



THERMATOOL

Customer Documentation

Electrical Schematics

Interconnect Cable List

Assembly Drawings
Assembly Drawings

Plinth Requirements

Water Schematics

Impedor Details

Basic Dimension Drawings

Work Coil Drawings

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Help



Drawing List

Customer Drawings viewing Help

This help file contains the basic information to aid you to open, navigate, and print ThermoTool PDF documents using Adobe Acrobat Reader.

More detailed information to be found in the Acrobat Reader Help.

Customer Drawing List

This List defines Drawings and the Revision Levels provided.

Viewing of PDF documents/drawings

To aid viewing select Single Page on the View Tab so that you can see one page at a time.

Acrobat provides buttons, keyboard shortcuts, and menu commands for paging through a PDF document.

More detailed information to be found in the Acrobat Reader Help.

To browse using built in navigation:

Select required document/drawing from the **Customer Drawing List** and click to open.



Click anywhere (see Fig 1) within the selected Single Sheet drawing to return to the Customer Drawing List.

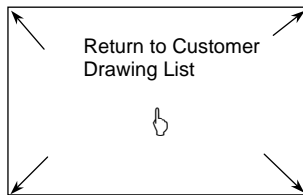


Fig 1

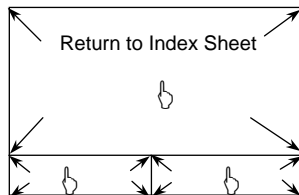


Multiple page documents have an Index Sheet showing the sheet numbers, click the required Sheet No. to open.

Click **Bottom Right** (see Fig 2) of the selected drawing to go to next Sheet.

Click **Bottom Left** (see Fig 2) of the selected drawing to go to previous Sheet.

Click **anywhere else** (see Fig 2) within the selected drawing to return to Index Sheet.



To Previous Sheet
...3-2-1

To Next Sheet
2-3-4...

Fig 2

Click **anywhere** within the Drawing Index Sheet (see Fig 1) to return to the Customer Drawing List.

To Browse using a bookmark:

Select Bookmarks Tab, left hand side of screen.

Click on selected drawing to open.

Click + sign where shown to reveal multiple sheets.

Browsing can also be via the use of thumbnails.

More detailed information to be found in the Acrobat Reader Help.



Printing PDF documents

Care must be taken not to print entire document if only a selection required.

To print the drawing displayed on screen ensure to click the 'Current Page' in the Print Range of the Print screen.

To specify a range of pages, noncontiguous pages, or a particular page click the thumbnails in the Thumbnail palette or select an area of a drawing to print using the graphic select tool.

More detailed information to be found in the Acrobat Reader Help.

**THERMATOOL**

Customer Drawing List

CFC 200kW 400kHz Spiral Fin (L/R)Equipment No. **TBW0809805****Kusakabe Kikai Co. Ltd., Japan**

<u>Drawing Title</u>	<u>Drq No.</u>		<u>Rev</u>
1 Schematic Electrical	WW5235	Sht 1-41	B
2 Interconnection Cable List	WW5236	Sht 1-15	A
3 Thermatool Wiring Colours	XS0051	Sht 1-2	A
4 Interconnect Wiring - HMI to S7 PLC	WW0326	Sht 1/1	0
5 DC PSU Cabinet - Water Schematic 200-350kW	WW0091	Sht 2/2	H
6 Pneumatic Schematic Weld Table & Clamps	WW0208	Sht 1-3	C
7 External Water Circuit - Spiral Fin	WW0210	Sht 1/1	A
8 Internal Water Schematic - Spiral Fin	WW0221	Sht 1-3	A
9 Contacts Pneumatic Circuit	WW0222	Sht 1/1	A
10 Basic Dimensions - HF12 Inverter Cabinet	WD0076	Sht 1/1	A
11 Basic Dimensions - DC PSU 200-350kW	WD0077	Sht 2/2	B
12 Basic Dimensions, Thermaview II Panels	WK0471	Sht 1/1	A
13 General Assembly HF12 Spiral Fin -L/R	WD0156	Sht 1/1	B
14 Basic Dimensions - Heat Exchanger 50-350kW CFI	WD0171	Sht 1/1	A
15 Tacho-General Details	WD5059	Sht 1/1	0
16 Weld Table Assembly - Spiral Fin L/R	WL2168	Sht 1-3	G
17 Horizontal Clamp Assembly	WL1066	Sht 1/1	A
18 Assembly Control Enclosure - 3 Axis Table	WL1074	Sht 1/1	B
19 Matching System Assembly	WL2156	Sht 1/1	F
20 Vertical Clamp Assembly L/R	-001 WU5048	Sht 1/2	A
21 Vertical Clamp Assembly L/R - BOM	-001 WU5048	Sht 1/1	A
22 Contact Assembly L/R	WU5105	Sht 1/1	E
23 Contact Assembly L/R - BOM	WU5105	Sht 1-2	D
24 Installation Dimensions - Spiral Fin Welder L>R	WD5159	Sht 1/1	0

Issue: 0

Date: 29-Sep-08

WW5235 Schematic – Electrical

CFS (Spiral Fin) 50-350kW Solid State Welder

Thermaview, (“Optional” Customer Inputs), S7-313C PLC, PILZ E-Stops
400 (460) VAC, 50/60Hz, 3 Phase

System Electrical - Front Sheet.....	Sheet 1
System Interconnect	Sheet 2
System Grounding.....	Sheet 3
DC Control Panel 0 Volt Wiring + Earth.....	Sheet 3A
AC Power Distribution (50-350 kW)	Sheet 4
Blank Page	Sheet 5
AC Power Distribution (Current Feedback)	Sheet 6
AC Power Distribution (DC Rectifiers)	Sheet 7
AC Power Distribution (Auxiliary Control)	Sheet 8
Three Phase AC Motors	Sheet 9
AC Control.....	Sheet 10
Single Phase AC Motors.....	Sheet 11
24vDC Control (E-Stop Circuit)	Sheet 12
24vDC Control.....	Sheet 12A
24vDC Control.....	Sheet 13
Mill Interlocks.....	Sheet 14
Blank Page	Sheet 15
PLC Analog Inputs 0-10v (Slot 0,2)	Sheet 16
PLC Digital Inputs 24vDC (Slots 0,2)	Sheet 17
PLC Digital Inputs 24vDC (Slots 0,4)	Sheet 18
PLC Digital Inputs 24vDC (Slots 0,5).....	Sheet 19
PLC Digital Outputs 24vDC (Slots 0,2).....	Sheet 20
PLC Digital Outputs 24vDC (Slot 0,6).....	Sheet 21
PLC Digital Inputs 24vDC (Slot 0,7).....	Sheet 22
PLC Digital Outputs 24vDC (Slot 0,8).....	Sheet 23
PLC Digital Inputs 24vDC (Slot 0,9 1,10).....	Sheet 23A
1-XLOC Term. Block.....	Sheet 24
1-XHF Term. Block	Sheet 25
1-DC1 & 1-DC2 Control Boards.....	Sheet 26
2-HF1 Control Board	Sheet 27
1-SPC1 Speed Power Control Board.....	Sheet 28
HF Module Power Supplies (50-300 kW).....	Sheet 29
Blank Page.....	Sheet 30
Blank Page.....	Sheet 31
DC Harmonic Filter.....	Sheet 32
RF Output Circuit.....	Sheet 33
2-HF1 to HF Module Connections.....	Sheet 34
HF-Generator Plug Interconnect Details (Plug 1).....	Sheet 35
HF-Generator Plug Interconnect Details (Plug 2,3,4).....	Sheet 36
"Typical" Terminal Layout 50 Thru 350kW.....	Sheet 37
"Typical" Panel Layout 50 Thru 350kW.....	Sheet 38

DRAWING LIST:

CFS SOLID STATE WELDER 400 (460) VAC, 50/60Hz, 3 PH.

SYSTEM INTERCONNECT.	SHEET 2
SYSTEM GROUNDING.	SHEET 3
DC CONTROL PANEL 0 VOLT WIRING + EARTH	SHEET 3A
AC POWER DISTRIBUTION (50-350 KW)	SHEET 4
BLANK PAGE	SHEET 5
AC POWER DISTRIBUTION (CURRENT FEEDBACK).	SHEET 6
AC POWER DISTRIBUTION (DC RECTIFIERS).	SHEET 7
AC POWER DISTRIBUTION (AUXILIARY CONTROL)	SHEET 8
THREE PHASE AC MOTORS	SHEET 9
AC CONTROL.	SHEET 10
SINGLE PHASE AC MOTORS.	SHEET 11
24VDC CONTROL (E-STOP CIRCUIT)	SHEET 12
24VDC CONTROL.	SHEET 12A
24VDC CONTROL.	SHEET 13
MILL INTERLOCKS	SHEET 14
BLANK PAGE	SHEET 15
PLC ANALOG INPUTS 0-10V (SLOT 0,2).	SHEET 16
PLC DIGITAL INPUTS 24VDC (SLOT 0,2).	SHEET 17
PLC DIGITAL INPUTS 24VDC (SLOT 0,4).	SHEET 18
PLC DIGITAL INPUTS 24VDC (SLOTS 0,5).	SHEET 19
PLC DIGITAL OUTPUTS 24VDC (SLOTS 0,2)	SHEET 20
PLC DIGITAL OUTPUTS 24VDC (SLOTS 0,6)	SHEET 21
PLC DIGITAL INPUTS 24VDC (SLOT 0,7).	SHEET 22
PLC DIGITAL OUTPUTS 24VDC (SLOT 0,8)	SHEET 23
["OPTIONAL" CUSTOMER FAULTS]	
PLC DIGITAL INPUTS 24VDC (SLOTS 0,9 0,10).	SHEET 23A
1-XLOC TERM. BLOCK.	SHEET 24
1-XHF TERM. BLOCK	SHEET 25
1-DC1 & 1-DC2 CONTROL BOARDS	SHEET 26
2-HF1 CONTROL BOARD	SHEET 27
1-SPC1 SPEED POWER CONTROL BOARD	SHEET 28
HF MODULE POWER SUPPLIES 50- 350 KW).	SHEET 29
BLANK PAGE	SHEET 30
BLANK PAGE	SHEET 31
DC HARMONIC FILTER.	SHEET 32
RF OUTPUT CIRCUIT.	SHEET 33
2-HF1 TO HF MODULE CONNECTIONS	SHEET 34
HF-GENERATOR PLUG INTERCONNECT DETAILS (PLUG1,)	SHEET 35
HF-GENERATOR PLUG INTERCONNECT DETAILS (PLUG 2,3,4)	SHEET 36
"TYPICAL" TERMINAL LAYOUT 50 THRU 350KW	SHEET 37
"TYPICAL" PANEL LAYOUT 50 THRU 350KW	SHEET 38

WIRE IDENTIFICATION:

	FIRST NUMBER USED	LAST NUMBER USED
3 PHASE AC 400 (460)/200	L1 L2 L3	16L1 16L2 16L3
ISOLATED CONTROL VOLTAGE AC 115 OR (230)	101 100	140 109
HIGH FREQUENCY GENERATOR ISOLATED CONTROL VOLTAGE AC 115 OR (230)	601 600	621 -
AUXILIARY VOLTAGE AC 115 OR (230)	801 800	- -
HIGH VOLTAGE DC	900	906
CONTROL VOLTAGE (24VDC)	2401 2402 2400	2457 - -
LOW VOLTAGE DC (6-23VDC)	1001 1002 1000	1094 - -

NOTES:
NUMBERS SHOWN ARE RESERVED FOR SUPPLY WIRES.
SEQUENCE CONTINUES FOR SIGNAL WIRES.
EX. 24VDC SIGNAL = 2403



WIRING COLOURS IN ACCORDANCE WITH THERMATOOL STANDARD DRG No: XS0051
(GENERALLY AS RECOMMENDED BY: EN60204)

PLC ADDRESS IS USED FOR WIRE NUMBER WHEN EVER POSSIBLE.
EX. SLOT 1, GROUP 0, BIT 15 = 01015

CABLE SIZE:- "GENERAL" CONTROL WIRING MINIMUM 1.5MM UNLESS STATED
CONTROL WIRING TO PLC INPUTS/OUTPUTS MAY BE 0.5MM
EARTH/GROUNDING CABLES (UNLESS IN CONDUIT/MULTICORE)
TO BE MINIMUM 4MM (UNLESS STATED)

CABLE INTERCONNECTION LIST DRAWING NO: WW5236

REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06
A	06151	REV. SH. 1,9		TAT			06/23/06
B	06227	REV. SH. 1,11,22,33		TAT			09/25/06

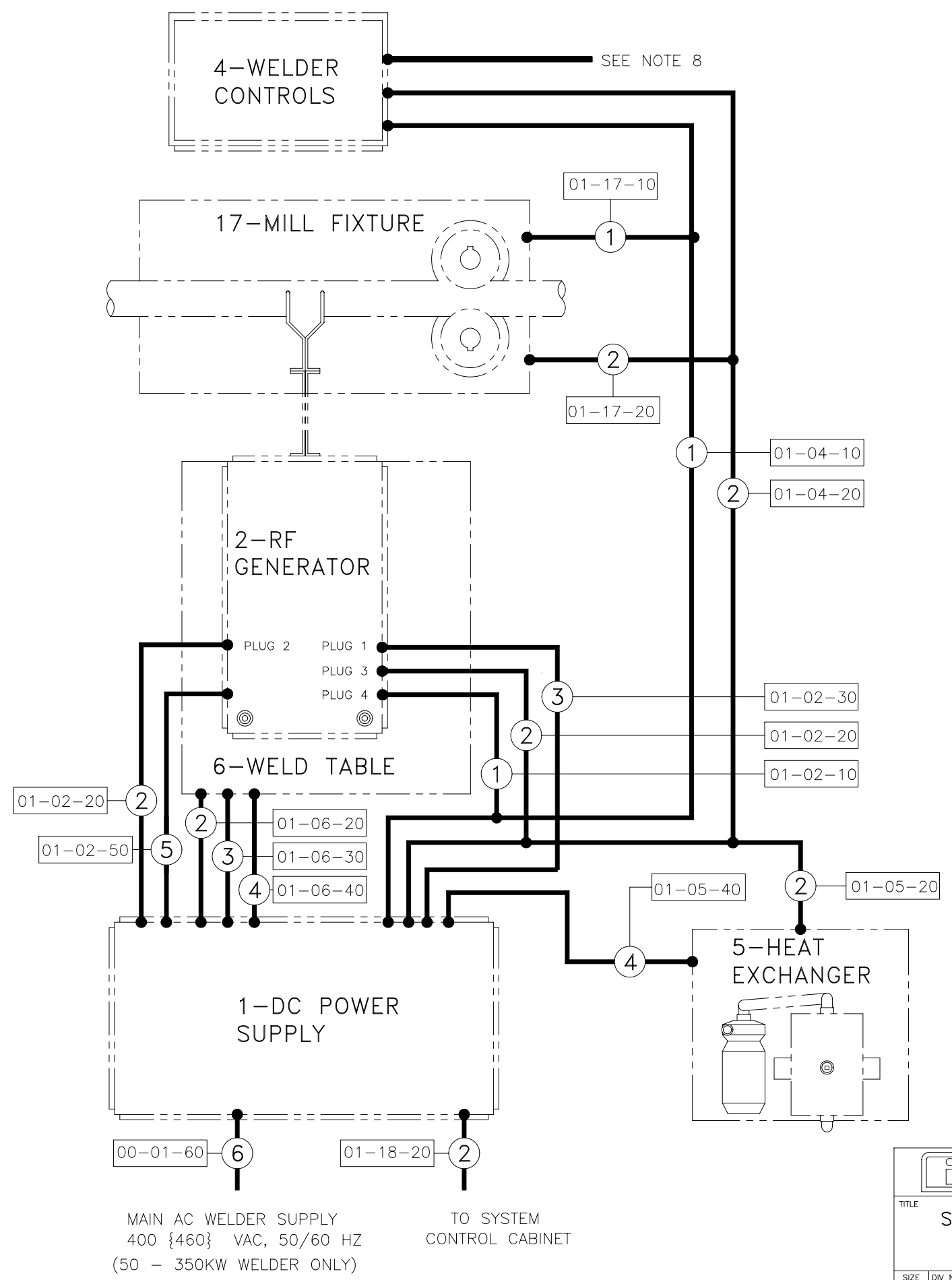
APPROVALS		DD/MM/YY	
DWN TT (CC: WW0219)	CHK	06/06/06	
TOLERANCES ON DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		TITLE	
0 PLACE (X) ± 0.5 ANGLE ± 0°30'	1 PLACE (X.X) ± 0.3 SURFACE FINISH N8	SCHEMATIC - ELECTRICAL	
2 PLACE (X.XX) ± 0.15	BREAK AND DEBURR ALL SHARP EDGES	CFS (SPIRAL FIN) 50-350KW SOLID STATE WELDER TVIEW ("OPTIONAL" CUS. INPUTS, S7-313C PLC, PILZ E-STOPS)	
UNIT CFS 50-350 kW	SI-METRIC	SIZE	REV
THIRD ANGLE PROJECTION		A1	B
<small>BUYER OR SELLER HEREBY ACKNOWLEDGES THAT THERE MAY BE ERRORS OR OMISSIONS IN THIS DOCUMENT AND THAT THERMATOOL EUROPE LTD SHALL NOT BE LIABLE IN ANY MANNER FOR SUCH ERRORS OR OMISSIONS.</small> <small>THIS DOCUMENT IS THE PROPERTY OF THERMATOOL EUROPE LTD AND IT IS SUBMITTED FOR USE ONLY WITH WORK PROPOSED OR AUTHORIZED BY THIS COMPANY. IT SHOULD NOT BE USED OR DUPLICATED FOR ANY OTHER PURPOSE AND IS TO BE RETURNED TO THERMATOOL EUROPE LTD ON REQUEST WHEN NO LONGER REQUIRED FOR SUCH PURPOSES.</small>		DWG NO	SCALE
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REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		MM/DD/YY 06/06/06

SYSTEM INTERCONNECT

NOTES:

- THIS DRAWING SHOWS HOW THE THERMATOOL EQUIPMENT IS ELECTRICALLY INTERCONNECTED. THE LOCATION OF CONDUITS SHOWN ARE INTENDED TO BE USED AS A GUIDE. CONDUITS ARE SHOWN THIS WAY TO CLEARLY DEMONSTRATE HOW THEY INTERCONNECT. THE ACTUAL INSTALLATION AND RUNNING OF CONDUIT IS THE OPTION OF THE CUSTOMER.
- RUN SEPARATE CONDUIT FOR EACH WIRING LEVEL.
- WIRING VOLTAGE LEVEL, LEVEL NUMBERS
 - LOW LEVEL (ANALOG)
 - MEDIUM LEVEL (24VDC)
 - HIGH LEVEL (115 {230} VAC)
 - POWER LEVEL (400 {460} VAC)
 - SPECIAL HIGH POWER CABLES
 - PLANT DISTRIBUTION
- | | | | | | | |
|-----------------------|----------------|----|---|----|---|----|
| XX-XX-XX | CONDUIT NUMBER | XX | - | XX | - | XX |
| FROM EQUIPMENT PREFIX | | | | | | |
| TO EQUIPMENT PREFIX | | | | | | |
| WIRING VOLTAGE LEVEL | | | | | | |
| JUNCTION BOX NUMBER | | | | | | |
- ALL CONDUIT AND WIRING TO BE PROVIDED AND INSTALLED BY CUSTOMER, UNLESS OTHERWISE NOTED.
- ALL WIRING TO BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND/OR ALL APPLICABLE CODES.
- FOR WIRE DETAILS REFER TO INTERCONNECT CABLE LIST.
- FOR THERMAVIEW UNITS WELDER CONTROL CONSOLE REQUIRES 230VAC 60/50HZ UNINTERRUPTABLE SUPPLY.



THERMATOOL
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TITLE: SCHEMATIC – ELECTRICAL SOLID STATE WELDER

SIZE	DIV NO	DWG NO	REV
A1	3	WW5235	0
SCALE	N/A	DO NOT SCALE DRAWING COPY	SHEET 2

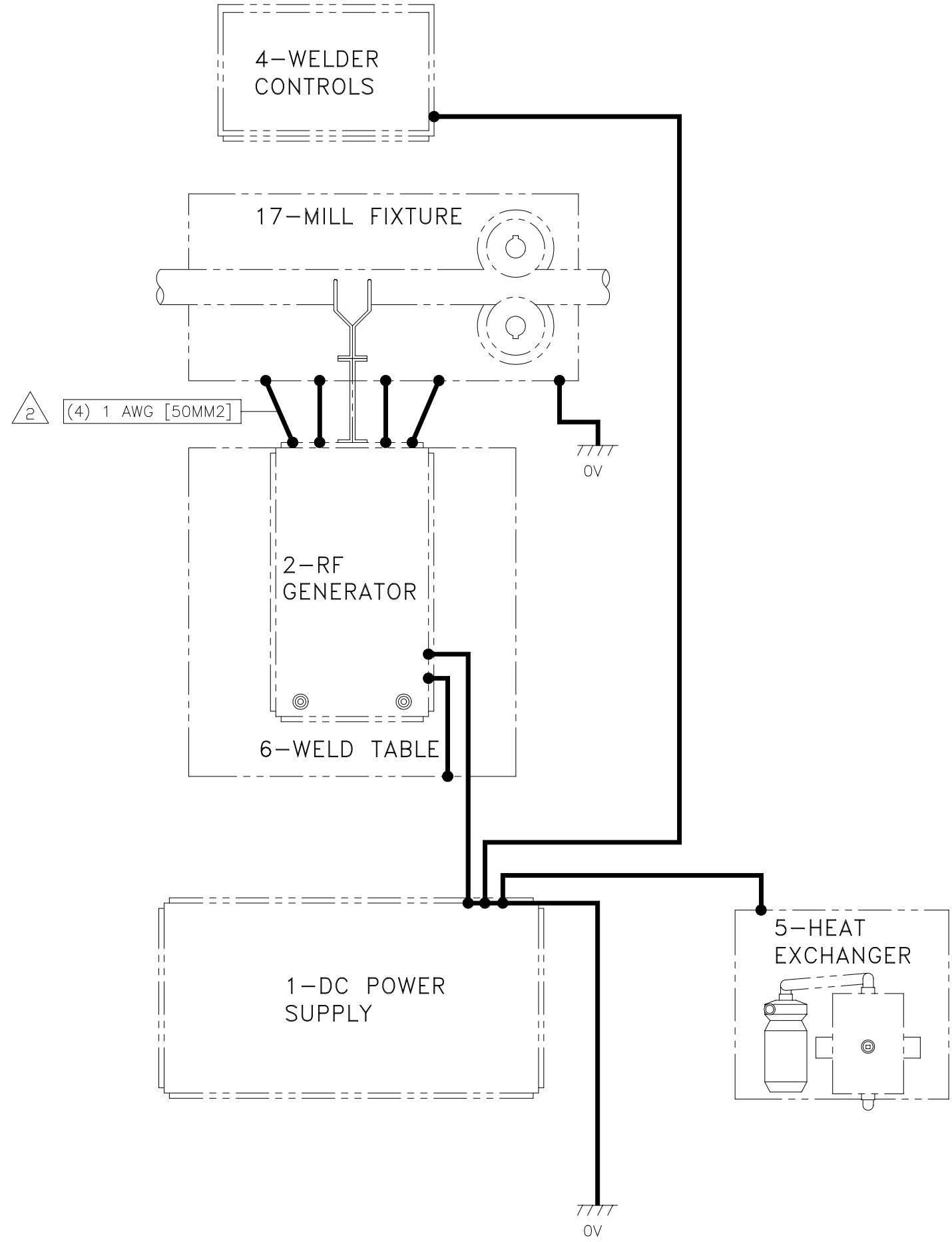
ENG-REF: 2

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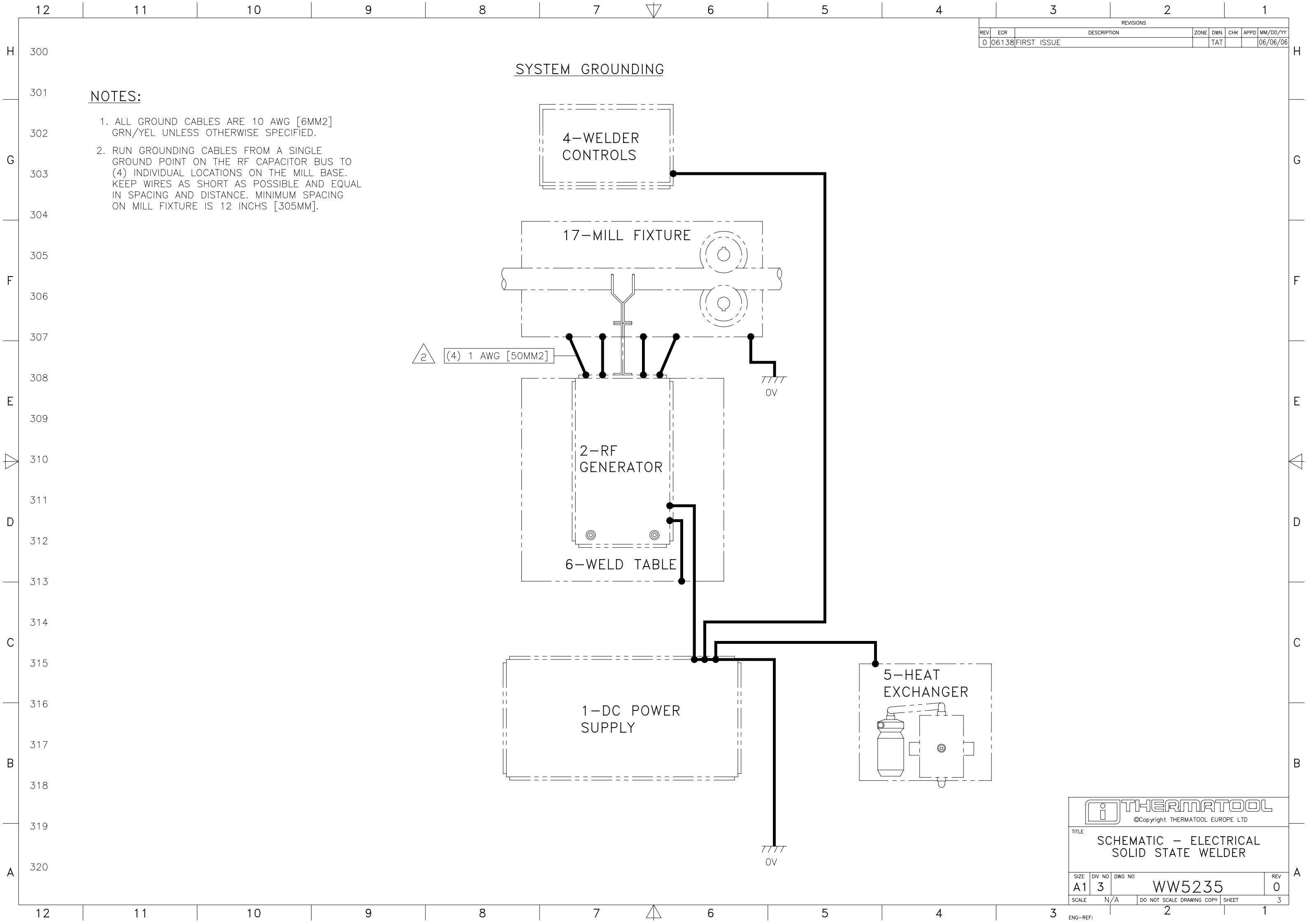
SYSTEM GROUNDING

NOTES:

1. ALL GROUND CABLES ARE 10 AWG [6MM²] GRN/YEL UNLESS OTHERWISE SPECIFIED.
2. RUN GROUNDING CABLES FROM A SINGLE GROUND POINT ON THE RF CAPACITOR BUS TO (4) INDIVIDUAL LOCATIONS ON THE MILL BASE. KEEP WIRES AS SHORT AS POSSIBLE AND EQUAL IN SPACING AND DISTANCE. MINIMUM SPACING ON MILL FIXTURE IS 12 INCHS [305MM].



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TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
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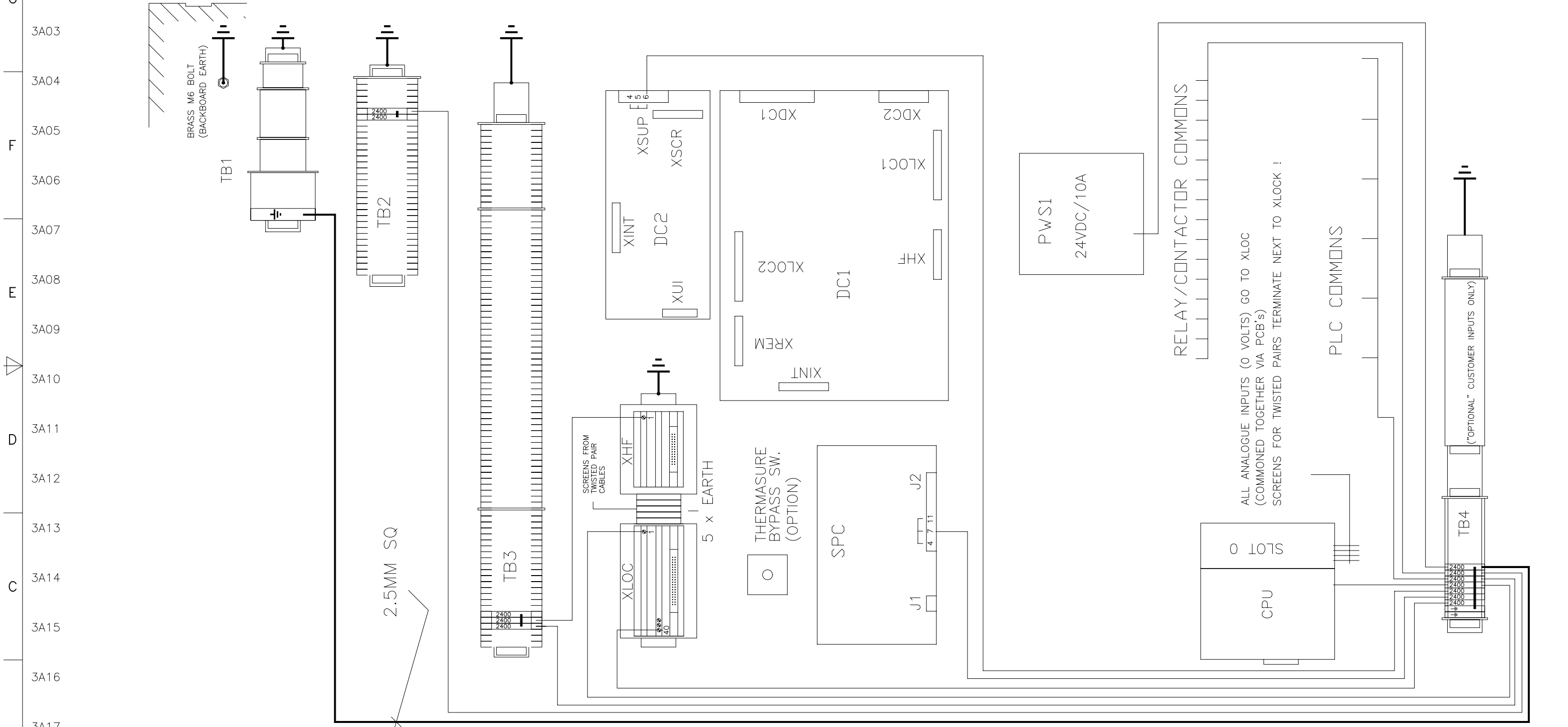


TYPICAL DC PANEL 0 VOLT (COM) WIRING

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

NOTES:-

1. PANEL COMPONENT PREFIX IS "1" (IE, 1-CB1,1-CB2,1-CR1, etc)
2. MINIMUM SIZE CABLE 1.5MM SQ.



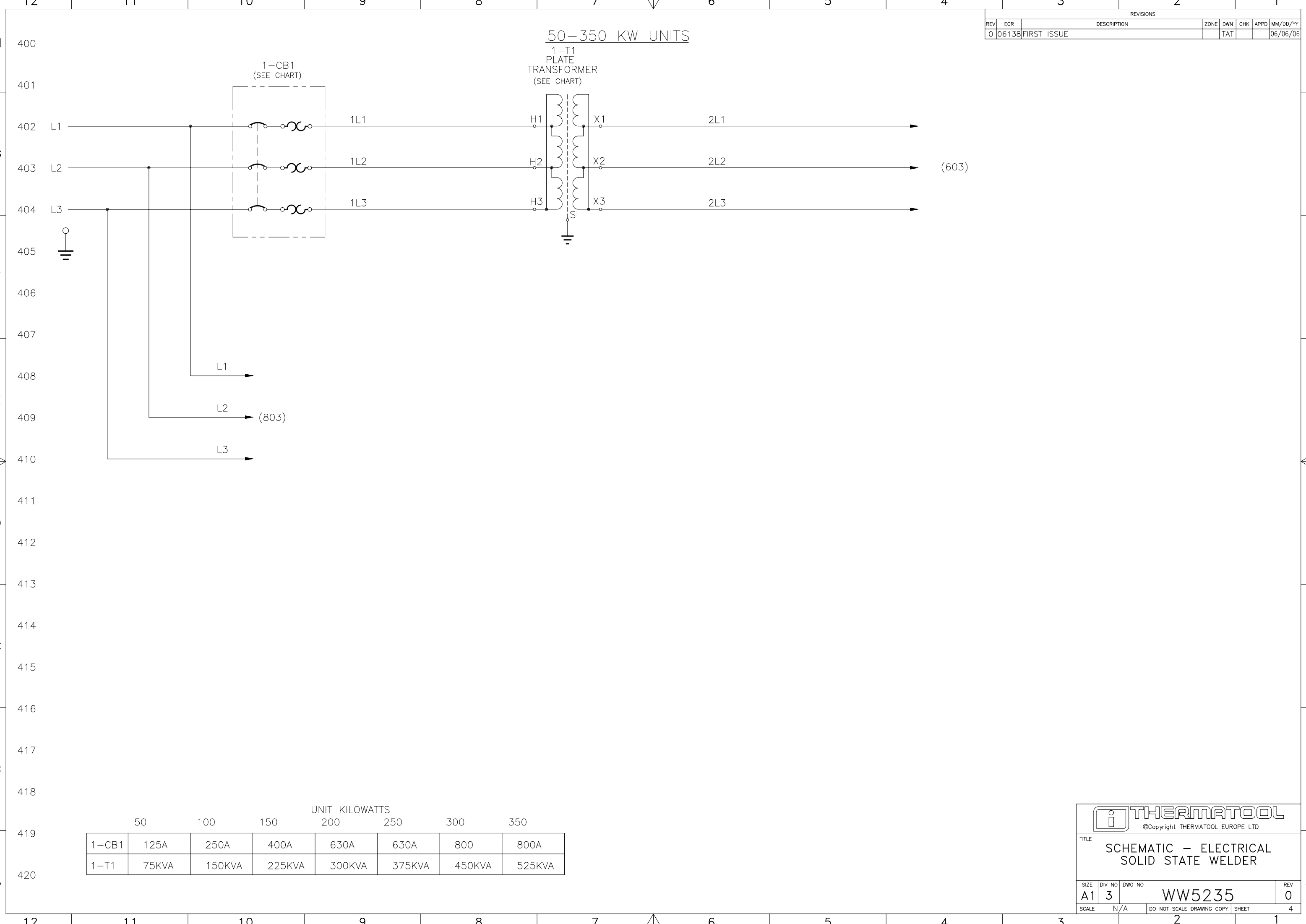
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TITLE: SCHEMATIC – ELECTRICAL SOLID STATE WELDER

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A1	3	WW5235	0

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50-350 KW UNITS

1-CB1
(SEE CHART)

1-T1
PLATE
TRANSFORMER
(SEE CHART)

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

	UNIT KILOWATTS						
	50	100	150	200	250	300	350
1-CB1	125A	250A	400A	630A	630A	800	800A
1-T1	75KVA	150KVA	225KVA	300KVA	375KVA	450KVA	525KVA



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**SCHEMATIC – ELECTRICAL
SOLID STATE WELDER**

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
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REVISIONS							
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0	06138	FIRST ISSUE		TAT			06/06/06

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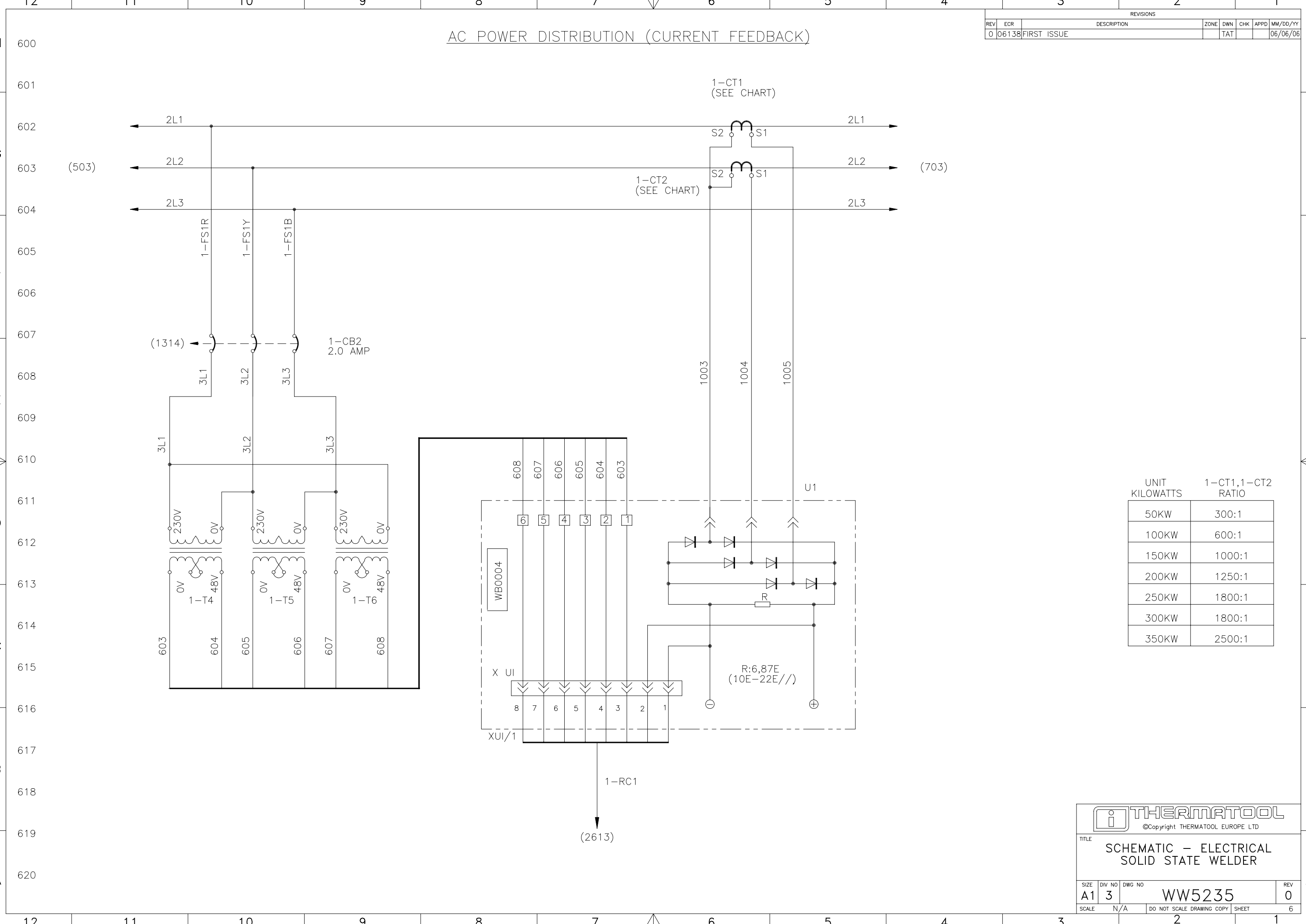
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<small>SCALE</small> N/A	<small>DO NOT SCALE DRAWING COPY</small>		<small>SHEET</small> 5

12 11 10 9 8 7 6 5 4 3 2 1

ENG-REF:

AC POWER DISTRIBUTION (CURRENT FEEDBACK)

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06



UNIT KILOWATTS	1-CT1, 1-CT2 RATIO
50KW	300:1
100KW	600:1
150KW	1000:1
200KW	1250:1
250KW	1800:1
300KW	1800:1
350KW	2500:1

