



**Pioneer
Pioneer Pulse**

**403MSR
503MSR**

WELD THE WORLD

Instruction manual







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1 INTRODUCTION

| | |
|---|-------------------|
|   | IMPORTANT! |
| <p><i>This handbook must be consigned to the user prior to installation and commissioning of the unit. Read the "General prescriptions for use" handbook supplied separately from this handbook before installing and commissioning the unit.</i></p> <p><i>The meaning of the symbols in this manual and the associated precautionary information are given in the "General prescriptions for use".</i></p> <p><i>If the "General prescriptions for use" are not present, it is mandatory to request a replacement copy from the manufacturer or from your dealer.</i></p> <p><i>Retain these documents for future consultation.</i></p> | |

LEGEND

| | |
|---|----------------|
|  | DANGER! |
| <p><i>This pictogram warns of danger of death or serious injury.</i></p> | |

| | |
|---|-----------------|
|  | WARNING! |
| <p><i>This pictogram warns of a risk of injury or damage to property.</i></p> | |

| | |
|---|-----------------|
|  | CAUTION! |
| <p><i>This pictogram warns of a potentially hazardous situation.</i></p> | |

| | |
|---|--------------------|
|  | INFORMATION |
| <p><i>This pictogram gives important information concerning the execution of the relevant operations.</i></p> | |

- ⦿ This symbol identifies an action that occurs automatically as a result of a previous action.
- ① This symbol identifies additional information or a reference to a different section of the manual containing the associated information.
- § This symbol identifies a reference to a chapter of the manual.
- *1 The symbol refers to the associated numbered note.

NOTES

The figures in this manual are purely guideline and the images may contain differences with respect to the actual equipment to which they refer.

1.1 INTRODUCTION

PIONEER 403-503MSR is a power source for welding.
When combined with a wire feeder it can be used for MIG/MAG welding.

Fan. The fan is turned on only during welding, at the end of the welding process it remains on for a fixed period of time according to welding conditions.
The fan is nonetheless controlled by specific thermal sensors that guarantee a correct cooling of the machine.

Accessories/ancillary devices that can be connected to the unit:

- Power source trolley for multi-function configuration (MIG/MAG).
- Liquid cooler for MIG/MAG torches.
- Wire feeder.

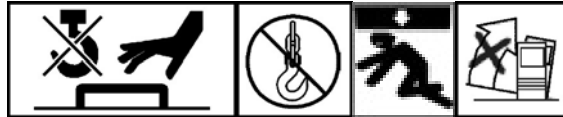
Consult your dealer for an updated list of accessories and the latest new products available.

2 INSTALLATION



DANGER! **Lifting and positioning**

Read the warnings highlighted by the following symbols in the "General prescriptions for use".

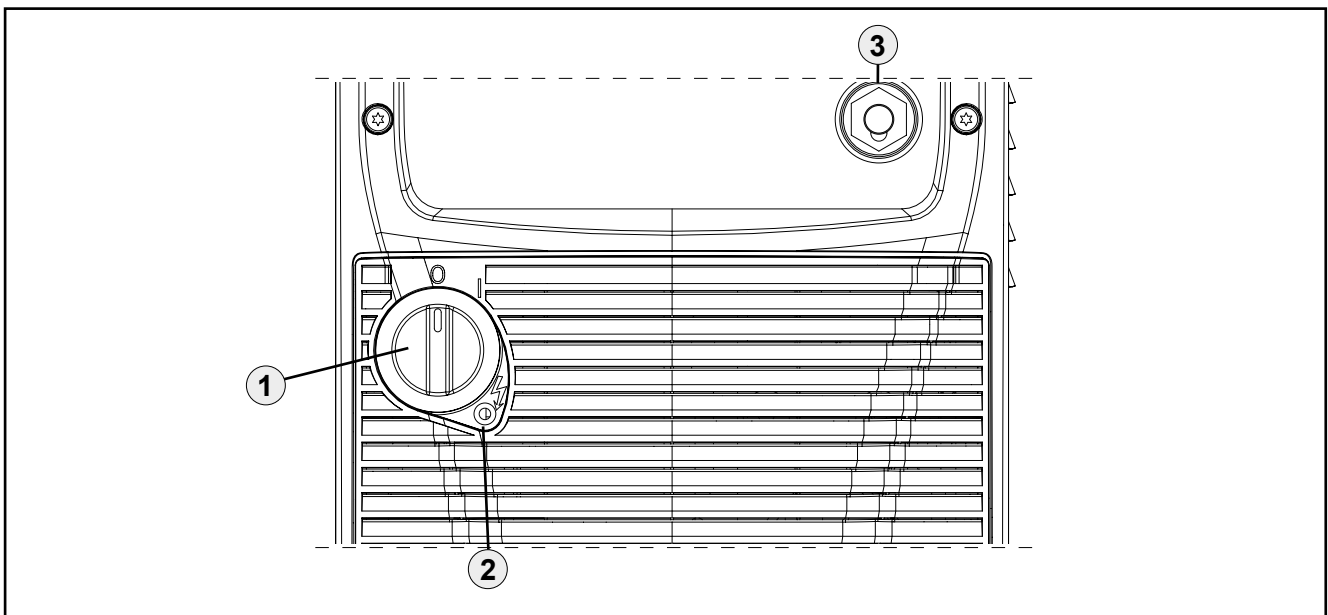


2.1 CONNECTIONS TO THE ELECTRICAL MAINS NETWORK

The mains power supply features to which the equipment should be connected are given in chapter "TECHNICAL DATA".

