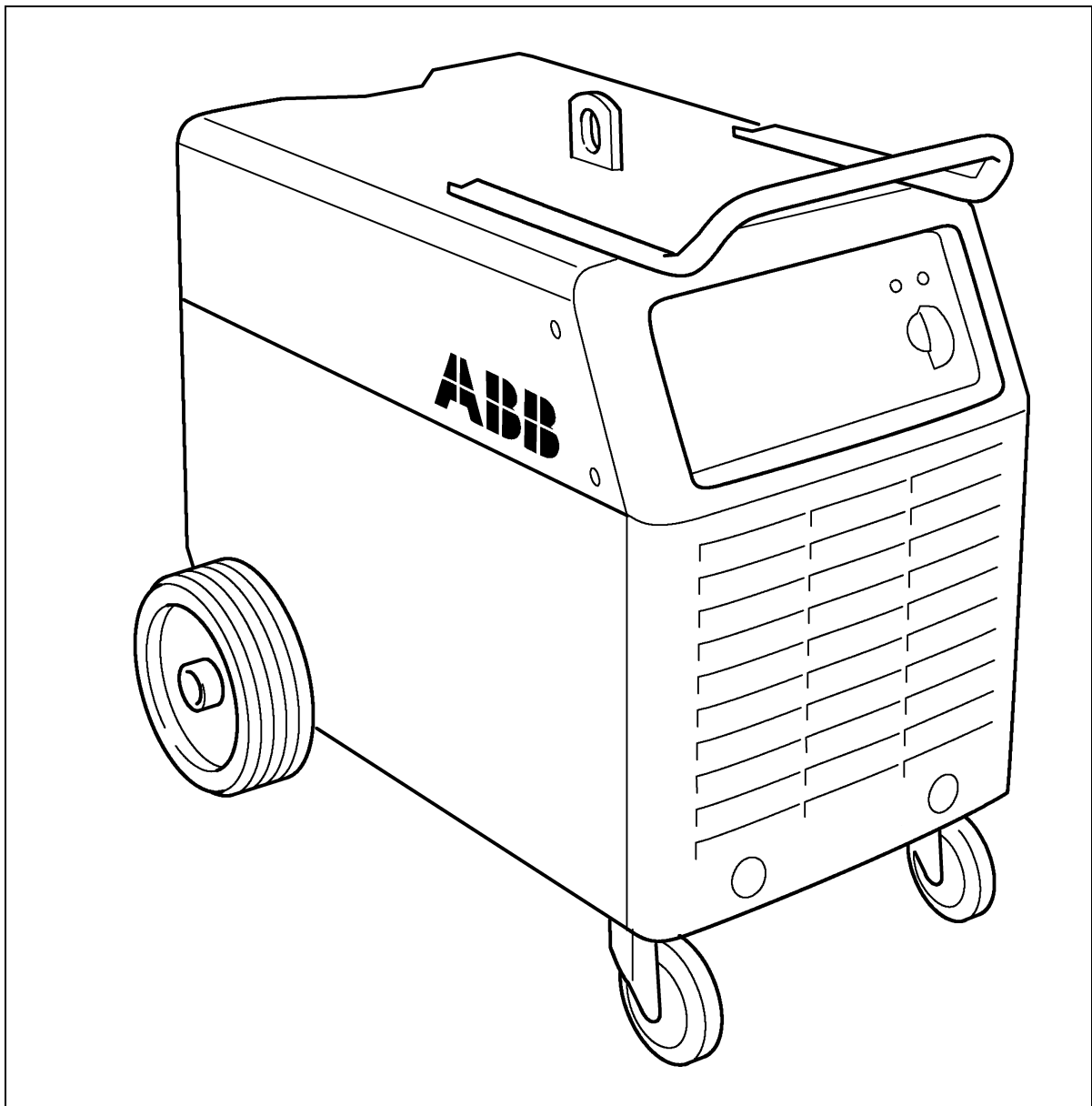


Product Manual / Spare Parts List

503 345-502
2000-10-26

Power Source
LRC 430



**ABB Flexible Automation AB
Welding Systems**

ABB

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ABB Flexible Automation AB

Welding Systems

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1 Safety

Users of welding equipment from ABB Flexible Automation AB have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of welding equipment.



The following recommendations should be observed in addition to the standard regulations that apply to the work place. All work must be carried out by trained personnel well familiar with the operation of the welding equipment.

Incorrect operation of the equipment may lead to hazardous situations which can result in injury to the operator and damage to the equipment.

- 1 Anyone who uses the welding equipment must be familiar with:
 - its operation
 - location of emergency stops
 - its function
 - relevant safety precautions
 - welding
- 2 The operator must ensure that:
 - no unauthorized person is stationed within the working area of the equipment when it is started up.
 - that no-one is unprotected when the arc is struck
- 3 The work place must:
 - be suitable for the purpose
 - be free from draughts
- 4 Personal safety equipment
 - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves.
 - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns.
- 5 General precautions
 - Make sure the return cable is connected securely.
 - Work on high voltage equipment **shall only be carried out by a qualified electrician.**
 - Appropriate fire extinguishing equipment must be clearly marked and close at hand
 - Lubrication and maintenance must **not** be carried out on the equipment during operation.

LRC 430 is designed and tested in accordance with the international standard EN 50 974-1 (IEC 974-1).

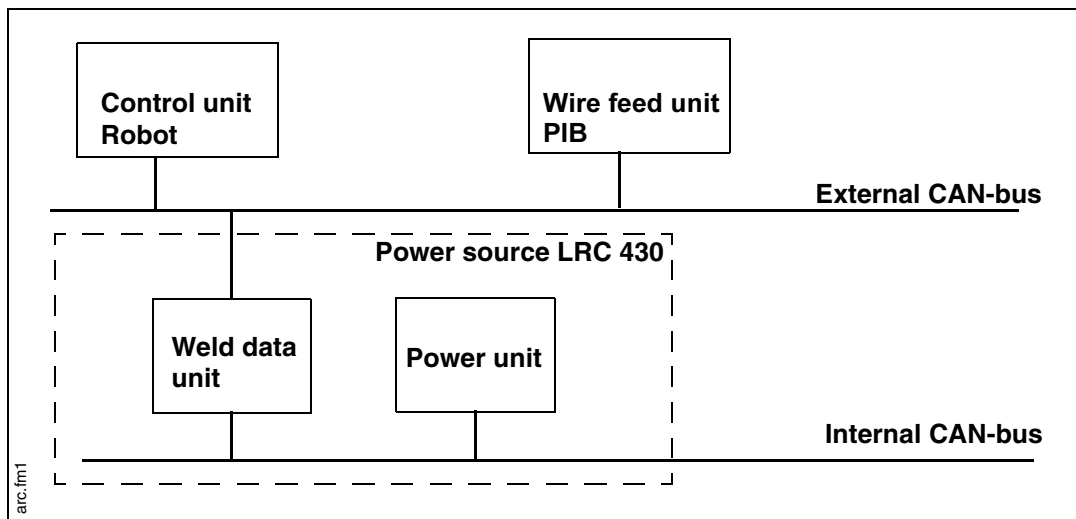
It is the responsibility of the servicing body carrying out service or repair to ensure that the product does not deviate from the above named standard.

| | | |
|---|----------------|---|
|  | WARNING |  |
| <p>ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. FOLLOW YOUR EMPLOYER'S SAFETY DIRECTIONS, WHICH SHOULD BE BASED ON THE MANUFACTURER'S WARNING TEXTS.</p> | | |
| <p>ELECTRIC SHOCKS - Can kill</p> <ul style="list-style-type: none">- Install and earth the welding equipment according to applicable standards.- Do not touch live parts or electrodes with your bare hands or with wet protective equipment.- Insulate yourself from the earth and work piece.- Ensure your working stance is safe. | | |
| <p>FUMES AND GASES - Can be hazardous to your health</p> <ul style="list-style-type: none">- Keep your head out of the welding fumes.- Ventilate and extract welding fumes and gases from your working area and the working areas of others. | | |
| <p>ARC RAYS - Can injure eyes and burn skin</p> <ul style="list-style-type: none">- Protect your eyes and body. Use a suitable welding helmet and filter lens and wear protective clothing.- Protect bystanders using suitable screens or drapes. | | |
| <p>FIRE HAZARD</p> <ul style="list-style-type: none">- Sparks ("spatter") can cause fires. Therefore make sure that inflammable objects are not in the immediate vicinity. | | |
| <p>MALFUNCTION - Contact a skilled technician.</p> | | |
| <p>READ AND UNDERSTAND THE OPERATING INSTRUCTIONS BEFORE INSTALLATION AND USE</p> | | |
| <p>PROTECT YOURSELF AND OTHERS</p> | | |

2 Introduction

The LRC 430 is a power supply intended for MIG/MAG welding. It is designed for both short-arc, spray--rc and pulsed MIG/MAG welding. The power supply is fan-cooled.

The power supply consists of a power unit and a weld data unit. All operator and machine communication is carried out from the robot's programming unit.



2.1 Communication

All exchanges of information between the welding equipment and the robotics system take place via a CAN bus. This communication is handled by the weld data unit in the LRC 430.

There is a second CAN bus internal to the LRC 430. This internal bus handles all communications between the weld data unit, the power supply and the feeder mechanism. As the wire feeder is sited outside the power supply, the internal bus is not only located within the power supply, but is a functional part of the welding equipment.

2.2 Equipment

The power supply is fitted with a termination resistor.

3 Technical data



| | <u>LRC 430</u> | <u>LRC 430</u> |
|-----------------------------|---|---|
| Mains voltage | 400 V $\pm 10\%$, 3~ 50/60 Hz | 3~50Hz:230/400/500V $\pm 10\%$ 3~60Hz:208/230/460/475/ 575V $\pm 10\%$ |
| Permitted loading at | | |
| 60 % duty cycle | 430 A / 35.5 V | 430 A / 35.5 V |
| 100 % duty cycle | 400 A / 34 V | 400 A / 34 V |
| No-load power | 520 W | 520 W |
| Power factor | 0,92 | 0,92 |
| Efficiency | 0,82 | 0,82 |
| No-load voltage | 65-80 V | 65-80 V |
| Primary current | | |
| I_{1max} | 28.8 A | See table 1 |
| I_{1eff} | 26.1 A | See table 1 |
| Dimensions l x w x h | 880x 650 x 845 mm | 880 x 650 x 845 mm |
| Weight | 96 kg | 141 kg |
| Insulation class | H | H |
| Degree of protection | IP 23 | IP 23 |
| Application class |  |  |

Table 1:

| | 3~50Hz | | | 3~60Hz | | | | |
|------------|---------------|-------|-------|---------------|-------|-------|-------|-------|
| U_1 | 230V | 400V | 500V | 208V | 230V | 460V | 475V | 575V |
| I_{1max} | 52.8A | 28.8A | 23.6A | 57.2A | 51.6A | 25.3A | 24.5A | 20.7A |
| I_{1eff} | 46.1A | 26.1A | 20.8A | 50.8A | 45.2A | 22.3A | 21.8A | 18.1A |


Duty cycle

The duty cycle refers to the time in per cent of a ten--minute period that you can weld at a certain load without overloading the welding power source.

