



# TECHNICAL SERVICE MANUAL FOR KEMPOWELD MACHINES

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## GENERAL MAINTENANCE OF KEMPOWELD

Maintenance of Kempoweld power source will normally consist of general cleaning of unit with soft brush and vacuum cleaner, and checking of wearing for parts like: switches, connectors, potentiometers and fuses. NOTE! If you use compressed air for cleaning, there is a risk that dirt is packed even more tightly into gaps of connectors or components, so be careful with those parts!

Maintenance of the wire feeder and mig gun will normally consist of general cleaning and change of consumable parts like: contact tube, contact tip, contact tip adapter, gas nozzle, wire conduit, feeding rolls, guide tubes, and gear wheel.

The number of machines in will determine to what extent consumable- and spare parts will be stocked.

## WARNING

Watch out for the mains voltage! Disconnect the power source from mains voltage before removing cover plates or any testing or measurement and before troubleshooting look for signs of over heating, fractures and damages from internal components and power semiconductors.

## TROUBLESHOOTING CHART

TROUBLE	CAUSE	REMEDY
The KEMPOWELD won't start at all, any of the auxiliary devices won't start. The signal lamps of machine are not switched on.	Blown fuse in mains supply voltage.	Check all three supply voltage phases; check fuses.
	Faulty mains cable.	Check mains voltage from terminal block X001, repair cable if needed.
	Broken main switch.	Check the main supply voltage before and after main switch, change switch if needed.
	Faulty auxiliary transformer T002 or bad connection in connector X9, 400V or 0V.	Check transformer, repair transformer connection or change if needed.
The wire feeding unit K200/400 won't work.	Blown fuse F001 8A.	Check fuse and change if needed.
	Faulty connection in control lines.	See, <b>TABLE FOR CONTROL LINES</b> , table 1.
	Blown fuse F001 8A.	Check/change fuse F001.
	Broken PCB.	See, <b>TROUBLE SHOOTING FOR PCBs</b> appendix 1.

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## TROUBLESHOOTING CHART

TROUBLE	CAUSE	REMEDY
The cooling unit don't start or pilot lamp Hw3 lacking water pressure is illuminated.	Blown fuse F002 2A.  Auxiliary transformer T002.  Pressure switch S005  5 $\mu$ F capacitor C001.  Broken PCB.	Check and change the fuse if needed.  Check the voltage from transformer in the terminal block between 2.1 and 2.2, it should be 230v.  Check the voltage over the pressure guard or from PCB A002 X2/1 and X2/8; enough pressure 0V and lack of pressure c. 5V.  Check and change the capacitor if needed.  See, <b>TROUBLE SHOOTING FOR PCBs</b> appendix 1.
The solenoid valve Y001 don't work.	Faulty solenoid valve or PCB A001.	Check the 24 VDC from connector X3/5 and X3/6, change valve or PCB.
Wire feeding motor don't work.	Blown fuse F001 8A  The control cable between feeder and power source is broken or it is not properly tightened.  Faulty motor or PCB A001 in K200/400.  Broken PCB.	Check/change the fuse if needed.  Check and repair the control cable if needed. See table 1.  Check the motor voltage from A001 X4/12 and X4/13 max. is c. 24 VDC, if it's all right motor is faulty.  See, <b>TROUBLE SHOOTING FOR PCBs</b> appendix 1.
Welding quality is bad:  - arc is not stable - there are lot of spatters - bad arc start - not enough arc voltage	One phase is missing.  Faulty main transformer T001.  Faulty main switch S001 or contactor K001.  Shielding gas is missing.  Gas hose of the gun is leaking or connection is loose.  Broken diode in the secondary rectifier G001.	Check all phases from the terminal block X001. Change mains fuse if needed or tighten mains cables.  Check that voltages are symmetric over the three spools of T001. Variation of voltage is depending on voltage selection and load; normally it is between 10 VAC and 32 VAC. OCV variation range is 11 VAC to 35 VAC  Measure first main switch if it is all right check the contactor.  Check the valve according the instructions mentioned above.  Check/repair the mig gun.  Check and change diode(bridge) if needed.

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## TROUBLESHOOTING CHART

TROUBLE	CAUSE	REMEDY
Welding stops occasionally or some other occasional disturbances.	Faulty intermediate cable or connector.  Faulty switch in mig gun.  Loose start wire(s) in mig gun.	Check/repair the cable. See <b>TABLE FOR CONTROL LINES</b> , table 1.  Check and change the switch if needed.  Check and tighten the start wire(s) inside the gun.
Machine is overheating because the fan don't start.	Faulty fan or PCB A001 .	Check the 24 VDC voltage from fan connector X2/12 and X2/13, if it is all right change the fan, if it is not change the PCB.  See, <b>TROUBLE SHOOTING FOR PCBs</b> appendix 1.
Wire feeding speed set value can't adjusted.	The set value potentiometer RW102 is faulty.	Check and change the 10K $\Omega$ set value potentiometer RW102 if needed.
KMW-sync is not working.	Faulty connection in connector X1.	Check and repair connection according to <b>PICTURE 1</b> .
If some other push-pull gun than Binzel or Hulftegger is in use the gun is pulling to fast.	Wrong motor voltage.	Select correct jumper combination (there are two jumpers X1 and X2 and the fine adjustment for voltage can made from MP-SYNC PCB) from MP-SYNC control card. See also <b>PICTURE 2</b> .
MSD-1 meter unit don't work.	Ribbon cable between MSD-1 and control card A001 is loose or cut.  Faulty MSD-1 unit.	Check and tighten the cable, check also the control voltage for MSD-1 from A001 X3/16 and X3/1 the value should be 12 V.  Check as mentioned above if it's all right, change the MSD-1.
Occasional disturbances with KMW-timer unit.	Ribbon cable between KMW-timer and control card A001 is loose or cut.  Faulty KMW-timer unit.	Check and tighten the ribbon cable.  Check and change the KMW-timer unit. See also potentiometers from <b>PICTURE 3</b> .
The water circulation stops after 5 s of welding.	Low cooling water volume.  Air bubbles or leakages in cooling system.  Faulty pressure switch	Check the water and fill it if needed.  Follow the instructions of Kempoweld Operation Instructions/ Operation Disturbances.  Check/change the pressure switch.

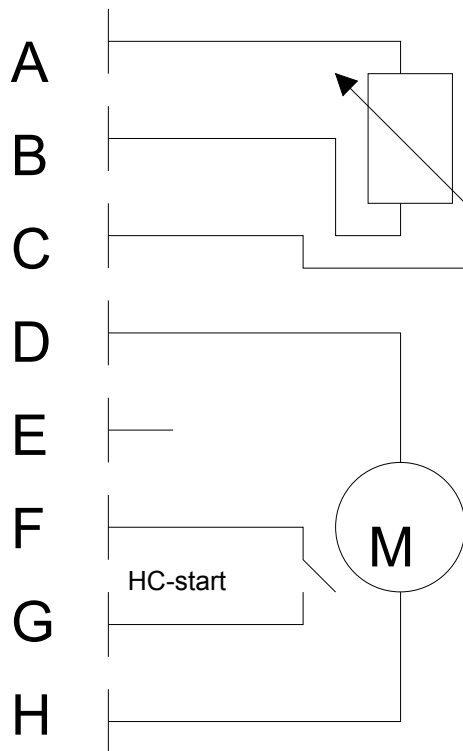
# TECHNICAL SERVICE MANUAL FOR KEMPOWELD

TABLE 1. CONNECTORS AND CONTROL LINES

## KEMPOWELD CONNECTORS X006 AND K200/400 XW101

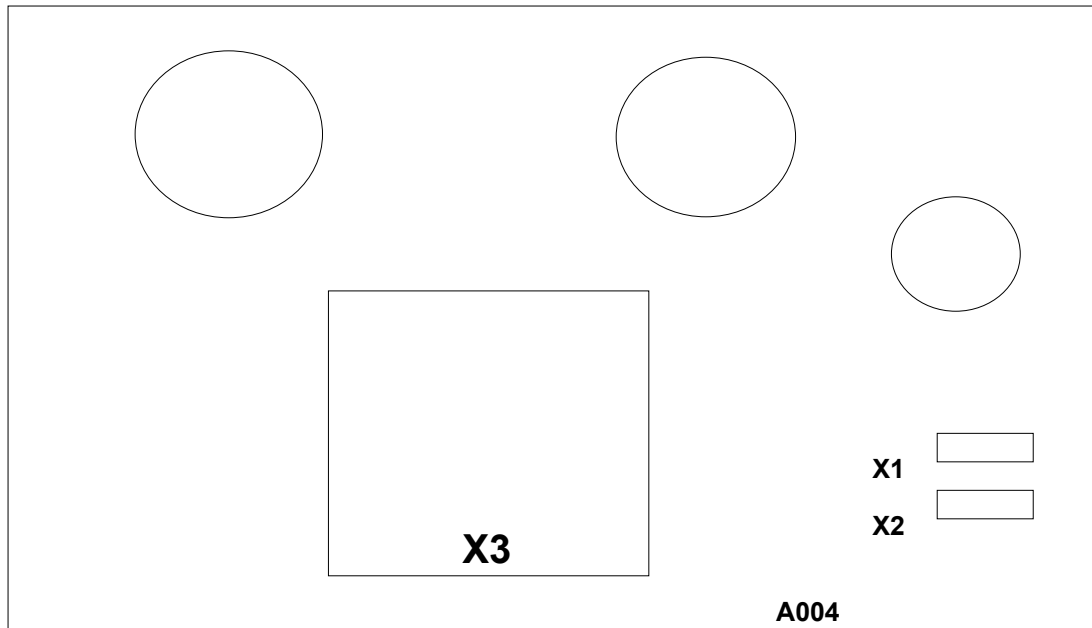
XW101 / X006	K200/400 A001	KEPOWELD A001	VALUE
B	X3/1	X8/3	30 VAC
C	X3/8	X2/1	30 VAC
D	X3/7	X2/11	START

PICTURE 1. KMW-SYNC CONNECTION

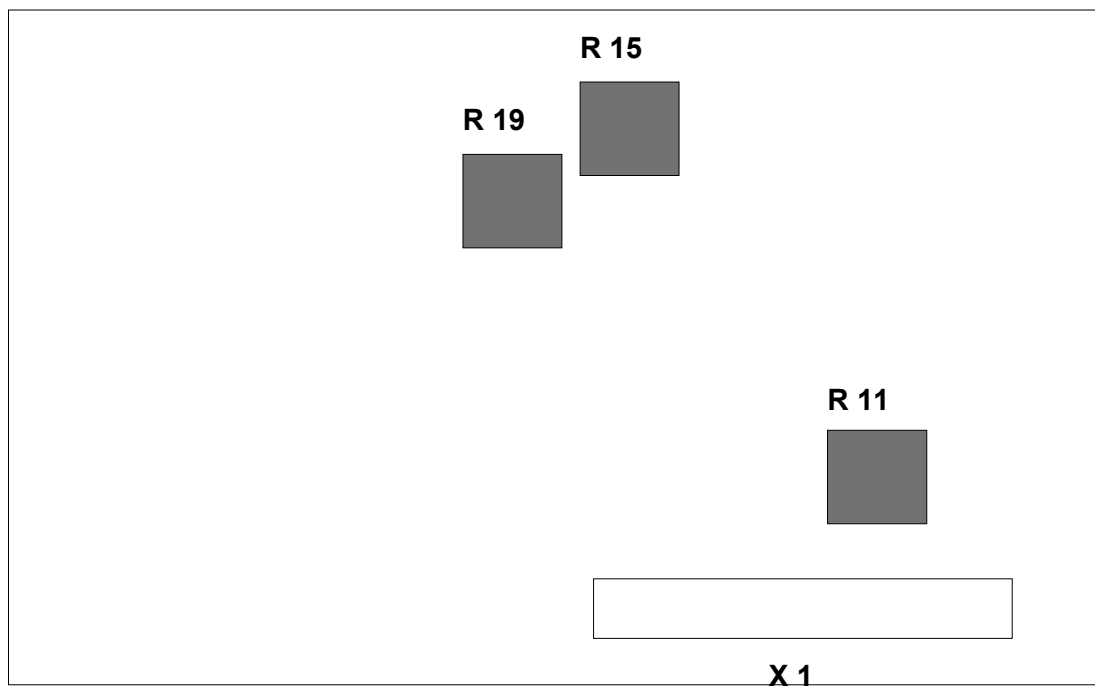


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PICTURE 2. A004 MP-SYNC CONTROL CARD



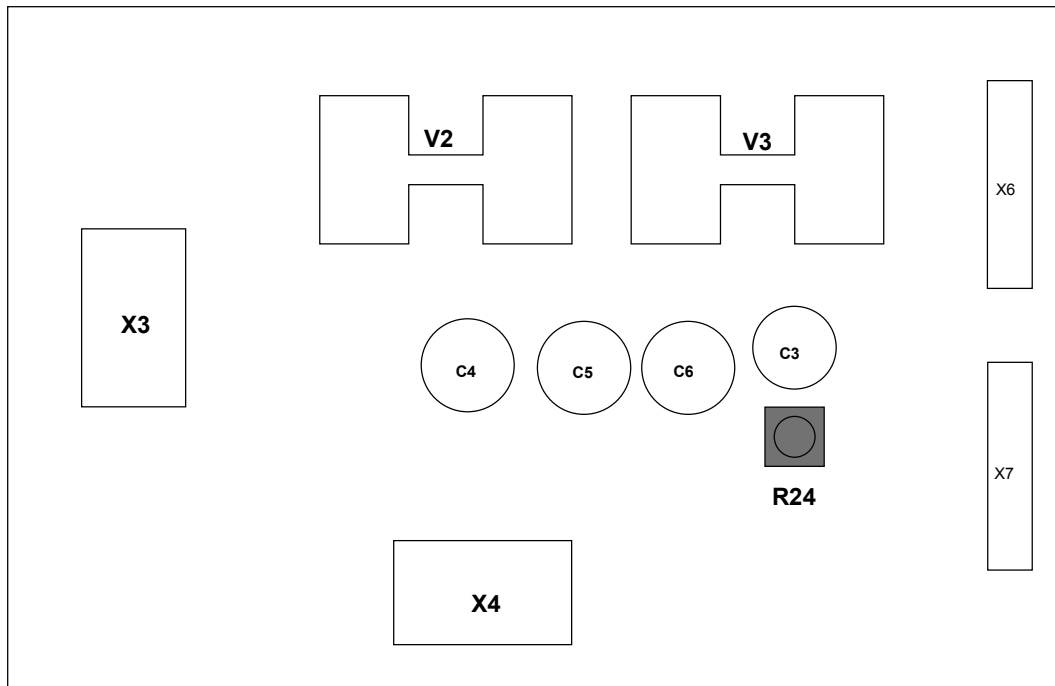
PICTURE 3. PCB OF K400 TIMER UNIT



Potentiometers: **R11** = Gas post flow  
**R15** = Cycle time  
**R 19** = Pause time

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PICTURE 4. A001 PCB OF K400



Potentiometer: **R24** = Adjustment of wire feed speed

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## APPENDIX 1. TROUBLESHOOTING FOR PCBs

### A001 POWER SOURCE

1.	+ 24 V over the capacitor C9
2.	+ 24 V over the capacitor C7 ( <b>FAN POWER SUPPLY</b> )
3.	+ 15 V over the over the diode V2
4.	+ 12 V over the capacitor C10 ( <b>MSD POWER SUPPLY</b> )
5.	<b>START</b> => pin X2/11 to GND, 0V = start active
6.	<b>START</b> => V4 to GND, 0V = start active
7.	TP 4 = 15 V, <b>FAN ON CONTROL</b>
8.	<b>FAN TIMER</b> voltage over C3 under 5 V = stop, over 10 V = on