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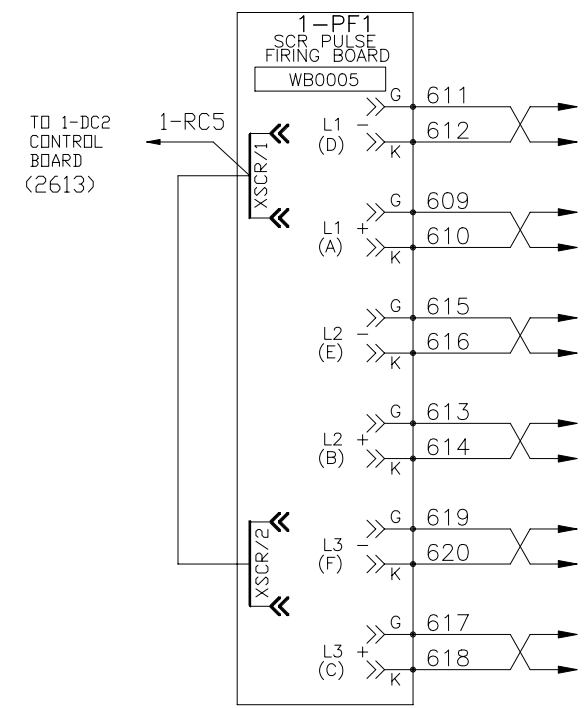
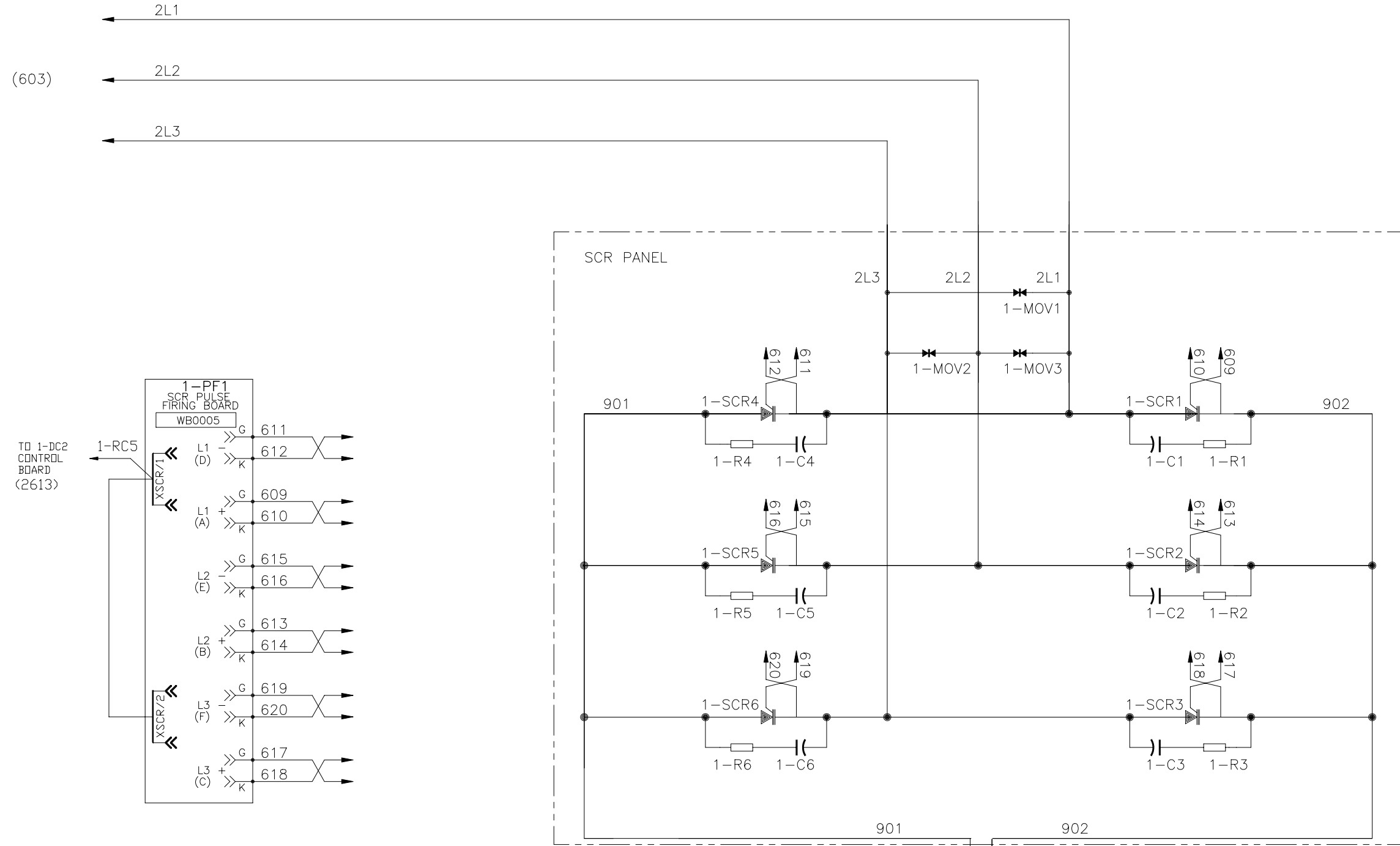
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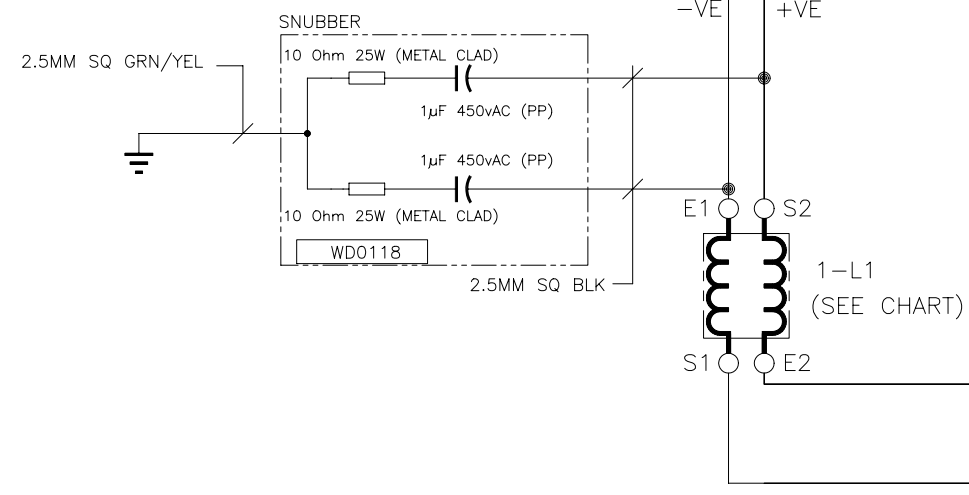
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AC POWER DISTRIBUTION (DC RECTIFIERS)

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06



UNIT KILOWATTS	1-L1	"ALTERNATE"
50	4.22mH	
100	2.11mH @520ADC	
150	1.40mH @781ADC	1.40mH @1042@DC
200	1.05mH @1042ADC	
250	0.84mH @1302ADC	0.84mH @1563ADC
300	0.70mH @1563ADC	
350	0.61mH @1800ADC	0.61mH @2057ADC
400	0.53mH @2057ADC	



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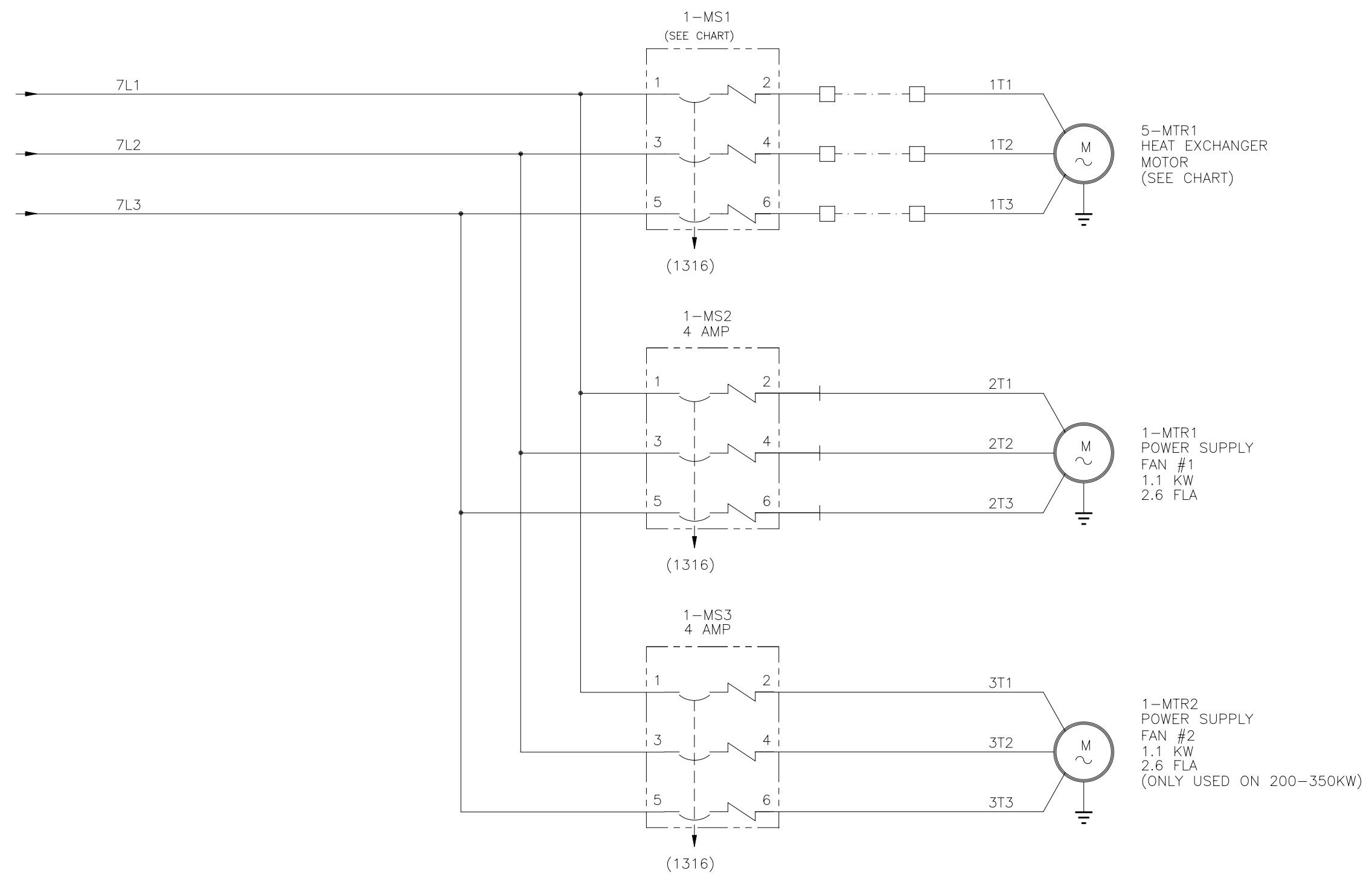
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SCALE: N/A DO NOT SCALE DRAWING COPY SHEET 7

(3201)

AC POWER DISTRIBUTION

REVISIONS							
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0	06138	FIRST ISSUE			TAT		06/06/06
A	06151	50-150KW PUMPS WERE 2.2KW NOW 5.5KW	10A		TAT		06/23/06



UNIT KILOWATTS
50-350

50/60HZ	1-MS1	16A
	5-MTR1	5.5 KW

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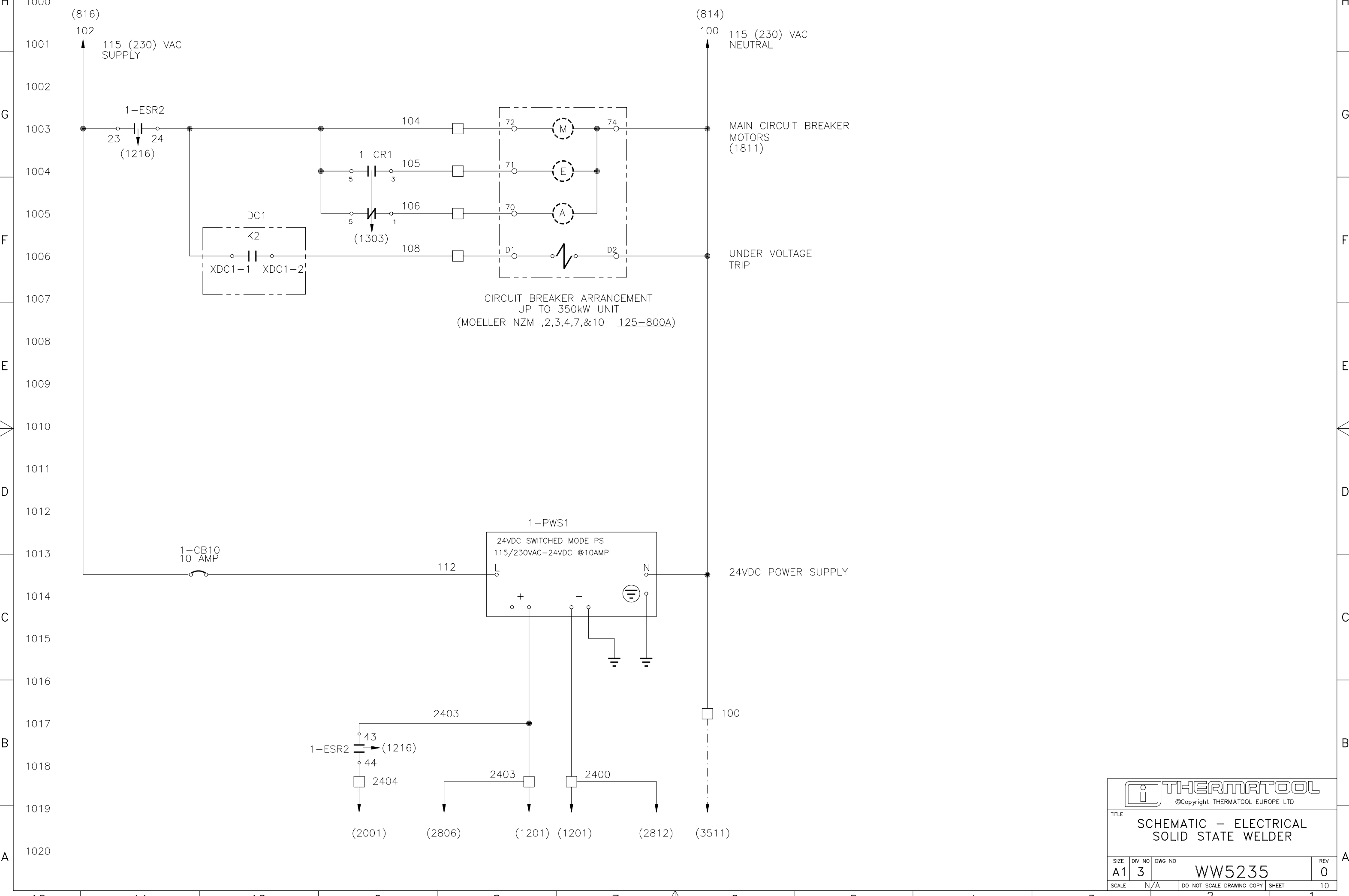
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AC CONTROL

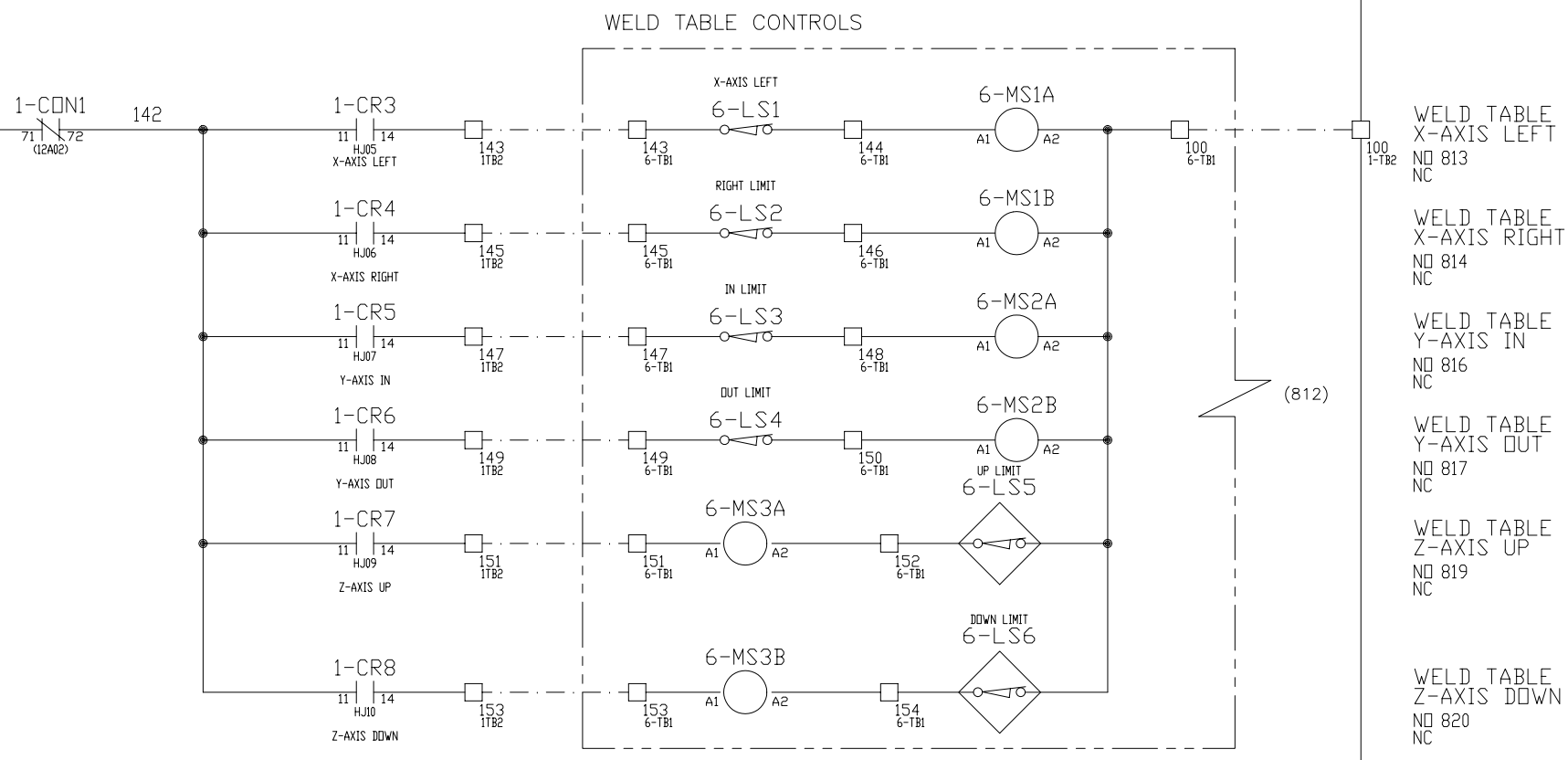
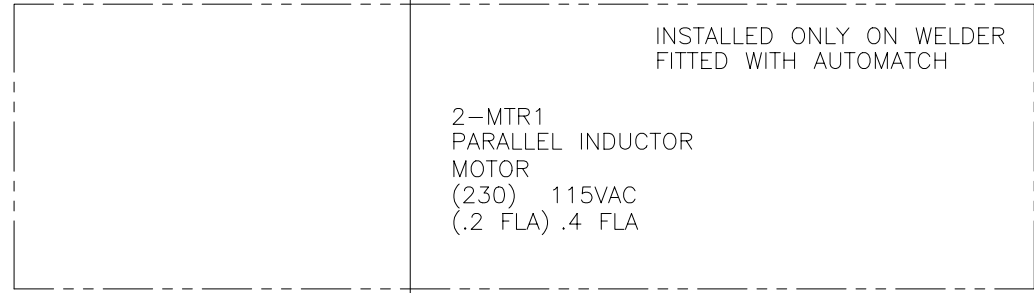
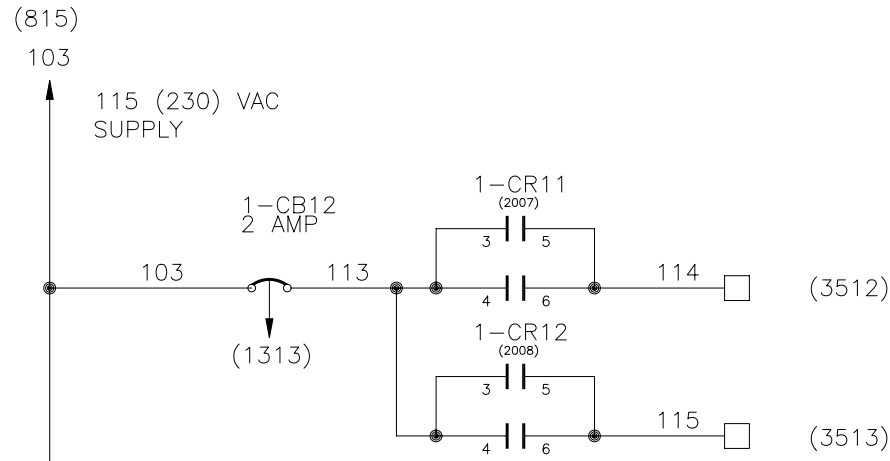
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REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
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TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 10

SINGLE PHASE AC MOTORS, CONTROL

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06
B	06227	PROXY SWLS5 & LS6 NOW SW ON NEUTRAL		TAT		09/25/06



- WELD TABLE X-AXIS LEFT NO 813 NC
- WELD TABLE X-AXIS RIGHT NO 814 NC
- WELD TABLE Y-AXIS IN NO 816 NC
- WELD TABLE Y-AXIS OUT NO 817 NC
- WELD TABLE Z-AXIS UP NO 819 NC
- WELD TABLE Z-AXIS DOWN NO 820 NC

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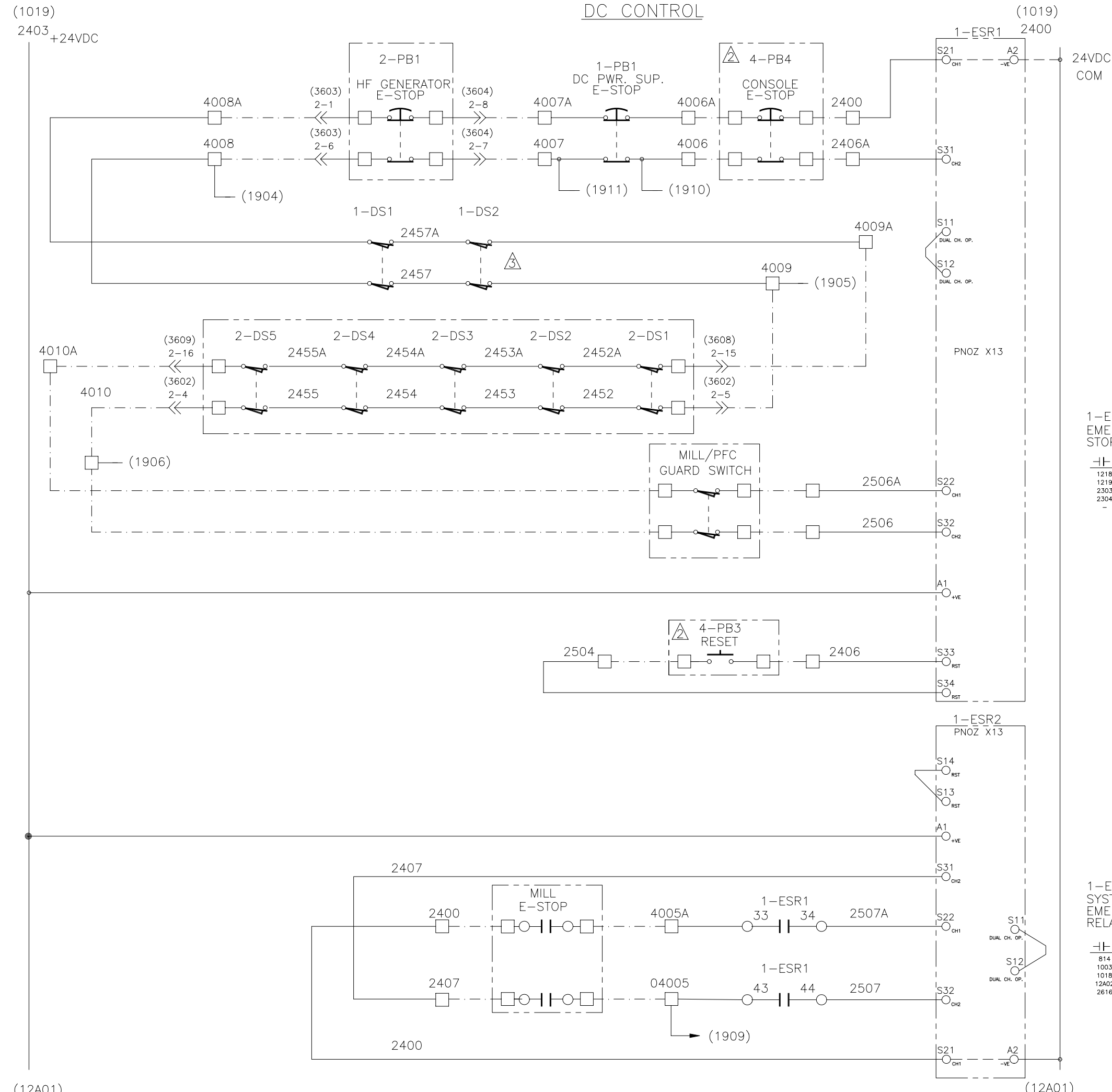
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**SCHMATIC – ELECTRICAL
SOLID STATE WELDER**

SIZE	DIV NO	DWG NO	REV
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SCALE		DO NOT SCALE DRAWING COPY	SHEET
N/A			11

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		D60/06/06

DC CONTROL



1-ESR1
EMERGENCY
STOP RELAY (WELDER)

1218	1907
1219	
2303	
2304	
-	

1-ESR2
SYSTEM
EMERGENCY STOP
RELAY (MILL)

814	-
1003	
1018	
12A02	
2616	

NOTES:

- NORMALLY FITTED ON CONSOLE BUT MAY BE FITTED IN REMOTE LOCATION
- 1-DS2 NOT FITTED ON 50 - 150KW UNITS

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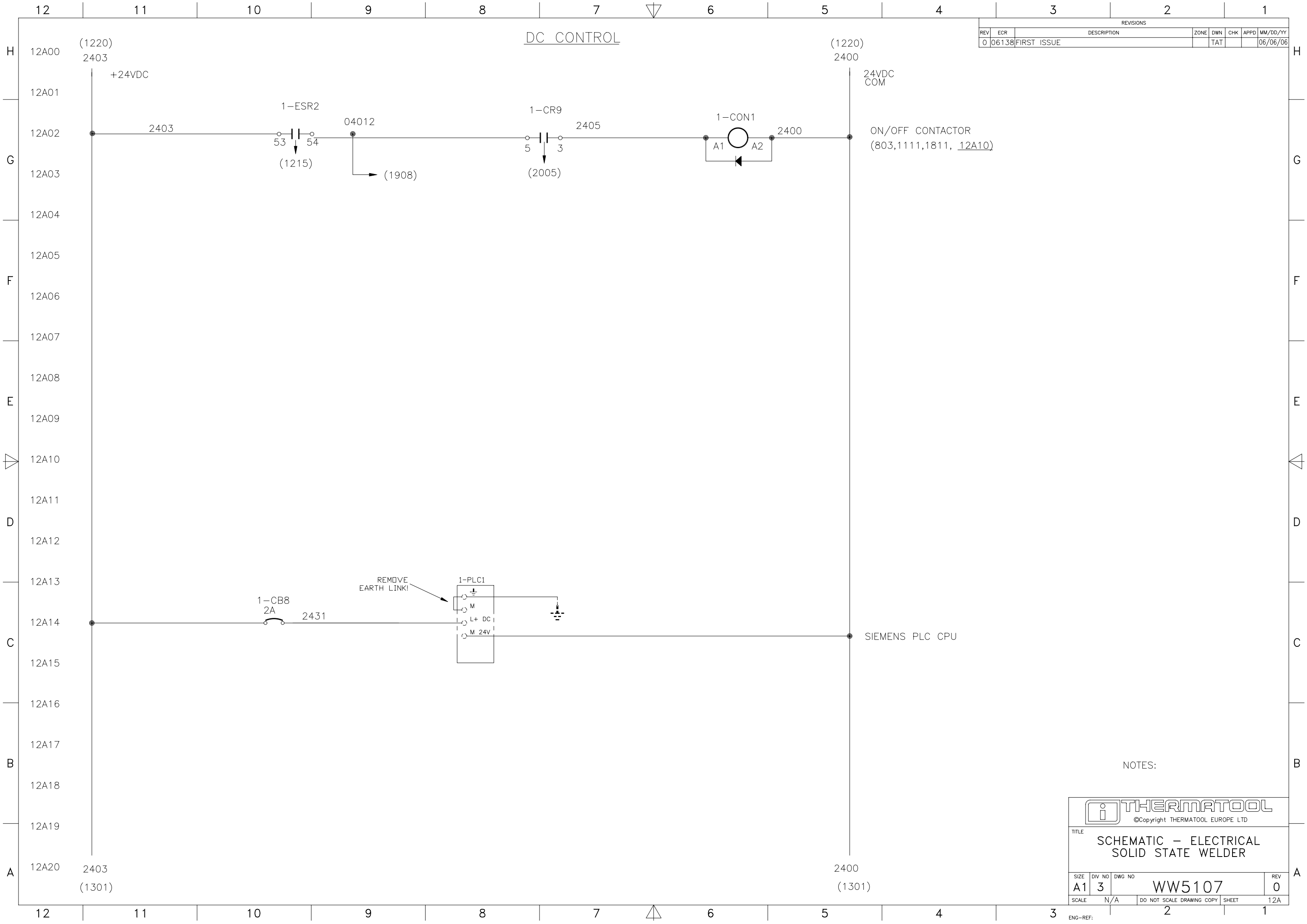
TITLE
**SCHEMATIC - ELECTRICAL
SOLID STATE WELDER**

SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 12

ENG-REF: 2

(12A01)

(12A01)

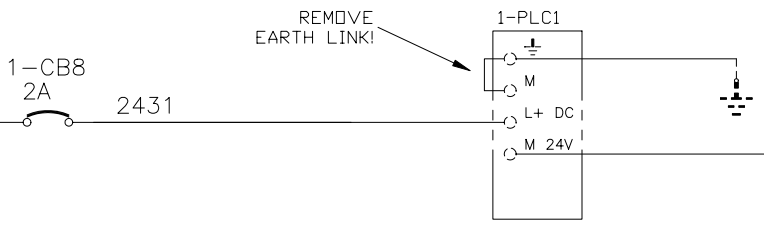
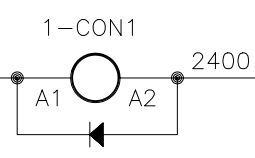


DC CONTROL

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06

(1220)
2403
+24VDC
2403
(1301)

(1220)
2400
24VDC
COM
ON/OFF CONTACTOR
(803,1111,1811, 12A10)
SIEMENS PLC CPU
2400
(1301)

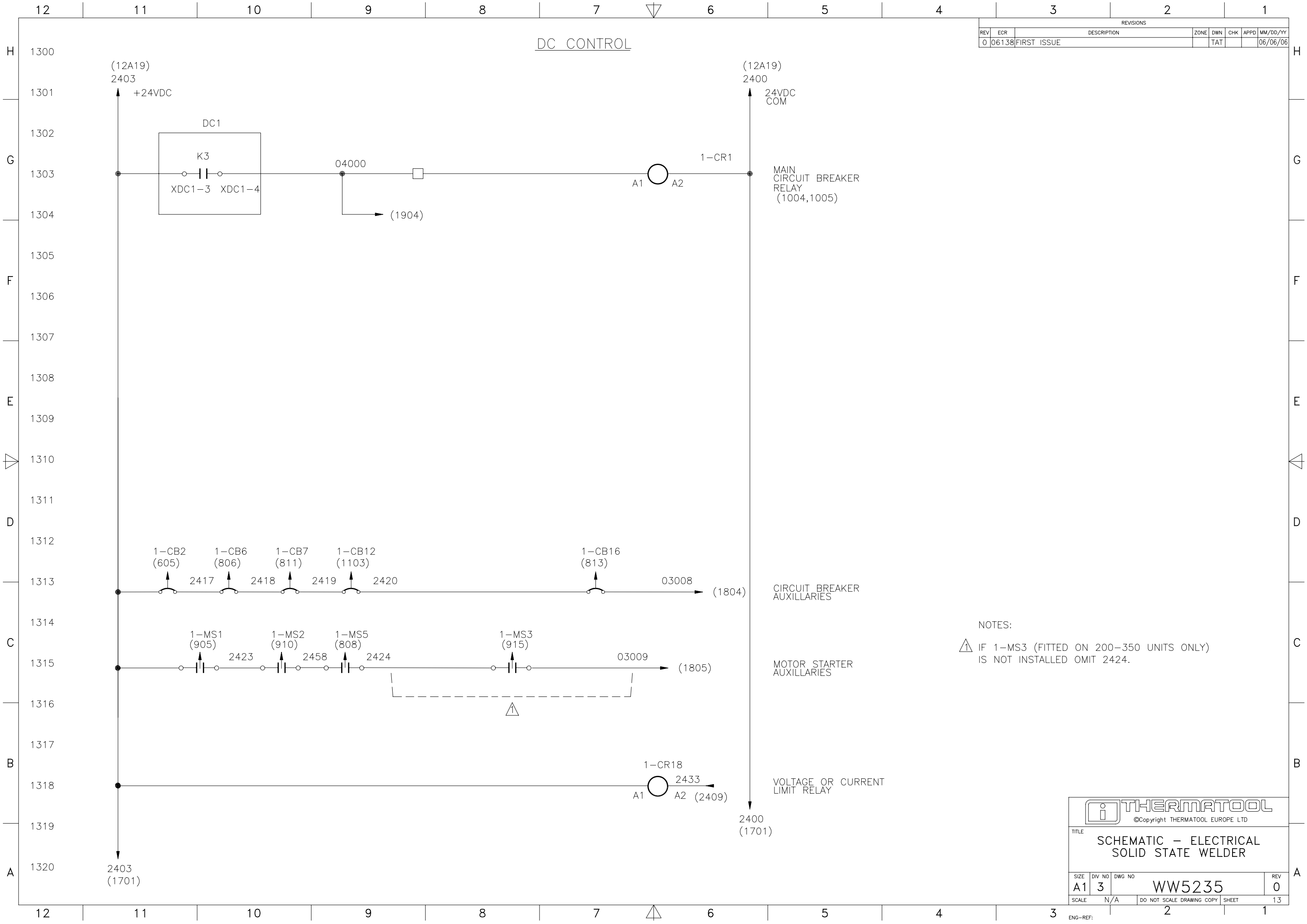


NOTES:

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SIZE A1	DIV NO 3	DWG NO WW5107	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 12A

DC CONTROL

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06



NOTES:
 ⚠ IF 1-MS3 (FITTED ON 200-350 UNITS ONLY) IS NOT INSTALLED OMIT 2424.

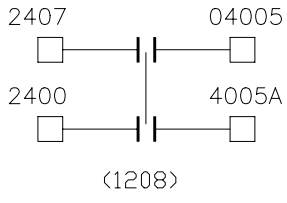
THERMATOOL <small>©Copyright THERMATOOL EUROPE LTD</small>			
TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE	DIV NO	DWG NO	REV
A1	3	WW5235	0
SCALE	N/A	DO NOT SCALE DRAWING COPY	SHEET
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REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

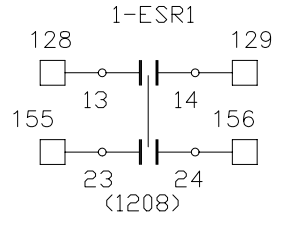
MILL INTERLOCKS

INPUTS FROM MILL CONTROLS
TO WELDER CONTROLS
CUSTOMER SUPPLIED
DRY CONTACTS

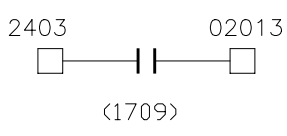
OUTPUTS FROM WELDER CONTROLS
TO MILL CONTROLS
THERMATOOL SUPPLIED
DRY CONTACTS



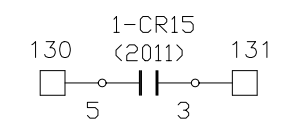
MILL EMERGENCY STOP
WHEN THESE CONTACTS ARE OPENED IT WILL OPEN THE WELDER MAIN CIRCUIT BREAKER (1-CB1) REMOVING ALL POWER EXCEPT AUXILLIARY POWER FOR CONTROLS.



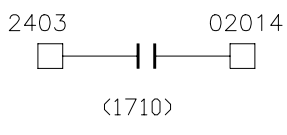
WELDER EMERGENCY STOP
THIS NORMALLY OPEN CONTACT IS OPEN IF A WELDER DOOR SWITCH OR EMERGENCY PUSH BUTTON IS PRESSED. AFTER ALL CABINET DOOR SWITCHES AND EMERGENCY STOP BUTTONS ARE RETURNED TO A SAFE CONDITION THE EMERGENCY STOP RELAY MAY BE RESET BY PUSHING THE WELDER 'RESET' PUSH BUTTON.



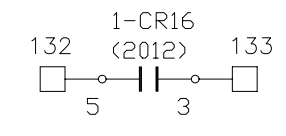
MILL INTERLOCK FAULT/OK
WHEN THIS CONTACT IS OPEN IT WILL TURN THE WELDER HEAT OFF. SHOULD BE USED TO MONITOR WORK COIL AND IMPEDER COOLANT FLOW. JUMPER IF NOT BEING USED.



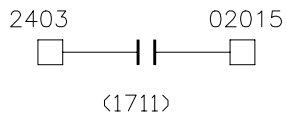
WELDER FAULT/READY
THIS NORMALLY OPEN CONTACT IS CLOSED UNDER THE FOLLOWING CONDITIONS
1.) IF THE WELDER 'SHUT DOWN/STANDBY' SWITCH IS IN 'SHUTDOWN' POSITION AND THE EMERGENCY STOP RELAY IS RESET.
2.) IN 'MANUAL' SPEED POWER CONTROL MODE - THE 'SHUTDOWN/STANDBY' SWITCH IS IN 'STANDBY' POSITION AND THERE ARE NO WELDER FAULTS.
3.) IN 'AUTOMATIC' SPEED POWER CONTROL MODE - THE CONDITION IS THE SAME AS IN 'MANUAL' WITH THE ADDITION OF THE WELDER 'HEAT ON' PUSH BUTTON MUST BE PRESSED.



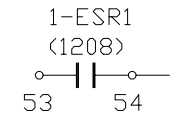
MILL FAULT/READY
WHEN THIS CONTACT IS OPEN IT WILL TURN HEAT OFF. THIS CONTACT MUST BE OPEN WHEN JOGGING MILL.



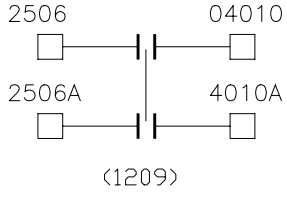
WELD HEAT OFF/ON
THIS NORMALLY OPEN CONTACT IS OPEN WHEN OUTPUT HEAT IS OFF. THE CONTACT IS CLOSED WHEN OUTPUT HEAT IS ON.



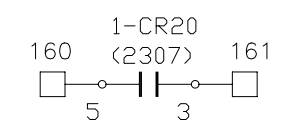
MILL OFF/RUN
THIS CONTACT MUST BE CLOSED TO TURN OUTPUT HEAT ON.
MANUAL SPEED POWER MODE - IN *MANUAL* MODE THE OUTPUT HEAT WILL TURN OFF WHEN THIS CONTACT OPENS.
AUTOMATIC SPEED POWER CONTROL MODE - IN *AUTOMATIC* MODE THE OUTPUT HEAT WILL TURN OFF WHEN THIS CONTACT IS OPEN AND THE MILL TACH HAS STOPPED.



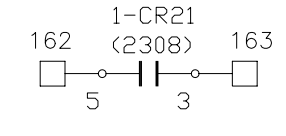
WELDER EMERGENCY STOP (AUXILIARY SIGNAL)
AVAILABLE AUXILIARY CONTACT FROM EMERGENCY STOP 'MAY BE USED FOR INDICATION' NOT WIRED TO TERMINALS!




MILL GUARDSWITCH
WHEN THIS CONTACT IS OPEN IT WILL EMERGENCY STOP THE WELDER
IT CAN BE USED FOR MILL GUARDS OR 'OTHER' SAFETY INTERFACES JUMPER IF NOT BEING USED.

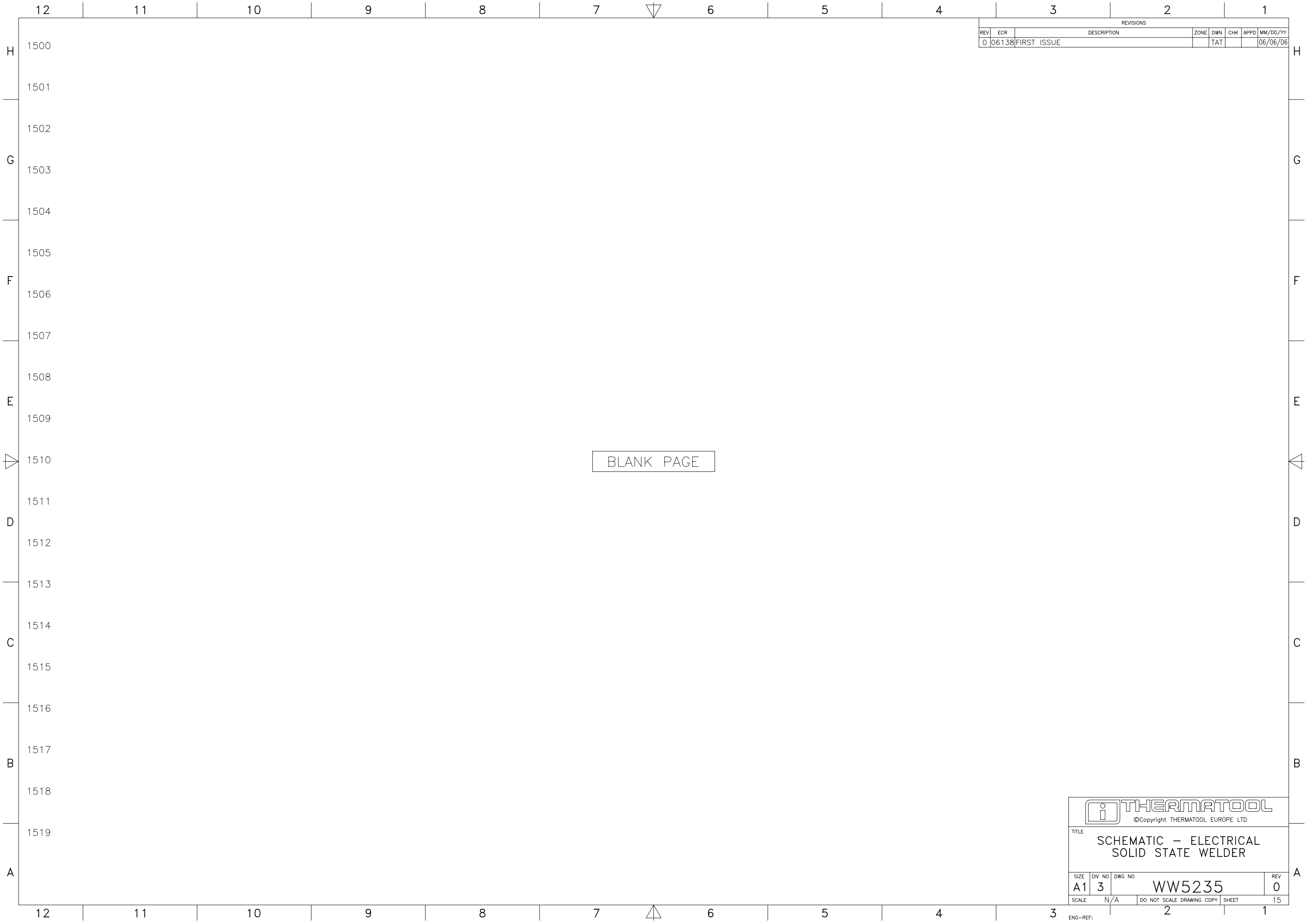


QUICKLIFT DOWN
THIS NORMALLY OPEN CONTACT IS OPEN WHEN QUICKLIFT IS IN THE UP POSITION. THE CONTACT IS CLOSED WITH QUICKLIFT IN THE DOWN POSITION.



FIN CONTACTS ADVANCED
THIS NORMALLY OPEN CONTACT IS OPEN WHEN FIN CONTACTS ARE RETRACTED. THE CONTACTS ARE CLOSED WHEN FIN CONTACTS ARE ADVANCED.