Degree of protection

The **IP** code indicates the enclosure class, i. e. the degree of protection against penetration by solid objects or water. Equipment marked **IP 23** is designed for indoor and outdoor use.

Application class

The symbol  indicates that the power source is designed for use in areas with increased electrical hazard.

4 Installation

The installation shall be executed by a professional.



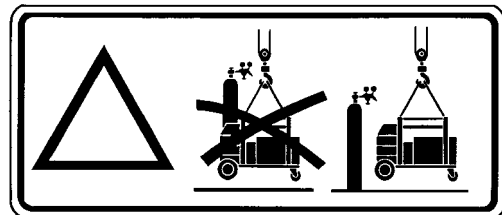
This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the user's responsibility to take adequate precautions.

4.1 Placing

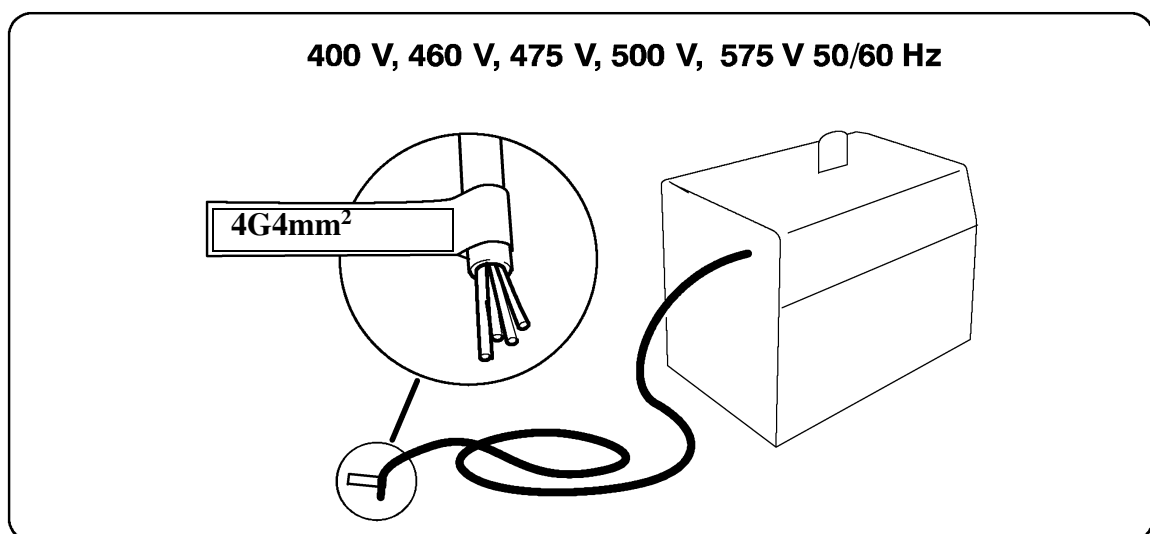
Place the welding power source so as not to prevent the cooling air from circulating.

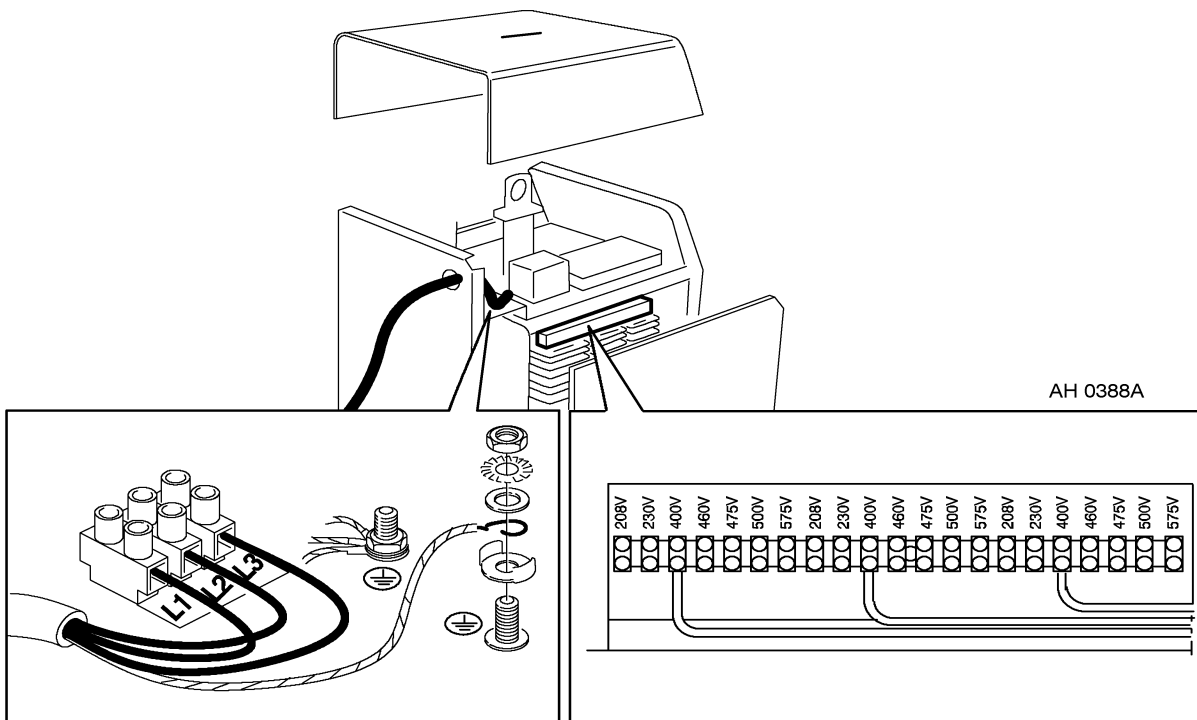
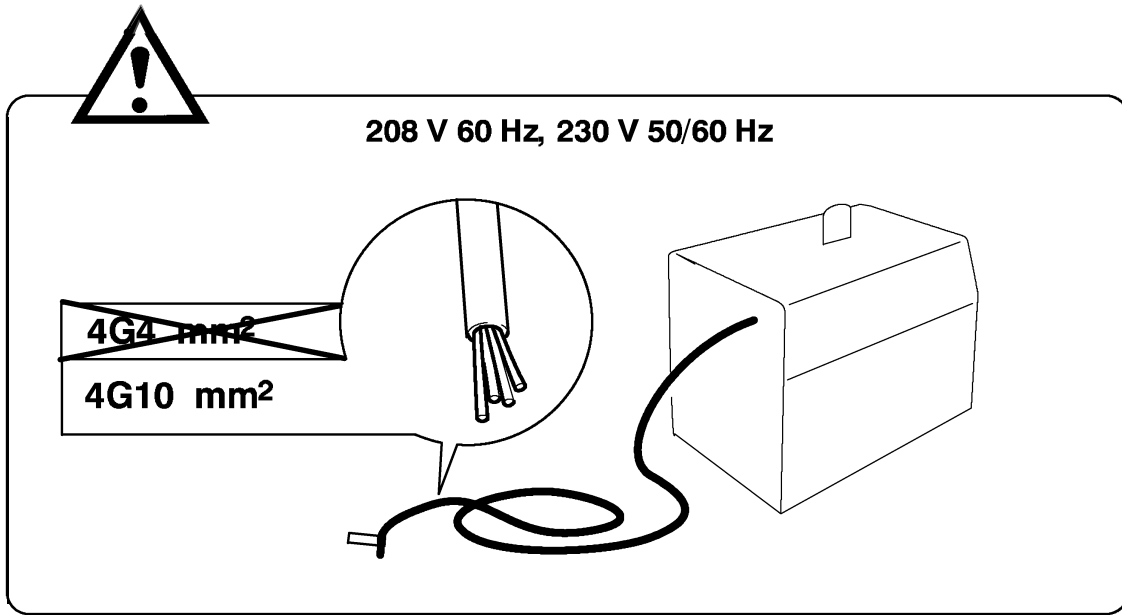
4.2 Lifting instructions

The powersource should only be lifted by means of its lifting eye. The handle is only intended for pulling it along the ground..



4.3 Electrical installation





4.4 Main voltage connection

Check that the power supply is connected to the right voltage and that the fuse is of the correct rating.

The device should be earthed in accordance with current regulations in force

Recommended cable area and fuse rating

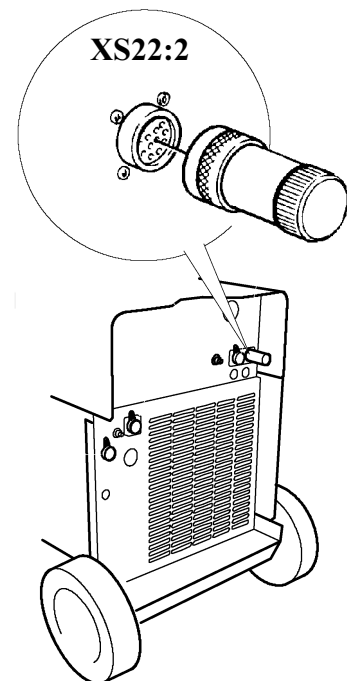
| LRC 430 3~ 50/60 Hz | | | | | | | |
|-----------------------------------|------|------|------|------|------|------|------|
| Mains voltage | 208V | 230V | 400V | 460V | 475V | 500V | 575V |
| Current 60% | 52A | 47A | 27A | 24A | 23A | 22A | 18A |
| Cable areaa mm² | 4x10 | 4x10 | 4x4 | 4x4 | 4x4 | 4x4 | 4x4 |
| Fuse slow-blow *) | 50A | 50A | 20A | 20A | 20A | 20A | 20A |

*) Valid for slow-blow melting fuses

4.5 Termination unit with resistor

To avoid interference, the two ends of the CAN bus should be fitted with termination resistors. One end of the internal CAN bus is inside the welding data unit, which has a built-in resistor.