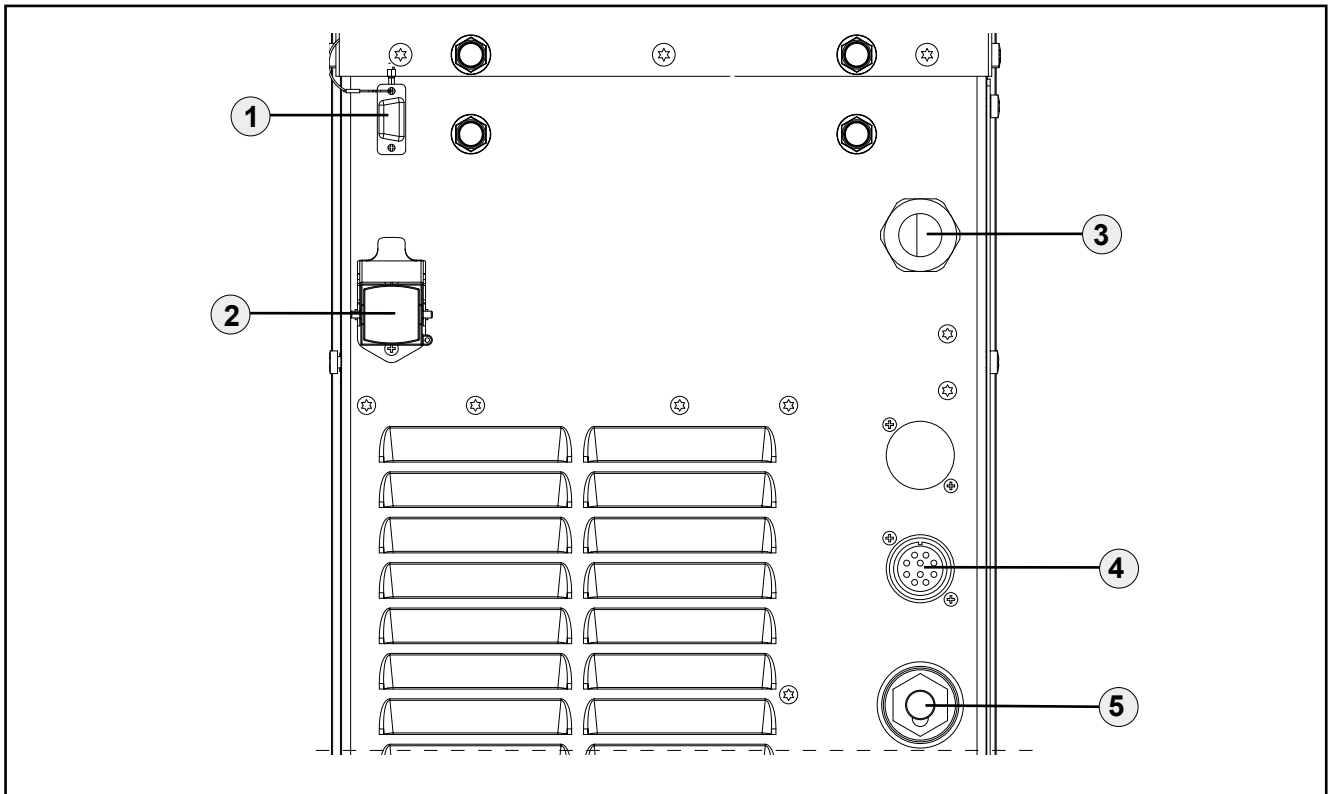
The machine can be connected to motorgenerators provided their voltage is stabilised.
Connect/disconnect the various devices with the machine switched off.

2.2 FRONT PANEL



- Welding power source ON/OFF switch. [Item 1].
- Mains protection ON LED [Item 2].
- Earth welding socket [Item 3].

2.3 REAR PANEL



- Connector for connection to the programmer [Item 1]. Programming connector for the “pulsed” circuit board. You can update the software of the equipment using the programming kit.
- Cooler group power feeding connector [Item 2].
 - Voltage: 400 V a.c.
 - Current output: 1.0 A
 - IP protection rating: IP20 (cap open) / IP66 (cap closed)



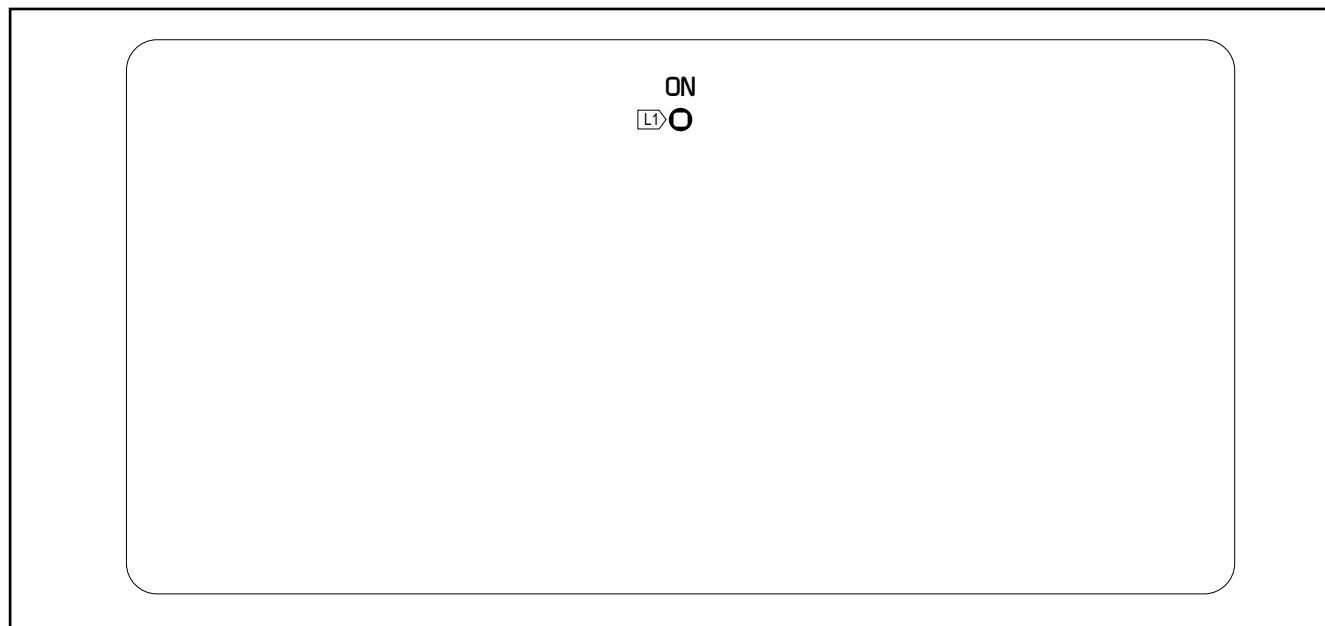
DANGER!
High voltage!

