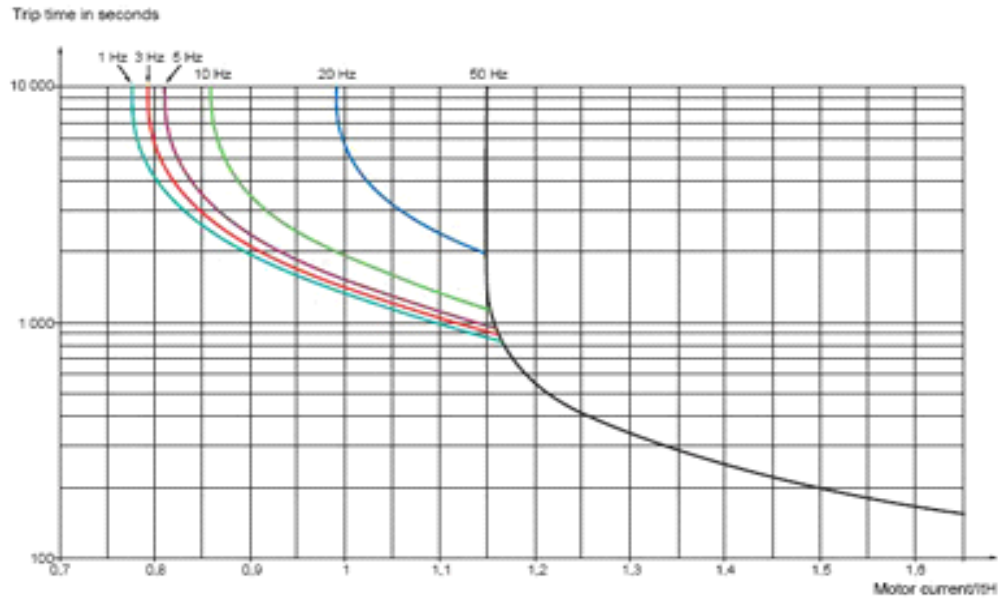
OCF : Over Current Failure		Automatic Restart : YES
Principe	<p>OCF fault trips when the drive hardware current limitation is reached (LIC level during 100ms continuously). OCF detection is present only on range up to 75kW.</p>	
<p>The diagram shows a vertical axis labeled 'Current' with an upward arrow. Four horizontal lines with arrows pointing to the axis represent different current levels: <ul style="list-style-type: none"> I MAX = 2.5/2.3*2¹ radie (2) InVar: Maximum current conversion LIC = 2¹ radie (2) InVar: Hardware LIC CLI = 1.65¹ radie (2) InVar: Current limitation InVar = Nominal drive: Current nominal drive </p>		
<p>Current acquisition type for software.</p> <ul style="list-style-type: none"> * Measurement by 3 shunts: 230 V range: from 0.37 kW to 4 kW 400 V range: from 0.37 kW to 4 kW * Measurement by 2 sensors: 230 V range: from 5.5 kW to 15 kW 400 V range: from 5.5 kW to 18,5 kW * Measurement by 3 sensors: 230 V range: from 18.5 kW to 75 kW 400 V range: from 22 kW to 132 kW 690V range : from 2.2 kW to 90kW 		
Probable causes	<ul style="list-style-type: none"> * Incorrect motor parameters. * Inertia or load too large. * Mechanical blockage. * Faulty motor measurements (bad autotune). 	
Remedies	<ul style="list-style-type: none"> * Check the motor parameters. * Check the motor / drive / load sizing. * Check the state of the mechanical couplings. 	
Experience Knew	Nothing.	

OHF : Drive Over Heating Fault		Automatic Restart : YES
Principe	<p>The information drive thermal state comes from a sensor located on the heatsink. The drive thermal state has given by the parameter THD. If THD=118% then the fault appears and 90% the fault disappears. When THD is at 118% it means 100°C on the heatsink.</p> <p>Fan management: Size 2 to 5b the fan starts on a temperature threshold THD=70%. Size 6 to 15 and 690V range the fan starts as soon as the run command.</p>	
Probable causes	<ul style="list-style-type: none"> * Ambient temperature too high * Bad cooling. * Filter blocked. * Fan failure. 	
Remedies	<p>Check the motor load, the drive ventilation, and the ambient temperature. Wait for the drive to cool down before re-starting.</p>	
Experience Knew	<p>Nothing.</p>	

OLF : Motor OverLoad **Automatic Restart : YES**

Principe

The motor overload fault protects the motor following the standard IEC947-4 and NEMA ICS 2-222.
 The motor thermal stage is expressed as I^2t .
 The thermal motor protection takes into account the copper and iron constants as well as the type of motor ventilation.
 The OLF fault is set when the motor thermal state (tHr) is higher than 118%.
 The OLF fault is reset when the motor thermal state (tHr) is lower than 100%.
 The thermal state is memorized when the drive is switched off and actualised according to the off time when the drive is switched on.



Probable causes

- * Motor overloaded for a long time.
- * Trip due to too high motor current.
- * The type of motor protection programmed does not correspond to the motor.

Remedies

- * Check the motor thermal protection settings.
- * Check the motor load.
- * Wait for the motor to cool down before re-starting.
- * Check the parameter ITH Motor thermal current.
- * Check the parameter THT Thermal protection type.
- * Check the parameter THR Motor thermal state.
- * Check the parameter TSA Motor thermal alarm.
- * Check the parameter TTD Motor thermal state threshold parameter in %.
- * Check the parameter OLL Overload fault behaviour configuration parameter.

Experience Knew

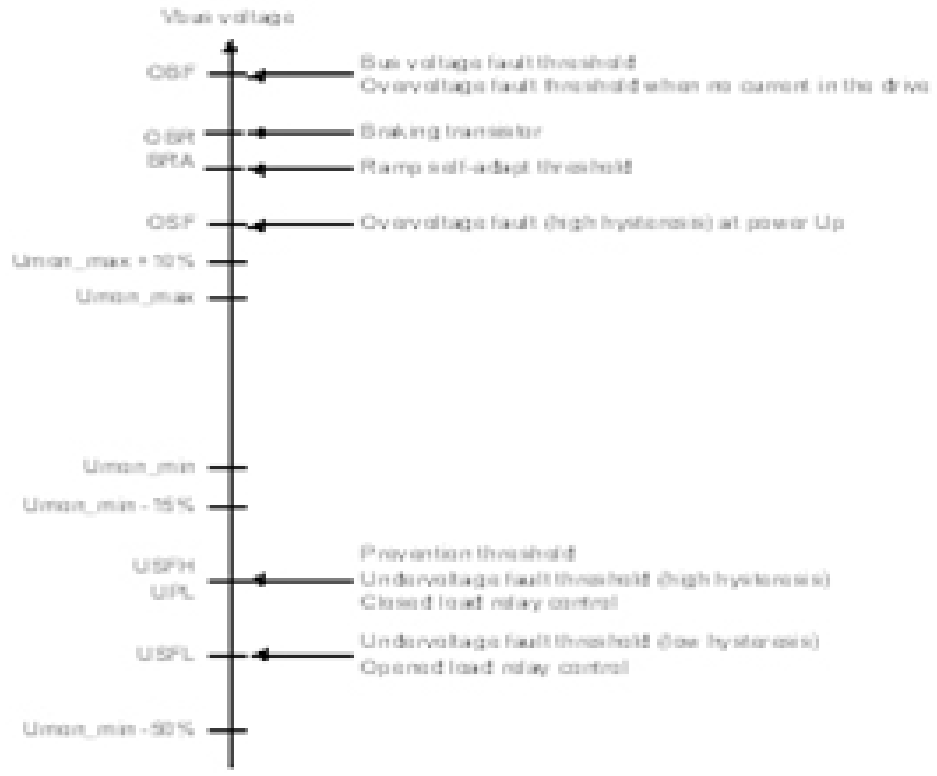
Nothing.

OPF1 : Motor Phase Loss		Automatic Restart : YES
Principe	<p>This fault appears when one motor phase is loss on the output of the drive The minimum time to detect one motor phase loss is 500ms.</p> <p>The threshold by phase is: $I(U,V,W) < \text{Drive nominal current} / 4$ during ODT (Output phase loss detection time)..</p>	
Probable causes	Loss of a phase on the output of the drive.	
Remedy	Check the connections between the drive and motor.	
Experience Knew	Nothing.	

OPF2 : Motor Phase Loss		Automatic Restart : YES
Principe	<p>This fault appears when three motor phases are loss on the output of the drive. The minimum time to detect one motor phase loss is 500ms.</p> <p>The threshold is: $I_{\text{motor measured}} < \text{motor current (NCR)} / 16$ during ODT (Output phase loss detection time).</p>	
Probable causes	<ul style="list-style-type: none"> * Motor not wired or too small for the drive rating. * Downstream contactor open. * Instantaneous instabilities of the motor current. 	
Remedies	<ul style="list-style-type: none"> * Check the connections between the drive and motor. * If using an output contactor set parameter OPL (motor phase loss) to OAC (downstream contactor). * During a small motor test or testing without a motor set motor phase loss detection OPL (motor phase loss) to no. * Check and optimize the motor parameters than do a tun (auto-tune). * Check the parameter ODT -> Output phase loss detection time. 	
Experience Knew	Nothing.	

OSF : Main Over Voltage Fault **Automatic Restart : YES**

Principe
 This fault appears when the main supply is upper at the maxi supply of product (see table below). There are 2 types of OSF faults.
 The drive doesn't measure the main voltage directly the line overvoltage is estimated with the Dc bus voltage.
Warning: OSF detection doesn't protect the drive, when the fault trips the line voltage must be switched off with an external sequence.

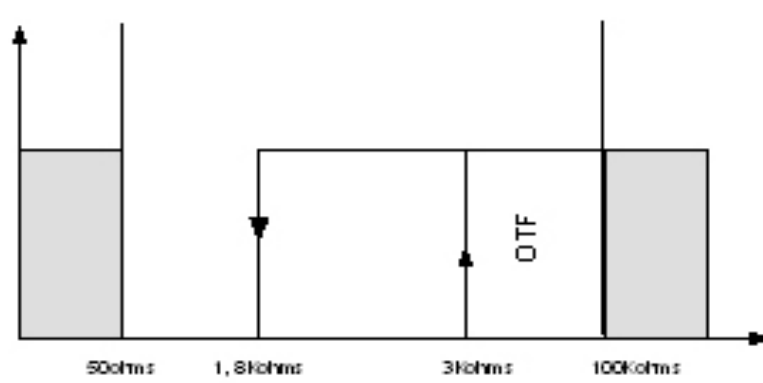


		230V range DC Volts	480V range DC Volts	690V range DC Volts
OSFH	Over-voltage fault at power up.	380	756	1087
OSFL	Threshold for reset OBF and OSF fault	375	750	1078
OBF	Bus voltage fault threshold. Over-voltage fault threshold.	412	825	1174

Probable causes
 * Input voltage too high.
 * Input voltage perturbations.
 DC bus charging mode: DC Bus > OSFH during 20ms OSF fault = 1
 DC Bus < OSFL OSF fault = 0
 Drive not running mode: DC Bus > OBF OSF fault = 1
 DC Bus < OSFL OSF fault = 0
 When the drive is running OSF fault is not active (only OBF can trip).

Remedy
 Check the input voltage.

Experience Knew
 Nothing.

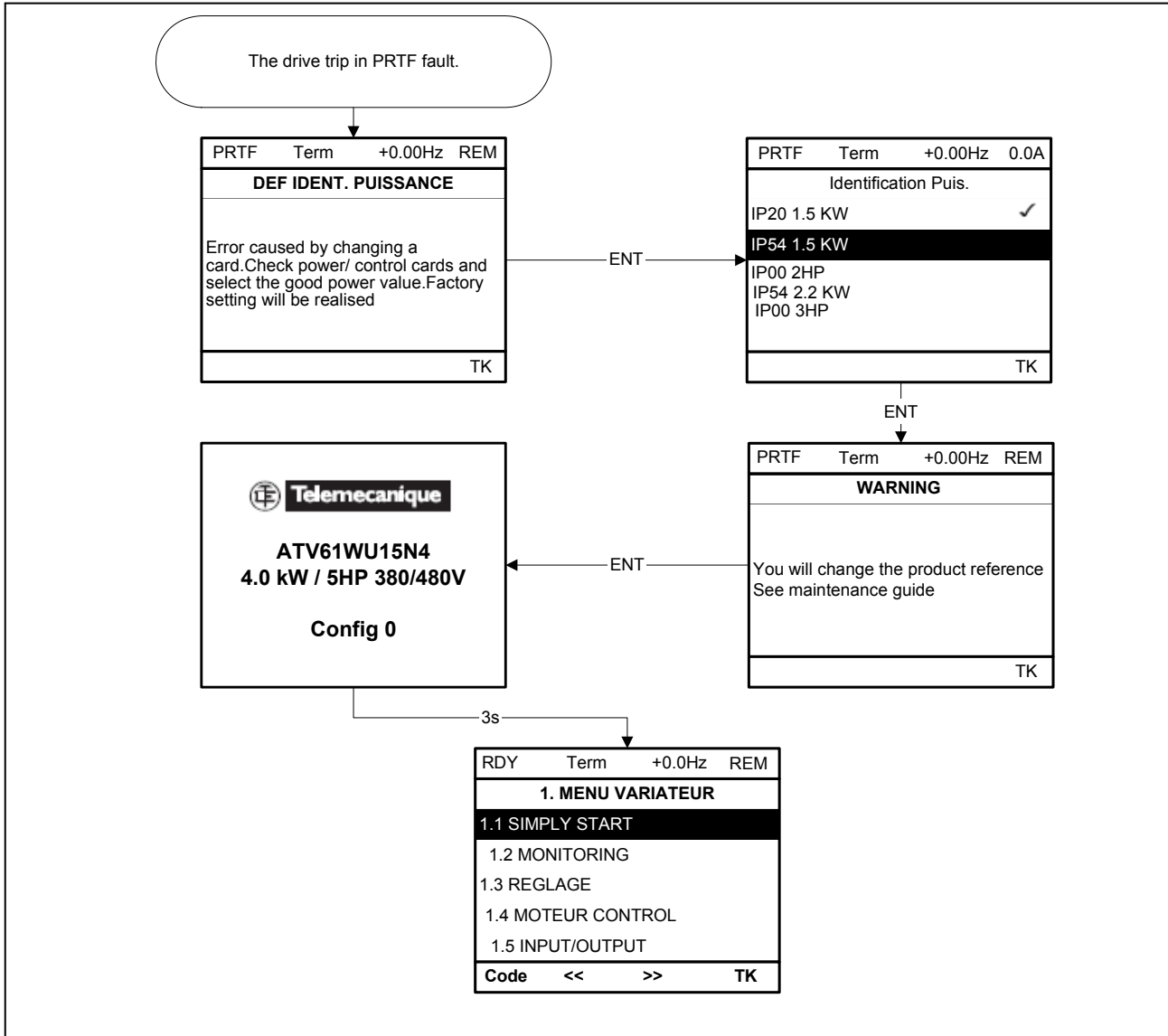
OtFx : PTC Over Temperature Fault		Automatic Restart : YES
Principe	<p>This fault appears when the PTC probe value is contained between 3KOhms and 100KOhms. You can connect 3 PTC probes:</p> <ul style="list-style-type: none"> * One on the input LI6 of the terminal board. * One on the I/O board. * One on the I/O extended. 	
Probable causes	<div style="text-align: center;">  </div> <p>OtF1 = Overheating detected by motor PTC sensor 1, on LI6 of the terminal board. OtF2 = Overheating detected by motor PTC sensor 2, on the I/O board. OtFL = Overheating detected by motor PTC sensor 3, on the extended I/O board.</p>	
Remedy	<ul style="list-style-type: none"> * Check the load and the motor sizing. * Check the motor ventilation. * Wait until the motor cools down before restarting. * Check the type and state of the PTC sensors. * Terminal board or control bloc. 	

PHF : Input Phase Loss		Automatic Restart : YES
Principe	<p>This fault appears when an input phase is lost. If 2 or 3 phase disappears while the drive is running, the drive will continue to run until the drive trips in another fault (USF for example).</p> <p>This function could be disable by software with the parameter IPL=NO to supply the drive via the DC BUS voltage (range 230V and 480V). Some drives (230V up to 7,5kW) have IPL=NO in factory setting because they can be supply in single phase.</p> <p>Warning, In the case where the motor is in generator mode then the fault doesn't appear. Warning, the fault is stored in the EEPROM during a run.</p>	
Probable causes	<ul style="list-style-type: none"> * Drive incorrectly powered or fuse opened. * Loss of one input phase. * Use of a single-phase input on a three-phase ATV71. 	
Remedies	<ul style="list-style-type: none"> * Check the power connections and the fuses. * Use a three-phase distribution network. * Inhibit the IPL fault (input phase loss). 	
Experience Knew	Nothing.	

PRF : Power Removal		Automatic Restart : YES
Principe	<p>Power removal function allows to prohibit unintended equipment operation this is to protect the person from mechanical movement. It's not for protection from touching the wiring. The fault trips if something is wrong in the internal management of this function (input PR).</p>	
Probable causes	<p>* Fault of the drive "Power Removal" safety function.</p>	
Remedies	<p>* Change the bloc control. * Change the sub-assembly power-bloc for the size 2 to 5B.</p>	
Experience Knew	<p>Nothing.</p>	

PRTF : Power Rating Fault **Automatic Restart : YES**

Warning, the following procedure shows how resolve the PRTF fault when the part power or the control bloc has been changed.



PtFx : PTCx Fault		Automatic Restart : YES
Principe	This fault appears when the PTC probe is in short circuit or open.	
Probable causes	<p>* PtF1 = PTC1 probe . * PtF2 = PTC2 probe open or short-circuited. * PtFL = PTC probe on input LI6 open or short-circuited.</p>	
Remedy	* Check the PTC probe and the drive/motor wiring.	

SCF1 : Output Short-Circuit		Automatic Restart : YES
Principe	<p>The drive is protected against short circuit between output phases and phase to the ground. When there is a quick short circuit the drive trips in SCF1 and the fault relay opens. It's a very quick (a few μs) hardware detection, the threshold is about 3 to 4 times the drive nominal current depending on the range.</p>	
Probable causes	<ul style="list-style-type: none"> * Short circuit or path to ground directly on the output of the drive. * Motor short circuit with short cables. * Short circuit to the earth 	
Remedies	<ul style="list-style-type: none"> * Perform the tests in the drive diagnostic menu. * Check the motor-drive wiring and the motor insulation. 	
Experience Knew	Transistor in short circuit.	

SCF2 : Impedant Short-Circuit		Automatic Restart : YES
Principe	<p>The drive is protected against impedant (slow) short circuit between output phase and phase to the ground. When there is a impedant short circuit the drive trips in SCF2 and the fault relay opens. It's a software detection (a few ms): Output current sum > 25% InDrive.</p>	
Probable causes	<ul style="list-style-type: none"> * (Slow) Short circuit or path to ground on the output of the drive. * Short circuit on a motor with long cables. * Isolation fault in the motor or in the cables. 	
Remedy	<ul style="list-style-type: none"> * Check the motor-drive wiring and the motor insulation. 	
Experience Knew	Nothing.	

SCF3 : Short-Circuit to Ground		Automatic Restart : YES
Principe	The purpose of this function is to detect a short circuit to the ground at the start-up or during the running. Quick hardware detection with a current transformer around the three incoming power leads for the smaller ranges and the 3 separate current transformers for the big ranges.	
Probable causes	<ul style="list-style-type: none"> * High leakage current to ground on the output of the drive when connecting motors in parallel. * Long shielded cables * Bad motor isolation 	
Remedies	<ul style="list-style-type: none"> * Reduce the chopping frequency. * Add inductors in series with the motor. 	
Experience Knew	Transistor in short circuit.	

SCF4 : Short-Circuit IGBT		Automatic Restart : YES
Principe	Result of the function "IGON" which detect during the power up if there is a short circuit on the IGBT. This function checks if each transistor are not in short-circuit. The time to check each transistor is between 1µS and 10µs following the size.	
Probable causes	* Power component fault.	
Remedy	* Perform a diagnostic via the menu " Diagnostic".	
Experience Knew	Transistor is short circuited.	

SCF5 : Load Short-Circuit		Automatic Restart : YES
Principe	<p>Result of the function "IGBT test" witch detect during at each run command if there is a short circuit on the IGBT or the output of the drive before starting the motor. In factory setting this detection is disabled (can be enabled in the fault management menu TIT).</p> <p>Warning, this function reduces the response time of the run command (3 ms more)</p>	
Probable causes	<ul style="list-style-type: none"> * Short-circuit at drive output. 	
Remedies	<ul style="list-style-type: none"> * Check the cables connecting the drive to the motor, and the motor is insulation. * Check the parameter STRT. * Perform a diagnostic via the menu "Diagnostic". 	
Experience Knew		

SLF1 : Modbus Communication		Automatic Restart : YES
Principe	This fault can be tripped when the command or the reference come from Modbus protocol.	
Probable causes	* Interruption of communication on the modbus bus.	
Remedies	<ul style="list-style-type: none"> * Check the parameter ADD -> Modbus Address. * Check the parameter TBR -> Modbus Baud Rate. * Check the parameter TFO -> Modbus format. * Check the parameter TTO -> Modbus Time Out * Check the parameter NTO (bit of parameter CMI). 	
Experience Knew		

SLF2 : PowerSuite Communication		Automatic Restart : YES
Principe	This fault can be tripped when the command or the reference come from Powersuite.	
Probable causes	* Communication fault with powersuite.	
Remedy	* Check the Powersuite connection cable.	
Experience Knew	Nothing.	

SLF3 : Graphic Terminal Communication		Automatic Restart : YES
Principe	This fault can be tripped when the command or the reference comes from the graphic terminal (HMI). If the communication is interrupted during 2s (graphic terminal disconnect), the fault SLF3 appears.	
Probable causes	* Communication fault with the graphic terminal.	
Remedy	* Check the terminal connections.	
Experience Knew	Nothing.	

SOF : Over Speed		Reset Fault Remotely : YES
Principe	<p>This fault appears when an overspeed is present on the drive. The feedback speed is used and when the parameter ENU=NO it is the estimated speed. The threshold is 110% of TFR parameter and during 250ms in open or close loop. When the fault occurs, the brake is engaged immediately and the drive is locked (trip) after <BRT> time (if brake sequence is active).</p>	
Probable causes	<ul style="list-style-type: none"> * Unstable or too large an overhauling load. 	
Remedies	<ul style="list-style-type: none"> * Check the motor parameters and the speed feedback loop. * Add a braking resistor. * Check the sizing of the motor, drive and load. 	
Experience Knew	<p>Nothing.</p>	

SPF : Loss of Speed Feedback

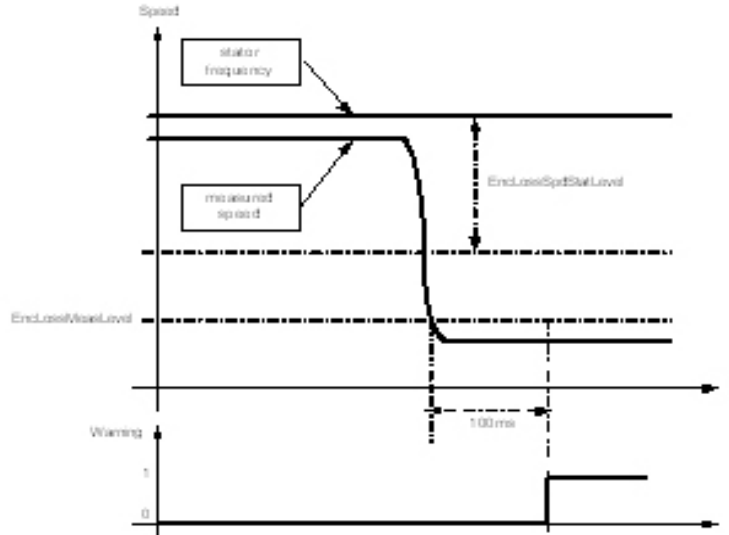
Reset Fault Remotely : YES

Principe

This fault appears when the feedback encoder is lost. There are 2 types of detection, hardware and software.

Detection software:

We use the signal A and AB. The motor is in rotation.



Software detectic

The fault is detected when the measured speed is lower at 1/2 or 2/3 FRS during 100ms and when the difference between the stator speed and the measured speed is greater than 20%FRS during 100 ms.

Detection Hardware:

The signal A \bar{A} , BB are checked. The motor can be run or stopped.

It trips if a signal is missing during 100 ms in a 500 ms window.

For the encoder board RS422, the threshold is 1.1Vdc, for the pushpull 24 V and 15 Vdc board, the threshold is 5.2 Vdc.

Probable causes

- * Absence of encoder feedback signal.
- * Missing of at least one wire on the encoder connection.

Remedies

- * Check the wiring between the encoder and the drive.
- * Check the encoder.

Experience Knew

Nothing.

SSF : Torque / Current Limit Fault		Automatic Restart : YES
Principe	This fault is active if the function SSB=YES (fault management). The fault trips if the drive is in torque limitation (TLI) or current limitation (CLI) longer than the time set in the parameter STO.	
Probable causes	<ul style="list-style-type: none"> * Operation in torque limit or current limit. * Overload, too quick acceleration. 	
Remedies	<ul style="list-style-type: none"> * Check there is no mechanical problem in the application. * Check the parameters tLA (torque limit) and tLD (torque/current limit detection). * Check the parameter STO -> Trq / I limit time out. * Change control bloc. 	
Experience Knew	Nothing.	

TJF : IGBT Over Heating		Automatic Restart : YES
Principe	This fault appears when the estimation of IGBT temperature is too high. It is an I ² t calculation made regarding the switching frequency, drive frequency and motor current.	
Probable causes	<ul style="list-style-type: none"> * Drive overload. 	
Remedies	<ul style="list-style-type: none"> * Check if there is a mechanical problem in the application. * Check the sizing of the motor / drive / load. * Reduce the chopping frequency. * Wait for the drive to cool down before re-starting. * Change IGBT. 	
Experience Knew	Nothing.	

tnF : Auto-Tuning Fault		Automatic Restart : YES
Principe	<p>This fault appears only if a TUNE has been requested. The motor must be de-fluxed before beginning a tune. On a synchronous motor only the stator resistance is measured. For asynchronous motor both the stator resistance and leakage inductance are measured. The tnF fault can be reset by logic input. The output phase loss fault has priority over the tnF fault.</p>	
Probable causes	<ul style="list-style-type: none"> * Special motor or a motor power that is not within the range of the drive. * Motor not connected to the drive. * Tune with long motor cable and output filter. 	
Remedies	<ul style="list-style-type: none"> * Check the size of the motor compared to the drive * Make sure the motor is connected during the auto-tuning process. * If the output contactor is present be sure to close it during auto tuning. 	
Experience Knew	Nothing.	

USF : Under Voltage	Automatic Restart : YES
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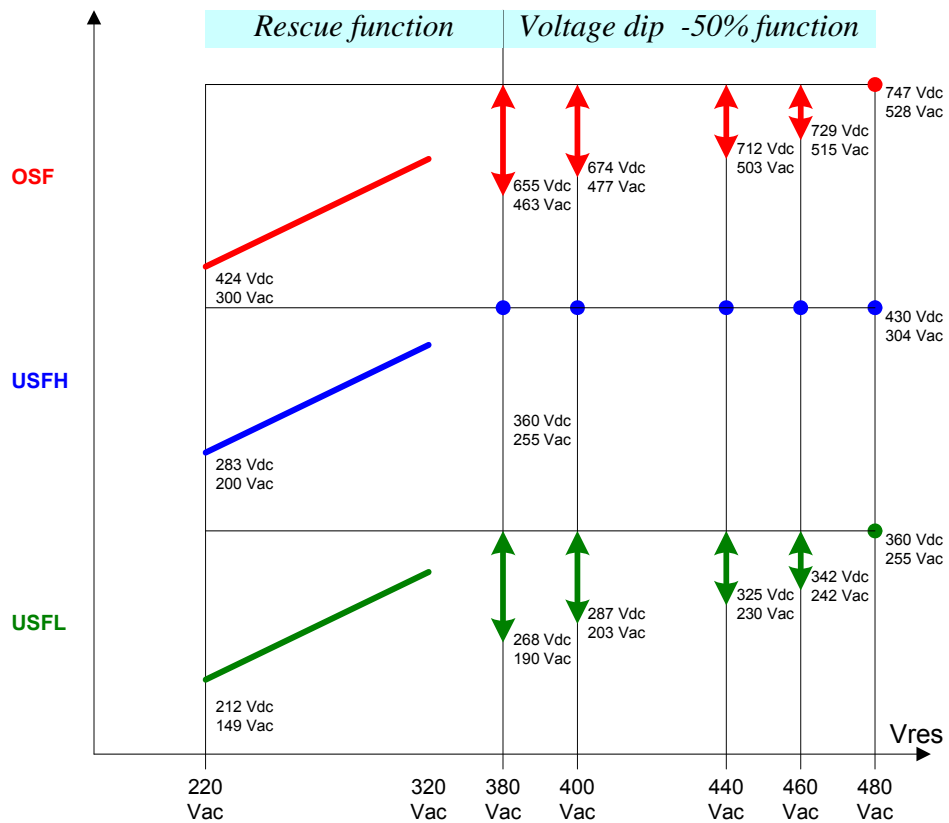
Principe	<p>This fault appears when the voltage measured on the DC bus is lower than a level depending on the main voltage parameter Ures:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 20%; text-align: center;">USFH UPL</td> <td>Closed load relay control. Prevention threshold for control stop function.</td> </tr> <tr> <td style="text-align: center;">USFL</td> <td>Opened load relay control</td> </tr> <tr> <td style="text-align: center;">USF_min - 50%</td> <td>Opened min load relay control (configuration of parameter USL)</td> </tr> </table>	USFH UPL	Closed load relay control. Prevention threshold for control stop function.	USFL	Opened load relay control	USF_min - 50%	Opened min load relay control (configuration of parameter USL)
USFH UPL	Closed load relay control. Prevention threshold for control stop function.						
USFL	Opened load relay control						
USF_min - 50%	Opened min load relay control (configuration of parameter USL)						

Principe		Range	Ures	USFL min	USFL max	USFH
		N4	380Vac	268Vdc - 190Vac	360Vdc - 255Vac	430Vdc - 304Vac
			400Vac	287Vdc - 203Vac	360Vdc - 255Vac	430Vdc - 304Vac
			440Vac	325Vdc - 230Vac	360Vdc - 255Vac	430Vdc - 304Vac
			460Vac	342Vdc - 242Vac	360Vdc - 255Vac	430Vdc - 304Vac
			480Vac *	360Vdc - 255Vac	360Vdc - 255Vac	430Vdc - 304Vac
		M3	200Vac	140Vdc - 100Vac	200Vdc - 141Vac	230Vdc - 163Vac
			220Vac	160Vdc - 113Vac	200Vdc - 141Vac	230Vdc - 163Vac
			240Vac	180Vdc - 127Vac	200Vdc - 141Vac	230Vdc - 163Vac
			260Vac *	200Vdc - 141Vac	200Vdc - 141Vac	230Vdc - 163Vac
		Y	500Vac	354Vdc - 250Vac	488Vdc - 345Vac	571Vdc - 404Vac
			600Vac	424Vdc - 300Vac	488Vdc - 345Vac	571Vdc - 404Vac
			690Vac *	488Vdc - 345Vac	488Vdc - 345Vac	571Vdc - 404Vac

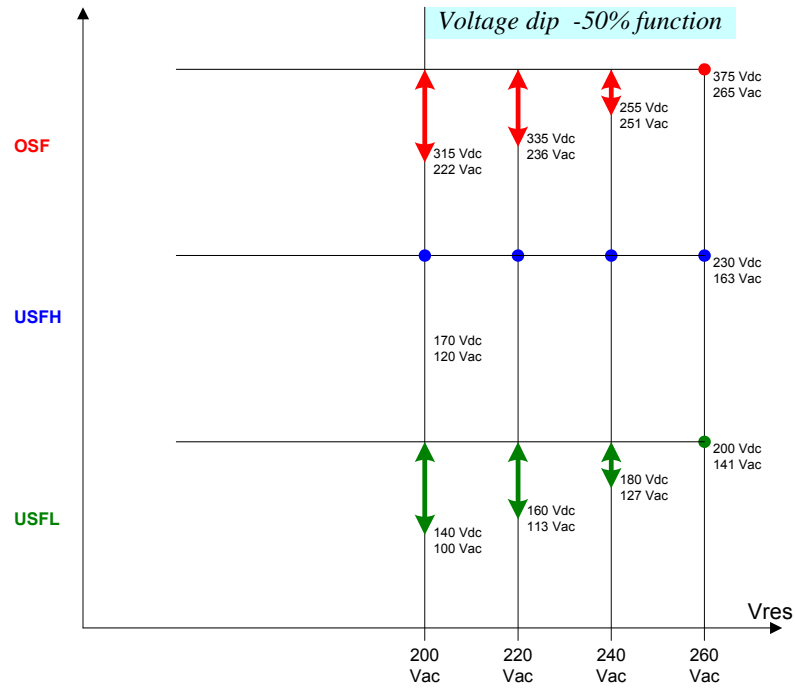
USF : Under Voltage (continued)		Automatic Restart : YES
Probable causes	* Distribution network too small. * Temporary lowering of input voltage. * Deterioration of the charging resistor.	
Remedies	* Check the input voltage and the voltage parameter in the drive.	
Experience Knew	* Shunt between PO/PA+ not tighten (bad contact).	

These diagrams summarise the different threshold OSF, USF:

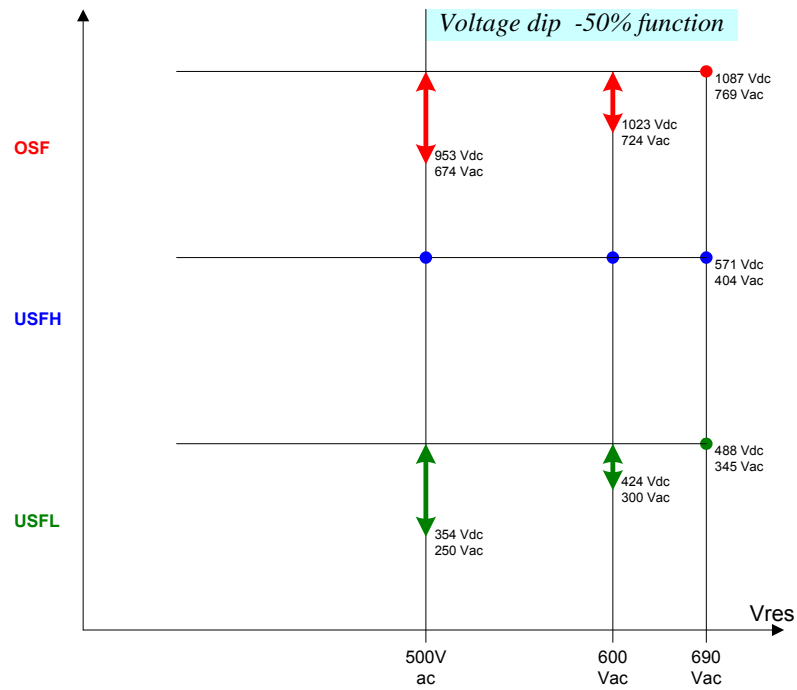
N4 range :



M3 range :



Y range :



9. Changing the faulty component - drawings - parts lists

9.1 Safety instructions and precautions

Safety instructions

Before carrying out any work on an ATV61/71:

- Disconnect the drive power supply.
- Wait for 10 minutes before opening the front cover and check that the Power and Charge LED is off.

On ATV61/71 measure the DC main voltage between the PA/+ and PC/- terminals before starting work.

Never touch the connector on the terminal board/option card when the drive is switched on.

When the product is switched on, the terminal board and option card must always be protected.

Precautions

If you are not wearing anti-static wristbands:

- Handle the electronic boards by taking hold of them by the edge and using the palm of your hand do not touch components with your fingers, as this risks damaging the components due to an electrostatic discharge.
-

9.2 ATV61/71 Size 2 (size, refer to 1.2)

9.2.1 Dismantling and reassembling

Size 2: ATV71H037M3, ATV71H075M3, ATV71HU15M3, ATV71H075N4, ATV71HU15N4, ATV71HU22N4, ATV61H075M3, ATV61HU15M3, ATV61H075N4, ATV61HU15N4, ATV61HU22N4

ATV71H037M3	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1H037M3	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71H075M3	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1H075M3	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HU15M3	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1HU15M3	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

ATV71H075N4	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1H075N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

ATV71HU15N4	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1HU15N4	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

ATV71HU15N4	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1HU22N4	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

ATV61H075M3	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1H075M3	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

ATV61HU15M3	
Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1HU15M3	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

ATV61H075N4

Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1H075N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

ATV61HU15N4

Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1HU15N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

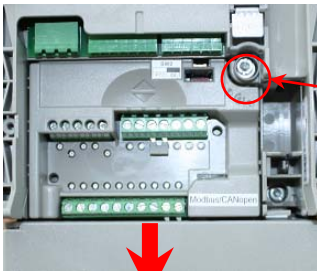
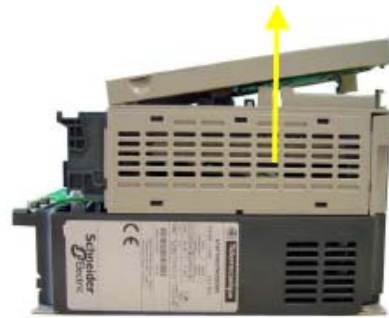
ATV61HU22N4

Reference	Designation
VZ3V1203	Fan KIT
VY1A1202	Plastic Parts
VX5A1HU22N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board

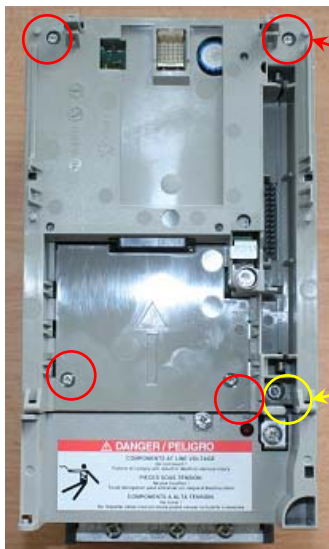
Control Bloc: VX4A71100Y



Press the two clips and pulls forward to take out the display board.



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.

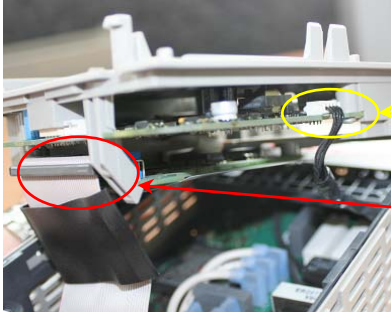


Remove 4 screws (S5 to S8).

Remove this screw (S38).

	Mark	Size	Torque
	S5- S8	M3x12	0,78Nm
	S38	M4x6	1,5Nm

Control Bloc: VX4A71100Y



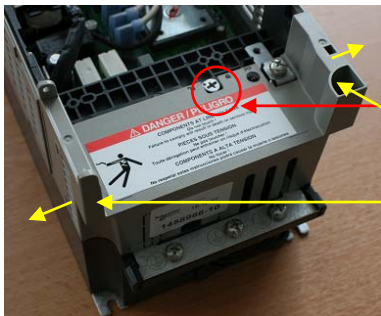
Disconnect the wire.
Application board (S103) → Power board (S103).

Disconnect the ribbon cable.

Plastic Parts: VY1A1202



Remove the power trap.



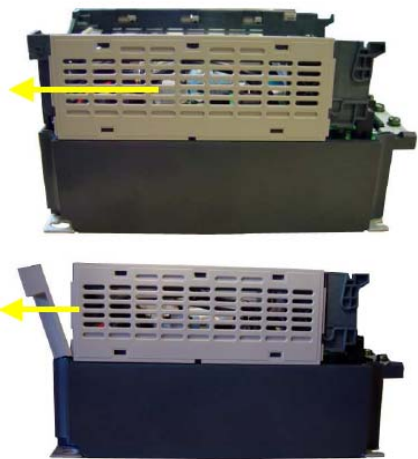
Turn the screw in the unbolt position.

Push on the left and right to remove the wiring trap.



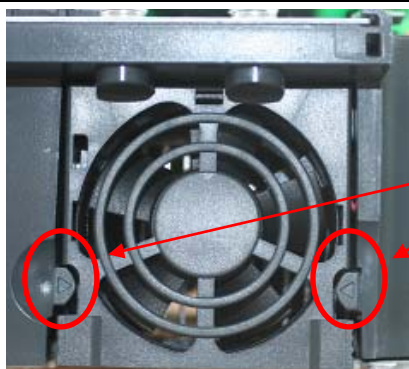
Push the 2 clips to remove the top cap.

Plastic Parts: VY1A1202

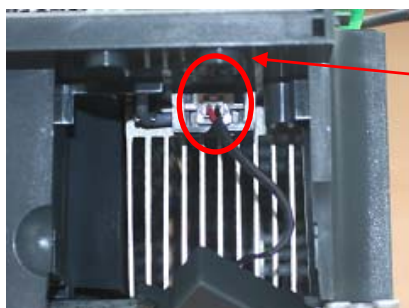


Slide the side cap to the left or to the right to remove it.

Fan KIT: VZ3V1203

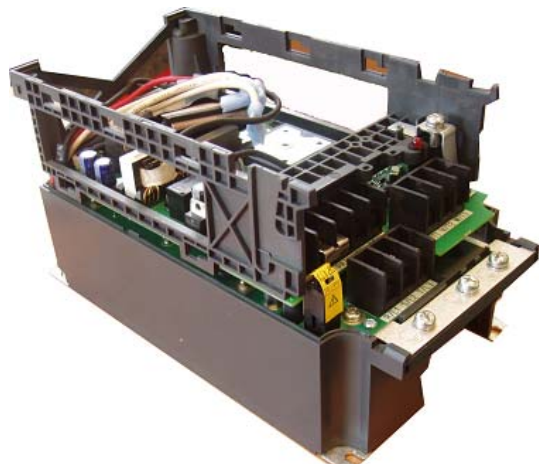


Press on the 2 clips for remove the fan KIT.



Disconnect the wire.

Power Block Sub Assembly: VX5A1HU22N4



The power block sub assembly.

9.2.2 Product Assembling Drawing

Refer to following files: [Assembling_175409400A53_IED06.pdf](#)
[Assembling_175409500A53_IED03.pdf](#)
[Assembling_175409600A53_IED05.pdf](#)

9.2.3 Product Cabling Drawing

Refer to following file: [Cabling_175554400A53_IED04.pdf](#)

9.3 *ATV61/71 Size 3 (size, refer to 1.2)*

9.3.1 Dismantling and reassembling

Size 3: ATV71HU22M3, ATV71HU30M3, ATV71HU40M3, ATV71HU30N4, ATV71HU40N4, ATV61HU22M3, ATV61HU30M3, ATV61HU40M3, ATV61HU30N4, ATV61HU40N4

ATV71HU22M3	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU22M3	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HU30M3	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU30M3	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HU40M3	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU40M3	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HU30N4	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU30N4	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HU40M3	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU40M3	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU22M3	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU22M3	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU30M3	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU30M3	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU40M3	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU22M3	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

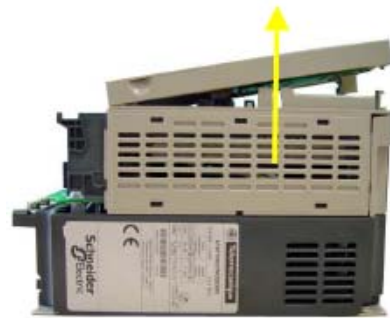
ATV61HU30N4	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU30M3	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU40N4	
Reference	Designation
VZ3V1209	Fan KIT
VY1A1203	Plastic Parts KIT
VX5A1HU22M3	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

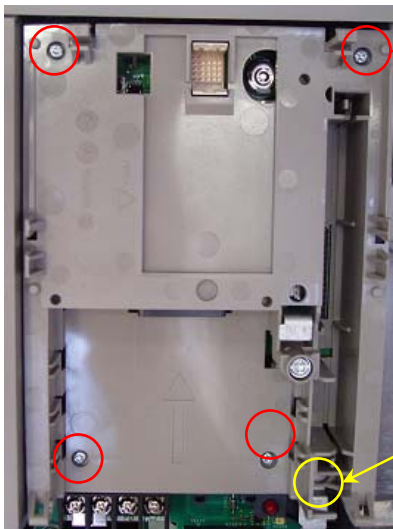
Control Bloc: VX4A61100Y



Press the two clips and pulls forward to take out the display board.





For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.

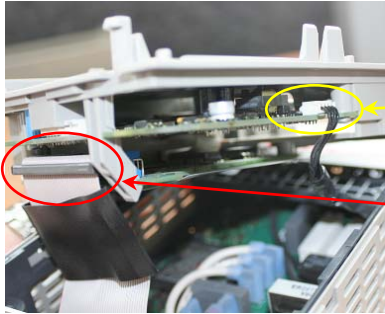


Remove 4 screws (S5 to S8).

Remove this screw (S38).

	Mark	Size	Torque
	S5-S8	M3x12	0,78Nm
	S38	M4x6	1,5Nm

Control Bloc: VX4A61100Y



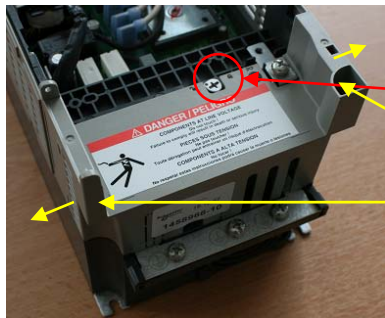
Disconnect the wire.
Application board (S103) → Power board (S103).

Disconnect the ribbon cable.

Plastic Parts: VY1A1203

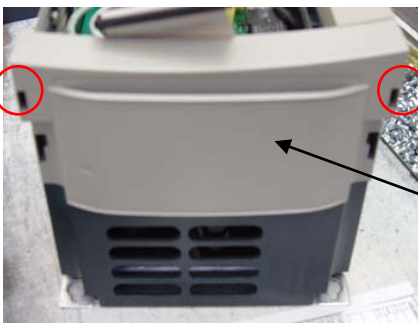


Remove the power trap.



Turn the screw in the unbolt position.

Push on the left and right to remove the wiring trap.



Push the 2 clips to remove the top cap.

Remove the IP4X top cover.

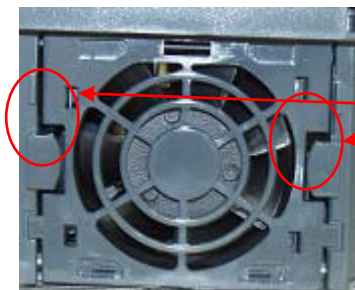
Plastic Parts: VY1A1203



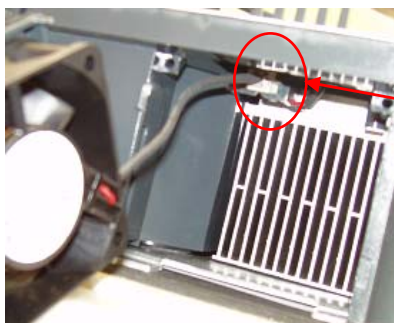
Slide the side cap to the left or to the right to remove it.

Push the 2 clips to remove the front cap.

Fan KIT: VZ3V1209



Press on the 2 clips for remove the fan KIT.



Disconnect the wire.

Power Block Sub Assembly: VX5A1HU30M3



The power bloc sub assembly.

9.3.2 Product Assembling Drawing

Refer to following files: [Assembling_175409400A53_IED06.pdf](#)
[Assembling_175409500A53_IED03.pdf](#)
[Assembling_175409600A53_IED05.pdf](#)

9.3.3 Product Cabling Drawing

Refer to following file: [Cabling_175554400A53_IED04.pdf](#)

9.4 *ATV61/71 Size 4 (size, refer to 1.2)*

9.4.1 Dismantling and reassembling

**Size 4: ATV71HU55M3, ATV71HU55N4, ATV71HU75N4
ATV61HU55M3, ATV61HU55N4, ATV61HU75N4**

ATV71HU55M3	
Reference	Designation
VZ3V1204	Fan KIT
VY1A1204	Plastic Parts KIT
VX5A1HU55M3	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HU55N4	
Reference	Designation
VZ3V1204	Fan KIT
VY1A1204	Plastic Parts KIT
VX5A1HU55N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HU75N4	
Reference	Designation
VZ3V1204	Fan KIT
VY1A1204	Plastic Parts KIT
VX5A1HU75N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU55M3	
Reference	Designation
VZ3V1204	Fan KIT
VY1A1204	Plastic Parts KIT
VX5A1HU55M3	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU55N4	
Reference	Designation
VZ3V1204	Fan KIT
VY1A1204	Plastic Parts KIT
VX5A1HU55N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU75N4	
Reference	Designation
VZ3V1204	Fan KIT
VY1A1204	Plastic Parts KIT
VX5A1HU75N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

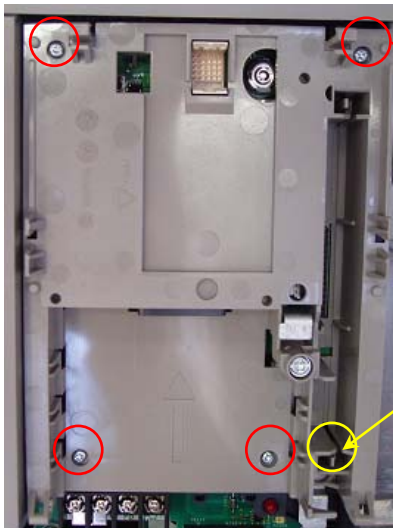
Control Bloc: VX4A61100Y



Press the two clips and pull forward to take out the display board.



For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.

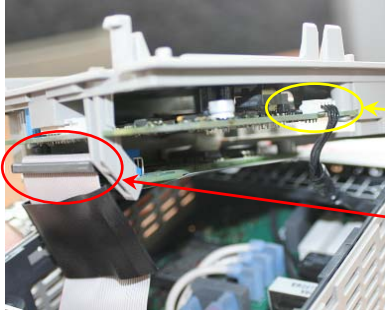


Remove 4 screws (S5 to S8).

Remove this screw (S38).

	Mark	Size	Torque
	S5-S8	M3x12	0,78Nm
	S38	M4x6	1,5Nm

Control Bloc: VX4A61100Y



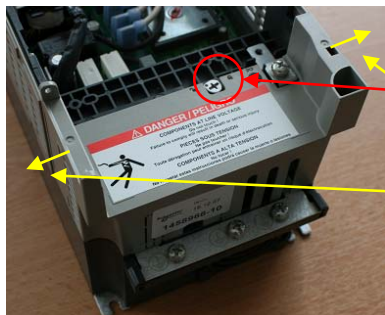
Disconnect the wire.
Application board (S103) → Power board (S103).

Disconnect the ribbon cable.

Plastic Parts: VY1A1204



Remove the power trap.



Turn the screw in the unbolt position.

Push on the left and right to remove the wiring trap.



Remove the IP4X top cover.

Push the 2 clips to remove the top cap.

Plastic Parts: VY1A1204

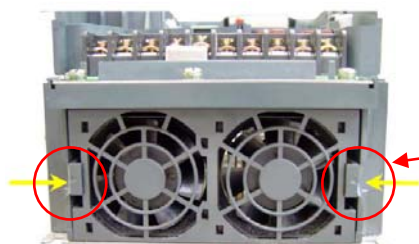


Slide the side cap to the left or to the right to remove it.

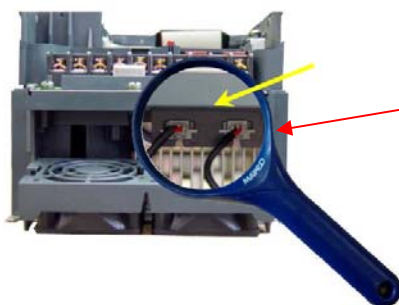


Push the 2 clips to remove the front cap.

Fan KIT: VZ3V1204



Press on the 2 clips for remove the fan KIT.



Disconnect 2 wires.

Power Block Sub Assembly: VX5A1HU55M3



The power bloc sub assembly.

9.4.2 Product Assembling Drawing

Refer to following files: [Assembling_175409600A53_IED05.pdf](#)
[Assembling_175577700A53_IED06.pdf](#)
[Assembling_175577800A53_IED03.pdf](#)

9.4.3 Product Cabling Drawing

Refer to following file: [Cabling_175554500A53_IED03.pdf](#)

9.5 *ATV61/71 Size 5A (size, refer to 1.2)*

9.5.1 Dismantling and reassembling

Size 5A: ATV71HU75M3, ATV71HD11N4, ATV61HU75M3, ATV61HD11N4

ATV71HU75M3	
Reference	Designation
VZ3V1210	Fan KIT
VY1A1215	Plastic Parts KIT
VX5A1HU75M3	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HD11N4	
Reference	Designation
VZ3V1210	Fan KIT
VY1A1215	Plastic Parts KIT
VX5A1HD11N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HU75M3	
Reference	Designation
VZ3V1210	Fan KIT
VY1A1215	Plastic Parts KIT
VX5A1HU75M3	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HD11N4	
Reference	Designation
VZ3V1210	Fan KIT
VY1A1215	Plastic Parts KIT
VX5A1HD11N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

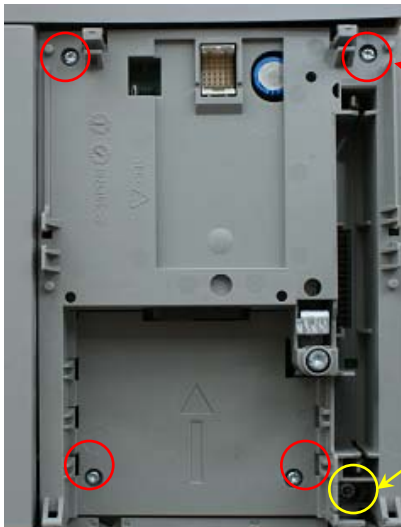
Control Bloc: VX4A71100Y



Press the two clips and pull forward to take out the display board.



For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.

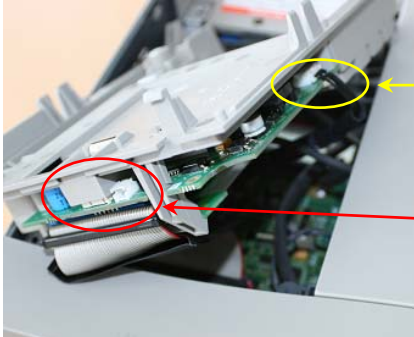


Remove 4 screws (S5 to S8).

Remove this screw (S38).

	Mark	Size	Torque
	S5-S8	M3x12	0,78Nm
	S38	M4x6	1,5Nm

Control Bloc: VX4A71100Y



Disconnect the wire.
Application board (S103) → Power board (S103).

Disconnect the ribbon cable.

Plastic Parts: VY1A1215



Push the 2 clips to remove the top cap.



Disconnect the ribbon cable.



Turn the screw in the unbolt position.

Plastic Parts: VY1A1215



Push on the left and right to remove the wiring trap.

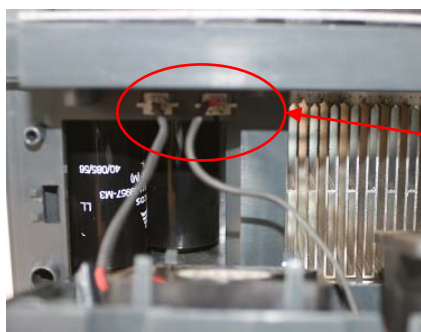


Slide the side cap to the left or to the right to remove it.

Fan KIT: VZ3V1210



Press on the 2 clips for remove the fan KIT.



Disconnect 2 wires.

Power Block Sub Assembly: VX5A1HU75M3



The power bloc sub assembly.

9.5.2 Product Assembling Drawing

Refer to following files: [Assembling_175409600A53_IED05.pdf](#)
[Assembling_175577700A53_IED06.pdf](#)
[Assembling_175577800A53_IED03.pdf](#)

9.5.3 Product Cabling Drawing

Refer to following file: [Cabling_175554500A53_IED03.pdf](#)

9.6 *ATV61/71 Size 5B (size, refer to 1.2)*

9.6.1 Dismantling and reassembling

Size 5B: ATV71HD11M3X, ATV71HD15M3X, ATV71HD15N4, ATV71HD18N4, ATV61HD11M3X, ATV61HD15M3X, ATV61HD15N4, ATV61HD18N4

ATV71HD11M3X	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD11M3X	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HD15M3X	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD15M3X	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HD15N4	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HD18N4	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

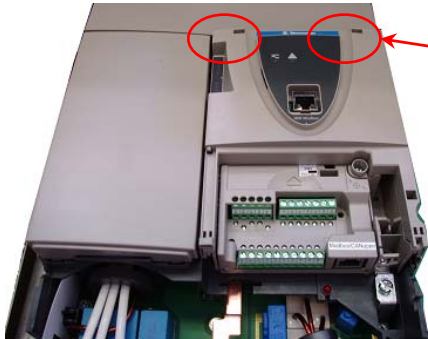
ATV61HD11M3X	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD11M3X	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HD15M3X	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD15M3X	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

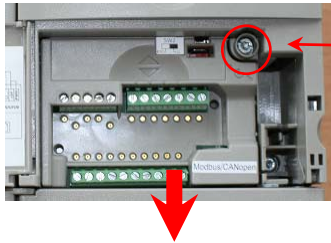
ATV61HD15N4	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HD18N4	
Reference	Designation
VZ3V1205	Fan KIT
VZ3N1205	Power Terminals
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

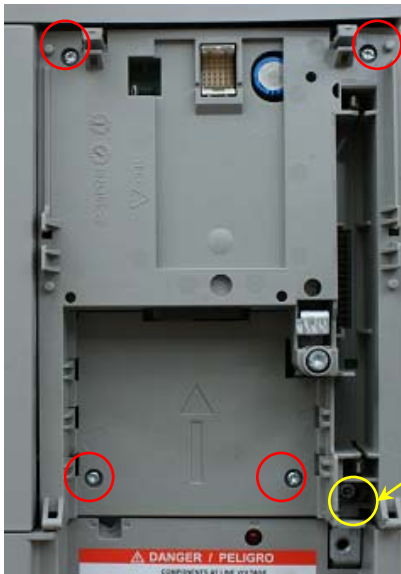
Control Bloc: VX4A61100Y



Press the two clips and pull forward to take out the display board.

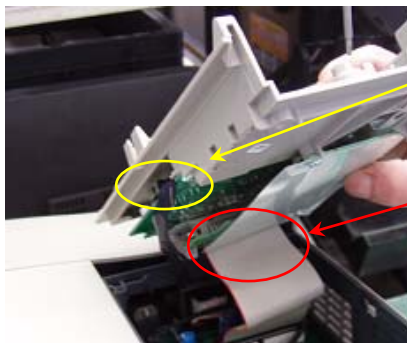


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S5 to S8).

Remove this screw (S38).



Disconnect the wire.
Application board (S103) → Power board (S103).

Disconnect the ribbon cable.

	Mark	Size	Torque
	S5-S8	M3x12	0,78Nm
	S38	M4x6	1,5Nm

Plastic Parts: VY1A1205



Push the 2 clips to remove the top cap and IP4X top cover.



Open the power trap.

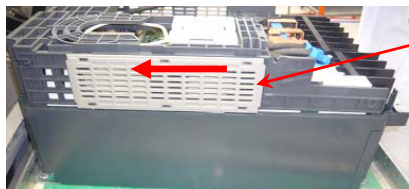


Turn the screw in the unbolt position.

Push on the left and right to remove the wiring trap.



Slide the side cap to the left or to the right to remove it.

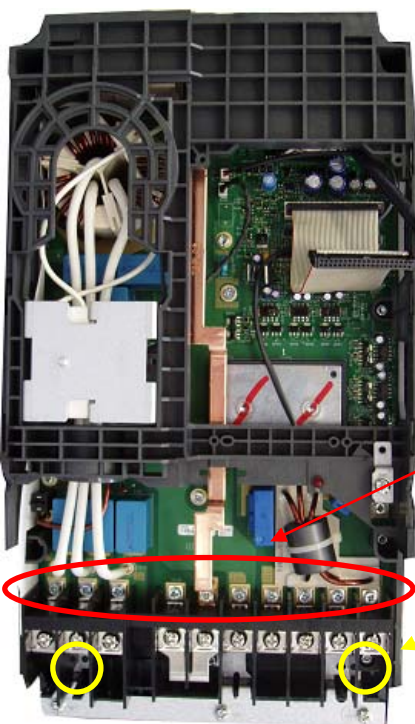


Plastic Parts: VY1A1205



Push the 2 clips to remove the front cap.

Power Terminals: VZ3N1205

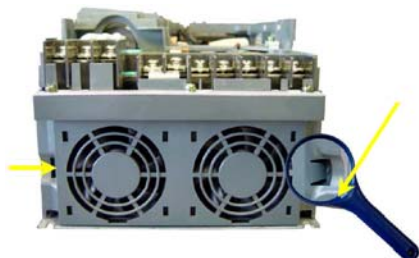


Remove 10 screws (S103 to S113).

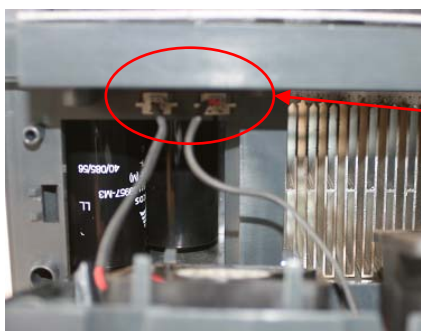
Remove the 2 screws (S29 & S30).

Mark	Size	Torque
S29 - S30	4x12	1Nm
S103 - S113	M4x10	1,5Nm

Fan KIT: VZ3V1205



← Press on the 2 clips for remove the fan KIT.



Disconnect 2 wires.

Power Block Sub-Assembly: VX5A1HD15N4



The power bloc sub assembly.

9.6.2 Product Assembling Drawing

Refer to following files: [Assembling_175409600A53_IED05.pdf](#)
[Assembling_175577800A53_IED03.pdf](#)
[Assembling_175577900A53_IED05.pdf](#)

9.6.3 Product Cabling Drawing

Refer to following file: [Cabling_175554600A53_04.pdf](#)

9.7 ATV61/71 Size 6 (size, refer to 1.2)

9.7.1 Dismantling and reassembling

Size 6: ATV71HD18M3X, ATV71HD22M3X, ATV71HD22N4, ATV61HD18M3X, ATV61HD22M3X, ATV61HD22N4

ATV71HD18M3X	
Reference	Designation
VZ3V1211	Fan KIT
VZ3N1301	Wires KIT
VY1ADV1101	Screws KIT
VY1ADC1101	Lot of 2 capacitors (2700µF / 400V)
VY1A1206	Metal Parts KIT
VY1A1101	Current Sensor KIT
VX5A1103	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD18M3X	Power Block Sub Assembly
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3N1206	Power Terminals
VZ3TD1072M1671	Rectifier (Thyristor / Diode) 80A / 1600V

ATV71HD22M3X	
Reference	Designation
VZ3V1211	Fan KIT
VZ3N1301	Wires KIT
VY1ADV1101	Screws KIT
VY1ADC1101	Lot of 2 capacitors (2700µF / 400V)
VY1A1206	Metal Parts KIT
VY1A1101	Current Sensor KIT
VX5A1104	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD22M3X	Power Block Sub Assembly
VZ3N1206	Power Terminals
VX4A1103	Front Cover 4x7 Digits
VZ3TD1092M1671	Rectifier (Thyristor / Diode) 92A / 1600V
VX4A1104	Terminal Board

ATV71HD22N4	
Reference	Designation
VZ3V1211	Fan KIT
VZ3N1305	Mains Connexion KIT
VZ3N1304	Bars KIT
VZ3N1302	Wires KIT
VY1ADV1101	Screws KIT
VY1ADC1101	Lot of 2 capacitors (2700µF / 400V)
VY1A1206	Metal Parts KIT
VY1A1101	Current Sensor KIT
VX5A1HD22N4	Power Block Sub Assembly
VX5A1101	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX4A1107	Sub Assembly Filter Boards
VZ3N1206	Power Terminals
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HD18M3X	
Reference	Designation
VZ3V1211	Fan KIT
VZ3N1301	Wires KIT
VY1ADV1101	Screws KIT
VY1ADC1101	Lot of 2 capacitors (2700µF / 400V)
VY1A1206	Metal Parts KIT
VY1A1101	Current Sensor KIT
VX5A1103	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD18M3X	Power Block Sub Assembly
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3N1206	Power Terminals
VZ3TD1072M1671	Rectifier (Thyristor / Diode) 80A / 1600V


ATV61HD22M3X

Reference	Designation
VZ3V1211	Fan KIT
VZ3N1301	Wires KIT
VY1ADV1101	Screws KIT
VY1ADC1101	Lot of 2 capacitors (2700µF / 400V)
VY1A1206	Metal Parts KIT
VY1A1101	Current Sensor KIT
VX5A1104	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD22M3X	Power Block Sub Assembly
VX4A1104	Terminal Board
VZ3N1206	Power Terminals
VX4A1103	Front Cover 4x7 Digits
VZ3TD1092M1671	Rectifier (Thyristor / Diode) 92A / 1600V

ATV61HD22N4


Reference	Designation
VZ3V1211	Fan KIT
VZ3N1305	Mains Connexion KIT
VZ3N1304	Bars KIT
VZ3N1302	Wires KIT
VY1ADV1101	Screws KIT
VY1ADC1101	Lot of 2 capacitors (2700µF / 400V)
VY1A1206	Metal Parts KIT
VY1A1101	Current Sensor KIT
VX5A1HD22N4	Power Block Sub Assembly
VX5A1101	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX4A1107	Sub Assembly Filter Boards
VX4A1104	Terminal Board
VZ3N1206	Power Terminals
VX4A1103	Front Cover 4x7 Digits

Metal Parts KIT: VY1A1206

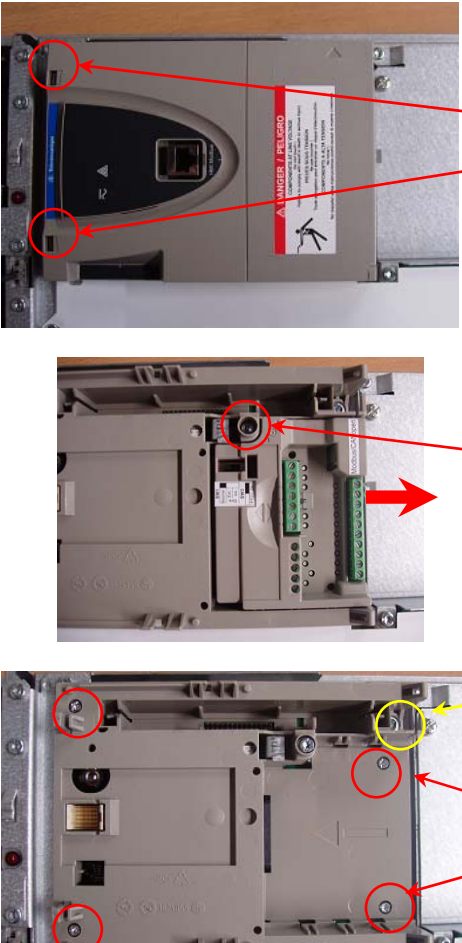


Remove 6 screws (S243 to S248).

Unscrew this screw and remove the control cap.

Mark	Size	Torque
 S243-S248	M4x10	1,5Nm

Control Bloc: VX4A61100Y





Press the two clips and pulls forward to take out the display board.

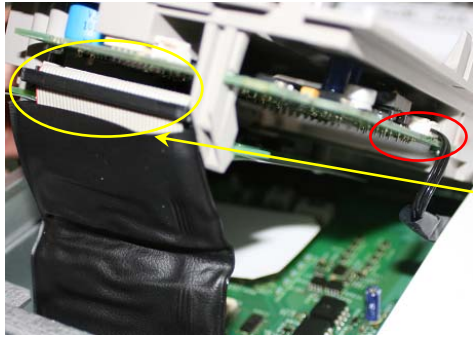
For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.

Remove this screw (S153).

Remove 4 screws (S180 to S183).

Mark	Size	Torque
 S180-S183	M3x8	0,78Nm
 S153	M4x8	1,5Nm

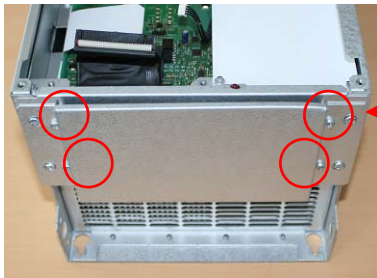
Control Bloc: VX4A61100Y



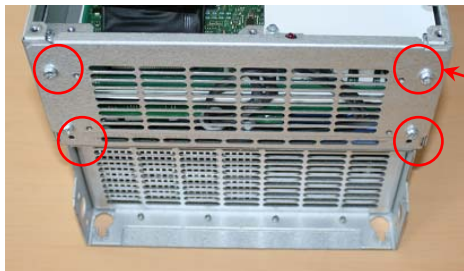
Disconnect the wire.
Application board (S103) → Power board (S103).

Disconnect the ribbon cable.

Metal Parts KIT: VY1A1206



Remove 4 screws (S29, S30, S33 and S34).



Remove 4 screws (S27, S28, S31 and S32).



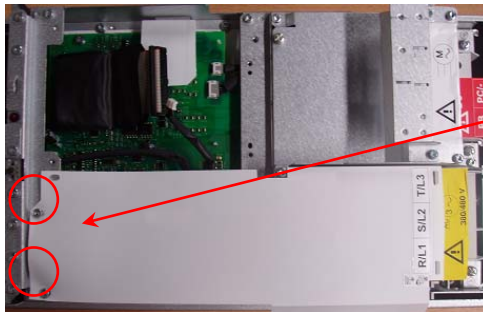
Remove 3 screws (S14, S15, and S18).




Remove 4 screws
(S11, S12, S13 and S17).

	Mark	Size	Torque
	S29, S30 S33, S34	M4x10	2Nm
	S27, S28 S31, S32	M4x10	2Nm
	S14 S15 S18	M4x6	2Nm
	S11, S12 S13, S17	M4x6	2Nm

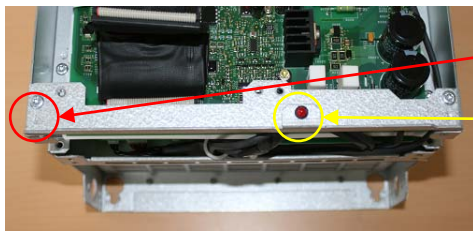
Screws KIT: VY1ADV1101



Remove 2 screws (S73 and S74).


	Mark	Size	Torque
	S73	M4x10	2Nm
	S74	M4x10	2Nm

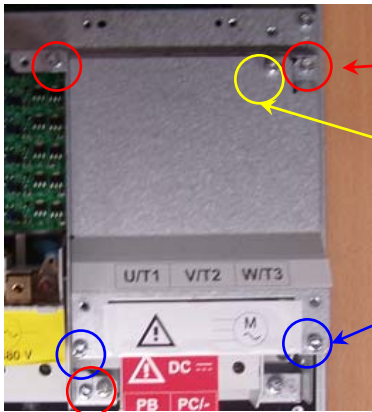
Metal Parts KIT: VY1A1206



Remove this screw (S75).

Remove this LED.

	Mark	Size	Torque
	S75	M4x10	2Nm



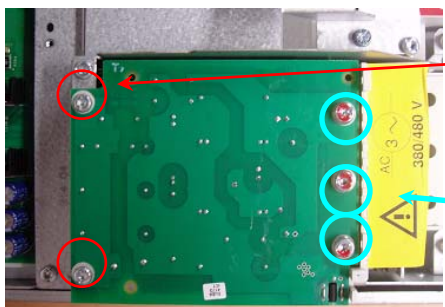
Remove 3 screws (S70 to S72).

Remove this screw

Remove 2 screws (S7 and S8).


	Mark	Size	Torque
	S70-S72	M4x10	2Nm
	S22	M5x12	1,5Nm
	S7 S8	M4x12	2Nm

Sub Assembly Filter Boards: VX4A1107




Remove 2 screws (S68 and S69).

Remove 3 screws (S124 and S126).

	Mark	Size	Torque
	S68 S69	M4x10	1,5Nm
	S124- S126	M5x12	2,5Nm

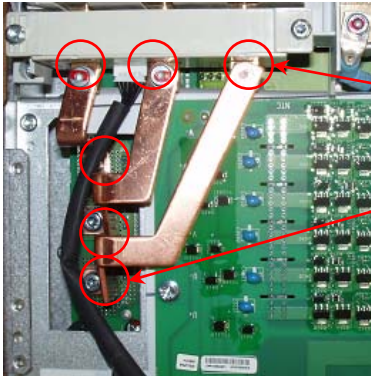
Metal Parts KIT: VY1A1206



Remove 2 screws (S66 and S67).

Mark	Size	Torque
S66 S67	M4x10	2Nm

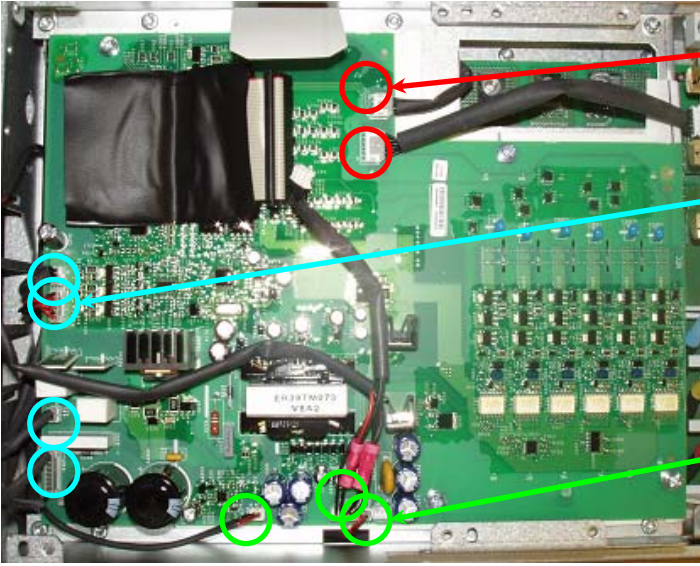
Connexion Bars KIT: VZ3N1304



Remove 6 screws (S118 to S123).

Mark	Size	Torque
S129- S134	M5x12	2,5Nm

Power Block Sub-Assembly: VX5A1HD22N4 (only 480V)



Disconnect 2 wires (from up to down).

- * Power board (S400) → Bus board (S400).
- * Power board (S500) → Current sensor.

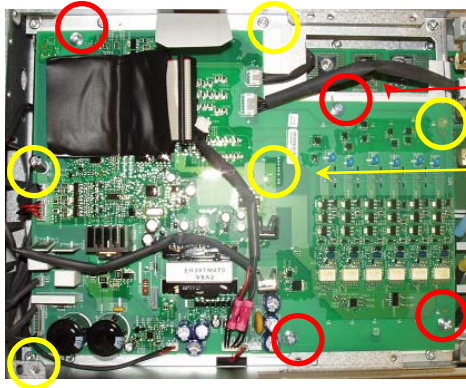
Disconnect 4 wires (from up to down).

- * Power board (S101) → Bus board (S101).
- * Power board (S104) → Bus board (S104).
- * Power board (S202) → Bus board (S202).
- * Power board (S201) → Bus board (S201).

Disconnect 3 wires (from left to right).

- * Power board (S200) → DEL.
- * Power board (S103) → Control Bloc.
- * Power board (S120) → Power fan.

Power Block Sub-Assembly: VX5A1HD22N4 (only 480V)

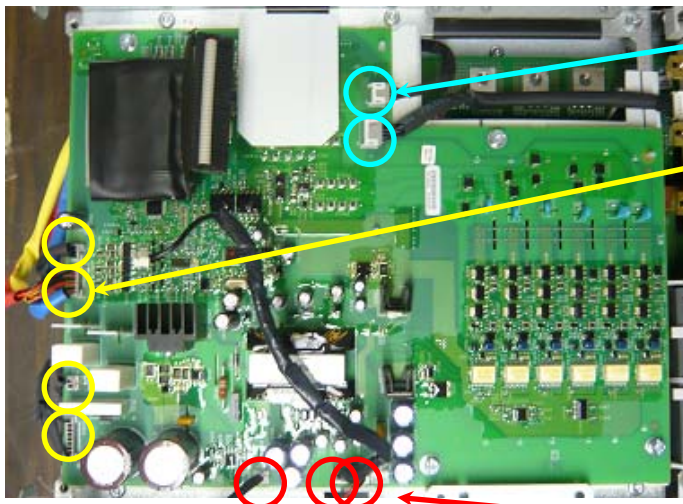


Remove 4 screws (S169 to S172).

Press 5 clips.

Mark	Size	Torque
S169-S172	M4x10	1,5Nm

Power Block Sub-Assembly: VX5A1HD22M3X (only 240V)



Disconnect 2 wires (from up to down).

- * Power board (S400) → Bus board (S400).
- * Power board (S500) → Current sensor.

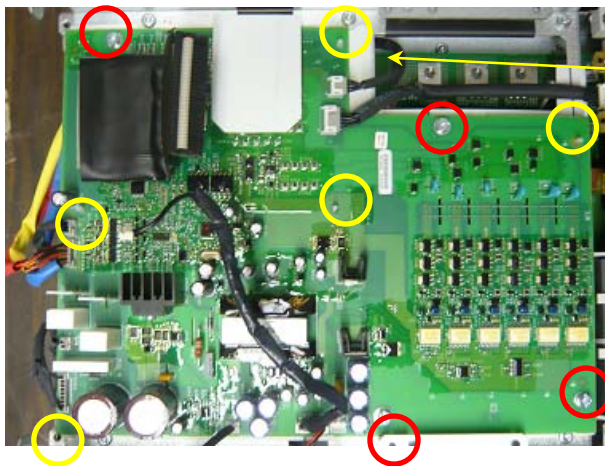
Disconnect 4 wires (from up to down).

- * Power board (S101) → Bus board (S101)
- * Power board (S104) →
 1. Red girdle → THY/DIO(18):
red wire → pin 4 ; black wire → pin 5
 2. Yellow girdle → THY/DIO(19):
red wire → pin 4 ; black wire → pin 5
 3. Blue girdle → THY/DIO(20):
red wire → pin 4 ; black wire → pin 5

- * Power board (S202) → Bus board (S202)
- * Power board (S201) → Bus board (S201)

Disconnect 3 wires (from left to right).

- * Power board (S200) → DEL
- * Power board (S103) → Control Bloc
- * Power board (S120) → Power fan

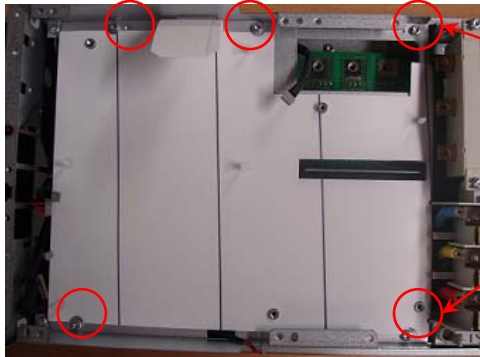


Press 5 clips.


Remove 4 screws (S169 to S172).

Mark	Size	Torque
S169-S172	M4x10	1,5Nm

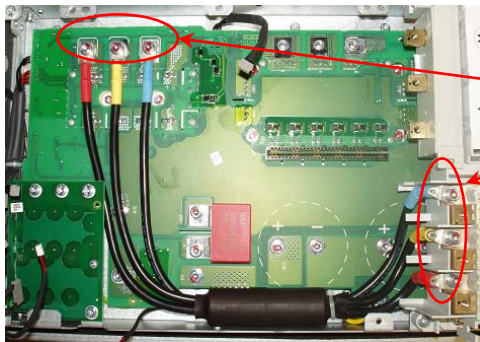
Power Block Sub-Assembly: VX5A1HD22N4




Remove 5 screws (S61 to S65).

Mark	Size	Torque
 S61-S65	M4x10	1,5Nm

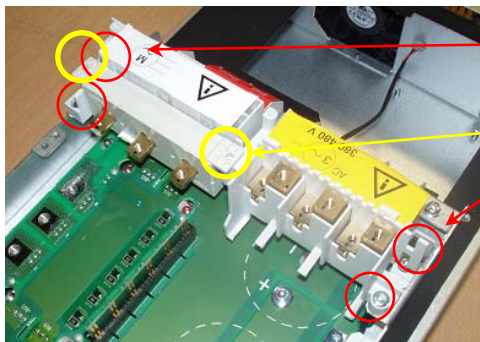
Mains Connexion KIT : VZ3N1305



Remove 6 screws (S112 to S117).

Mark	Size	Torque
 S112-S117	M5x12	1,5Nm

**Current Sensor KIT : VY1A1101 (only 480V)
Power Terminals : VZ3N1206 (only 480V)**

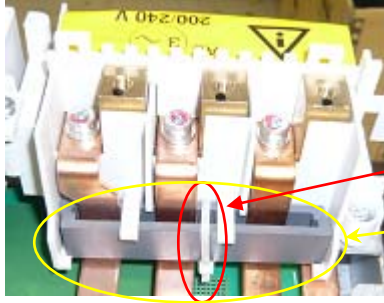


Remove 4 screws (S57 to S60).

Remove 2 screws (S5 and S6).

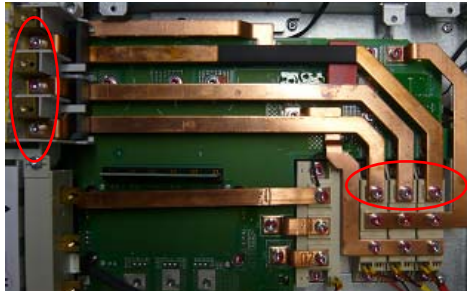
Mark	Size	Torque
 S57-S60	M4x10	1,5Nm
 S5-S6	M4x12	1,5Nm

Bars KIT: VZ3N1303 (only 240V)




Cut the colson tie.

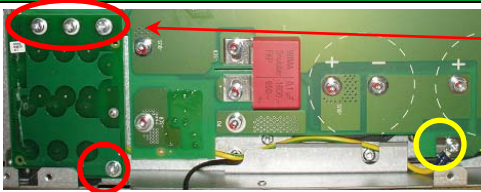
Remove the ferrite core.



Remove 6 screws (S112 to S117).

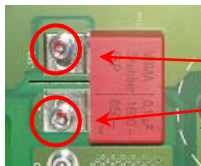
	Mark	Size	Torque
	S112-S117	M5x12	1,5Nm

DC BUS Board: VX5A1101 (only 480V)

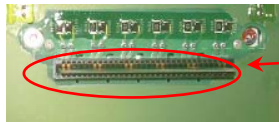


Remove 4 screws (S165 to S168).

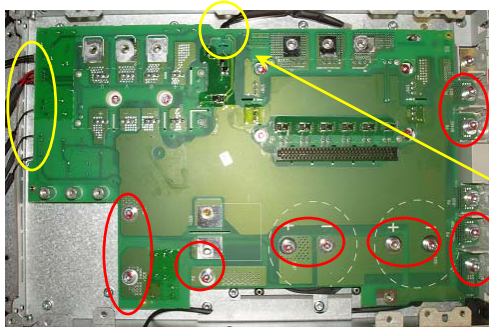
Remove this screw (S264) and remove the cable (filter board).



Remove 2 screws (S103 and S127).



Remove the interconnect PCB (no screw).

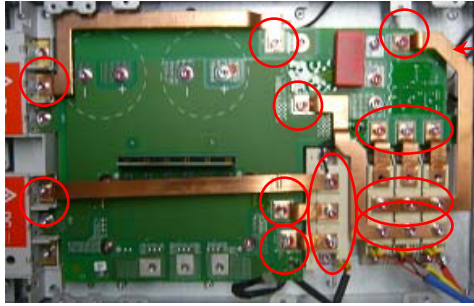


Remove 11 screws (S100 and S102 to S111).


Disconnect the wires (for the wiring, see the Power Block Sub-Assembly: **VX5A1HD22N4**)

	Mark	Size	Torque
	S165-S168	M4x10	1,5Nm
	S264	M4x10	1,5Nm
	S103-S127	M5x12	2,5Nm
	S100-S111	M5x12	2,5Nm

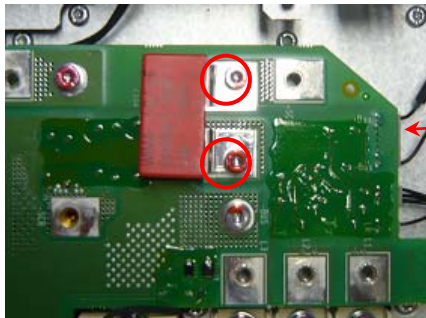
Bars KIT: VZ3N1303 (only 240V)



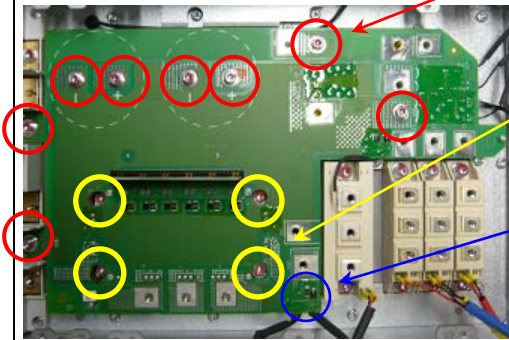
Remove 19 screws (S110, S111 and S127 to S143).

	Mark	Size	Torque
	S110, S111 S127- S143	M5x12	2,5Nm

DC BUS Board: VX5A1104 (only 240V)



Remove 2 screws (S100 and S101).



Remove 8 screws (S102 to S109).

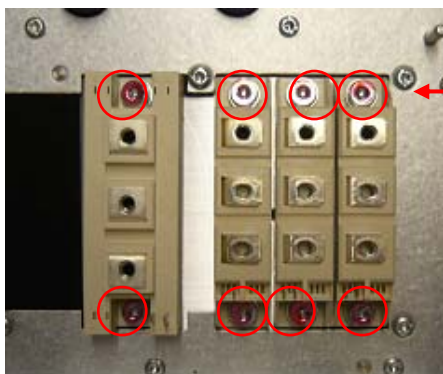
Remove 4 screws (S149 to S152).

Disconnect the wire:


- Bus bord* → *Module IGBT 21*
- Red wire* → *pin 6*
- Black wire* → *pin 7*

	Mark	Size	Torque
	S100 S101	M 5x12	2,5Nm
	S102- S109	M 5x12	2,5Nm
	S149- S152	M 5x20	2,5Nm

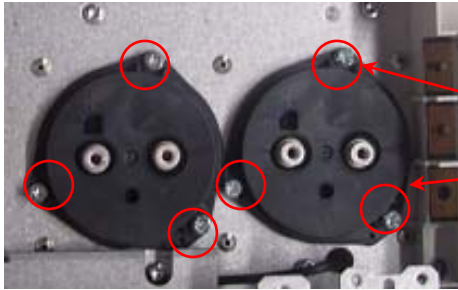
Rectifier (Thyristor / Diode): VZ3TD1092M1671 (only 240V)




Remove 6 screws (S219 to S226).

	Mark	Size	Torque
	S219- S226	M 6x20	0,78Nm

Lots of 2 capacitors: VY1ADC1101




Remove 6 screws (S159 to S164).

	Mark	Size	Torque
	S159- S164	M4x10	0,78Nm

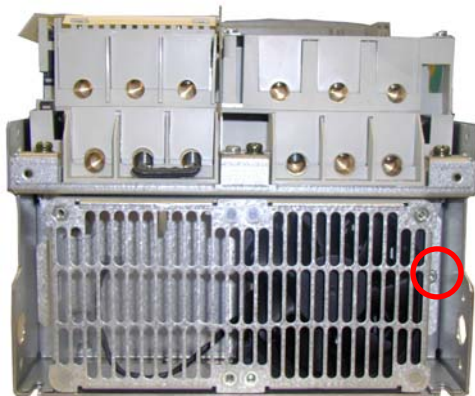
Power Terminals: VZ3N1206



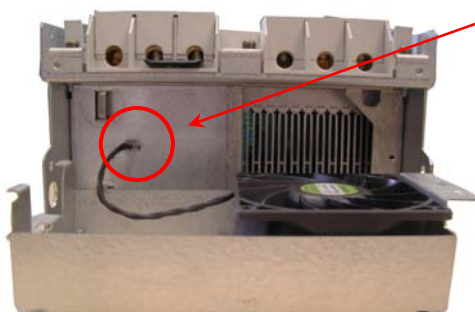
Remove 6 screws (S53 to S56).

	Mark	Size	Torque
	S53- S56	M4x10	2Nm

Fan Kit: VZ3V1211



Remove this screw (S35).



Disconnect this wire.

	Mark	Size	Torque
	S35	M4x10	1,5Nm
	S173 S174	M4x16	Nm

9.7.2 Product Assembling Drawing

Refer to following files: [Assembling_175578100A53_05.pdf](#)
[Assembling_175578500A53_06.pdf](#)

9.7.3 Product Cabling Drawing

Refer to following file: [Cabling_175578800A53_05.pdf](#)

9.8 ATV61/71 Size 7A (size, refer to 1.2)

9.8.1 Dismantling and reassembling

Size 7A: ATV71HD30N4, ATV71HD37N4, ATV61HD30N4, ATV61HD37N4


ATV71HD30N4	
Reference	Designation
VZ3V1206	Fan KIT
VZ3TD1057M1671	Rectifier (Thyristor / Diode) 55A / 1600V
VZ3N1307	Wires KIT
VZ3N1306	Mains Connexion KIT
VZ3N1207	Power Terminals
VZ3IM1145M1271	Module Braking IGBT (175A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1101	Screws KIT
VY1ADC1102	Lot of 2 capacitors (4800µF / 400V)
VY1A1207	Metal Parts KIT
VY1A1102	Current Sensor KIT
VX5A1102	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5IM2145M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A1108	Filter Board
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits

ATV71HD37N4	
Reference	Designation
VZ3V1206	Fan KIT
VZ3TD1072M1671	Rectifier (Thyristor / Diode) 80A / 1600V
VZ3N1307	Wires KIT
VZ3N1306	Mains Connexion KIT
VZ3N1207	Power Terminals
VZ3IM2195M1271	Modules IGBT Inverter 220A / 1200V
VZ3IM1145M1271	Module Braking IGBT (175A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1101	Screws KIT
VY1ADC1103	Lot of 2 capacitors (5700UF / 400V)
VY1A1207	Metal Parts KIT
VY1A1102	Current Sensor KIT
VX5A1HD37N4	Power Block Sub Assembly
VX5A1102	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX4A1108	Filter Board
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits

ATV61HD30N4	
Reference	Designation
VZ3V1206	Fan KIT
VZ3TD1057M1671	Rectifier (Thyristor / Diode) 55A / 1600V
VZ3N1307	Wires KIT
VZ3N1306	Mains Connexion KIT
VZ3N1207	Power Terminals
VZ3IM1145M1271	Module Braking IGBT (175A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1101	Screws KIT
VY1ADC1102	Lot of 2 capacitors (4800µF / 400V)
VY1A1207	Metal Parts KIT
VY1A1102	Current Sensor KIT
VX5A1102	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5IM2145M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A1108	Filter Board
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits

ATV61HD37N4	
Reference	Designation
VZ3V1206	Fan KIT
VZ3TD1072M1671	Rectifier (Thyristor / Diode) 80A / 1600V
VZ3N1307	Wires KIT
VZ3N1306	Mains Connexion KIT
VZ3N1207	Power Terminals
VZ3IM2195M1271	Modules IGBT Inverter 220A / 1200V
VZ3IM1145M1271	Module Braking IGBT (175A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1101	Screws KIT
VY1ADC1103	Lot of 2 capacitors (5700UF / 400V)
VY1A1207	Metal Parts KIT
VY1A1102	Current Sensor KIT
VX5A1HD37N4	Power Block Sub Assembly
VX5A1102	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX4A1108	Filter Board
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits

Metal Parts KIT: VY1A1207




Remove 6 screws (S243 to S248).

Unscrew this screw and remove the control cap.

Mark	Size	Torque
S243-S248	M4x10	Nm

Control Block: VX4A61100Y



For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.

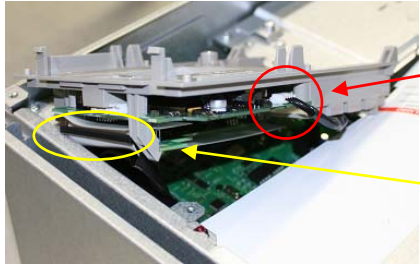
Press the two clips and pulls forward to take out the display board.

Remove 4 screws (S180 to S183).

Remove this screw (S153).

S180-S183	M3x8	0,78Nm
S153	M4x8	1,5Nm

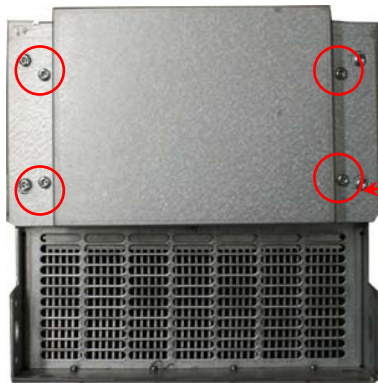
Control Block: VX4A61100Y



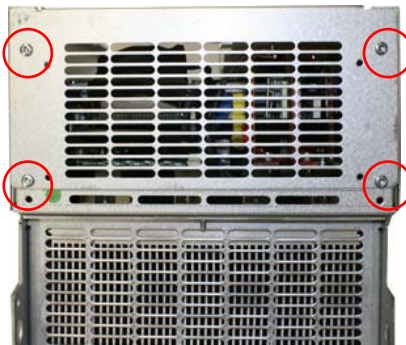
Disconnect the wire.
Application board (S103) → Power board (S103)
and Power internal fan

Disconnect the ribbon cable.

Metal Parts KIT: VY1A1207



Remove 4 screws (S29, S30, S33 and S34).




Remove 4 screws (S27, S28, S31 and S32).






Remove 3 screws
(S14 to S16).

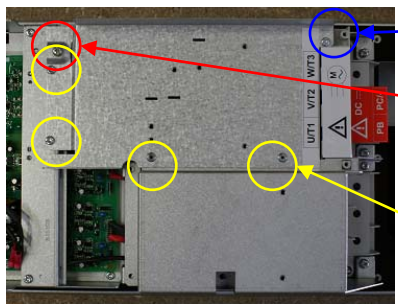
	Mark	Size	Torque
	S29,S30 S33,S34	M4x6	2Nm
	S27,S28 S31,S32	M4x10	2Nm
	S11- S16	M4x6	2Nm

Metal Parts KIT: VY1A1207



Remove 3 screws (S11 to S13).




	Mark	Size	Torque
	S29,S30 S33,S34	M 4x6	2Nm
	S27,S28 S31,S32	M 4x10	2Nm
	S11- S16	M 4x6	2Nm




Remove this screw (S7).

Remove this screw


Remove 4 screws (S74 to S77).

	Mark	Size	Torque
	S7	M4x12	1,5Nm
	S22	M5x12	1,5Nm
	S74- S77	M4x10	1,5Nm

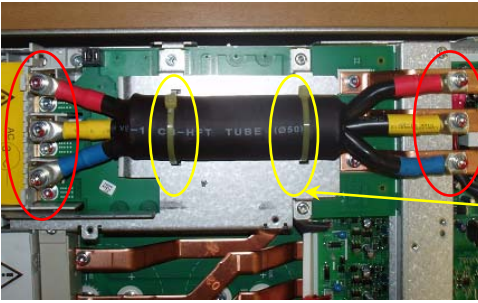
Screws KIT: VY1ADV1101



Remove 2 screws (S78 and S79).