The other end is located at the rear side of the power source itself, and, unless the relevant socket is used, it should be fitted with a termination resistor placed according to the following diagram.

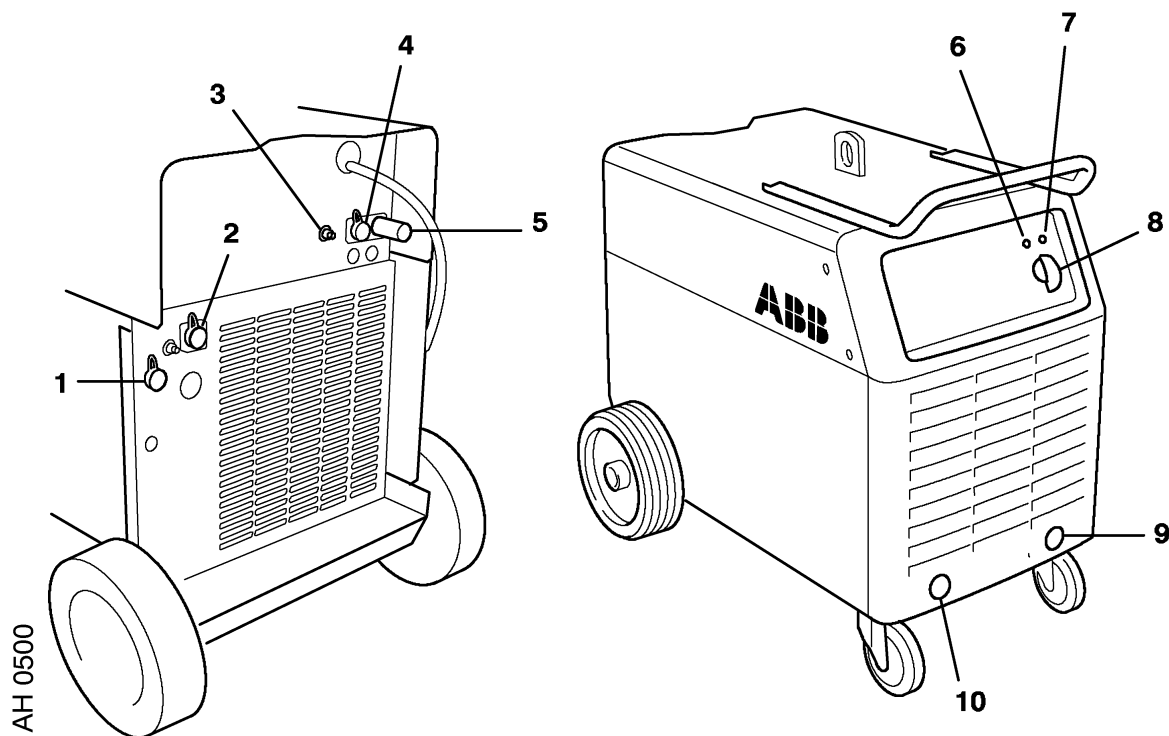


5 Operation

General safety regulations for the handling of the equipment appear from chapter 1. Read through before you start using the equipment.

5.1 Controls and connections

- | | |
|---|--|
| 1 Measuring cable connector (XS20) (voltage feed-back, welding wire/workpiece) | 6 Orange indicator lamp, overheating |
| 2 External CAN-connection (XP4) | 7 White indicator lamp, mains voltage ON |
| 3 Fuse, slow-blow 10 A (42 V connection) | 8 Switch for mains voltage ON/OFF |
| 4 Internal CAN-connection, 42 V (XS22:1) | 9 Connection for welding cable (+) |
| 5 Internal CAN-connection, 42 V (XS22:2) | 10 Connection for welding cable (-) |



5.2 Thermostat

The welding power source is equipped with a thermostat which starts the cooling fan when the temperature has reached a certain level. On overload or on fan breakdown the overheating cut-out comes into action. The overheating cut-out only comes into action on overload and on fan breakdown.

5.3 Overheating protection

The power supply is equipped with a thermal switch which triggers if the temperature becomes too high. When this happens, the current is interrupted and an orange indicator lamp shines on the front of the power source. When the temperature falls, the thermal switch automatically resets.

5.4 Arc voltage feed-back measurement

The arc voltage can be measured in two ways:

Alternative 1

Measuring between the welding wire (+) and the power source welding outlet (OKC -). Welding wire positive polarity, welding outlet negative.

| Connections to terminal board X202 | | |
|------------------------------------|---|---|
| Necessary external connections | | Explanation of existing connection on power supply |
| | 6 | Welding negative, detector |
| | 5 | Welding negative from OKC (minus) socket. |
| | 7 | Welding positive from welding wire in feeder unit. |
| | 3 | Forced welding stop. Open circuit between 3 and 4 means stop. |
| | 4 | |

Alternative 2A

Measurement between welding wire (+) and workpiece (-). Welding wire positive polarity, workpiece negative.

| Connections to terminal board X202 | | |
|------------------------------------|---|---|
| Necessary external connections | | Explanation of existing connection on power supply |
| | 6 | Welding negative, sensing workpiece. |
| | 5 | |
| | 7 | Welding positive from welding wire in feeder unit. |
| | 3 | Forced welding stop. Open circuit between 3 and 4 means stop. |
| | 4 | |

Alternative 2B

Measurement between welding wire (-) and workpiece (+). Welding wire negative polarity, workpiece positive.

| Connections to terminal board X202 | | |
|------------------------------------|---|---|
| Necessary external connections | | Explanation of existing connection on power supply |
| | 7 | Welding positive, sensing workpiece |
| | 5 | |
| | 6 | Welding negative from welding wire in feeder unit |
| | 3 | Forced welding stop. Open circuit between 3 and 4 means stop. |
| | 4 | |

Alternative 2 means that a measurement lead has to be connected to the workpiece. This method produces the most correct arc voltage measurements.

5.5 Forced welding stop

Under normal operation this input should be closed.

NB! In an emergency it is possible to stop the current powersource at once by opening this input. See table above.

6 Error Messages

Error messages are described in User's Guide.

The robot system presents a six digit error code, for example, 117013. The first three digits (117) denotes in which part of the robot system there is a fault, 117 denotes the fault is in the welding equipment. The fourth digit (0) denotes in which part of the welding equipment the fault is located. The two remaining digits (13) denotes the type of fault in the welding equipment.

Code list for units in the welding equipment (fourth digit):

0=Weld data unit AP8 (SLRC)

2=Control unit AP2 (LRC)

3=Wire feed unit PIB (MLRC)

7 Maintenance

Note!

All warranty undertakings given by the supplier cease to apply if the customer attempts to rectify any faults on the machine during the warranty period. Only those persons who have appropriate electrical knowledge (authorised personnel) may remove the protection plates to connect or carry out service, maintenance or repair work on welding equipment.

Cleaning

Check regularly that the power source is free from dirt.

How often, and to what extent, cleaning should be carried out depends on the welding process, arc time, disposition and the surrounding environment. It will normally be sufficient to clean the power source by using compressed air (reduced pressure) once a year.

If the power source is very dirty, brushing and vacuuming are recommended.

- Disconnect the welding power source from the mains power supply.
- Remove the adapter from the socket. Lock the socket to prevent unauthorised connection.
At fixed installations, the safety switch should be set to the off position. Lock the switch.
- Remove the power source's protection plates for best access.

After cleaning, all protection plates must be mounted before you connect the power source to the mains supply.

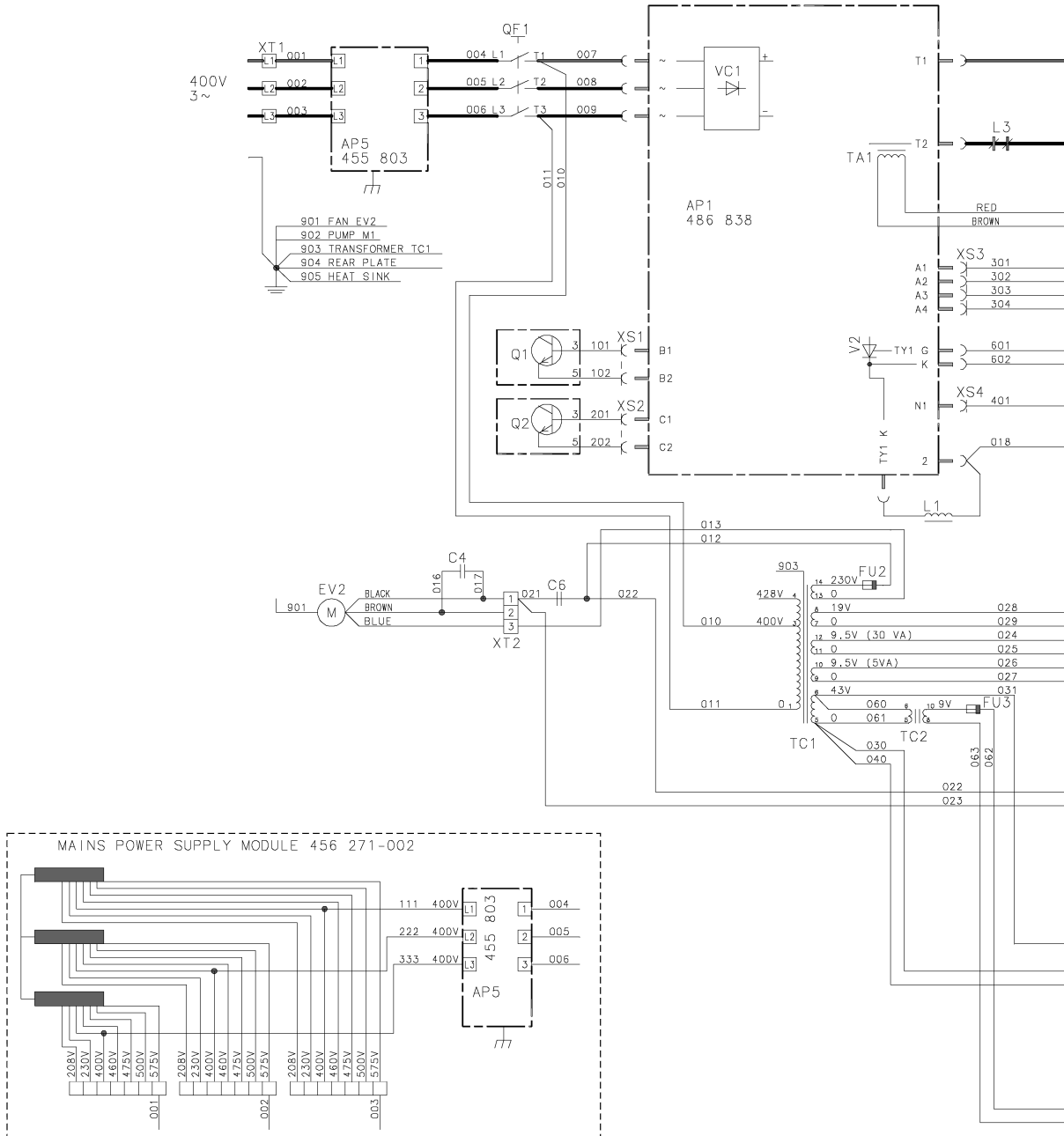
LRC 430 is designed and tested in accordance with the international standard EN 50 974-1 (IEC 974-1).

