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Altivar 38

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- 6.8 AS-i card software (VW3A58305)
- 6.9 Unitelway / Modbus / Jbus card software (VW3A58303)
- 6.10 Profibus-DP card software (VW3A58307)
- 6.11 Can Open card software (VW3A58308)
- 6.12 Devicenet card software (VW3A58309)
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1. General

1.1 Objective

This document defines the policy and methods to be put in place in each country-based organization for repairing the Altivar 38 locally.

Repairs are carried out using replacement parts supplied by SCHNEIDER. This comes solely within the framework of the “service agreement”. Once this agreement has been signed, a country will have a local representative responsible for this offer.

1.2 Products concerned

Product coding:

Eg: ATV38HD28N4(X)

Name	Type	Rating	Voltage	…
ATV38	**H**: heatsink	**D28**	**N4**: 380/460 V	**X**: without EMC

Size	Motor power in KW	Reference
T 2	0.75	ATV38HU18N4
	1.5	ATV38HU29N4
T 3	2.2	ATV38HU41N4
	3	ATV38HU54N4
	4	ATV38HU72N4
	5.5	ATV38HU90N4
T 4	7.5	ATV38HD12N4
	11	ATV38HD16N4
T 5	15	ATV38HD23N4
T 6	18.5	ATV38HD25N4(X)
	22	ATV38HD28N4(X)
	30	ATV38HD33N4(X)
	37	ATV38HD46N4(X)
T 7	45	ATV38HD54N4(X)
	55	ATV38HD64N4(X)
	75	ATV38HD79N4(X)
T8	90	ATV38HC10N4X

Size	Motor power in KW	Reference
T9	110	ATV38HC13N4X
	132	ATV38HC15N4X
	160	ATV38HC19N4X
T10	200	ATV38HC23N4X
	220	ATV38HC25N4X
	250	ATV38HC28N4X
	280	ATV38HC31N4X
	315	ATV38HC33N4X

1.3 Product design and manufacture

All the modules, accessories and software are designed and developed by Schneider Electric or in collaboration with their associates.

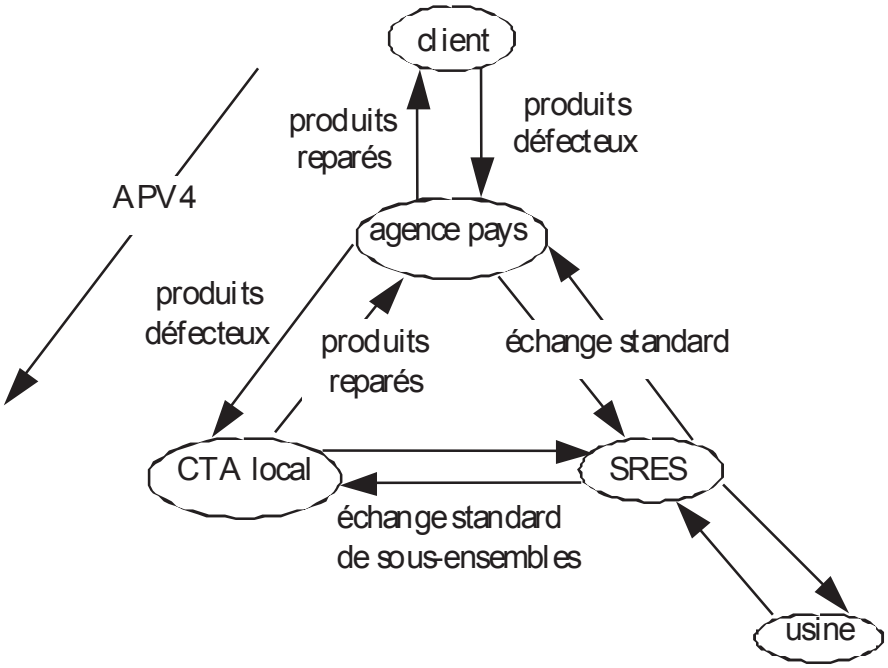
At all stages of design and manufacture, the products are handled with great care. The products are subject to continuous monitoring in order to achieve a high level of quality.

1.4 Exchange and repair

The Altivar 38 is a Category 4 repairable product for the SBS:

- local repair for country-based organizations that have signed the service agreement
- repair at the factory for other country-based organizations

The purpose of this document is to help you repair these products.



For repair at the factory or for expert advice, consult the Intranet site:

HTTP://139.160.73.11/portailDAS/ci.nsf (“Technical support and Training/About support/What to do” menu)

Reminder of after-sales categories:

- **APV2**
  After-sales category 2: Non-repairable drive.

- **APV4**
  After-sales category 4: repairable drive. These are identified in the product file by a code with the suffix TA. The stated price corresponds to the repair cost if the product is returned to the factory (net price).

1.5 Assistance

1.5.1 Work carried out on site

The customer will be provided with on-site assistance by technicians and engineers from the SCHNEIDER service teams in the customer's country.

1.5.2 Technical support

The first level of technical support is provided by the level 1 and 2 forums that the customer can access.

The third level of technical support is provided by the Schneider Vantive intranet: vantive self-service (HTTP://139.160.73.11/Services/IServices4.nsf) or in emergencies call the Global Help Desk direct line:

Tel: +33 (0)1 41 39 39 00
Fax: +33 (0)2 32 78 11 64

1.5.3 Customer returns

Faulty equipment (complete products or sub-assemblies) may be returned according to the terms of the SCHNEIDER warranty policy.

When returning products, complete and attach the form below. This form will shortly be available on the Intranet.

1.5.4 Updating the installed base

If there is a major fault or new functions have been added, it may be necessary to update the products.

In this case, advice will be sent to all the SCHNEIDER networks.

Product Failure Description

Made the | by | Agency/Official distributor :

This sheet is associated with case VANTIVE N° | Customer name :

Was this drive already repaired for preventive maintenance : ☐ Yes ☐ No or a commercial gesture ? ☐ Yes ☐ No

PRODUCT CHARACTERISTICS

Reference : | Soft version : | Quantity :

Serial number : | Install. date :

Option board : | Soft version : | Serial number :

Other options :

CUSTOMER APPLICATION

☐ Fan ☐ Pump ☐ Hoisting ☐ Other machine :

☐ Winder ☐ Convoyor ☐ Packing

MOTOR CHARACTERISTICS

☐ Asynchronous motor ☐ Slip rings motor ☐ Other motor :

Parallel motors ☐ | Nominal Power kW = | Motor voltage en V =

How many | Nominal speed tr/mn = | Motor current A =

Shielded cable ☐ | Dephasing Cos Phi= | Frequency Hz =

Cable length | Motor Coupling | Encoder type

SUPPLY

Measured voltage min/ma | Frequency min/max = | Neutral regime ☐ TT ☐ IT ☐ TN

FAILURE DESCRIPTION

When does the failure appear ?

☐ At the first ☐ On a new machine ☐ After a machine retrofit ☐ During adjusment ☐ During working

☐ Permanent fault ☐ Intermitent fault Frequency :

Ambiant temperature °C : | drive working time per day

IMPORTANT: Precise in what environment is the drive, who did observe the failure, the state and the eventual modifications of the installation, when did the failure happen in the sequence (Acc, Dec, speed, load etc..), the nature of the eventual bad conformity ? Joint the setting file (Powersuite, PC software), the list of the past fault in memory, diagram, and photos if necessary.

FIXING OF THE FAILURE

Did you change the drive ? ☐ Yes ☐ No ☐ by the same ☐ by an other, witch one

Did you change a part in the drive ? ☐ Yes ☐ No ☐ Witch one

After changing did you solve the problem ? ☐ Yes ☐ No

Thanks to return this document to GHD or attach it with your Vantive case

Tél : +331 41 39 39 00 mailto:CI-GHD-Rueil-Gare@mail.schneider.fr

2. Required skills - Training

2.1 Required skills

An Altivar should be repaired by technicians with the following experience:

- Knowledge of the operation of rotating machines driven by electronic variable speed drives
- Principle of power switching and electronic control
- In-depth knowledge of the following tools: PCs, oscilloscopes, multimeters, etc.

For the protection of equipment and personnel, the qualified maintenance technician should implement the procedure detailed in this manual.

- Read, interpret and follow the instructions and precautions described in this manual as well as in other reference material
- Use the necessary tools in a professional manner

2.2 Training

ATV38 training is included in the ATV58 training courses.

2.2.1 Customer training

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

For further information, please contact the I.S.F:

Tel: +33 (0) 1 41 39 60 00 E-mail: schneiderformation.com

Fax: +33 (0) 1 41 39 60 72

2.2.2 Internal training

Several courses concerning selection and setup of variable speed drives are available.

Descriptions of their content are attached to this document.

For further information, please refer to the IC SBS training guide.

2.2.3 After-sales training

This course is reserved for Schneider personnel working on-site. It requires a good knowledge of the product as well as associated applications (cooling, pumping, etc).

For further information, please contact the IC SBS training representative.

2.2.4 Training support

Training support is available on:

• Intranet:

Connect via the IC SBS server. (HTTP://139.160.73.11/PortailDAS/ci.nsf) "Technical support and training" menu

• CDROM labelled "CIFOR"

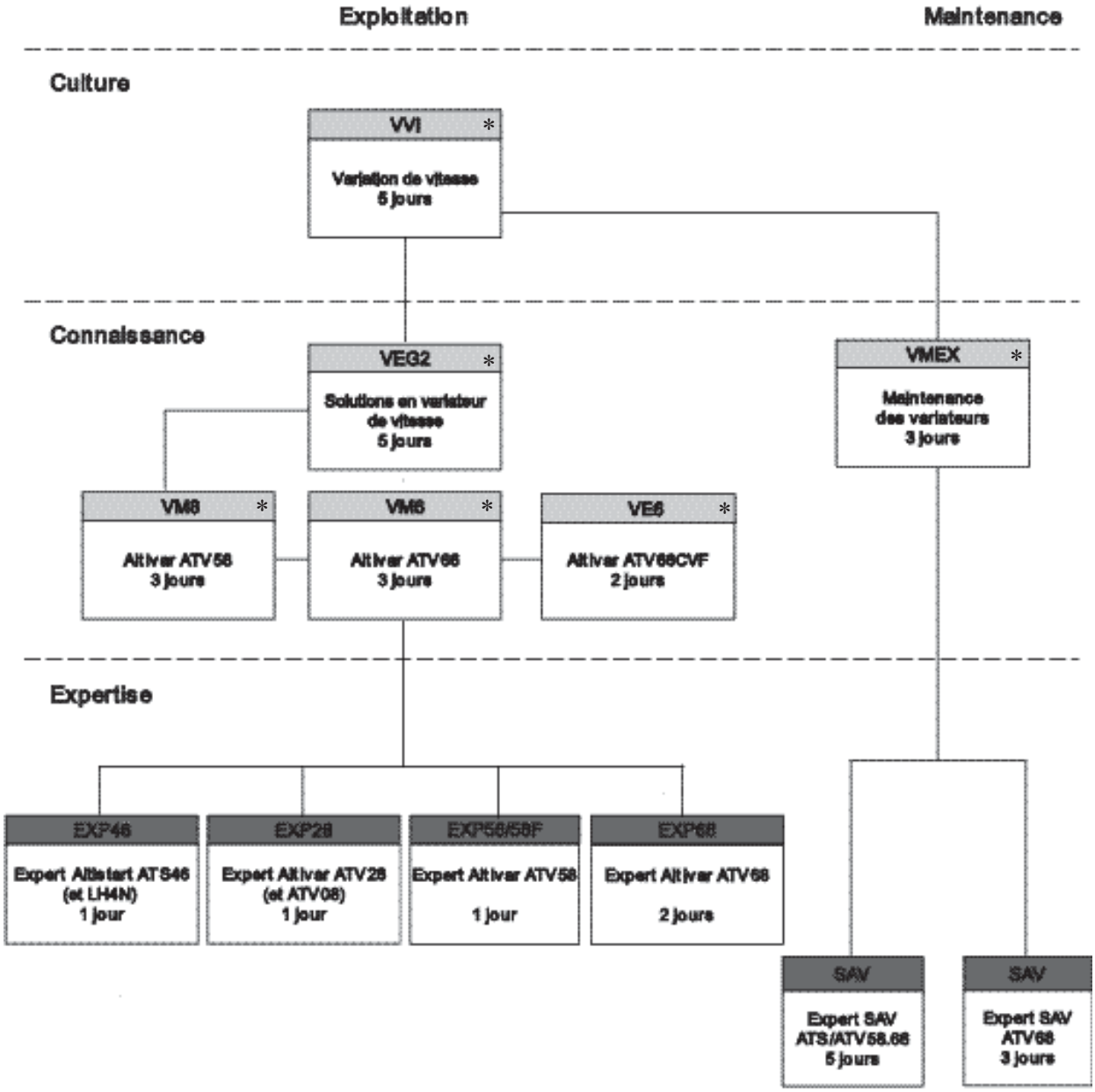
To be ordered from Schneider Comm. Services - Meylan / France

Tel: +33 (0)4 76 60 59 17 or +33 (0)4 76 60 59 02

Fax: +33 (0)4 76 60 67 32

FORMATION VARIATION DE VITESSE ÉLECTRONIQUE

Filière de formation conseillée



* Formations assurées par les ISF.

ATV 58 EXPERT

EXP58

1 day

Training objectives

To become an expert in setting up Altivar 58 drives (0.37 to 55 kW)

Required level of expertise

- ⇨ Knowledge of mechanical principles involved
- ⇨ In-depth knowledge of power electronics
- ⇨ Familiarity with asynchronous motors
- ⇨ Familiarity with VSD products
- ⇨ Good hands-on experience

COURSE CONTENT

- **Range**
- **Technology**
- **Performance**
- **Protection**
- **Customer terminals/sequences**
- **Functionality**
- **Options**
- **Accessories**

DOCUMENTATION SUPPLIED

Altivar ATV58 training manual
Programming manual

COMMENTS

More complete variable speed drive than the Altivar 28, integrating numerous additional functions for more complex applications.

Lectures: 70%
Practical: 30%

LOCATION: RUEIL GARE

PRICE: Free

EQUIPMENT USED

Altivar ATV58.

3. Documentation

3.1 Catalogue

3.2 User's manual:

Different user's manuals are available:

* French – English – German - Spanish

DESCRIPTION	REF
ATV38 user's guide	VVDED 302071
I/O extension board: VW3A58201	VVDED 397046
I/O extension board: VW3A58202	VVDED 397051
Pump option card: VW3A58210	VVDED 398009

* French - English

DESCRIPTION		REF
FIPIO communication card:	VW3A58301	VVDED 397045
Modbus+ communication card:	VW3A58302	VVDED 397044
Unitelway/Modbus/Jbus com. card:	VW3A58303	VVDED397054
Interbus-S com. card:	VW3A58304	VVDED 397053
Interbus-S com. card with separate 24V power supply	VW3A58304E	VVDED397053
AS-I com. card	VW3A58305	VVDED 397055
Profibus DP com. card	VW3A58307	VVDED398008
RS 485 connection kit	VW3A58306	VVDED 397057
Internal communication variables		VVDED 397058

3.3 M.I.T. Intranet

These are technical information sheets regarding VSD products (software versions, application sheets, etc).

These documents can be consulted on the IC SBS Intranet site.

Address: HTTP://139.160.75.12/intramit2000/fr_vv/index.htm

Select: "MIT, Technical Information" – "VSD"

3.4 *Vantive RGSA (Return Good Service Agreement), formerly known as BEST*

This database is accessed via the SCHNEIDER intranet.

• Industrial control site/technical support/help desk: HTTP://139.160.73.11/PortailDAS/ci.nsf

This database allows users:

- To ask a specific question and receive a personalized response from the SBS
- In country-based organizations, to consult their portfolio of current or answered questions, whether or not the SBS is available
- To search the database for all the questions that the SBS has already been asked in order to find a possible suitable response or search avenue

4. Repair service equipment

4.1 Equipment

List of tools required to repair ATV38 drives:

• General equipment
- contact grease (Ref SCHNEIDER VY1A58856)
- multimeter

• ATV38 Size 2 to 3
- torx key 150 mm deep (Ref FACOM 80 TX 20)
  or 6 mm flat screwdriver 150 mm long

• ATV38 Size 4 and 5
- torx key 150 mm deep (Ref FACOM 80 TX 20)
  or 6 mm flat screwdriver 150 mm long
- size 3 Allen key (IPM and capacitors)
- size 4 Allen key (SKIIP)
- 8 mm spanner (screwdriver bit preferable)

• ATV38 Size 6 and 7
- screw driving machine 500 revs 1.5 to 3.9 Nm
  or torque wrench 0.5 to 10 Nm
- hexagon drive socket 8 across flat
- hexagon drive socket 10 across flat + extension 150 mm and 80 mm
- hexagon drive socket 12 across flat
- hexagon drive socket 13 across flat 50 mm deep
- size 20 torx key (ref. FACOM 80TX.20)
  or size 20 torx shank bit + 150 mm extension for screw driving machine
- hexagon shank bit 3 across flat
- hexagon shank bit 4 across flat
- hexagon shank bit 5 across flat
- 300 mm extension

For ATV38 Sizes 6 and 7, use of an electric screwdriver makes it significantly quicker to assemble/dismantle the drive.

• ATV38 Size 8 and 10
- crosshead screwdriver (3 types, including one 250 mm long for size 9)
- flat screwdriver
- 13 mm spanner
- 17 mm socket wrench
- 17 mm spanner
- flat pliers

4.2 Dialogue and diagnostics tool

4.2.1 Dialogue tool

First-level diagnostics are obtained via the programming terminal or the setup software. These tools are used primarily to:

- Check the I/O states
- Read the error log while displaying the operating phase during which the fault appeared
- Save and transfer drive configurations

4.2.2 Diagnostic equipment for all ATV38 drives

A diagnostic kit is available, and can be ordered from Evreux quoting reference VZ3N5820. It includes:

- A ribbon cable which can be used to supply the control board from an ATV58HU18M2 without supplying the power
- A circuit which can be connected to the control terminals in order to test the I/O
- Diagnostic software to help you identify the faulty component(s) and test your repair
  It performs the following functions:
  • Testing the control board (power supply and I/O)
  • Testing all power circuits
  • Calibrating the power

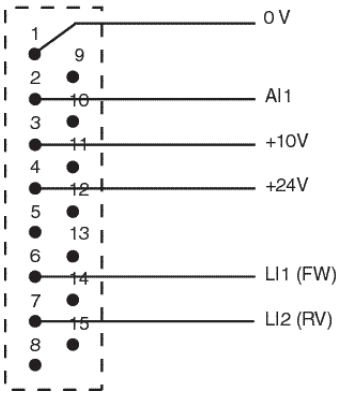
4.3 Test bench

In order to test the Altivar 38 after repair, a document is attached showing how to build a test bench. It corresponds to that used to test Altivar 66 and Altistart 48 drives. Only the cable linking the Altivar 38 connectors to the 15-pin Sub-D connector is different.

Schematic diagram of this cable:

Connecteur 15 broches femelle
Vue de devant

Connecteur carte contrôle ATV38



CONSTRUCTION OF THE TEST PLATFORM

ATV PLATEFORM (380v 220v)

CCA TELEMECANIQUE

Ind.	Nom	Date	Visa	Nom	Date	Visa	Nature des Modifications
03	OZOUF L			OZOUF L			MISE A JOUR
02	OZOUF L			OZOUF L			MISE A JOUR
01	OZOUF L			HIRTH D			CREATION DU DOSSIER
	Vérifié			Approuvé			

CLIENT
TELEMECANIQUE

REFERENCE CLIENT
TELEMECANIQUE

Telemecanique

PROJ:51049
IDI : 01
FORMAT A3

PAGE DE GARDE
PLATEFORME ESSAI ATV

RADICAL	VU	VF	CD	IED	FOLIO
51049				03	001

F.d.P. Version 2.1

PAGE	DESIGNATION	EVOLUTION INDEX
001	FLYLEAF	03
002a	RECAPITULATION PAGE	03
003	POWER	03
004	CONTROL SEQUENCE	03
005	CONTROL SEQUENCE	03
006	CONTROL SEQUENCE	03
007	CONTROL SEQUENCE	03
008	OPERATING LEGEND	02
009	OPERATING LEGEND	01
010	DOOR AND CABINET	01
011	CABINET-ATV66 CONNECTION	01

PAGE	DESIGNATION	EVOLUTION INDEX

Page Récapitulative

ATV PLATEFORM

Telemecanique

PROJ: 51049

FORMAT A3

RADICAL	VU	VF	CD	IED	FOLIO
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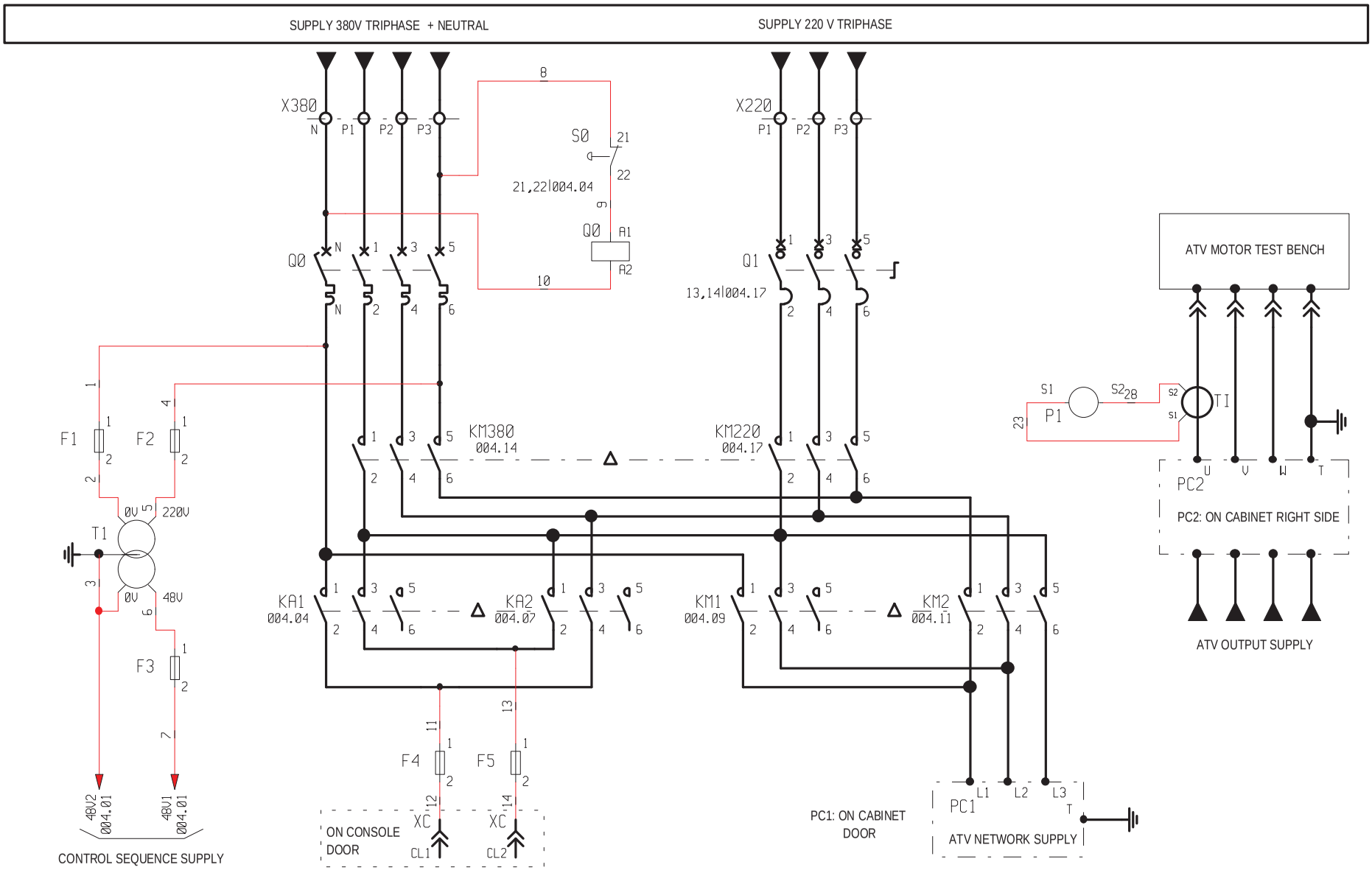

	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

FORMAT A3

POWER

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
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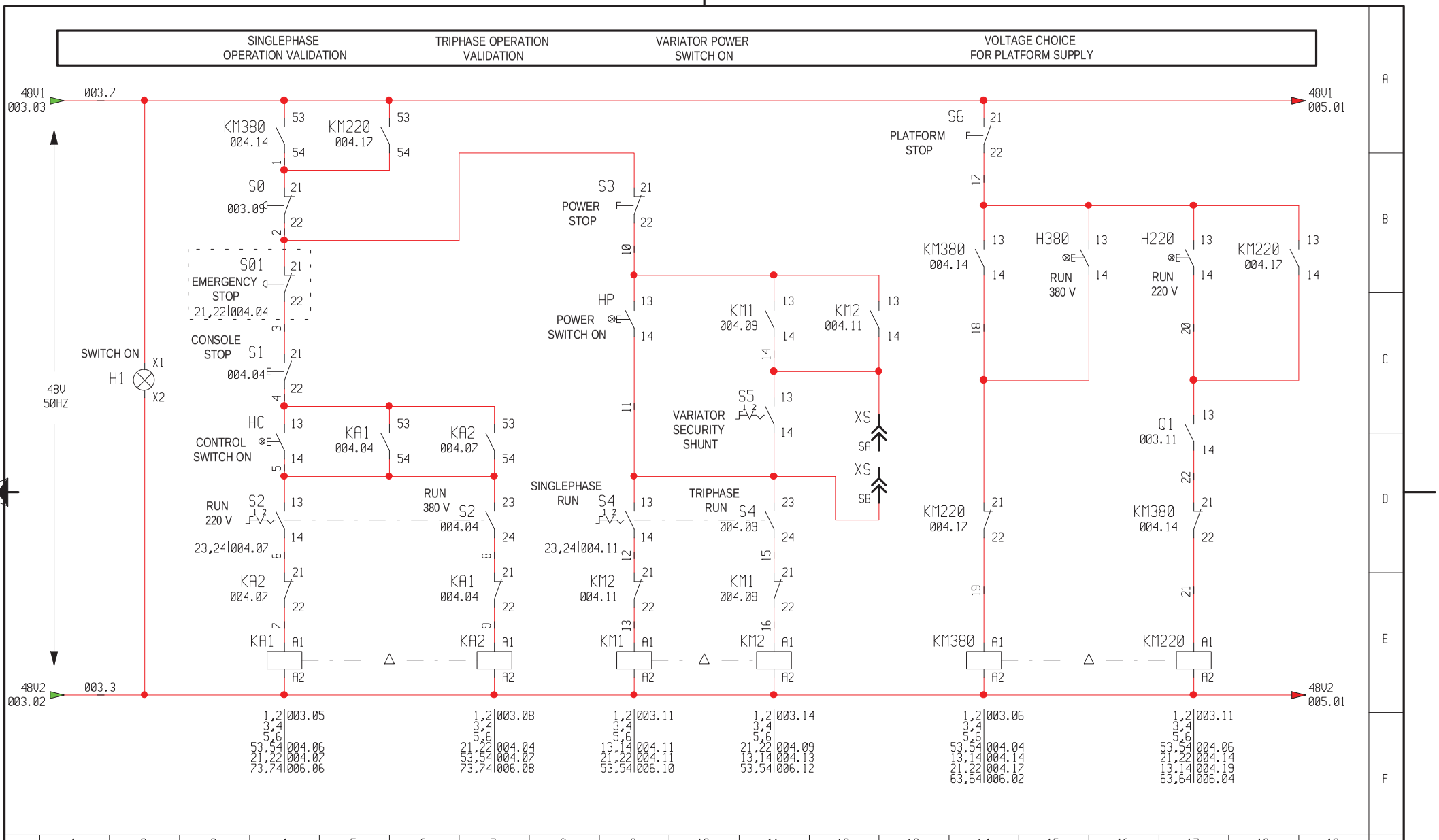

NOTA: BOUTONNERIE ET SIGNALISATION
SUR FACE AVANT CONSOLE

	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

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CONTROL SEQUENCE

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
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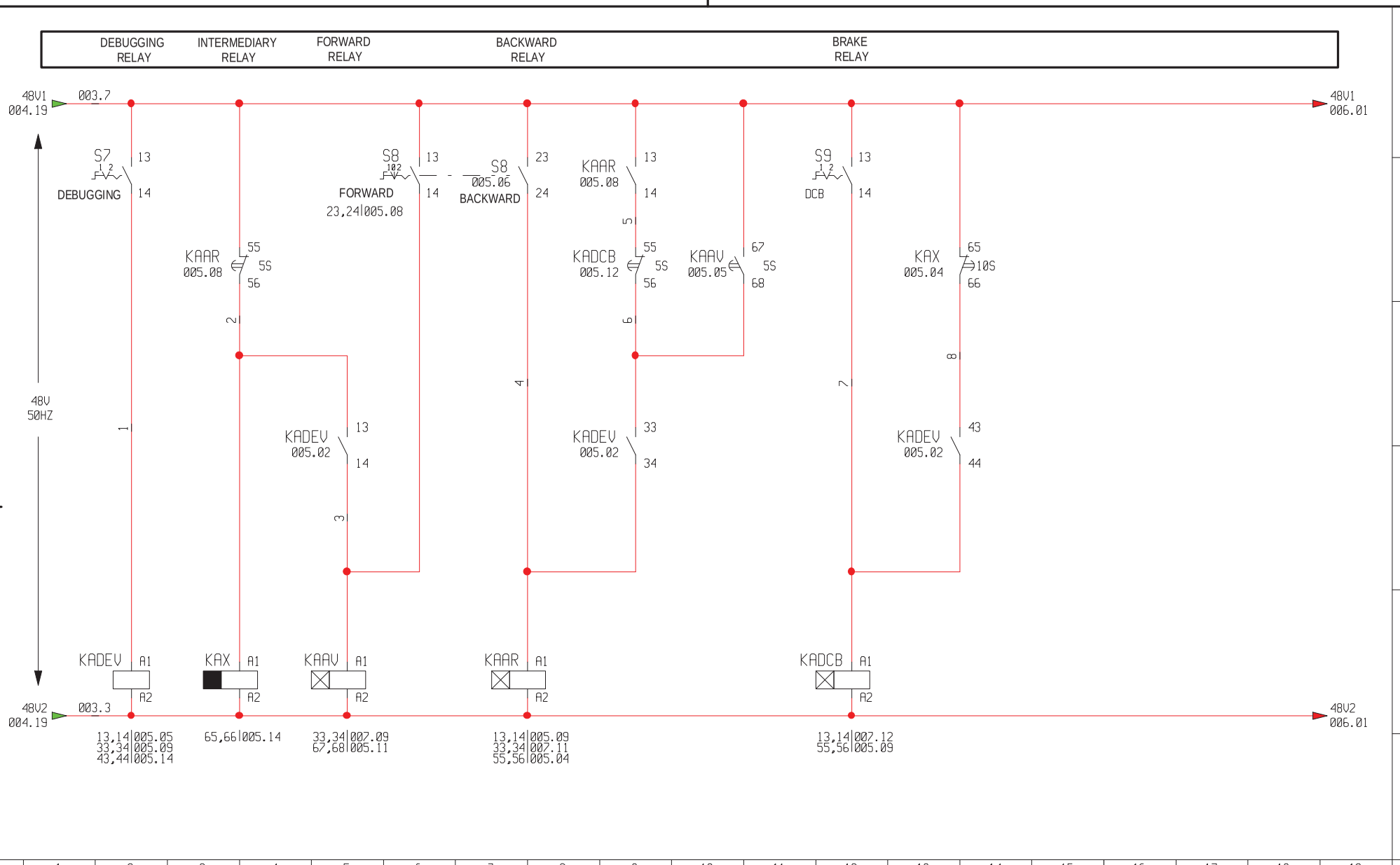