	Mark	Size	Torque
	S78- S79	M4x10	1,5Nm

Mains Connexion KIT: VZ3N1306

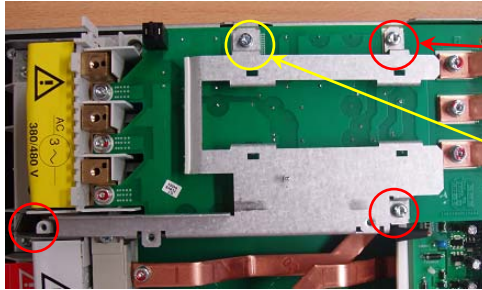


Remove 6 screws (S141 to S146).

Cut 2 colsons tie.

	Mark	Size	Torque
	S141- S146	M5x12	2,5Nm

Metal Parts KIT: VY1A1207

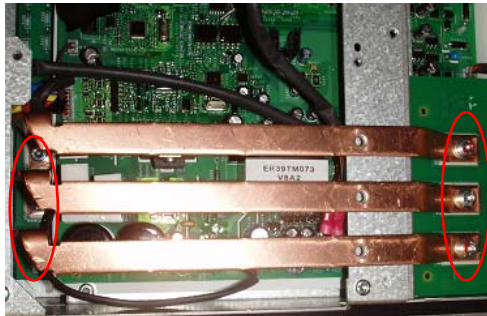


Remove 3 screws (S71 to S73).


Remove this screw (S166).

	Mark	Size	Torque
	S71-S73	M4x10	1,5Nm
	S166	M4x10	1,5Nm

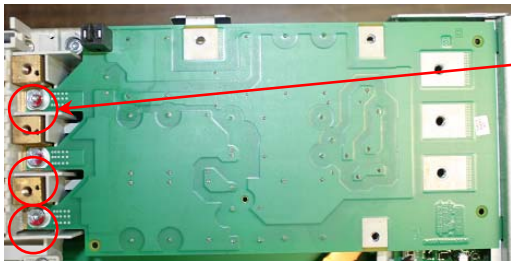
Mains Connexion KIT: VZ3N1306




Remove 6 screws (S132 to S137).

	Mark	Size	Torque
	S132-S137	M5x12	2,5Nm

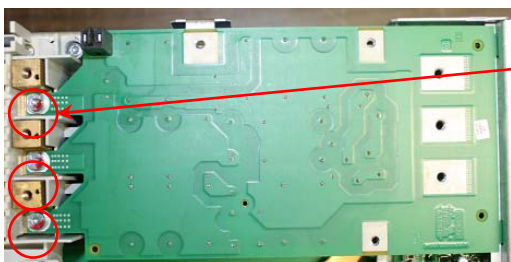
Filter Board: VX4A1108




Remove 3 screws (S138 to S140).

	Mark	Size	Torque
	S138-S140	M5x12	2,5Nm

Filter Board: VX4A1108



Remove 3 screws (S138 to S140).

	Mark	Size	Torque
	S138-S140	M5x12	2,5Nm

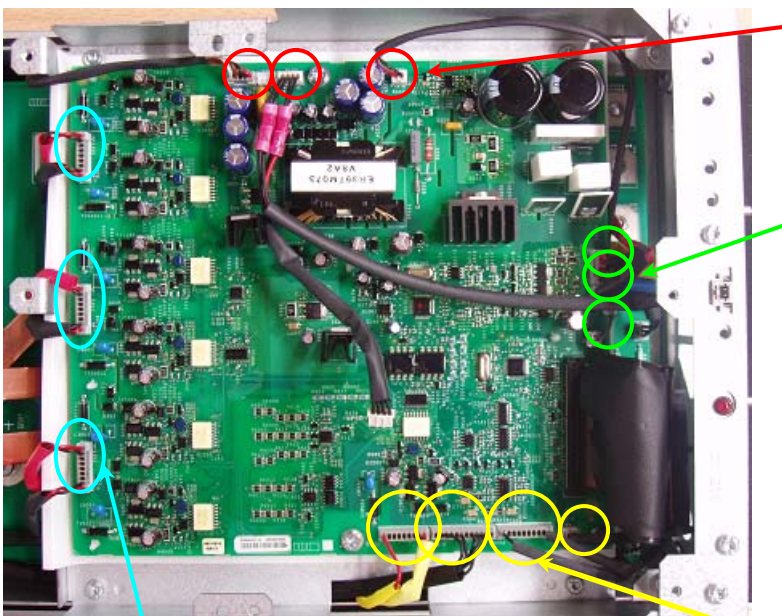
Metal Parts KIT: VY1A1207



Remove 2 screws (S69 and S70).

Mark	Size	Torque
S69-S70	M4x10	2Nm

Power Block Sub-Assembly: VX5A1HD37N4



Disconnect 3 wires (from left to right)

- * Power board (S203) → Power 2 fans
- * Power board (S103) → Power internal fan and control bloc (S103)
- * Power board (S205) → DEL

Disconnect 3 wires (from down to up)

- * Power board (S700) → heatsink, thermal sensor
- * Power board (S101) → Bus board (S101)
- * Power board (S102) → Modules THY/DIO:
 - Blue girdle → IGBT (15):
 - Black wire → pin 5; red wire → pin 4
 - Yellow girdle → IGBT (14):
 - Black wire → pin 5; red wire → pin 4
 - Red girdle → IGBT (13):
 - Black wire → pin 5; red wire → pin 4

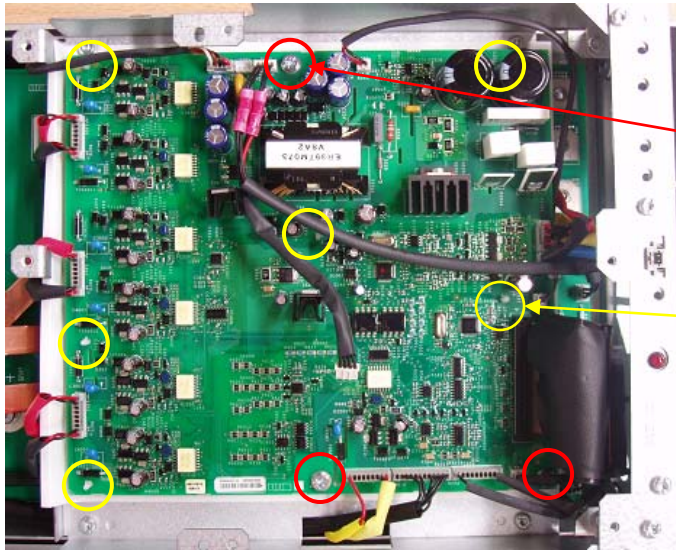
Disconnect 3 wires (from up to down)

- * Power board (S300) → Modules IGBT (12):
 - Red cable: red wire → pin 4; blue wire → pin 5
 - Black cable: red wire → pin 6; blue wire → pin 7
- * Power board (S301) → Modules IGBT (11):
 - Red cable: red wire → pin 4; blue wire → pin 5
 - Black cable: red wire → pin 6; blue wire → pin 7
- * Power board (S302) → Modules IGBT (10):
 - Red cable: red wire → pin 4; blue wire → pin 5
 - Black cable: red wire → pin 6; blue wire → pin 7

Disconnect 4 wires (from left to right)

- * Power board (S400) → Bus board (S100) and Module IGBT (9):
 - Red wire: pin 6 of IGBT;
 - Black wire: pin 7 of IGBT
- * Power board (S500) → Current sensor
- * Power board (S200) → Bus board (S200)
- * Power board (S202) → Bus board (S202)

Power Block Sub-Assembly: VX5A1HD37N4



Remove 3 screws (S163 to S165).

Press 6 clips.

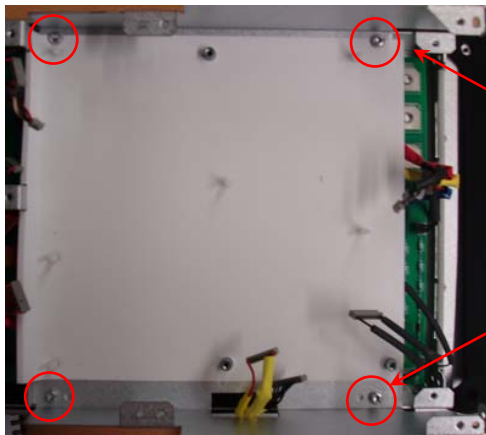
Mark	Size	Torque
S163-S165	M4x10	1,5Nm

Metal Parts KIT: VY1A1207



Remove 2 screws (S67 to S68).

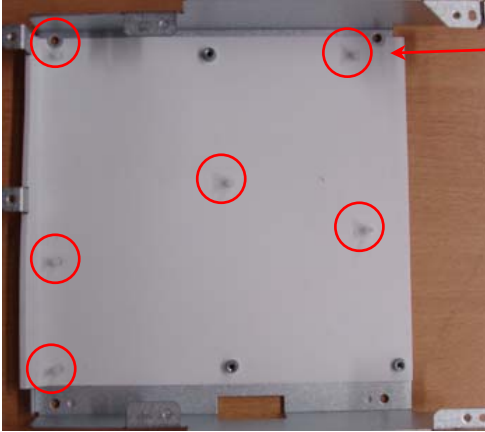
Disconnect the DEL.



Remove 4 screws (S63 to S66).

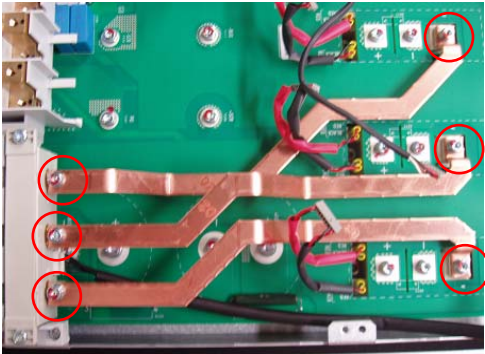
Mark	Size	Torque
S67-S68	M4x10	2Nm
S63-S66	M4x10	2Nm

Metal Parts KIT: VY1A1207




Remove 6 clips and remove the insulate sheet.

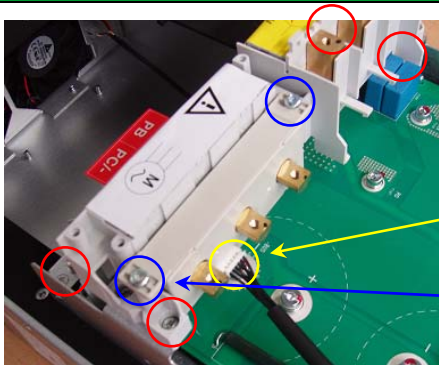
	Mark	Size	Torque
	S67-S68	M4x10	2Nm
	S63-S66	M4x10	2Nm



Remove 6 screws (S126 to S131).

	Mark	Size	Torque
	S126-S131	M5x12	2,5Nm

Current Sensor KIT: VY1A1102



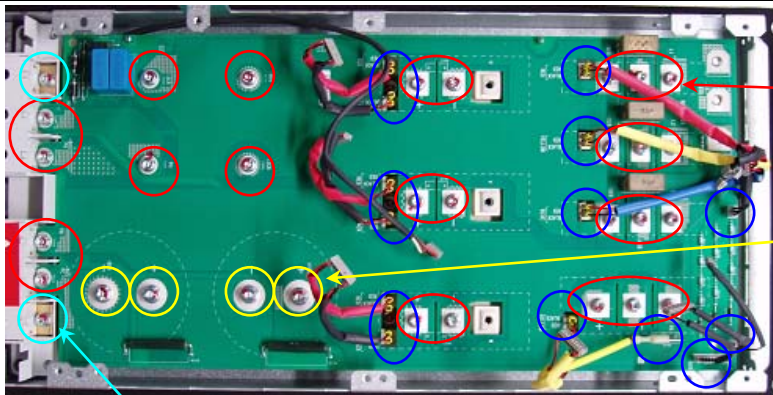
Remove 4 screws (S59 to S62).

Disconnect the wire.

Remove 2 screws (S5 and S6).

	Mark	Size	Torque
	S59-S62	M4x10	2Nm
	S5-S6	4x12	2Nm

DC BUS Board: VX5A1102



Remove 26 screws (S100 to S125).

Remove 4 screws (S184 to S187).

Remove 2 screws (S147 and S148).


Disconnect 14 wires. For the wiring, see the Power Block Sub Assembly: **VX5A1HD37N4**

	Mark	Size	Torque
	S100-S125	M5x12	2,5Nm
	S184-S187	M6x12	3,5Nm
	S147-S148	M5x25	2,5Nm

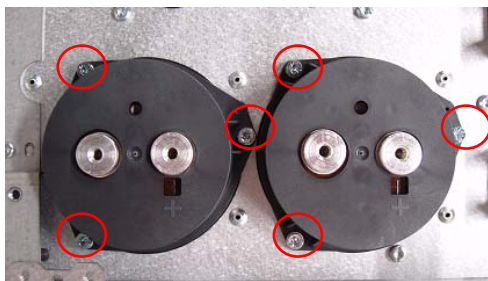
Power Terminals: VZ3N1207




Remove 4 screws (S55 to S58).

	Mark	Size	Torque
	S55-S58	M4x10	2Nm

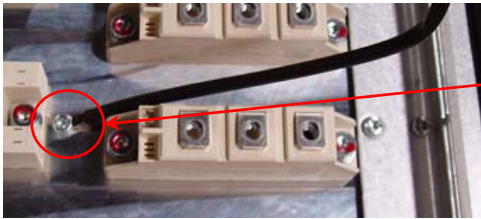
Lots of 2 capacitors: VY1ADC1103



Remove 6 screws (S157 to S162).

	Mark	Size	Torque
	S157-S162	M4x10	0,78Nm

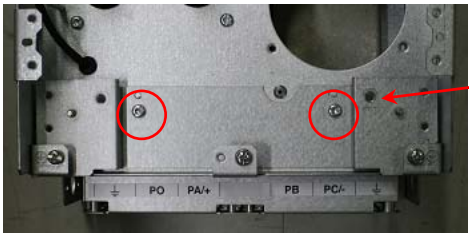
Thermal Sensor: VZ3G1101



Remove this screw (S54).

Mark	Size	Torque
S54	M4x10	2Nm

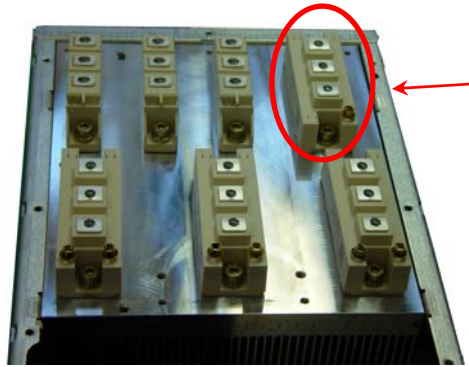
Metal Parts KIT: VY1A1207



Remove 2 screws (S52 and S53).

Mark	Size	Torque
S52 S53	M4x10	2Nm

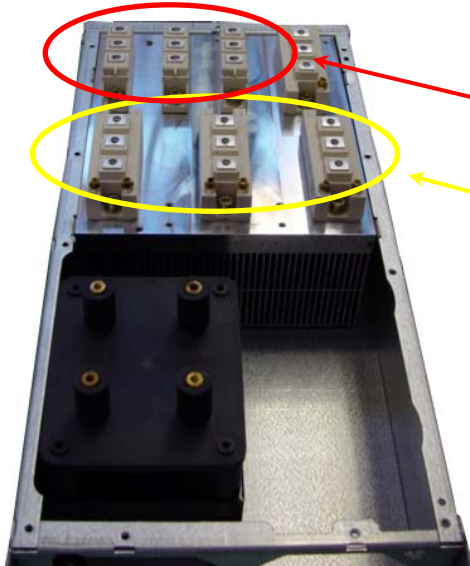
Module Braking IGBT: VZ3IM1145M1271



Remove 2 screws (S219 to S232).

Mark	Size	Torque
S219- S232	M6x20	4,4Nm

**Modules IGBT Inverter: VZ3IM2195M1271
Rectifier (Thyristor / Diode): VZ3TD1072M1671**



Remove 12 screws (S219 to S232).

Thyristors.

IGBT Modules.

Warning:

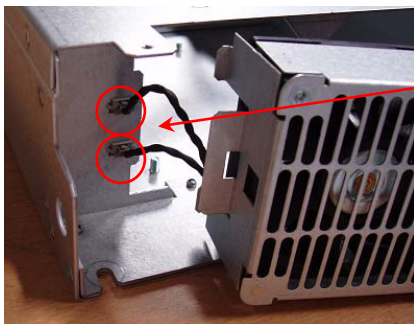
Do not forget to put the grease between the modules and the heatsink

Mark	Size	Torque
S219-S232	M6x20	4,4Nm

Fan KIT: VZ3V1206



Remove this screw (S35).



Disconnect 2 wires.

Mark	Size	Torque
S35	M4x10	1.5 Nm

9.8.2 Product Assembling Drawing

Refer to following files: [Assembling_175578200a53_05.pdf](#)
[Assembling_175578500A53_06.pdf](#)

9.8.3 Product Cabling Drawing

Refer to following file: [Cabling_175579200A53_IED04.pdf](#)

9.9 ATV61/71 Size 7B (size, refer to 1.2)

9.9.1 Dismantling and reassembling

Size 7B: ATV71HD30M3X, ATV71HD37M3X, ATV71HD45M3X, ATV61HD30M3X, ATV61HD37M3X, ATV61HD45M3X

ATV71HD30M3X	
Reference	Designation
VZ3V1207	Fan KIT
VZ3TD1092M1671	Rectifier (Thyristor / Diode) 92A / 1600V
VZ3N1310	Wires KIT
VZ3N1309	Bus Bar KIT
VZ3N1308	Power Interconnexion KIT
VZ3IM2201M1271	Module IGBT Inverter 200A / 600V
VZ3IM1195M0671	Module Braking IGBT (250A / 600V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1104	Lot of 2 capacitors (4800µF / 400V + Balancing Resistor)
VY1A1103	Current Sensor KIT
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD30M3X	Power Block Sub Assembly
VY1A1208	Metal Parts KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits

ATV71HD37M3X	
Reference	Designation
VZ3V1207	Fan KIT
VZ3TD1132M1671	Rectifier (Thyristor-Diode) 130A 1600V
VZ3N1310	Wires KIT
VZ3N1309	Bus Bar KIT
VZ3N1308	Power Interconnexion KIT
VZ3IM2301M1271	Module IGBT Inverter 300A / 600V
VZ3IM1300M0671	Module Braking IGBT (400A / 600V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1105	Lot of 2 capacitors (5700µF / 400V + Balancing Resistor)
VY1A1103	Current Sensor KIT
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD37M3X	Power Block Sub Assembly
VY1A1208	Metal Parts KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1108	Filter Board
VX4A1104	Terminal Board

ATV71HD45M3X	
Reference	Designation
VZ3V1207	Fan KIT
VZ3TD1162M1671	Rectifier (Thyristor-Diode) 160A 1600V
VZ3N1310	Wires KIT
VZ3N1309	Bus Bar KIT
VZ3N1308	Power Interconnexion KIT
VZ3IM2401M1271	Module IGBT Inverter 400A / 600V
VZ3IM1300M0671	Module Braking IGBT (400A / 600V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1106	Lot of 2 capacitors (5700µF / 400V + Balancing Resistor)
VY1A1103	Current Sensor KIT
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD45M3X	Power Block Sub Assembly
VY1A1208	Metal Parts KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits

ATV61HD30M3X	
Reference	Designation
VZ3V1207	Fan KIT
VZ3TD1092M1671	Rectifier (Thyristor / Diode) 92A / 1600V
VZ3N1310	Wires KIT
VZ3N1309	Bus Bar KIT
VZ3N1308	Power Interconnexion KIT
VZ3IM2201M1271	Module IGBT Inverter 200A / 600V
VZ3IM1195M0671	Module Braking IGBT (250A / 600V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1104	Lot of 2 capacitors (4800µF / 400V + Balancing Resistor)
VY1A1103	Current Sensor KIT
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD30M3X	Power Block Sub Assembly
VX4A1104	Terminal Board
VY1A1208	Metal Parts KIT
VX4A1103	Front Cover 4x7 Digits

ATV61HD37M3X

Reference	Designation
VZ3V1207	Fan KIT
VZ3TD1132M1671	Rectifier (Thyristor-Diode) 130A 1600V
VZ3N1310	Wires KIT
VZ3N1309	Bus Bar KIT
VZ3N1308	Power Interconnexion KIT
VZ3IM2301M1271	Module IGBT Inverter 300A / 600V
VZ3IM1300M0671	Module Braking IGBT (400A / 600V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1105	Lot of 2 capacitors (5700 μ F / 400V + Balancing Resistor)
VY1A1103	Current Sensor KIT
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD37M3X	Power Block Sub Assembly
VX4A1104	Terminal Board
VY1A1208	Metal Parts KIT
VX4A1103	Front Cover 4x7 Digits

ATV61HD45M3X

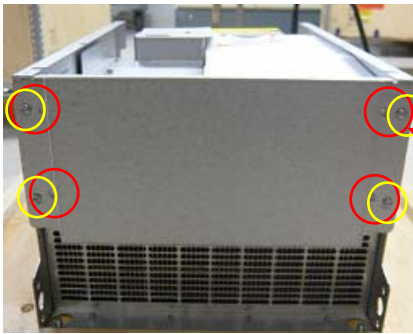
Reference	Designation
VZ3V1207	Fan KIT
VZ3TD1162M1671	Rectifier (Thyristor-Diode) 160A 1600V
VZ3N1310	Wires KIT
VZ3N1308	Power Interconnexion KIT
VZ3IM2401M1271	Module IGBT Inverter 400A / 600V
VZ3IM1300M0671	Module Braking IGBT (400A / 600V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1106	Lot of 2 capacitors (5700 μ F / 400V + Balancing Resistor)
VY1A1103	Current Sensor KIT
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD45M3X	Power Block Sub Assembly
VX4A1104	Terminal Board
VY1A1208	Metal Parts KIT
VX4A1103	Front Cover 4x7 Digits
VY1A1208	Metal Parts KIT

Metal Parts KIT : VY1A1208



Unscrew this screw

Remove 6 screws (S243 to S248)



Remove 4 screws (S29, S30, S33 and S34).

Remove 4 screws (S27, S28, S31 and S32).



Remove 3 screws (S14 to S16).



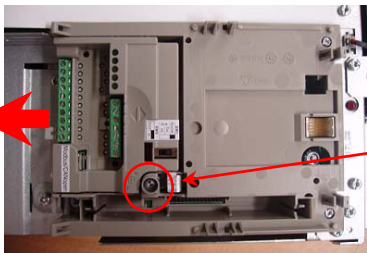
Remove 4 screws (S11 to S13).

	Mark	Size	Torque
	S243-S248	M4x10	2Nm
	S29 S30 S33 S34	M4X6	1,5Nm
	S27 S28 S31 S32	M4x10	2Nm
	S14-S16	M4X6	1,5Nm
	S11-S13	M4X6	1,5Nm

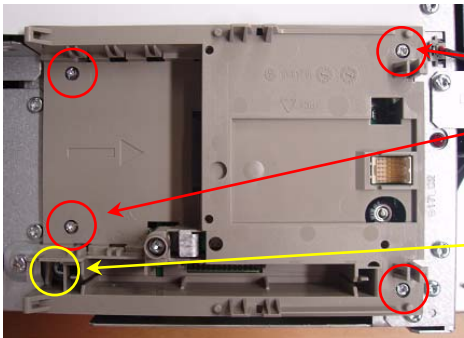
Control Bloc : VX4A61100Y



Press the two clips and pulls forward to take out the display board.

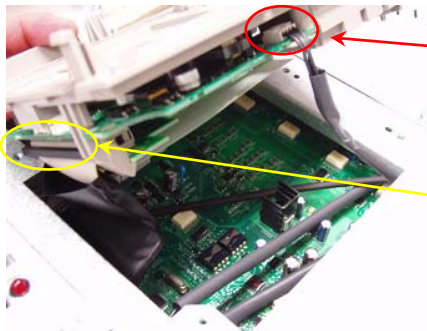


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S180 to S183).

Remove this screw (S153).

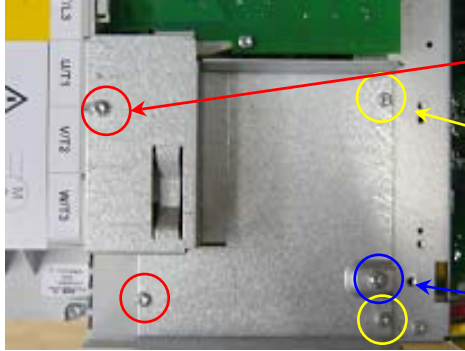


Disconnect the wire
Application board (S103)→E101→Power board (S103)

Disconnect the ribbon cable

	Mark	Size	Torque
	S180-S183	M3x8	0,78Nm
	S153	M4x8	1,5Nm

Metal Parts KIT : VY1A1208



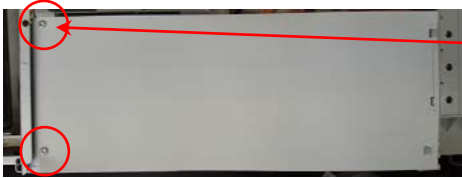
Remove 2 screws (S7 and S8).

Remove this screw (S64 and S65).


Remove this screw (S19).

	Mark	Size	Torque
	S7 S8	4x12	1,5Nm
	S64 S65	M4x10	1,5Nm
	S19	M5x12	1,5Nm

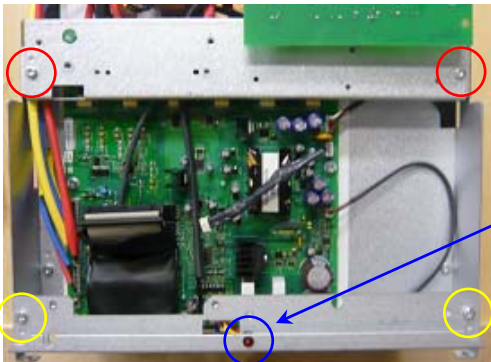
Screws KIT : VY1ADV1104



Remove 2 screws (S66 and S67).

	Mark	Size	Torque
	S66 S67	M4x10	1,5Nm

Metal Parts KIT : VY1A1208



Remove 2 screws (S61 and S63).

Disconnect the wire.

Remove 2 screws (S60 to S62).

	Mark	Size	Torque
	S60 S62	M4x10	1,5Nm
	S61 S63	M4x10	1,5Nm

SUB ASSEMBY POWER : VX5A1HD30M3X



Disconnect 3 wires (from right to left)

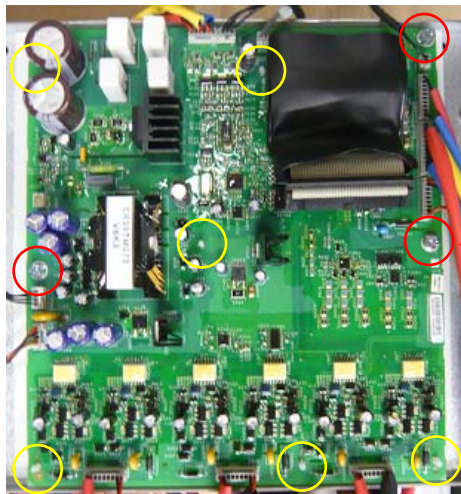
- Power board (S700)→E118→heatsink, thermal sensor
- Power board (S101)→E112→Filter board (S101)
- Power board (S102)→E107→Modules THY/DIO :
 1. Blue cable→ THY/DIO (10) :
red wire→ pin 4 ; black wire→pin 5
 2. Yellow cable→ THY/DIO (9) :
red wire→ pin 4 ; black wire→pin 5
 3. Red cable→ THY/DIO (8) :
red wire→ pin 4 ; black wire→pin 5

Disconnect 4 wires (from up to down)

- Power board (S202)→E111→Filter board (S202)
- Power board (S200)→E109→Module IGBT (11) :
Blue wire : pin 2 of IGBT ; Red wire : pin 3 of IGBT
- Power board (S500)→E110→3 current sensors :
Blue wire : W (sensor 48) ; red : U (46) ; Yellow : V (47)
- Power board (S400)→E108→ Module IGBT (11)
Yellow cable : pin 1 of IGBT ;
Red wire : pin 6 of IGBT, Black wire : pin 7 of IGBT

Disconnect 3 wires (from up to down)

- Power board (S205)→E102→DEL
- Power board (S103)→E101
→Power internal fan and control bloc (S103);
- Power board (S203)→E105→Power 2 fans



Disconnect 3 wires (from left to right)

- Power board (S300)→E115→ Modules IGBT (14) :
Red cable : red wire→ pin G1 ; black wire→pin E1
Black cable : red wire→ pin G2 ; black wire→pin E2
- Power board (S301)→E116→ Modules IGBT (13) :
Red cable : red wire→ pin G1 ; black wire→pin E1
Black cable : red wire→ pin G2 ; black wire→pin E2
- Power board (S302)→E117→ Modules IGBT (12) :
Red cable : red wire→ pin G1 ; black wire→pin E1
Black cable : red wire→ pin G2 ; black wire→pin E2

Remove 3 screws (S166 to S168)


Press 6 clips

Mark	Size	Torque
S166- S168	M4x10	1,5Nm

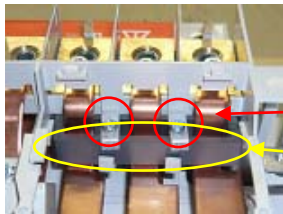
SUB ASSEMBY POWER : VX5A1HD30M3X



Remove 4 screws (S56 to S59).

	Mark	Size	Torque
	S104-S106	M4x10	2Nm

Interconnection power KIT: VZ3N1308





Remove 2 screws (S9 and S10).

Remove the ferrite type.

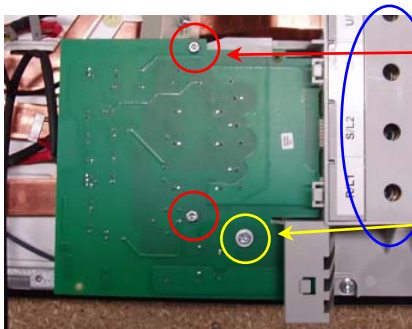


Remove 6 screws (S104 to S106).

Unscrew 3 screws.

	Mark	Size	Torque
	S9 S10	4x12	1,5Nm
	S104-S106	M5x12	2,5Nm

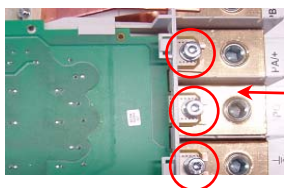
Filter Board : VX4A1109





Remove 3 screws (S5-S6).

Remove the mask of the power terminal.

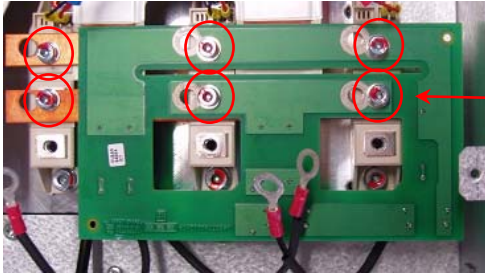
Remove this screw (S165).



Unscrew 3 screws.

	Mark	Size	Torque
	S5 S6	4x12	1Nm
	S165	M4x10	1,5Nm

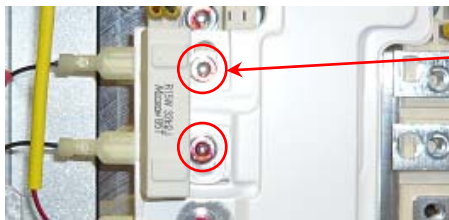
BUS Bar KIT: VZ3N1309



Remove 6 screws (S98 to S103)

Mark	Size	Torque
S98-S103	M5x12	2,5Nm

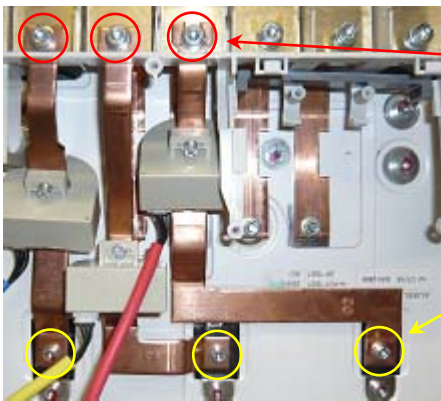
Lot of 2 capacitors : VY1ADC1104



Remove 2 screws (S201 and S204)

Mark	Size	Torque
S201 S204	M5x12	2,5Nm

Interconnection power KIT: VZ3N1308



Unscrew 3 screws.
From left to right : blue cable, yellow cable and red cable.

Remove 3 screws (S199, S202 and S207).

The U, V and W bars can be removed.

Mark	Size	Torque
S199 S202 S207	M5x12	2,5Nm

Interconnection power KIT: VZ3N1308



Remove 4 nuts (S90 and S93).

Unscrew 4 screws.


Mark	Size	Torque
S90-S93	M5X8	2,5Nm

Interconnection power KIT: VZ3N1308

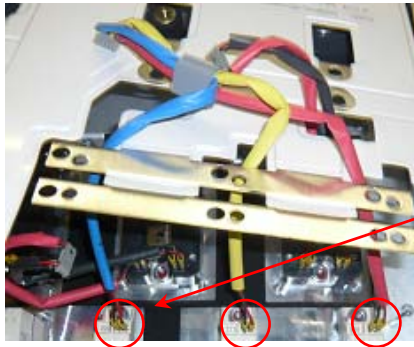
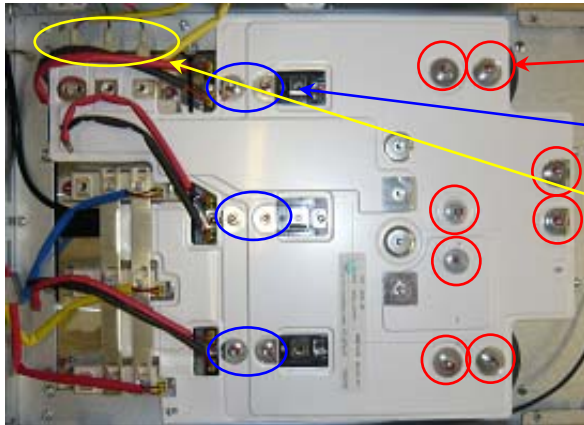


Remove 6 screws (S147 to S152).

Remove 2 screws (S25 to S26).

	Mark	Size	Torque
	S147-S152	M5x25	2,5Nm
	S25 S26	M8x20	1,5Nm

BUS Bar KIT : VZ3N1309



Remove 8 screws (S186 to S189, S190, S191, S194 and S195).

Remove 6 screws (S199, S200, S203, S204, S208 and S209)

Disconnect 2 wires

- Power board (S200)→E109 →Module IGBT (11) :

Blue wire : pin 2 of IGBT ; Red wire : pin 3 of IGBT

- Power board (S400)→E108 → Module IGBT (11)

Yellow wire : pin 1 of IGBT ; Red wire : pin 6 of IGBT

Black wire : pin 7 of IGBT

Disconnect 3 wires

Power board (S102)→E107→Modules IGBT :

*Blue cable→ IGBT (10) : red wire→ pin 5
blue wire→pin 4*

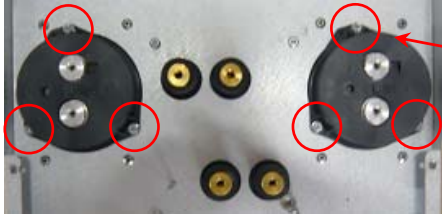
*Yellow cable→ IGBT (9) : red wire→ pin 5
blue wire→pin 4*

Red cable→ IGBT (8) : red wire→ pin 5 ; blue wire→pin 4

The bus bar can be removed.

	Mark	Size	Torque
	S186-S189 S190,S191 S194,S195	M6x12	2,5Nm
	S199,S200 S203,S204 S208,S209	M5x12	2,5Nm

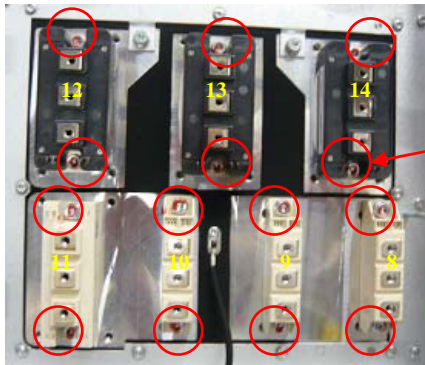
Lots of 2 capacitors : VY1ADC1104



Remove 6 screws (S159 to S164).

Mark	Size	Torque
S159- S164	M4x10	0,78Nm

**Rectifier (Thyristor / Diode) : VZ3TD1092M1671
Module Braking IGBT : VZ3IM1195M0671
Module IGBT Inverter : VZ3IM2201M1271**

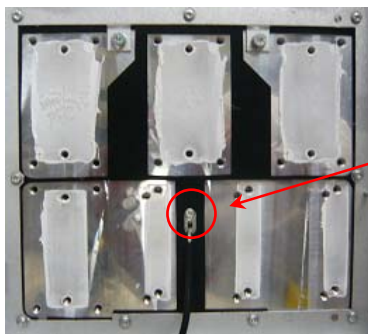


Remove 14 screws (S219 and S233).

The 7 modules can be removed
(Warning: do not forget
To put grease between the
modules and heatsink).

Mark	Size	Torque
S219- S233	M6x20	4,4Nm

Thermal Sensor : VZ3G1101

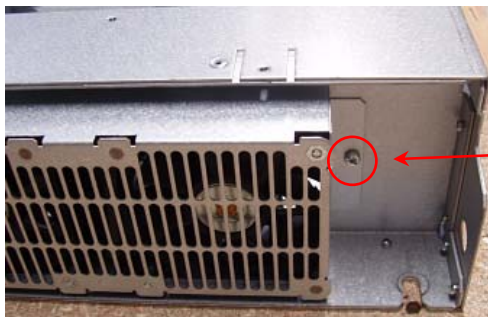


Remove this screw (S55).

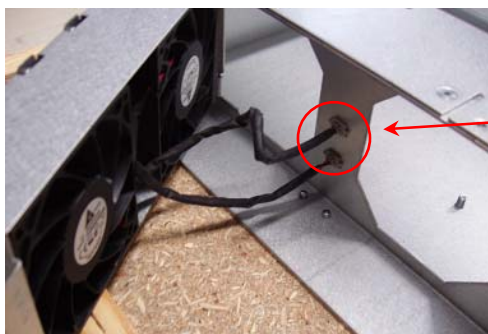
The heatsink can be removed.

Mark	Size	Torque
S55	M4x10	2Nm


Fan KIT : VZ3V1207



Remove this screw (S35).



Disconnect 2 wires.

	Mark	Size	Torque
	S35	M4x10	2Nm

9.9.2 Product Assembling Drawing

Refer to following files: [Assembling_175578400a53_06.pdf](#)
[Assembling_175578500A53_06.pdf](#)

9.9.3 Product Cabling Drawing

Refer to following file: [Cabling_175578900A53_04.pdf](#)

9.10 ATV61/71 Size 8 (size, refer to 1.2)

9.10.1 Dismantling and reassembling

Size 8: **ATV71HD45N4, ATV71HD55N4, ATV71HD75N4, ATV61HD45N4, ATV61HD55N4, ATV61HD75N4**

ATV71HD45N4	
Reference	Designation
VZ3V1208	Fan KIT
VZ3TD1072M1671	Rectifier (Thyristor / Diode) 80A / 1600V
VZ3N1313	Wires KIT
VZ3N1312	BUS Bar KIT
VZ3IM1300M1271	Module Braking IGBT (345A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1107	Lot of 4 capacitors (3900µF / 400V + Balancing Resistor)
VY1A1209	Metal Parts KIT
VY1A1104	Current Sensor KIT
VX5IM2200M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A71100Y	Control Bloc P < 90Kw
VX4A1110	Filter Board
VX4A1104	Terminal Board
VZ3N1311	Power Interconnexion KIT
VX4A1103	Front Cover 4x7 Digits

ATV71HD55N4	
Reference	Designation
VZ3V1208	Fan KIT
VZ3TD1092M1671	Rectifier (Thyristor / Diode) 92A / 1600V
VZ3N1313	Wires KIT
VZ3N1312	BUS Bar KIT
VZ3IM1300M1271	Module Braking IGBT (345A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1108	Lot of 4 capacitors (4800µF / 400V + Balancing Resistor)
VY1A1209	Metal Parts KIT
VY1A1104	Current Sensor KIT
VX5IM2300M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A71100Y	Control Bloc P < 90Kw
VX4A1110	Filter Board
VX4A1104	Terminal Board
VZ3N1311	Power Interconnexion KIT
VX4A1103	Front Cover 4x7 Digits

ATV71HD75N4	
Reference	Designation
VZ3V1208	Fan KIT
VZ3TD1132M1671	Rectifier (Thyristor-Diode) 130A 1600V
VZ3N1313	Wires KIT
VZ3N1312	BUS Bar KIT
VZ3IM1300M1271	Module Braking IGBT (345A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1109	Lot of 4 capacitors (5700µF / 400V + Balancing Resistor)
VY1A1209	Metal Parts KIT
VY1A1104	Current Sensor KIT
VX5IM2400M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A71100Y	Control Bloc P < 90Kw
VX4A1110	Filter Board
VX4A1104	Terminal Board
VZ3N1311	Power Interconnexion KIT
VX4A1103	Front Cover 4x7 Digits

ATV61HD45N4	
Reference	Designation
VZ3V1208	Fan KIT
VZ3TD1072M1671	Rectifier (Thyristor / Diode) 80A / 1600V
VZ3N1313	Wires KIT
VZ3N1312	BUS Bar KIT
VZ3IM1300M1271	Module Braking IGBT (345A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1107	Lot of 4 capacitors (3900µF / 400V + Balancing Resistor)
VY1A1209	Metal Parts KIT
VY1A1104	Current Sensor KIT
VX5IM2200M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A61100Y	Control Bloc P < 90Kw
VX4A1110	Filter Board
VX4A1104	Terminal Board
VZ3N1311	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits

ATV61HD55N4

Reference	Designation
VZ3V1208	Fan KIT
VZ3TD1092M1671	Rectifier (Thyristor / Diode) 92A / 1600V
VZ3N1313	Wires KIT
VZ3N1312	BUS Bar KIT
VZ3IM1300M1271	Module Braking IGBT (345A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1108	Lot of 4 capacitors (4800 μ F / 400V + Balancing Resistor)
VY1A1209	Metal Parts KIT
VY1A1104	Current Sensor KIT
VX5IM2300M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A61100Y	Control Bloc P < 90Kw
VX4A1110	Filter Board
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3N1311	Interconnection KIT

ATV61HD75N4

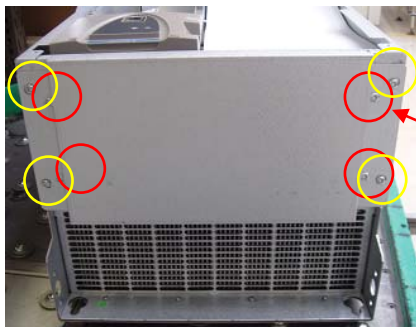
Reference	Designation
VZ3V1208	Fan KIT
VZ3TD1132M1671	Rectifier (Thyristor-Diode) 130A 1600V
VZ3N1313	Wires KIT
VZ3N1312	BUS Bar KIT
VZ3IM1300M1271	Module Braking IGBT (345A / 1200V)
VZ3G1101	Thermal Sensor
VY1ADV1104	Screws KIT
VY1ADC1109	Lot of 4 capacitors (5700 μ F / 400V + Balancing Resistor)
VY1A1209	Metal Parts KIT
VY1A1104	Current Sensor KIT
VX5IM2400M1271	Sub Assembly Power KIT (3 x IGBT + Power Board)
VX4A61100Y	Control Bloc P < 90Kw
VX4A1110	Filter Board
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3N1311	Interconnection KIT

Metal Parts KIT: VY1A1209



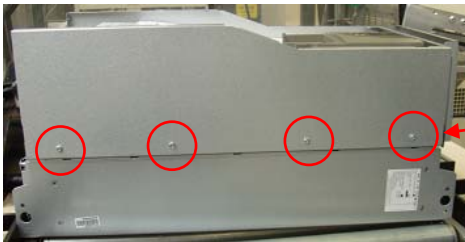
Unscrew this screw

Remove 6 screws (S243 to S248)



Remove 4 screws (S29, S30, S33 and S34).




Remove 4 screws (S27, S28, S31 and S32).



Remove 4 screws (S14 to S16 and S18).



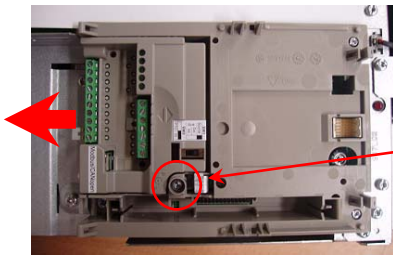
Remove 4 screws (S11 to S13 and S17).

	Mark	Size	Torque
	S243-S248	M4x10	2Nm
	S29 S30 S33 S34	M4X6	1,5Nm
	S27 S28 S31 S32	M4x10	2Nm
	S14-S16 S18	M4X6	1,5Nm
	S11-S13 S17	M4X6	

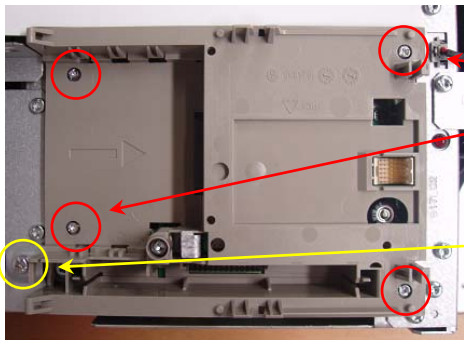
Control Bloc : VX4A61100Y



Press the two clips and pulls forward to take out the display board.

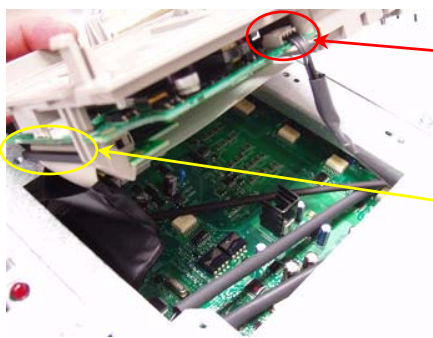


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.





Remove 4 screws (S180 to S183).

Remove this screw (S153).

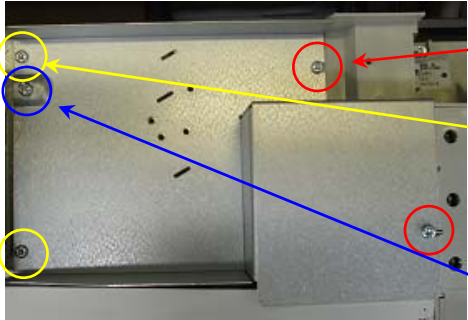


Disconnect the wire
Application board (S103)→E101→Power board (S103)

Disconnect the ribbon cable

	Mark	Size	Torque
	S180-S183	M3x8	0,78Nm
	S153	M4x8	1,5Nm




Metal Parts KIT : VY1A1209



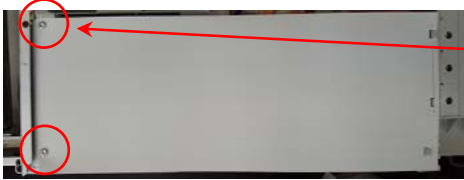
Remove 2 screws (S7 and S8).

Remove this screw (S64 and S65).


Remove this screw (S19).

	Mark	Size	Torque
	S7 S8	4x12	1,5Nm
	S64 S65	M4x10	1,5Nm
	S19	M5x12	1,5Nm


Screws KIT : VY1ADV1104



Remove 2 screws (S66 and S67).

	Mark	Size	Torque
	S66 S67	M4x10	1,5Nm



Metal Parts KIT : VY1A1209



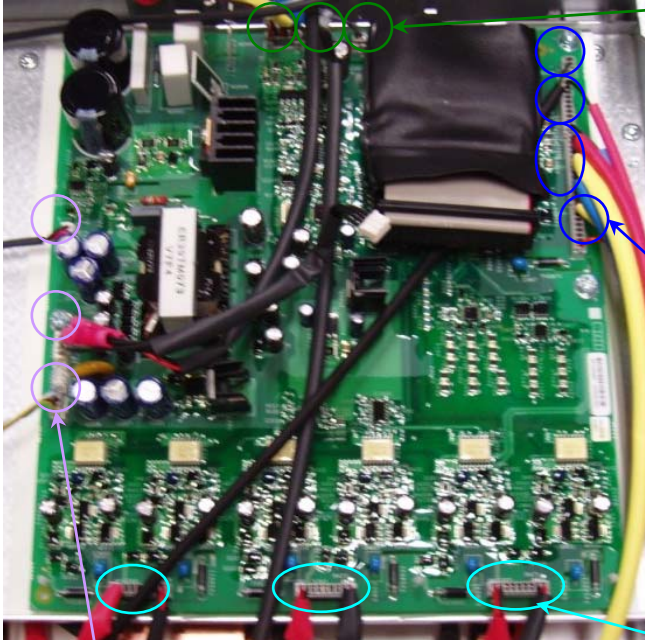
Remove 2 screws (S60 and S62).

Disconnect the wire.

Remove 2 screws (S61 to S63).

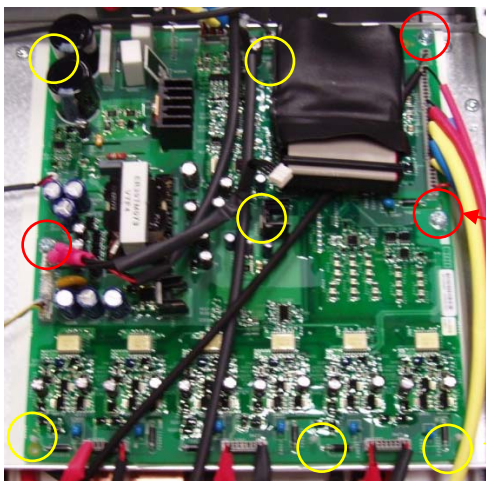
	Mark	Size	Torque
	S60 S62	M4x10	1,5Nm
	S61 S63	M4x10	1,5Nm

SUB ASSEMBY POWER : VX5IM2200M1271



Disconnect 3 wires (from up to down)

- Power board (S205)→E102→DEL
- Power board (S103)→E101
→Power internal fan and control bloc (S103):
- Power board (S203)→E105→Power 2 fans



Disconnect 3 wires (from right to left)

- Power board (S700)→E118→heatsink, thermal sensor
- Power board (S101)→E112→Bus board (S101)
- Power board (S102)→E107→Modules THY/DIO :
Blue cable→ THY/DIO (10) : red wire→ pin 5 ; blue wire→pin 4
Yellow cable→ THY/DIO (9) : red wire→ pin 5 ; blue wire→pin 4
Red cable→ THY/DIO (8) : red wire→ pin 5 ; blue wire→pin 4

Disconnect 4 wires (from up to down)

- Power board (S202)→E111→Filter board (S202)
- Power board (S200)→E109→Module IGBT (11) :
Blue wire : pin 2 of IGBT ; Red wire : pin 3 of IGBT
- Power board (S500)→E110→3 current sensors :
Blue wire : W (sensor 48) ; red : U (46) ; Yellow : V (47)
- Power board (S400)→E108→ Module IGBT (11)
Yellow wire : pin 1 of IGBT ; Red wire : pin 6 of IGBT
Black wire : pin 7 of IGBT

Disconnect 3 wires (from left to right)

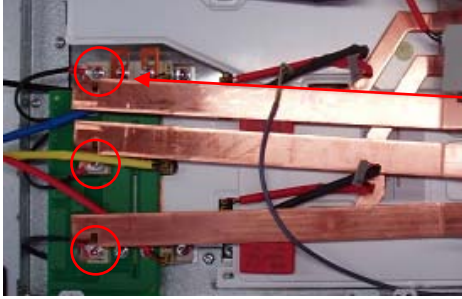
- Power board (S300)→E115→ Modules IGBT (14) :
Red cable : red wire→ pin G1 ; blue wire→pin E1
Black cable : red wire→ pin E2 ; blue wire→pin G2
- Power board (S301)→E116→ Modules IGBT (13) :
Red cable : red wire→ pin G1 ; blue wire→pin E1
Black cable : red wire→ pin E2 ; blue wire→pin G2
- Power board (S302)→E117→ Modules IGBT (12) :
Red cable : red wire→ pin G1 ; blue wire→pin E1
Black cable : red wire→ pin E2 ; blue wire→pin G2

Remove 3 screws (S166 to S168)

Press 6 clips

Mark	Size	Torque
S166- S168	M4x10	1,5Nm

Interconnection power KIT: VZ3N1311

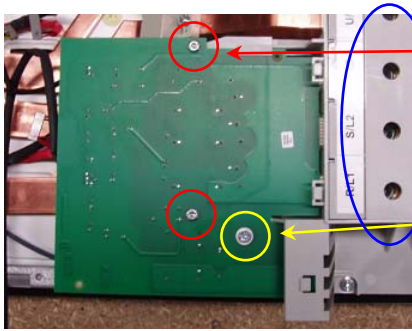


Remove 3 screws (S104 to S106) and remove 3 wires.

S134 to S136 :
 ATV61 55Kw : 2,5Nm ; 75Kw and 90Kw : 3,5Nm
 ATV71 45Kw and 55Kw : 2,5Kw ; 75Kw : 3,5Nm

Mark	Size	Torque
S104-S106	M5x12	2,5 or 3,5Nm

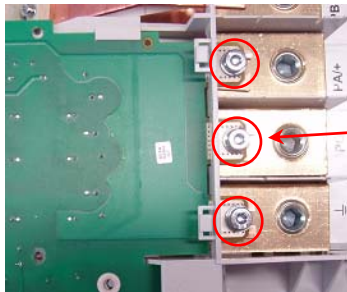
Filter Board : VX4A1110



Remove 3 screws (S5–S6).

Remove the mask of the power terminal.

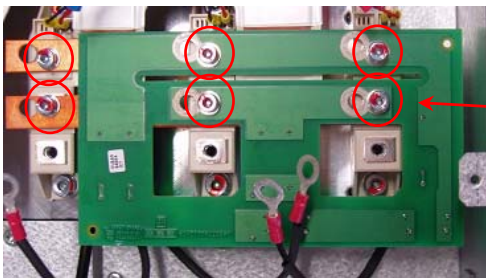
Remove this screw (S165).



Unscrew 3 screws.

Mark	Size	Torque
S5 S6	4x12	
S165	M4x10	

BUS Bar KIT: VZ3N1312

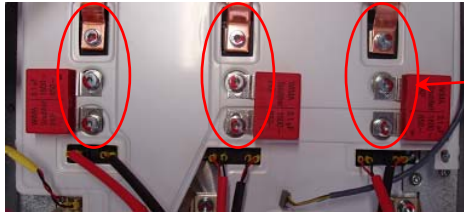


Remove 6 screws (S98 to S103)

S107 to S112 :
 ATV61 55Kw : 2,5Nm ; 75Kw and 90Kw : 3,5Nm
 ATV71 45Kw and 55Kw : 2,5Kw ; 75Kw : 3,5Nm

Mark	Size	Torque
S98-S103	M5x12	2,5 or 3,5Nm

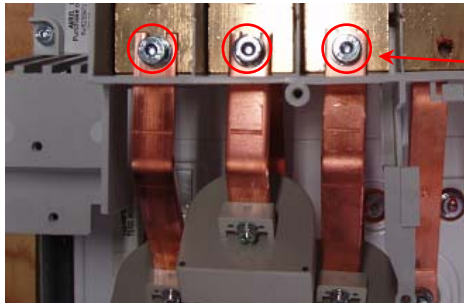
BUS Bar KIT: VZ3N1312



Remove 9 screws
(S198 to S200, S202, S203, S205 and S207 to S209)

Mark	Size	Torque
S198-S200 S202,S203 S205 S207-S209	M6x12	3,5Nm

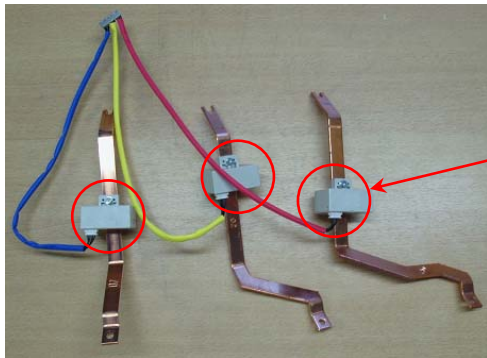
Interconnection power KIT: VZ3N1311



Unscrew 3 screws.
From left to right: blue cable, yellow cable and red cable.

The U, V and W bars can be removed.

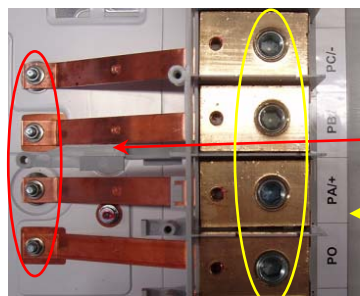
Current Sensor KIT : VY1A1104



Remove 3 screws (S100 and S102) and remove 3 wires.

3 current sensors → E110 → Power board (S500)

Interconnection power KIT: VZ3N1311




Remove 4 nuts (S90 and S93).


Unscrew 4 screws.

Mark	Size	Torque
S90-S93	M5X8	2,5Nm


Lots of 4 capacitors : VY1ADC1107



Remove 8 screws (S190 and S197).


	Mark	Size	Torque
	S190- S198	M6x12	3,5Nm

Interconnection power KIT: VZ3N1311

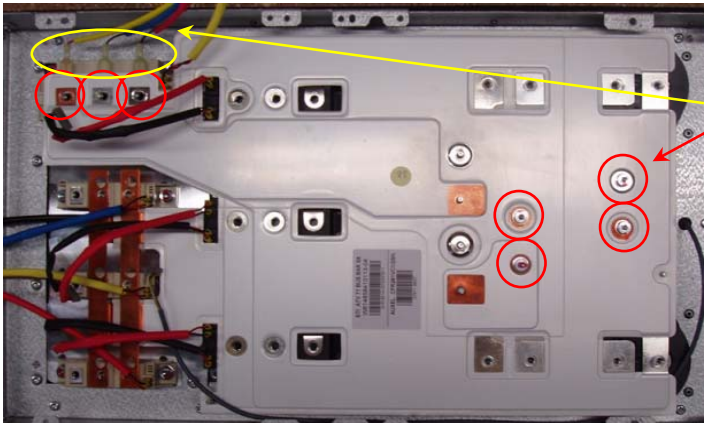
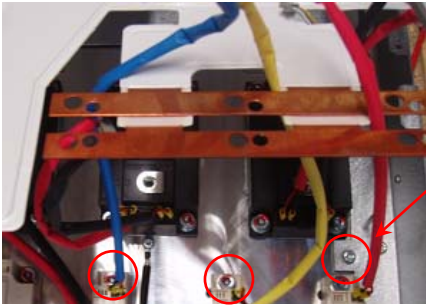


Remove 6 screws (S147 to S152).

Remove 2 screws (S25 to S26).

	Mark	Size	Torque
	S147- S152	M5x25	2,5Nm
	S25 S26	M8x20	1,5Nm

BUS Bar KIT : VZ3N1312

Remove 7 screws (S186 to S189, S201, S204 and S206)

Disconnect 2 wires

- Power board (S200)→E109 →Module IGBT (11) :
Blue wire : pin 2 of IGBT ; Red wire : pin 3 of IGBT
- Power board (S400)→E108 → Module IGBT (11)
*Yellow wire : pin 1 of IGBT ; Red wire : pin 6 of IGBT
Black wire : pin 7 of IGBT*

Disconnect this wire


Power board (S102)→E107→Modules IGBT :

*Blue cable → IGBT (10) : red wire → pin 5
blue wire → pin 4*

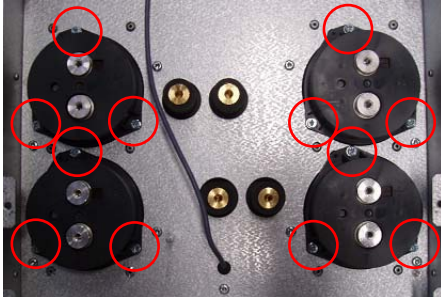
*Yellow cable → IGBT (9) : red wire → pin 5
blue wire → pin 4*

Red cable → IGBT (8) : red wire → pin 5 ; blue wire → pin 4

The bus bar can be removed.

	Mark	Size	Torque
	S186 - S189, S201, S204, S206	M6x12	3,5Nm

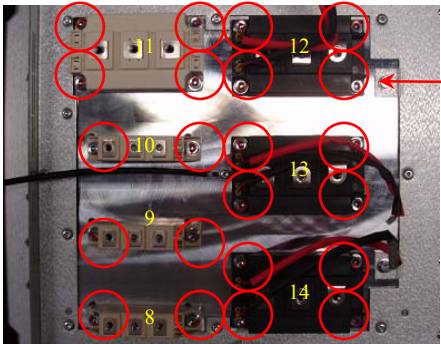
Lots of 4 capacitors : VY1ADC1107



Remove 12 screws
(S157 to S164 and S169 to S172).

Mark	Size	Torque
S157- S164 S169- S172	M4x10	0,78Nm

**Rectifier (Thyristor / Diode) : VZ3TD1072M1671
Module Braking IGBT : VZ3IM1300M1271
Sub Assembly Power KIT : VX5IM2200M1271**

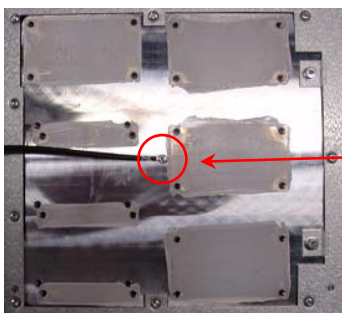


Remove 22 screws (S220 and S240).

The 7 modules can be removed
(Warning: do not forget to put the grease between the modules and heatsink).

Mark	Size	Torque
S220- S240	M6x20	4,4Nm

Thermal Sensor : VZ3G1101

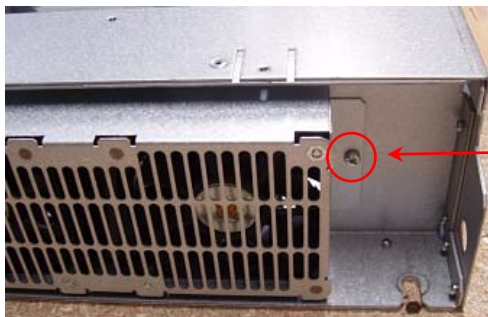


Remove this screw (S55).

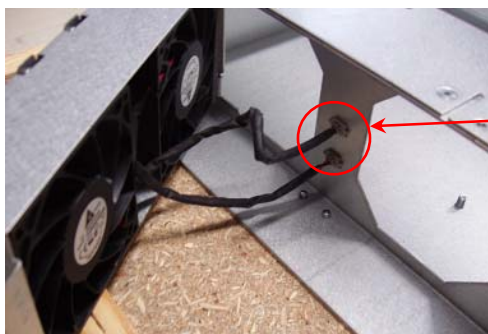
The heatsink can be removed.

Mark	Size	Torque
S55	M4x10	2Nm


Fan KIT : VZ3V1208



Remove this screw (S35).



Disconnect 2 wires.

	Mark	Size	Torque
	S35	M4x10	2Nm

9.10.2 Product Assembling Drawing

Refer to following files: [Assembling_175578400a53_06.pdf](#)
[Assembling_175578500A53_06.pdf](#)

9.10.3 Product Cabling Drawing

Refer to following file: [Cabling_175578900A53_04.pdf](#)

9.11 ATV61/71 Size A2 (size, refer to 1.2)

9.11.1 Dismantling and reassembling

Size A2: ATV71W075N4, ATV71WU15N4, ATV71WU22N4, ATV61W075N4, ATV61W075N4C, ATV61WU15N4, ATV61WU15N4C, ATV61WU22N4, ATV61WU22N4C, ATV61WU30N4, AT61WU30N4C

ATV71W075N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1203	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1202	Plastic Parts
VX5A1H075N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WU15N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1203	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1202	Plastic Parts
VX5A1H075N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WU22N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1203	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1202	Plastic Parts
VX5A1HU22N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61W075N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1203	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1202	Plastic Parts
VX5A1H075N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WU15N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1203	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1202	Plastic Parts
VX5A1HU15N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits


ATV61WU22N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1203	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1202	Plastic Parts
VX5A1HU15N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WU30N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1203	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1202	Plastic Parts
VX5A1HU22N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Trap: VY1A1501





Remove 6 screws (S361 to S366).

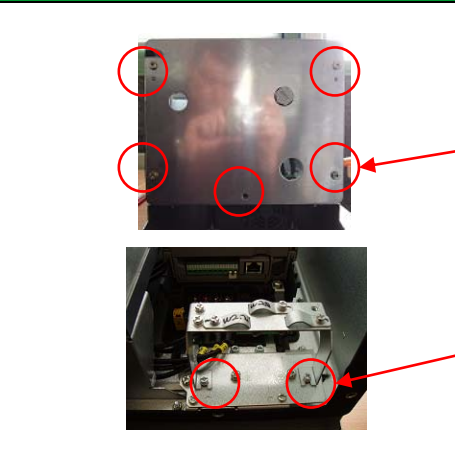
Remove this screw (S353).

Disconnect the cable
RJ45 - RJ45.

The front trap can be removed.


	Mark	Size	Torque
	S361- S366	M5x12	1,5Nm
	S353	M4x10	1,5Nm

Screws KIT: VY1ADV1200




Remove 5 screws (S378 to S382).


Remove 2 screws
(S347 and S348).

	Mark	Size	Torque
	S337 S338	M4x10	1,5Nm

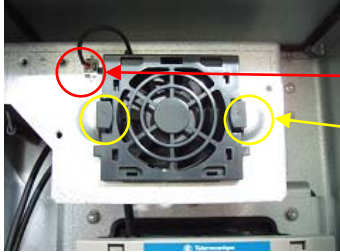
Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 2 screws (S337 and S338).

	Mark	Size	Torque
	S337 S338	M4x10	1,5Nm

Internal Fan: VZ3V1217



Disconnect the wire.

Push on the two clips.

Screws KIT: VY1ADV1200



Remove 4 screws (S325 to S328).

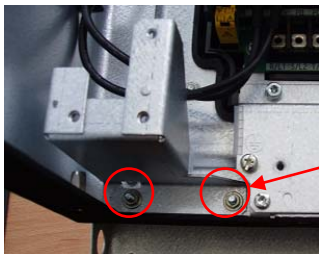


Remove 3 screws (S342 to S344).


Remove 2 screws (S329, S330).

	Mark	Size	Torque
	S325- S328	M4x10	2Nm
	S342- S344	M5x12	1,5Nm
	S329 S330	M4x10	1,5Nm

Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 2 nuts (S345 and S346).


	Mark	Size	Torque
	S345 S346	M6x8	1,5Nm

Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 6 screws (S332 to S337).

Disconnect the 3 wires
(from up to down):
L1, L3 and L3 ; Torque : 1,5Nm

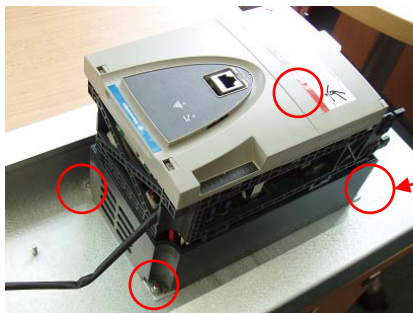
	Mark	Size	Torque
	S332-S337	M4x10	2Nm

Screws KIT: VY1ADV1200



Remove 10 nuts (S309 to S318).

Remove 4 screws (S319, S321, S323 and S324).



Remove 4 nuts (S301 to S304).

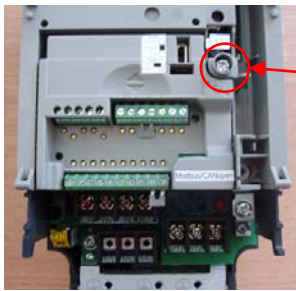
The drive can be removed.

	Mark	Size	Torque
	S309-S318	M6x8	1,5Nm
	S319 S321 S323 S324	M4x10	2Nm
	S301-S304	M6x8	1,5Nm

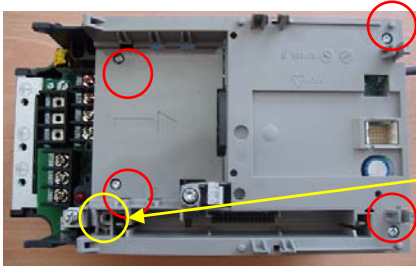
Control Bloc: VX4A61100Y



Press the two clips and pulls forward to take out the display board.

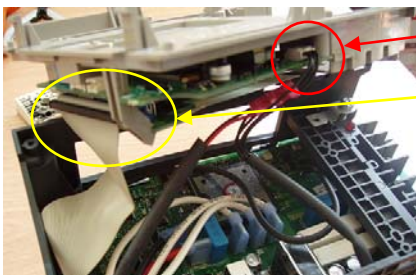


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S383 to S386).

Remove this screw (S387).



Disconnect the wire.

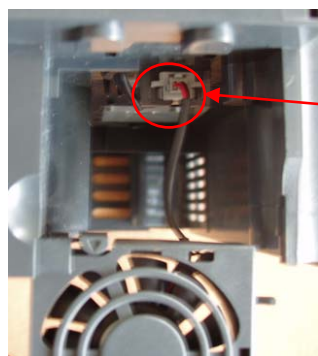
Disconnect the ribbon cable.

	Mark	Size	Torque
	S283-S386	M3x12	0,78Nm
	S387	M4x6	1,5Nm

Fan Kit : VZ3V1203



Push on the two clips.



Disconnect the wire.

Power Block Sub Assembly : VX5A1HU15N4



The Power Block Sub Assembly.

9.11.2 Product Assembling Drawing

Refer to following files: [Assembling_175409400A53_IED06.pdf](#)
[Assembling_175719900A53_IED05.pdf](#)

9.11.3 Product Cabling Drawing

Refer to following files: [Cabling_175554400A53_IED04.pdf](#)
[Cabling_176503300a53_02.pdf](#)

9.12 ATV61/71 Size A3 (size, refer to 1.2)

9.12.1 Dismantling and reassembling

Size A3: ATV71WU30N4, ATV71WU40N4, ATV61WU40N4, ATV61WU40N4C, ATV61WU55N4, ATV61WU55N4C

ATV71WU30N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1209	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1203	Plastic Parts KIT
VX5A1HU30N4	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WU40N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1209	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1203	Plastic Parts KIT
VX5A1HU40N4	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

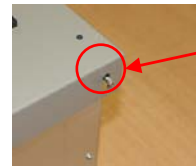
ATV61WU40N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1209	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1203	Plastic Parts KIT
VX5A1HU30N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WU55N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1209	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1000	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1501	Front Trap
VY1A1203	Plastic Parts KIT
VX5A1HU40N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Trap: VY1A1501



Remove 6 screws (S361 to S366).



Remove this screw (S353).

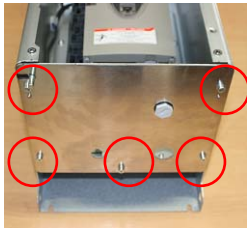


Disconnect the cable
RJ45 - RJ45.

The front trap can be removed.

	Mark	Size	Torque
	S361-S366	M5x12	1,5Nm
	S353	M4x10	1,5Nm

Screws KIT: VY1ADV1200



Remove 5 screws (S378 to S382).

	Mark	Size	Torque
	S378-S382	M5x16	1,5Nm

Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 2 screws (S337 and S338).



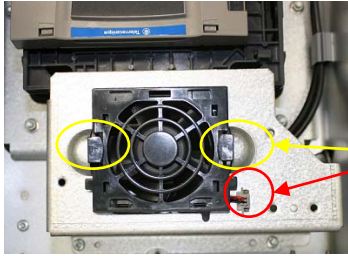
Remove 5 screws (S332 and S336).



Disconnect 3 wires (from left to right).
L1 to L3 with the torque: 1,5Nm

	Mark	Size	Torque
	S337-S338	M4x10	1,5Nm
	S332-S336	M4x10	2Nm

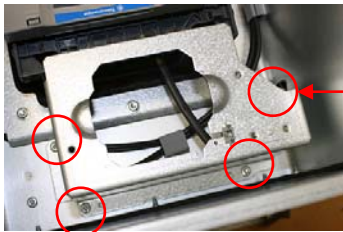
Internal Fan: VZ3V1217



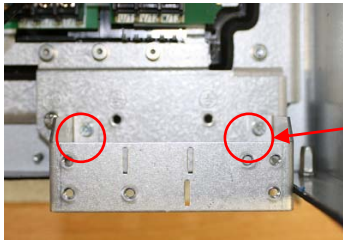
Disconnect the wire.

Push on the two clips.

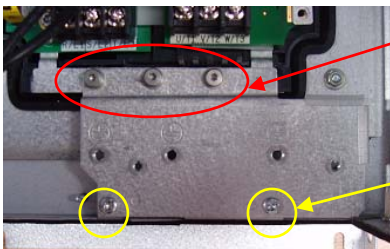
Screws KIT: VY1ADV1200



Remove 4 screws (S325 to S328).



Remove 3 screws (S347 to S348).

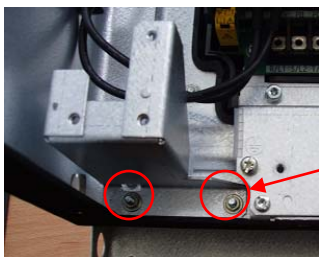


Remove 3 screws (S342 to S344).


Remove 2 screws (S329, S330).

	Mark	Size	Torque
	S325- S328	M4x10	2Nm
	S347- S348	M4x10	2Nm
	S342- S344	M5x12	2,6Nm
	S329 S330	M4x10	1,5Nm


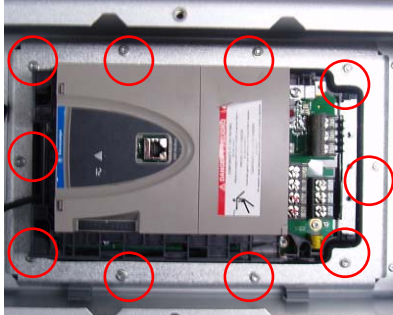

Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 2 nuts (S345 and S346).

	Mark	Size	Torque
	S345 S346	M6x8	1,5Nm

Screws KIT: VY1ADV1200

Unscrew the 2 screws for disconnect the 2



Remove 10 nuts (309 to 318).

The support gasket and the molded gasket can be removed.


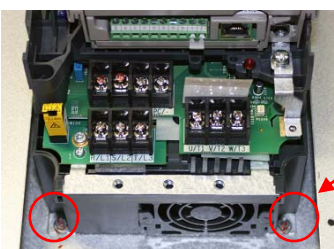
Remove 4 screws (S319, S321, S323 and S324).

Remove the 2 wires.


The enclosure can be removed.

Mark	Size	Torque
 S309-S318	M6	1,5Nm
 S319 S321 S323 S324	M4x10	2Nm

Screws KIT: VY1ADV1200

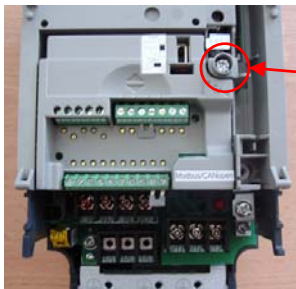
Remove 4 nuts (S301 to S304).

Mark	Size	Torque
 S301-S304	M6	1,5Nm

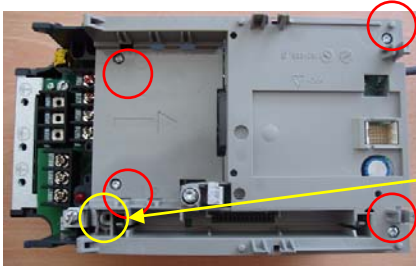
Control Bloc: VX4A61100Y



Press the two clips and pulls forward to take out the display board.

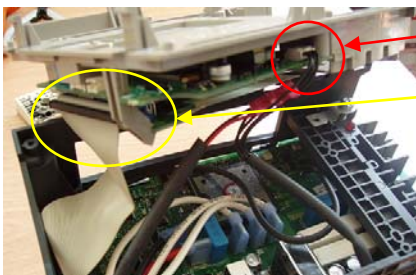


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S383 to S386).

Remove this screw (S347).

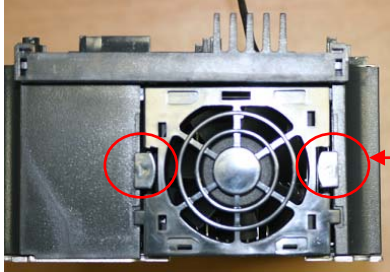


Disconnect the wire.

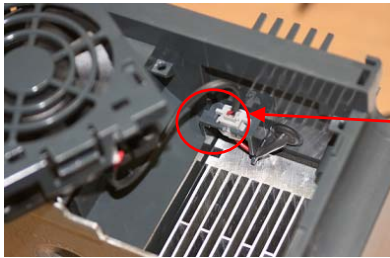
Disconnect the ribbon cable.

	Mark	Size	Torque
	S383-S386	M3x12	0,78Nm
	S47	M4x6	1,5Nm

Fan Kit: VZ3V1209



Push on the two clips.



Disconnect the wire.

Power Block Sub Assembly: VX5A1HU30N4



The Power Block Sub Assembly.

9.12.2 Product Assembling Drawing

Refer to following files: [Assembling_175409400A53_IED06.pdf](#)
[Assembling_175719900A53_IED05.pdf](#)

9.12.3 Product Cabling Drawing

Refer to following files: [Cabling_175554400A53_IED04.pdf](#)
[Cabling_176503300a53_02.pdf](#)

9.13 ATV61/71 Size B (size, refer to 1.2)

9.13.1 Dismantling and reassembling

**Size B: ATV71WU55N4, ATV71WU75N4, ATV61WU75N4,
 ATV61WU75N4C, ATV61WD11N4, ATV61WD11N4C**

ATV71WU55N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1204	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1001	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1502	Front Trap
VY1A1204	Plastic Parts KIT
VX5A1HU55N4	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WU75N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1204	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1001	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1502	Front Trap
VY1A1204	Plastic Parts KIT
VX5A1HU55N4	Power Block Sub Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WU75N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1204	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1001	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1502	Front Trap
VY1A1204	Plastic Parts KIT
VX5A1HU55N4	Power Block Sub Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WD11N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1204	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1001	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1200	Screws KIT
VY1A1502	Front Trap
VY1A1204	Plastic Parts KIT
VX5A1HU75N4	Power Block Sub-Assembly 7,5kW 400V
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Trap: VY1A1502



Remove 6 screws (S361 to S366).

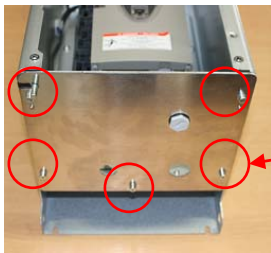
Remove this screw (S353).

Disconnect the cable
RJ45-RJ45.

The front trap can be removed.

	Mark	Size	Torque
	S361-S366	M5x12	1,5Nm
	S353	M4x10	1,5Nm

Screws KIT: VY1ADV1200



Remove 5 screws (S378 to S382).

	Mark	Size	Torque
	S378-S382	M5x16	1,5Nm

Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 2 screws (S337 and S338).

Remove 5 screws (S332 and S336).

Disconnect 3 wires (from left to right).
L1 to L3 with the torque: 1,5Nm

	Mark	Size	Torque
	S337-S338	M4x10	1,5Nm
	S332-S336	M4x10	2Nm

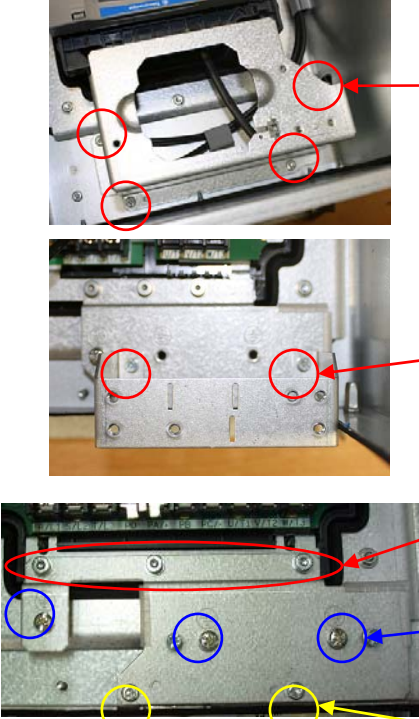
Internal Fan: VZ3V1217



Disconnect the wire.

Push on the two clips.

Screws KIT: VY1ADV1200








Remove 4 screws (S325 to S328).

Remove 3 screws (S347 to S348).

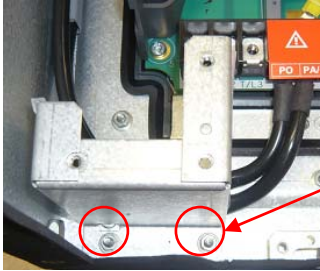
Remove 3 screws (S342 to S344).

Remove 3 screws (S339 to S341).


Remove 2 screws (S329, S330).

	Mark	Size	Torque
	S325-S328	M4x10	2Nm
	S347-S348	M4x10	1,5Nm
	S342-S344	M5x12	2,6Nm
	S329-S330	M4x10	2Nm
	S339-S341	M5x12	1,5Nm

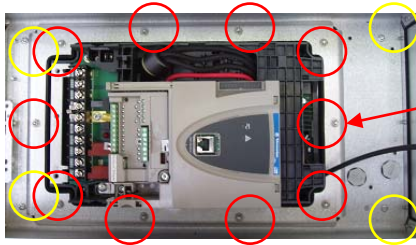
Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 2 nuts (S345 and S346).

	Mark	Size	Torque
	S345-S346	M6x8	1,5Nm

Screws KIT: VY1ADV1200



Remove 10 nuts (309 to 316).

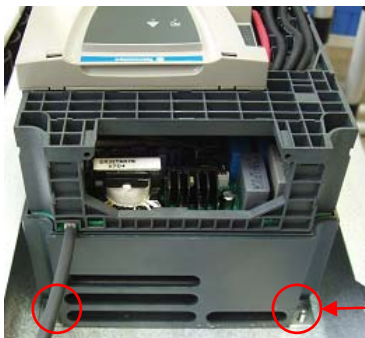
The support gasket and the molded gasket can be removed.

Remove 4 screws (S319, S321, S323 and S324).

The enclosure can be removed.


	Mark	Size	Torque
	S309- S318	M6	1,5Nm
	S319 S321 S323 S324	M4x10	2Nm

Screws KIT: VY1ADV1200



Remove 4 nuts (S301 to S304).

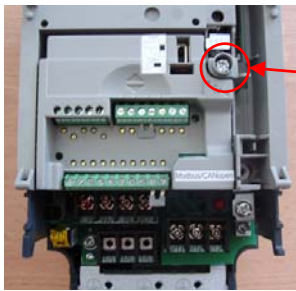


	Mark	Size	Torque
	S301- S304	M6	1,5Nm

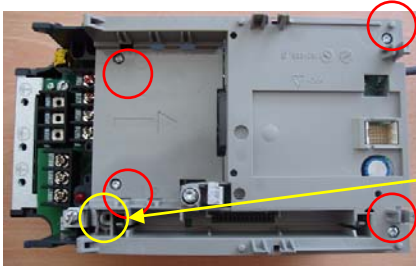
Control Bloc: VX4A71100Y



Press the two clips and pulls forward to take out the display board.

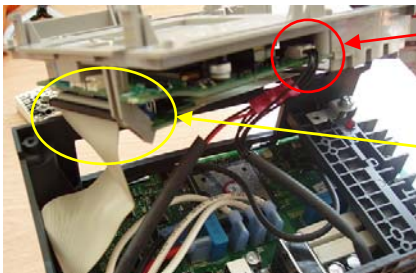


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S383 to S386).

Remove this screw (S347).



Disconnect the wire.
Application board (S103)→Power board (S103) and Power internal fan

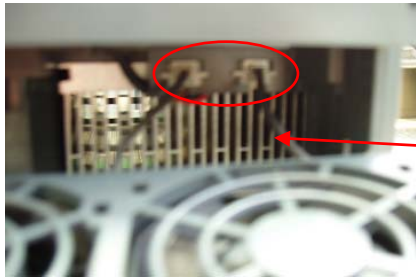
Disconnect the ribbon cable.

	Mark	Size	Torque
	S383-S386	M3x12	0,78Nm
	S47	M4x6	1,5Nm

Fan Kit: VZ3V1204



Push on the two clips.



Disconnect 2 wires.

Power Block Sub Assembly: VX5A1HU55N4



The Power Block Sub Assembly.

9.13.2 Product Assembling Drawing

Refer to following files: [Assembling_175577700A53_IED06.pdf](#)
[Assembling_175719900A53_IED05.pdf](#)

9.13.3 Product Cabling Drawing

Refer to following files: [Cabling_175554500A53_IED03.pdf](#)
[Cabling_176503300a53_02.pdf](#)

9.14 ATV61/71 Size C (size, refer to 1.2)

9.14.1 Dismantling and reassembling

Size C: ATV71WD11N4, ATV61WD15, ATV61WD15N4C

ATV71WD11N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1210	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1002	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1503	Front Trap
VY1A1215	Plastic Parts KIT
VX5A1HD11N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WD15N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1210	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ2LB1002	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1503	Front Trap
VY1A1215	Plastic Parts KIT
VX5A1HD11N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Trap: VY1A1503

Remove 6 screws (S361 to S366).

Remove this screw (S353).

Disconnect the cable
RJ45-RJ45.

The front trap can be removed.

Mark	Size	Torque
S361-S366	M5x12	1,5Nm
S353	M4x10	1,5Nm

Screws KIT: VY1ADV1201

Remove 5 screws (S378 to S382).

Mark	Size	Torque
S378-S382	M5x16	1,5Nm

Screws KIT: VY1ADV1201 ONLY CLASS B

Remove 2 screws (S337 and S338).

Remove 5 screws (S332 and S336).

Disconnect 3 wires (from left to right).
L1, L3 and L3 ; Torque : 1,5Nm

Mark	Size	Torque
S337-S338	M4x10	1,5Nm
S332-S336	M4x10	2Nm

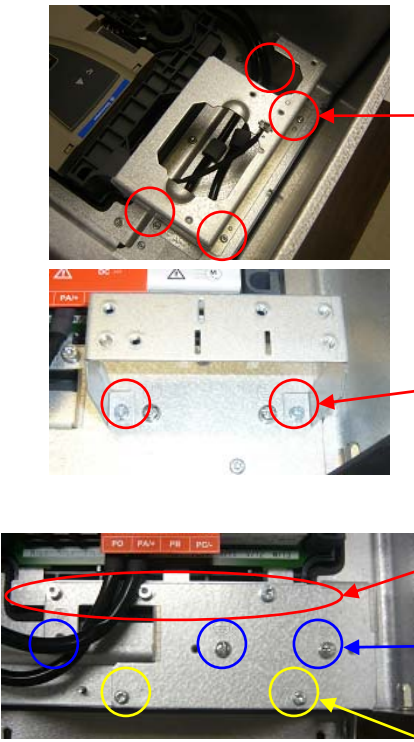
Internal Fan: VZ3V1217



Disconnect the wire.

Push on the two clips.

Screws KIT: VY1ADV1201








Remove 4 screws (S325 to S328).

Remove 3 screws (S347 to S348).

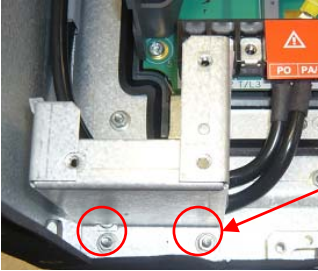
Remove 3 screws (S342 to S344).

Remove 3 screws (S339 to S341).


Remove 2 screws (S329, S330).

	Mark	Size	Torque
	S325-S328	M4x10	2Nm
	S347-S348	M4x10	1,5Nm
	S342-S344	M5x12	2,6Nm
	S329-S330	M4x10	2Nm
	S339-S341	M5x12	1,5Nm

Screws KIT: VY1ADV1200 ONLY CLASS B



Remove 2 nuts (S345 and S346).

	Mark	Size	Torque
	S345-S346	M6x8	1,5Nm

Screws KIT: VY1ADV1201



Remove 10 nuts (309 to 318).

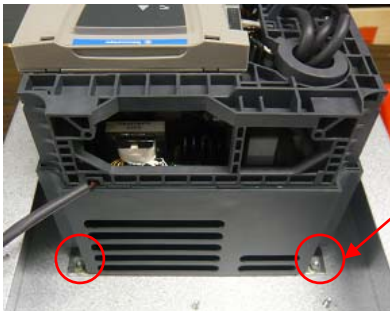
The support gasket and the molded gasket can be removed.

Remove 6 screws (S319 to S324).


The enclosure can be removed.

	Mark	Size	Torque
	S309-S318	M6x8	1,5Nm
	S319-S322	M4x10	2Nm

Screws KIT: VY1ADV1201



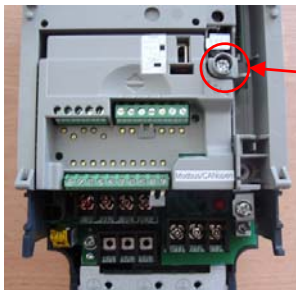
Remove 4 nuts (S301 to S304).

	Mark	Size	Torque
	S301-S304	M6	1,5Nm

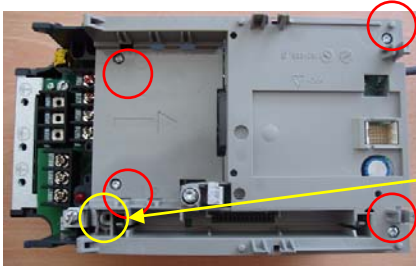
Control Bloc: VX4A61100Y



Press the two clips and pulls forward to take out the display board.

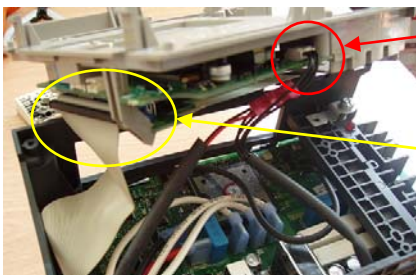


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S383 to S386).

Remove this screw (S387).



Disconnect the wire.
Application board (S103)→Power board (S103) and Power internal fan

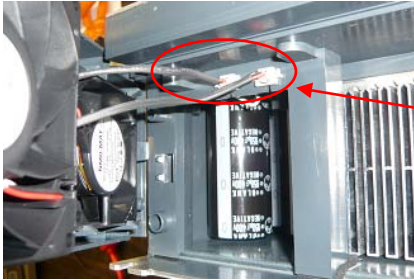
Disconnect the ribbon cable.

	Mark	Size	Torque
	S383-S386	M3x12	0,78Nm
	S387	M4x6	1,5Nm

Fan Kit: VZ3V1210



Push on the two clips.



Disconnect 2 wires.

Power Block Sub Assembly: VX5A1HD11N4



The Power Block Sub Assembly.

9.14.2 Product Assembling Drawing

Refer to following files: [Assembling_175577700A53_IED06.pdf](#)
[Assembling_175719900A53_IED05.pdf](#)

9.14.3 Product Cabling Drawing

Refer to following files: [Cabling_175554500A53_IED03.pdf](#)
[Cabling_176503300a53_02.pdf](#)

9.15 ATV61/71 Size D (size, refer to 1.2)

9.15.1 Dismantling and reassembling

Size D: ATV71WD15N4, ATV71WD18N4, ATV61WD18N4, ATV61WD18N4C, ATV61WD22N4, ATV61WD22N4C

ATV71WD15N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WD18N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WD18N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WD22N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A61100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

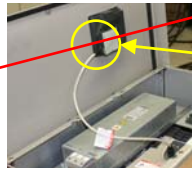
Front Trap: VY1A1504



Remove 8 screws (S361 to S368).



Remove this screw (S353).



Disconnect the cable
RJ45-RJ45.

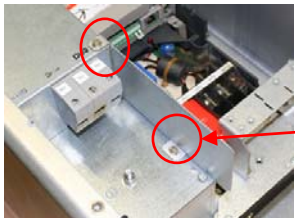
The front trap can be removed.

	Mark	Size	Torque
	S361- S366	M5x12	1,5Nm
	S353	M4x10	1,5Nm

Screws KIT: VY1ADV1201 ONLY CLASS B



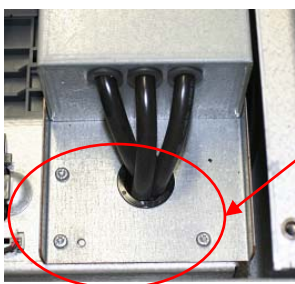
Remove 5 screws (S378 to S382).



Remove 2 screws (S337 and S338).

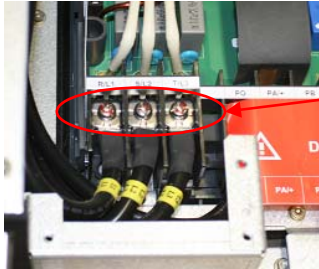


Remove 5 screws (S332 to S336).



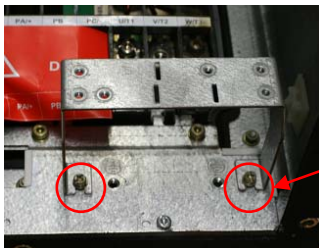
	Mark	Size	Torque
	S378- S382	M5x16	1,5Nm
	S337 S338	M4x10	1,5Nm
	S332- S336	M4x10	1,5Nm

Screws KIT: VY1ADV1201 ONLY CLASS B

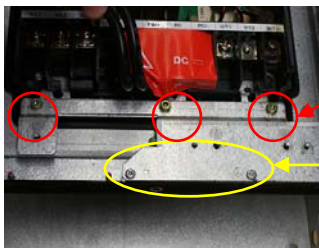


Unscrew the 3 screws, remove the 3 cables (Torque: 4,4Nm).

The filter can be removed.



Remove 2 screws (S347 and S348).

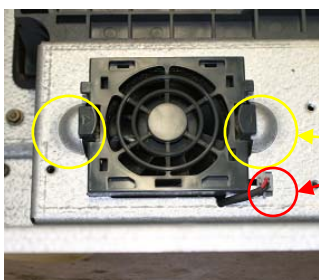


Remove 3 screws (S342 to S344).

Remove 2 screws (S329 and S330).

	Mark	Size	Torque
	S347 S348	M4x10	1,5Nm
	S342- S344	M5x12	2,6Nm
	S329 S330	M4x10	1,5Nm

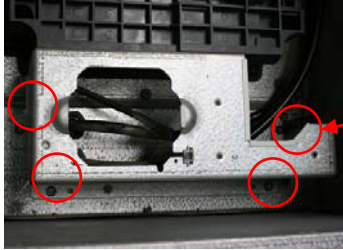
Internal Fan: VZ3V1217




Disconnect the wire.

Push on the two clips.