If the socket is not connected to any devices always close cap

- Power cable [Item 3].
 - Total length (external part): 4,3 m
 - Number and cross section of wires: 4 x 6 mm²
 - Power plug type: not supplied
- Connector of the bundle of cables for connecting the power source to the remote control device [Item 4].
- Socket for connecting the power cable between the power source and the remote control device [Item 5].





3 USER INTERFACE

PIONEER 403-503MSR / PIONEER PULSE 403-503MSR






| CODE | SYMBOL | DESCRIPTION |
|------|-----------|--|
| L1 | ON | This LED illuminates to confirm the presence of power on the output sockets. |




4 TECHNICAL DATA

| | |
|-------------------------------|--|
| Directives applied | Waste electrical and electronic equipment (WEEE) |
| | Electromagnetic compatibility (EMC) |
| | Low voltage (LVD) |
| | Restriction of the use of certain hazardous substances (RoHS) |
| Construction standards | EN 60974-1; EN 60974-10 Class A |
| Conformity markings |  Equipment compliant with European directives in force |
| |  Equipment suitable in an environment with increased hazard of electric shock |
| |  Equipment compliant with WEEE directive |
| |  Equipment compliant with RoHS directive |

4.1 PIONEER 503 MSR / PIONEER PULSE 503 MSR

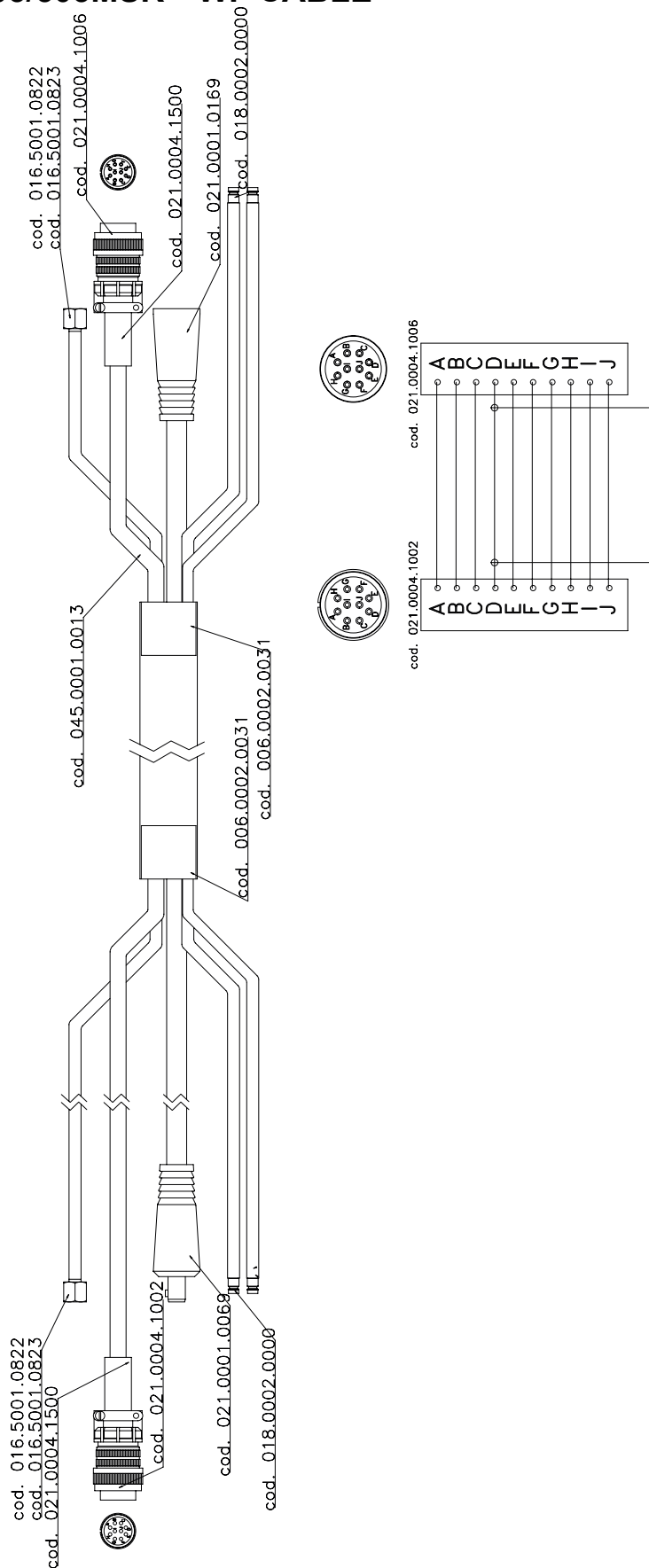
| | | | | |
|---|--|--|---------------------------------|---------------------------------|
| Supply voltage | 3 x 400 Va.c. ± 15 % / 50-60 Hz | | | |
| Mains protection | 32 A 500 V Delayed | | | |
| Zmax | This equipment complies with IEC 61000-3-12 provided that the maximum permissible system impedance is less than or equal to 21 mΩ at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with maximum permissible system impedance less than or equal to 21 mΩ. | | | |
| Dimensions (L x D x H) | 1370 x 460 x 990 mm | | | |
| Weight | 46 kg | | | |
| Insulation class | H | | | |
| Protection rating | IP23 | | | |
| Cooling | AF: Air-over cooling (fan assisted) | | | |
| Static characteristic | MMA |  Falling characteristic | | |
| | TIG |  Falling characteristic | | |
| | MIG/MAG |  Flat characteristic | | |
| Welding mode | | MIG/MAG | TIG | MMA |
| Current and voltage adjustment range | | 10 A / 14.5 V 500 A / 39.0 V | 10 A / 10.4 V 500 A / 30.0 V | 10 A / 20.4 V 500 A / 40.0 V |
| Welding current / Working voltage | 30% (40° C) | 500 A / 39.0 V | | 500 A / 40.0 V |
| | 35% (40° C) | | 500 A / 30.0 V | |
| | 60% (40° C) | 430 A / 35.5 V | 450 A / 28.0 V | 430 A / 37.2 V |
| | 100% (40° C) | 400 A / 34.0 V | 420 A / 26.8 V | 400 A / 36.0 V |
| Maximum input power | 30% (40° C) | 25.1 kVA - 22.4 kW | | 25.5 kVA - 22.3 kW |
| | 35% (40° C) | | 19.3 kVA - 17.2 kW | |
| | 60% (40° C) | 19.7 kVA - 17.0 kW | 16.2 kVA - 14.0 kW | 21.0 kVA - 18.0 kW |
| | 100 % (40° C) | 17.7 kVA - 15.2 kW | 14.6 kVA - 12.6 kW | 19.3 kVA - 16.4 kW |
| Maximum supply current | 30% (40° C) | 36.0 A | | 36.4 A |
| | 35% (40° C) | | 27.7 A | |
| | 60% (40° C) | 27.8 A | 22.9 A | 30.0 A |
| | 100 % (40° C) | 25.5 A | 21.1 A | 27.8 A |
| Maximum Effective Supply Current | 30% (40° C) | 19.7 A | | 19.9 A |
| | 35% (40° C) | | 16.4 A | |
| | 60% (40° C) | 21.5 A | 17.7 A | 23.2 A |
| | 100 % (40° C) | 25.5 A | 21.1 A | 27.8 A |
| No-load voltage (U0) | 62V | | | |
| Reduced no-load voltage (Ur) | 10V | | | |