NOTA: BOUTONNERIE ET SIGNALISATION SUR FACE AVANT CONSOLE

	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

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CONTROL SEQUENCE

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
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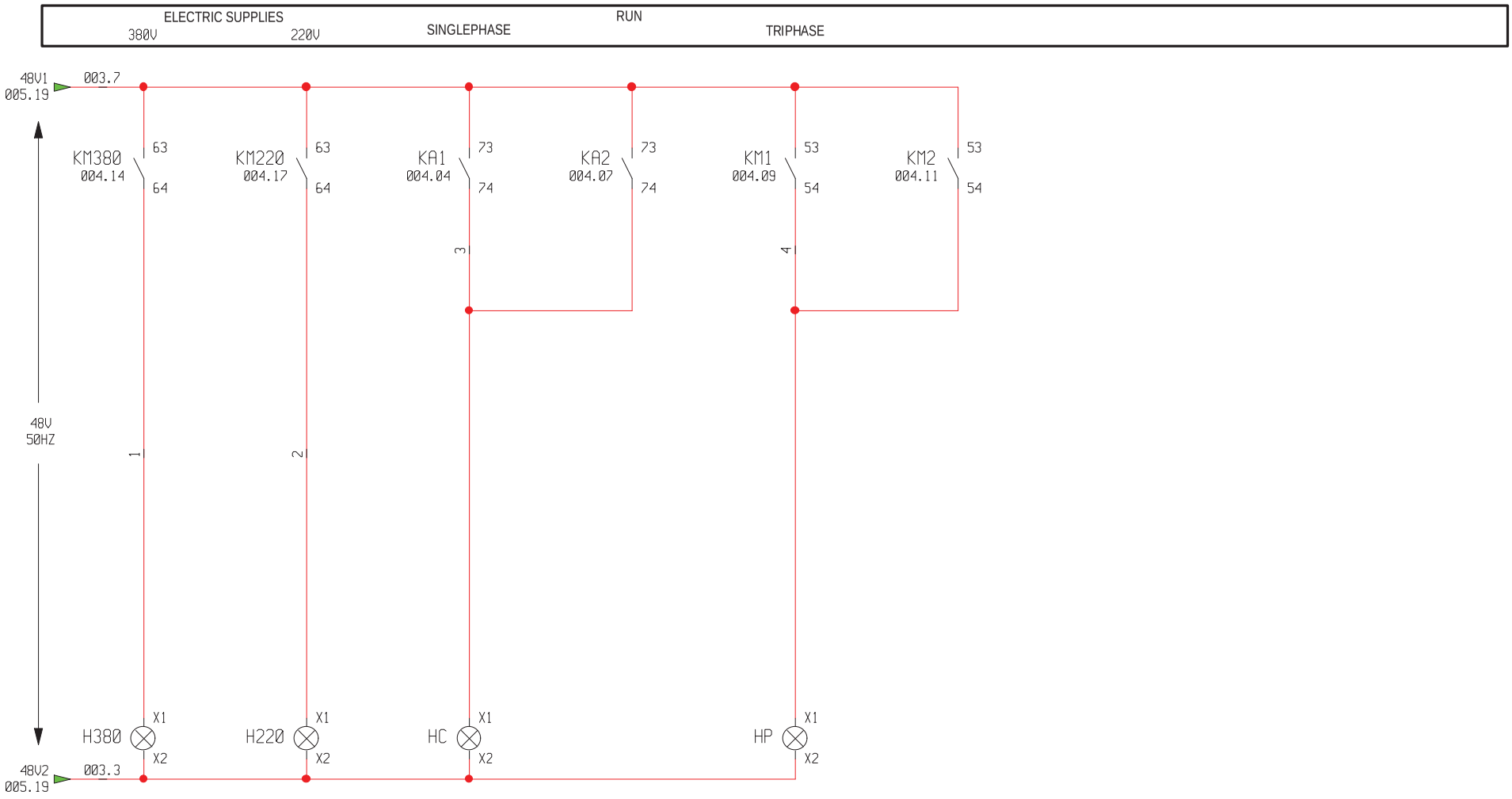

NOTA: BOUTONNERIE ET SIGNALISATION
SUR FACE AVANT CONSOLE

	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

FORMAT A3

CONTROL SEQUENCE

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
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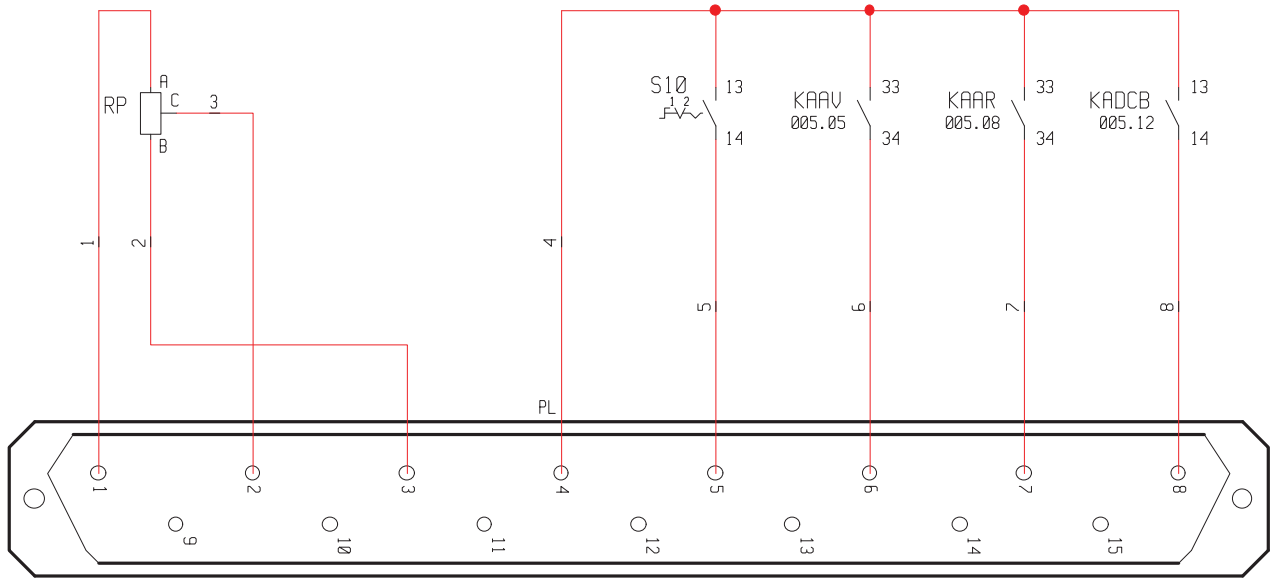
F.d.P. Version 2.1

S10: LOCKING-UNLOCKING SWITCH

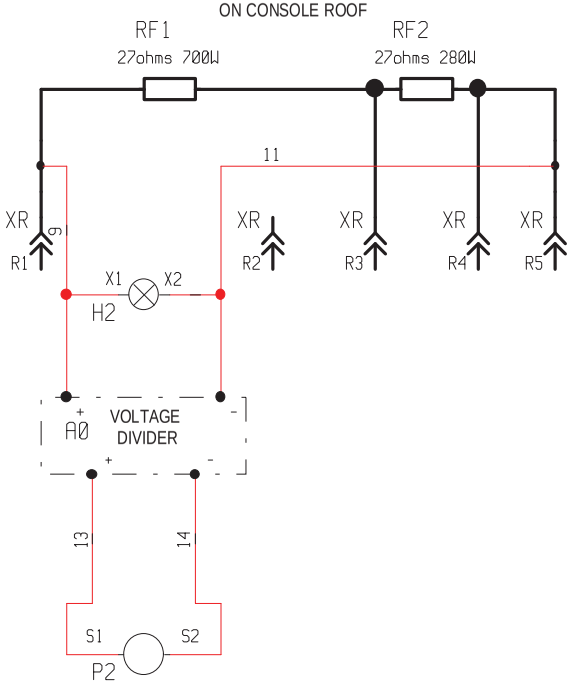


VIEW ON SEAM SIDE

PC3

SUB D 56 PIN CONNECTION
ON CONSOLE FRONT SIDE

BRAKE RESISTANCE
ON CONSOLE ROOF



VOLTMETER
ON CONSOLE FRONT SIDE

	Nom	Date
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Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

FORMAT A3

CONTROL SEQUENCE

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
51049				03	007

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A

F.d.P. Version 2.1

DEVICES OPERATING LEGEND

REFERENCE	PAGE / COL	OPERATING DESCRIPTION	SUPPLIER	EQUIPMENT
Q0	003.05	CONTACT BREAKER	TELEMECANIQUE	LD4LC040E
Q0	003.05	PROTECTION MODULE	TELEMECANIQUE	LB1LC04L53
Q0	003.05	COIL 240 V 50 HZ	TELEMECANIQUE	LX1LC240
Q0	003.05	HANDLE + DRILL-PLATE	TELEMECANIQUE	LA9LC530
Q1	003.11	MOTOR CIRCUIT BREAKER	TELEMECANIQUE	GK3EF40
Q1	003.11	ADDITIONAL CONTACT START-STOP	TELEMECANIQUE	GK2AX10
Q1	003.11	EXTERIOR CONTROL	TELEMECANIQUE	GK3AP03
F1	003.02	NEUTRAL FUSE SUPPORT	TELEMECANIQUE	DF6N10
F2	003.03	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F2	003.03	FUSE CARTRIDGE aM	TELEMECANIQUE	DF2-CA02
F3	003.02	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F3	003.02	FUSE CARTRIDGE gI	TELEMECANIQUE	DF2-CN04
F4	003.03	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F4	003.03	FUSE CARTRIDGE aM	TELEMECANIQUE	DF2-CA04
F5	003.02	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F5	003.02	FUSE CARTRIDGE aM	TELEMECANIQUE	DF2-CA04
T1	003.02	SINGLEPHASE TRANSFORMER	LEGRAND	250VA 220-48V
P1	003.12	VOLTMETER	IME03	GALVA100VCC96X96
P1	003.12	"BRAKING" LABEL		
A0	007.17	VOLTAGE DIVIDER	IME03	DIV1000-100V1mA
P2	003.16	AMMETER 0-40 A	SOCOMEC	172C0404
P2	003.16	"MOTOR I" LABEL		
TI	003.13	INTENSITY TRANSFORMER	SOCOMEC	172T0540
PC1	003.13	MARTIN LUNEL PLUG 16-25A	LEGRAND	H57568
PC2	003.17	P17 CONNECTOR 16A 3P + E 380 V	LEGRAND	H57568
PC2	003.17	PE BLANKING PLUG	LEGRAND	12mm
XR (5)	003.15	AR TERMINAL (BRAKING R)	TELEMECANIQUE	REF 32903
XS (2)	004.07	AR TERMINAL	TELEMECANIQUE	REF 32903
XC (2)	003.08	AR TERMINAL	TELEMECANIQUE	REF 32903
KA1	004.04	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D901E7
KA1	004.04	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN31
KA2	004.07	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D0901E7
KA2	004.07	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN31
KM1	004.09	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D4011E7
KM1	004.09	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN20
KM2	004.11	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D4011E7
KM2	004.11	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN20
KM380	004.14	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D4011E7
KM380	004.14	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN20
KM220	004.17	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D4011E7

REFERENCE	PAGE / COL	OPERATING DESCRIPTION	SUPPLIER	EQUIPMENT
KM220	004.17	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN20
KADEV	005.02	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KAX	005.04	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KAX	005.04	TIMER ADDITIONAL PART	TELEMECANIQUE	LA3DR2
KAAV	005.05	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KAAV	005.05	ENERGISED TIMER ADDITIONAL PART	TELEMECANIQUE	LA2DT2
KAAR	005.08	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KAAR	005.08	ENERGISED TIMER ADDITIONAL PART	TELEMECANIQUE	LA2DT2
KADCB	005.12	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KADCB	005.12	ENERGISED TIMER ADDITIONAL PART	TELEMECANIQUE	LA2DT2
H1	004.02	INDICATOR LIGHT	TELEMECANIQUE	XB2BV63
H1		48 V BULB	TELEMECANIQUE	DL1-CE048
H1		"ENERGISED" LABEL	TELEMECANIQUE	ZB2BY2101
S0	003.09	PUSH-BUTTON EMERGENCY STOP	TELEMECANIQUE	XB2BT42
S0	003.09	OPENING CONTACT	TELEMECANIQUE	ZB2BE102
S0	003.09	60 MM LABEL "EMERGENCY STOP"	TELEMECANIQUE	ZB2 BY 9130
S01	004.04	PUSH-BUTTON EMERGENCY STOP CASING	TELEMECANIQUE	XAL-J174
S1	004.04	PUSH-BUTTON	TELEMECANIQUE	XB2BA42
S1	004.04	LABEL "CONTROL STOP"	TELEMECANIQUE	ZB2BY2101
S2	004.04	COMMUTATOR BODY	TELEMECANIQUE	ZB2BZ103
S2	004.04	COMMUTATOR HEAD	TELEMECANIQUE	ZB2BD2
S2	004.04	LABEL "220 V 380 V"	TELEMECANIQUE	ZB2BY2101
S3	004.09	PUSH-BUTTON	TELEMECANIQUE	XB2BA42
S3	004.09	LABEL "POWER STOP"	TELEMECANIQUE	ZB2BY2101
S4	004.09	COMMUTATOR BODY	TELEMECANIQUE	ZB2BZ103
S4	004.09	COMMUTATOR HEAD	TELEMECANIQUE	ZB2BD2
S4	004.09	LABEL "SINGLE TRI"	TELEMECANIQUE	ZB2BY2101
S5	004.11	COMMUTATOR	TELEMECANIQUE	XB2BD21
S5	004.11	LABEL "SHUNT SA SB 0-1"	TELEMECANIQUE	ZB2BY2101
S6	004.14	PUSH-BUTTON	TELEMECANIQUE	XB2BA42
S6	004.14	LABEL "PLATFORM STOP"	TELEMECANIQUE	ZB2BY2101
S7	005.02	COMMUTATOR	TELEMECANIQUE	XB2BD21
S7	005.02	LABEL "DEBUGGING 0-1"	TELEMECANIQUE	ZB2BY2101
S8	005.06	COMMUTATOR	TELEMECANIQUE	XB2BD33
S8	005.06	LABEL "FW 0 RV"	TELEMECANIQUE	ZB2BY2101
S9	005.12	COMMUTATOR	TELEMECANIQUE	XB2BD21
S9	005.12	LABEL "BRAKE 0-1"	TELEMECANIQUE	ZB2BY2101
S10	007.08	COMMUTATOR	TELEMECANIQUE	XB2BD21
S10	007.08	LABEL "RUN 0-1"	TELEMECANIQUE	ZB2BY2101
HC	004.04	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361

A B C D E F

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

FORMAT A3

OPERATING LEGEND

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
51049				02	008

S A

F.d.P. Version 2.1

DEVICES OPERATING LEGEND

REFERENCE	PAGE / COL	OPERATING DESCRIPTION	SUPPLIER	EQUIPMENT
HC	004.04	WHITE CAP	TELEMECANIQUE	ZB2BW911
HC	004.04	"CONTROL ENERGISED" LABEL	TELEMECANIQUE	ZB2BY2101
HC	004.04	48 V BULB	TELEMECANIQUE	DL1CE048
HP	004.09	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361
HP	004.09	WHITE CAP	TELEMECANIQUE	ZB2BW911
HP	004.09	"POWER ENERGISED" LABEL	TELEMECANIQUE	ZB2BY2101
HP	004.09	48 V BULB	TELEMECANIQUE	DL1CE048
H380	004.16	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361
H380	004.16	"380 V" LABEL	TELEMECANIQUE	ZB2BY2101
H380	004.16	48 V BULB	TELEMECANIQUE	DL1CE048
H220	004.17	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361
H220	004.17	"220 V" LABEL	TELEMECANIQUE	ZB2BY2101
H220	004.17	48 V BULB	TELEMECANIQUE	DL1CE048
H2	007.16	INDICATOR LIGHT	TELEMECANIQUE	XB2BV75
H2	007.16	"BRAKING" LABEL	TELEMECANIQUE	ZB2BY2101
H2	007.16	130 V BULB	TELEMECANIQUE	DL1CE130
RP	007.16	2.2 K POTENTIOMETER	TELEMECANIQUE	SZ1RV1202
RF1	007.16	27 OHMS 700 W RESISTANCE	TELEMECANIQUE	VY1ADR027W700
RF2	007.16	27 OHMS 280 W RESISTANCE	TELEMECANIQUE	VY1ADR027W280
PC3	007.07	PIN PLUG	TELEMECANIQUE	SUB-D 15
X380		TERMINAL + ACCESSORIES	TELEMECANIQUE	AB1-VV1035U
X220		TERMINAL + ACCESSORIES	TELEMECANIQUE	AB1-VV1035U
COFFRET		BLUE CASING + BASEPLATE	TELEMECANIQUE	ACMBP6525

A B C D E F

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

FORMAT A3

OPERATING LEGEND

ATV PLATEFORM 380-220V

RADICAL 51049 | VU | VF | CD | IED 01 | FOLIO 009

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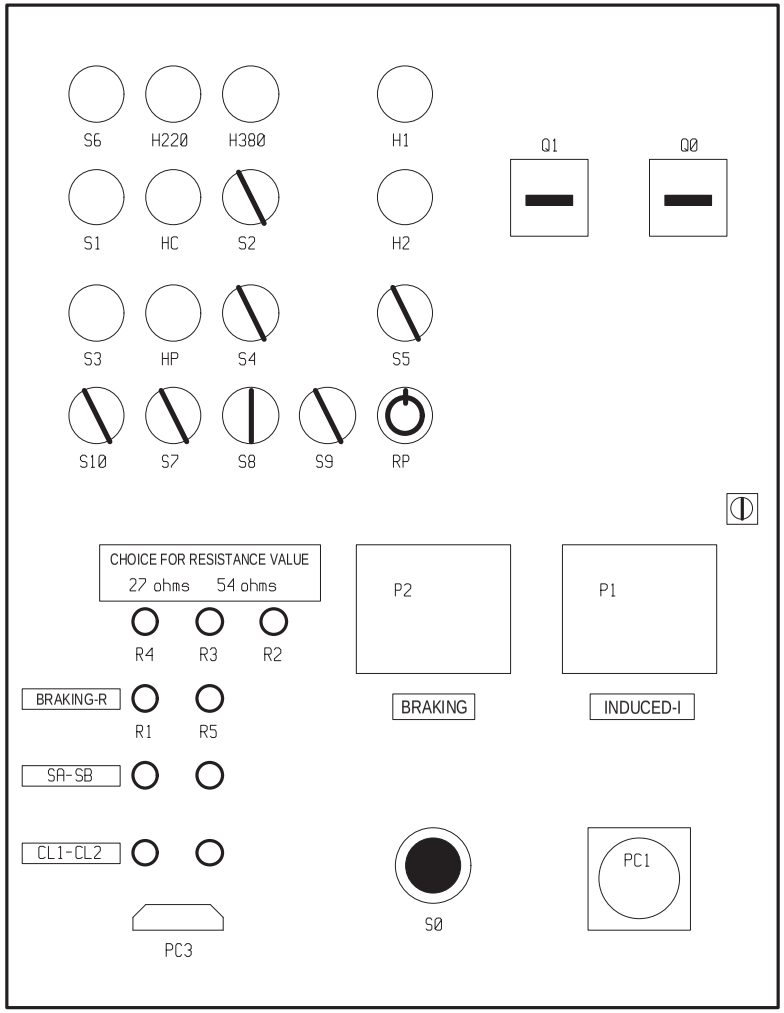
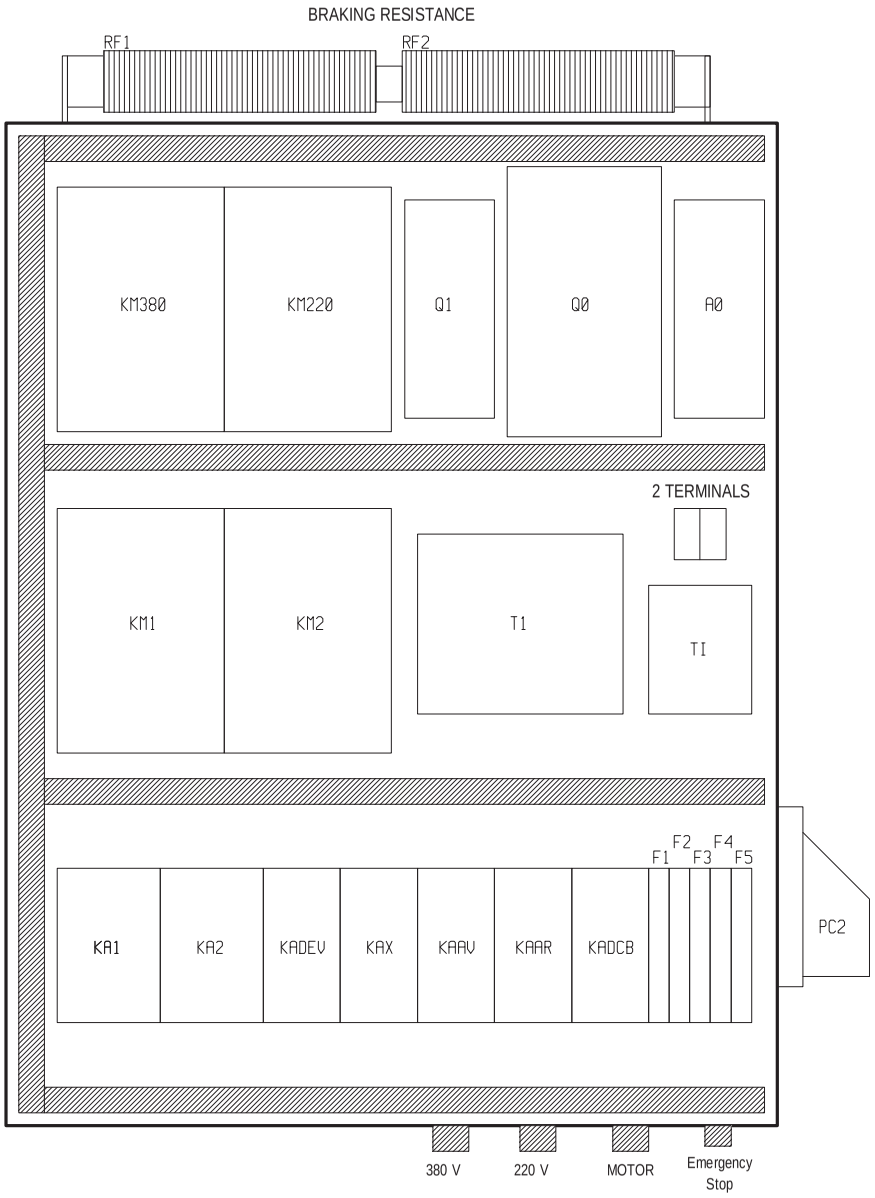
A

F.d.P. Version 2.1





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	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

FORMAT A3

DOOR AND CABINET

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	010

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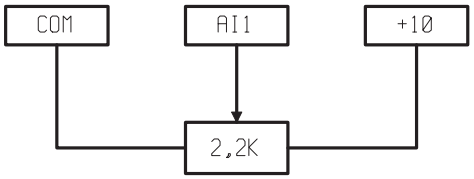
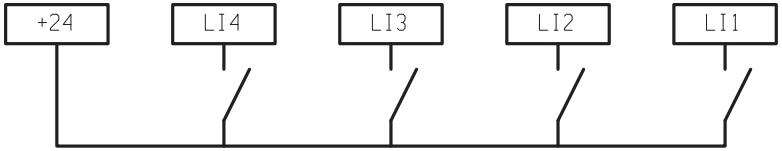
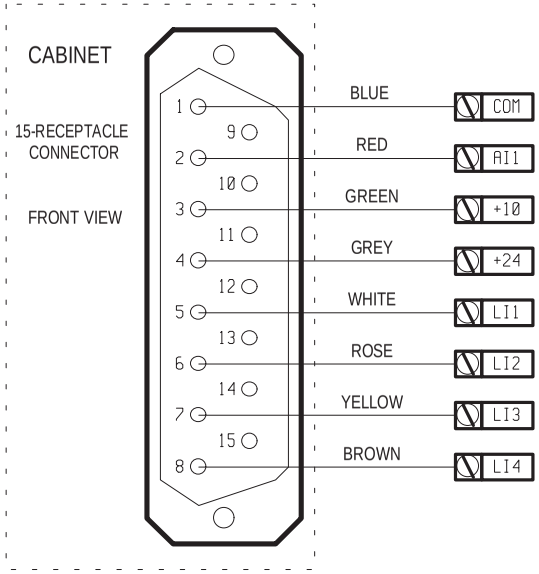
F.d.P. Version 2.1



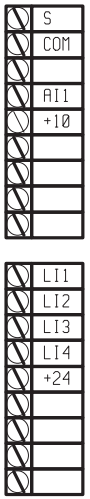
LI1: UNLOCK
LI2: FW
LI3: RV
LI4: JOB STEP BY STEP





VZ3N006 TYPE CONNECTOR
(BLADES CONNECTOR)

TOP VIEW



ATV66

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

	Nom	Date
Etabli	HIRTH-D	14.03.95
Saisi	OZOUF L	14.03.95
Controle saisie	OZOUF L	14.03.95

Telemecanique

PROJ:51049

FORMAT A3

CABINET-ATV66 CONNECTION

ATV PLATEFORM 380-220V

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	011

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A

F.d.P. Version 2.1

MOTORS BENCH (380 525 V)

Ind.	Nom	Date	Visa	Nom	Date	Visa	Nature des Modifications
01	F BROSSARD			G MEUNIER			CREATION DU DOSSIER
	Vérifié			Approuvé			

CLIENT

TELEMECANIQUE

REFERENCE CLIENT
TELEMECANIQUE

Telemecanique

PROJ:51049
IDI : 01
FORMAT A3

ATV PLATEFORM

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	001

PAGE	DESIGNATION	EVOLUTION INDEX
001	FLYLEAF	01
002a	RECAPITULATION PAGE	01
003	POWER	01
004	CONTROL SEQUENCE	01
005	CONTROL SEQUENCE	01
006	CONTROL SEQUENCE	01
007	CONTROL SEQUENCE	01
008	OPERATING LEGEND	01
009	OPERATING LEGEND	01
010	DOOR AND CABINET	01
011	CABINET-ATV66 CONNECTION	01

PAGE	DESIGNATION	EVOLUTION INDEX

Page Récapitulative

ATV PLATEFORM

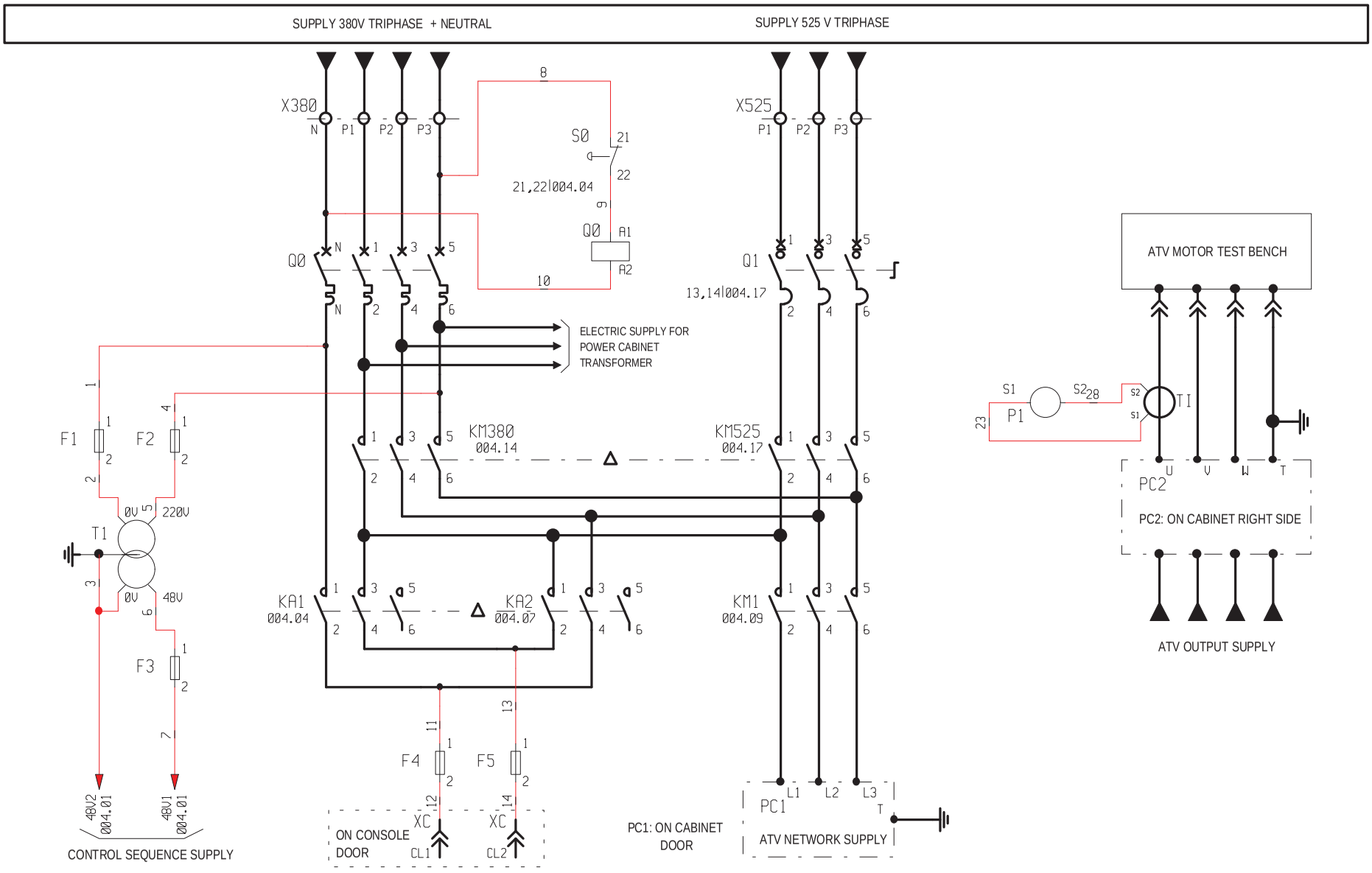
Telemecanique

PROJ: 51049

FORMAT A3

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	002a

F.d.P. Version 2.1



	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

POWER

MOTORS BENCH (380-525 V)