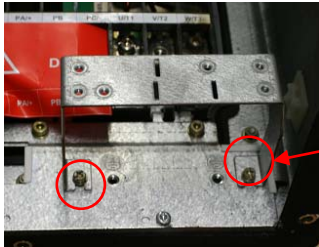
Screws KIT: VY1ADV1201



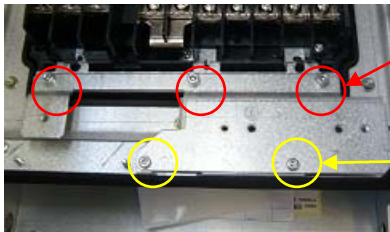
Remove 4 screws (S325 to S328).

	Mark	Size	Torque
	S325-S328	M4x10	2Nm

Screws KIT: VY1ADV1201 ONLY CLASS A



Remove 2 screws (S325 to S328).

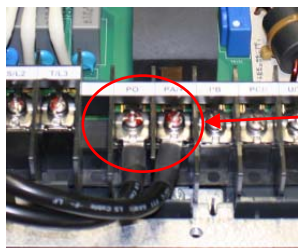


Remove 3 screws (S342 to S344).

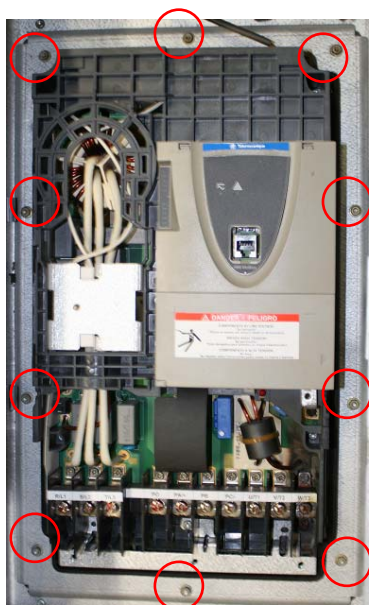
Remove 2 screws (S329 and S330).

	Mark	Size	Torque
	S325-S328	M4x10	1,5Nm
	S342-S344	M5x12	2,6Nm
	S329-S330	M4x10	1,5Nm


Screws KIT: VY1ADV1201



Unscrew 2 screws, remove 2 cables (Torque: 4,4Nm).



Remove 3 screws (S342 to S344).

	Mark	Size	Torque
	S309- S318	M6	1,5Nm

Screws KIT: VY1ADV1201



Remove 6 screws (S319 to S324).

The enclosure can be removed.



Remove 4 nuts (S301 to S304).



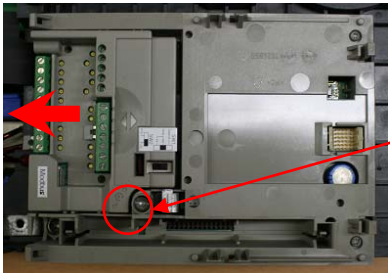
The drive can be removed.

	Mark	Size	Torque
	S319-S324	M4x10	2Nm
	S301-S304	M5	2,6Nm

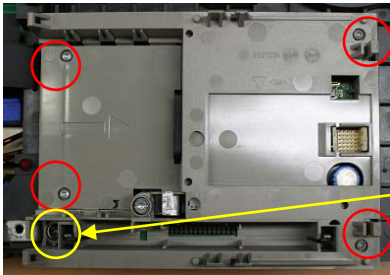
Control Bloc: VX4A61100Y



Press the two clips and pulls forward to take out the display board.

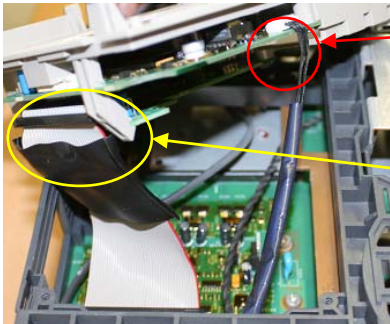


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S383 to S386).

Remove this screw (S387).

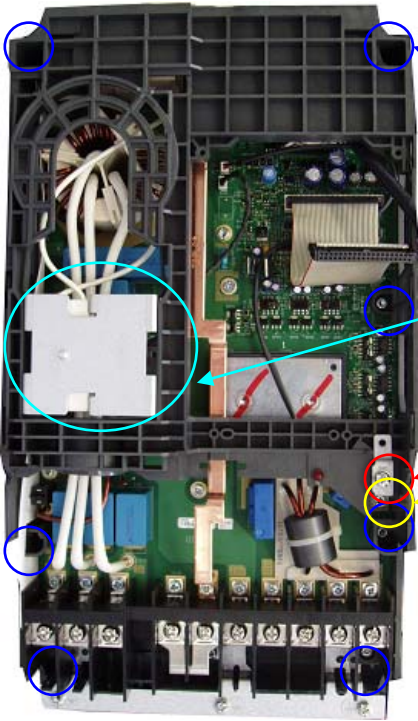


Disconnect the wire.
Application board (S103)→Power board (S103) and Power internal fan

Disconnect the ribbon cable.

	Mark	Size	Torque
	S383-S386	M3x8	0,78Nm
	S387	M4x6	1,5Nm

Power Block Sub-Assembly: VX5A1HD15N4



Remove 7 screws (S31 to S35).

Remove the resistor (disconnect 2 wires : number 62).

Remove this screw (S64).

Remove this screw (S117).

Remove the ground bar.

The chassis can be removed.

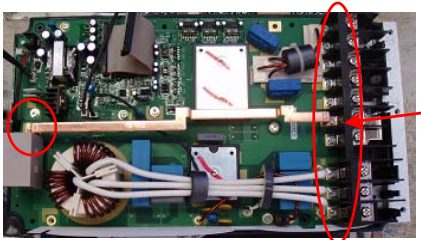
	Mark	Size	Torque
	S31-S35	4x12	1Nm
	S64	M5x12	1,5Nm
	S117	M4x16	1,5Nm

Screws KIT: VY1ADV1201




Remove the side insulate sheet.

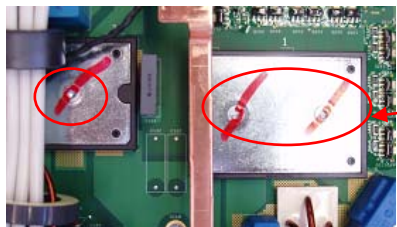
Power Terminals: VZ3N1205



Remove 11 screws (S101 to S111).

	Mark	Size	Torque
	S103-S113	M4x10	1,5Nm

Power Block Sub-Assembly: VX5A1HD15N4



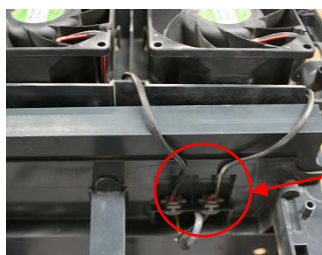
Remove 3 screws (S57 to S59).

Mark	Size	Torque
S57-S59	M4x30	2,2Nm

Fan Kit : VZ3V1205



Push on the two clips.



Disconnect the 2 wires.

The filter board can be removed.

9.15.2 Product Assembling Drawing

Refer to following files: [Assembling_175577900A53_05.pdf](#)
[Assembling_175719900A53_IED05.pdf](#)

9.15.3 Product Cabling Drawing

Refer to following files: [Cabling_175554600A53_04.pdf](#)
[Cabling_176503300a53_02.pdf](#)

9.16 ATV61/71 Size E (size, refer to 1.2)

9.16.1 Dismantling and reassembling

Size E: ATV61WD30N4, ATV61WD30N4, ATV71WD22N4

ATV61WD30N4 (C)	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

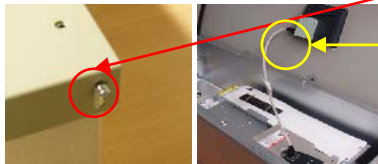
ATV71WD22N4	
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Trap: VY1A1505



Remove 8 screws (S187 to S194).

Remove this screw (S371).

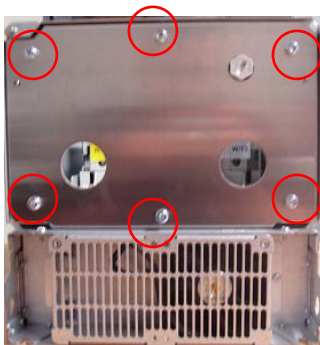


Disconnect the cable
RJ45-RJ45.


The front trap can be removed.

	Mark	Size	Torque
	S187- S194	M6x16	2Nm
	S171	M4x10	1,5Nm

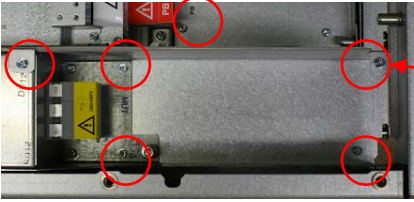
Metal Parts KIT: VY1A1206



Remove 6 screws (S203 to S208).


	Mark	Size	Torque
	S203- S208	M6x20	2Nm

Metal Parts KIT: VY1A1206 ONLY CLASS B

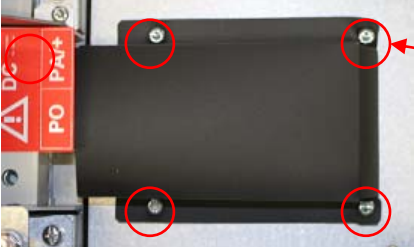


Remove 5 screws (S104 to S107 and S170).

Mark	Size	Torque
S104- S107 S170	M4x10	2Nm




Insulate Sheet - Choke Shield: VY1A1511 ONLY CLASS B

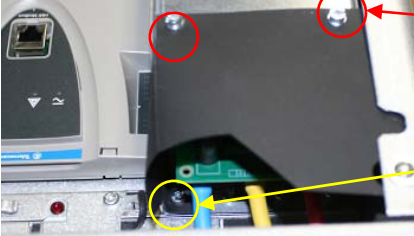


Remove 4 screws (S19 to S22).

Mark	Size	Torque
S19- S22	4x12	2Nm





Insulate Sheet - Filter Cover: VY1A1508 ONLY CLASS B



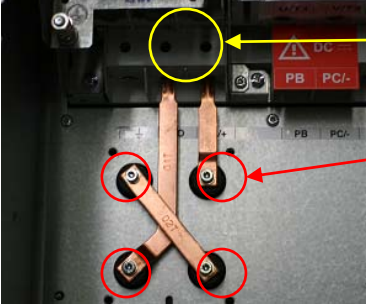
Remove 2 screws (S168 and S169).

Remove this screw (S84).

Mark	Size	Torque
S168 S169	M4x10	1,5Nm
S84	M4x10	2Nm


Screws KIT: VY1ADV1101 ONLY ATV61



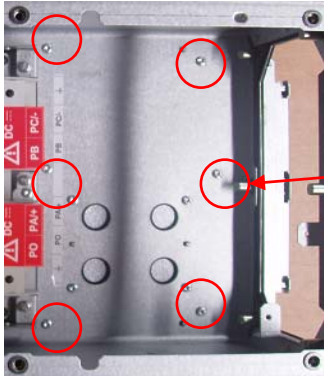
Unscrew 2 screws.

Remove 4 screws (S142 to S144 and S211).

Mark	Size	Torque
S142- S144, S211	M5x12	2,5Nm



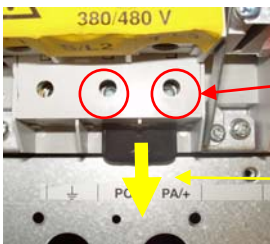
Metal Parts KIT: VY1A1206



Remove 6 screws (S90 to S91 and S96 to S99).




Remove 4 screws (S92 to S95).

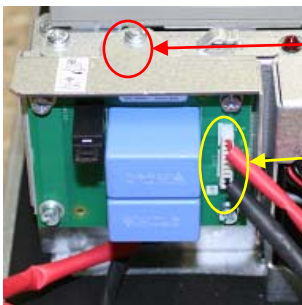


Unscrew these 2 screws.

And remove the shunt.


	Mark	Size	Torque
	S90-S99	M4x10	2Nm

Capacitor Board: VY1ADC1200

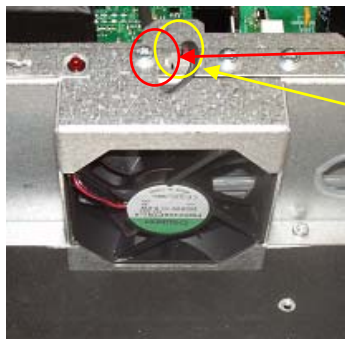


Remove this screw (S89).

Disconnect this wire.


	Mark	Size	Torque
	S89	M4x10	2Nm

Internal Fan: VZ3V1218

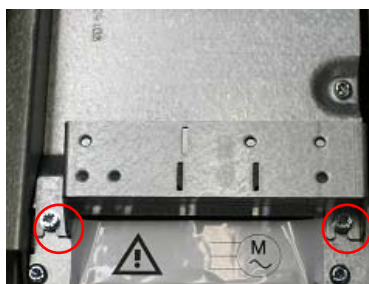


Disconnect the cable.


Remove this screw (S88).

	Mark	Size	Torque
	S88	M4x10	2Nm

Metal Parts KIT: VY1A1206



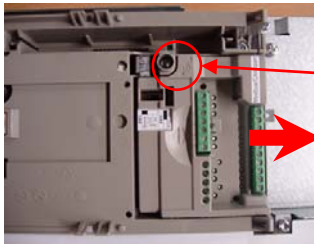
Remove 2 screws (S209 and S210).

	Mark	Size	Torque
	S209 S210	M4x10	1,5Nm

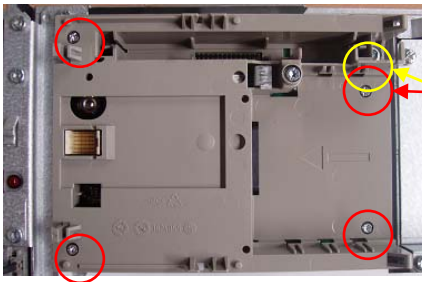
Control Bloc: VX4A71100Y



Press the two clips and pulls forward to take out the display board.

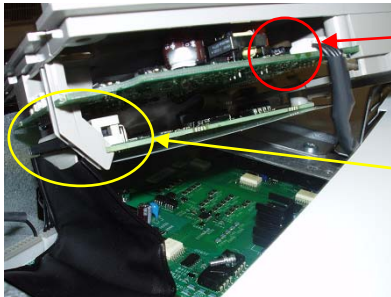


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.



Remove 4 screws (S175 to S178).

Remove this screw (S163).

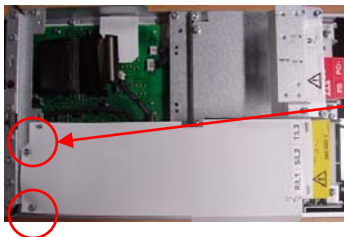


Disconnect the wire.
Application board (S103)→Power board (S103)
and Power internal fan


Disconnect the ribbon cable.

	Mark	Size	Torque
	S175- S178	M3x8	0,78Nm
	S163	M4x8	1,5Nm

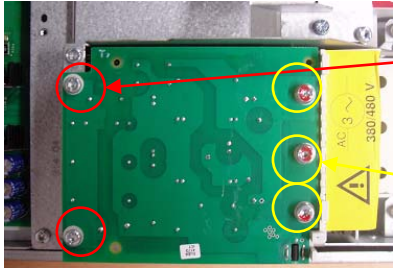
Screws KIT: VY1ADV1101 ONLY CLASS A



Remove 2 screws (S73 and S87).

	Mark	Size	Torque
	S73 S87	M4x10	2Nm

Sub Assembly Filter Boards: VX4A1107 ONLY CLASS A

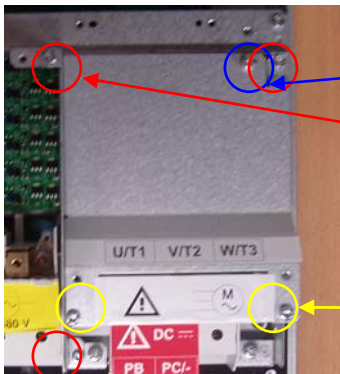


Remove 2 screws (S79 and S80).

Remove 3 screws (S136 and S138).

	Mark	Size	Torque
	S79 S80	M4x10	1,5Nm
	S136- S138	M5x12	2,5Nm

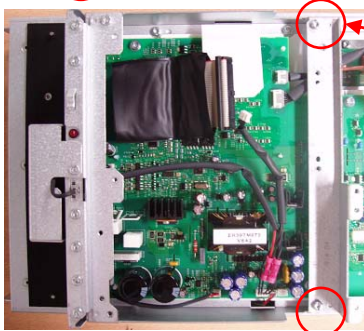
Metal Parts KIT: VY1A1206 ONLY CLASS A



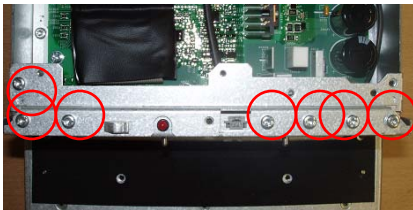
Remove this screw (S174).

Remove 3 screws (S74, S77 and S78).

Remove 2 screws (S17 and S18).



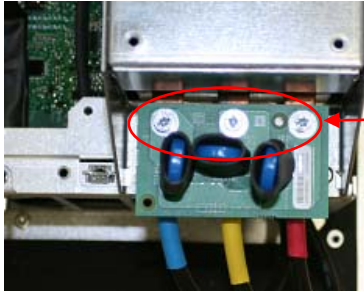
Remove 2 screws (S69 and S70).



Remove 7 screws (S71, S72, S81 to S83, S88 and S89).

	Mark	Size	Torque
	S174	M5x12	1,5Nm
	S74, S77, S78	M4x10	2Nm
	S17 S18	M4x12	2Nm
	S69 S70	M4x10	2Nm
	S71, S72, S81-S83, S88, S89	M4x10	2Nm

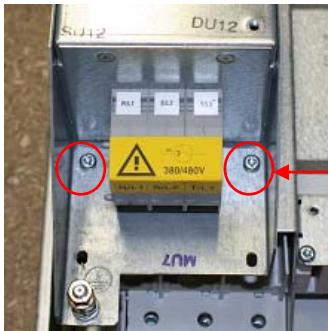
Screws KIT: VY1ADV1101 ONLY CLASS B



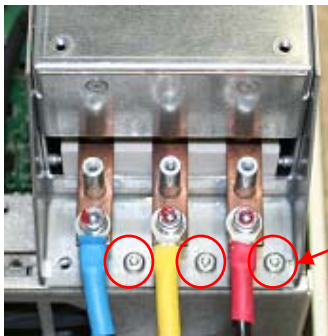
Remove 3 screws (S160 and S162).

Mark	Size	Torque
S160-S162	M4x10	1,5Nm

Screws KIT: VY1ADV1101 ONLY CLASS B



Remove 2 screws (S85 and S86).

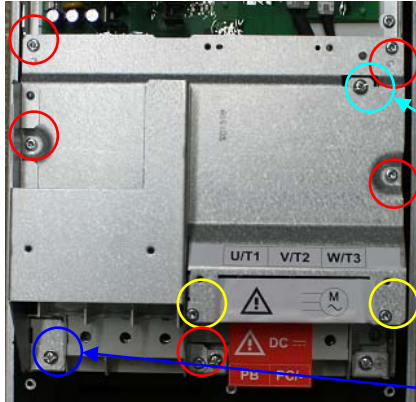


Remove 3 screws (S81 to S83).

The filter class B can be removed.

Mark	Size	Torque
S81-S83 S85,S86	M4x10	2Nm

Metal Parts KIT: VY1A1206 ONLY CLASS B



Remove 5 screws (S69, S70 and S74 to S76).

Remove this screw (S174).

Remove 2 screws (S17 and S18).


Remove this screw (S135).

	Mark	Size	Torque
	S69, S70 S74-S76	M4x10	2Nm
	S174	M5x12	1,5Nm
	S17 S18	4x12	2Nm
	S135	M5x12	2Nm

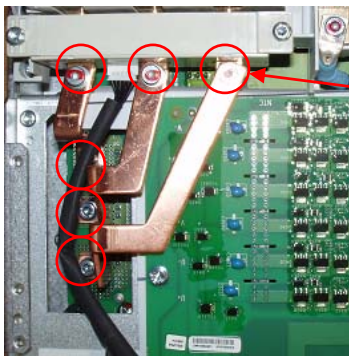
Metal Parts KIT: VY1A1206 ONLY CLASS B




Remove 3 screws (S71 and S73).

	Mark	Size	Torque
	S71- S73	M4x10	2Nm

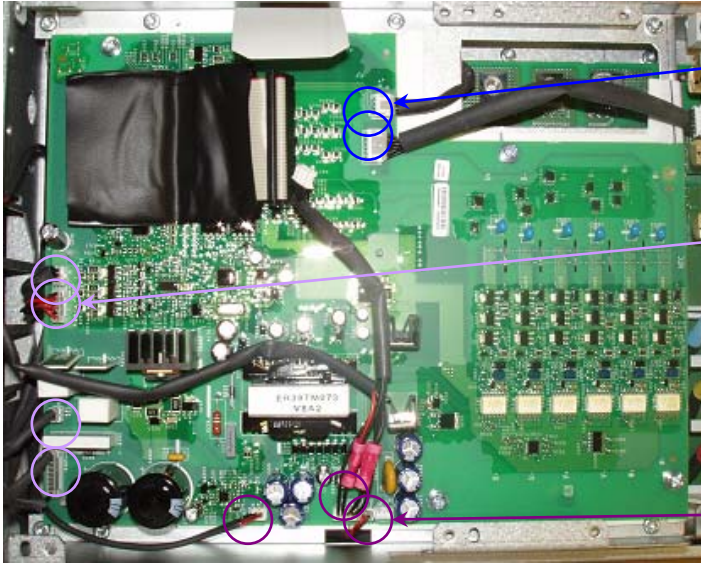
Connexion Bars KIT: VZ3N1304



Remove 6 screws (S129 to S134).

	Mark	Size	Torque
	S129- S134	M5x12	2,5Nm

Power Block Sub-Assembly: VX5A1HD22N4



Disconnect 2 wires (from up to down).

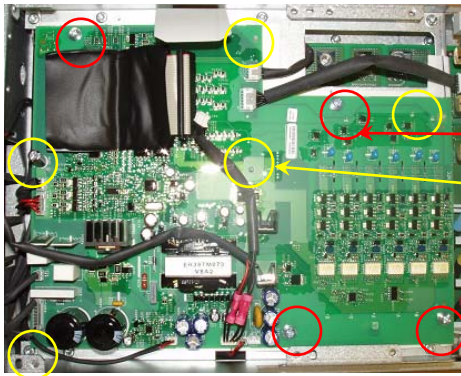
- Power board (S400)→E105
→Bus board (S400)
- Power board (S500)→E110
→Current sensor

Disconnect 4 wires (from up to down).

- Power board (S101)→E111
→Bus board (S101)
- Power board (S104)→E112
→Bus board (S104)
- Power board (S202)→E109
→Bus board (S202)
- Power board (S201)→E106
→Bus board (201)

Disconnect 3 wires (from left to right).

- Power board (S200)→E102
→Bus board (S101)
- Power board (S103)→E101
→Bus board (S104)
- Power board (S120)→E104
→Power fan



Remove 4 screws (S156 to S159).

Press 5 clips.

Mark	Size	Torque
S156- S159	M4x10	1,5Nm

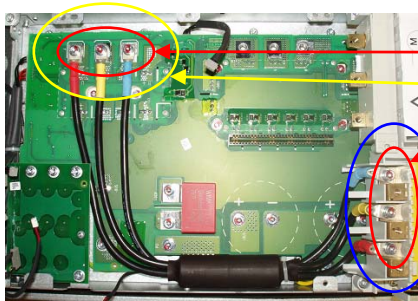
Power Block Sub-Assembly: VX5A1HD22N4



Remove 5 screws (S54 to S58).

Mark	Size	Torque
S54- S58	M4x10	2Nm

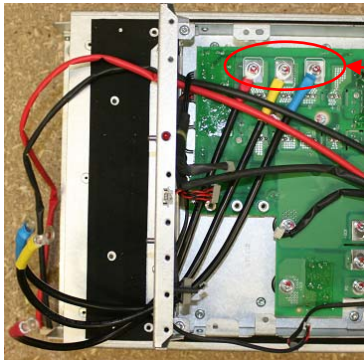
Mains Connexion KIT: VZ3N1305 ONLY CLASS A



Remove 6 screws (S123 to S128).
 From left to right : red, yellow and blue.
 From up to down : blue, yellow and red.

Mark	Size	Torque
S123-S128	M5x12	2,5Nm

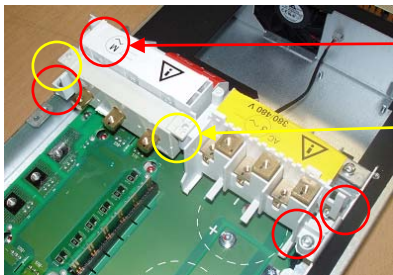
Screws KIT : VY1ADV1101 ONLY CLASS B



Remove 3 screws (S126 to S128).
 From left to right : L1 red, L2 yellow and L3 blue.

Mark	Size	Torque
S126-S128	M5x12	2,5Nm

Current Sensor KIT: VY1A1101 Power Terminals: VZ3N1206

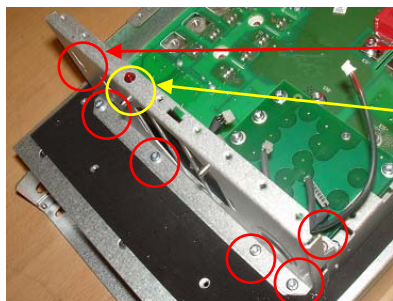


Remove 4 screws (S59 to S62).
 Remove 2 screws (S15 and S16).

Remove the hall effect sensor

Mark	Size	Torque
S59 S62	M4x10	2Nm
S15 S16	M4x12	2Nm

Metal Parts KIT: VY1A1206

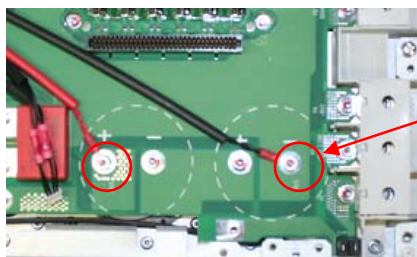


Remove 6 screws (S63 to S68).

Remove the DEL (E102).

Mark	Size	Torque
S63-S68	M4x10	2Nm

Screws KIT: VY1ADV1101



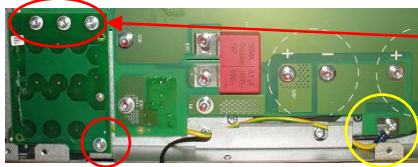
Remove 2 screws (S120 and S121).

Red wire : on + left capacitor.

Black wire : on – right capacitor.

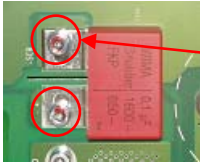
Mark	Size	Torque
S120-S121	M5x12	2,5Nm

DC BUS Board: VX5A1101

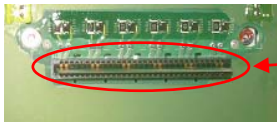


Remove 4 screws (S151 to S154).

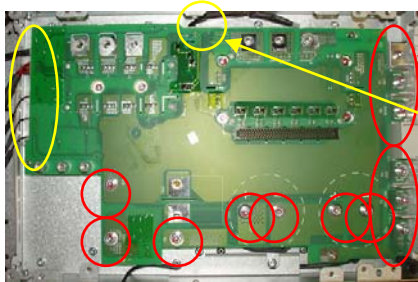
Remove this screw (S155) and remove the cable (filter board).



Remove 2 screws (S119 and S122).



Remove the interconnect PCB (no screw).

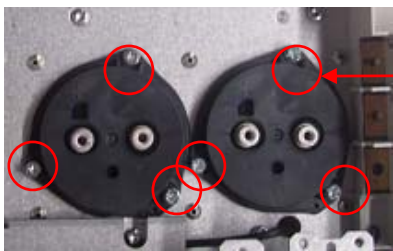


Remove 13 screws (S110 to S118 and S149 to S150).

Disconnect the wires (for the wiring, see the Power Block Sub-Assembly VX5A1HD22N4)

	Mark	Size	Torque
	S151-S154	M4x10	1,5Nm
	S155	M4x10	1,5Nm
	S119-S122	M5x12	2,5Nm
	S110-S118	M5x12	2,5Nm
	S149-S150	M5x20	2,5Nm

Lots of 2 capacitors: VY1ADC1101



Remove 6 screws (S44 to S49).

	Mark	Size	Torque
	S44-S49	M4x10	0,78Nm

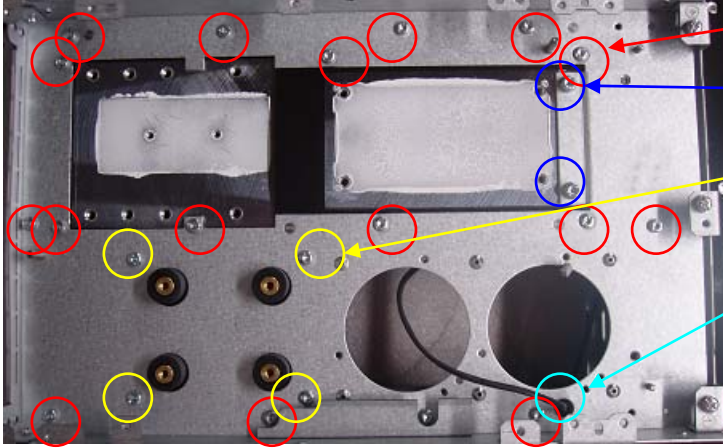
Power Terminals: VZ3N1206



Remove 6 screws (S50 to S53).

	Mark	Size	Torque
	S50-S53	M4x10	2Nm

Metal Parts KIT: VY1A1206



Remove 17 screws (S27 to S43).

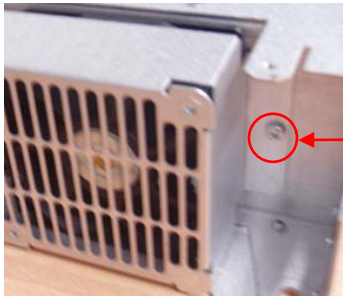
Remove 2 screws (S108 and S109).

Remove 4 screws (S11 to S14).

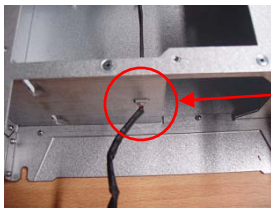
Remove the cable (E104).

	Mark	Size	Torque
	S27-S43	M4x10	2Nm
	S108-S109	M5x12	2,5Nm
	S11-S14	M4x12	2Nm


Fan Kit: VZ3V1211



Remove this screw (S26).



Disconnect this wire.

	Mark	Size	Torque
	S26	M4x10	1,5Nm

9.16.2 Product Assembling Drawing

Refer to following file: [Assembling_175719800A53_03.pdf](#)

9.16.3 Product Cabling Drawing

Refer to following files: [Cabling_175721500A53_IED03.pdf](#)

9.17 ATV61/71 Size F (size, refer to 1.2)

9.17.1 Dismantling and reassembling

Size F: **ATV61WD37N4, ATV61WD37N4C, ATV61WD45N4, ATV61WD45N4C
ATV71WD30N4, ATV71WD37N4**

ATV61WD37N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WD45N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WD30N4

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WD37N4

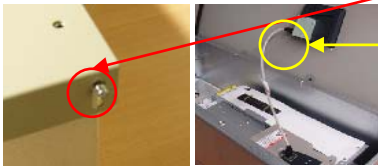
Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Trap: VY1A1506



Remove 8 screws (S219 to S226).

Remove this screw (S218).



Disconnect the cable
RJ45-RJ45.

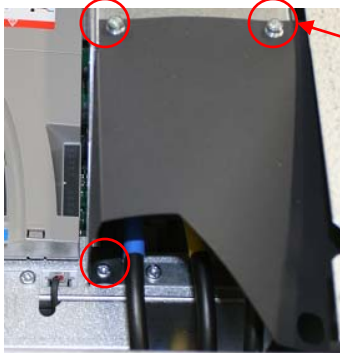
The front trap can be removed.

	Mark	Size	Torque
	S219-S226	M6x16	1,5Nm
	S218	M4x10	1,5Nm

Metal Parts KIT: VY1A1207 ONLY CLASS B



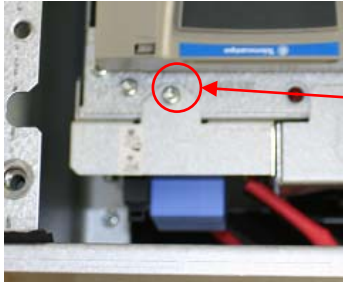
Remove 5 screws (S209 to S213).



Remove 3 screws (S202 to S203).

	Mark	Size	Torque
	S209-S213	M4x10	2Nm
	S202-S203	M4x10	1,5Nm

Metal Parts KIT: VY1A1207 ONLY CLASS B



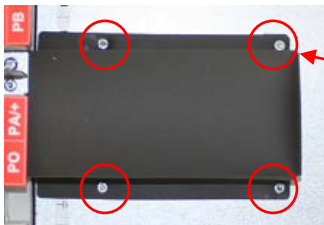
Remove this screw (S208).



Disconnect this wire.

Mark	Size	Torque
S208	M4x10	2Nm

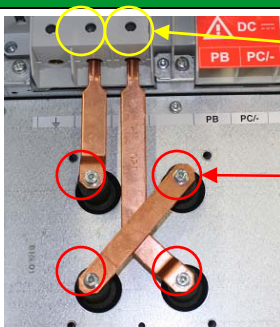
Insulate Sheet - Choke Shield: VY1A1512 ONLY CLASS B



Remove 4 screws (S198 to S201).

Mark	Size	Torque
S198- S201	M4x12	2Nm

Screws KIT : VY1ADV1101 ONLY CLASS B

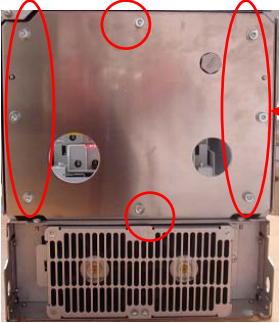


Unscrew 2 screws.

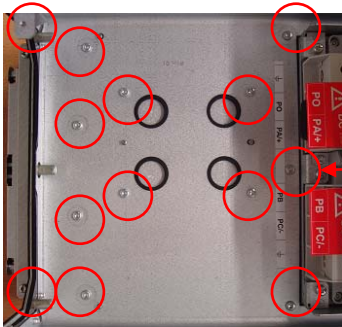
Remove 4 screws (S194 to S197).

Mark	Size	Torque
S194- S197	M5x12	2,5Nm

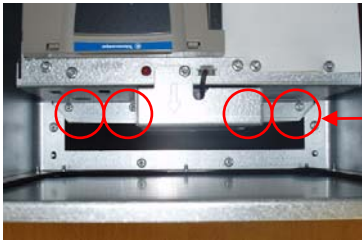
Metal Parts KIT: VY1A1207



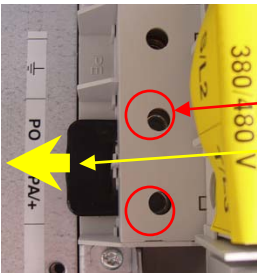
Remove 8 screws (S227 to S234).



Remove 13 screws
(S177 to S180 and S185 to S193).





Remove 4 screws (S181 to S184)



Unscrew these 2 screws.

And remove the shunt.

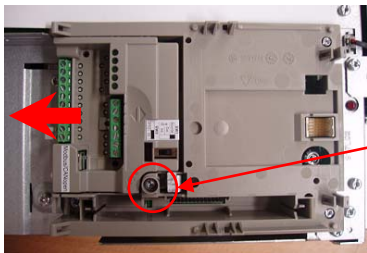
The enclosure can be removed.

	Mark	Size	Torque
	S227-S234	M6x20	2Nm
	S177-S193	M4x10	2Nm

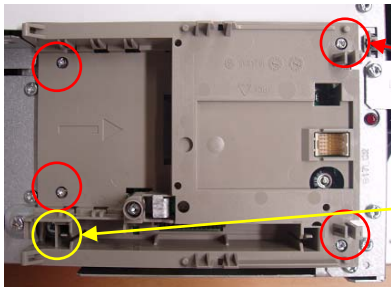
Control Bloc: VX4A71100Y



Press the two clips and pulls forward to take out the display board.

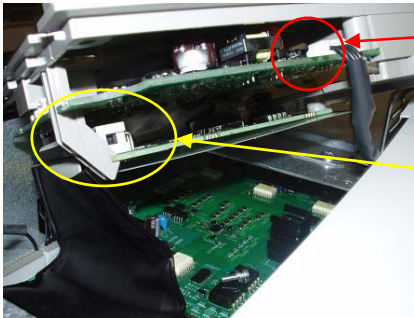


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.





Remove 4 screws (S235 to S238).

Remove this screw (S239).



Disconnect the wire.
Application board (S103)→Power board (S103)
and Power internal fan

Disconnect the ribbon cable.

	Mark	Size	Torque
	S235-S238	M3x8	0,78Nm
	S239	M4x8	1,5Nm

Internal Fan: VZ3V1218

Disconnect the wire.

Remove this screw (S170).

Mark	Size	Torque
S170	M4x10	2Nm

Screws KIT: VY1ADV1101 ONLY CLASS B

Remove 3 screws (S174 to S176).

Remove 3 screws (S171 to S173).
L1 blue, L2 yellow and L3 red.

Remove 2 screws (S164 and S165).

Remove 4 screws (S127, S128, S167 and S168).

The filter class B can be removed.

Mark	Size	Torque
S174-S176	M4x10	1,5Nm
S171-S173	M5x12	2,5Nm
S164 S165	M4x10	1,5Nm
S127, S128 S167, S168	M4x10	1,5Nm

Metal Parts KIT: VY1A1207 ONLY CLASS B

Remove this screw (S149).

Remove 2 screws (S151 and S153).


Remove 3 screws (S148, S144 and S157).

Mark	Size	Torque
S149	M4x12	1,5Nm
S151 S153	M4x10	1,5Nm
S148 S144 S157	M5x12	1,5Nm

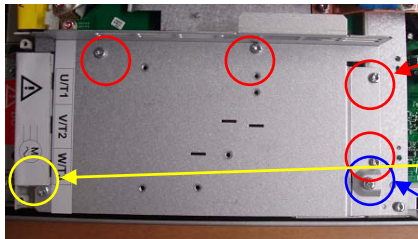
Screws KIT: VY1ADV1101 ONLY CLASSE A



Remove 2 screws (S154 and S155).

	Mark	Size	Torque
	S154-S155	M4x10	1,5Nm

Metal Parts KIT: VY1A1207 ONLY CLASSE A



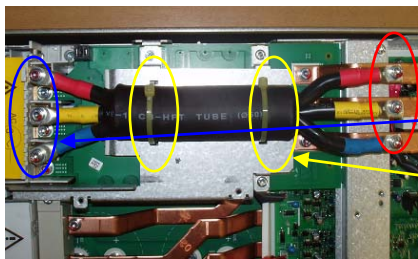
Remove 4 screws (S150 to S153).

Remove this screw (S149).

Remove this screw (S148).

	Mark	Size	Torque
	S150-S153	M4x10	1,5Nm
	S149	M4x12	1,5Nm
	S138	M5x12	1,5Nm

Mains Connexion KIT: VZ3N1306 ONLY CLASSE A





Remove 3 screws (S141 to S143).

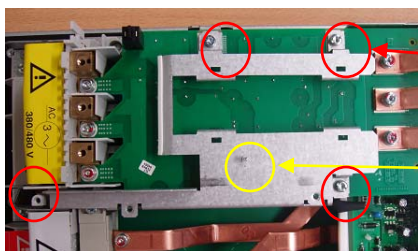
Remove 3 screws (S132 to S134).

Cut 2 colsons tie.

The input harness can be removed.


	Mark	Size	Torque
	S141-S143	M5x12	2,5Nm
	S132-S134	M5x12	2,5Nm

Metal Parts KIT: VY1A1207 ONLY CLASSE A

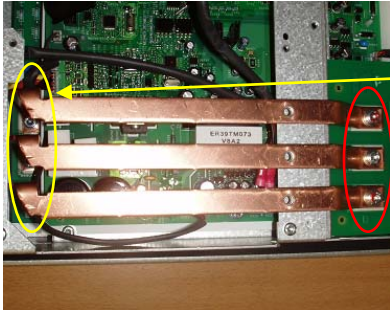


Remove 4 screws (S144 to S147).

Remove this clip.



	Mark	Size	Torque
	S144-S147	M4x10	1,5Nm

Mains Connexion KIT: VZ3N1306 ONLY CLASSE A

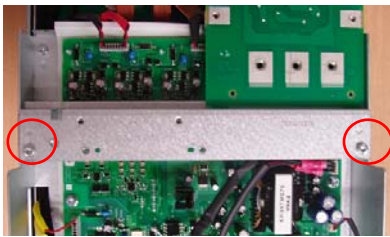


Remove 3 screws (S113 to S115).


Remove 3 screws (S138 to S140).

	Mark	Size	Torque
	S113-S115	M5x12	2,5Nm
	S138-S140	M5x12	2,5Nm

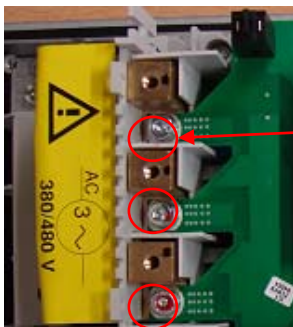
Metal Parts KIT: VY1A1207



Remove 2 screws (S123 and S124).


	Mark	Size	Torque
	S123-S124	M4x10	2Nm

Filter Board: VX4A1108

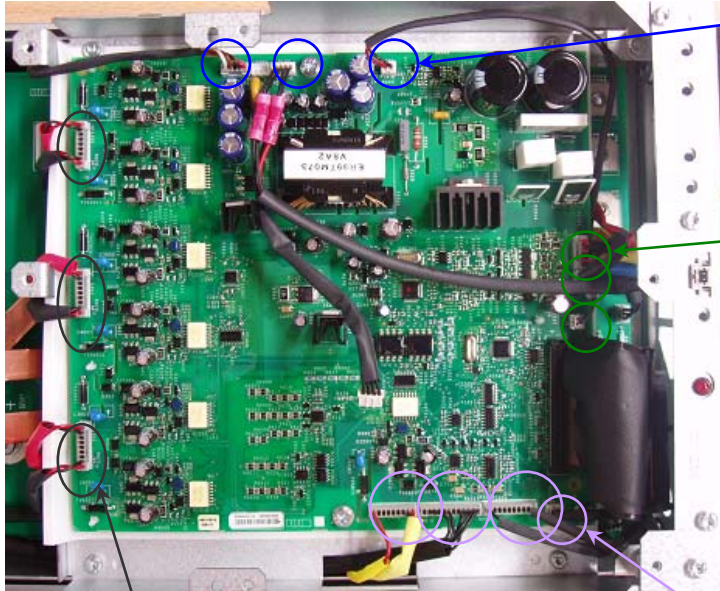


Remove 3 screws (S129 to S131).

The filter board can be removed.

	Mark	Size	Torque
	S129-S131	M5x12	2,5Nm

Dismantling / reassembling Power Block Sub-Assembly: VX5A1HD37N4



Disconnect 3 wires (from left to right)

- Power board (S203)→E105 →Power 2 fans
- Power board (S103)→E101 →Power internal fan and control bloc (S103):
 - Power board (S205)→E102→DEL

Disconnect 3 wires (from down to up)

- Power board (S700)→E118 →heatsink, thermal sensor
- Power board (S101)→E112 →Bus board (S101)
- Power board (S102)→E107→Modules THY/DIO :

Blue cable→ IGBT (15) : Black wire→ pin 5
red wire→pin 4

Yellow cable→ IGBT (14) Black wire→ pin 5
red wire→pin 4

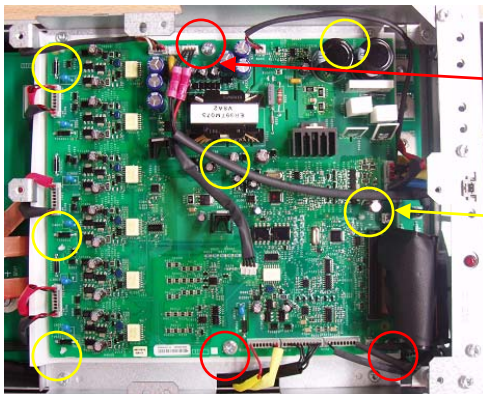
Red cable→ IGBT (13) : Black wire→ pin 5
red wire→pin 4

Disconnect 3 wires (from up to down)

- Power board (S300)→E115→ Modules IGBT (12) :
Red cable : red wire→ pin 4 ; blue wire→pin 5
Black cable : red wire→ pin 6 ; blue wire→pin 7
- Power board (S301)→E116→ Modules IGBT (11) :
Red cable : red wire→ pin 4 ; blue wire→pin 5
Black cable : red wire→ pin 6 ; blue wire→pin 7
- Power board (S302)→E117→ Modules IGBT (10) :
Red cable : red wire→ pin 4 ; blue wire→pin 5
Black cable : red wire→ pin 6 ; blue wire→pin 7


Disconnect 4 wires (from left to right)

- Power board (S400)→E108→Bus board (S100) and Module IGBT (9) :
Red wire : pin 6 of IGBT ; Black wire : pin 7 of IGBT
- Power board (S500)→E110 →Current sensor
- Power board (S200)→E109 → Bus board (S200)
- Power board (S202)→E111 →Bus board (S202)

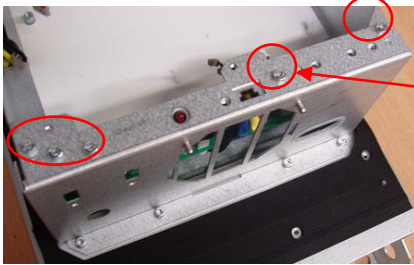


Remove 3 screws (S120 to S122).

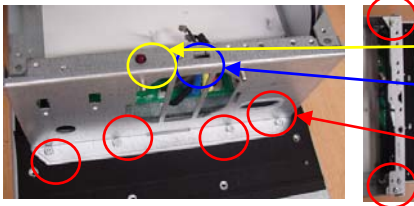
Press 6 clips.

Mark	Size	Torque
 S120-S122	M4x10	1,5Nm

Metal Parts KIT: VY1A1207



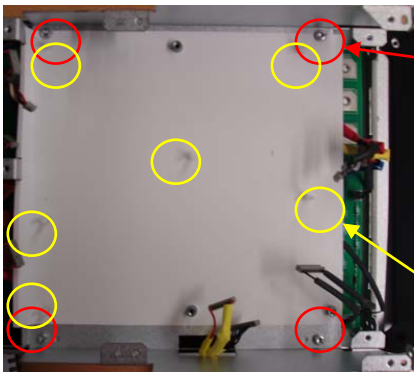
Remove 5 screws (S125 to S128).



Disconnect the DEL.

Disconnect the wire.

Remove 6 screws (S107 to S112).

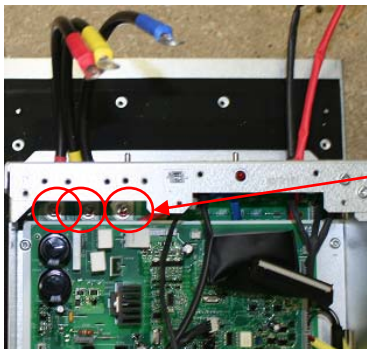


Remove 6 screws (S116 to S119).


Remove 6 clips and remove the insulate sheet.

	Mark	Size	Torque
	S125-S128	M4x10	2Nm
	S107-S112	M4x10	2Nm
	S116-S119	M4x10	2Nm

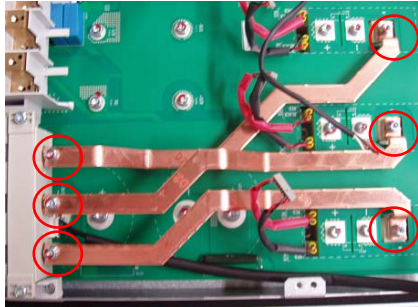
Metal Parts KIT: VY1A1207 ONLY CLASSE B



Remove 3 screws (S113 to S115).
L1 blue, L2 yellow and L3 red.

	Mark	Size	Torque
	S113-S115	M5x12	2,5Nm

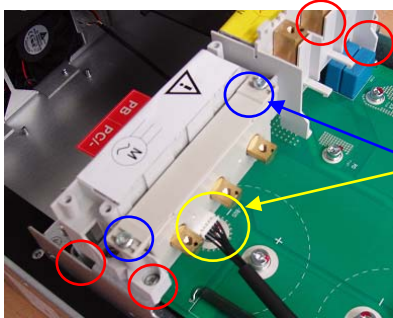
Metal Parts KIT: VY1A1207



Remove 6 screws (S101 to S106).

Mark	Size	Torque
S101-S106	M5x12	2,5Nm

Current Sensor KIT: VY1A1102



Remove 4 screws (S95 to S98).

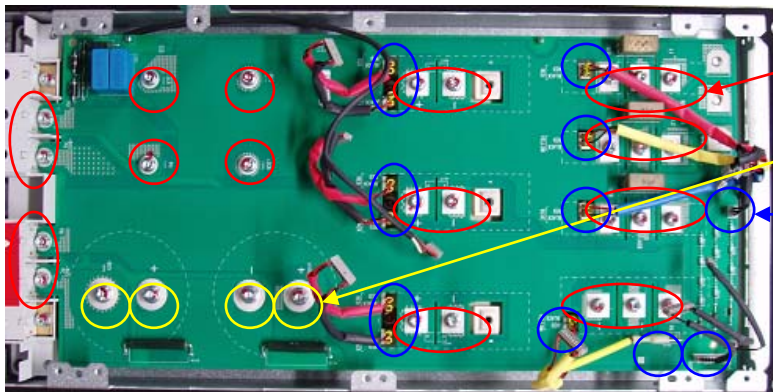
Disconnect the wire.

Remove 2 screws (S99 and S100).

The hall effect sensor can be removed.

Mark	Size	Torque
S95-S98	M4x10	2Nm
S99-S100	M4x10	2Nm

Current Sensor KIT: VY1A1102



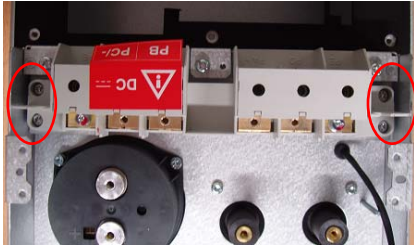
Remove 26 screws (S69 to S90 and S64 to S67).

Remove 4 screws (S91 to S94).

Disconnect 14 wires.
(for the wiring, see the Power Block Sub-Assembly : VX5A1HD37N4)

Mark	Size	Torque
S69 - S90 S64 - S67	M5x12	2,5Nm
S91-S94	M6x12	3,5Nm

Power Terminals: VZ3N1207

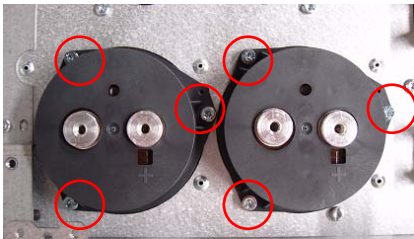


Remove 4 screws (S59 to S62).

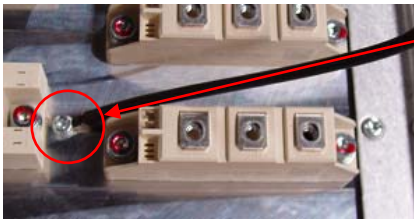
Mark	Size	Torque
S59-S62	M4x10	2Nm

Lots of 2 capacitors: VY1ADC1103

Thermal Sensor: VZ3G1101



Remove 6 screws (S53 to S57).



Remove this screw (S36).

The wire for the thermal sensor can be removed.

Mark	Size	Torque
S53-S57	M4x10	0,78Nm
S36	M4x10	2Nm

Metal Parts KIT: VY1A1207

Remove 2 screws (S to S).

Remove 3 screws (S to S).

Remove 4 screws (S14 to S17).

Remove 22 screws (S18 to S33).

Remove 2 screws (S37 and S38).

Disconnect the wire.

Pass the wire in the hole.

	Mark	Size	Torque
	S-S		2Nm
	S-S		1,5Nm
	S14-S17	M4x12	2Nm
	S18-S33	M4x10	2Nm
	S37-S38	M5x12	2Nm

Modules IGBT Inverter: VZ3IM2195M1271 Module Braking IGBT: VZ3IM1145M1271 Rectifier (Thyristor / Diode): VZ3TD1072M1671

Remove 14 screws (S39 to S52).

The 7 modules can be removed (warning: grease between the modules and heatsink).

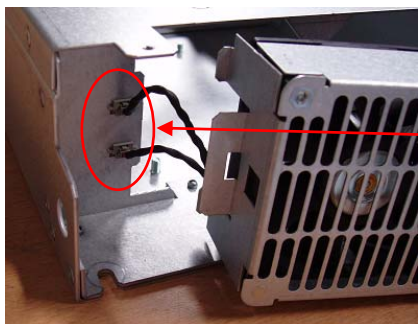
The heatsink can be removed.

	Mark	Size	Torque
	S39-S52	M6x20	1,5Nm


Fan KIT: VZ3V1206



Remove this screw (S05).



Disconnect 2 wires.

	Mark	Size	Torque
	S59-S62	M4x10	2Nm

9.17.2 Product Assembling Drawing

Refer to following file: [Assembling_175719700A53_03.pdf](#)

9.17.3 Product Cabling Drawing

Refer to following files: [Cabling_175721400A53_IED03.pdf](#)

9.18 ATV61/71 Size G (size, refer to 1.2)

9.18.1 Dismantling and reassembling

Size G: ATV61WD55N4, ATV61WD55N4C, ATV61WD75N4, ATV61WD75N4C, ATV61WD90N4, ATV61WD90N4C, ATV71WD45N4, ATV71WD55N4, ATV71WD75N4

ATV61WD55N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WD75N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61WD90N4 (C)

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WD45N4

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits


ATV71WD55N4

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD15N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71WD75N4

Reference	Designation
VZ3V1217	Internal Fan
VZ3V1205	Fan KIT
VZ3N1400	Cable RJ45-RJ45
VZ3N1205	Power Terminals
VZ2LB1003	Labels KIT
VZ2GK1001	Roll of EPDM+ADH
VZ2GK1000	Roll of EPDM+ADH
VY1ADV1201	Screws KIT
VY1A1514	Insulate Sheet
VY1A1504	Front Trap
VY1A1205	Plastic Parts KIT
VX5A1HD18N4	Power Block Sub-Assembly
VX4A71100Y	Control Bloc P < 90Kw
VX4A24V250MA	Power Supply (24Volts / 250mA)
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Trap: VY1A1507



Remove 8 screws (S248 to S255)

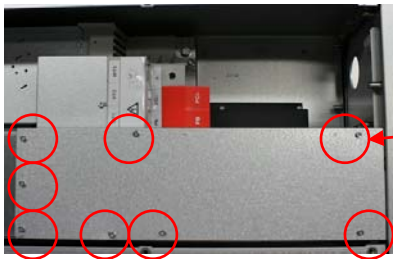
Remove this screw (S274).

Disconnect the cable RJ45-RJ45.

The front trap can be removed.

Mark	Size	Torque
S248-S255	M6x16	2Nm
S274	M4x10	1,5Nm

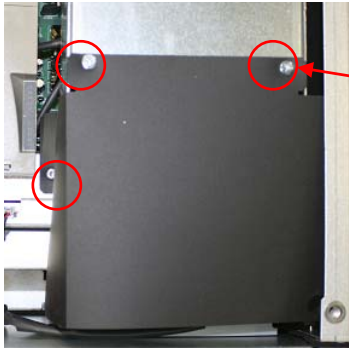
Metal Parts KIT: VY1A1209 ONLY CLASS B



Remove 8 screws (S235 to S242).

Mark	Size	Torque
S235-S242	M4x10	2Nm

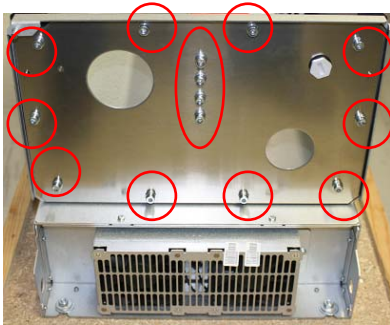
Insulate Sheet - Filter Cover: VY1A1510 ONLY CLASS B



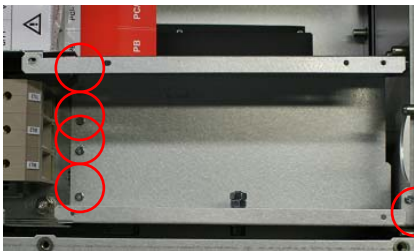
Remove 3 screws (S233 to S234).

Mark	Size	Torque
S233- S234	M4x10	1,5Nm

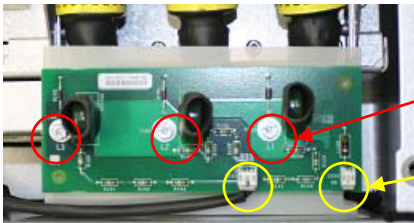
Metal Parts KIT: VY1A1209 ONLY CLASS B



Remove 14 screws (S256 to S267).



Remove 5 screws (S243 to S247).



Remove 3 screws
(S230 to S232).

Disconnect 2 wires.
(from left to right)
S101→E112
S202→E111

Mark	Size	Torque
S256- S267	M6x20	2Nm
S243- S247	M4x10	2Nm
S230- S232	M4x10	1,5Nm

Insulate Sheet - Choke Shield: VY1A1513 ONLY CLASS B

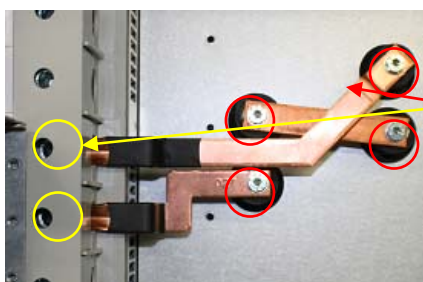


Remove 2 screws (S228 and S229).

And remove 2 screws (S226 and S227).

Mark	Size	Torque
S226- S229	M4x12	2Nm

Screws KIT : VY1ADV1104 ONLY CLASS B

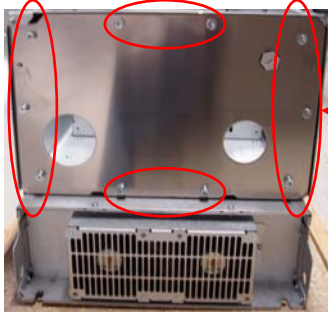


Unscrew 2 screws.

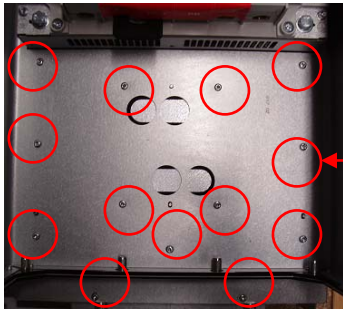
Remove 4 screws (S222 and S225).

Mark	Size	Torque
S222- S225	M6x12	3,5Nm

Metal Parts KIT: VY1A1209



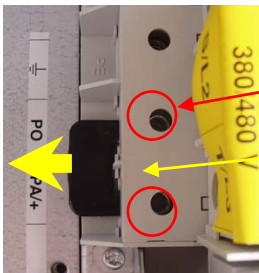
Remove 10 screws (S261 to S267).



Remove 13 screws (S209 to S221).



Remove 3 screws (S206 to S208).



Unscrew these 2 screws.

And remove the shunt.

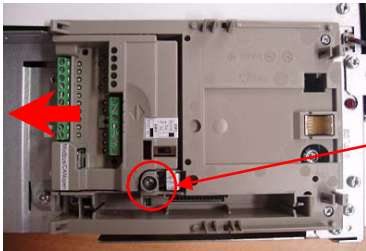
The enclosure can be removed.

	Mark	Size	Torque
	S261-S267	M6x20	2Nm
	S206-S217	M4x10	2Nm
	S218-S221	M4x10	2Nm

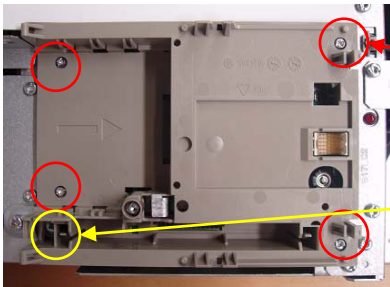
Control Bloc: VX4A71100Y



Press the two clips and pulls forward to take out the display board.

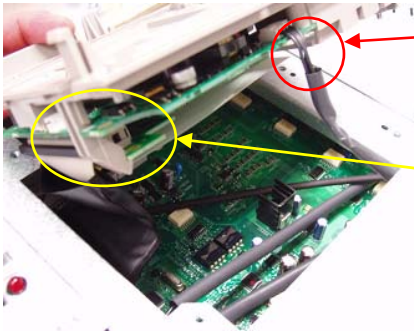


For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.





Remove 4 screws (S201 to S204).

Remove this screw (S205).

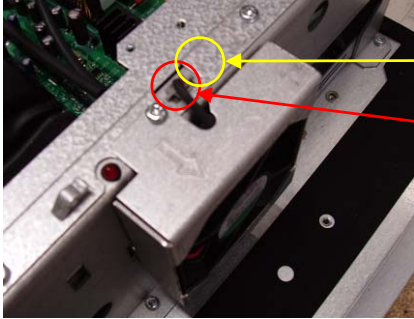


Disconnect the wire.
Application board (S103)→Power board (S103)
and Power internal fan

Disconnect the ribbon cable.

	Mark	Size	Torque
	S201-S204	M3x8	0,78Nm
	S205	M4x8	1,5Nm

Internal Fan: VZ3V1218

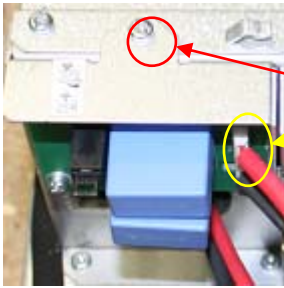


Disconnect the wire.

Remove this screw (S169).

Mark	Size	Torque
S169	M4x10	2Nm

Capacitor Board: VY1ADC1200 ONLY CLASS B



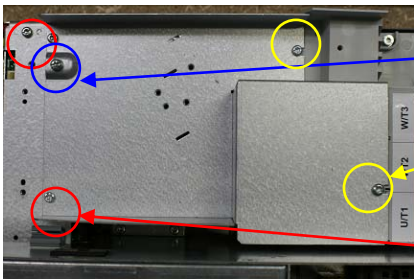
Disconnect the wire.

Capacitor PCBA (S100)→E120

Remove this screw (S195).

Mark	Size	Torque
S195	M4x10	2Nm

Screws KIT: VY1ADV1104 ONLY CLASS B



Remove this screw (S179)

Remove 2 screws (S177 and S178).

Remove 2 screws (S173 and S174).

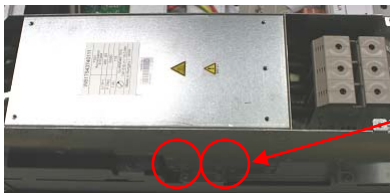
Mark	Size	Torque
S179	M5x12	2Nm
S177 S278	M4x12	2Nm
S173 S174	M4x10	2Nm

Screws KIT: VY1ADV1104 ONLY CLASS B



Remove 4 screws (S166, S167, S185 and S186).

Remove 3 screws (S188 to S190).
From left to right : L3, L2 and L1



Remove 2 screws (S182 and S183).



Remove 2 screws (S180 and S181).


The filter class B can be removed.

	Mark	Size	Torque
	S166,S167 S185,S186 S180 to S183	M4x10	3,5Nm
	S188- S190	M6x20	2Nm

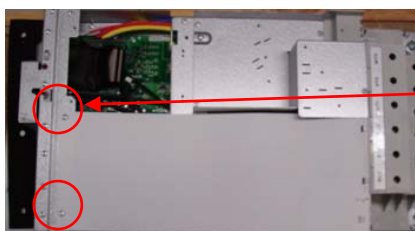
Screws KIT: VY1ADV1104 ONLY CLASS B




Remove 2 screws (S171 and S172).

	Mark	Size	Torque
	S171 S172	M4x10	2Nm

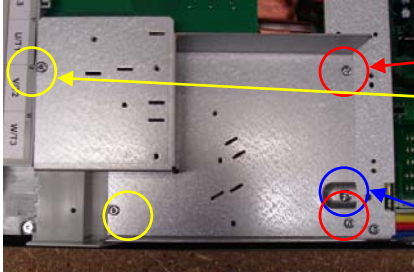
Screws KIT: VY1ADV1104 ONLY CLASS A



Remove 2 screws (S175 and S176).

	Mark	Size	Torque
	S175- S176	M4x10	1,5Nm

Screws KIT: VY1A1209 ONLY CLASS A



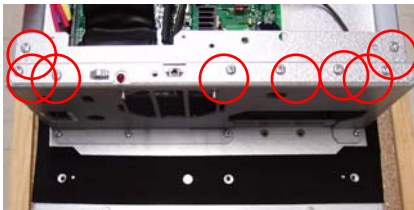
Remove 2 screws (S173 and S174).

Remove this screw (S177 and S178).


Remove this screw (S179).

	Mark	Size	Torque
	S173 S174	M4x10	2Nm
	S177 S178	M4x12	2Nm
	S179	M5x12	1,5Nm

Metal Parts KIT: VY1A1209




Remove 8 screws (S165 to S169).

	Mark	Size	Torque
	S165- S169	M4x10	2Nm

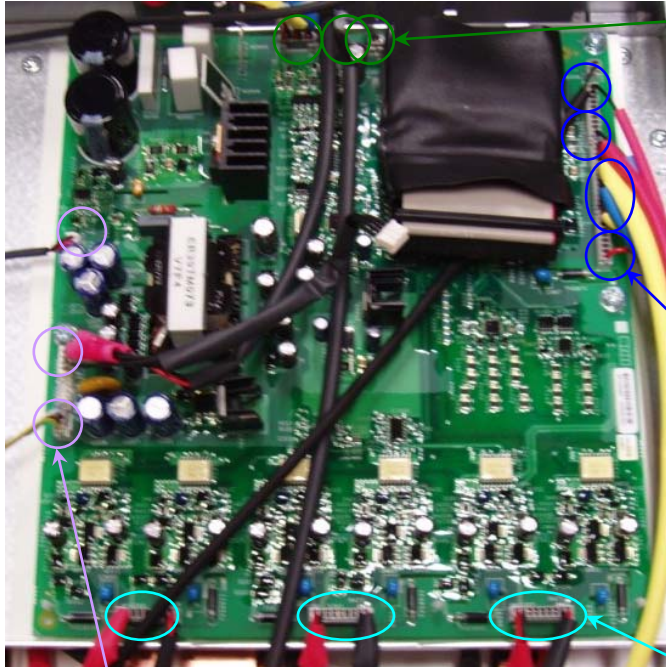
Metal Parts KIT: VY1A1209



Remove 8 screws (S165 to S169).

	Mark	Size	Torque
	S164 S170	M4x10	2Nm

SUB ASSEMBY POWER: AAV70185



Disconnect 3 wires (from right to left)

- Power board (S700)→E118→heatsink, thermal sensor
- Power board (S101)→E112→Bus board (S101)
 - Power board (S102)→E107→Modules THY/DIO :

Blue cable→ THY/DIO (10) : red wire→ pin 5 ; blue wire→pin 4

Yellow cable→ THY/DIO (9) : red wire→ pin 5 ; blue wire→pin 4

Red cable→ THY/DIO (8) : red wire→ pin 5 ; blue wire→pin 4

Disconnect 4 wires (from up to down)

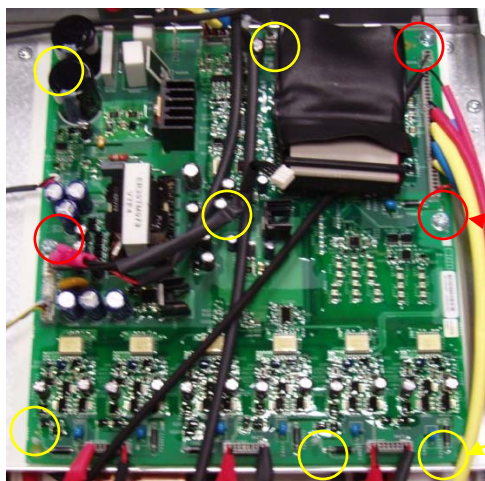
- Power board (S202)→E111→Filter board (S202)
- Power board (S200)→E109→Module IGBT (11) :
Blue wire : pin 2 of IGBT ; Red wire : pin 3 of IGBT
- Power board (S500)→E110→3 current sensors :
Blue wire : W (sensor 48) ; red : U (46) ; Yellow : V (47)
- Power board (S400)→E108→ Module IGBT (11)
Yellow wire : pin 1 of IGBT ; Red wire : pin 6 of IGBT
Black wire : pin 7 of IGBT

Disconnect 3 wires (from up to down)

- Power board (S205)→E102→DEL
 - Power board (S103)→E101
→Power internal fan and control bloc (S103):
- Power board (S203)→E105→Power 2 fans

Disconnect 3 wires (from left to right)

- Power board (S300)→E115→ Modules IGBT (14) :
Red cable : red wire→ pin G1 ; blue wire→pin E1
Black cable : red wire→ pin E2 ; blue wire→pin G2
- Power board (S301)→E116→ Modules IGBT (13) :
Red cable : red wire→ pin G1 ; blue wire→pin E1
Black cable : red wire→ pin E2 ; blue wire→pin G2
- Power board (S302)→E117→ Modules IGBT (12) :
Red cable : red wire→ pin G1 ; blue wire→pin E1
Black cable : red wire→ pin E2 ; blue wire→pin G2



Remove 3 screws (S156, S157 and S159).

Press 6 clips.

Mark	Size	Torque
S156	M4x10	1,5Nm
S157		
S159		

Metal Parts KIT: VY1A1209

Remove 3 screws (S159 to S161).

Remove 4 screws (S152 to S155).

	Mark	Size	Torque
	S152-S155	M4x10	2Nm
	S159-S161	M4x10	2Nm

Screws KIT: VY1ADV1104 ONLY CLASS B

Remove 3 screws (S143 to S145).

Remove 3 screws (S134 to S136).
And disconnect 3 wires.

Remove 2 screws (S146 and S147).

S146 and S147 :

ATV61 55Kw : 2,5Nm ; 75Kw and 90Kw : 3,5Nm
ATV71 45Kw and 55Kw : 2,5Kw ; 75Kw : 3,5Nm

	Mark	Size	Torque
	S143-S145 S146, S147	M4x20	1,5Nm
	S134-S136	M5x12	2,5 or 3,5Nm

Metal Parts KIT: VY1A1209

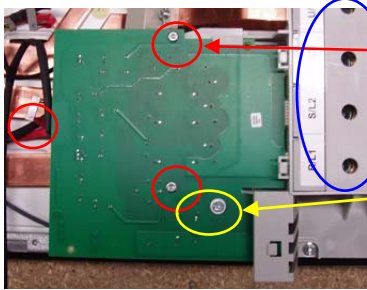
Remove 4 screws (S148 to S151).

Disconnect the wire

Disconnect the DEL.

	Mark	Size	Torque
	S148-S151	M4x10	1,5Nm

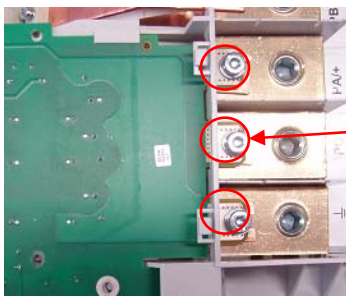
Filter Board: VX4A1110 ONLY CLASS A



Remove 3 screws (S131 - S133).

Remove this screws (S132).

Remove the mask of the power terminal.

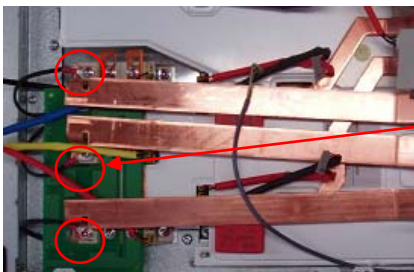


Unscrew 3 screws.

The filter board can be removed.

	Mark	Size	Torque
	S131-S133	M4x12	1,5Nm
	S132	M4x10	1,5Nm

Interconnection power KIT: VZ3N1311 ONLY CLASS A



Remove 3 screws (S134 and S136) and remove 3 wires.

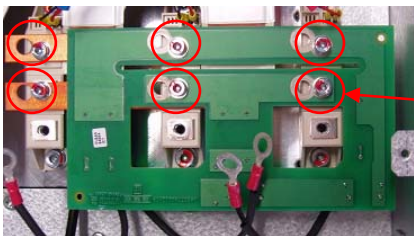
S134 to S136 :

ATV61 55Kw : 2,5Nm ; 75Kw and 90Kw : 3,5Nm

ATV71 45Kw and 55Kw : 2,5Kw ; 75Kw : 3,5Nm

	Mark	Size	Torque
	S134-S136	M5x12	2,5 or 3,5Nm

BUS Bar KIT: VZ3N1312



Remove 6 screws (S107 to S112).

S107 to S112 :

ATV61 55Kw : 2,5Nm ; 75Kw and 90Kw : 3,5Nm

ATV71 45Kw and 55Kw : 2,5Kw ; 75Kw : 3,5Nm

	Mark	Size	Torque
	S107-S112	M5x12	2,5 or 3,5Nm

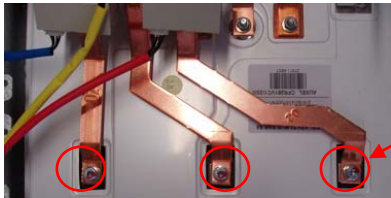
BUS Bar KIT: VZ3N1312



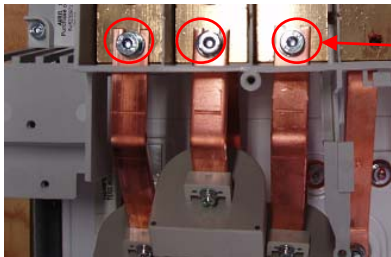
Remove 6 screws
(S113, S115, S118, S120, S123 and S124).

Mark	Size	Torque
S113, S115, S118, S120, S123 and S124	M6x12	3,5Nm

Interconnection power KIT: VZ3N1311



Remove 3 screws (S114, S117 and S122).
From left to right : blue cable, yellow cable and red cable.

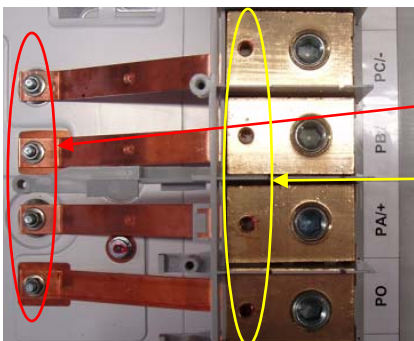


Unscrew 3 screws.

The U, V and W bars can be removed.

Mark	Size	Torque
S114, S117, S122	M6x12	2,5Nm

Interconnection power KIT: VZ3N1311



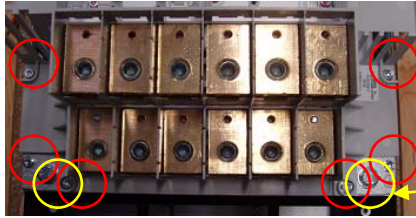
Remove 4 nuts (S103 and S106).

Unscrew 4 screws.

The DC link bus can be removed.

Mark	Size	Torque
S103-S106	M5	2,5Nm

Interconnection power KIT: VZ3N1311



Remove 6 screws (S88 to S93).


Remove 2 screws (S278 to S279).

	Mark	Size	Torque
	S88-S93	M5x20	2,5Nm
	S278-S279	M8x20	1,5Nm

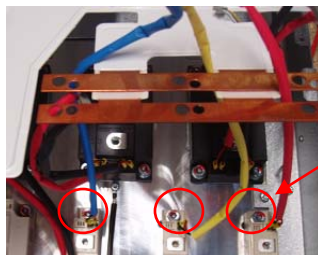
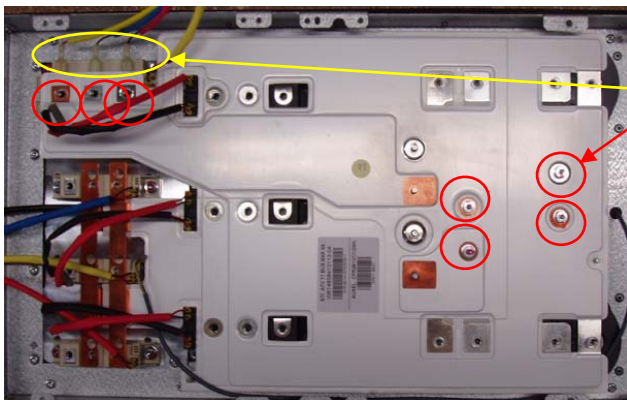
Lots of 4 capacitors: VY1ADC1107



Remove 8 screws (S80 and S87).

	Mark	Size	Torque
	S80-S87	M6x12	3,5Nm

BUS Bar KIT: VZ3N1312



Remove 7 screws (S76 to S79, S116, S119 and S121)


Disconnect wires

- Power board (S200)→E109 →Module IGBT (11) :
Blue wire : pin 2 of IGBT ; Red wire : pin 3 of IGBT
- Power board (S400)→E108 → Module IGBT (11)
Yellow wire : pin 1 of IGBT ; Red wire : pin 6 of IGBT
Black wire : pin 7 of IGBT

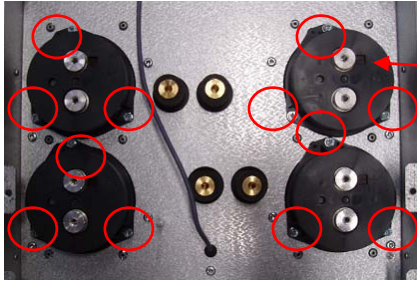
Disconnect this wire

- Power board (S102)→E107→Modules IGBT :
- Blue cable→ IGBT (10) : red wire→ pin 5*
blue wire→pin 4
 - Yellow cable→ IGBT (9) : red wire→ pin 5*
blue wire→pin 4
 - Red cable→IGBT (8) : red wire→ pin 5 ; blue wire→pin 4*

The bus bar can be removed

	Mark	Size	Torque
	S76 - S79 S116, S119, S121	M6x12	3,5Nm

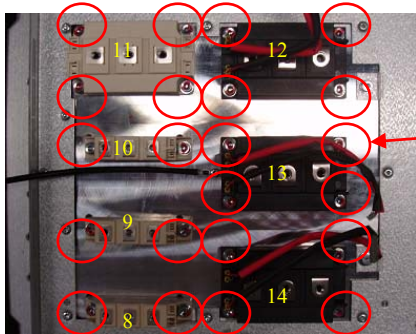
Lots of 4 capacitors: VY1ADC1107



Remove 12 screws (S65 and S75).

Mark	Size	Torque
S65- S75	M4x10	0,78Nm

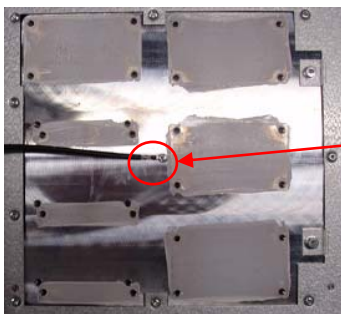
**Rectifier (Thyristor / Diode): VZ3TD1072M1671
Module Braking IGBT: VZ3IM1300M1271**



Remove 22 screws (S41 and S62).

Mark	Size	Torque
S41- S62	M6x20	4,4Nm

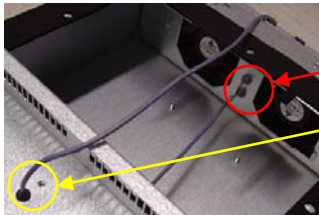
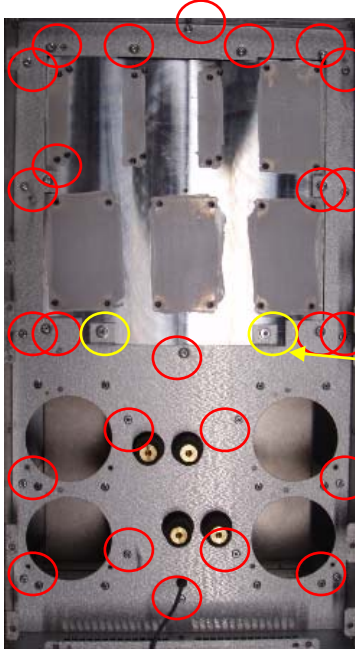
Thermal Sensor: VZ3G1101



Remove this screw (S63).

Mark	Size	Torque
S63	M4x10	2Nm

Metal Parts KIT: VY1A1209





Remove 25 screws (S16 to S40).

Remove 2 screws (S14 and S15).

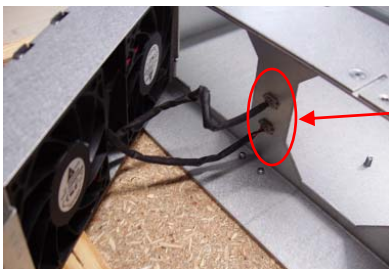
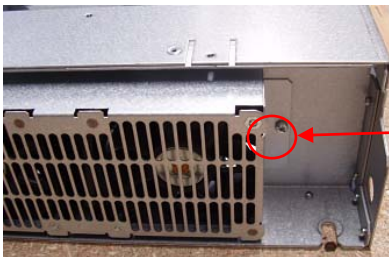
Disconnect 2 wires.

Remove the wire.

The chassis can be removed.


	Mark	Size	Torque
	S16-S40	M4x10	2Nm
	S14-S15	M6x12	3,5Nm

Fan KIT: VZ3V1208



Remove this screw (S13).

Disconnect 2 wires.

	Mark	Size	Torque
	S13	M4x10	1,5Nm

9.18.2 Product Assembling Drawing

Refer to following file: [Assembling_175719600A53_04.pdf](#)

9.18.3 Product Cabling Drawing

Refer to following files: [Cabling_175721300A53_IED04.pdf](#)

9.19 ATV61/71 Size 6Y (size, refer to 1.2)

9.19.1 Dismantling and reassembling

Size S6Y: ATV71HU22Y, ATV71HU30Y, ATV71HU40Y, ATV71HU55Y, ATV71HU75Y, ATV71HD11Y, ATV71HD15Y, ATV71HD18Y, ATV71HD22Y, ATV71HD30Y
 ATV61HU30Y, ATV61HU40Y, ATV61HU55Y, ATV61HU75Y, ATV61HD11Y, ATV61HD15Y, ATV61HD18Y, ATV61HD22Y, ATV61HD30Y

ATV61HU30Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HU22Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HU40Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HU30Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HU55Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HU40Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HU75Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HU55Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HD11Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HU75Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HD15Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD11Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HD18Y

Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars kIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD15Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HD22Y

Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars kIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD18Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV61HD30Y

Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars kIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A61100Y	Control Bloc P < 90Kw
VX5A1HD22Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3G1101	Thermal Sensor

ATV71HU22Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VX4A1123	Filter Board
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HU22Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HU30Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HU30Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HU40Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HU40Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HU55Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HU55Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HU75Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars kIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HU75Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HD11Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars kIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD11Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board


ATV71HD15Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars kIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD15Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HD18Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars kIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD18Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HD22Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD22Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HD30Y	
Reference	Designation
VZ3V1219	Fan KIT
VZ3N1355	Power Input Torus
VZ3N1352	Bars KIT
VZ3N1350	Wires KIT
VX4A1123	Filter Board
VX4A1111	Filter Board
VZ3IM2145M1271Y	Modules KIT
VW3A4527	DC Choke
VY1ADV1115	Screws KIT
VY1ADC1201	Lot of 2 capacitors (1100uF / 690V)
VY1A1310	Column KIT and Plastic Support
VZ3N1208	Power Terminals
VY1A1110	Current Sensor KIT
VX5A1107	DC BUS Board
VX4A71100Y	Control Bloc P < 90Kw
VX5A1HD30Y	Power Board KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board


Screws KIT: VY1ADV1115



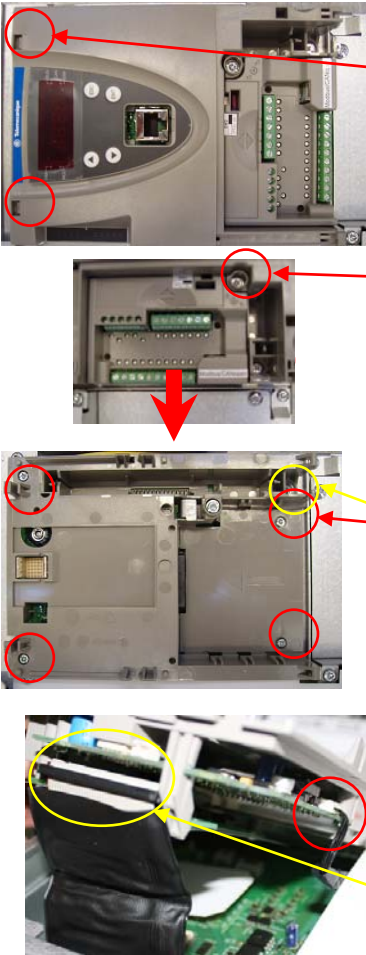
Remove 6 screws (S21).

Unscrew this screw and remove the control cap.

The front cover can be removed.

	Mark	Size	Torque
	S21	M4x10	1,5Nm

Control Bloc: VX4A61100Y



Press the two clips and pulls forward to take out the display board.



For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.

Remove 4 screws (S13).

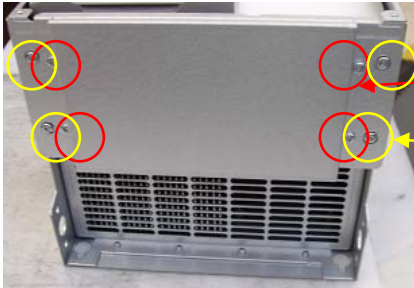
Remove this screw (S20).

Disconnect the wire.
Application board (S103)→Power board (S103)
and Power internal fan

Disconnect the ribbon cable.

	Mark	Size	Torque
	S13	M3x8	0,78Nm
	S20	M4x8	1,5Nm

Screws KIT: VY1ADV1115



Remove 4 screws (S12).

Remove 4 screws (S03).

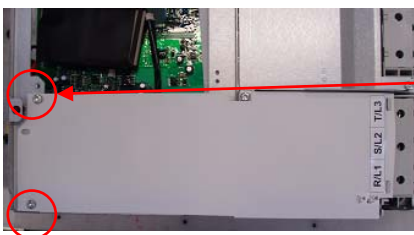


Remove 6 screws (S12).




	Mark	Size	Torque
	S12	M4x6	2Nm
	S03	M4x10	2Nm
	S12	M4x6	2Nm

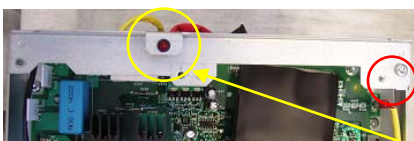
Screws KIT: VY1ADV1115



Remove 2 screws (S03).


	Mark	Size	Torque
	S03	M4x10	2Nm

Screws KIT: VY1ADV1115

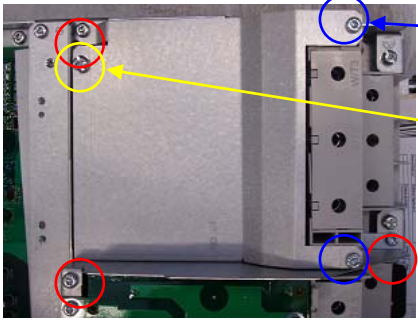


Remove this screw (S03).

Remove this DEL.

	Mark	Size	Torque
	S03	M4x10	2Nm




Screws KIT: VY1ADV1115



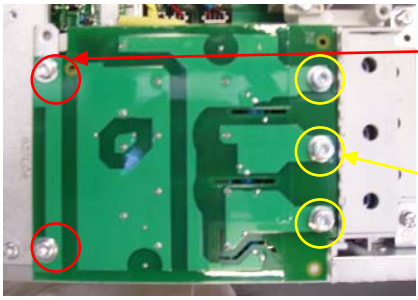
Remove 2 screws (S04).

Remove this screw (S07).

Remove 3 screws (S03).



	Mark	Size	Torque
	S04	4x12	2Nm
	S07	M5x12	1,5Nm
	S03	M4x10	2Nm

Filter Board 1: VX4A1123




Remove 2 screws (S03).


Remove 3 screws (S05).

	Mark	Size	Torque
	S03	M4x10	2Nm
	S05	M5x12	2,5Nm

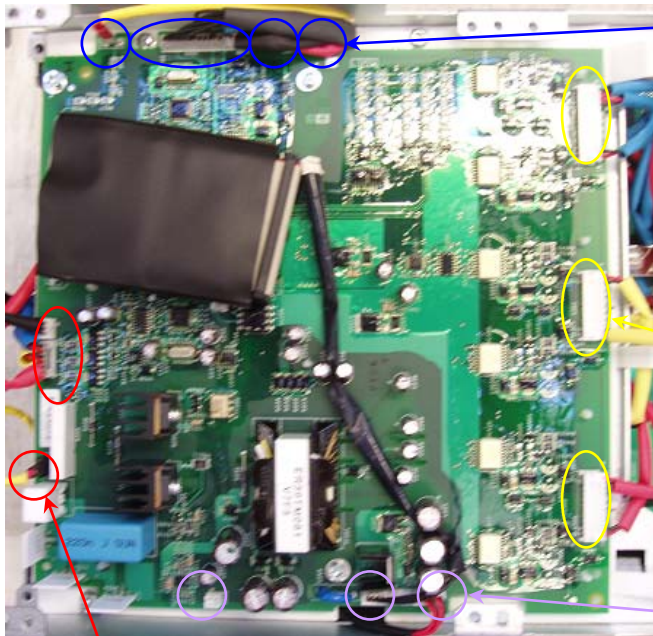
Screws KIT: VY1ADV1115



Remove 2 screws (S03).

	Mark	Size	Torque
	S03	M4x10	2Nm

Power Board KIT: VX5A1HD22Y



Disconnect 4 wires (from left to right)

- Power board (S200)→E106 (Yellow)
→ Modules IGBT 22 pin 3
- Power board (S500)→E114 (Black)
→Hall effect sensor
- Power board (S800)→E105→Module IGBT 22 :
Blue cable→pin 2

Black cable : red wire→ pin 7 ; black wire→pin 6

- Power board (S801)→E107 (Red)
→Module IGBT 22 pin 1

Disconnect 3 wires (from up to down)

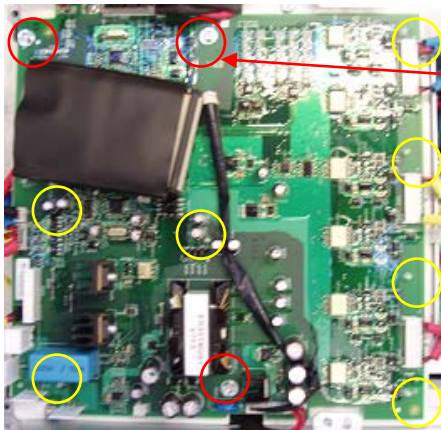
- Power board (S302)→E108 (Blue)
→Bus board (Blue)
- Power board (S301)→E109 (Yellow)
→Bus board (Yellow)
- Power board (S300)→E110 (Red)
→Bus board (Red)

Disconnect 3 wires (from left to right)

- Power board (S205)→E115→DEL
- Power board (S103)→E116 (Black)
→Application board (S103)
- Power board (S203)→E103 (Red)→Power fan

Disconnect 3 wires (from up to down)

- Power board (S101)→E112 (Black)→ Filter 2 board (L30R)
- Power board (S102)→E104→ Modules THY/DIO :
Red cable (module 19) : red wire→ pin 4 ; black wire→pin 5
Yellow cable (module 20) : red wire→ pin 4 ; black wire→pin 5
Blue cable (module 21) : red wire→ pin 4 ; black wire→pin 5
- Power board (S202)→E113 (Yellow)→ Filter 2 board (LR)

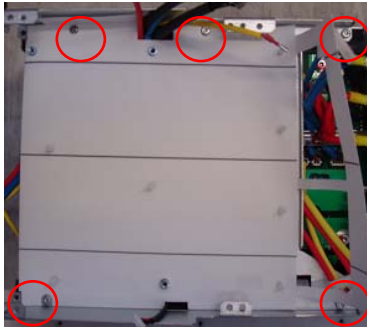


Remove 3 screws (S06).

Press 7 clips.


Mark	Size	Torque
S06	M4x10	1,5Nm

Screws KIT: VY1ADV1115

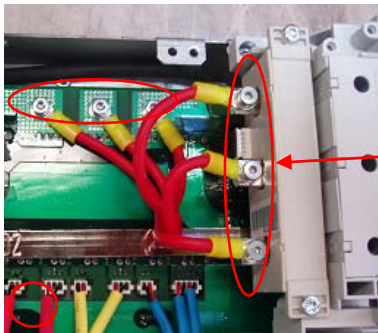


Remove 5 screws (S03).


The power insulate sheet and the PCBA chassis can be removed.

	Mark	Size	Torque
	S03	M4x10	1,5Nm

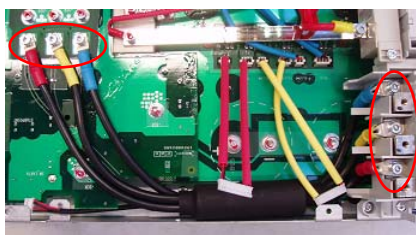
Current Sensor: VY1A1110




Remove 6 screws (S05).

	Mark	Size	Torque
	S05	M5x12	2,5Nm

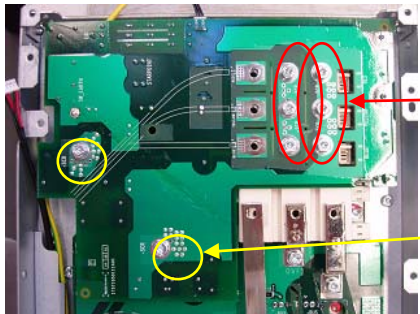
Power Input Torus: VZ3N1355



Remove 6 screws (S05).



	Mark	Size	Torque
	S05	M5x12	2,5Nm

Filter Board 2: VX4A1111

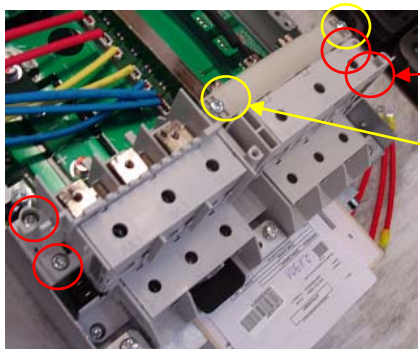


Remove 8 screws (S05).

Remove 2 screws (S10).

	Mark	Size	Torque
	S05	M5x12	2,5Nm
	S10	M5x10	1,5Nm

Current Sensor: VY1A1110 Power terminals: VZ3N1208



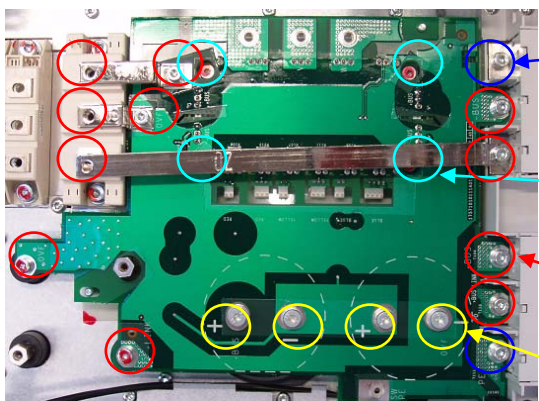
Remove 4 screws (S03).