4.2 PIONEER 403 MSR / PIONEER PULSE 403 MSR

| | | | | |
|---|--|--|---------------------------------|---------------------------------|
| Supply voltage | 3 x 400 Va.c. ± 15 % / 50-60 Hz | | | |
| Mains protection | 25 A 500 V Delayed | | | |
| Zmax | This equipment complies with IEC 61000-3-12 provided that the maximum permissible system impedance is less than or equal to 21 mΩ at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with maximum permissible system impedance less than or equal to 21 mΩ. | | | |
| Dimensions (L x D x H) | 1370 x 460 x 990 mm | | | |
| Weight | 46 kg | | | |
| Insulation class | H | | | |
| Protection rating | IP23 | | | |
| Cooling | AF: Air-over cooling (fan assisted) | | | |
| Static characteristic | MMA |  Falling characteristic | | |
| | TIG |  Falling characteristic | | |
| | MIG/MAG |  Flat characteristic | | |
| Welding mode | | MIG/MAG | TIG | MMA |
| Current and voltage adjustment range | | 10 A / 14.5 V 400 A / 34.0 V | 10 A / 10.4 V 400 A / 26.0 V | 10 A / 20.4 V 400 A / 36.0 V |
| Welding current / Working voltage | 30% (40° C) | - | - | - |
| | 65% (40° C) | 400 A / 34.0 V | - | 400 A / 36.0 V |
| | 100% (40° C) | 370 A / 32.5 V | 400 A / 26.0 V | 370 A / 34.8 V |
| Maximum input power | 30% (40° C) | - | - | - |
| | 65% (40° C) | 17.7 kVA - 15.2 kW | - | 19.3 kVA - 16.4 kW |
| | 100 % (40° C) | 15.8 kVA - 13.4 kW | 13.7 kVA - 11.6 kW | 16.9 kVA - 14.3 kW |
| Maximum supply current | 30% (40° C) | - | - | - |
| | 65% (40° C) | 25.5 A | - | 27.8 A |
| | 100 % (40° C) | 23.0 A | 19.9 A | 24.6 A |
| Maximum Effective Supply Current | 30% (40° C) | - | - | - |
| | 65% (40° C) | 20.6 A | - | 22.4 A |
| | 100 % (40° C) | 23.0 A | 19.9 A | 24.6 A |
| No-load voltage (U0) | 62V | | | |
| Reduced no-load voltage (Ur) | 10V | | | |