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TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 14



REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
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TITLE
 SCHEMATIC – ELECTRICAL
 SOLID STATE WELDER

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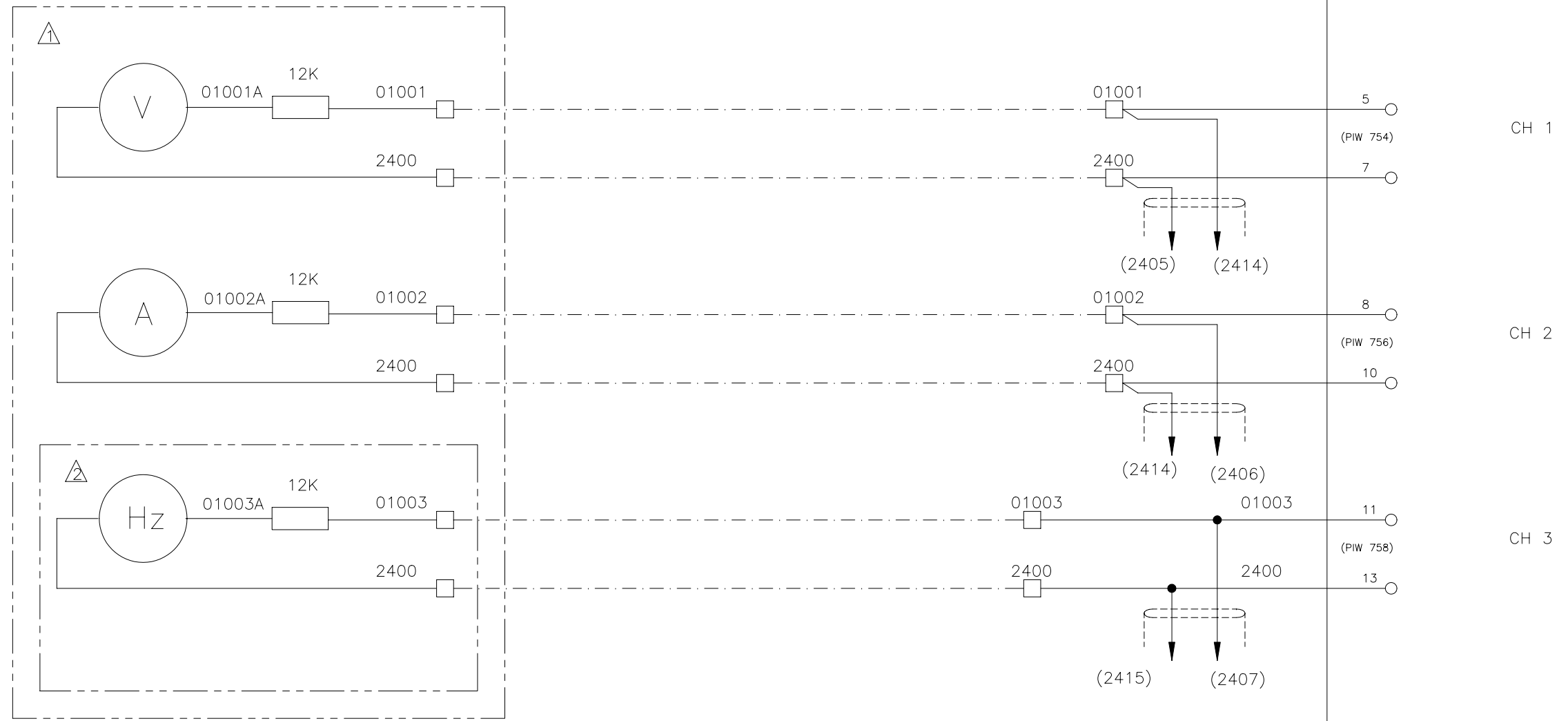
ENG-REF: 2 1

PLC ANALOG INPUTS

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

SLOT 0,2
(PART OF CPU)

CONSOLE
(MAY BE FITTED IN OPTIONAL
REMOTE LOCATION)






CH 0
MILL
SPEED
SIGNAL
(10VDC = 100%)

CH 1
OUTPUT
VOLTAGE
SIGNAL
(8VDC = 100%)

CH 2
OUTPUT
CURRENT
SIGNAL
(8VDC = 100%)

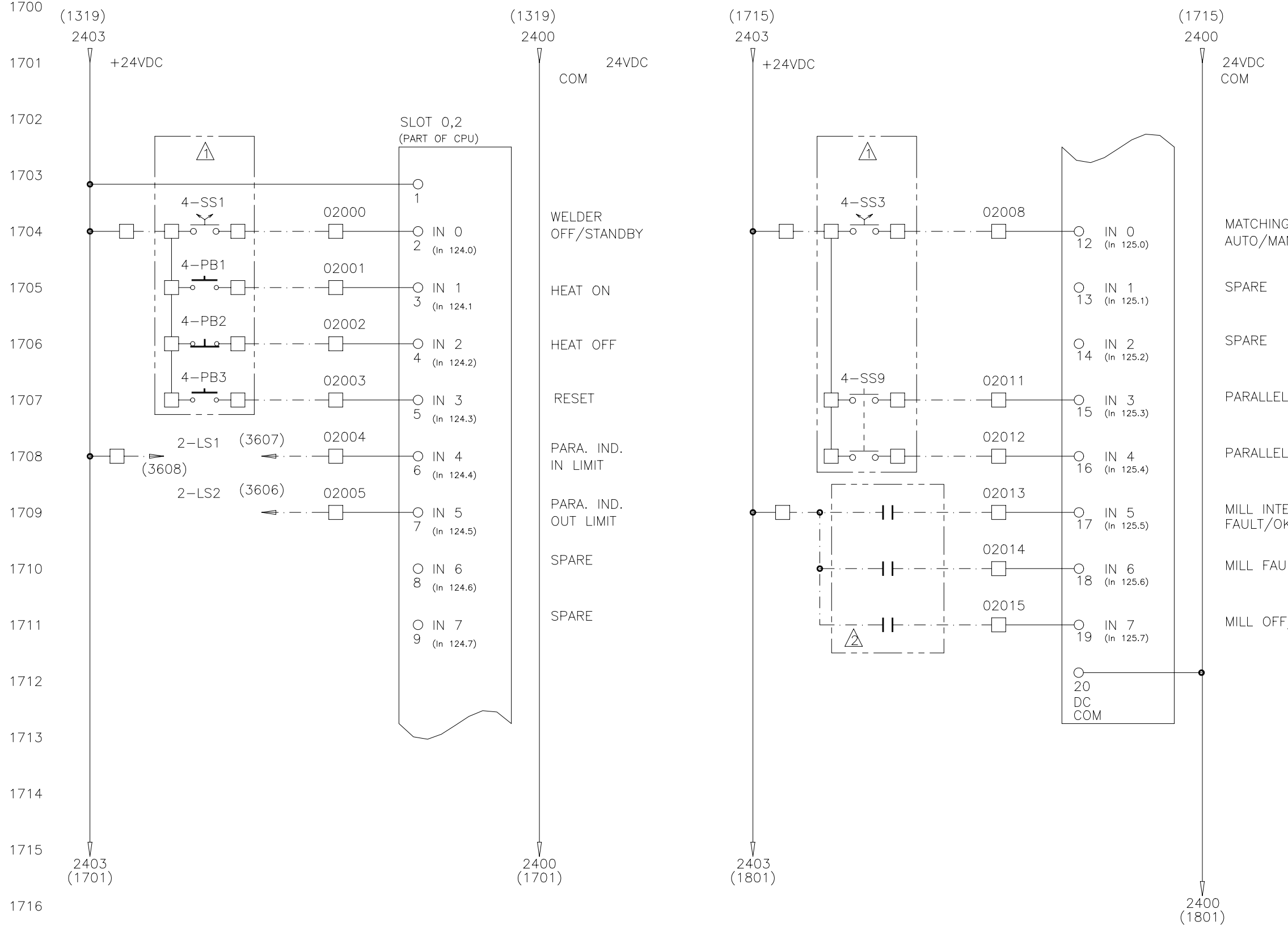
CH 3
OUTPUT
FREQUENCY
SIGNAL
(8VDC = 100%)

NOTES:
 NORMALLY FITTED ON
CONSOLE BUT MAY BE
FITTED IN REMOTE LOCATION
 THERMAVIEW ONLY

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TITLE			
SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE	DIV NO	DWG NO	REV
A1	3	WW5235	0
SCALE	N/A	DO NOT SCALE DRAWING COPY	SHEET
			16

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06

PLC DIGITAL INPUTS



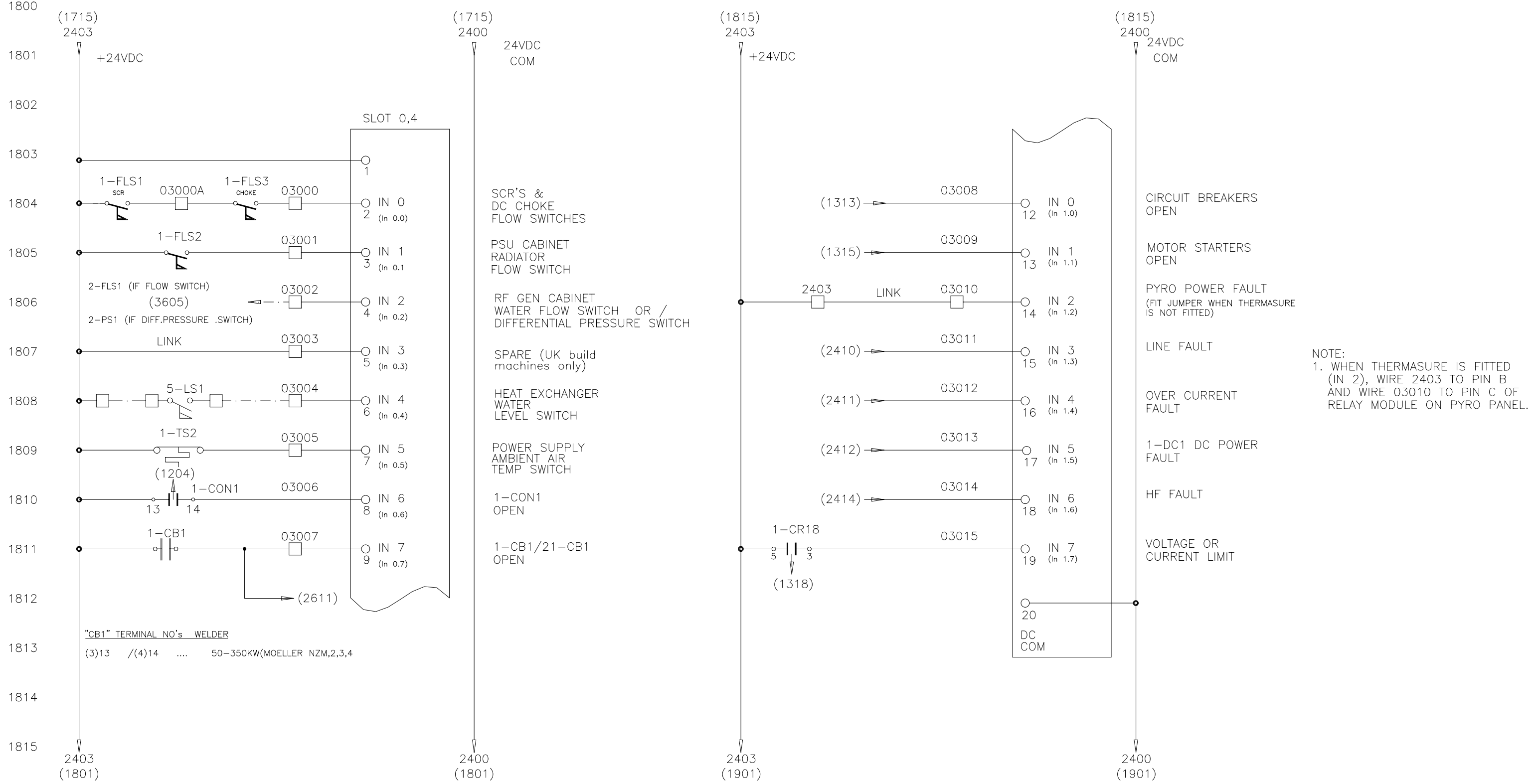
NOTES:-

- ⚠️ NORMALLY FITTED ON CONSOLE BUT MAY BE FITTED IN REMOTE LOCATION
- ⚠️ CUSTOMER INTERLOCK (SEE SHEET 23)

TITLE SCHMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 17

PLC DIGITAL INPUTS

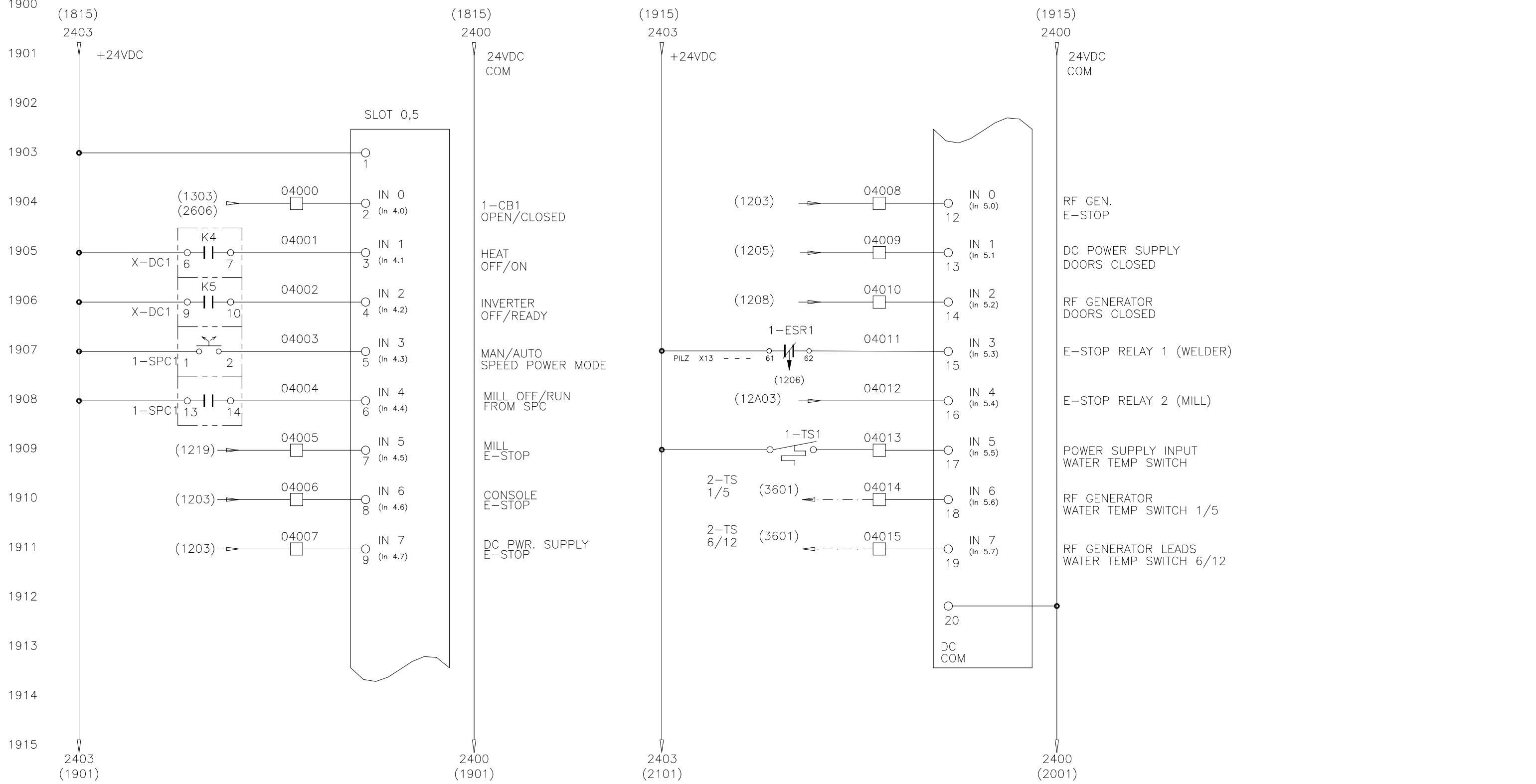
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REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		MM/DD/YY 06/06/06



<p>©Copyright THERMATOOL EUROPE LTD</p>			
<p>TITLE</p> <p>SCHEMATIC – ELECTRICAL SOLID STATE WELDER</p>			
SIZE	DIV NO	DWG NO	REV
A1	3	WW5235	0
SCALE	DO NOT SCALE DRAWING COPY		SHEET
N/A			18

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REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06

PLC DIGITAL INPUTS

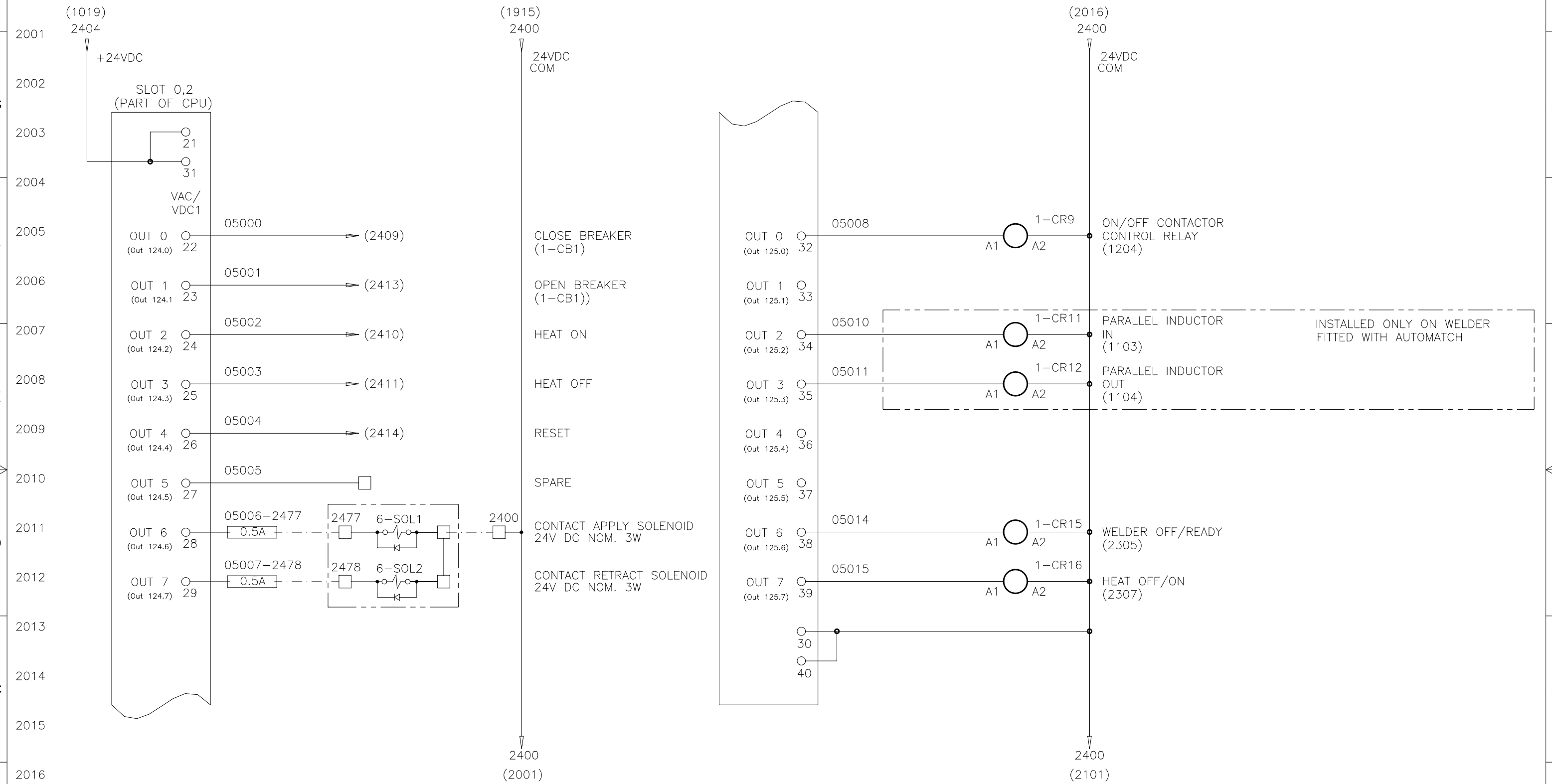


 ©Copyright THERMATOOL EUROPE LTD			
TITLE SCHMATIC – ELECTRICAL SOLID STATE WELDER			
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ENG-REF:

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0	06138	FIRST ISSUE		TAT			06/06/06

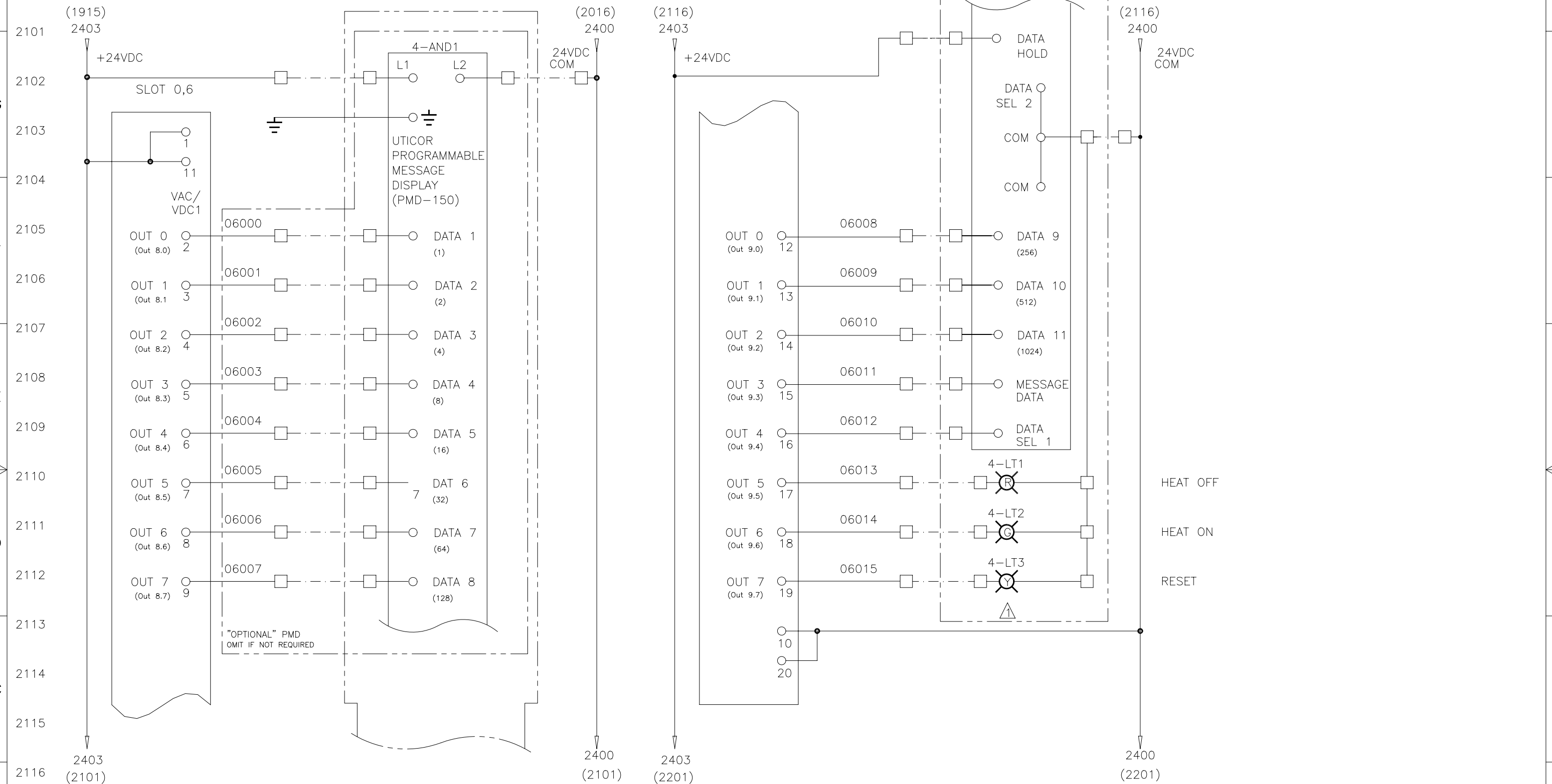
PLC DIGITAL OUTPUTS (E-STOPPED)



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TITLE SCHEMATIC – DIAGRAM SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 20

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

PLC DIGITAL OUTPUTS



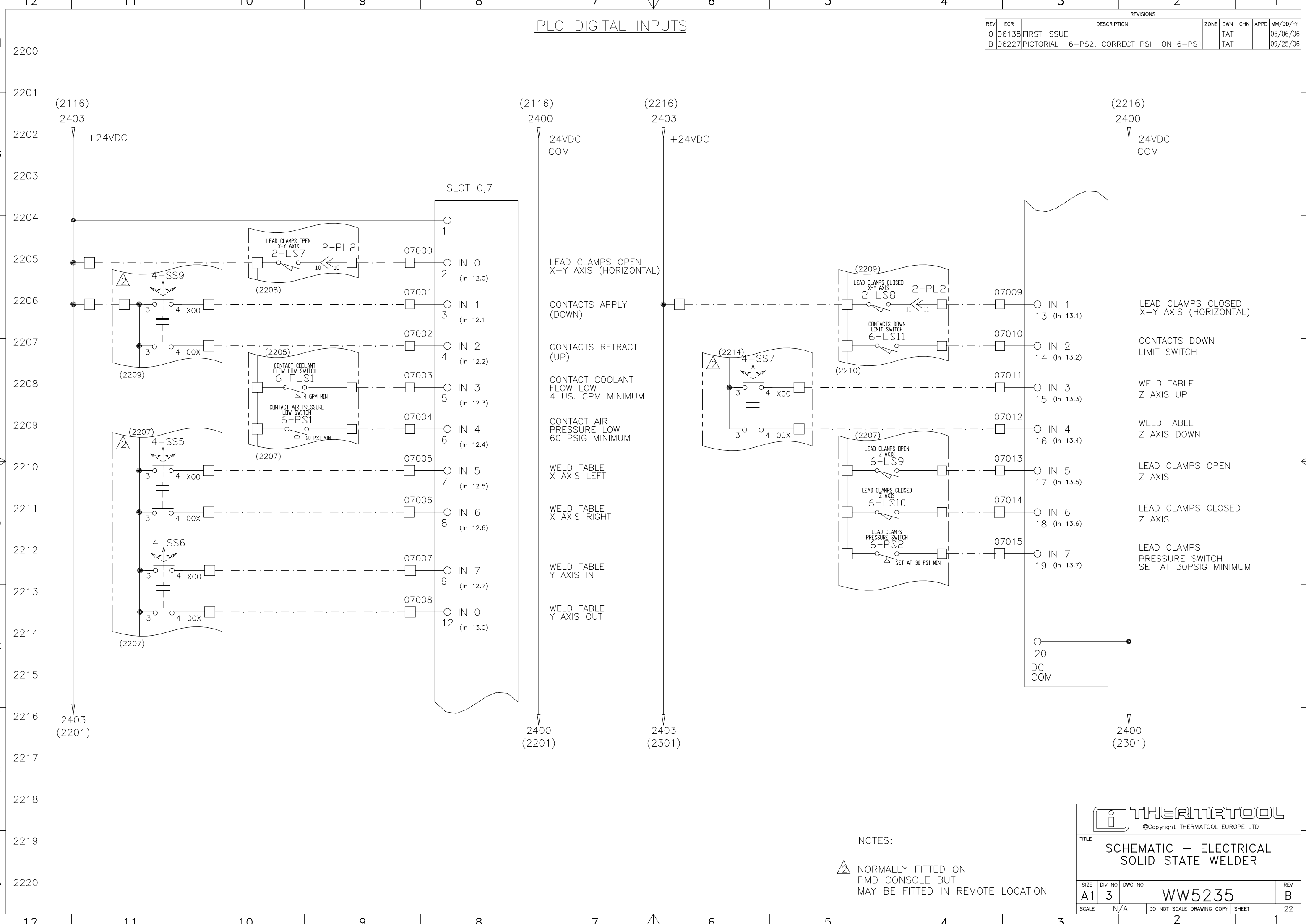
⚠️ NORMALLY FITTED ON CONSOLE BUT MAY BE FITTED IN REMOTE LOCATION

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TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 21

ENG-REF:

PLC DIGITAL INPUTS

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
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B	06227	PICTORIAL 6-PS2, CORRECT PSI ON 6-PS1		TAT			09/25/06

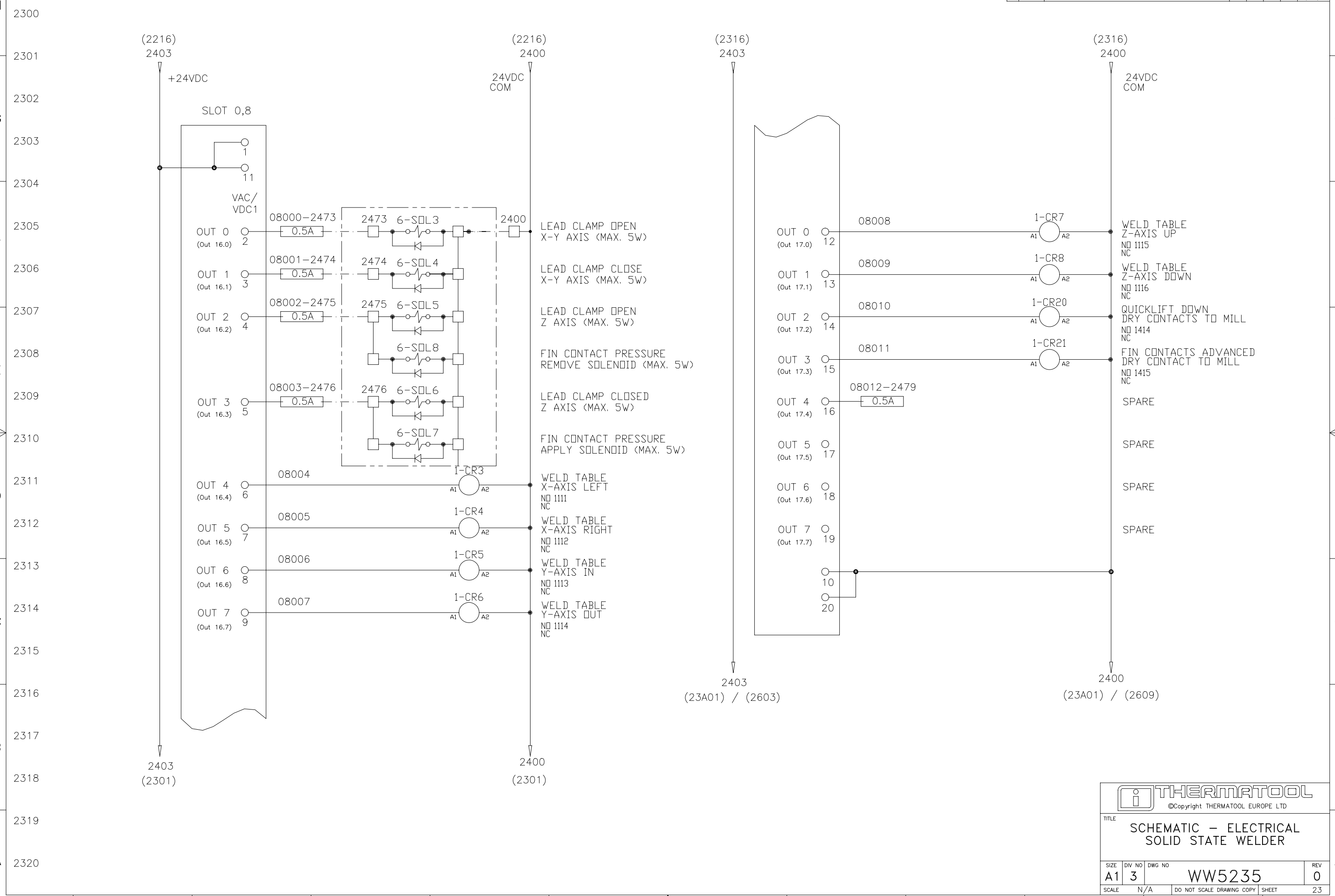


NOTES:
 ⚠️ NORMALLY FITTED ON PMD CONSOLE BUT MAY BE FITTED IN REMOTE LOCATION

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TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV B
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 22

PLC DIGITAL OUTPUTS

REVISIONS						
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0	06138	FIRST ISSUE		TAT		MM/DD/YY 06/06/06



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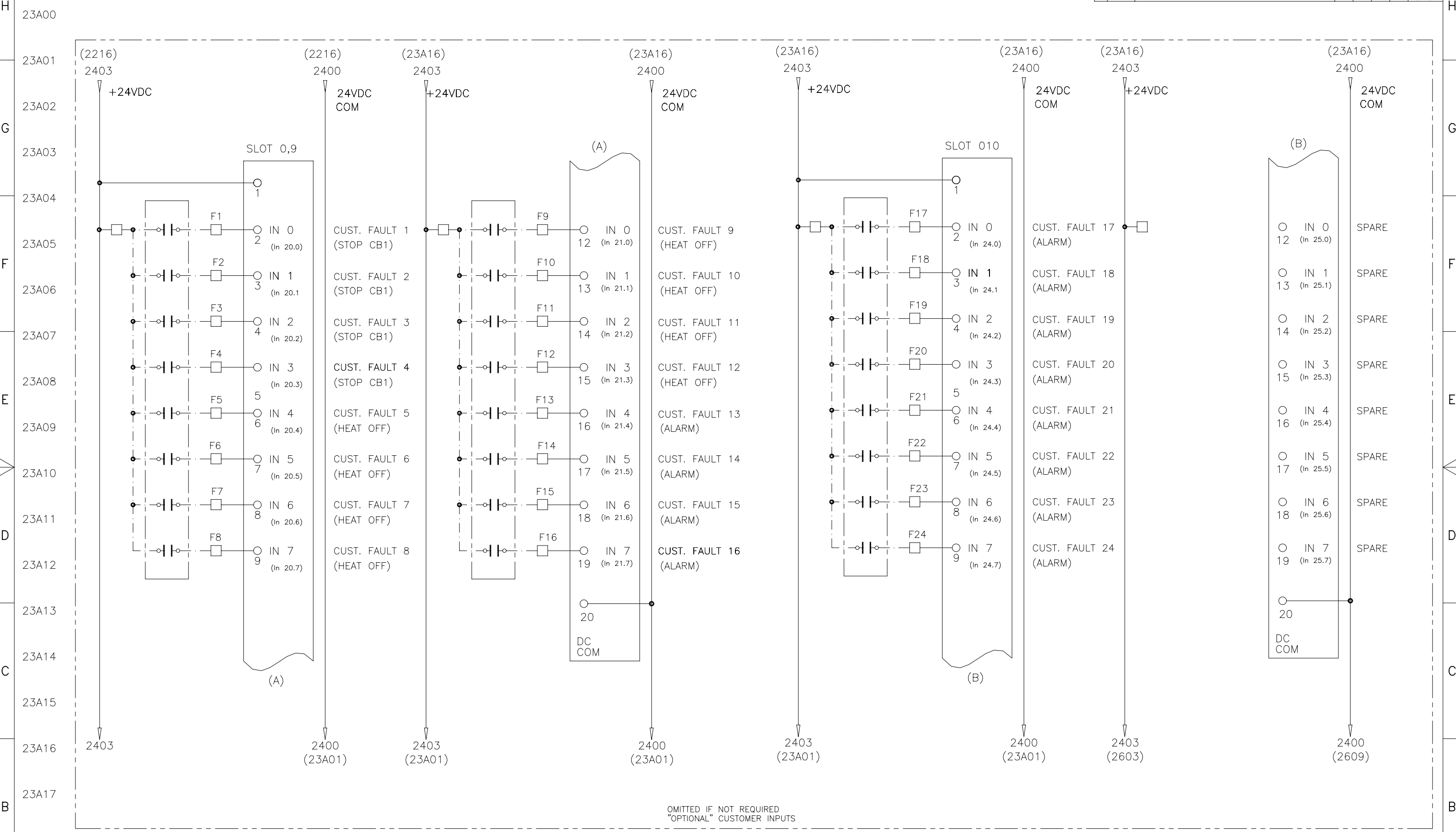
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SCALE	DO NOT SCALE DRAWING COPY		SHEET
N/A			23

ENG-REF: 2

PLC DIGITAL INPUTS (CUSTOMER FAULTS)

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06



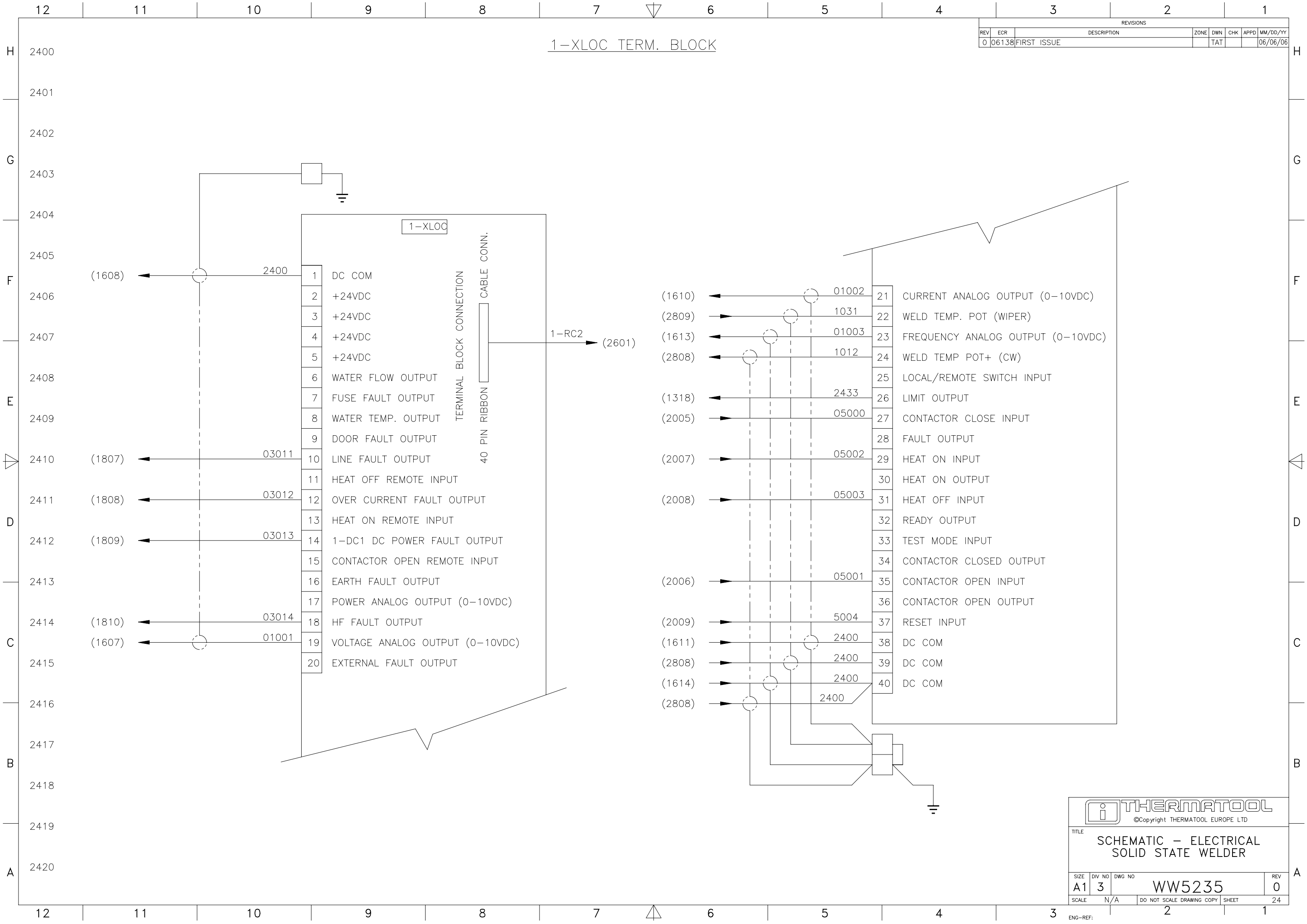
OMITTED IF NOT REQUIRED
"OPTIONAL" CUSTOMER INPUTS


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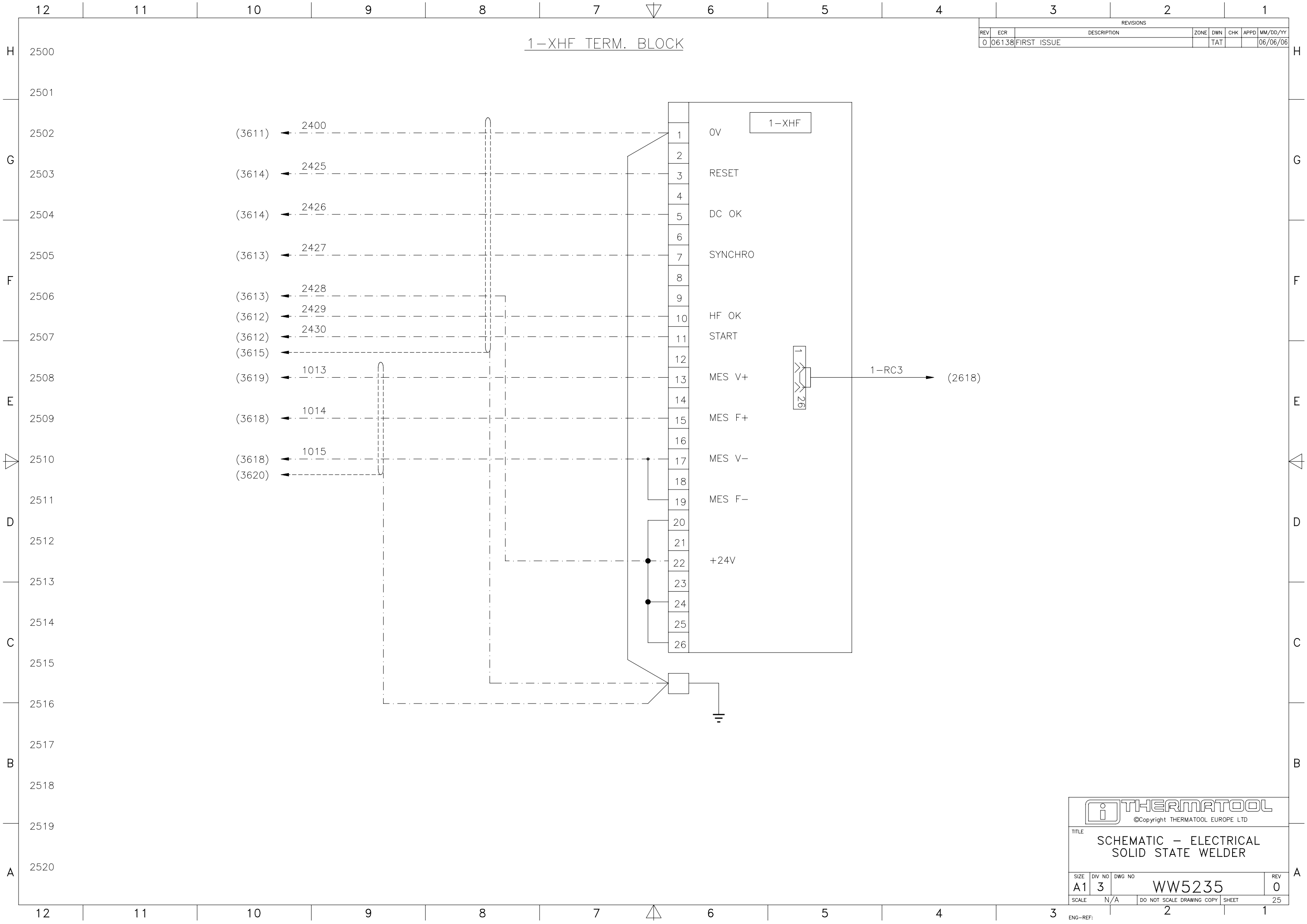
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1-XLOC TERM. BLOCK