Remove 2 screws (S4).

Remove the hall effect sensor and the top power terminal.

	Mark	Size	Torque
	S03	M4x10	2Nm
	S04	M4x12	1,5Nm

DC BUS Board: VX5A1107



Remove 2 screws (S22).

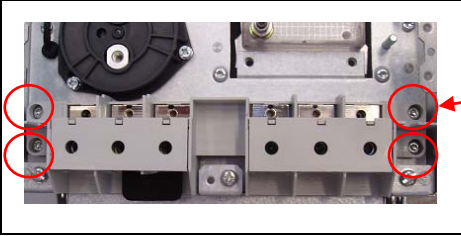
Remove 4 screws (S09).

Remove 11 screws (S05).


Remove 2 screws (S11).

	Mark	Size	Torque
	S22	M5x25	2,5Nm
	S09	M5x20	2,5Nm
	S05	M5x12	2,5Nm
	S11	M6x12	3,5Nm

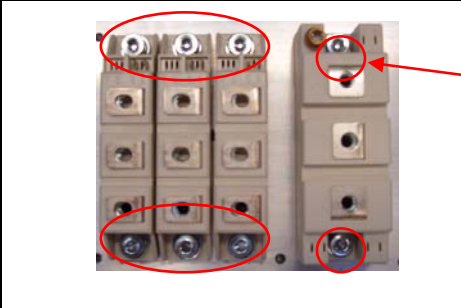
Power terminals: VZ3N1208




Remove 4 screws (S03).

	Mark	Size	Torque
	S03	M4x10	2Nm

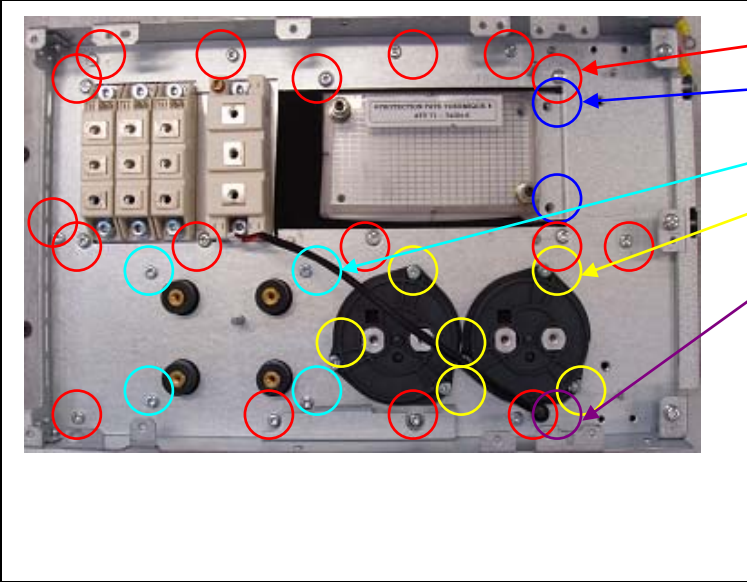
Module kit: VZ3IM2145M1271Y



Remove 8 screws (S08).





	Mark	Size	Torque
	S08	M6x20	4,4Nm

Screws KIT : VY1ADV1115



- Remove 17 screws (S03).
- Remove 2 screws (S05).
- Remove 4 screws (S04).
- Remove 6 screws (S06).
- Remove the cable (E103).

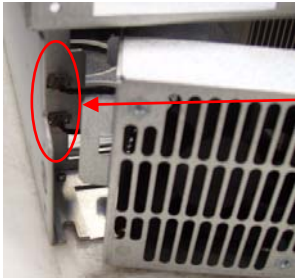
The chassis can be removed.

	Mark	Size	Torque
	S03	M4x10	1,5Nm
	S05	M5x12	1,5Nm
	S04	4x12	2,5Nm
	S06	M4x10	2,5Nm


Fan KIT: VZ3V1219



Remove this screw (S03).



Disconnect 2 wires.

	Mark	Size	Torque
	S03	M4x10	0,78Nm

9.19.2 Product Assembling Drawing

Refer to following file: [Assembling_Cabling_aav3467800-5.1.pdf](#)

9.19.3 Product Cabling Drawing

Refer to following file:

9.20 ATV61/71 Size 8Y (size, refer to 1.2)

9.20.1 Dismantling and reassembling

Size S8Y: ATV71HD37Y, ATV71HD45Y, ATV71HD55Y, ATV71HD75Y, ATV71HD90Y, ATV61HD37Y, ATV61HD45Y, ATV61HD55Y, ATV61HD75Y, ATV61HD90Y

ATV71HD37Y	
Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4528	DC Choke
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A71100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD37Y	Power Board KIT
VZ3IM2200M3745Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT

ATV71HD45Y	
Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4528	DC Choke
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A71100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD45Y	Power Board KIT
VZ3IM2200M3745Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor

ATV71HD55Y	
Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4528	DC Choke
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A71100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD55Y	Power Board KIT
VZ3IM2200M55Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor

ATV71HD75Y	
Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A71100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD75Y	Power Board KIT
VZ3IM2200M7590Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor

ATV71HD90Y

Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4529	DC Choke
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A71100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD90Y	Power Board KIT
VZ3IM2200M7590Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor

ATV61HD37Y

Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4528	DC Choke
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A61100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD37Y	Power Board KIT
VZ3IM2200M3745Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VY1ADV1116	Screws KIT

ATV61HD45Y

Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4528	DC Choke
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A61100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD37Y	Power Board KIT
VZ3IM2200M3745Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor


ATV61HD55Y

Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4528	DC Choke
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A61100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD45Y	Power Board KIT
VZ3IM2200M55Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor

ATV61HD75Y	
Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A61100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD55Y	Power Board KIT
VZ3IM2200M7590Y	Power Modules KIT
VZ3IM2200M7590Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor

ATV61HD90Y	
Reference	Designation
VZ3N1354	Bus Bar KIT
VZ3N1351	Wires KIT
VZ3N1209	Power Terminal
VW3A4529	DC Choke
VY1ADV1116	Screws KIT
VY1ADC1202	Lot of 4 capacitors (1800uF / 690V + Balancing Resistor)
VY1A1111	Current Sensor KIT
VX4A1208	Snubber board
VX4A61100Y	Control Bloc P < 90Kw
VX4A1122	EMC Filter
VX5A1HD75Y	Power Board KIT
VZ3IM2200M7590Y	Power Modules KIT
VZ3N1353	Interconnection KIT
VX4A1103	Front Cover 4x7 Digits
VX4A1104	Terminal Board
VZ3V1208	Fan KIT
VZ3G1101	Thermal Sensor


Screws KIT: VY1ADV1116



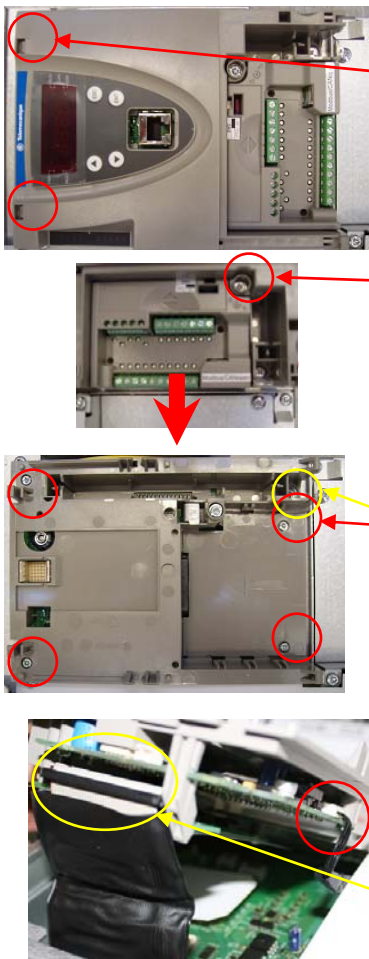
Remove 6 screws (S12).

Unscrew this screw and remove the control cap.

The front cover can be removed.

	Mark	Size	Torque
	S12	M4x10	1,5Nm

Control Bloc: VX4A61100Y



Press the two clips and pulls forward to take out the display board.



For remove the terminal board, turn the screw in the unbolt position, and pulls forward to take out the terminal board.

Remove 4 screws (S14).

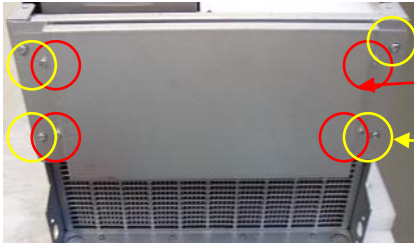
Remove this screw (S7).

Disconnect the wire.
Application board (S103)→Power board (S103)
and Power internal fan

Disconnect the ribbon cable.

	Mark	Size	Torque
	S14	M3x8	0,78Nm
	S7	M4x8	1,5Nm

Screws KIT: VY1ADV1116

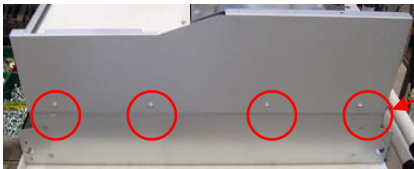


Remove 4 screws (S16).

Remove 4 screws (S03).

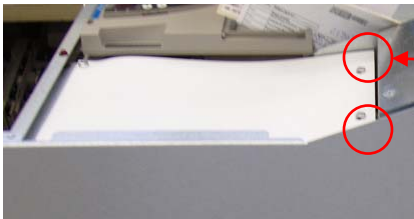


Remove 8 screws (S16).




	Mark	Size	Torque
	S16	M4x6	2Nm
	S03	M4x10	2Nm
	S16	M4x6	2Nm

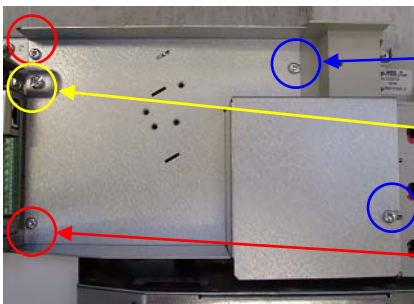
Screws KIT: VY1ADV1116



Remove 2 screws (S03).

	Mark	Size	Torque
	S03	M4x10	2Nm

Screws KIT: VY1ADV1116



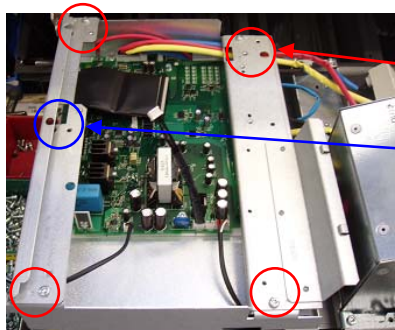
Remove 2 screws (S04).

Remove this screw (S13).

Remove 3 screws (S03).


	Mark	Size	Torque
	S04	4x12	1,5Nm
	S13	M5x12	1,5Nm
	S03	M4x10	1,5Nm

Screws KIT: VY1ADV1116

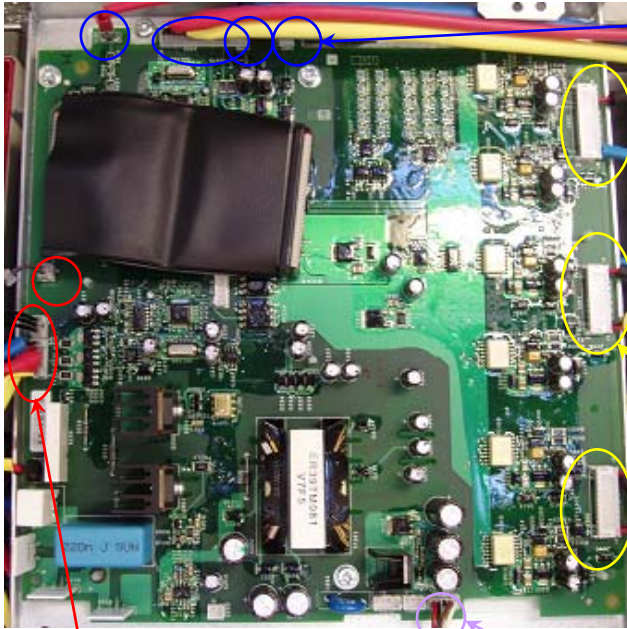


Remove 2 screws (S03).

Remove this DEL.

	Mark	Size	Torque
	S03	M4x10	1,5Nm

Power Board KIT: VX5A1HD37Y



Disconnect 4 wires (from left to right)

- Power board (S200)→E107→ Module IGBT 11 :
Blue cable : pin 2
- Blue cable : red wire→ pin 8 ; black wire→pin 9*
 - Power board (S500)→E111
Blue cable : hall effect sensor W
 - Yellow cable : hall effect sensor V*
 - Red cable : hall effect sensor U*
- Black cable : red wire→ pin 8 ; black wire→pin 9*
- Power board (S800)→E115 (Red)
→ Module IGBT 11 pin 3
- Power board (S801)→E106 (Yellow)
→ Module IGBT 11 pin 1

Disconnect 3 wires (from up to down)

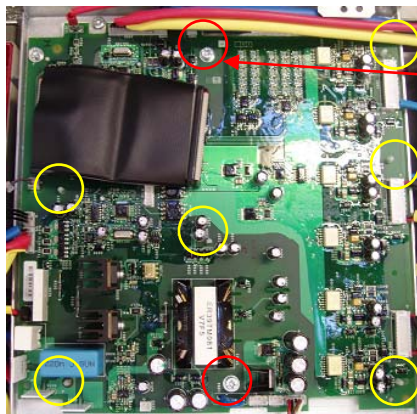
- Power board (S302)→E108→ Module IGBT 12 :
Blue cable : red wire→ pin 10 ; black wire→pin 11
- Black cable : red wire→ pin 8 ; black wire→pin 9*
- Power board (S302)→E109→ Module IGBT 13 :
Yellow cable : red wire→ pin 10 ; black wire→pin 11
- Black cable : red wire→ pin 8 ; black wire→pin 9*
- Power board (S302)→E110→ Module IGBT 14 :
Red cable : red wire→ pin 10 ; black wire→pin 11
- Black cable : red wire→ pin 8 ; black wire→pin 9*

Disconnect this wire

- Power board (S203)→E104→Power fans


Disconnect 3 wires (from up to down)

- Power board (S700)→E103→Thermal Sensor (Heatsink)
- Power board (S101)→E113→Application board (S103)
 - Power board (S102)→E105→ :
Blue cable→module 10 : black wire→ pin 5 ; red wire→pin 4
 - Yell. cable→module 9 : black wire→ pin 5 ; red wire→pin 4*
 - Red cable→module 8 : black wire→ pin 5 ; red wire→pin 4*

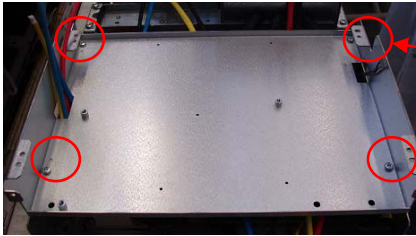


Remove 3 screws (S07).

Press 7 clips.


Mark	Size	Torque
 S07	M4x10	1,5Nm

Power Board KIT: VX5A1HD37Y

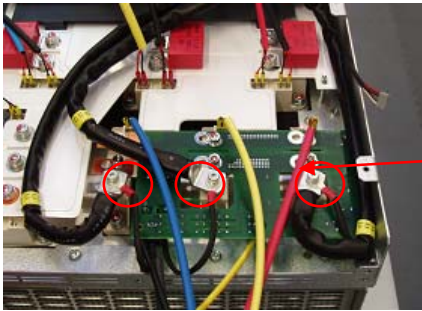


Remove 4 screws (S03).

The power insulate sheet and the PCBA chassis can be removed.


	Mark	Size	Torque
	S03	M4x10	2Nm

Screws KIT: VY1ADV1116

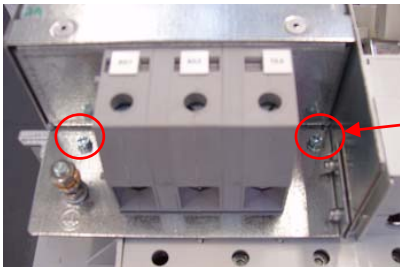


Remove 3 screws (S08).

S08 :
3,5Nm (M6x12) for 75 and 90 kW

	Mark	Size	Torque
	S08	M5x20	2,5Nm



EMC Filter: VX4A1122



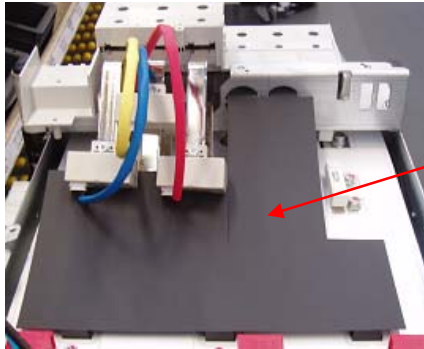
Remove 2 screws (S07).



Remove 4 screws (S03).

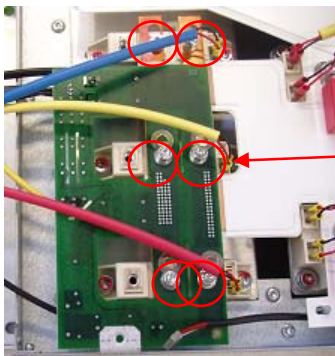
	Mark	Size	Torque
	S07	M4x10	2Nm
	S03	M4x10	1,5Nm

Power Board KIT: VX5A1HD37Y




Remove the insulate sheet power.

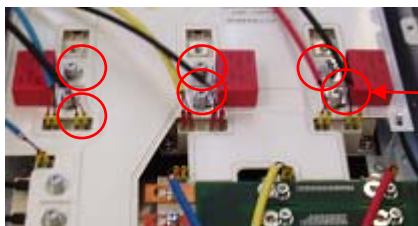
Snubber board: VX4A1208




Remove 6 screws (S11).

	Mark	Size	Torque
	S11	M5x12	2,5Nm

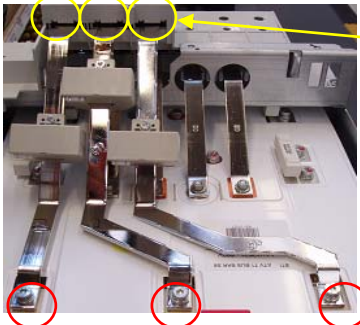
Screws KIT: VY1ADV1116



Remove 6 screws (S05).

	Mark	Size	Torque
	S05	M6x12	3,5Nm

Current Sensor: VY1A1111 Inter KIT: VZ3N1353

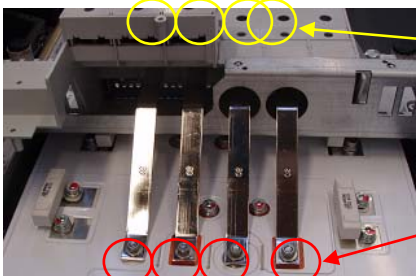


Unscrew 3 screws.

Remove 6 screws (S05).

Mark	Size	Torque
S05	M6x12	3,5Nm

Inter KIT: VZ3N1353

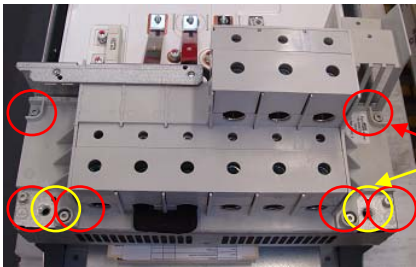


Unscrew 4 screws.

Remove 4 nuts (S05).

Mark	Size	Torque
S05	M5x8	2,5Nm

Power Terminal: VZ3N1209




Remove 2 screws (S09).

Remove 6 screws (S22).

Mark	Size	Torque
S09	M8x20	1,5Nm
S22	M5x25	2,5Nm

Lot of 4 capacitors: VY1ADC1202 Bus Bar: VZ3N1354

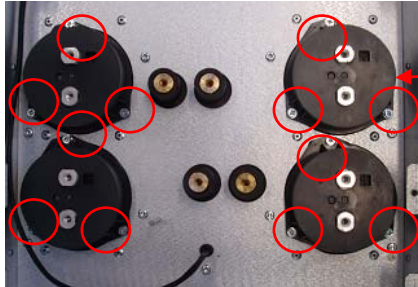


Remove 12 screws (S05).

The bus bar can be removed.

Mark	Size	Torque
S05	M6x12	3,5Nm

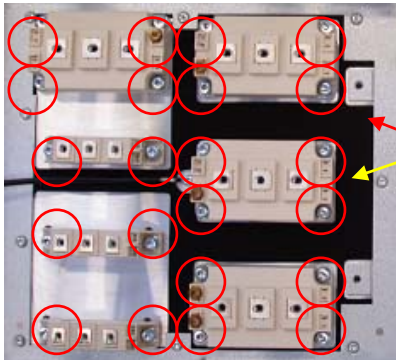
Lot of 4 capacitors: VY1ADC1202



Remove 12 screws (S07).

Mark	Size	Torque
S07	M4x10	0,78Nm

Power Modules KIT: VZ3IM2200M3745Y

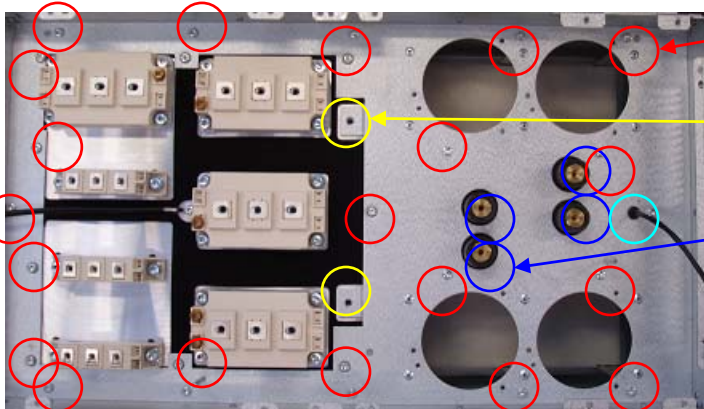


Remove 22 screws (S06).

Remove 6 screws (S22).

Mark	Size	Torque
S06	M6x20	4,4Nm

Screws KIT: VY1ADV1115



Remove 20 screws (S03).

Remove 2 screws (S05).

Remove 4 screws (S04).

Remove the cable (E103).

The chassis can be removed.

Mark	Size	Torque
S03	M4x10	2Nm
S05	M6x12	3,5Nm
S04	4x12	2Nm


Fan KIT: VZ3V1208



Remove this screw (S03).



Disconnect 2 wires.

	Mark	Size	Torque
	S03	M4x10	2Nm

9.20.2 Product Assembling Drawing

Refer to following file: [Assembling_Cabling_aav3467900-4.1.pdf](#)

9.20.3 Product Cabling Drawing

Refer to following file:



9.21 ATV61/71 Size 9 (size, refer to 1.2)

9.21.1 Dismantling and reassembling

Size 9: ATV71HD90N4, ATV71HD55M3, ATV61HD90N4, ATV61HC11N4, ATV61HD55M3, ATV61HD75M3

ATV71HD90N4	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3V1215	Fan KIT
VZ3V1214	Internal Fan
VZ3TM1400M1271	Braking Module 400A / 1200V
VZ3S1910	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1327	DC BUS BAR KIT
VZ3N1325	Kit BUS / Bars AC
VZ3N1323	Wires KIT
VZ3IM1400M1271	Module IGBT 400A / 1200V
VZ3G1102	Thermal Sensor
VY1ADV1105	Screws KIT
VY1ADC1110	Lots of 4 capacitors DC bus 6800µF / 400V
VY1A1404	Plastic KIT
VY1A1303	Assembling KIT
VY1A1210	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD9011	Power Board
VX5A1300	Soft Charge Board
VX4A71101Y	Control bloc P >=90kW
VX4A1116	RFI Filter Board
VW3A4521	DC Choke
VZ3TD1250M1671	Rectifier Module (Thyristor / Diode) 250A / 1600V

ATV71HD55M3	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3V1215	Fan KIT
VZ3V1214	Internal Fan
VZ3TM1400M0671	Braking Module IGBT 400A / 600V
VZ3TD1330M1601	Rectifier Module (Thyristor / Diode) 330A / 1600V
VZ3S1911	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1337	DC BUS BAR KIT
VZ3N1335	Kit BUS / Bars AC
VZ3N1323	Wires KIT
VZ3IM1600M0671	Module IGBT 600A / 600V
VZ3G1102	Thermal Sensor
VY1ADV1105	Screws KIT
VY1ADC1115	Lots of 3 capacitors DC bus 6800µF / 400V
VY1A1404	Plastic KIT
VY1A1303	Assembling KIT
VY1A1210	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD5575	Power Board
VX5A1300	Soft Charge Board
VX4A71101Y	Control bloc P >=90kW
VX4A1116	RFI Filter Board
VW3A4524	DC Choke

ATV61HD90N4	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3V1215	Fan KIT
VZ3V1214	Internal Fan
VZ3TM1400M1271	Braking Module 400A / 1200V
VZ3TD1250M1671	Rectifier Module (Thyristor / Diode) 250A / 1600V
VZ3S1910	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1327	DC BUS BAR KIT
VZ3N1325	Kit BUS / Bars AC
VZ3N1323	Wires KIT
VZ3IM1400M1271	Module IGBT 400A / 1200V
VZ3G1101	Thermal Sensor
VY1ADV1105	Screws KIT
VY1ADC1110	Lots of 4 capacitors DC bus 6800µF / 400V
VY1A1404	Plastic KIT
VY1A1303	Assembling KIT
VY1A1210	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD9011	Power Board
VX5A1300	Soft Charge Board
VX4A61101Y	Control board P >= 90kW
VX4A1116	RFI Filter Board
VW3A4521	DC Choke
VZ3G1102	Thermal Sensor

ATV61HC11N4	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits
VZ3V1215	Fan KIT
VZ3V1214	Internal Fan
VZ3TM1400M1271	Braking Module 400A / 1200V
VZ3TD1250M1671	Rectifier Module (Thyristor / Diode) 250A / 1600V
VZ3S1910	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1327	DC BUS BAR KIT
VZ3N1325	Kit BUS / Bars AC
VZ3N1323	Wires KIT
VZ3IM1400M1271	Module IGBT 400A / 1200V
VZ3G1101	Thermal Sensor
VY1ADV1105	Screws KIT
VY1ADC1110	Lots of 4 capacitors DC bus 6800µF / 400V
VY1A1404	Plastic Parts KIT
VY1A1303	Assembling KIT
VY1A1210	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD9011	Power Board
VX5A1300	Soft Charge Board
VX4A61101Y	Control board P >= 90kW
VX4A1116	RFI Filter Board
VW3A4521	DC Choke
VZ3G1102	Thermal Sensor

ATV61HD55M3	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3V1215	Fan KIT
VZ3V1214	Internal Fan
VZ3TM1400M0671	Braking Module IGBT 400A / 600V
VZ3TD1330M1601	Rectifier Module (Thyristor / Diode) 330A / 1600V
VZ3S1911	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1337	DC BUS BAR KIT
VZ3N1335	Kit BUS / Bars AC
VZ3N1323	Wires KIT
VZ3IM1600M0671	Module IGBT 600A / 600V
VZ3G1102	Thermal Sensor
VY1ADV1105	Screws KIT
VY1ADC1115	Lots of 3 capacitors DC bus 6800µF / 400V
VY1A1404	Plastic KIT
VY1A1303	Assembling KIT
VY1A1210	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD5575	Power Board
VX5A1300	Soft Charge Board
VX4A61101Y	Control board P >= 90kW
VX4A1116	RFI Filter Board
VW3A4524	DC Choke

ATV61HD75M3	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3V1214	Internal Fan
VZ3TD1330M1601	Rectifier Module (Thyristor / Diode) 330A / 1600V
VZ3S1911	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3IM1600M0671	Module IGBT 600A / 600V
VZ3G1102	Thermal Sensor
VY1ADC1116	Lots of 4 capacitors DC bus 6800µF / 400V
VY1A1211	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD7590	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX4A61101Y	Control board P >= 90kW
VX4A1116	RFI Filter Board
VW3A4525	DC Choke
VY1A1404	Plastic KIT
VZ3N1323	Wires KIT
VZ3N1335	Kit BUS / Bars AC
VZ3N1337	DC BUS BAR KIT
VZ3V1215	Fan KIT
VY1A1303	Assembling KIT
VZ3TM1400M0671	Braking Module IGBT 400A / 600V
VY1A1210	Front Cover incl.I/O Terminal Cover

Front Cover with I/O cover: VY1A1210



Remove 7 screws

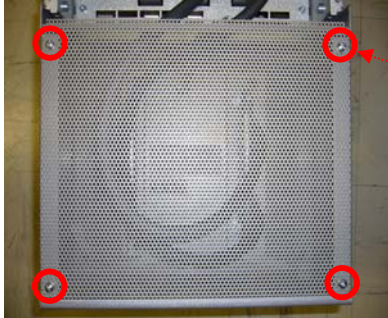


The Front Cover can be removed.



Size	Torque
M6x10	4.4Nm

DC Choke Front Cover



Remove 4 screws

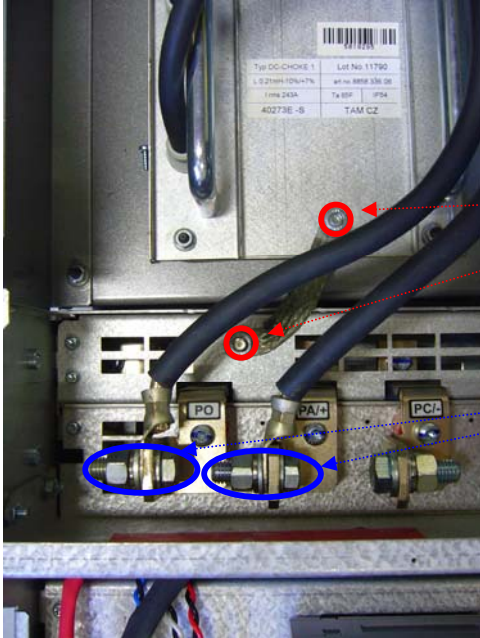


The DC Choke front cover can be removed.



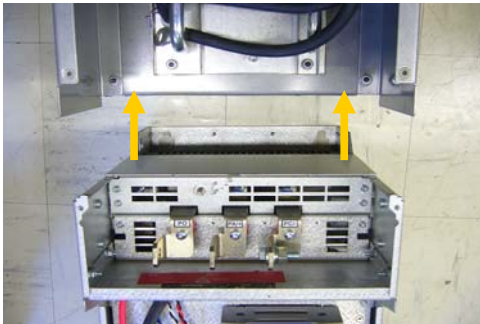
Size	Torque
M6x12	4.4Nm

DC Choke connection



Remove 2 nuts (P1).

Remove 2 screws (P2).

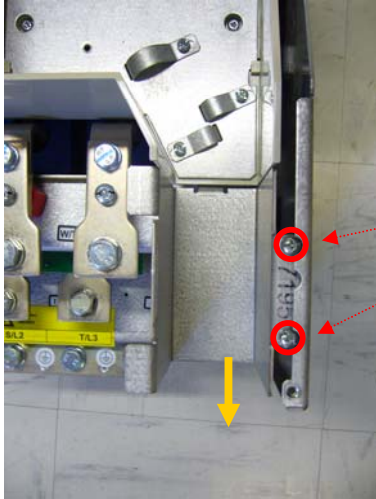


The DC Choke can be removed.



Mark	Size	Torque
P1	M8	10,8Nm
P2	M12x35	45Nm

Metal Part KIT:VY1A1303



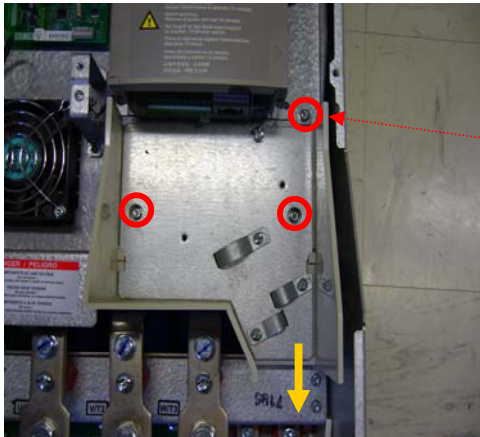
Remove 2 screws

The metal part can be removed.



Size	Torque
M4x10	1.2Nm

Plastic part KIT: VY1A1404



Remove 3 screws

The Plastic Part KIT can be removed.



Size	Torque
M4x10	1.2Nm

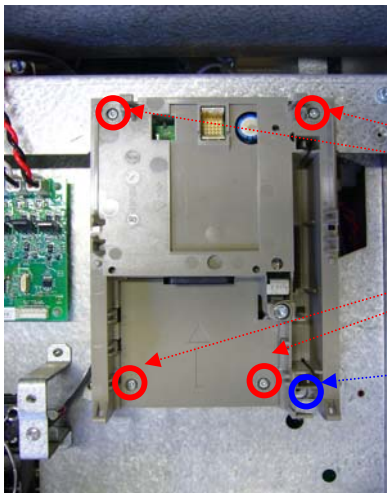
Control bloc: VX4A71101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board



Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 - S8).

Remove 1 screw (S38).

Disconnect the ribbon cable.
X4 from Control bloc" interface Board"->CNX4 on Power Board

Disconnect the ribbon cable.
X3 from Control bloc "interface Board"->X3 on Motor Control Board

The Control bloc can be removed.

Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5Nm

Internal Fan: VZ3V1214

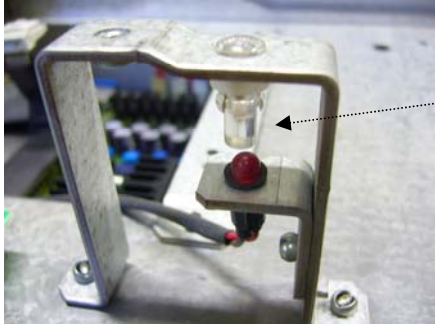
Disconnect the wire

Remove 2 screws

The Internal Fan can be removed.

Size	Torque
M4x35	1.2Nm

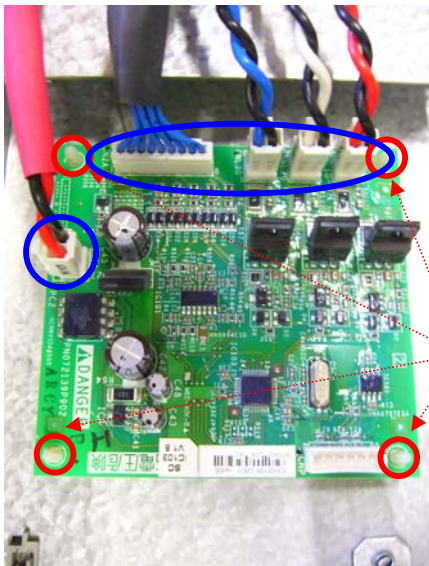
Wire Kit: VZ3N1323



Remove the LED

The LED can be removed.

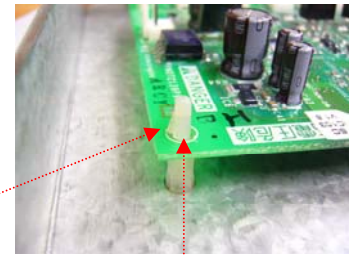
Soft Charge board: VX5A1300



Disconnect the 5 wires, *left to the right*:

- Red CN7A-> CN7 on Power Board
- Black CN2A-> CN2 on Power Board
- Blue/Black CNL3G ->Gate rectifier 3 on I3
- White/Black CNL2G ->Gate rectifier 2 on L2
- Red/Black CNL1G -> Gate rectifier 1 on L1

Push on the 4 plastic supports to remove the board.



Push on the side.

The Soft charge Board can be removed.



Size	Torque
M3x8	clips

Assembling Kit: VY1A1303



Remove the 4 screws.

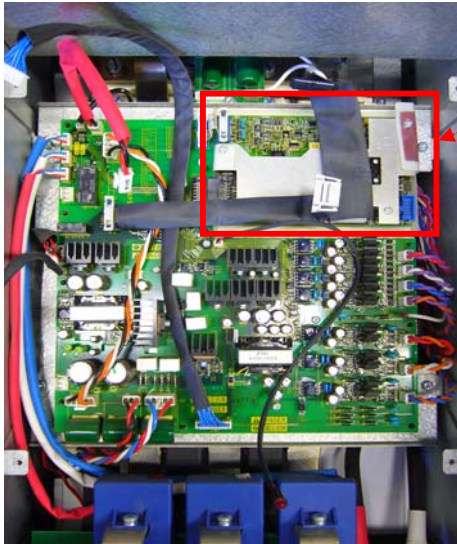
The Assembling kit can be removed.



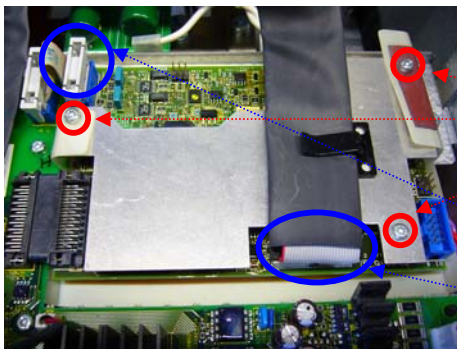
Size	Torque
M4x10	1.2Nm

Power Board: VX5A1HD9011

Part1 motor control board

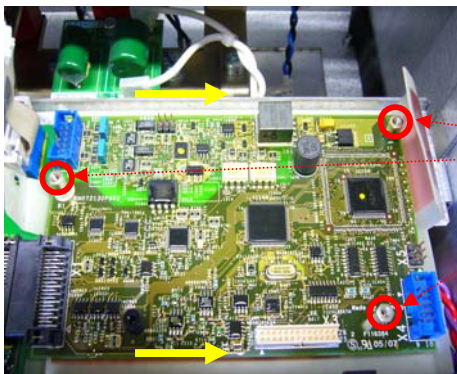


Motor control board



Remove the 3 screws. (P1)

Disconnect the 2 wires, *left to the right*:
 X2 -> CNX2 on Power Board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs (P2).

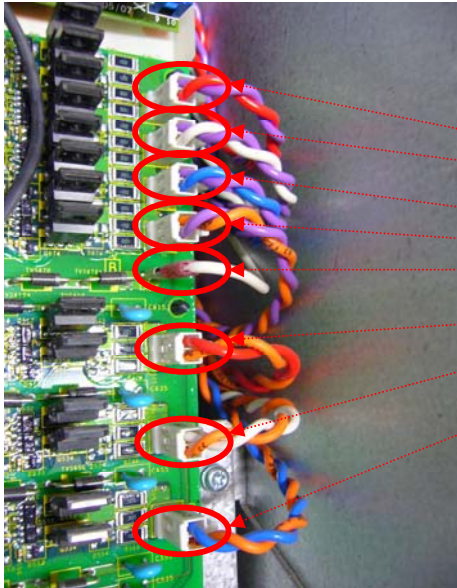
The motor control board can be removed.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

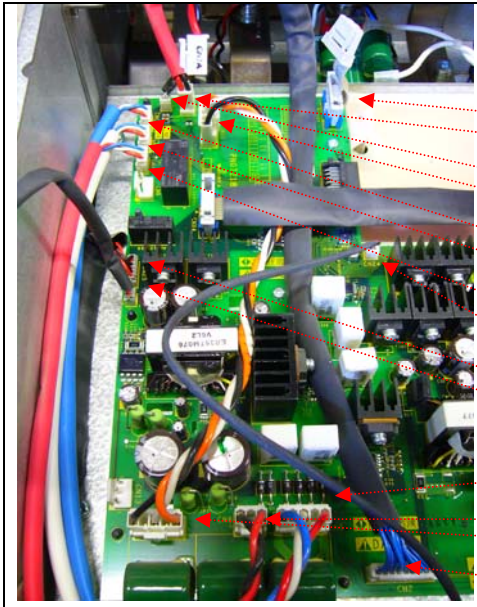
Power Board: VX5A1HD9011

Part2 power board

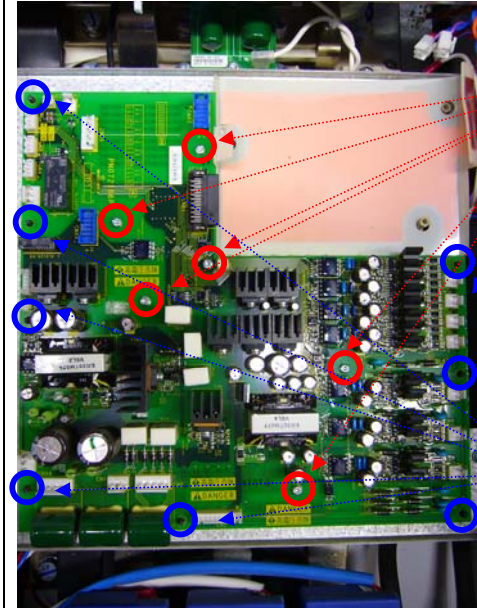


Disconnect the 8 wires, *top to the down*:

CNX	Red/Purple	-> Gate module IGBT
CNY	White/Purple	-> Gate module IGBT
CNZ	Blue/Purple	-> Gate module IGBT
CNPB	Orange/Purple	-> Gate module brake IGBT
TAB1	White	-> Connector 1 of Brake IGBT
CNU	Red/Orange	-> Gate module IGBT
CNV	White/Orange	-> Gate module IGBT
CNW	Blue/Orange	-> Gate module IGBT

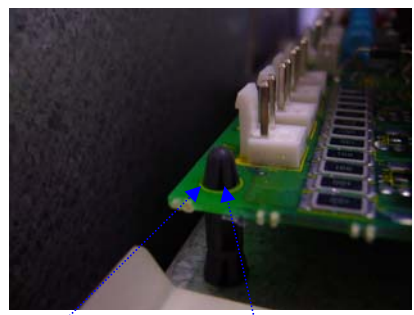


- Disconnect the 8 wires, *top to the down*:
- CNX2 Grey ->X2 on motor control board
 - CN7 Red ->CN7A on soft charge Board
 - CN22 Black ->temperature sensor
 - CNX5 Black/White/Orange ->CNX6 on Power board
 - CNC Blue ->current sensor W
 - CNB White ->current sensor V
 - CNA Red ->current sensor U
 - CN24 Black ->Power Led
 - CN25 Black ->external Fan
 - CN12 Black ->internal Fan
 - CN5 Blue/White/Red-> Alimentation on input bus bar
 - CN6 Black/Red -> Capacitor
 - CNX6 Black/White/Orange ->CNX5 on Power board
 - CN2 Black ->CN2A on Soft charge Board



Remove the 6 screws. (P1)

Push on the 8 plastic supports to remove the board. (P2)



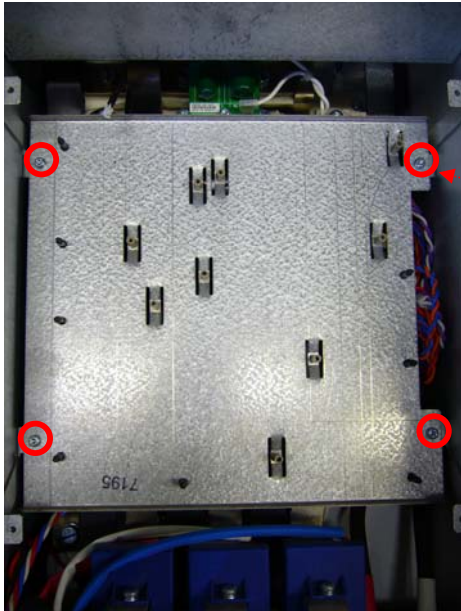
Push on the side.

The Power board can be removed.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x8	Clips

Assembling Kit: VY1A1303



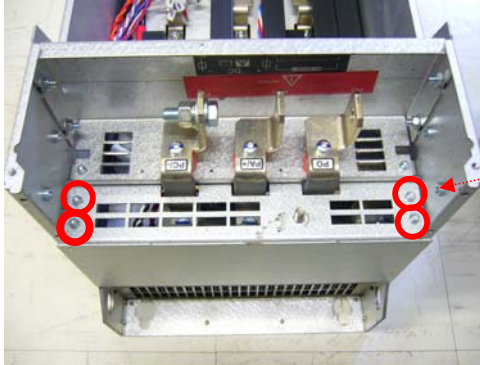
Remove the 4 screws



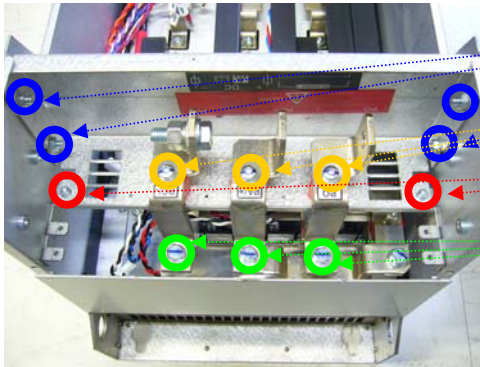
Size	Torque
M4x10	1.2Nm

The Assembling kit can be removed.

Kit Bus Bar AC: VZ3N1325



To remove steel, unscrews the 4 screws (P2).



Remove the 4 screws (P1).

Remove the 3 screws (P3).

Remove the 2 screws (P2).

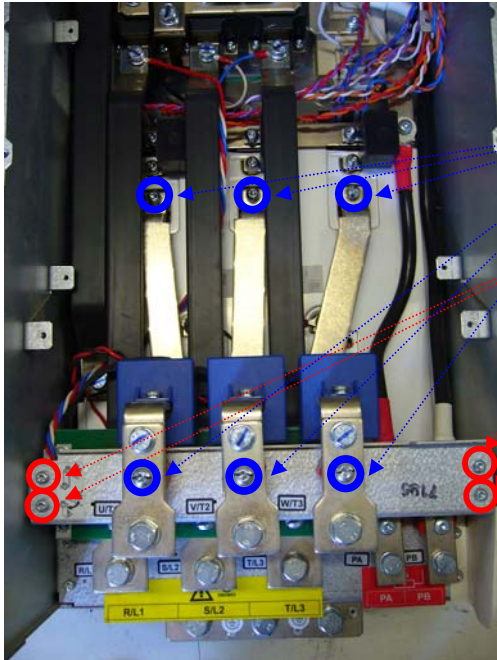
Remove the 3 screws (P4).



Mark	Size	Torque
P1	M6	4.4Nm
P2	M4x10	1.2Nm
P3	M6x14	4.4Nm
P4	M8x20	10.8Nm

The Bus Bar kit can be removed.

Kit Bus Bar AC: VZ3N1325



Remove the 6 screws (P1).

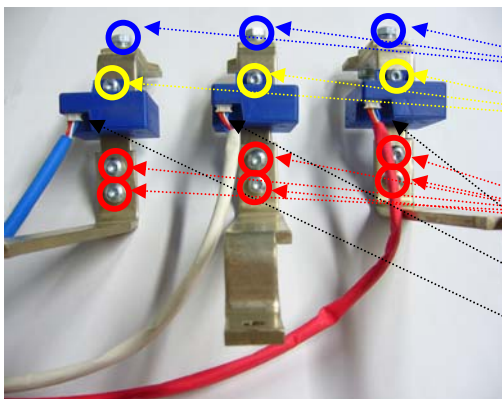
Remove the 4 screws (P2).



Mark	Size	Torque
P1	M6x14	4.4Nm
P2	M4x10	1.2Nm

The Bus Bar kit can be removed.

Motor current sensor: VY1A1105



Remove the 3 screws (P1).

Remove the 3 screws (P2).

Remove the 6 screws (P3).

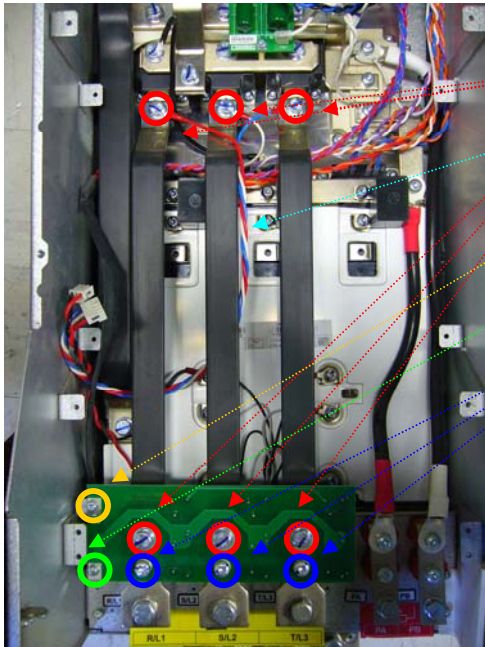
Disconnect the 3 wires, *Right to the left*
 Red-> CNA on power board
 White-> CNB on power board
 Blue-> CNC on power board



Mark	Size	Torque
P1	M8x20	10.8Nm
P2	M3x12	0.8Nm
P3	M6x14	4.4Nm

The motor current sensor can be removed.

RFI Filter Board: VX4A1116
Kit Bus Bar AC: VZ3N1325



Remove the 6 screws (P1).

And disconnect cable Red on L1 White on L2
 Blue on L3 CN5-> CN5 on power board

Remove the 1 screw (P2).

Remove the 1 screw (P3).

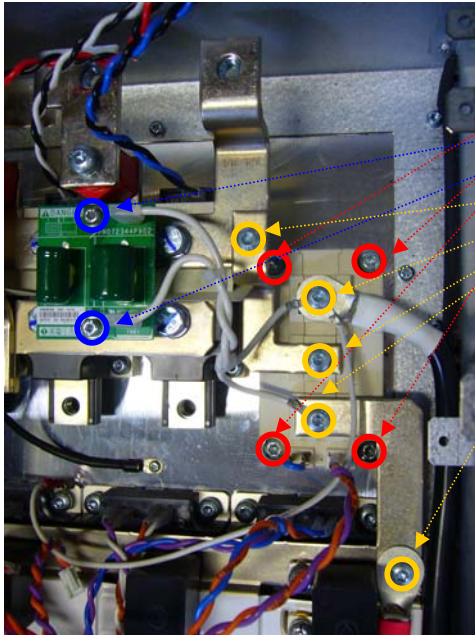
Remove the 3 screws (P4).



Mark	Size	Torque
P1	M8x20	10.8Nm
P3	M4x10	1.2Nm
P4	M6x14	4.4Nm
P2	M4x10	1.2Nm

The RFI filter Board can be removed.

Braking Module IGBT: VZ3TM1400M1271



Remove the 4 screws (P1).

Remove the 2 screws (P2).

Remove the 5 screws (P3).

Disconnect 4 wires, top to the down

White/Black wire -> PB connector
 White wire -> TAB1 on power board
 Orange/Purple wires -> CNPB on power board
 Red/Black wire -> PA connector

Warning: After change the brake IGBT, don't forget to connect Capacitor card between 1&3 of IGBT.
 After changing, **be careful** to set up direction.
Don't forget applying the grease.



Mark	Size	Torque
P1	M6x18	3.0Nm
P2	M4x10	1.2Nm
P3	M6x14	1.2Nm

The Braking module IGBT can be removed.

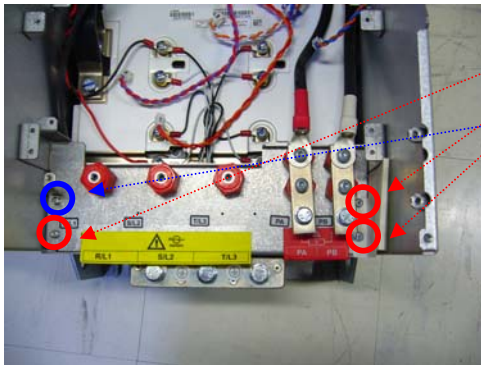
Braking Module IGBT: VZ3TM1400M1271



Be careful, after changing respect the colour line for the wires.

From left to right
[Shunt blue 4&5] – **[Purple 7 – Orange 6]**

Kit Bus Bar AC: VZ3N1325



Remove the 4 screws (P1)

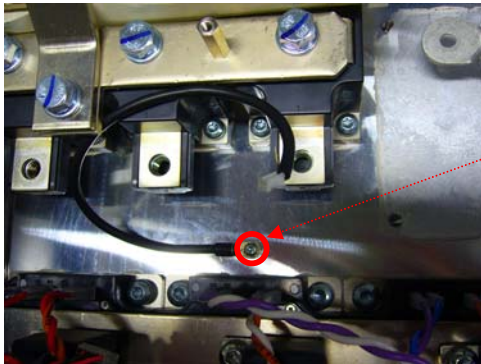
Remove the 1 screw (P2).

Mark	Size	Torque
P1	M4x10	1.2Nm
P2	M4x10	1.2Nm



The Bus Bar kit can be removed.

Thermal sensor: VZ3G1102



Remove the 1 screw.

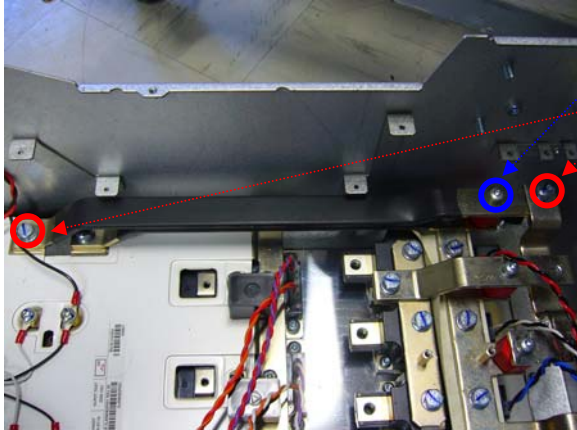
Disconnect 1 wire
Black wire -> CN22 on power board

Size	Torque
M3x6	0.8Nm



The Thermal sensor can be removed.

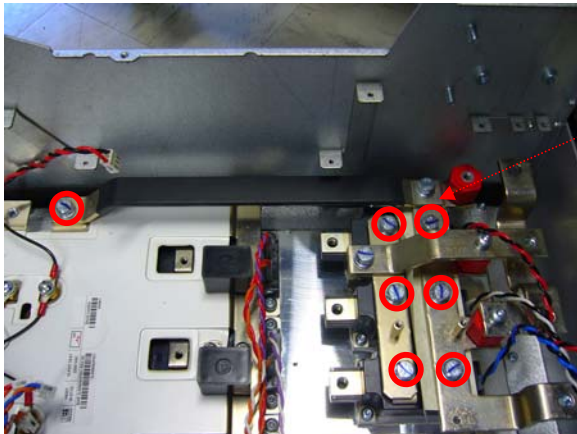
DC Bus Bar KIT: VZ3N1327



Remove the 1 screw (P1).

Remove the 2 screws (P2).

The first the bar can be removed.



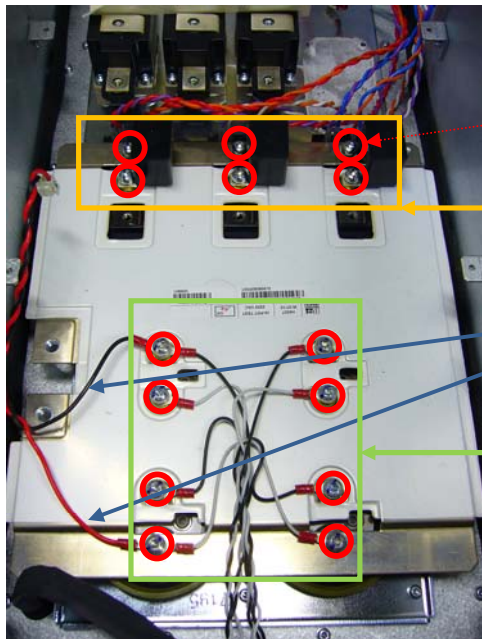
Remove the 7 screws (P2).

The DC Bus Bar KIT can be removed.



Mark	Size	Torque
P1	M6x14	4.4Nm
P2	M8x20	10.8Nm

DC Bus Bar KIT: VZ3N1327



Remove the 14 screws

Zone 2

Disconnect 1 wire:
Red/Black wire-> CN6 on power board

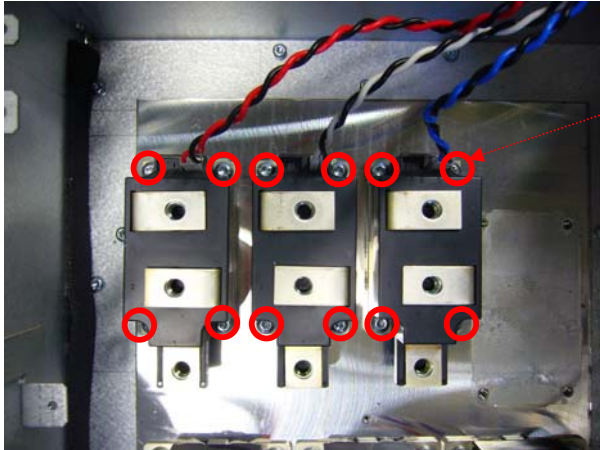
Zone 1

The DC Bus Bar KIT can be removed.



Size	Torque
M6x16	3.3Nm zone 1
	4.4Nm zone 2

Rectifier: VZ3TD1250M1671



Remove the 12 screws

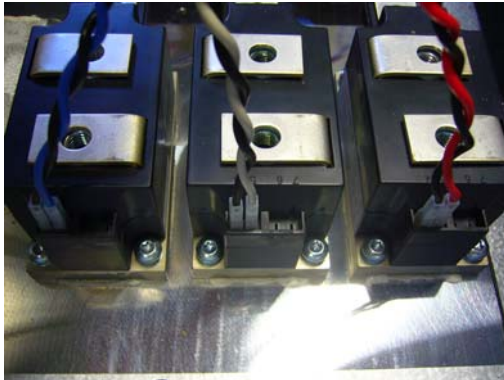
After changing, **be careful** to set up direction.
Don't forget applying the grease.

The Rectifier can be removed.



Size	Torque
M5x18	2.6Nm

Rectifier: VZ3TD1250M1671

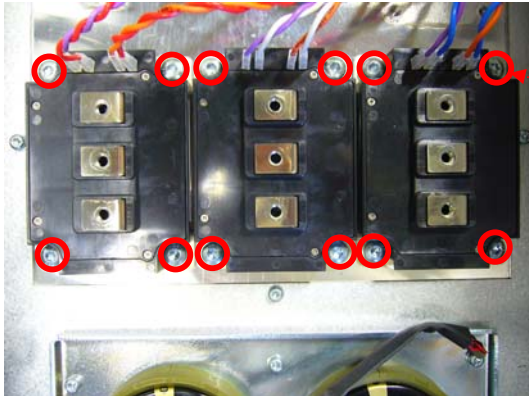


Be careful, after changing respect the colour line for the wires.

From left to right
[Black - Blue]- [Black- White] - [Black - Red]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Module IGBT: VZ3IM1400M1271



Remove the 12 screws.

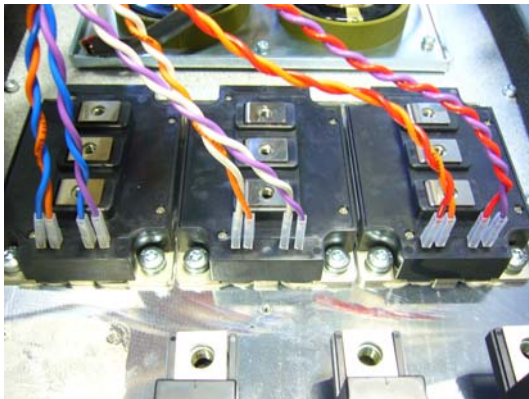
After changing, **be careful** to set up direction.
Don't forget applying the grease.

The Module IGBT can be removed.



Size	Torque
M6x18	4.4Nm

Module IGBT: VZ3IM1400M1271

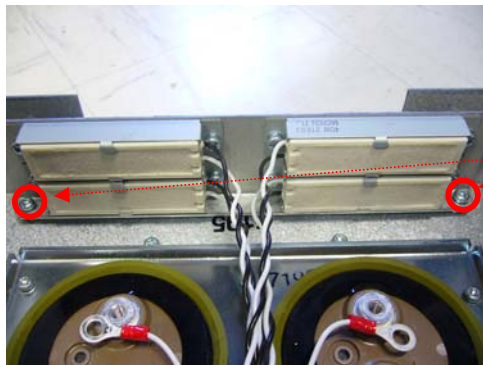


Be careful, after changing respect the colour line for the wires.

From left to right
[Blue – Orange] – [Blue – Purple]-[White- Orange]-
[White- Purple]-[Red – Orange] – [Red – Purple]

It is **not necessary** to change all IGBT but just this one that is damaged.

Discharging resistor: VZ3R24KW040



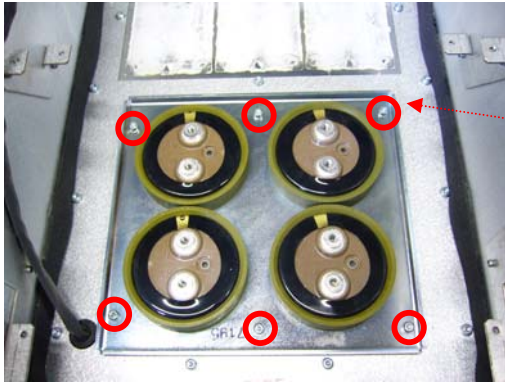
Remove the 2 screws

The Discharging resistor can be removed.



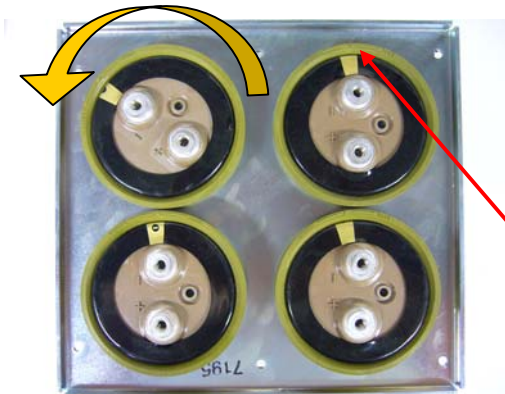
Size	Torque
M4x10	1.2Nm

Lot of 4 Capacitors: VY1ADC1110

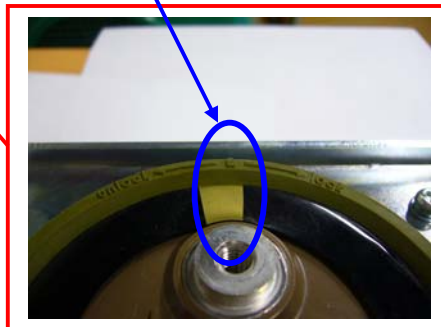


Remove the 6 screws

To remove the capacitor, rotate left it, and pull out it



After changing, **be careful** to set up direction

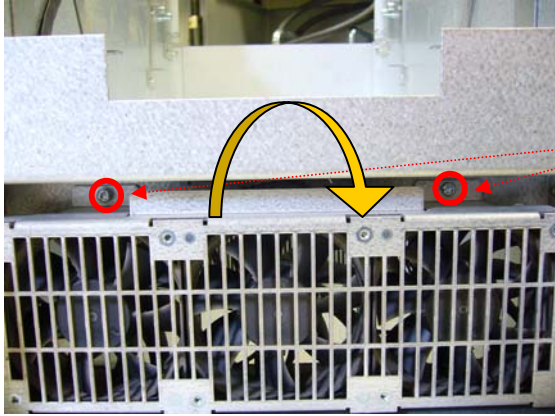


The capacitors can be removed.



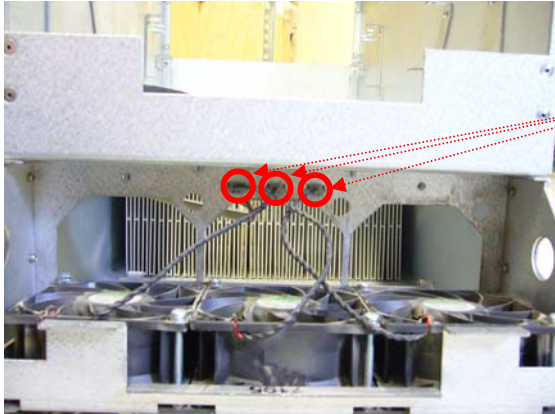
Size	Torque
M4x10	1.2Nm

Fan Kit: VZ3V1215



Remove the 2 screws

Then push fan kit down



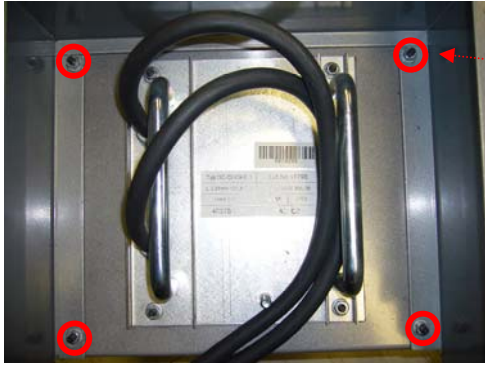
Disconnect the 3 wires.

The fan Kit can be removed.



Size	Torque
M4x10	1.2Nm

DC Choke: VW3A4521



Remove the 4 nuts



Remove the 4 screws



Remove the 4 nuts

The DC choke can be removed.



Size	Torque
M6	5.5Nm
M6x12	5.5Nm



9.21.2 Product Assembling Drawing

No information

9.21.3 Product Cabling Drawing

Refer to following file:[Cabling diagram size 9 200V.tif](#)

Refer to following file:[Cabling diagram size 9 400V.pdf](#)



9.22 ATV71-61 Size 10 (size, refer to 1.2)

9.22.1 Dismantling and reassembling

Frame 10: ATV71HD75M3, ATV71HC11N4, ATV61HD90M3, ATV61HC13N4

ATV71HD75M3	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3V1216	Fan Power Electronic
VZ3V1214	Internal Fan
VZ3TD1330M1601	Rectifier Module (Thyristor / Diode) 330A / 1600V
VZ3S1911	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1338	DC bus bar kit for size 10
VZ3N1336	Kit BUS / Bars AC
VZ3N1324	Wires KIT
VZ3IM1600M0671	Module IGBT 600A / 600V
VZ3G1102	Thermal Sensor
VY1ADV1106	Screw kit for size 10
VY1ADC1116	Lots of 4 capacitors DC bus 6800µF / 400V
VY1A1405	Plastic KIT
VY1A1304	Assembling KIT
VY1A1211	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD7590	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX4A71101Y	Control bloc P >=90kW
VX4A1116	RFI Filter Board
VW3A4525	DC Choke
VY1ADV1105	Screws KIT

ATV71HC11N4	
Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits
VZ3V1214	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1400M1271	Braking Module 400A / 1200V
VZ3TD1285M1671	Rectifier Module (Thyristor / Diode) 285A / 1600V
VZ3S1912	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1328	DC BUS BAR KIT
VZ3N1326	Kit BUS / Bars AC
VZ3N1324	Wires KIT
VZ3IM1400M1271	Module IGBT 400A / 1200V
VZ3G1102	Thermal Sensor
VY1ADV1106	Screws KIT
VY1ADC1111	Lots of 6 capacitors DC bus 6800µF / 400V
VY1A1405	Plastic Parts KIT
VY1A1304	Assembling KIT
VY1A1211	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HC1113	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX4A71101Y	Control bloc P >=90kW
VX4A1116	RFI Filter Board
VW3A4523	DC Choke

ATV61HD90M3

Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front Cover 4x7 Digits
VZ3V1216	Fan Power Electronic
VZ3V1214	Internal Fan
VZ3TD1330M1601	Rectifier Module (Thyristor / Diode) 330A / 1600V
VZ3S1911	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1338	Kit bus bar DC size 10
VZ3N1336	Kit BUS / Bars AC
VZ3N1324	Wires KIT
VZ3IM1600M0671	Module IGBT 600A / 600V
VZ3G1102	Thermal Sensor
VY1ADV1106	Kit visserie
VY1ADC1116	Lots of 4 capacitors DC bus 6800µF / 400V
VY1A1405	Plastic KIT
VY1A1304	Assembling KIT
VY1A1211	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HD7590	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX4A61101Y	Control board P >= 90kW
VX4A1116	RFI Filter Board
VW3A4525	DC Choke

ATV61HC13N4

Reference	Designation
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits
VZ3V1214	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1400M1271	Braking Module 400A / 1200V
VZ3TD1285M1671	Rectifier Module (Thyristor / Diode) 285A / 1600V
VZ3S1912	Snubber Capacitor KIT
VZ3R24KW040	Discharging Resistor 21k / 40W
VZ3N1328	DC BUS BAR KIT
VZ3N1326	Kit BUS / Bars AC
VZ3N1324	Wires KIT
VZ3IM1400M1271	Module IGBT 400A / 1200V
VZ3G1101	Thermal Sensor
VY1ADV1106	Screws KIT
VY1ADC1111	Lots of 6 capacitors DC bus 6800µF / 400V
VY1A1405	Plastic Parts KIT
VY1A1304	Assembling KIT
VY1A1211	Front Cover incl.I/O Terminal Cover
VY1A1105	Motor Current Sensor
VX5A1HC1113	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX4A1116	RFI Filter Board
VW3A4523	DC Choke
VZ3G1102	Thermal Sensor
VX4A61101Y	Control board P >= 90kW

Front cover with I/O terminal cover: VY1A11211



Remove 7 screws



The Front cover can be removed.



Size	Torque
M6x10	4.4Nm

DC Choke Front cover



Remove 4 screws

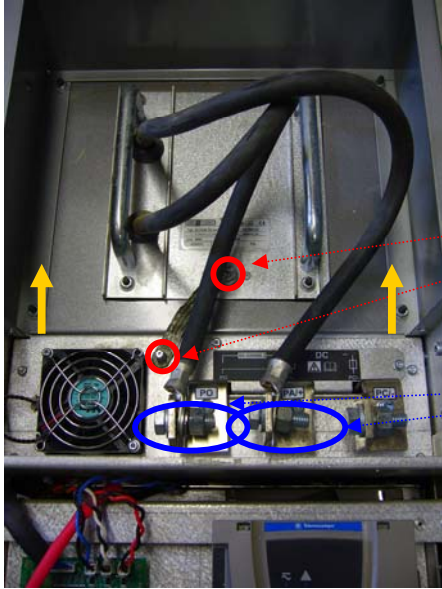


The DC Choke front cover can be removed.



Size	Torque
M6x12	4.4Nm

DC Choke connection



Remove 2 nuts (P1).

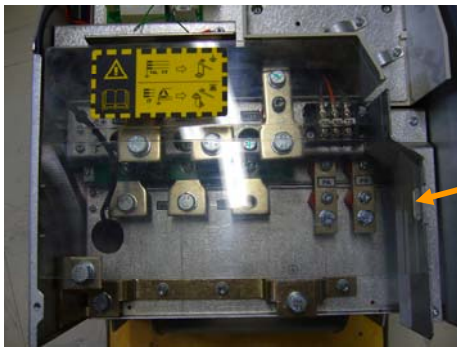
Remove 2 screws (P2).



Mark	Size	Torque
P1	M8	10.8Nm
P2	M12x25	45Nm

The DC Choke can be removed.

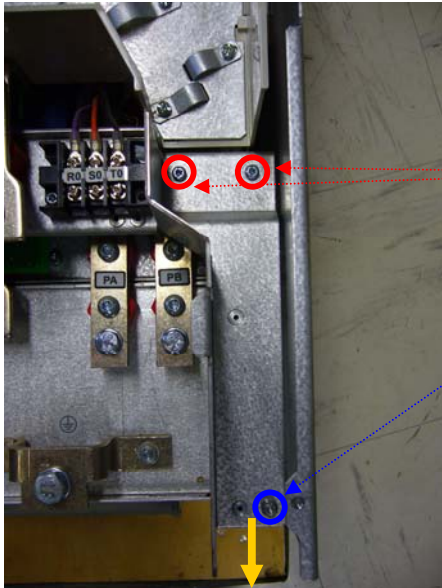
Plastic part KIT: VY1A1405



Push here and disengage plastic part

The plastic part kit can be removed.

Assembling KIT: VY1A1304



Remove 2 screws (S?).

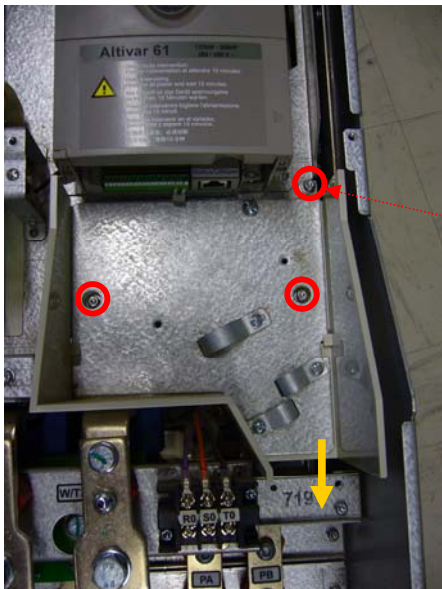
Remove 1 screw (S?).



Mark	Size	Torque
P1	M4x10	1.2Nm
P2	M4x20	0.8Nm

The Part can be removed.

Plastic part KIT: VY1A1405



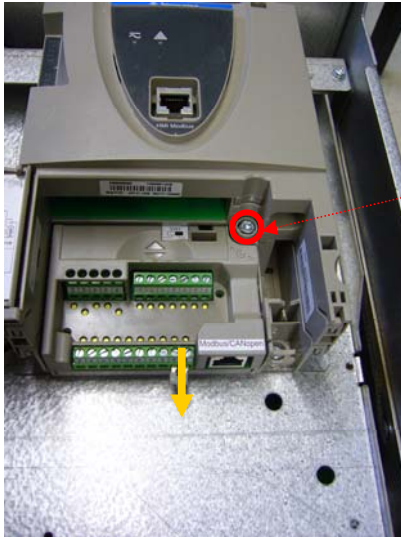
Remove 3 screws



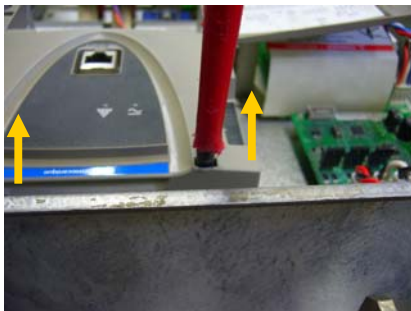
Size	Torque
M4x10	1.2Nm

The Plastic Part kit can be removed.

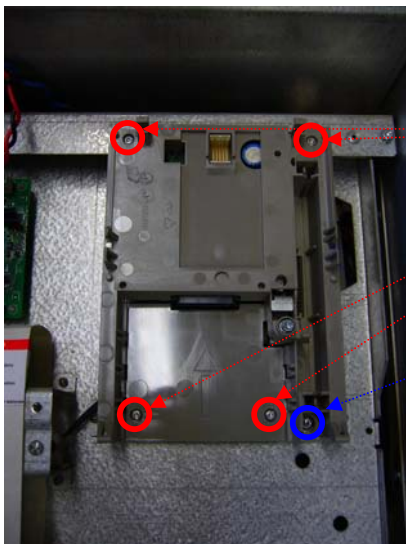
Control bloc: VX4A71101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board

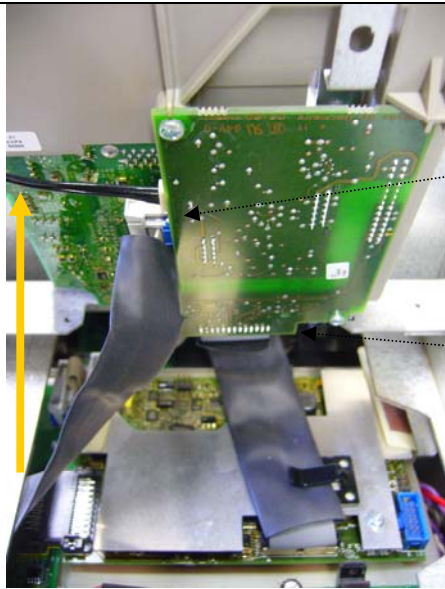


Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 – S8).

Remove 1 screw (S38).



Disconnect the ribbon cable.
X4 from Control bloc" interface Board"->CNX4 on Power Board

Disconnect the ribbon cable.
X3 from Control bloc "interface Board"->X3 on Motor Control Board



Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5Nm

The Control bloc can be removed.

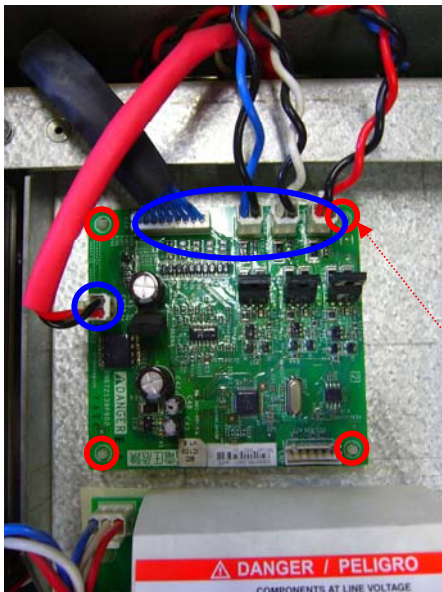
Wire Kit: VZ3N1324



Remove the LED

The LED can be removed.

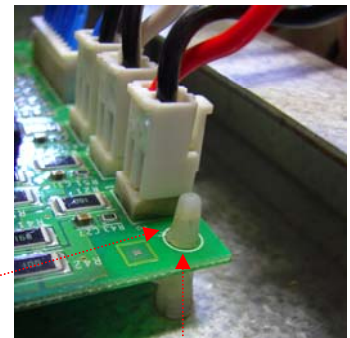
Soft Charge board: VX5A1300



Disconnect the 5 wires, *left to the right*:

- Red CN7A-> CN7 on Power Board
- Black CN2A-> CN2 on Power Board
- Blue/Black CNL3G ->Gate rectifier 3 on L3
- White/Black CNL2G ->Gate rectifier 2 on L2
- Red/Black CNL1G -> Gate rectifier 1 on L1

Push on the 4 plastic supports to remove the board.



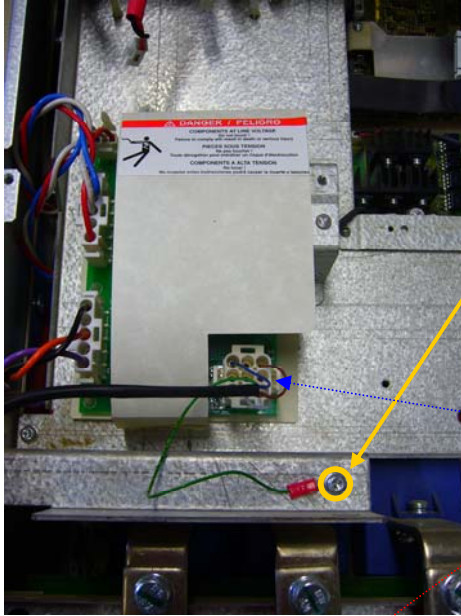
Push on the side.

The Soft charge Board can be removed.



Size	Torque
M3x8	clips

Fan Power Electronic. VZ3V1212

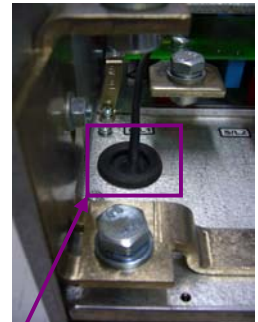


Be careful; don't forget to disconnect the ground wire.

Disconnect 1 connector

Fan turbine 1->X3 on fan control board

Remove 2 nuts



Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

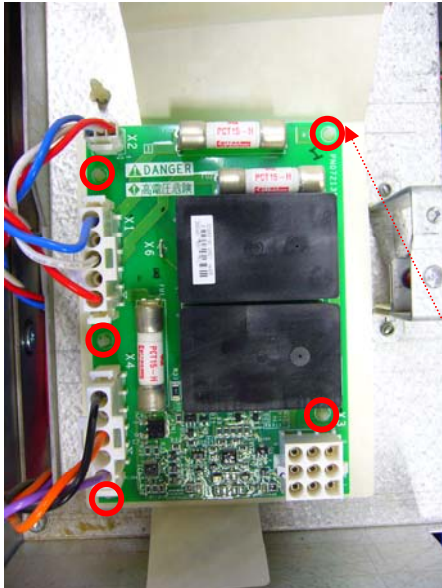


The Turbine can be removed.



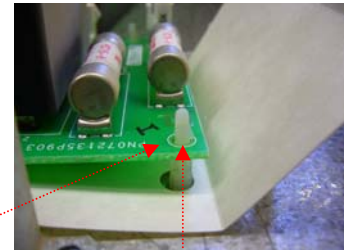
Size	Torque
M6	5.5Nm

Fan control board: VX5A1400



Disconnect the 5 wires, *top to the down*:
 Red/Blue/White X2-> CN13 on Power Board
 Red/White/Blue X1-> Red on L1 White on L2 Blue on L3
 Black/Orange/Purple X4 ->external fan connector TB1 on kit **VY1A1304**
 X3 -> turbine alimentation

Push on the 5 plastic supports to remove the board.



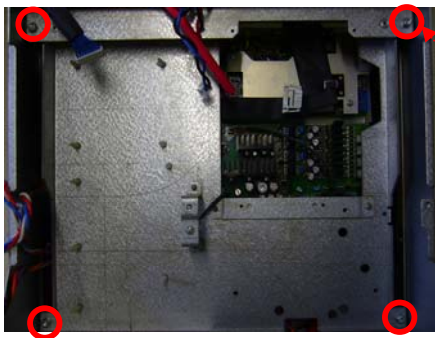
Push on the side.

The Soft charge Board can be removed.



Size	Torque
M3x8	clips

Assembling KIT: VY1A1304



Remove 4 screws

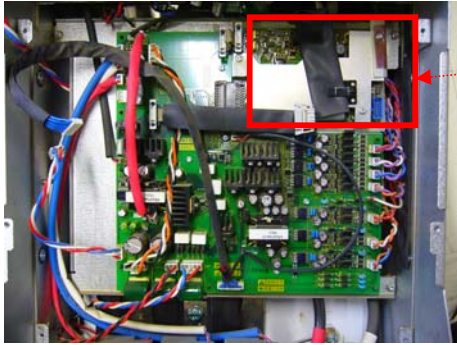
The part can be removed.



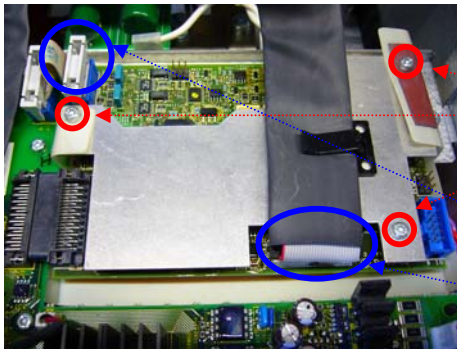
Size	Torque
M4x10	1.2Nm

Power Board: VX5A1HC1113

Part1 motor control board

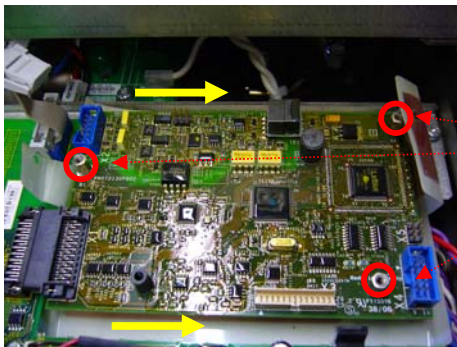


Motor control board



Remove the 3 screws. (P1)

Disconnect the 2 wires, *left to the right*:
 X2 -> CNX2 on Power Board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs. (P2)

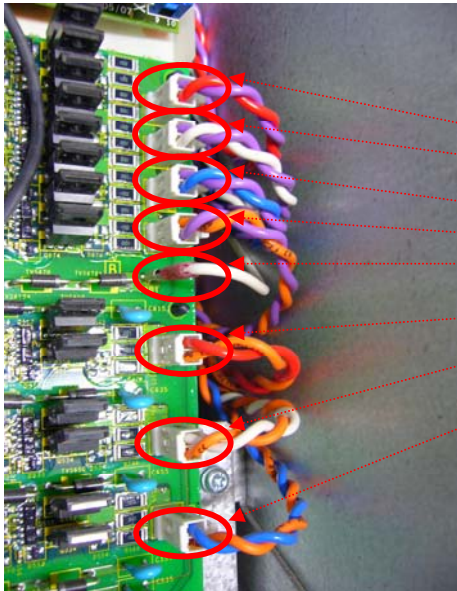


Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

The motor control board can be removed.

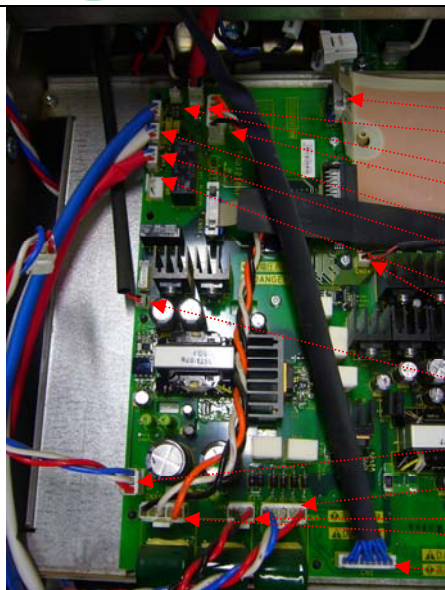
Power Board: VX5A1HC1113

Part2 power board



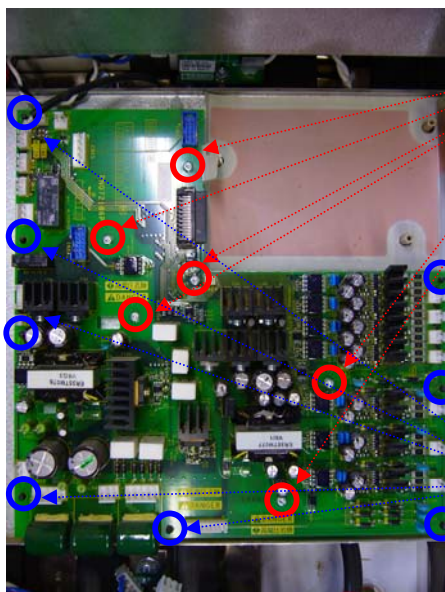
Disconnect the 8 wires, *top to the down*:

CNX	Red/Purple	-> Gate module IGBT
CNY	White/Purple	-> Gate module IGBT
CNZ	Blue/Purple	-> Gate module IGBT
CNPB	Orange/Purple	-> Gate module brake IGBT
TAB1	White	-> Connector 1 of Brake IGBT
CNU	Red/Orange	-> Gate module IGBT
CNV	White/Orange	-> Gate module IGBT
CNW	Blue/Orange	-> Gate module IGBT



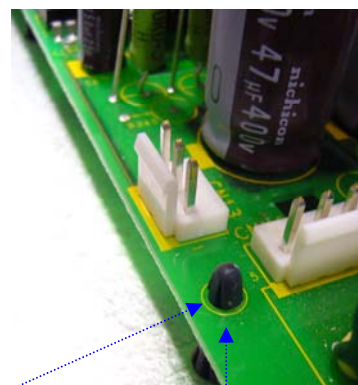
Disconnect the 8 wires, *top to the down*:

- CNX2 Grey ->X2 on motor control board
- CN7 Red ->CN7A on soft charge Board
- CN22 Black ->temperature sensor
- CNX5 Black/White/Orange ->CNX6 on Power board
- CNC Blue ->current sensor W
- CNB White ->current sensor V
- CNA Red ->current sensor U
- CN24 Black ->Power Led
- CN12 Black ->internal Fan
- CN13 Red/Blue/White ->X2 on Fan control Board
- CN5 Blue/White/Red-> Alimentation on input bus bar
- CN6 Black/Red -> Capacitor
- CNX6 Black/White/Orange ->CNX5 on Power board
- CN2 Black ->CN2A on Soft charge Board



Remove the 6 screws. (P1)

Push on the 8 plastic supports to remove the board. (P2)



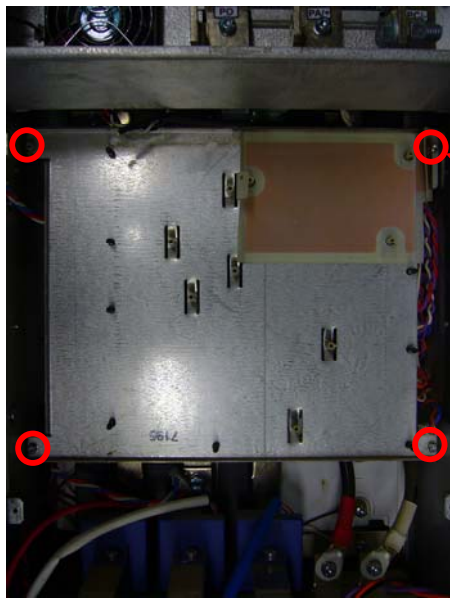
Push on the side.

The Power board can be removed.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x8	clips

Assembling KIT: VY1A1304



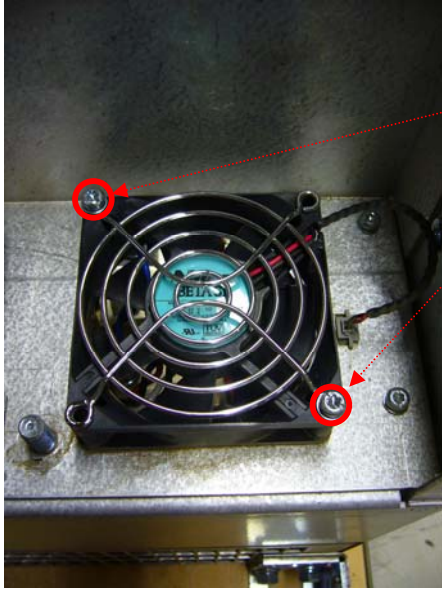
Remove the 4 screws

The part can be removed.



Size	Torque
M4x10	1.2Nm

Internal Fan: VZ3V1214



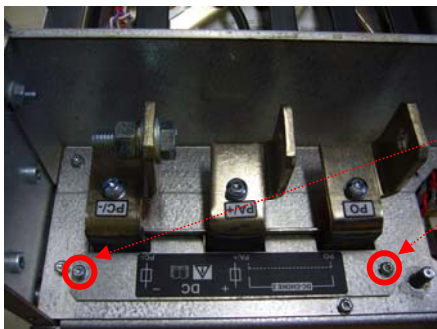
Remove the 2 screws

The internal fan can be removed.



Size	Torque
M4x35	1.2Nm

Assembling kit: VY1A1304
Part 1



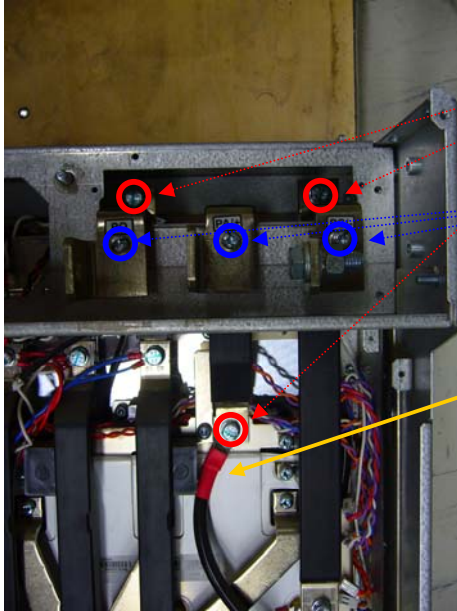
Remove the 2 screws

The part can be removed.



Size	Torque
M4x10	1.2Nm

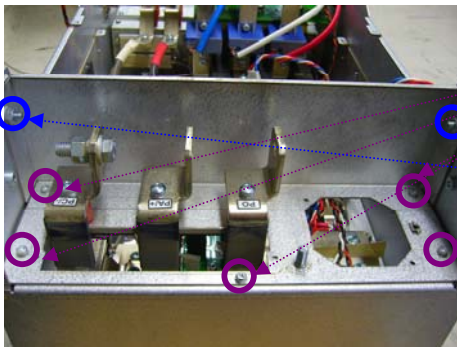
Assembling kit: VY1A1304 & bars kit: VZ3N1328 Part 2



Remove the 3 screws (P2).

Remove the 3 screws (P1).

Disconnect 1 wire
Red/Black wire -> PA connector



Remove the 5 screws (P4).

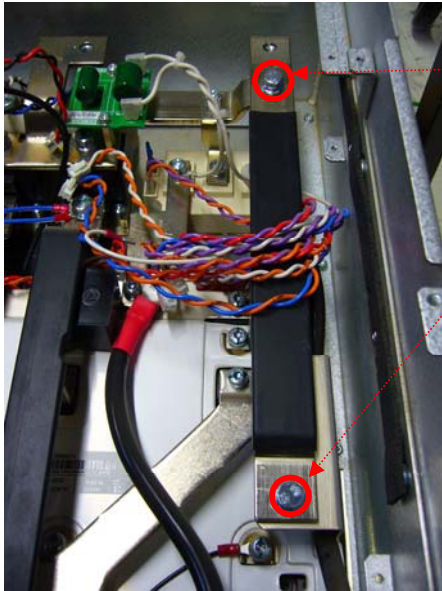
Remove the 2 nuts (P3).

The Assembly kit can be removed.



Mark	Size	Torque
P1	M6x14	4.4Nm
P2	M8x20	10.8Nm
P3	M6	4.4Nm
P4	M4x10	1.2Nm

DC Bus bars kit: VZ3N1328



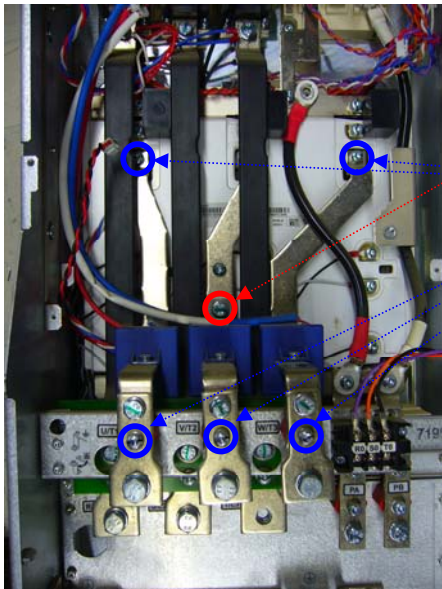
Remove the 2 screws

The DC Bus bar kit can be removed.



Size	Torque
M8x20	10.8Nm

AC Bus bars kit: VZ3N1326



Remove the 1 screw (P1).

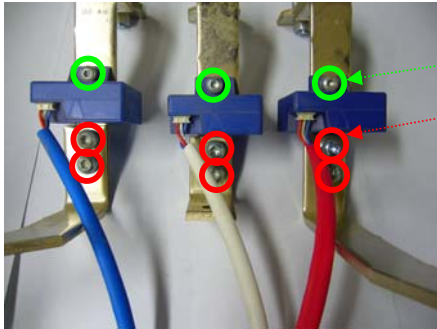
Remove the 5 screws (P2).

The AC Bus bar kit can be removed.



Mark	Size	Torque
P1	M6x12	4.4Nm
P2	M6x14	4.4Nm

Motor current sensor: VY1A1105



Remove 3 screws (P1)

Remove the 6 screw (P2).