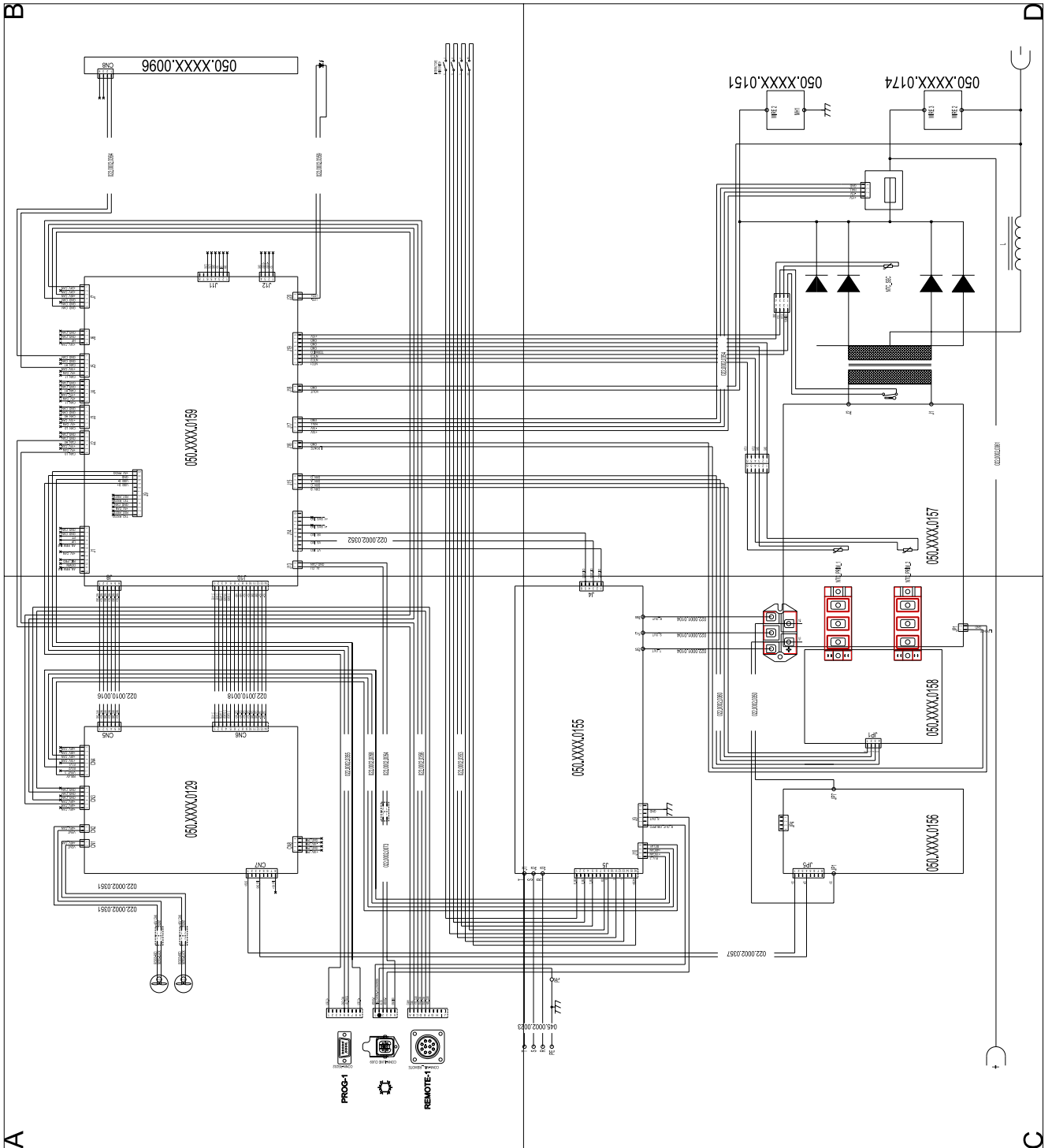


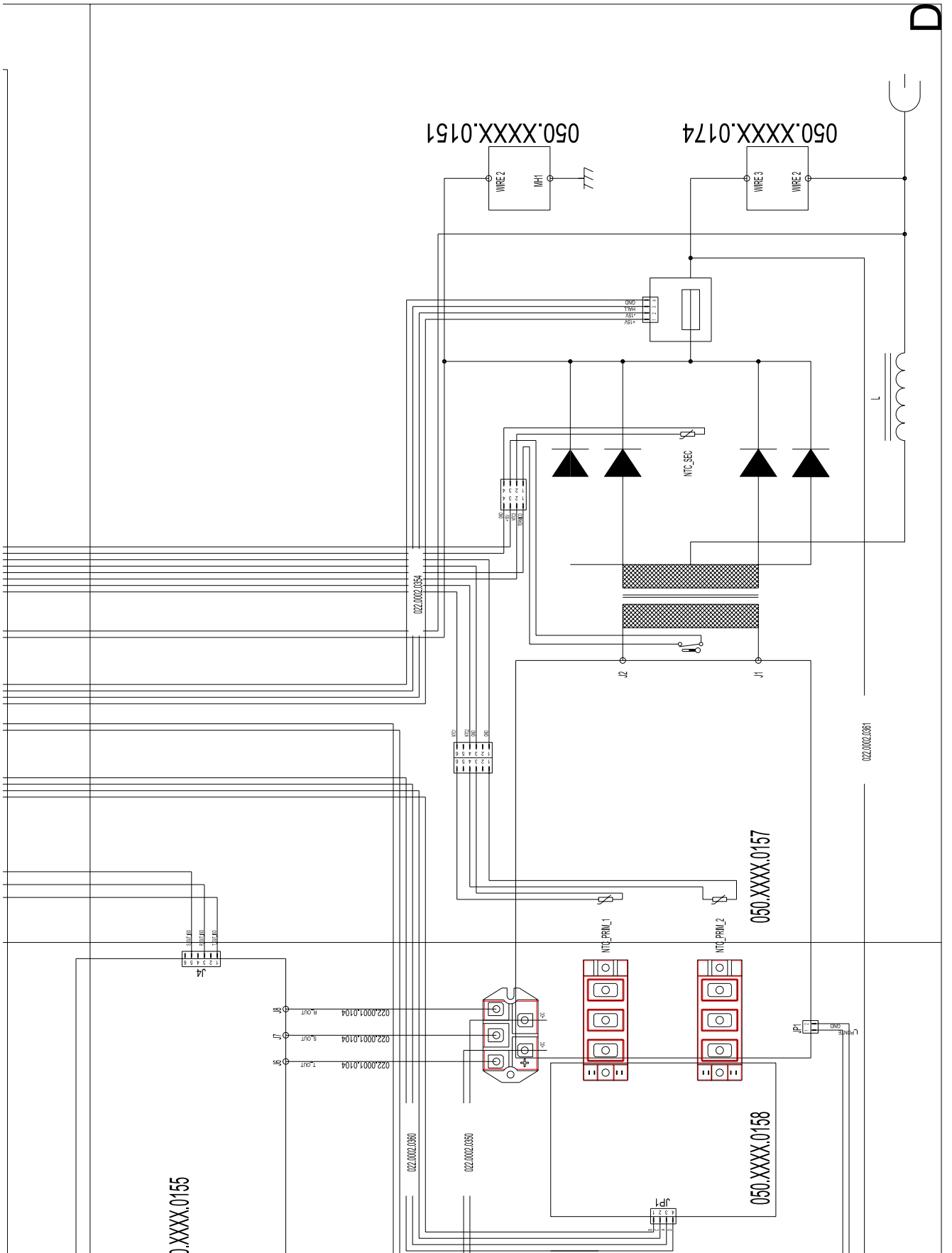
5 PIONEER 403/503MSR → WF CABLE



6 ELECTRICAL DIAGRAM