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0	06138	FIRST ISSUE		TAT		06/06/06



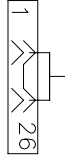
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TITLE			
SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
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			24
ENG-REF:		2	1



1-XHF TERM. BLOCK

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06

1-XHF

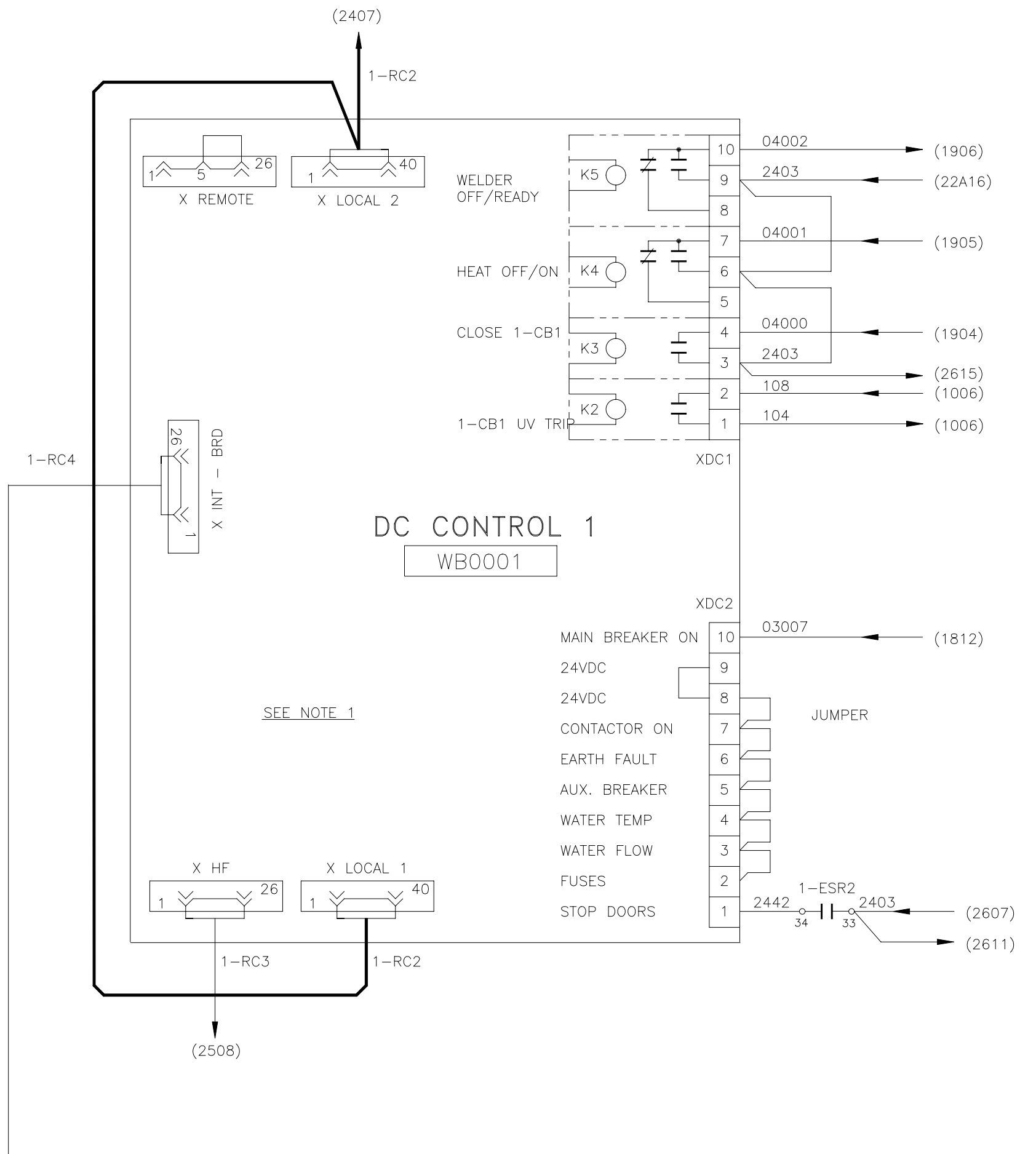


1-RC3 → (2618)

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TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
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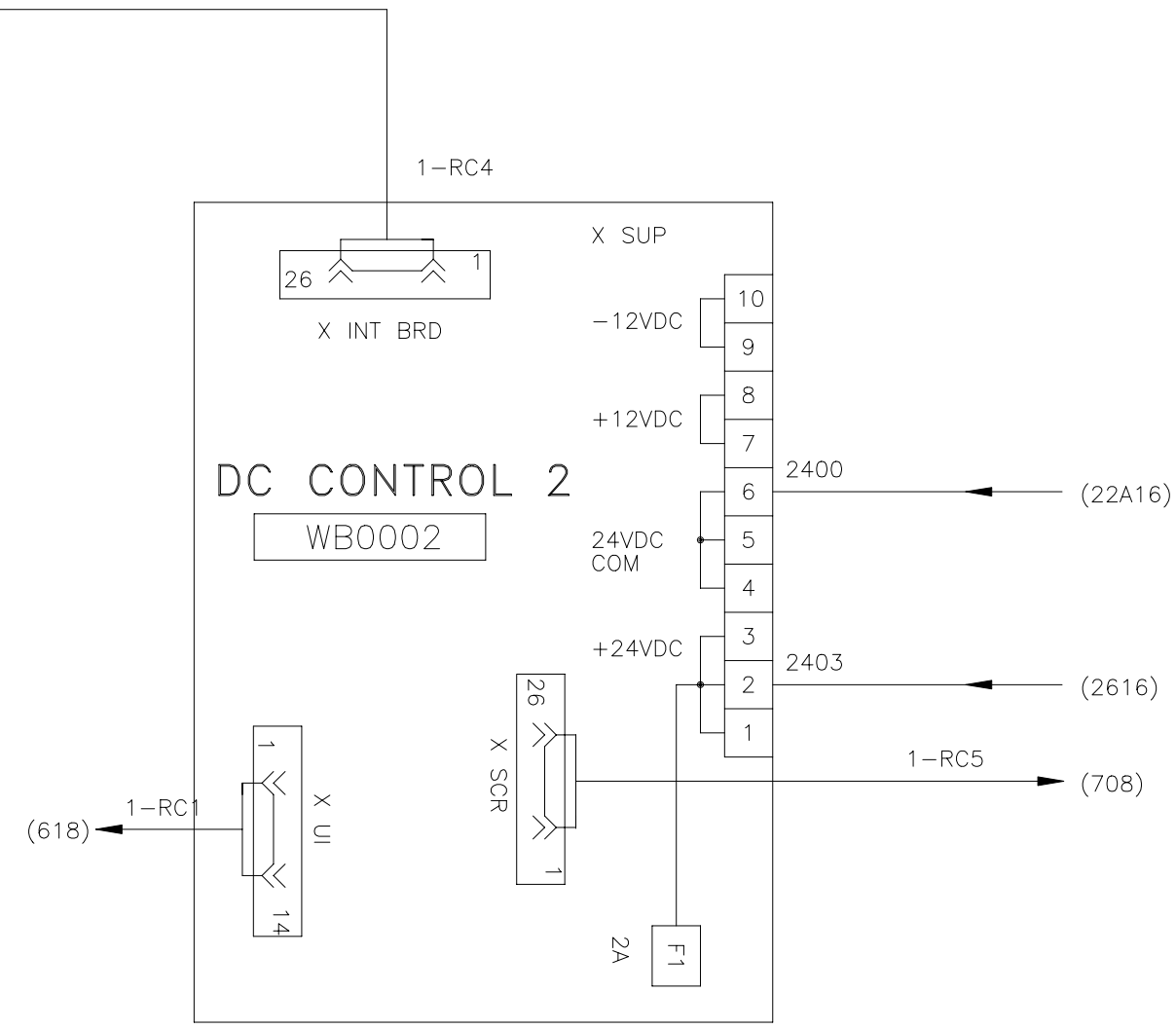
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REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

1-DC1 & 1-DC2 CONTROL BOARDS



SEE NOTE 1

NOTES;
 UP TO 250KW WELDER, LINK RT13 ON DC CONTROL BOARD 1.



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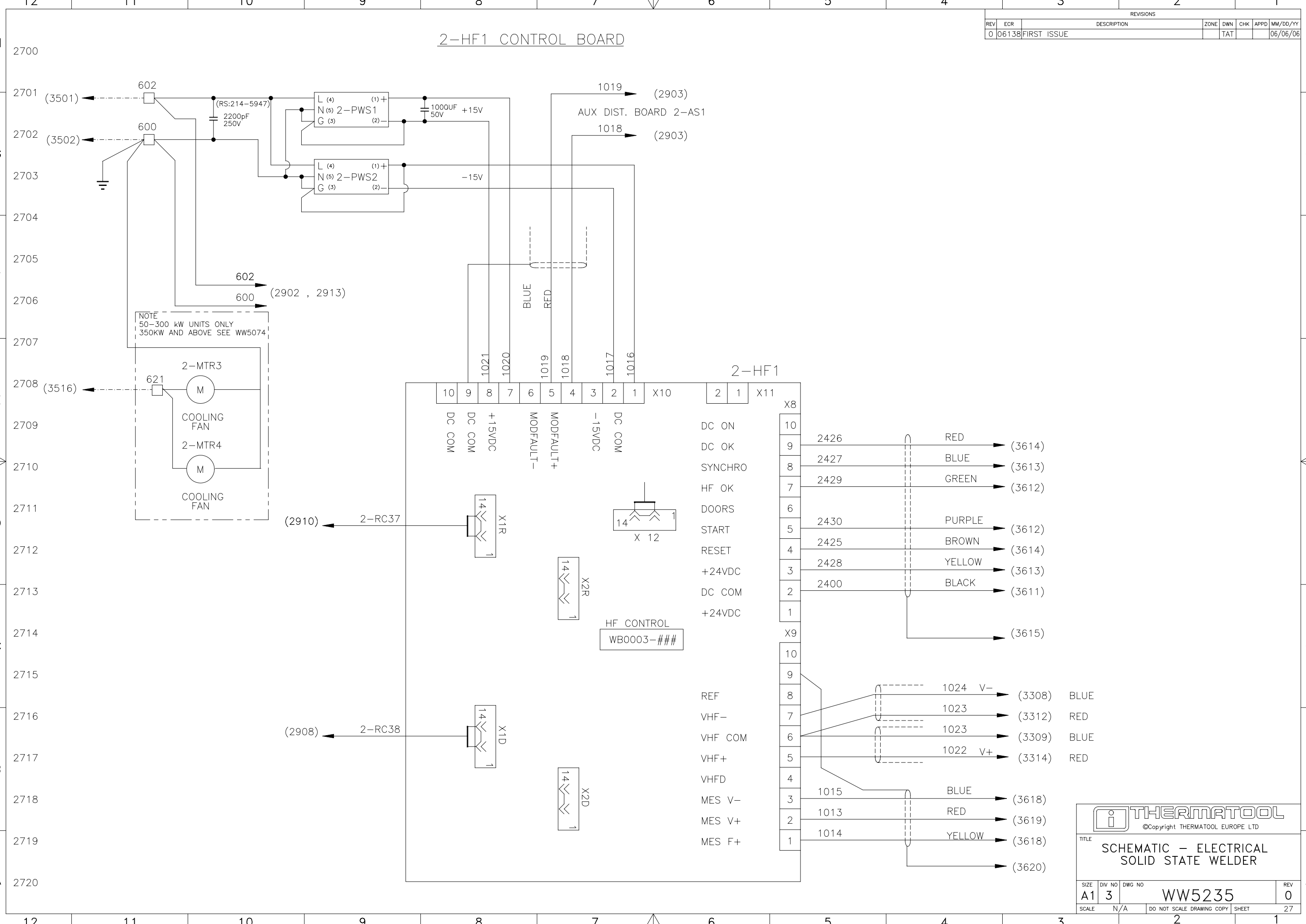
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ENG-REF: 2

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
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2-HF1 CONTROL BOARD



NOTE
50-300 kW UNITS ONLY
350KW AND ABOVE SEE WW5074

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TITLE
**SCHEMATIC - ELECTRICAL
SOLID STATE WELDER**

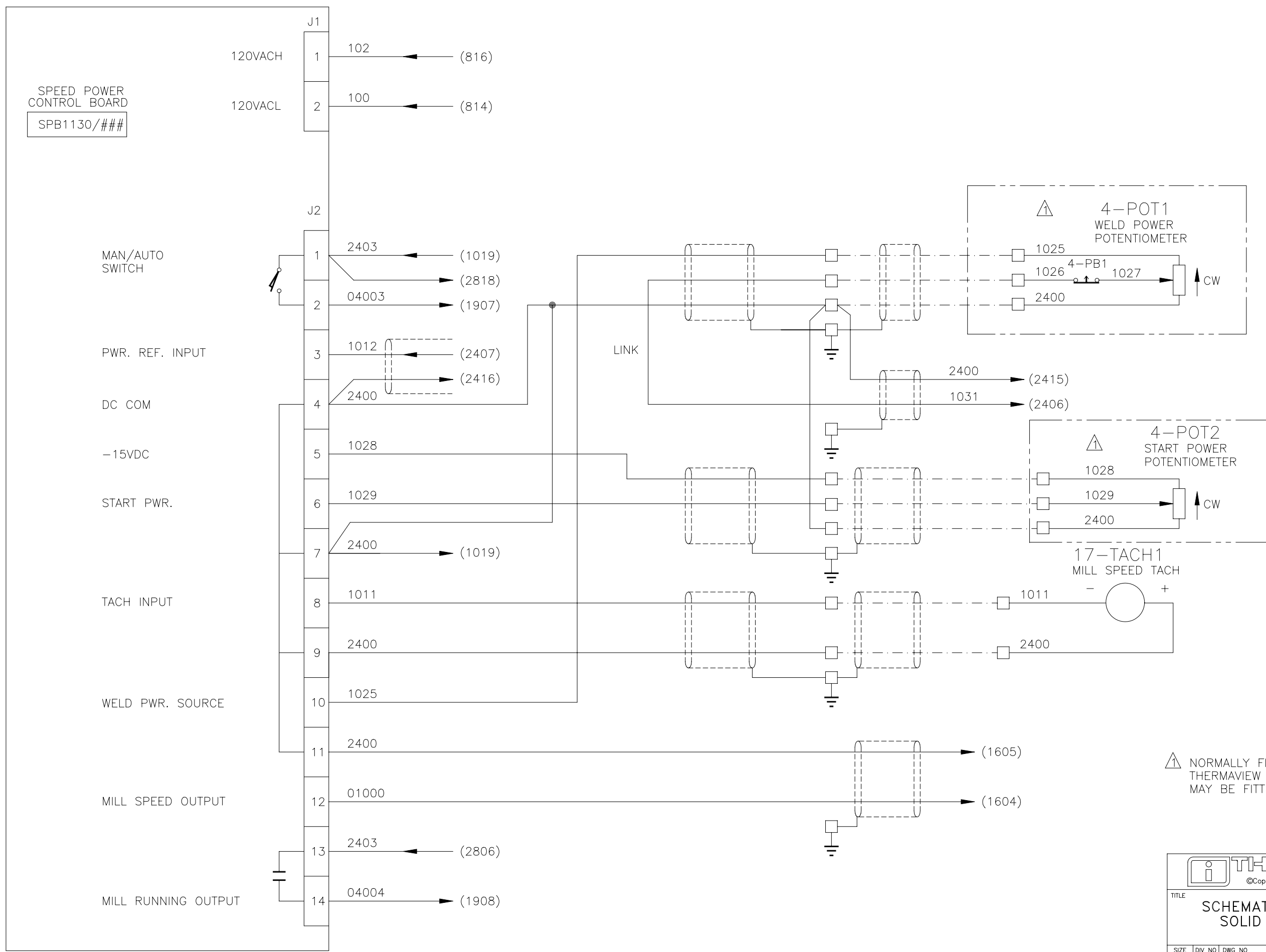
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ENG-REF: 2

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

1-SPC1 SPEED POWER CONTROL BOARD

1-SPC1



⚠️ NORMALLY FITTED ON THERMAVIEW CONSOLE BUT MAY BE FITTED IN REMOTE LOCATION

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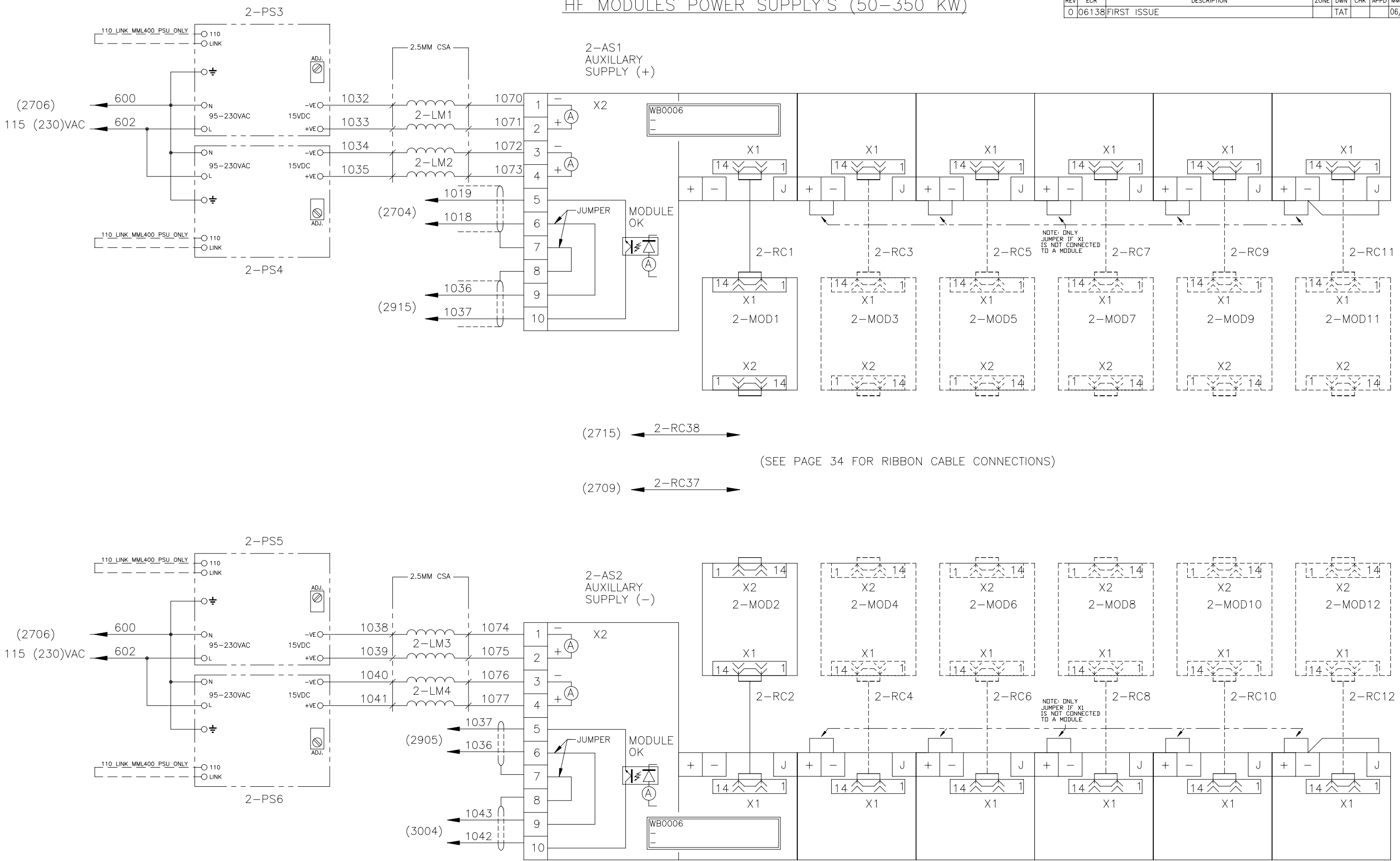
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SIZE	DIV NO	DWG NO	REV
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SCALE	DO NOT SCALE DRAWING COPY		SHEET
			28

ENG-REF: 2

HF MODULES POWER SUPPLY'S (50-350 KW)

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		MM/DD/YY 06/06/06



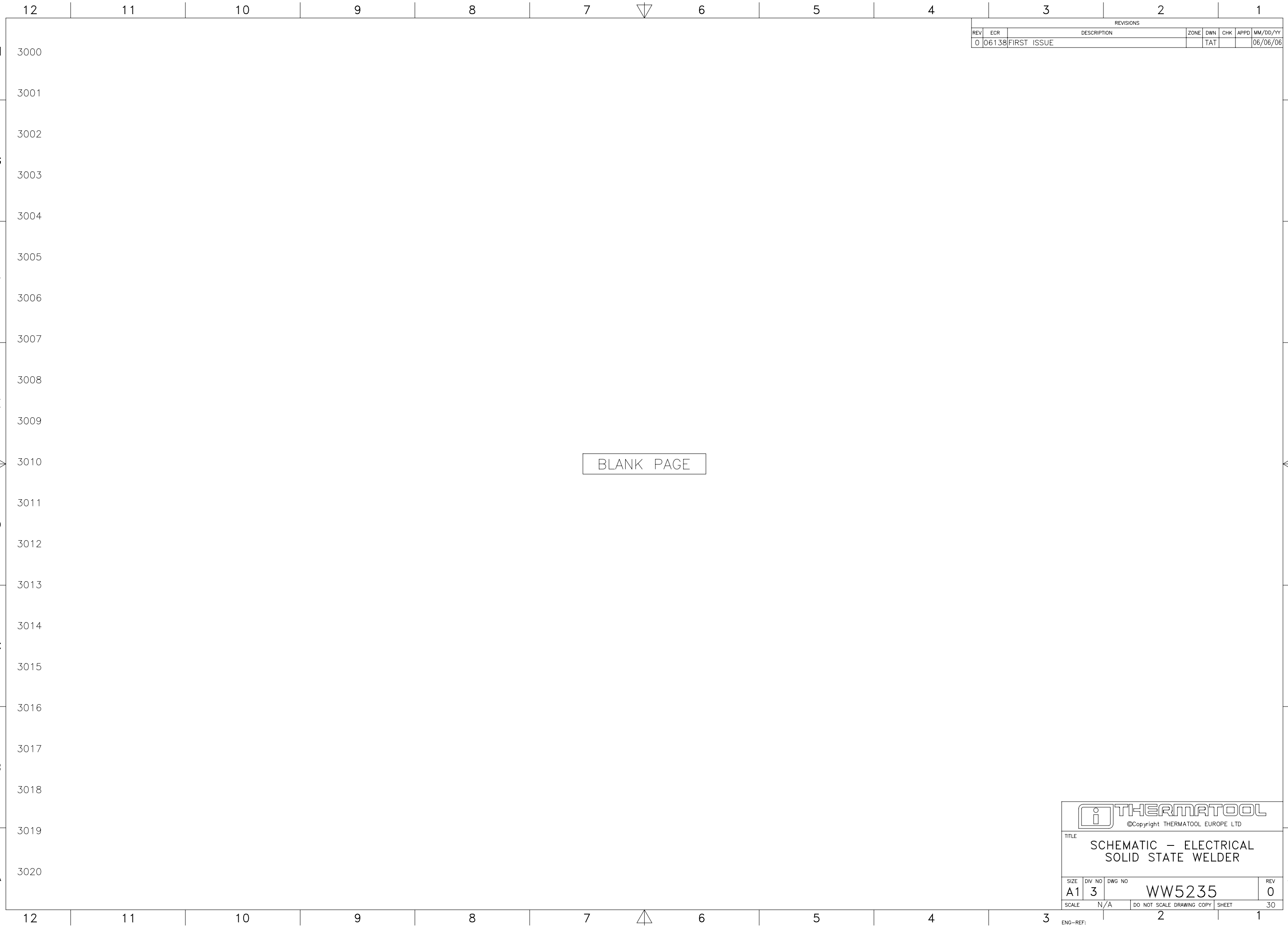
(SEE PAGE 34 FOR RIBBON CABLE CONNECTIONS)

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TITLE
**SCHEMATIC – ELECTRICAL
SOLID STATE WELDER**


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ENG-REF: 2



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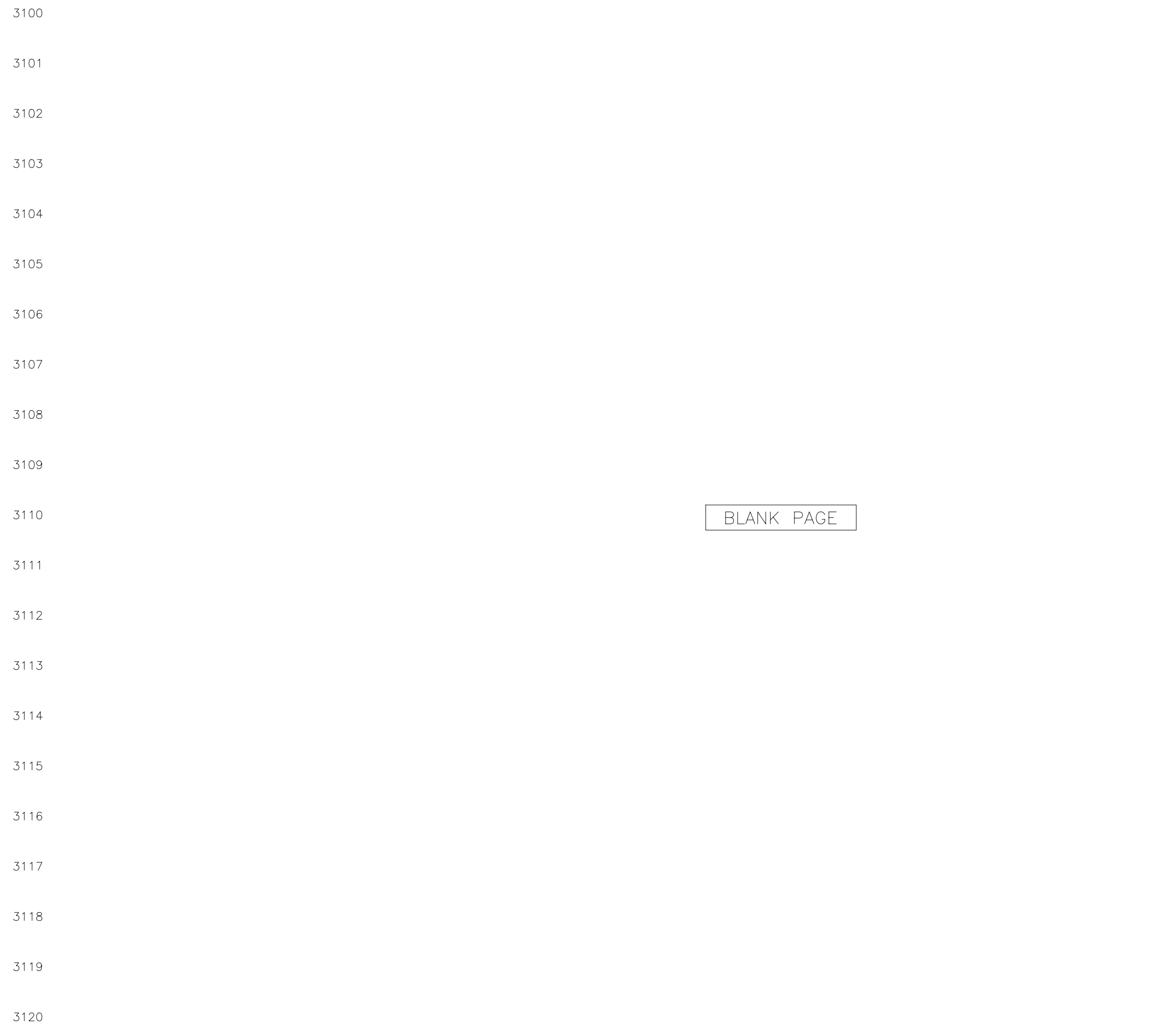
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REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

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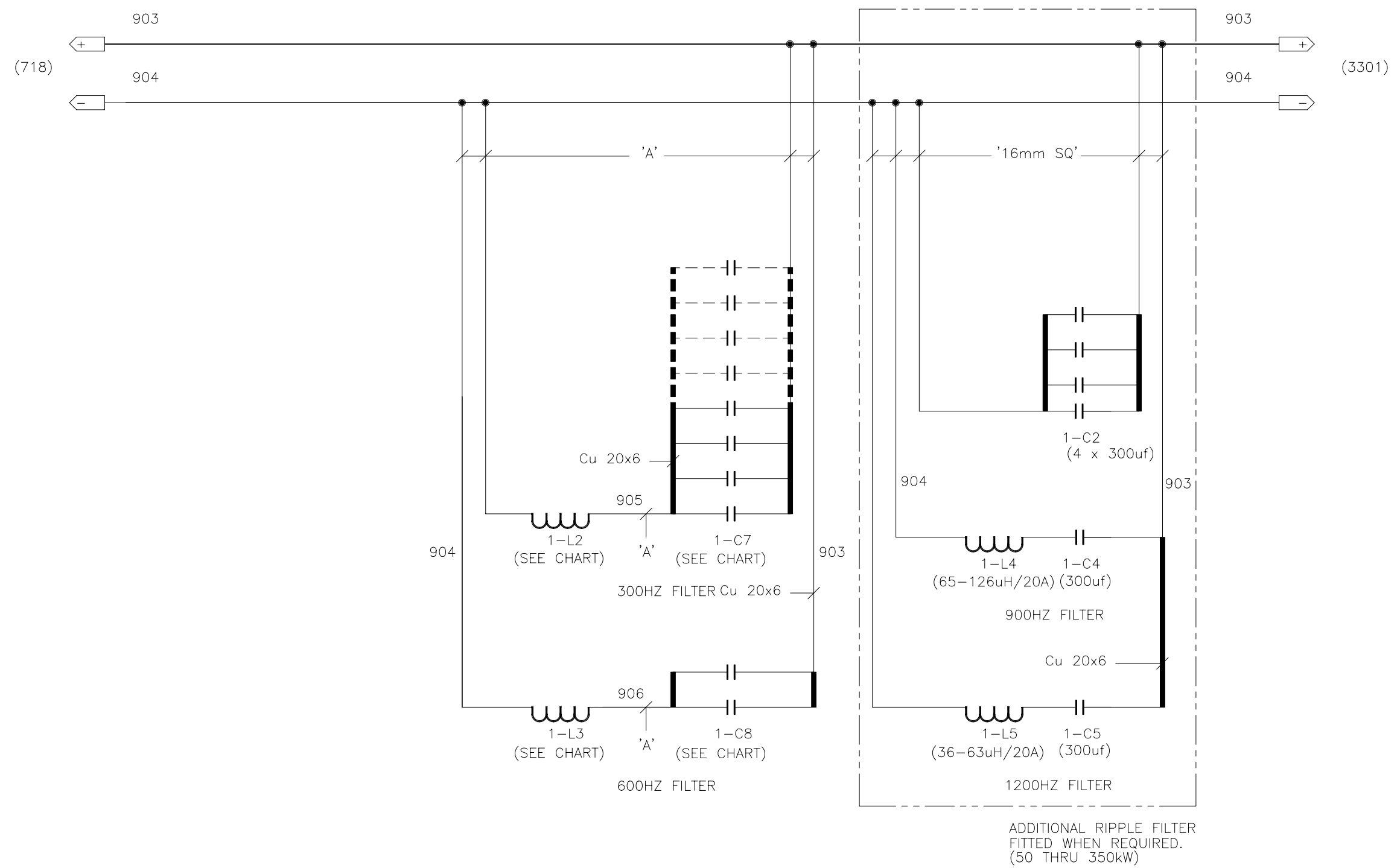
		©Copyright THERMATOOL EUROPE LTD	
TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 31

12 11 10 9 8 7 6 5 4 3 2 1

ENG-REF:


REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06

DC HARMONIC FILTER



UNIT KILOWATTS

50-350	
1-C7	(4) x 300uf
1-L2	148-260 μ H/70A
1-C8	(2) x 300uf
1-L3	74-130 μ H/20A
MAX. CURRENT@ "A"	70AMPS
CABLE SIZE 'A'	16MM SQ



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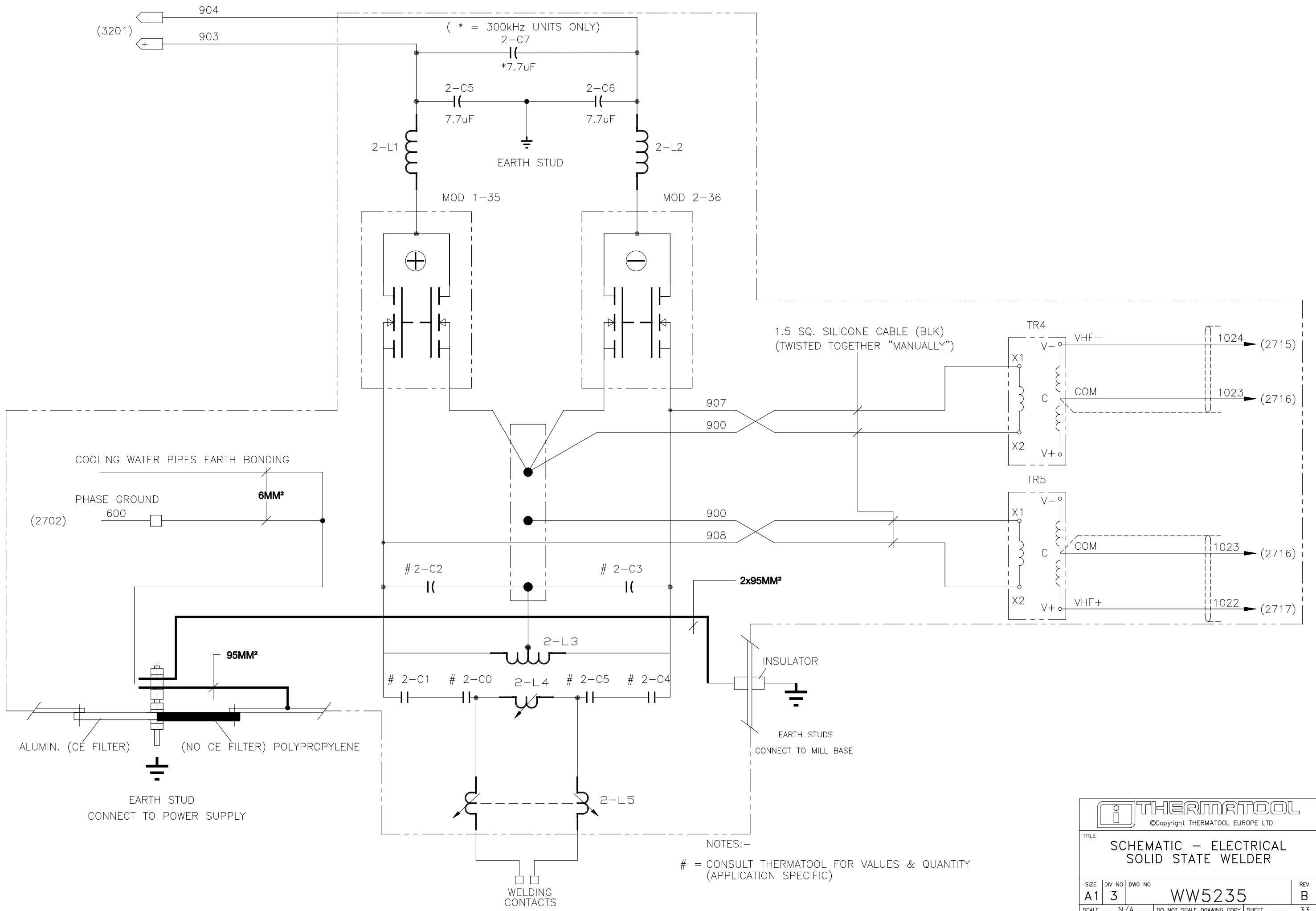
TITLE: SCHEMATIC - ELECTRICAL SOLID STATE WELDER

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SCALE	N/A	DO NOT SCALE DRAWING COPY	SHEET 32

ENG-REF: 2

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		06/06/06
B	06227	CORRECT EARTHING & SHOWED WELD CNTACTS		TAT		09/25/06

RF OUTPUT CIRCUIT



NOTES:-
= CONSULT THERMATOOL FOR VALUES & QUANTITY
(APPLICATION SPECIFIC)

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TITLE
**SCHEMATIC – ELECTRICAL
SOLID STATE WELDER**


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SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 33

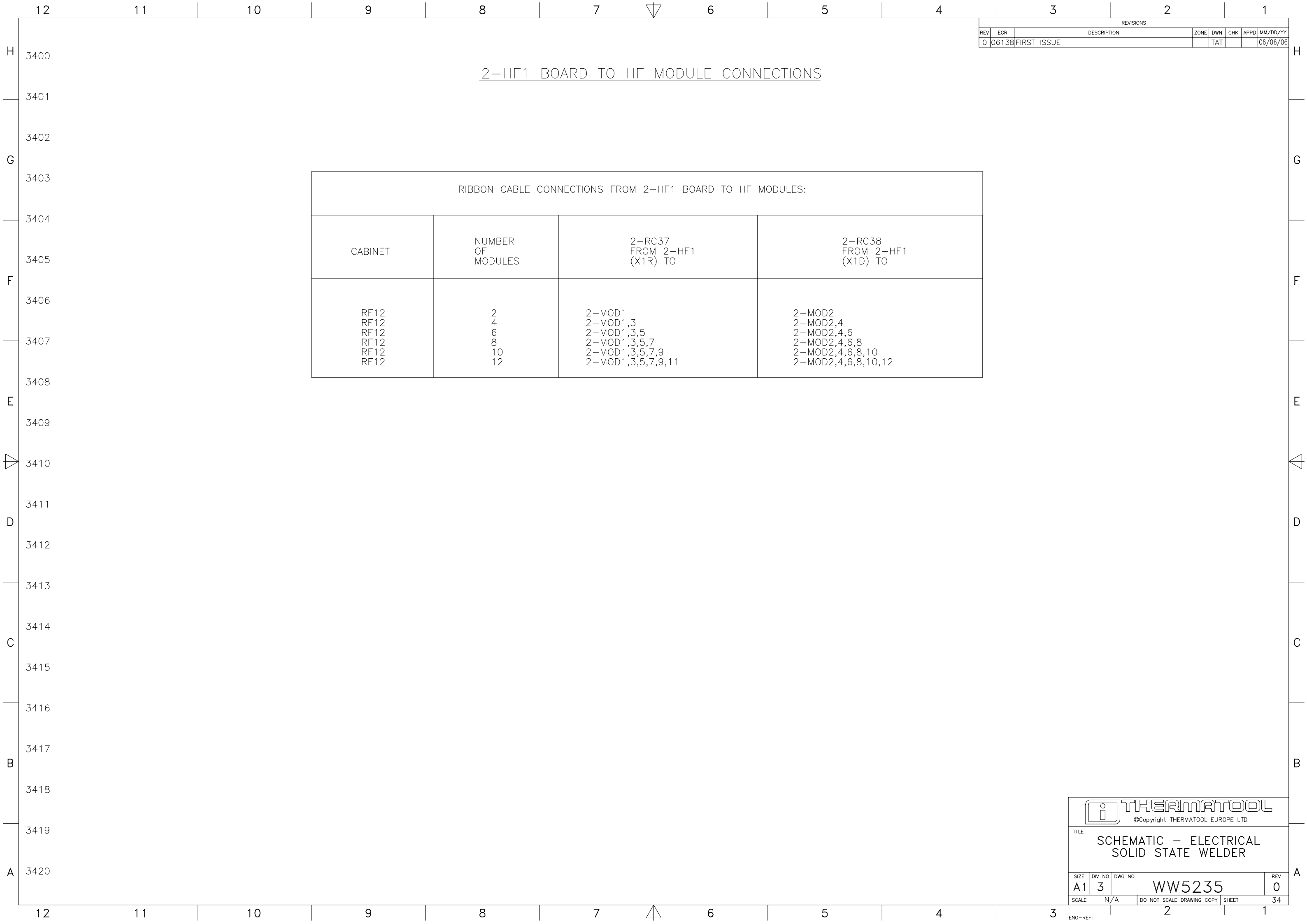
ENG-REF: 2

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

2-HF1 BOARD TO HF MODULE CONNECTIONS

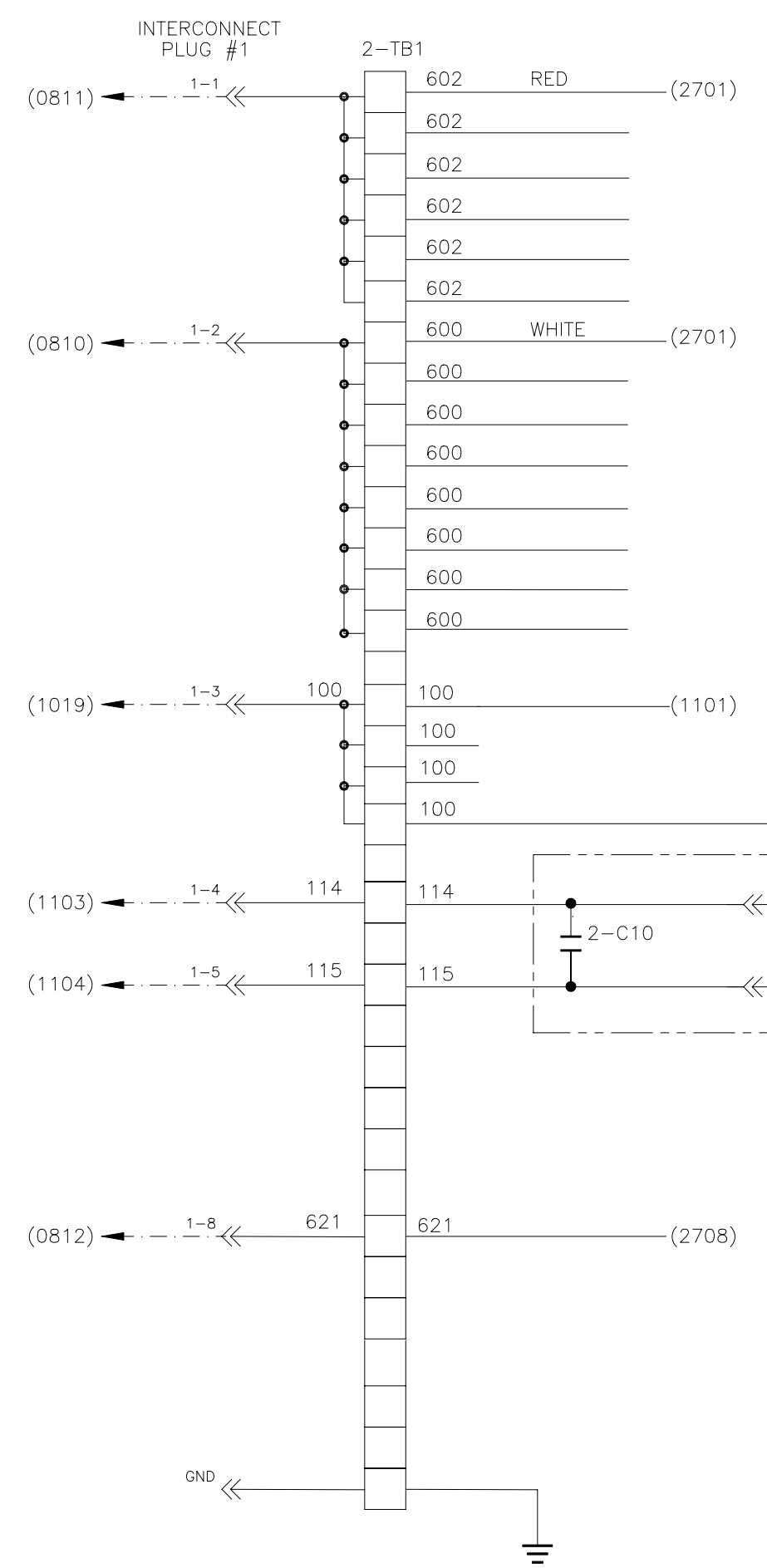
RIBBON CABLE CONNECTIONS FROM 2-HF1 BOARD TO HF MODULES:			
CABINET	NUMBER OF MODULES	2-RC37 FROM 2-HF1 (X1R) TO	2-RC38 FROM 2-HF1 (X1D) TO
RF12	2	2-MOD1	2-MOD2
RF12	4	2-MOD1,3	2-MOD2,4
RF12	6	2-MOD1,3,5	2-MOD2,4,6
RF12	8	2-MOD1,3,5,7	2-MOD2,4,6,8
RF12	10	2-MOD1,3,5,7,9	2-MOD2,4,6,8,10
RF12	12	2-MOD1,3,5,7,9,11	2-MOD2,4,6,8,10,12