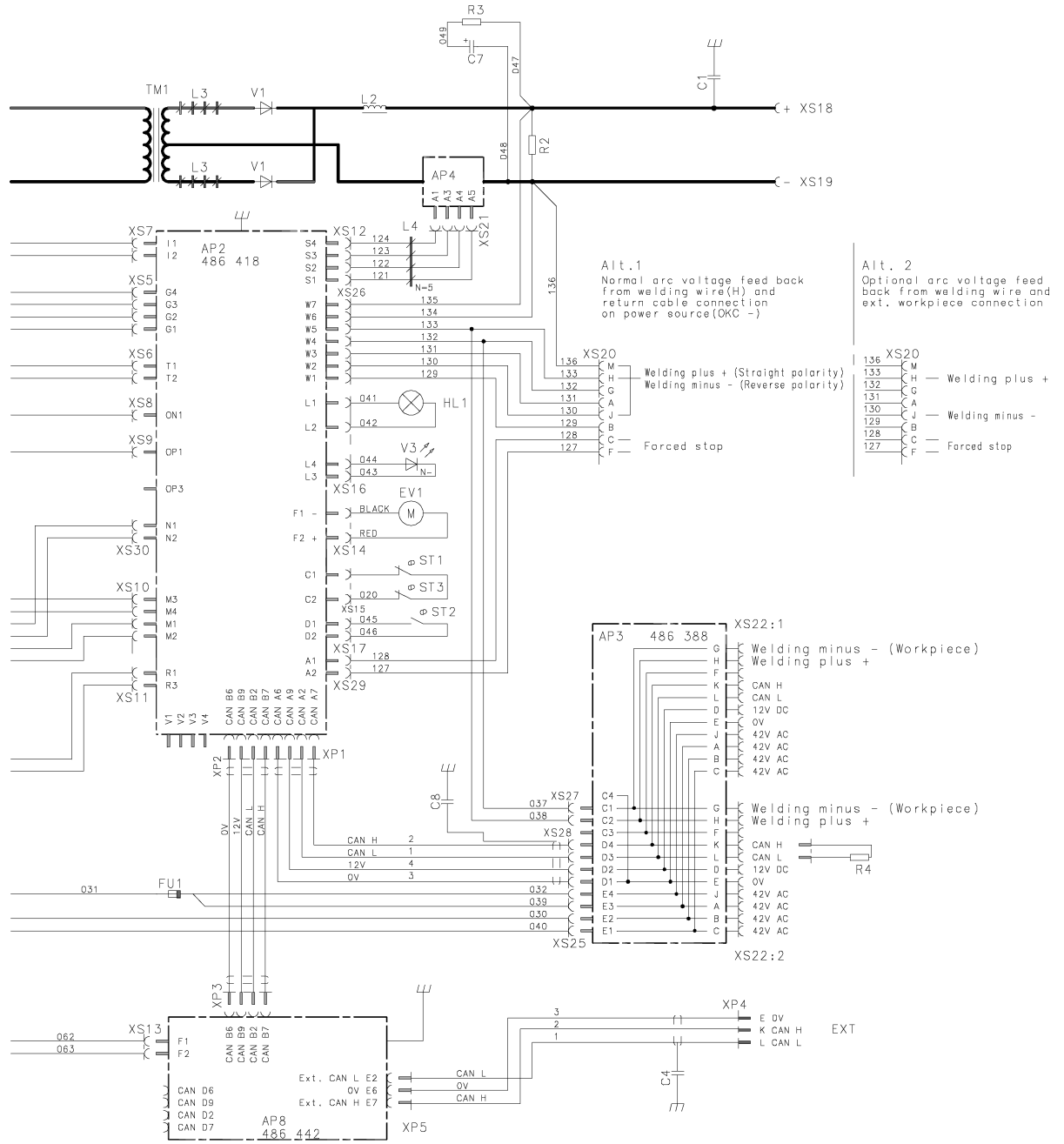
It is the responsibility of the servicing body carrying out service or repair to ensure that the product does not deviate from the above named standard.

8 Component designation

| | |
|------------------------------|------------------------|
| AP1 | Power board |
| AP2 | Control board |
| AP3 | Circuit board EMC |
| AP4 | Shunt (Hall sensor) |
| AP5 | Circuit board EMC |
| AP8 | Weld data board |
| C1, C7, C8 | Capacitor, suppression |
| C4-C6 | Capacitor, fan |
| EV1, EV2 | Fan |
| FU1-FU3 | Fuse |
| HL1 | Indication lamp |
| L1-L4 | Inductor |
| Q1 - Q2 | IGBT-module |
| QF1 | Switch |
| R2-R4 | Resistor |
| | |
| ST1-ST3 | Thermal switch |
| TA1 | Current transformer |
| TC1-TC2 | Control transformer |
| TM1 | Main transformer |
| V1 | Diode module |
| V2 | Thyristor module |
| V3 | Indication lamp LED |
| VC1 | Rectifier bridge |
| XP1-XP3, XP5 | Connector |
| XP4 | Pin socket |
| XS1 - XS17, XS21-XS30 | Connector |
| XS18, XS19 | Welding outlet |
| XS20 | Sleeve socket |

Scheme





13 Reservdelsförteckning/*Spare Parts List* LRC 430

Gäller för strömkällor med serienummer från och med:

015-XXX-XXXX

Valid for power sources with serialnumber as from:

015-XXX-XXXX

Reservdelar beställs genom ABB Flexible Automation AB. Vid beställning var vänlig uppge typ och tillverkningsnummer samt benämningar och beställningsnummer enligt reservdelsförteckningen.

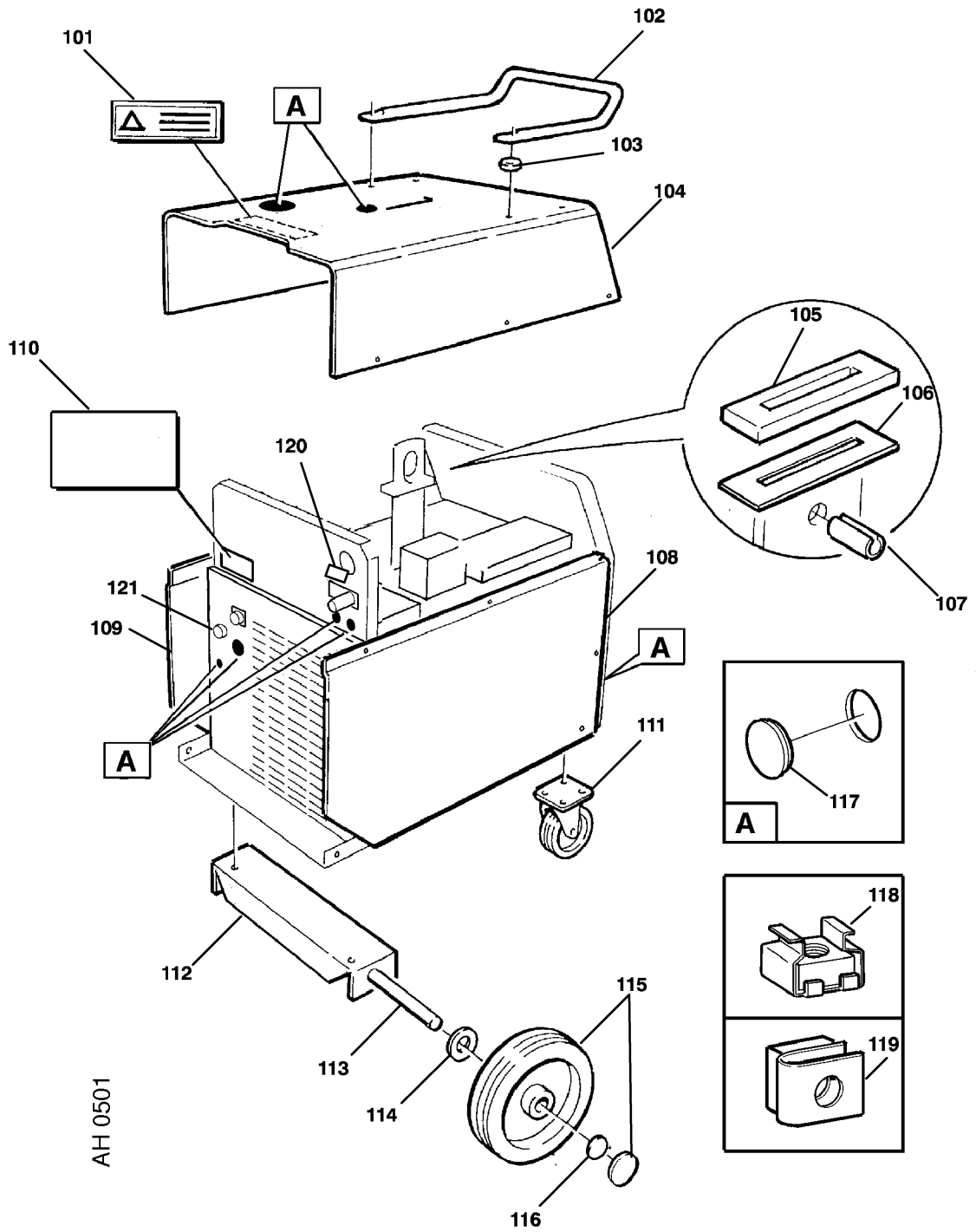
Rätt till ändring av specifikationer utan avisering förbehålles.

Spare parts are to be ordered from ABB Flexible Automation AB. Kindly indicate type of unit, serial number, denominations and ordering number according to the spare parts list.

Rights to reserved to alter specifications without notice.