6.1 PIONEER 403-503MSR / PIONEER PULSE 403-503MSR



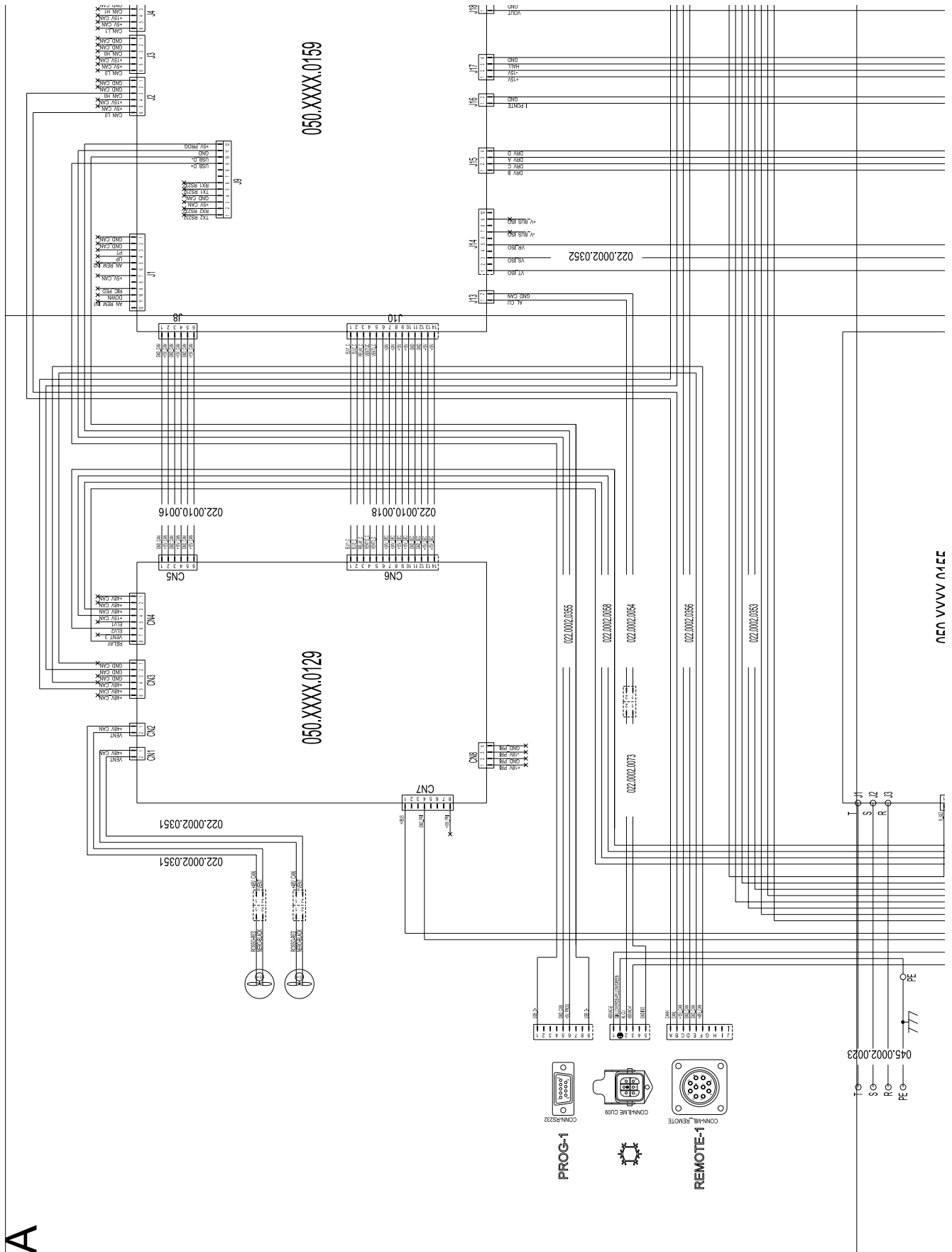




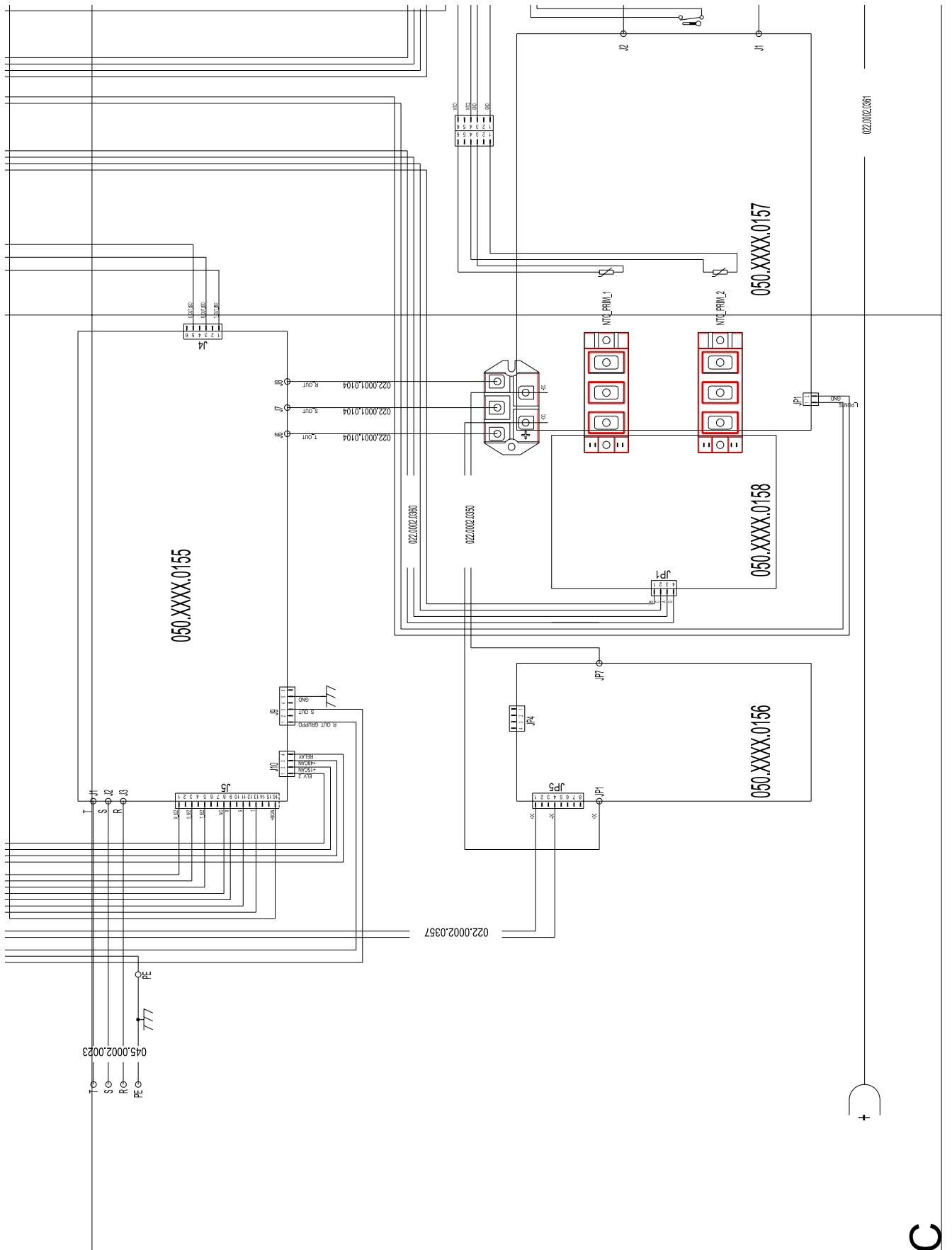
WELD THE WORLD

Pioneer 403MSR/503MSR