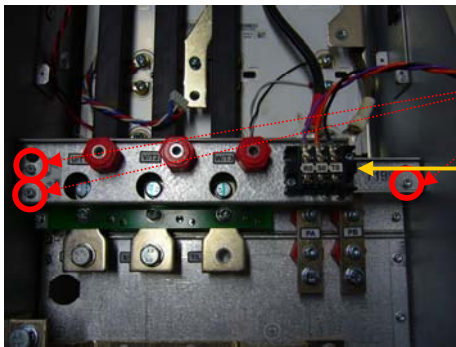
Disconnect the 3 wires, *Right to the left*
 Red-> CNA on power board
 White-> CNB on power board
 Blue-> CNC on power board



Mark	Size	Torque
P1	M3x12	0.8Nm
P2	M6x14	4.4Nm

The Motor current sensor can be removed.

Assembling kit: VY1A1304



Remove the 3 screws

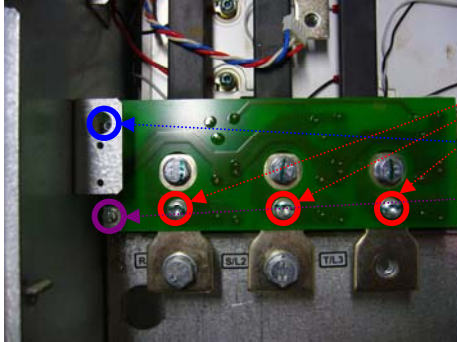
Connector TB1 wire Purple/Orange/Black -> X4 on fan control board

The part can be removed.



Size	Torque
M4x10	1.2Nm

RFI Filter Board: VX4A1116



Remove the 3 screws (P1).

Remove the 1 screw (P2)

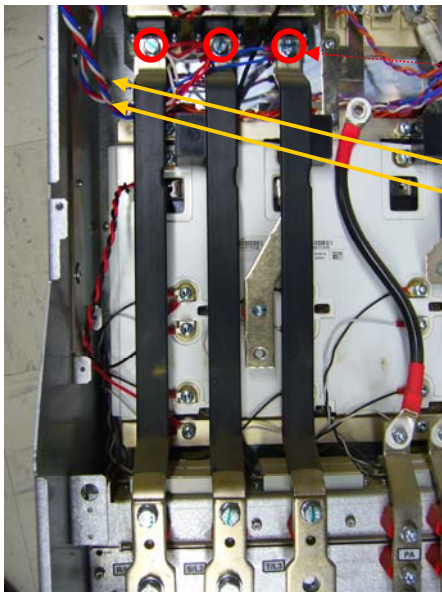
Remove the 1 screw (P3)



Mark	Size	Torque
P1	M6x14	4.4Nm
P2	M4x10	1.2Nm
P3	M4x10	1.2Nm

The RFI filter board can be removed.

AC Bus bars kit: VZ3N1326



Remove the 3 screws

Disconnect 2 wires:

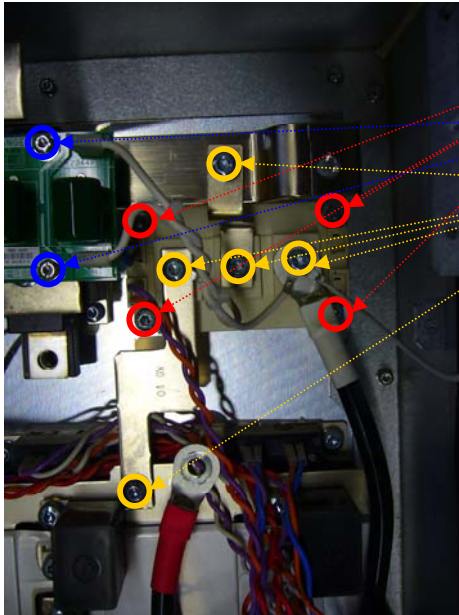
Red L1/white L2/Blue L3->X1 on Fan control board
 Red L1/white L2/Blue L3->CN5 on Power board



Size	Torque
M8x20	10.8Nm

The AC Bus bar kit can be removed.

Brake IGBT: VZ3TM1400M1271



Remove the 4 screws (P1).

Remove the 2 screws (P2).

Remove the 5 screws (P3).

Disconnect 4 wires, Right to the Left

White/Black wire -> PB connector
 White wire -> TAB1 on power board
 Orange/Purple wires -> CNPB on power board

Warning: After change the brake IGBT, don't forget to connect Capacitor card between 1&3 of IGBT.
 After changing, **be careful** to set up direction.
Don't forget applying the grease.



Mark	Size	Torque
P1	M6x18	3.0Nm
P2	M4x10	1.2Nm
P3	M6x14	1.2Nm

The Brake IGBT can be removed.

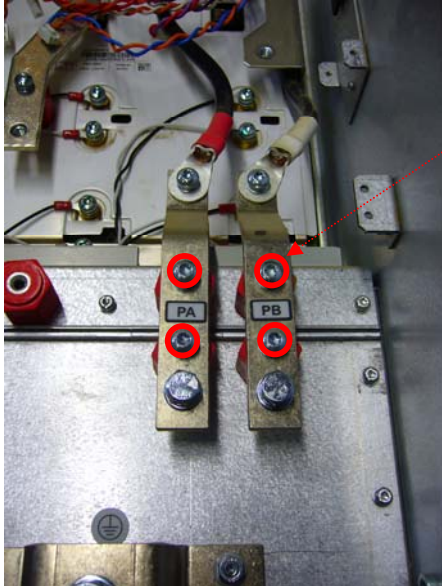
Brake IGBT: VZ3TM1400M1271



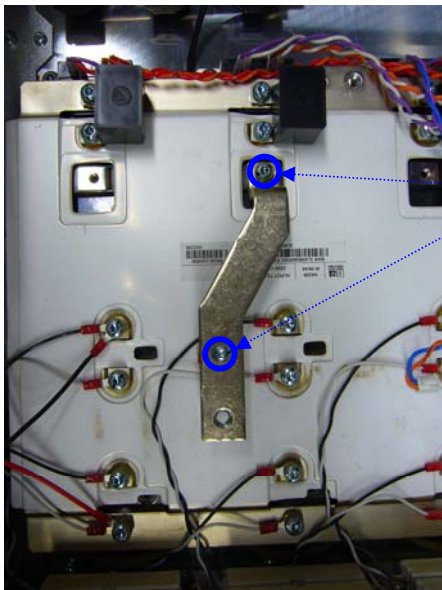
Be careful, after changing respect the colour line for the wires.

From left to right
[Shunt blue 4&5] – [Purple 7 – Orange 6]

AC Bus bars kit: VZ3N1326



Remove the 4 screws (P1).



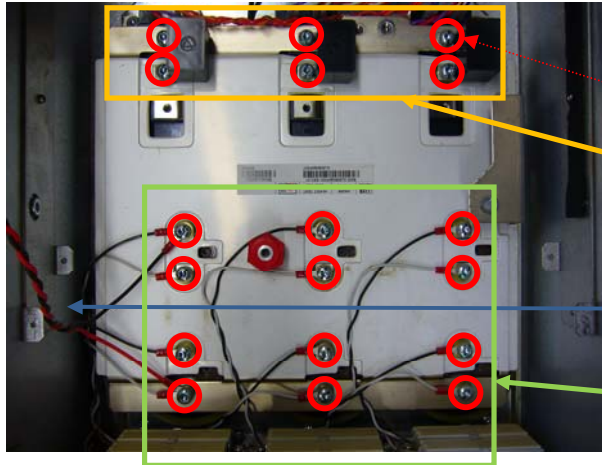
Remove the 2 screws (P2).



Mark	Size	Torque
P1	M6x14	4.4Nm
P2	M6x16	4.4Nm

The AC Bus bar kit can be removed.

DC Bus Bar: VZ3N1328



Remove the 18 screws

Zone 2

Disconnect 1 wire:
Red/Black wire -> CN6 on power board

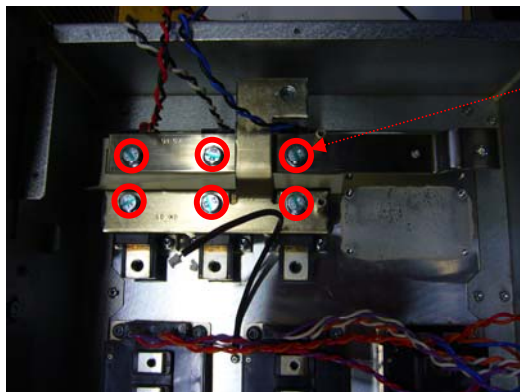
Zone 1

The DC Bus Bar can be removed.



Size	Torque
M6x16	3.3Nm zone 1 4.4Nm zone 2

Rectifier DC Bus Bar: VZ3N1328



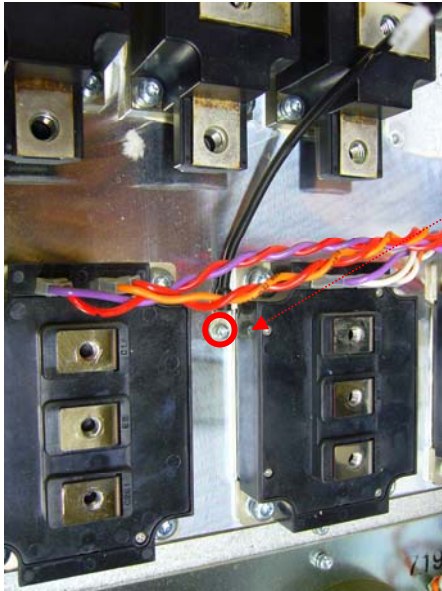
Remove the 6 screws

The DC Bus Bar can be removed



Size	Torque
M8x20	10.8Nm

Thermal sensor: VZ3G1101



Remove the 1 screw

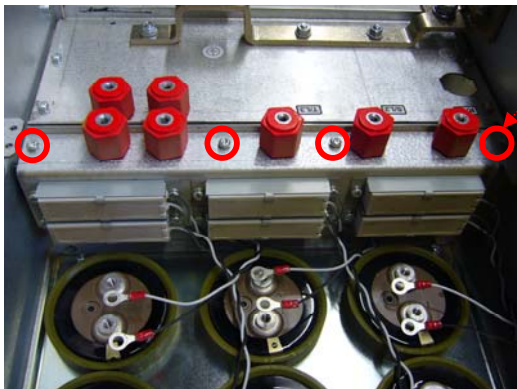
Disconnect 1 wire
Black wire -> CN22 on power board

The Thermal sensor can be removed.



Size	Torque
M3x6	0.8Nm

Discharging Resistor: VZ3R24KW040



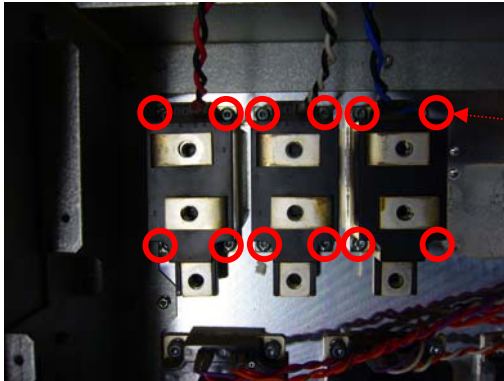
Remove the 4 screws

The discharging resistors can be removed.



Size	Torque
M4x10	1.2Nm

Rectifier module: VZ3TD1285M1671



Remove the 12 screws

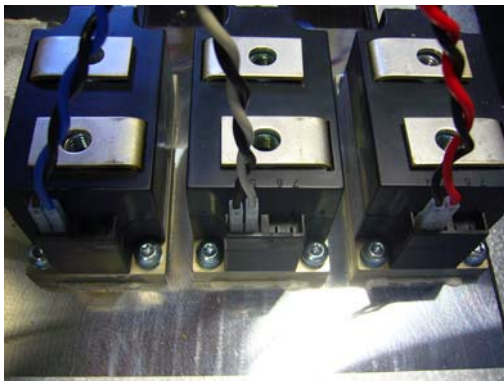
After changing, **be careful** to set up direction.
Don't forget applying the grease.



Size	Torque
M5x18	2.6Nm

The Rectifier can be removed.

rectifier: VZ3TD1285M1671

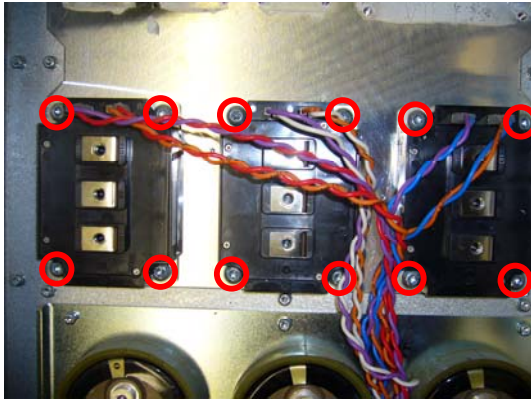


Be careful, after changing respect the colour line for the wires.

From left to right
[Black - Blue]- [Black- White] - [Black - Red]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Module IGBT: VZ3IM1400M1271



Remove the 12 screws

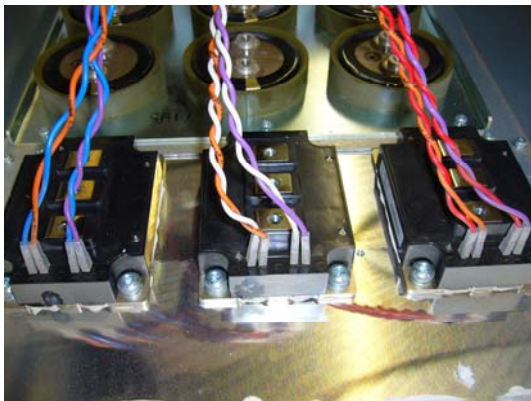
After changing, **be careful** to set up direction.
Don't forget applying the grease.

The IGBT module can be removed.



Size	Torque
M6x18	4.4Nm

Module IGBT: VZ3IM1400M1271



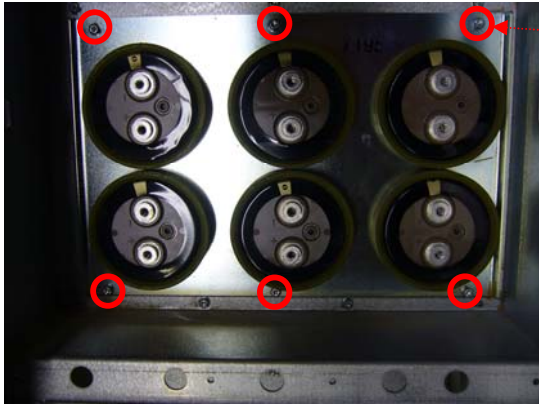
Be careful, after changing respect the colour line for the wires.

From left to right

[Blue – Orange] – **[Blue – Purple]**–**[White- Orange]**–
[White- Purple]–**[Red – Orange]** – **[Red – Purple]**

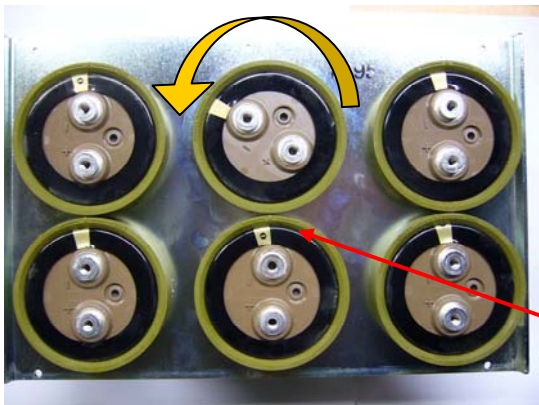
It is **not necessary** to change all IGBT but just this one that is damaged.

Lot of Capacitors: VY1ADC1111



Remove the 6 screws.

To remove the capacitor, rotate left it, and pull out it



After changing, **be careful** to set up direction



The capacitor can be removed.



Size	Torque
M4x10	1.2Nm

DC SHOKE: VW3A4523



Remove the 4 nuts



Remove the 4 screws



Remove the 4 nuts

The DC Choke can be removed.



Size	Torque
M6	5.5Nm
M6x12	5.5Nm



9.22.2 Product Assembling Drawing

No information

9.22.3 Product Cabling Drawing

Refer to following file: [Cabling diagram_size 10 200V.tif](#)

Refer to following file: [Cabling diagram_size 10 400V.pdf](#)



9.23 ATV61/71 Size 11 (size, refer to 1.2)

9.23.1 Dismantling and reassembling

Size 11: ATV71HC13N4, ATV61HC16N4

ATV71HC13N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TD1285M1671	Rectifier Module (Thyristor / Diode) 285A / 1600V
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1316	Wires KIT
VZ3N1315	AC Bus Bar KIT
VZ3N1314	DC Bus Bar KIT
VZ3IM1600M1271	Module IGBT (600A / 1200V)
VZ3G1104	Thermal Sensor
VZ3F1110	Braking Unit KIT
VY1ADV1107	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1401	Plastic Parts KIT
VY1A1301	Assembling KIT
VY1A1212	Front Cover with I/O Terminal Cover
VY1A1107	Motor Current Sensor
VX5A71HC13N4	mesuring board 71HC13N4
VX5A1HC1316	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1200	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1113	RFI Filter Board
VW3A4520	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HC16N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1316	Wires KIT
VZ3N1315	AC Bus Bar KIT
VZ3N1314	DC Bus Bar KIT
VZ3IM1600M1271	Module IGBT (600A / 1200V)
VZ3G1104	Thermal Sensor
VZ3F1110	Braking Unit KIT
VY1ADV1107	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1401	Plastic Parts KIT
VY1A1301	Assembling KIT
VY1A1212	Front Cover with I/O Terminal Cover
VY1A1107	Motor Current Sensor
VX5A71HC13N4	Measuring Board
VX5A1HC1316	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1200	Gate Drive Board
VX4A61101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1113	RFI Filter Board
VW3A4520	DC Choke
VZ3TD1285M1671	Rectifier Module (Thyristor / Diode) 285A / 1600V
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Cover with I/O Terminal Cover: VY1A1212



Remove 9 screws

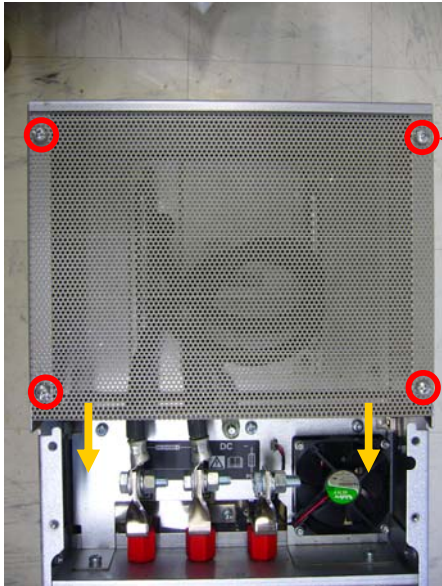


The front cover can be removed.



Size	Torque
M6x12	5.5Nm

Front cover DC Choke: VW3A4520



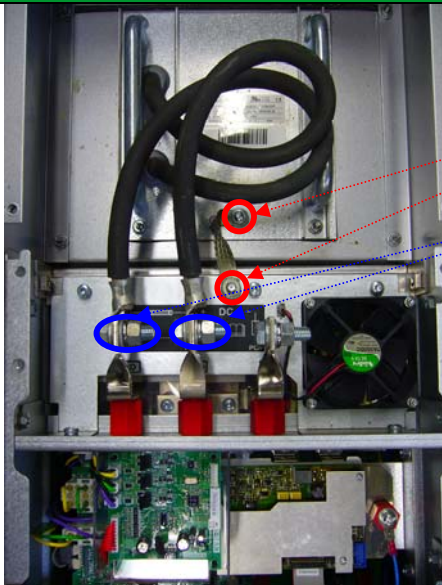
Remove 4 screws (S?).

The DC Choke front cover can be removed.



Size	Torque
M6x12	5.5Nm

DC Choke connection: VW3A4520



Remove 2 screws (P1).

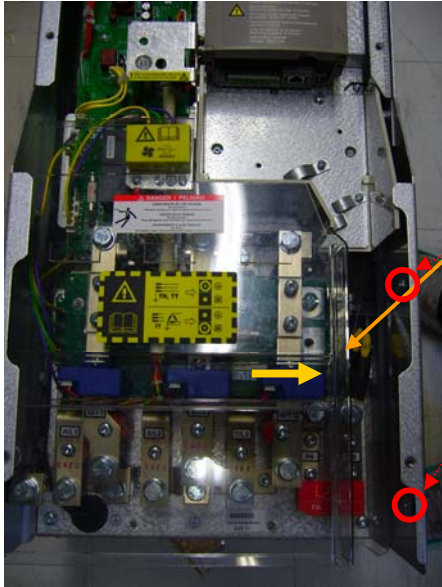
Remove 2 screws (P2).

The DC Choke can be removed.



Mark	Size	Torque
P1	M8	13.5Nm
P2	M12x25	45Nm

Plastic Parts Kit: VY1A1401



Push here and disengage plastic part

Remove 2 screws

The Plastic part KIT can be removed.

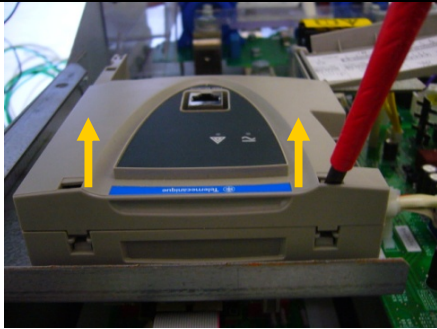


Size	Torque
M6	5.5Nm

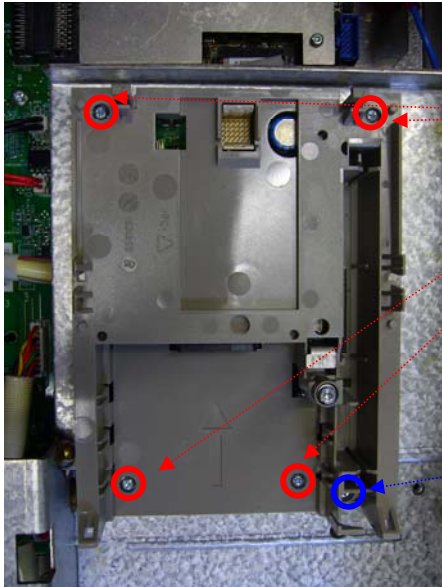
Control bloc: VX4A61101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.



Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 to S8)

Remove 1 screw (S38).

Disconnect the ribbon cable.
X3 from Control bloc "interface Board"->X3 on Motor Control Board

Disconnect the ribbon cable.
X4 from Control bloc" interface Board"->X4 on Measuring Board



The Control bloc can be removed.

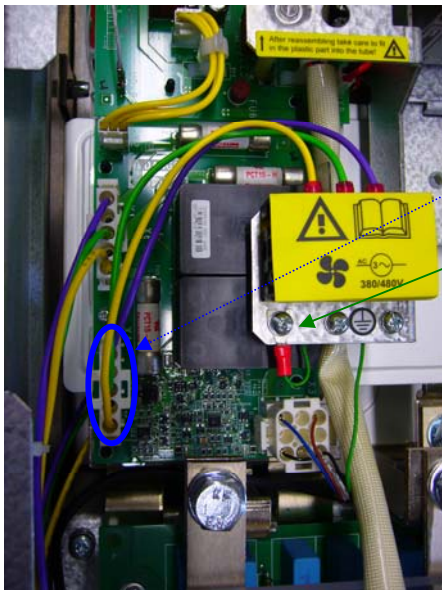


Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5NM

Metal Support for Control Bloc



Remove 2 nuts.



Disconnect the wire:

Yellow/Green/Purple on TB1 -> X4 on fan control board

Green -> ground of turbine

Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

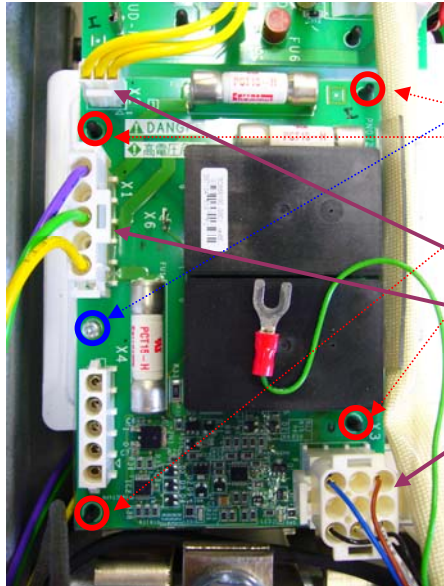
Be careful, don't forget to disconnect the ground wire.

The metal support can be removed.



Size	Torque
M6	5.5Nm

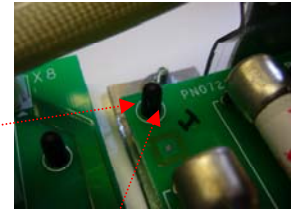
Fan Control Board: VX5A1400



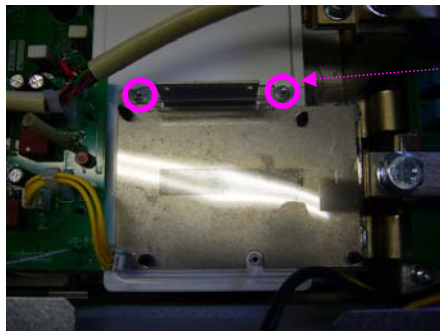
Remove 1 screw

Push on the 4 plastic supports to remove the board.

Disconnect the 3 wires. From right to left:
 Yellow X2->X14 on Measuring Board
 Yellow/Green/Purple X1-> X1 Yellow X2 Green X3 Purple on filter card
 X3-> turbine alimention



Push on the side.



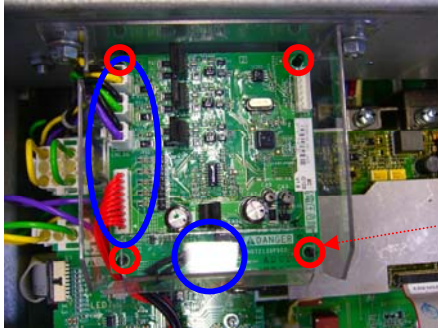
Remove 2 nuts.



Size	Torque
M3x6	0.8Nm
M3x8	clips
M3	0.8Nm

The Fan control board can be removed.

Soft Charge board: VX5A1300



Disconnect the 5 wires, *down to the top*:

Black CN7A-> X31 on Measuring Board

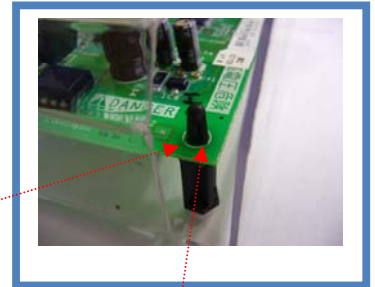
Red CN2A-> X30 on Measuring Board and X30 On Power board

Purple/Black CNL3G ->Gate rectifier 3 on L3

Green/Black CNL2G ->Gate rectifier 2 on L2

Yellow/Black CNL1G ->Gate rectifier 1 on L1

Push on the 4 plastic supports to remove the board.



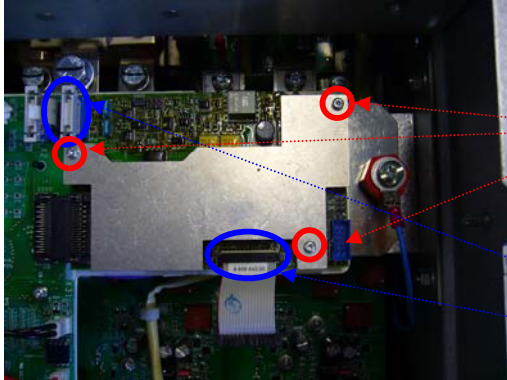
Push on the side.

The Soft charge Board can be removed.



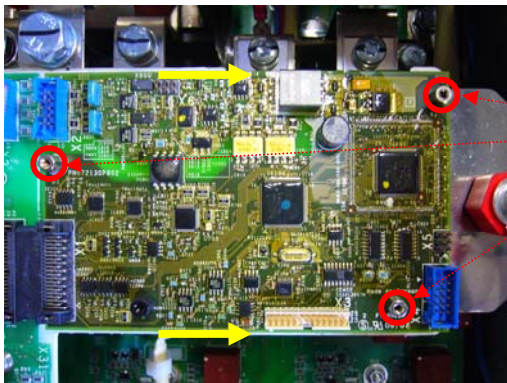
Size	Torque
M4x18	clips

Motor control Board: VX4A61101Y



Remove the 3 screws. (P1)

Disconnect the 2 ribbon cable, *left to the right*:
 X2 -> X2 on measuring Board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs. (P2)

Be careful, at the time of reassembling;
 don't forget to put the steel.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

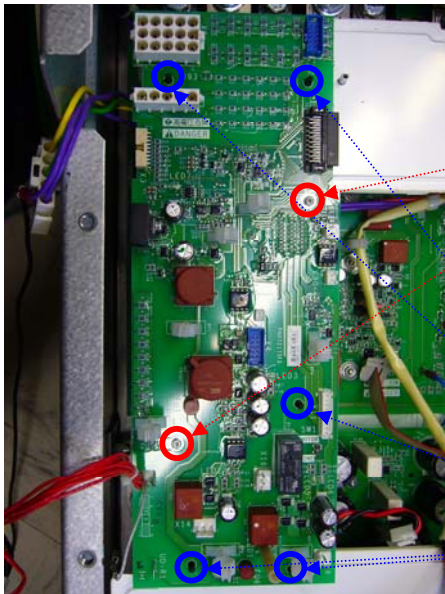
The motor control board can be removed.

Measuring Board: VX5A71HC13N4

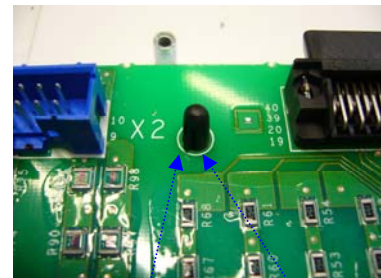


Disconnect the 13 wires, *top to the down*:

- Ribbon X2-> X2 on motor control board
- Yellow/Green/Purple X6->shunt on power board
- Purple X93-> X2 on braking unit board
- Yellow/Green/Purple X5->alimention Gate drive board IGBT Yellow/U Green/V Purple/W
- Ribbon X3 -> X31 on Gate drive board IGBT
- Black X31-> CN7A on soft charge board
- Red X30-> CN2A on Soft charge board
- White X21-> inside fan
- Ribbon X4-> X4 on control block
- Multicolour X11-> currents sensors U V W
- Yellow X14 -> X2 on Fan control board
- Ribbon X8->X82 on Power Board
- White UD-R1 -> discharging resistor



Remove the 2 screws.



Push on the 5 plastic supports to remove the board.

Push on the side.

The Measuring Board can be removed.



Size	Torque
M3x6	0.8Nm
M3x8	clips

DC Bus Bar kit: VZ3N1314



Remove 2 screws (P4)

Remove 1 screw (P2)

Remove 5 screws (P1)

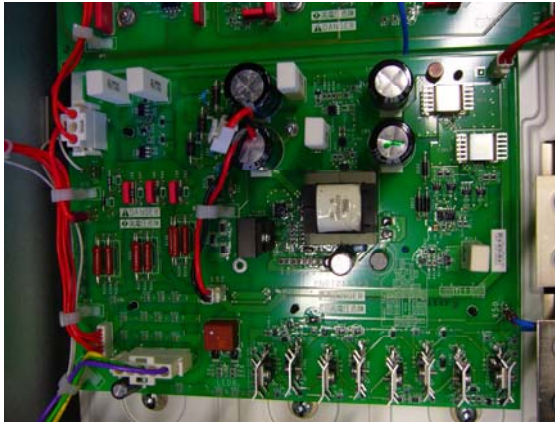
Remove 7 screws (P3)



Mark	Size	Torque
P1	M10x20	27Nm
P2	M6x12	5.5Nm
P3	M8x20	13.5Nm
P4		

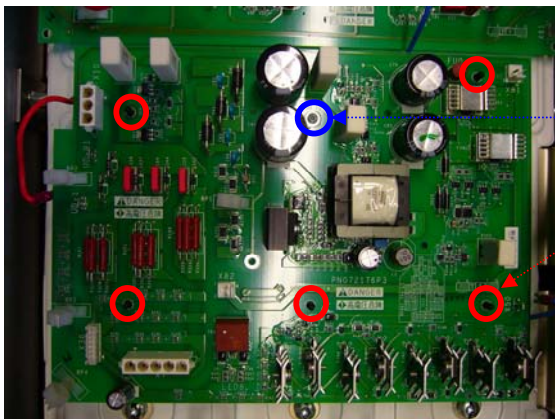
The DC bus bar kit can be removed.

Power board: VX5A1HC1316



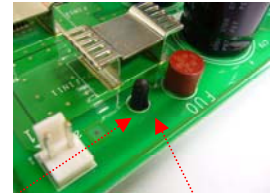
Disconnect the 8 wires, *top to the down and right to left:*

- Red X81 -> X81 on Gate drive board IGBT
- Blue X50->DC bus Bar -> X51 on gate drive board IGBT
- Black/Red X82 ->X8 on Power Board
- Red X10-> X10 X11 on rectifier snubber circuit
- White UD+R1 -> Discharging resistor
- Red UD+1-> Power bus on U
- Red X30-> CN2A on Soft charge board
- Yellow/Green/Purple X7-> X11 Yellow X12 Green X13 Purple on filter card



Remove 1 screw

Push on the 5 plastic supports to remove the board.



Push on the side.



Size	Torque
M3x6	0.8Nm
M3x22	clips

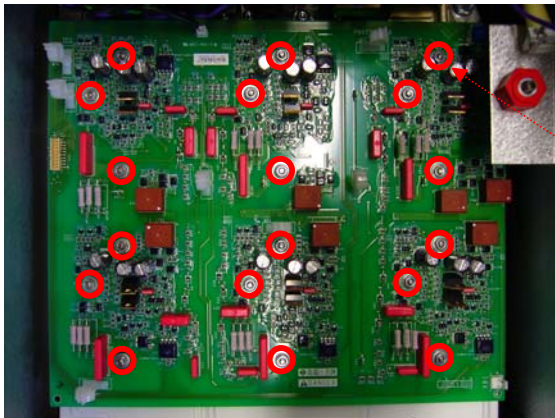
The Power Board can be removed.

Gate Drive Board IGBT: VX5A1200



Disconnect the 4 wires top to down and right to left.

- Ribbon X91-> X1 on braking unit board
- Red X81 -> X81 on power Board
- Blue X52->X5 on braking unit board
- Purple X23-> X5 on measuring Board
- Blue X51-> DC bus Bar -> X50 on Power board
- Green X22-> X5 on measuring Board
- X4-> thermal sensor
- Yellow X21-> X5 on measuring Board
- Ribbon X31-> X3 on measuring board



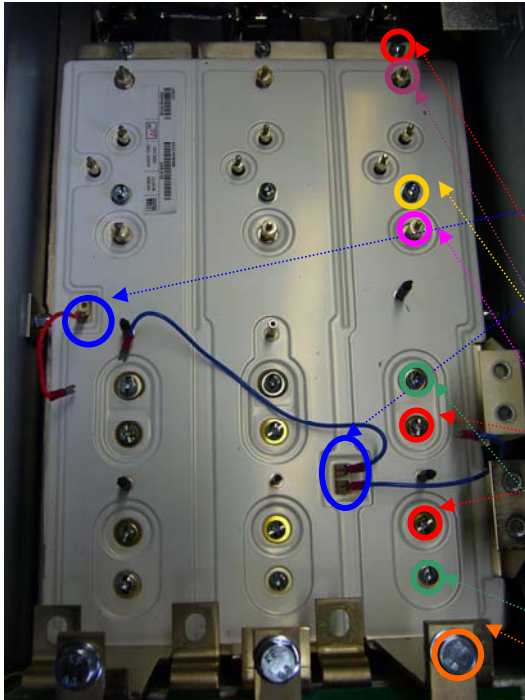
Remove 18 nuts

The Gate Drive Board IGBT can be removed.



Size	Torque
M4	1.2Nm

Bus bar-Phase Size 11: VZ3N1314



Disconnect the 4 wires Left to right.

Red wire on interconnection bar U -> UD+1 on power board
 Blue wire on interconnection bar -> X51 on Gate Drive Board IGBT W
 -> X50 on power Board

For each 3 AC bus bar, you should remove:

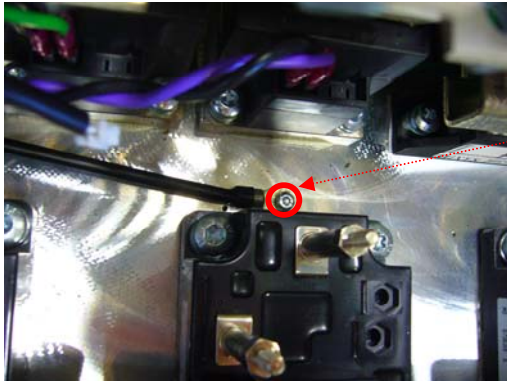
- Remove 3 screws (P1-P2)
- Remove 1 screw (P7)
- Remove 1 screw (P6)
- Remove 1 screw (P5)
- Remove 2 screws (P3-P4)
- Remove 1 screw (P8)



Mark	Size	Torque
P1-P2	M6x12	3.3Nm
P6	ST 10x6	3.3Nm
P7	M6x20	3.3Nm
P5	ST 10X11	3.3Nm
P3-P4	M6x14	3.3Nm
P8	M12x25	45Nm

The Bus bar-Phase can be removed.

Thermal Sensor: VZ3G1104



Remove 1 screw.

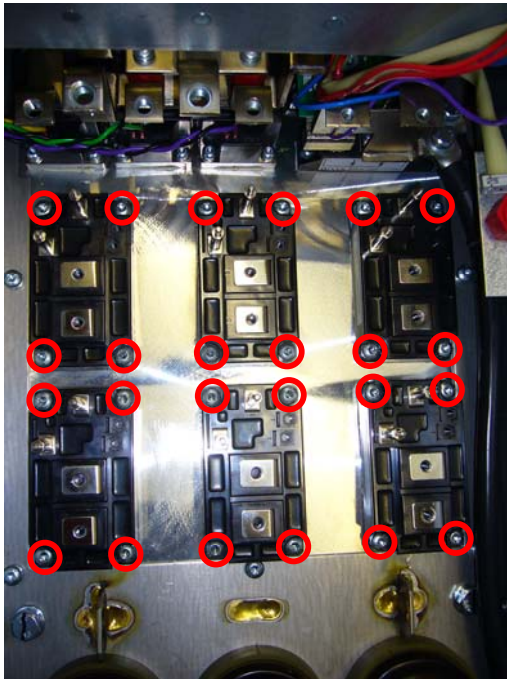
Be careful, don't forget to connect the wire on the connector "X4" of the board Braking unit kit. And "X4" of the Gate drive board IGBT for the over one

The thermal sensor can be removed.



Size	Torque
M3x6	0.8Nm

Module IGBT: VZ3IM1600M1271



Remove 24 screws (S?).

It is **not necessary** to change all IGBT but just this one that is damaged.

After changing, **be careful** to set up direction.

Don't forget applying the grease.

The IGBT can be removed.

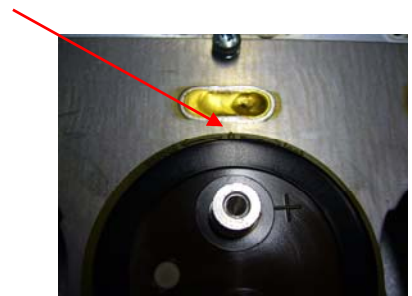


Size	Torque
M6x20	3.0Nm

Lots of 6 capacitors: VY1ADC1112

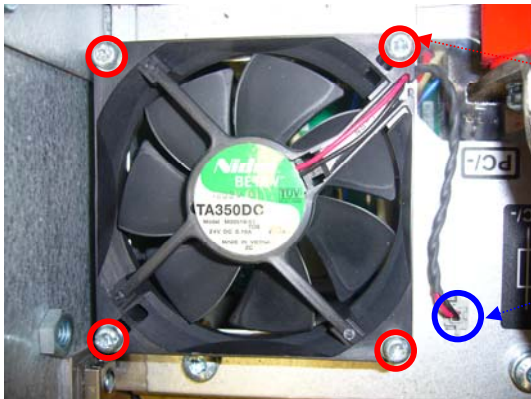


To remove the capacitor, rotate left it, and pull out it
 After changing, **be careful** to set up direction



The Capacitors can be removed.

Internal fan 24 VDC: VZ3V1213



Remove 4 screws.

Disconnect 1 wire:

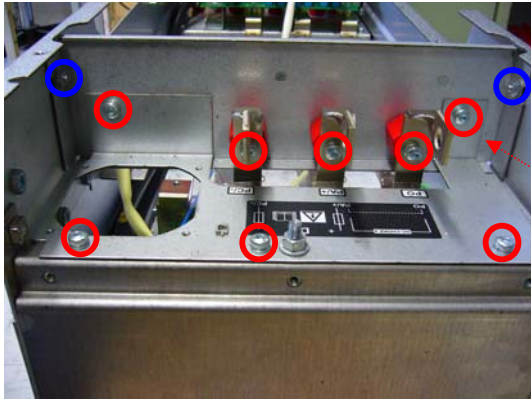
Black-> connector ->X21 on measuring board

The Internal Fan can be removed.



Size	Torque
M4x35	1.2Nm

Metal Body Parts KIT



Remove 2 nuts (P2).

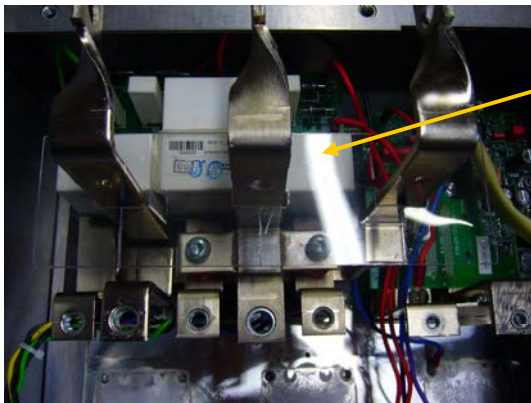
Remove 8 screws (P1)



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm

The Metal Body Parts KIT can be removed.

Plastic Parts Kit: VY1A1401

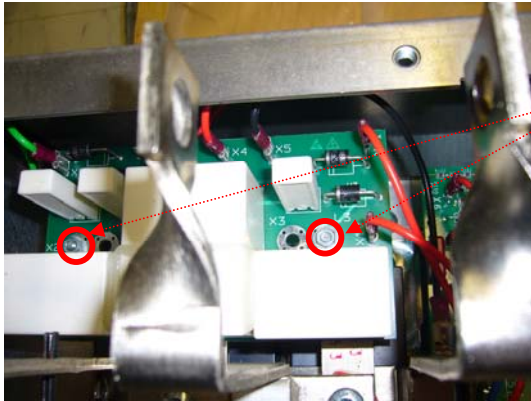


Remove Plastic part

Don't forget to replace it during reassembling

The Plastic Part KIT can be removed.

Rectifier Snubber Circuit: VX4A1200



Remove 2 nuts.

Disconnect 3 Wires left to right

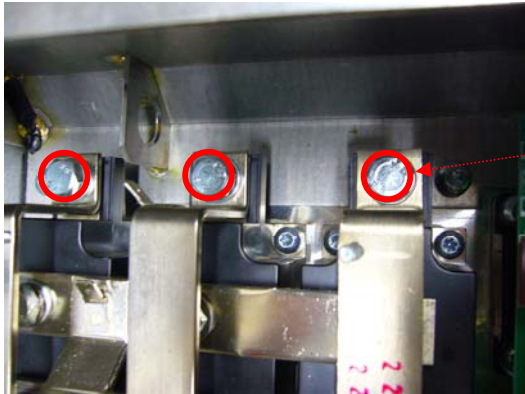
Green X1 -> bus bar L2
Red X4 -> bus bar PO
Black X5 -> bus bar PC

The Rectifier snubber circuit can be removed.



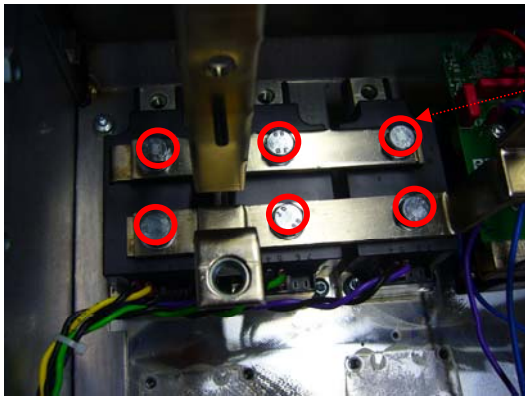
Size	Torque
M4	1.2Nm

Rectifier Module: VZ3TD1285M1671 and VZ3N1315



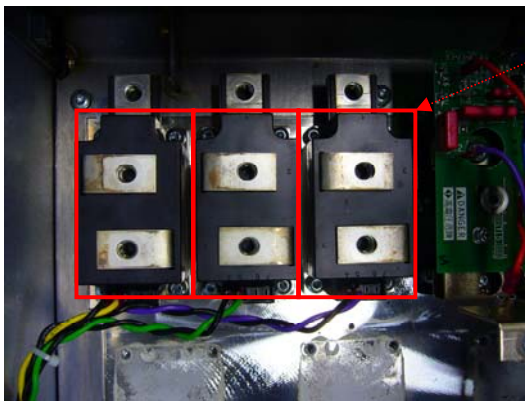
Part 1

Remove 3 screws (P1)



Part 2

Remove 6 screws (P1)



Part 3

Remove 12 screws (P2)

It is **not necessary** to change all rectifiers but just this one that is damaged.

After changing, **be careful** to set up direction.
Don't forget applying the grease.

The Rectifier can be removed.



Mark	Size	Torque
P1	M10x25	13.5Nm
P2	M5x25	5.0Nm

Rectifier Module: VZ3TD1285M1671

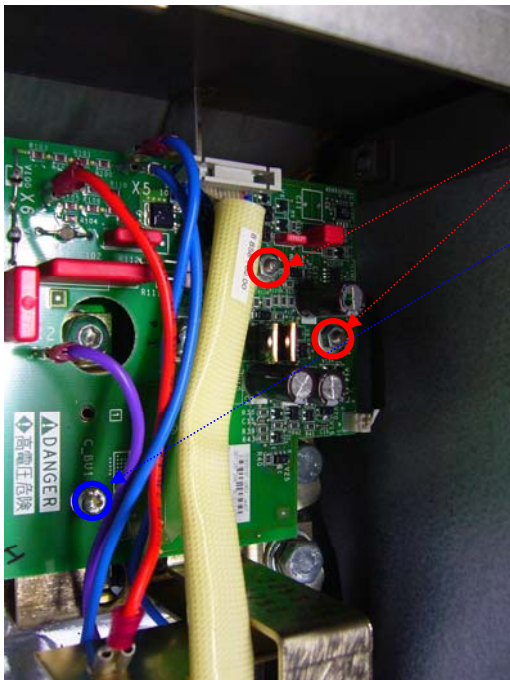


Be careful, after changing respect the colour line for the wires.

From left to right
[Black - Yellow]- [Black -Green] - [Black - Purple]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Braking Unit kit: VZ3F1110



Part 1

Remove 2 nuts (P1).

Remove 1 screw (P2)

Disconnect 5 Wires top to down

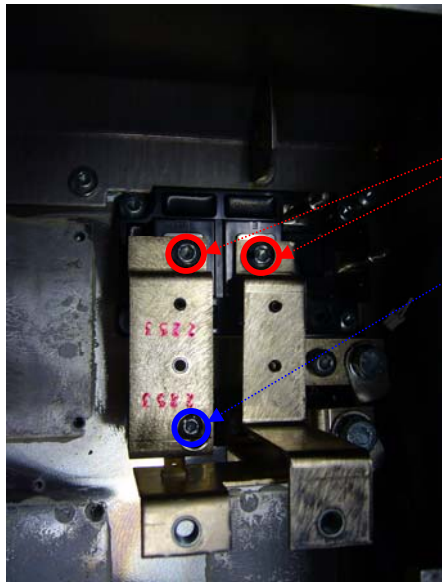
- Ribbon X1 -> X91 on gate drive board IGBT
- Blue X5 -> X52 on gate drive board IGBT and DC bus bar
- Red X6 -> bus bar PA
- Purple X2 ->X93 on measuring board
- Black X4 ->thermal sensor

Mark	Size	Torque
P1	M4	1.2Nm
P2	M3x6	0.8Nm



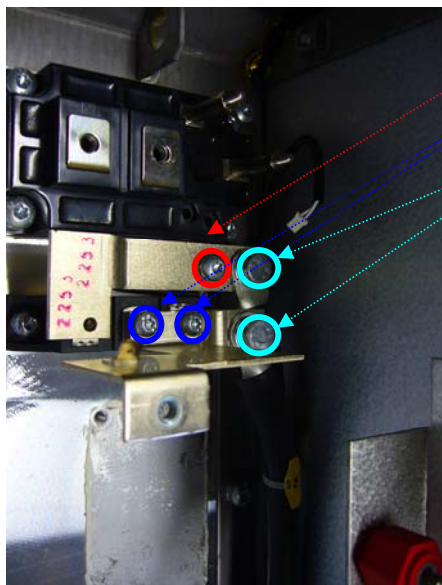
The Braking Unit KIT can be removed.

Braking Unit kit: VZ3F1110



Part 2
Remove 2 screws (P1).

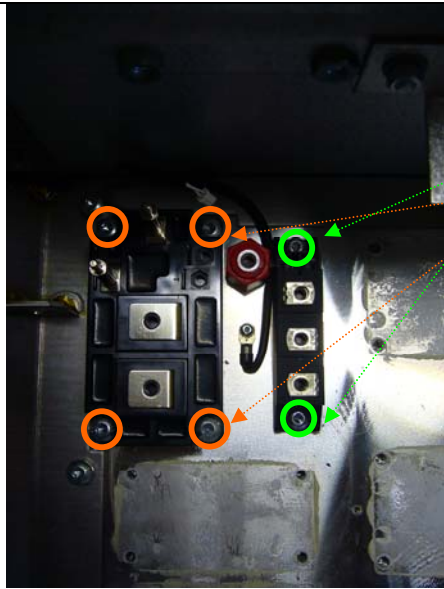
Remove 1 screw (P2)



Part 3
Remove 1 screw (P1)

Remove 2 screws (P2)

Remove 2 screws (P3)



Part 4

Remove 2 screws (P4)

Remove 4 screws (P5)

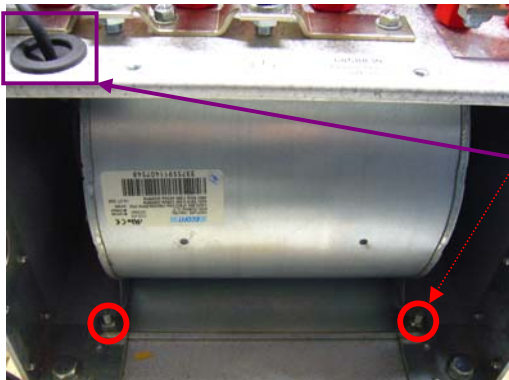
After changing, **be careful** to set up direction.
Don't forget applying the grease.



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6x14	5.5Nm
P3	M8x20	13.5Nm
P4	M6x20	3.0Nm
P5	M5x25	5.0Nm

The Braking Unit KIT can be removed.

Fan Power Electronic. VZ3V1212



Remove 2 nuts

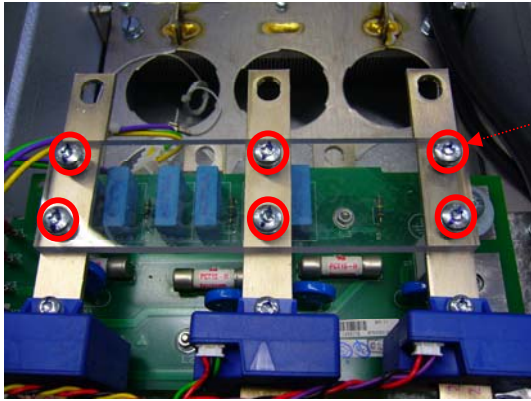
Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

The Fan Power electronic can be removed.



Size	Torque
M6	5.5Nm

Plastic Parts Kit: VY1A1401



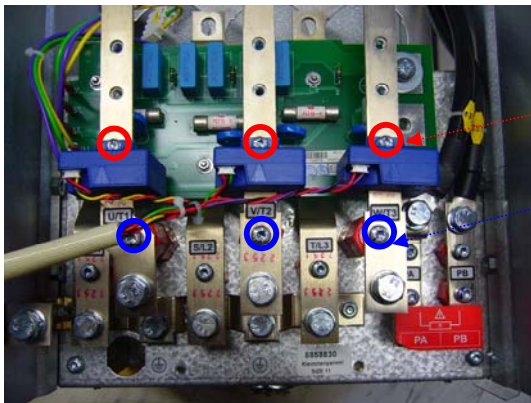
Remove 6 screws

The Plastic Part KIT can be removed.



Size	Torque
M6x20	5.5Nm

Motor Current Sensor: VY1A1107



Remove 3 screws (P1)

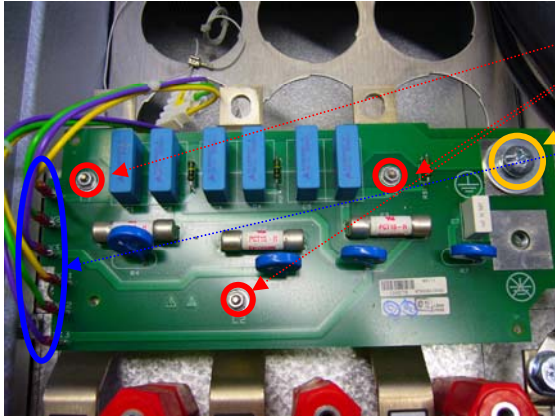
Remove 3 screws (P2)

The Motor Current Sensor can be removed.



Mark	Size	Torque
P1	M4x12	1.2Nm
P2	M6X14	5.5Nm

RFI Filter Board: VX4A1113



- Remove 3 nuts (P1)
- Remove 1 screw (P2)
- Disconnect 6 wires top to down:

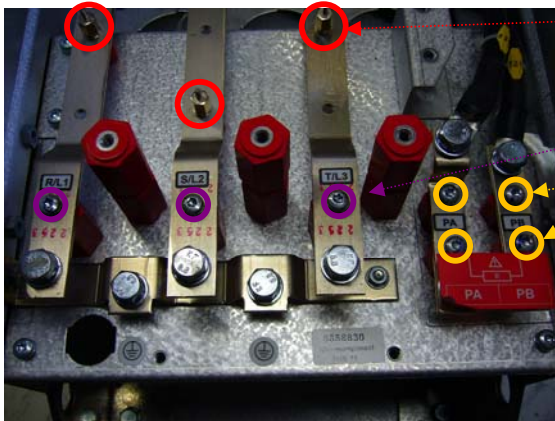
- Yellow X1 -> X1 on fan control Board
- Green X2 -> X1 on fan control Board
- Purple X3 -> X1 on fan control Board
- Yellow X11 -> X7 on power Board
- Green X12 -> X7 on power Board
- Purple X13 -> X7 on power Board

The RFI filter board can be removed.



Mark	Size	Torque
P1	M4	1.2Nm
P2	M6x12	5.5Nm

AC Bus Bar Kit: VZ3N1315



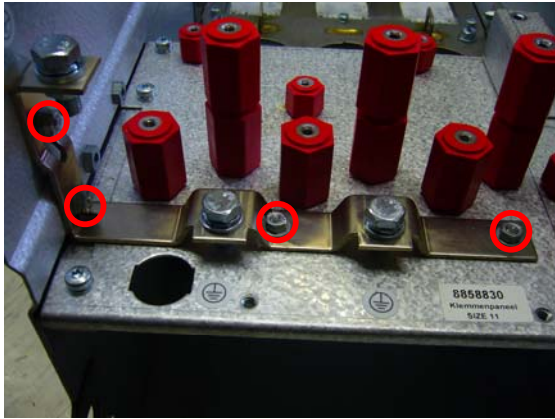
- Remove 3 screws (P1)
- Remove 3 screws (P2)
- Remove 4 screws (P3)

The AC Bus bar can be removed.



Mark	Size	Torque
P1	ST 10x11	5.5Nm
P2	M6x14	5.5Nm
P3	M6x12	5.5Nm

Earth Terminal Bar: VZ3N1315



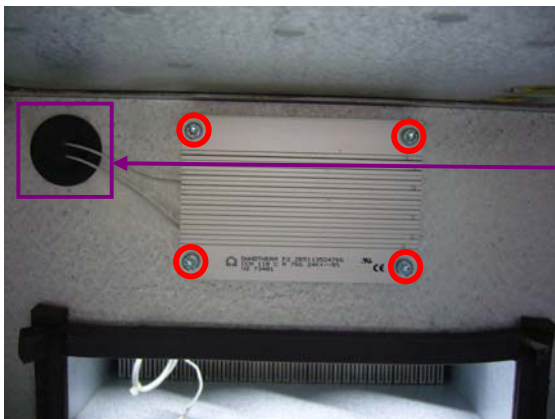
Remove 4 nuts

The Earth Terminal Bar can be removed.



Size	Torque
M6	5.5Nm

Discharging Resistor. VZ3R24KW125



Remove 4 screws (S?)

Be careful, to remove the Discharging resistor, remove the gasket and slide the wire in the hole.

Discharging resistor can be removed.



Size	Torque
M4x20	1.2Nm

DC Choke: VW3A4520



Remove the 4 screws(S?).



Size	Torque
M6	5.5Nm

The DC Choke can be removed.



9.23.2 Product Assembling Drawing

No information

9.23.3 Product Cabling Drawing

Refer to following file: [Cabling diagram size 11.pdf](#)

9.24 ATV61/71 Size 12 (size, refer to 1.2)

9.24.1 Dismantling and reassembling

Size 12: ATV71HC16N4, ATV61HC22N4

ATV71HC16N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TD1330M1601	Rectifier Module (Thyristor / Diode) 330A / 1600V
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1322	DC bus bar kit
VZ3N1319	AC Bus Bar KIT
VZ3N1317	Wires KIT
VZ3IM1402M1271	Module IGBT pired (400A / 1200V)
VZ3G1104	Thermal Sensor
VZ3F1110	Braking Unit KIT
VY1ADV1108	Screws KIT
VY1ADC1113	Lot de 8 capacitors (5200µF / 400V)
VY1A1402	Plastic Parts KIT
VY1A1302	Assembling KIT
VY1A1213	Front Cover with I/O Terminal Cover
VY1A1108	Motor Current Sensor
VX5A1HC1622	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1201	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1114	RFI Filter Board
VW3A4521	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HC22N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TD1330M1601	Rectifier Module (Thyristor / Diode) 330A / 1600V
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1322	DC Bus Bar KIT
VZ3N1319	AC Bus Bar KIT
VZ3N1317	Wires KIT
VZ3IM1402M1271	Module IGBT pired (400A / 1200V)
VZ3G1104	Thermal Sensor
VZ3F1110	Braking Unit KIT
VY1ADV1108	Screws KIT
VY1ADC1113	Lot de 8 capacitors (5200µF / 400V)
VY1A1402	Plastic Parts KIT
VY1A1302	Assembling KIT
VY1A1213	Front Cover with I/O Terminal Cover
VY1A1108	Motor Current Sensor
VX5A1HC1622	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1201	Gate Drive Board
VX4A61101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1114	RFI Filter Board
VW3A4521	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Cover with I/O Terminal Cover: VY1A1213



Remove 9 screws.

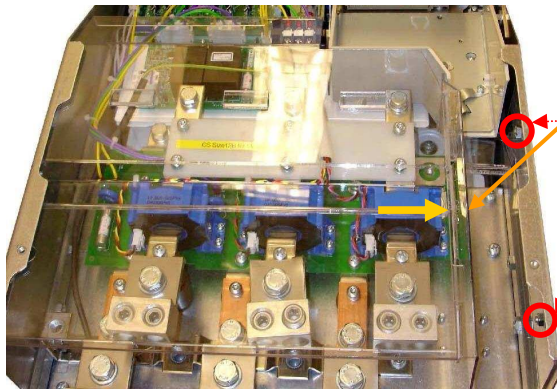


The front cover can be removed.



Size	Torque
M6x12	5.5Nm

Plastic Parts KIT: VY1A1402



Push here and disengage plastic part

Remove 2 nuts



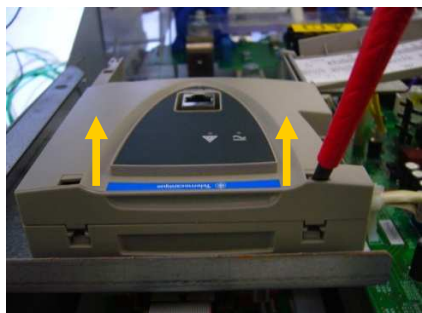
Size	Torque
M6	5.5Nm

The Plastic part KIT can be removed.

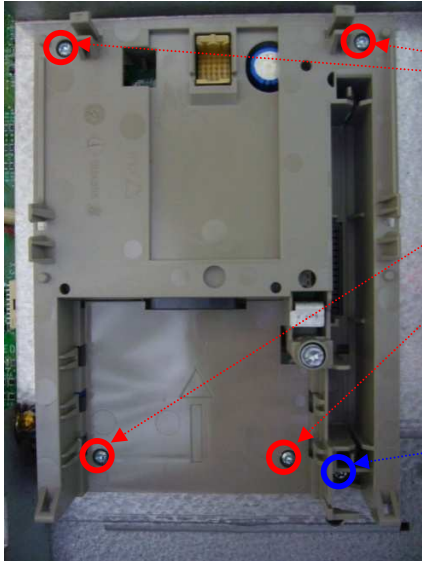
Control block: VX4A61101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.

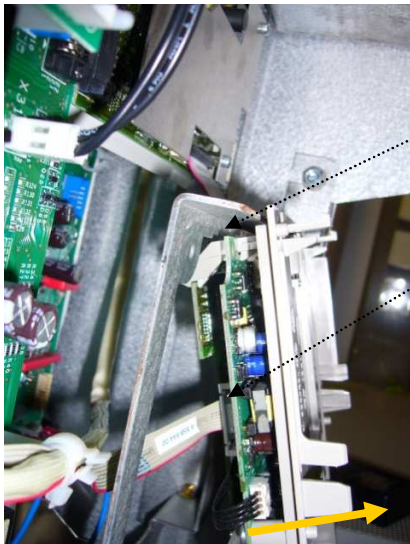


Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 to S8).

Remove 1 screw (S38).



Disconnect the ribbon cable.

X3 from Control bloc "interface Board"->X3 on Motor Control Board

Disconnect the ribbon cable.

X4 from Control bloc" interface Board"->X4 on Power Board

The Control block can be removed.

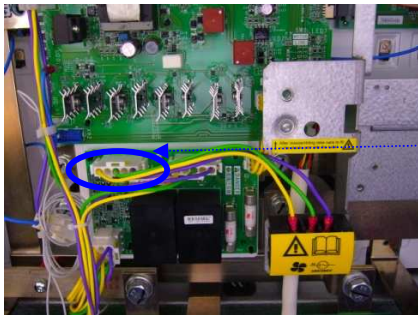


Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5NM

Metal Support for Control bloc



Remove 2 nuts.



Disconnect the wire:

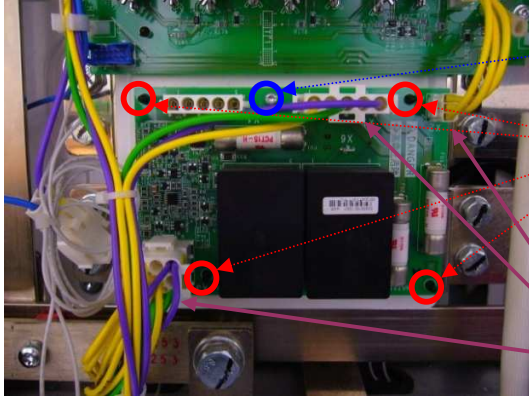
Yellow/Green/Purple -> X4 on fan control board

The metal support can be removed.



Size	Torque
M6	5.5Nm

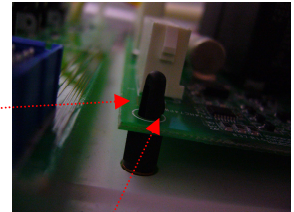
Fan Control Board: VX5A1400



Remove 1 screw.

Push on the 4 plastic supports to remove the board.

Disconnect the wires. From right to left:
 Yellow X2->X14 on power board
 Yellow/Green/Purple X1-> X1 Yellow X2 Green X3 Purple on filter card
 Yellow/Green/Purple X3-> blower power



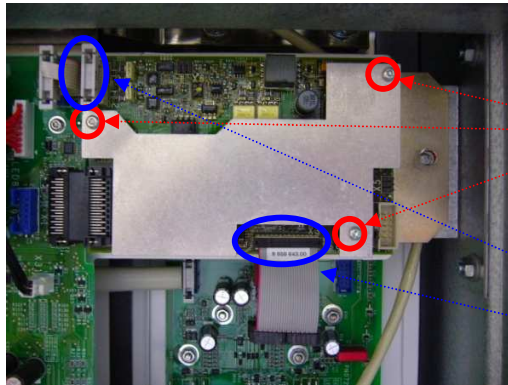
Push on the side.

The Fan control board can be removed.



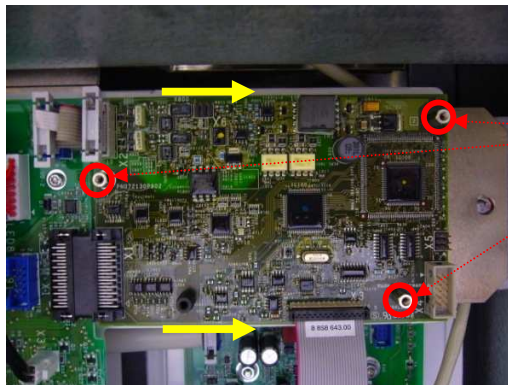
Size	Torque
M3x6	0.8Nm
M3x8	clips

Motor control Board: VX4A61101Y



Remove the 3 screws. (P1)

Disconnect the 2 ribbon cable, *left to the right*:
 X2 -> X2 on Power Board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs. (P2)

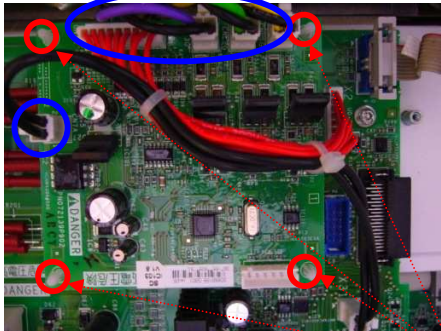
Be careful, at the time of reassembling;
 don't forget to put the steel.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

The motor control board can be removed.

Soft Charge board: VX5A1300



Disconnect the 5 wires, *left to the right*:

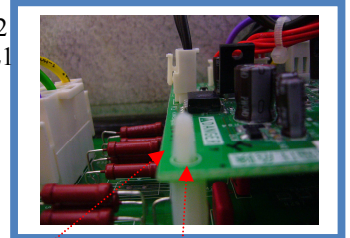
Black CN7A-> X31 on Power Board

Red CN2A-> X30 on Power Board

Purple/Black CNL3G ->Gate rectifier 3 on I3

Green/Black CNL2G ->Gate rectifier 2 on L2

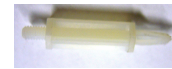
Yellow/Black CNL1G -> Gate rectifier 1 on L1



Push on the 4 plastic supports to remove the board.

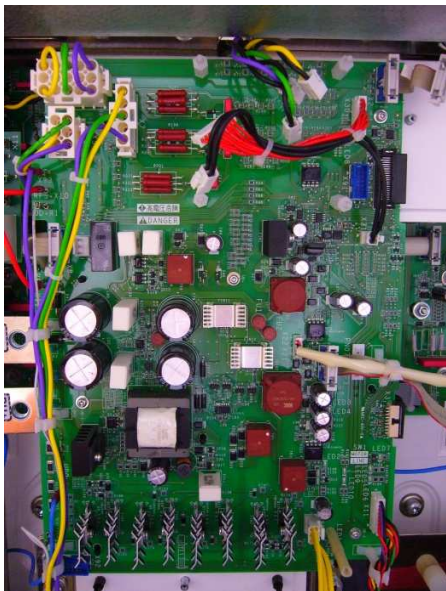
Push on the side.

The Soft charge Board can be removed.



Size	Torque
M3x8	clips

Power board: VX5A1HC1622



Disconnect the 19 wires, *top to the down*:

Ribbon X2-> X2 on motor control board

Red X30-> CN2A on Soft charge board

Black X31-> CN7A on soft charge board

Ribbon X91->X1 on braking unit board

Purple X93->X2 on braking unit board

Yellow/Green/Purple X7-> X11 Yellow X12 Green X13 Purple on filter card

Yellow/Green/Purple X6->shunt on power board

Yellow/Green/Purple X5->alimention Gate drive board IGBT Yellow/U Green/V Purple/W

Red RFS+X10 ->X10 on Rectifier Snubber Circuit.

White UD+R1 -> Discharging resistor

Ribbon X8->X8 on Command IGBT card U

Red RFS+X11 ->X11 on Rectifier Snubber Circuit

Blue UD0 -> Power Interconnection bar U

White UD-R1 -> discharging resistor

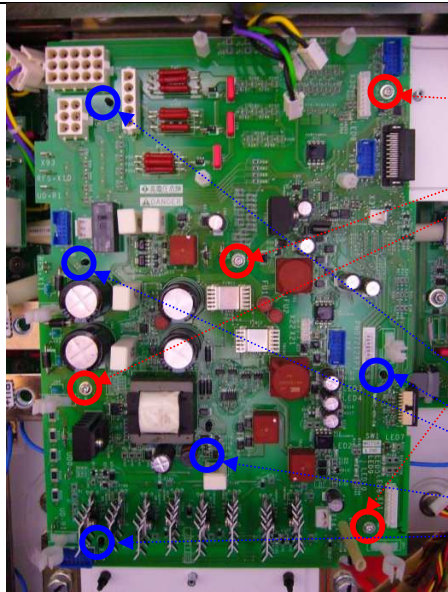
White X21-> inside fan

Ribbon X4-> X4 on control block

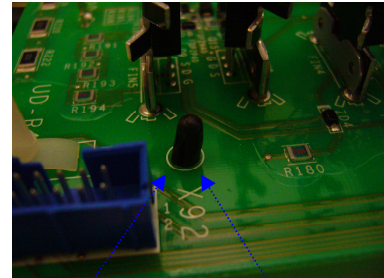
Ribbon X3 -> X31 on command IGBT board W

Yellow X14 -> X2 on Fan control board

Multicolor X11-> currents sensors U/V/W



Remove the 4 screws.



Push on the 5 plastic supports to remove the board.

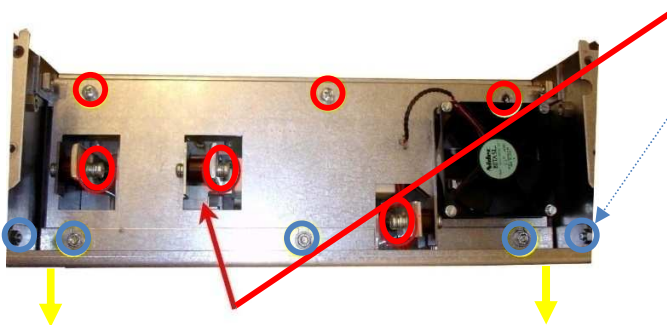
Push on the side.

Size	Torque
M3x6	0.8Nm
M3x8	clips



The Power Board can be removed.

Internal Fan 24 VDC: VZ3V1213



Remove 6 screws (P1).

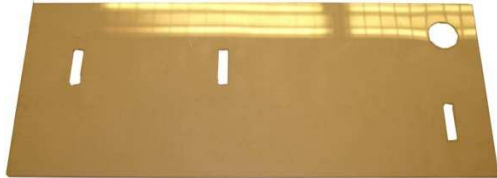
Remove 5 nuts (P2).

The Internal fan can be removed.



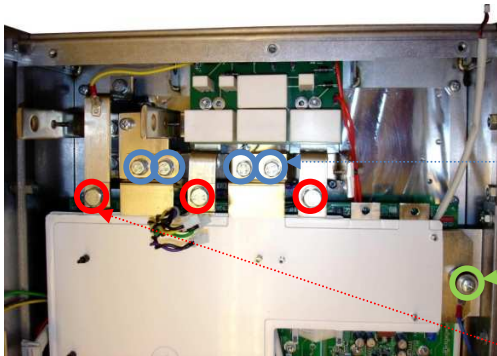
Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm

Plastic Parts Kit: VY1A1402



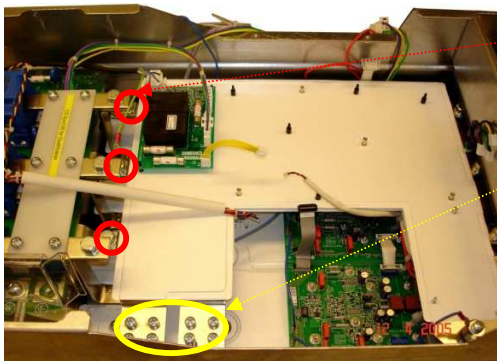
Don't forget to replace it during reassembling

DC Bus Bar KIT: VZ3N1322



Remove 4 screws (P3)

Remove 1 screw (P2)
&
Remove 1 wire:
Blue->X5 on braking unit board



Remove 6 screws (P1)

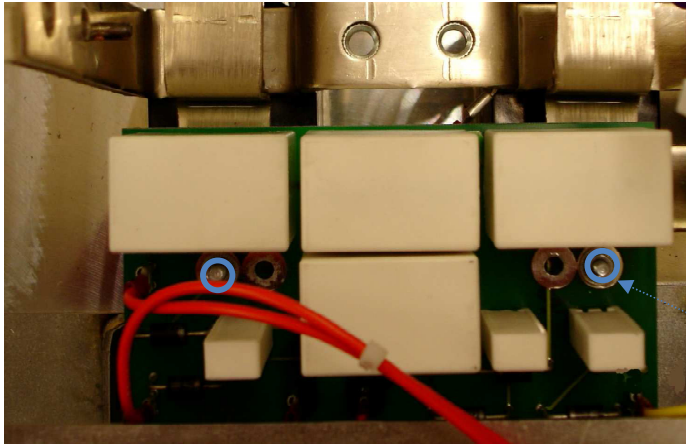
Remove 8 screws (P4)



Mark	Size	Torque
P1	M10x20	27Nm
P2	M6x12	5.5Nm
P3	M8x20	13.5Nm
P4	M8x20	13.5Nm

The DC bus bar kit can be removed.

Rectifier Snubber Circuit: VX4A1200



Disconnect 5 Wires right to left

- Yellow X1 -> bus bar L1
- Red X4 -> bus bar PO
- Black X5 -> bus bar PC
- Red X10 -> RFS+X10 on Power board
- Red X11 -> RFS+X11 on Power board

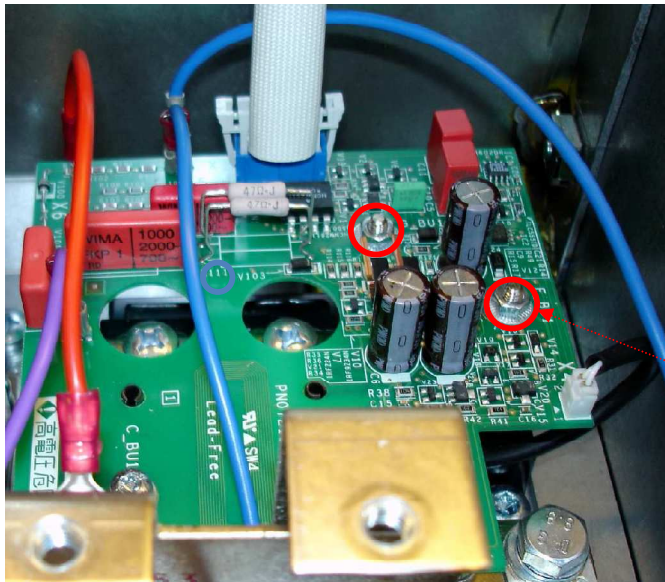
Remove 2 nuts.



Size	Torque
M4	1.2Nm

The Rectifier Snubber Circuit can be removed.

Braking unit Board: VZ3F1110



Disconnect 5 Wires right to left

- Black X4 -> Thermal sensor B20
- Ribbon X1 -> X91 on Power board
- Blue X5 -> X52 on gate drive board IGBT W
 -> DC bus
- Purple X2 -> X93 on Power board
- X6 -> Bus bar PA

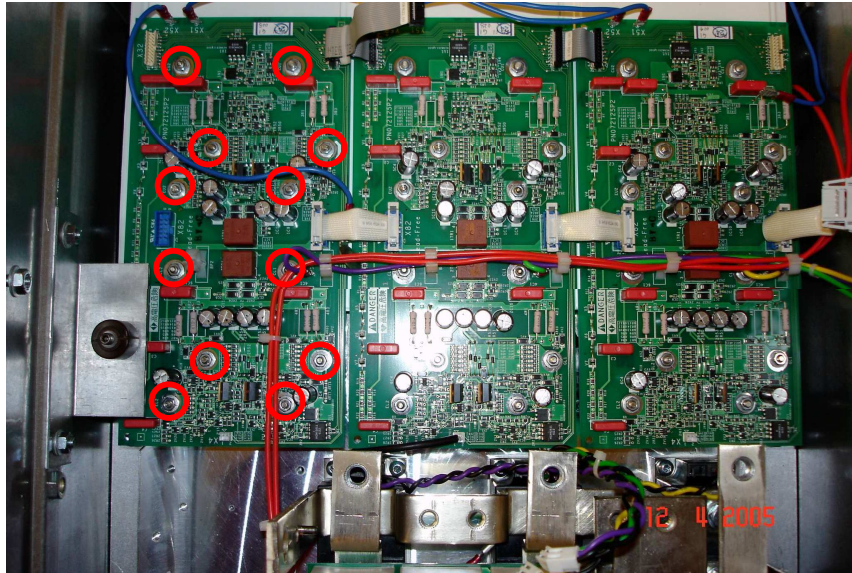
Remove 2 nuts.



Size	Torque
M4	1.2Nm

The Braking unit board can be removed.

Gate Drive Board IGBT: VX5A1201



For each branch U/V/W

Remove 12 nuts.

Disconnect the 14 wires.

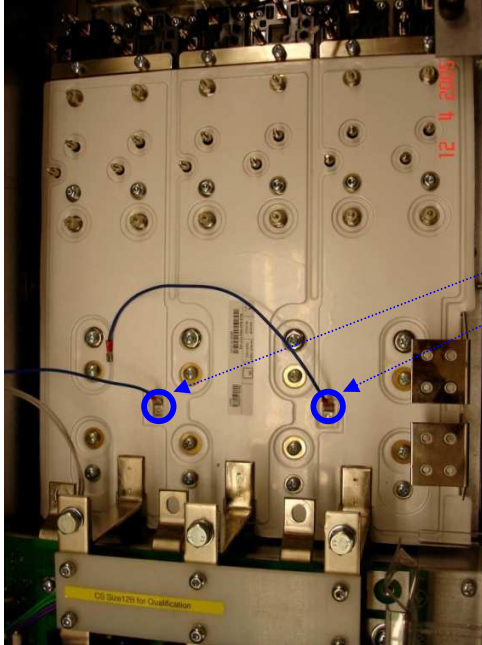
- Black X4 on gate drive Board IGBT V-> thermal sensor B1
- Blue X51 on gate drive Board IGBT U->Power Interconnection bar W
- Blue X52 on gate drive Board IGBT W->X5 on braking unit board
 - Blue X51<->X52 between GDB U/V/W
- Yellow X2 on GDB U/Green X2 on GDB V/purple X2 on GDB W->X5 on power board
- Ribbon X81 on GDB U ->X8 on Power board
 - Ribbon X81<-> X82 between GDB U/V/W
- Ribbon X31 on GDB W ->X3 on Power board
 - Ribbon X31<->X32 between GDB U/V/W

The Gate Drive Boards IGBT can be removed.



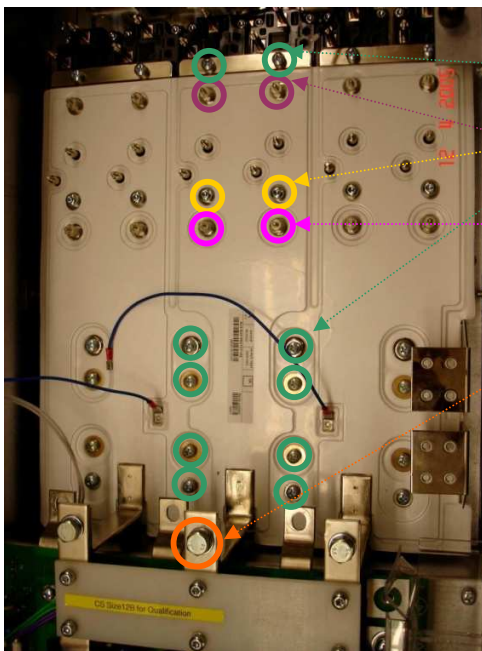
Size	Torque
M4	1.2Nm

Bus Bar-Phase Size 13: VZ3N1322



Disconnect the 2 wires Left to right.

Blue wire on interconnection bar U -> UD0 on power board
Blue wire on interconnection bar W -> X51 on Gate Drive Board IGBT U



For each 3 AC bus bar, you should remove:

Remove 10 screws (P1-P2).

Remove 2 screws (P7)

Remove 2 screws (P6)

Remove 2 screws (P5)

Remove 1 screw (P8)

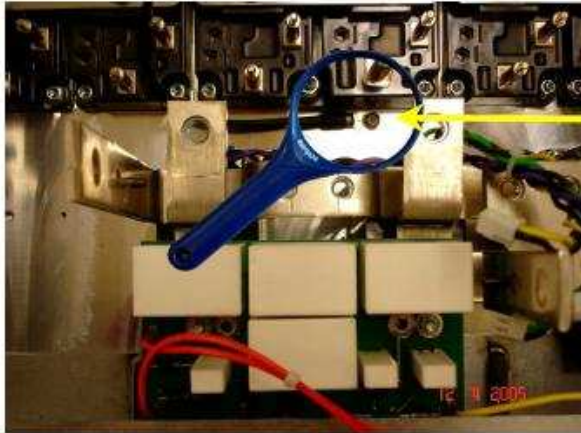
Be careful, at the time of reassembling; don't forget to put the 2 Shunt.



Mark	Size	Torque
P1-P2	M6x12	3.3Nm
P6	ST 10x6	3.3Nm
P7	M6x20	3.3Nm
P5	ST 10X11	3.3Nm
P8	M12x25	45Nm

The Bus Bar-Phase can be removed.

Thermal Sensor: VZ3G1104



Remove 1 screw.

Be careful, don't forget to connect the wire B1 on the connector "X4" of the Gate drive board IGBT V

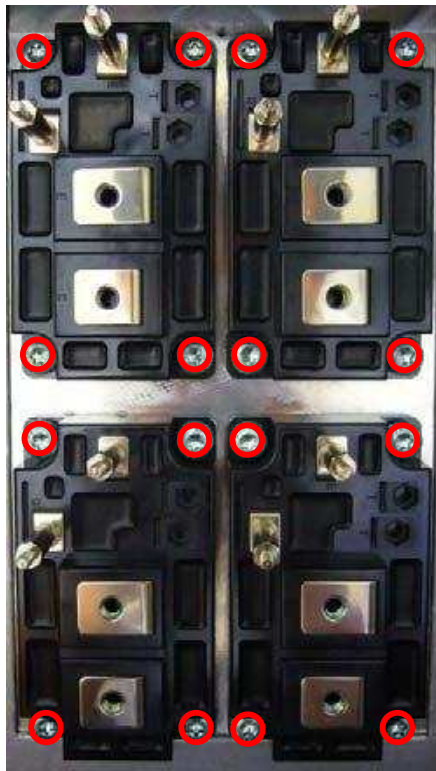
Be careful, don't forget to connect the second wire B20 on the connector "X4" of the braking unit board

Size	Torque
M3x6	0.8Nm

The thermal sensor can be removed.



Module IGBT: VZ3IM1402M1271



For each 3 branch U/V/W, you should remove:

Remove 16 screws

It is **not necessary** to change all IGBT but just this one that is damaged.

After changing, **be careful** to set up direction.

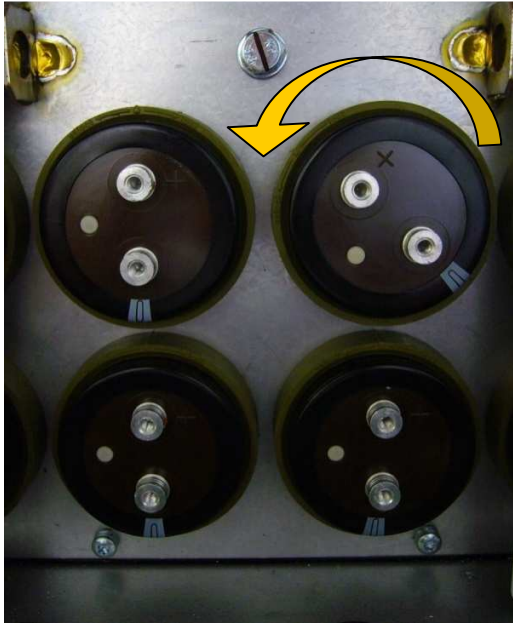
Don't forget applying the grease.

Size	Torque
M6x20	3.0Nm

The Module IGBT can be removed.



Lots of 8 capacitors: VY1ADC1113



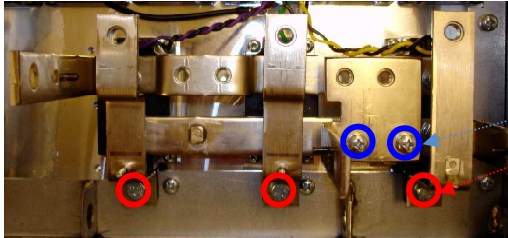
For all branch U/V/W, you should remove in total 8 capacitors:

To remove the capacitor, rotate left it, and pull out it

After changing, **be careful** to set up direction

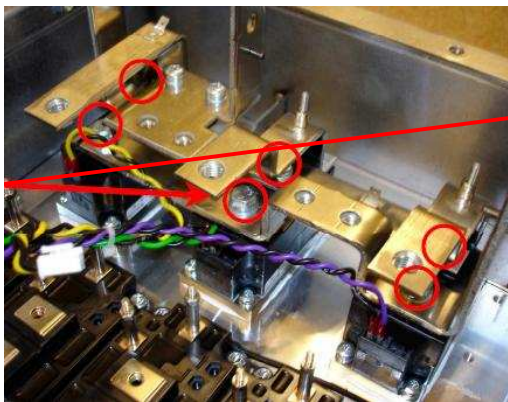
The Capacitors can be removed.

Rectifier module: VZ3TD1330M1601
AC Bus bar Kit: VZ3N1319



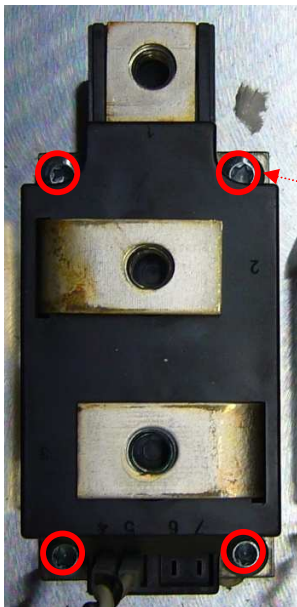
Step 1

Remove 2 screws (P1)
 Remove 3 screws (P2)



Step 2

Remove 6 screws (P2)



Step 3

For each 3 branch L1/L2/L3

Remove the 4 screws (P3).

After changing, **be careful** to set up direction.

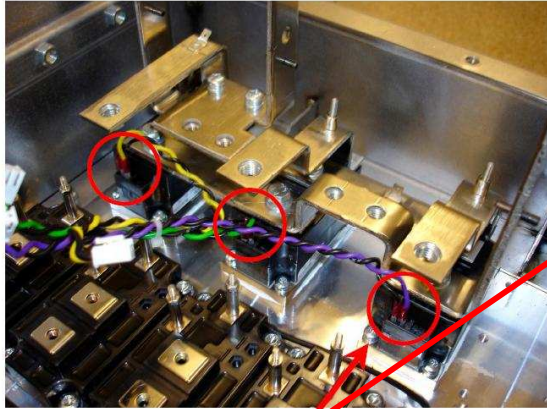
Don't forget applying the grease.

The rectifier can be removed.



Mark	Size	Torque
P2	M10x25	13.5Nm
P1	M6x12	5.5Nm
P3	M5x25	5.0Nm

Rectifier module thyristor: VZ3TD1330M1601

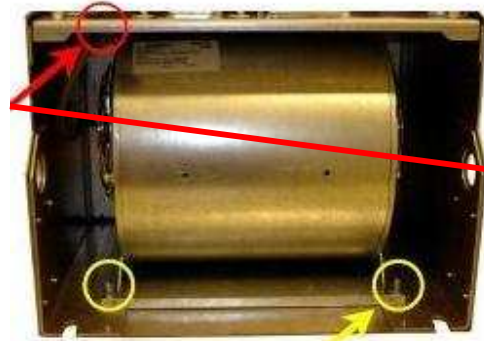


Be careful, after changing respect the colour line for the wires.

From left to right
[Black-Yellow]- [Black-Green] - [Black-Purple]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Fan Power Electronic: VZ3V1212



Be careful; don't forget to disconnect and reconnect the ground wire.

Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

Disconnect 1 connector

Fan turbine 1-> X3 on fan control board

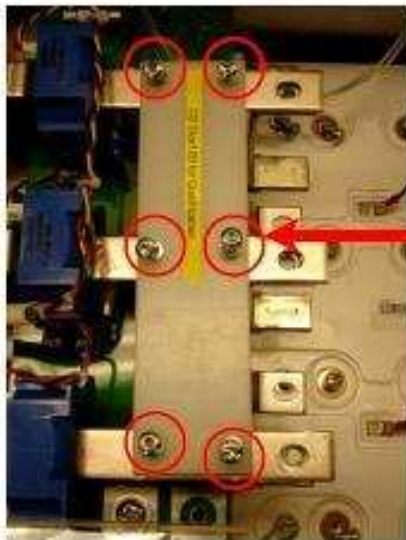
Remove 2 screws (J130)

The Turbine can be removed.



Mark	Size	Torque
J130	M6	5.5Nm

Plastic Parts Kit: VY1A1402



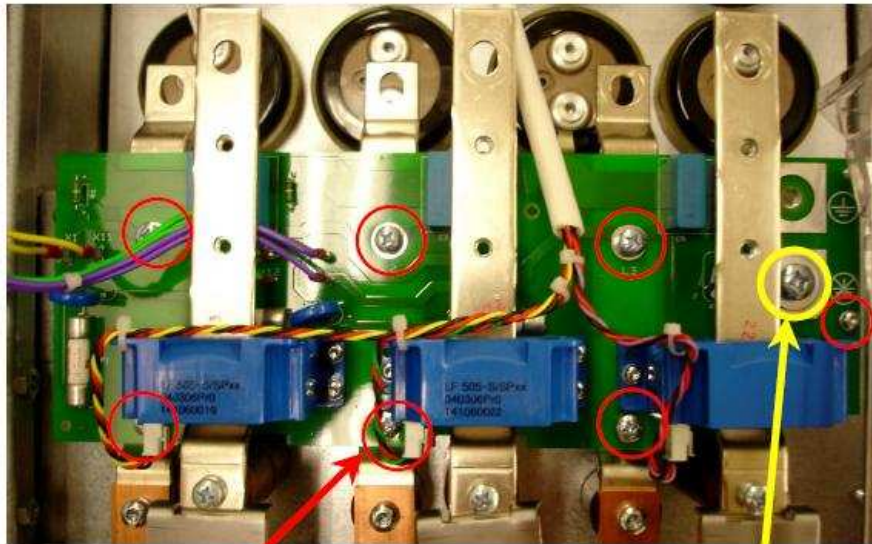
Remove 6 screws



Size	Torque
M6x20	5.5Nm

The Plastic Part can be removed.

RFI Filter Board: VX4A1114



Remove 1 screw (P2)

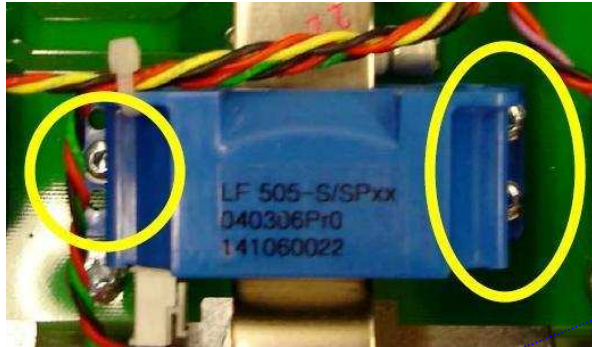
Remove 7 screws (P1)

The RFI filter board can be removed.



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6x12	5.5Nm

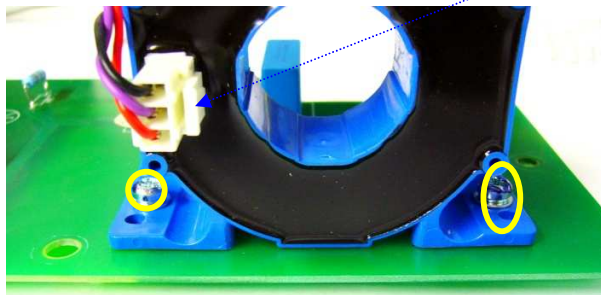
Motor Current Sensor: VY1A1108



For each 3 branch U/V/W, you should remove:

Remove 3 screws

Disconnect 1 wire
Current sensor->X11 on power board

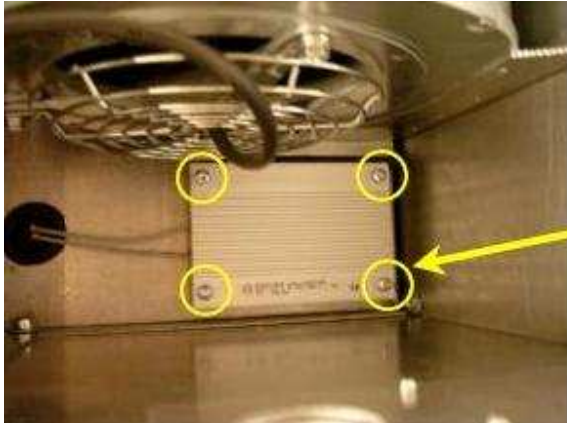


The Motor Current Sensor can be removed.



Size	Torque
M4x12	1.2Nm
M4	1.2Nm

Discharging resistor: VZ3R24KW125



Remove 4 screws



Size	Torque
M4x20	1.2Nm

The discharging resistor can be removed.