PROJ:51049

FORMAT A3

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	003

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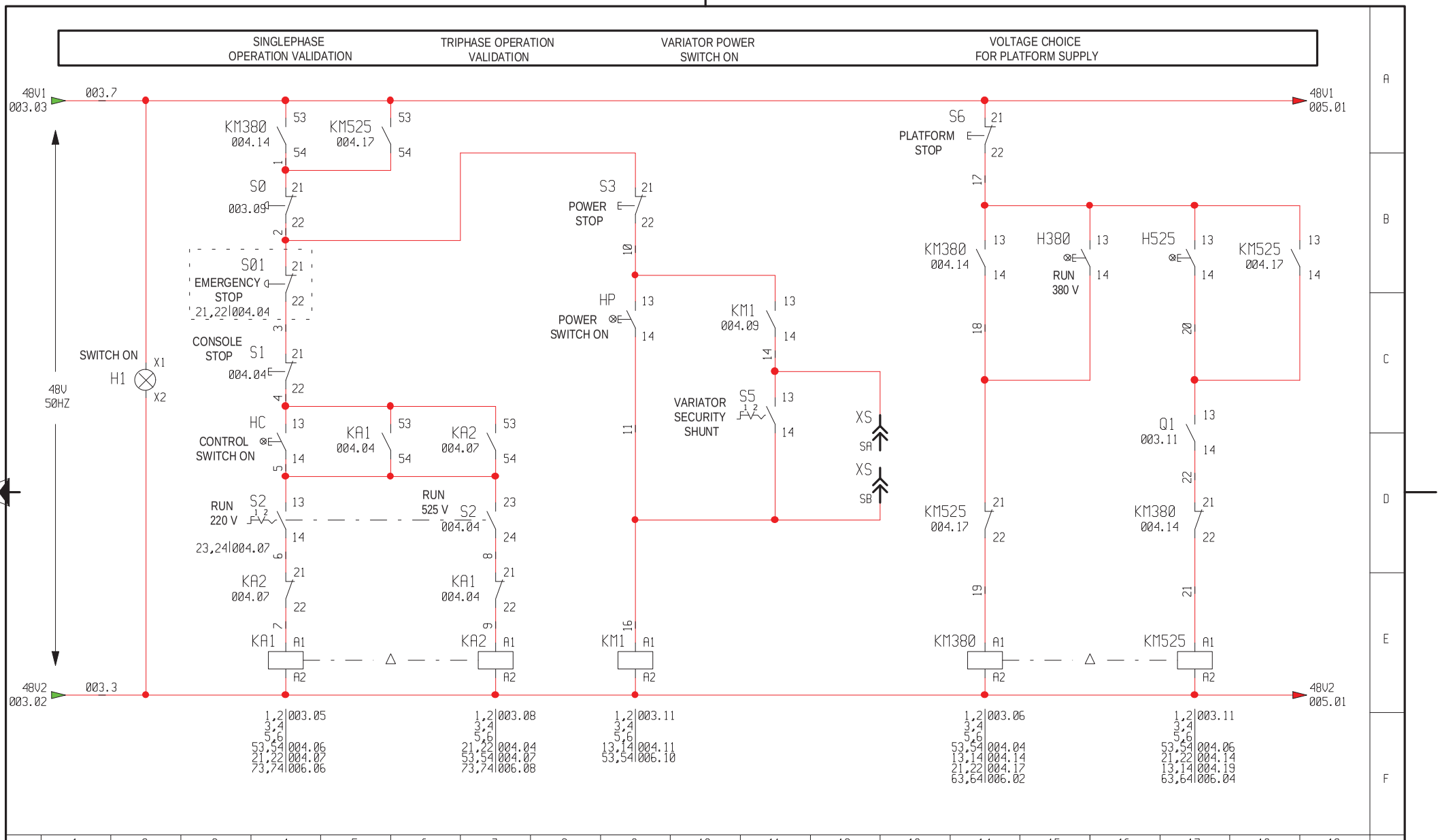

NOTA: BOUTONNERIE ET SIGNALISATION
SUR FACE AVANT CONSOLE

	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

PROJ:51049

FORMAT A3

CONTROL SEQUENCE

MOTORS BENCH (380-525 V)

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	004

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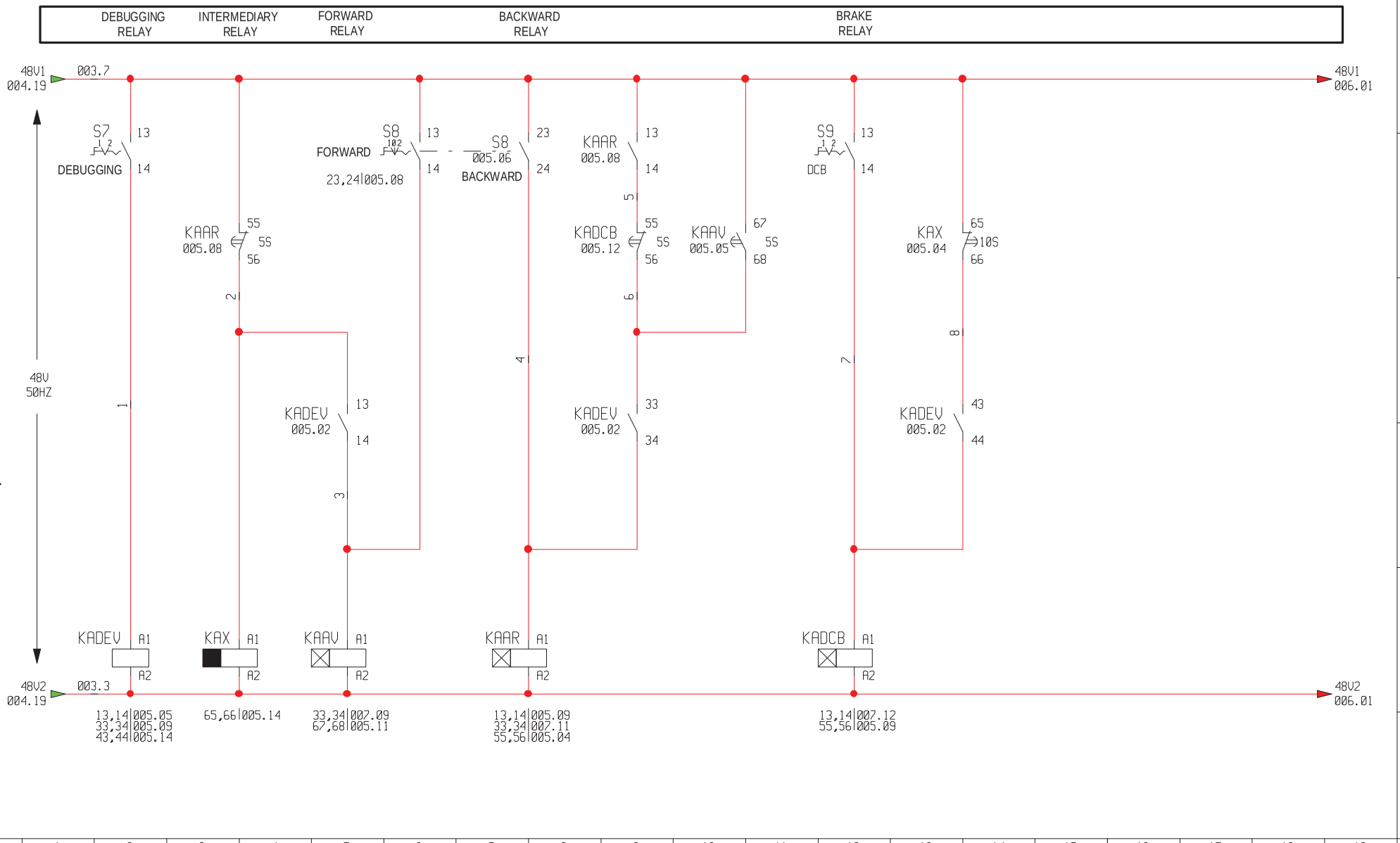


NOTA: BOUTONNERIE ET SIGNALISATION SUR FACE AVANT CONSOLE

	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

CONTROL SEQUENCE

MOTORS BENCH (380-525 V)

Telemecanique

PROJ:51049

FORMAT A3

RADICAL 51049

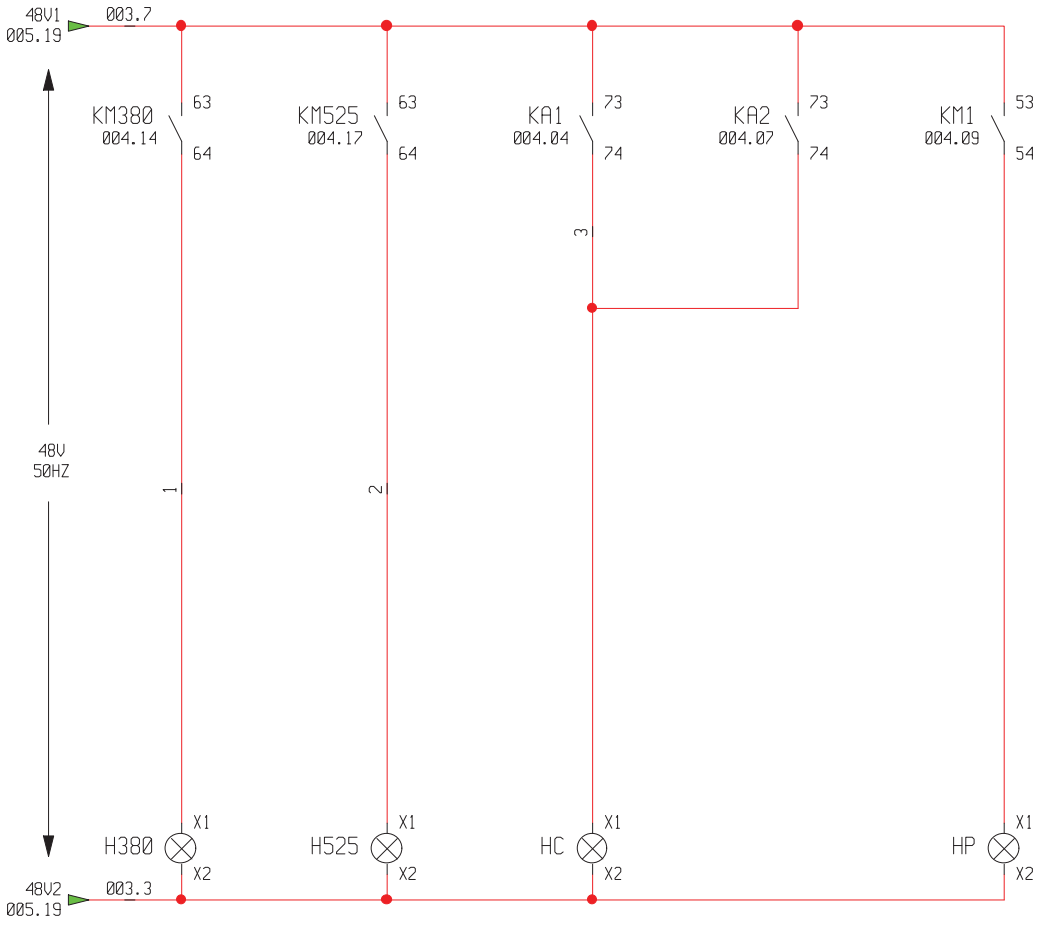
VU VF CD

IED 01

FOLIO 005

S A

ELECTRIC SUPPLIES
380V 525V SINGLEPHASE RUN TRIPHASE



NOTA: BOUTONNERIE ET SIGNALISATION
SUR FACE AVANT CONSOLE

	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

PROJ:51049

FORMAT A3

CONTROL SEQUENCE

MOTORS BENCH (380-525 V)

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	006

S
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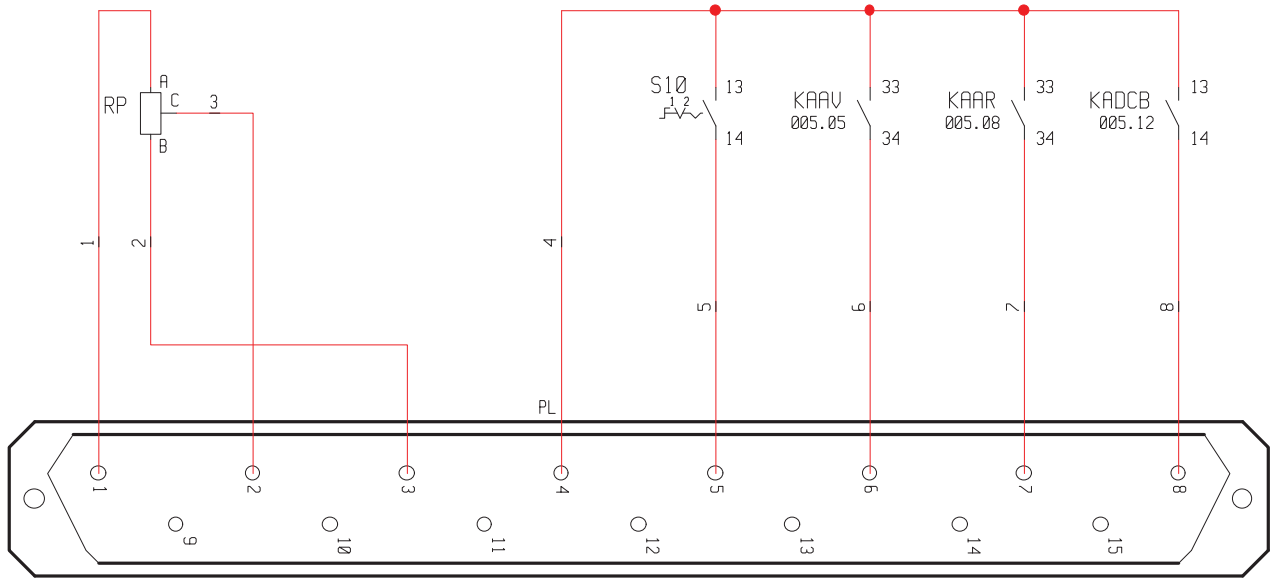
F.d.P. Version 2.1

S10: LOCKING-UNLOCKING SWITCH

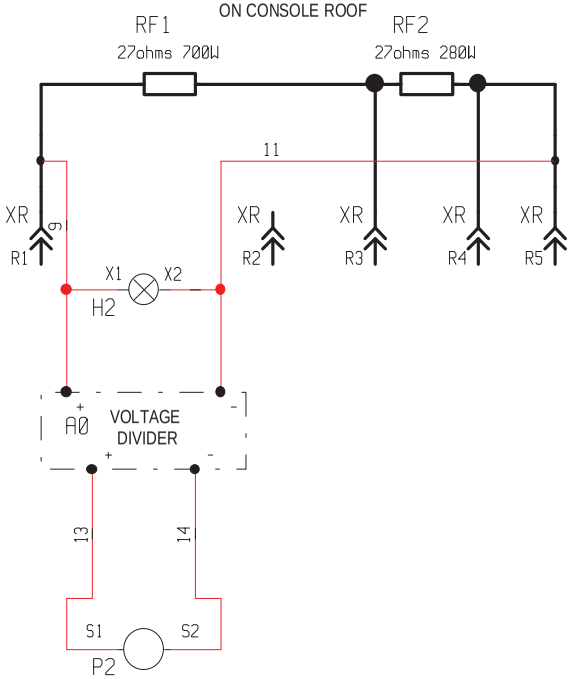


VIEW ON SEAM SIDE

PC3

SUB D 56 PIN CONNECTION
ON CONSOLE FRONT SIDE

BRAKE RESISTANCE
ON CONSOLE ROOF



VOLTMETER
ON CONSOLE FRONT SIDE

	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

PROJ:51049

FORMAT A3

CONTROL SEQUENCE

MOTORS BENCH (380-525 V)

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	007

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F.d.P. Version 2.1

DEVICES OPERATING LEGEND

REFERENCE	PAGE / COL	OPERATING DESCRIPTION	SUPPLIER	EQUIPMENT
Q0	003.05	CONTACT BREAKER	TELEMECANIQUE	LD4LC040E
Q0	003.05	PROTECTION MODULE	TELEMECANIQUE	LB1LC04L53
Q0	003.05	COIL 240 V 50 HZ	TELEMECANIQUE	LX1LC240
Q0	003.05	HANDLE + DRILL-PLATE	TELEMECANIQUE	LA9LC530
Q1	003.11	MOTOR CIRCUIT BREAKER	TELEMECANIQUE	GK3EF40
Q1	003.11	ADDITIONAL CONTACT START-STOP	TELEMECANIQUE	GK2AX10
Q1	003.11	EXTERIOR CONTROL	TELEMECANIQUE	GK3AP03
F1	003.02	NEUTRAL FUSE SUPPORT	TELEMECANIQUE	DF6N10
F2	003.03	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F2	003.03	FUSE CARTRIDGE aM	TELEMECANIQUE	DF2-CA02
F3	003.02	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F3	003.02	FUSE CARTRIDGE gl	TELEMECANIQUE	DF2-CN04
F4	003.03	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F4	003.03	FUSE CARTRIDGE aM	TELEMECANIQUE	DF2-CA04
F5	003.02	FUSE SUPPORT	TELEMECANIQUE	DF6AB10
F5	003.02	FUSE CARTRIDGE aM	TELEMECANIQUE	DF2-CA04
T1	003.02	SINGLEPHASE TRANSFORMER	LEGRAND	250VA 220-48V
P1	003.12	VOLTMETER	IME03	GALVA100VCC96X96
P1	003.12	"BRAKING" LABEL		
A0	007.17	VOLTAGE DIVIDER	IME03	DIV1000-100V1mA
P2	003.16	AMMETER 0-40 A	SOCOMEC	172C0404
P2	003.16	"MOTOR I" LABEL		
TI	003.13	INTENSITY TRANSFORMER	SOCOMEC	172T0540
PC1	003.13	MARTIN LUNEL PLUG 16-25A	LEGRAND	H57568
PC2	003.17	P17 CONNECTOR 16A 3P + E 380 V	LEGRAND	H57568
PC2	003.17	PE BLANKING PLUG	LEGRAND	12mm
XR (5)	003.15	AR TERMINAL (BRAKING R)	TELEMECANIQUE	REF 32903
XS (2)	004.07	AR TERMINAL	TELEMECANIQUE	REF 32903
XC (2)	003.08	AR TERMINAL	TELEMECANIQUE	REF 32903
KA1	004.04	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D901E7
KA1	004.04	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN31
KA2	004.07	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D0901E7
KA2	004.07	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN31
KM1	004.09	COMMUTATOR POWER	TELEMECANIQUE	LC1D4011E7
KM1	004.09	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN20
KM380	004.14	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D4011E7
KM380	004.14	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN20
KM525	004.17	COMMUTATOR SWITCH	TELEMECANIQUE	LC2D4011E7
KM525	004.17	ADDITIONAL CONTACT BLOCK	TELEMECANIQUE	LA1DN20
KADEV	005.02	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7

REFERENCE	PAGE / COL	OPERATING DESCRIPTION	SUPPLIER	EQUIPMENT
KAX	005.04	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KAX	005.04	DE-ENERGISED TIMER ADDITIONAL PART	TELEMECANIQUE	LA3DR2
KAAV	005.05	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KAAV	005.05	ENERGISED TIMER ADDITIONAL PART	TELEMECANIQUE	LA2DT2
KAAR	005.08	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KAAR	005.08	ENERGISED TIMER ADDITIONAL PART	TELEMECANIQUE	LA2DT2
KADCB	005.12	AUXILIARY CONTACTOR	TELEMECANIQUE	CA2DN31E7
KADCB	005.12	ENERGISED TIMER ADDITIONAL PART	TELEMECANIQUE	LA2DT2
H1	004.02	INDICATOR LIGHT	TELEMECANIQUE	XB2BV63
H1		48 V BULB	TELEMECANIQUE	DL1-CE048
H1		SWITCH ON LABEL	TELEMECANIQUE	ZB2BY2101
S0	003.09	PUSH-BUTTON EMERGENCY STOP	TELEMECANIQUE	XB2BT42
S0	003.09	OPENING CONTACT	TELEMECANIQUE	ZB2BE102
S0	003.09	60 MM LABEL "EMERGENCY STOP"	TELEMECANIQUE	ZB2 BY 9130
S01	004.04	PUSH-BUTTON EMERGENCY STOP CASING	TELEMECANIQUE	XAL-J174
S1	004.04	PUSH-BUTTON	TELEMECANIQUE	XB2BA42
S1	004.04	LABEL "CONTROL STOP"	TELEMECANIQUE	ZB2BY2101
S2	004.04	COMMUTATOR BODY	TELEMECANIQUE	ZB2BZ103
S2	004.04	COMMUTATOR HEAD	TELEMECANIQUE	ZB2BD2
S2	004.04	LABEL "220 V 525 V"	TELEMECANIQUE	ZB2BY2101
S3	004.09	PUSH-BUTTON	TELEMECANIQUE	XB2BA42
S3	004.09	LABEL "POWER STOP"	TELEMECANIQUE	ZB2BY2101
S5	004.11	COMMUTATOR	TELEMECANIQUE	XB2BD21
S5	004.11	LABEL "SHUNT SA SB 0-1"	TELEMECANIQUE	ZB2BY2101
S6	004.14	PUSH-BUTTON	TELEMECANIQUE	XB2BA42
S6	004.14	LABEL "PLATFORM STOP"	TELEMECANIQUE	ZB2BY2101
S7	005.02	COMMUTATOR	TELEMECANIQUE	XB2BD21
S7	005.02	LABEL "DEBUGGING 0-1"	TELEMECANIQUE	ZB2BY2101
S8	005.06	COMMUTATOR	TELEMECANIQUE	XB2BD33
S8	005.06	LABEL "FW 0 RV"	TELEMECANIQUE	ZB2BY2101
S9	005.12	COMMUTATOR	TELEMECANIQUE	XB2BD21
S9	005.12	LABEL "BRAKE 0-1"	TELEMECANIQUE	ZB2BY2101
S10	007.08	COMMUTATOR	TELEMECANIQUE	XB2BD21
S10	007.08	LABEL "RUN 0-1"	TELEMECANIQUE	ZB2BY2101
HC	004.04	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

PROJ:51049

FORMAT A3

OPERATING LEGEND

MOTORS BENCH (380-525 V)

RADICAL 51049 | VU | VF | CD | IED 01 | FOLIO 008

S A

F.d.P. Version 2.1

DEVICES OPERATING LEGEND

REFERENCE	PAGE / COL	OPERATING DESCRIPTION	SUPPLIER	EQUIPMENT
HC	004.04	WHITE CAP	TELEMECANIQUE	ZB2BW911
HC	004.04	"CONTROL ENERGISED" LABEL	TELEMECANIQUE	ZB2BY2101
HC	004.04	48 V BULB	TELEMECANIQUE	DL1CE048
HP	004.09	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361
HP	004.09	WHITE CAP	TELEMECANIQUE	ZB2BW911
HP	004.09	"POWER ENERGISED" LABEL	TELEMECANIQUE	ZB2BY2101
HP	004.09	48 V BULB	TELEMECANIQUE	DL1CE048
H380	004.16	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361
H380	004.16	"380 V" LABEL	TELEMECANIQUE	ZB2BY2101
H380	004.16	48 V BULB	TELEMECANIQUE	DL1CE048
H525	004.17	LUMINOUS PUSH-BUTTON	TELEMECANIQUE	XB2BW3361
H525	004.17	"525 V" LABEL	TELEMECANIQUE	ZB2BY2101
H525	004.17	48 V BULB	TELEMECANIQUE	DL1CE048
H2	007.16	INDICATOR LIGHT	TELEMECANIQUE	XB2BV75
H2	007.16	"BRAKING" LABEL	TELEMECANIQUE	ZB2BY2101
H2	007.16	130 V BULB	TELEMECANIQUE	DL1CE130
RP	007.16	2.2 K POTENTIOMETER	TELEMECANIQUE	SZ1RV1202
RF1	007.16	27 OHMS 700 W RESISTANCE	TELEMECANIQUE	VY1ADR027W700
RF2	007.16	27 OHMS 280 W RESISTANCE	TELEMECANIQUE	VY1ADR027W280
PC3	007.07	PIN PLUG	TELEMECANIQUE	SUB-D 15
X380		TERMINAL + ACCESSORIES	TELEMECANIQUE	AB1-VV1035U
X525		TERMINAL + ACCESSORIES	TELEMECANIQUE	AB1-VV1035U
COFFRET		BLUE CASING + BASEPLATE	TELEMECANIQUE	ACMBP6525

A B C D E F

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

PROJ:51049

FORMAT A3

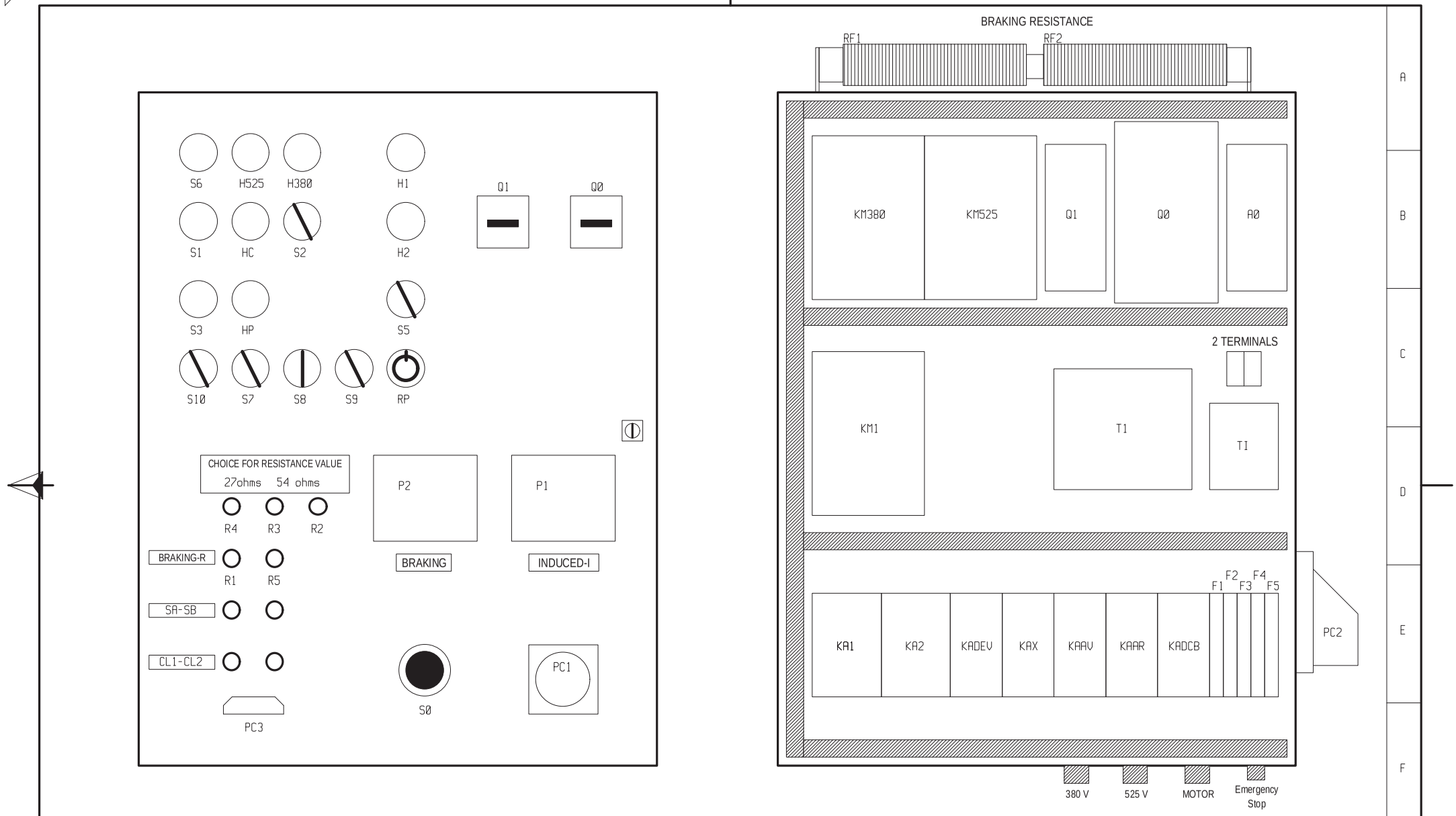
OPERATING LEGEND

MOTORS BENCH (380-525 V)

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	009

S
A

F.d.P. Version 2.1



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	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

PROJ:51049

FORMAT A3

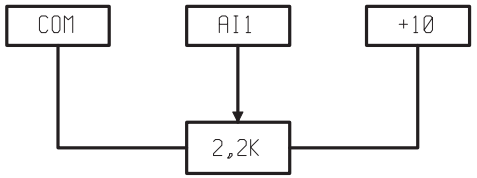
DOOR AND CABINET

MOTORS BENCH (380-525 V)

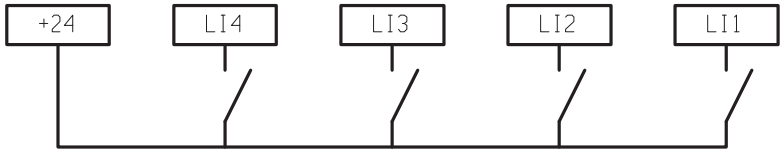
RADICAL	VU	VF	CD	IED	FOLIO
51049				01	010

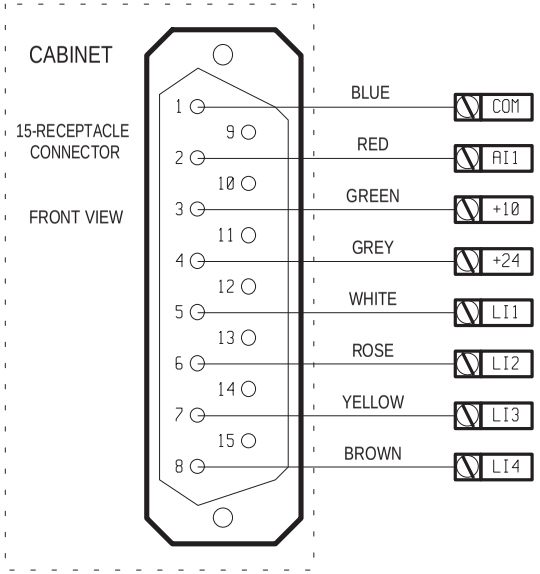
S
A

F.d.P. Version 2.1



LI1: UNLOCK
LI2: FW
LI3: RV
LI4: JOB STEP BY STEP





VZ3N006 TYPE CONNECTOR
(BLADES CONNECTOR)

TOP VIEW

ATV66

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	

	Nom	Date
Etabli	G MEUNIER	12.05.97
Saisi	G MEUNIER	12.05.97
Controle saisie	F BROSSARD	12.05.97

Telemecanique

PROJ:51049

FORMAT A3

CABINET-ATV66 CONNECTION

MOTORS BENCH (380-525 V)