Pioneer Pulse 403MSR/503MSR

ENGLISH



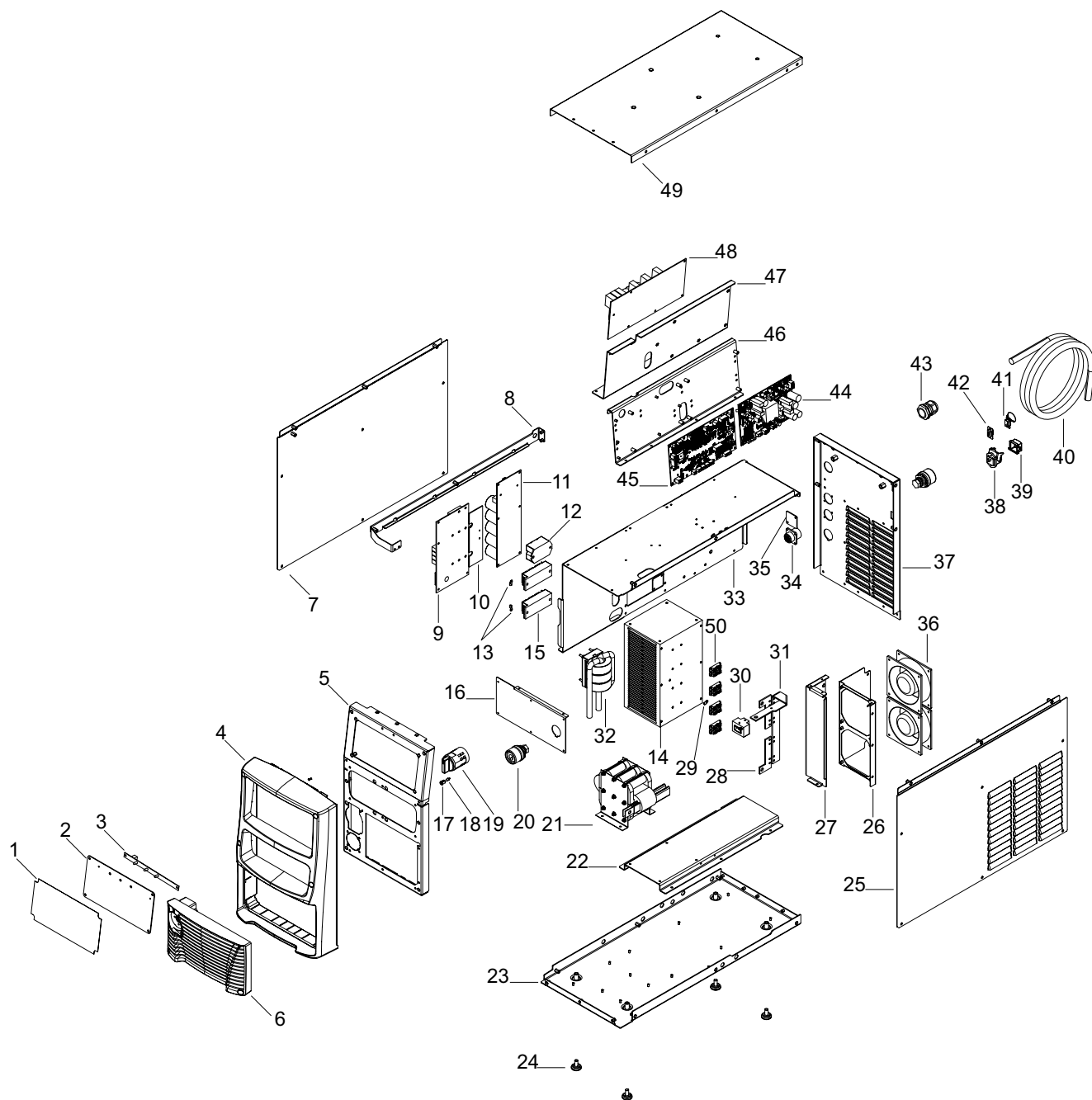
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ENGLISH