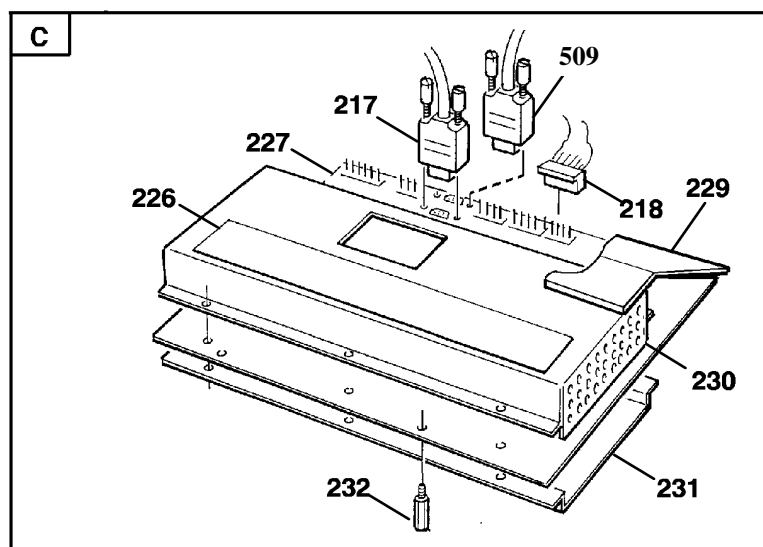
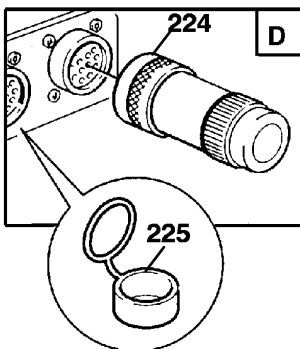
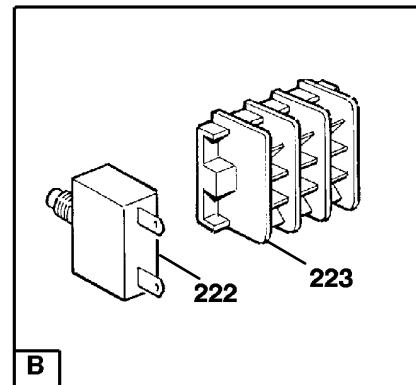
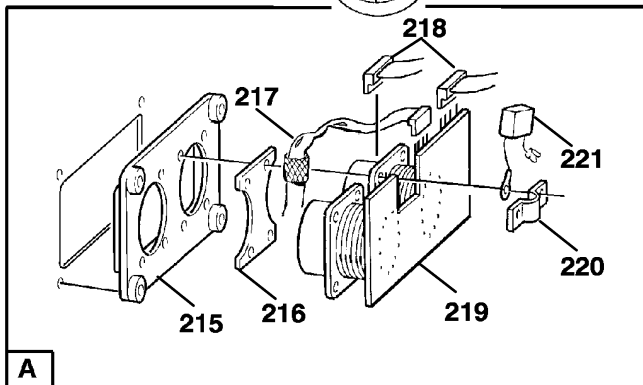
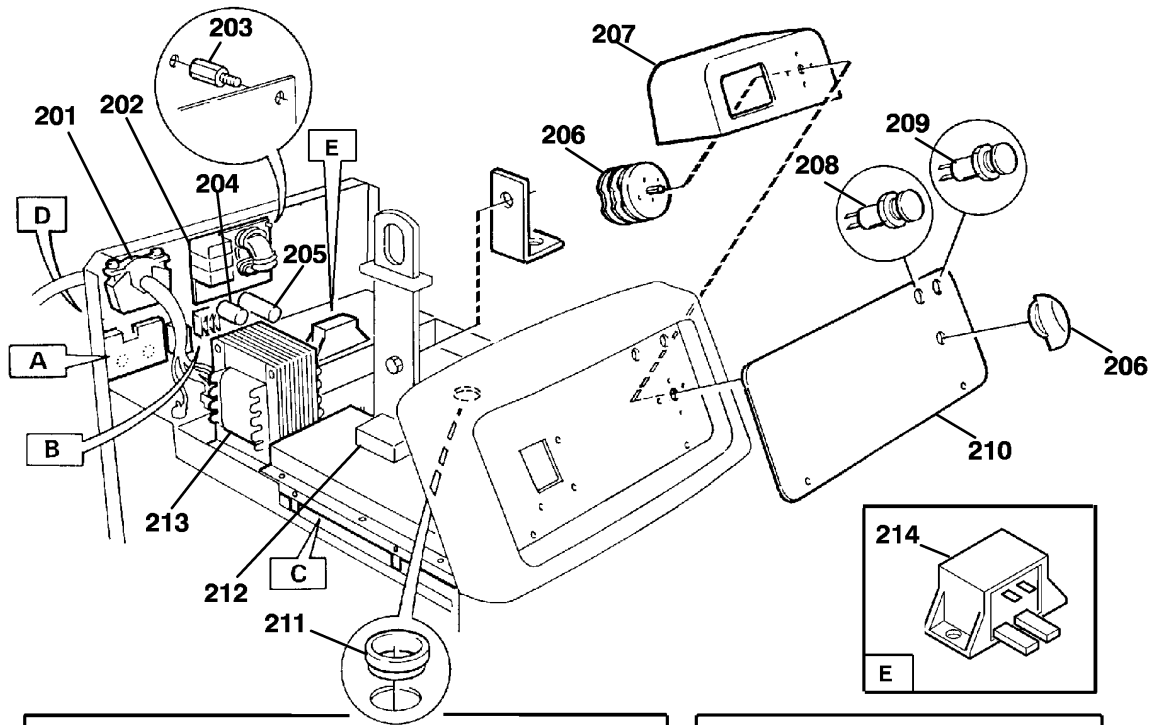
| Positionsnummer <i>Position number</i> | Antal <i>Quantity</i> | Beställningsnummer <i>Ordering number</i> | Benämning | Denomination | Anmärkingar <i>Remarks</i> |
|---|--------------------------|--|--------------------|----------------------|-------------------------------|
| | | 0502 990 880 | Strömkälla LRC430 | Power Source LRC 430 | 400V,50-60Hz |
| | | 0502 990 881 | Strömkälla LRC430 | Power Source LRC 430 | Multivoltage,208-575V,50-60Hz |
| 101 | 1 | | Varningsskylt | Sticker | |
| 102 | 1 | 0502 990 001 | Handtag | Handle | |
| 103 | 4 | 0502 990 002 | Packning | Seal | |
| 104 | 1 | | Lock | Cover | |
| 105 | 1 | | Packning | Seal | |
| 106 | 1 | | Stödplåt | Support plate | |
| 107 | 1 | | Fjädrande Rörpinne | Roll pin | Ø 8x28 |
| 108 | 1 | | Sidoplåt, vänster | Side panel, left | Med tryck / with text |
| 109 | 1 | | Sidoplåt, höger | Side panel, right | Med tryck / with text |
| 110 | 1 | | Uttagsmärkning | Terminal marking | |
| 111 | 2 | 0502 990 003 | Länkhjul | Castor wheel | Ø 125mm h=150mm |
| 112 | 1 | | Bygel | Clamp | |
| 113 | 1 | | Axel | Shaft | |
| 114 | 2 | | Bricka | Washer | Ø 36/21X3 |
| 115 | 2 | 0502 990 004 | Hjul | Wheel | Ø 250mm |
| 116 | 2 | 0502 990 005 | Låsbricka | Locking washer | |
| 117 | 1 | | Blindplugg | Cover, Ø 16 | Ø 16 |
| | 1 | | Blindplugg | Cover, Ø 19 | Ø 19 |
| | 1 | | Blindplugg | Cover, Ø 30 | Ø 30 |
| | 1 | | Blindplugg | Cover, Ø 44 | Ø 44 |
| | 1 | | Blindplugg | Cover, Ø 64 | Ø 64 |
| | 1 | | Blindplugg | Cover, Ø 31 | Ø 31 |
| | 1 | | Blindplugg | Cover, Ø 22 | Ø 22 |
| 118 | | | Mutter | Nut, M 6/1,8--2 | M 6/1, 8-2 |
| 119 | | | Snabblåsmutter | Fast lock nut | |
| 120 | | | Uttagsmärkning | Terminal marking | |
| 121 | 1 | 0503 232 012 | Hylsuttag | Sleeve socket | 12-pol, XS20* |

* = Komponentens beteckning i kretsschemat/Component designation in the circuit diagram