RADICAL	VU	VF	CD	IED	FOLIO
51049				01	011

S
A

F.d.P. Version 2.1

5. Replacement parts list

Description	For ATV38 drives	Qty per ATV38	Reference number	Content
ATV58/38 diagnostic kit	All ratings	1	VZ3N5820	2 floppy disks (software version V2.1 IE12) + 1 board + 1 ribbon cable
Control board	All ratings	1	VX4A381	Control board + option support + light ducting + 2 sub-D pins + connector shield for option card
I/F interface board	Size 8 to 10	1	VX4A382	1 I/F interface board
Plug-in control connectors	All ratings	1	VZ3N5812	Control board connectors + connectors for I/O Tacho, PG, AS-i, Interbus-S power supply
Option card connector shield	All ratings	1	VZ3N589	Sets of 10 connector shields for option card
RS432/485 converter	All ratings	1	VZ3N586	1 RS432/485 converter
Power sub-assembly	HU18N4	1	VX5A58HU18N4	Power board + insulating liner + SKIIP + heatsink + fan + SKIIP thermal liner + screws
	HU29N4	1	VX5A58HU29N4	Power board + insulating liner + SKIIP + heatsink + fan + SKIIP thermal liner + screws
	HU41N4	1	VX5A58HU41N4	Power board + insulating liner + SKIIP + heatsink + fan + SKIIP thermal liner + screws
	HU54N4	1	VX5A58HU54N4	Power board + insulating liner + SKIIP + heatsink + fan + SKIIP thermal liner + screws
	HU72N4	1	VX5A58HU72N4	Power board + insulating liner + SKIIP + heatsink + fan + SKIIP thermal liner + screws
	HU90N4	1	VX5A58HU90N4	Power board + insulating liner + SKIIP + heatsink + fan + SKIIP thermal liner + screws
	HD12N4	1	VX5A58D12N4	Power board + insulating liner + SKIIP + IPM + IS
	HD16N4	1	VX5A58D16N4	Power board + insulating liner + SKIIP + IPM + IS
	HD23N4	1	VX5A58D23N4	Power board + insulating liner + SKIIP + IPM + IS
	HD25N4, HD25N4X	1	VX5A38D25N4	1 board + interface board + insulating sheet
	HD28N4, HD28N4X	1	VX5A58D28N4	1 board + interface board + insulating sheet
	HD33N4, HD33N4X	1	VX5A58D33N4	1 board + interface board + insulating sheet
	HD46N4, HD46N4X	1	VX5A58D46N4	1 board + interface board + insulating sheet
	HD54N4, HD54N4X	1	VX5A58D54N4	1 board + interface board + insulating sheet
	HD64N4, HD64N4X	1	VX5A58D64N4	1 board + interface board + insulating sheet
	HD79N4, HD79N4X	1	VX5A58D79N4	1 board + interface board + insulating sheet
IPM modules	HD25N4, HD25N4X HD28N4, HD28N4X	1	VZ3IM6075M1258	Complete IPM bridge 75A 1200 V
	HD33N4, HD33N4X	1	VZ3IM6100M1258	Complete IPM bridge 100A 1200 V
	HD46N4, HD46N4X HD54N4, HD54N4X	1	VZ3IM6150M1258	Complete IPM bridge 150A 1200 V
	HD64N4, HD64N4X HD79N4, HD79N4X	3	VZ3IM2200M1258	IPM bridge arm 200A 1200 V
IGBT braking transistor	HD28N4, HD28N4X HD33N4, HD33N4X HD46N4, HD46N4X	1	VZ3IM1050M1258	IGBT 50A 1200 V
	HD54N4, HD54N4X	1	VZ3IM1100M1258	IGBT 100A 1200 V
	HD64N4, HD64N4X HD79N4, HD79N4X	1	VZ3IM1150M1258	IGBT 150A 1200 V
Mixed thyristor/diode module	HD25N4, HD25N4X HD28N4, HD28N4X HD33N4, HD33N4X	3	VZ3TD1055M1658	Bridge arm 55A 1600 V
	HD46N4, HD46N4X HD54N4, HD54N4X	3	VZ3TD1090M1658	Bridge arm 90A 1600 V
	HD64N4, HD64N4X HD79N4, HD79N4X	3	VZ3TD1130M1658	Bridge arm 130A 1600 V

Description	For ATV38 drives	Qty per ATV38	Reference number	Content
Transistor	Size 8	3	VZ3I381	1 transistor MG400Q2YS60A
	Size 9	3	VZ3I382	2 transistors MG400Q2YS60A + 1 board VFA7D-4596A + 2 metal supports + 16 screws
	HC23N4X, HC25N4X	3	VZ3I383	4 transistors MG400Q2YS60A + 2 boards VFA7D-4596A + 4 metal supports + 2 cables + 32 screws
	HC28N4X, HC31N4X HC33N4X	3	VZ3I384	5 transistors MG400Q2YS60A + 1 board VFA7D-4596A + 1 board VFA7D-4597A + 4 metal supports + 2 cables + 39 screws
Diode bridge	Size 8 and 9	3	VZ3D381	1 diode bridge DD240KB160
	Size 10	6	VZ3D381	1 diode bridge DD240KB160
Gate drive board	Size 8 to 10	1	VX5A38C10	1 gate drive board VFA7D-0585Z
Gate drive	Size 8	1	VX5A38C11	1 gate drive VFA7D-4595A
Pre-charge resistor	Size 8	1	VZ3R3810	1 metal support + 2 resistors 80W + 1 filter VCR1005 460 V AC + 1 OHD3-90M + 1 insulating sheet + 9 screws
	Size 9	1	VZ3R3811	1 metal support + 2 resistors 80W + 1 OHD3-90M + 1 insulating sheet + 4 screws
	Size 10	1	VZ3R3812	1 metal support + 3 resistors 120W + 1 OHD3-90M + 1 insulating sheet + 5 screws
Thermal liners	Size 2	1	VY1A58852	5 SKIIP + IPM thermal liners
	Size 3	1	VY1A58853	5 SKIIP + IPM thermal liners
	Size 4	1	VY1A58854	5 SKIIP + IPM thermal liners
	Size 5	1	VY1A58855	5 SKIIP + IPM thermal liners
Thermal grease	Size 6 to 10	1	VY1A58856	35ml thermal grease
Current sensor board	HD25N4, HD25N4X HD28N4, HD28N4X	1	VX4A58201	1 board
	HD33N4, HD33N4X HD46N4, HD46N4X	1	VX4A58202	1 board
Current gain board	Size 8	1	VX5A38C12	1 current gain board VF7X-2680A
	HC13N4X, HC15N4X HC25N4X	1	VX5A38C13	1 current gain board VF7X-2680B
	HC19N4X	1	VX5A38C14	1 current gain board VF7X-2680C
	HC23N4X, HC28N4X	1	VX5A38C15	1 current gain board VF7X-2680D
	HC31N4X	1	VX5A38C16	1 current gain board VF7X-2680E
	HC33N4X	1	VX5A38C17	1 current gain board VF7X-2680F
Current transformer	Size 8	3	VY1A38111	1 current transformer HC-SL212V4B15CA, 212AT-4V
	HC13N4X	3	VY1A38112	1 current transformer HC-SL300V4B15CA, 300AT-4V
	HC15N4X, HC19N4X	3	VY1A38113	1 current transformer HC-SL360V4B15CA, 360AT-4V
	HC23N4X, HC25N4X	3	VY1A38114	1 current transformer HC-MSN590V4B15G, 590AT-4V
	HC28N4X, HC31N4X HC33N4X	3	VY1A38115	1 current transformer HC- MSN760V4B15G, 760AT-4V
EMC filter board	HD25N4, HD28N4	1	VX4A58101	1 board
	HD33N4, HD46N4	1	VX4A58102	1 board
	HD33N4, HD46N4	1	VX4A58112	1 board
	HD54N4	1	VX4A58103	1 board
	HD54N4	1	VX4A58113	1 board
	HD64N4, HD79N4	1	VX4A58104	1 board
	HD64N4, HD79N4	1	VX4A58114	1 board
Filter	Size 8 to 10	1	VZ3D382	1 filter VCR1005
Non-EMC filter board	HD25N4X, HD28N4X HD33N4X, HD46N4X	1	VX4A58156	1 board
	HD54N4X, HD64N4X HD79N4X	1	VX4A58157	1 board
IPM connection interface board	HD25N4, HD25N4X HD28N4, HD28N4X HD33N4, HD33N4X HD54N4, HD54N4X	1	VX4A58901	1 board + pin
	HD46N4, HD46N4X	1	VX4A58902	1 board + pin
	HD64N4, HD64N4X	1	VX4A58903	1 board + pin

	HD79N4, HD79N4X			
Description	**For ATV38 drives**	**Qty per ATV38**	**Reference number**	**Content**
Thermal sensor board	Size 6 and 7	1	VZ3G586	1 board
Thermal sensor	Size 8 to 10	1	VZ3G381	1 thermal sensor EF6F203A2-02014
Power supply board	Size 8 to 10	1	VY1A38120	1 power supply board VFA7D-1877C
Power supply board Internal fan	Size 4 and 5	1	VX5A58V01	1 board
Capacitor kit	HD12N4 HD23N4	1 2	VY1ADC5801	2 capacitors 1500µF 450V + top and bottom liners
	HD16N4	1	VY1ADC5802	2 capacitors 2200µF 450V + top and bottom liners
	HD25N4, HD25N4X HD28N4, HD28N4X HD54N4, HD54N4X	1 1 2	VY1ADC5803	2 capacitors 2400µF 450V + 4 pins + damper
Capacitor kit	HD33N4, HD33N4X HD64N4, HD64N4X	1 2	VY1ADC5804	2 capacitors 3300µF 450V + 4 pins + damper
	HD46N4, HD46N4X HD79N4, HD79N4X	1 2	VY1ADC5805	2 capacitors 4300µF 450V + 4 pins + damper
	HC10N4X	1	VZ3C3810	1 metal support + 4 resistors 40W/21Kohms + 4 capacitors 400V/8200µF + 2 insulating sheets + 1 copper bar kit + cables J752/CN91 + 12 screws
	HC13N4X, HC15N4X HC19N4X	1	VZ3C3811	1 metal support + 6 resistors 40W/21Kohms + 6 capacitors 400V/8200µF +1 insulating sheet + 1 copper bar kit + cables J752/CN91 +18 screws
	HC23N4X, HC25N4X	1	VZ3C3812	2 main metal supports + 2 capacitor metal supports + 16 resistors 40W/21Kohms + 8 capacitors 400V/8200µF + 1 copper bar kit + cables J752/CN91 + 24 screws
	HC28N4X, HC31N4X HC33N4X	1	VZ3C3813	2 main metal supports + 2 capacitor metal supports +20 resistors 40W/21Kohms + 8 capacitors 400V/8200µF + 1 copper bar kit + cables J752/CN91 + 24 screws
Fan kit	Size 2 to 5	2	VZ3V581	Kit of 2 fans
IP20 heatsink	HD25N4, HD25N4X HD28N4, HD28N4X HD33N4, HD33N4X HD46N4, HD46N4X HD54N4, HD54N4X HD64N4, HD64N4X HD79N4, HD79N4X	1	VZ3V58202	1 fan ∅ 120 + connection + screw kit
Fan kit IP20 heatsink	HD25N4, HD25N4X HD28N4, HD28N4X HD33N4, HD33N4X HD46N4, HD46N4X HD54N4, HD54N4X HD64N4, HD64N4X HD79N4, HD79N4X	1	VZ3V58203	1 fan ∅ 90 + connection + screw kit
Internal fan kit	Size 6	1	VZ3V584	1 fan ∅ 40 + connection + screw kit
	Size 7	1	VZ3V585	1 fan ∅ 60 + connection + screw kit
	Size 8 and 9	1	VZ3V3818	1 fan
	Size 10	1	VZ3V3820	Kit of 2 fans
Additional internal fan	HC19N4X	1	VZ3V3819	1 fan
Heatsink fan	Size 8	1	VZ3V3808	Kit of 2 fans
	Size 9	1	VZ3V3809	Kit of 3 fans
	Size 10	1	VZ3V3810	Kit of 6 fans
Internal connection kit	Size 2	1	VZ3N582	Cable kit for Size 2
	Size 3	1	VZ3N583	Cable kit for Size 3
	Size 4 and 5	1	VZ3N584	Cable kit for Size 4 and 5
	Size 6	1	VZ3N587	Cable kit for Size 6
Internal connection kit	Size 7	1	VZ3N588	Cable kit for Size 7
	Size 8	1	VZ3N3808	Cable kit for Size 8
	Size 9	1	VZ3N3809	Cable kit for Size 9
	Size 10	1	VZ3N3810	Cable kit for Size 10

Description	For ATV38 drives	Qty per ATV38	Reference number	Content
Screw kit	Size 2 to 5	1	VY1ADV581	Set of screws and pins for the product
	Size 6	1	VY1ADV582	Set of screws and pins for the product
	Size 7	1	VY1ADV583	Set of screws and pins for the product
	Size 8	1	VY1ADV384	Screw kit for 90 KW
	HC13N4X	1	VY1ADV385	Screw kit for 110 KW
	HC15N4X	1	VY1ADV386	Screw kit for 132 KW
	HC19N4X	1	VY1ADV387	Screw kit for 160 KW
	HC23N4X, HC25N4X	1	VY1ADV388	Screw kit for 200-220 KW
	HC28N4X, HC31N4X HC33N4X	1	VY1ADV389	Screw kit for 250-280-315 KW
Plastic part kit for ATV38	Size 2	1	VY1A38202	Front cover + IP41 cover + belt + label Fascia, LED and Danger (5 languages)
	Size 3	1	VY1A38203	Front cover + IP41 cover + belt + label Fascia, LED and Danger (5 languages)
	Size 4	1	VY1A38204	Front cover + IP41 cover + belt + label Fascia, LED and Danger (5 languages)
Plastic part kit for ATV38	Size 5	1	VY1A38205	Front cover + IP41 cover + belt + Fascia, LED and Danger label (5 languages)
	Size 6	1	VY1A38206	Top and Bottom cover + IP41 cover
	Size 7	1	VY1A38207	Top and Bottom cover + IP41 cover
Plastic belt for control board	Size 8 to 10	1	VY1A38201	1 plastic part kit
Protection kit	Size 8	1	VY1A38210	Size 8 insulating sheets
	Size 9	1	VY1A38211	Size 9 insulating sheets
	Size 10	1	VY1A38212	Size 10 insulating sheets
Output ferrite	Size 6 and 7	1	VY1A58406	Ferrite mounted on support
Choke seal	Size 6	1	VY1A58806	Choke seal + capacitor seal + plate seal
	Size 7	1	VY1A58807	Choke seal + capacitor seal + plate seal
Control power transformer	Size 8	1	VZ3TR381	1 Size 8 control power transformer
	Size 9	1	VZ3TR382	1 Size 9 control power transformer
	Size 10	1	VZ3TR383	1 Size 10 control power transformer
Contactor kit	HC10N4X	1	VY1A38101	1 contactor S-N65 + 1 filter RFM2E224KD
	HC13N4X	1	VY1A38102	1 contactor S-N65 + 1 filter RFM2E224KD
	HC15N4X, HC19N4X	1	VY1A38103	1 contactor C-80A + 1 filter RFM2E224KD
	Size 10	1	VY1A38104	1 contactor C-180A + 1 filter RFM2E224KD
Power fuse	Size 8	1	VZ3F3801	1 fuse 6.6URD30TTF0350
	Size 9	1	VZ3F3802	1 fuse 6.6URD30TTF0550
	HC23N4X , HC25N4X	1	VZ3F3804	1 fuse 6.6URD32TTF0900
	HC28N4X, HC31N4X HC33N4X	1	VZ3F3803	1 fuse 6.6URD32TTF1000
Control fuse	Size 8 and 9	1	VZ3F3820	1 fuse 314 003
	Size 10	1	VZ3F3821	1 fuse 314 005

6. Software

6.1 ATV38 drive software

Anomalies corrected on a version of IE x have also been corrected on a version of IE x + 1.

V5.1 IE05
First software version integrating the ATV38.

List of anomalies

None to date.

6.2 Operator terminal software

The operator terminal is used to display the various parameters.

- The drive authorizes access to a parameter
- The operator terminal limits the values if necessary
- The operator terminal contains the messages in all 5 languages
- The operator terminal is the master in exchanges with the drive

Anomalies corrected on a version of IE x have also been corrected on a version of IE x + 1.

V5.1 IE19
First version of the operator terminal integrating the ATV38.

List of anomalies

None to date.

6.3 AI I/O extension board software (VW3A58201)

I/O extension boards only send data to the ATV38 control board from its own terminals, except for functions which are only accessible if an option card is present.

V1.0 IE03
1st version of the AI I/O extension board.

List of anomalies

None to date.

6.4 PG I/O extension board software (VW3A38202)

I/O extension boards only send data to the ATV38 control board from its own terminals, except for functions which are only accessible if an option card is present.

V1.1 IE04
Earlier versions must not be used on the ATV38.

List of anomalies

None to date.

6.5 Fipio card software (VW3A58301)

V1.3 IE05
Earlier versions must not be used on the ATV38.

List of anomalies

None to date.

6.6 Modbus Plus card software (VWA58302)

V1.0 IE04
1st version of the Modbus Plus card.

List of anomalies

None to date.

6.7 Interbus-S card software (VW3A58304E)

V1.1 IE01
1st version of the Interbus-S card.

List of anomalies

None to date.

6.8 AS-i card software (VW3A58305)

V1.1 IE01
1st version of the AS-i card.

List of anomalies
None to date.

6.9 Unitelway / Modbus / Jbus card software (VW3A58303)

V1.1 IE03
Earlier versions must not be used on the ATV38.

List of anomalies
None to date.

6.10 Profibus-DP card software (VW3A58307)

V1.1 IE01
1st version of the Profibus-DP card.

List of anomalies
None to date.

Warning:
The card is recognized as "another Communication card".
In the "Communication" menu, several parameters appear but only the AdrC parameter should be modified: **DO NOT MODIFY ANY OTHERS.**
If this were to happen, the drive locks in fault mode and remains disabled. To unlock it: switch off, take out the Profibus-DP card, switch on, follow the instructions given by the terminal for returning to factory settings, switch off, reconnect the Profibus card, switch on the drive.

6.11 Can Open card software (VW3A58308)

V1.0 IE03
1st version of the Can Open card.

List of anomalies
None to date.

6.12 Devicenet card software (VW3A58309)

V1.0 IE05
1st version of the Devicenet card.

List of anomalies
None to date.

6.13 Ethernet card software (VW3A58310)

V1.0 IE12
1st version of the Ethernet card.

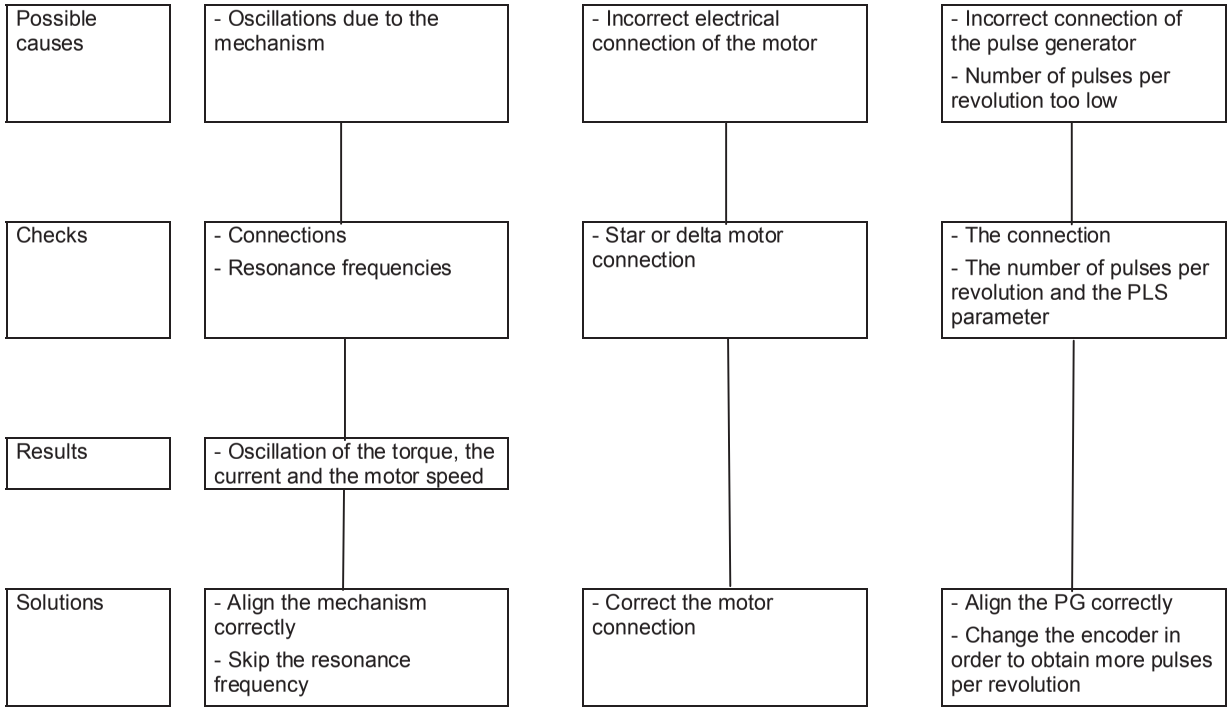
List of anomalies
None to date.

7. Installation diagnostics

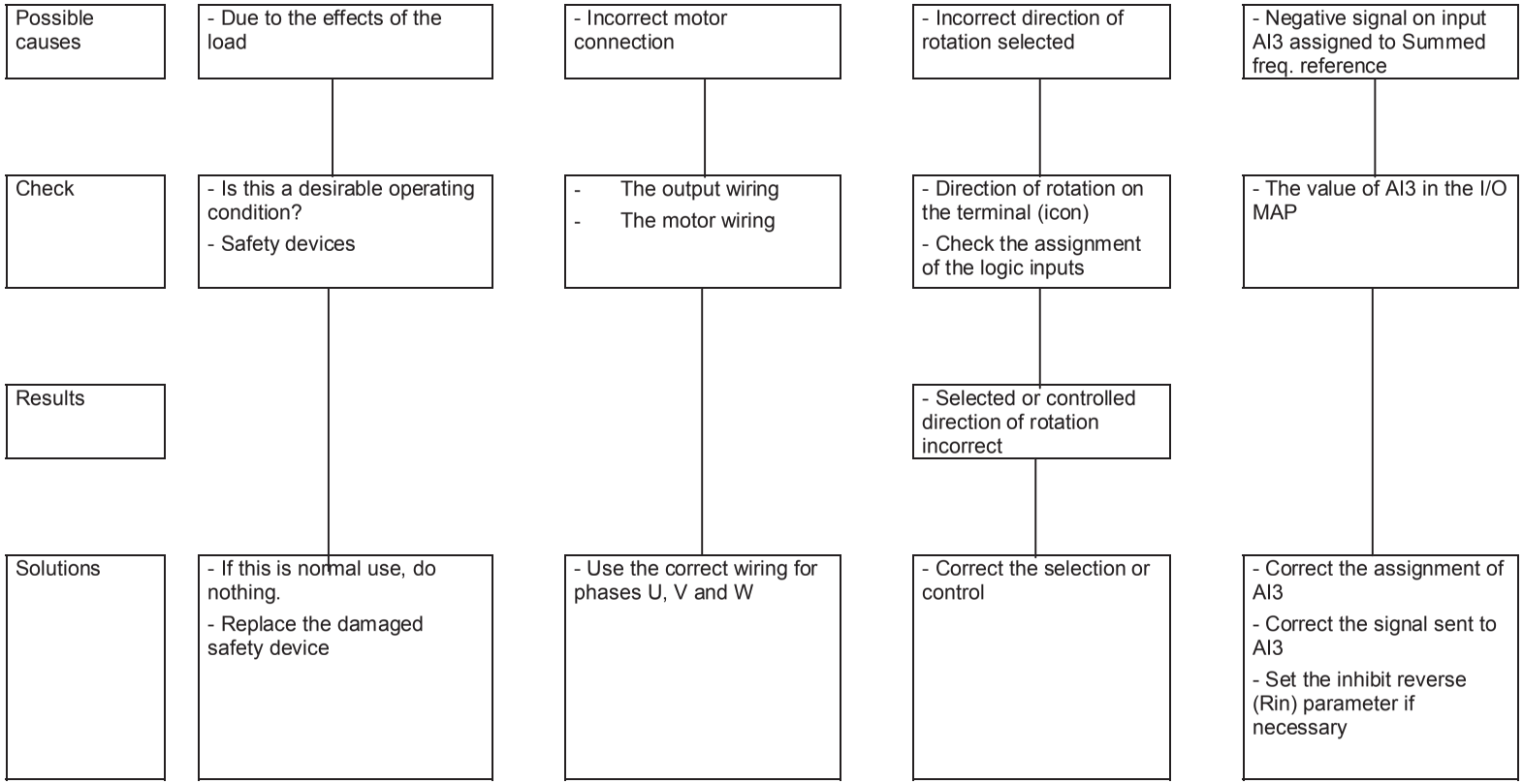
7.1 Installation malfunction "THE SPEED IS UNSTABLE"

Possible causes	- Unstable frequency reference signals	- Incorrect drive parameters	- Incorrect frequency loop setting	- Incorrect setting of the 380V/87Hz power supply ratio	- Incorrect size of drive in relation to the motor - Variable load
Checks	- Check the frequency reference signals				- The torque fluctuates as a function of the speed or when the machine is under load - The drive is in current limit mode when the speed is unstable
Results	- Incorrect frequency reference - Incorrect wiring method				- Torque peak higher than that of the drive - Current peak higher than that of the drive
Solutions	- Correct the wiring method - Repair or replace the reference	- In the Drive menu, enter the motor rating plate and perform an auto-tuning operation	- Review the FLG (loop gain) and STA (stability) settings	- Set nSP to: Nmot x 87/ Fmot	- Change the size of the drive

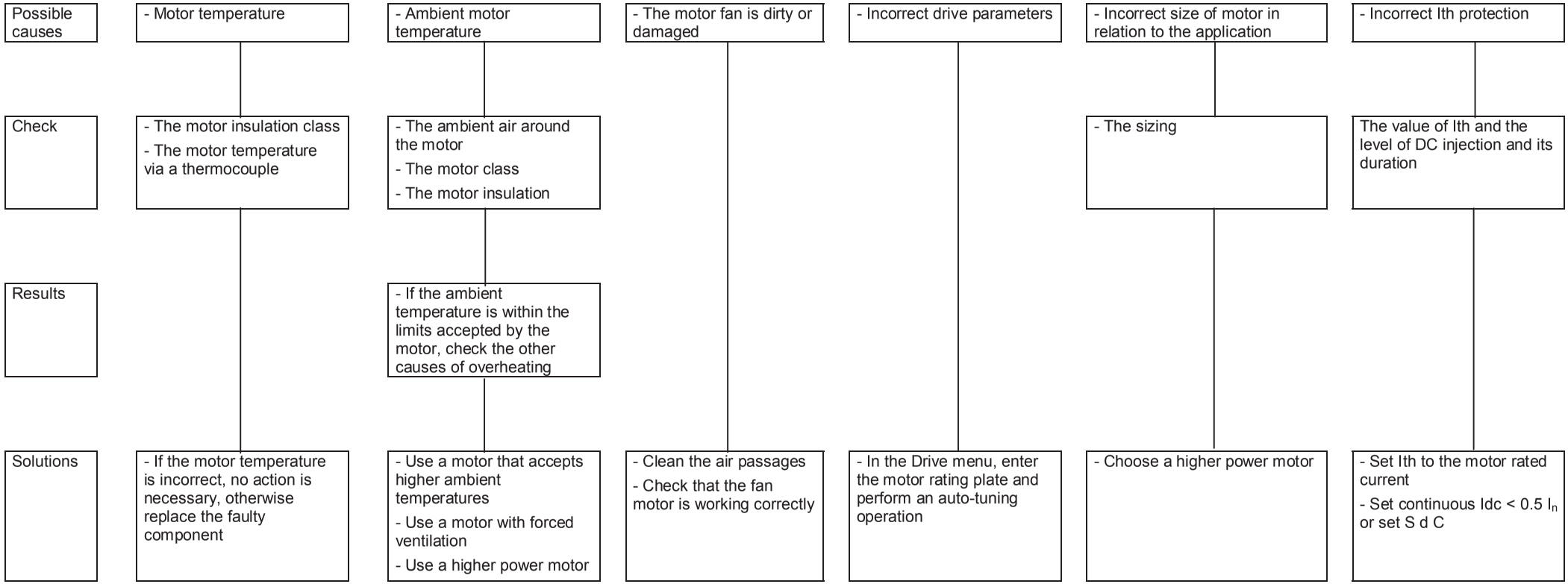
Installation malfunction "THE SPEED IS UNSTABLE" *(continued)*



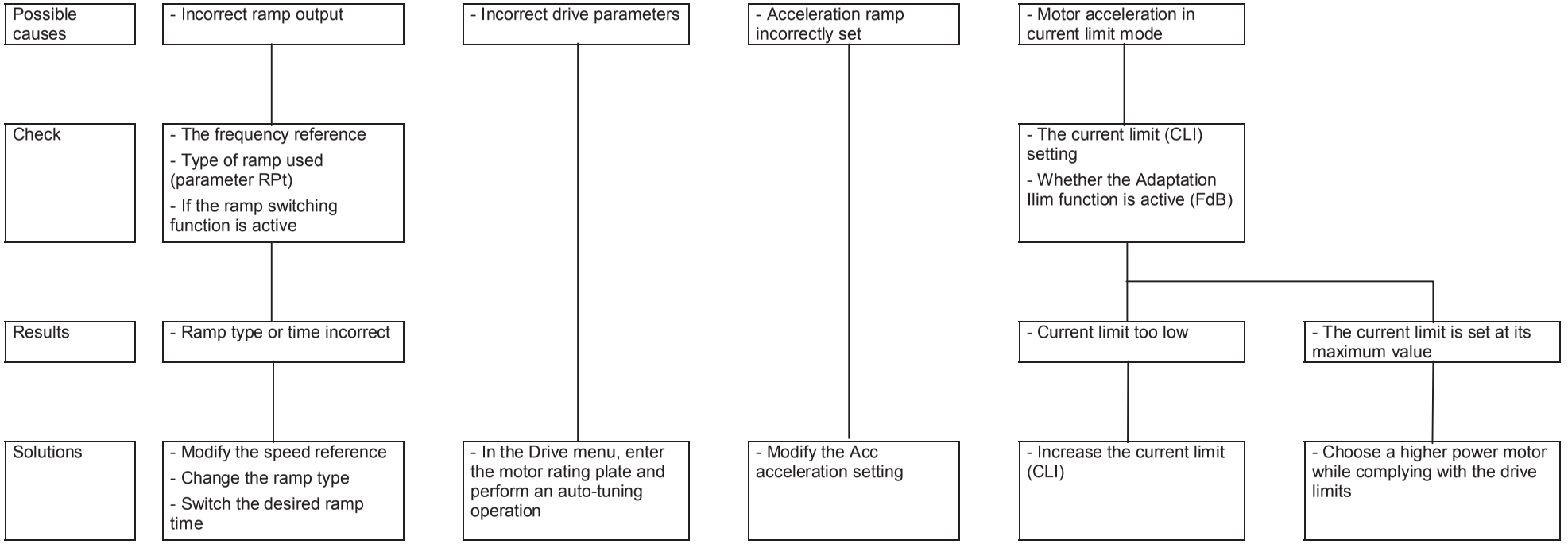
7.2 *Installation malfunction* "THE MOTOR IS TURNING THE WRONG WAY"



7.3 *Installation malfunction* "MOTOR OVERHEATING"



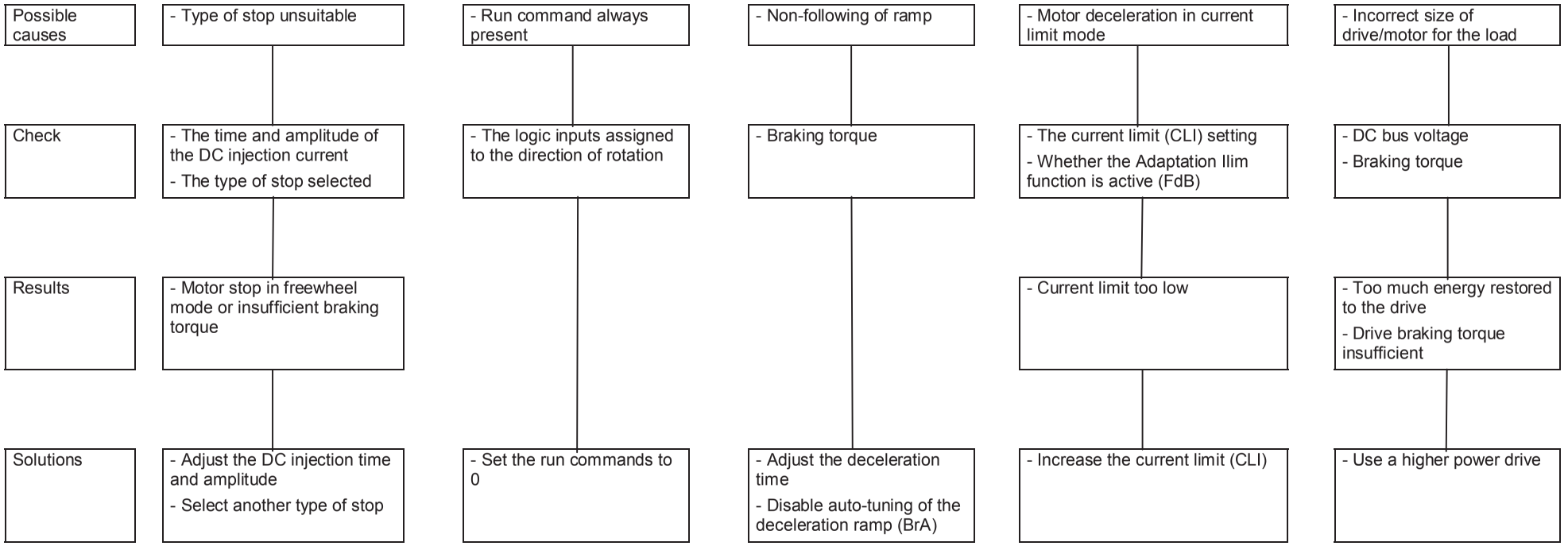
7.4 *Installation malfunction* "MOTOR ACCELERATING TOO SLOWLY"