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TITLE SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
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A1	3	WW5235	0
SCALE	N/A	DO NOT SCALE DRAWING COPY	SHEET 34



REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

HF GENERATOR PLUG INTERCONNECTION DETAILS



MANUFACTURER	2-C10 RATING
PANASONIC-G SERIES	
115V-50/60-20W	5.5uF
230V-50/60-25W	5uF

2-MTR1
PARALLEL INDUCTOR
MOTOR
115 (230) VAC
.4 FLA (.2FLA)

INSTALLED ONLY ON WELDER
FITTED WITH AUTOMATCH

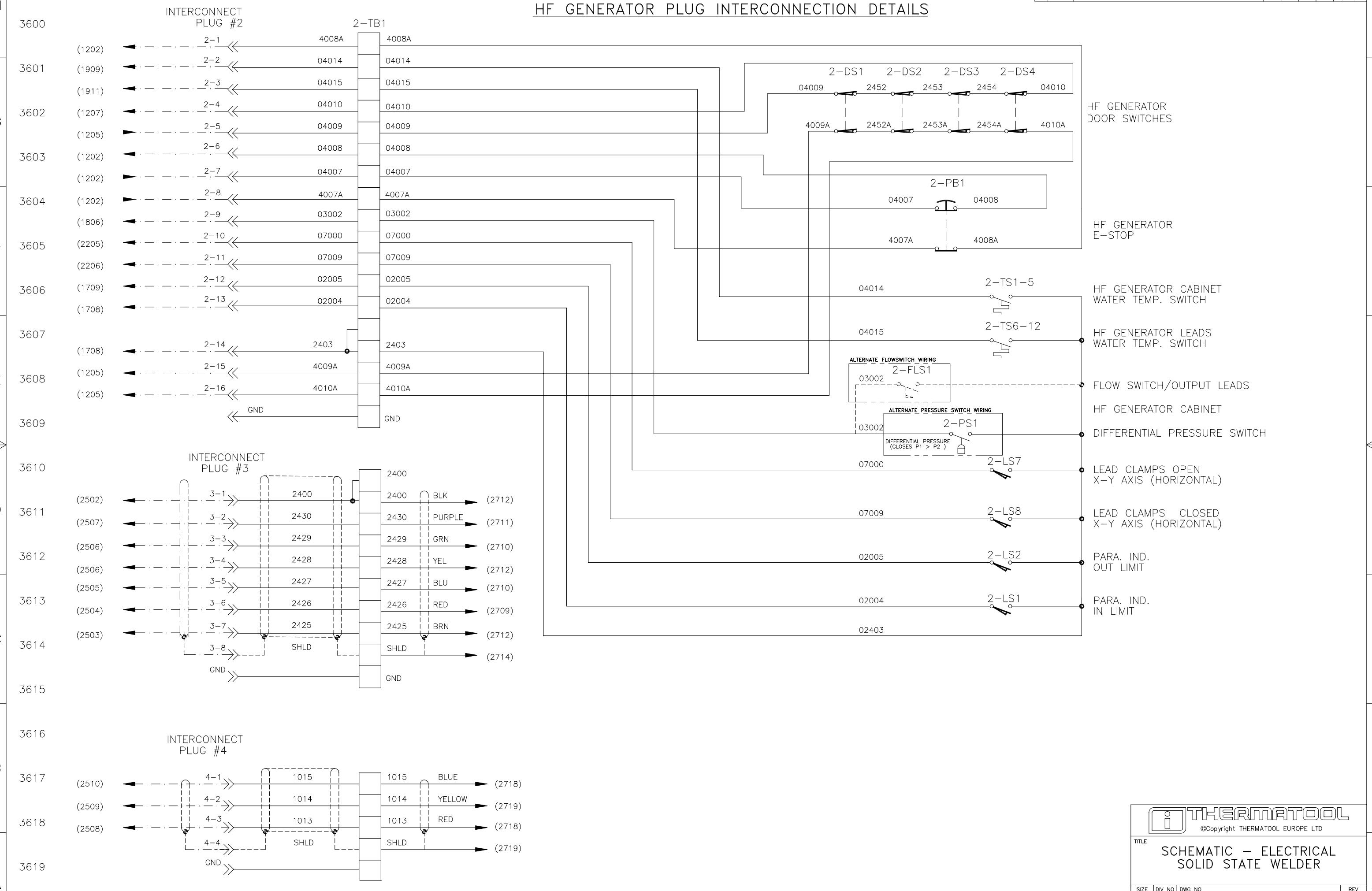


TITLE
**SCHEMATIC – ELECTRICAL
SOLID STATE WELDER**

SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE N/A	DO NOT SCALE DRAWING COPY		SHEET 35

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
0	06138	FIRST ISSUE		TAT			06/06/06

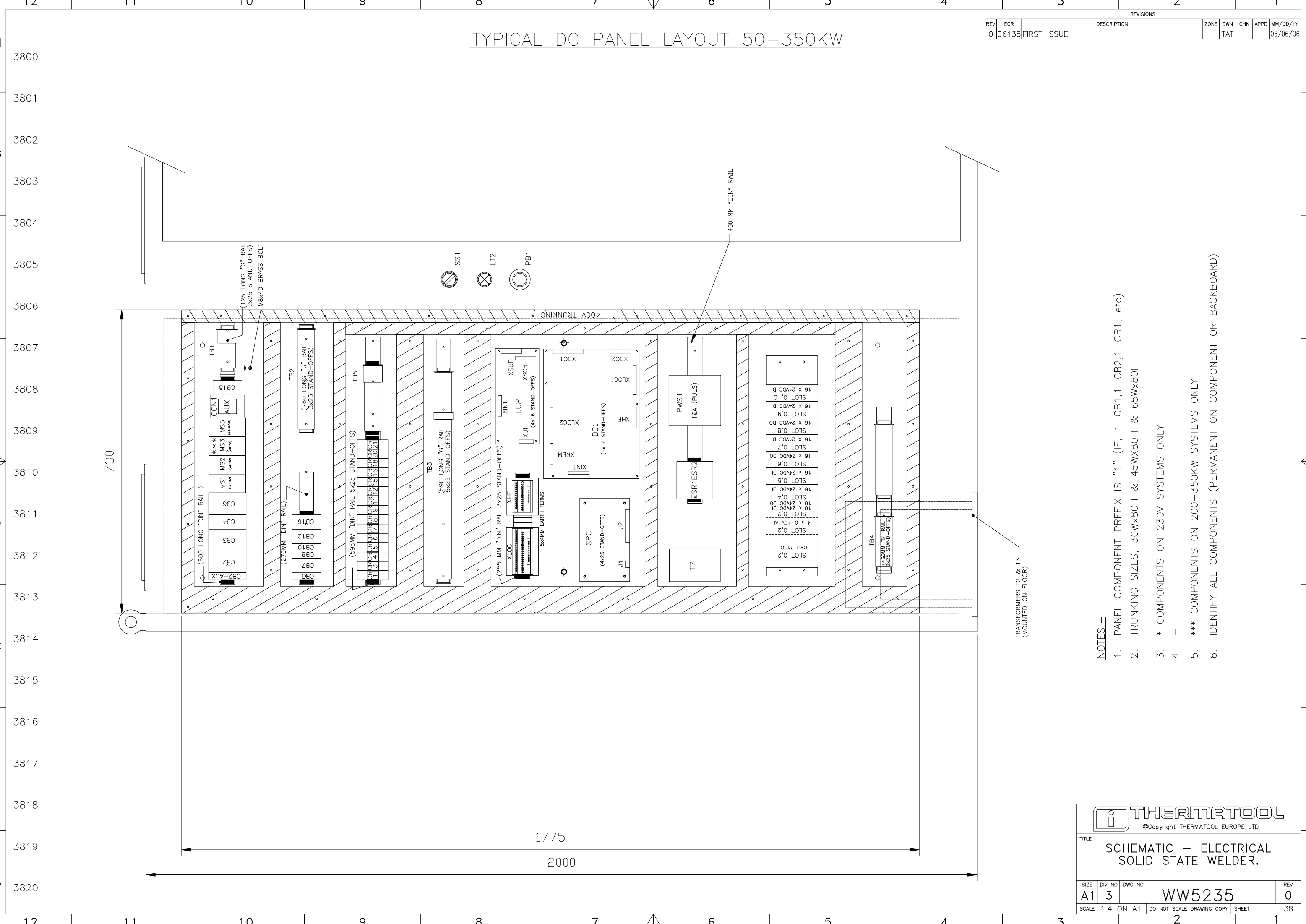
HF GENERATOR PLUG INTERCONNECTION DETAILS



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TITLE			
SCHEMATIC – ELECTRICAL SOLID STATE WELDER			
SIZE	DIV NO	DWG NO	REV
A1	3	WW5235	0
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			36

TYPICAL DC PANEL LAYOUT 50-350KW

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	06138	FIRST ISSUE		TAT		



- NOTES:-
- PANEL COMPONENT PREFIX IS "1" (IE, 1-CB1,1-CB2,1-CR1, etc)
 - TRUNKING SIZES, 30Wx80H & 45WX80H & 65Wx80H
 - * COMPONENTS ON 230V SYSTEMS ONLY
 -
 - *** COMPONENTS ON 200-350KW SYSTEMS ONLY
 - IDENTIFY ALL COMPONENTS (PERMANENT ON COMPONENT OR BACKBOARD)

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**SCHEMATIC - ELECTRICAL
SOLID STATE WELDER.**

SIZE A1	DIV NO 3	DWG NO WW5235	REV 0
SCALE 1:4 ON A1		DO NOT SCALE DRAWING COPY SHEET 38	

WW5236

Interconnection Cable List

Sheet 1 – *Interconnection Cable List*

Sheet 2 – *Interconnection Cable List*

Sheet 3 – *Interconnection Cable List*

Sheet 4 – *Interconnection Cable List*

Sheet 5 – *Interconnection Cable List*

Sheet 6 – *Interconnection Cable List*

Sheet 7 – *Interconnection Cable List*

Sheet 8 – *Interconnection Cable List*

Sheet 9 – *Interconnection Cable List*

Sheet 10 – *Interconnection Cable List*

Sheet 11 – *Interconnection Cable List*

Sheet 12 – *Interconnection Cable List*

Sheet 13 – *Interconnection Cable List*

Sheet 14 – *Interconnection Cable List*

Sheet 15 – *Interconnection Cable List*

SOURCE/ DEST'N CODE		DESCRIPTION	COMMENTS
0		PLANT DISTRIBUTION PANEL	CUSTOMER SUPPLY
1		WELDER DC POWER SUPPLY	
2		RF GENERATOR/OSCILLATOR	
3		UNUSED	UNUSED
4		WELDER REMOTE CONTROLS	
5		WELDER HEAT EXCHANGER	
6		WELD TABLE	
7		WELD HEAD	
8		THERMASURE OPERATOR PANEL	OPTIONAL EQUIPMENT
9		THERMASURE CHART RECORDER	OPTIONAL EQUIPMENT
10		THERMASURE PYROMETER HEAD	OPTIONAL EQUIPMENT
11		PYROMETER AIR FILTER ASSEMBLY	OPTIONAL EQUIPMENT
12		THERMASURE TEMP. DISPLAY UNIT	OPTIONAL EQUIPMENT
13		SIL - SIGNAL ISOLATOR/CONVERTER	OPTIONAL EQUIPMENT
17		SYSTEM MILL FIXTURE	
18		SYSTEM CONTROL CABINET	
19		SYSTEM CONSOLE	
20		SYSTEM PENDANT STATION	
21		STEP DOWN TRANSFORMER CABINET	ONLY ON 400Kw AND ABOVE
31		POWER FACTOR CORRECTION CABINET	OPTIONAL EQUIPMENT

VOLTAGE LEVEL CODE		DESCRIPTION
1		SIGNAL LEVEL (ANALOGUE)
2		EXTRA LOW VOLTAGE 24VDC
3		LOW VOLTAGE 115V OR 230V 50Hz
4		LOW VOLTAGE POWER LEVEL 400V 50Hz
5		SPECIAL HIGH POWER CABLES/BUSBARS
6		LV PLANT DISTRIBUTION 400V 50Hz

CONDUIT NUMBER SYSTEM		FORMAT
		AA - BB - C D
AA		SOURCE EQUIPMENT CODE
BB		DESTINATION EQUIPMENT CODE
C		VOLTAGE LEVEL CODE
D		JUNCTION BOX No. (WHERE USED)

CONDUIT ID - A A - B B - C D				APPLICATION	SEE UNIT RATING
CONDUIT No.- 0 0 - 0 1 - 6 0				DESCRIPTION	CUSTOMER SUPPLIED 400V 50Hz
SOURCE - CUSTOMER				FROM	PLANT DISTRIBUTION PANEL
				TO	WELDER DC POWER SUPPLY
UNIT RATING	PHASE	CONDUCTOR NUMBER	CONDUCTOR QUANTITY	COND. SIZE	COND. COLOUR
50Kw (123A)	R	L1	1	70mm ²	BLACK
	S	L2	1	70mm ²	BLACK
	T	L3	1	70mm ²	BLACK
	GND	GND	1	35mm ²	GRN/YEL
100Kw (231A)	R	L1	1	95mm ²	BLACK
	S	L2	1	95mm ²	BLACK
	T	L3	1	95mm ²	BLACK
	GND	GND	1	50mm ²	GRN/YEL
150Kw (348A)	R	L1	2	70mm ²	BLACK
	S	L2	2	70mm ²	BLACK
	T	L3	2	70mm ²	BLACK
	GND	GND	1	70mm ²	GRN/YEL
200Kw (464A)	R	L1	2	120mm ²	BLACK
	S	L2	2	120mm ²	BLACK
	T	L3	2	120mm ²	BLACK
	GND	GND	1	120mm ²	GRN/YEL
250Kw (578A)	R	L1	2	150mm ²	BLACK
	S	L2	2	150mm ²	BLACK
	T	L3	2	150mm ²	BLACK
	GND	GND	1	150mm ²	GRN/YEL
300Kw (690A)	R	L1	2	185mm ²	BLACK
	S	L2	2	185mm ²	BLACK
	T	L3	2	185mm ²	BLACK
	GND	GND	1	185mm ²	GRN/YEL
350Kw (795A)	R	L1	3	120mm ²	BLACK
	S	L2	3	120mm ²	BLACK
	T	L3	3	120mm ²	BLACK
	GND	GND	1	185mm ²	GRN/YEL
NOTES					
CABLES ON THIS PAGE ARE BASED ON COPPER UNARMoured SINGLE CORE					
CONDUCTORS ENCLOSED IN CONDUIT TO BS 6004, BS 6231, BS 6346					
AT 30 DEG C AMBIENT AND 70 DEG C CONDUCTOR TEMPERATURE.					

CONDUIT ID - A A - B B - C D				APPLICATION SEE UNIT RATING	
CONDUIT No.- 0 1 - 0 2 - 5 0				DESCRIPTION SPECIAL HIGH POWER CABLES	
SOURCE - CUSTOMER				FROM WELDER DC POWER SUPPLY	
				TO RF GENERATOR/OSCILLATOR	
UNIT RATING	PHASE	CONDUCTOR NUMBER	CONDUCTOR QUANTITY	COND. SIZE	COND. COLOUR
50Kw	+	9 0 3	1	95mm ²	BLACK
(260A DC)	-	9 0 4	1	95mm ²	BLACK
	GND	GND	1	50mm ²	GRN/YEL
100Kw	+	9 0 3	2	95mm ²	BLACK
(521A DC)	-	9 0 4	2	95mm ²	BLACK
	GND	GND	1	95mm ²	GRN/YEL
150Kw	+	9 0 3	3	95mm ²	BLACK
(781 A DC)	-	9 0 4	3	95mm ²	BLACK
	GND	GND	1	150mm ²	GRN/YEL
200Kw	+	9 0 3	3	120mm ²	BLACK
(1042A DC)	-	9 0 4	3	120mm ²	BLACK
	GND	GND	1	185mm ²	GRN/YEL
250Kw	+	9 0 3	4	120mm ²	BLACK
(1302A DC)	-	9 0 4	4	120mm ²	BLACK
	GND	GND	1	240mm ²	GRN/YEL
300Kw	+	9 0 3	4	150mm ²	BLACK
(1563A DC)	-	9 0 4	4	150mm ²	BLACK
	GND	GND	2	150mm ²	GRN/YEL
350Kw	+	9 0 3	4	185mm ²	BLACK
(1800A DC)	-	9 0 4	4	185mm ²	BLACK
	GND	GND	2	185mm ²	GRN/YEL
NOTES					
CABLES ON THIS PAGE ARE BASED ON COPPER UNARMoured SINGLE CORE					
CONDUCTORS ENCLOSED IN CONDUIT TO BS 6004, BS 6231, BS 6346					
AT 30 DEG C AMBIENT AND 70 DEG C CONDUCTOR TEMPERATURE.					

CONDUIT ID - A A - B B - C D				APPLICATION	ALL UNITS
CONDUIT No.- 0 1 - 0 2 - 3 0				DESCRIPTION	LOW VOLTAGE 115V OR 230V 50Hz
SOURCE - CUSTOMER				FROM	WELDER DC POWER SUPPLY
				TO	RF GENERATOR PLUG 1
CONDUCTOR DESCRIPTION 12 CONDUCTOR SCREENED CABLE					
PLUG PIN NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1..2	6 0 0	2.5mm2			
1..1	6 0 2	2.5mm2			
1..8	6 0 3	2.5mm2			
1..3	1 0 0	2.5mm2			
1..4	1 1 4	2.5mm2		(PARALLEL) ONLY ON AUTOMATCH	
1..5	1 1 5	2.5mm2		(PARALLEL) ONLY ON AUTOMATCH	
1..6					
1..7					
1..9					
1..10					

CONDUIT ID - A A - B B - C D				APPLICATION	ALL UNITS
CONDUIT No.- 0 1 - 0 2 - 6 0				DESCRIPTION	EXTRA LOW VOLTAGE 24VDC
SOURCE - CUSTOMER				FROM	WELDER DC POWER SUPPLY
				TO	RF GENERATOR PLUG 2
CONDUCTOR DESCRIPTION 16 CONDUCTOR SHIELDED CABLE					
PLUG PIN NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
2..7	0 4 0 0 7	0.75mm2		E STOP CH. 1	
2..8	4 0 0 7 A	0.75mm2		E STOP CH. 2	
2..6	0 4 0 0 8	0.75mm2		E STOP CH. 1	
2..1	4 0 0 8 A	0.75mm2		E STOP CH. 2	
2..5	0 4 0 0 9	0.75mm2		DOOR SWITCHES CH.1	
2..15	4 0 0 9 A	0.75mm2		DOOR SWITCHES CH.2	
2..4	0 4 0 1 0	0.75mm2		DOOR SWITCHES CH.1	
2..16	4 0 1 0 A	0.75mm2		DOOR SWITCHES CH.2	
2..2	0 4 0 1 4	0.75mm2		2-TS1-5	
2..3	0 4 0 1 5	0.75mm2		2-TS6-12	
2..9	0 3 0 0 2	0.75mm2		2-FLS1	
2..13	0 2 0 0 4	0.75mm2		AUTOMATCH ONLY (Lim.Sw Parallel In.)	
2..12	0 2 0 0 5	0.75mm2		AUTOMATCH ONLY (Lim.Sw ParallelOut)	
2..11	0 7 0 0 9	0.75mm2		LS7 LEAD CLAMAPS CLOSED X-Y AXIS	
2..10	0 7 0 0 0	0.75mm2		LS7 LEAD CLAMAPS OPEN X-Y AXIS	
2..14	2 4 0 3	0.75mm2		24V DC SUPPLY	

CONDUIT ID - A A - B B - C D				APPLICATION	ALL UNITS
CONDUIT No.- 0 1 - 0 2 - 2 0				DESCRIPTION	EXTRA LOW VOLTAGE 24VDC
SOURCE - CUSTOMER				FROM	WELDER DC POWER SUPPLY
				TO	RF GENERATOR PLUG 3
CONDUCTOR DESCRIPTION 12 CONDUCTOR SHIELDED CABLE					
PLUG PIN NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
3..1	2 4 0 0	0.75mm2		TO 1-XHF TERM 1	
3..7	2 4 2 5	0.75mm2		TO 1-XHF TERM 3	
3..6	2 4 2 6	0.75mm2		TO 1-XHF TERM 5	
3..5	2 4 2 7	0.75mm2		TO 1-XHF TERM 7	
3..4	2 4 2 8	0.75mm2		TO 1-XHF TERM 20	
3..3	2 4 2 9	0.75mm2		TO 1-XHF TERM 10	
3..2	2 4 3 0	0.75mm2		TO 1-XHF TERM 11	
3..8	S C R N			SCRN	
3..9				SPARE	
3..10				SPARE	
3..11				SPARE	
3..12				SPARE	

CONDUIT ID - A A - B B - C D				APPLICATION	ALL UNITS
CONDUIT No.- 0 1 - 0 2 - 1 0				DESCRIPTION	SIGNAL LEVEL (ANALOG)
SOURCE - CUSTOMER				FROM	WELDER DC POWER SUPPLY
				TO	RF GENERATOR PLUG 4
CONDUCTOR DESCRIPTION 4 CONDUCTOR SHIELDED CABLE					
PLUG PIN NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
4..3	1 0 1 3	0.5mm2	RED	TO 1-XHF TERM 13	
4..2	1 0 1 4	0.5mm2	BLUE	TO 1-XHF TERM 15	
4..1	1 0 1 5	0.5mm2	GREEN	TO 1-XHF TERM 17 & 19	
4..4	S C R N			SCREEN	

CONDUIT ID - A A - B B - C D				APPLICATION	ALL UNITS
CONDUIT No.- 0 1 - 1 7 - 1 0				DESCRIPTION	SIGNAL LEVEL (ANALOGUE)
SOURCE - THERMATOOL				FROM	WELDER DC POWER SUPPLY
				TO	MILL FIXTURE
CONDUCTOR DESCRIPTION 2 CONDUCTOR SHIELDED CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	2 4 0 0	1.5mm2		MILL SPEED TACHO +Ve	
2	1 0 1 1	1.5mm2		MILL SPEED TACHO -Ve	
SCRN	SCRN				

CONDUIT ID - A A - B B - C D				APPLICATION	ALL UNITS
CONDUIT No.- 0 1 - 0 4 - 2 0				DESCRIPTION	EXTRA LOW VOLTAGE 24VDC
SOURCE - CUSTOMER				FROM	WELDER DC POWER SUPPLY
				TO	WELDER REMOTE CONTROLS
CONDUCTOR DESCRIPTION 40 CONDUCTOR SHIELDED CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	0 2 0 0 0	0.75mm2			
2	0 2 0 0 1	0.75mm2			
3	0 2 0 0 2	0.75mm2			
4	0 2 0 0 3	0.75mm2			
5	0 2 0 0 8	0.75mm2			ONLY AUTOMATCH UNITS
6	0 7 0 0 1	0.75mm2			CONTACT APPLY
7	0 7 0 0 2	0.75mm2			CONTACT RETRACT
8	0 2 0 1 1	0.75mm2			ONLY AUTOMATCH UNITS
9	0 2 0 1 2	0.75mm2			ONLY AUTOMATCH UNITS
10	2 4 0 0	0.75mm2			24V DC COM
11	2 4 0 3	0.75mm2			
12	2 4 0 6	0.75mm2			RESET
13	2 4 0 6 A	0.75mm2			E-STOP CH.2
14	0 7 0 0 5	0.75mm2			X AXIS
15	0 7 0 0 6	0.75mm2			X AXIS
16	0 7 0 0 7	0.75mm2			Y AXIS
17	0 7 0 0 8	0.75mm2			Y AXIS
18	0 7 0 1 1	0.75mm2			Z AXIS
19	0 7 0 1 2	0.75mm2			Z AXIS
20		0.75mm2			SPARE
21	2 5 0 4	0.75mm2			RESET
22	0 4 0 0 6	0.75mm2			E-STOP CH.2
23	4 0 0 6 A	0.75mm2			E-STOP CH.1
24	0 6 0 0 0	0.75mm2			PMD ONLY
25	0 6 0 0 1	0.75mm2			PMD ONLY
26	0 6 0 0 2	0.75mm2			PMD ONLY
27	0 6 0 0 3	0.75mm2			PMD ONLY
28	0 6 0 0 4	0.75mm2			PMD ONLY
29	0 6 0 0 5	0.75mm2			PMD ONLY
30	0 6 0 0 6	0.75mm2			PMD ONLY
31	0 6 0 0 7	0.75mm2			PMD ONLY
32	0 6 0 0 8	0.75mm2			PMD ONLY
33	0 6 0 0 9	0.75mm2			PMD ONLY
34	0 6 0 1 0	0.75mm2			PMD ONLY
35	0 6 0 1 1	0.75mm2			PMD ONLY
36	0 6 0 1 2	0.75mm2			PMD ONLY
37	0 6 0 1 3	0.75mm2			"HEAT OFF" LAMP
38	0 6 0 1 4	0.75mm2			"HEAT ON" LAMP
39	0 6 0 1 5	0.75mm2			RESET PUSHBUTTON
40		0.75mm2			SPARE
SCRN	SCRN				

CONDUIT ID - A A - B B - C D				APPLICATION	ALL UNITS
CONDUIT No.- 0 1 - 1 8 - 2 0				DESCRIPTION	EXTRA LOW VOLTAGE 24VDC
SOURCE - CUSTOMER				FROM	WELDER DC POWER SUPPLY
				TO	SYSTEM CONTROL CABINET
CONDUCTOR DESCRIPTION 25 CONDUCTOR SCREENED CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	0 4 0 0 5	0.75mm2		MILL E-STOP CH.2	
2	4 0 0 5 A	0.75mm2		MILL E-STOP CH.1	
3	2 4 0 0	0.75mm2		24V DC COM	
4	2 4 0 3	0.75mm2		24V DC SUPPLY (MILL E-STOP CH 2)	
5	2 4 0 7	0.75mm2		MILL E-STOP CH 2	
6	0 2 0 1 3	0.75mm2		MILL INTERLOCK	
7	0 2 0 1 4	0.75mm2		MILL FAULT/READY	
8	0 2 0 1 5	0.75mm2		MILL OFF/RUN	
9	1 3 0	0.75mm2		WELDER FAULT/READY	
10	1 3 1	0.75mm2			
11	1 3 2	0.75mm2		WELD HEAT OFF/ON	
12	1 3 3	0.75mm2			
13	1 2 8	0.75mm2		WELDER E-STOP CH.1	
14	1 2 9	0.75mm2		WELDER E-STOP CH.1	
15	1 5 5	0.75mm2		WELDER E-STOP CH.2	
16	1 5 6	0.75mm2		WELDER E-STOP CH.2	
17	1 6 0	0.75mm2		QUICK LIFT DOWN	
18	1 6 1	0.75mm2		QUICK LIFT DOWN	
19	1 6 2	0.75mm2		FIN CONTACTS ADVANCED	
20	1 6 3	0.75mm2		FIN CONTACTS ADVANCED	
21	2 5 0 6	0.75mm2		MILL GUARD SWITCH CH 2	
22	0 4 0 1 0	0.75mm2		MILL GUARD SWITCH CH 2	
23	2 5 0 6 A	0.75mm2		MILL GUARD SWITCH CH 1	
24	4 0 1 0 A	0.75mm2		MILL GUARD SWITCH CH 1	
25		0.75mm2		SPARE	
SCRN	SCRN				

				APPLICATION	ALL UNITS
CONDUIT ID - A A - B B - C D				DESCRIPTION	EXTRA LOW VOLTAGE 24V DC
CONDUIT No.- O 1 - 0 5 - 2 0				FROM	WELDER DC POWER SUPPLY
SOURCE - CUSTOMER				TO	HEAT EXCHANGER
CONDUCTOR DESCRIPTION 2 CONDUCTOR SCREENED CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	2 4 0 3	0.75mm2		HEAT EXCHANGER	
2	3 0 0 4	0.75mm2		WATER LEVEL	
SCRN	SCRN				

				APPLICATION	ALL UNITS
CONDUIT ID - A A - B B - C D				DESCRIPTION	SIGNAL LEVEL (ANALOG)
CONDUIT No.- 0 1 - 0 4 - 1 0				FROM	WELDER DC POWER SUPPLY
SOURCE - CUSTOMER				TO	WELDER REMOTE CONTROLS
CONDUCTOR DESCRIPTION 4 x 4 CONDUCTOR SHIELDED CABLES OR 1 x 16 CONDUCTOR CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	2 4 0 0	0.5mm2	BLUE	ANALOGUE METERS	
2	1 0 0 1	0.5mm2	RED		
3	1 0 0 2	0.5mm2	GREEN		
4	1 0 0 3	0.5mm2	YELLOW	THERMAVIEW ONLY	
SCRN	SCRN				
5	2 4 0 0	0.5mm2	BLUE	WELD	
6	1 0 2 6	0.5mm2	RED	POWER	
7	1 0 2 5	0.5mm2	GREEN	POTENTIOMETER	
8		0.5mm2	YELLOW	UNUSED	
SCRN	SCRN				
9	2 4 0 0	0.5mm2	BLUE	START	
10	1 0 2 8	0.5mm2	RED	POWER	
11	1 0 2 9	0.5mm2	GREEN	POTENTIOMETER	
12		0.5mm2	YELLOW	UNUSED	
SCRN	SCRN				

				APPLICATION	50Kw UPTO 350Kw UNITS ONLY
CONDUIT ID - A A - B B - C D				DESCRIPTION	LOW VOLTAGE POWER 400V 50Hz
CONDUIT No.- 0 1 - 0 5 - 4 0				FROM	WELDER DC POWER SUPPLY
SOURCE - CUSTOMER				TO	HEAT EXCHANGER
CONDUCTOR DESCRIPTION 3 + EARTH CONDUCTOR SCREENED CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	1 T 1	2.5mm2		TO HEAT EXCHANGER MOTOR.(5.5Kw)	
2	1 T 2	2.5mm2			
3	1 T 3	2.5mm2			
4	GND	2.5mm2	GRN/YELLOW		

				APPLICATION	ALL UNITS
CONDUIT ID - A A - B B - C D				DESCRIPTION	LOW VOLTAGE POWER 400V 50Hz
CONDUIT No.- 0 1 - 0 6 - 4 0				FROM	WELDER DC POWER SUPPLY
SOURCE - CUSTOMER				TO	WELD TABLE (MAIN TERMINAL BOX)
CONDUCTOR DESCRIPTION				3 + EARTH CONDUCTOR SCREENED CABLE	
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	8 T 1	1.5mm2		TO	
2	8 T 2	1.5mm2		AXIS TABLE CONTROL PANEL	
3	8 T 3	1.5mm2			
4	GND	1.5mm2	GRN/YELLOW		

				APPLICATION	ALL UNITS
CONDUIT ID - A A - B B - C D				DESCRIPTION	LOW VOLTAGE 115V OR 230V 50Hz
CONDUIT No.- O 1 - 0 6 - 3 0				FROM	WELDER DC POWER SUPPLY
SOURCE - CUSTOMER				TO	WELD TABLE (MAIN TERMINAL BOX)
CONDUCTOR DESCRIPTION 10 CONDUCTOR SCREENED CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	1 0 0	1.5mm2		115V AC NEUTRAL	
2	1 4 3	1.5mm2		X AXIS LEFT	
3	1 4 5	1.5mm2		X AXIS RIGHT	
4	1 4 7	1.5mm2		Y AXIS IN	
5	1 4 9	1.5mm2		Y AXIS OUT	
6	1 5 1	1.5mm2		Z AXIS UP	
7	1 5 3	1.5mm2		Z AXIS DOWN	
SCRN	SCRN				

				APPLICATION	ALL UNITS
CONDUIT ID - A A - B B - C D				DESCRIPTION	EXTRA LOW VOLTAGE 24VDC
CONDUIT No.- O 1 - 0 6 - 2 0				FROM	WELDER DC POWER SUPPLY
SOURCE - CUSTOMER				TO	WELD TABLE (MAIN TERMINAL BOX)
CONDUCTOR DESCRIPTION 18 CONDUCTOR + EARTH SHIELDED CABLE					
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS	
1	2 4 0 3	0.75mm2		24V DC +VE	
2		0.75mm2		SPARE	
3	0 7 0 0 3	0.75mm2		FLS1 CONTACT COOLANT FLOW	
4	0 7 0 0 4	0.75mm2		PS1 CONTACT AIR PRESSURE LOW	
5		0.75mm2		SPARE	
6	0 7 0 1 0	0.75mm2		LS11 CONTACT DOWN	
7	0 7 0 1 3	0.75mm2		LS9 LEAD CLAMPS OPEN Z AXIS	
8	0 7 0 1 4	0.75mm2		LS10 LEAD CLAMPS CLOSED Z AXIS	
9	0 7 0 1 5	0.75mm2		PS2 LEAD CLAMPS PRESSURE SWITCH	
10	2 4 0 0	0.75mm2		24V DC COMMON	
11	2 4 7 3	0.75mm2		SOL 3 LEAD CLAMP OPEN X-Y AXIS	
12	2 4 7 4	0.75mm2		SOL 4 LEAD CLAMP CLOSE X-Y AXIS	
13	2 4 7 5	0.75mm2		SOL 5 LEAD CLAMP OPEN Z AXIS	
				SOL 8 FIN CONTACT APPLY	
14	2 4 7 6	0.75mm2		SOL 6 LEAD CLAMP CLOSE Z AXIS	
				SOL 7 FIN CONTACT APPLY	
15	2 4 7 7	0.75mm2		SOL 1 CONTACT APPLY	
16	2 4 7 8	0.75mm2		SOL 2 CONTACT RETRACT	
SCRN	SCRN				

CONDUIT ID - A A - B B - C D				APPLICATION	SEE UNIT RATING
CONDUIT No.- 2 1 - 3 1 - 4 0				DESCRIPTION	LOW VOLTAGE 400V 50Hz
SOURCE - CUSTOMER				FROM	TRANSFORMER CABINET
				TO	POWER FACTOR CORRECTION

UNIT RATING	PHASE	CONDUCTOR NUMBER	CONDUCTOR QUANTITY	COND. SIZE	COND. COLOUR
125KVA (195A) (150kW MCH)	R S T	L1 L2 L3	1 1 1	95mm ² 95mm ² 95mm ²	BLACK BLACK BLACK
	GND	GND	1	50mm ²	GRN/YEL
150KVA (230A) (200kW MCH)	R S T	L1 L2 L3	1 1 1	120mm ² 120mm ² 120mm ²	BLACK BLACK BLACK
	GND	GND	1	70mm ²	GRN/YEL
275KVA (420A) (350kW MCH)	R S T	L1 L2 L3	2 2 2	95mm ² 95mm ² 95mm ²	BLACK BLACK BLACK
	GND	GND	1	95mm ²	GRN/YEL

NOTES					
CABLES ON THIS PAGE ARE BASED ON COPPER UNARMoured SINGLE CORE					
CONDUCTORS ENCLOSED IN CONDUIT TO BS 6004, BS 6231, BS 6346					
AT 30 DEG C AMBIENT AND 70 DEG C CONDUCTOR TEMPERATURE.					