### A001 WIRE FEEDER

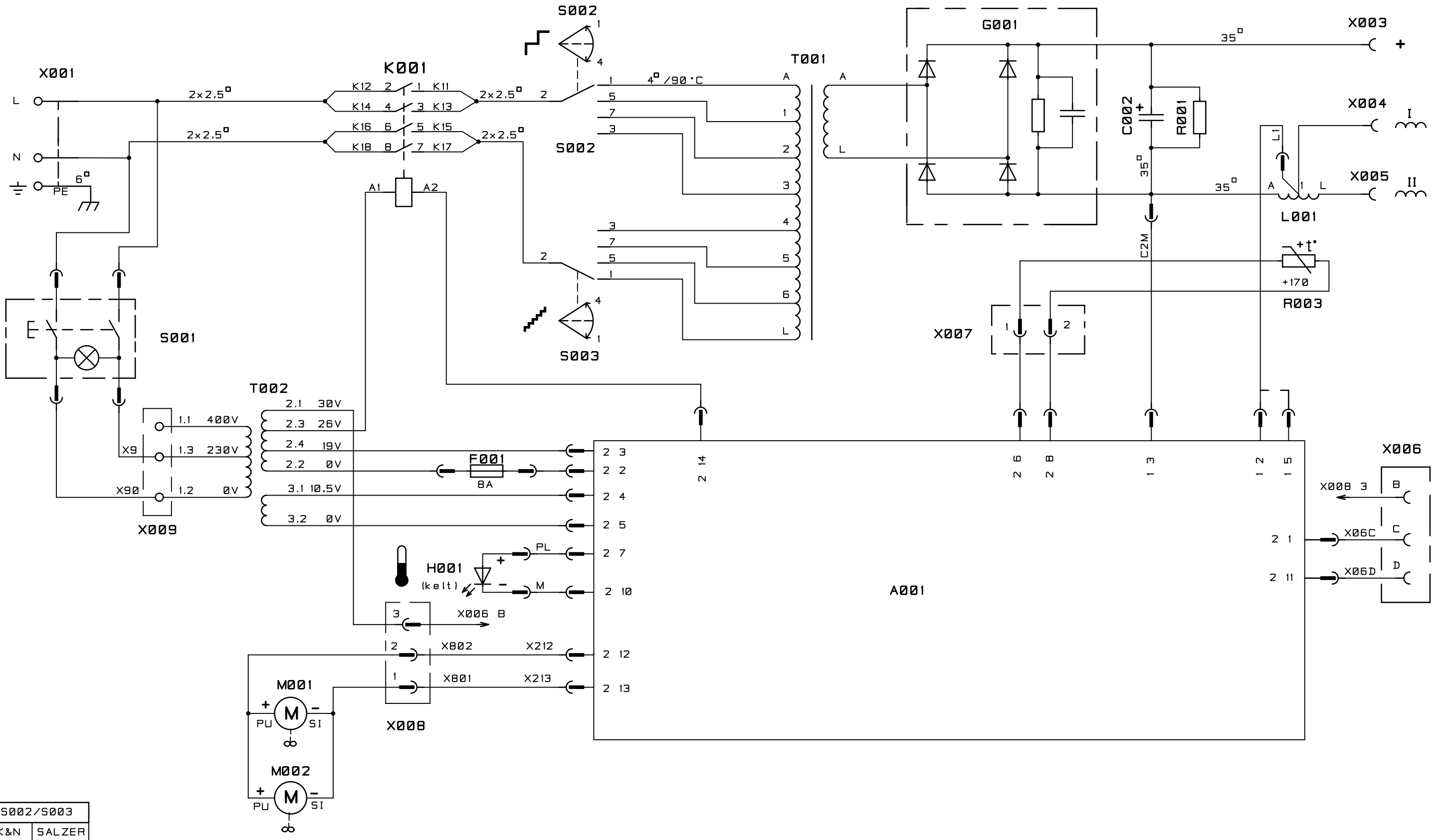
1.	30 VAC between the thyristros anodes
2.	+ 40 V over the capacitor C3
3.	+ 15 V over the diode V17
4.	<b>SYNCRONIZATION</b> TP 19 (rectified sine wave)
5.	<b>RAMP WAVE</b> over the capacitor C11 (the wave is only active when start or wire feeding is on)
6.	<b>START</b> TP13; 0V ON, 15 V STOP
7.	<b>BREAK CONTROL</b> TP24 ; 0V active 15 V stop
8.	<b>BURN BACK/POST GAS TIMER</b> TP33; 15 V stop, under 2V on
9.	<b>CONTACTOR CONTROL</b> TP 32; under 1 V off, over 5 V on
10.	<b>I FAN CONTROL</b> TP 34; under 1 V off, over 10 V on <b>II FAN CONTROL</b> , voltage over the capacitor C17 < 2 V fan off < 6V fan on
11.	<b>SET VALUE FOR WIRE FEEDING SPEED</b> pin X2/1 and GND; voltage between 0 V - 15 V depending on potentiometer setting



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## A002 WATER COOLING UNIT

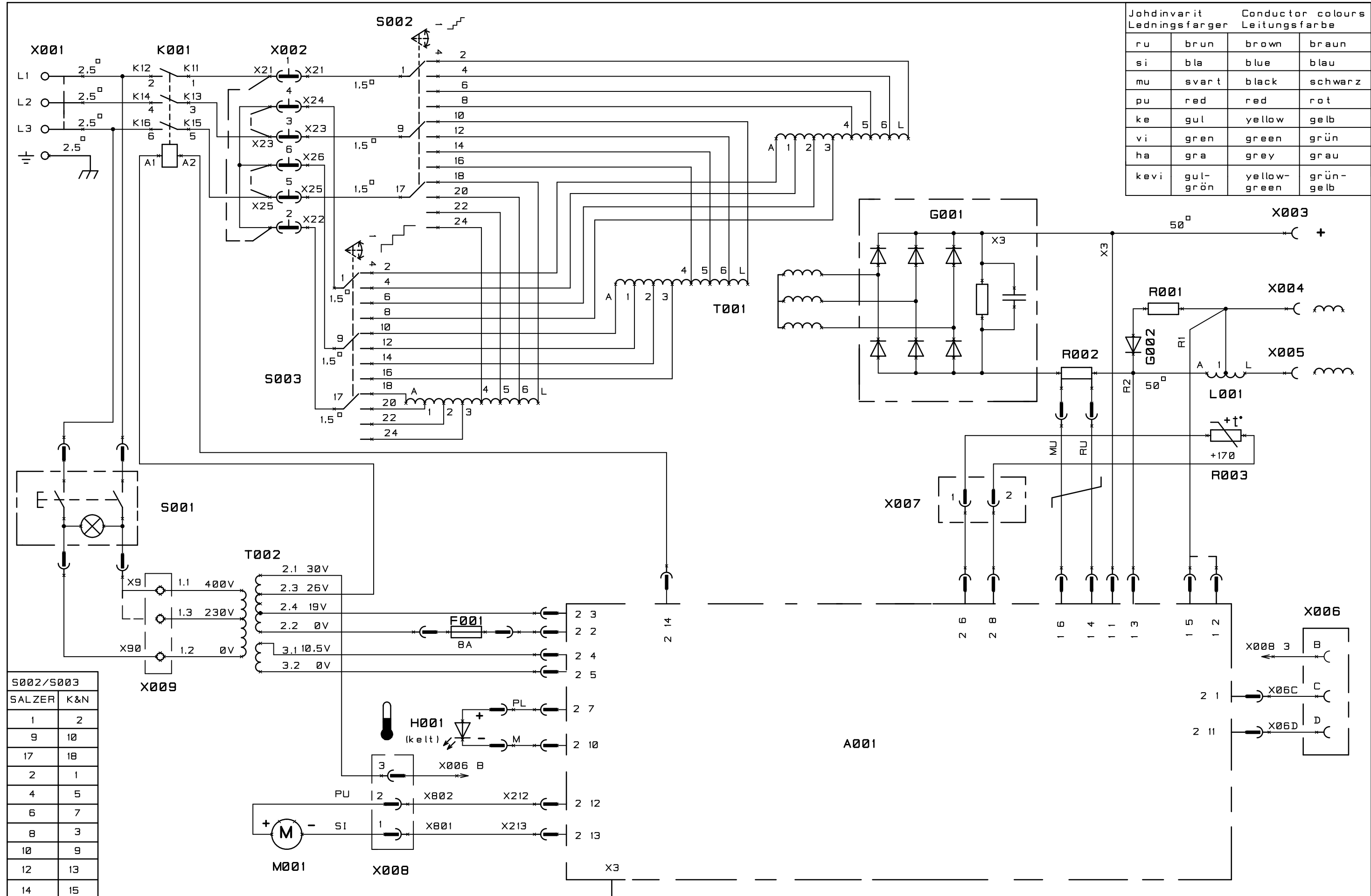
1.	+ 24 V over the capacitor C5
2.	+ 15 V over the capacitor C6
3.	<b>START</b> TP 1 => 15 V
4.	<b>PRESSURE SWITCH</b> pin X2/1 to GND; 0V pressure OK, 24 V no pressure
5.	<b>THERMAL PROTECTION</b> between pins X2/3 and X2/6; 0.1 V - 0.3 V normal temperature, over temperature over 3V
6.	<b>PUMP TIMER</b> ; TP 3 on > 5 V off < 1 V TP 18 on ≈ 0.6 V off < 0.2 V



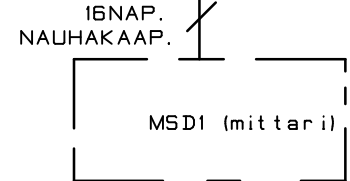
S002/S003	
K&N	SALZER
2	1
1	2
5	4
7	6
3	8

<b>KEMPPI</b>	<b>KEMPOWELD 2501</b>	<b>TARRA</b>		PIIRT LN	TARK
		KOKO	VALM.OHJE	991006	
			KES-54-002	<b>3144210</b>	

Johdinvarit Ledningsfarger	Conductor colours Leitungsfarbe		
ru	brun	brown	braun
si	bla	blue	blau
mu	svart	black	schwarz
pu	red	red	rot
ke	gul	yellow	gelb
vi	gren	green	grün
ha	gra	grey	grau
kevi	gul-grön	yellow-green	grün-gelb

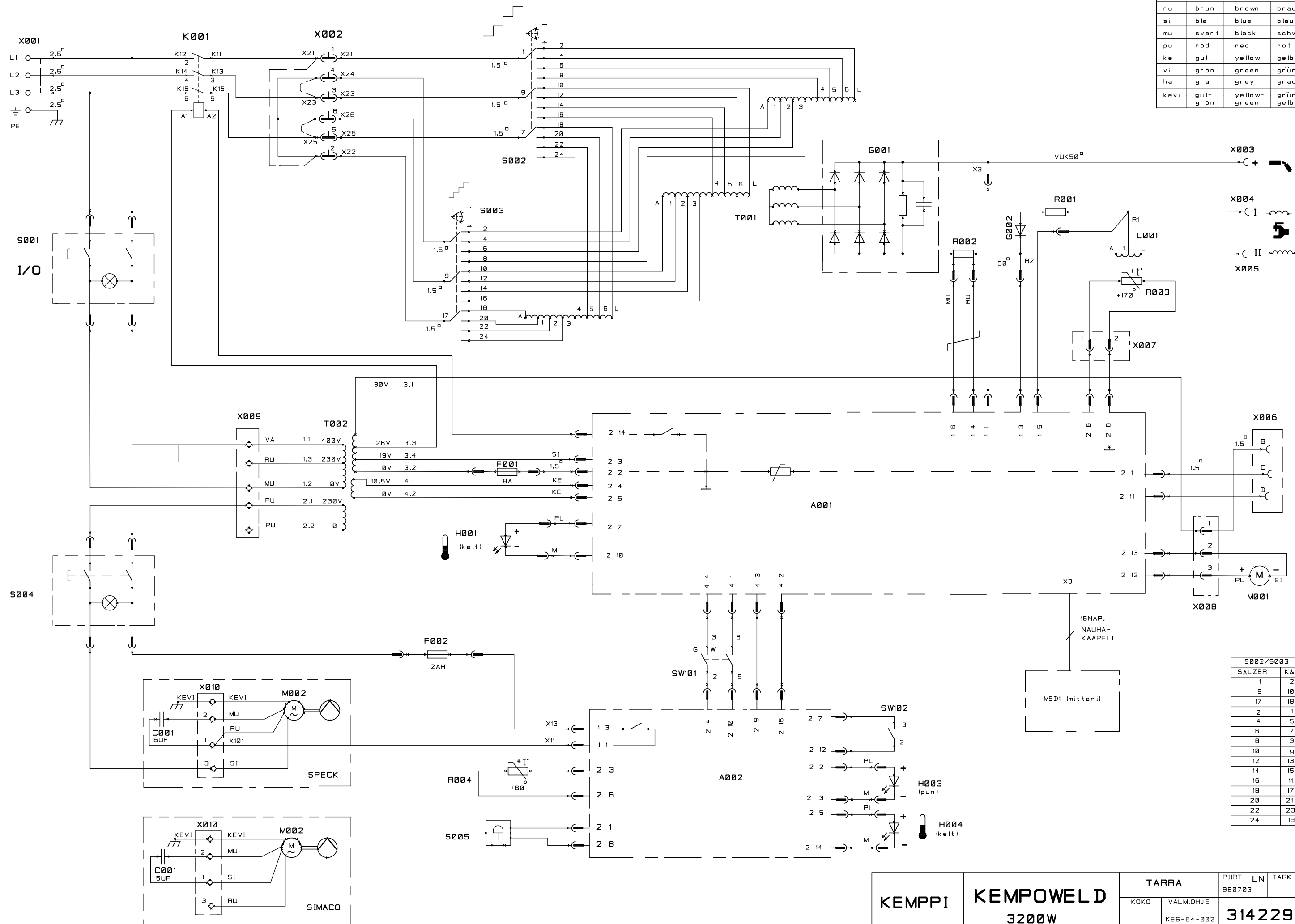


S002/S003	
SALZER	K&N
1	2
9	10
17	18
2	1
4	5
6	7
8	3
10	9
12	13
14	15
16	11
18	17
20	21
22	23
24	19



<b>KEMPPI</b>	<b>KEMPOWEL D 3200</b>	<b>TARRA</b>		PIIRT LN 990323	TARK
		KOKO	VALM.OHJE KES-54-002	<b>3139040B</b>	

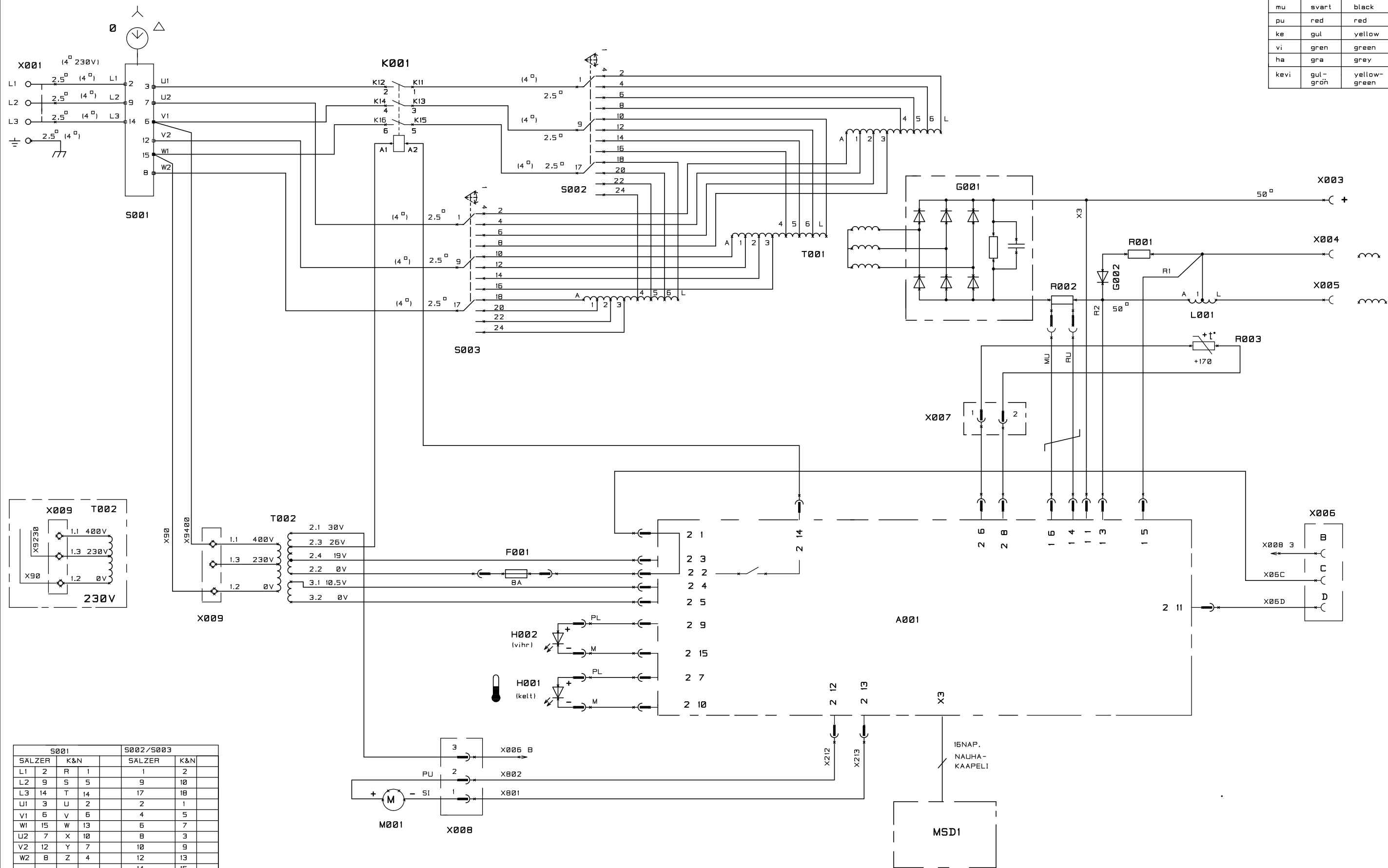
Johdinvarit Ledningsfarger		Conductor colours Leitungsfarbe	
ru	brun	brown	braun
si	blu	blue	blau
mu	svar t	black	schwarz
pu	rod	red	rot
ke	gul	yellow	gelb
vi	gron	green	grün
ha	gra	grey	grau
kevi	gul-gron	yellow-green	grün-gelb