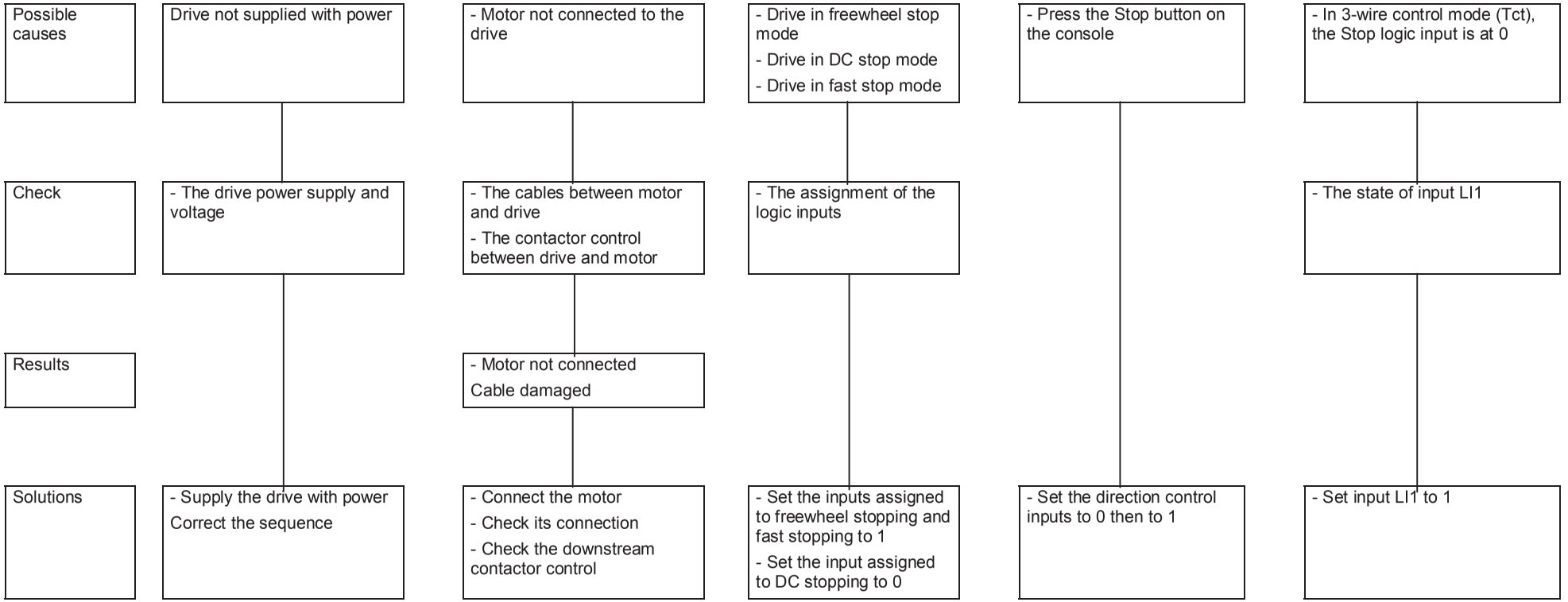
Installation malfunction "MOTOR ACCELERATING TOO SLOWLY" *(continued)*

Possible causes	- Incorrect frequency loop setting	- Incorrect size of motor/drive for the load
Check	- Check the settings of FLG and STA (gain and stability)	- Current peak - Torque peak
Results	- The speed increase is not linear: rounded at the start and end of acceleration	- Current peak at the limit the drive can provide - Torque peak at the limit the drive can provide
Solutions	- Review the FLG (loop gain) and STA (stability) settings	- Change the size of the drive

7.5 *Installation malfunction "Poor control of motor stopping or deceleration"*



7.6 *Installation malfunction* "THE MOTOR DOES NOT START"



Installation malfunction "THE MOTOR DOES NOT START" (continued)

Possible causes	- The frequency reference is 0.	- Terminal control enabled	- In console control mode, the frequency reference is zero	- Current limit too low	- Incorrect size of motor/drive for the load
Check	- The signals on the analog inputs assigned to 'summed frequency reference'	Whether terminal control is active (LCC=ON):	- The LFR parameter	- Current limiting (parameters CLI and Fdb)	- Current peak - Torque peak
Results					- Current peak higher than the drive capacities - Torque peak higher than the drive capacities
Solutions	- Send a frequency reference other than zero	- Disable console control	- Set LFr to a value other than zero and press the Run button on the terminal	- Increase the current limit value	- Change the size of the drive or the motor

8. Help with troubleshooting

8.1 Preamble

On receipt of the product, carefully note down the following information:

- The option card reference and its software version. To do this, open the drive cover. The reference number is recorded on a small label attached to the card, and the software version is recorded on a label attached to the µP located on top of the card.
- The product software version. To do this, remove the operator terminal. The product software version is recorded on a label attached to the control board support.
- The operator terminal software version. The software version appears on a label attached to the back of the terminal
- The position of the 50/60 Hz switch located below the display LEDs.

Then reassemble the various elements (option card and operator terminal)

If the faulty product is accompanied by a sheet describing the fault observed by the customer, use this information to locate the faulty component.

If not, follow the instructions below:

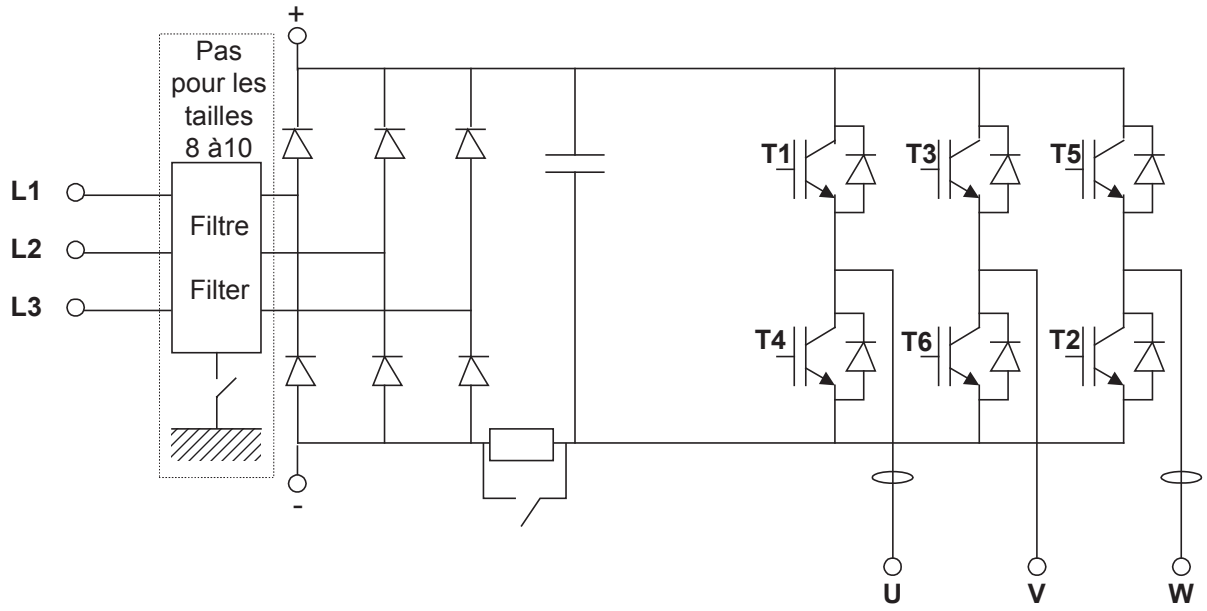
Examine the product visually (while switched off):

- Check the external physical state of the drive: traces of burning or overheating, parts that have been subjected to knocks
- Check the connectors
- Check the state of the internal screws to determine whether the product has been dismantled

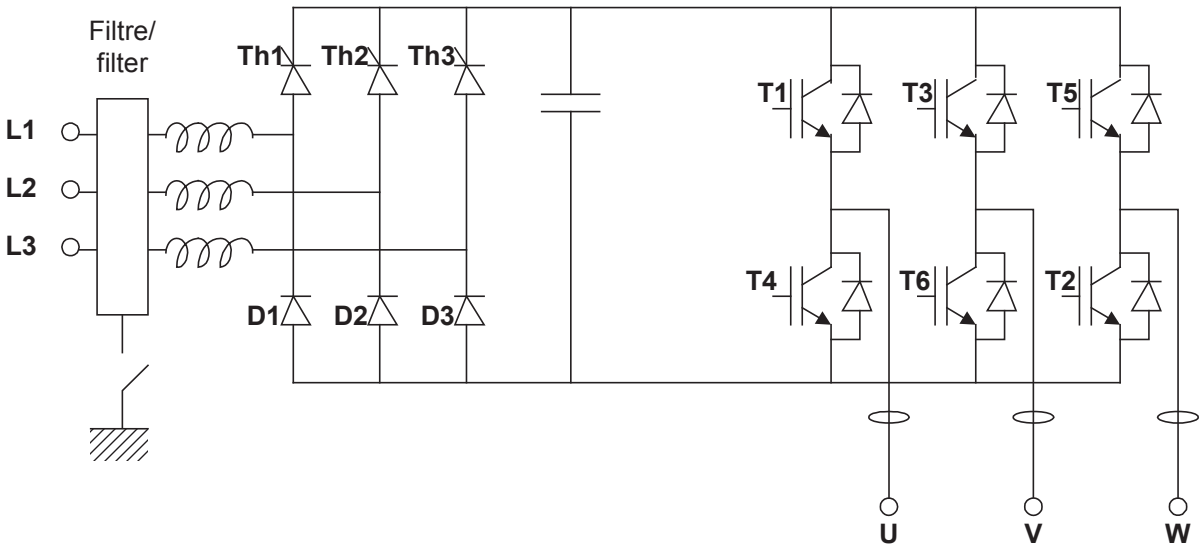
Don’t forget that the product displays the most recent fault.

8.2 Block diagram of the power circuits

8.2.1 Block diagram of the power circuit on Altivar 38 Sizes 2 to 5 and 8 to 10

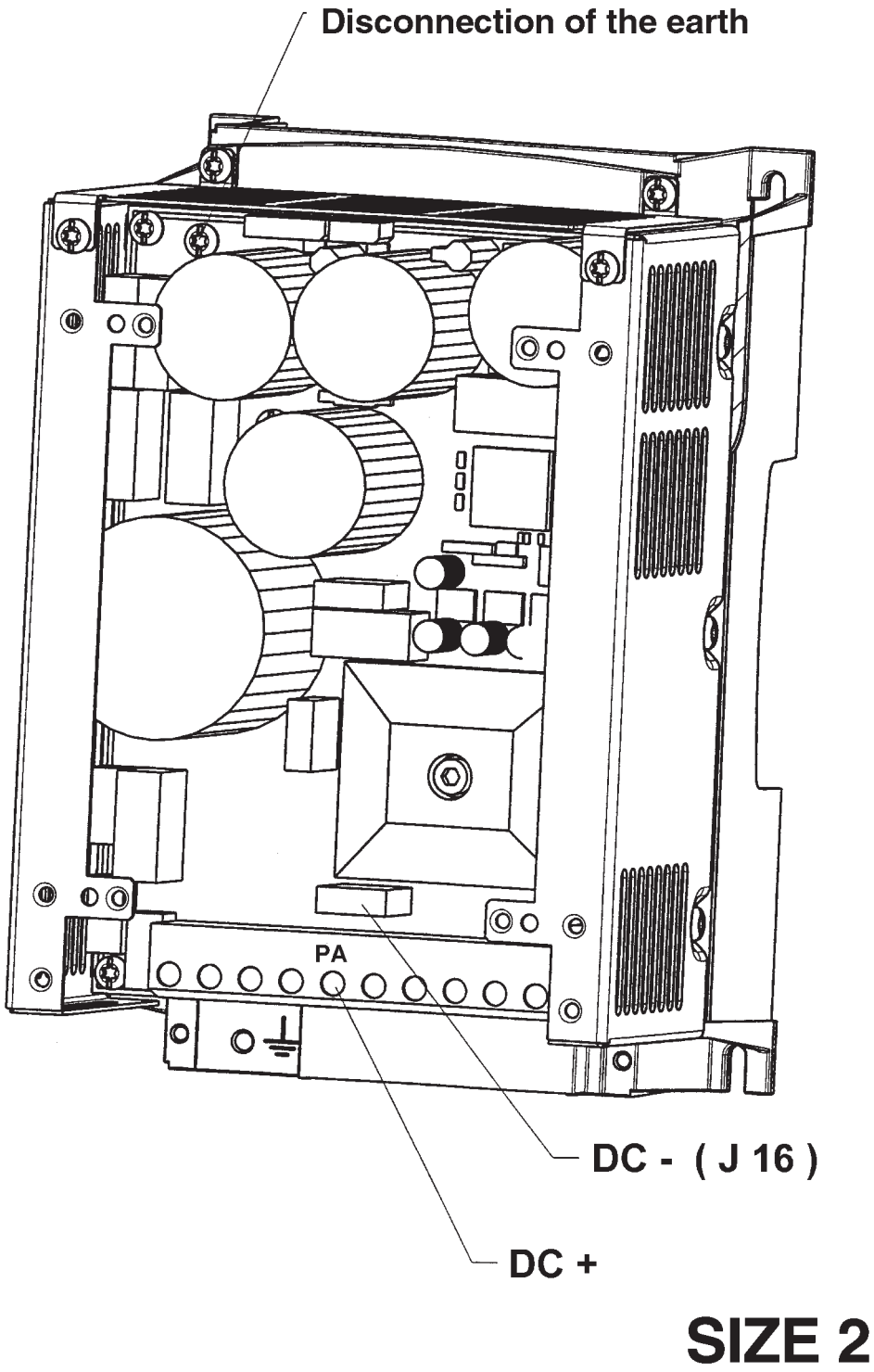


8.2.2 Block diagram of the power circuit on Altivar 38 Sizes 6 and 7

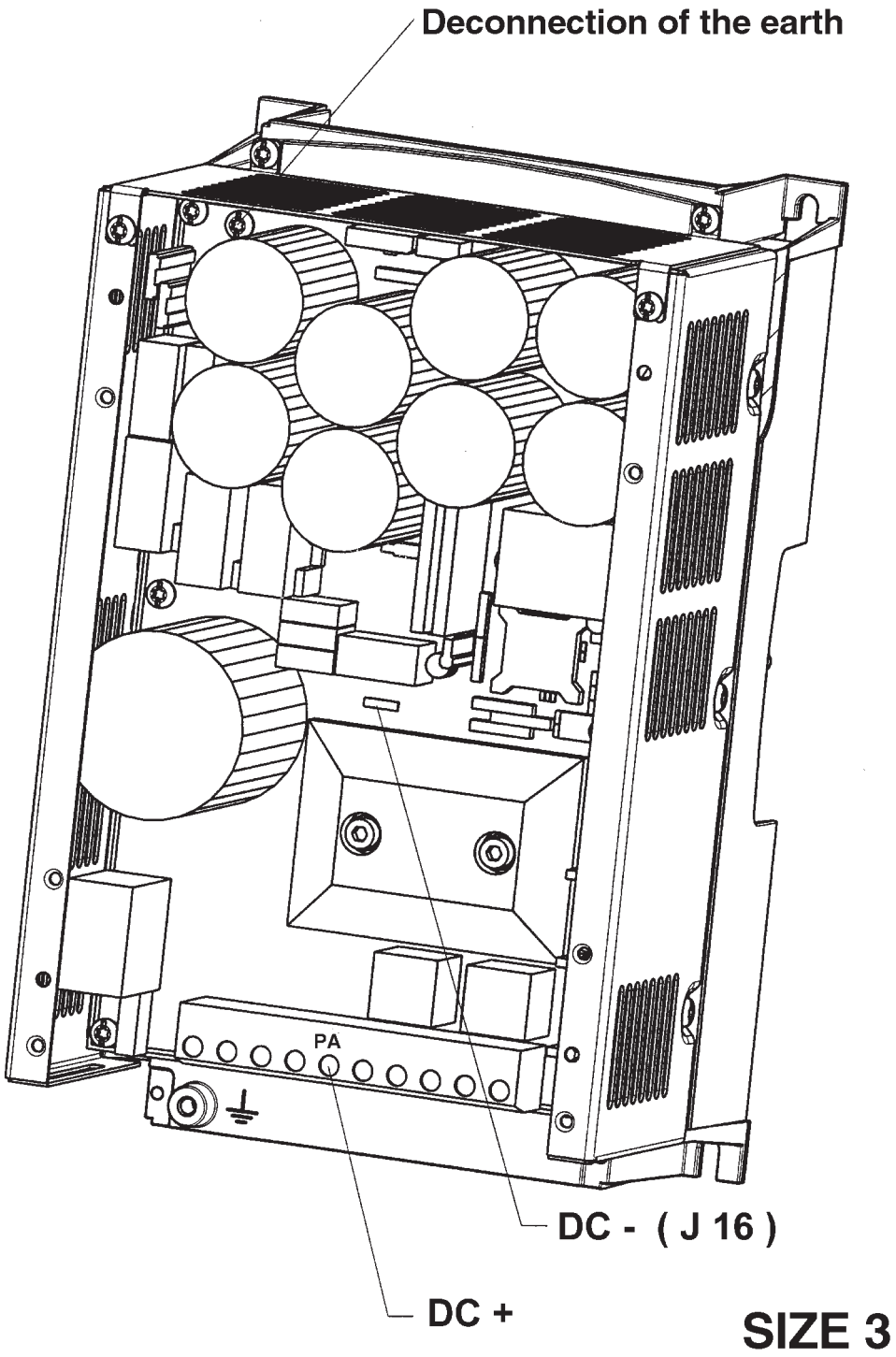


8.3 Connecting the DC bus

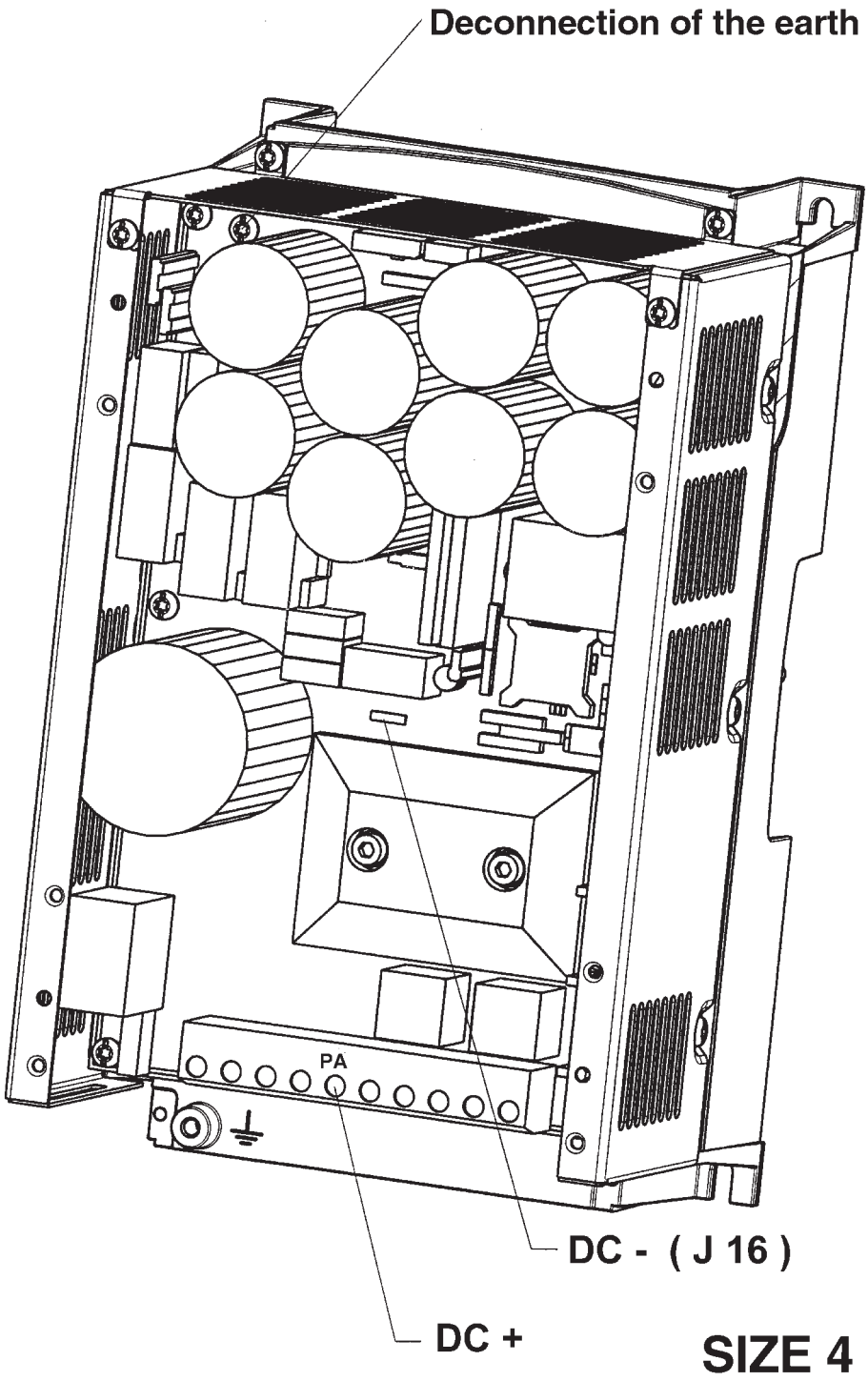
8.3.1 Connecting the DC bus on the ATV38 size 2



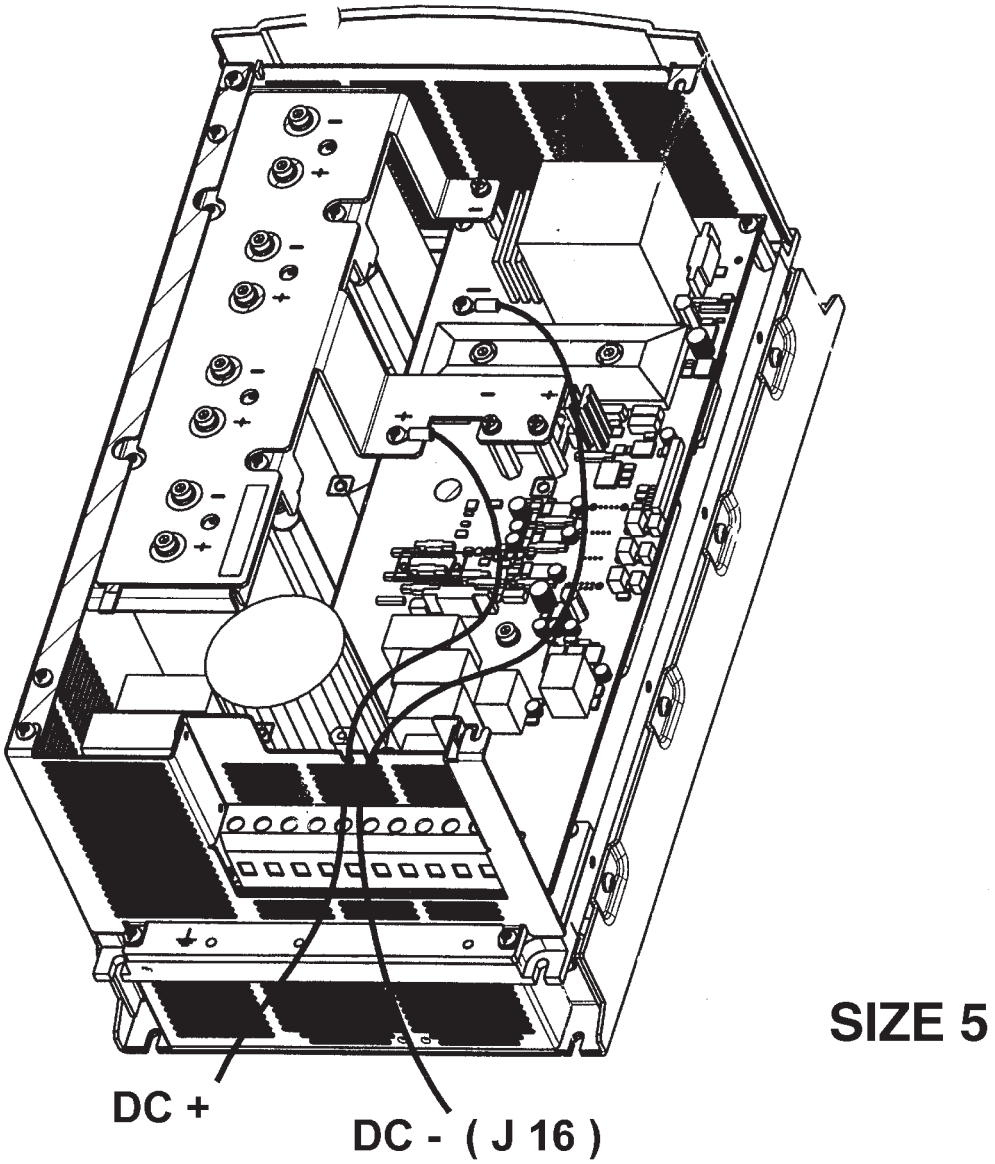
8.3.2 Connecting the DC bus on the ATV38 size 3



8.3.3 Connecting the DC bus on the ATV38 size 4



8.3.4 Connecting the DC bus on the ATV38 size 5



8.3.5 Connecting the DC bus on the ATV38 sizes 6 and 7

The DC bus can be accessed directly on the product's external terminals marked + and –.

CAUTION: An external charging circuit must be provided, as ATV38 sizes 6 and 7 do not have a pre-charge resistor.

8.4 Diagnostics

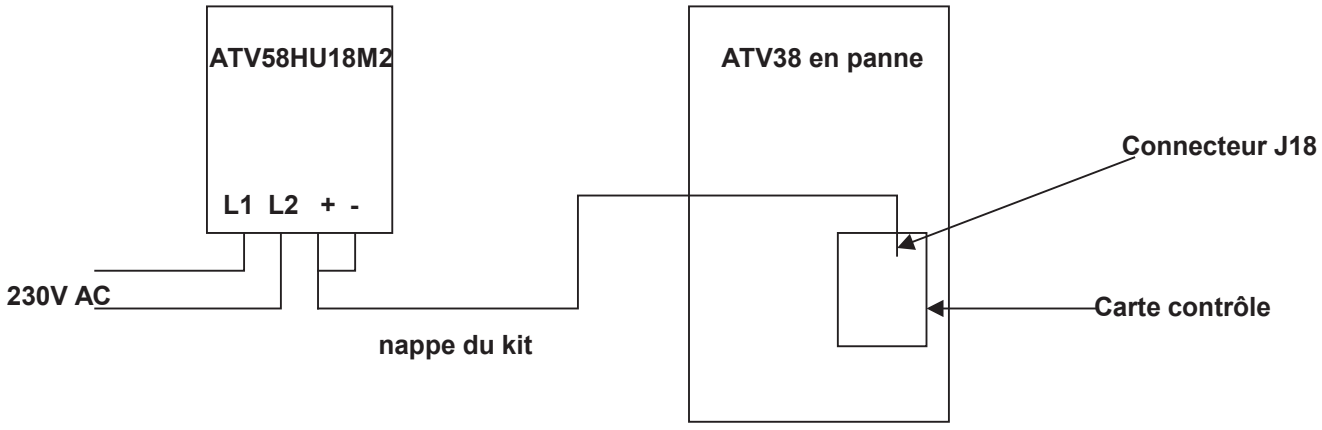
8.4.1 Diagnostics on an ATV38 size 2 to 10

Power up the control board using the ribbon cable from the kit, as shown in the diagram below, and:

- Save the customer configuration using the programming terminal or the setup software.
- Note the last 8 faults in the error log in order to make an initial analysis.
- If the product is locked by an access code, enter code 6969 to delete the code.

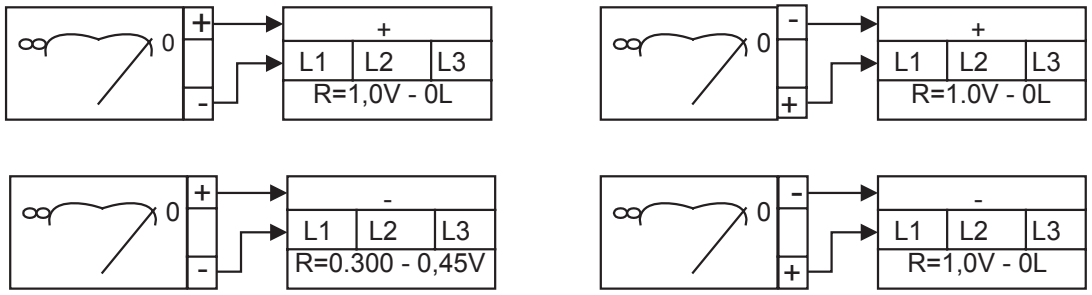
Wiring:

Using an ATV58 control box, check the I/O on the control board (and any option card fitted) by comparing the state of the selector switches with the values recorded on the I/O Map (see the programming software).



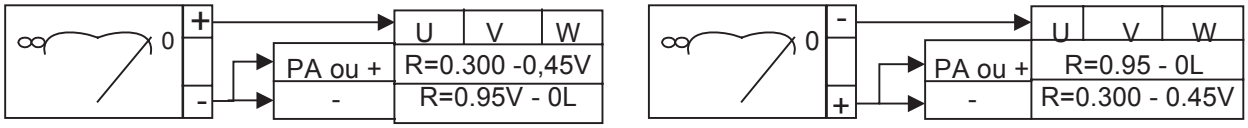
Inspection of the input bridge:

This test is performed using a digital multimeter in diode test mode to check that there is no short-circuit on the thyristors and diodes. The values shown below are those which the multimeter should provide when used in this mode:

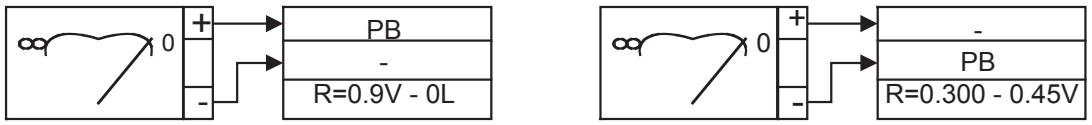


Inspection of the inverter bridge

This test is performed using a multimeter to check that there is no short-circuit on the transistors and diodes. The values shown below are those the multimeter should provide when used in this mode:

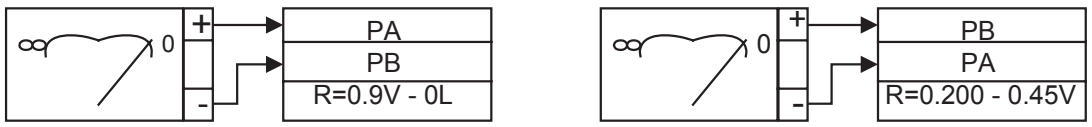


Inspection of the braking transistor size 2 to 7



Inspection of the freewheel diode size 2 to 7

To perform this operation, it is necessary to disconnect the braking resistor.