9.24.2 Product Assembling Drawing

No information

9.24.3 Product Cabling Drawing

Refer to following file: [Circuit Diagram Size 12.pdf](#)



9.25 ATV61/71 Size 13 (size, refer to 1.2)

9.25.1 Dismantling and reassembling

Size 13: ATV71HC20N4, ATV71HC25N4, ATV71HC28N4, ATV61HC25N4, ATV61HC31N4

ATV71HC20N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1425M1671	Rectifier Module Thyristor (425A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1321	AC Bus bar KIT
VZ3N1320	DC Bus Bar KIT
VZ3N1318	Wires KIT
VZ3IM1402M1271	Module IGBT pired (400A / 1200V)
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1109	Screws KIT
VY1ADC1114	Lots of 6 capacitors (3600µF / 400V)
VY1A1403	Plastic Parts KIT
VY1A1302	Assembling KIT
VY1A1214	Front Cover with I/O Terminal Cover
VY1A1108	Motor Current Sensor
VX5A1HC2025	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1201	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1115	RFI Filter Board
VW3A4522	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HC25N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1600M1671	Rectifier Module Thyristor (600A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1321	AC Bus bar KIT
VZ3N1320	DC Bus Bar KIT
VZ3N1318	Wires KIT
VZ3IM1602M1271	Lot of 2 Modules IGBT Paired (600A / 1200V)
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1109	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1403	Plastic Parts KIT
VY1A1302	Assembling KIT
VY1A1214	Front Cover with I/O Terminal Cover
VY1A1108	Motor Current Sensor
VX5A1HC2531	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1202	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1115	RFI Filter Board
VW3A4520	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HC28N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1600M1671	Rectifier Module Thyristor (600A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1321	AC Bus bar KIT
VZ3N1320	DC Bus Bar KIT
VZ3N1318	Wires KIT
VZ3IM1602M1271	Lot of 2 Modules IGBT Paired (600A / 1200V)
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1109	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1403	Plastic Parts KIT
VY1A1302	Assembling KIT
VY1A1214	Front Cover with I/O Terminal Cover
VY1A1108	Motor Current Sensor
VX5A71HC28N4	Power board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1202	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1115	RFI Filter Board
VW3A4520	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HC25N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1425M1671	Rectifier Module Thyristor (425A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1321	AC Bus bar KIT
VZ3N1320	DC Bus Bar KIT
VZ3N1318	Wires KIT
VZ3IM1402M1271	Module IGBT pired (400A / 1200V)
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1109	Screws KIT
VY1ADC1114	Lots of 6 capacitors (3600µF / 400V)
VY1A1403	Plastic Parts KIT
VY1A1302	Assembling KIT
VY1A1214	Front Cover with I/O Terminal Cover
VY1A1108	Motor Current Sensor
VX5A1HC2025	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1201	Gate Drive Board
VX4A61101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1115	RFI Filter Board
VW3A4522	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

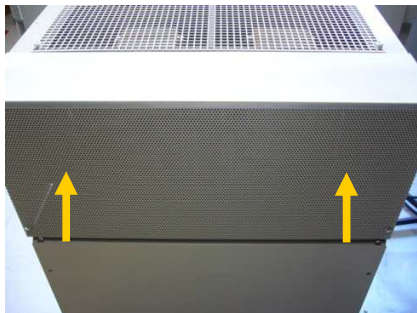
ATV61HC31N4

Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1600M1671	Rectifier Module Thyristor (600A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1321	AC Bus bar KIT
VZ3N1320	DC Bus Bar KIT
VZ3N1318	Wires KIT
VZ3IM1602M1271	Lot of 2 Modules IGBT Paired (600A / 1200V)
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1109	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200 μ F / 400V)
VY1A1403	Plastic Parts KIT
VY1A1302	Assembling KIT
VY1A1214	Front Cover with I/O Terminal Cover
VY1A1108	Motor Current Sensor
VX5A1HC2531	Power Board
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1202	Gate Drive Board
VX4A61101Y	Control bloc P \geq 90kW
VX4A1200	Rectifier snubber circuit
VX4A1115	RFI Filter Board
VW3A4520	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Cover with I/O Terminal Cover:VY1A1214



Remove 9 screws.

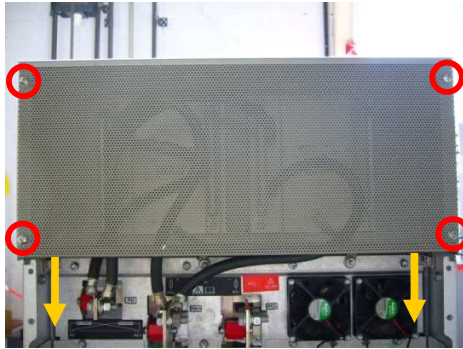


The front cover can be removed.



Size	Torque
M6x12	5.5Nm

Front Cover DC Choke: VW3A4522



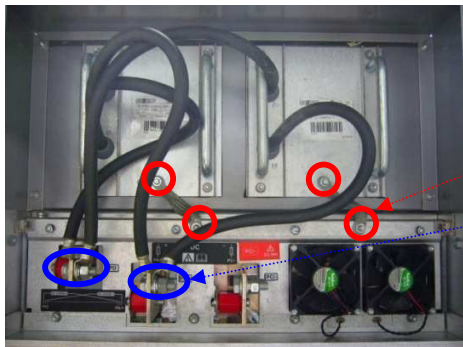
Remove 4 screws.

The Self front cover can be removed.



Size	Torque
M6x12	5.5Nm

DC Choke connection: VW3A4520



Remove 4 nuts (P1).

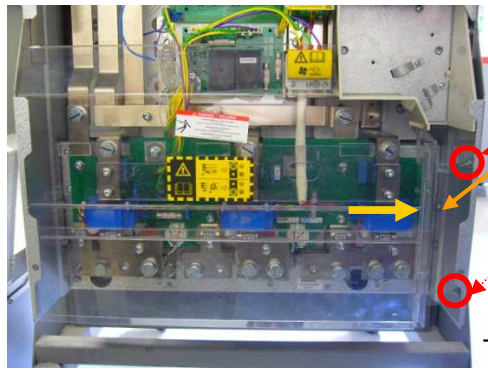
Remove 2 screws (P2)

The Self can be removed.



Mark	Size	Torque
P1	M8	13.5Nm
P2	M12x25	45Nm

Plastic Parts KIT: VY1A1403



Push here and disengage plastic part

Remove 2 nuts

The Plastic part KIT can be removed.

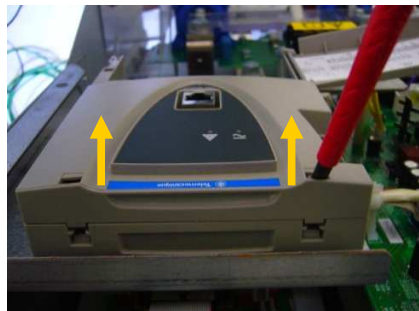


Size	Torque
M6	5.5Nm

Control bloc: VX4A61101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.

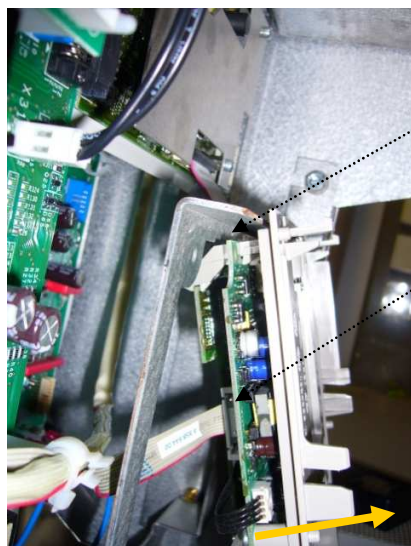


Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 to S8).

Remove 1 screw (S38).



Disconnect the ribbon cable.
X3 from Control bloc "interface Board" -> X3 on Motor Control Board

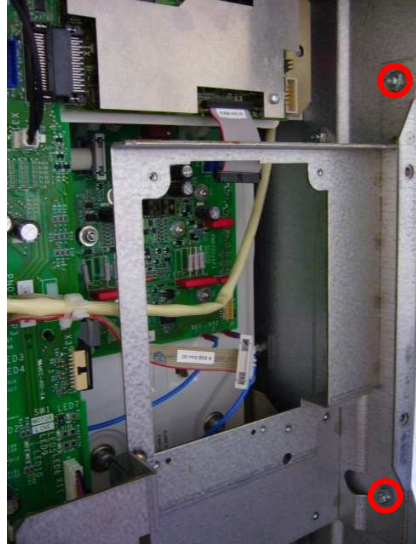
Disconnect the ribbon cable.
X4 from Control bloc "interface Board" -> X4 on Power Board

The Control bloc can be removed.

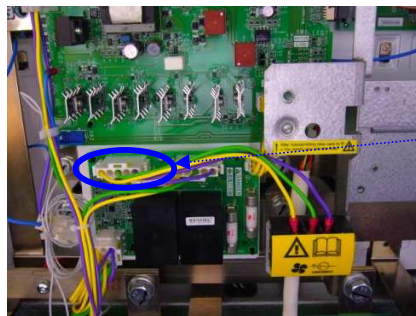


Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5NM

Metal Support for Control bloc



Remove 2 nuts.



Disconnect the wire:

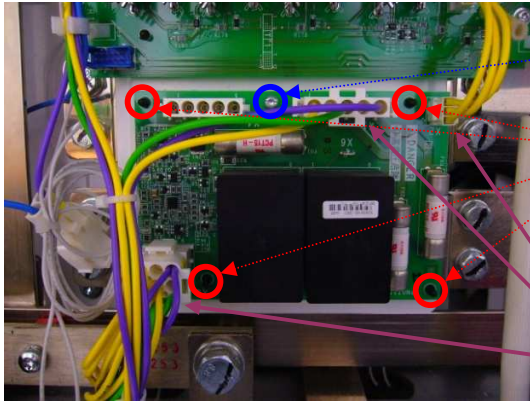
Yellow/Green/Purple -> X4 on fan control board

The metal support can be removed.



Size	Torque
M6	5.5Nm

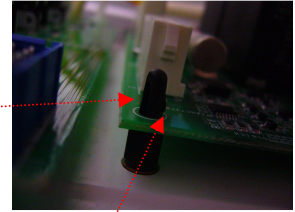
Fan Control Board: VX5A1400



Remove 1 screw.

Push on the 4 plastic supports to remove the board.

Disconnect the wires. From right to left:
 Yellow X2->X14 on power board
 Yellow/Green/Purple X1-> X1 Yellow X2 Green X3 Purple on filter card
 Yellow/Green/Purple X3-> turbine alimantation



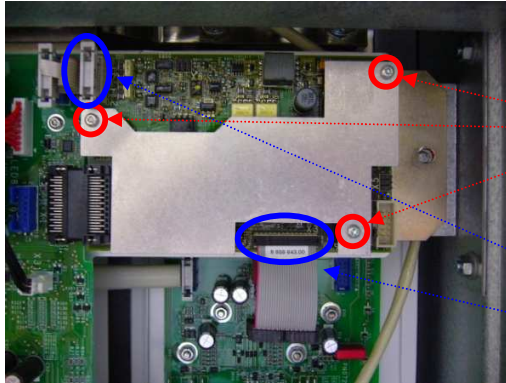
Push on the side.

The Fan control board can be removed.



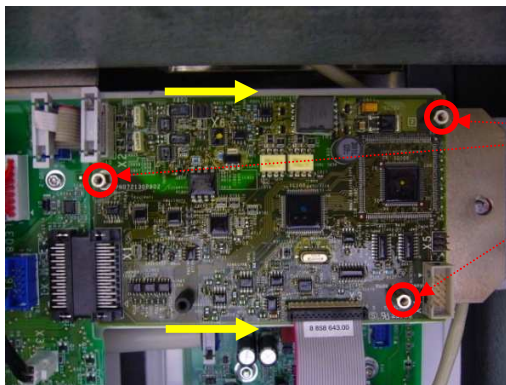
Size	Torque
M3x6	0.8Nm
M3x8	clips

Motor control Board: VX4A71101Y



Remove the 3 screws. (P1)

Disconnect the 2 ribbon cable, *left to the right*:
 X2 -> X2 on Power Board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs. (P2)

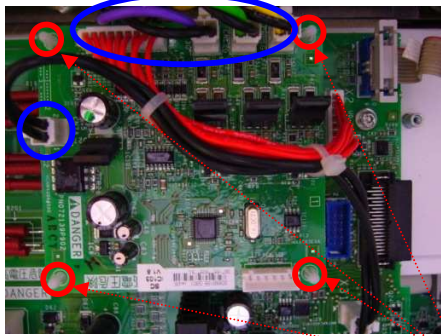
Be careful, at the time of reassembling;
 don't forget to put the steel.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

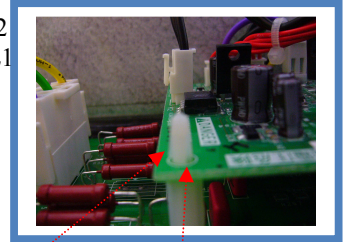
The motor control board can be removed.

Soft Charge board: VX5A1300



Disconnect the 5 wires, *left to the right*:

- Black CN7A-> X31 on Power Board
- Red CN2A-> X30 on Power Board
- Purple/Black CNL3G ->Gate rectifier 3 on I3
- Green/Black CNL2G ->Gate rectifier 2 on L2
- Yellow/Black CNL1G -> Gate rectifier 1 on L1



Push on the 4 plastic supports to remove the board.

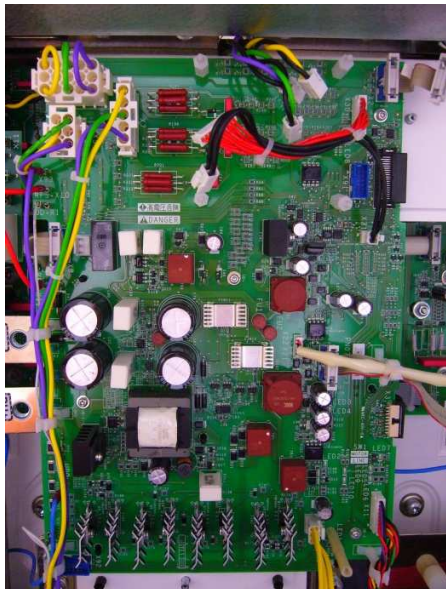
Push on the side.

The Soft charge Board can be removed.



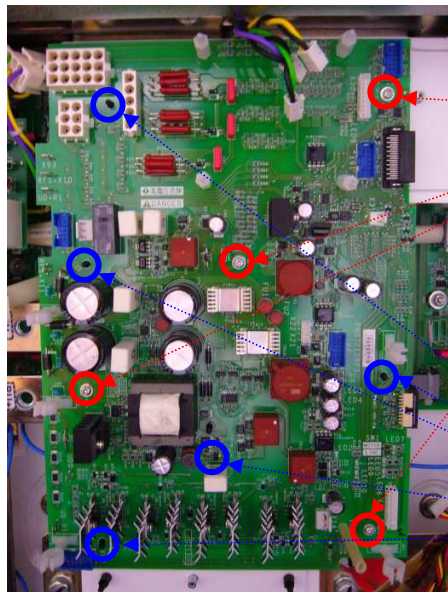
Size	Torque
M3x8	clips

Power board: VX5A1HC2531

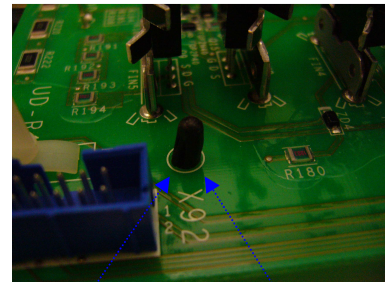


Disconnect the 5 wires, *top to the down*:

- Ribbon X2-> X2 on motor control board
- Red X30-> CN2A on Soft charge board
- Black X31-> CN7A on soft charge board
- Yellow/Green/Purple X7-> X11 Yellow X12 Green X13 Purple on filter card
- Yellow/Green/Purple X6->shunt on power board
- Yellow/Green/Purple X5->alimantation Gate drive board IGBT Yellow/U Green/V Purple/W
- Purple X93-> Purple X20->Blue X51 on Gate drive board IGBT U
- Red RFS+X10 ->X10 on Rectifier Snubber Circuit.
- White UD+R1 -> Discharging resistor
- Ribbon X8->X8 on Command IGBT card
- Red RFS+X11 ->X11 on Rectifier Snubber Circuit
- Blue UD0 -> Power bus on U
- White UD-R1 -> discharging resistor
- White X22 & X21-> two inside fan
- Ribbon X4-> X4 on control block
- Ribbon X3 -> X31 on command IGBT board
- Yellow X14 -> X2 on Fan control board
- Multicolour X11-> currents sensors U V W



Remove the 4 screws. (S?)



Push on the 5 plastic supports to remove the board.

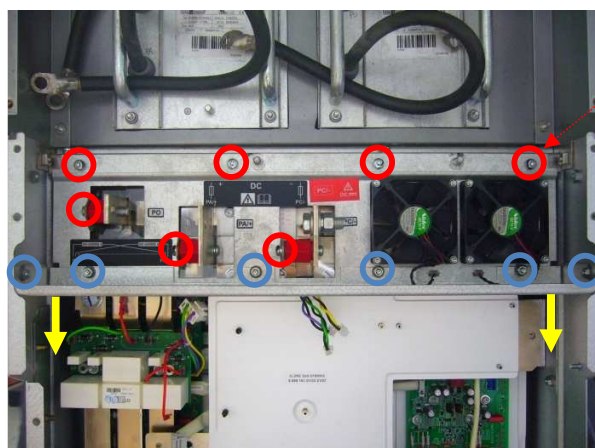
Push on the side.

Size	Torque
M3x6	0.8Nm
M3x8	clips



The Power Board can be removed.

Internal Fan 24 VDC: VZ3V1213



Remove 7 screws (P1).

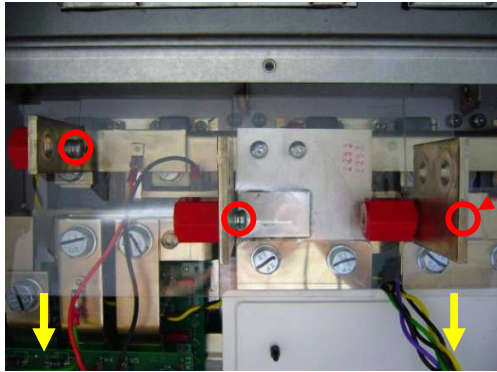
Remove 6 nuts (P2).



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm

The Internal fan can be removed.

Plastic Parts Kit: VY1A1403



Remove 3 screws.

Don't forget to replace it during reassembling

The plastic part can be removed.



Size	Torque
M6x12	5.5Nm

DC Bus Bar KIT: VZ3N1320



Remove 4 screws (P1)

Remove 1 screw (P2)

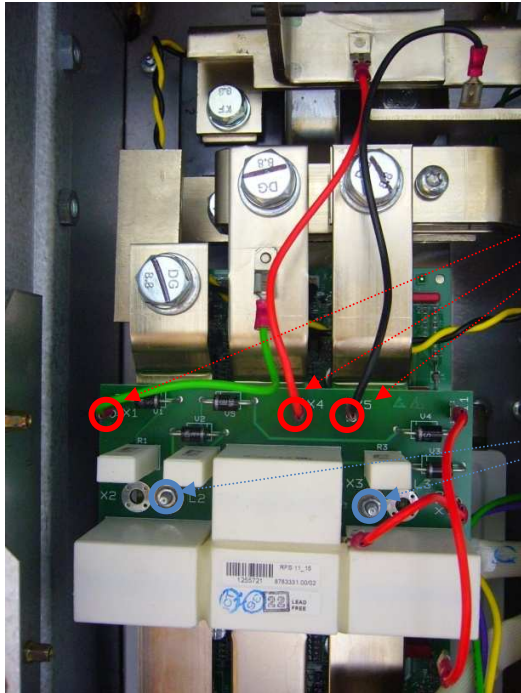
Remove 12 screws (P3)

The DC bus bar kit can be removed.



Mark	Size	Torque
P1	M10x20	27Nm
P2	M6x12	5.5Nm
P3	M8x20	13.5Nm

Rectifier Snubber Circuit: VX4A1200



Disconnect 3 Wires left to right

Green X1 -> bus bar L2
 Red X4 -> bus bar PO
 Black X5 -> bus bar PC

Remove 2 nuts.

The Rectifier Snubber Circuit can be removed.



Size	Torque
M4	1.2Nm

AC Bus bar KIT: VZ3N1321



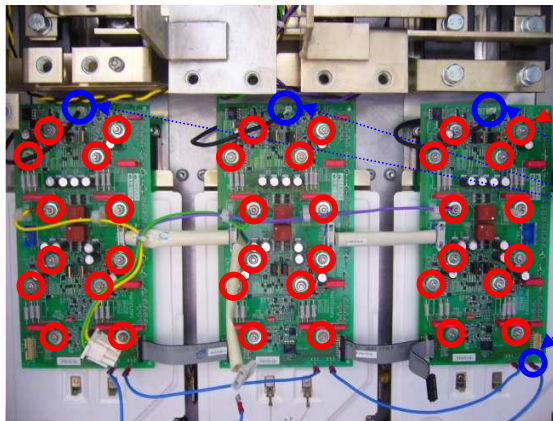
Remove 6 screws.

The AC Bus bar can be removed.



Size	Torque
M10x25	27Nm

Gate Drive Board IGBT: VX5A1202



Remove 36 nuts.

Disconnect the 4 wires top to down.

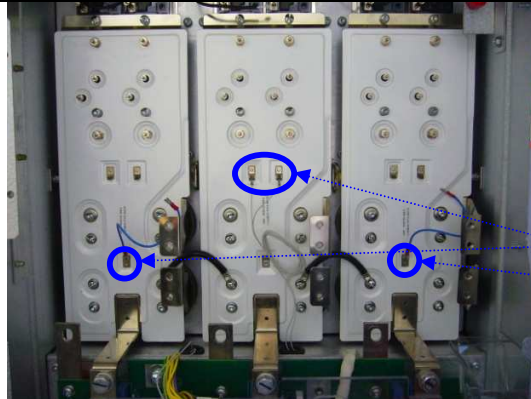
Black X4 on gate drive Board IGBT U/V/W-> thermal sensor
Blue X52 on gate drive Board IGBT W->Power Interconnection bar W

The Gate Drive Boards IGBT can be removed.



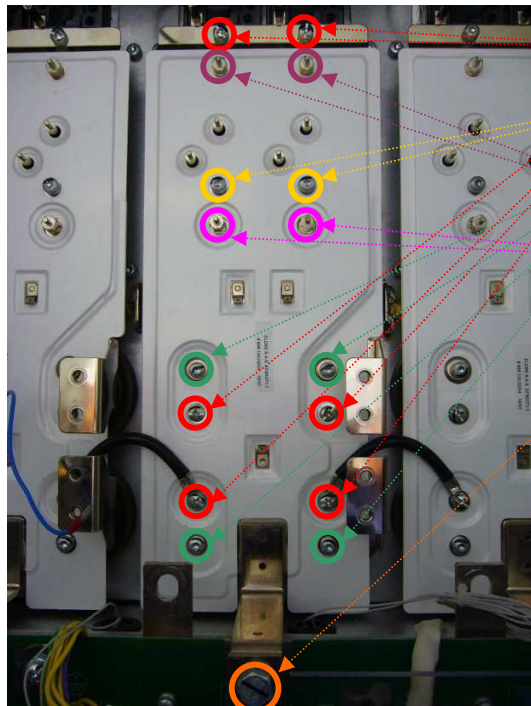
Size	Torque
M4	1.2Nm

Bus Bar-Phase Size 13: VZ3N1320



Disconnect the 4 wires Left to right.

- Blue wire on interconnection bar U -> UD0 on power board
- White wires on interconnection bar V -> discharging resistor
- Blue wire on interconnection bar W -> X52 on Gate Drive Board IGBT W



For each 3 AC bus bar, you should remove:

- Remove 6 screws (P1-P2).
- Remove 2 screws (P7)
- Remove 4 screws (P3-P4)
- Remove 2 screws (P6)
- Remove 2 screws (P5)
- Remove 1 screw (P8)

Be careful, at the time of reassembling; don't forget to put the 2 Shunt.



Mark	Size	Torque
P1-P2	M6x12	3.3Nm
P6	ST 10x6	3.3Nm
P7	M6x20	3.3Nm
P5	ST 10X11	3.3Nm
P3-P4	M6x14	3.3Nm
P8	M12x25	45Nm

The Bus Bar-Phase can be removed.

Thermal Sensor: VZ3G1104



For each 3 branch U/V/W, you should remove:

Remove 1 screw.

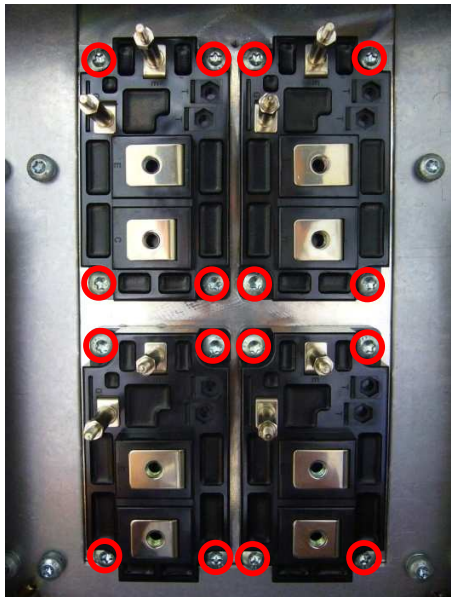
Be careful, don't forget to connect the wire on the connector "X4" of the Gate drive board IGBT

The thermal sensor can be removed.



Size	Torque
M3x6	0.8Nm

Module IGBT. VZ3IM1602M1271



For each 3 branch U/V/W, you should remove:

Remove 16 screws

It is **not necessary** to change all IGBT but just this one that is damaged.

After changing, **be careful** to set up direction.

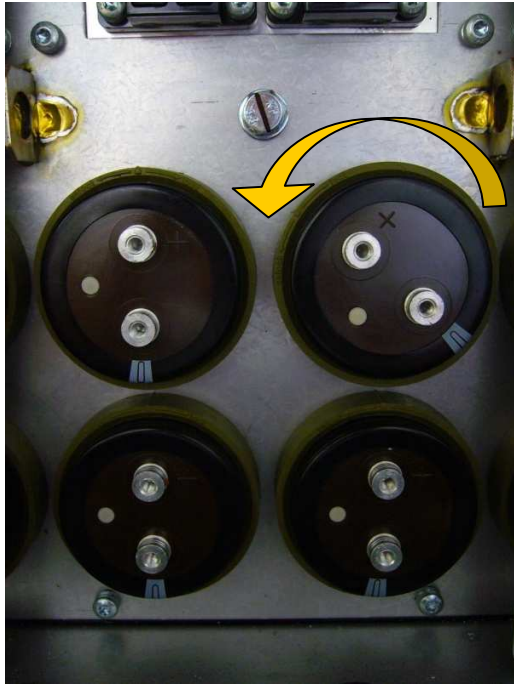
Don't forget applying the grease.

The Module IGBT can be removed.



Size	Torque
M6x20	3.0Nm

Lots of 6 capacitors: VY1ADC1112



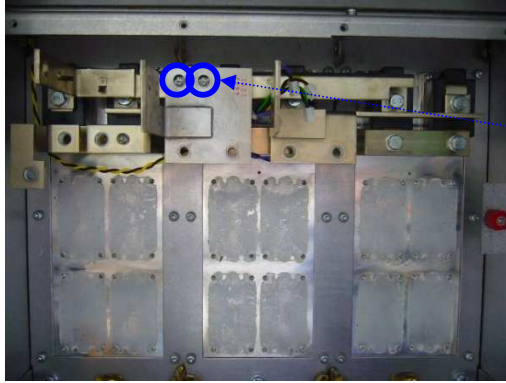
For each 3 branch U/V/W, you should remove 4 capacitors:

To remove the capacitor, rotate left it, and pull out it

After changing, **be careful** to set up direction

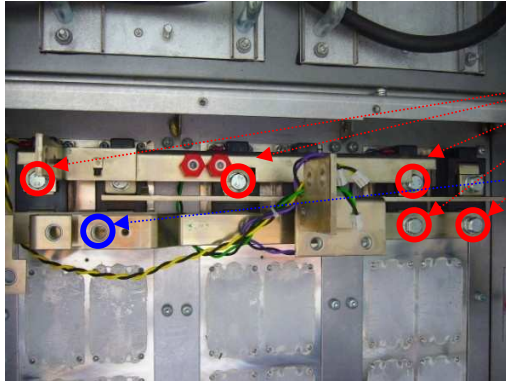
The Capacitors can be removed.

Rectifier module thyristor: VZ3TM1600M1671
Rectifier module diode: VZ3DM1600M1671
AC Bus bar Kit: VZ3N1321



Part 1

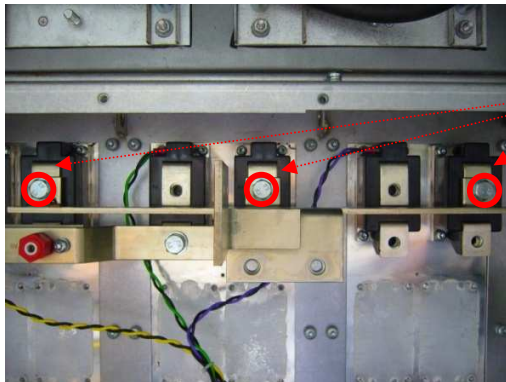
Remove 2 screws (P1)



Part 2

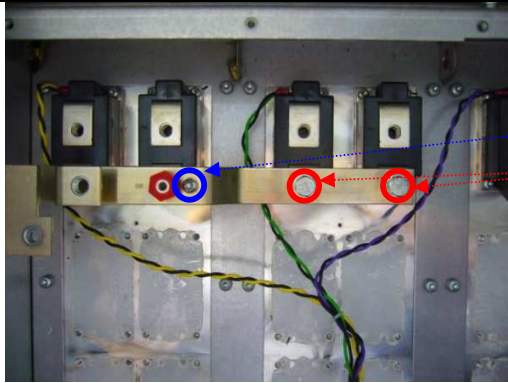
Remove 5 screws (P2)

Remove 1 screw (P1)



Part 3

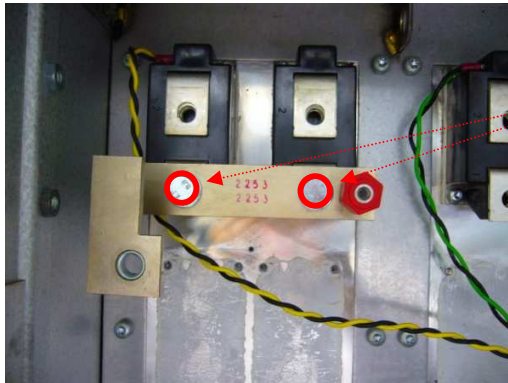
Remove 3 screws (P2)



Part 4

Remove 1 screw (P1)

Remove 2 screws (P2)



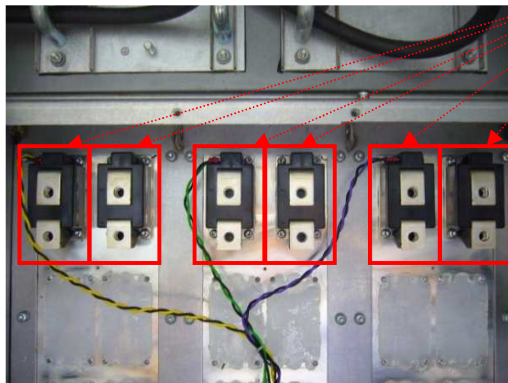
Part 5

Remove 2 screws (P2)

Remove the 24 screw(P3).

After changing, **be careful** to set up direction.

Don't forget applying the grease.



The rectifier can be removed.



Mark	Size	Torque
P2	M10x25	13.5Nm
P1	M6x12	5.5Nm
P3	M5x25	5.0Nm

Rectifier module thyristor: VZ3TM1600M1671
Rectifier module diode: VZ3DM1600M1671

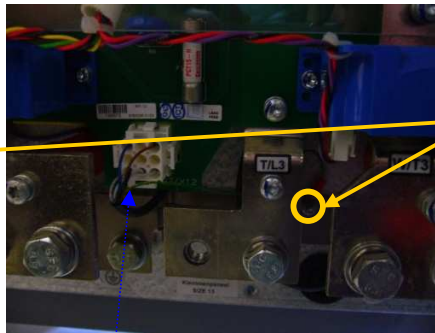
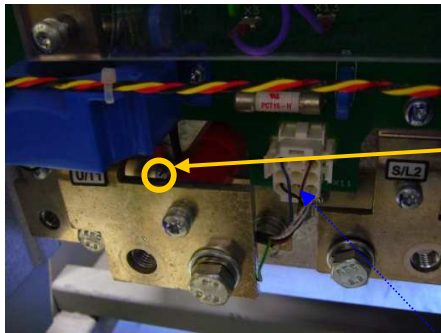


Be careful, after changing respect the colour line for the wires.

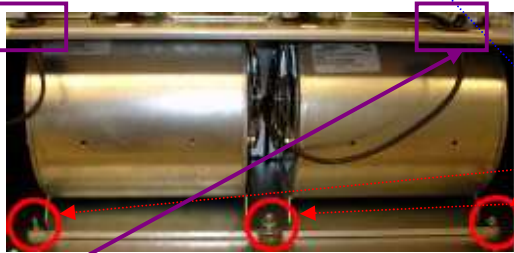
From left to right
[Yellow-Black]- [Green-Black] - [Purple-Black]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Fan Power Electronic. VZ3V1212



Be careful; don't forget to disconnect the ground wire.



Disconnect 2 connectors

Fan turbine 1->X11 on RFI filter board->X3 on fan control board
 Fan turbine 2->X12 on RFI filter board->X3 on fan control board

Remove 2 screws (J130)
 Remove 1 screw (J139)

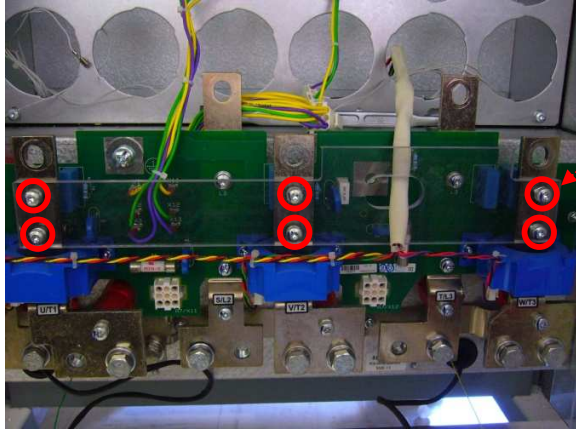
Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

The Turbine can be removed.



Mark	Size	Torque
J130	M6	5.5Nm
J139	M8	13.5Nm

Plastic Parts Kit: VY1A1403



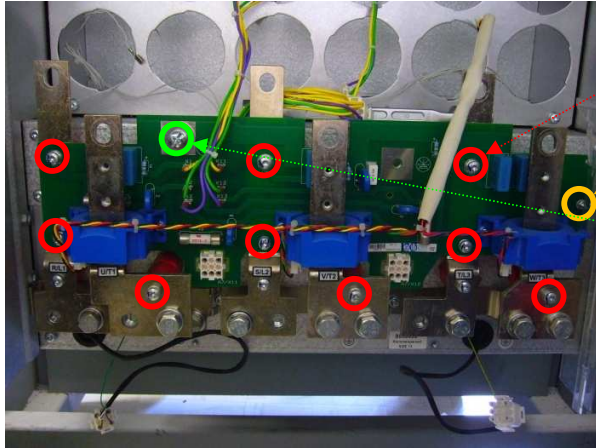
Remove 6 screws

The Plastic Part can be removed.



Size	Torque
M6x20	5.5Nm

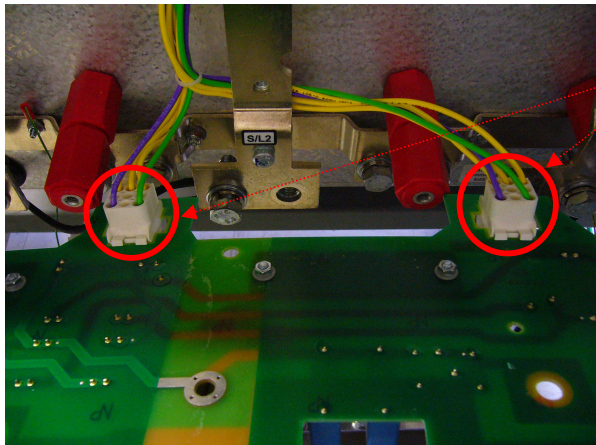
RFI Filter Board: VX4A1115



Remove 9 screws (P1)

Remove 1 nut (P2)

Remove 1 screw (P3)



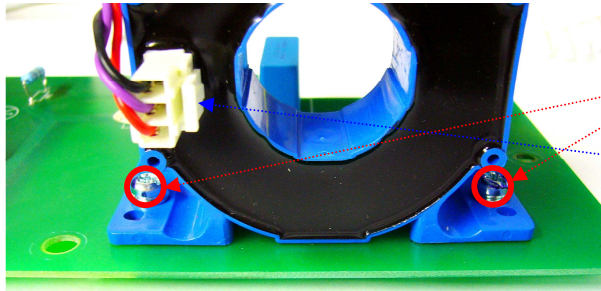
To change the board, don't forget to disconnect the 2 connectors X11 & X12

The RFI filter board can be removed.



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M4	1.2Nm
P3	M6x12	5.5Nm

Motor Current Sensor: VY1A1108



For each 3 branch U/V/W, you should remove:

Remove 2 screws

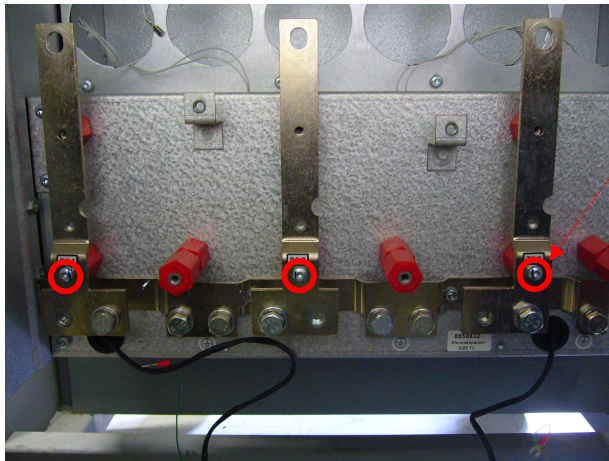
Disconnect 1 wire
Current sensor->X11 on power board

The Motor Current Sensor can be removed.



Size	Torque
M4x12	1.2Nm
M4	1.2Nm

AC Bus bar Kit: VZ3N1321



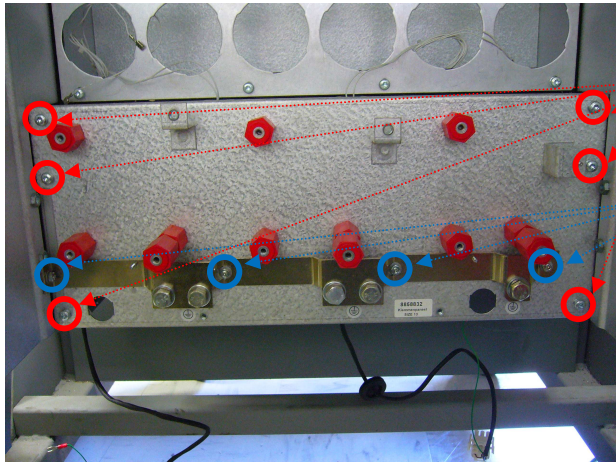
Remove 3 screws

The AC Bus bar can be removed.



Size	Torque
M6x14	5.5Nm

Earth Terminal Bar: VZ3N1321



Remove 6 screws

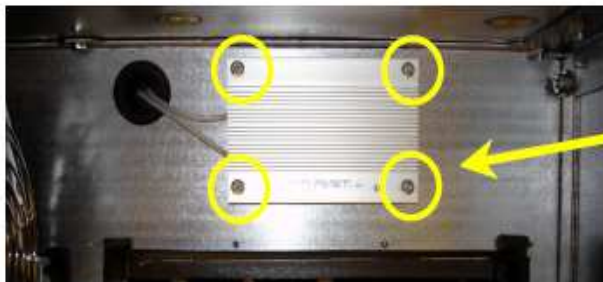
Remove 4 nuts



Size	Torque
M6x14	5.5Nm
M6	5.5Nm

The Earth Terminal Bar can be removed.

Discharging resistor: VZ3R24KW125



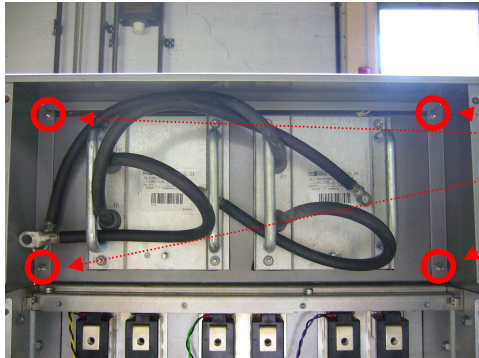
Remove 4 screws



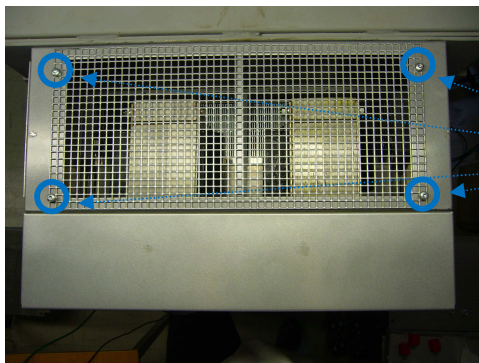
Size	Torque
M4x20	1.2Nm

The discharging resistor can be removed.

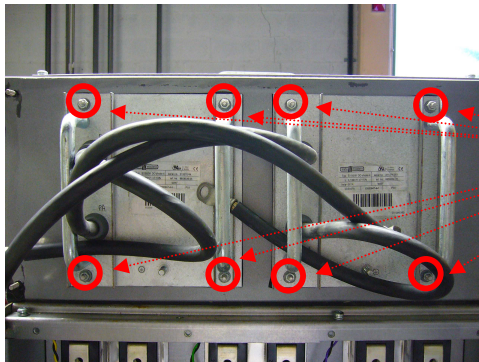
DC Choke: VW3A4520



Remove the 4 nuts



Remove the 4 screws



Remove the 8 nuts

The DC Choke can be removed.



Size	Torque
M6	5.5Nm
M6x12	5.5Nm



9.25.2 Product Assembling Drawing

No information

9.25.3 Product Cabling Drawing

Refer to following file: [Cabling_diagram_size 13.pdf](#)



9.26 ATV71-61 Size F14 (size, refer to 1.2)

9.26.1 Dismantling and reassembling

Frame 14: ATV71HC31N4, ATV71HC40N4, ATV61HC40N4, ATV61HC50N4

ATV71HC31N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3TM1600M1671	Rectifier Module Thyristor (600A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1333	Wires KIT
VZ3N1331	AC Bus Bar KIT
VZ3N1329	DC Bus Bar KIT
VZ3IM1603M1271	3 Modules pired IGBT 600A/1200V
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1110	Screws KIT
VY1ADC1114	Lots of 6 capacitors (3600µF / 400V)
VY1A1406	Plastic Parts KIT
VY1A1305	Assembling KIT
VY1A1216	Front Cover with I/O Terminal Cover
VY1A1109	Motor Current Sensor
VX5A1HC3140	Power Board
VZ3F1113	Braking Unit KIT
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1203	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1118	RFI Filter Board
VW3A4522	DC Choke
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV71HC40N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1425M1671	Rectifier Module Thyristor (425A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1340	AC Bus Bar KIT
VZ3N1339	DC Bus Bar KIT
VZ3N1333	Wires KIT
VZ3IM1603M1271	3 Modules pired IGBT 600A/1200V
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1110	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1406	Plastic Parts KIT
VY1A1305	Assembling KIT
VY1A1216	Front Cover with I/O Terminal Cover
VY1A1109	Motor Current Sensor
VX5A1HC4050	Power Board
VZ3F1113	Braking Unit KIT
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1203	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1117	RFI Filter Board
VW3A4523	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

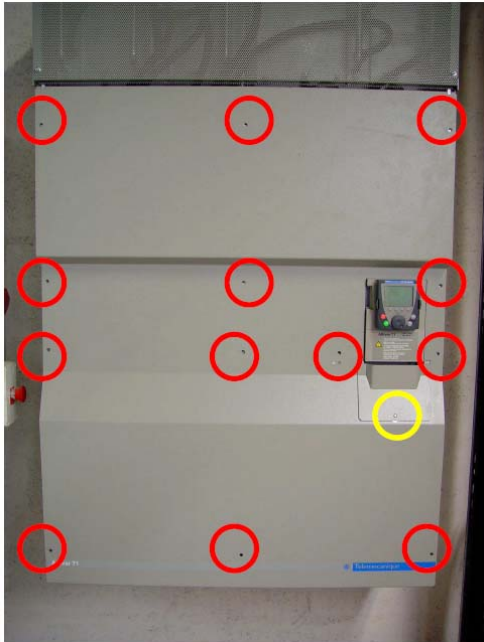
ATV61HC40N4

Reference	Designation
VZ3V1213	Internal Fan
VZ3TM1600M1671	Rectifier Module Thyristor (600A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1333	Wires KIT
VZ3N1331	AC Bus Bar KIT
VZ3N1329	DC Bus Bar KIT
VZ3IM1603M1271	3 Modules IGBT apairés 600A/1200V
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1110	Screws KIT
VY1ADC1114	Lots of 6 capacitors (3600µF / 400V)
VY1A1406	Plastic Parts KIT
VY1A1305	Assembling KIT
VY1A1216	Front Cover with I/O Terminal Cover
VY1A1109	Motor Current Sensor
VX5A1HC3140	Power Board
VZ3F1113	Braking Unit KIT
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1203	Gate Drive Board
VX4A61101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1118	RFI Filter Board
VW3A4522	DC Choke
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HC50N4

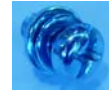
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1425M1671	Rectifier Module Thyristor (425A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1340	AC Bus Bar KIT
VZ3N1339	DC Bus Bar KIT
VZ3N1333	Wires KIT
VZ3IM1603M1271	3 Modules IGBT apairés 600A/1200V
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1110	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1406	Plastic Parts KIT
VY1A1305	Assembling KIT
VY1A1216	Front Cover with I/O Terminal Cover
VY1A1109	Motor Current Sensor
VX5A1HC4050	Power Board
VZ3F1113	Braking Unit KIT
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1203	Gate Drive Board
VX4A61101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1117	RFI Filter Board
VW3A4523	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Cover with I/O terminal cover: VY1A1216



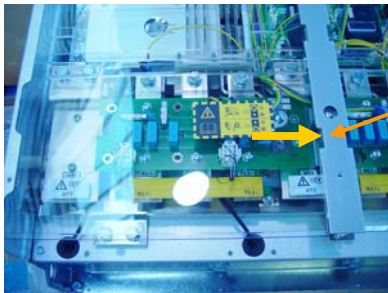
Remove 17 screws

The Front Cover can be removed



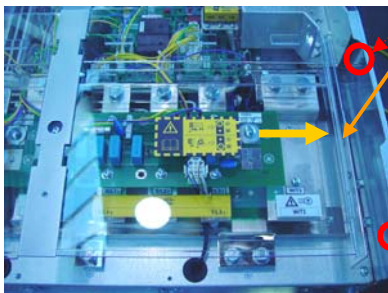
Size	Torque
M6x12	5.5Nm

Plastic Part Kit: VY1A1406



Push here and disengage plastic part

Remove 2 screws



The Plastic part kit can be removed.

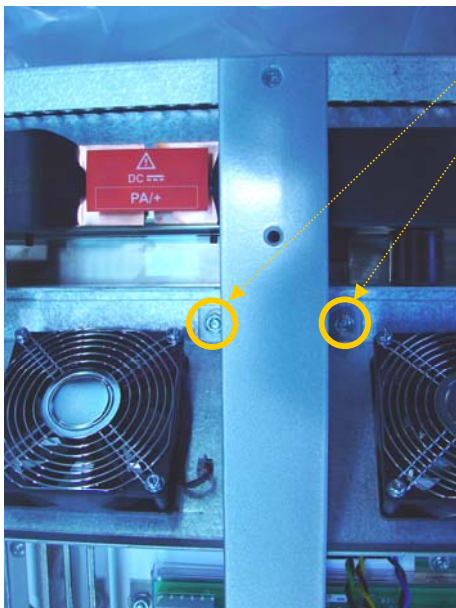


Size	Torque
M6	5.5Nm

Metal kit.



Remove 1 screw (P1)



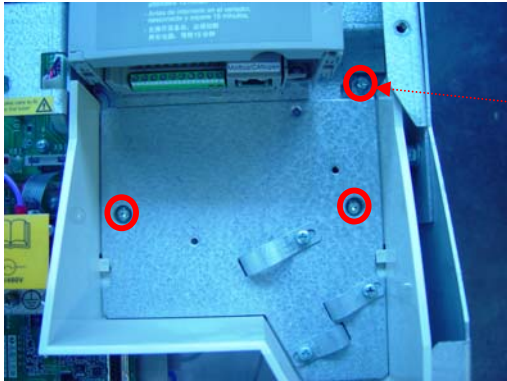
Remove 2 nuts (P2)

The metal part can be removed.



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm

Plastic Part Kit: VY1A1406



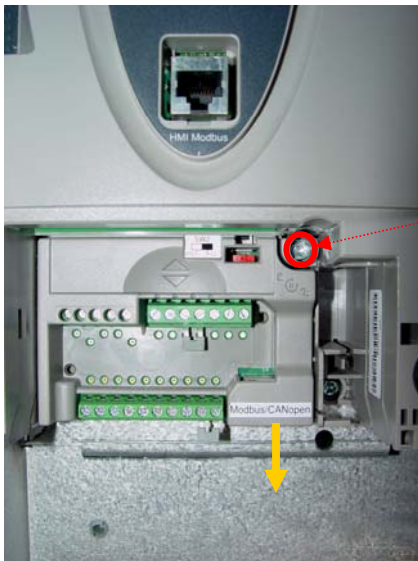
Remove 3 screws

The Plastic Part kit can be removed.



Size	Torque
M4x12	1.2Nm

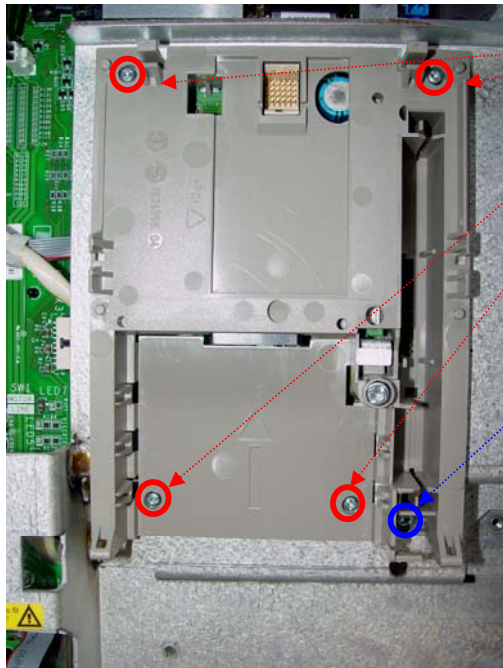
Control bloc: VX4A71101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.

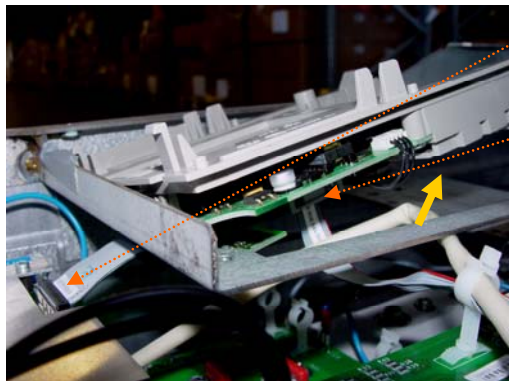


Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 to S8).

Remove 1 screw (S38).



Disconnect the ribbon cable.
X3 from Control bloc "interface Board"->X3 on Motor Control Board

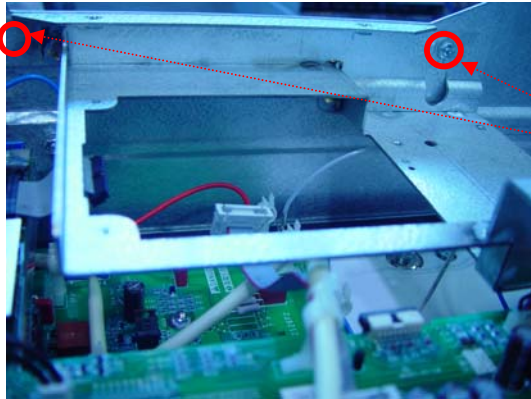
Disconnect the ribbon cable.
X4 from Control bloc" interface Board"->X4 on Power Board

The Control bloc can be removed.

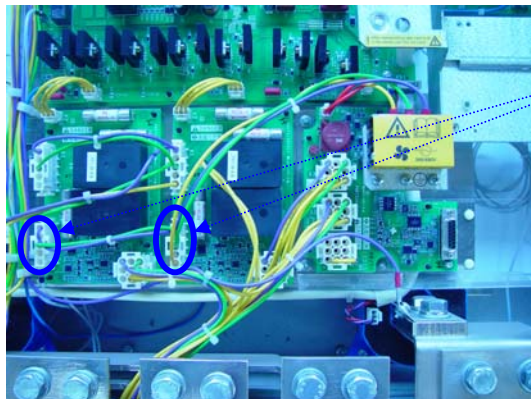


Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5NM

Metal support for control bloc



Remove 2 nuts



Disconnect wire:

Yellow/Green/Purple TB1 -> X4 on both fan control board



Size	Torque
M6	5.5Nm

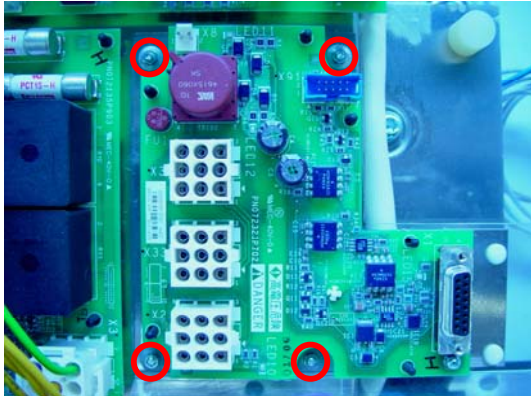
The metal kit can be removed.

Braking Unit KIT: VZ3F1113

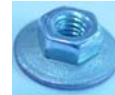


Disconnect 5 wires top to down:

- Red X8 -> X81 on Power board
- Ribbon X91 -> X91 on Power board
- Yellow/Green/Purple X3 -> X3 on fan control board 2
- Yellow/Green/Purple X33 -> X13 on RFI filter board 2
- Yellow X2 -> Shunt X2 on braking unit device



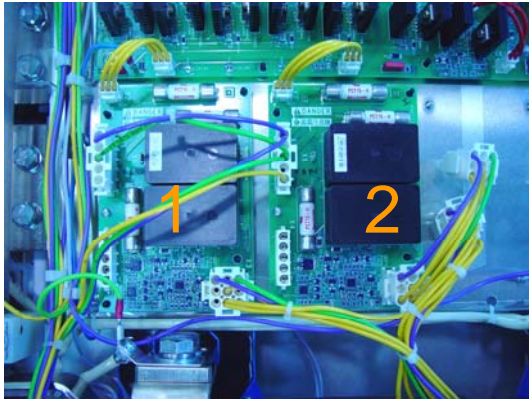
Remove 4 nuts



Size	Torque
M3	0.8Nm

The Braking Unit KIT can be removed.

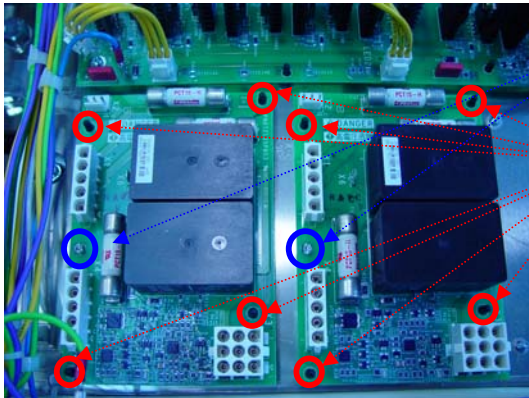
Fan Control Board. VX5A1400



Disconnect wires. From top to down:

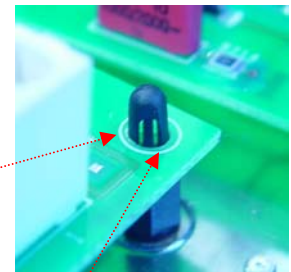
Fan control Board 1
 Yellow X2->X14 on Power board
 Yellow/Green/Purple X1->X1 on fan control Board 2
 Yellow/Green/Purple X3-> X11 & X12 on RFI filter board

Fan control Board 2
 Yellow X2->X15 on Power board
 Yellow/Green/Purple X1->X1 on Fan control board 1
 Yellow X1/Green X2/ Purple X3 on RFI filter board
 Yellow/Green/Purple X3-> X3 on braking unit device



Remove 2 screws

Push on the 8 plastic supports to remove the board.



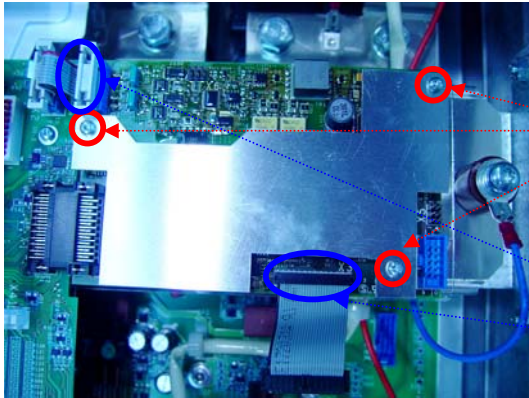
Push on the side.



Size	Torque
M3x6	0.8Nm
M3x8	clips

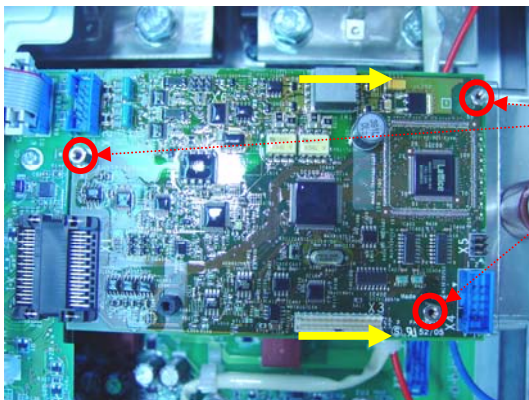
The Fan control board can be removed.

Motor control Board: VX4A71101Y



Remove the 3 screws.(P1)

Disconnect the 2 ribbon cable, *left to the right*:
 X2 ->X2 on Power board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs.(P2)

Be careful, at the time of reassembling;
 don't forget to put the steel.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

The motor control board can be removed.

Soft Charge board: VX5A1300



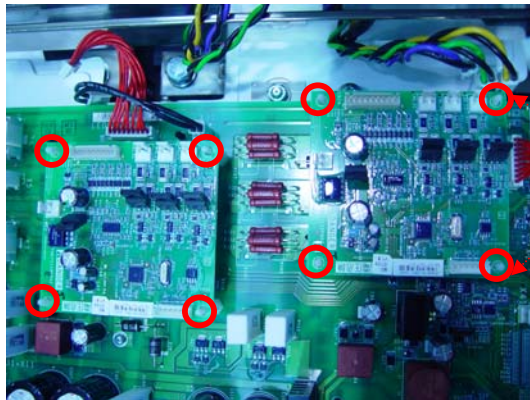
Disconnect wires, *left to the right*:

Soft charge Board 1

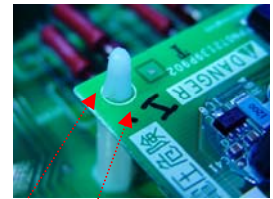
- Blue CN7A-> X31 on Power board
- Red CN2A-> X30 on power board
- Purple/Black CNL3G ->Gate rectifier 3.1 on L3.1
- Green/Black CNL2G ->Gate rectifier 2.1 on L2.1
- Yellow/Black CNL1G -> Gate rectifier 1.1 on L1.1

Soft charge Board 2

- Blue CN7A-> X41 on Power board
- Red CN2A-> X40 on power board
- Purple/Black CNL3G ->Gate rectifier 3.2 on L3.2
- Green/ Black CNL2G ->Gate rectifier 2.2 on L2.2
- Yellow/ Black CNL1G -> Gate rectifier 1.2 on L1.2



Push on the 8 plastic supports to remove the board.



Push on the side.



Size	Torque
M3x8	clips

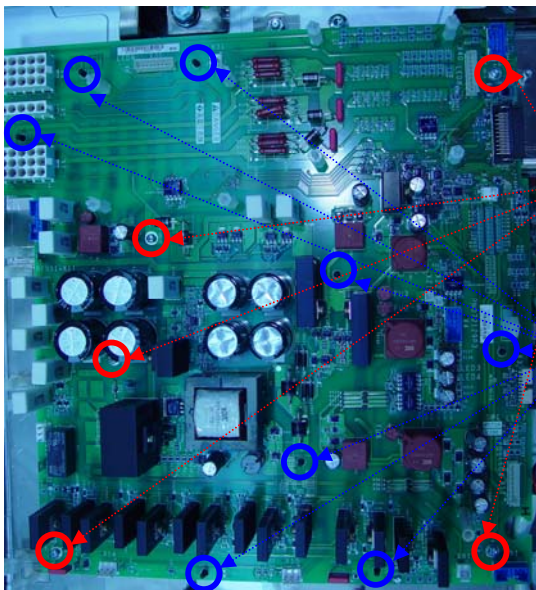
The Soft charge Board can be removed.

Power Board: VX5A1HC4050



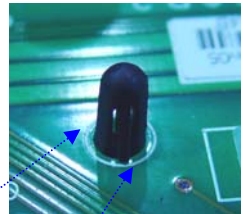
Disconnect the 21 wires, *unclockwise*:

- Black X41-> CN7A on soft charge board 2
- Red X40-> CN2A on soft charge board 2
- Ribbon X2-> X2 on motor control board
- Black X31-> CN7A on soft charge board 1
- Red X30-> CN2A on Soft charge board 1
- Yellow/Green/Purple X6-> X6 shunt on Power Board
- Yellow/Green/Purple X5-> bus bar U Yellow, bus bar V Green, bus bar W Purple
- Yellow/Green/Purple X7->Yellow X11/Green X12/Purple X13 on both RFI filter Board
- Ribbon X8 -> X82 on Gate drive Board IGBT U
- Red RFS31+X11 -> X11 on Snubber circuit 1
- White UD-R1 -> discharging resistor
- Blue UD0 -> interconnection bus bar W
- Yellow X14-> X2 on Fan control Board 1
- Yellow X15 -> X2 on Fan control board 2
- Red X81-> X8 on Braking unit device
- Ribbon X91-> X91 on Braking unit device
- Multicolour X11-> currents sensors U V W
- Ribbon X3-> X32 on Gate drive board W
- Ribbon X4-> X4 on control block
- White X22-> inside Fan alimentation
- White X21-> inside Fan alimentation



Remove the 5 screws.

Push on the 8 plastic supports to remove the board



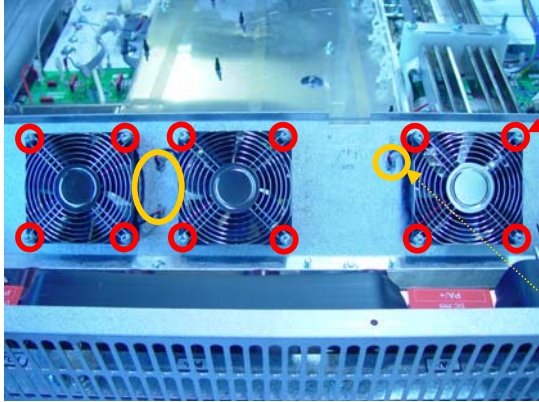
Push on the side.



Size	Torque
M3x6	0.8Nm
M3x8	clips

The Power board can be removed.

Internal fan kit: VZ3V1213

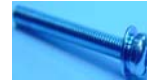


Remove 16 screws.

Disconnect 4 Wires

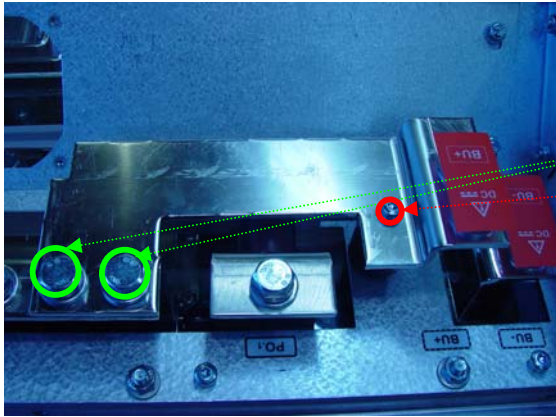
Black Fan-> X21 X22 on Power board

The Internal Fan can be removed.



Size	Torque
M4x35	1.2Nm

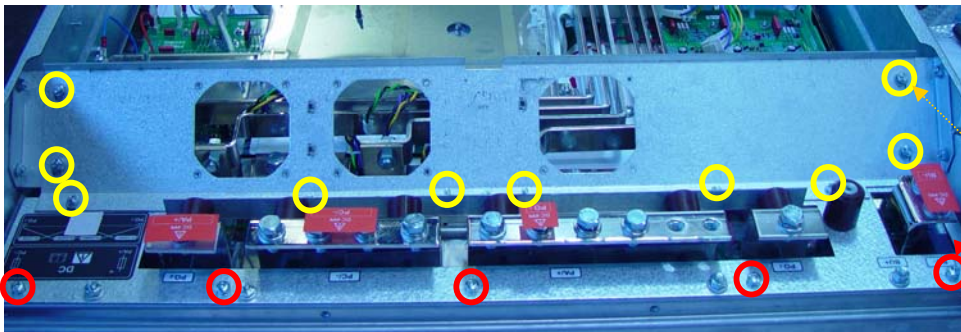
AC Bus Bar KIT: VZ3N1340



Step 1

Remove 2 screws (P3).

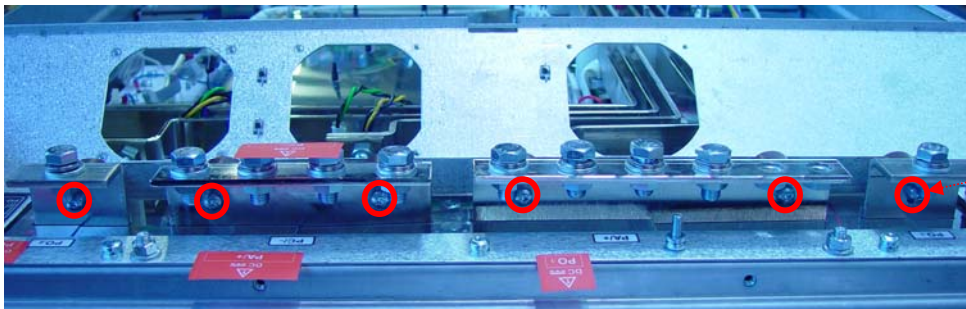
Remove 1 screw (P1)



Step 2

Remove 10 nuts (P2).

Remove 5 screws (P1)



Step 3

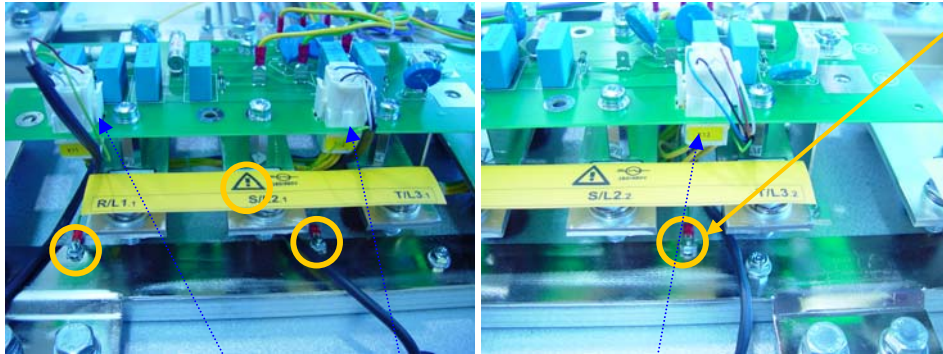
Remove 6 screws (P1).



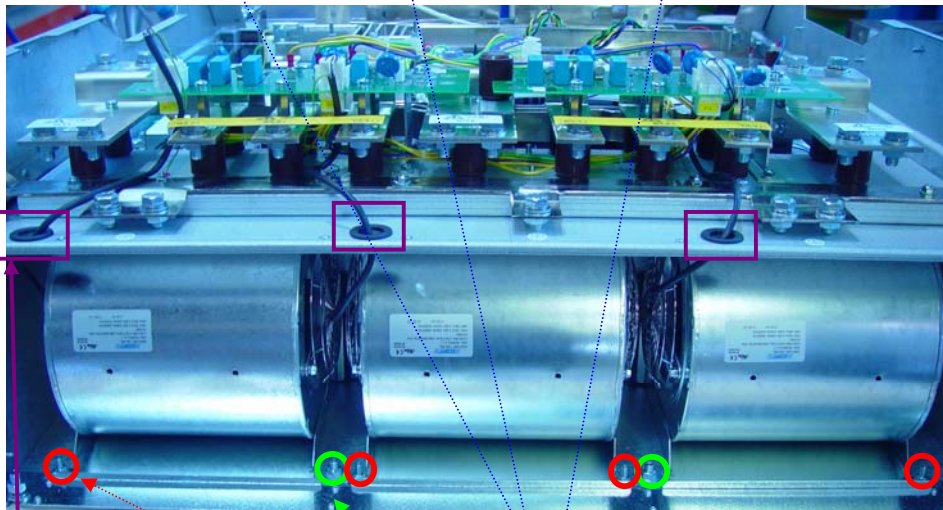
Mark	Size	Torque
P3	M12x25	45Nm
P1	M6x14	5.5Nm
P2	M6	5.5Nm

The AC Bus bar kit can be removed.

Fan Power Electronic. VZ3V1212



Be careful; don't forget to disconnect the ground wire.



Disconnect 3 connectors
 Fan turbine 1->X11 on RFI filter board 1->X3 on fan control board 1
 Fan turbine 2->X12 on RFI filter board 1->X3 on fan control board 1
 Fan turbine 3->X13 on RFI filter board 2->X33 on Braking unit device

Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

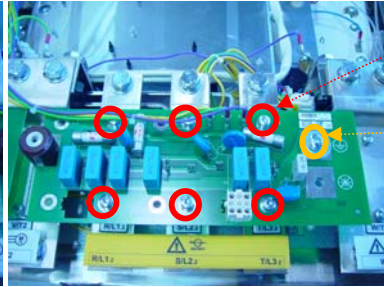
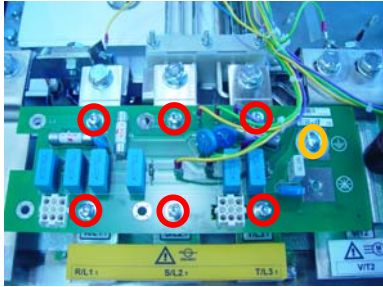
Remove 4 screws (J130)
 Remove 2 screws (J139)

The Turbine can be removed.



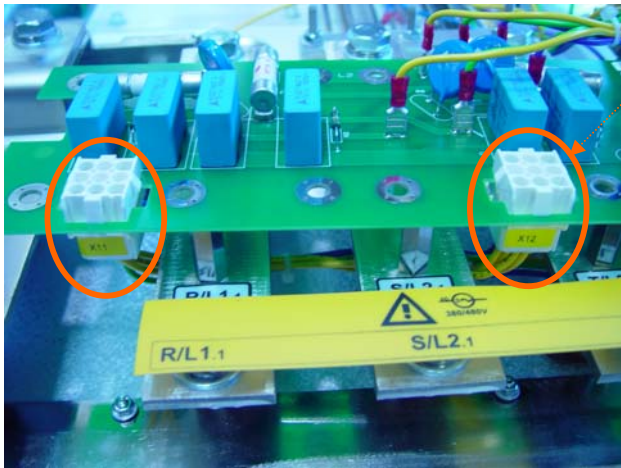
Mark	Size	Torque
J130	M6	5.5Nm
J139	M8	13.5Nm

RFI Filter Board. VX4A1117



Remove 12 screws (P1)

Remove 2 screws (P2)



To change the board, don't forget to disconnect the 3 connectors

X11 X12 on RFI Filter Board 1

And

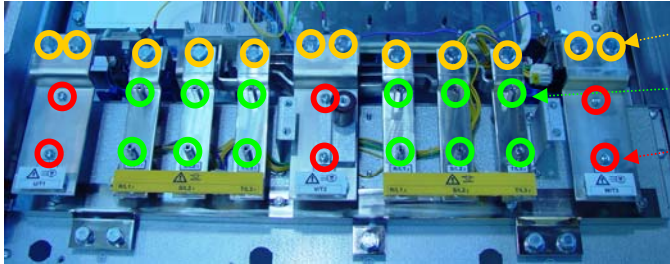
X13 on RFI Filter Board 2

The Both RFI filter board can be removed.



Mark	Size	Torque
P2	M6x12	5.5Nm
P1	M6x14	5.5Nm

AC Bus Bar KIT: VZ3N1340



Remove 12 screws (P1)

Remove 12 screws (P2)

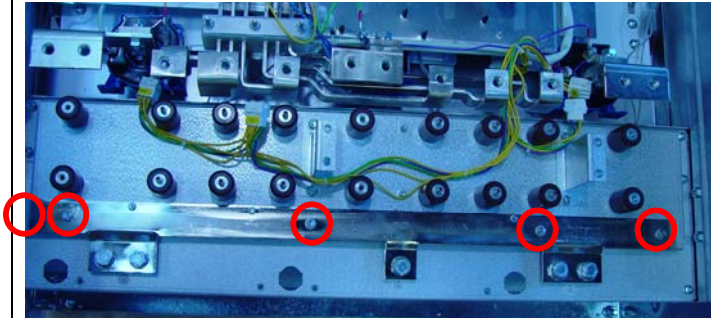
Remove 6 screws (P3)



Mark	Size	Torque
P1	M12x25	45Nm
P2	M6x22	5.5Nm
P3	M6x14	5.5Nm

The AC Bus Bar kit can be removed.

Earth terminal Bar: VZ3N1332



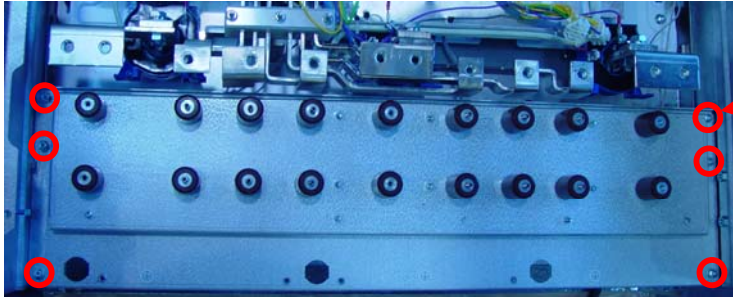
Remove 5 nuts



Size	Torque
M6	5.5Nm

The Earth terminal bar can be removed.

Metal Body Part KIT



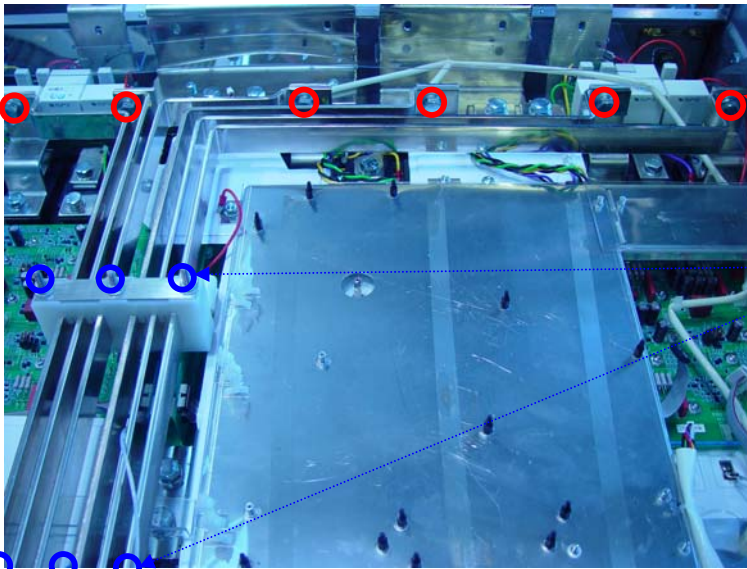
Remove 6 screws

The Metal Body Part kit can be removed.



Size	Torque
M6x14	5.5Nm

AC Bus Bar KIT: VZ3N1340



Remove 6 screws

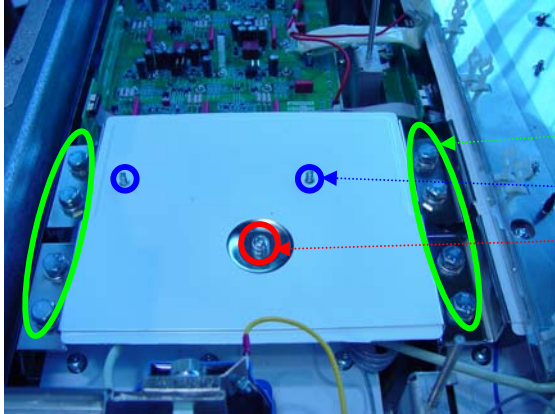
Remove 6 nuts

The AC Bus bar kit can be removed.



Size	Torque
M12x25	45Nm
M6	5.5Nm

DC bus bar kit: VZ3N1339

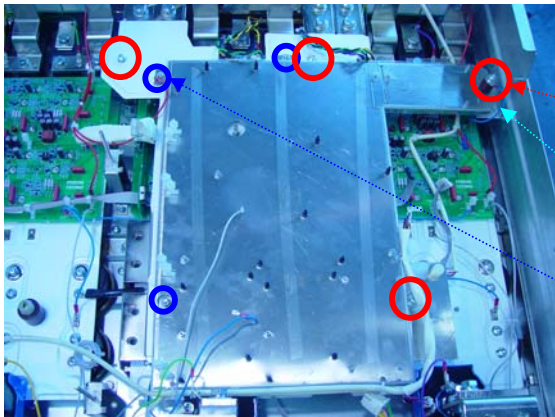


Step 1

Remove 8 screws (J129).

Remove 2 nuts (P1)

Remove 1 screw (P2)



Step 2

Remove 4 screws (P2)

And disconnect one wire:

Blue -> X53 on gate drive board IGBT W

Remove 3 nuts (P1)



Step 3

Remove 6 screws (J129)

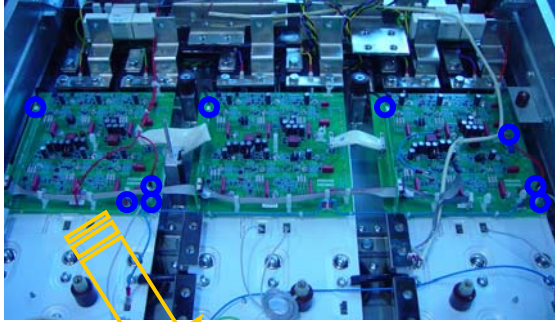
Remove 1 screw (P2)

The DC bus bar kit can be removed.



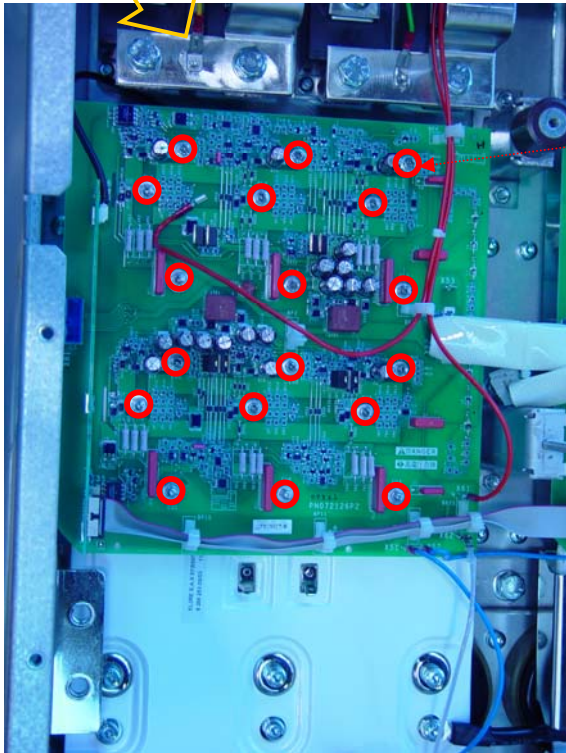
Mark	Size	Torque
J129	M10x20	27Nm
P2	M6x14	5.5Nm
P1	M6	5.5Nm

Gate Drive Board IGBT.VX5A1203



Disconnect the 4 wires top to down.

- Black X4 on gate drive Board IGBT U/V/W-> thermal sensor
- Blue X53 on gate drive board IGBT W-> DC bus
- Blue X51 on gate drive Board IGBT U->Power Interconnection bar U
- Red X61 on gate drive board U->X10 on snubber rectifier circuit 1
- Red X61 on gate drive board W ->X10 on snubber rectifier circuit 2
- White X62 on gate drive board U ->discharging resistor
- White X62 on gate drive board W ->discharging resistor



For each 3 branch U/V/W, you should remove:

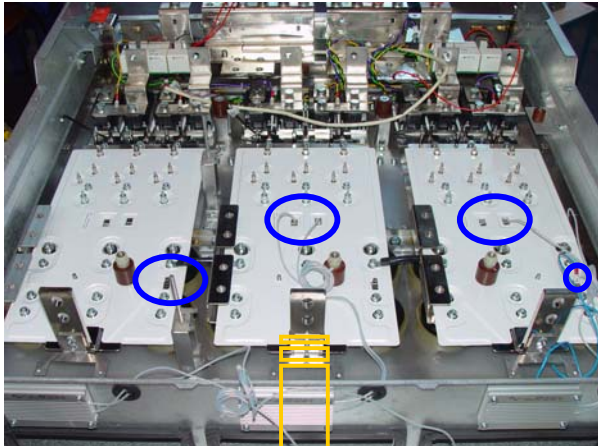
Remove 18 nuts

The Gate Drive Boards IGBT can be removed.



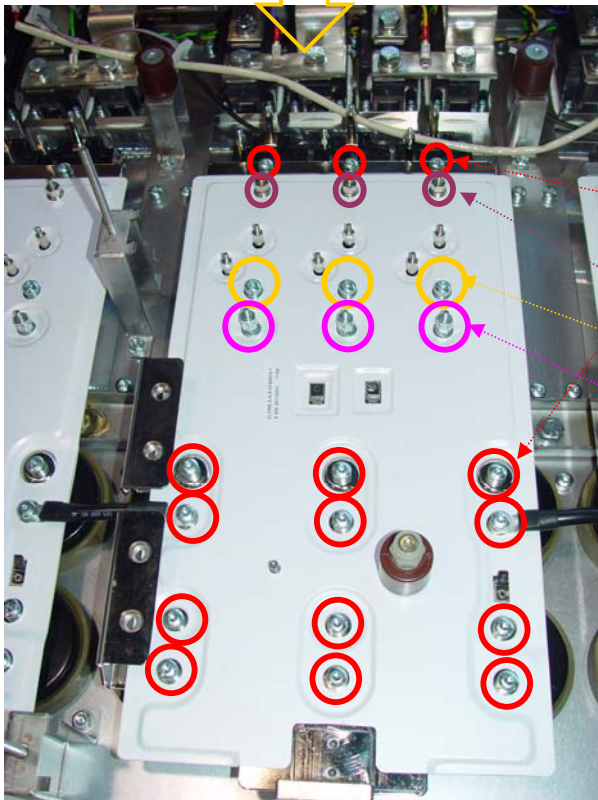
Size	Torque
M4	1.2Nm

DC bus bar kit: VZ3N1339



Disconnect the 4 wires Left to right.






Blue wire on interconnection bar U->X51 on gate drive board IGBT U
 White wires on interconnection bar V->discharging resistor
 White wires on interconnection bar W->discharging resistor
 Blue wire on interconnection bar W ->UD0 on Power Board



For 3 AC bus bar U V, you should remove:

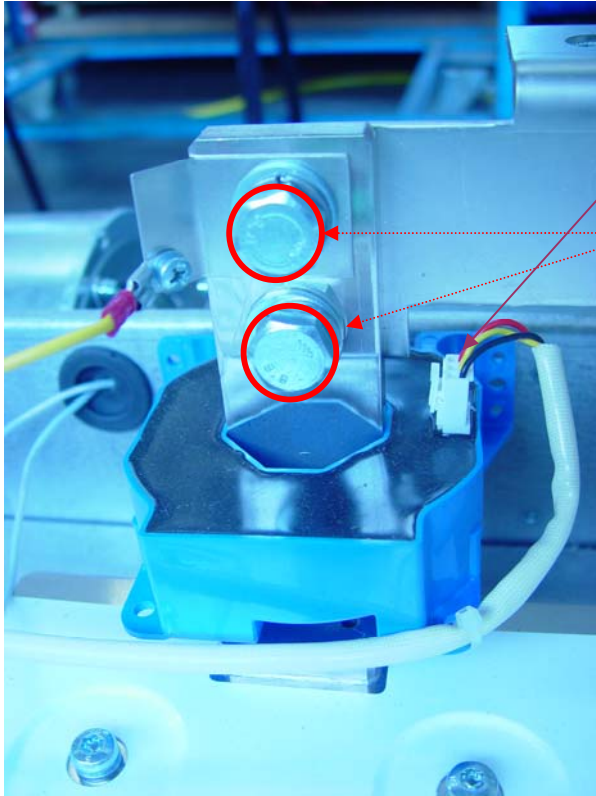
- Remove 3 screws (P1).
- Remove 12 screws (P2-P3-P4)
- Remove 3 screws (P6)
- Remove 3 screws (P7)
- Remove 3 screws (P5)

Be careful, at the time of reassembling;
 don't forget to put the 2 Shunt.

Mark	Size	Torque
 P1	M6x14	5.5Nm
 P2- P3- P4	M6x14	3,3Nm
 P6	ST M6/M4	5.5Nm
 P7	M6x20	5.5Nm
 P5	ST M6/M4	5.5Nm

The DC Bus Bar KIT can be removed.

Motor current sensor: VY1A1109



For 3 current sensor on U/V/W, you should remove:

Disconnect one wire:

Current sensor -> X11 on measuring board

Remove 2 screws (P1)



Remove 2 screws (P2)

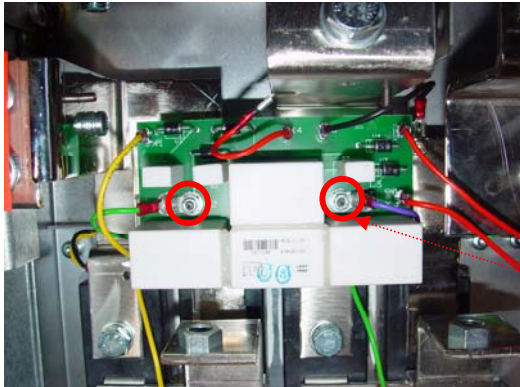
The Motor current sensor can be removed.



Mark	Size	Torque
P1	M12x25	45Nm
P2	M4x12	1.2Nm

Rectifier Snubber Circuit: VX4A1200

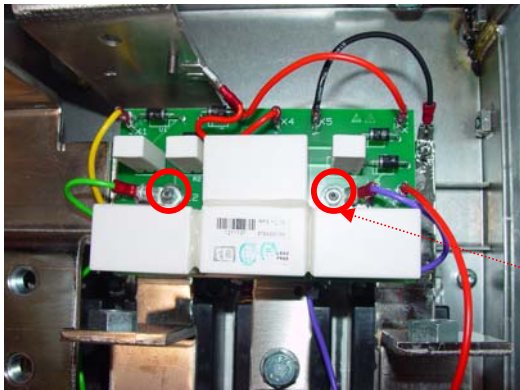
Snubber rectifier circuit 1



- Yellow X1 -> bus bar L1.1
- Green X2 -> bus bar L2.1
- Purple X3 -> bus bar L3.1
- Red X10 -> X61 on gate drive board IGBT U
- Red X11 -> RFS31+X11 on power Board
- Black X5 -> bus bar PC
- Red X4 -> bus bar PO.1

Remove 2 nuts (S?)

Snubber rectifier circuit 2



- Yellow X1 -> bus bar L1.2
- Green X2 -> bus bar L2.2
- Purple X3 -> bus bar L3.2
- Red X10 -> X61 on gate drive board IGBT W
- Red X11 -> bus bar PO.2
- Black X5 -> bus bar PC
- Red X4 -> bus bar PO.2

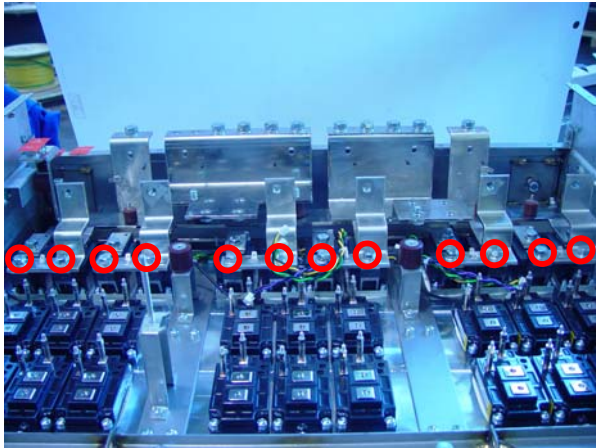
Remove 2 nuts (S?)

The Rectifier Snubber Circuit can be removed.



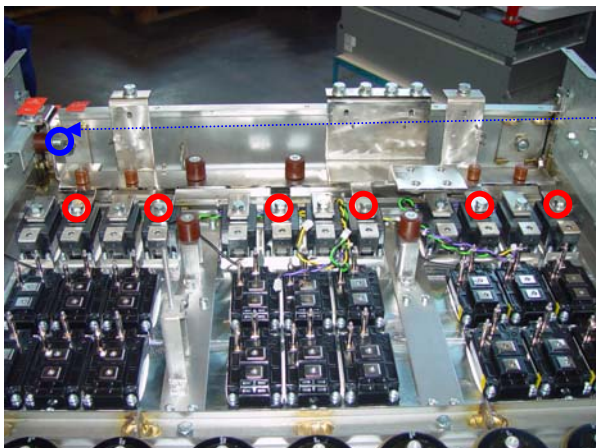
Size	Torque
M4	1.2Nm

Rectifier module thyristor VZ3TM1425M1671
Rectifier module diode VZ3DM1425M1671
AC Bus Bar KIT: VZ3N1340



Part 1

Remove 12 screws (P2)



Part 2

Remove 6 screws (P2)

Remove 1 screw (P1)



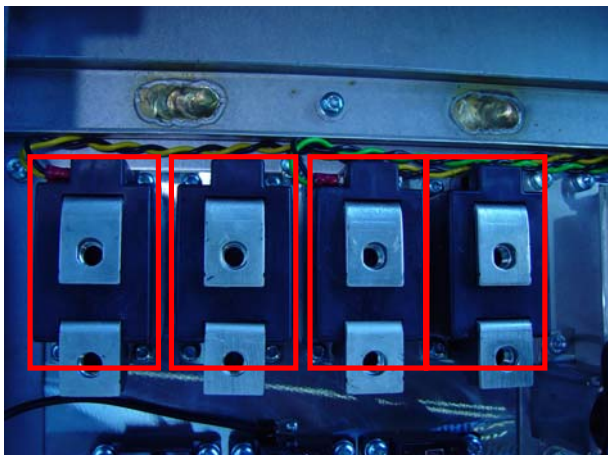
Part 3

Remove 6 screws (P2)



Mark	Size	Torque
P2	M10x25	13.5Nm
P1	M6x14	5.5Nm

Rectifier module thyristor VZ3TM1425M1671 Rectifier module diode VZ3DM1425M1671



For each 3 branch, you should remove:

Remove 16 screws (S?).

It is **not necessary** to change all rectifiers but just this one that is damaged.

After changing, **be careful** to set up direction.
Don't forget applying the grease.



Size	Torque
M5x25	5.0Nm

Rectifier module thyristor VZ3TM1425M1671



Be careful, after changing respect the colour line for the wires.

From left to right

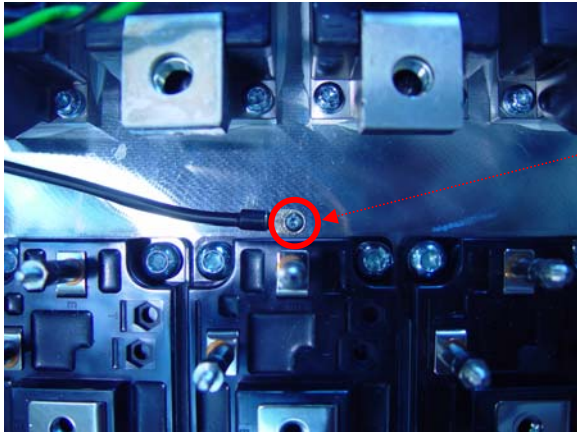
[Yellow-Black]- [Green-Black] - [Purple-Black]

And

[Yellow-Black]- [Green- Black] - [Purple- Black]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Thermal Sensor. VZ3G1104



For each 3 branch U/V/W, you should remove:

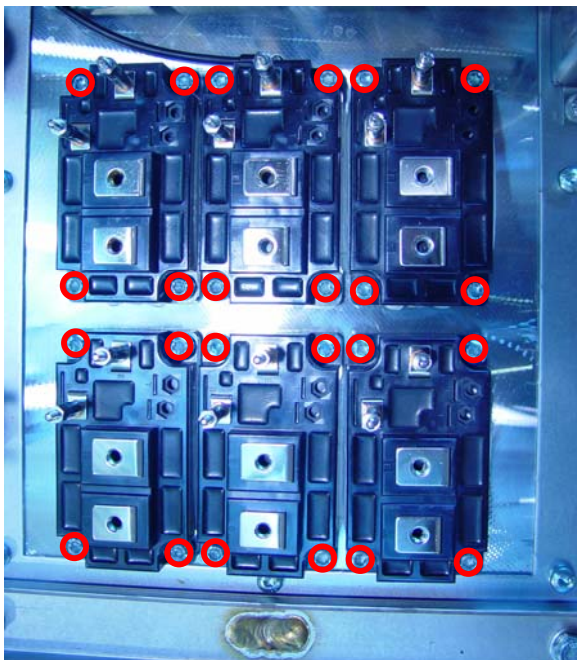
Remove 1 screw



Size	Torque
M3x6	0.8Nm

The thermal sensor can be removed.

Module IGBT. VZ3IM1603M1271



For each 3 branch U/V/W, you should remove:

Remove 24 screws

It is **not necessary** to change all IGBT but just this one that is damaged.

After changing, **be careful** to set up direction.

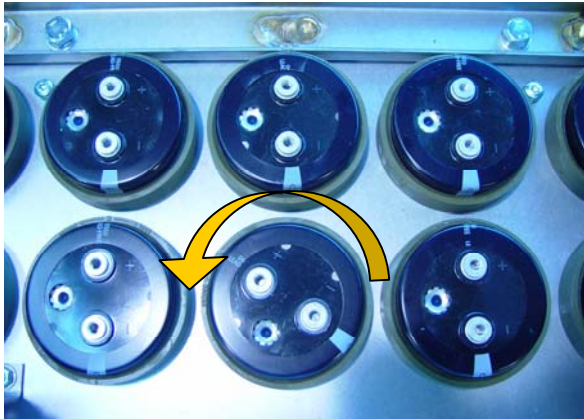
Don't forget applying the grease.