S002/S003	
SALZER	K&N
1	2
9	10
17	18
2	1
4	5
6	7
8	3
10	9
12	13
14	15
16	11
18	17
20	21
22	23
24	19

KEMPPI	KEMPOWERD 3200W	TARRA		PIIRT LN	TARK
		KOKO	VALM.OHJE	980703	
			KES-54-002	3142290	

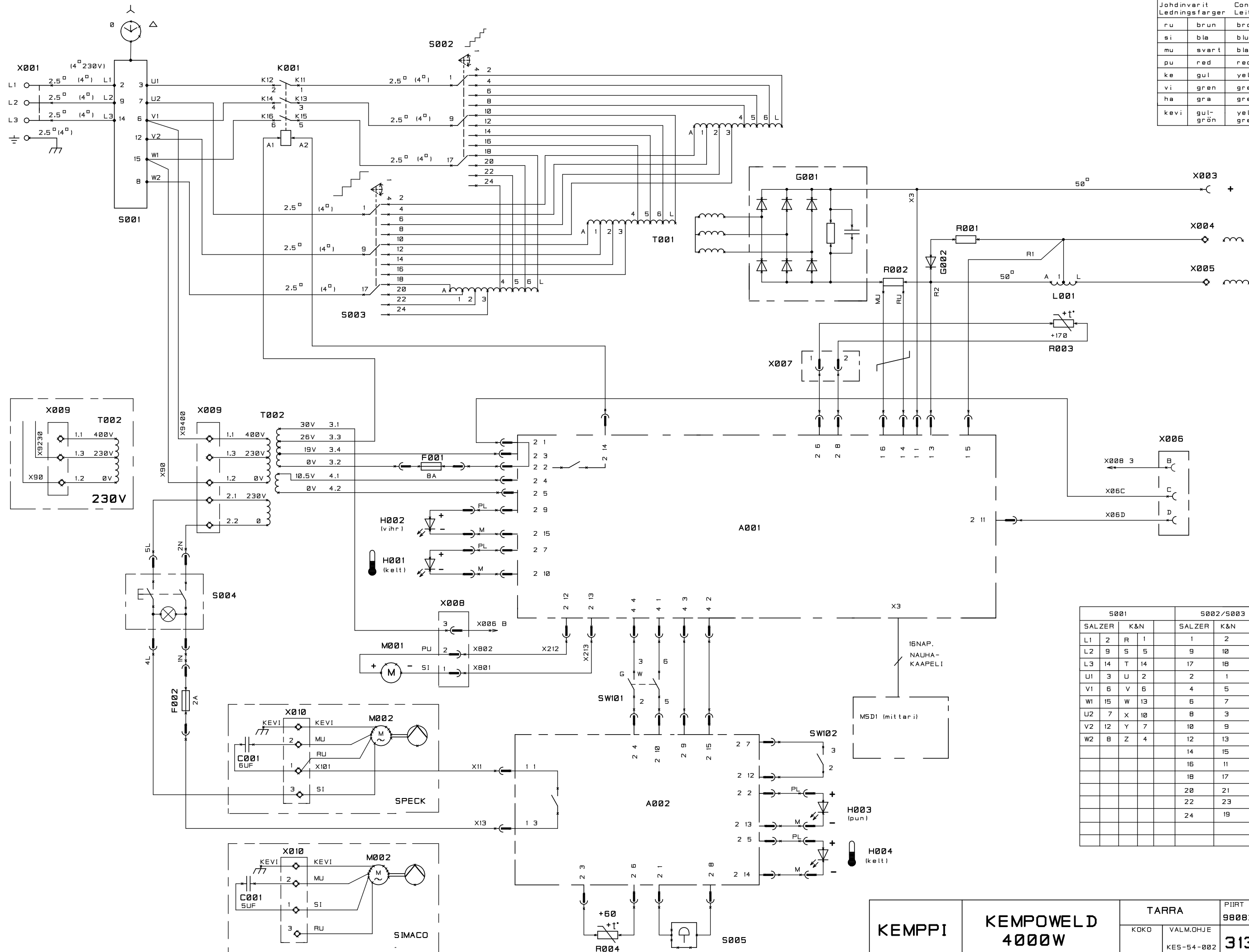
Johdinvarit Ledningsfarger		Conductor colours Leitungsfarbe	
ru	brun	brown	braun
si	blå	blue	blau
mu	svart	black	schwarz
pu	red	red	rot
ke	gul	yellow	gelb
vi	gren	green	grün
ha	gra	grey	grau
kevi	gul-grön	yellow-green	grün-gelb



S001			S002/S003		
SALZER	R	K&N	SALZER	R	K&N
L1	2	1	1	2	
L2	9	5	9	10	
L3	14	14	17	18	
U1	3	2	2	1	
V1	6	6	4	5	
W1	15	13	6	7	
U2	7	10	8	3	
V2	12	7	10	9	
W2	8	4	12	13	
			14	15	
			16	11	
			18	17	
			20	21	
			22	23	
			24	19	

KEMPPI	KEMPOWELD 4000	TARRA		PIIRT LN	TARK
		KOKO	VALM.OHJE	25.01.2000	
		KES-54-002		3139050B	

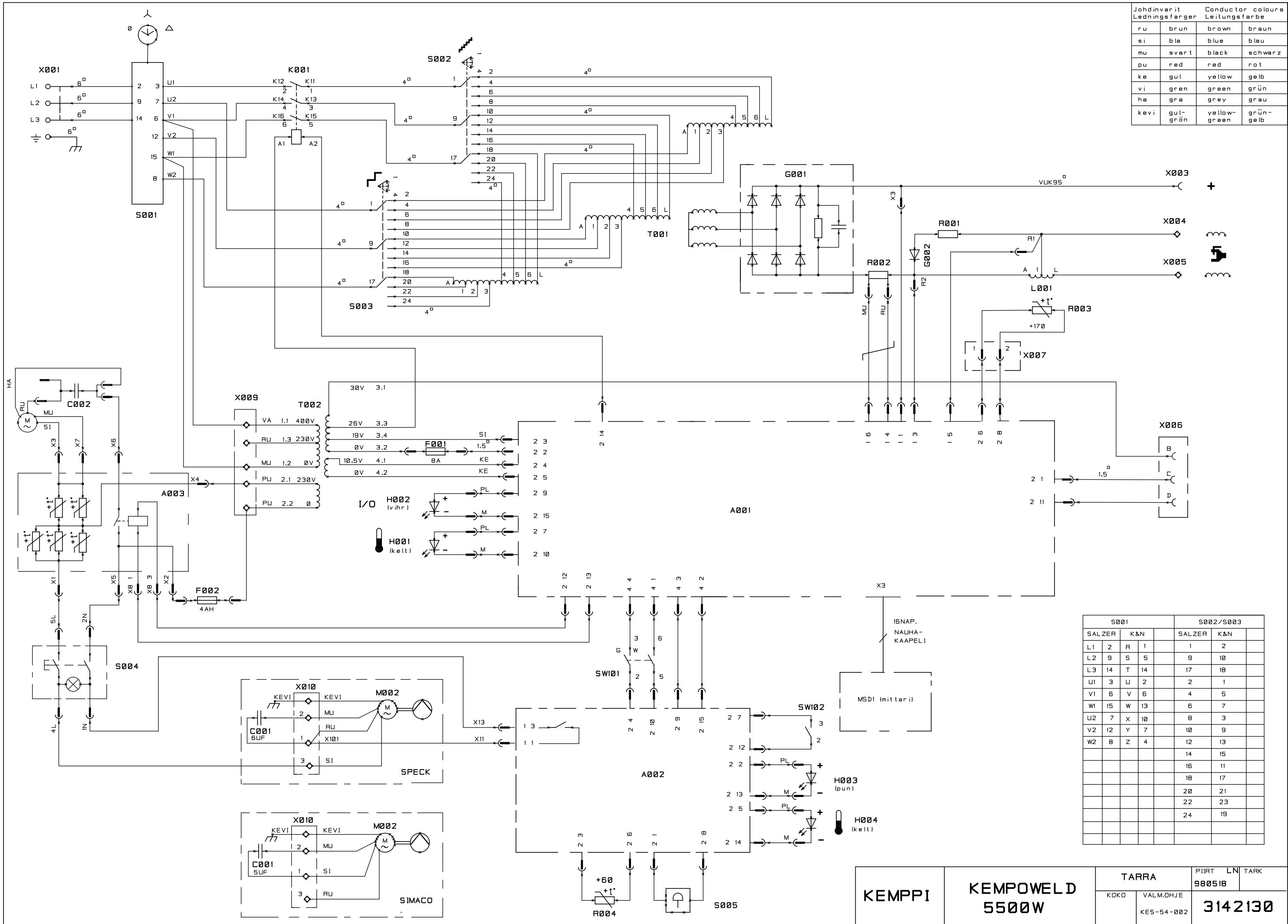
Johdinvärnit Ledningsfarger		Conductor colours Leitungsfarbe	
ru	brun	brown	braun
si	blå	blue	blau
mu	svart	black	schwarz
pu	red	red	rot
ke	gul	yellow	gelb
vi	grøn	green	grün
ha	gra	grey	grau
kevi	gul-grøn	yellow-green	grün-gelb



S001		S002/S003	
SALZER	K&N	SALZER	K&N
L1	2	R	1
L2	9	S	5
L3	14	T	14
U1	3	U	2
V1	6	V	6
W1	15	W	13
U2	7	X	10
V2	12	Y	7
W2	8	Z	4
			14
			15
			16
			17
			18
			20
			21
			22
			23
			24
			19

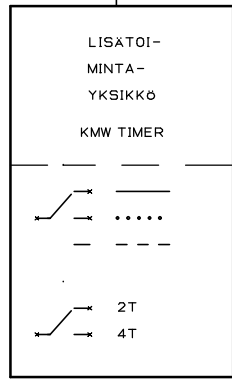
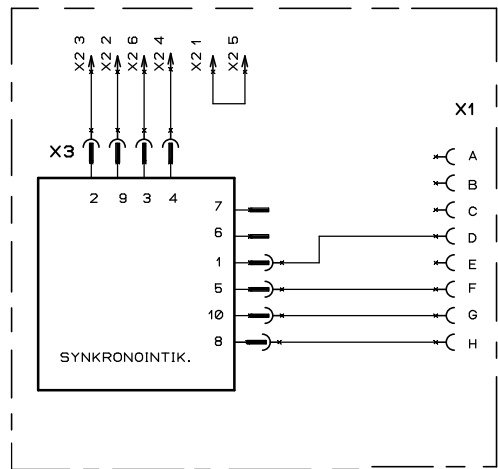
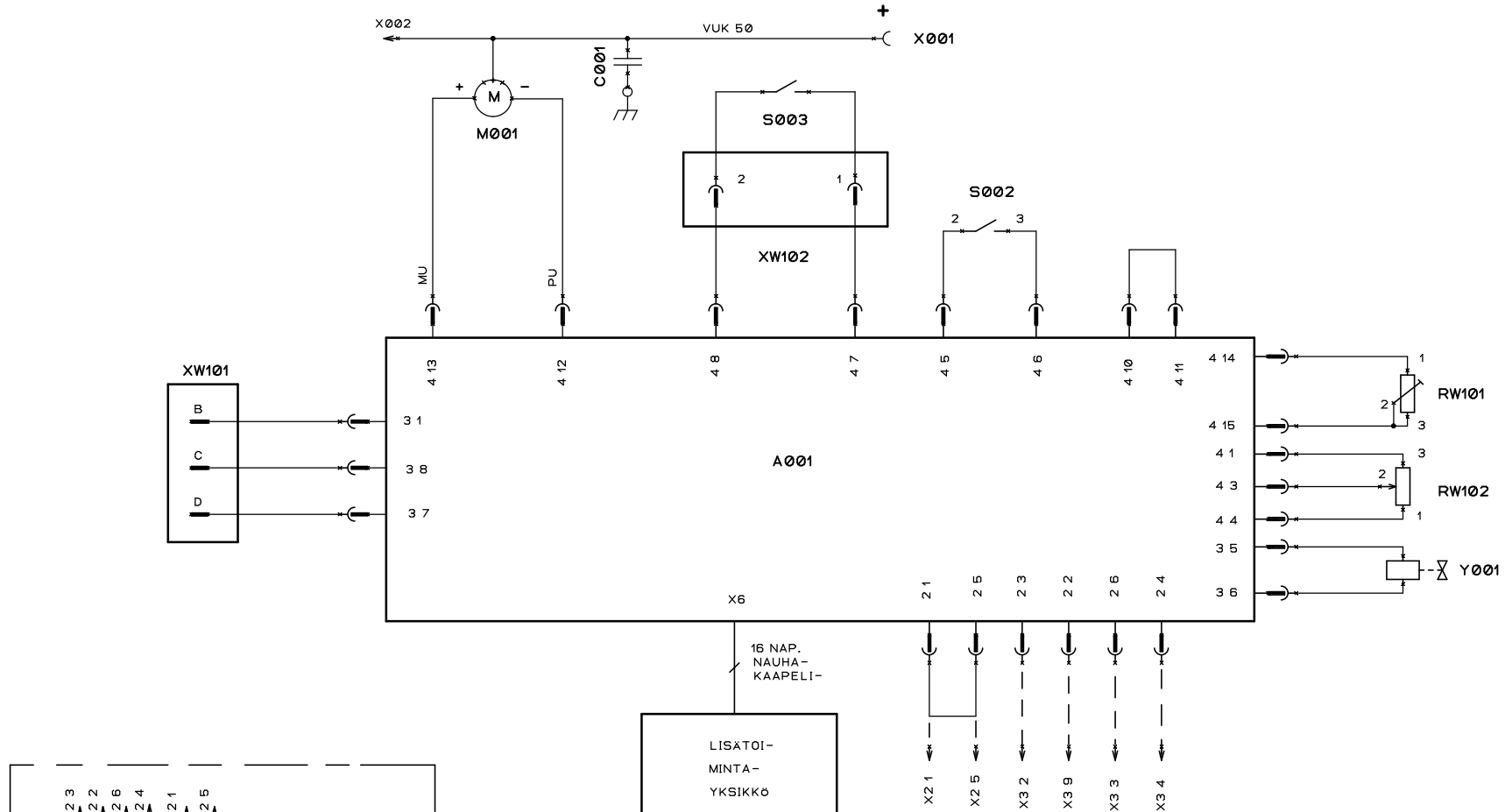
<b>KEMPPI</b>	<b>KEMPOWELD 4000W</b>	TARRA		PIIRT LN	TARK
		KOKO	VALM.OHJE	980821	
		KES-54-002		<b>3139060A</b>	

Johdinvarit Ledningsfarger		Conductor colours Leitungsfarbe	
ru	brun	brown	braun
si	blå	blue	blau
mu	svart	black	schwarz
pu	red	red	rot
ke	gul	yellow	gelb
vi	grøn	green	grün
ha	gra	grey	grau
kevi	gul-grøn	yellow-green	grün-gelb



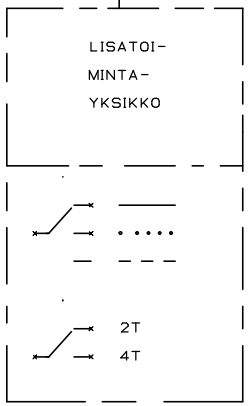
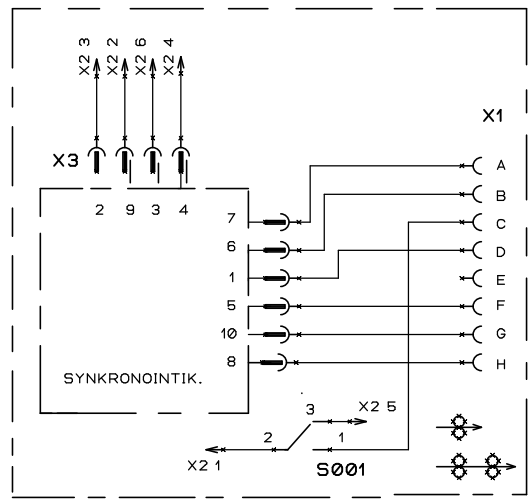
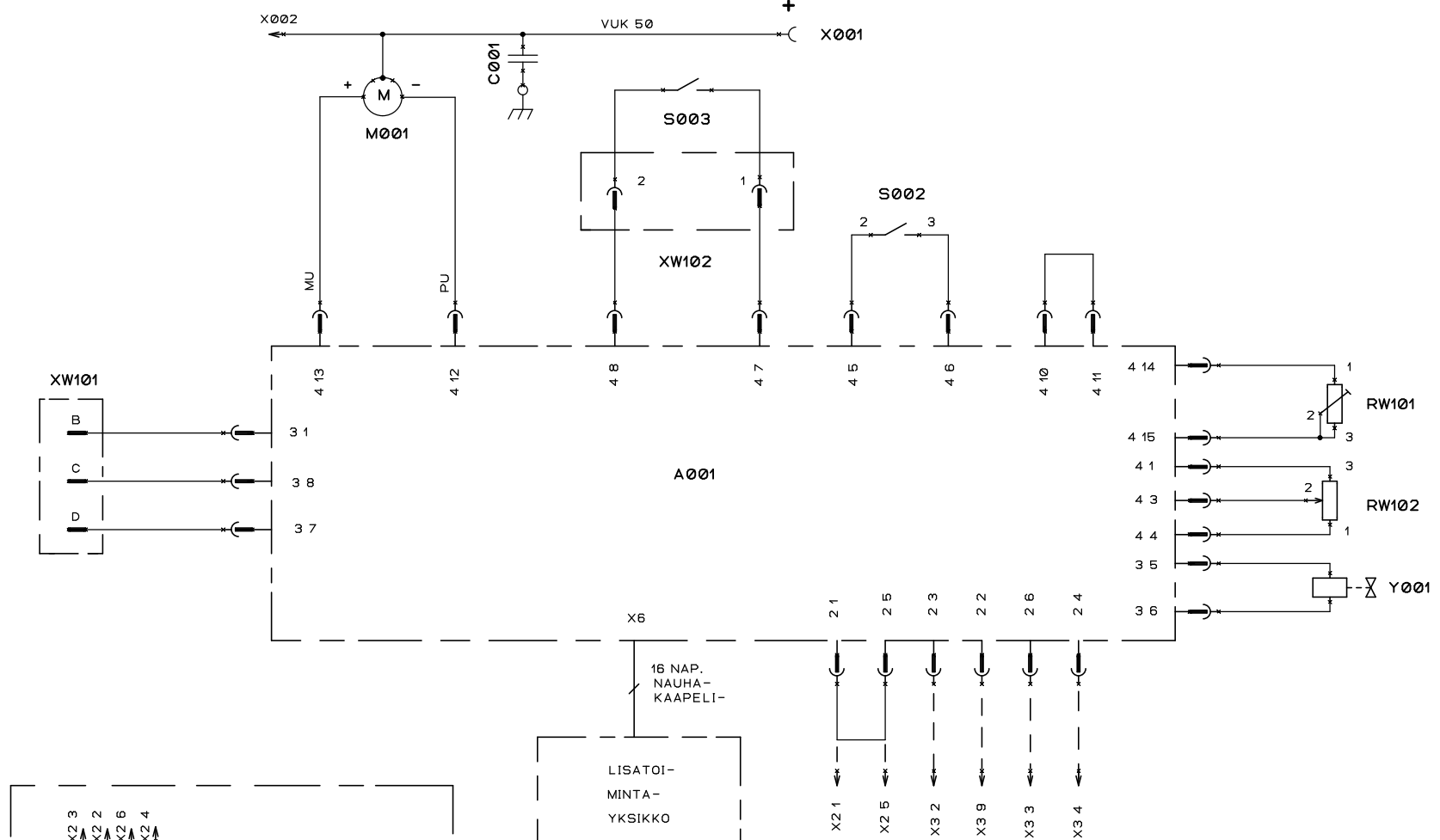
S001		S002/S003	
SALZER	K&N	SALZER	K&N
L1	2 R	1	2
L2	9 S	9	10
L3	14 T	17	18
U1	3 U	2	1
V1	6 V	4	5
W1	15 W	6	7
U2	7 X	8	3
V2	12 Y	10	9
W2	8 Z	12	13
		14	15
		16	11
		18	17
		20	21
		22	23
		24	19