8.4.2 Diagnostics on an ATV38 size 6 and 7

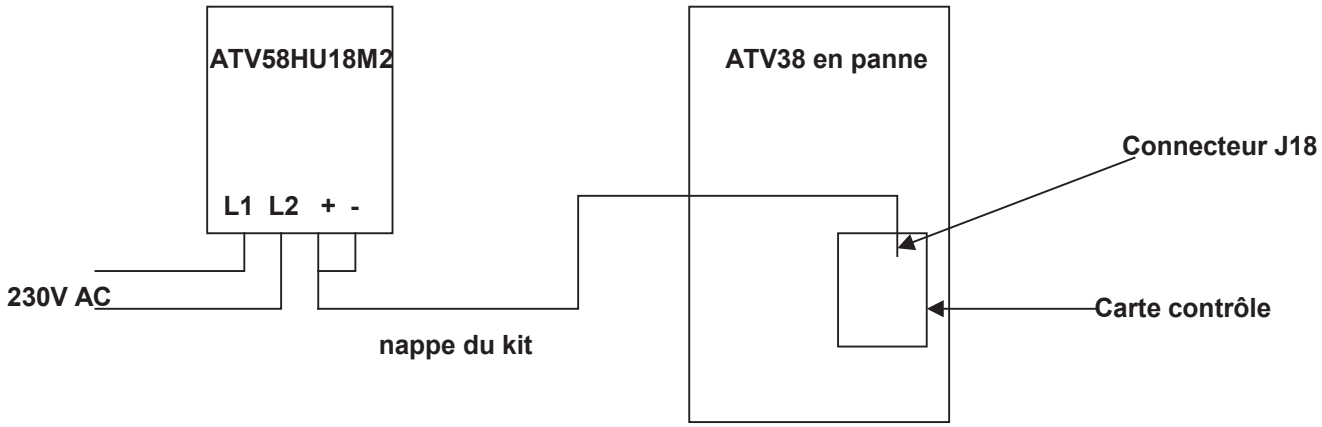
if you have the Diag58/38 test software

The Diag58/38 software can initiate diagnostic routines in order to identify a defective part without dismantling the product. The result of the diagnostics can be printed out.

1 – Before you begin

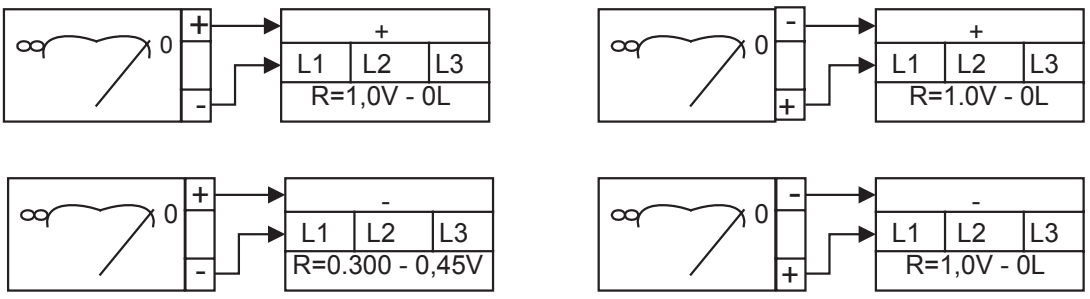
Power up the control board using the cable from the kit, and:
- Save the customer configuration using the programming terminal or the setup software.
- Note the last 8 faults in the error log in order to make an initial analysis.

Wiring:



2 – Preliminary test of the input bridge

Check that there is no short-circuit on the input bridge thyristors and diodes.
This test is performed using a digital multimeter in diode test mode. The values shown below are those which the multimeter should provide when used in this mode:



3 – Auto test Nº 1

Objective of auto test n° 1:

- Check the internal product wiring
- Check the control board I/O
- Check the inverter bridge transistors/diodes
- Calibrate the current offsets

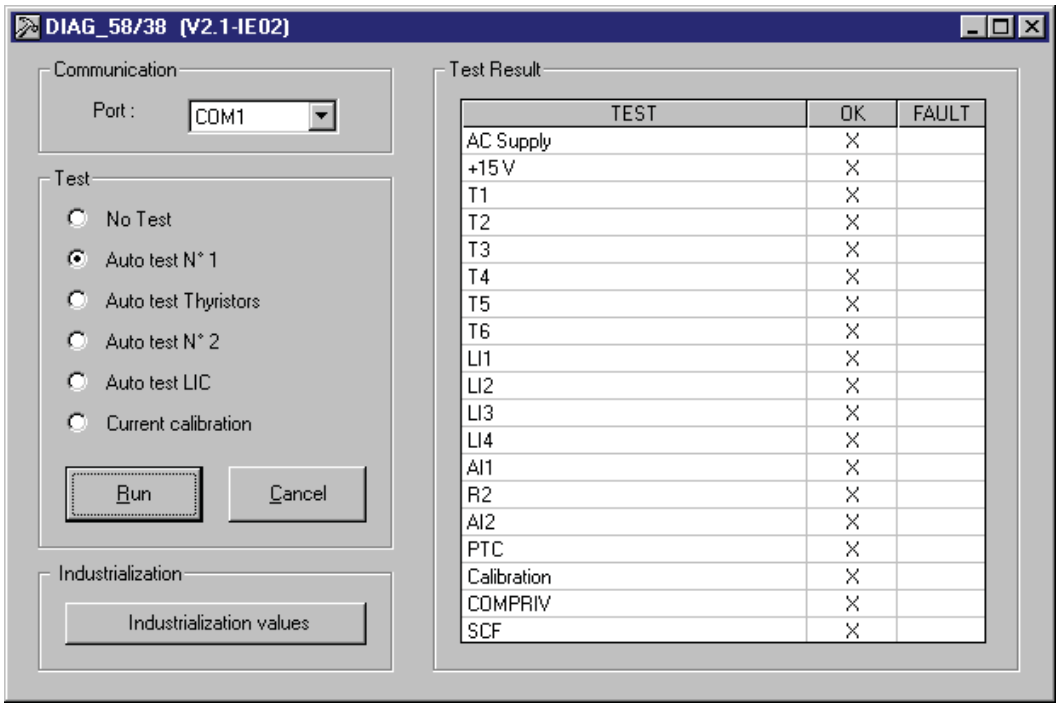
Wiring:

- Connect phases L1, L2, and L3 to the AC supply
- **Do not connect phases U, V, and W to the motor**
- Connect the I/O diagnostics card to the control board terminals

Operating mode:

- Switch on the product
- Launch the "diag58/38" program (if you have not already done so)
- Check the Auto-test nº 1 button
- Press " Enter" or click on "Run"
- Analyse the results window

Example of screen:



Analysis of Auto test Nº 1 results

If the component is faulty	=>	Actions
AC Supply		The AC supply does not correspond to the drive voltage
+15V		Change the control board
T1		Change T1
T2		Change T2
T3		Change T3
T4		Change T4
T5		Change T5
T6		Change T6
LI1		Change the control board
LI2		Change the control board
LI3		Change the control board
LI4		Change the control board
AI1		Change the control board
R2		Change the control board
AI2		Change the control board
PTC		Check the sensor wiring, change the thermal sensor
Calibration		Read MAC Cal. and Power Cal.
Compriv		Change the power board
SCF		Nothing. A transistor has short-circuited
MAC Cal.		Change the control board
Power Cal		Change the power board

4 – Auto test Thyristors

Objective of the Thyristors auto test

- Check that the thyristors are working correctly

Wiring

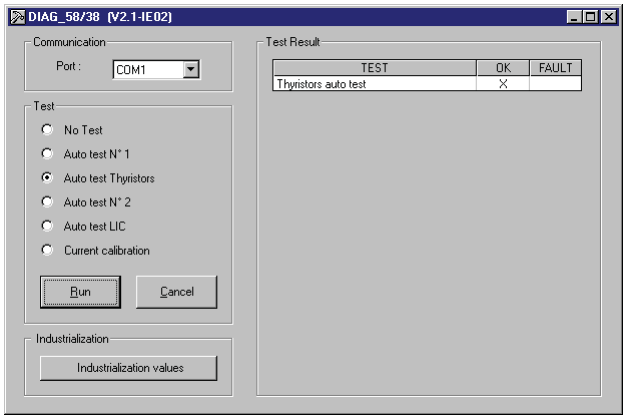
- Connect phases L1, L2, L3 to the AC supply
- **Do not connect phases U, V, W to the motor**
- Do not connect anything to the control board inputs
- Install a device to read the state of relay R1

Operating mode

- Switch on the product
- Launch the diag58/38 program (if you have not already done so)
- Check the Auto test Thyristors button
- Press " Enter" or click on "Run"
- Follow the on-screen instructions
- Switch off the product
- Once relay R1 changes state, switch the product back on immediately
- Analyse the results window

Diag58/38 screen:

Eg: a thyristor auto test screen



Analysis of the Thyristors auto test result

If the thyristors are shown to be faulty:

- Check the gate connections
- If the connections are correct, dismantle the product to test each thyristor with a small torch

If the thyristors are not faulty, change the power board

5 – Auto test n° 2

Objective of auto test N° 2

- Check the transistors using the current and voltage feedbacks (via the DC Bus)

Wiring

- Connect phases L1, L2, and L3 to the AC supply
- connect phases U, V and W to the motor
- Do not connect anything to the control board terminals

For this auto test you need to know the value of the motor stator resistance, but if you do not know this:

- ⇨ ***Perform auto test n° 2 without entering the min and max values of Rs.***
- ⇨ ***An error will be displayed. Note the resistance value Rs shown in the "Test Result" window.***
- ⇨ ***This value can be used for future auto tests n° 2 performed at a later date.***

Operating mode

- Switch on the product
- Launch the "diag58/38" program (if you have not already done so)
- Check the "Auto test n° 2" button
- Enter the values Rs min. (0.5 x Rs) and Rs max. (1.5 x Rs)
- Analyse the results window

Analysis of the test result:

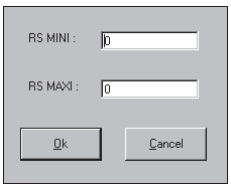


Figure 1: Start of Auto test n° 2 without knowing RS

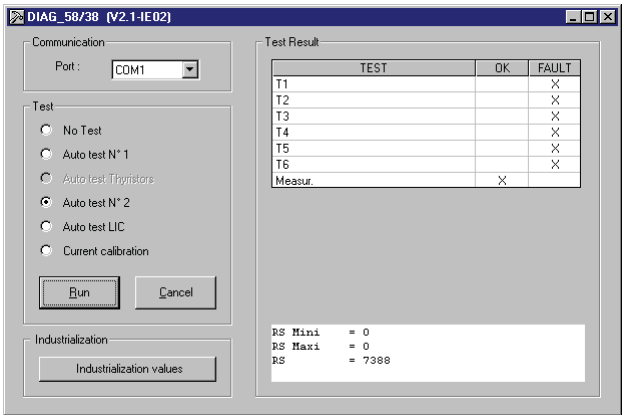


Figure 2: End of Auto test n° 2 without knowing RS

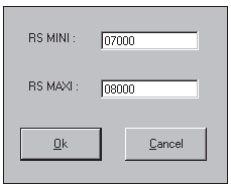


Figure 3: Start of Auto test n° 2 With Min / Max RS

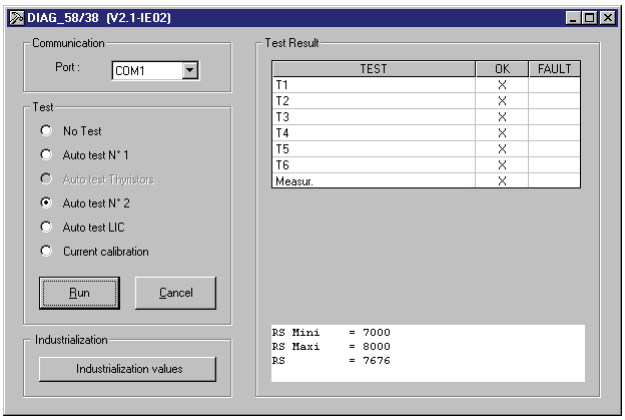


Figure 4: End of Auto test n° 2 With Min / Max RS

Analysis of Auto test Nº 2 results

What do you do if a component is indicated as faulty?

If the component is faulty	=>	Actions
T1		First change the power board, then T1 if no improvement is noted.
T2		First change the power board, then T2 if no improvement is noted.
T3		First change the power board, then T3 if no improvement is noted.
T4		First change the power board, then T4 if no improvement is noted.
T5		First change the power board, then T5 if no improvement is noted.
T6		First change the power board, then T6 if no improvement is noted.

6 – Auto test LIC

Objective of the LIC auto test

- Check the current feedbacks and the LIC level. The LIC is a current peak limit which avoids short-circuit locking in the event of strong torque surges. A succession of LICs can cause the drive to lock.

Wiring

- Connect phases L1, L2, and L3 to the AC supply
- Connect phases U, V and W to the motor
- Do not connect anything to the control board terminals

Operating mode

- Switch on the product
- Launch the "diag58/38" program (if you have not already done so)
- Check the "Auto test LIC" button
- Press "Enter" or click on "Run"
- Analyse the results window

Analysis of the LIC auto test result

- LIC U– and LIC W– should have the same order of magnitude and the same sign
- LIC U+ and LICW+ should have the same order of magnitude and the same sign
- LIC U– and LIC U+ should have the same order of magnitude but opposite signs
- LIC W– and LIC W+ should have the same order of magnitude but opposite signs
- These values should be compared with the theoretical values: these are approximately equal to 2.8 times the drive nominal current in high torque mode

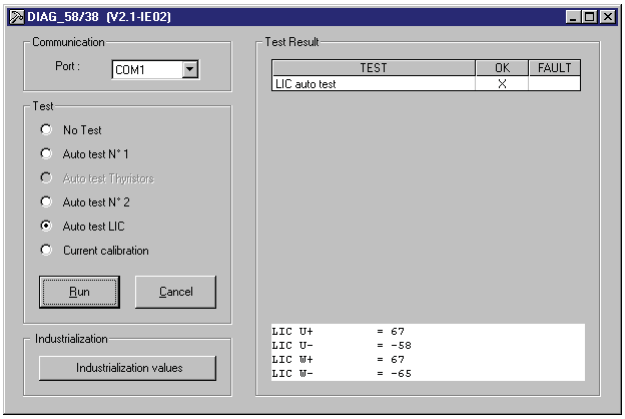


Figure 5: Auto test LIC: Example of screen

7 - Calibration

Objectives of calibration

- Calibrate the current feedbacks

Wiring

- Connect phases L1, L2, L3 to the AC supply
- Connect phases U, V and W to the motor
- Do not connect anything to the control board terminals

Operating mode

- Switch on the product
- Launch the "diag58/38" program (if you have not already done so)
- Check the "Current calibration" button
- Press "Enter" or click on "Run"
- Analyse the results window

Analysis of the test result:

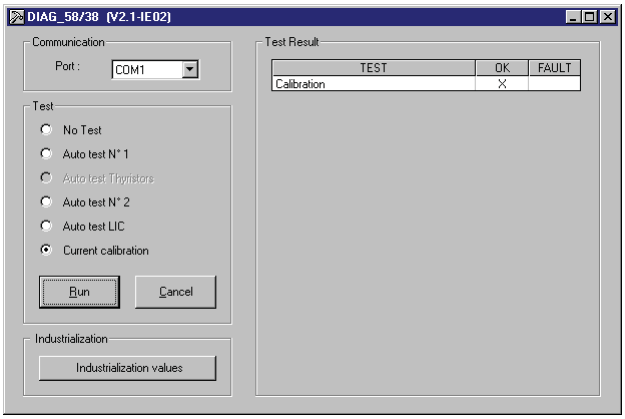


Figure 6: Calibration of the current feedbacks: Example of screen

8.4.3 Printing out the results files

The diag58/38 software generates two files automatically:

- the first one, RESULT.TXT, contains the test results from one session of using Diag58/38 (between opening and closing the program). Backups are made incrementally. After each test, the result is saved in RESULT.TXT.
- The second, RESULT.OLD, contains the test results from an earlier session of using Diag58/38.

The test type appears between *** ***

The test result appears between [ ]

8.5 *Faults that may be displayed*

List of faults that can be read using an Altivar 58 dialogue tool.

- the operator terminal does not switch on
- abnormal motor noise
- PHF: input phase break
- USF: undervoltage
- OSF: overvoltage
- OHF: drive overheating
- OLF: motor overload
- ObF: overbraking
- OPF: motor phase break
- LFF: loss of 4-20mA
- OCF: overcurrent
- SCF: motor short-circuit
- CrF: precharge fault
- SLF: RS485 fault
- OtF: motor overheating
- tSF: PTC sensor fault
- EEF: EEPROM fault
- InF: internal fault
- EPF: external fault
- SPF: speed feedback loss
- AnF: load veering fault
- SOF: overspeed
- CnF: communication network fault
- ILF: internal communication fault
- CFF: rating error / option error / option removed / EEPROM checksum
- CFI : configuration fault
- InI: initialization
- nOF: no fault
- ErrX: error

8.6 Troubleshooting based on the fault displayed

The operator terminal does not switch on

Experience to date:

- Change the operator terminal
- Charging resistor damaged => change the power board
- Check fuses size 8 to 10

Abnormal motor noise

Experience to date:

- The motor plate data has not been entered in the "drive" menu and auto-tuning has not been performed
- Fault due to broken SOVCOR resistors on the power sections with a date code lower than 9845 => change the power board

PHF: Input phase break

Principle:

- This fault is triggered when a line supply phase is detected as missing. This fault is only recognised after a delay of 1 second. This fault ceases to be displayed once the fault has disappeared or when another fault is present
- This fault can be inhibited (IPL parameter in the Fault menu) if power is being supplied directly via a DC bus
- This fault is not saved in the error log

Experience to date:

- Drive incorrectly supplied or fuses blown => check the power connection and the fuses
- Size 6 and 7 ASIC SSC => change the power board
- Size 6 and 7 resistor on single-phase fault operation => change the power board

USF: Line undervoltage

Principle:

The fault is triggered when the voltage measured at the filter capacitor terminals is less than:

	Umains < 430 V	Umains > 430 V
U41N4	260V DC	360V DC
U18N4, U29N4, U54N4, U72N4, U90N4	330 V DC	360V DC
D12N4, D16N4, D23N4, D25N4, D28N4,D33N4, D46N4, D54N4, D64N4, D79N4	280V DC	360V DC
C10N4X, C13N4X, C15N4X, C19N4X, C23N4X, C25N4X, C28N4X, C31N4X, C33N4X,	360V DC	360V DC

The USF fault is automatically reset once the fault has disappeared or when another fault appears.
It is reset once the voltage measured at the filter capacitor terminals is higher than:

- 460 V DC for 380/460 V drives

Experience to date:

- Line voltage too low => check the line voltage
- Transient voltage dip
- On sizes 8 to 10 => check the fuses, the transformer, and the power supply board

OSF: Line supply overvoltage

Principle:

This fault is triggered when the voltage measured at the filter capacitor terminals is higher than:
When the drive is switched on
- 800 V DC for 380/460V drives
- 760 V DC for sizes 8 to 10

After (switching on the drive)
- 840 V DC for 380/460 V drives
- 800 V DC for sizes 8 to 10

This fault appears when the motor is stopped or during DC injection braking.

Experience to date:
- Line supply too high => check the line voltage
- Line supply disturbed by the DC drive => check on J18 U mains x √2
- Scaling resistor => change the power board

OHF: Drive overheating

Principle:

This fault appears when the temperature measured on the heatsink exceeds the 118% threshold (Thermal state Thd). This measurement is provided by a temperature sensor located in the drive.

118% = 100 °C on the heatsink (size 2 to 7)

Experience to date:

Heatsink temperature too high:
- Monitor the motor load
- Monitor the drive ventilation
- Check the value of the Thd parameter in the “Display” menu
- Wait for the drive to cool down before resetting
- Switching frequency too high (SFt)

OLF: Motor overload

Principle:

- This fault is triggered when the estimated value of the motor temperature exceeds a certain threshold. Triggered when the Thr parameter reaches 118%. The thermal state is calculated according to the ItH parameter and the measured rms motor current
- The motor thermal state is memorized and decreases according to the drive rating time constants, even if the drive is switched off
- For correct thermal protection, the ambient temperature around the motor should not exceed 40 °C
- This thermal protection can be disabled: Parameter tHt in the fault menu
- The fault can only be reset if the motor thermal state is less than 100%

Experience to date:

- Check the setting of parameter ItH
- Monitor the motor load
- Wait for approximately 7 minutes before resetting
- Monitor the level of DC injection (automatic or via logic input)
- Motor/drive suitable for one another

OBF: Overbraking

Principle:

This fault is triggered when the voltage measured at the filter capacitor terminals exceeds, with the drive running:

- 840 V DC for 380/460 V drives

Experience to date:

- Position the deceleration ramp auto-adaptation parameter (BRA) to yes; if the application allows it, increase the deceleration time
- For size 2 to 7 add a braking resistor

OPF: Motor phase break

Principle:

- This fault is triggered when 1, 2 or 3 motor phases are detected as missing. This fault is only recognised after a period of 2 s. For rotation frequencies less than or equal to 5 Hz this period is longer
- This fault can be disabled by parameter OPL in the event of an uncontrolled break downstream (insertion of a downstream contactor or a vario between the drive and the motor)

Experience to date:

- Disable the motor phase loss protection (parameter OPL) if a motor run command is present and a downstream contactor or an open vario is being used
- One phase open-circuit at the drive output => check the motor connections
- Significant difference between the drive power and the motor power (example: 0.75 kW motor for a 2.2 kW drive)
- Significant difference between the drive power and the motor power with reduced flux, no-load motor or inertia
- Failure of the transistor control circuit => change the power board (size 2 to 10)
  => change the power supply board (size 8 to 10)
  => change the current gain board
- faulty current sensors

LFF: loss of 4-20mA

Principle:

- This fault is triggered when signal AI2 is less than 3 mA
- This fault can be enabled/disabled by parameter LFL in the "Fault" menu

Experience to date:

- Incompatibility between the drive configuration and the signal sent to AI2

OCF: Overcurrent

Principle:

- This fault is triggered when the motor current reaches the LIC for more than 50 milliseconds (peak current limit: peak equals 2.8 times the value of the drive nominal current)
- Size 2 to 5: LIC reached 100 times in 3 seconds
- Size 6 to 10: LIC reached 50 times in 250 milliseconds

Experience to date:

- Ramp too short
- Inertia or load too high
- Mechanical locking or load surge
- Failure of the transistor control circuit => change the power board
- Power transistor broken => change the power board and the modules
- Power transistor broken => change the interface board and the modules (size 8 to 10)
- Failure of a current sensor
- Motor/drive not suitable for one another

SCF: Motor short-circuit

Principle:

- This fault is triggered when the power section has signalled a phase/phase or phase/earth motor short-circuit. As this fault has to be dealt with very quickly (it is managed by the hardware), it is detected and dealt with directly in the power section and it is directed to the control board for saving and display
- This fault can never be reset even if a general reset has been programmed

Experience to date:

- Inappropriate setting => enter the motor rating plate in the “Drive” menu and perform an auto-tuning operation
- Short-circuit or earthing at the drive output => check the connection cables by disconnecting them from the drive, and check the motor insulation
- Check the drive inverter bridge (power transistor)
- Ramp time too short => increase the ramp time
- Power transistor faulty => change the power sub-assembly
- Connection cable J5 incorrectly connected to the control board or power board => make sure that J5 is properly connected
- Interface board (size 8 to 10)
- Current gain board (size 8 to 10)
- Power supply board (size 8 to 10)
- Failure of a current sensor
- Failure of the current feedbacks => size 2 to 7, change the power board
- Long motor cable or motor in parallel => add a motor choke

CRF: Charging relay fault

Principle:

This fault is triggered when an operating anomaly has been detected in the charging relay, ie. when:

- The charging relay is not triggered in the 2 seconds following power-up or product reset
- Closing of the charging relay is detected while the motor is supplied with power

Experience to date:

- Control fault on the charging relay => check the drive internal connections
- Charging resistor or charging relay damaged => change the power board
- Charging resistor temperature too high (size 8 to 10)
- DC bus ripple of 4 V on closing of the charging relay => measured on J18

SLF: RS485 serial link fault (terminal port)

Principle:

This fault is detected when the connection on the serial link is detected as non-operational while the drive is being controlled by it (expiry of a 2 second time-out).

Experience to date:

- Link fault when the drive is controlled by a terminal, a PC, a PLC via the RS485 serial link => check the RS485 link and its wiring
- Incorrect configuration of the device connected to the drive => configure the device correctly
- Faulty control board component => change the control board
- Disconnection of terminal, parameter LCC has been configured as yes

OtF: Motor overheating

Principle:

This fault is triggered when the value of the motor temperature measured via the PTC sensors exceeds the following thresholds:

– The sensor circuit resistor is such that: Rsensor > 2000 Ohm => U sensor = 1.66 V

Automatic reclosing is possible if:

– The sensor circuit resistor is such that: Rsensor < 1500 Ohm => U sensor < 1.3 V

Experience to date:

No feedback only with the I/O option card.

Caution: It is necessary to use the recommended wiring as well as the resistance values (R = 10 kOhm in series with the sensor).

tSF: temperature sensor fault

Principle:

This fault is triggered when:

– The sensor fault detection threshold is reached: U sensor ≥ 6.6 V (Rsensor = 20 kOhm)
– The sensor short-circuit detection threshold is reached: U sensor ≤ 0.2 V (Rsensor = 20 Ohm)

Experience to date (only with the I/O option card):

– Incorrect sensor connection => check the sensor connection and the value of the divider bridge resistor
– Check the sensors

EEF: EEprom fault

Principle:

This fault is triggered when write access to the EEprom does not occur correctly, ie:

- Following a write operation, the EEprom status does not indicate, within a 10 ms period, that the write operation has been taken into account
- The read/write validation cycle has revealed an error (the read value is different from the written value)

Experience to date:

- Cut the power supply to the drive and reset
- If the fault persists, transfer a configuration to the drive, then disconnect and reconnect the drive power supply. Re-check the drive configuration. If the configuration is correct, change the power board, if not change the control board
- Permanent backup in the EEprom (lifetime) => change the control board

InF: Internal drive fault

Principle:

This fault is triggered on power-up, when one of the following anomalies has been detected:

- Incorrect calibration constants
- Drive rating not recognized by the control board
- I/O option not recognized
- terminal not recognized

Experience to date:

- Internal fault or connection fault (J5) => check the connections in the drive
- ATV58 control board on an ATV38 (size 8 to 10)
- EEprom on faulty power board => change the power board

EPF: External fault

Principle:

This fault is triggered by a peripheral device communicating with the drive via a fieldbus connected on the RS485 serial link or an ATV38 communication board (bit 3 of word CMI at 1).

Experience to date:

Fault tripping requested by the PLC program.

SPF: loss of speed feedback

Principle:

If the difference between the measured speed and the stator frequency reference is higher than 10 Hz, the drive locks in SPF fault mode.

Experience to date (only with the option card):

- No speed feedback => check the connection (electrical and mechanical) of the speed sensor.
- In open loop mode AI3 should not be assigned to "Tacho Feedback".

AnF: Load Veer. Flt

Principle:

This fault is triggered:

- when an increase in speed is noticed that does not follow the ramp applied for at least 0.5 seconds
- when the load drives the motor rotation in the opposite direction from the desired direction for at least 0.5 seconds

Note:

⇒ The AnF fault can only be generated when an option card is connected to the drive and analog input AI3 is assigned to the "Tacho feedback" or "PG feedback" function

Experience to date:

– Check the speed feedback settings and wiring
– Speed feedback reversed (change the feedback polarity)
– Check the parameter settings of the speed feedback (Tacho or PG)
– Check the suitability of the settings for the load

SOF: overspeed

Principle:

The output frequency is higher than 1.2 times the maximum frequency (tFr) that has been set.

Experience to date:

– Instability => check the adjustment parameters and the drive configuration

CnF: communication network fault

Principle:

This fault is triggered when a problem has been detected in the network communication part of a communication card. This fault is detected by the communication card, which feeds it back to the base product via the internal communication bus.

Experience to date:

- Check the network connection to the drive
- Check the time-out

ILF: internal communication fault

Principle:

This fault is triggered when the internal communication bus is inoperative for more than a second (value of the internal time-out).

Experience to date:

- Check the connection of the option card to the control board
- Capacitor problem on the option card (see VSD note no. 17)
- Option card incorrectly screwed onto the control board or incorrectly clipped on connector J6
- Interference => check the connections to ground
- No 24 V power supply on the card (only with Interbus S option card)

CFF: rating, option error, option removed, CKS EEprom incorrect

Principle:

This fault is triggered on power-up, when the drive hardware configuration does not correspond to the drive configuration contained in the EEprom.

Experience to date:

- Change of power board rating
- Change of option card type
- Option card removed
- Installation of an option card although the configuration was customized

CFI : Configuration fault

Principle:

- This fault is triggered on an invalid configuration command (incompatible functions) and received by a fieldbus via a communication card or the RS485 serial link
- This fault is auto-reset once a valid configuration is sent to the drive

Experience to date:

Send a valid configuration to the drive.

InI: Initialization

Principle:

The "Ini" message appears when the drive is in its initialization phase.
This phase can be interrupted for several reasons:
If the green LED is illuminated (the drive is working):
- Communication or compatibility problem between the control board and the terminal (After 1 min a fault ILF, errX may appear)
- The switch mode power supply is not charged enough.

Experience to date:

Check that the terminal is compatible with the drive.
- Change the terminal
- Change the control board
- T6 and 7: Check that the fans are working.

If the red LED is illuminated, a fault message should appear 10 sec after "Ini":
- Take the necessary action to remedy the fault indicated.
- Change the power board

nOF: No fault

This message is not a fault code, but simply indicates that there is no past fault saved in the memory.

ErrX: Error

Principle:
These types of fault are generated by the terminal, and the latter communicates with the control board microcontroller. When there is an inconsistency in the message, the terminal, after several repeat attempts, indicates an "ErrX" fault. This failure is generally very difficult to reproduce as it depends on the environment (extension cable between product and terminal, motor running, site subject to interference) and the combination between the terminal and the control board. Without exception, neither the control board nor the terminal are at the origin of the failure, it is always the combination of the two which generates the fault code "ErrX".
This failure can under no circumstances disturb the motor operation, it can only hinder product programming.

Different types of Err:
Err1 = Incorrect operation
Err2 = Incorrect address
Err3 = Incorrect value sent by the terminal, write operation refused by the drive
Err4 = Incorrect execution
Err5 = Incorrect CRC
Err6 = Driver problem
Err7 = Time-out fault, the terminal has sent a request but has not had a response.
Err8 = Interrupt overflow
Err9 = Structure error, run or stop bits not recognized
Err10 = Incorrect size

Experience to date:
- Failure to comply with the wiring instructions
- Replace the terminal
- Replace the control board
- Change in the RS485 link data rate from 19200 to 9600 bauds with the terminal, in this case display of err7 after switching off/on. To unlock the terminal the only solution is to proceed as follows: Change the position of the 50/60 Hz switch. Switch off/on. Reposition the 50/60Hz switch (return to the initial position). Switch off/on.