Size	Torque
M6x20	3.0Nm

The Module IGBT can be removed.

Lots of 6 Capacitors. VY1ADC1112



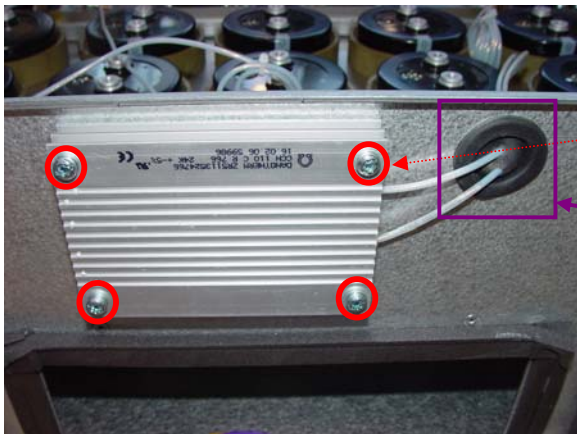
For each 3 branch U/V/W, you should remove 6 capacitors:

To remove the capacitor, rotate left it, and pull out it

After changing, **be careful** to set up direction

The Capacitors can be removed.

Discharging Resistor VZ3R24KW125



For each 3 discharging resistor, you should remove:

Remove 4 screws

Be careful, to remove the discharging resistor, remove the gasket and slide the wire in the hole.

The discharging resistor can be removed.



Size	Torque
M4x20	1.2Nm



9.26.2 Product Assembling Drawing

No information

9.26.3 Product Cabling Drawing

Refer to following file: [circuit diagram 14A.pdf](#)

Refer to following file: [circuit diagram 14B.pdf](#)



9.27 ATV61/71 Size 15 (size, refer to 1.2)

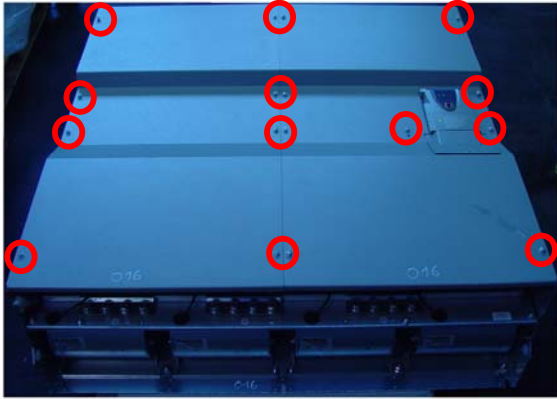
9.27.1 Dismantling and reassembling

Size 15: ATV71HC50N4, ATV61HC63N4

ATV71HC50N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1600M1671	Rectifier Module Thyristor (600A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1334	Wires KIT
VZ3N1332	AC Bus Bar KIT
VZ3N1330	DC Bus Bar KIT
VZ3IM1604M1271	Lot of 4 Modules Paired IGBT (600A / 1200V)
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1111	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1407	Plastic Parts KIT
VY1A1306	Assembling KIT
VY1A1217	Front Cover with I/O Terminal Cover
VY1A1109	Motor Current Sensor
VX5A1HC5063	Power Board
VZ3F1113	Braking Unit KIT
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1204	Gate Drive Board
VX4A71101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1117	RFI Filter Board
VW3A4526	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

ATV61HC63N4	
Reference	Designation
VZ3V1213	Internal Fan
VZ3V1212	Fan Power Electronic
VZ3TM1600M1671	Rectifier Module Thyristor (600A / 1600V)
VZ3R24KW125	Discharging Resistor (24k / 125W)
VZ3N1334	Wires KIT
VZ3N1332	AC Bus Bar KIT
VZ3N1330	DC Bus Bar KIT
VZ3IM1604M1271	Lot of 4 Modules Paired IGBT (600A / 1200V)
VZ3G1104	Thermal Sensor
VZ3DM1600M1671	Rectifier Module Diode (600A / 1600V)
VY1ADV1111	Screws KIT
VY1ADC1112	Lots of 6 capacitors (5200µF / 400V)
VY1A1407	Plastic Parts KIT
VY1A1306	Assembling KIT
VY1A1217	Front Cover with I/O Terminal Cover
VY1A1109	Motor Current Sensor
VX5A1HC5063	Power Board
VZ3F1113	Braking Unit KIT
VX5A1400	Fan Control Board
VX5A1300	Soft Charge Board
VX5A1204	Gate Drive Board
VX4A61101Y	Control bloc P >=90kW
VX4A1200	Rectifier snubber circuit
VX4A1117	RFI Filter Board
VW3A4526	DC Choke
VX4A1104	Terminal Board
VX4A1103	Front cover 4x7 Digits

Front Cover with I/O Terminal Cover: VY1A1217

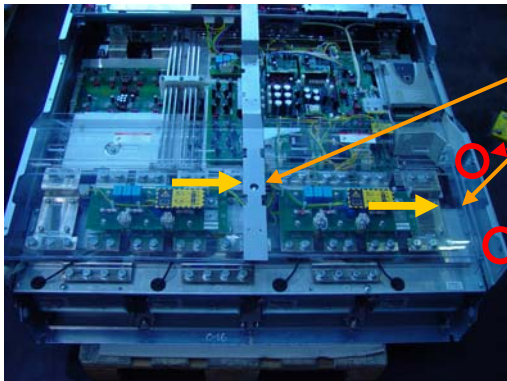


Remove 17 screws



Size	Torque
M6x12	5.5Nm

Plastic Parts KIT: VY1A1407



Push here and disengage plastic part

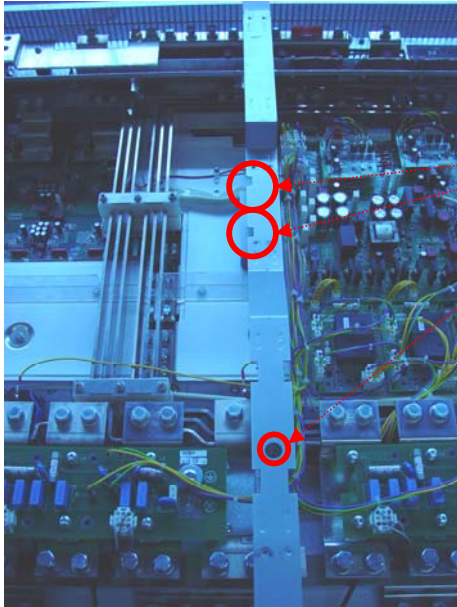
Remove 2 nuts



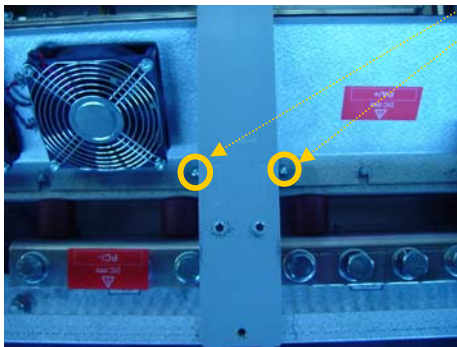
Size	Torque
M6	5.5Nm

The Plastic part can be removed.

Metal kit.



Remove 3 screws (P1)



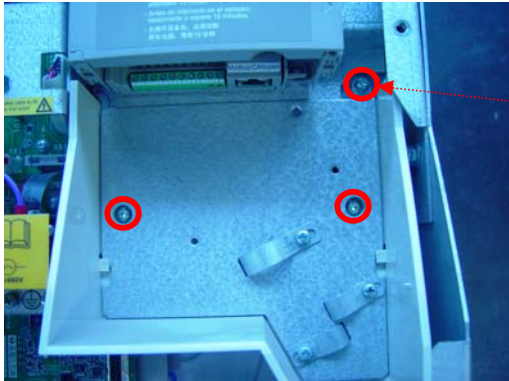
Remove 2 nuts (P2)



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm

The metal part can be removed.

Plastic Parts KIT: VY1A1407



Remove 3 screws

The Plastic Part kit can be removed.



Size	Torque
M4x12	1.2Nm

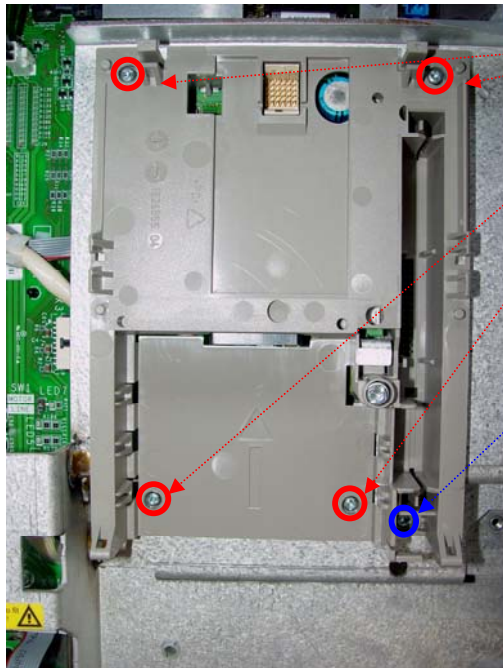
Control bloc: VX4A71101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.



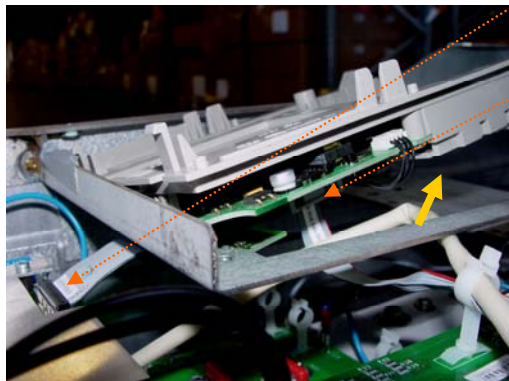
Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 to S8).

Remove 1 screw (S38).

Disconnect the ribbon cable.
X3 from Control bloc "interface Board" -> X3 on Motor Control Board



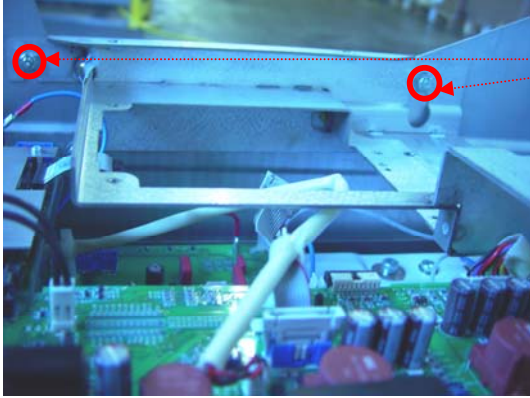
Disconnect the ribbon cable.
X4 from Control bloc "interface Board" -> X4 on Power Board

The Control bloc can be removed.

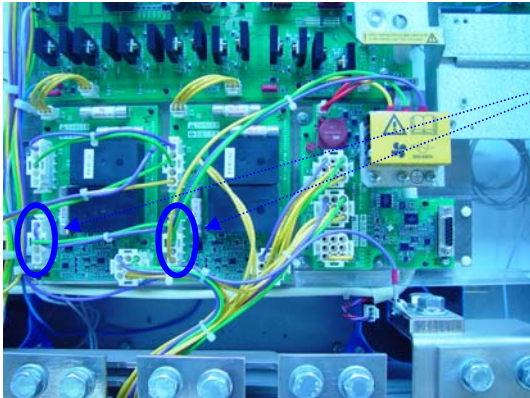


Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5NM

Metal Support for Control Bloc



Remove 2 nuts



Disconnect wire:

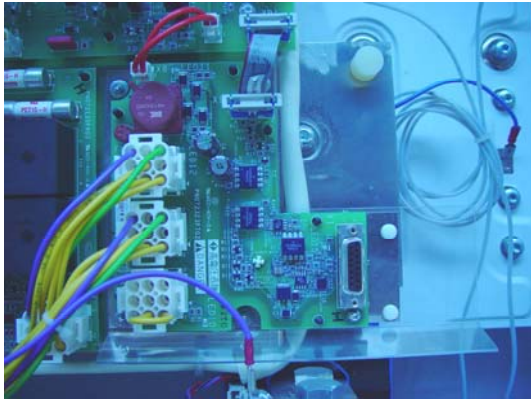
Yellow/Green/Purple TB1 -> X4 on both fan control board

The metal kit can be removed.



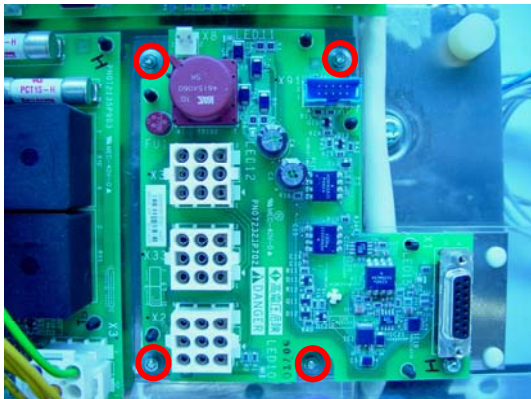
Size	Torque
M6	5.5Nm

Braking Unit KIT: VZ3F1113



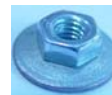
Disconnect 5 wires top to down:

- Red X8 -> X81 on Power board
- Ribbon X91 -> X91 on Power board
- Yellow/Green/Purple X3 -> X3 on fan control board 2
- Yellow/Green/Purple X33 -> X13 & X14 on RFI filter board 2
- Yellow X2 -> Shunt X2 on braking unit device



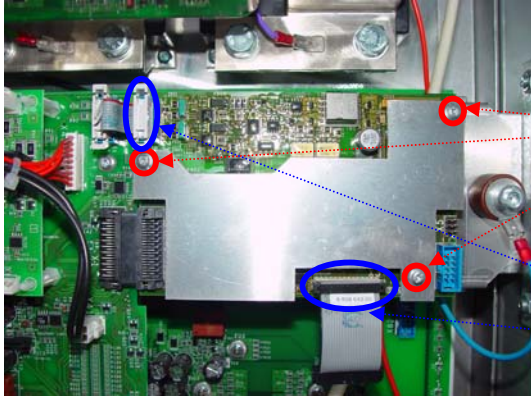
Remove 4 nuts

The Braking unit device can be removed



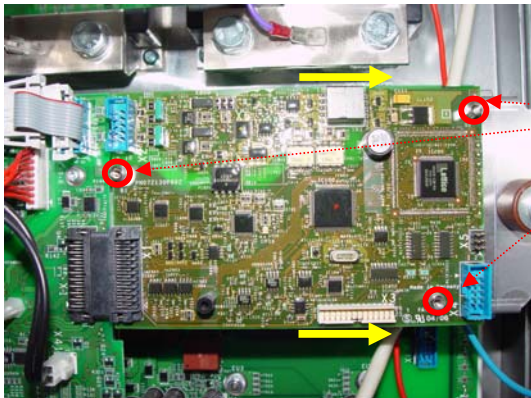
Size	Torque
M3	0.8Nm

Motor control Board: VX4A71101Y



Remove the 3 screws. (P1)

Disconnect the 2 ribbon cable, *left to the right*:
 X2 -> X2 on Power board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs (P2).

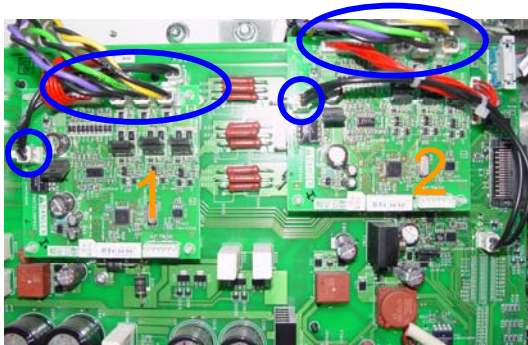
Be careful, at the time of reassembling;
 don't forget to put the steel.

The motor control board can be removed.



Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

Soft Charge board: VX5A1300



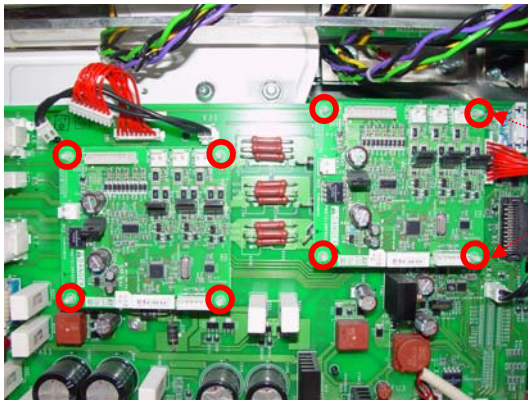
Disconnect wires, *left to the right*:

Soft charge Board 1

- Blue CN7A-> X31 on Power board
- Red CN2A-> X30 on power board
- Purple/Black CNL3G ->Gate rectifier 3.1 on L3.1
- Green/Black CNL2G ->Gate rectifier 2.1 on L2.1
- Yellow/Black CNL1G -> Gate rectifier 1.1 on L1.1

Soft charge Board 2

- Blue CN7A-> X41 on Power board
- Red CN2A-> X40 on power board
- Purple/White CNL3G ->Gate rectifier 3.2 on L3.2
- Green/ White CNL2G ->Gate rectifier 2.2 on L2.2
- Yellow/ White CNL1G -> Gate rectifier 1.2 on L1.2



Push on the 8 plastic supports to remove the board.



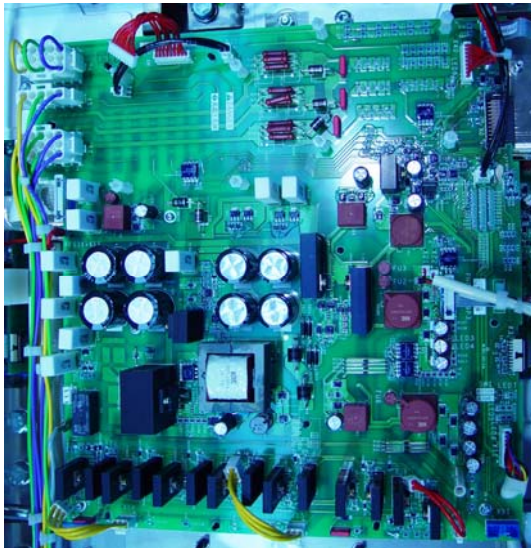
Push on the side.



Size	Torque
M3x8	clips

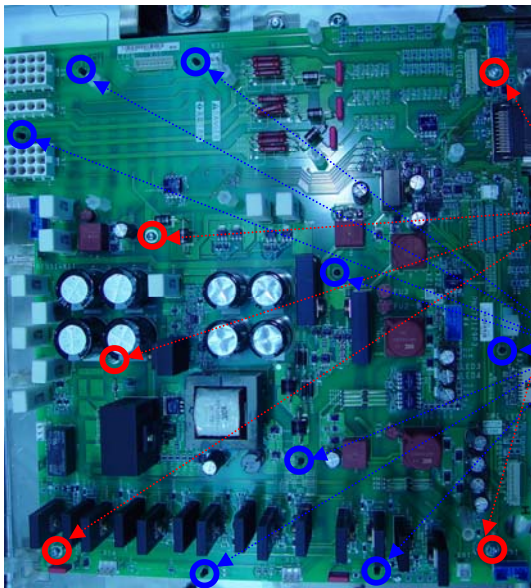
The Soft charge Board can be removed.

Power Board: VX5A1HC5063



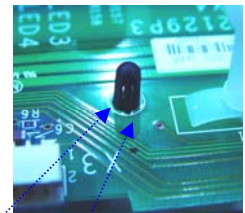
Disconnect the 21 wires, *unclockwise*:

- Black X41-> CN7A on soft charge board 2
- Red X40-> CN2A on soft charge board 2
- Ribbon X2-> X2 on motor control board
- Black X31-> CN7A on soft charge board 1
- Red X30-> CN2A on Soft charge board 1
- Yellow/Green/Purple X6-> X6 shunt on Power Board
- Yellow/Green/Purple X5-> bus bar U Yellow, bus bar V Green, bus bar W Purple
- Yellow/Green/Purple X7->Yellow X11/Green X12/Purple X13 on both RFI filter Board
- Ribbon X8 -> X82 on Gate drive Board IGBT U
- Red RFS31+X11 -> X11 on Snubber circuit 1
- White UD-R1 -> discharging resistor
- Blue UD0 -> interconnection bus bar W
- Yellow X14-> X2 on Fan control Board 1
- Yellow X15 -> X2 on Fan control board 2
- Red X81-> X8 on Braking unit device
- Ribbon X91-> X91 on Braking unit device
- Multicolour X11-> currents sensors U V W
- Ribbon X3-> X32 on Gate drive board W
- Ribbon X4-> X4 on control block
- White X22-> inside Fan alimentation
- White X21-> inside Fan alimentation



Remove the 5 screws. (S?)

Push on the 8 plastic supports to remove the board



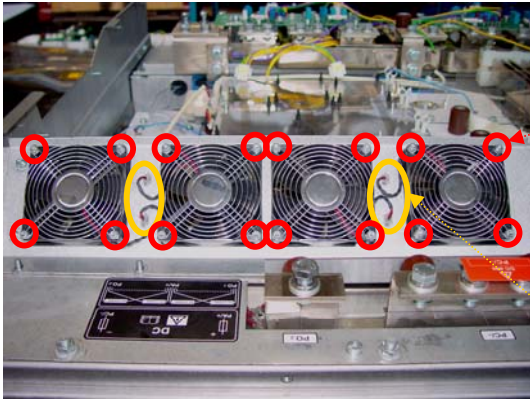
Push on the side.



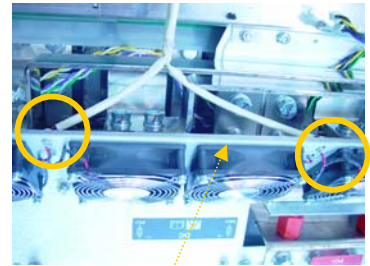
Size	Torque
M3x6	0.8Nm
M3x8	clips

The Power board can be removed.

Internal Fan: VZ3V1213



Remove 16 screws.



Disconnect 4 Wires

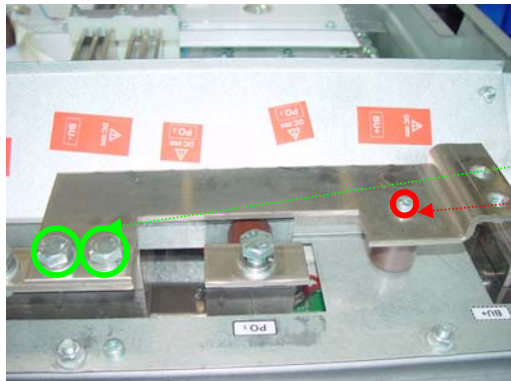
Black Fan-> X21 X22 on Power board

The Fan can be removed.



Size	Torque
M4x35	1.2Nm

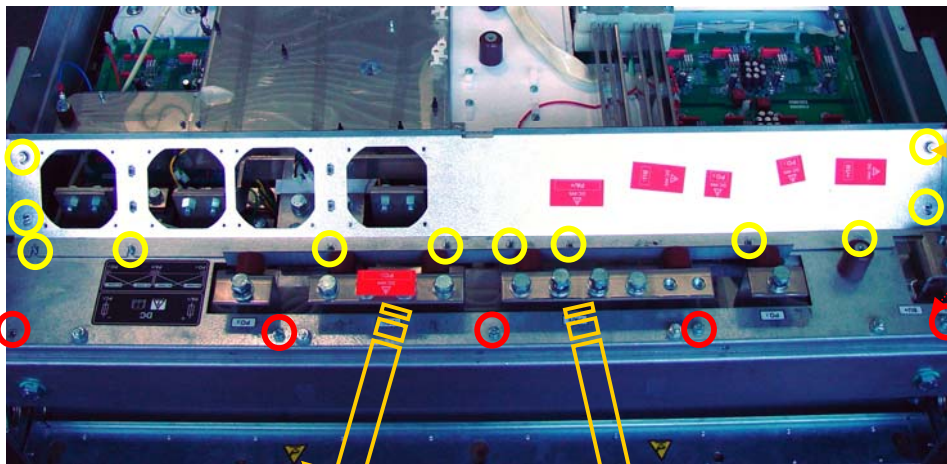
AC Bus Bar KIT: VZ3N1332



Step 1

Remove 2 screws (P3).

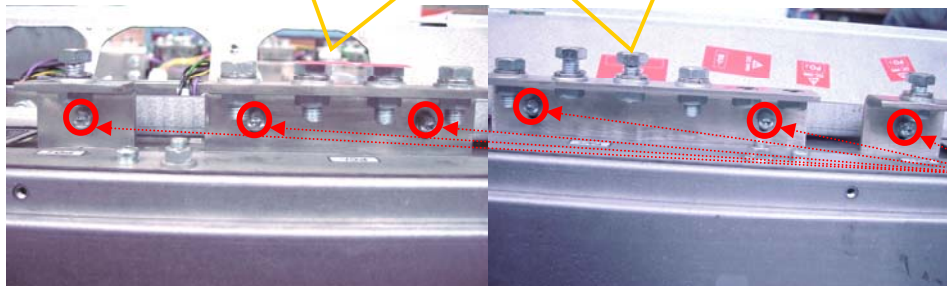
Remove 1 screw (P1)



Step 2

Remove 12 nuts (P2).

Remove 5 screws (P1)



Step 3

Remove 6 screws (P1).

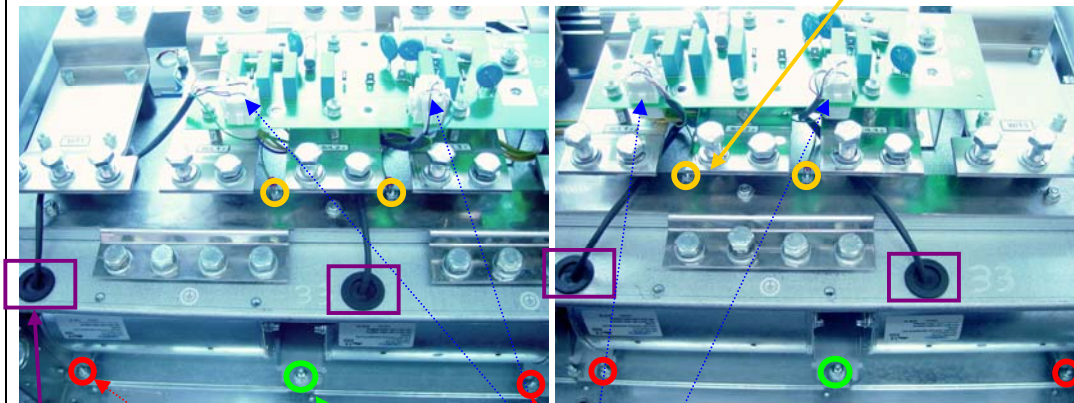


Mark	Size	Torque
P3	M12x25	45Nm
P1	M6x14	5.5Nm
P2	M6	5.5Nm

The AC Bus Bar Kit can be removed.

Fan Power Electronic: VZ3V1212

Be careful; don't forget to disconnect the ground wire.



Disconnect 4 connectors
 Fan turbine 1->X11 on RFI filter board 1->X3 on fan control board 1
 Fan turbine 2->X12 on RFI filter board 1->X3 on fan control board 1
 Fan turbine 3->X13 on RFI filter board 2->X33 on Braking unit device
 Fan turbine 4->X14 on RFI filter board 2->X33 on Braking unit device

Remove 4 screws (J130)
 Remove 2 screws (J139)

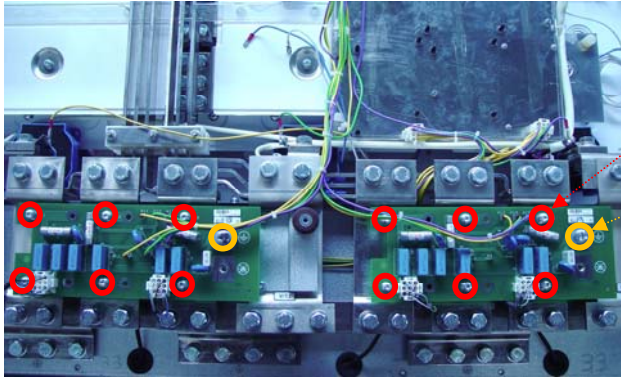
Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

The Turbine can be removed.



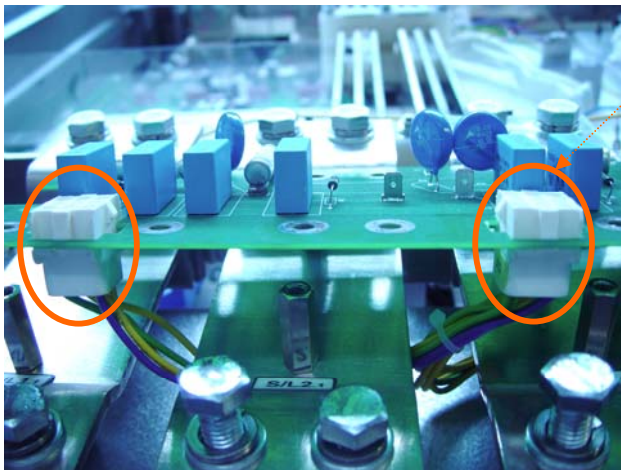
Mark	Size	Torque
J130	M6	5.5Nm
J139	M8	13.5Nm

RFI Filter Board: VX4A1117



Remove 12 screws (P1)

Remove 2 screws (P2)



To change the board, don't forget to disconnect the 4 connectors

X11 X12 on RFI Filter Board 1

And

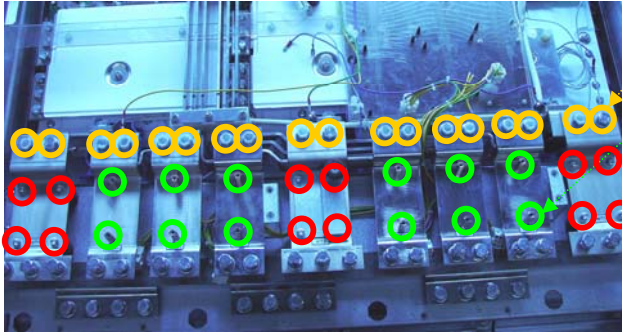
X13 X14 on RFI Filter Board 2

The Both RFI filter board can be removed.



Mark	Size	Torque
P2	M6x12	5.5Nm
P1	M6x14	5.5Nm

AC Bus Bar KIT: VZ3N1332



Remove 18 screws (P1)

Remove 12 screws (P2)

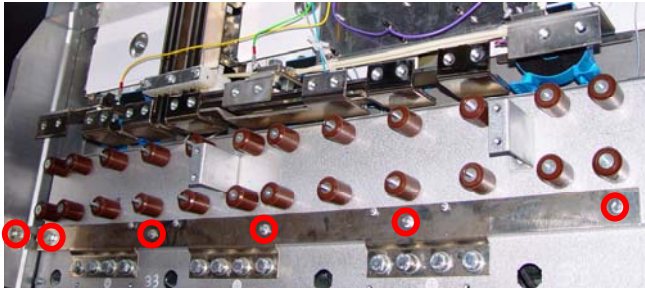
Remove 12 screws (P3)



Mark	Size	Torque
P1	M12x25	45Nm
P2	M6x22	5.5Nm
P3	M6x14	5.5Nm

The AC Bus Bar kit can be removed.

Earth Terminal Bar: VZ3N1332



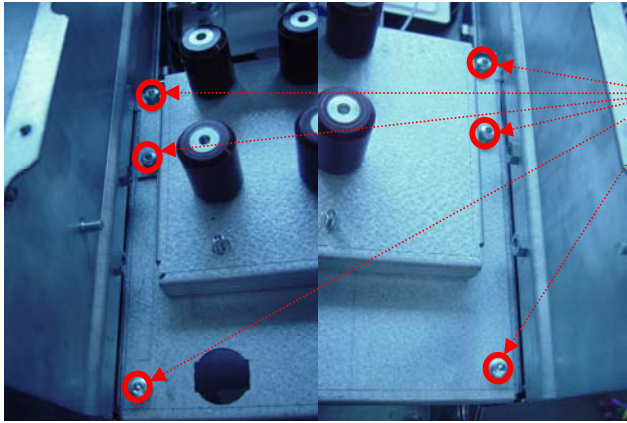
Remove 6 nuts



Size	Torque
M6	5.5Nm

The Earth Terminal Bar can be removed.

Metal Body Part KIT



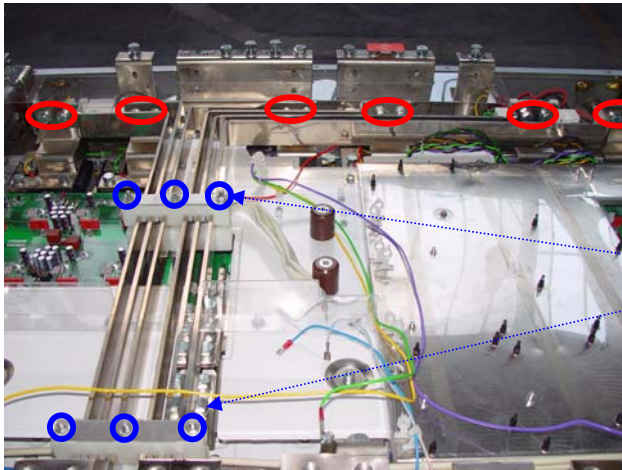
Remove 6 screws



Size	Torque
M6x14	5.5Nm

The metal kit can be removed.

AC Bus Bar KIT: VZ3N1332



Remove 12 screws

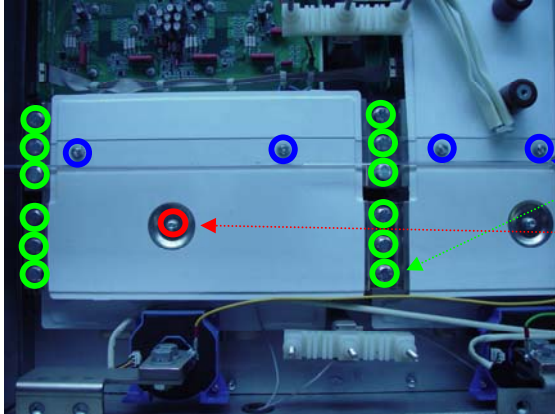
Remove 6 nuts



Size	Torque
M12x25	45Nm
M6	5.5Nm

The AC Bus bar kit can be removed.

DC Bus Bar KIT: VZ3N1330

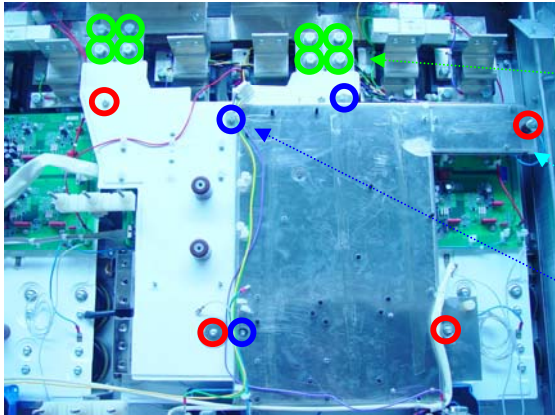


Step 1

Remove 12 screws (J129).

Remove 4 nuts (P1)

Remove 1 screw (P2)



Step 2

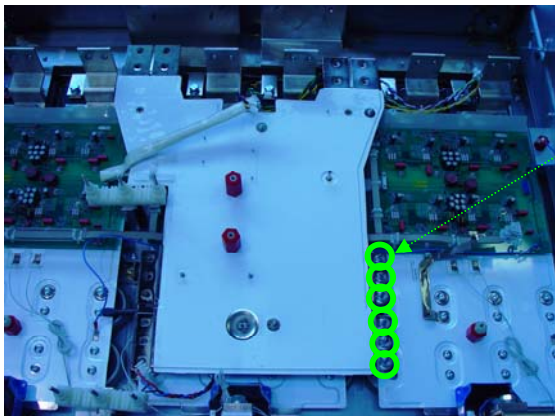
Remove 8 screws (J129).

Remove 5 screws (P2)

And disconnect one wire:

Blue -> X53 on gate drive board IGBT W

Remove 3 nuts (P1)



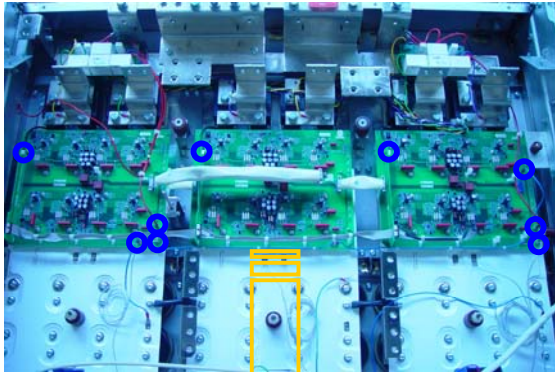
Step 3

Remove 6 screws (J129)

Mark	Size	Torque
J129	M10x20	27Nm
P2	M6x14	5.5Nm
P1	M6	5.5Nm

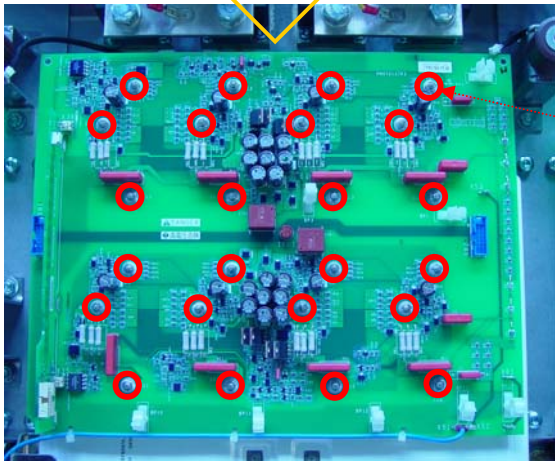
The DC bus bar kit can be removed.

Gate Drive Board IGBT.VX5A1204



Disconnect the 4 wires top to down.

- Black X4 on gate drive Board IGBT U/V/W-> thermal sensor
- Blue X53 on gate drive board IGBT W-> DC bus
- Blue X51 on gate drive Board IGBT U->Power Interconnection bar U
- Red X61 on gate drive board U->X10 on snubber rectifier circuit 1
- Red X61 on gate drive board W ->X10 on snubber rectifier circuit 2
- White X62 on gate drive board U ->discharging resistor
- White X62 on gate drive board W ->discharging resistor



For each 3 branch U/V/W, you should remove:

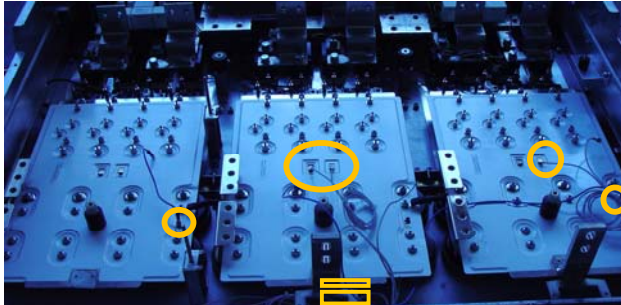
Remove 24 nuts

The Gate Drive Boards IGBT can be removed.



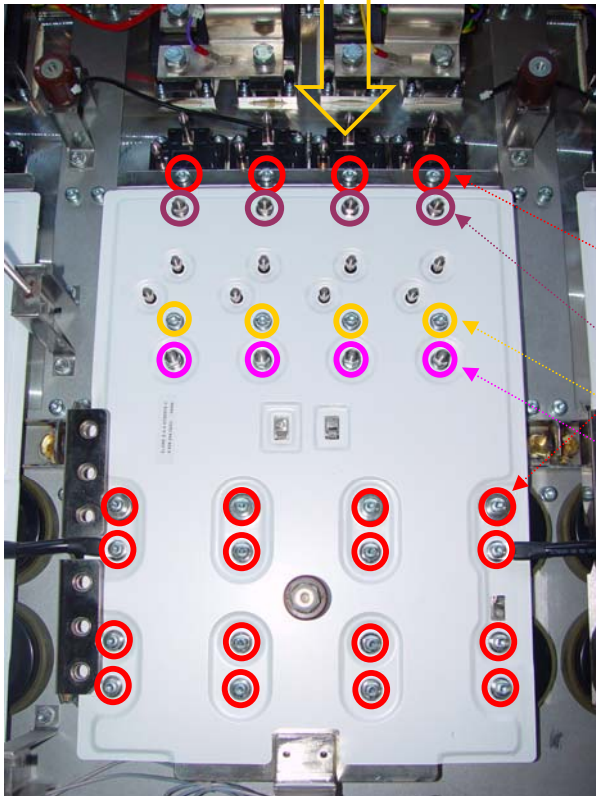
Size	Torque
M4	1.2Nm

DC Bus Bar KIT: VZ3N1330



Disconnect the 4 wires Left to right.

- Blue wire on interconnection bar U->X51 on gate drive board IGBT U
- White wires on interconnection bar V->discharging resistor
- White wires on interconnection bar W->discharging resistor
- Blue wire on interconnection bar W ->UD0 on Power Board








For 3 AC bus bar U V, you should remove:

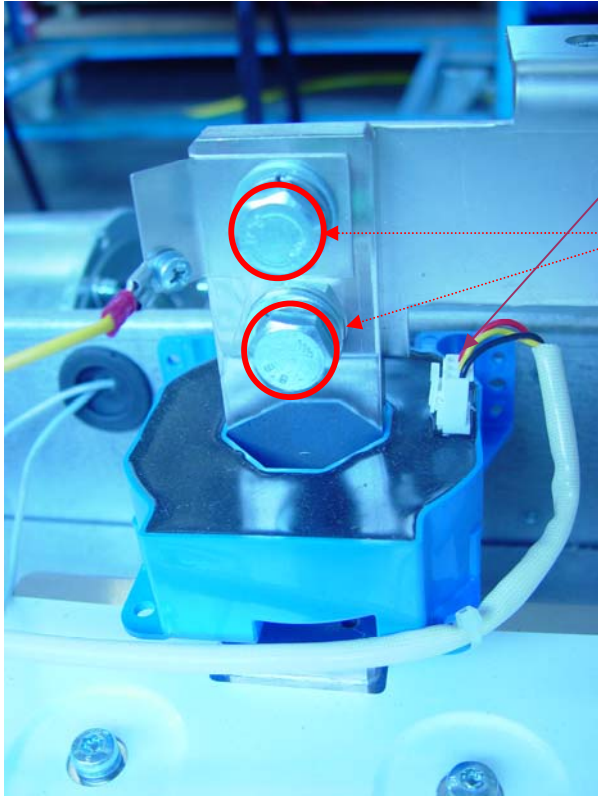
- Remove 4 screws (P1)
- Remove 16 screws (P2-P3-P4).
- Remove 4 screws (P6)
- Remove 4 screws (P7)
- Remove 4 screws (P5)

Be careful, at the time of reassembling, don't forget to put the 2 Shunt.

The DC Bus Bar-Phase can be removed.

Mark	Size	Torque
 P1	M6x14	5.5Nm
 P2-P3-P4	M6x14	3,3Nm
 P6	ST M6/M4	5.5Nm
 P7	M6x20	5.5Nm
 P5	ST M6/M4	5.5Nm

Motor Current Sensor: VY1A1109



For 3 current sensor on U/V/W, you should remove:

Disconnect one wire:
Current sensor -> X11 on measuring board

Remove 2 screws (P1)



Remove 2 screws (P2)

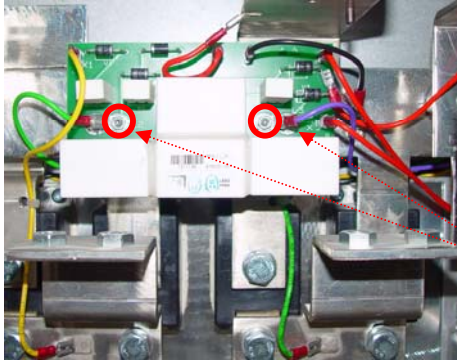
The current sensor can be removed.



Mark	Size	Torque
P1	M12x25	45Nm
P2	M4x12	1.2Nm

Rectifier Snubber Circuit: VX4A1200

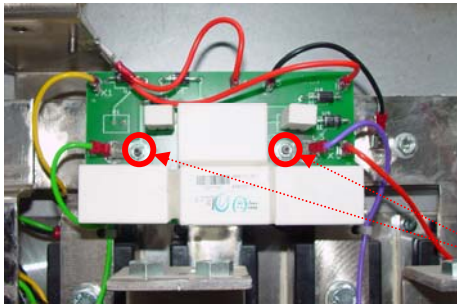
Snubber rectifier circuit 1



- Yellow X1 -> bus bar L1.1
- Green X2 -> bus bar L2.1
- Purple X3 -> bus bar L3.1
- Red X10 -> X61 on gate drive board IGBT U
- Red X11 -> RFS31+X11 on power Board
- Black X5 -> bus bar PC
- Red X4 -> bus bar PO.1

Remove 2 nuts

Snubber rectifier circuit 2



- Yellow X1 -> bus bar L1.2
- Green X2 -> bus bar L2.2
- Purple X3 -> bus bar L3.2
- Red X10 -> X61 on gate drive board IGBT W
- Red X11 -> bus bar PO.2
- Black X5 -> bus bar PC
- Red X4 -> bus bar PO.2

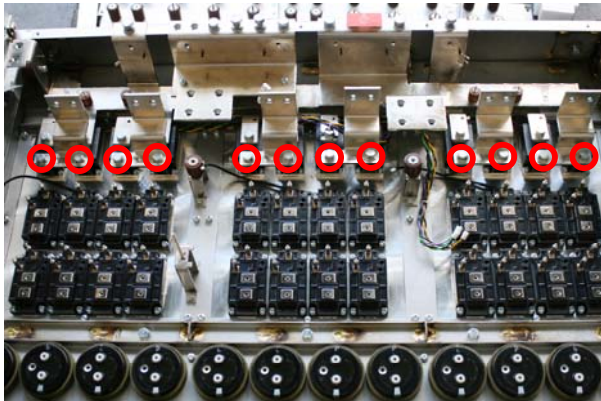
Remove 2 nuts

The Rectifier Snubber Circuit can be removed.



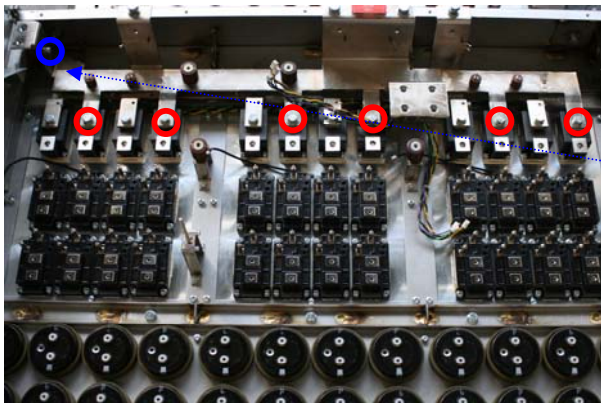
Size	Torque
M4	1.2Nm

Rectifier Module Thyristor: VZ3TM1600M1671
Rectifier Module Diode: VZ3DM1600M1671
AC Bus Bar KIT: VZ3N1332



Part 1

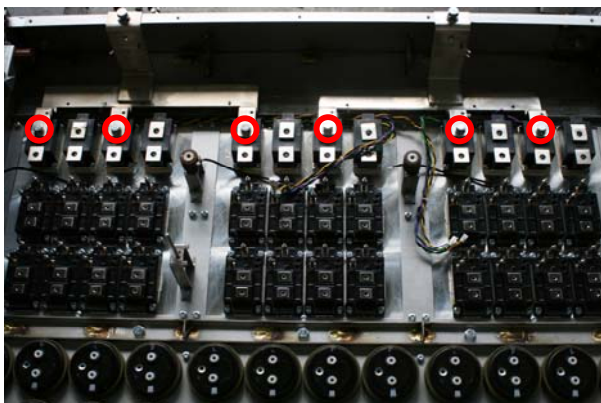
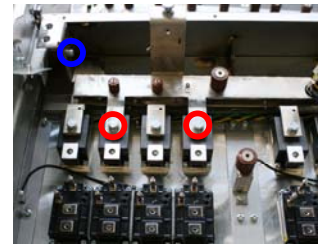
Remove 12 screws (P2)



Part 2

Remove 6 screws (P2)

Remove 1 screw (P1)



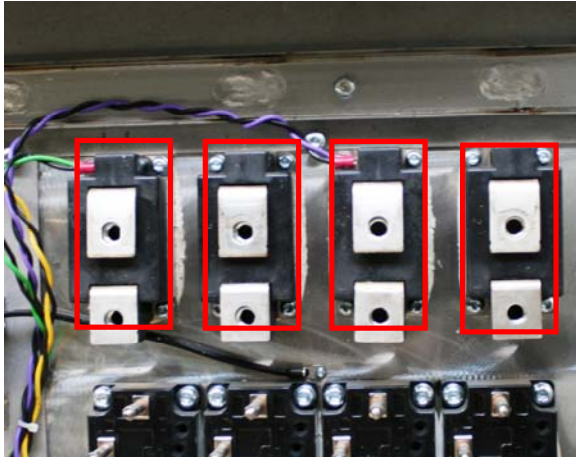
Part 3

Remove 6 screws (P2)



Mark	Size	Torque
P2	M10x25	13.5Nm
P1	M6x14	5.5Nm

Rectifier Module Thyristor: VZ3TM1600M1671 Rectifier Module Diode: VZ3DM1600M1671



For each 3 branch, you should remove:

Remove 16 screws

It is **not necessary** to change all rectifiers but just this one that is damaged.

After changing, **be careful** to set up direction.
Don't forget applying the grease.



Size	Torque
M5x25	5.0Nm

Rectifier Module Thyristor: VZ3TM1600M1671



Be careful, after changing respect the colour line for the wires.

From left to right

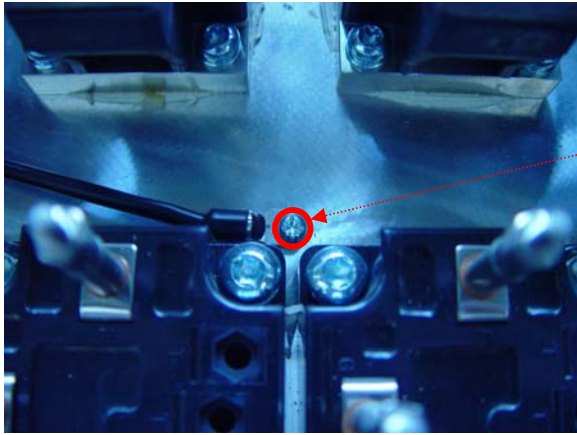
[Yellow-Black]- [Green-Black] - [Purple-Black]

And

[Yellow-White]- [Green- White] - [Purple- White]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Thermal Sensor: VZ3G1104



For each 3 branch U/V/W, you should remove:

Remove 1 screw

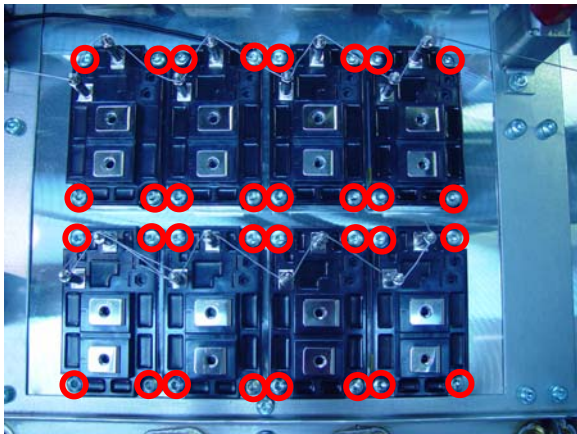
Be careful, don't forget to connect the wire on the connector "X4" of the Gate drive board IGBT

The thermal sensor can be removed.



Size	Torque
M3x6	0.8Nm

Lot of 4 Modules Paired IGBT: VZ3IM1604M1271



For each 3 branch U/V/W, you should remove:

Remove 32 screws

It is **not necessary** to change all IGBT but just this one that is damaged.

After changing, **be careful** to set up direction.

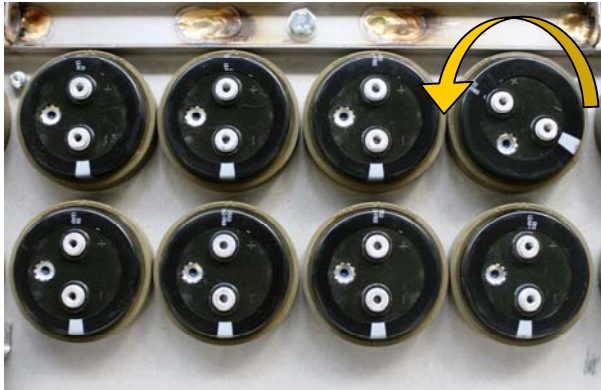
Don't forget applying the grease.

The IGBT can be removed.



Size	Torque
M6x20	3.0Nm

Lots of 6 capacitors: VY1ADC1112



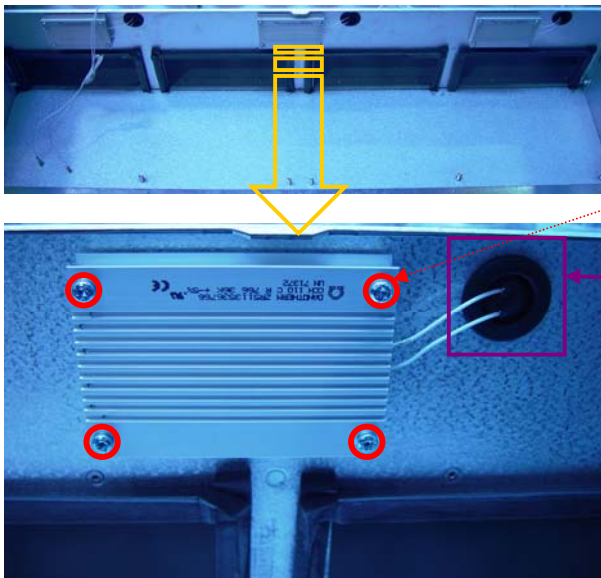
For each 3 branch U/V/W, you should remove 6 capacitors:

To remove the capacitor, rotate left it, and pull out it

After changing, **be careful** to set up direction

The Capacitors can be removed.

Discharging Resistor: VZ3R24KW125



For each 3 discharging resistor, you should remove:

Remove 4 screws

Be careful, to remove the discharging resistor, remove the gasket and slide the wire in the hole.

The discharging resistor can be removed.



Size	Torque
M4x20	1.2Nm



9.27.2 Product Assembling Drawing

No information

9.27.3 Product Cabling Drawing

Refer to following file: [circuit diagram 15.pdf](#)

Soon available

9.29 ATV61/71 Size 13V (size, refer to 1.2)

9.29.1 Dismantling and reassembling

Size 13V: ATV71HC20Y, ATV71HC25Y, ATV71HC31Y, ATV61HC25Y, ATV61HC31Y, ATV61HC40Y

ATV71HC20Y	
Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1348	Wires KIT
VZ3N1345	AC Bus Bar KIT
VZ3N1342	DC Bus Bar KIT
VZ3IM1502M1771	Lot of 2 IGBT Modules Related (500A / 1700V)
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1113	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100µF)
VY1A1410	Plastic Parts KIT
VY1A1308	Assembling KIT
VX5A71HC200250	Measuring Board
VX5A1HC2540	Power Board
VX5A1301	Soft Charge Board
VX5A1206	Gate Drive Board
VX5A1105	Active Balancing Board
VX4A71101Y	Control bloc P >=90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1120	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX5A1400	Fan Control Board
VZ3V1213	Internal Fan
VY1A1108	Motor Current Sensor
VY1A1214	Front Cover with I/O Terminal Cover
VZ3F1112	Braking Unit KIT
VX4A1103	Front cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HC25Y	
Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1348	Wires KIT
VZ3N1345	AC Bus Bar KIT
VZ3N1342	DC Bus Bar KIT
VZ3IM1502M1771	Lot of 2 IGBT Modules Related (500A / 1700V)
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1113	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100µF)
VY1A1410	Plastic Parts KIT
VY1A1308	Assembling KIT
VX5A71HC250315	Measuring Board
VX5A1HC2540	Power Board
VX5A1301	Soft Charge Board
VX5A1206	Gate Drive Board
VX5A1105	Active Balancing Board
VX4A71101Y	Control bloc P >=90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1120	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX5A1400	Fan Control Board
VZ3V1213	Internal Fan
VY1A1108	Motor Current Sensor
VY1A1214	Front Cover with I/O Terminal Cover
VZ3F1112	Braking Unit KIT
VX4A1103	Front cover 4x7 Digits
VX4A1104	Terminal Board

ATV71HC31Y

Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1348	Wires KIT
VZ3N1345	AC Bus Bar KIT
VZ3N1342	DC Bus Bar KIT
VZ3IM1502M1771	Lot of 2 IGBT Modules Related (500A / 1700V)
VZ3G1105	Thermal Sensor
VZ3F1112	Braking Unit KIT
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1113	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100 μ F)
VY1A1410	Plastic Parts KIT
VY1A1308	Assembling KIT
VX5A71HC315400	Measuring Board
VX5A1HC2540	Power Board
VX5A1301	Soft Charge Board
VX5A1206	Gate Drive Board
VX5A1105	Active Balancing Board
VX4A71101Y	Control bloc P \geq 90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1120	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX5A1400	Fan Control Board
VZ3V1213	Internal Fan
VY1A1108	Motor Current Sensor
VY1A1214	Front Cover with I/O Terminal Cover
VX4A1103	Front cover 4x7 Digits

ATV61HC25Y

Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1348	Wires KIT
VZ3N1345	AC Bus Bar KIT
VZ3N1342	DC Bus Bar KIT
VZ3IM1502M1771	Lot of 2 IGBT Modules Related (500A / 1700V)
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1113	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100 μ F)
VY1A1410	Plastic Parts KIT
VY1A1308	Assembling KIT
VX5A71HC200250	Measuring Board
VX5A1HC2540	Power Board
VX5A1301	Soft Charge Board
VX5A1206	Gate Drive Board
VX5A1105	Active Balancing Board
VX4A61101Y	Control bloc P \geq 90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1120	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX5A1400	Fan Control Board
VY1A1108	Motor Current Sensor
VY1A1214	Front Cover with I/O Terminal Cover
VZ3F1112	Braking Unit KIT
VZ3V1213	Internal Fan
VX4A1103	Front cover 4x7 Digits

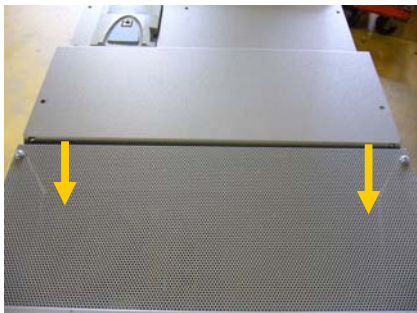
ATV61HC31Y	
Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1348	Wires KIT
VZ3N1345	AC Bus Bar KIT
VZ3N1342	DC Bus Bar KIT
VZ3IM1502M1771	Lot of 2 IGBT Modules Related (500A / 1700V)
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1113	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100µF)
VY1A1410	Plastic Parts KIT
VY1A1308	Assembling KIT
VX5A71HC250315	Measuring Board
VX5A1HC2540	Power Board
VX5A1301	Soft Charge Board
VX5A1206	Gate Drive Board
VX5A1105	Active Balancing Board
VX4A61101Y	Control bloc P >=90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1120	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX5A1400	Fan Control Board
VY1A1108	Motor Current Sensor
VY1A1214	Front Cover with I/O Terminal Cover
VZ3F1112	Braking Unit KIT
VZ3V1213	Internal Fan
VX4A1103	Front cover 4x7 Digits

ATV61HC31Y	
Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1348	Wires KIT
VZ3N1345	AC Bus Bar KIT
VZ3N1342	DC Bus Bar KIT
VZ3IM1502M1771	Lot of 2 IGBT Modules Related (500A / 1700V)
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1113	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100µF)
VY1A1410	Plastic Parts KIT
VY1A1308	Assembling KIT
VX5A71HC250315	Measuring Board
VX5A1HC2540	Power Board
VX5A1301	Soft Charge Board
VX5A1206	Gate Drive Board
VX5A1105	Active Balancing Board
VX4A61101Y	Control bloc P >=90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1120	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX5A1400	Fan Control Board
VY1A1108	Motor Current Sensor
VY1A1214	Front Cover with I/O Terminal Cover
VZ3F1112	Braking Unit KIT
VZ3V1213	Internal Fan
VX4A1103	Front cover 4x7 Digits

Front Cover with I/O terminal cover: VY1A1214



Remove 9 screws.

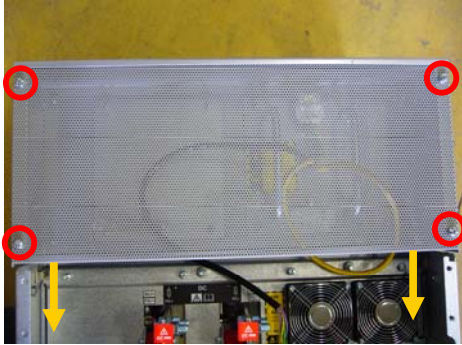


The front cover can be removed.



Size	Torque
M6x12	5.5Nm

Transformer Front Cover



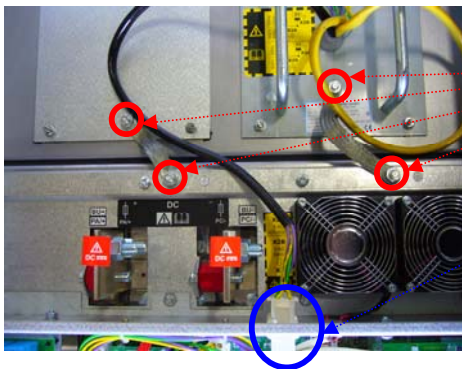
Remove 4 screws.

The front cover can be removed.



Size	Torque
M6x12	5.5Nm

Dismantling / reassembling Transformer connection



Remove 4 nuts.

Disconnect 1 wire:
X2B ->X2

The Transformer can be removed.



Size	Torque
M8	13.5Nm

Plastic Parts KIT: VY1A1410



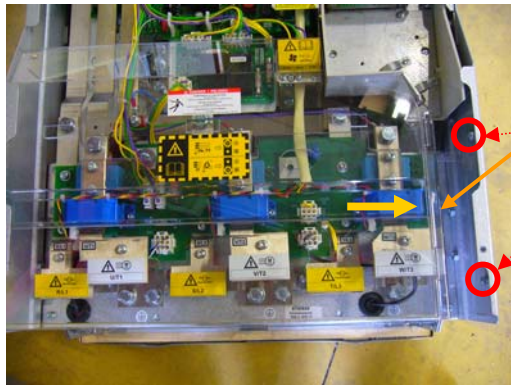
Remove 3 screws

The Plastic Parts kit can be removed.



Size	Torque
M4x12	1.2Nm

Plastic Parts KIT: VY1A1410



Push here and disengage plastic part

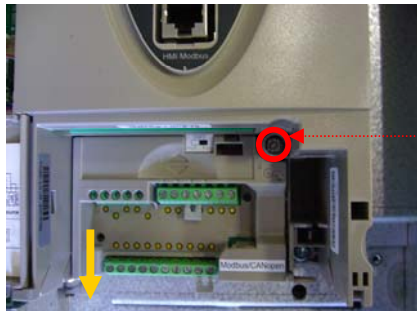
Remove 2 nuts

The Plastic parts KIT can be removed.

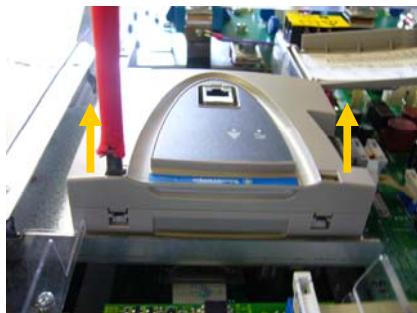


Size	Torque
M6	5.5Nm

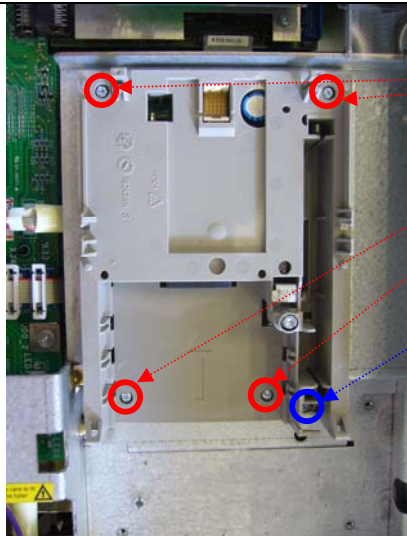
Control bloc: VX4A61101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.



Press the two clips and pulls forward to take out the display board.

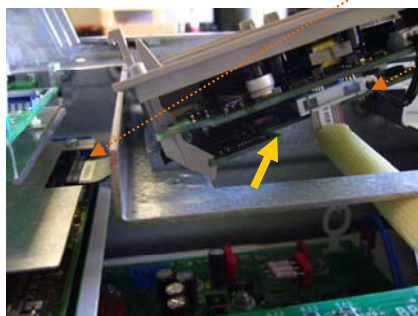


Remove 4 screws (S5-S8).


Remove 1 screw (S38).

Disconnect the ribbon cable.
X3 from Control bloc "interface Board" -> X3 on Motor Control Board

Disconnect the ribbon cable.
X4 from Control bloc "interface Board" -> X4 on Measuring Board

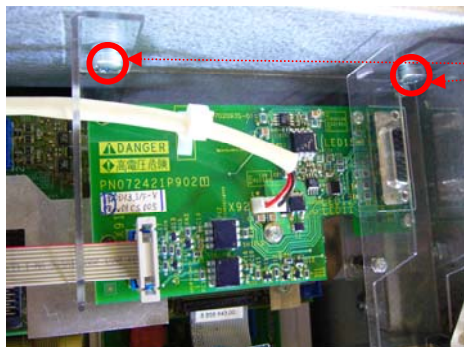


Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5Nm



The Control bloc can be removed.

Braking Unit KIT: VZ3F1112




Remove 2 screws

Disconnect the wires. From right to left:
White X92 -> X92 on measuring board (W28)
Ribbon X91 -> X93 on measuring board (W27)

The Braking Unit KIT can be removed.

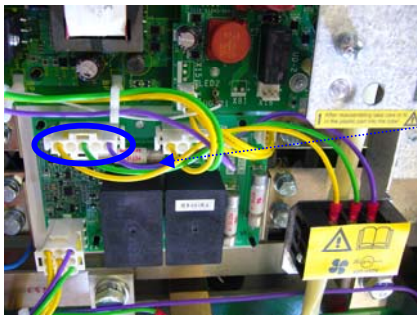
Size	Torque
M6x14	5.5Nm



Metal Support for Control bloc



Remove 2 nuts



Disconnect the wire:

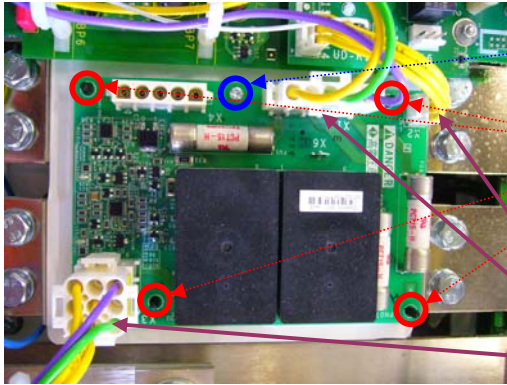
Yellow/Green/Purple TB1 -> X4 on fan control board

The metal support can be removed.



Size	Torque
M6	5.5Nm

Fan Control Board: VX5A1400



Remove 1 screw

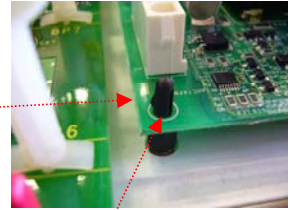
Push on the 4 plastic supports to remove the board.

Disconnect the wires. From right to left:

Yellow X2->X14 on measuring board

Yellow/Green/Purple X1-> X2 on metal kit ??->X2B on self-> X2 on RFI filter board

Yellow/Green/Purple X3-> turbine alimentation on RFI filter board



Push on the side.

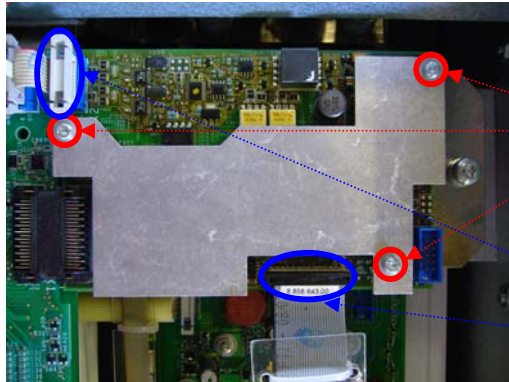


Size	Torque
M3x6	0.8Nm
M3x8	clips



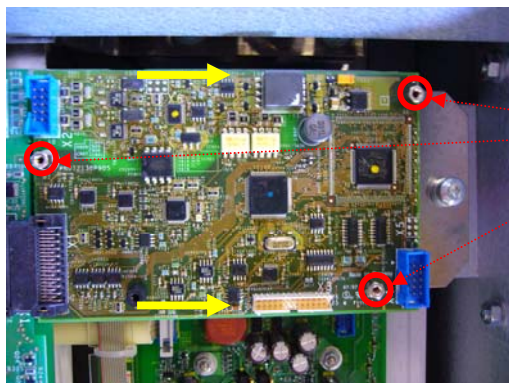
The Fan Control Board can be removed.

Motor Control Board: VX4A61101Y



Remove the 3 screws. (P1)

Disconnect the 2 ribbon cable, *left to the right*:
 X2 -> X2 on measuring board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs (P2)

Be careful, at the time of reassembling;
 don't forget to put the steel.



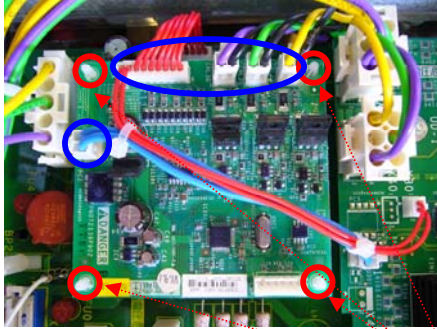
Remove the 2 screws. (P3)

The Motor Control Board can be removed.

Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm
P3	M3X6	0.8Nm

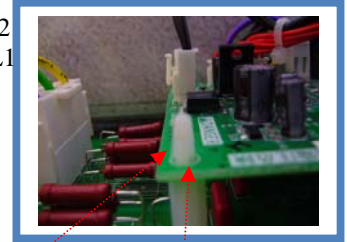


Soft Charge board: VX5A1301



Disconnect the 5 wires, *left to the right*:

- Blue CN7A-> X31 on measuring board
- Red CN2A-> X30 on measuring board and X30 on power board
- Purple/Black CNL3G ->Gate rectifier 3 on I3
- Green/Black CNL2G ->Gate rectifier 2 on L2
- Yellow/Black CNL1G -> Gate rectifier 1 on L1



Push on the 4 plastic supports to remove the board.

Push on the side.

The Soft charge Board can be removed.



Size	Torque
M3x8	clips

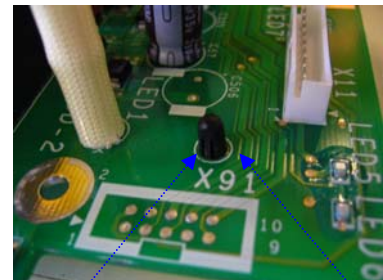
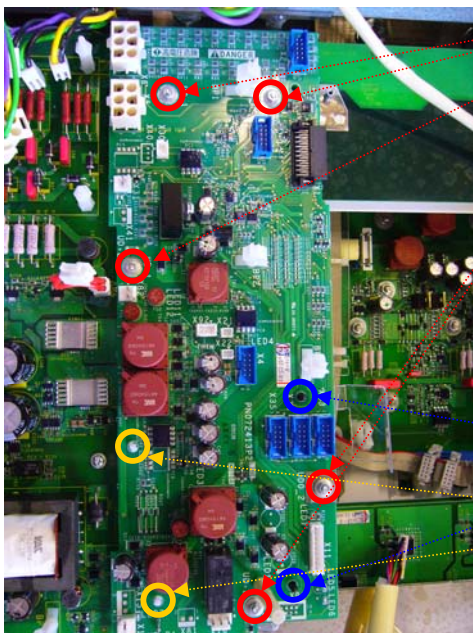
Measuring Board: VX5A71HC200250



Disconnect the 15 wires, *unlockwise*:

- Ribbon X2-> X2 on motor control board
- Yellow/Green/Purple X6-> bus bar U Yellow, bus bar V Green, bus bar W Purple
- Yellow/Green/Purple X5->X6 on measuring board
- Red X30-> CN2A on Soft charge board
- Blue X31-> CN7A on soft charge board
- Red X82-> X82 on power Board
- Yellow X14 -> X2 on Fan control board
- White UD-R1 -> discharging resistor
- Multicolour X11-> currents sensors U V W
- Ribbon X35-> X33 on Gate drive board W
- Ribbon X34-> X33 on Gate drive board V
- Ribbon X33-> X33 on Gate drive board U
- Ribbon X4-> X4 on control block
- White X22-> inside Fan alimention
- White X21-> inside Fan alimention
- White X92-> X92 on braking unit device
- Ribbon X93-> X91 on braking unit device

Remove the 5 screws. (P1)



Push on the 2 plastic supports to remove the board. (P2) Push on the side.

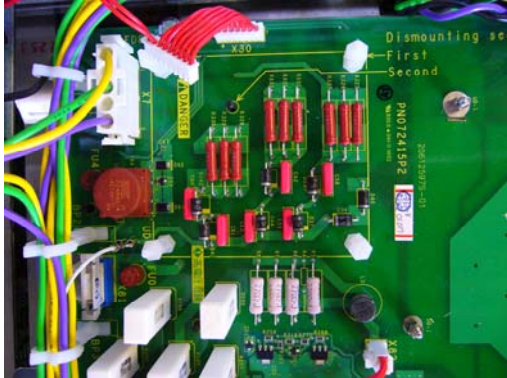
Push on the 2 plastic supports to remove the board (P3)

Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x8	clips
P3	M3x8	clips



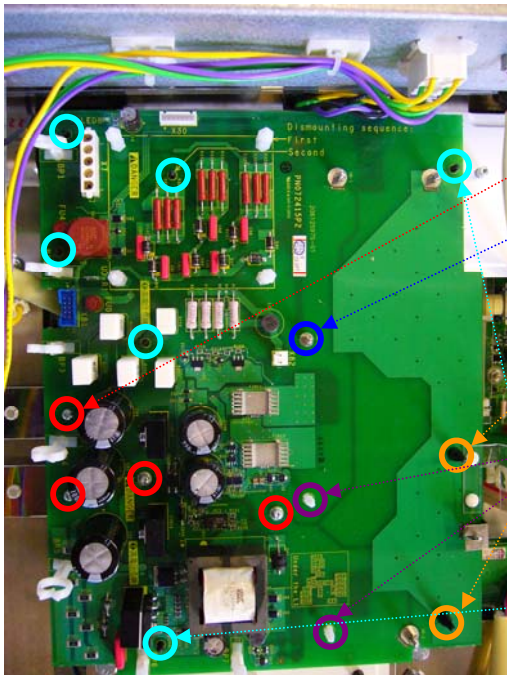
The Measuring board can be removed.

Power Board: VX5A1HC2540



Disconnect the 4 wires, *unclockwise*:

- Red X30 -> CN2A on softcharge board
- Yellow/Green/Purple X7 -> X7 on rectifier snubber circuit
- White UD+R1 -> discharging resistor
- Ribbon X81 -> X82 on Gate drive IGBT U
- Red X82 -> X82 on measuring board



Remove the 4 screws. (P1)

Remove the 1 screw. (P2)

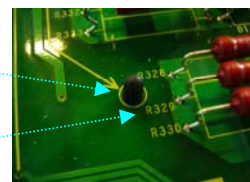
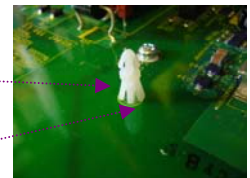
Remove the 2 screw. (P3)

Push on the 2 plastic supports to remove the board. (P4)

Push on the side.

Push on the 2 plastic supports to remove the board (P3)

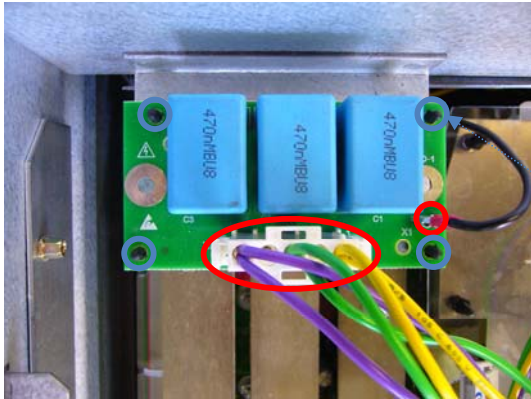
Push on the side.



Mark	Size	Torque
P1	M3x6	0.8Nm
P3	M3x8	Clips & 0.8Nm
P4	M3x8	clips

The Power board can be removed.

Rectifier Snubber Circuit: VX4A1206



Disconnect 2 Wires left to right

Yellow/Green/Purple X7->X7 on power board and X1 on RFI filter board

Black X1-> bus bar PC

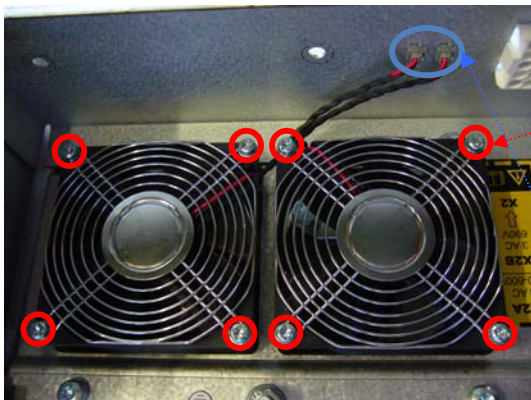
Push on the 4 plastic supports to remove the board.



Size	Torque
M3x8	clips

The Rectifier Snubber Circuit can be removed.

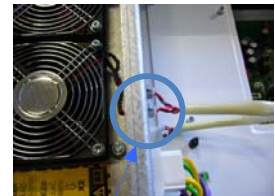
Internal Fan KIT: VZ3V1213



Remove 8 screws

Disconnect 2 Wires

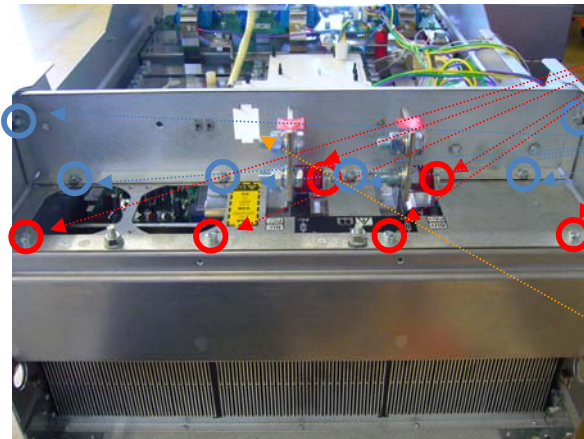
Black Fan-> X21 X22 on measuring board



Size	Torque
M4x35	1.2Nm

The Internal Fan KIT can be removed.

Metal Body Parts KIT



Remove 6 screws (P1).

Remove 6 screws (P2).

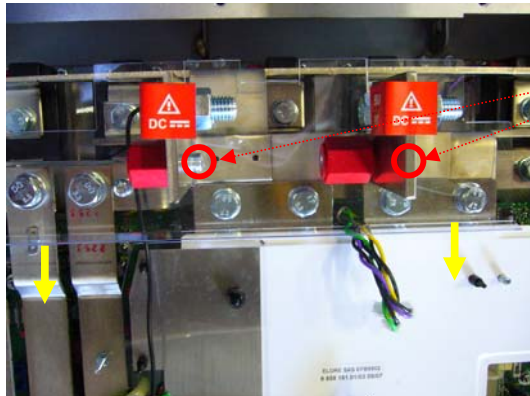
Push on the 2 plastic supports to remove the connector X2.



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm

The Metal Body Parts KIT can be removed.

Plastic Parts KIT: VY1A1410



Remove 2 screws

Don't forget to replace it during reassembling



Size	Torque
M6X14	5.5Nm

The Plastic parts KIT can be removed.

DC bus bar kit: VZ3N1342



Remove 4 screws (P1)

Remove 1 screw (P2)

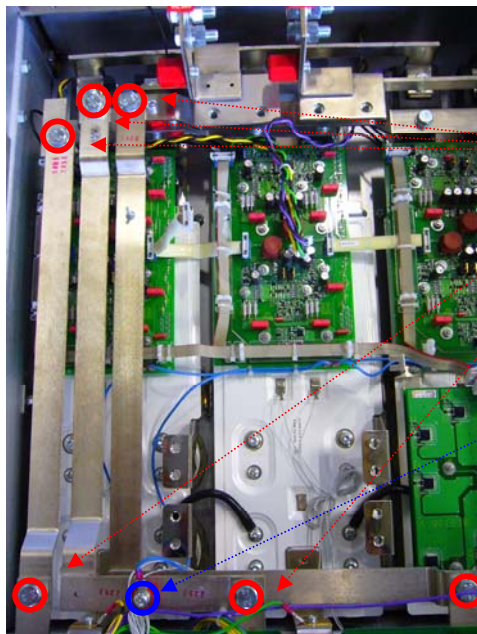
Remove 12 screws (P3)



Mark	Size	Torque
P1	M10X20	27Nm
P2	M6X12	5.5Nm
P3	M8x20	13.5Nm

The DC bus bar kit can be removed.

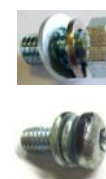
AC Bus Bar KIT: VZ3N1345



Remove 6 screws (J110, J120, J122).

Remove 1 screw (J125, J159, J22) and Disconnect 1 wire

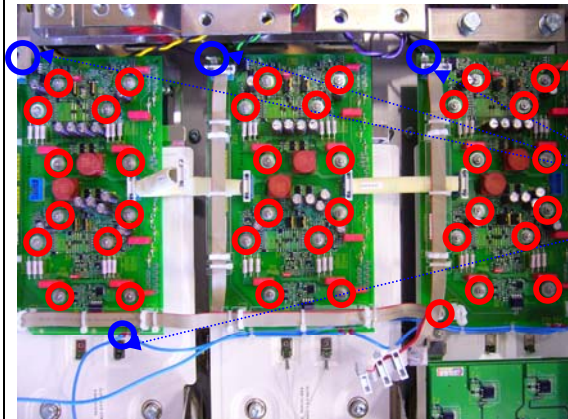
Blue -> X52 on Gate drive board IGBT W



Mark	Size	Torque
J110 J120 J122	M10x25	27Nm
J125 J159 J22	M6x12	5.5Nm

The AC Bus Bar KIT can be removed.

Gate Drive Board IGBT: VX5A1206



Remove 37 nuts

Disconnect the 4 wires top to down.

Black X4 on gate drive Board IGBT U/V/W-> thermal sensor

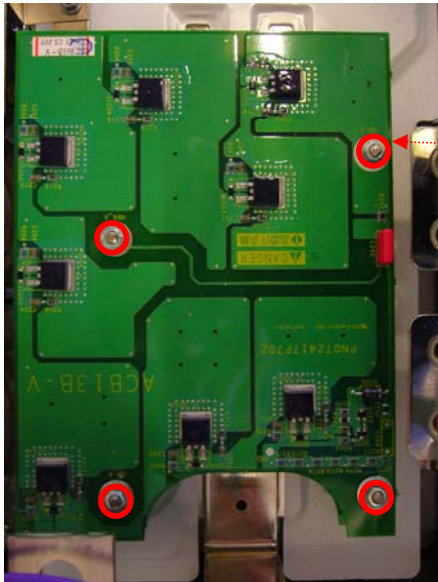
Blue X51 on gate drive Board IGBT U->Power Interconnection bar U

The Gate Drive Boards IGBT can be removed.



Size	Torque
M4	1.2Nm

Active Balancing Board: VX5A1105



Remove 4 nuts

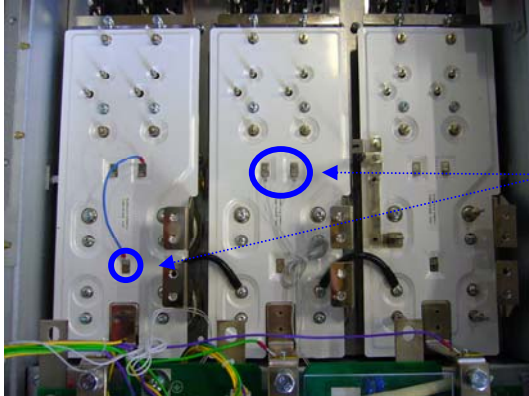
Be careful, at the time of reassembling;
don't forget to put both cards.

The Active Balancing Board can be removed.



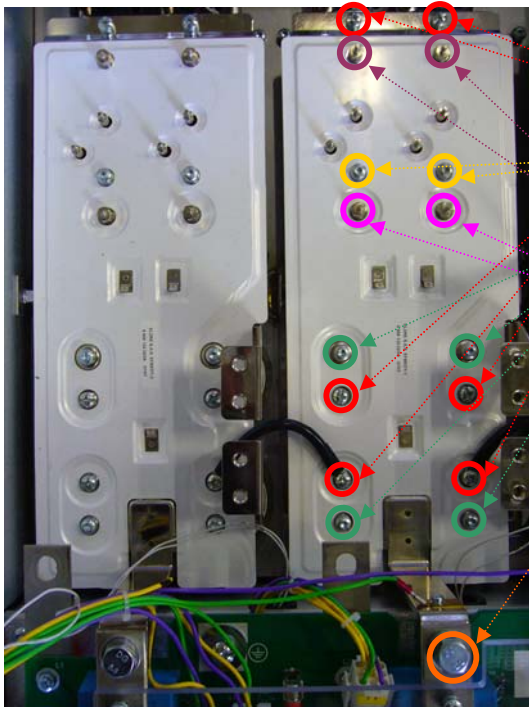
Size	Torque
M4	1.2Nm

DC bus bar kit: VZ3N1342



Disconnect the 4 wires Left to right.

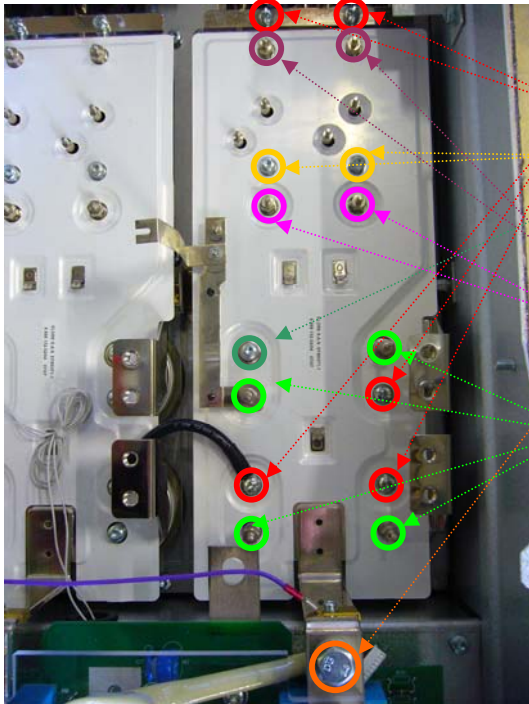
Blue wire on interconnection bar U -> X51 on Gate drive Board IGBT U
White wires on interconnection bar V -> discharging resistor



For 2 AC bus bar U V, you should remove:

- Remove 6 screws (J125).
- Remove 2 screws (J135)
- Remove 4 screws (J136)
- Remove 2 screws (J26)
- Remove 2 screws (J27)
- Remove 1 screw (J110, J120, J122)

Be careful, at the time of reassembling;
don't forget to put the 2 Shunt.



For this AC bus bar W, you should remove:

- Remove 5 screws (J125).
- Remove 2 screws (J135)
- Remove 1 screw (J136)
- Remove 2 screws (J26)
- Remove 2 screws (J27)
- Remove 1 screw (J110)
- Remove 4 screws (J24)

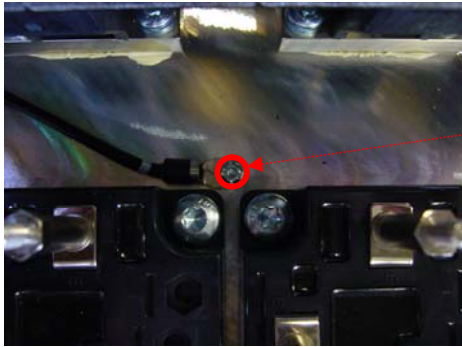
Be careful, at the time of reassembling; don't forget to put the 2 Shunt.

Mark	Size	Torque
J125	M6x12	3,3Nm
J26	ST 10x6	3,3Nm
J135	M6x20	3,3Nm
J27	ST 10x11	3,3Nm
J136	M6x14	3.3Nm
J24	ST 10x25	3.3Nm
J110	M12x25	45Nm



The DC Bus Bar KIT can be removed.

Thermal Sensor: VZ3G1105



For each 3 branch U/V/W, you should remove:

Remove 1 screw

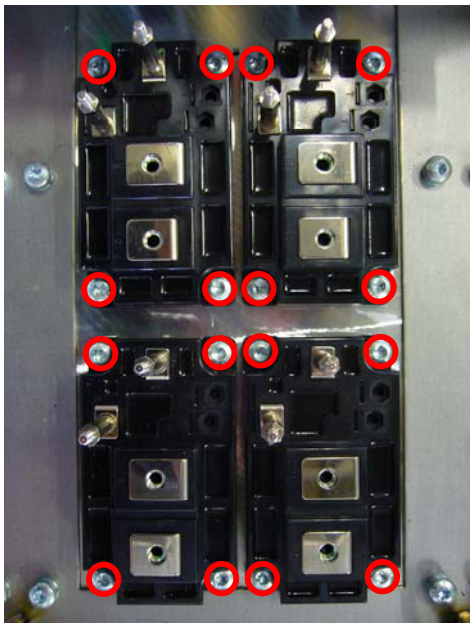
Be careful, don't forget to connect the wire on the connector "X4" of the Gate drive board IGBT



Size	Torque
M3x6	0.8Nm

The thermal sensor can be removed.

Lot of IGBT: VZ3IM1502M1771



For each 3 branch U/V/W, you should remove:

Remove 16 screws

It is **not necessary** to change all IGBT but just this one that is damaged.

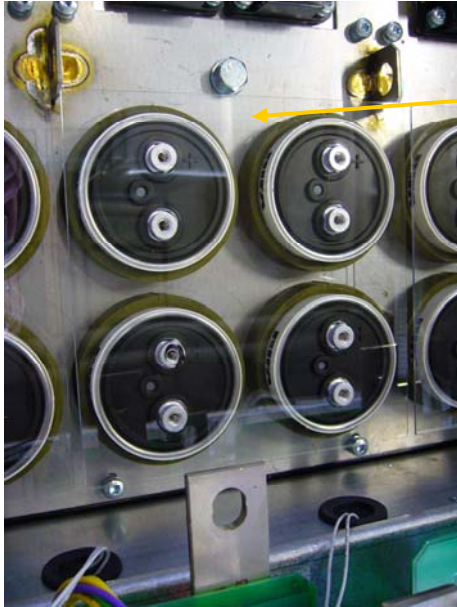
After changing, **be careful** to set up direction.
Don't forget applying the grease.



Size	Torque
M6x20	3.0Nm

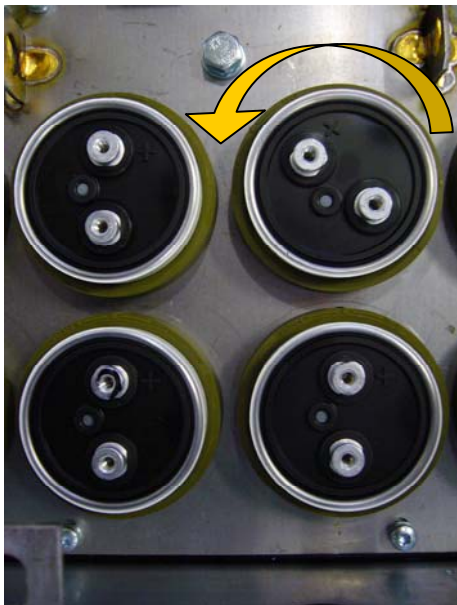
The IGBT can be removed.

Lot of Capacitors: VY1ADC1117



First step

Remove plastic protection part for each 3 branch U/V/W



Second step

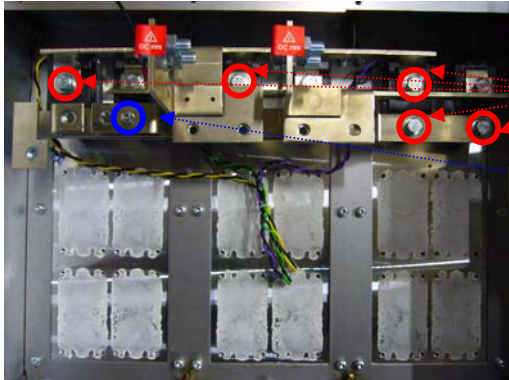
For each 3 branch U/V/W, you should remove 4 capacitors:

To remove the capacitor, rotate left it, and pull out it

After changing, **be careful** to set up direction

The Capacitors can be removed.

Rectifier module thyristor: VZ3TM2200M4371
Rectifier module diode: VZ3DM2200M5471
AC Bus BAR KIT : VZ3N1345



Part 1

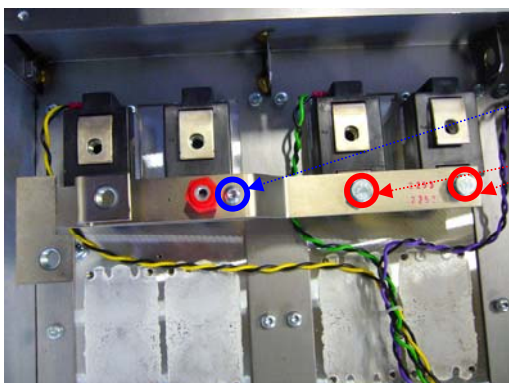
Remove 5 screws (J143)

Remove 1 screw (P1)



Part 2

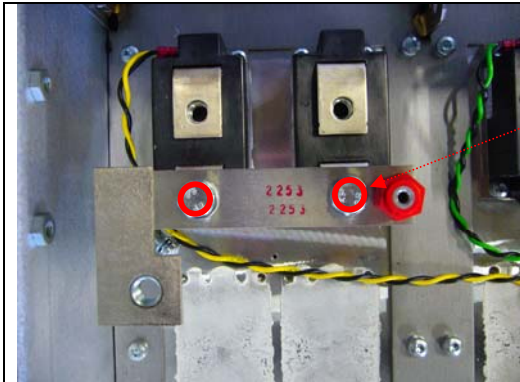
Remove 3 screws (J143)



Part 3

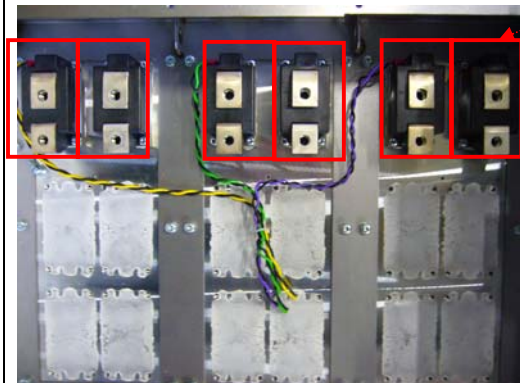
Remove 1 screw (P1)

Remove 2 screws (J143)



Part 4

Remove 2 screws (J143)



Remove the 24 screws (P2).