<b>KEMPPI</b>	<b>KEMPOWELD 5500W</b>	<b>TARRA</b>		PIIRT LN TARK
		KOKO	VALM.OHJE	980518
		KES-54-002	<b>3142130</b>	

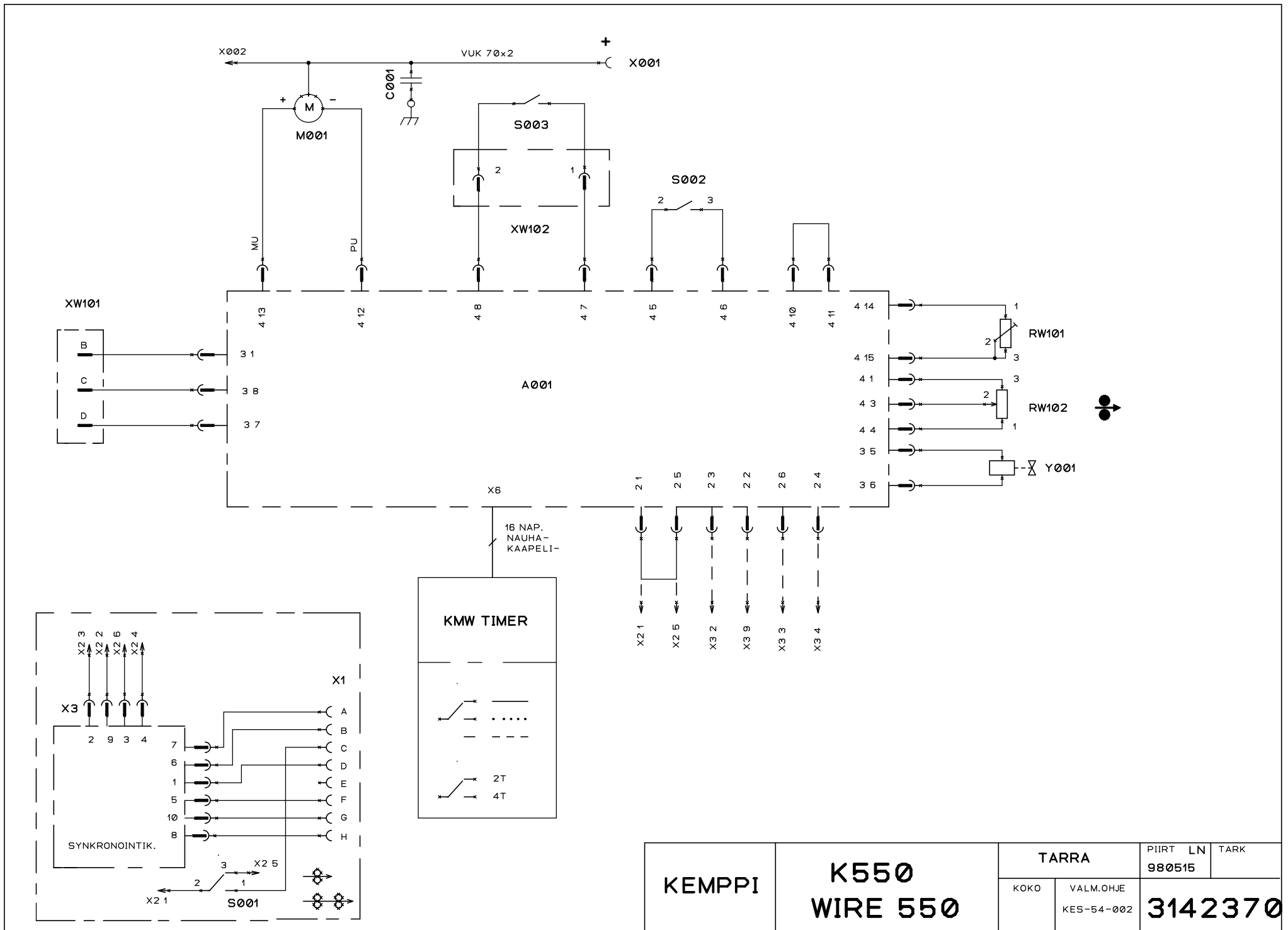


KEMPPI	K200 WIRE 200	TARRA		PIIRT LN	TARK
		KOKO	VALM.OHJE	991006	
			KES-54-002	3144220	





KEMPPI	K200/400 WIRE 400	TARRA		PIIRT LN	TARK
		KOKO	VALM.OHJE	960828	
			KES-54-002	3139080	



Order no.	Part	Description	Pc.
4279480	A001	CONTROL CARD A001 KWELD3200-4000W	1
3143990	C001	CAPACITOR UNIT KEMPOMAT 2001, 2501	1
9772551	F001	FUSE BOX + NUT	1
9750159	G001	RECTIFICATION UNIT	1
9775729	H001	SIGNAL LAMP YELLOW	1
9764112	K001	CONTACTOR	1
3143880	L001	CHOKE	1
9544213	M001	COOLING FAN MASTER 1500/2200	1
9761225	S001	FLIP-FLOP SWITCH WITH PILOT LAMP	1
9760603	S002	SWITCH	2
3143810	T001	TRANSFORMER KMAT 2501	1
3141290	T002	AUXIL. TRANSFORMER	1
9771530	X003	MACHINE SOCKET DIX BE 50/70	2
4191441	ZG001	RC PROTECTION	1
2070060	001	UNDERCARRIAGE KEMPOMAT, KEMPOWELD	1
2070330	002	FRONT PLATE KEMPOWELD 2501	1
2070080	003	REAR PLATE KEMPOWELD 2501	1
2070340	004	SIDE PLATE LEFT KEMPOWELD 2501	1
2070350	005	SIDE PLATE RIGHT KEMPOWELD 2501	1
3001873	007	CLAMP D30	1
3001875	008	INSULAT. PLATE FOR CLAMP	1
1028120	009	COVER PLATE KEMPOWELD	1
2061410	010	REAR GRATE MASTER 2800/3500	1
9547105	011	WHEEL	2
9547770	012	WHEEL, ROTATING	2
2062900	013	PLASTIC HANDLE 26X50X217/188	1
3138950	015	AXLE INSULATION	1
3144210		CIRCUIT DIAGRAM KEMPOWELD 2501	1

Order no.	Part	Description	Pc.
4279480	A001	CONTROL CARD A001 KWELD3200-4000W	1
9772551	F001	FUSE BOX + NUT	1
4287570	G001	RECTIFICATION UNIT KWELD3200/4000/4000W	1
4287420	G002	PARALLEL DIODE KEMPOWELD	1
9775729	H001	SIGNAL LAMP YELLOW	1
9764130	K001	CONTACTOR	1
3138510	L001	CHOKE KWELD,KMAT 3200	1
9544214	M001	COOLING FAN MASTER 2800/3500	1
4287840	R001	RESISTOR 0.23 OHM KWELD	1
4266150	R002	SHUNT RESISTOR 300A/60MV	1
9761225	S001	FLIP-FLOP SWITCH WITH PILOT LAMP	1
976052101	S002	SWITCH D22,5	2
2066190	T001	TRANSFORMER KWELD,KMAT 3200	1
3141290	T002	AUXIL. TRANSFORMER	1
9771530	X003	MACHINE SOCKET DIX BE 50/70	2
4191441	ZG001	RC PROTECTION	1
2070060	001	UNDERCARRIAGE KEMPOMAT, KEMPOWELD	1
2070820	002	FRONT PLATE KEMPOWELD 3200	1
2070790	003	REAR PLATE KEMPOWELD 3200/4000	1
2070800	004	SIDE PLATE LEFT KEMPOWELD 3200, 4000	1
2070810	005	SIDE PLATE RIGHT KEMPOWELD 3200, 4000	1
3001873	007	CLAMP D30	1
3001875	008	INSULAT. PLATE FOR CLAMP	1
1028120	009	COVER PLATE KEMPOWELD	1
2061410	010	REAR GRATE MASTER 2800/3500	1
9547105	011	WHEEL	2
9547770	012	WHEEL, ROTATING	2
3138950	015	AXLE INSULATION	1
4279940	016	FLAT CABLE L=380	1
2062900	017	PLASTIC HANDLE 26X50X217/188	1
3139040		CIRCUIT DIAGRAM KEMPOWELD 3200	1

Order no.	Part	Description	Pc.
4279480	A001	CONTROL CARD A001 KWELD3200-4000W	1
4279500	A002	CONTROL CARD A002 KWELD 4000W	1
9755223	C001	CAPACITOR 8UF/450V AC	1
9772551	F001	FUSE BOX + NUT	1
9772551	F002	FUSE BOX + NUT	1
4287570	G001	RECTIFICATION UNIT KWELD3200/4000/4000W	1
4287420	G002	PARALLEL DIODE KEMPOWELD	1
9775729	H001	SIGNAL LAMP YELLOW	1
9775731	H003	SIGNAL LAMP RED	1
9775729	H004	SIGNAL LAMP YELLOW	1
9764130	K001	CONTACTOR	1
3138510	L001	CHOKE KWELD,KMAT 3200	1
9544214	M001	COOLING FAN MASTER 2800/3500	1
3138320	M002	PUMP-MOTOR COMB. SIMACO	1
9540410	M002	PUMP-MOTOR	0
4287840	R001	RESISTOR 0.23 OHM KWELD	1
4266150	R002	SHUNT RESISTOR 300A/60MV	1
9753587	R004	PTC RESISTOR +60 C	1
9761225	S001	FLIP-FLOP SWITCH WITH PILOT LAMP	1
976052101	S002	SWITCH D22,5	2
9761221	S004	FLIP-FLOP SWITCH WITH PILOT LAMP	1
9761622	S005	PRESSURE SWITCH	1
2066190	T001	TRANSFORMER KWELD,KMAT 3200	1
3141290	T002	AUXIL. TRANSFORMER	1
9771530	X003	MACHINE SOCKET DIX BE 50/70	2
4191441	ZG001	RC PROTECTION	1
2066280	010	UNDERCARRIAGE KWELD,KMAT3200/4000	1
9547105	030	WHEEL	2
9547771	040	WHEEL T-50 LHPL 200 PK	2
2061410	050	REAR GRATE MASTER 2800/3500	1
2069250	055	INSUL. F COOLING FAN	1
3001873	060	CLAMP D30	1
3001875	070	INSULAT. PLATE FOR CLAMP	1
3138950	100	AXLE INSULATION	1
4279940	110	FLAT CABLE L=380	1
2062900	145	PLASTIC HANDLE 26X50X217/188	1
3144940	140	SIDE PLATE LEFT KWELD 3200W,4000W	1
3144950	150	SIDE PLATE RIGHT KWELD 3200W,4000W	1
1028360	160	COVER PLATE KWELD 3200W,4000W	1
1028370	170	FRONT PLATE KEMPOWELD 3200W	1
1028350	180	REAR PLATE KWELD 3200W,4000W	1
9592126	190	WATER TANK	1
9370162	200	PA-HOSE BLUE 8/6	0,52
9373216	210	RUBBER HOSE 13 MM	0,7
4278740	220	WATER HOSE KW 4000W	1
9373215	230	RUBBER HOSE 10/17 MM	0,3
4279930	240	HOSE CONNECTOR R1/8 - 9.5 KL	1
4279920	250	HOSE CONNECTOR R1/8 - 6 ML	1
9568956	260	IN-LINE CONNECTOR	1
9568957	270	BRANCH CONNECTOR 2060-1/4	1
9761302	290	PROTECTION SWITCHES'LEVER	2
9885031	300	STICKER, GREEN	1
9885032	310	STICKER, RED	1
3142290	320	CIRCUIT DIAGRAM KEMPOWELD 3200W	1

Order no.	Part	Description	Pc.
4279480	A001	CONTROL CARD A001 KWELD3200-4000W	1
9772551	F001	FUSE BOX + NUT	1
4287570	G001	RECTIFICATION UNIT KWELD3200/4000/4000W	1
4287420	G002	PARALLEL DIODE KEMPOWELD	1
9775729	H001	SIGNAL LAMP YELLOW	1
9775730	H002	SIGNAL LAMP GREEN	1
3138540	L001	CHOKE KWELD,KMAT 4000	1
9544214	M001	COOLING FAN MASTER 2800/3500	1
4287840	R001	RESISTOR 0.23 OHM KWELD	1
4266150	R002	SHUNT RESISTOR 300A/60MV	1
9771530	X003	MACHINE SOCKET DIX BE 50/70	1
4191441	ZG001	RC PROTECTION	1
2070060	0-010	UNDERCARRIAGE KEMPOMAT, KEMPOWELD	1
9547105	0-030	WHEEL	2
9547770	0-040	WHEEL, ROTATING	2
2061410	0-050	REAR GRATE MASTER 2800/3500	1
3001873	0-060	CLAMP D30	1
3001875	0-070	INSULAT. PLATE FOR CLAMP	1
3138950	0-100	AXLE INSULATION	1
4279940	0-110	FLAT CABLE L=380	1
2062900	0-145	PLASTIC HANDLE 26X50X217/188	1
		***KEMPOWELD 4000W 230V*****	
9764160	1K001	CONTACTOR	1
9760615	1S001	SWITCH 32A O-Y- D K60/10 D22.5	1
9760616	1S002	SWITCH 32A	2
2066180	1T001	TRANSFORMER 230V K-WELD 4000	1
		***KEMPOWELD 4000W 400V*****	
9764130	2K001	CONTACTOR	1
976051501	2S001	Y/D-SWITCH	1
976052101	2S002	SWITCH D22,5	2
2066170	2T001	TRANSFORMER 400V K-WELD 4000	1
		***KEMPOWELD 4000 230V*****	
9764160	3K001	CONTACTOR	1
9760615	3S001	SWITCH 32A O-Y- D K60/10 D22.5	1
9760616	3S002	SWITCH 32A	2
2066180	3T001	TRANSFORMER 230V K-WELD 4000	1
		***KEMPOWELD 4000 400V*****	
9764130	4K001	CONTACTOR	1
976051501	4S001	Y/D-SWITCH	1
976052101	4S002	SWITCH D22,5	2
2066170	4T001	TRANSFORMER 400V K-WELD 4000	1
		***KEMPOWELD 4000W 230/400V***	
3144940	5-140	SIDE PLATE LEFT KWELD 3200W,4000W	1
3144950	5-150	SIDE PLATE RIGHT KWELD 3200W,4000W	1
1028360	5-160	COVER PLATE KWELD 3200W,4000W	1
1028340	5-170	FRONT PLATE KEMPOWELD 4000W	1
1028350	5-180	REAR PLATE KWELD 3200W,4000W	1
9592126	5-190	WATER TANK	1
9370162	5-200	PA-HOSE BLUE 8/6	0,52
9373216	5-210	RUBBER HOSE 13 MM	0,7
4278740	5-220	WATER HOSE KW 4000W	1
9373215	5-230	RUBBER HOSE 10/17 MM	0,3
4279930	5-240	HOSE CONNECTOR R1/8 - 9.5 KL	1
4279920	5-250	HOSE CONNECTOR R1/8 - 6 ML	1
9568956	5-260	IN-LINE CONNECTOR	1
9568957	5-270	BRANCH CONNECTOR 2060-1/4	1
9581007	5-280	HEAT EXCHANGER 140X179 SIMACO	1
9761302	5-290	PROTECTION SWITCHES'LEVER	2
9885031	5-300	STICKER, GREEN	1
9885032	5-310	STICKER, RED	1

Order no.	Part	Description	Pc.
3139060	5-320	CIRCUIT DIAGRAM KEMPOWELD 4000W	1
4279500	5A002	CONTROL CARD A002 KWELD 4000W	1
9755223	5C001	CAPACITOR 8UF/450V AC	1
9772551	5F002	FUSE BOX + NUT	1
9775731	5H003	SIGNAL LAMP RED	1
9775729	5H004	SIGNAL LAMP YELLOW	1
3138320	5M002	PUMP-MOTOR COMB. SIMACO	1
9540410	5M002	PUMP-MOTOR	0
9753587	5R004	PTC RESISTOR +60 C	1
9761221	5S004	FLIP-FLOP SWITCH WITH PILOT LAMP	1
9761622	5S005	PRESSURE SWITCH	1
3141300	5T002	AUXIL. TRANSFORMER	1
		***KEMPOWELD 4000 230/400V***	
2070800	6-140	SIDE PLATE LEFT KEMPOWELD 3200, 4000	1
2070810	6-150	SIDE PLATE RIGHT KEMPOWELD 3200, 4000	1
1028120	6-160	COVER PLATE KEMPOWELD	1
2070780	6-170	FRONT PLATE KEMPOWELD 4000	1
2070790	6-180	REAR PLATE KEMPOWELD 3200/4000	1
3139050	6-190	CIRCUIT DIAGRAM KEMPOWELD 4000	1
3141290	6T002	AUXIL. TRANSFORMER	1