CONDUIT ID - A A - B B - C D				APPLICATION	ONLY WHERE PFC FITTED
CONDUIT No.- 2 1 - 3 1 - 1 0				DESCRIPTION	SIGNAL LEVEL (ANALOGUE)
SOURCE - CUSTOMER				FROM	TRANSFORMER CABINET
				TO	POWER FACTOR CORRECTION

CONDUCTOR DESCRIPTION 2 CONDUCTOR SHIELDED CABLE					
---	--	--	--	--	--

CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS
1	L 0	2.5mm ²		CURRENT TRANSFORMER
2	K 0	2.5mm ²		CURRENT TRANSFORMER
SCRN	SCRN			

CONDUIT ID - A A - B B - C D		APPLICATION	ONLY WHERE PFC FITTED	
CONDUIT No.- 0 1 - 3 1 - 2 0		DESCRIPTION	EXTRA LOW VOLTAGE 24VDC	
SOURCE - CUSTOMER		FROM	WELDER DC POWER SUPPLY	
		TO	POWER FACTOR CORRECTION	
CONDUCTOR DESCRIPTION 4 CONDUCTOR SCREENED CABLE				
CONDUCTOR NUMBER	WIRE NUMBER	CONDUCTOR SIZE	CONDUCTOR COLOUR	COMMENTS
1	2 5 0 6	0.5mm2		PFC DOOR SW.SERIES WITH MILL GUARD SW
2	2 5 0 6 A	0.5mm2		PFC DOOR SW.SERIES WITH MILL GUARD SW
2	0 4 0 1 0	0.5mm2		PFC DOOR SW.SERIES WITH MILL GUARD SW
2	4 0 1 0 A	0.5mm2		PFC DOOR SW.SERIES WITH MILL GUARD SW
SCRN	SCRN			

XS0051

Thermatool Wiring Colours

Sheet 1 – *Control Sheet*

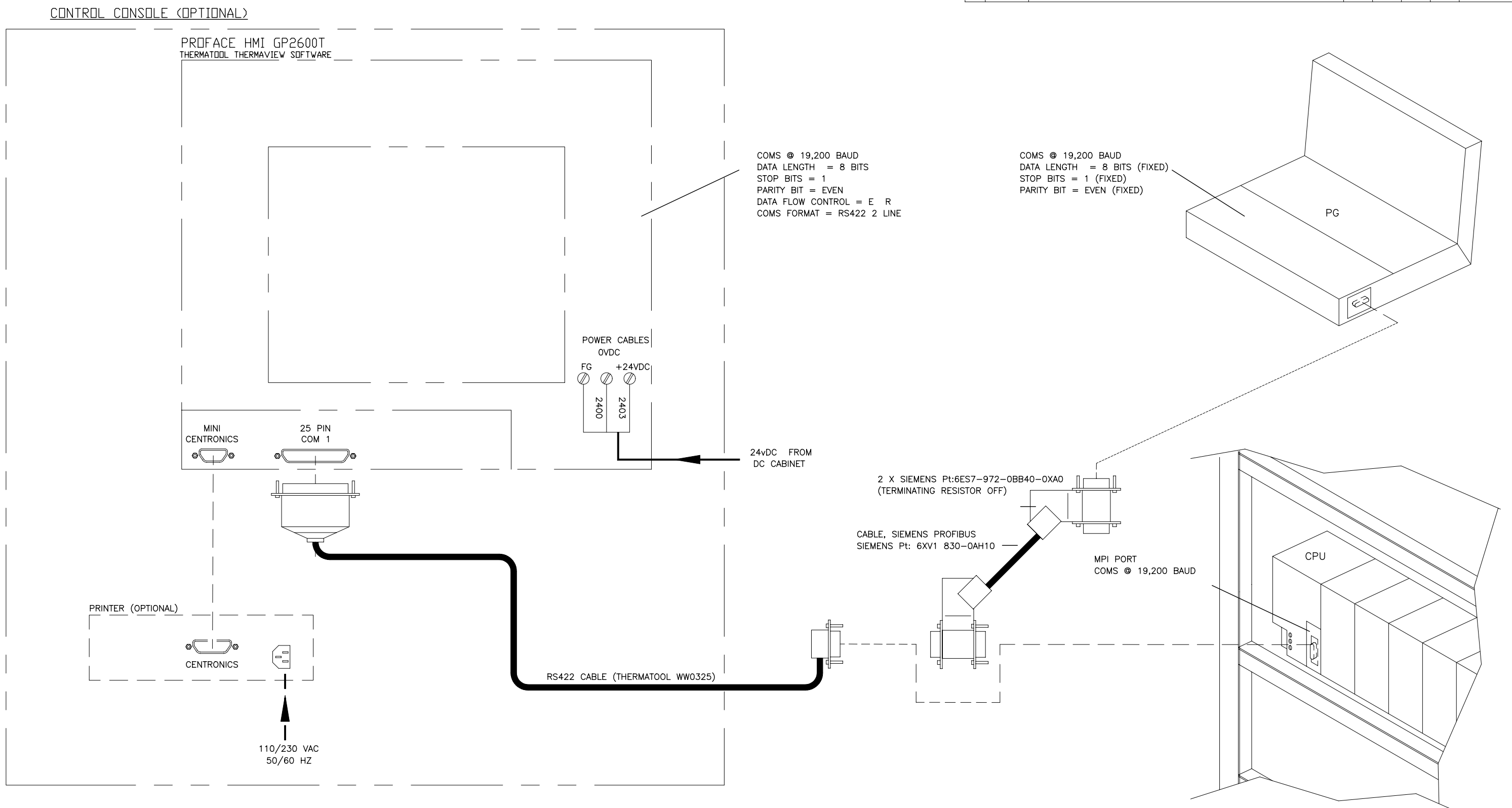
Sheet 2 – *Thermatool Wiring Colours*

Wiring Colours. (“Generally” According to EN60204)

Type of Circuit / Conductor	Colour	Description
PE Earth (Phase Earth)	Green/Yellow	Incoming Earth, Connection point should be denoted as PE by suitable marking (See also EN60204 for “minimum” conductor size)
Power Circuits AC & DC	Black	Incoming 3 Phase/ Wiring to Motors/ 2 Phases to Transformers)
AC Control Circuits Line	Red	Live of a Live and Neutral Supply/ Control Circuits/ Single phase Motors/ All wiring on Secondary side of Isolating Transformers
AC Control Circuits Neutral	White	Secondary side of Isolating Transformers (After being taken to ground)
Neutral Conductor	Light Blue	Incoming Neutral Conductor Only (Supply to a panel), Not generally required, Should never be grounded within a panel!
Earth	Green/Yellow	General earth cables through out panel
DC Control Circuits	Dark Blue	General Control Circuits
DC Control Circuits Neutral	White	Secondary side of Isolating Transformers/Power Supply’s (After being taken to ground)
Interlock Control Circuits (Foreign Voltages from External Power sources)	Orange	Any wiring to Volt free contacts, Or where an external source will be used to provide switching voltages.
Analogue Signals +ve Screened Grey Outer	Red	Positive
Analogue Signals -ve Screened Grey Outer	Blue	Negative
Screen	Green/Yellow Sleeve	Screen wires

Title	WIRING COLOURS	Dwg No.	XS0051	Rev.	A
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REV SH												REV STATUS												REVISIONS											
REV	ECR	DESCRIPTION										ZONE	DWN	CHK	APPD	MM/DD/YY																			
0	03010	FIRST ISSUE											TAT			01/06/03																			



- NOTE:
1. ALL WIRING PROVIDED BY THERMATOOL/ INSTALLED BY CUSTOMER EXCEPT AS NOTED.
 2. ALL WIRING TO BE INSTALLED IN ACCORDANCE WITH NAT. ELEC. CODE EN 60204 AND / OR ALL APPLICABLE CODES.
 3. ALL CONDUITS AND WIRES SHOULD BE KEPT SEPARATE FROM AC POWER SOURCES AND WIRES.
 4. MAXIMUM CABLE LENGTH IS 50M WITHOUT REPEATER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON		APPROVALS		MM/DD/YY	
0 PLACE(X) ±0.5 ANGLE ±0°30'		DWN	TAT	CC:WW0287	01/06/03
1 PLACE(X.X) ±0.3 SURFACE N8		CHK			
2 PLACE(X.XX) ±0.15 FINISH		ENG/APPD		TITLE	
BREAK AND DEBURR ALL SHARP EDGES		MATERIAL		INTERCONNECT WIRING	
BUYER OR SELLER HEREBY ACKNOWLEDGES THAT THERE MAY BE ERRORS OR OMISSIONS IN THIS DOCUMENT AND THAT THERMATOOL EUROPE LTD SHALL NOT BE LIABLE IN ANY MANNER FOR SUCH ERRORS OR OMISSIONS.		FINISH/HEAT TREAT		HMI (PROFACE GP2600T - > SIEMENS S7 PLC (MPI PORT))	
© Copyright THERMATOOL EUROPE LTD		THIRD ANGLE PROJECTION		SIZE A2	
THIS DOCUMENT IS THE PROPERTY OF THERMATOOL EUROPE LTD AND IT IS SUBMITTED FOR USE ONLY WITH WORK PROPOSED OR AUTHORIZED BY THIS COMPANY. IT SHOULD NOT BE USED OR DUPLICATED FOR ANY OTHER PURPOSE AND IS TO BE RETURNED TO THERMATOOL EUROPE LTD ON REQUEST WHEN NO LONGER REQUIRED FOR SUCH PURPOSES.		THERMATOOL		DIV NO 3	
		SI-METRIC		DWG NO WW0326	
				REV 0	
				SCALE NTS	
				DO NOT SCALE DRAWING COPY SHEET 1 OF 1	

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY
A	N464	F/S CONFIGURATION TABLE ADDED		MWT			11/99
B	N537	F/S CONFIGURATION TABLE CORRECTED		MWT			02/00
C	N570	MANIFOLD FOR DC CHOKE ADDED		MWT			03/00
D	03038	AMENDED TO SUIT BUILD, NOTES ADDED		BWH			29JAN03
E	04226	1-FLS3 ADDED, PIPING REROUTED		BWH			07OCT04
F	04254	WATER MANIFOLD DELETED, FLOW SW'S REIDENTIFIED		BWH			15NOV04
G	05039	CHOKE VALUES IN TABLE MODIFIED		BWH			22FEB05
H	06010	SEE SHT 1 OF 2		MWT			12JAN06

- NOTES:
- PIPES TO BE 1500mm LONG
 - PIPE TO BE 3000mm LONG

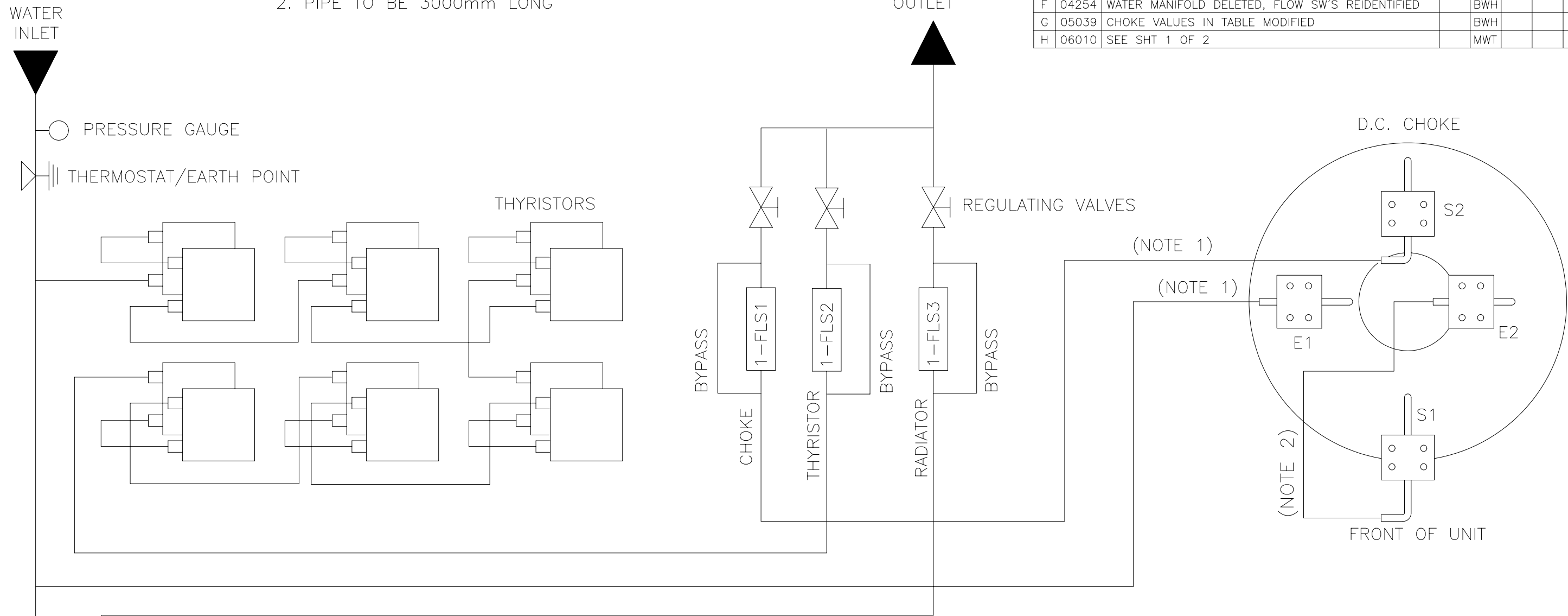


TABLE FOR FLOWSWITCH CONFIGURATION

	CHOKE			THYRISTOR			RADIATOR		
	TRIP L/min	'FLS1' L/min	BYPASS	TRIP L/min	'FLS2' L/min	BYPASS	TRIP L/min	'FLS3' L/min	BYPASS
200kW	9.5	8	ø1.5	9.5	8	ø1.5	15	12	ø5
250kW	9.5	8	ø1.5	9.5	8	ø1.5	15	12	ø5
300kW	9.5	8	ø1.5	9.5	8	ø1.5	30	12	ø10
350kW	9.5	8	ø1.5	9.5	8	ø1.5	30	12	ø10

FLOWSWITCH IDENTIFICATION

8L/min	No. 8 STAMPED ON BRASS FLOAT OR BODY
12L/min	No. 12 STAMPED ON BRASS FLOAT OR BODY

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TITLE
DC POWER UNIT
WATER SCHEMATIC

SIZE A2	DIV NO 3	DWG NO WW0091	REV H
SCALE 1:1	DO NOT SCALE DRAWING COPY		SHEET 2

WW0208

**Pneumatic Schematic Weld Table
and Clamps**

Sheet 1 – *Index*

Sheet 2 – *Pneumatic Schematic*

Sheet 3 – *Pneumatic Fittings BOM*

REVISIONS									
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY		
A		SEE SHEET 3 OF 3		MWT			12/99		
B	01186	SEE SHEET 3 OF 3		MWT			01/02		
C	03098	SEE SHEET 2.	-	C.H.	-	-	28/04/03		

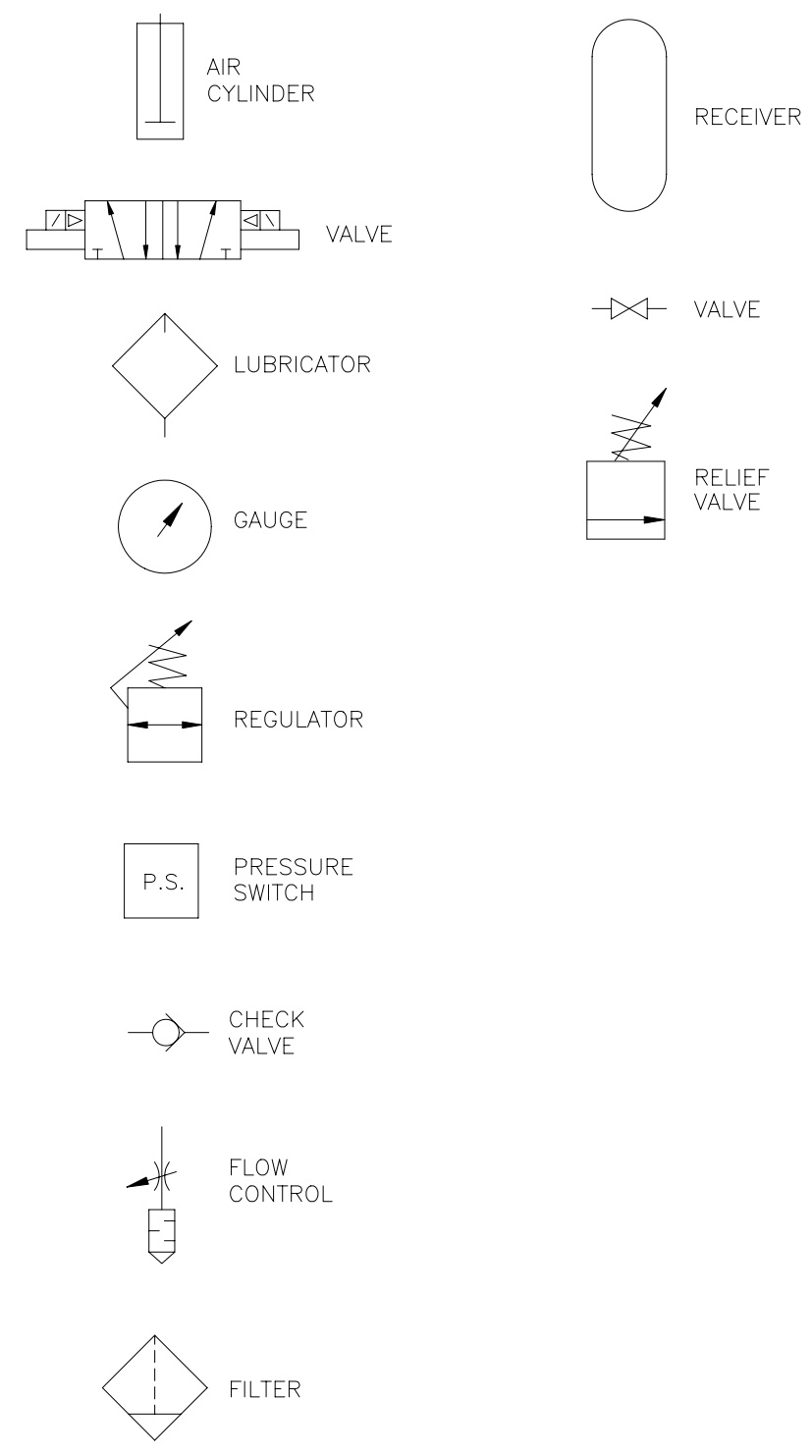
DRAWING LIST:

LEGEND

CFC (SPIRAL FIN)

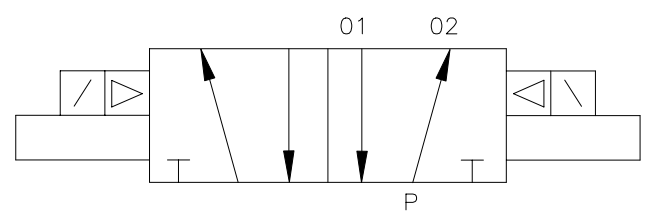
PLUMBING

INDEX	WW0208 SHT. 1
PNEUMATIC SCHEMATIC	WW0208 SHT. 2
PNEUMATIC FITTINGS BOM	WW0208 SHT. 3



GENERAL NOTES

1. A 4-WAY, 5-PORT, 2-POSITION DOUBLE SOLENOID VALVE.



NEXT ASSY	JOB NO
FIRST APPLICATION	
UNIT	SPIRAL FIN

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
 TOLERANCES ON
 0 PLACE (X) ± 0.5 ANGLE ± 0°30'
 1 PLACE (X.X) ± 0.3 SURFACE FINISH N8
 2 PLACE (X.XX) ± 0.15
 BREAK AND DEBURR ALL SHARP EDGES

SI-METRIC

THIRD ANGLE PROJECTION

APPROVALS		DD/MM/YY
DWN	MWT	02/11/99
CHK		
ENG/APPD		
MATL		
FINISH/HEAT TREAT		

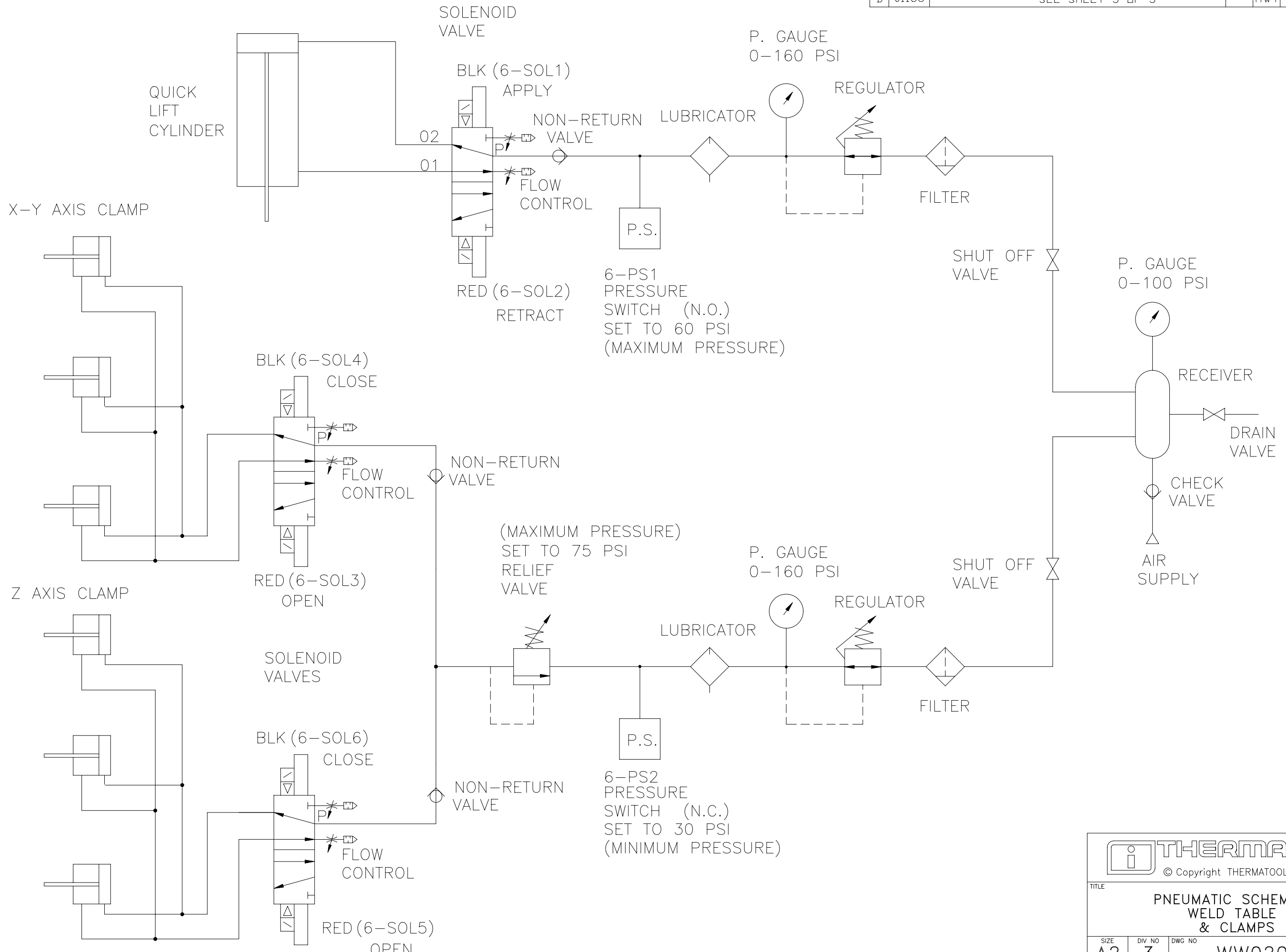
THERMATOOL®

TITLE: **PNEUMATIC SCHEMATIC WELD TABLE & CLAMPS**

SIZE	DIV NO	DWG NO	REV
A1	3	WW0208	C

SCALE: N.A. DO NOT SCALE DRAWING COPY SHEET 1 OF 3

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
B	01186	SEE SHEET 3 OF 3		MWT		01/02

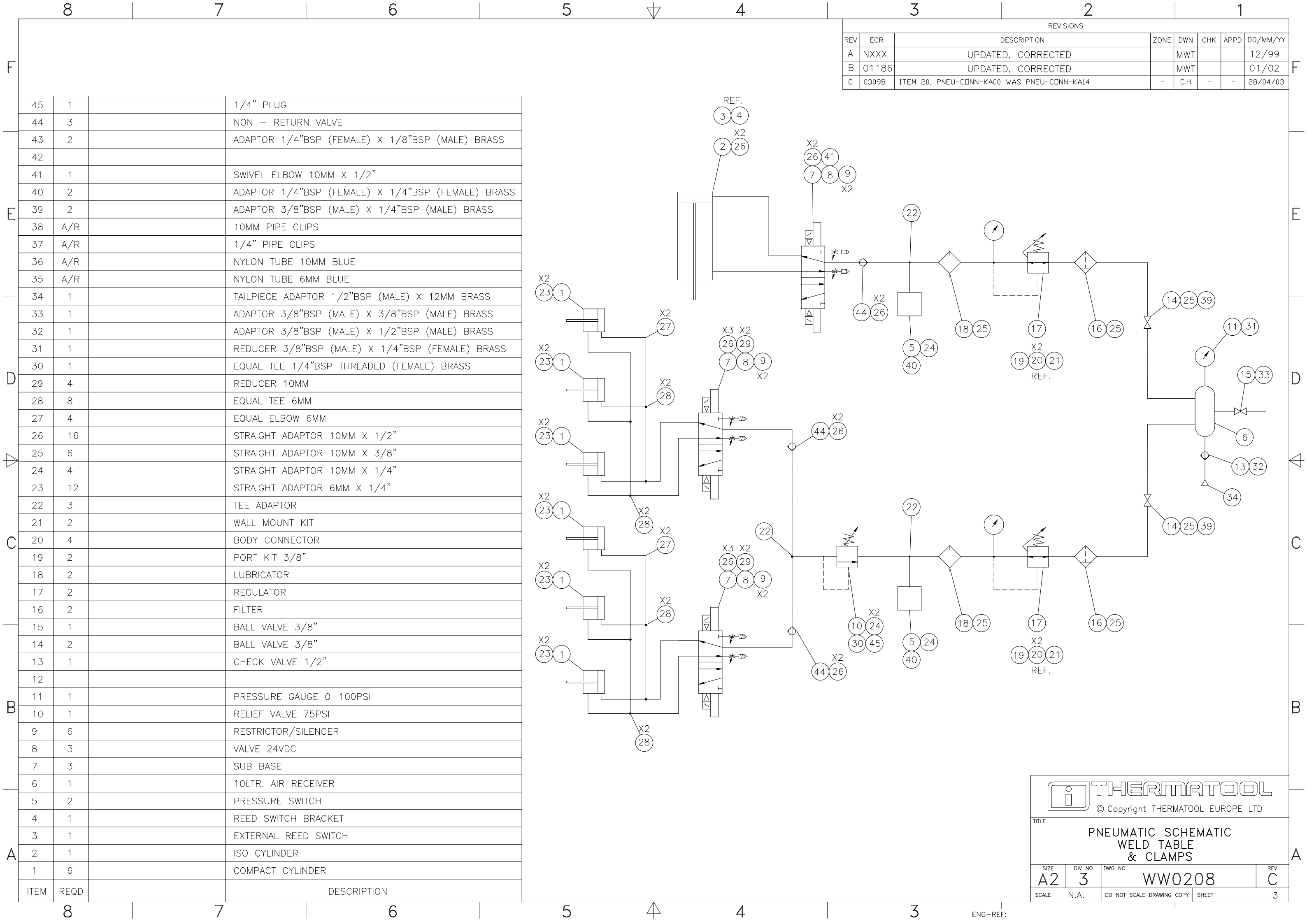


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TITLE
**PNEUMATIC SCHEMATIC
WELD TABLE
& CLAMPS**

SIZE A2	DIV NO 3	DWG NO WW0208	REV B
SCALE N.A.	DO NOT SCALE DRAWING COPY		SHEET 2

ENG-REF:



REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY
A	NXXX	UPDATED, CORRECTED		MWT			12/99
B	01186	UPDATED, CORRECTED		MWT			01/02
C	03098	ITEM 20, PNEU-CDNN-KA00 WAS PNEU-CDNN-KA14	-	C.H.	-	-	28/04/03

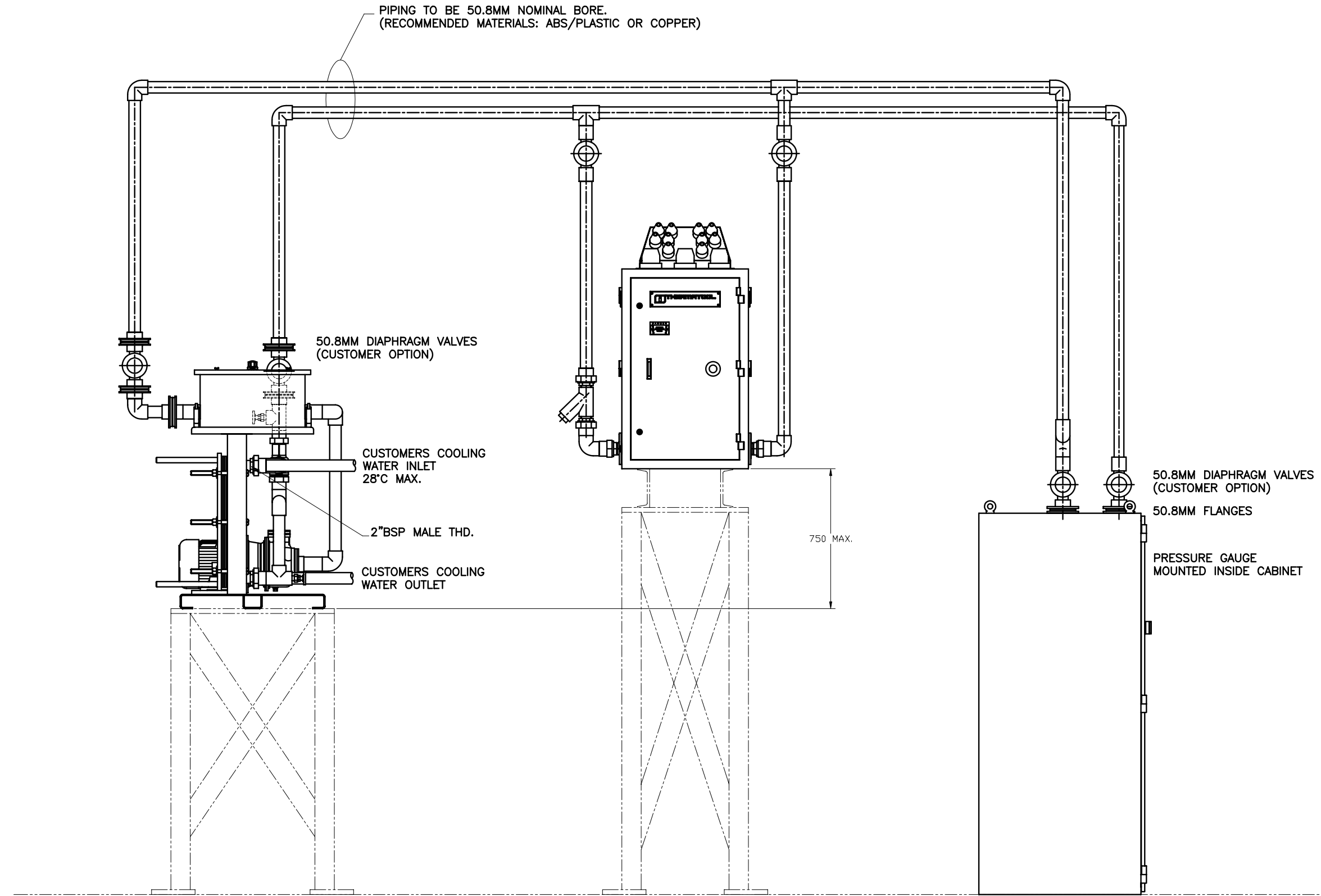
45	1	1/4" PLUG
44	3	NON - RETURN VALVE
43	2	ADAPTOR 1/4"BSP (FEMALE) X 1/8"BSP (MALE) BRASS
42		
41	1	SWIVEL ELBOW 10MM X 1/2"
40	2	ADAPTOR 1/4"BSP (FEMALE) X 1/4"BSP (FEMALE) BRASS
39	2	ADAPTOR 3/8"BSP (MALE) X 1/4"BSP (MALE) BRASS
38	A/R	10MM PIPE CLIPS
37	A/R	1/4" PIPE CLIPS
36	A/R	NYLON TUBE 10MM BLUE
35	A/R	NYLON TUBE 6MM BLUE
34	1	TAILPIECE ADAPTOR 1/2"BSP (MALE) X 12MM BRASS
33	1	ADAPTOR 3/8"BSP (MALE) X 3/8"BSP (MALE) BRASS
32	1	ADAPTOR 3/8"BSP (MALE) X 1/2"BSP (MALE) BRASS
31	1	REDUCER 3/8"BSP (MALE) X 1/4"BSP (FEMALE) BRASS
30	1	EQUAL TEE 1/4"BSP THREADED (FEMALE) BRASS
29	4	REDUCER 10MM
28	8	EQUAL TEE 6MM
27	4	EQUAL ELBOW 6MM
26	16	STRAIGHT ADAPTOR 10MM X 1/2"
25	6	STRAIGHT ADAPTOR 10MM X 3/8"
24	4	STRAIGHT ADAPTOR 10MM X 1/4"
23	12	STRAIGHT ADAPTOR 6MM X 1/4"
22	3	TEE ADAPTOR
21	2	WALL MOUNT KIT
20	4	BODY CONNECTOR
19	2	PORT KIT 3/8"
18	2	LUBRICATOR
17	2	REGULATOR
16	2	FILTER
15	1	BALL VALVE 3/8"
14	2	BALL VALVE 3/8"
13	1	CHECK VALVE 1/2"
12		
11	1	PRESSURE GAUGE 0-100PSI
10	1	RELIEF VALVE 75PSI
9	6	RESTRICTOR/SILENCER
8	3	VALVE 24VDC
7	3	SUB BASE
6	1	10LTR. AIR RECEIVER
5	2	PRESSURE SWITCH
4	1	REED SWITCH BRACKET
3	1	EXTERNAL REED SWITCH
2	1	ISO CYLINDER
1	6	COMPACT CYLINDER
ITEM	REQD	DESCRIPTION

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TITLE
**PNEUMATIC SCHEMATIC
 WELD TABLE
 & CLAMPS**

SIZE A2	DIV. NO 3	DWG NO WW0208	REV C
SCALE N.A.	DO NOT SCALE DRAWING COPY		SHEET 3

REV. NO.		REV. STATUS		REV. DATE		REV. BY		REV. CHECK		REV. APPROV.		REV. DATE				
20	19	18	17	16	15	14	13	12	11	10	9	8	7			
6	5	4	3	2	1	A	REV	SH	SH	SH	SH	SH	SH			
REVISIONS												ZONE	DWN	CHK	APPD	DD/MM/YY
A												G11	A.J.H			6/11/01



PIPING TO BE 50.8MM NOMINAL BORE.
(RECOMMENDED MATERIALS: ABS/PLASTIC OR COPPER)

50.8MM DIAPHRAGM VALVES
(CUSTOMER OPTION)

CUSTOMERS COOLING
WATER INLET
28°C MAX.

2" BSP MALE THD.

CUSTOMERS COOLING
WATER OUTLET

750 MAX.

50.8MM DIAPHRAGM VALVES
(CUSTOMER OPTION)

50.8MM FLANGES

PRESSURE GAUGE
MOUNTED INSIDE CABINET

NOTE:
FLANGES USED ARE METRIC
DRILLED TO BS4504 TABLE 16/3 - 10/3
REFER TO DRG NO. A1-2820-

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON:		APPROVALS		DD/MM/YY	
0 PLACE (X)	± 0.5	ANGLE	± 0°30'	DWN	MWT
1 PLACE (XX)	± 0.3	SURFACE	NB/	CHK	
2 PLACE (XXX)	± 0.15	FINISH	✓	ENG/APPD	
BROKE OR BREAK AWAY KNOWLEDGE THAT THERE MAY BE TOLERANCE FOR PARTS OR FINISHES THAT MAY BE REQUIRED FOR ANY OTHER PURPOSE AND TO BE REFERRED TO THE DRAWING SUPPLIER OR TO THE DRAWING WHEN NO LENGTH REQUIRED FOR SUCH PURPOSES.		THIRD ANGLE PROJECTION		MATERIAL	
SI-METRIC		FINISH/HEAT TREAT		N.A.	
THERMATOOL		SCALE		TITLE	
A0		1:8		TYPICAL EXTERNAL WATER CIRCUIT SPIRAL FIN	
3		DO NOT SCALE DRAWING COPY SHEET		REV	
A		1 OF 1		A	

WW0221

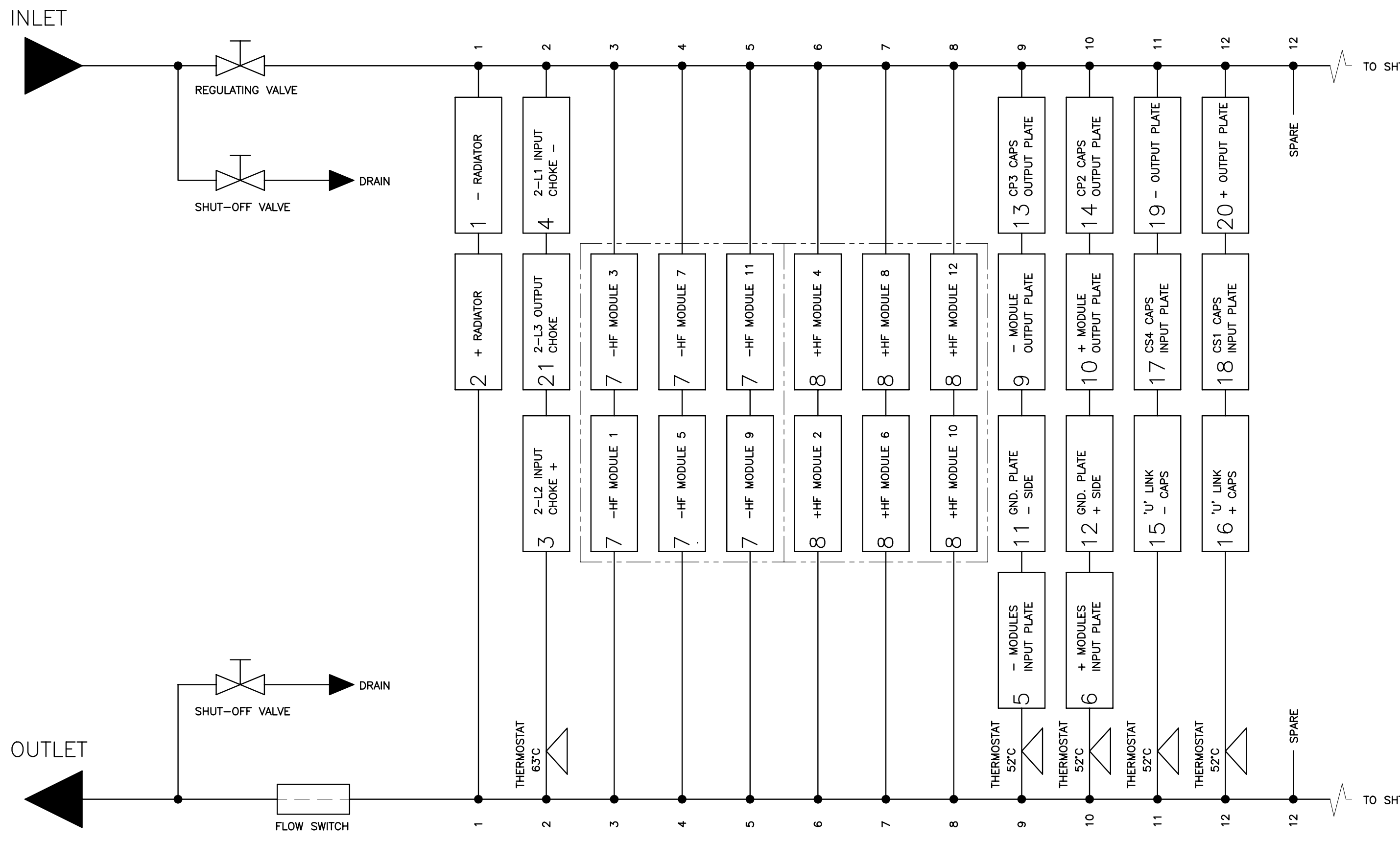
**Internal Water Schematic -
Spiral Fin**

Sheet 1 – *Internal Water Schematics – Spiral Fin*

Sheet 2 – *Internal Water Schematics – Spiral Fin*

Sheet 3 – *Internal Water Schematics – Spiral Fin*

REV. STATUS										REVISIONS									
REV	ECR	DESCRIPTION								ZONE	DWN	CHK	APPD	DD/MM/YY					
0	00122	FIRST ISSUE									MWT			07/00					
A	00236	SEE SHT 3 DF 3									MWT			03/01					



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON		APPROVALS		DD/MM/YY			
0 PLACE (X) ± 0.5 ANGLE ± 0°30'		DWN		MWT 28/07/00			
1 PLACE (X.X) ± 0.3 SURFACE FINISH		CHK				TITLE INTERNAL WATER SCHEMATIC HF12 SPIRAL FIN WITH CONTACTS	
2 PLACE (X.XX) ± 0.15 BREAK AND DEBURR ALL SHARP EDGES		ENG/APPD					
UNIT CFC 50-350KW <small>BUYER OR SELLER HEREBY ACKNOWLEDGES THAT THERE MAY BE ERRORS OR OMISSIONS IN THIS DOCUMENT AND THAT THERMATOOL EUROPE LTD SHALL NOT BE LIABLE IN ANY MANNER FOR SUCH ERRORS OR OMISSIONS.</small>		MATL N.A.		SIZE A1		DIV NO 3	
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THIRD ANGLE PROJECTION 		SCALE 1:1		DO NOT SCALE DRAWING COPY		SHEET 1 OF 3	

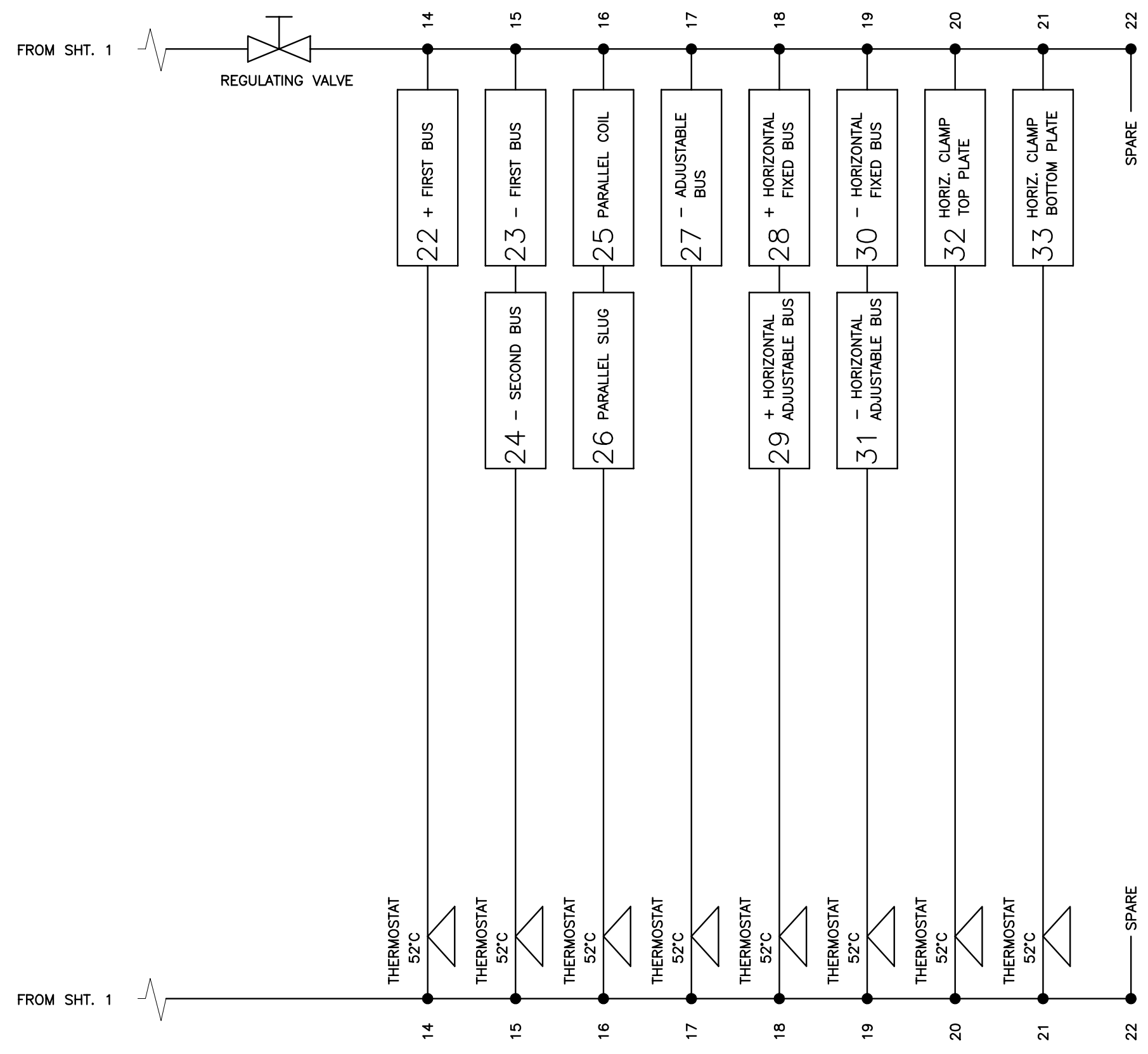
12 11 10 9 8 7 6 5 4 3 2 1

H G F E D C B A


12 11 10 9 8 7 6 5 4 3 2 1

ENG-REF:

REVISIONS						
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD
0	00122	FIRST ISSUE		MWT		07/00
A	00236	SEE SHT 3 DF 3		MWT		03/01

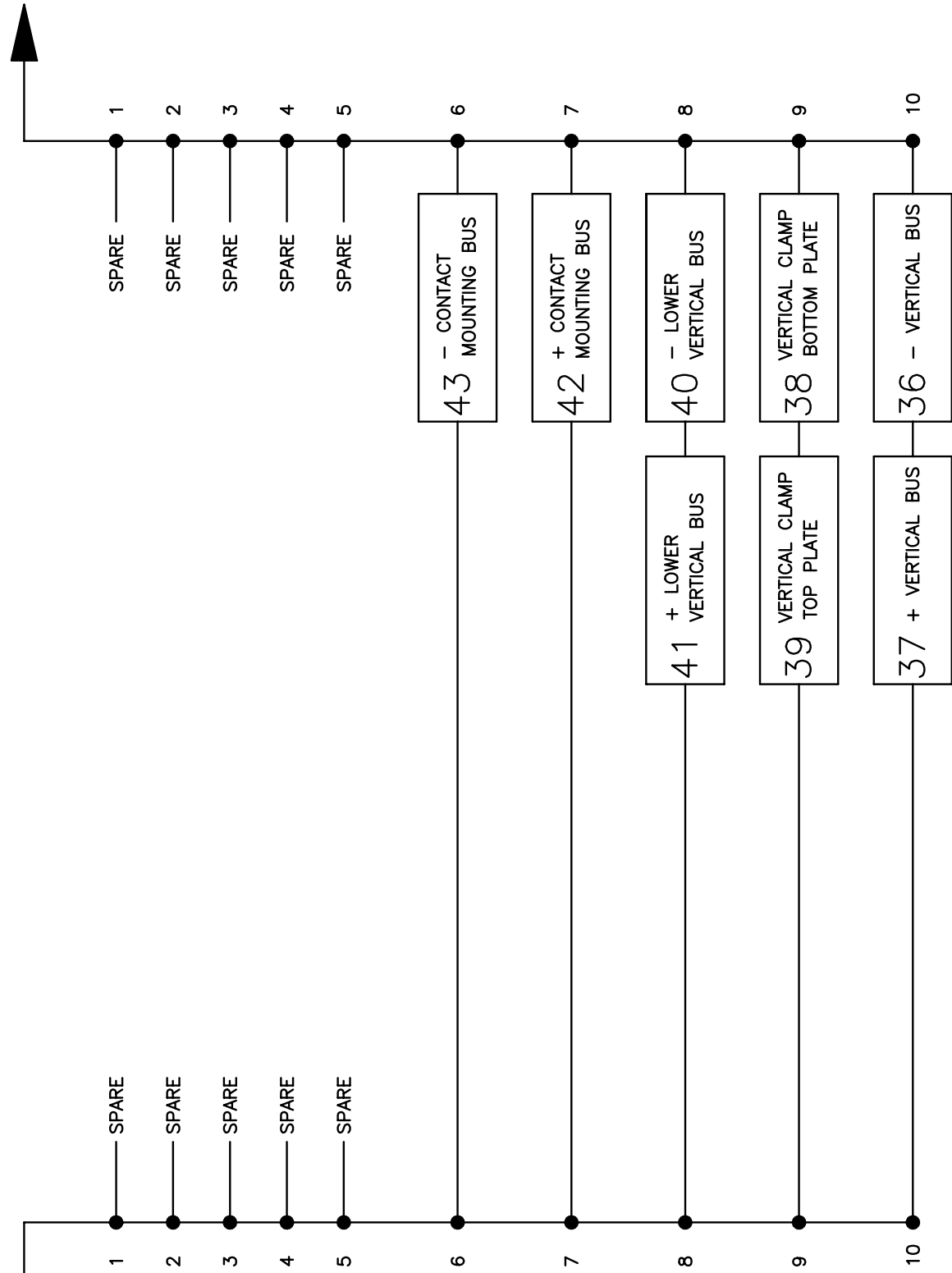


MATCHING SECTION

 THERMATOOL <small>© Copyright THERMATOOL EUROPE LTD</small>			
TITLE INTERNAL WATER SCHEMATIC HF12 SPIRAL FIN WITH CONTACTS			
SIZE A1	DIV NO 3	DWG NO WW0221	REV A
SCALE 1:1	DO NOT SCALE DRAWING COPY	SHEET 2	ENG-REF:

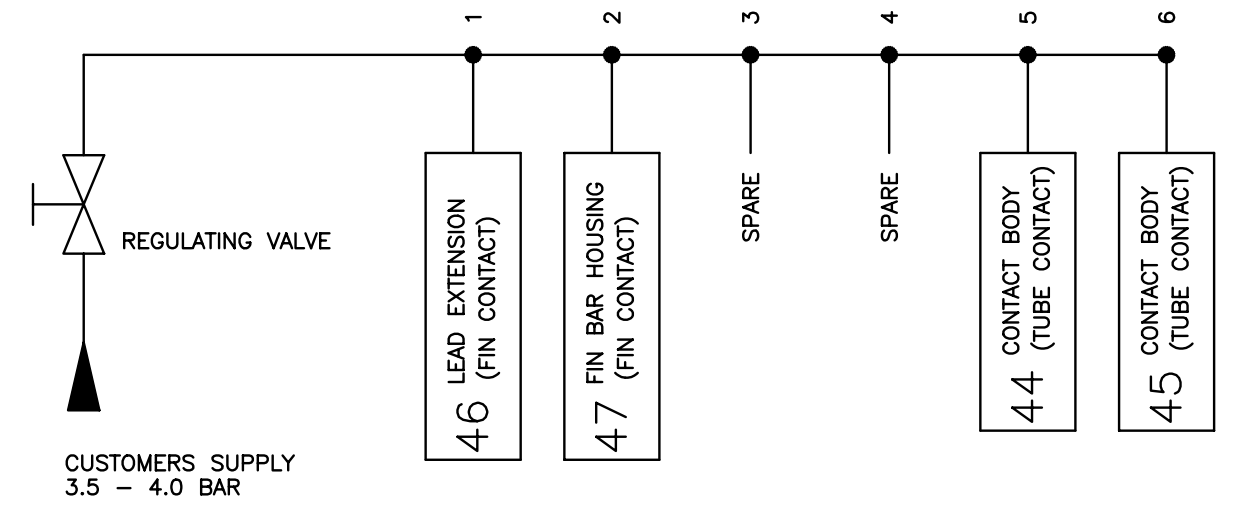
REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY
0	00122	FIRST ISSUE		MWT			07/00
A	00236	CDRRECTED TO AS BUILT LAYOUT		MWT			03/01

CUSTOMERS RETURN



WELD TABLE
 COOLED FROM CUSTOMERS
 MILL SUPPLY. MINIMUM FLOW
 PER CIRCUIT = 30 L/MIN.