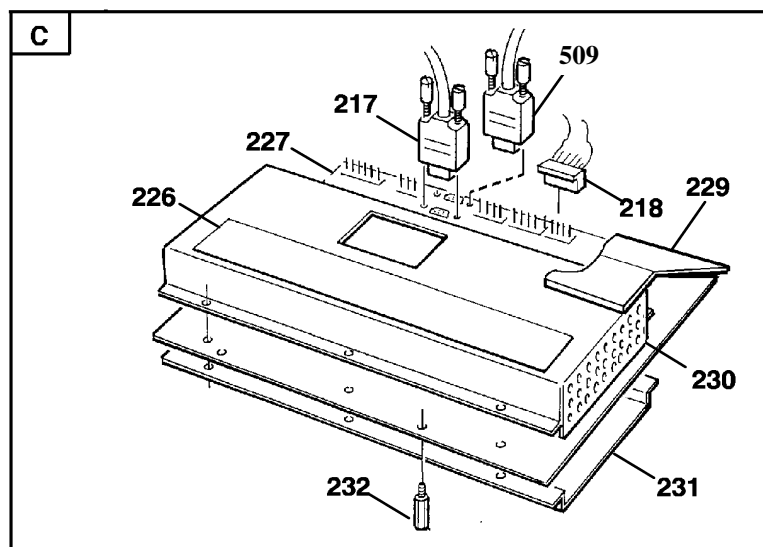
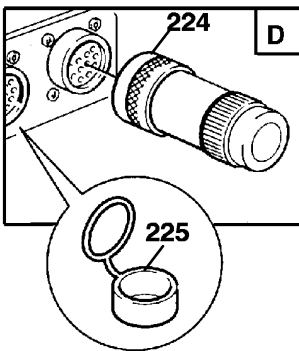
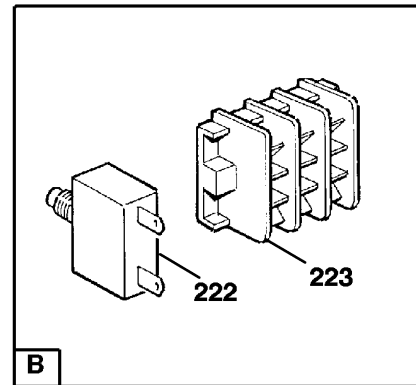
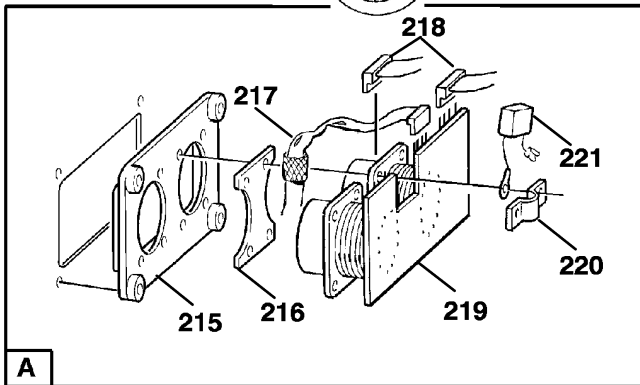
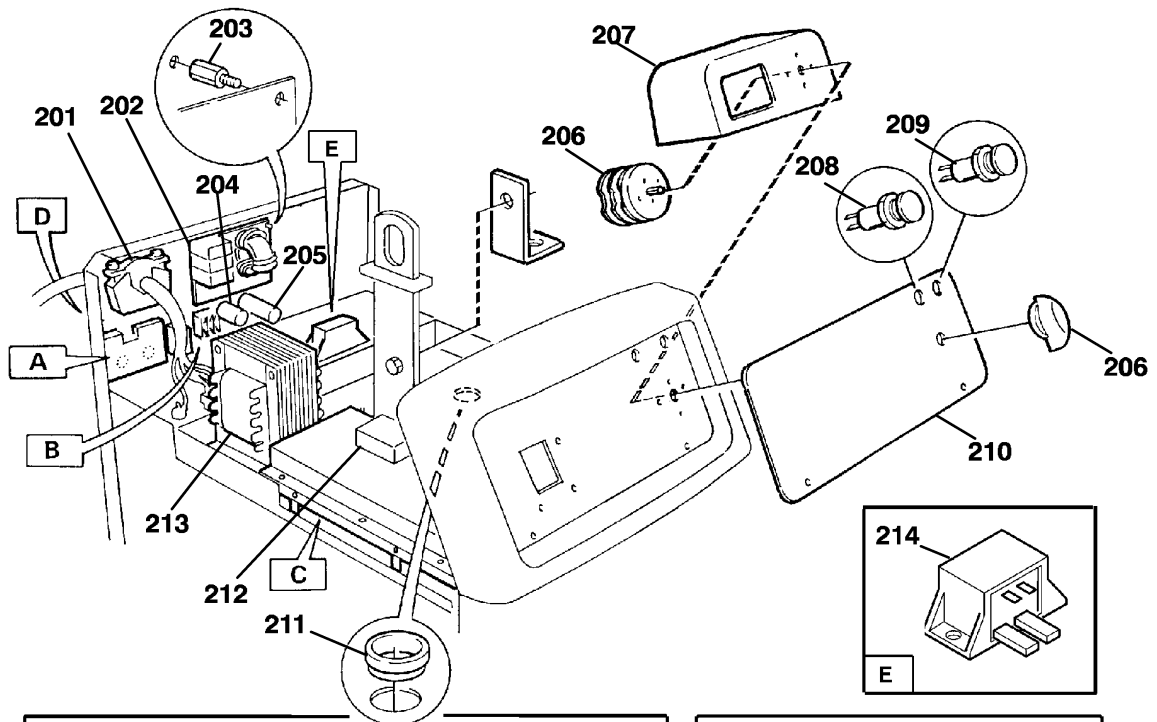
| Positionsnummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkingar Remarks |
|------------------------------------|-------------------|---------------------------------------|---|---|--|
| 201 | 1 | 0502 990 006 | Kabelavlastning | Cable inlet | |
| 202 | 1 | 0503 232 005 | Kretskort | Circuit board | EMC, AP5* |
| | 1 | 0502 990 007 | Plint | Terminal | 3-pol/3-pole, XT1* |
| 203 | 2 | | Distans | Spacer | |
| 204 | 1 | 0502 990 008 | Kondensator | Capacitor | 3 μ F 400V, C4* |
| 205 | 1 | 0502 990 009 | Kondensator | Capacitor | 6 μ F 400V, C6* |
| 206 | 1 | 0502 990 010 | Elkopplare | Switch | Med vred/with knob, QF1* |
| 207 | 1 | | Skyddsplåt | Protection cover | |
| 208 | 1 | 0502 990 011 | Lampa | Light--emitting diode | Gul/yellow, V3* |
| 209 | 1 | 0502 990 012 | Indikeringslampa | Indicating lamp | Vit/white, HL1* |
| 210 | 1 | | Panel | Panel | Med tryck/with text |
| 211 | 4 | | Genomföring | Grommet | |
| 212 | 1 | | Skyddsplåt | Protection cover | |
| 213 | 1 | 0502 990 013 | Manövertransformator | Control transformer | TC1* |
| | 1 | | Säkring | Fuse | 2A trög/slow- blow, FU2* |
| 214 | 1 | 0502 990 014 | Transformator | Transformer | TC2* |
| | 1 | | Säkring | Fuse | 500mA, inklud- erat i pos 214/ included in item 214/FU3*. |
| 215 | 1 | | Isolation | Insulation board | |
| 216 | 1 | 0503 232 011 | Skärmsplåt | Screen plate | |
| 217 | 1 | 0502 990 015 | CAN-kabel, inkl. kontakt- don XP1* och XS28* | CAN-cable, complete with connectors XP1* and XS28 | |
| 218 | 1 | | Kabelsats | Cable set | |
| 219 | 1 | 0502 990 016 | Kretskort | Circuit board | EMC, AP3* |
| | 1 | | Kontakt-don | Connector | 4-pol/4-pole, XS27* |
| | 1 | | Kontakt-don | Connector | 7-pol/7-pole, XS25* |
| | 1 | | Kontakt-don | Connector | 4-pol/4-pole XS28 |
| | 2 | 0503 232 012 | Sleeve socket Intern CAN | Sleeve socket Internal CAN | 12-pol/12-pole, XS22:1*, XS22:2*. |
| 220 | 1 | | Dragavlastning | Clamp | |
| 221 | 1 | | Kondensator | Capacitor | 0.1 μ F 250V, C8* |
| 222 | 1 | 0502 990 017 | Automatsäkring | Circuit breaker | 10A, FU1* |
| | 1 | | Skyt | Sticker | |

* = Komponentens beteckning i kretsschemat/Component designation in the circuit diagram



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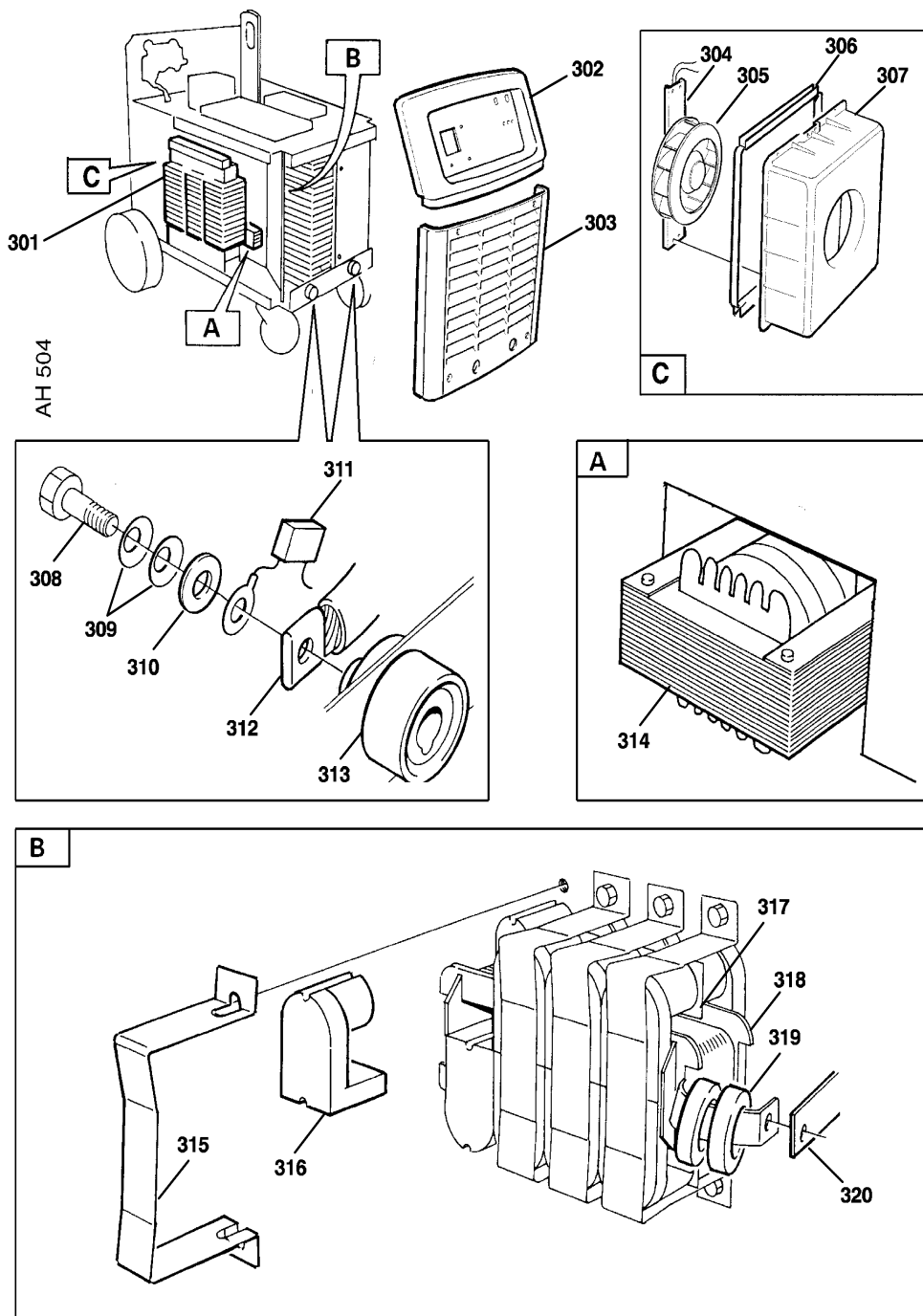
| Positionsnummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkningar Remarks |
|--|---------------------------|---|------------------|---------------------|---|
| 223 | 1 | 0502 990 018 | Plint | Terminal | 3-pol/3-pole, XT2* |
| 224 | 1 | 0503 232 013 | Stiftpropp | Pin plug | R4*,120Ohm, 0,25W 1%,Met- all film |
| 225 | 3 | 0503 232 009 | Skyddslock | Protection cap | |
| 226 | 1 | | Skylt | Sign | |
| 227 | 1 | 0503 232 002 | Kretskort | Circuit board | Manöverenhet, AP2* |
| | 4 | | Kontaktidon | Connector | 2-pol/2-pole, XS8*, XS15*, XS17*, XS29* |
| | 2 | | Kontaktidon | Connector | 4-pol/4-pole, XS5*, XS12*. |
| | 4 | | Kontaktidon | Connector | 2-pol/2-pole, XS6*, XS7*, XS14*, XS30*. |
| | 2 | | Kontaktidon | Connector | 3-pol/3-pole, XS9*, XS11*. |
| | 1 | | Kontaktidon | Connector | 4-pol/4-pole, XS16* |
| | 1 | | Kontaktidon | Connector | 4-pol/4-pole, XS10* |
| | 1 | | Kontaktidon | Connector | 7-pol/7-pole, XS26* |
| 229 | | | Skydd | Protection | |
| 230 | 1 | | Box | Box | |
| 231 | 1 | | Lock | Cover | |
| 232 | 4 | | Distans | Spacer | |