Order no.	Part	Description	Pc.
4279480	A001	CONTROL CARD A001 KWELD3200-4000W	1
4279500	A002	CONTROL CARD A002 KWELD 4000W	1
4287250	A003	PTC PROTECTION CARD K-WELD 5500W	1
9755223	C002	CAPACITOR 8UF/450V AC	1
9755177	C001	CAPACITOR 4UF/400VAC	1
9772551	F001	FUSE BOX + NUT	1
9772551	F002	FUSE BOX + NUT	1
9750175	G001	RECTIFICATION UNIT	1
4287420	G002	PARALLEL DIODE KEMPOWELD	1
9775729	H001	SIGNAL LAMP YELLOW	1
9775730	H002	SIGNAL LAMP GREEN	1
9775731	H003	SIGNAL LAMP RED	1
9775729	H004	SIGNAL LAMP YELLOW	1
9764160	K001	CONTACTOR	1
3142030	L001	CHOKE K-WELD 5500W	1
9544262	M001	COOLING FAN	1
9540410	M002	PUMP-MOTOR	1
3138320	M002	PUMP-MOTOR COMB. SIMACO	1
4286970	R001	RESISTOR 0.23 OHM KWELD5500W	1
4286540	R002	SHUNT RESISTOR 300A/60MV KWELD5500W	1
4282710	R004	PTC RESISTOR	1
9760615	S001	SWITCH 32A O-Y- D K60/10 D22.5	1
9760616	S002	SWITCH 32A	2
9761221	S004	FLIP-FLOP SWITCH WITH PILOT LAMP	1
9761622	S005	PRESSURE SWITCH	1
2068950	T001	TRANSFORMER KWELD 5500W	1
3141300	T002	AUXIL. TRANSFORMER	1
9771540	X003	MACHINE SOCKET 70 MM2	3
6185666	005	VOLT/AMP. METER. UNI MSD 1	1
1027740	010	SIDE PLATE RIGHT KWELD 5500W	1
1027750	020	SIDE PLATE LEFT KWELD 5500W	1
1027710	030	COVER PLATE KEMPOWELD 5500W	1
1027730	040	FRONT PLATE KEMPOWELD 5500W	1
1027770	050	REAR PLATE KEMPOWELD 5500W	1
3001873	060	CLAMP D30	1
3001875	070	INSULAT. PLATE FOR CLAMP	1
9592158	080	COOLING FAN HOLDER	1
4281090	090	HANDLE PIPE KMIG 4000, 3200	1
9592126	100	WATER TANK	1
9547150	110	WHEEL	2
9547711	120	WHEEL, ROTATING	2
1027050	130	LEFT PULL-HANDLE	1
1026960	140	RIGHT PULL-HANDLE	1
3138950	150	AXLE INSULATION	1
9373215	160	RUBBER HOSE 10/17 MM	0,92
9568903	170	FEMALE FAST CONNECTION 1/8	2
4286530	180	WATER HOSE	2
4279930	190	HOSE CONNECTOR R1/8 - 9.5 KL	1
9540415	195	REPAIR SET FOR PUMP SIMACO	1
9551058	200	L CONNECTION 2020-R1/4-R1/4	1
9568956	210	IN-LINE CONNECTOR	1
9568938	220	HOSE CONNECTOR R1/4-12	2
9568957	240	BRANCH CONNECTOR 2060-1/4	1
9581006	260	HEAT EXCHANGER	1
4280650	270	SWITCH PROTECTION	1
3142130		CIRCUIT DIAGRAM KEMPOWELD 5500W	1
9592136		FILTER	1
9761302		PROTECTION SWITCHES'LEVER	2
9772523		FUSE 4A DELAYED 5X20	1
9772526		FUSE 8A DELAYD 5 X 20	1



Order no.	Part	Description	Pc.
4279550	A001	CARD A001 WIRE, KEMPOMAT	1
4280180	C001	CAPACITOR 0.1 UF / 250V	1
9754156	RW101	POTENTIOMETER 100 KOHM CERMET	1
9754141	RW102	POTENTIOMETER 10 KOHM CERMET	1
9761375	S001	LEVER SWITCH	1
9770450	XW002	FEMALE CONTACT BODY 2 POLES	1
9770117	XW101	MACHINE SOCKET 10 POLES, MALE	1
9770458	XW102	PLUG 6 POLES	1
9770460	XW103	PLUG 15 POLES	1
9770460	XW104	PLUG 15 POLES	1
9771591	X001	MACHINE SOCKET 70 MALE	1
956300201	Y001	SOLENOID VALVE	1
3144220	0-000	CIRCUIT DIAGRAM WIRE 200	1
1921650	0-010	SPARE PART LIST SL-K250	1
2062070	0-020	HUB FOR WIRE REEL PROMIG	1
3133500	0-030	CLAMP PROMIG	1
4267970	0-040	BRAKE PIECE PROMIG 501, 511	1
4265820	0-050	CLAMPING NUT M16	1
4270940	0-060	PRESS SPRING PROMIG	1
9425216	0-070	WASHER D16	1
206652001	0-080	DOOR PLATE	1
9549064	0-090	SLIDE LOCK	1
9549066	0-100	CLAMP	1
2062900	0-110	PLASTIC HANDLE 26X50X217/188	1
206653001	0-120	SIDE PLATE	1
9568911	0-130	HOSE CONNECTOR R1/8-5ML	1
4290570	0-140	GUIDANCE STICKER WIRE 200	1
4296860	0-150	STICKER FOR PANEL WIRE 200, KMAT 2001,	1
4296210	0-160	STICKER KEMPOWELD WIRE	1
4279770	0-170	WIRE FEED STICKER WIRE	1
4280040	0-190	KEMPOWELD CONNEC. WIRE	2
4280050	0-200	STICKER F GAS BOTTLE	1
1026870	0-220	SAFETY FRAME F DISPL	1
4279940	0-260	FLAT CABLE L=380	1
3134270	0-280	HOSE CONNECTOR R1/8-M12	1
		***ACCESSORIES****	
6219200	1-020	TIMER UNIT KMW TIMER	1
3135870	2-010	LIFT HOOK PROMIG	1
9840352	2-030	PLASTIC BAG	1

Order no.	Part	Description	Pc.
4279550	A001	CARD A001 WIRE, KEMPOMAT	1
4280180	C001	CAPACITOR 0.1 UF / 250V	1
9754156	RW101	POTENTIOMETER 100 KOHM CERMET	1
9754141	RW102	POTENTIOMETER 10 KOHM CERMET	1
9761375	S001	LEVER SWITCH	1
9770450	XW002	FEMALE CONTACT BODY 2 POLES	1
9770117	XW101	MACHINE SOCKET 10 POLES, MALE	1
9770458	XW102	PLUG 6 POLES	1
9770460	XW103	PLUG 15 POLES	1
9770460	XW104	PLUG 15 POLES	1
9771591	X001	MACHINE SOCKET 70 MALE	1
9563002	Y001	SOLENOID VALVE	1
3139080	0-000	CIRCUIT DIAGRAM WIRE 400	1
1921600	0-010	SPARE PART LIST SL-K400	1
2062070	0-020	HUB FOR WIRE REEL PROMIG	1
3133500	0-030	CLAMP PROMIG	1
4267970	0-040	BRAKE PIECE PROMIG 501, 511	1
4265820	0-050	CLAMPING NUT M16	1
4270940	0-060	PRESS SPRING PROMIG	1
9425216	0-070	WASHER D16	1
2066520	0-080	DOOR PLATE WIRE 400, 550	1
9549064	0-090	SLIDE LOCK	1
9549066	0-100	CLAMP	1
2062900	0-110	PLASTIC HANDLE 26X50X217/188	1
2066530	0-120	SIDE PLATE WIRE 400, 550	1
9568911	0-130	HOSE CONNECTOR R1/8-5ML	1
3139410	0-140	WIRE PATH-WELD.STICK K400	1
3139100	0-150	STICKER FOR K400	1
4296210	0-160	STICKER KEMPOWELD WIRE	1
4279770	0-170	WIRE FEED STICKER WIRE	1
4280040	0-190	KEMPOWELD CONNec. WIRE	2
4280050	0-200	STICKER F GAS BOTTLE	1
4296870	0-210	STICKER KMW SYNC	1
1026870	0-220	SAFETY FRAME F DISPL	1
1026880	0-230	COVER PLATE FOR DISP	1
3138810	0-240	LEFT HINGE	1
3139110	0-250	RIGHT HINGE	1
4279940	0-260	FLAT CABLE L=380	1
3116880	0-270	HOOK	1
3134270	0-280	HOSE CONNECTOR R1/8-M12	1
		***ACCESSORIES****	
6219100	1-010	SYNCHRONIZAT. UNIT KMW SYNC	1
6219200	1-020	TIMER UNIT KMW TIMER	1
3135870	2-010	LIFT HOOK PROMIG	1
9840352	2-030	PLASTIC BAG	1

Order no.	Part	Description	Pc.
4279550	A001	CARD A001 WIRE, KEMPOMAT	1
4280180	C001	CAPACITOR 0.1 UF / 250V	1
9754156	RW101	POTENTIOMETER 100 KOHM CERMET	1
9754141	RW102	POTENTIOMETER 10 KOHM CERMET	1
9761375	S001	LEVER SWITCH	1
9770450	XW002	FEMALE CONTACT BODY 2 POLES	1
9770117	XW101	MACHINE SOCKET 10 POLES, MALE	1
9770458	XW102	PLUG 6 POLES	1
9770460	XW103	PLUG 15 POLES	1
9770460	XW104	PLUG 15 POLES	1
9771591	X001	MACHINE SOCKET 70 MALE	1
9563002	Y001	SOLENOID VALVE	1
3142370	000	CIRCUIT DIAGRAM WIRE 550	1
6219200	005	TIMER UNIT KMW TIMER	1
1921700	010	SPARE PART LIST SL-K550	1
2062070	020	HUB FOR WIRE REEL PROMIG	1
3133500	030	CLAMP PROMIG	1
4267970	040	BRAKE PIECE PROMIG 501, 511	1
4265820	050	CLAMPING NUT M16	1
4270940	060	PRESS SPRING PROMIG	1
9425216	070	WASHER D16	1
2066520	080	DOOR PLATE WIRE 400, 550	1
9549064	090	SLIDE LOCK	1
9549066	100	CLAMP	1
2062900	110	PLASTIC HANDLE 26X50X217/188	1
2066530	120	SIDE PLATE WIRE 400, 550	1
9568911	130	HOSE CONNECTOR R1/8-5ML	1
3139410	140	WIRE PATH-WELD.STICK K400	1
3139100	150	STICKER FOR K400	1
4296210	160	STICKER KEMPOWELD WIRE	1
4279770	170	WIRE FEED STICKER WIRE	1
4280040	190	KEMPOWELD CONNEC. WIRE	2
4280050	200	STICKER F GAS BOTTLE	1
4296870	210	STICKER KMW SYNC	1
1026870	220	SAFETY FRAME F DISPL	1
1026880	230	COVER PLATE FOR DISP	1
3138810	240	LEFT HINGE	1
3139110	250	RIGHT HINGE	1
4279940	260	FLAT CABLE L=380	1
3116880	270	HOOK	1
3134270	280	HOSE CONNECTOR R1/8-M12	1
		***ACCESSORIES****	
6219100		SYNCHRONIZAT. UNIT KMW SYNC	1
3135870		LIFT HOOK PROMIG	1

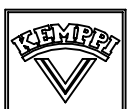
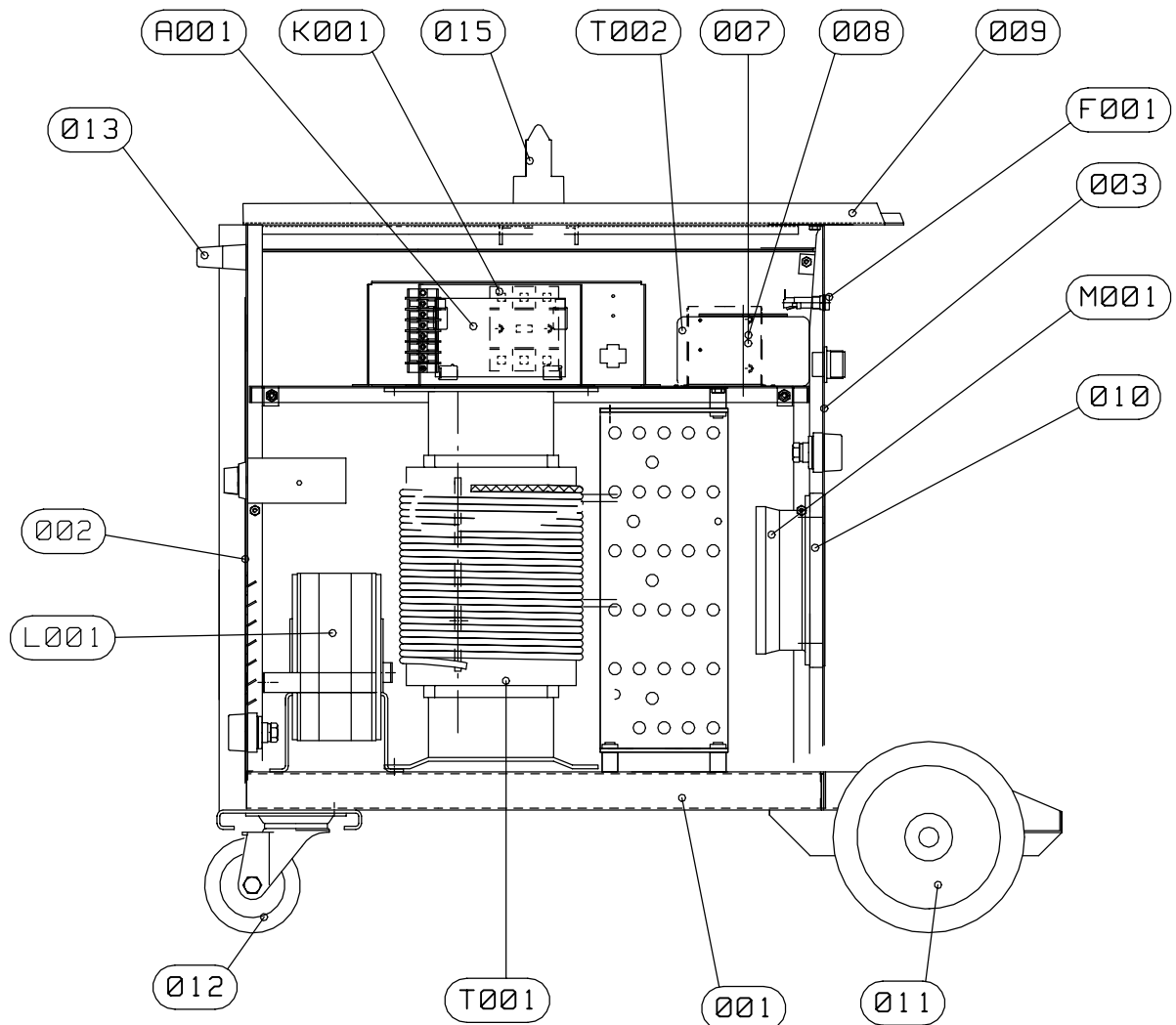
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1921760

V211203

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RESERVEDELE

SPARE PARTS  
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ONDERDELEN  
PIECES DETACHEES



# KEMPPPI

3144530

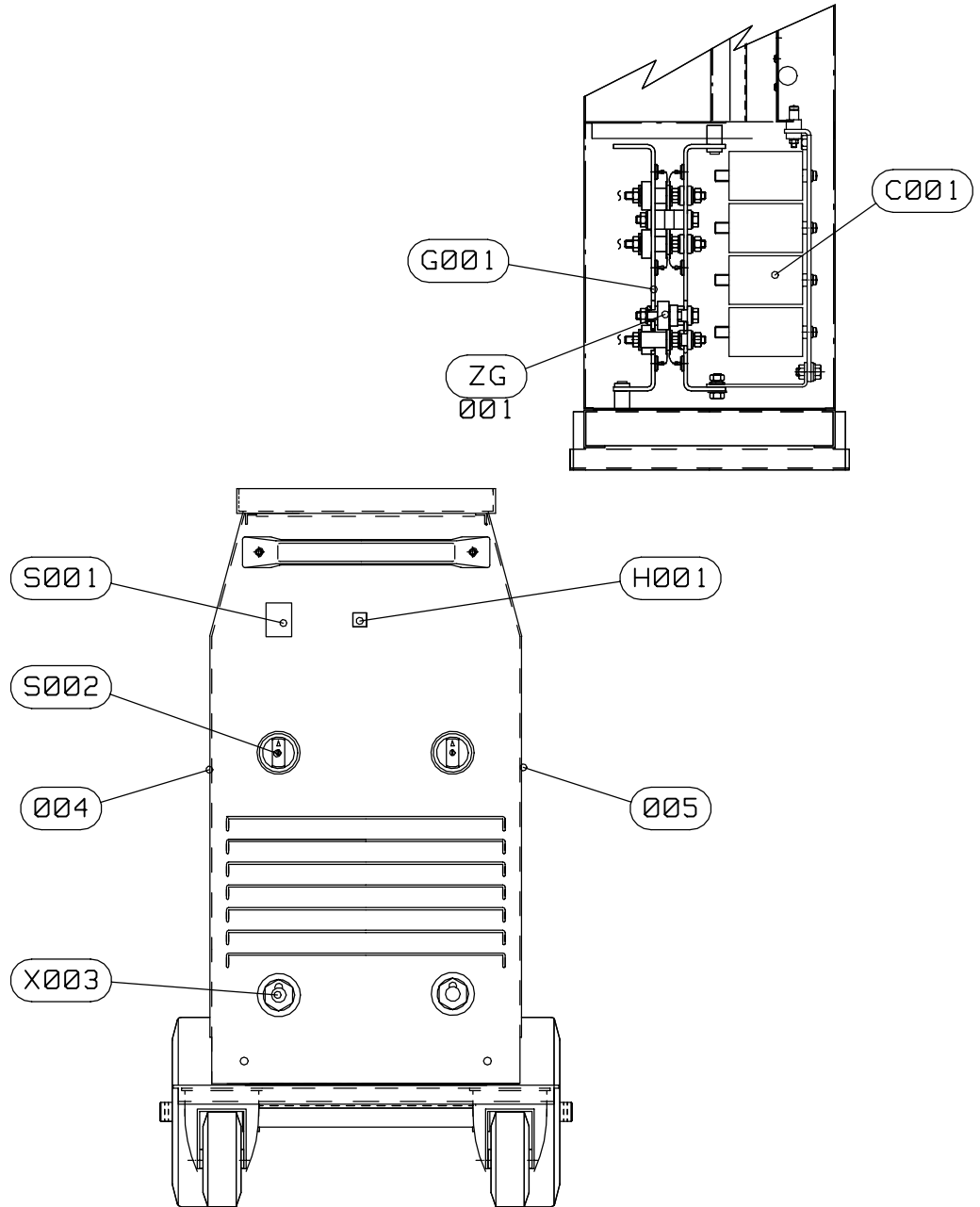
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1921760