7 SPARE PARTS

7.1 PIONEER 403-503MSR / PIONEER PULSE 403-503MSR



| N° | CODE | DESCRIPTION |
|----|---------------|-----------------------------------|
| 1 | 013.0021.1101 | FRONT PANEL LABEL (403 MSR) |
| | 013.0021.1001 | FRONT PANEL LABEL (503 MSR) |
| 2 | 016.4107.0001 | FRONTAL PANEL PLATE |
| 3 | 050.0002.0096 | LED BOARD |
| 4 | 012.0007.0010 | FRONT PLASTIC |
| 5 | 011.0013.0021 | FRONT PLATE |
| 6 | 012.0007.0020 | PLASTIC LOUVRE |
| 7 | 011.0000.1171 | LEFT COVER |
| 8 | 011.0013.0258 | COVER PANEL SUPPORT PLATE |
| 9 | 050.0001.0157 | PRIMARY BOARD |
| 10 | 050.0002.0158 | DRIVER BOARD |
| 11 | 050.0001.0156 | ELECTROLYTIC CAPACITOR BOARD |
| 12 | 032.0001.8216 | THREE PHASE RECTIFIER BRIDGE |
| 13 | 040.0003.1011 | THERMAL CUT-OUT 2 NTC 10K |
| 14 | 015.0001.0026 | HEAT SINK |
| 15 | 033.0006.0008 | IGBT MODULE |
| 16 | 011.0013.0259 | FRONT SOCKETS PANEL |
| 17 | 016.4107.0001 | LED HOLDER |
| 18 | 022.0002.0364 | LED WIRING |
| 19 | 040.0001.0016 | FOUR-POLE SWITCH |
| 20 | 021.0001.0279 | OUTPUT SOCKET |
| 21 | 042.0003.0053 | POWER TRANSFORMER |
| 22 | 011.0013.0251 | HEAT SINK SUPPORT PLATE |
| 23 | 011.0013.0250 | LOWER COVER |
| 24 | 016.0009.0003 | RUBBER FOOT |
| 25 | 011.0000.1191 | RIGHT COVER |
| 26 | 011.0013.0254 | INTERNAL FAN SUPPORT |
| 27 | 011.0013.0253 | SEPARATION PLATE |
| 28 | 045.0006.0117 | DIODES-TRANSFORMER COPPER BRACKET |
| 29 | 040.0003.1008 | THERMAL CUT-OUT NTC 10K |
| 30 | 041.0004.0501 | HALL EFFECT SENSOR |
| 31 | 045.0006.0116 | OUT COPPER BRACKET |
| 32 | 044.0004.0029 | OUTPUT INDUCTOR |
| 33 | 011.0013.0252 | UPPER PLATE |
| 34 | 022.0002.0356 | 10 PIN CONNECTOR CABLE |
| 35 | 011.0013.0222 | COVER PLATE |
| 36 | 003.0002.0017 | FAN |
| 37 | 011.0013.0255 | FRONT PLATE |
| 38 | 022.0002.0073 | CU SUPPLY CABLE |
| 39 | 021.0013.0007 | ILME CONNECTOR CAP |
| 40 | 045.0002.0023 | SUPPLY CABLE |
| 41 | 021.0014.0303 | RS-232 CONNECTOR CAP |
| 42 | 022.0002.0355 | RS-232 WIRING |
| 43 | 045.0000.0017 | CABLE CLAMP |

| N° | CODE | DESCRIPTION |
|----|---------------|------------------------------|
| 44 | 050.0008.0129 | SUPPLIES BOARD |
| 45 | 050.0001.0159 | CONTROL BOARD (403MSR) |
| | 050.0002.0159 | CONTROL BOARD (503MSR) |
| | 050.0006.0159 | CONTROL BOARD (403MSR PULSE) |
| | 050.0007.0159 | CONTROL BOARD (503MSR PULSE) |
| 46 | 011.0013.0257 | RIGHT SUPPORT BOARD PLATE |
| 47 | 011.0013.0256 | LEFT SUPPORT BOARD PLATE |
| 48 | 050.0001.0155 | MAINS FILTER BOARD |
| 49 | 011.0013.0260 | UPPER COVER |
| 50 | 032.0002.2003 | ISOTOP DIODE |







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