CONTACTS ASSY
 COOLED FROM CUSTOMERS
 MILL SUPPLY. MINIMUM FLOW
 PER CIRCUIT = 30 L/MIN.

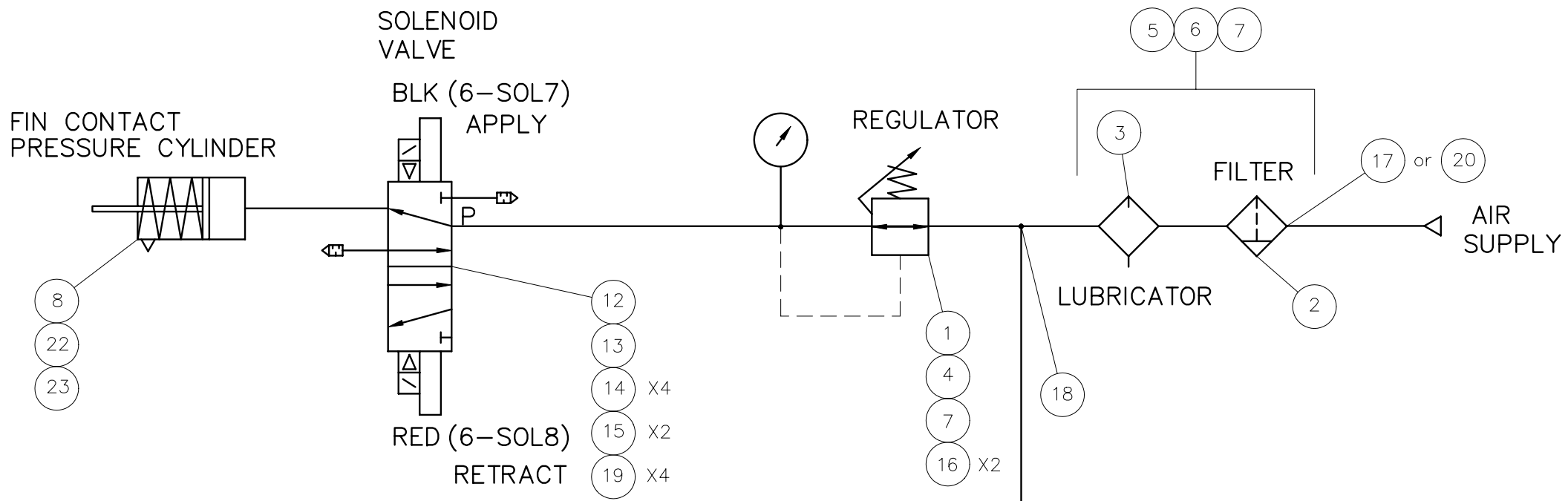


TITLE INTERNAL WATER SCHEMATIC HF12 SPIRAL FIN WITH CONTACTS			
SIZE A1	DIV NO 3	DWG NO WW0221	REV A
SCALE 1:1	DO NOT SCALE DRAWING COPY		SHEET 3

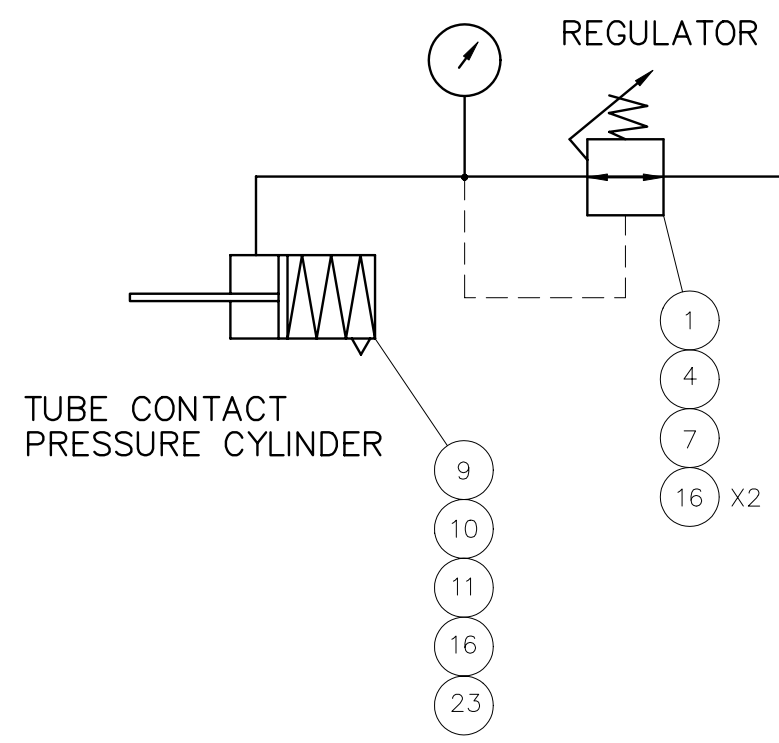
ENG-REF:

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	A	REV	REV	STATUS
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REV		ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY
0	00122		FIRST ISSUE		MWT			07/00
A	00236		CORRECTED TO AS BUILT LAYOUT		MWT			03/01



ITEM	REQD	DESCRIPTION
23	2	1/8" (M) X 1/4" (F/M) ADAPTOR (BRASS).
22	1	1/4" X 10MM STRAIGHT ADAPTOR.
21	A/R	10MM PIPE. BLUE
20	1	3/4" (M) X 1/2" PIPE HOSE TAIL.
19	4	1/2" X 10MM SWIVEL ELBOW.
18	1	3/8" X 10MM SWIVEL TEE.
17	1	3/8" X 10MM SWIVEL ELBOW.
16	5	1/4" X 10MM SWIVEL ELBOW.
15	2	1/2" PLUG. (BRASS)
14	4	1/2" SILENCER.
13	1	SUB BASE.
12	1	SOLENOID VALVE.
11	1	FRONT CLEVIS.
10	1	CYLINDER MOUNT.
9	1	CYLINDER.
8	1	CYLINDER.
7	3	WALL MOUNT KIT.
6	1	3/8" BODY CONNECTOR.
5	1	3/8" PORT KIT.
4	2	1/4" PORT KIT.
3	1	LUBRICATOR.
2	1	FILTER.
1	2	REGULATOR WITH GAUGE.

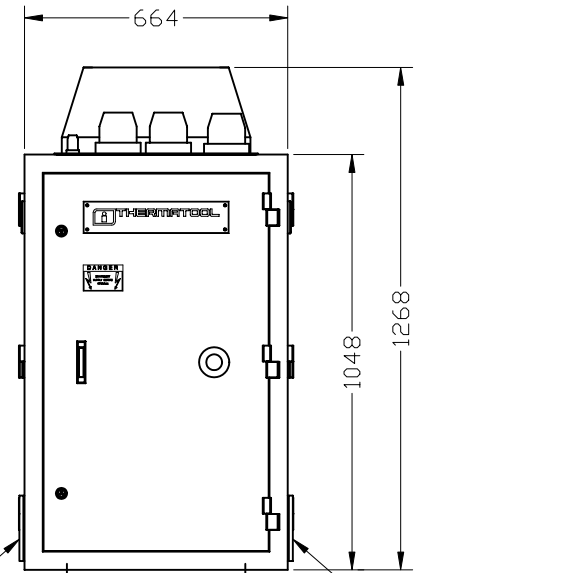
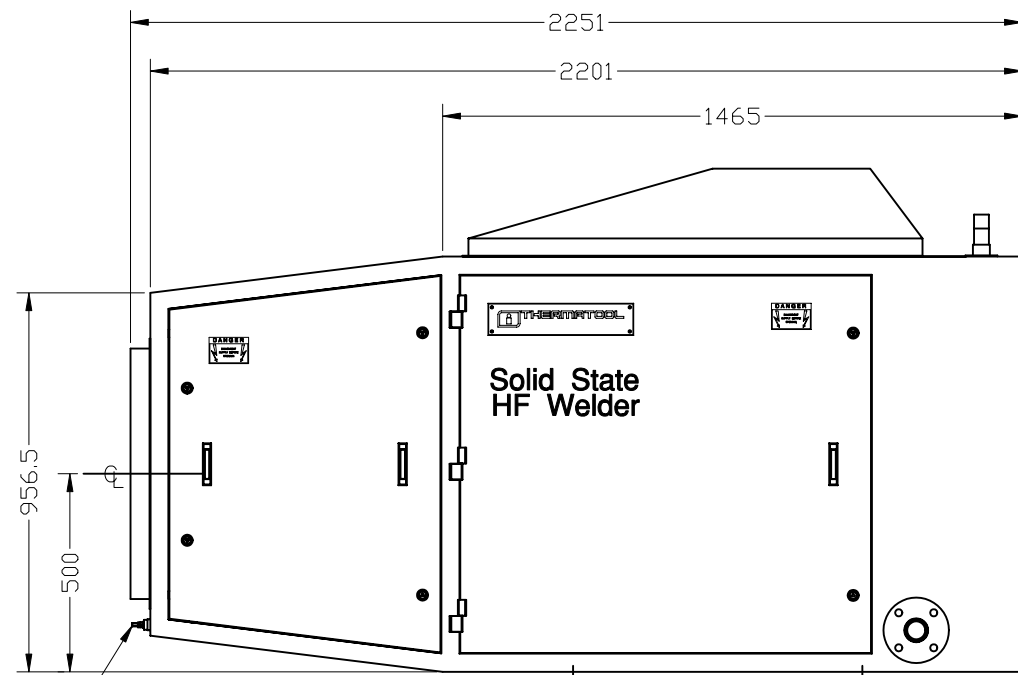
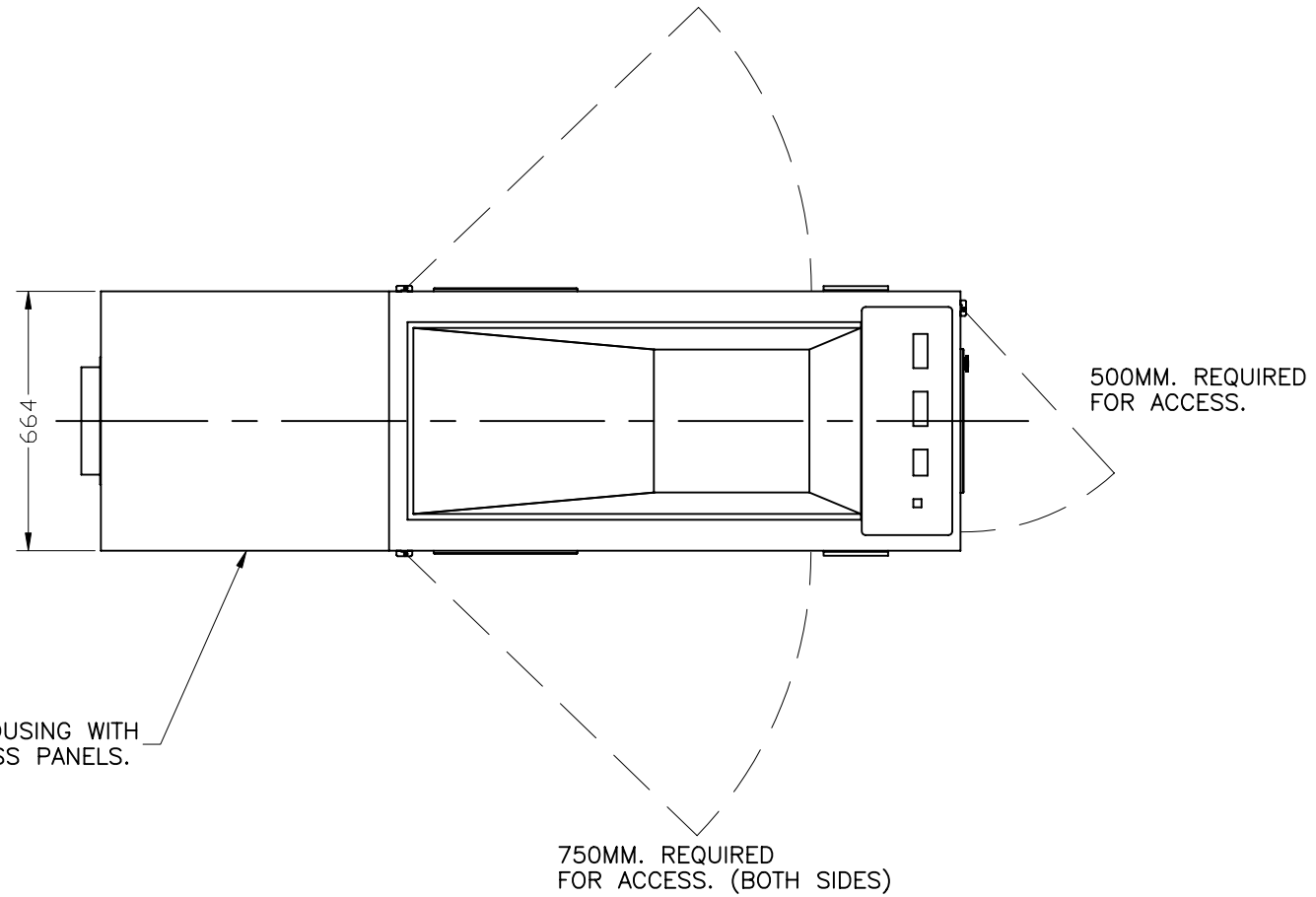


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON		APPROVALS		DD/MM/YY
0 PLACE(X) ±0.5 ANGLE ±0°30'		DWN	MWT	28/07/00
1 PLACE(X.X) ±0.3 SURFACE N8/ FINISH		CHK		
2 PLACE(X.XX) ±0.15 BREAK AND DEBURR ALL SHARP EDGES		ENG/APPD		
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© Copyright THERMATOOL EUROPE LTD		CONTACTS PNEUMATIC CIRCUIT		
THIRD ANGLE PROJECTION		SEE BOM		
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		N.A.		A
		SIZE	DIV NO	DWG NO
		A2	3	WW0222
		SCALE	N.A.	DO NOT SCALE DRAWING COPY SHEET
				1 OF 1



ENG-REF:

REVISIONS									
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY		
A	05212	REVISED PICTORIALY		BWH			31OCT05		



ALL 3 CABINET DOORS MAY BE LIFTED OFF THEIR HINGES IF REQUIRED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	APPROVALS	DD/MM/YY
TOLERANCES ON	DWN	JAF
0 PLACE (X) ± 0.5 ANGLE ± 0°30'	CHK	23/1/98
1 PLACE (X.X) ± 0.3 SURFACE FINISH	ENG/APPD	
2 PLACE (X.XX) ± 0.15	MATL	
BREAK AND DEBURR ALL SHARP EDGES	FINISH/HEAT TREAT	

SI-METRIC	THIRD ANGLE PROJECTION
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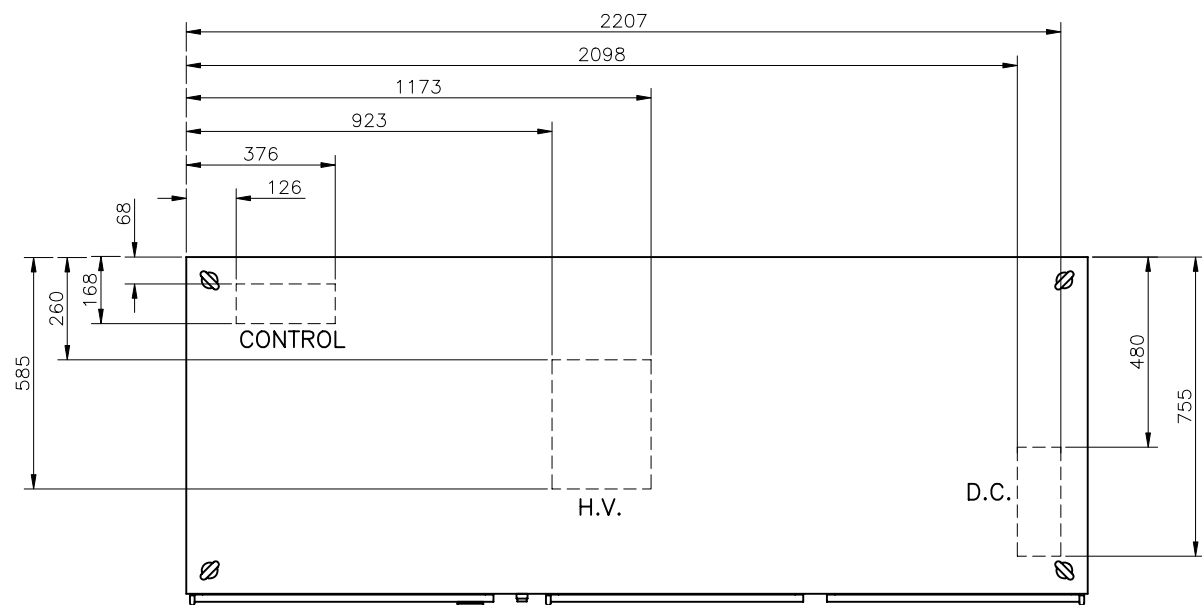
THERMATOOL®

BASIC DIMENSIONS
RF12 CABINET

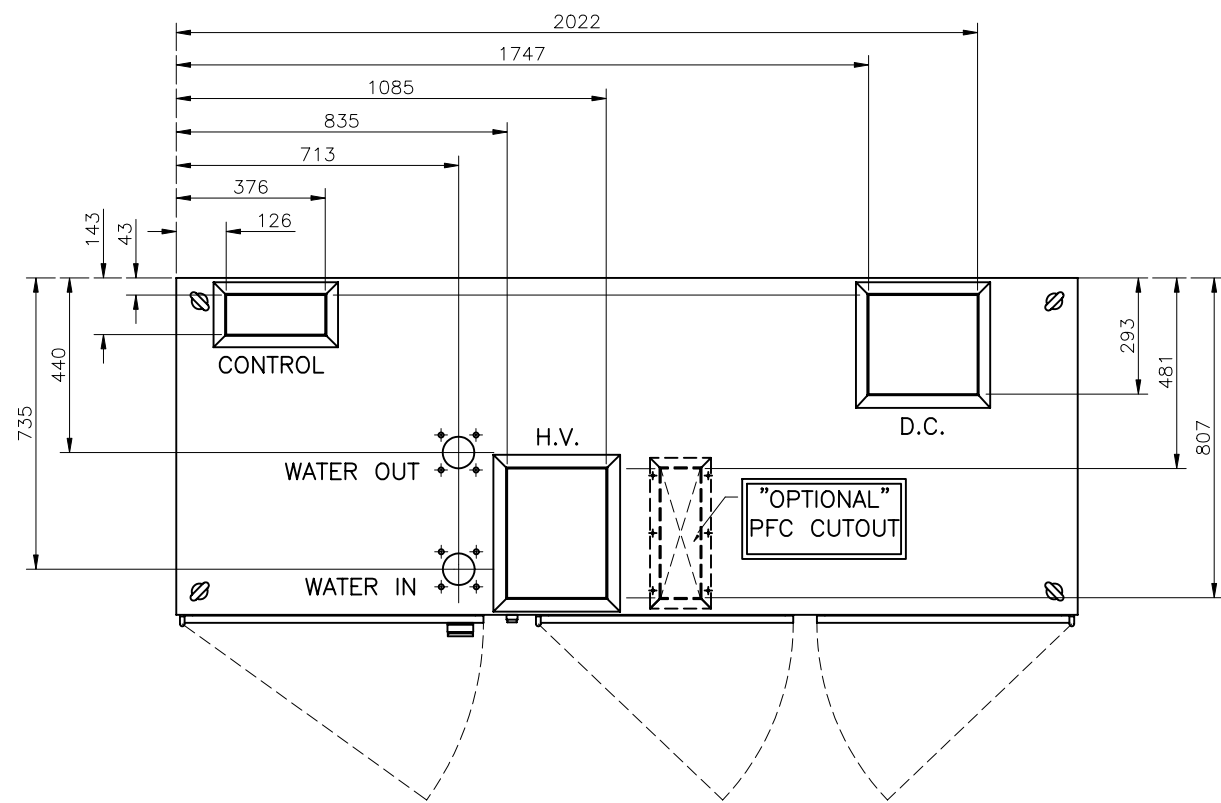
SIZE: A1 | DIV NO: 3 | DWG NO: WD0076 | REV: A

SCALE: 1:10 | DO NOT SCALE DRAWING COPY | SHEET: 1 OF 1

REVISIONS									
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY		
A	261	OPTIONAL PFC GLAND PLATE ADDED	9C	TAT	AB	AB	04/20/99		
B	05212	CUTOUT DIMS REVISED		BWH			270CT05		

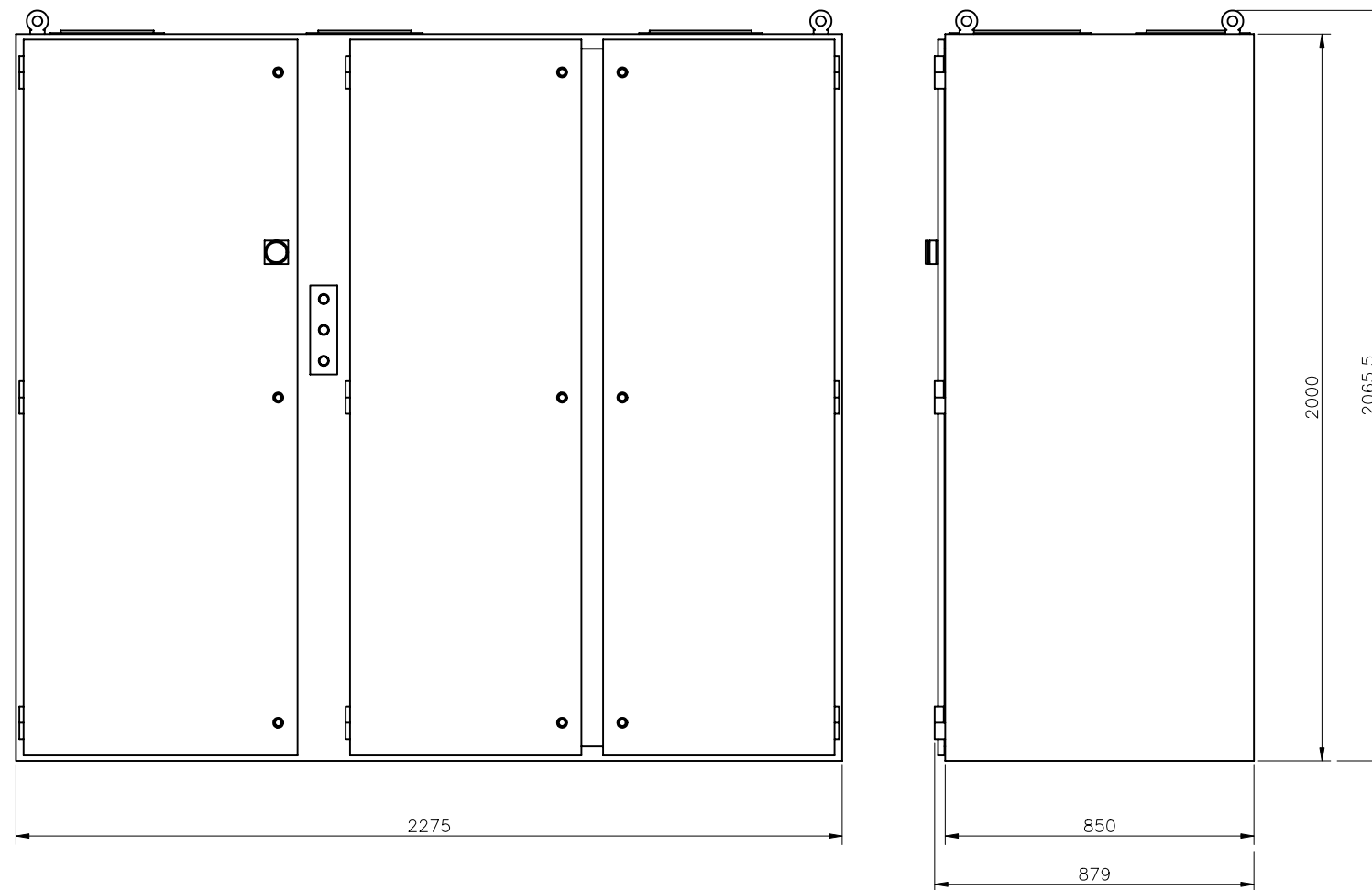


DETAIL OF BASE CUTOUTS.



750MM. REQUIRED FOR ACCESS.

NOTE:
DOORS MAY BE LIFTED OFF HINGES IF REQUIRED.



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		APPROVALS		DD/MM/YY	
TOLERANCES ON		DWN		MWT 01/26/95	
0 PLACE (X) ± 0.5 ANGLE ± 0°30'		CHK			
1 PLACE (X.X) ± 0.3 SURFACE FINISH		ENG/APPD			
2 PLACE (X.XX) ± 0.15 FINISH		MATL		N.A.	
BREAK AND DEBURR ALL SHARP EDGES		FINISH/HEAT TREAT		N.A.	
NEXT ASSY		THIRD ANGLE PROJECTION		TITLE	
JOB NO		SI-METRIC		BASIC DIMENSIONS	
FIRST APPLICATION		©Copyright THERMATOOL EUROPE LTD		CFI POWER SUPPLY	
UNIT		THIS DOCUMENT IS THE PROPERTY OF THERMATOOL EUROPE LTD AND IT IS SUBMITTED FOR USE ONLY WITH WORK PROPOSED OR AUTHORIZED BY THIS COMPANY. IT SHOULD NOT BE USED OR DUPLICATED FOR ANY OTHER PURPOSE AND IS TO BE RETURNED TO THERMATOOL EUROPE LTD ON REQUEST WHEN NO LONGER REQUIRED FOR SUCH PURPOSES.		200/350KW	
SIZE		SCALE		DWG NO	
A1		1:10		WD0077	
DIV NO		DO NOT SCALE DRAWING COPY		REV	
3		SHEET		B	
		2 OF 2			

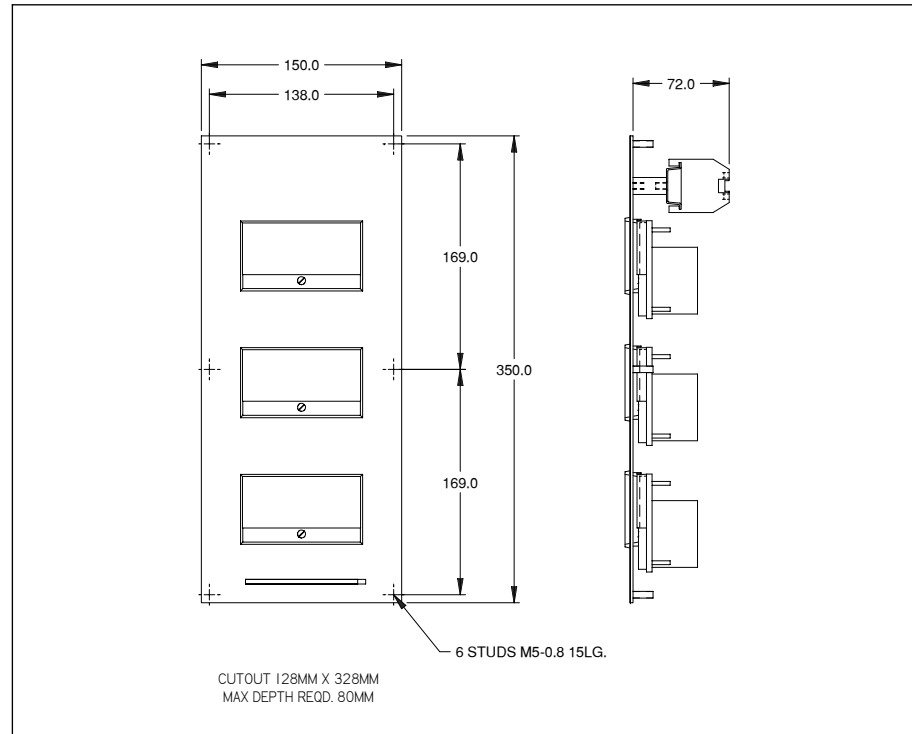


BASIC DIMENSIONS
CFI POWER SUPPLY
200 TO 350 KW

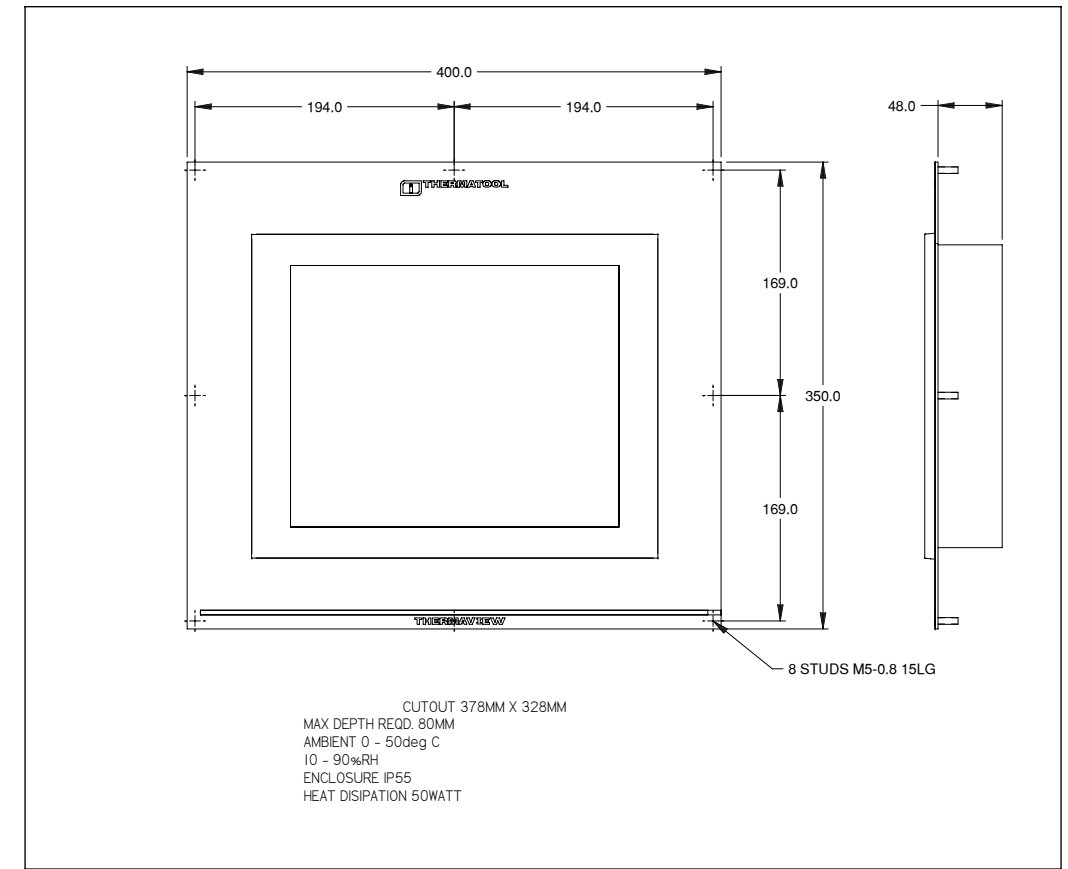
SCALE 1:10 DO NOT SCALE DRAWING COPY SHEET 2 OF 2

REV		ECR	DESCRIPTION	ZONE	DMN BY	MMDDYY
0		02208	FIRST ISSUE		TAT	07/12/2004
A		04275	CUTOUT DIMS CORRECTED FOR ALL VARIANTS		TAT	12/07/04

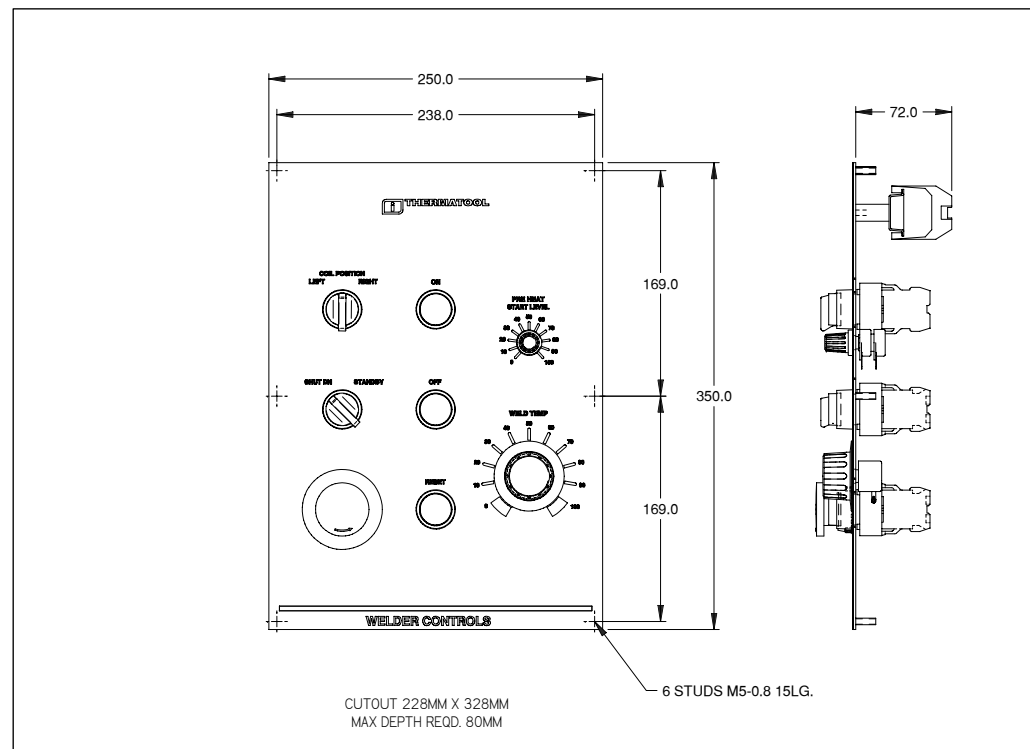
METER PANEL WU0003



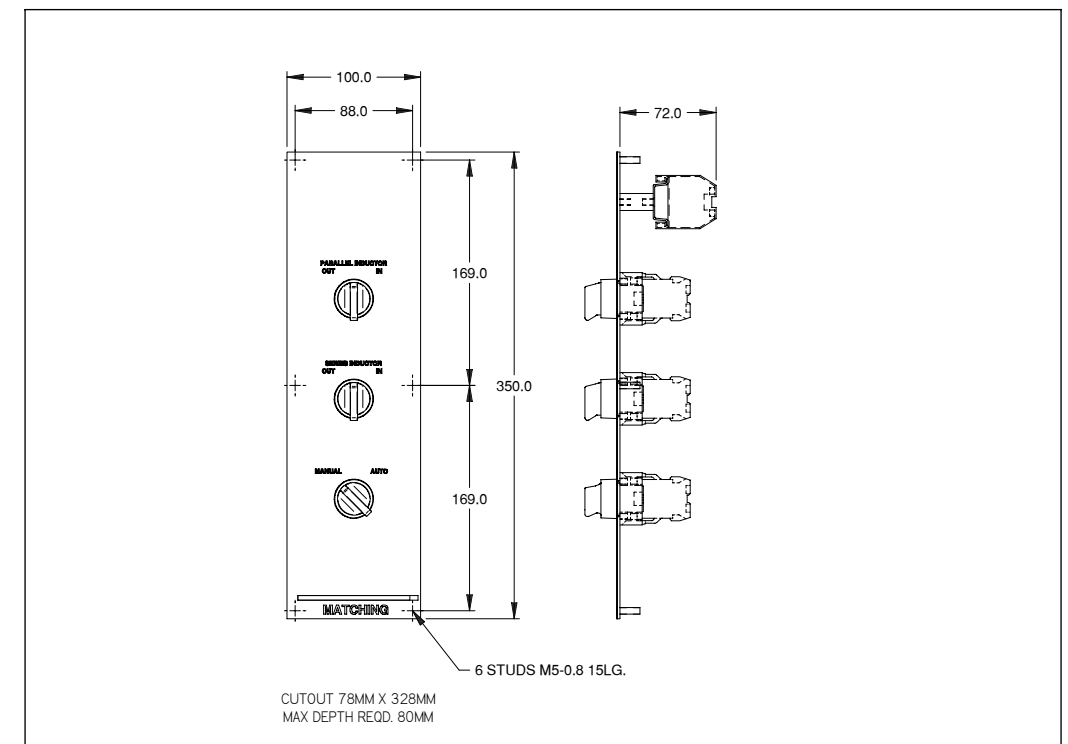
HMI DISPLAY PANEL WU0002



WELDER CONTROLS PANEL WU0001

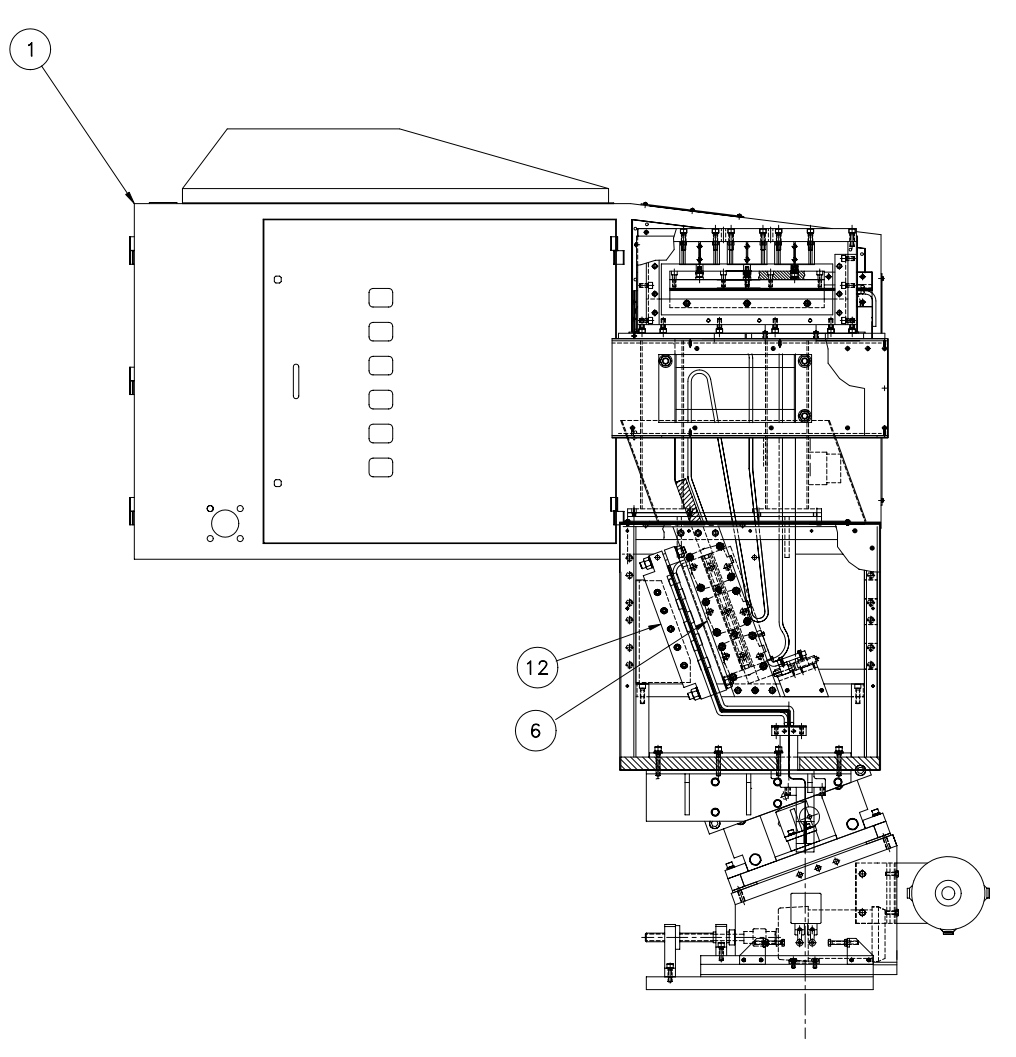
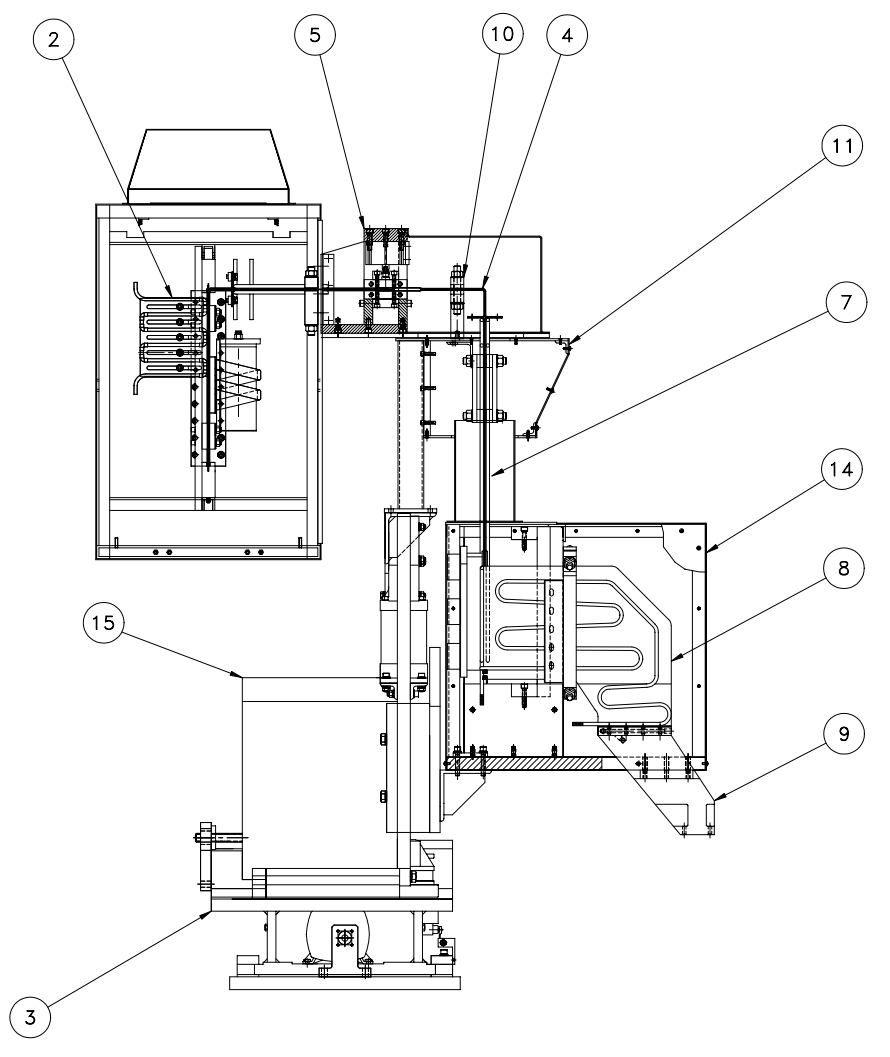