9. Changing the faulty component - drawings - parts lists

9.0 Safety instructions and precautions

Safety instructions

Before carrying out any work on an ATV38:

- Disconnect the drive power supply
- Wait for 3 to 10 minutes before opening the front cover and check that the Power and Fault LEDs are off

On ATV38 sizes 1, 6 and 7, measure the DC bus voltage between the + and – terminals before starting work.

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

When the product is switched on, the control board/option card connector 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

Tightening torque (N.m)

- Size 2 to 7: indicated on the assembly drawings
- Size 8 to 10:

∅ of the screw	Copper, aluminium, brass				Steel			
	Standard	Tightening range			Standard	Tightening range		
M3	0,54	0,39	-	0,59	0,54	0,49	-	0,69
M4	1,28	1,08	-	1,37	1,28	1,28	-	1,67
M5	2,55	2,06	-	2,84	2,55	2,55	-	3,43
M6	4,4	3,34	-	4,5	4,4	4,22	-	5,69
M8 (crosshead)	-	-	-	-	7,3	6,4	-	8,3
M8 (hexagonal)	9,8	8,3	-	11,2	11,8	10	-	13,5
M10	19,6	16,7	-	22,5	24,5	20,9	-	28
M12	37	31,7	-	42,8	44	37,5	-	50
M16	93	79	-	107	108	92	-	124

∅ of the screw	Mounting the power module							
	Pre-tightening				Tightening			
	Standard	Tightening range			Standard	Tightening range		
M4	0,6	0,49	-	0,69	1,3	1,08	-	1,47
M5	0,6	0,49	-	0,69	2,55	2,35	-	2,75
M6	0,6	0,49	-	0,69	4,4	4,22	-	4,61

ATV38
SIZE 2

DISMANTLING THE ATV38HU18N4, HU29N4 and HU41N4 (Size 2)

- Open the protective front cover of the drive to 90°
- Remove the plug-in connectors
- Remove the option card, if there is one

a) Remove the plastic protective parts

- Remove the protective front cover “24” when it is open at 90°. Use a screwdriver and take care not to break this plastic part
- Undo screws “V34”, “V35”, “V36”, “V37” while keeping the plastic belt “20” around the drive

b) Change the control board

- Remove the plastic belt “20” by pulling to release it from the drive
- Disconnect the cable at the top of the drive “J18”
- Undo screws “V30”, “V31”, “V32”, “V33” fixing the control board “19”
- Grasp the control board and turn it gently to the right, making the same movement as if you were opening the driver cover. Under the right-hand section, 4 cables are connected, linked to the power board
- Remove these 4 connectors “J5”, “J13”, “J14”, “J15”

c) Change the power board

The power board replacement kit also includes the heatsink on which the power board is mounted. These cannot be separated.

- After removing the plastic parts and the control board “19” (see above)
- Remove the side metal frames
  Right-hand section “16”: screws “V23“, “V24”, “ V25”, “V26”
  Left-hand section “5”: screws “V7”, “V8”, “V9”, “V27”
- Remove the metal grille from the top of the drive by removing the 2 remaining screws “V28” and “V29”
- Disconnect internal cables “J5”, “J13”, “J14”, “J15” and “J18”. Keep them for reassembling the product

d) Dismantling the cooling fan

- Disconnect the fan power supply cable via the heatsink
- Undo assembly screws “V21” & “V22” while holding the protective grille “13” at the same time as the fan

REASSEMBLING ATV 38HU18N4, HU29N4 and HU41N4 (Size 2) DRIVES

a) Reassembling the cooling fan

- Connect the fan power supply cable via the heatsink
- Position the fan with the label facing inwards, put in place the fan protective grille “13”

b) Reassembling the power board (complete kit with associated heatsink)

- Tighten assembly screws “V21” & “V22” while holding the protective grille “13”
- Reinstall internal cables “J5”, “J13”, “J14”, “J15” and “J18” that were removed earlier
- Refit the upper metal grille “17” on the heatsink (screws “V28” and ”V29”)
- Refit the side panels on the left (screws “V7”, “V8”, “V9”, “V27”) and right (screws “V23“, “V24”, “V25”, “V26”)

c) Reassembling the control board

- Connect cables “J5”, “J13”, “J14” and “J15” of the power board on the control board
  Make sure that cable “J5” is properly connected
- Connect cable “J18” from the top of the power board to the top of the control board
- Place the control board on the metal frame created by the side panels and the upper grille
- Screw the control board onto the metal panels using screws “V30”, “V31”, “V32”, “V33”

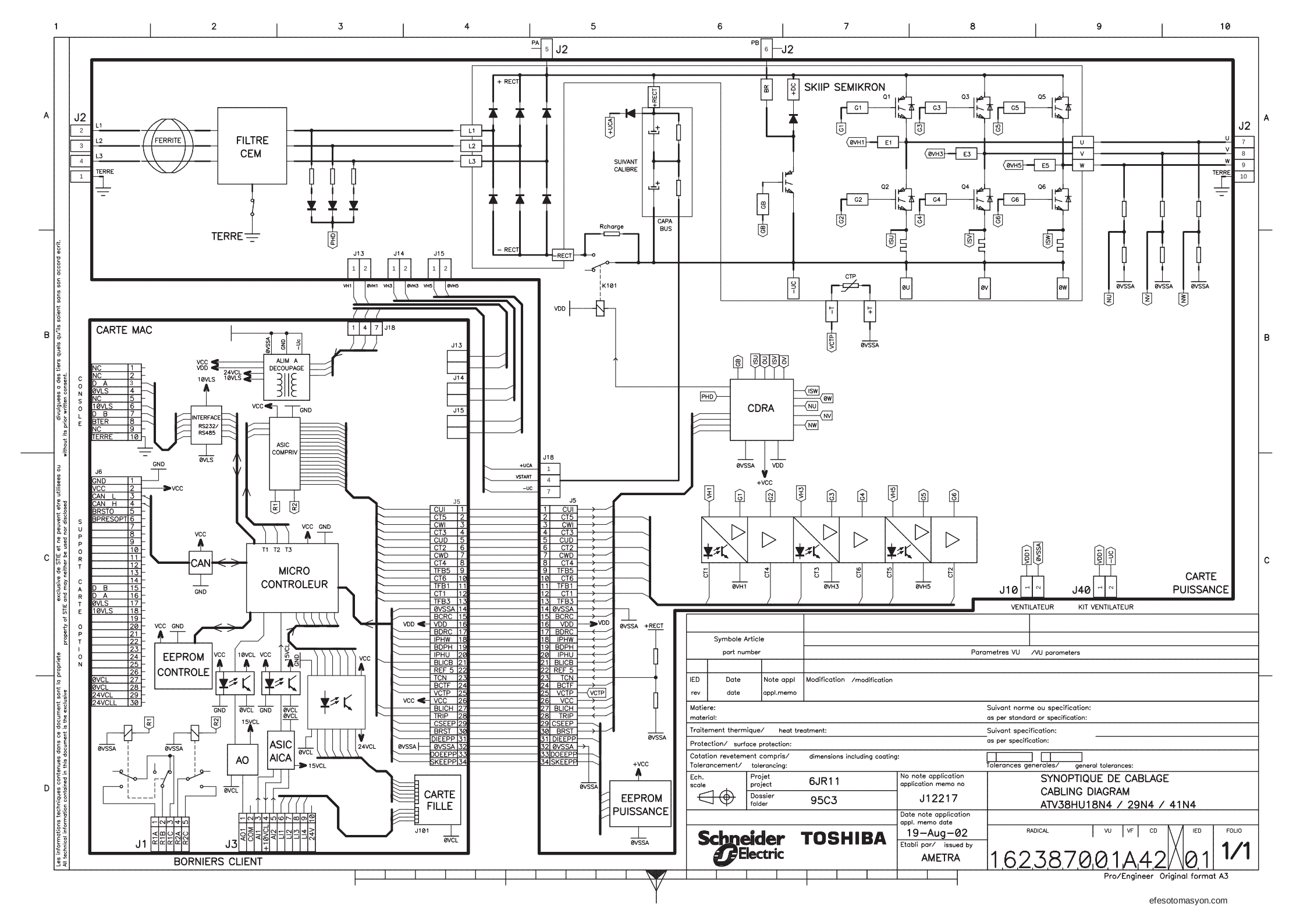
d) Reassembling the plastic parts

- Place the plastic belt “19” and fit screws “V34”, “V35”, “V36”, “V37”
- Refit the front cover and place it at 90°
- Refit the IP41 top protective cover (clipped into place), if it has been removed

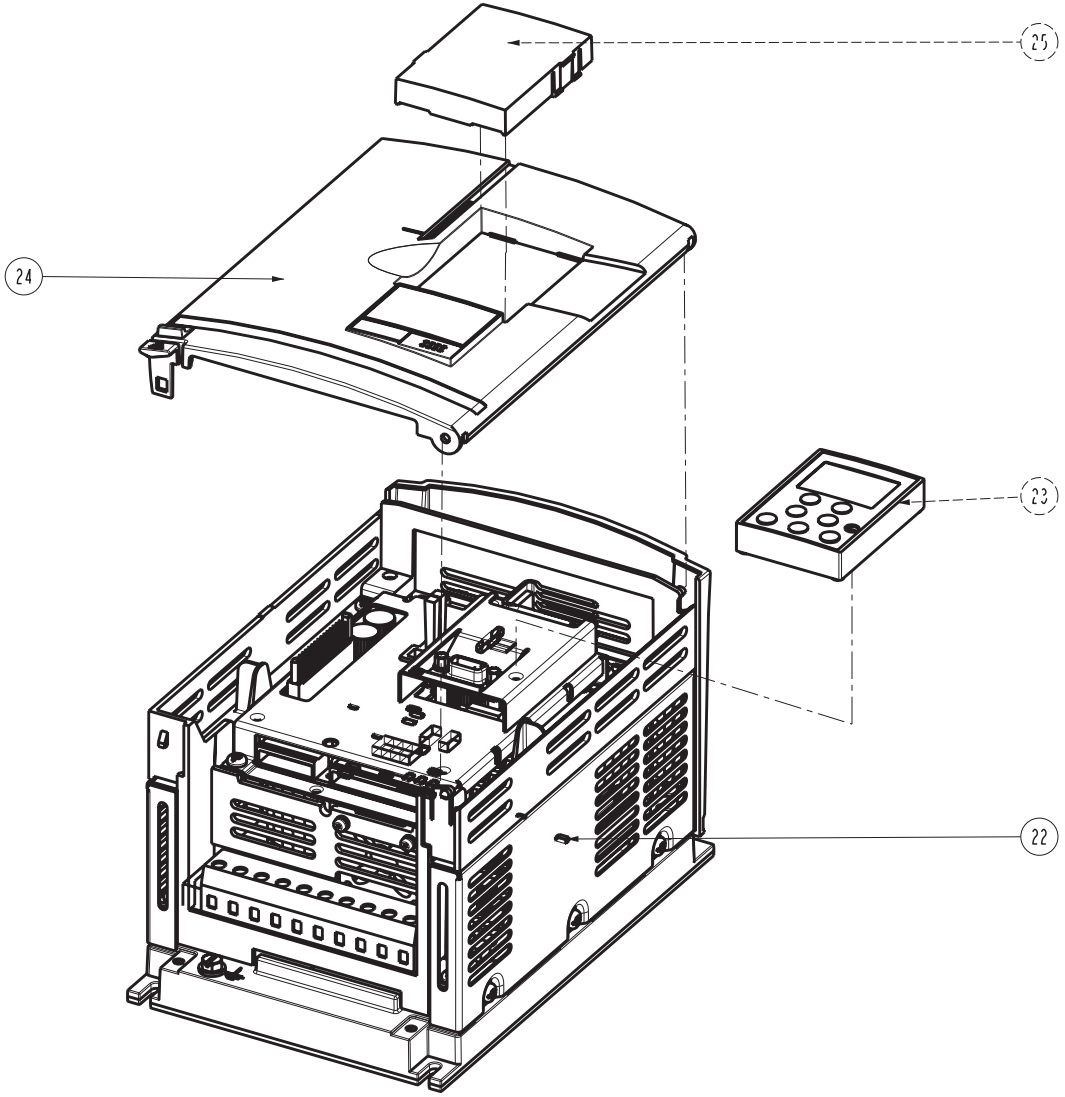
e) Finalizing reassembly

- Reinstall the option card if it was present
- Reconnect the operator terminal
- Reconnect the plug-in terminals (control)

Interconnection diagram
SIZE 2



Assembly
SIZE 2



Symbole Article part number			
			Parametres VU/VU parameters
02	10/04/98	J10499	MISE A JOUR DU PLAN
01	12/09/97	J10376	LANCEMENT
IED rev	Date date	Note appl appl.memo	Modification/modification

6JB24

95B2

DOCUMENT DE DEFINITION

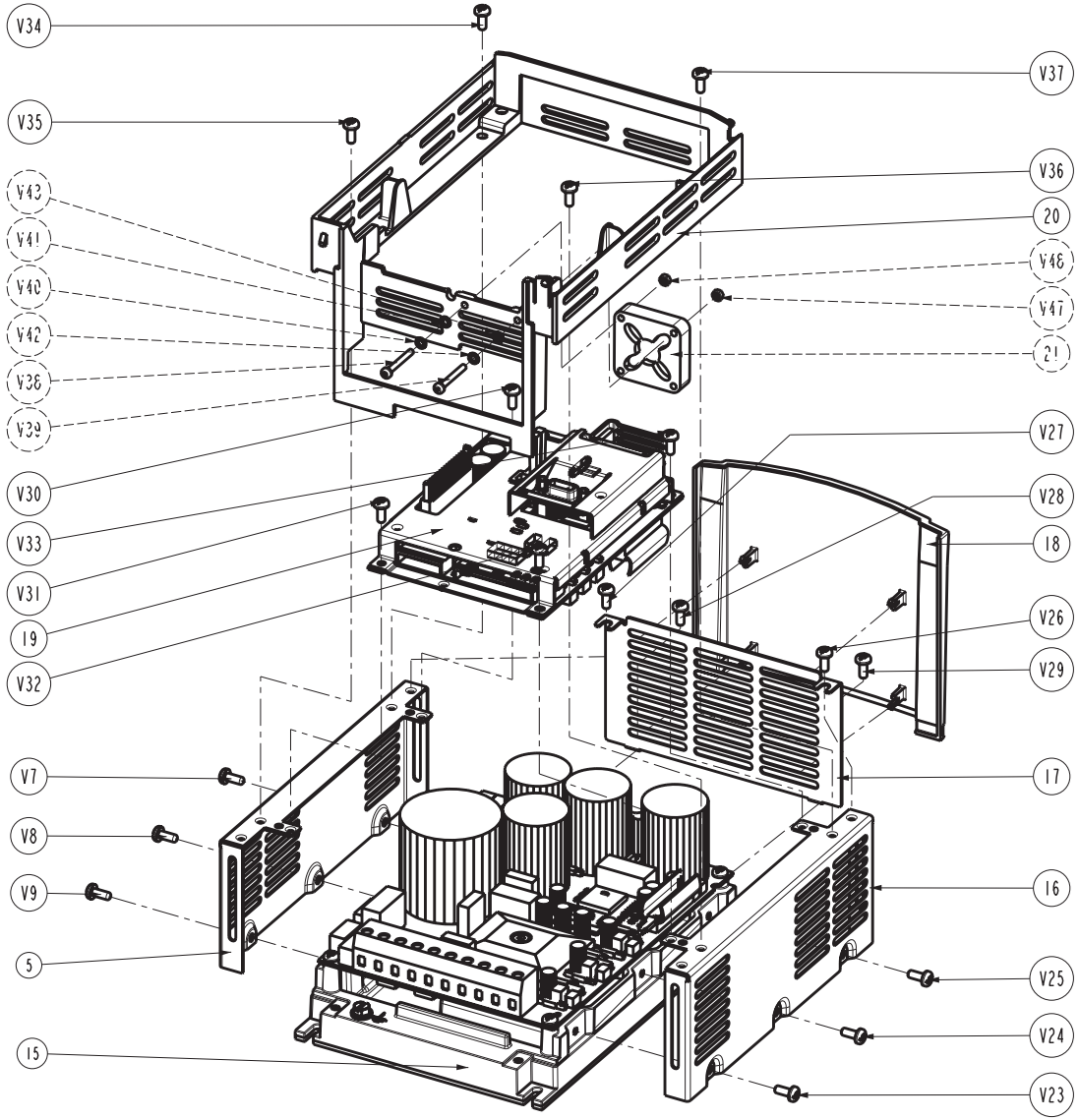
J10376

12/09/97

G.TURPIN

ATV58 TESTE T2

149364500A53 02



VIS	COUPLE (N.m)
V23 à V29	1.5

Symbole Article part number			Parametres VU/VU parameters
03	10/04/98	JI0499	MODIFICATION DU PROCESS DE FABRICATION (AJOUT FLANC + 3 VIS)
02	22/10/97	JI0449	AJOUT DE 2 ECROUS FIXATION VENTILATEUR
01	12/09/98	JI0376	LANCEMENT
IED rev	Date date	Note appl appl.memo	Modification/modification

ELEMENTS EN POINTILLES : SUIVANT VU

6JB24

95B2

DOCUMENT DE DEFINITION

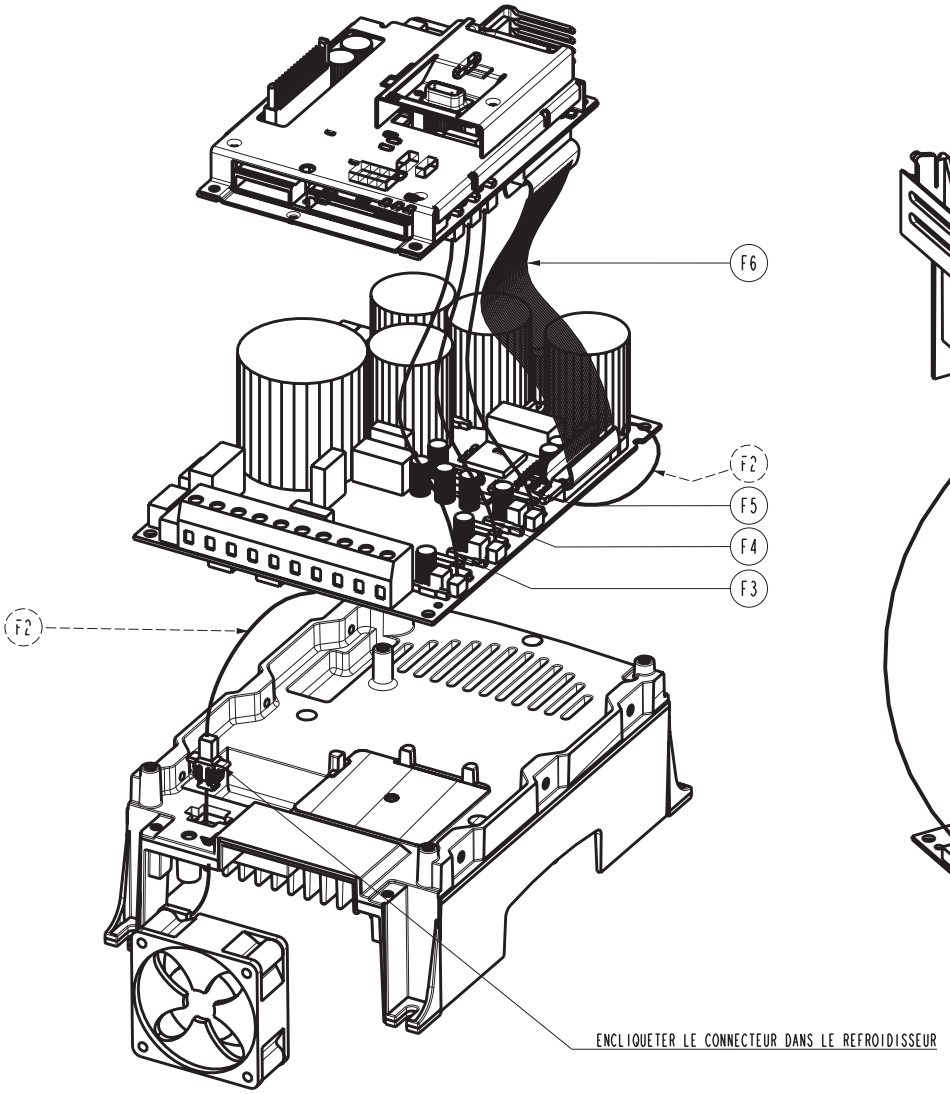
JI0376

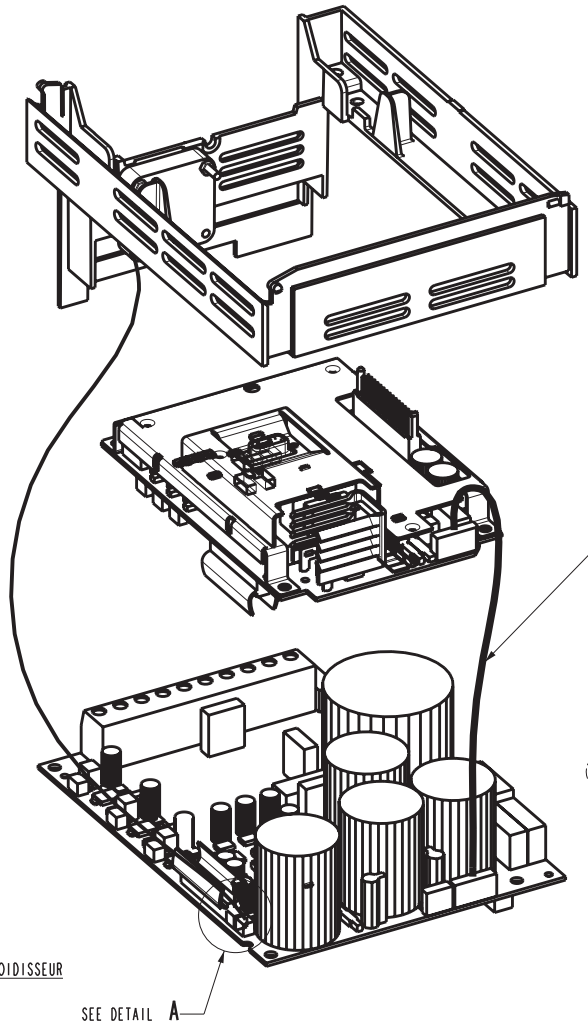
12/09/97

G.TURPIN

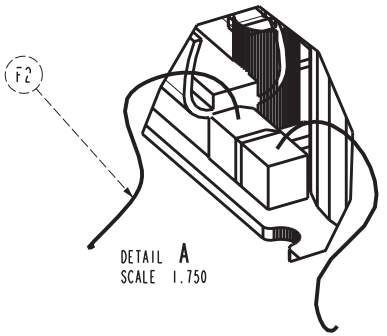
S/E FINAL ATV58 T2

I49364400A53 03





CONNEXION VENTILLATEUR INTERNE



Symbole Article part number			Parametres VU/VU parameters
01	10/04/98	J10499	LANCEMENT
IED rev	Date date	Note appl appl.memo	Modification/modification

6JB24

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DOCUMENT DE DEFINITION

J10499

10/04/98

O.FAURE

ATV58 FILERIE T2

159809101A42 01

Document Nomenclature	IED		
1493668 02 A 01	02	Référence Article:	W814936680211
		Désignation:	ATV38 COUVERCLE EQUIPE T2
		Indice:	A02
		Numéro de Note:	J31476

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
W403781100111	A06		PORTE-ETIQUETTE D2	P	1	3
W414935130111	A10		ATV58 COUVERCLE T2	P	1	1
W915983100111	A02		ATV38 PLANCHE ETIQUETTE	P	0,5	C E F
W916252390111	A01		ATV38 LOGO LABEL	P	1	6

Document Nomenclature	IED	
1493647 13 A 01	01	**Référence Article:** W814936471311 **Désignation:** ATV38 ASS.0,75/500 R+T **Indice:** A01 **Numéro de Note:** J31439

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
V12173074			VAFD CBLXS M4X10 CU	P	24	V7 V8 V9 V12 V13 V14 V15 V16 V23 V24 V25 V26 V27 V28 V29 V30 V31 V32 V33 V34 V35 V36 V37 V46
V12173078			VAFD HE M5X12 ZNC	P	1	V20
W103850860611	A06		VIS EQUIPEE CHC M5-35	P	1	V11
W114935650111	A04		ATV58 FLANC T2	P	2	5 16
W114935660111	A05		ATV58 GRILLE IP20 T2	P	1	17
W314935870211	A02		ATV58 INTER MOD SKIIP T2	P	1	2
W315982150111	A03		ATV58 REFROIDISSEUR T2 V2	P	1	7
W414935100112	A09		ATV58 CEINTURE T2	P	1	20
W414935800111	A05		ATV58 CACHE IP41 T2	P	1	18
W415981170111	A01		ATV58 ISOLANT PUISS. T2	P	1	8
W803858040134	A13		JB24 S2 .75 500 PO PWB	P	1	10
W814935240112	A04		ATV58 NAPPE J18 T1/T2	P	1	F1
W814935250111	A02		ATV58 NAPPE J5 T1/T2/T3	P	1	F6
W814935260112	A04		ATV58 NAPPE CDV T1/T2	P	3	F3 F4 F5
W814936300314	A10		ATV38 BLOC CONTROLE	P	1	19

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
W814936680211	A02		ATV38 COUVERCLE EQUIPE T2	P	1	24
W814939140111	A02		ATV58 BORN RELAIS TAMPO	P	1	28
W815983090111	A01		ATV58 BORN CTRL TAMP	P	1	27
W816242750113	A08		CONS EXPLOIT ATV58/ATV58F	P	1	23
W903871370111	A01		ETIQ.TRACABILITE 40X7	P	1	14
W914935770111	A02		ETIQ.VIERGE 60X35/23X9	P	1	30
W914936180111	A02		ETIQ.VIERGE 45X30	P	1	29
W914936920311	A01		ATV38 ETIQ BP 460V T2/T3	P	1	40
W914939610113	A07		ATV58 LABEL PROTECTION	P	1	11
1TRA001128			MOD SKIIP 0,75KW 500V	P	1	3
1WAS002952			ROND M4.9X12.7X1.4 NYLON	P	1	15

Document Nomenclature	IED		
1493647 14 A 01	01	**Référence Article:**	W814936471411
		Désignation:	ATV38 ASS.1,5/500 R+T
		Indice:	A01
		Numéro de Note:	J31439

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
V12173074			VAFD CBLXS M4X10 CU	P	24	V7 V8 V9 V12 V13 V14 V15 V16 V23 V24 V25 V26 V27 V28 V29 V30 V31 V32 V33 V34 V35 V36 V37 V46
V12173077			VAFD CBLXS M4X35 CU	P	2	V21 V22
V12173078			VAFD HE M5X12 ZNC	P	1	V20
W103850860611	A06		VIS EQUIPEE CHC M5-35	P	1	V11
W114935650111	A04		ATV58 FLANC T2	P	2	5 16
W114935660111	A05		ATV58 GRILLE IP20 T2	P	1	17
W314935870211	A02		ATV58 INTER MOD SKIIP T2	P	1	2
W315982150111	A03		ATV58 REFROIDISSEUR T2 V2	P	1	7
W414935100112	A09		ATV58 CEINTURE T2	P	1	20
W414935800111	A05		ATV58 CACHE IP41 T2	P	1	18
W415981170111	A01		ATV58 ISOLANT PUISS. T2	P	1	8
W803858040234	A13		JB24 S2 1.5 500 PO PWB	P	1	10
W814935240112	A04		ATV58 NAPPE J18 T1/T2	P	1	F1
W814935250111	A02		ATV58 NAPPE J5 T1/T2/T3	P	1	F6
W814935260112	A04		ATV58 NAPPE CDV T1/T2	P	3	F3 F4 F5

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
W814935280111	A03		VENTL EQUIP T2/3/4 500/T5	P	1	12
W814936300314	A10		ATV38 BLOC CONTROLE	P	1	19
W814936680211	A02		ATV38 COUVERCLE EQUIPE T2	P	1	24
W814937360111	A04		ATV58 NAPPE VENTIL T2	P	1	F2
W814939140111	A02		ATV58 BORN RELAIS TAMPO	P	1	28
W815983090111	A01		ATV58 BORN CTRL TAMP	P	1	27
W816242750113	A08		CONS EXPLOIT ATV58/ATV58F	P	1	23
W903871370111	A01		ETIQ.TRACABILITE 40X7	P	1	14
W914935770111	A02		ETIQ.VIERGE 60X35/23X9	P	1	30
W914936180111	A02		ETIQ.VIERGE 45X30	P	1	29
W914936920311	A01		ATV38 ETIQ BP 460V T2/T3	P	1	40
W914939610113	A07		ATV58 LABEL PROTECTION	P	1	11
1FAN001836			GRILLE VENT 60X60 FI50X50	P	1	13
1TRA001129			MOD SKIIP 1,5KW 500V	P	1	3
1WAS002952			ROND M4.9X12.7X1.4 NYLON	P	1	15

Document Nomenclature	IED		
1493647 15 A 01	01	**Référence Article:**	W814936471511
		Désignation:	ATV38 ASS.2,2/500 R+T
		Indice:	A01
		Numéro de Note:	J31439

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
V12173074			VAFD CBLXS M4X10 CU	P	24	V7 V8 V9 V12 V13 V14 V15 V16 V23 V24 V25 V26 V27 V28 V29 V30 V31 V32 V33 V34 V35 V36 V37 V46
V12173077			VAFD CBLXS M4X35 CU	P	2	V21 V22
V12173078			VAFD HE M5X12 ZNC	P	1	V20
W103850860611	A06		VIS EQUIPEE CHC M5-35	P	1	V11
W114935650111	A04		ATV58 FLANC T2	P	2	5 16
W114935660111	A05		ATV58 GRILLE IP20 T2	P	1	17
W314935870211	A02		ATV58 INTER MOD SKIIP T2	P	1	2
W315982150111	A03		ATV58 REFROIDISSEUR T2 V2	P	1	7
W414935100112	A09		ATV58 CEINTURE T2	P	1	20
W414935800111	A05		ATV58 CACHE IP41 T2	P	1	18
W415981170111	A01		ATV58 ISOLANT PUISS. T2	P	1	8
W803858040334	A15		JB24 S2 2.2 500 P3 PO PWB	P	1	4
W814935240112	A04		ATV58 NAPPE J18 T1/T2	P	1	F1
W814935250111	A02		ATV58 NAPPE J5 T1/T2/T3	P	1	F6
W814935260112	A04		ATV58 NAPPE CDV T1/T2	P	3	F3 F4 F5

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
W814935280111	A03		VENTL EQUIP T2/3/4 500/T5	P	1	12
W814936300314	A10		ATV38 BLOC CONTROLE	P	1	19
W814936680211	A02		ATV38 COUVERCLE EQUIPE T2	P	1	24
W814937360111	A04		ATV58 NAPPE VENTIL T2	P	1	F2
W814939140111	A02		ATV58 BORN RELAIS TAMPO	P	1	28
W815983090111	A01		ATV58 BORN CTRL TAMP	P	1	27
W816242750113	A08		CONS EXPLOIT ATV58/ATV58F	P	1	23
W903871370111	A01		ETIQ.TRACABILITE 40X7	P	1	14
W914935770111	A02		ETIQ.VIERGE 60X35/23X9	P	1	30
W914936180111	A02		ETIQ.VIERGE 45X30	P	1	29
W914936920311	A01		ATV38 ETIQ BP 460V T2/T3	P	1	40
W914939610113	A07		ATV58 LABEL PROTECTION	P	1	11
1FAN001836			GRILLE VENT 60X60 FI50X50	P	1	13
1TRA001130			MOD SKIIP 2,2KW 500V	P	1	3
1WAS002952			ROND M4.9X12.7X1.4 NYLON	P	1	15

ATV38
SIZE 3

DISMANTLING ATV38HU54N4, HU72N4 and HU90N4 (Size 3) VARIABLE SPEED DRIVES

- Open the protective front cover of the drive to 90°
- Remove the plug-in connectors
- Remove the option card, if there is one

a) Remove the plastic protective parts

- Remove the protective front cover “26” when it is open at 90°. Use a screwdriver and take care not to break this plastic part
- Undo screws “V38”, “V39”, “V40”, “V41” while keeping the plastic belt “22” around the drive

b) Change the control board

- Remove the plastic belt “22” by pulling to release it from the drive
- You can take out the control board without removing the plastic parts
- Undo the 4 screws ”V34”, “V35”, “V36”, “V37” fixing the control board on the metal support “20”
- Disconnect the cable at the top of the drive “J18” passing between the control board and the metal support
- Grasp the assembly and turn it gently to the right, making the same movement as if you were opening the drive cover. Under the right-hand section, 4 cables are connected, linked to the power board
- Remove these 4 connectors “J5”, “J13”, “J14”, “J15”

c) Change the power board

The power board replacement kit also includes the heatsink on which the power board is mounted. These cannot be separated.