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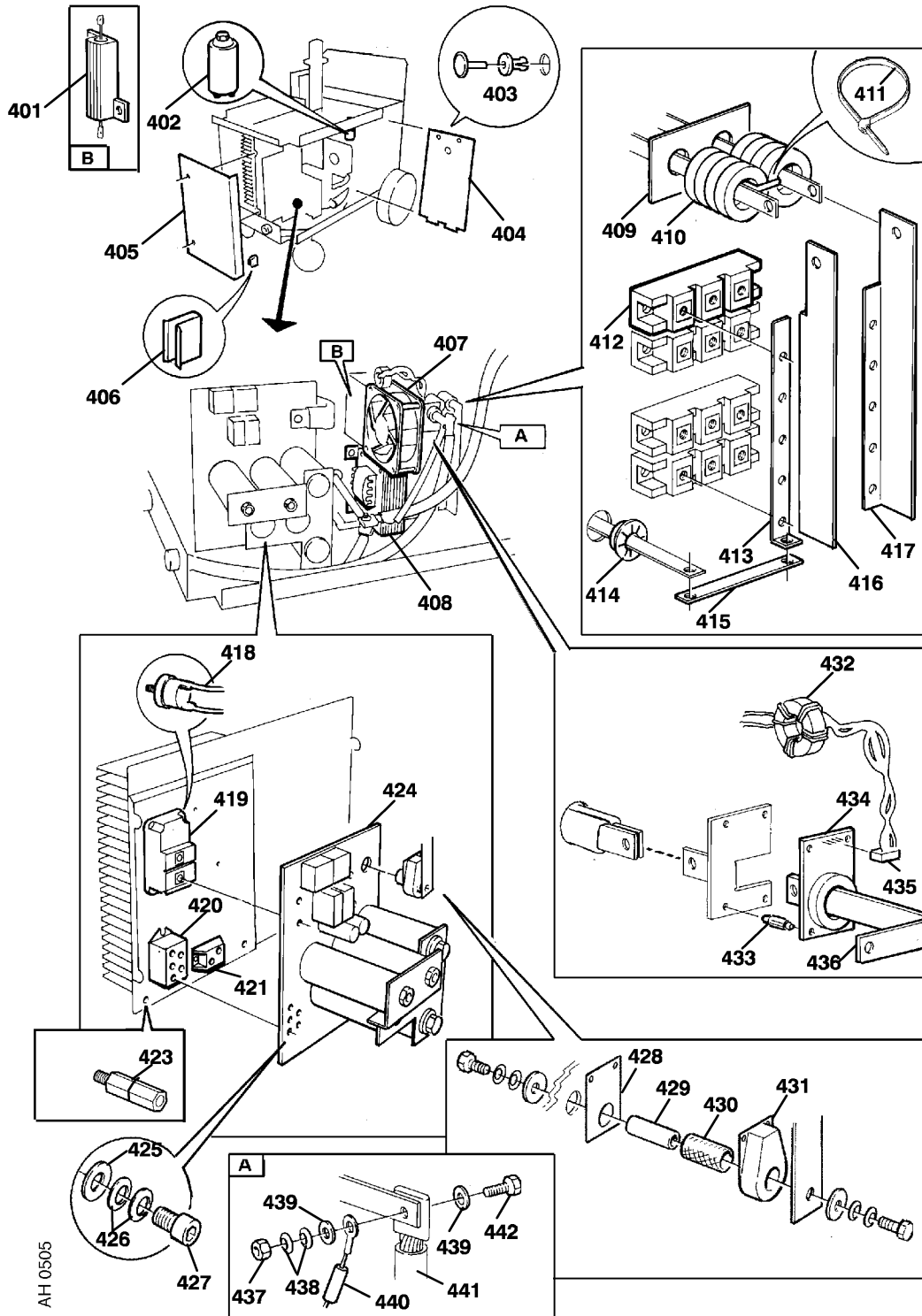
| Positionsnummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkningar Remarks |
|------------------------------------|-------------------|---------------------------------------|--------------------------------|--------------------------|---|
| 301 | 1 | 0502 990 019 | Flerspäningstransforma- tor | Multivoltage transformer | 208-575V,3~50/ 60Hz |
| 302 | 1 | | Gavel övre | Front panel | |
| 303 | 1 | | Gavel nedre | Front grill | |
| 304 | 1 | | Fläktfäste | Fan attachment | |
| 305 | 1 | 0502 990 020 | Fläkt | Fan | 230VAC EV2* |
| 306 | 1 | | Distansplåt | Distance sheet | |
| 307 | 1 | | Fläktkåpa | Fan mantle | |
| 308 | 3 | | Skruv | Screw | M10x25 |
| 309 | 6 | | Fjäderbricka | Spring washer | Ø 20/10.2x1.1 |
| 310 | 3 | | Bricka | Washer | Ø 22/10.5x2 |
| 311 | 1 | | Kondensator | Capacitor | 0.1µF 250 V, C1* |
| 312 | 2 | | Kabel | Cable | |
| 313 | 2 | 0160 362 881 | Maskinkontakt | Current terminal | OKC 50, XS18*, XS19* |
| 314 | 1 | | Induktor | Inductor | Termovakt ST2 och ST3 är ink- luderade/Ther- mal cutouts ST2 and ST3 are included, L2* |
| | | | Termovakt | Thermal cutout | Sluter vid 60°C,öppnar vid 30°C/Closing at 60°C,opening at 30°C,ST2* |
| | | | Termovakt | Thermal cutout | Öppnar vid 160°C,sluter vid 130°C/Opening at 160°C,clos- ing at 130°C,ST3* |
| 315 | 4 | | Bygel | Clamp | |
| 316 | 16 | | Ferritkärna | Ferrite core | |
| 317 | | | Tejp | Tape | För luftgap/for air gap |
| 318 | 1 | | Transformatorspole | Transformer coil | TM1* |
| 319 | 2 | | Ferritring | Ferrite ring | L3* |
| 320 | 1 | | Skena | Bus bar | |

* = Komponentens beteckning i kretsschemat/Component designation in the circuit diagram