After changing, **be careful** to set up direction.

Don't forget applying the grease.



Mark	Size	Torque
J143	M10x25	13,5Nm
P1	M6x12	5.5Nm
P2	M5x25	5.0Nm

The Thyristor can be removed.

Rectifier module thyristor: VZ3TM2200M4371

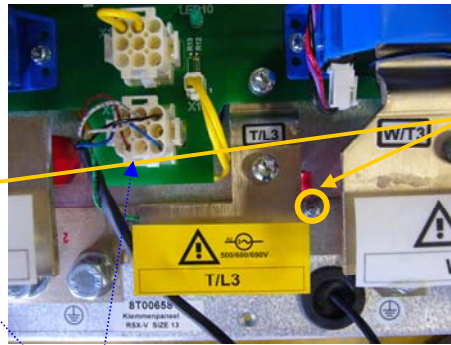
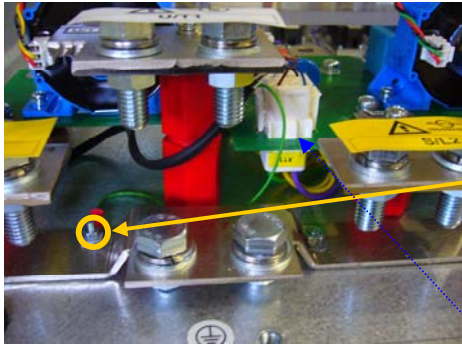


Be careful, after changing respect the colour line for the wires.

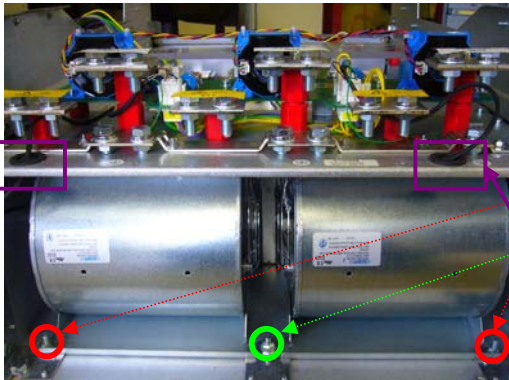
From left to right
[Yellow-Black]- **[Green-Black]** - **[Purple-Black]**

It is **not necessary** to change all rectifiers but just this one that is damaged.

Fan Power Electronic: VZ3V1212



Be careful, don't forget to disconnect the ground wire.



Disconnect 2 connectors
 Fan turbine 1->X11 on RFI filter board->X3 on fan control board
 Fan turbine 2->X13 on RFI filter board->X3 on fan control board

Remove 2 screws (J130)

Remove 1 screw (J139)

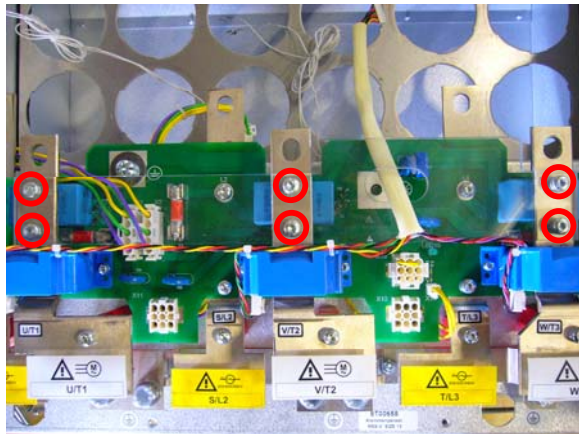
Be careful, to remove the fan, remove the gasket and slide the wire in the hole.



Mark	Size	Torque
J130	M6	5.5Nm
J139	M8	13.5Nm

The Fan Power Electronic can be removed.

Plastic Parts kit: VY1A1410



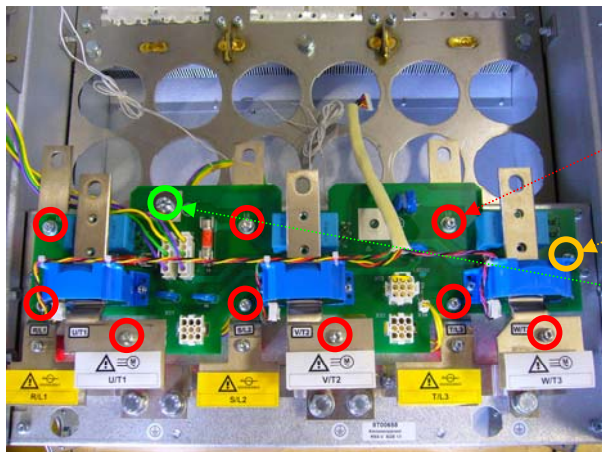
Remove 6 screws



Size	Torque
M6x20	5.5Nm

The Plastic Parts KIT can be removed.

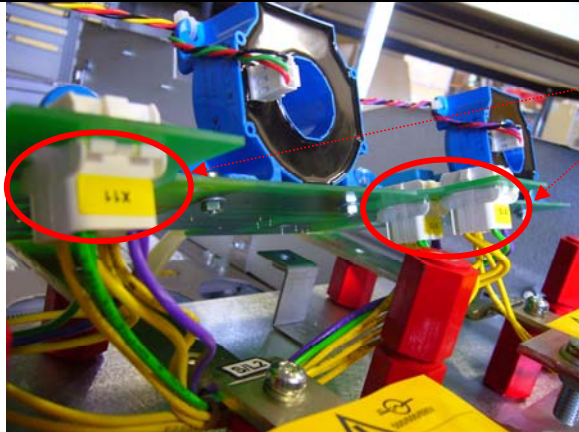
RFI Filter Board: VX4A1120



Remove 9 screws (P1)

Remove 1 screw (P2)

Remove 1 screw (P3)

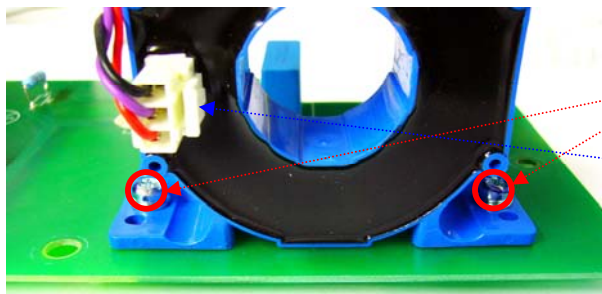


To change the board, don't forget to disconnect the 3 connectors X11 X12 and X13->Fan turbines

Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm
P3	M6x12	5.5Nm

The RFI filter board can be removed.

Motor current sensor: VY1A1108



For each 3 branch U/V/W, you should remove:

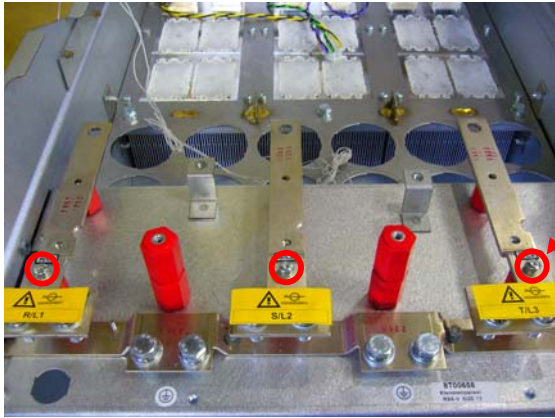
Remove 2 screws

Disconnect 1 wire
Current sensor->X11 on measuring board

Size	Torque
M4x12	1.2Nm
M4	1.2Nm

The Motor current sensor can be removed.

AC Bus BAR KIT : VZ3N1345



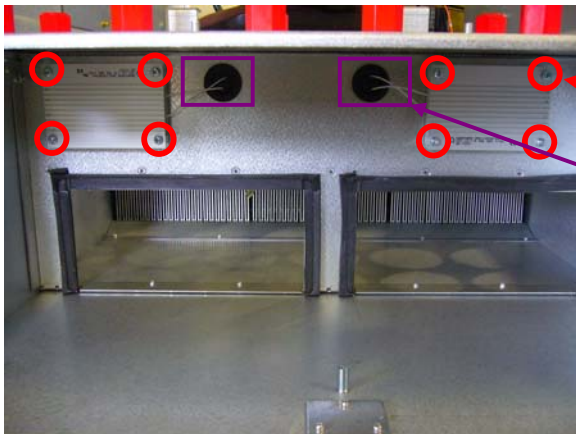
Remove 3 screws

The AC Bus Bar KIT can be removed.



Size	Torque
M6x12	5.5Nm

Discharging Resistor VZ3R36KW125



Remove 8 screws (J123)

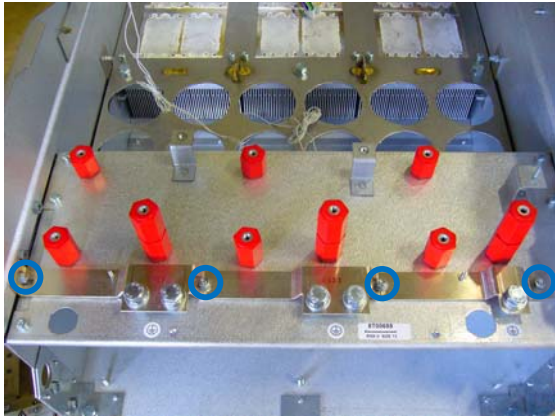
Be careful, to remove the discharging resistor, remove the gasket and slide the wire in the hole.

The discharging resistor can be removed.



Mark	Size	Torque
J123	M4x20	1.2Nm

AC Bus BAR KIT: VZ3N1345



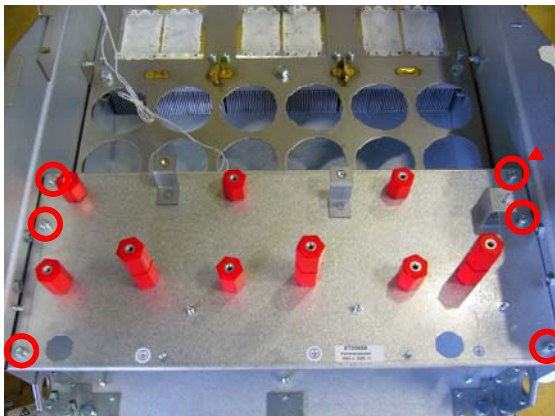
Remove 4 nuts



Size	Torque
M6	5.5Nm

The Ground bar can be removed.

Metal Body Part KIT



Remove 6 screws



Size	Torque
M6x14	5.5Nm

The Metal body parts KIT can be removed.



9.29.2 Product Assembling Drawing

No information

9.29.3 Product Cabling Drawing

Refer to following file: [Cabling diagram size 13.pdf part1](#)

Refer to following file: [Cabling diagram size 13.pdf part2](#)

9.30 ATV61/71 Size 15V (size, refer to 1.2)

9.30.1 Dismantling and reassembling

Size 15V: **ATV71HC40Y, ATV71HC50Y, ATV71HC63Y, ATV61HC50Y, ATV61HC63Y, ATV61HC80Y**

ATV71HC40Y	
Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1349	Wires KIT
VZ3N1346	AC Bus Bar KIT
VZ3N1343	DC Bus Bar KIT
VZ3IM1504M1771	Lot of 4 IGBT modules related (500A / 1700V
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1114	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100 μ F)
VY1A1411	Plastic Parts KIT
VY1A1309	Assembling KIT
VX5A71HC400500	Measuring Board
VX5A1HC6380	Power board
VX5A1301	Soft Charge Board
VX5A1207	Gate Drive Board
VX5A1106	Active Balancing Board
VX4A71101Y	Control bloc P \geq 90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1121	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX5A1400	Fan Control Board
VY1A1109	Motor Current Sensor
VY1A1217	Front Cover with I/O Terminal Cover
VZ3F1113	Braking Unit KIT
VZ3V1213	Internal Fan
VX4A1103	Front cover 4x7 Digits

ATV71HC50Y	
Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1349	Wires KIT
VZ3N1346	AC Bus Bar KIT
VZ3N1343	DC Bus Bar KIT
VZ3IM1504M1771	Lot of 4 IGBT modules related (500A / 1700V
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1114	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100 μ F)
VY1A1411	Plastic Parts KIT
VY1A1309	Assembling KIT
VX5A71HC500630	Measuring Board
VX5A1HC6380	Power board
VX5A1301	Soft Charge Board
VX5A1207	Gate Drive Board
VX5A1106	Active Balancing Board
VX4A71101Y	Control bloc P \geq 90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1121	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VZ3V1213	Internal Fan
VX5A1400	Fan Control Board
VZ3F1113	Braking Unit KIT
VX4A1103	Front cover 4x7 Digits

ATV71HC63Y

Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1349	Wires KIT
VZ3N1346	AC Bus Bar KIT
VZ3N1343	DC Bus Bar KIT
VZ3IM1504M1771	Lot of 4 IGBT modules related (500A / 1700V
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1114	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100 μ F)
VY1A1411	Plastic Parts KIT
VY1A1309	Assembling KIT
VX5A71HC630800	Measuring Board
VX5A1HC6380	Power board
VX5A1301	Soft Charge Board
VX5A1207	Gate Drive Board
VX5A1106	Active Balancing Board
VX4A71101Y	Control bloc P \geq 90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1121	RFI Filter Board
VZ3V1212	Fan Power Electronic
VZ3V1213	Internal Fan
VX5A1400	Fan Control Board
VZ3F1113	Braking Unit KIT

ATV61HC50Y

Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1349	Wires KIT
VZ3N1346	AC Bus Bar KIT
VZ3N1343	DC Bus Bar KIT
VZ3IM1504M1771	Lot of 4 IGBT modules related (500A / 1700V
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1114	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100 μ F)
VY1A1411	Plastic Parts KIT
VY1A1309	Assembling KIT
VX5A71HC400500	Measuring Board
VX5A1HC6380	Power board
VX5A1301	Soft Charge Board
VX5A1207	Gate Drive Board
VX5A1106	Active Balancing Board
VX4A61101Y	Control bloc P \geq 90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1121	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1103	Front cover 4x7 Digits
VX4A1104	Terminal Board
VX5A1400	Fan Control Board
VY1A1109	Motor Current Sensor
VY1A1217	Front Cover with I/O Terminal Cover
VZ3F1113	Braking Unit KIT
VZ3V1213	Internal Fan

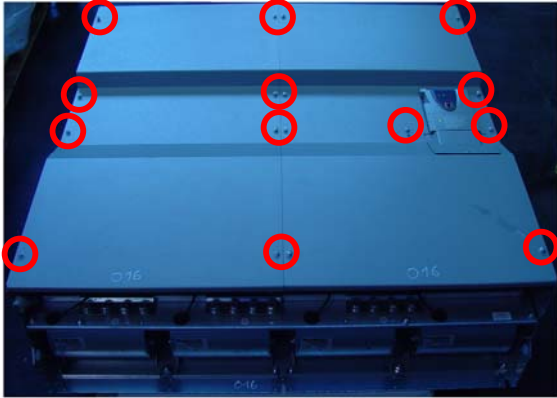
ATV61HC63Y

Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1349	Wires KIT
VZ3N1346	AC Bus Bar KIT
VZ3N1343	DC Bus Bar KIT
VZ3IM1504M1771	Lot of 4 IGBT modules related (500A / 1700V
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1114	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100µF)
VY1A1411	Plastic Parts KIT
VY1A1309	Assembling KIT
VX5A71HC500630	Measuring Board
VX5A1HC6380	Power board
VX5A1301	Soft Charge Board
VX5A1207	Gate Drive Board
VX5A1106	Active Balancing Board
VX4A61101Y	Control bloc P >=90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1121	RFI Filter Board
VZ3V1212	Fan Power Electronic
VX4A1104	Terminal Board
VX5A1400	Fan Control Board
VY1A1109	Motor Current Sensor
VY1A1217	Front Cover with I/O Terminal Cover
VZ3F1113	Braking Unit KIT
VZ3V1213	Internal Fan
VX4A1103	Front cover 4x7 Digits

ATV61HC80Y

Reference	Designation
VZ3TM2200M4371	Rectifier Module Thyristor (430A / 2200V)
VZ3R36KW125	Discharge Resistor (36k / 125W)
VZ3N1349	Wires KIT
VZ3N1346	AC Bus Bar KIT
VZ3N1343	DC Bus Bar KIT
VZ3IM1504M1771	Lot of 4 IGBT modules related (500A / 1700V
VZ3G1105	Thermal Sensor
VZ3DM2200M5471	Rectifier Module Diode (540A / 2200V)
VY1ADV1114	Screws KIT
VY1ADC1117	Lot of 6 Capacitors (550V / 2100µF)
VY1A1411	Plastic Parts KIT
VY1A1309	Assembling KIT
VX5A71HC630800	Measuring Board
VX5A1HC6380	Power board
VX5A1301	Soft Charge Board
VX5A1207	Gate Drive Board
VX5A1106	Active Balancing Board
VX4A61101Y	Control bloc P >=90kW
VX4A1206	Rectifier Snubber Circuit
VX4A1121	RFI Filter Board
VX4A1104	Terminal Board
VZ3V1212	Fan Power Electronic
VX5A1400	Fan Control Board
VY1A1109	Motor Current Sensor
VY1A1217	Front Cover with I/O Terminal Cover
VZ3F1113	Braking Unit KIT
VZ3V1213	Internal Fan
VX4A1103	Front cover 4x7 Digits

Front Cover with I/O Terminal Cover: VY1A1217



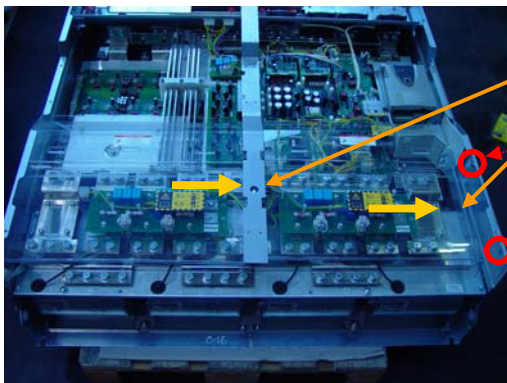
Remove 17 screws

The front cover can be removed.



Size	Torque
M6x12	5.5Nm

Plastic Parts KIT: VY1A1411



Push here and disengage plastic part

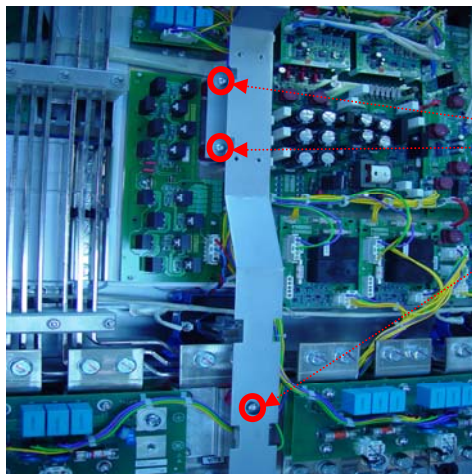
Remove 2 nuts

The Plastic part can be removed.

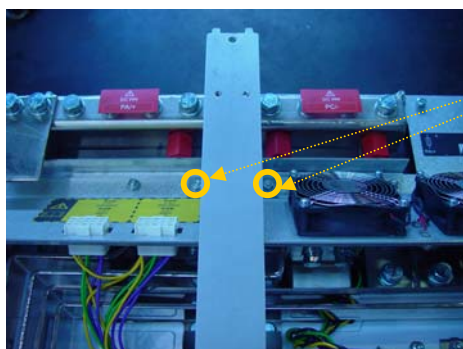


Size	Torque
M6	5.5Nm

metal kit.



Remove 3 screws (P1)



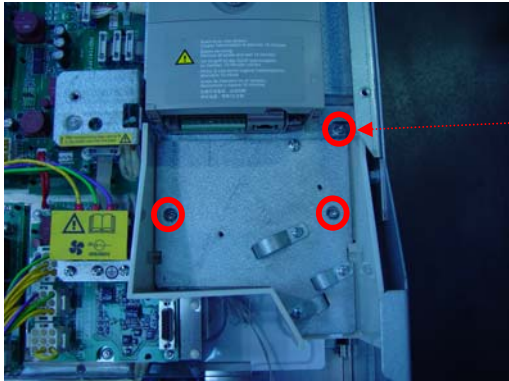
Remove 2 nuts (P2)

The metal part can be removed.



Mark	Size	Torque
P1	M6x14	5.5Nm
P2	M6	5.5Nm

Plastic Parts KIT: VY1A1411



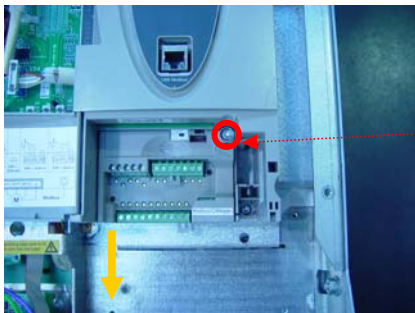
Remove 3 screws.

The kit can be removed.



Size	Torque
M4x12	1.2Nm

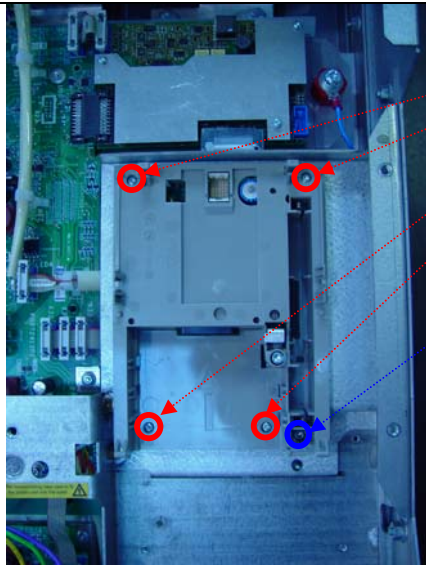
Control bloc: VX4A71101Y



For remove the terminal board, turn the screw in the unbolt position and pulls forward to take out terminal board.



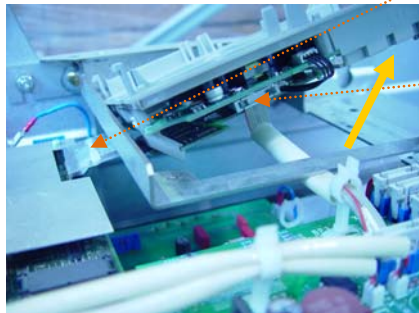
Press the two clips and pulls forward to take out the display board.



Remove 4 screws (S5 to S8).

Remove 1 screw (S38).

Disconnect the ribbon cable.
X3 from Control bloc "interface Board" -> X3 on Motor Control Board



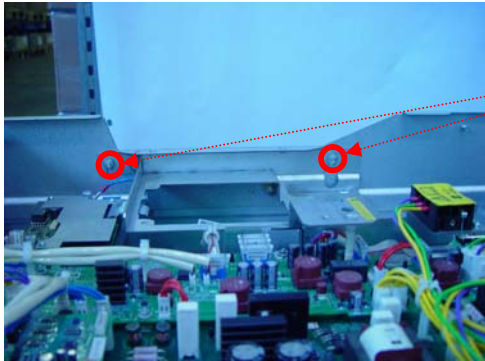
Disconnect the ribbon cable.
X4 from Control bloc "interface Board" -> X4 on Measuring Board

The Control bloc can be removed.

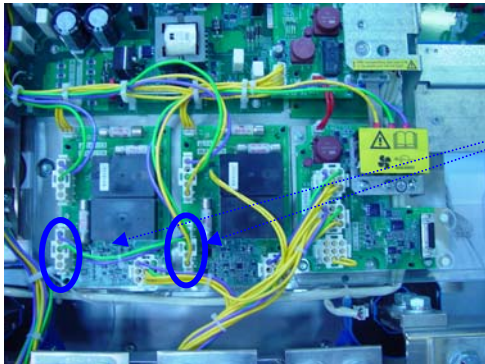


Mark	Size	Torque
S5-S8	M3x12	0.78Nm
S38	M4x6	1.5NM

Metal Support for Control bloc



Remove 2 nuts



Disconnect wire:

Yellow/Green/Purple TB1 -> X4 on both fan control board

The metal support can be removed.



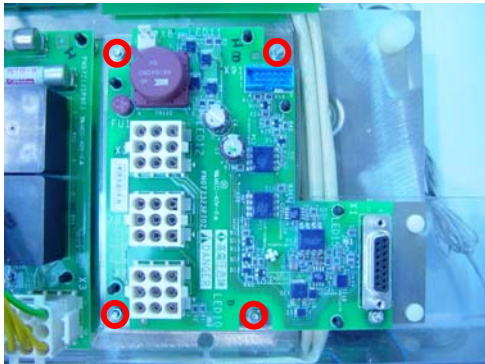
Size	Torque
M6	5.5Nm

Braking Unit KIT: VZ3F1113



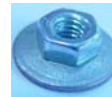
Disconnect 5 wires top to down:

- Red X8 -> X81 on measuring board
- Ribbon X91 -> X91 on measuring board
- Yellow/Green/Purple X3 -> X3 on fan control board 2
- Yellow/Green/Purple X33 -> X11 & X12 on RFI filter board 1
- Yellow X2 -> Shunt X2 on braking unit device



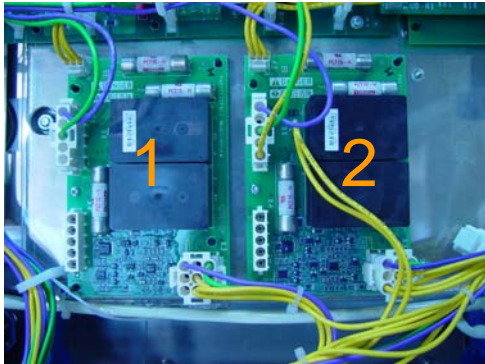
Remove 4 nuts

The Braking Unit Device can be removed.



Size	Torque
M3	0.8Nm

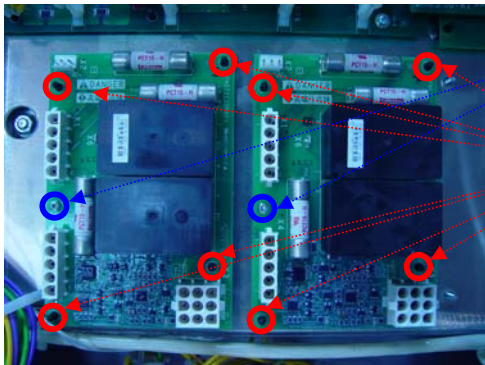
Fan Control Board. VX5A1400



Disconnect wires. From top to down:

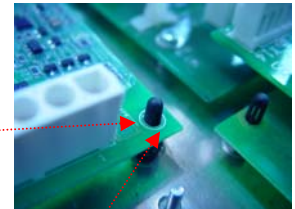
Fan control Board 1
 Yellow X2->X15 on measuring board
 Yellow/Green/Purple X1->X2.1 on metal **kit** ?
 Yellow/Green/Purple X3-> X13 X14 on RFI filter board 2

Fan control Board 2
 Yellow X2->X14 on measuring board
 Yellow/Green/Purple X1->X2.2 on metal **kit** ?
 Yellow X6-> X11 & X14 on both RFI filter board
 Yellow/Green/Purple X3-> X3 on braking unit device



Remove 2 screws

Push on the 8 plastic supports to remove the board.



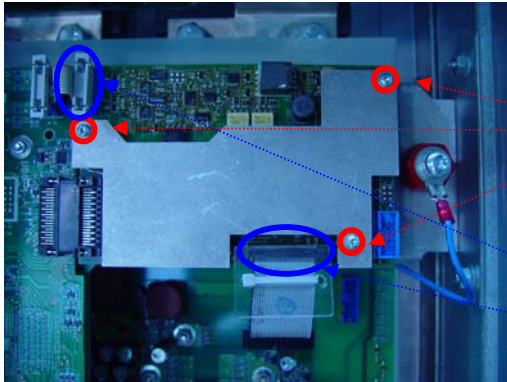
Push on the side.



Size	Torque
M3x6	0.8Nm
M3x8	clips

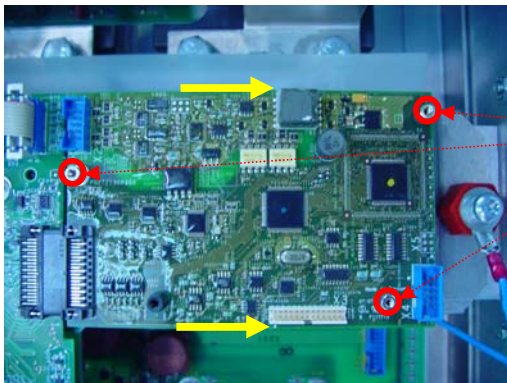
The Fan control board can be removed.

Motor Control Board: VX4A61101Y



Remove the 3 screws (P1).

Disconnect the 2 ribbon cable, *left to the right*:
 X2 -> X2 on measuring board
 X3 -> X3 on Interface Board in Control Block



Remove the 3 hexagonal studs (P2).

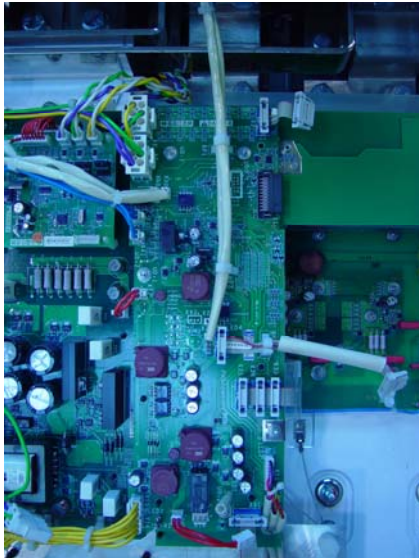
Be careful, at the time of reassembling;
 don't forget to put the steel.

The Motor Control Board can be removed.



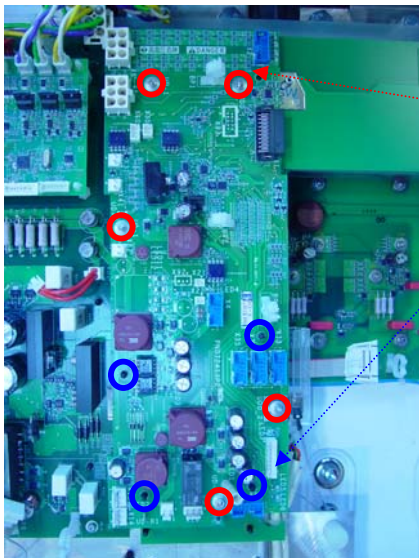
Mark	Size	Torque
P1	M3x6	0.8Nm
P2	M3x10	0.8Nm

Measuring board: VX5A71HC630800



Disconnect the 15 wires, *unlockwise*:

- Ribbon X2-> X2 on motor control board
- Yellow/Green/Purple X6->X5 on measuring board
- Yellow/Green/Purple X5-> bus bar U Yellow, bus bar V Green, bus bar W Purple
- Red X30-> CN2A on Soft charge board 1
- Red X40-> CN2A on soft charge board 2
- Blue X31-> CN7A on soft charge board 1
- Blue X41-> CN7A on soft charge board 2
- Red X82-> X82 on power Board
- Yellow X15-> X2 on Fan control Board 1
- Yellow X14 -> X2 on Fan control board 2
- White UD-R1 -> discharging resistor
- Red X81-> X8 on Braking unit device
- Ribbon X91-> X91 on Braking unit device
- Multicolour X11-> currents sensors U V W
- Ribbon X35-> X33 on Gate drive board W
- Ribbon X34-> X33 on Gate drive board V
- Ribbon X33-> X33 on Gate drive board U
- Ribbon X4-> X4 on control block
- White X22-> inside Fan alimentation
- White X21-> inside Fan alimentation



Remove 5 nuts

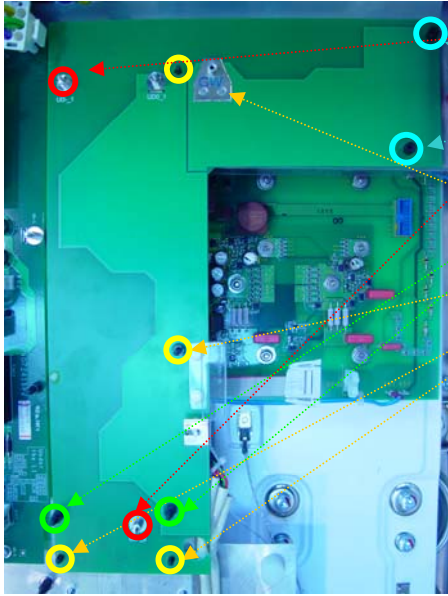
Push on the 4 plastic supports to remove the board.



Size	Torque
M3x8	clips
M4	1.2Nm

The measuring board can be removed.

Assembly KIT: VY1A1309



Remove 2 screws (P1)

Remove 2 screws (P2)

Remove 2 screws (P3)

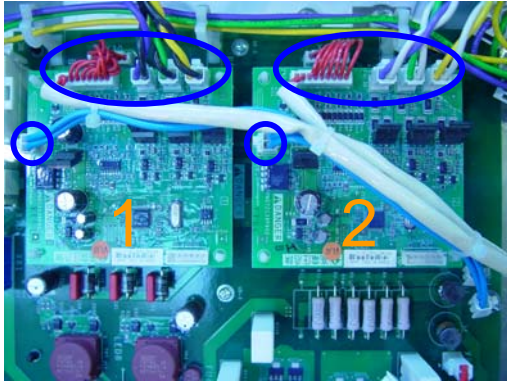
Push on the 4 plastic supports to remove the board. (P3)

The shielding plate PCB Measuring Board can be removed.



Mark	Size	Torque
P1	M3x5.5	0.8Nm
P2	M3x6	0.8Nm
P3	M3x8	clips

Soft Charge board: VX5A1301



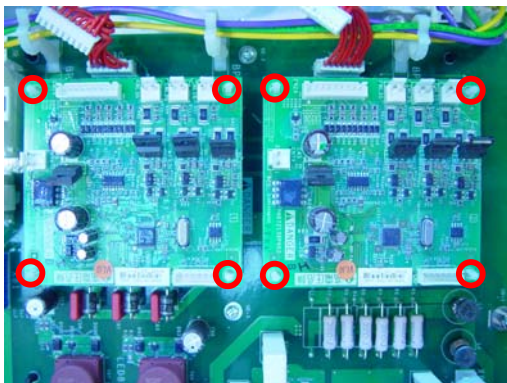
Disconnect wires, *left to the right*:

Soft charge Board 1

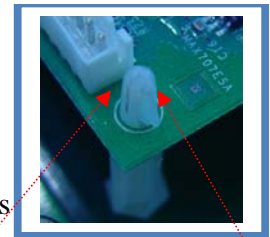
- Blue CN7A-> X31 on measuring board
- Red CN2A-> X30 on measuring board and X30 on power board
- Purple/Black CNL3G ->Gate rectifier 3.1 on L3.1
- Green/Black CNL2G ->Gate rectifier 2.1 on L2.1
- Yellow/Black CNL1G -> Gate rectifier 1.1 on L1.1

Soft charge Board 2

- Blue CN7A-> X41 on measuring board
- Red CN2A-> X40 on measuring board and X40 on power board
- Purple/White CNL3G ->Gate rectifier 3.2 on L3.2
- Green/ White CNL2G ->Gate rectifier 2.2 on L2.2
- Yellow/ White CNL1G -> Gate rectifier 1.2 on L1.2



Push on the 8 plastic supports to remove the board.



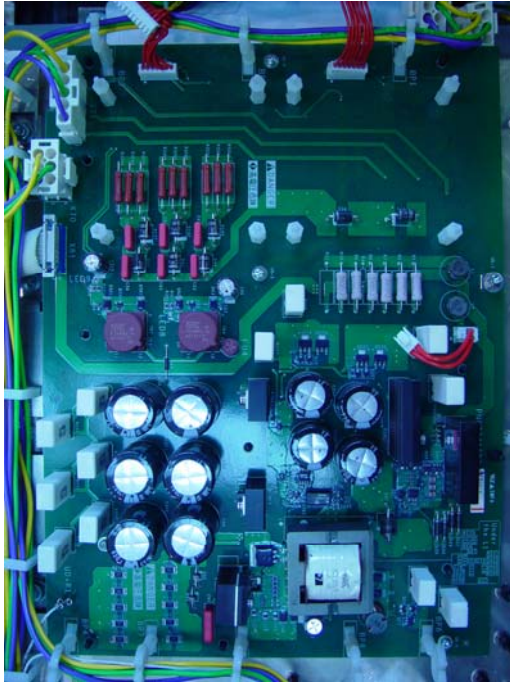
Push on the side.

The Soft charge Board can be removed.



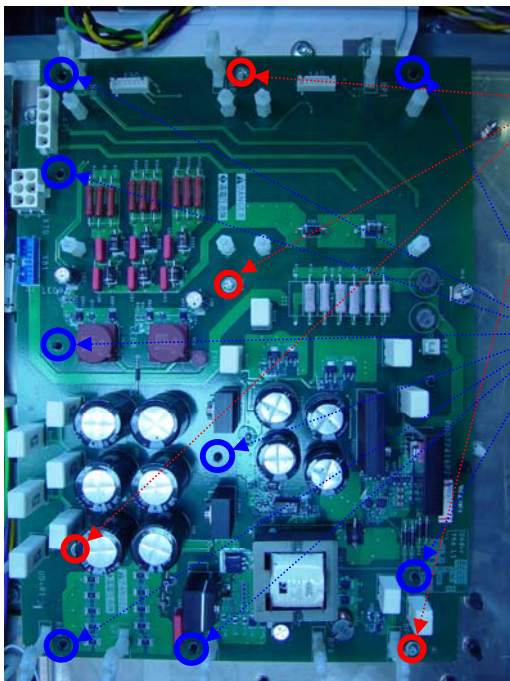
Size	Torque
M3x8	clips

Power Board: VX5A1HC6380



Disconnect wires, *unclockwise*:

- Red X40-> CN2A on soft charge board 2
- Red X30-> CN2A on soft charge board 1
- Yellow/Green/Purple X71-> Yellow X1/Green X2/Purple X3 on Filter board 2
- Yellow/Green/Purple X70->X7 on rectifier snubber circuit
- Ribbon X81 -> X82 on Gate drive board IGBT U
- White UD+R1 -> discharging resistor
- Red X82 -> X82 on measuring board



Remove the 4 screws.

Push on the 8 plastic supports to remove the board



Push on the side.



Size	Torque
M3x6	0.8Nm
M3x8	clips

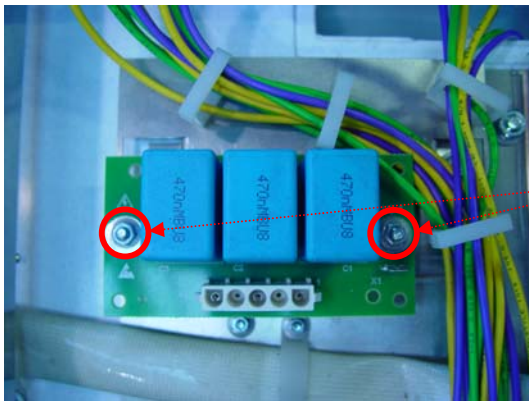
The Power board can be removed.

Rectifier Snubber Circuit: VX4A1206



Disconnect one wire

Yellow/Green/Purple X7->X70 on power board
 ->Yellow X1/Green X2/Purple X3 on Filter board 1



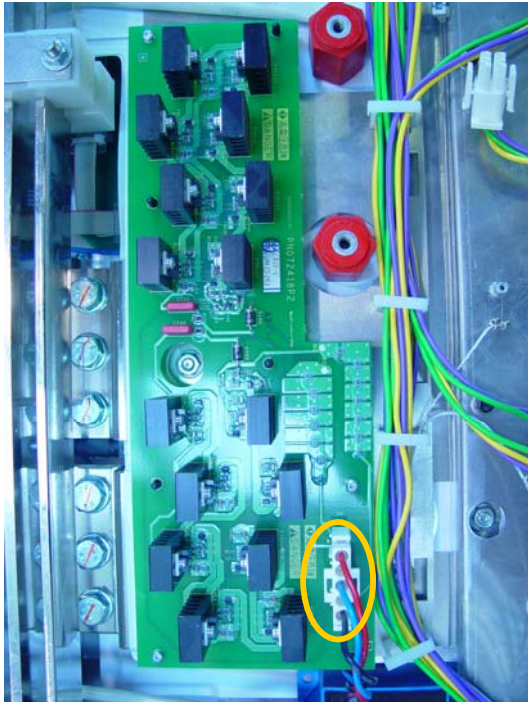
Remove 2 nuts

The Rectifier Snubber Circuit can be removed.



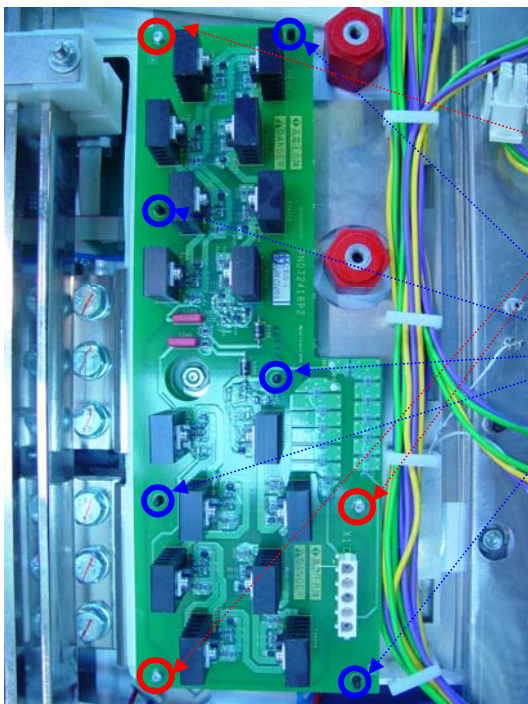
Size	Torque
M4	1.2Nm

Active current balancing board: VX5A1106



Disconnect one wire

Red/Blue/Black X1-> Bus bar V



Remove 3 screws

Push on the 5 plastic supports to remove the board



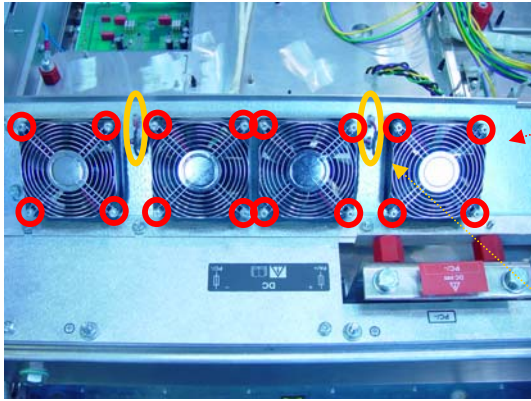
Push on the side.



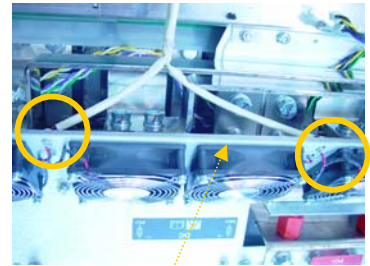
Size	Torque
M3x6	0.8Nm
M3x8	clips

The active current balancing board can be removed.

Internal fan kit: VZ3V1213



Remove 16 screws



Disconnect 4 Wires

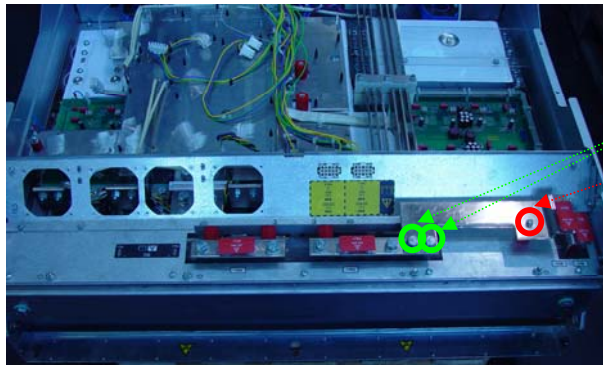
Black Fan-> X21 X22 on measuring board

The Internal Fan can be removed.



Size	Torque
M4x35	1.2Nm

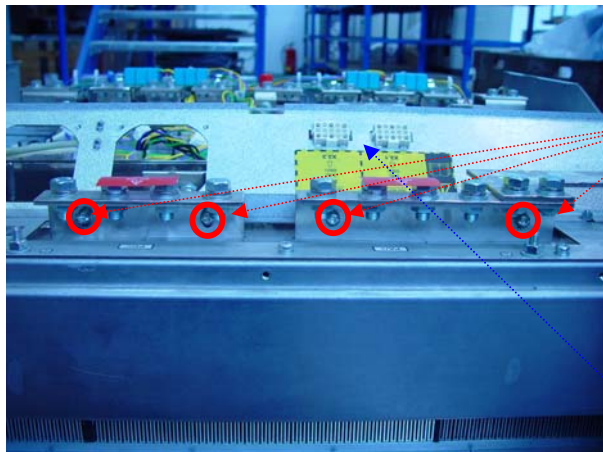
Metal Body Parts KIT



Step 1

Remove 2 screws (P3).

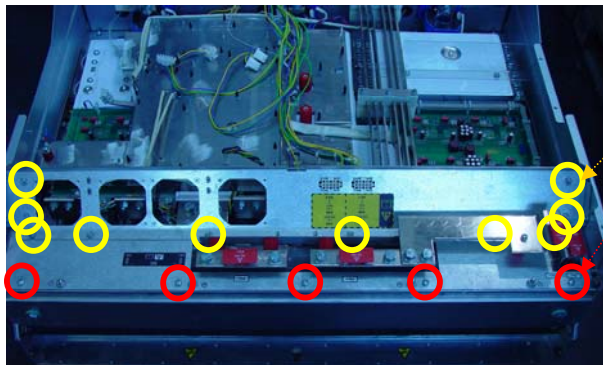
Remove 1 screw (P2)



Step 2

Remove 4 screws (P1).

Push on the 2 plastic supports to remove the connector X2.



Step 3

Remove 10 screws (P2).

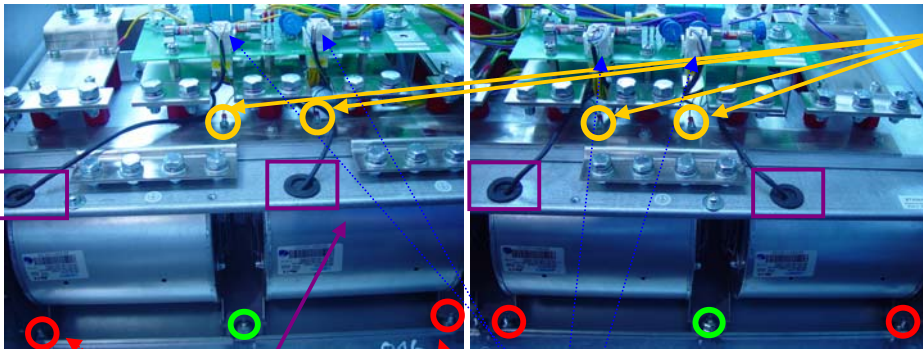
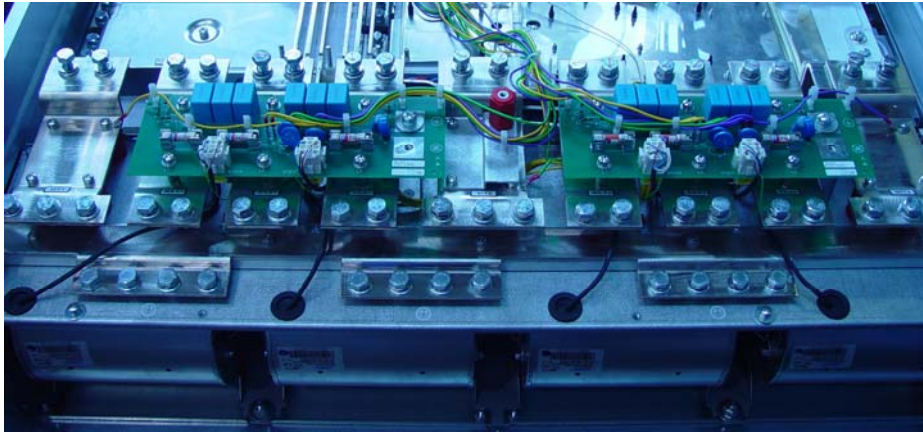
Remove 5 screws (P1)



Mark	Size	Torque
P3	M12x25	45Nm
P1	M6x14	5.5Nm
P2	M6	5.5Nm

The Metal Body Parts KIT can be removed.

Fan Power Electronic. VZ3V1212



Be careful; don't forget to disconnect the ground wire.

- Disconnect 4 connectors
 Fan turbine 1->X11 on RFI filter board 1->X33 on Braking unit device
 Fan turbine 2->X12 on RFI filter board 1->X33 on Braking unit device
 Fan turbine 3->X13 on RFI filter board 2->X3 on fan control board 1
 Fan turbine 4->X14 on RFI filter board 2->X3 on fan control board 1

Be careful, to remove the fan, remove the gasket and slide the wire in the hole.

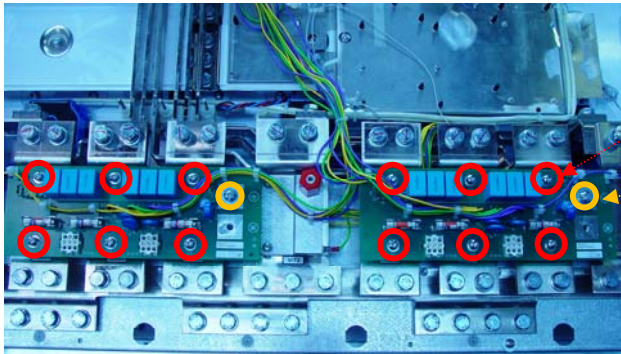
- Remove 4 screws (J130)
 Remove 2 screws (J139)



Mark	Size	Torque
J130	M6	5.5Nm
J139	M8	13.5Nm

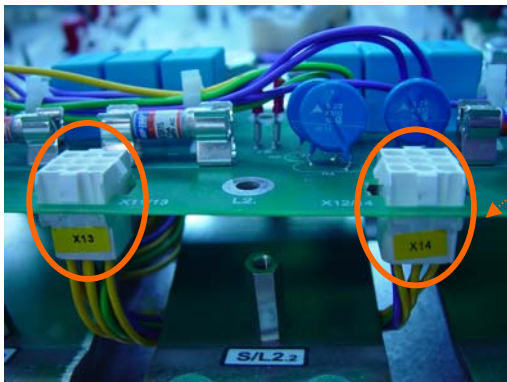
The Turbine can be removed.

RFI Filter Board. VX4A1121



Remove 12 screws (P1)

Remove 2 screws (P2)



To change the board, don't forget to disconnect the 4 connectors

X11 X12 on RFI Filter Board 1

And

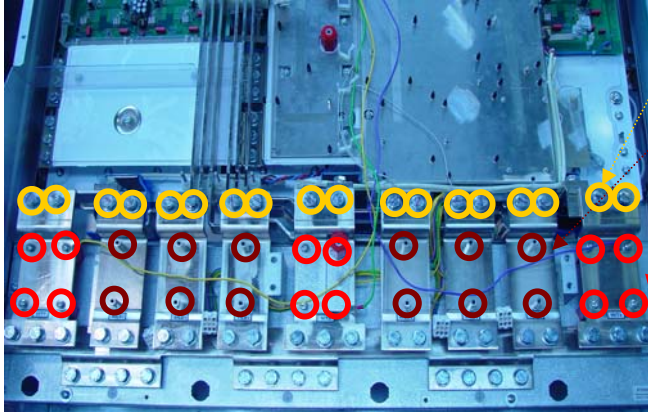
X13 X14 on RFI Filter Board 2

The Both RFI filter board can be removed.



Mark	Size	Torque
P2	M6x12	5.5Nm
P1	M6x14	5.5Nm

AC Bus Bar Kit: VZ3N1346



Remove 18 screws (P1)

Remove 12 screws (P2)

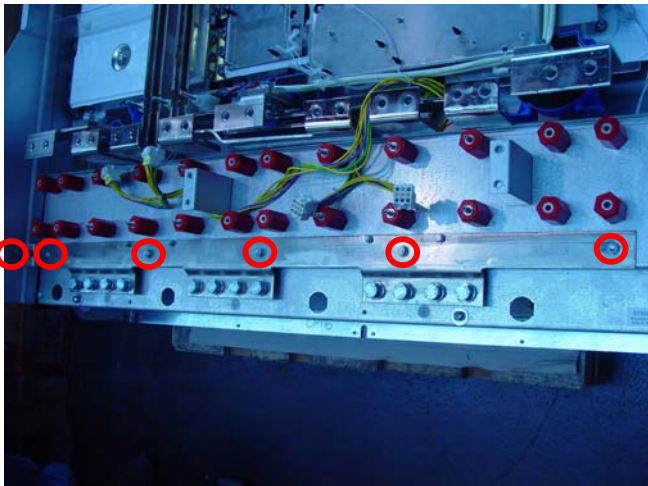
Remove 12 screws (P3)



Mark	Size	Torque
P1	M12x25	45Nm
P2	M6x22	5.5Nm
P3	M6x14	5.5Nm

The AC Bus Bar can be removed.

Earth Terminal Bar: VZ3N1346



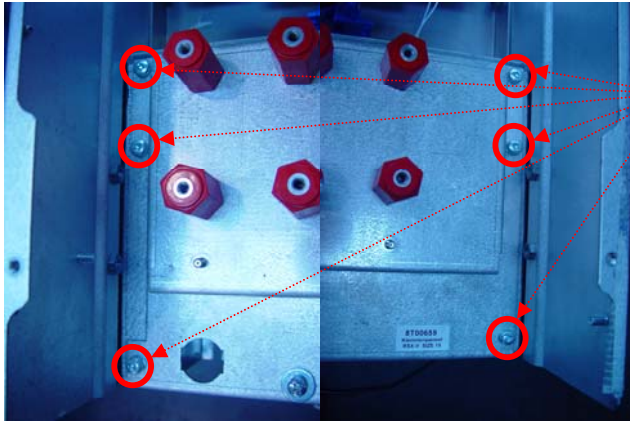
Remove 6 nuts



Size	Torque
M6	5.5Nm

The Ground bar can be removed.

Metal Body Part KIT



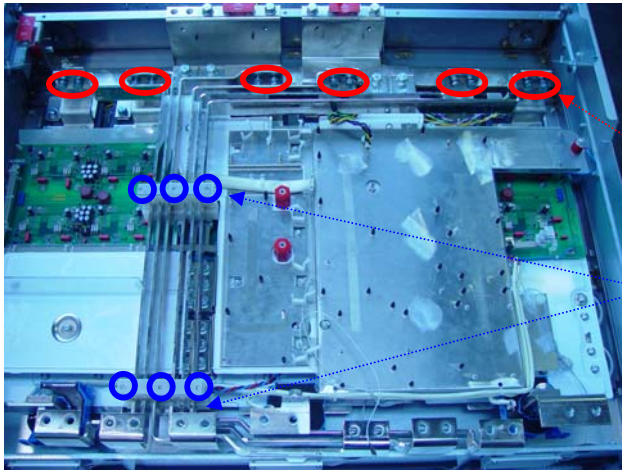
Remove 6 screws



Size	Torque
M6x14	5.5Nm

The Metal body parts KIT can be removed.

AC Bus Bar Kit: VZ3N1346



Remove 12 screws.

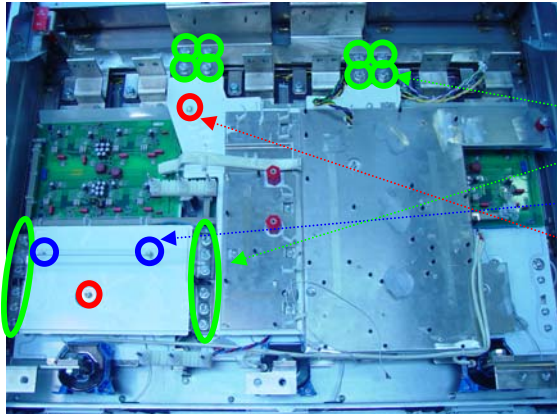
Remove 6 nuts



Size	Torque
M12x25	45Nm
M6	5.5Nm

The AC Bus Bars kit can be removed.

DC bus bar kit: VZ3N1343

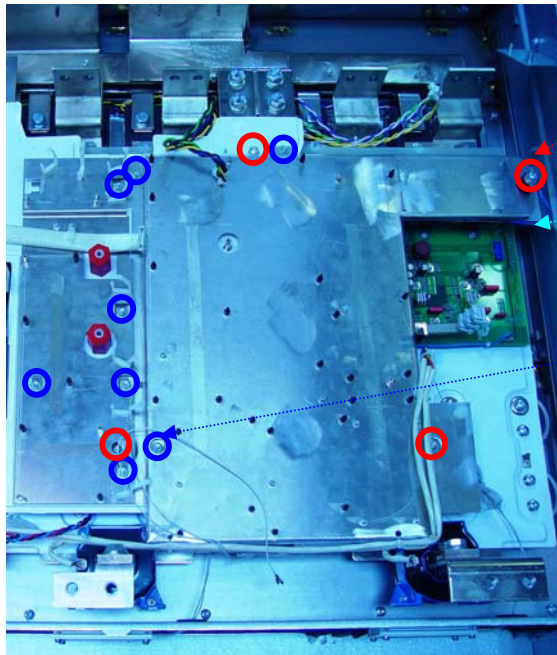


Step 1

Remove 20 screws (J129).

Remove 2 screws (P2)

Remove 2 screws (P2)



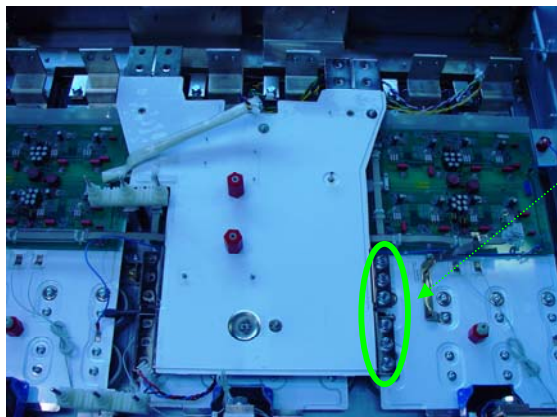
Step 2

Remove 4 screws (P2)

And disconnect one wire:

Blue -> X53 on gate drive board IGBT W

Remove 8 nuts (P3)



Step 3

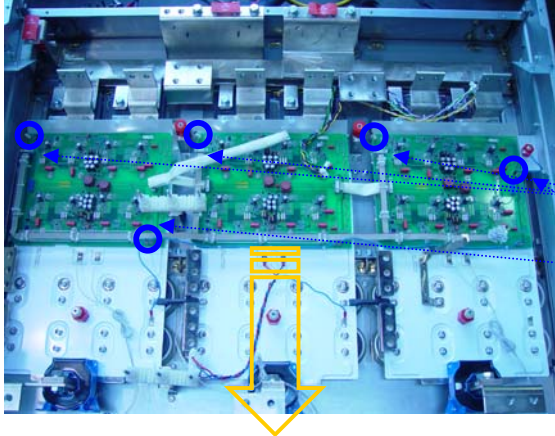
Remove 6 screws (J129)



Mark	Size	Torque
J129	M10x20	27Nm
P2	M6x12	5.5Nm
P3	M6	5.5Nm

The DC bus bar kit can be removed.

Gate Drive Board IGBT.VX5A1207

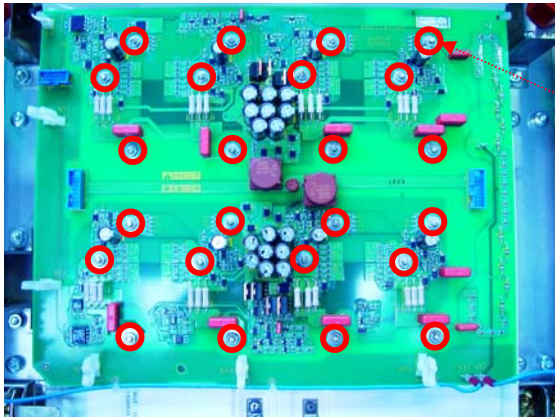


Disconnect the 4 wires top to down.

Black X4 on gate drive Board IGBT U/V/W-> thermal sensor

Blue X53 on gate drive board IGBT W-> DC bus

Blue X51 on gate drive Board IGBT U->Power Interconnection bar U



For each 3 branch U/V/W, you should remove:

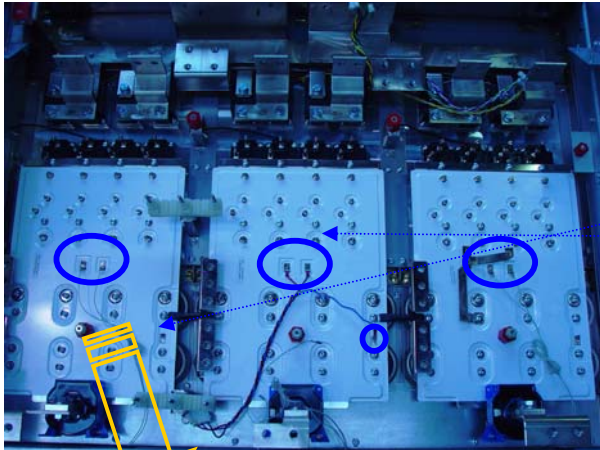
Remove 24 nuts

The Gate Drive Boards IGBT can be removed.



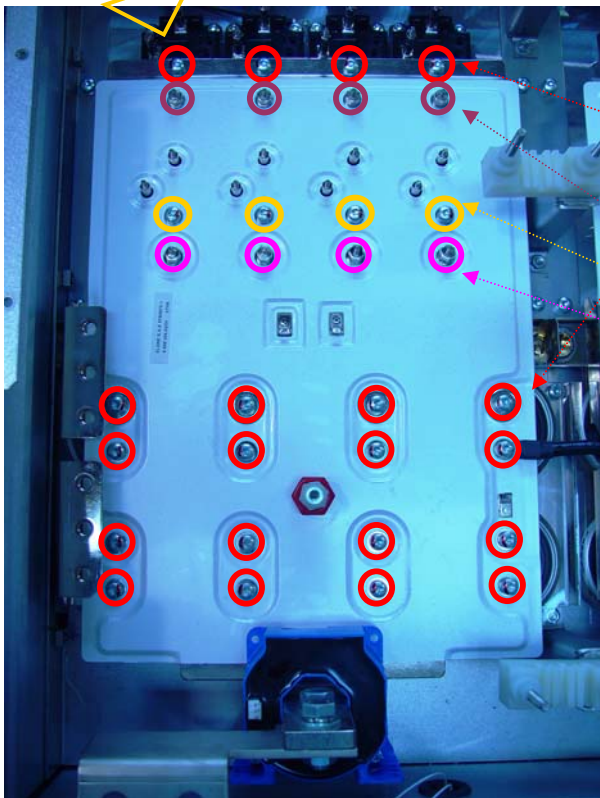
Size	Torque
M4	1.2Nm

DC bus bar kit: VZ3N1343



Disconnect the 4 wires Left to right.






White wires on interconnection bar U->discharging resistor
 Red/Black/Blue wires on interconnection bar V->X1 on active current balancing Board
 White wires on interconnection bar W->discharging resistor



For 3 AC bus bar U V, you should remove:

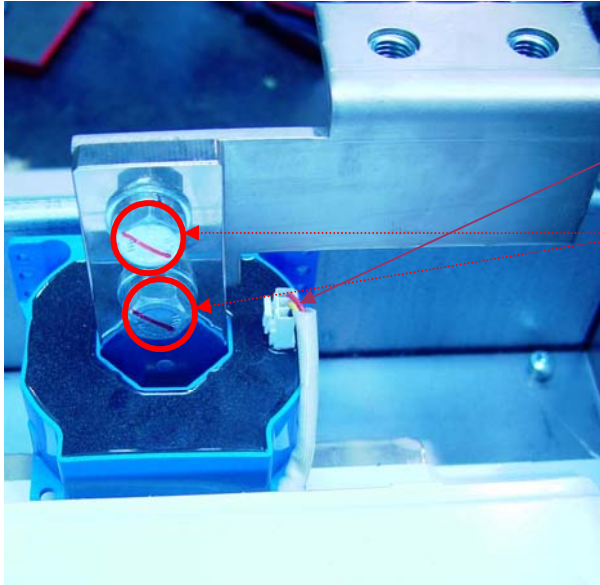
- Remove 4 screws (P1)
- Remove 16 screws (P2-P3-P4).
- Remove 4 screws (P6)
- Remove 4 screws (P7)
- Remove 4 screws (P5)

Be careful, at the time of reassembling; don't forget to put the 2 Shunt.

Mark	Size	Torque
 P1	M6x14	5.5Nm
 P2-P3-P4	M6x14	3,3Nm
 P6	ST M6/M4	5.5Nm
 P7	M6x20	5.5Nm
 P5	ST M6/M4	5.5Nm

The DC Bus Bar-Phase can be removed.

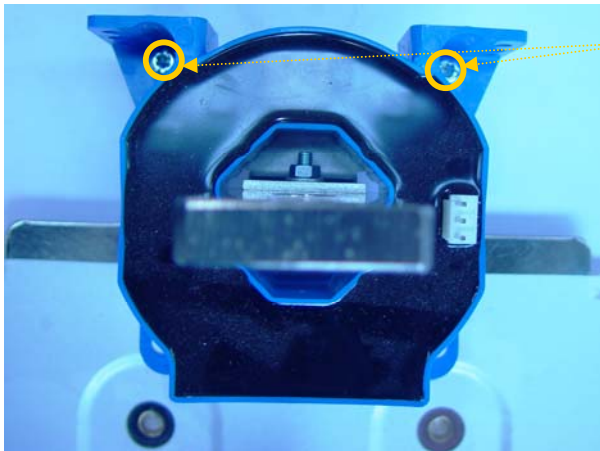
Current sensor: VY1A1109



For 3 current sensor on U/V/W, you should remove:

Disconnect one wire:
Current sensor -> X11 on measuring board

Remove 2 screws (P1)



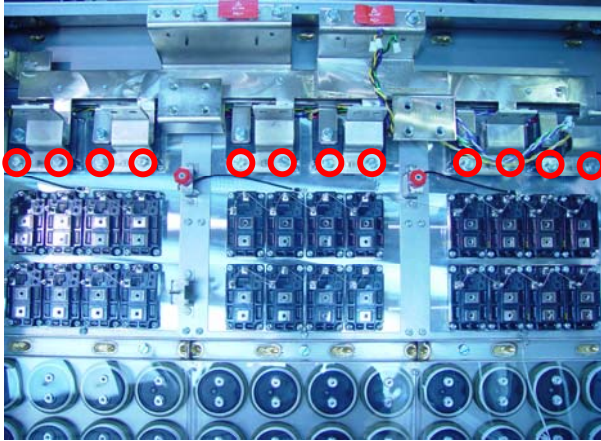
Remove 2 screws (P2)

The current sensor can be removed.



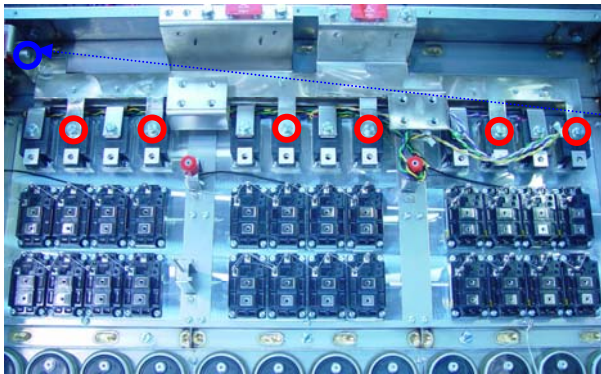
Mark	Size	Torque
P1	M12x25	45Nm
P2	M4x12	1.2Nm

Rectifier module thyristor: VZ3TM2200M4371
Rectifier module diode: VZ3DM2200M5471
AC Bus Bar Kit: VZ3N1346



Part 1

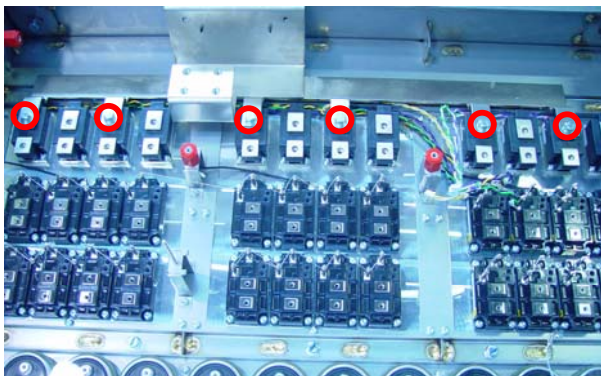
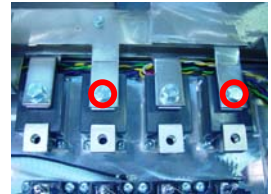
Remove 12 screws (P2)



Part 2

Remove 6 screws (P2)

Remove 1 screw (P1)



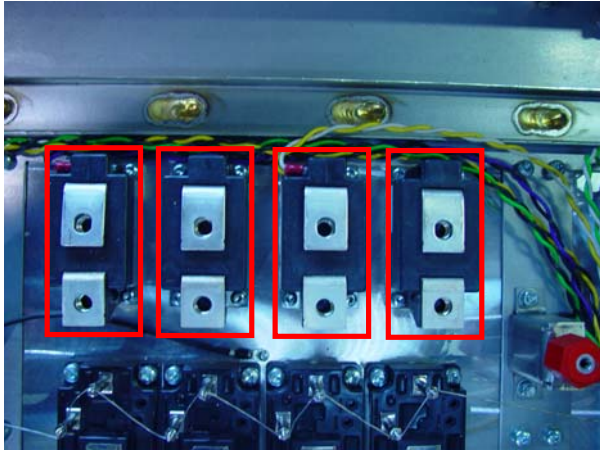
Part 3

Remove 6 screws (P2)



Mark	Size	Torque
P2	M10x25	13.5Nm
P1	M6x12	5.5Nm

Rectifier module thyristor: VZ3TM2200M4371
Rectifier module diode: VZ3DM2200M5471



For each 3 branch, you should remove:

Remove 16 screws

It is **not necessary** to change all rectifiers but just this one that is damaged.

After changing, **be careful** to set up direction.
Don't forget applying the grease.



Size	Torque
M5x25	5.0Nm

Rectifier module thyristor: VZ3TM2200M4371



Be careful, after changing respect the colour line for the wires.

From left to right

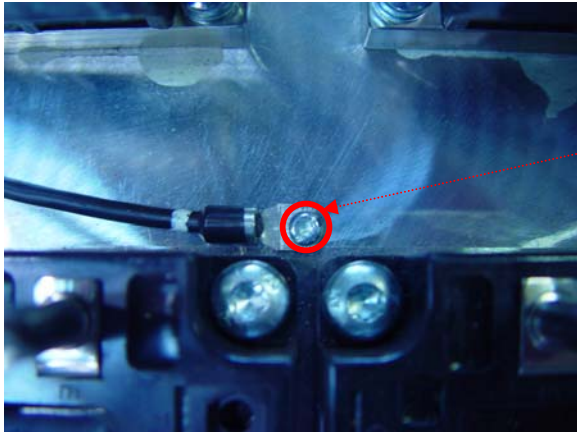
[Yellow-Black]- [Green-Black] - [Purple-Black]

And

[Yellow-White]- [Green- White] - [Purple- White]

It is **not necessary** to change all rectifiers but just this one that is damaged.

Thermal Sensor. VZ3G1105



For each 3 branch U/V/W, you should remove:

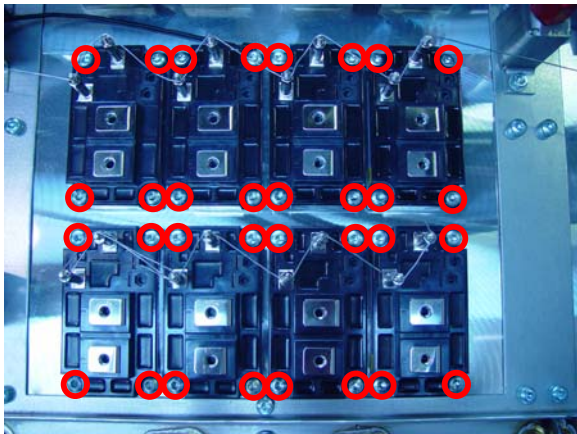
Remove 1 screw.

Be careful, don't forget to connect the wire on the connector "X4" of the Gate drive board IGBT

Size	Torque
M3x6	0.8Nm

The thermal sensor can be removed.

IGBT modules: VZ3IM1504M1771



For each 3 branch U/V/W, you should remove:

Remove 32 screws.

It is **not necessary** to change all IGBT but just this one that is damaged.

After changing, **be careful** to set up direction.

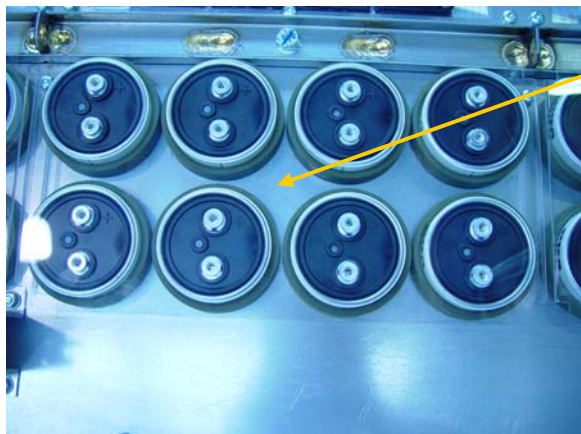
Don't forget applying the grease.

Size	Torque
M6x20	3.0Nm

The IGBT can be removed.

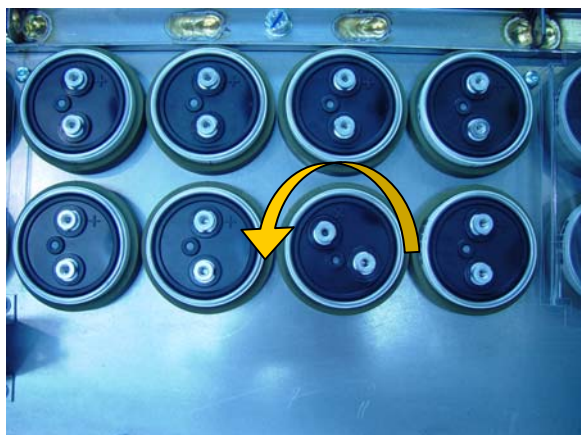


Lot of Capacitors. VY1ADC1117



First step

Remove plastic protection part **for each 3 branch U/V/W**



Second step

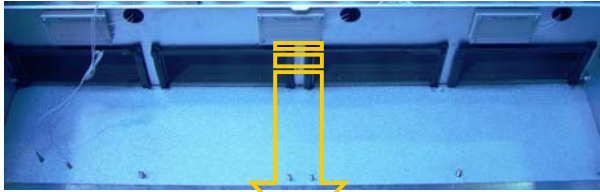
For each 3 branch U/V/W, you should remove 6 capacitors:

To remove the capacitor, rotate left it, and pull out it

After changing, **be careful** to set up direction

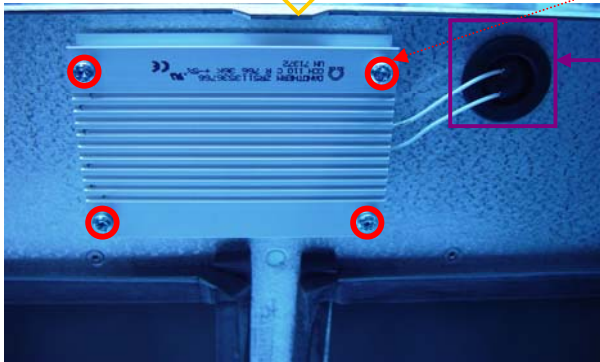
The Capacitors can be removed.

Discharging Resistor: VZ3R36KW125



For each 3 discharging resistor, you should remove:

Remove 4 screws.



Be careful, to remove the discharging resistor, remove the gasket and slide the wire in the hole.

The discharging resistor can be removed.



Size	Torque
M4x20	1.2Nm



9.30.2 Product Assembling Drawing

No information

9.30.3 Product Cabling Drawing

Refer to following file: [Cabling diagram size 15.pdf part1](#)

Refer to following file: [Cabling diagram size 15.pdf part2](#)

10. Procedure for validation after repair

10.1 *ATV71 sizes 2 to 15*

Once the product has been reassembled, connect the control test circuit, and then switch on the product:

- Run the **diagnostic procedure**
- If it is OK, run to the test bench with **short acceleration** and **short deceleration**
- If it is OK, transfer the new PC configuration to the drive
- Use the setup software (list of parameters) to edit it

10.2 **Quality reporting to the VSD division**

Information must be entered in the computer system set up in each country-based organisation so that the **VSD division** can manage product quality as well as possible. The repair report should include a description of the malfunction, the diagnostics and the fault discovered.

11. Structure Drives

11.1 Common Part: Control Block

It's compound of 4 boards, and it is common for all ratings.

- Display board
- Terminal board
- Application board
- Motor Control board

11.2 Electronic & mechanical structure of all drives

Power rating :	ATV71H037M3X, ATV71H075M3X, ATV71HU15M3X, ATV71H075N4, ATV71HU15N4, ATV71HU22N4 ATV61H075M3X, ATV61HU15M3X, ATV61H075N4, ATV61HU15N4, ATV61HU22N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Current measurement (shunts)
	Fan driver
	Pre-charge relay driver
	EEPROM
Motor output terminal	
Bus board :	Function:
	Main capacitors
	Pre-charge resistor
Filter board :	Functions :
	Input power terminal EMC Filter
Power module	
Fan	
ZCT: Ground fault detection	

Power rating :	ATV71HU22M3X, ATV71HU30M3X, ATV71HU40M3X, ATV71HU30N4, ATV71HU40N4 ATV61HU22M3X, ATV61HU30M3X, ATV61HU40M3X, ATV61HU30N4, ATV61HU40N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Current measurement
	Fan driver
	Pre-charge relay driver
	EEPROM
Motor output terminal	
Bus board :	Function:
	Main capacitors
	Pre-charge resistor
Filter board :	Functions :
	Input power terminal EMC Filter
Power module	
Fan	
ZCT: Ground fault detection	

Power rating :	ATV71HU55M3X, ATV71HU55N4, ATV71HU75N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Current measurement
	Fan driver
	Pre-charge relay driver
Bus board :	Function:
	Main capacitors
Filter board :	Functions :
	Input power terminal
	EMC Filter
Power module	
Pre-charge relay and resistor.	
Motor output terminal.	
Fan	
ZCT: Ground fault detection	
Mechanical structure: plastic	

Power rating :	ATV71HU75M3X, ATV71HD11N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Current measurement
	Fan driver
	Pre-charge relay driver
Bus board :	Function:
	Main capacitors
Filter board :	Functions :
	Power filtrate
	EMC Filter
Power module	
Pre-charge relay and resistor.	
Motor output terminal.	
Fan	
ZCT: Ground fault detection	
Mechanical structure: plastic	

Power rating :	ATV71HD11M3X, ATV71HD15M3X, ATV71HD15N4, ATV71HD18N4 ATV61HD11M3X, ATV61HD15M3X, ATV61HD15N4, ATV61HD18N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Current measurement
	Fan driver
	Pre-charge relay driver
	Motor output terminal
	EEPROM
Bus board :	Function:
	Pre-charge relay.
	Pre-charge resistor.
Filter board :	Functions :
	Input power terminal
	EMC Filter
Power module	
Fan	
ZCT: Ground fault detection	
Mechanical structure: plastic	

Power rating :	ATV71HD18M3X, ATV71HD22M3X, ATV71HD22N4 ATV61HD18M3, ATV61HD22M3, ATV61HD22N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Current measurement
	Fan driver
	Pre-charge relay driver
Bus board :	Function:
	Pre-charge relay (only3-5.5KW).
	Pre-charge resistor (only3-5.5KW).
Filter board :	Functions :
	Input power terminal
	EMC Filter
Power module	
Fan	
ZCT: Ground fault detection	
Mechanical structure: plastic	
Pre-charge relay (only 7.5kW).	
Pre-charge resistor (only 7.5kW).	

Power rating :	ATV71HD30N4, ATV71HD37N4, ATV61HD30N4, ATV61HD37N4 ATV71HD30M3X, ATV71HD37M3X, ATV71HD45M3X, ATV61HD30M3X, ATV61HD37M3X, ATV61HD45M3X
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Pre-charge relay driver
	EEPROM
Bus board :	Function:
	Pre-charge resistor
	Power module
Filter board :	Functions :
	EMC Filter
Interconnect board: between power board and Bus board.	
Main capacitors	
Pre-charge relay	
Fan	
Current measurement	
Motor output terminal	
Mechanical structure: sheet metal.	

Power rating :	ATV71HD30M3X, ATV71HD37M3X, ATV71HD45M3X
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Pre-charge relay driver
	EEPROM
Bus board :	Function:
Resistor board:	Function
	Pre-charge resistor
	Relay
Filter board :	Functions :
	EMC Filter
Interconnect board: between power board and Bus board.	
Main capacitors	
Power module	
Pre-charge relay	
Fan	
Current measurement	
Motor output terminal	
Mechanical structure: sheet metal.	

Power rating :	ATV71HD45N4, ATV71HD55N4, ATV71HD75N4 ATV61HD45N4, ATV61HD55N4, ATV61HD75N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Pre-charge relay driver EEPROM
Bus board	
Resistor board:	Function
	Pre-charge resistor
	Relay
Filter board :	Functions :
	EMC Filter
Snubber board :	Function
Interconnect board: between power board and Bus board.	
Main capacitors	
Power module	
Pre-charge relay	
Fan	
Current measurement	
Motor output terminal	

Power rating :	ATV71HD55M3X, ATV71HD90N4 ATV61HD55M3X, ATV61HD75M3X, ATV61HD90N4, ATV61HC11N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Pre-charge relay driver EEPROM
Bus board :	Function:
	Pre-charge resistor Power module
Filter board 1 :	Functions : EMC Class-A Filter
Filter board 2 :	Functions : EMC Class-A Filter
Filter board 3 :	Functions : EMC Class-B Filter
Filter	Functions :
	EMC Class-B Filter
Main capacitors	
Pre-charge relay	
Fan	
Current measurement	
Motor output terminal	
Mechanical structure: sheet metal.	

Power rating :	ATV71HD75M3X, ATV71HC11N4, ATV61HD90M3, ATV61HC13N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Pre-charge relay driver
EEPROM	
Bus board	
Resistor board :	Function
Pre-charge resistor	
Filter board 1 :	Functions :
EMC Class-A Filter	
Filter board 2 :	Functions :
EMC Class-B Filter	
Filter	Functions :
EMC Class-B Filter	
PSU board :	Function
Fan driver	
Power module	
Main capacitors	
Pre-charge relay	
Current measurement	
Motor output terminal	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC13N4, ATV61HC16N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Pre-charge relay driver
EEPROM	
Bus board	
Resistor board :	Function
Pre-charge resistor	
Relay	
Filter board 1 :	Functions :
EMC Class-A Filter	
Filter board 2 :	Functions :
EMC Class-B Filter	
Filter board 3 :	Functions :
EMC Class-B Filter	
Filter	Functions :
EMC Class-B Filter	
PSU board :	Function
Fan driver	
Power module	
Main capacitors	
Pre-charge relay	
Current measurement	
Motor output terminal	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC16N4, ATV61HC22N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function
Main capacitors	
PSU board	Function :
Fan driver	
Filter	Functions :
EMC Class-B Filter	
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC20N4, ATV71HC25N4, ATV71HC28N4, ATV61HC25N4, ATV61HC31N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function
Main capacitors	
PSU board	Function :
Fan driver	
Filter	Functions :
EMC Class-B Filter	
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC31N4, ATV71HC40N4, ATV61HC40N4, ATV61HC50N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC50N4, ATV61HC63N4
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV61WD30N4, ATV61WD30N4C, ATV71WD22N4, ATV71WD22N4C
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV61WD37N4, ATV61WD45N4, ATV61WD37N4C, ATV61WD45N4C, ATV71WD30N4, ATV71WD37N4, ATV71WD30N4C, ATV71WD37N4C
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV61WD55N4, ATV61WD75N4, ATV61WD90N4, ATV61WD55N4C, ATV61WD75N4C, ATV61WD90N4C, ATV71WD45N4, ATV71WD55N4, ATV71WD75N4, ATV71WD45N4C
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HU22Y, ATV71HU30Y, ATV71HU40Y, ATV71HU55Y, ATV71HU75Y, ATV71HD11Y, ATV71HD15Y, ATV71HD18Y, ATV71HD22Y, ATV71HD30Y, ATV61HU30Y, ATV61HU40Y
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HD37Y, ATV71HD45Y, ATV71HD55Y, ATV71HD75Y, ATV71HD90Y, ATV61HD37Y, ATV61HD45Y, ATV61HD55Y, ATV61HD75Y, ATV61HD90Y
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC11Y, ATV71HC13Y, ATV71HC16Y, ATV61HC11Y, ATV61HC13Y, ATV61HC16Y, ATV61HC22Y
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC20Y, ATV71HC25Y, ATV71HC31Y, ATV61HC25Y, ATV61HC31Y, ATV61HC40Y
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

Power rating :	ATV71HC40Y, ATV71HC50Y, ATV71HC63Y, ATV61HC50Y, ATV61HC63Y, ATV61HC80Y
HMI board	
Power board :	Functions:
	Motor control : Function
	Supply voltage
	Gate driver
	Fan driver
	Current measurement
	Pre-charge relay driver
	Pre-charge relay
	Pre-charge resistor
	EMC filter
	ZCT:Ground fault detection
	Motor output terminal
	EEPROM
Filter board:	Function Main capacitors
PSU board	Function : Fan driver
Filter	Functions : EMC Class-B Filter
Power module	
Mechanical structure: sheet metal.	

12. Inspection and Maintenance

Danger	
Mandatory	<ul style="list-style-type: none"> • The equipment must be inspected every day. If the equipment is not inspected and maintained, errors and malfunctions may not be discovered which could lead to accidents. • Before inspection, perform the following steps. <ol style="list-style-type: none"> (1) Shut off all input power to the inverter. (2) Wait at least ten minutes and check to make sure that the charge lamp is no longer lit. (3) Use a tester that can measure DC voltages (800V DC or more), and check that the voltage to the DC main circuits (across PA-PC) does not exceed 45V. Performing an inspection without carrying out these steps first could lead to electric shock.

Be sure to inspect the inverter regularly and periodically to prevent it from breaking down because of the environment of use, such as temperature, humidity, dust and vibration, or deterioration of its components with aging.

12.1 Regular inspection

Since electronic parts are susceptible to heat, install the inverter in a cool, well-ventilated and dust-free place. This is essential for increasing the service life. The purpose of regular inspections is to maintain the correct environment of use and to find any sign of failure or malfunction by comparing current operation data with past operation records.

Subject of inspection	Inspection procedure			Criteria for judgement
	Inspection item	Inspection cycle	Inspection method	
1. Indoor environment	1) Dust, temperature and gas 2) Drop of water or other liquid 3) Room temperature	Occasionally Occasionally Occasionally	1) Visual check, check by means of a thermometer, smell check 2) Visual check 3) Check by means of a thermometer	1) Improve the environment if it is found to be unfavorable. 2) Check for any trace of water condensation. 3) Max. temperature: 60°C
2. Units and components	1) Vibration and noise	Occasionally	Tactile check of the cabinet	Is something unusual is found, open the door and check the transformer, reactors, contactors, relays, cooling fan, etc., inside. If necessary, stop the operation.
3. Operation data (output side)	1) Load current 2) Voltage (*) 3) Temperature	Occasionally Occasionally Occasionally	Moving-iron type AC ammeter Rectifier type AC voltmeter Thermometer	To be within the rated current, voltage and temperature. No significant difference from data collected in a normal state.

*) The voltage measured may slightly vary from voltmeter to voltmeter. When measuring the voltage, always take readings from the same circuit tester or voltmeter.

Check points

1. Something unusual in the installation environment.
2. Something unusual in the cooling system.
3. Unusual vibration or noise.
4. Overheating or discoloration.
5. Unusual.
6. Unusual motor vibration, noise or overheating.
7. Adhesion or accumulation of foreign substances (conductive substances).

Cautions about cleaning

To clean the inverter, wipe dirt off only its surface with a soft cloth but do not try to remove dirt or stains from any other part. If stubborn stains persist, remove them by wiping gently with a cloth dampened with neutral detergent or ethanol. Never use any of the chemicals in the table below; the use of any of them may damage or peel the coating away from moulded parts (such as plastic covers and units) of the inverter.

Acetone	Ethylene chloride	Tetrachloroethane
Benzen	Ethyl acetate	Trichloroethylene
Chloroform	Glycerin	Xylene

12.2 Periodical inspection

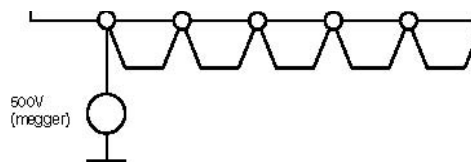
Make a periodical inspection at intervals of 3 or 6 months depending on the operating conditions.



Danger	
Mandatory	<ul style="list-style-type: none"> • Before inspection, perform the following steps. (1) Shut off all input power to the inverter. (2) Wait at least ten minutes and check to make sure that the charge lamp is no longer lit. (3) Use a tester that can measure DC voltages (800V DC or more), and check that the voltage to the DC main circuits (across PA-PC) does not exceed 45V. <p>Performing an inspection without carrying out these steps first could lead to electric shock.</p>
Prohibited	<ul style="list-style-type: none"> • Never replace any part. This could be a cause of electric shock, fire and bodily injury. To replace parts, call the local sales agency.

Check items

1. Check to see if all screwed terminals are tightened firmly. If any screw is found loose, tighten it again with a screwdriver.
2. Check to see if all caulked terminals are fixed properly. Check them visually to see that there is no trace of overheating around any of them.
3. Check all cables and wires for damage. Check them visually.
4. Remove dirt and dust. With a vacuum cleaner, remove dirt and dust. When cleaning, clean the vents and the printed circuit boards. Always keep them clean to prevent an accident due to dirt or dust.
5. If no power is supplied to the inverter for a long time, the performance of its capacity electrolytic capacitor declines. When leaving the inverter unused for a long time, supply it with electricity once every two years, for 5 hours or more each, to recover the performance of the capacity electrolytic capacitor. And also check the function of the inverter. It is advisable not to supply the commercial power directly to the inverter but to gradually increase the power supply voltage with a transformer, etc.
6. If the need arises, conduct an insulation test on the main circuit terminal board only, using a 500V insulation tester. Never conduct an insulation test on control terminals other than terminals on the printed circuit board or on control terminals. When testing the motor for insulation performance, separate it from the inverter in advance by disconnecting the cables from the inverter output terminals U, V and W. When conducting an insulation test on peripheral circuits other than the motor circuit, disconnect all cables from the inverter so that no voltage is applied to the inverter during the test.

(Note) Before an insulation test, always disconnect all cables from the main circuit terminal board and test the inverter separately from other equipment.



7. Never test the inverter for pressure. A pressure test may cause damage to its components.
8. Voltage and temperature check
 Recommended voltmeter: Input side ... Moving-iron type voltmeter 
 Output side ... Rectifier type voltmeter 

It will be very helpful for detecting a defect if you always measure and record the ambient before, during and after the operation.

Replacement of expendable parts

The inverter is composed of a large number of electronic parts including semiconductor devices. The following parts deteriorate with the passage of time because of their composition or physical properties. The use of aged or deteriorated parts leads to degradation in the performance or a breakdown of the inverter. To avoid such trouble, the inverter should be checked periodically.

Note) generally, the life of a part depends on the ambient temperature and the conditions of use. The life spans listed below are applicable to parts when used under normal environmental conditions.

1) Cooling fan the fan, which cools down heat-generating parts, has a service life of about 30,000 hours (about 2 or 3 years of continuous operation). The fan also needs to be replaced if it makes a noise or vibrates abnormally.

2) Smoothing capacitor

- Main circuit.

The smoothing capacitors applied to this inverter in the main circuit DC section are film type capacitors. Those lifetimes in design, value is 15 years, but it is recommended to replace them after it is used for about 10 years under normal conditions. Since the smoothing capacitors are mounted on a printed circuit board, it needs to be replaced together with the circuit board.

- Control circuit.

The smoothing aluminium electrolytic capacitor degrades in performance because of ripple current, etc. The lifetime in design value is 15 years, but it is recommended to replace them after it is used for about 10 years under normal conditions. Since the smoothing capacitors are mounted on a printed circuit board, it needs to be replaced together with the circuit board.

<Criteria for appearance check>

- Absence of liquid leak
- Absence of case damp aged

Note: The operation time is helpful for roughly determining the time of replacement. For the replacement of parts, contact your nearest Schneider Electric distributor. For safety's sake, never replace any part on your own. (Parts replacement alarms can be known by monitor and alarm output, if it is set. Refer to section 6.17.14).

Standard replacement cycles of principal parts

As guides, the table below lists part replacement cycles that were estimated based on the assumption that the inverter would be used in a normal use environment under normal conditions (ambient temperature, ventilation conditions, and energizing time). The replacement cycle of each part does not mean its service life but the number of years over which its failure rate does not increase significantly.

Part name	Standard replacement cycle	Replacement mode and others
Cooling fan	2 to 3 years	Replacement with a new one
Main circuit smoothing electrolytic capacitor	10 years	Replacement with a new one
Relay and contactor	-	Whether to replace or not depends on the check results
Aluminum electrolytic capacitor mounted on a printed circuit board	10 years	Replace with a new circuit board

Note) the life of a part greatly varies depending on the environment of use.

12.3 Keeping the drive in the storage

Take the following precautions when keeping the inverter in storage temporarily or for a long period of time.

- 1 Store the inverter in a well-ventilated place away from heat, damp, dust and metal powder.
 - 2 If the printed circuit board in your inverter has an anti-static cover (black cover), do not leave it detached from the circuit board during storage. The cover must be detached before turning on the inverter.
 - 3 If no power is supplied to the inverter for a long time, the performance of its capacity electrolytic capacitor declines. When leaving the inverter unused for a long time, supply it with electricity once every two years, for 5 hours or more each, to recover the performance of the capacity electrolytic capacitor. And also check the function of the inverter. It is advisable not to supply the commercial power directly to the inverter but to gradually increase the power supply voltage with a transformer, etc.
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12.4 Disposal of the drive

	Danger
Mandatory	<ul style="list-style-type: none"> • If you throw away the inverter, have it done by a specialist in industry waste disposal(*). If you throw away the inverter by yourself, this can result in explosion of capacitor or produce noxious gases, resulting in injury. <p>(*) Persons who specialize in the processing of waste and known as "industrial waste product collectors and transporters" or "industrial waste disposal persons. "If the collection, transport and disposal of industrial waste is done by someone who is not licensed for that job, it is a punishable violation of the law. (Laws in regard to cleaning and processing of waste materials)</p>

For safety's sake, do not dispose of the disused inverter yourself but ask an industrial waste disposal agent. Disposing of the inverter improperly could cause its capacitor to explode and emit toxic gas, causing injury to persons.