V211203



# KEMPOWELD3200

1921830

V215303

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SPARE PARTS

RESERVDELAR

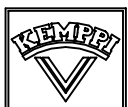
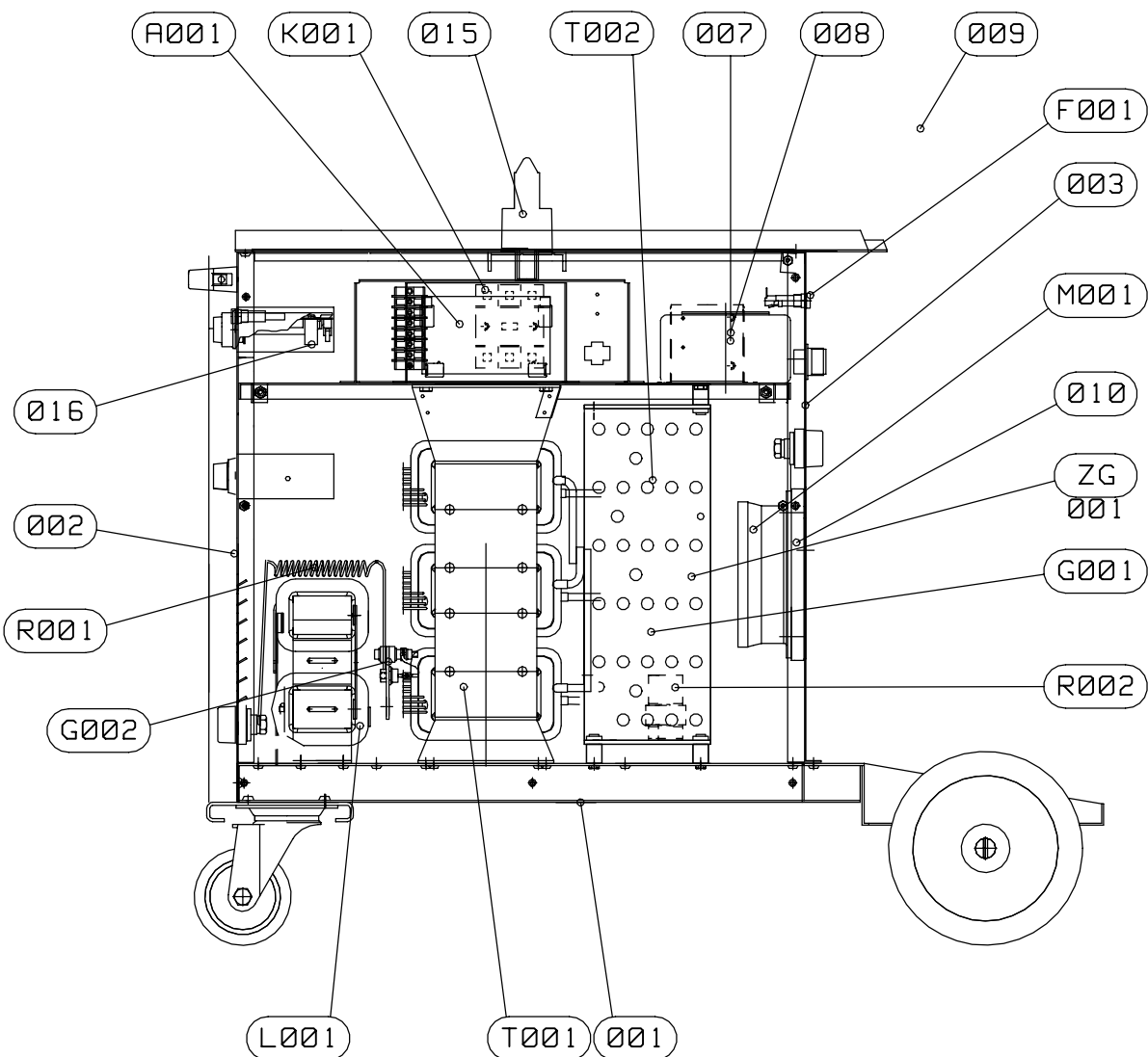
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# KEMPPPI

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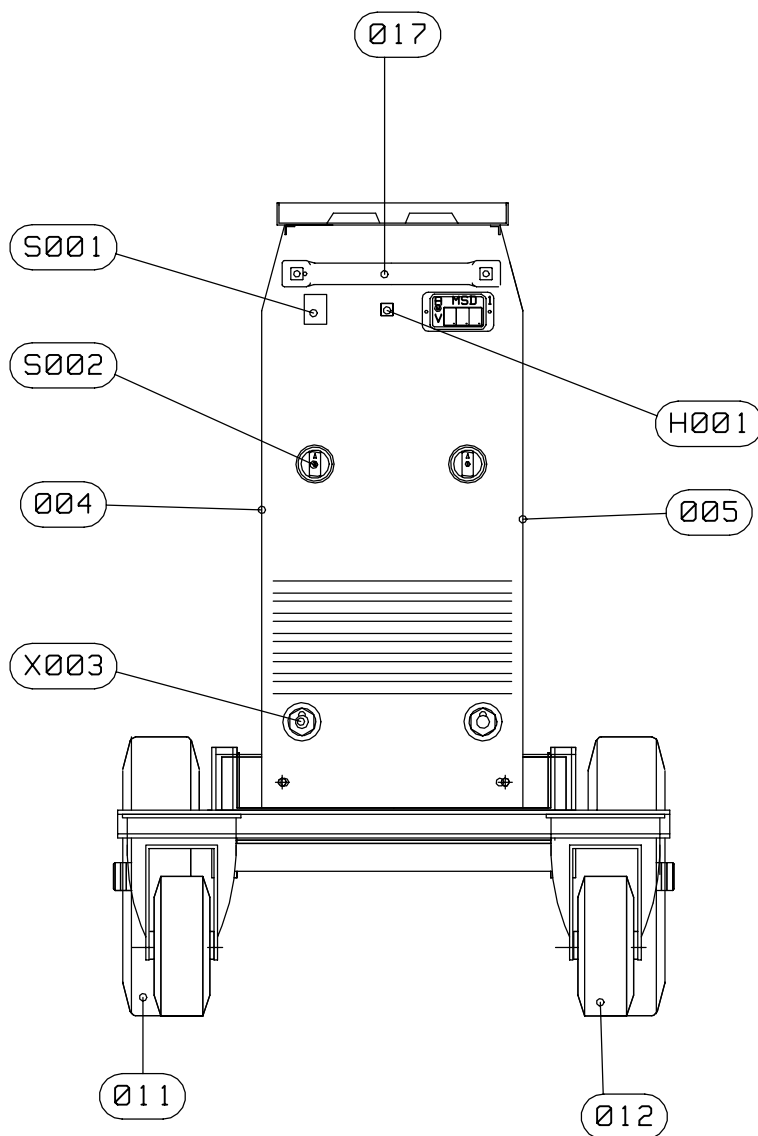
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PIECES DETACHEES

1921830

V215303



# KEMPOWELD3200 W

1921850

V216302

VARAOSAT

SPARE PARTS

RESERVDELAR

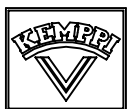
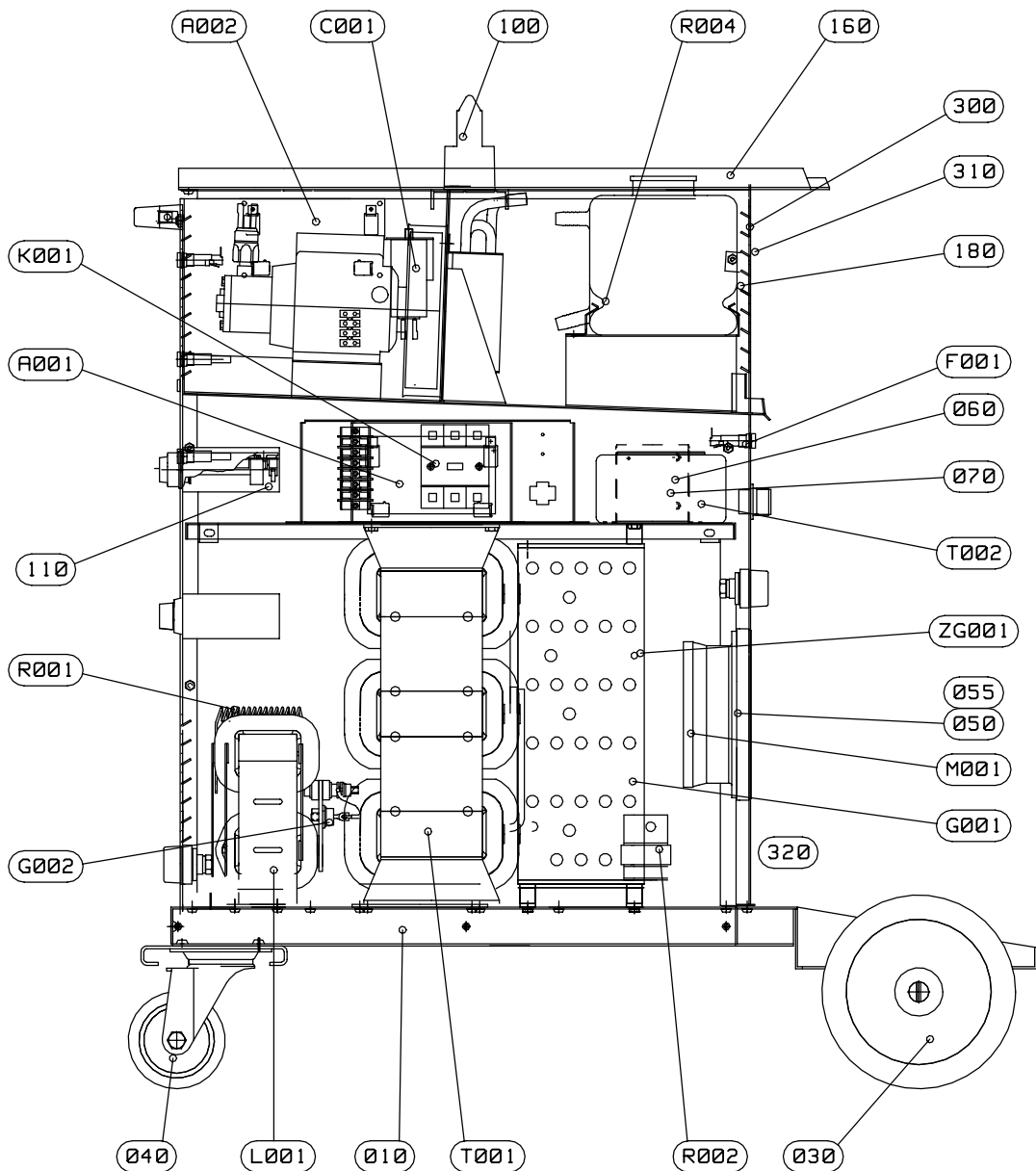
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RESERVEDELE

PIECES DETACHEES



# KEMPPi

3145150



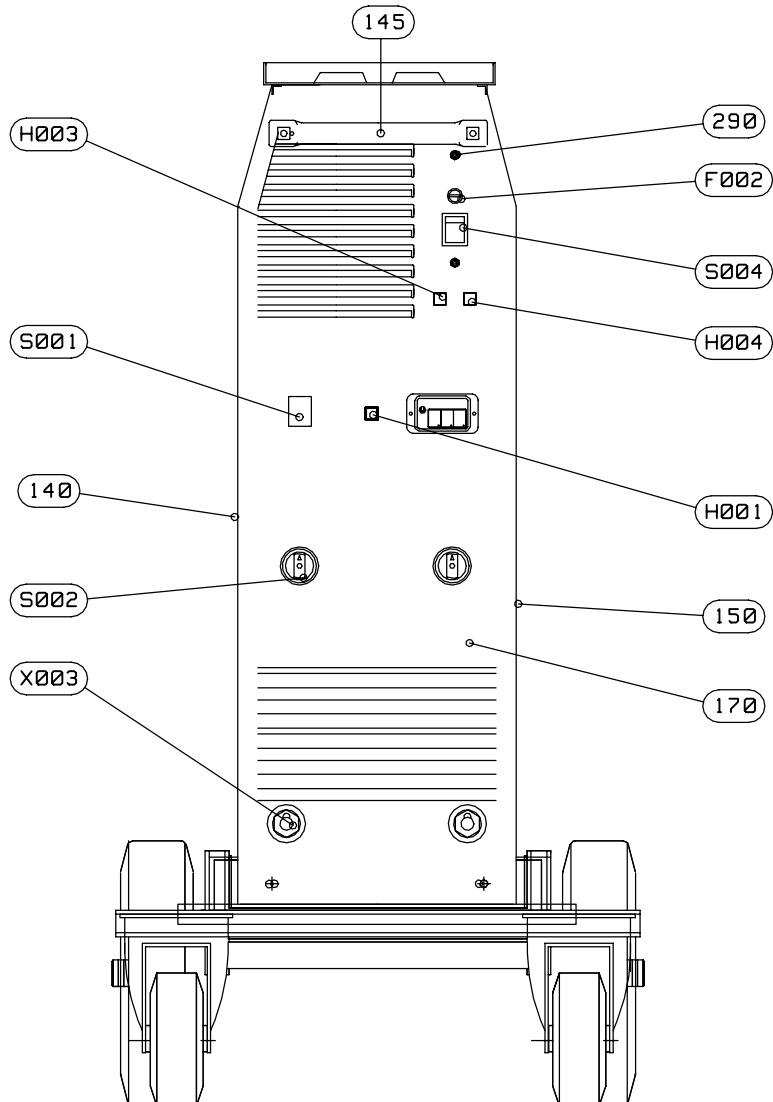
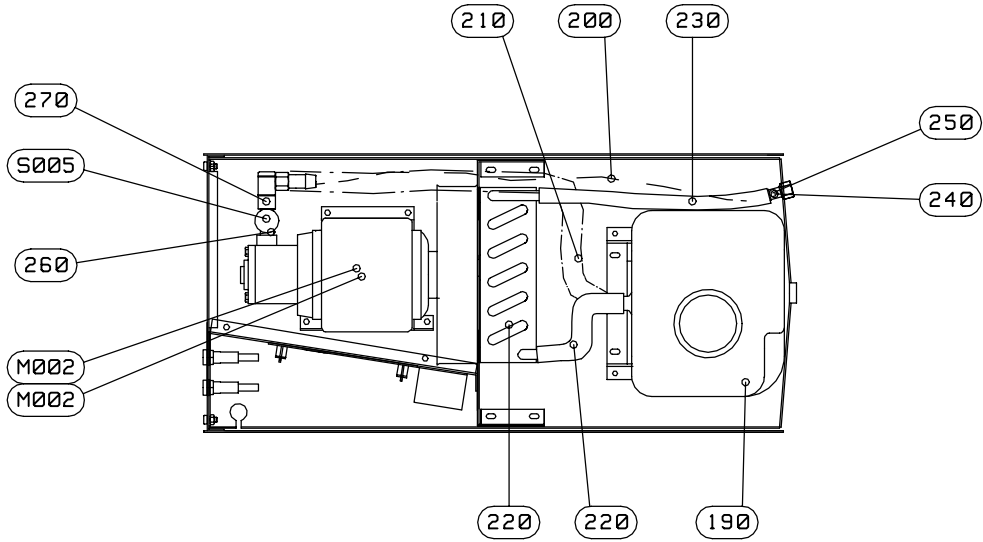
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RESERVEDELE

SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES

1921850

V216302



# KEMPOWELD4000/4000W

1921840

V215304

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SPARE PARTS

RESERVDELAR

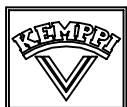
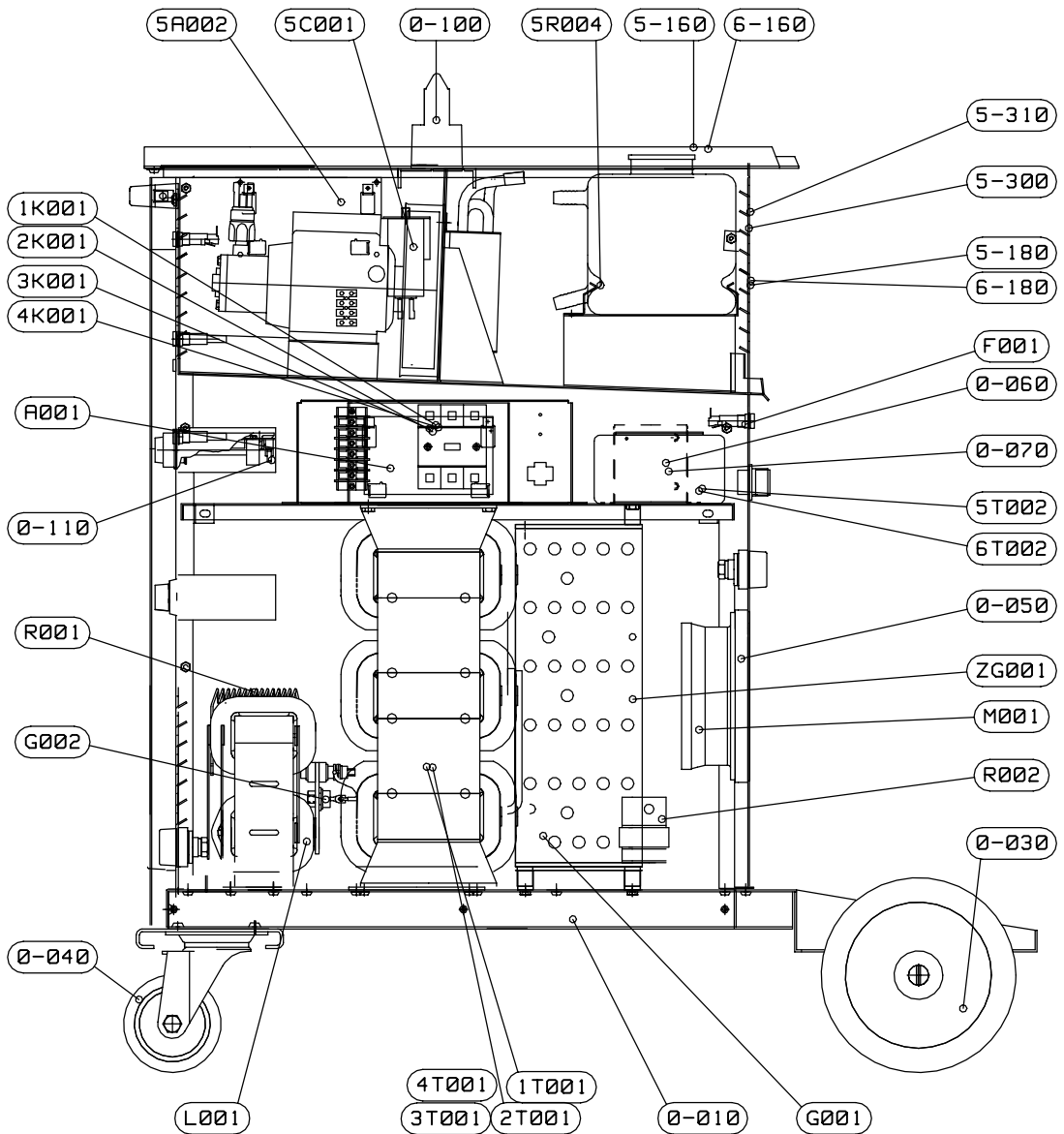
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PIECES DETACHEES



# KEMPPPI

3145140

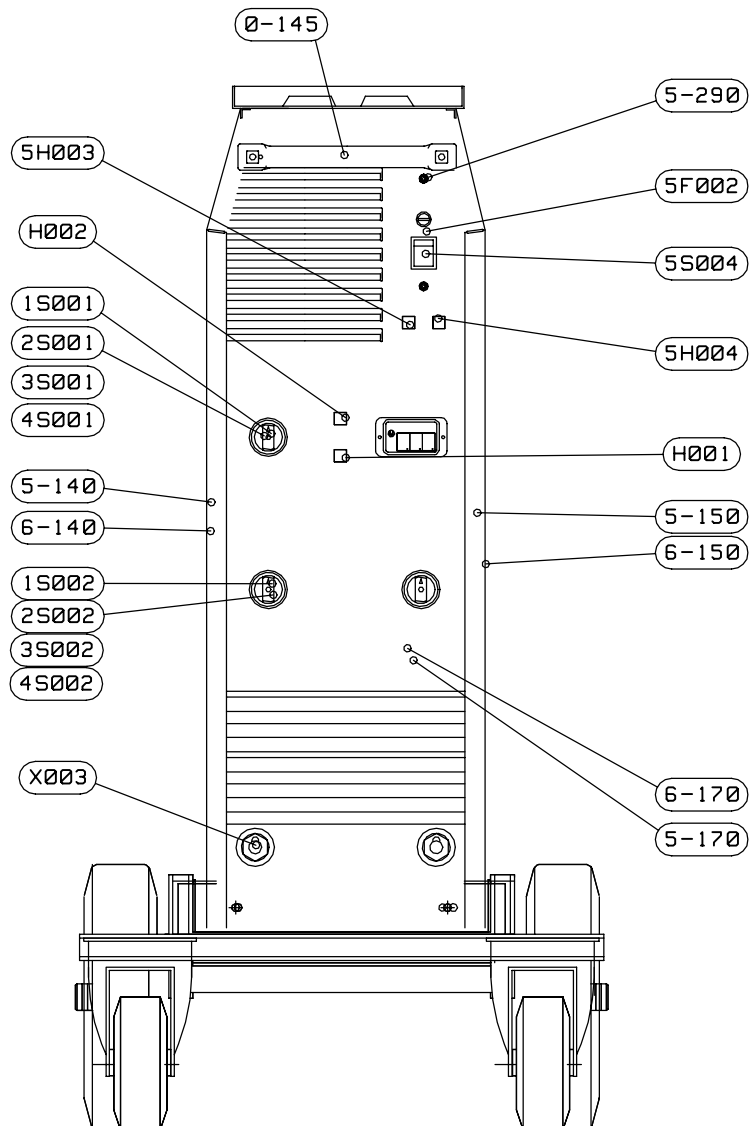
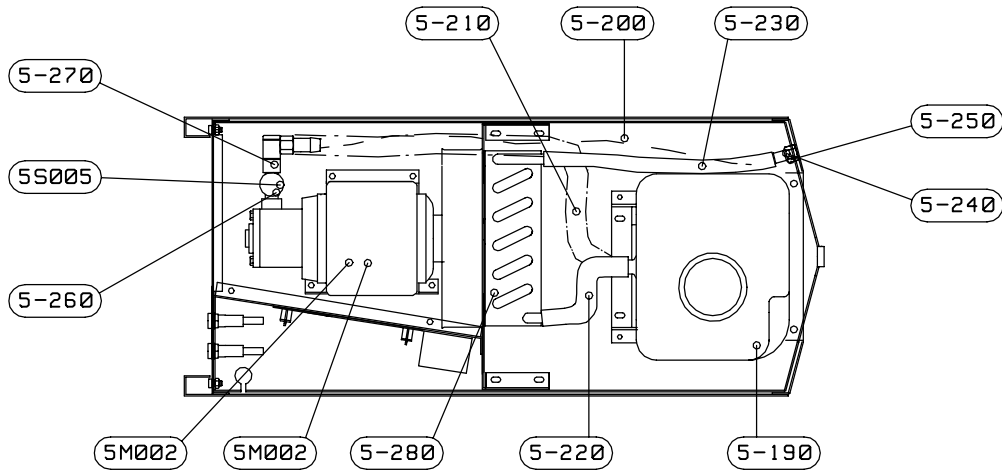
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VARAOSAT  
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RESERVE DELER  
RESERVEDELE

SPARE PARTS  
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ONDERDELEN  
PIECES DETACHEES

1921840

V215304



# KEMPOWELD 5500W

1921690

V216501

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SPARE PARTS

RESERVDELAR

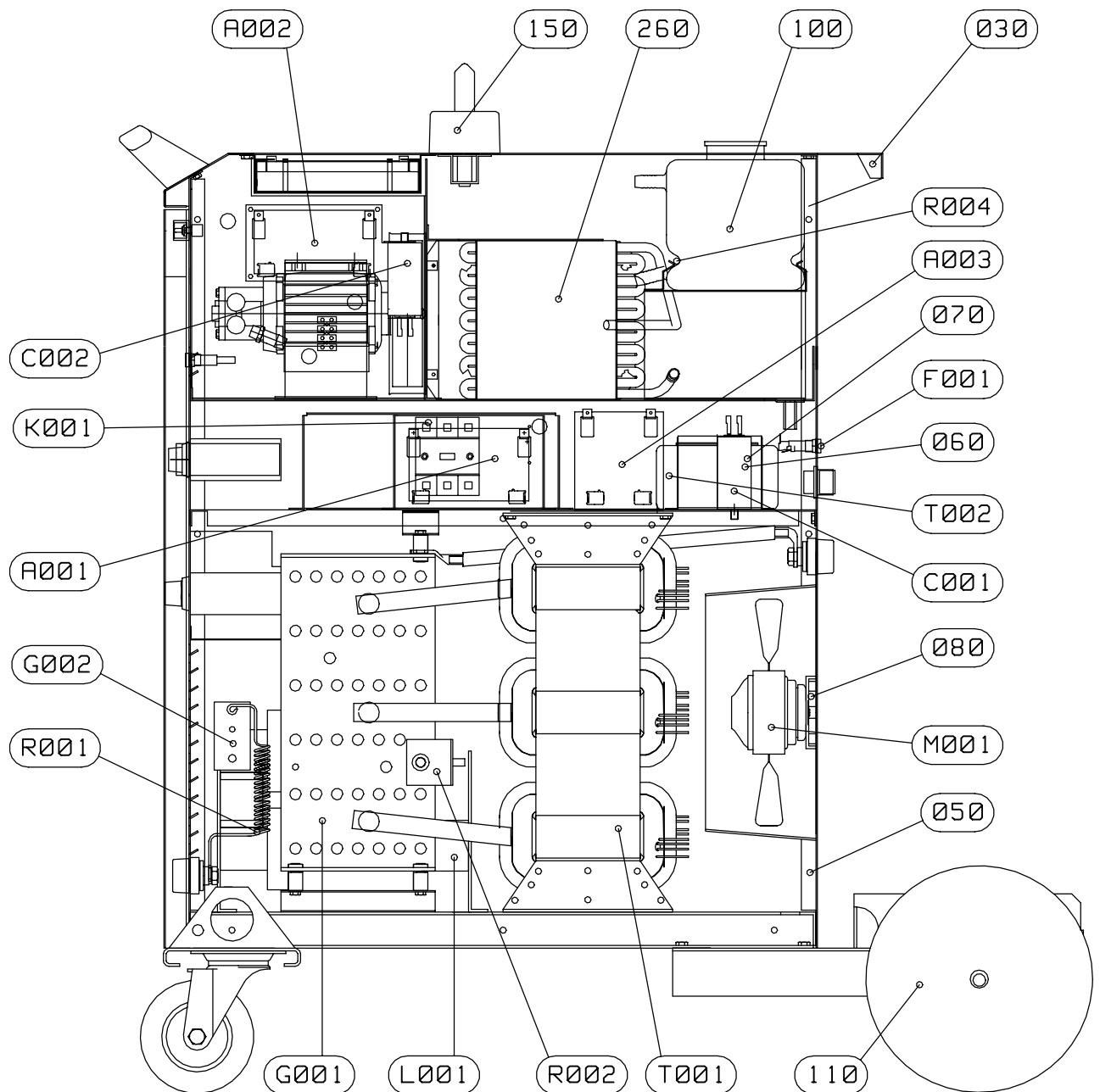
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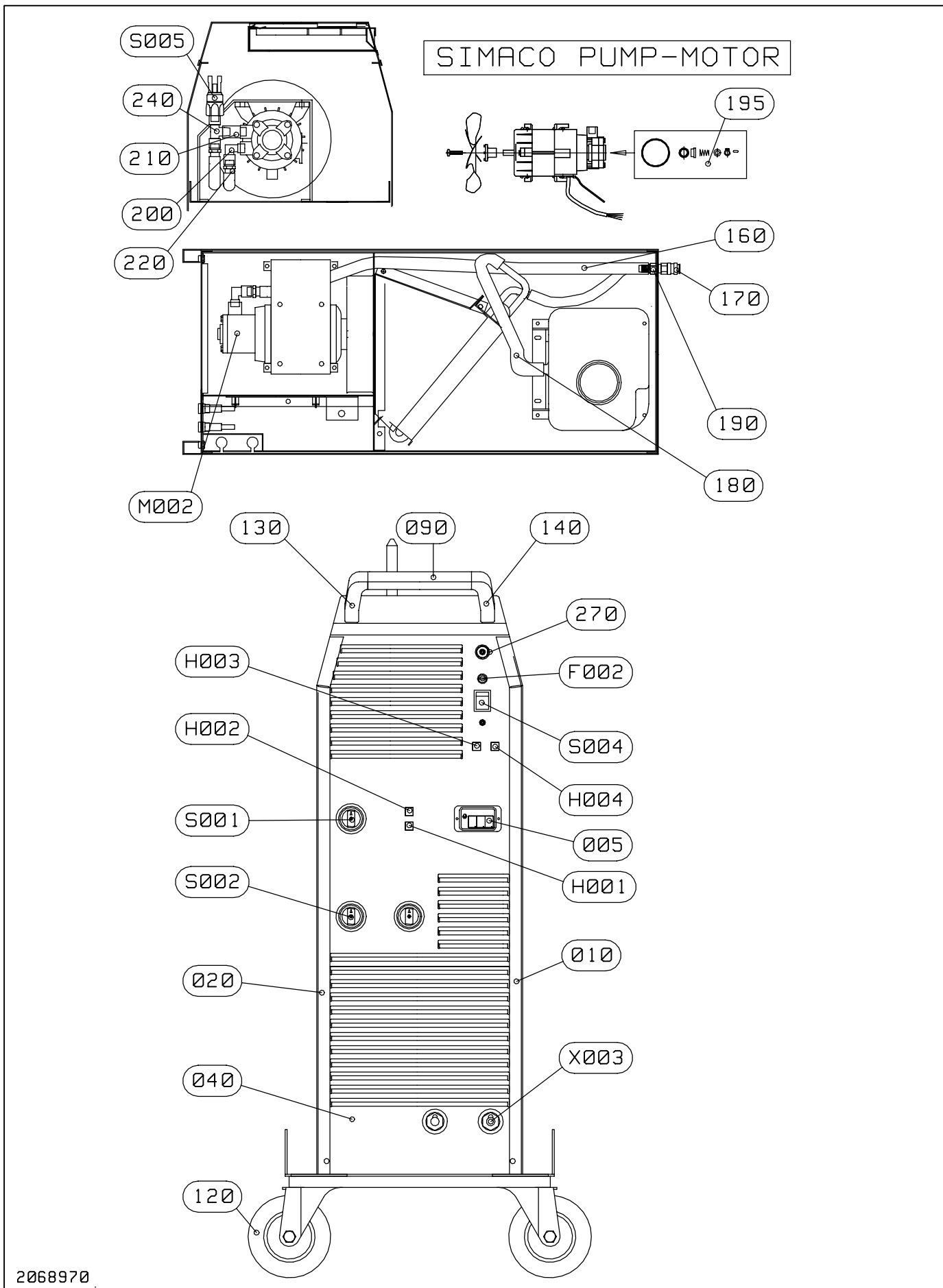


# KEMPPPI

2068970

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RESERVE DELER  
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SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES



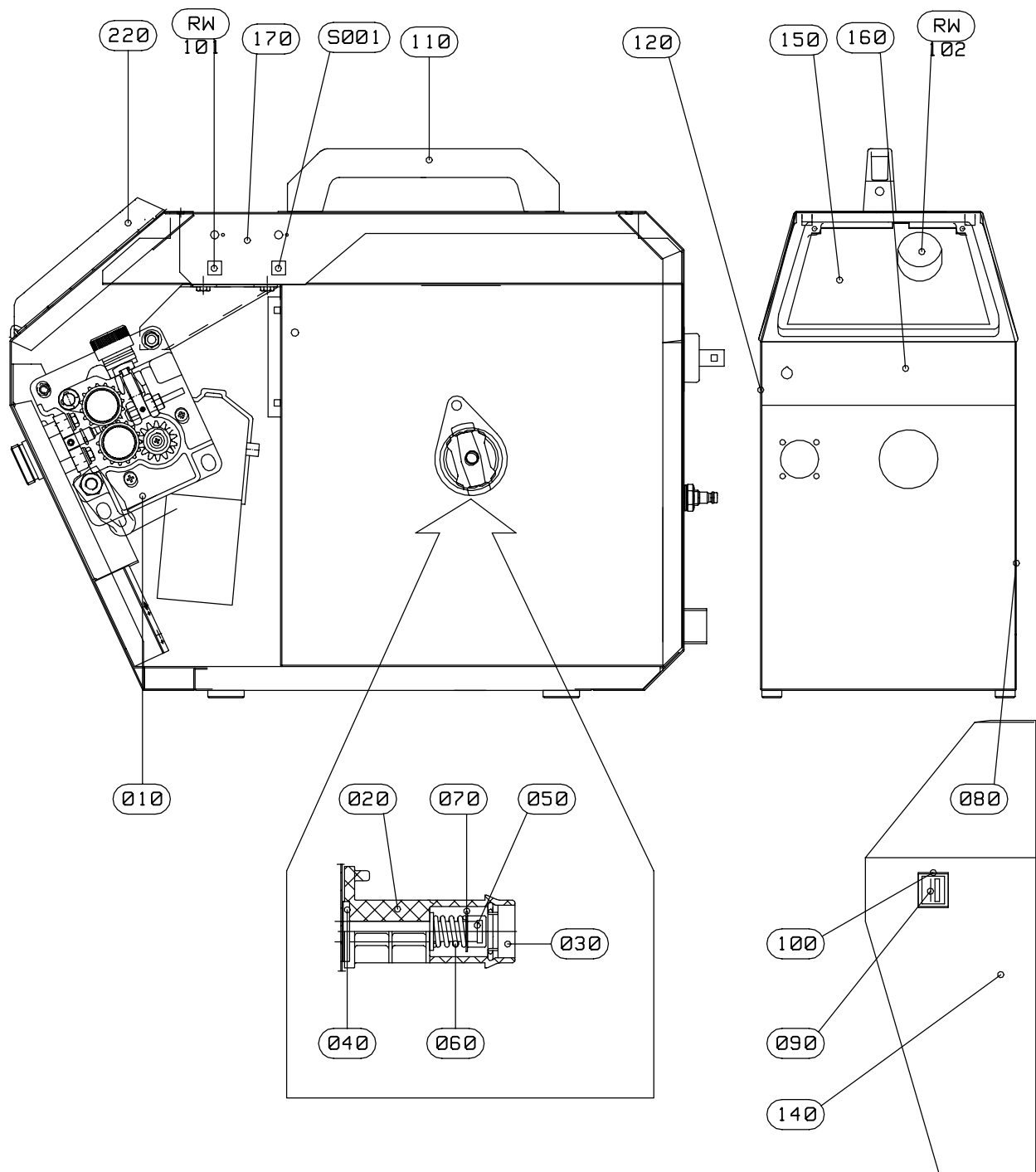
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1921770