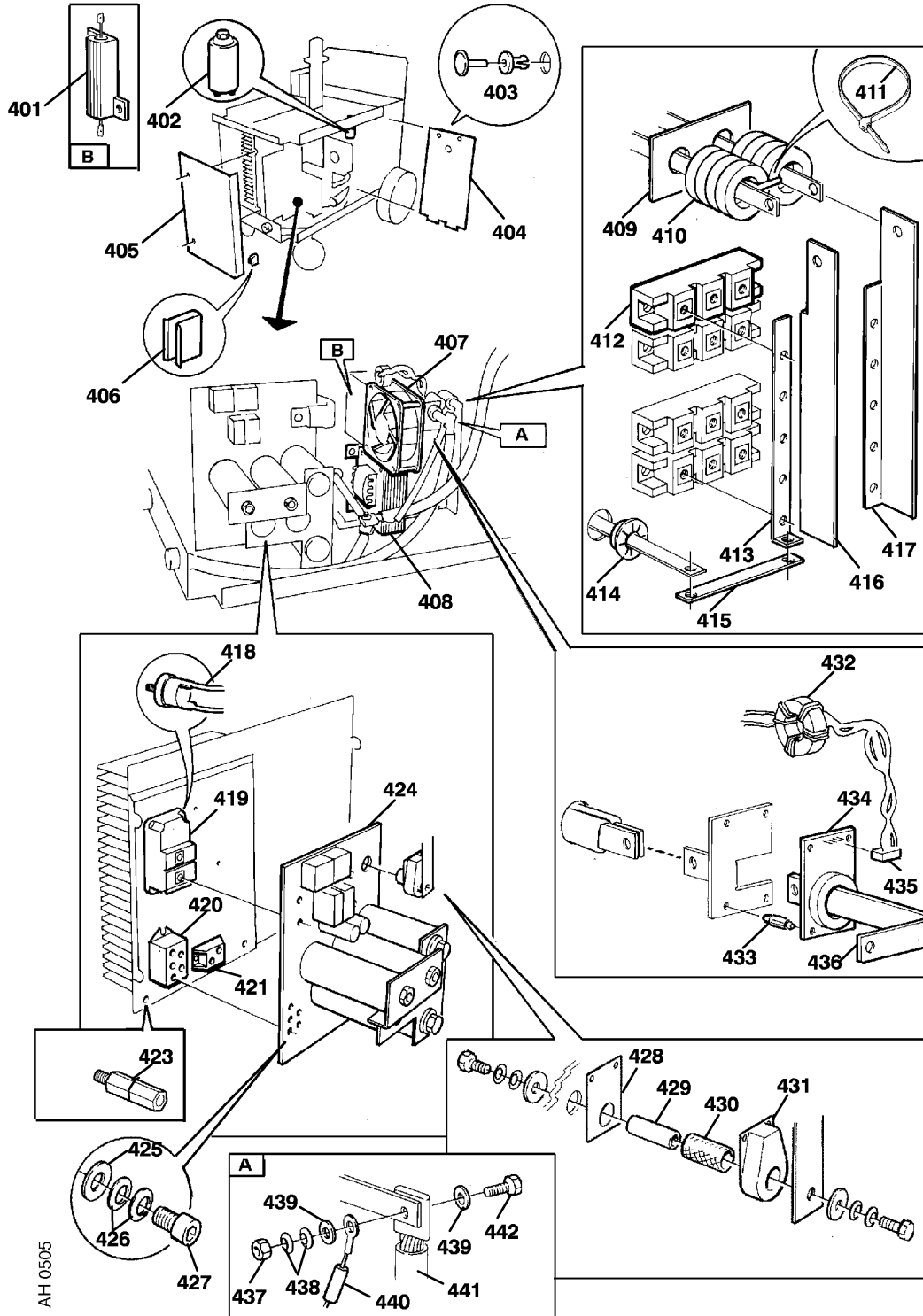


| Positionsnummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkningar Remarks |
|------------------------------------|-------------------|---------------------------------------|-----------------|------------------|---|
| 401 | 1 | 0502 990 021 | Motstånd | Resistor | 20Ω, 50W, R3* |
| 402 | 1 | 0502 990 022 | Kondensator | Capacitor | 220 μF 250V, C7* |
| | 1 | | Mutter | Nut | Plastic |
| 403 | 2 | | Plastnit | Plastic rivet | |
| 404 | 1 | | Isolation | Insulation | |
| 405 | 1 | | Isolation | Insulation | |
| 406 | 2 | | Clips | Clips | |
| 407 | 1 | 0503 232 007 | Fläkt | Fan | 24 VDC, EV1* |
| 408 | 1 | | Induktor | Inductor | L1* |
| 409 | 1 | | Isulation | Insulation | |
| 410 | 8 | | Ferritring | Ferrite ring | |
| 411 | 3 | | Buntband, blå | Cable tie, blue | Värmebeständig /heat resistant |
| 412 | 5 | | Diodmodul | Diode module | V1* |
| - | | | Kontakt pasta | Thermal compound | För fastsättning av/for fitting of ST1, Q1, Q2, V1, V2 och VC1 |
| 413 | 1 | | Skena | Bus bar | |
| 414 | 5 | | Genomföring | Grommet | |
| 415 | 1 | | Skena | Bus bar | |
| 416 | 1 | | Skena | Bus bar | |
| 417 | 1 | | Skena | Bus bar | |
| 418 | 1 | | Termovakt | Thermal cutout | Öppnar vid 80°C, sluter vid 60°C/Opening at 80°C, closing at 60°C, ST1* |
| 419 | 2 | | IGBT--module | IGBT--module | Q1*, Q2* |
| - | 2 | | Kontakt pasta | Thermal compound | För fastsättning av/for fitting of ST1, Q1, Q2, V1, V2 och VC1 |
| 420 | 1 | | Likriktarbrygga | Rectifier bridge | VC1* |
| - | 1 | | Kontakt pasta | Thermal compound | För fastsättning av/for fitting of ST1, Q1, Q2, V1, V2 och VC1 |

* = Komponentens beteckning i kretsschemat/Component designation in the circuit diagram



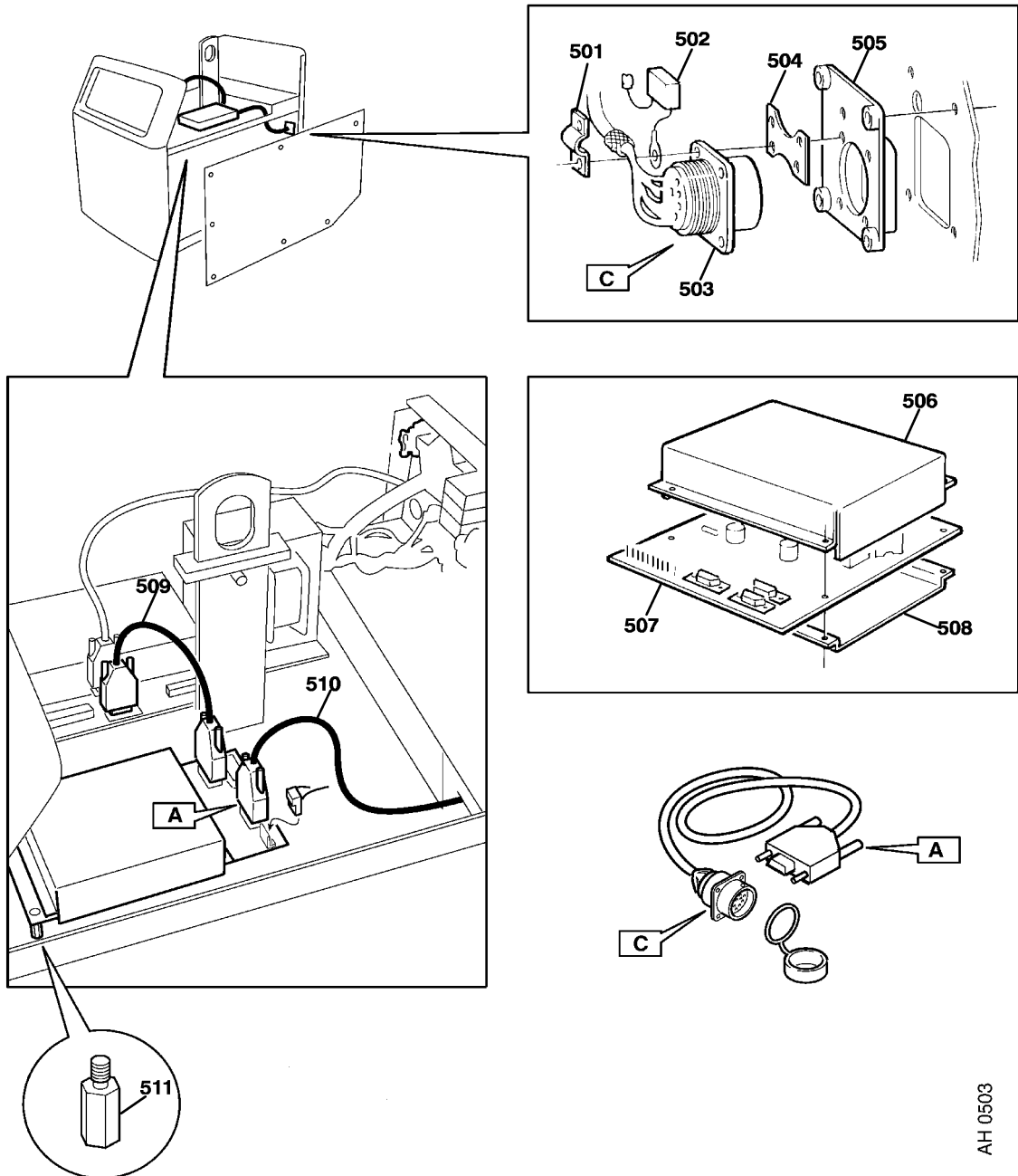
| Positionsnummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkingar Remarks |
|------------------------------------|-------------------|---------------------------------------|--------------------|---------------------|---|
| 421 | 1 | | Tyristormodule | Thyristor module | V2* |
| - | 1 | | Kontakt pasta | Thermal compound | För fastsättning av/for fitting of ST1, Q1, Q2, V1, V2 och VC1 |
| 423 | 4 | | Distans | Spacer | |
| 424 | 1 | 0503 232 001 | Kretskort | Circuit board | Pos 431 är inkluderad i kretskortet/item 431 is included in the circuit board, AP1* |
| - | 2 | | Säkring | Fuse | |
| - | 3 | | Kontakt don | Connector | 2-pol, XS1*, XS2*, XS4* |
| - | 1 | | Kontakt don | Connector | 4-pol, XS3* |
| 425 | | | Bricka | Washer | Ø 10/5.3x1 |
| 426 | | | Fjäder bricka | Spring washer | Ø 10/5.2x0.5 |
| 427 | | | Skruv | Screw | M5x12 |
| 428 | 1 | | Isolationsbricka | Insulating washer | |
| 429 | 1 | | Distans | Spacer | |
| 430 | 1 | | Slang | Hose | D11,6/10, 0,025m |
| 431 | 1 | | Strömtransformator | Current transformer | TA1* |
| 432 | 1 | | Ferritring | Ferrite ring | L4* 4varv/4turns |
| 433 | 4 | | Distans | Spacer | |
| 434 | 1 | | Shunt | Current sensor | AP4* |
| 435 | 1 | | Kontakt don | Connector | 5-pol/5-pole, XS21* |
| 436 | 1 | | Skena | Bus bar | |
| 437 | | | Mutter | Nut | M8 |
| 438 | | | Fjäderbricka | Spring washer | Ø 16/8.2x0.9 |
| 439 | | | Bricka | Washer | Ø 16/8.4x1.5 |
| 440 | 1 | 0502 990 025 | Motstånd | Resistor | R2* |
| 441 | 1 | | Kabel | Cable | |
| 442 | | | Skruv | Skrew | M8x30 |



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| Positionsnummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkingar Remarks |
|------------------------------------|-------------------|---------------------------------------|------------------------------------|------------------------------------|---|
| 501 | 1 | | Dragavlastning | Clamp | |
| 502 | 1 | | Kondensator | Capacitor | 0.1µF / 250 V, C1* |
| 503 | 1 | 0503 232 008 | Stiftuttag Burndy | Burndy plug | 12-pol/12-pole, Inkluderat i pos 510/included in item 510, XP4 External CAN |
| 504 | 1 | | Skärmlåt | Screen plate | |
| 505 | 1 | | Isulation | Insulation | |
| 506 | 1 | | Lock | Cover | |
| 507 | 1 | 0503 232 003 | Kretskort | Circuit board | Svetsdata/weld- ing data, AP8* |
| 508 | 1 | | Nedre box | Bottom box | |
| 509 | 1 | 0502 990 023 | Kontaktidon Kabel Intern CAN | Connector Cable Internal CAN | 2--pol, XS13 Kabel komplett med kontaktidon/ cable complete with connectors XP2 och XP3. XP2*, XP3* |
| 510 | 1 | 0502 990 024 | Kabel Extern CAN | Cable External CAN | Kabel komplett med kontaktidon/ cable complete with connec- tors XP4 och XP5.XP4 and XP5* |
| 511 | 7 | | Distans | Spacer | M4x25 |

* = Komponentens beteckning i kretsschemat/Component designation in the circuit diagram



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