- First take out the plastic parts (see above)
- Remove the steel plate “20” acting as a support for the control board “21” (screws “V34”, “V35”, “V36”, “V37”)
- Grasp the control board and its metal support and turn them gently to the right, making the same movement as if you were opening the drive cover.
- Under the right-hand section, 4 cables are connected, linked to the power board. Remove these 4 connectors “J5”, “J13”, “J14”, “J15”
- Remove the side metal frames
  Right-hand section “18”: screws “V27 “, “V28”, “ V29”, “V32”
  Left-hand section “5”: screws “V8”, “V9”, “V10”, “V33”
- Remove the metal grille from the top of the drive by removing the 2 remaining screws “V30” and “V31”
- Disconnect internal cables “J5”, “J13”, “J14”, “J15” and “J18”. Keep them for reassembling the product

d) Dismantle the cooling fans

- Remove the 4 fan screws: “V24”, “V25” & “V45”, “V46”
- Disconnect cables supplying power to the fan via the heatsink
- Remove the fans

REASSEMBLING ATV38HU54N4, HU72N4 and HU90N4 (Size 3) VARIABLE SPEED DRIVES

a) Reassembling the cooling fans

- Connect the cables supplying power to the fans via the heatsink
- Position the fans with the label facing inwards, place the fan protective grilles “14” and “15”
- Tighten assembly screws “V24”, “V25” & “V45”, “V46” while holding protective grilles “14” and “15”

b) Reassembling the power board (complete kit with associated heatsink)

- Reinstall internal cables “J5”, “J13”, “J14”, “J15” and “J18” that were removed earlier
- Refit the upper metal grille “19” on the heatsink (screws “V30” and ”V31”)
- Refit the side panels on the left (screws “V8”, “V9”, “V10”, “V33”) and right (screws “V27”, “V28”, “V29”, “V32”)

c) Reassembling the control board

- Connect cables “J5”, “J13”, “J14” and “J15” from the power board to the control board *Make sure that cable “J5” is properly connected*
- Connect cable “J18” from the top of the power board to the top of the control board
- Screw the control board “21” onto the metal support “20” (screws “V34”, “V35”, “V36”, “V37”)
- Place the control board/support assembly on the metal frame created by the side panels and the upper grille
- Place the plastic belt “22” over the assembly and tighten the 4 screws “V38”, “V39”, “V40”, “V41”

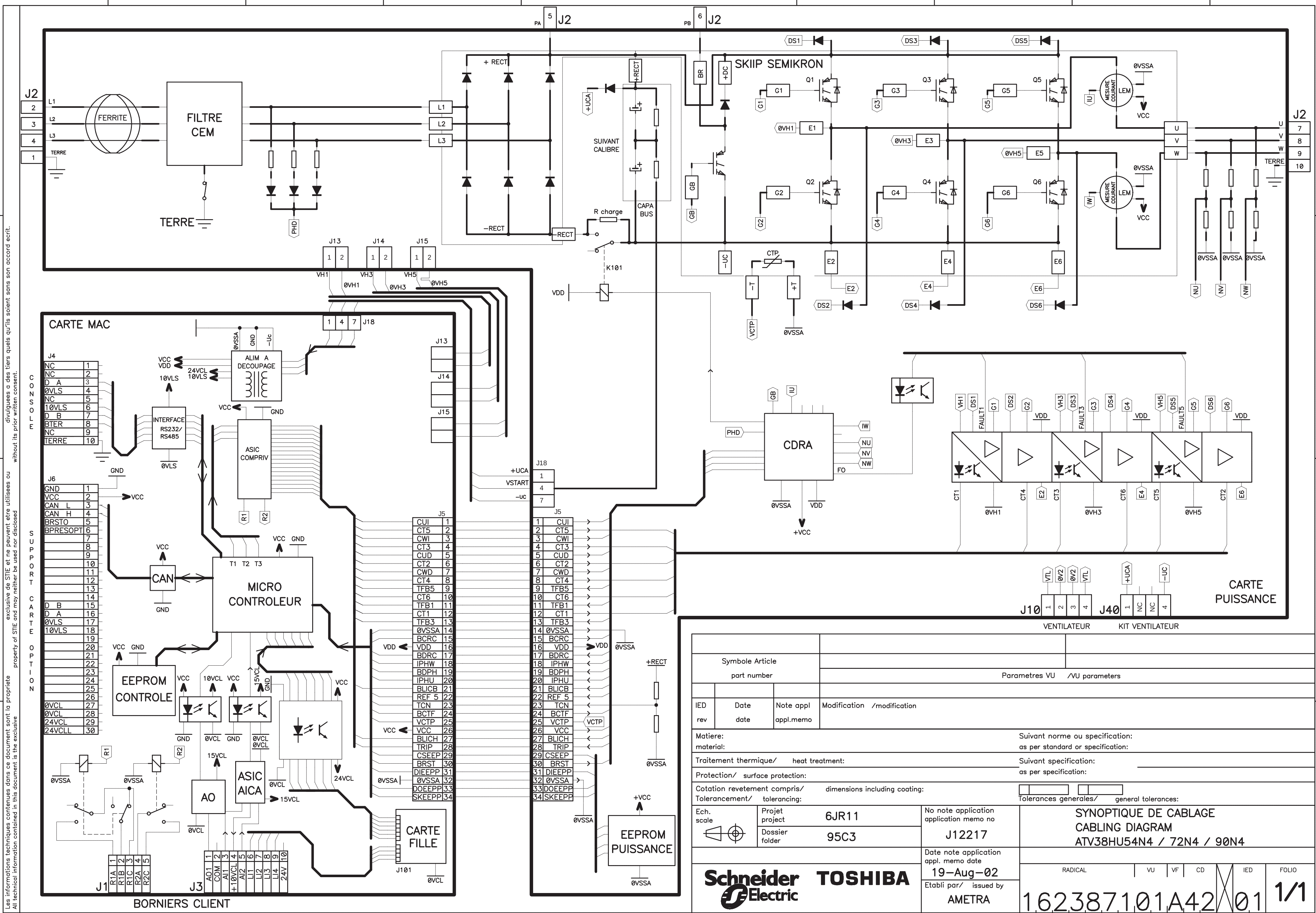
d) Reassembling the plastic parts

- Refit the front cover and place it at 90°
- Refit the IP41 top protective cover (clipped into place), if it has been removed

e) Finalizing reassembly

- Reinstall the option card if it was present
- Reconnect the operator terminal
- Reconnect the plug-in terminals (control)

Interconnection diagram
SIZE 3



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Symbole Article / part number	Parametres VU /VU parameters
IED / rev	Date / date — Note appl / appl.memo — Modification /modification

Matiere: / material: — Suivant norme ou specification: / as per standard or specification:

Traitement thermique/ heat treatment: — Suivant specification: / as per specification:

Protection/ surface protection:

Cotation revetement compris/ dimensions including coating: — Tolerancement/ tolerancing: — Tolerances generales/ general tolerances:

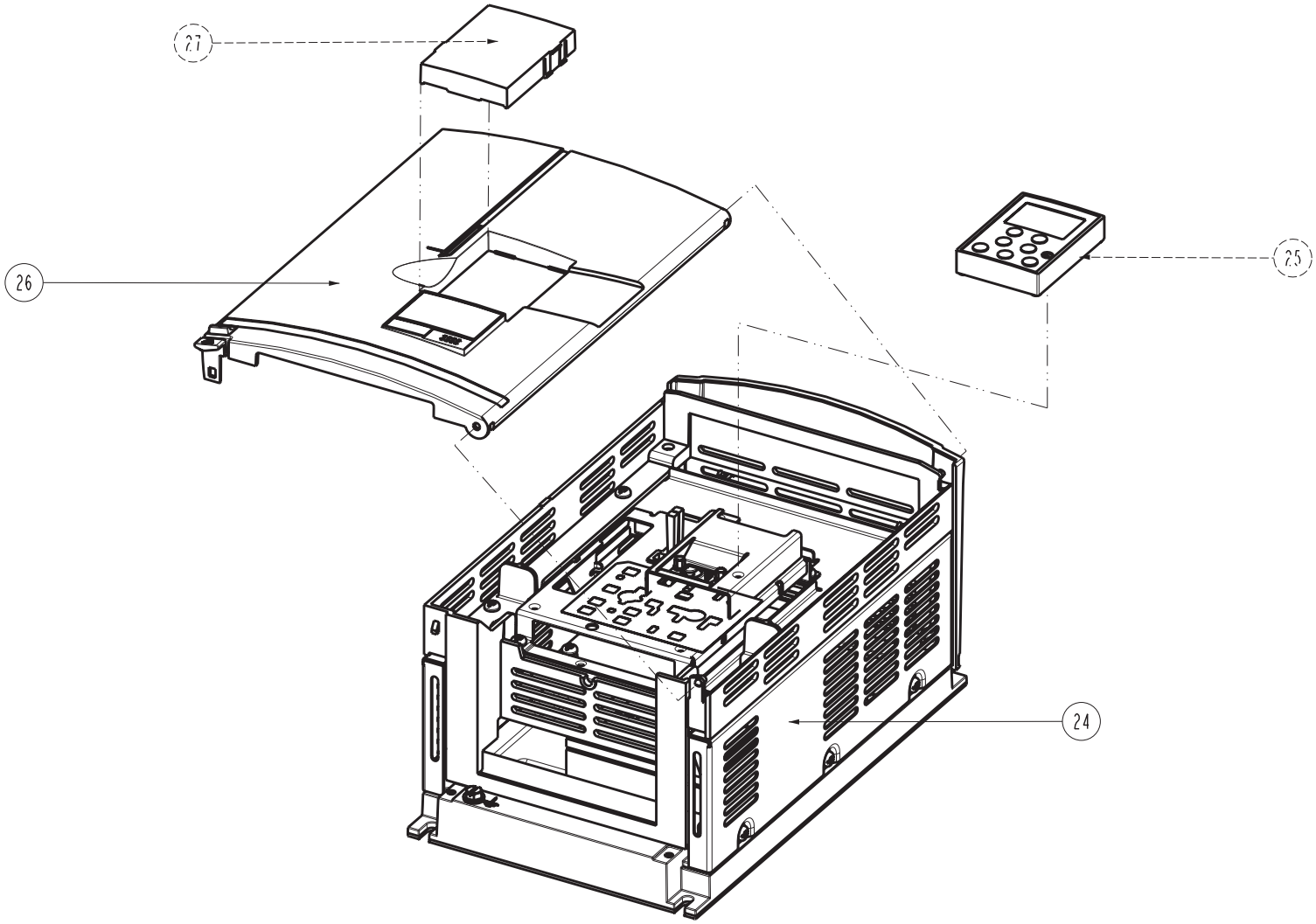
Ech. scale	Projet project: 6JR11	No note application / application memo no: J12217	SYNOPTIQUE DE CABLAGE
	Dossier folder: 95C3	Date note application / appl. memo date: 19-Aug-02	CABLING DIAGRAM
Schneider Electric	TOSHIBA	Etabli par/ issued by: AMETRA	ATV38HU54N4 / 72N4 / 90N4

RADICAL: 162387101A42 — VU — VF — CD — IED: 01 — FOLIO: 1/1

Pro/Engineer Original format A3

efesotomasyon.com

Assembly
SIZE 3



ELEMENTS EN POINTILLES : SUIVANT VU

Symbole Article part number			Parametres VU/VU parameters
02	10/04/98	J10500	MISE A JOUR DU PLAN
01	12/09/97	J10377	Lancement
IED rev	Date date	Note appl appl.memo	Modification/modification

6JB24
95B3
.

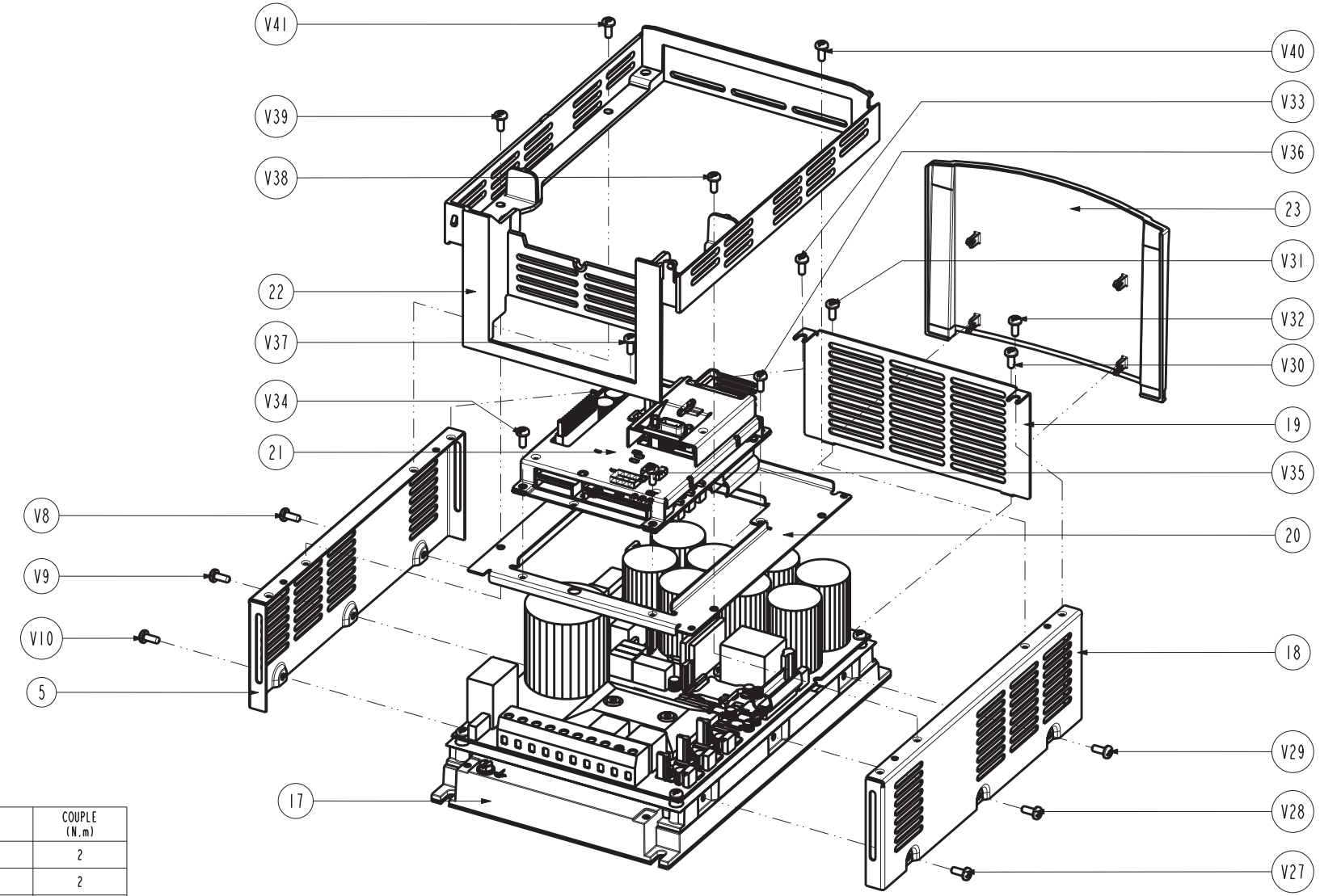
J10377

12/09/97

J. BARREAU

ATV58 TESTE T3

149365700A53 02



VIS	COUPLE (N.m)
V8 à V10	2
V27 à V33	2
V34 à V41	1.5

Symbole Article part number			Parametres VU/VU parameters
03	29/04/99	J30973	Modification des couples de serrage
02	10/04/98	J10500	Modification du process de fabrication (ajout flanc + 3 vis)
01	12/09/97	J10377	Lancement
IED rev	Date date	Note appl appl.memo	Modification/modification

Ech. scale 0.40

Projet project 6JB15

Dossier folder 95B3

Telemecanique
GROUPE SCHNEIDER

No note application application memo no J10377

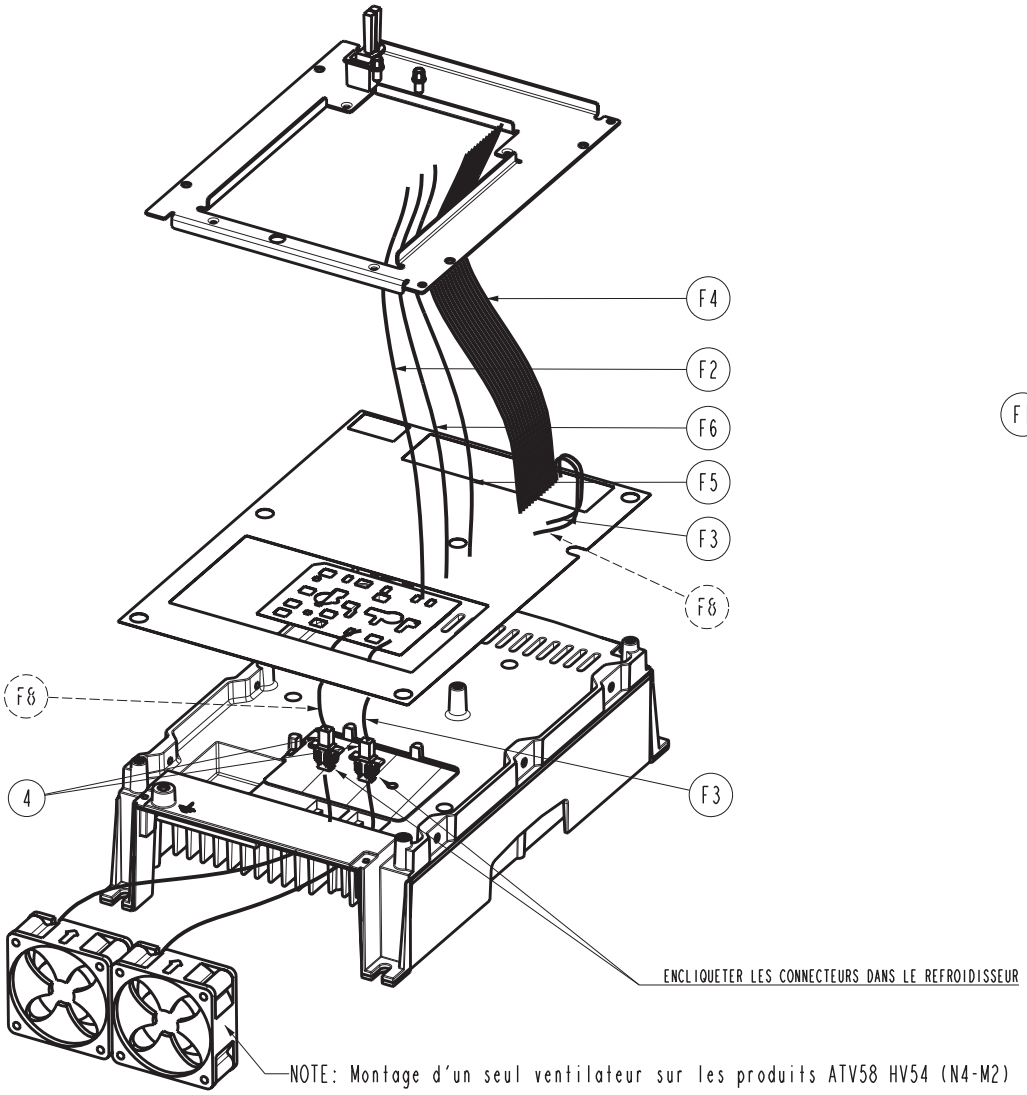
Date note application appl. memo date 12/09/97

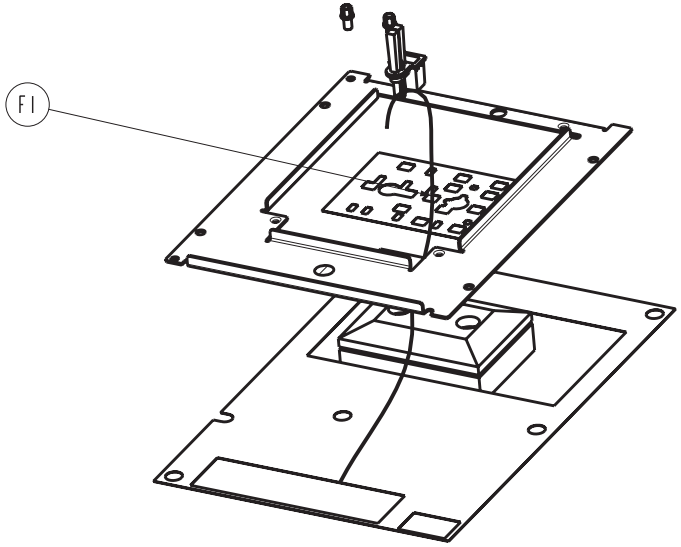
Etabli par/issued by J. BARREAU

S/E FINAL ATV58 T3

RADICAL	VU	VF	CD	IED	FOLIO
1493656	00	A	53	03	1/1

Pro/Engineer Original format A3





Symbole Article part number				
			Parametres VU/VU parameters	
02	10/06/98	J10580	Rajout du connecteur plastique comme bouchon de protection + mise a jour du plan	
01	10/04/98	J10500	Lancement	
IED rev	Date date	Note appl appl.memo	Modification/modification	

6JB24
95C3
.

ELEMENTS EN POINTILLES : SUIVANT VU

PLAN DE CABLAGE ATV58 T3

J10500

10/04/98

G. TURPIN

I59809201A42 02

Document Nomenclature	IED		
1493669 02 A 01	02	Référence Article:	W814936690211
		Désignation:	ATV38 COUVERCLE EQUIPE T3
		Indice:	A02
		Numéro de Note:	J31476

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
W403781100111	A06		PORTE-ETIQUETTE D2	P	1	3
W414935590111	A08		ATV58 COUVERCLE T3	P	1	1
W915983100111	A02		ATV38 PLANCHE ETIQUETTE	P	0,5	B E F
W916252390111	A01		ATV38 LOGO LABEL	P	1	6

Document Nomenclature	IED		
1493659 13 A 01	01	**Référence Article:**	W814936591311
		Désignation:	ATV38 ASS.3/500 R+T
		Indice:	A01
		Numéro de Note:	J31439

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
V12173074		1	VAFD CBLXS M4X10 CU	P	25	V8 V9 V10 V16 V17 V18 V19 V26 V27 V28 V29 V30 V31 V32 V33 V34 V35 V36 V37 V38 V39 V40 V41 V43 V44
V12173077			VAFD CBLXS M4X35 CU	P	2	V24 V25
V12173078			VAFD HE M5X12 ZNC	P	1	V23
V1630400			ROND M4 AC ZNC GRC	P	2	47
W103850860611	A06		VIS EQUIPEE CHC M5-35	P	2	V14 V15
W114935680111	A03	1	ATV58 FLANC T3	P	2	5 18
W114935690111	A03		ATV58 GRILLE IP20 T3	P	1	19
W114935700111	A03		ATV58 SUPPORT CONTROLE T3	P	1	20
W314935140111	A03		ATV58 REFROIDISSEUR T3	P	1	7
W314935870311	A02		ATV58 INTER MOD SKIIP T3	P	1	2
W414935580111	A05		ATV58 CEINTURE T3	P	1	22
W414935810111	A04		ATV58 CACHE IP41 T3	P	1	23
W415981180111	A01		ATV58 ISOLANT PUISS. T3	P	1	8
W803858080143	A15		ATV58N4 PWB 3KW	P	1	10
W814935240211	A05		ATV58 NAPPE J18 T3	P	1	F1
W814935250111	A02		ATV58 NAPPE J5 T1/T2/T3	P	1	F4

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
W814935260211	A03		ATV58 NAPPE CDV T3	P	3	F2 F5 F6
W814935280111	A03		VENTL EQUIP T2/3/4 500/T5	P	1	13
W814936300314	A10		ATV38 BLOC CONTROLE	P	1	21
W814936690211	A02		ATV38 COUVERCLE EQUIPE T3	P	1	26
W814937370111	A05		ATV58 NAPPE VENTIL T3	P	1	F3
W814939140111	A02		ATV58 BORN RELAIS TAMPO	P	1	29
W815983090111	A01		ATV58 BORN CTRL TAMP	P	1	30
W816242750113	A08		CONS EXPLOIT ATV58/ATV58F	P	1	25
W903871370111	A01		ETIQ.TRACABILITE 40X7	P	1	16
W914935770111	A02		ETIQ.VIERGE 60X35/23X9	P	1	32
W914936180111	A02		ETIQ.VIERGE 45X30	P	1	31
W914936920311	A01		ATV38 ETIQ BP 460V T2/T3	P	1	42
W914939610113	A07		ATV58 LABEL PROTECTION	P	1	11
1CNR002272			C.250 BT F 2 DT	P	1	4
1FAN001836			GRILLE VENT 60X60 FI50X50	P	1	15
1TRA001131			MOD SKIIP 3KW 500V	P	1	9
1WAS002952			ROND M4.9X12.7X1.4 NYLON	P	1	17

Document Nomenclature	IED		
1493659 14 A 01	01	**Référence Article:**	W814936591411
		Désignation:	ATV38 ASS.4/500 R+T
		Indice:	A01
		Numéro de Note:	J31439

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
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V12173077			VAFD CBLXS M4X35 CU	P	4	V24 V25 V45 V46
V12173078			VAFD HE M5X12 ZNC	P	1	V23
V1630400			ROND M4 AC ZNC GRC	P	4	47
W103850860611	A06		VIS EQUIPEE CHC M5-35	P	2	V14 V15
W114935680111	A03	1	ATV58 FLANC T3	P	2	5 18
W114935690111	A03		ATV58 GRILLE IP20 T3	P	1	19
W114935700111	A03		ATV58 SUPPORT CONTROLE T3	P	1	20
W314935140111	A03		ATV58 REFROIDISSEUR T3	P	1	7
W314935870311	A02		ATV58 INTER MOD SKIIP T3	P	1	2
W414935580111	A05		ATV58 CEINTURE T3	P	1	22
W414935810111	A04		ATV58 CACHE IP41 T3	P	1	23
W415981180111	A01		ATV58 ISOLANT PUISS. T3	P	1	8
W803858080243	A15		ATV58N4 PWB 4KW	P	1	10
W814935240211	A05		ATV58 NAPPE J18 T3	P	1	F1
W814935250111	A02		ATV58 NAPPE J5 T1/T2/T3	P	1	F4

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
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W814935280111	A03		VENTL EQUIP T2/3/4 500/T5	P	2	12 13
W814936300314	A10		ATV38 BLOC CONTROLE	P	1	21
W814936690211	A02		ATV38 COUVERCLE EQUIPE T3	P	1	26
W814937370111	A05	2	ATV58 NAPPE VENTIL T3	P	1	F3
W814939140111	A02		ATV58 BORN RELAIS TAMPO	P	1	29
W815983090111	A01		ATV58 BORN CTRL TAMP	P	1	30
W816242750113	A08		CONS EXPLOIT ATV58/ATV58F	P	1	25
W903871370111	A01		ETIQ.TRACABILITE 40X7	P	1	16
W914935770111	A02		ETIQ.VIERGE 60X35/23X9	P	1	32
W914936180111	A02		ETIQ.VIERGE 45X30	P	1	31
W914936920311	A01		ATV38 ETIQ BP 460V T2/T3	P	1	42
W914939610113	A07		ATV58 LABEL PROTECTION	P	1	11
1FAN001836			GRILLE VENT 60X60 FI50X50	P	2	14 15
1TRA001132			MOD SKIIP 4KW 500V	P	1	9
1WAS002952			ROND M4.9X12.7X1.4 NYLON	P	1	17

Document Nomenclature	IED		
1493659 15 A 01	01	**Référence Article:**	W814936591511
		Désignation:	ATV38 ASS.5.5/500 R+T
		Indice:	A01
		Numéro de Note:	J31439

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
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V12173077			VAFD CBLXS M4X35 CU	P	4	V24 V25 V45 V46
V12173078			VAFD HE M5X12 ZNC	P	1	V23
V1630400			ROND M4 AC ZNC GRC	P	4	47
W103850860611	A06		VIS EQUIPEE CHC M5-35	P	2	V14 V15
W114935680111	A03	1	ATV58 FLANC T3	P	2	5 18
W114935690111	A03		ATV58 GRILLE IP20 T3	P	1	19
W114935700111	A03		ATV58 SUPPORT CONTROLE T3	P	1	20
W314935140111	A03		ATV58 REFROIDISSEUR T3	P	1	7
W314935870311	A02		ATV58 INTER MOD SKIIP T3	P	1	2
W414935580111	A05		ATV58 CEINTURE T3	P	1	22
W414935810111	A04		ATV58 CACHE IP41 T3	P	1	23
W415981180111	A01		ATV58 ISOLANT PUISS. T3	P	1	8
W803858080343	A16		ATV58N4 PWB 5,5KW	P	1	10
W814935240211	A05		ATV58 NAPPE J18 T3	P	1	F1
W814935250111	A02		ATV58 NAPPE J5 T1/T2/T3	P	1	F4

Référence Composant	Id	Suf	Désignation Composant	UM	Quantité	Repère Topologiques
W814935260211	A03		ATV58 NAPPE CDV T3	P	3	F2 F5 F6
W814935280111	A03		VENTL EQUIP T2/3/4 500/T5	P	2	12 13
W814936300314	A10		ATV38 BLOC CONTROLE	P	1	21
W814936690211	A02		ATV38 COUVERCLE EQUIPE T3	P	1	26
W814937370111	A05	2	ATV58 NAPPE VENTIL T3	P	1	F3
W814939140111	A02		ATV58 BORN RELAIS TAMPO	P	1	29
W815983090111	A01		ATV58 BORN CTRL TAMP	P	1	30
W816242750113	A08		CONS EXPLOIT ATV58/ATV58F	P	1	25
W903871370111	A01		ETIQ.TRACABILITE 40X7	P	1	16
W914935770111	A02		ETIQ.VIERGE 60X35/23X9	P	1	32
W914936180111	A02		ETIQ.VIERGE 45X30	P	1	31
W914936920311	A01		ATV38 ETIQ BP 460V T2/T3	P	1	42
W914939610113	A07		ATV58 LABEL PROTECTION	P	1	11
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1TRA001133			MOD SKIIP 5,5KW 500V	P	1	9
1WAS002952			ROND M4.9X12.7X1.4 NYLON	P	1	17