V217201

VARAOSAT  
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RESERVE DELER  
RESERVEDELE

SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES



# KEMPPi

The Joy of Welding

3144540

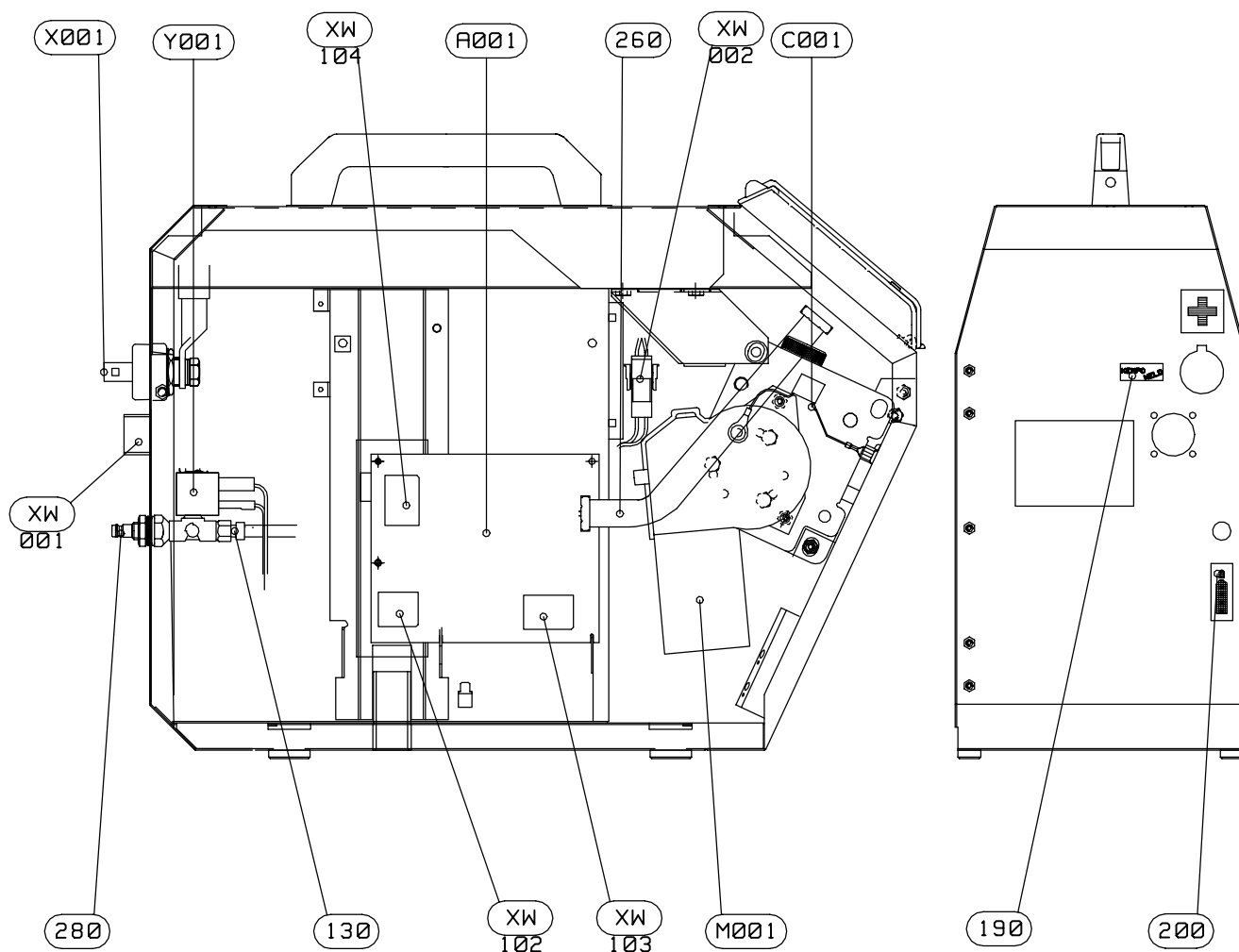
# WIRE 200

VARAOSAT  
RESERVDLAR  
RESERVE DELER  
RESERVEDELE

SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES

1921770

V217201



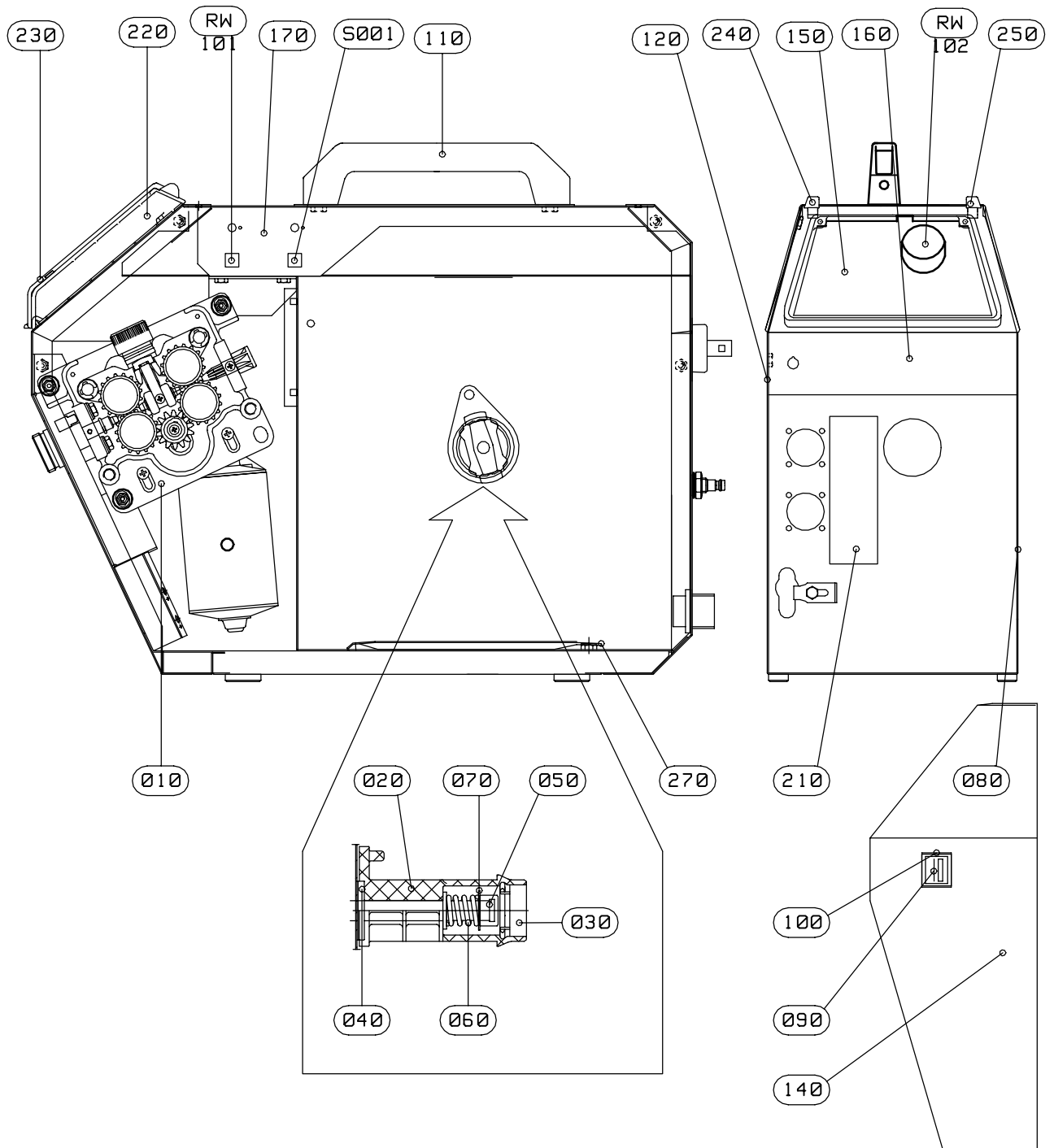
# WIRE 400

1921560

V217401

VARAOSAT  
RESERVDELAR  
RESERVE DELER  
RESERVEDELE

SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES



# KEMPPPI

The Joy of Welding

2066790



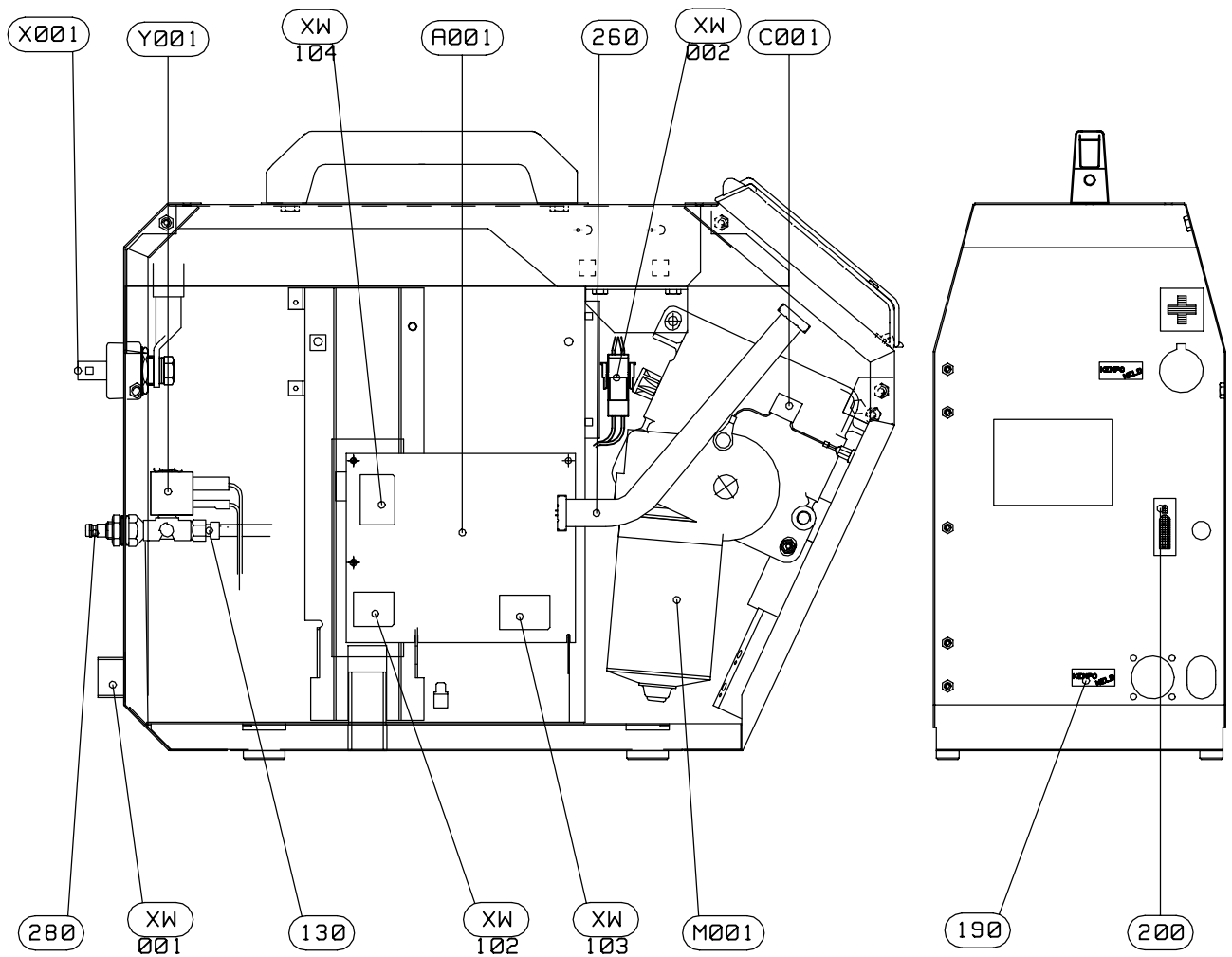
# WIRE 400

VARAOSAT  
RESERVDLAR  
RESERVE DELER  
RESERVEDELE

SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES

1921560

V217401



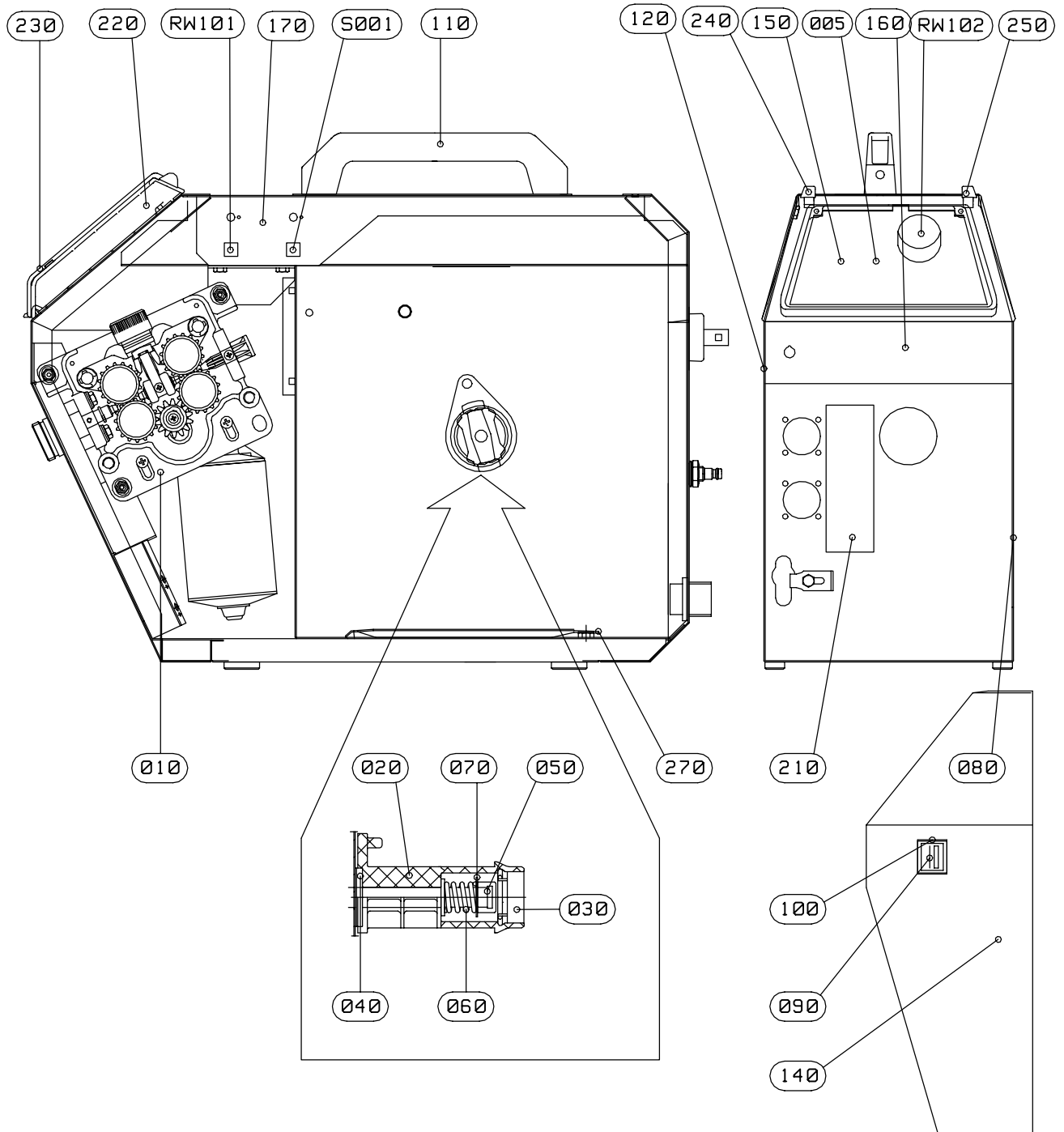
# WIRE 550

1921701

V217501

VARAOSAT  
RESERVDELAR  
RESERVE DELER  
RESERVEDELE

SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES



# KEMPPi

The Joy of Welding

2069120-

# WIRE 550

VARAOSAT  
RESERVDELAR  
RESERVE DELER  
RESERVEDELE

SPARE PARTS  
ERSATZTEILE  
ONDERDELEN  
PIECES DETACHEES

1921701

V217501