AUXILIARY PANELS WU0004/5/6



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SKETCH - Data Sheet Info O/A Dimensions of Thermaview 2 Panels			
SKETCH O/A DIMS.T-VIEW2		0.0 kg	
TOLERANCES UNLESS OTHERWISE SPECIFIED: 0 PLACE 00 ± 1 ANGLE ±0.5° 1 PLACE 0.00 ± 0.05 SURFACE N8/ 2 PLACE 0.000 ± 0.010 FINISH 3 PLACE 0.000 ± 0.010		SI-METRIC T.A. TIPLER 07/12/04	
Welder		SHEET 1 OF 1 AO 3 WK0471	

REV		REV STATUS		REVISIONS									
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY						
0	00012	FIRST ISSUE		MWT			03/00						
A	03070	UPDATED INFO.		MWT			03/03						
B	08059	PARTS LIST UPDATED IN LINE WITH MASTER BOM		BWH			08AP08						

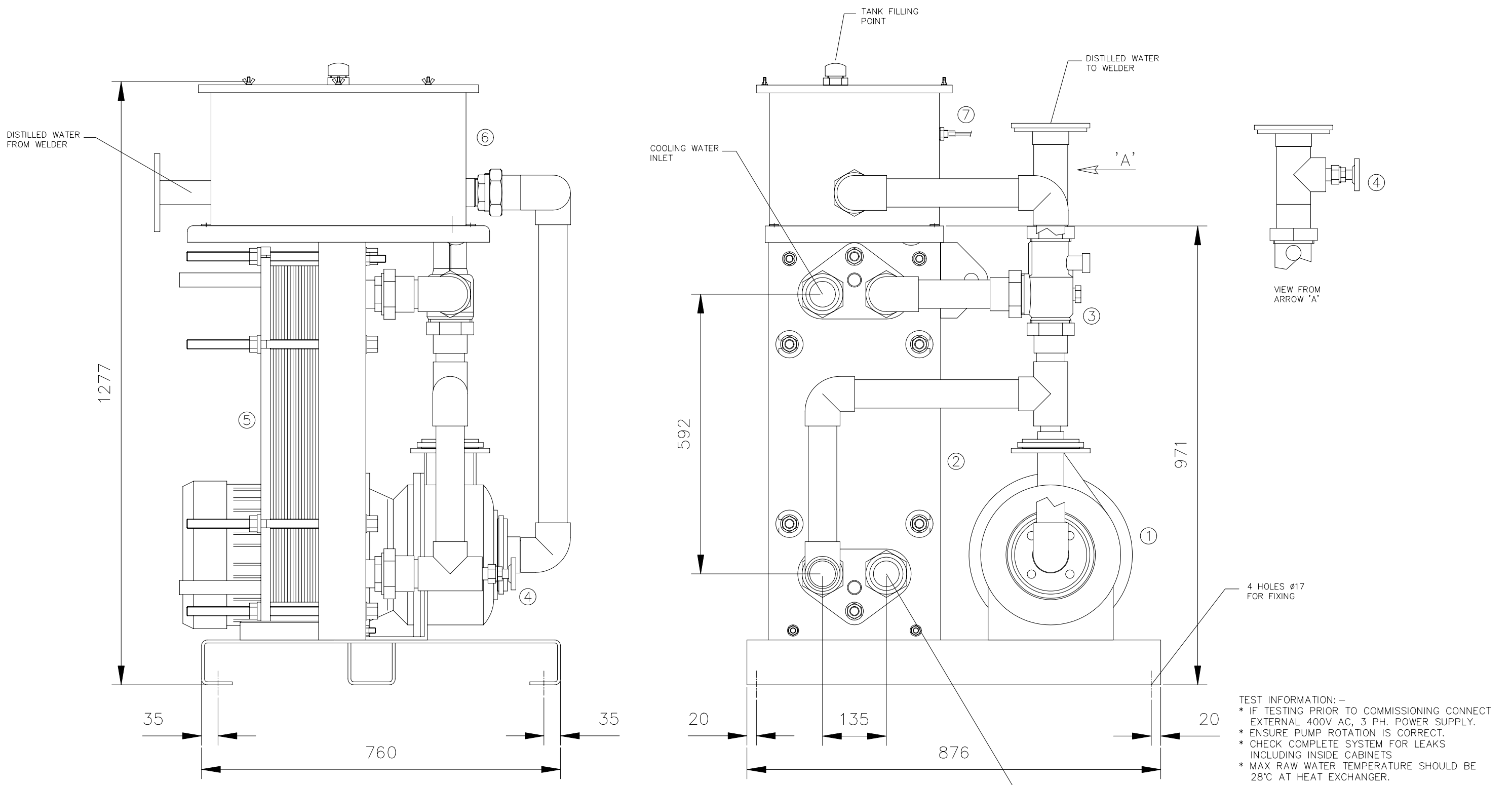


REF	QTY.	ITEM	PART NUMBER	DESCRIPTION
	1	15	WL1080	ASSY, WELD TABLE MOTORS GUARD
	1	14	WU5051	ASSY, HOUSING LEADS
	1	13	WL1074	ASSY, CONTROL ENCLOSURE
	1	12	WL1073	ASSY, CLAMP, ADJUSTABLE VERTICAL BUS
	1	11	WL1072	ASSY DUCT, VERTICAL BUS
	1	10	WL5225	ASSY, CLAMP, HORIZONTAL ADJUSTABLE BUS
	1	9	WL5260	SET, LEAD, CONTACT MTG.
	1	8	WL5205	SET, LOWER VERTICAL ADJUSTABLE BUS
	1	7	WL5105	SET, VERTICAL BUS
	1	6	WU5048-001	ASSY, VERTICAL CLAMP
	1	5	WL1066	ASSY, HORIZONTAL CLAMP
	1	4	WL1065	SET, HORIZONTAL BUS ADJUSTABLE
	1	3	WL2168	ASSY WELDTABLE
	1	2	WL2156	ASSY MATCHING SYSTEM
	REF	1		ASSY GENERATOR HF-12 SPIRAL FIN

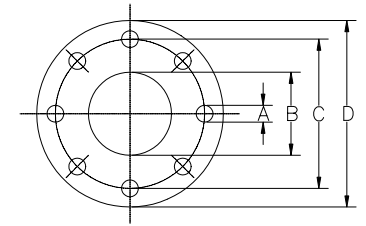
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON:	APPROVALS	MM/DD/YY		
0 PLACE (X) ± 0.5 ANGLE ± 0°30'	DWN	MWT		03/05/00
1 PLACE (XX) ± 0.3 SURFACE NB/ FINISH	CHK			
2 PLACE (XXX) ± 0.15 FINISH	END/APPD			
BREAK AND DEBURR ALL SHARP EDGES	MATL			
SEE BOM	FINISH/HEAT TREAT	N.A.		

UNIT: HF12 SPIRAL FIN (L-R)	THIRD ANGLE PROJECTION	SIZE: A0	DIV NO: 3	DWG NO: WDO156	REV: B
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REVISIONS														
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	MM/DD/YY							
0	01302	FIRST ISSUE		AJH			12/01							
A	06115	NOW COVERS 50 > 350KW		MWT			15/05							



- COMPONENT LIST :-
- ① PUMP.
 - ② HEAT EXCHANGER FRAME.
 - ③ TEMPERATURE CONTROL VALVE.
 - ④ TEMPERATURE GAUGE.
 - ⑤ HEAT EXCHANGER.
 - ⑥ HEADER TANK WITH LID.
 - ⑦ HEADER TANK LEVEL SWITCH.



DIMENSIONS FOR METRIC FLANGES :-
DRILLED TO BS4504 TABLE 16/3 - 10/3.
OR BS10 TABLE D/E.

DIM.	1.25" FLANGE BS 4504	1.5" FLANGE BS 4504
A	14mm.	14mm.
B	42.2mm.	48.3mm.
C	100mm.	110mm.
D	140mm.	150mm.

DIM.	2" FLANGE BS 4504	3" FLANGE BS 10
A	18mm.	18mm.
B	60.3mm.	88.9mm.
C	125mm.	145mm.
D	166mm.	199mm.

TEST INFORMATION:-
 * IF TESTING PRIOR TO COMMISSIONING CONNECT EXTERNAL 400V AC, 3 PH. POWER SUPPLY.
 * ENSURE PUMP ROTATION IS CORRECT.
 * CHECK COMPLETE SYSTEM FOR LEAKS INCLUDING INSIDE CABINETS
 * MAX RAW WATER TEMPERATURE SHOULD BE 28°C AT HEAT EXCHANGER.

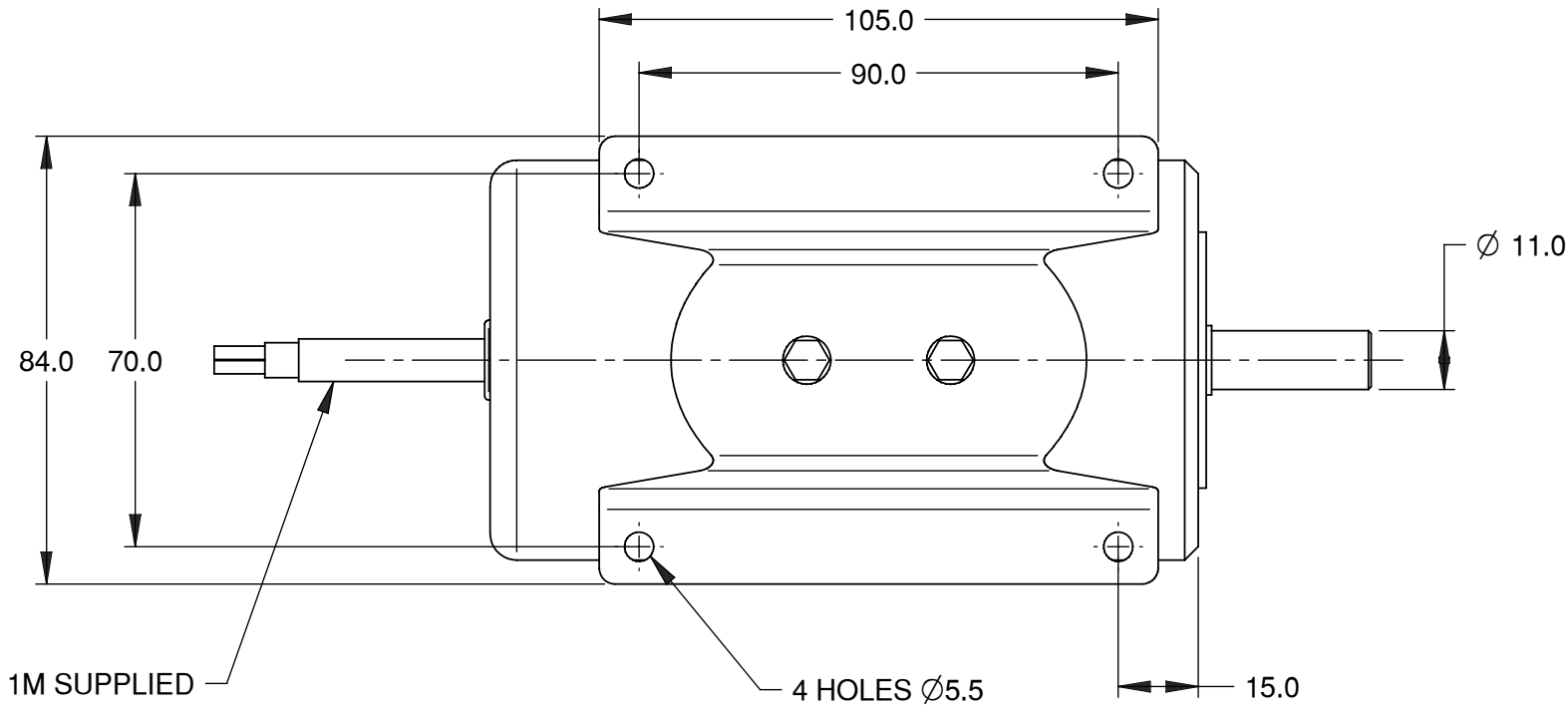
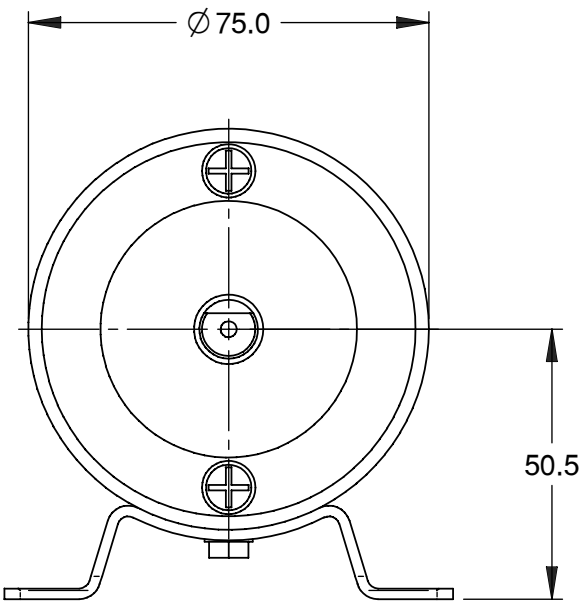
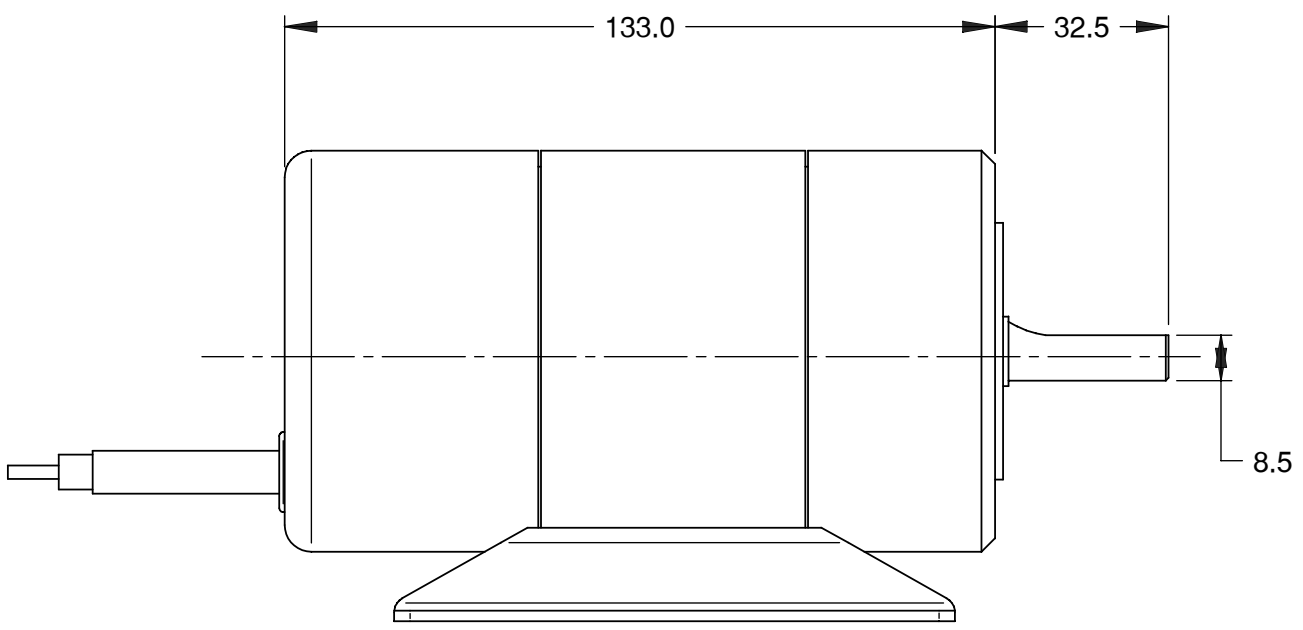
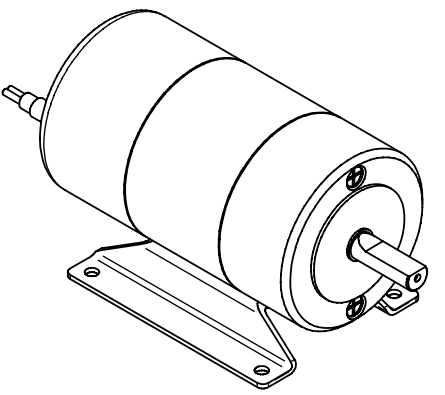
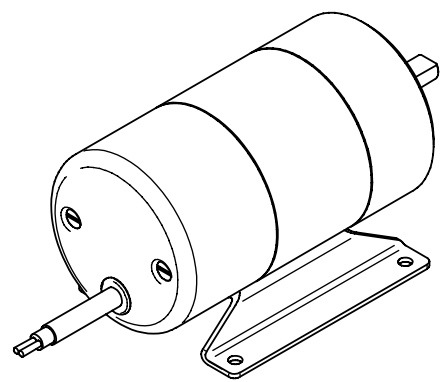
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	APPROVALS	DD/MM/YY
TOLERANCES ON	DWN	AJH
0 PLACE (X) ± 0.5 ANGLE ± 0°30'	CHK	07/06/01
1 PLACE (X.X) ± 0.3 SURFACE FINISH	ENG/APPD	
2 PLACE (X.XX) ± 0.15 FINISH	MATL	N.A.
BREAK AND DEBURR ALL SHARP EDGES	FINISH/HEAT TREAT	N.A.
UNIT 50 - 350KW CFI		
THIRD ANGLE PROJECTION		

TITLE			
BASIC DIMENSIONS HEAT EXCHANGER ASSEMBLY			
SIZE	DIV NO	DWG NO	REV
A1	3	WD0171	A
SCALE	DO NOT SCALE DRAWING COPY		SHEET 1 OF 1
SCALE 1:4			

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REVISIONS					
REV	ECR	DESCRIPTION	ZONE	DWN BY	MM/DD/YY
0	03139	FIRST ISSUE		MWT	16/06/03



NOTE:-
TACHO-GENERATOR TO BE MOUNTED ON MILL BASE
AND DRIVEN FROM THE MILL DRIVE SHAFT.
I.E. A SHAFT WITH A CONSTANT VELOCITY
IRRESPECTIVE OF TUBE/ROLL DIAMETER.

NOTE:-
TACHO-GENERATOR SHOULD BE GEARED
TO GIVE 1000 TO 1500 RPM. AT MAXIMUM
LINE SPEED.

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TITLE: REO444N1CS 0.06 CA Tacho Generator			
Item Master Description: REO444N1CS 0.06 CA TAC GEN		Approximate Weight: 2.0 KG.	
MATERIAL: N.A.			
TOLERANCES UNLESS OTHERWISE SPECIFIED: 0 PLACE (X) ± 1. ANGLE: ±0.5° 1 PLACE (XX) ± 0.5 2 PLACE (XXX) ± 0.25 SURFACE N8/ 3 PLACE (XXXX) ± 0.100 FINISH:		SI-METRIC 	
THIRD ANGLE PROJECTION 		DRAWN BY: martint	
PRODUCT MODEL: TMC		MM/DD/YY: 16/06/03	
SHEET 1 OF 1		Revision: 0	
SHEET SIZE: A2		DWG NO: WD5059	

WL2168

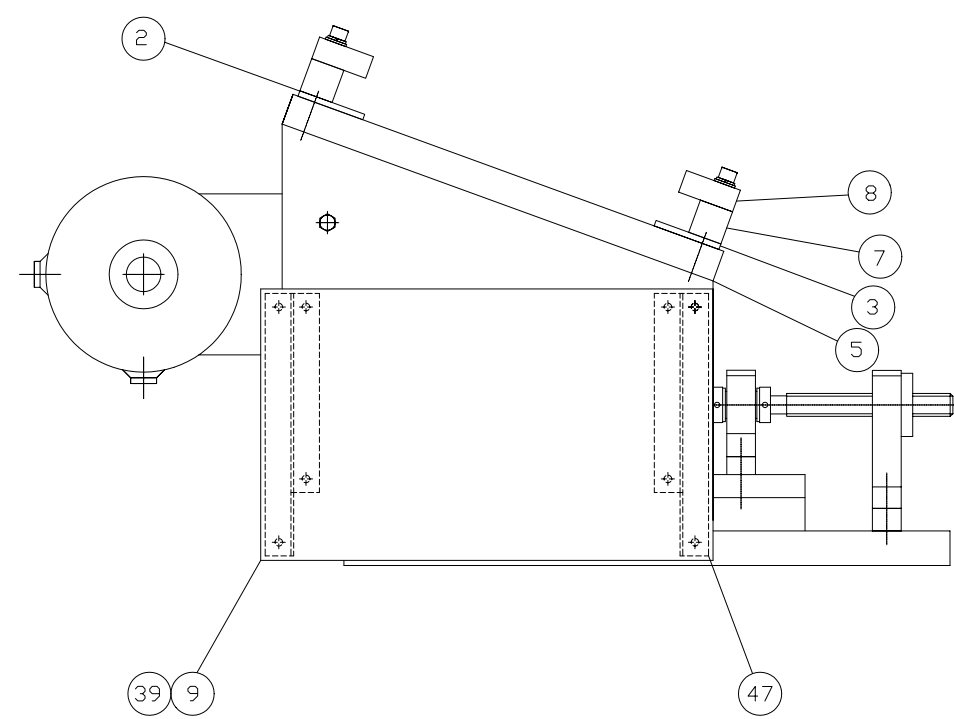
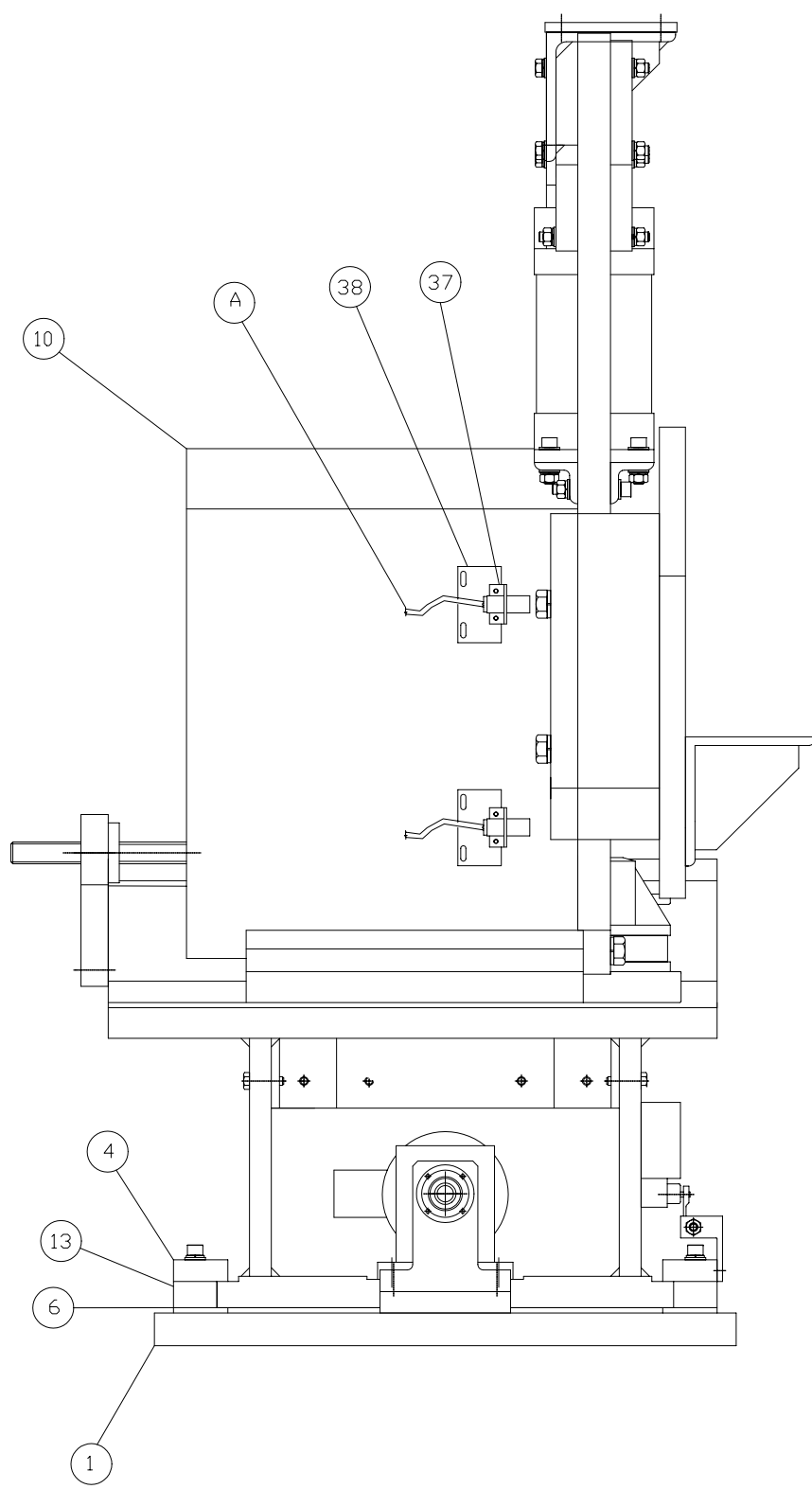
Weld Table Assembly – Spiral Fin (L/R)

Sheet 1 – *Weld Table Assy – Spiral Fin*

Sheet 2 – *Weld Table Assy – Spiral Fin*

Sheet 3 – *Weld Table Assy – Spiral Fin*

REVISIONS																			
REV	NO	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY												
D	03181	REF DIMS ADDED, ITEM 'T' QTY INCREASE		MWT			02/04												
E	04088	ITEMS AB & AC ADDED		MWT			29FEB05												
F	07039	REFER TO ECN		MWT			16/02/07												
G	07241	REV. SH. 1, 3 (20MM DIM CHANGE)		TAT			05/12/07												



AD	2	M27-2.0 LOCK NUT
AC	3	Ø6 X 30LG ROLL PIN
AB	3	M20 NYLON WASHER
AA	1	WASHER
Z	1	COUPLING
Y	2	CHAIN OFFSET LINK
X	2	CHAIN CONNECTING LINK
W	1	SPROCKET 19 TEETH
V	1	MOTOR 60RPM
U	1	MOTOR 40RPM
T	1.5M	ROLLER CHAIN
S	1	SPROCKET 10 TEETH
R	1	SPROCKET 22 TEETH
Q	1	SPROCKET 10 TEETH
P	1	SCREW JACK
N	4	FLANGE BUSH
M	1	PNEUMATIC CYLINDER
L		
K	1	MOTOR 18RPM
J	1	BRONZE SPIDER
H	1	COUPLING
G		
F	2	ACME NUT FLANGE
E	2	ACME NUT
D	1	AIR RECEIVER
C	4	LIMIT SWITCH ROLLER
B	2	LIMIT SWITCH
A	2	PROXIMITY SENSOR

ITEM	REQD	PART NUMBER	DESCRIPTION
50	1	WL5610-003	SWIVEL COUPLING - TOP
49	1	WL5610-002	SWIVEL COUPLING - CENTRE
48	1	WL5610-001	SWIVEL COUPLIN - BOTTOM
47	1	WL1090-002	CONTRL ENC. MTGS. - LEFT
46	6	WL2035-003	VERTICAL GIB - WEAR PL.
45	2	WL2035-002	VERTICAL GIB - REAR
44	1	WL2039-002	VERTICAL SUPPORTS (L.H.)
43	1	WL2039-001	VERTICAL SUPPORTS (R.H.)
42	1	WL2081-002	X-AXIS LIMIT TRIP - RIGHT
41	1	WL2081-001	X-AXIS LIMIT TRIP - LEFT
40	3	WL2000	SHAFT COLLAR
39	1	WL1090-001	CONTRL ENC. MTGS. - RIGHT
38	2	WL2036	SENSOR MTG. PLATE
37	2	WL5233	PROXIMITY SENSOR MTGS.
36	1	WL2068	VERTICAL DRIVE BLOCK
35	1	WL2177	UPPER SUPPORT ANGLE
34			
33	1	WL5609	VERTICAL DRIVE SREW
32	2	WL2035-001	VERTICAL GIB - FRONT
31	1	WL2065	JACK SPACER
30	1	WL2066	BOTTOM SPACER
29	1	WL2047	BASE PLATE
28	1	WL1061	SPACER -002
27	2	WL2027	BEARING BLOCK
26	1	WL1061	SPACER -001
25	1	WL2026	ACME NUT MTG. BRACKET
24	1	WL2030	X-AXIS DRIVE SCREW
23	1	WL2178	FRONT PLATE
22	2	WL2032-002	AIR CYL. MTGS - SPACER
21	1	WL2032-001	AIR CYL. MTGS - ANGLE
20	1	WL2176	SUPPORT ANGLE WELDMENT
19	1	WL2082-002	Y-AXIS LIMIT TRIP - RIGHT
18	1	WL2082-001	Y-AXIS LIMIT TRIP - LEFT
17	1	WL1076	AIR RECEIVER MTG. PLATE
16	2	WL2179	TANK MTG. ANGLE
15	1	WL2029	ACME NUT MTG. BRACKET
14	1	WL2031	Y-AXIS DRIVE SCREW
13	2	WL2043	GIB SPACER
12	4	WL2028	MOTOR MTG. PLATE SUPPORT
11	2	WL1079	MOTOR MTG. PLATE
10	1	WL1080	ASSY. WELD TABLE GUARD
9	1	WL1074	ASSY. CONTRL ENCLOSURE
8	2	WL2037-002	BASE GIB - UPPER
7	2	WL2037-001	BASE GIB - LOWER
6	2	WL2024	GIB PLATE
5	1	WL2180	BASE WELDMENT
4	2	WL2044	GIB PLATE
3	1	WL2067-002	BEARING PLATE - LHD
2	1	WL2067-001	BEARING PLATE - RHD
1	1	WL2064	BASE PLATE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS

TOLERANCES ON:
 0 PLACE (X) ± 0.5 ANGLE ± 0°30'
 1 PLACE (XX) ± 0.3 SURFACE NS/
 2 PLACE (XXX) ± 0.15 FINISH
 BREAK AND DEBURR ALL SHARP EDGES

APPROVALS: MWT 03/05/00

DATE: 03/05/00

SCALE: 1:3

DO NOT SCALE DRAWING COPY SHEET 1 OF 3

ENGR: MWT

REV: G

ITEM: WL2168

DESCRIPTION: ASSEMBLY WELD TABLE SPIRAL FIN

SEE BOM

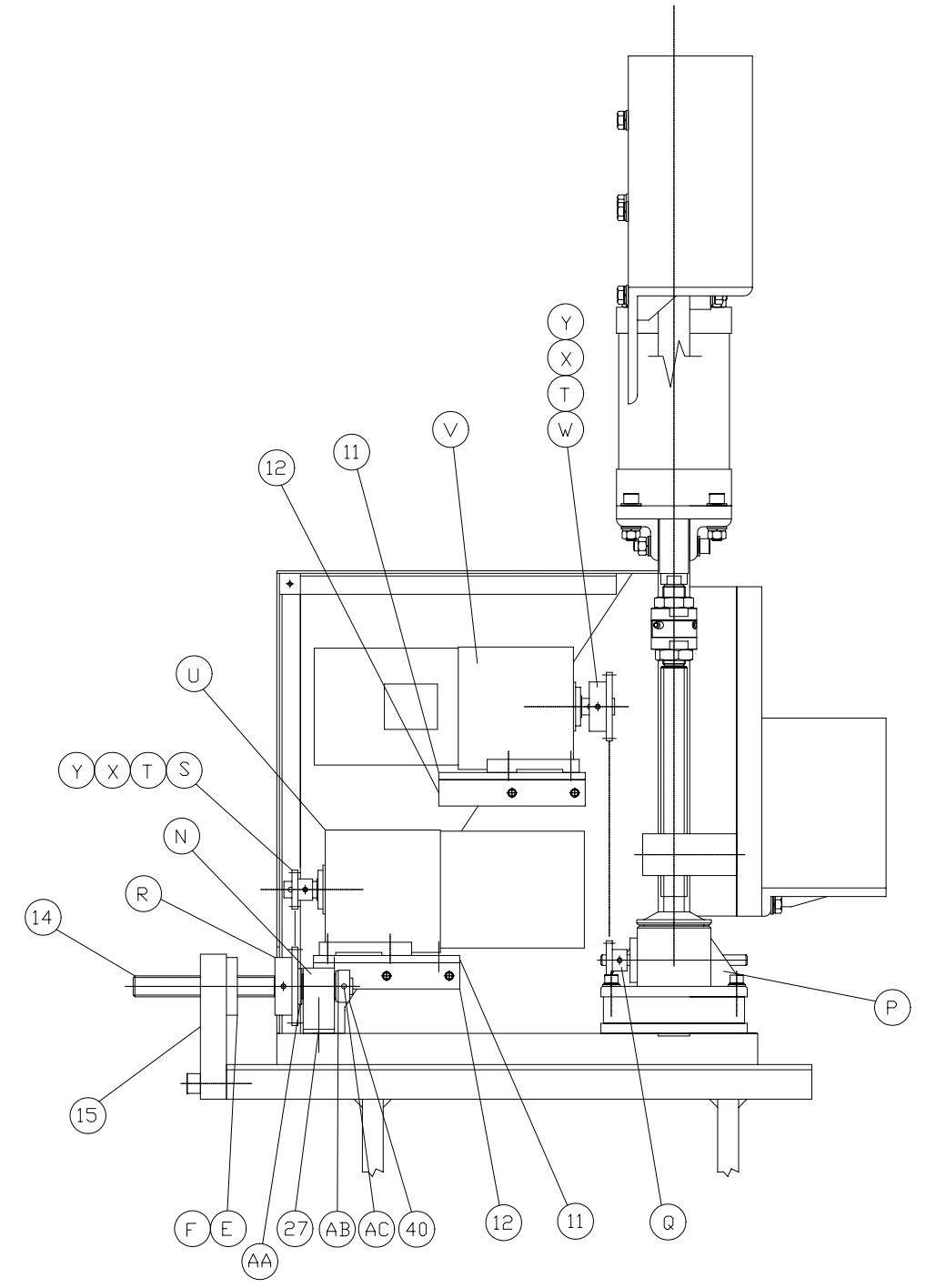
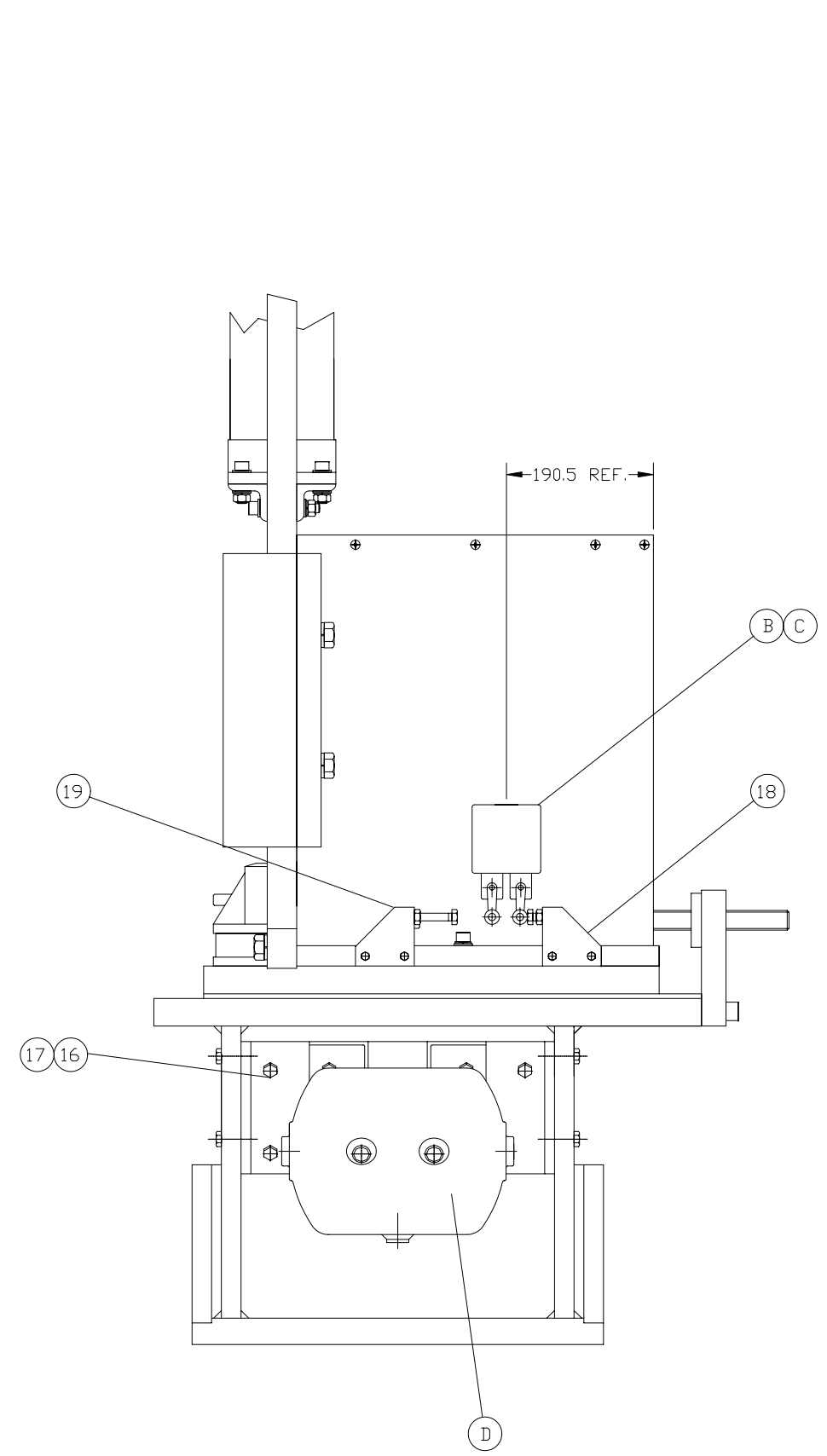
THIRD ANGLE PROJECTION

SI-METRIC

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REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY
D	00012	FIRST ISSUE		MWT			05/00
A	00236	CORRECTIONS / UPDATES		MWT			04/01
C	03112	SEE SHEET 1 OF 3		MWT			05/03
D	03181	SEE SHEET 1 OF 3		MWT			02/04
E	04088	ITEMS AB & AC ADDED		MWT			25FEB05
F	07033	REFER TO ECR		MWT			02/16/07

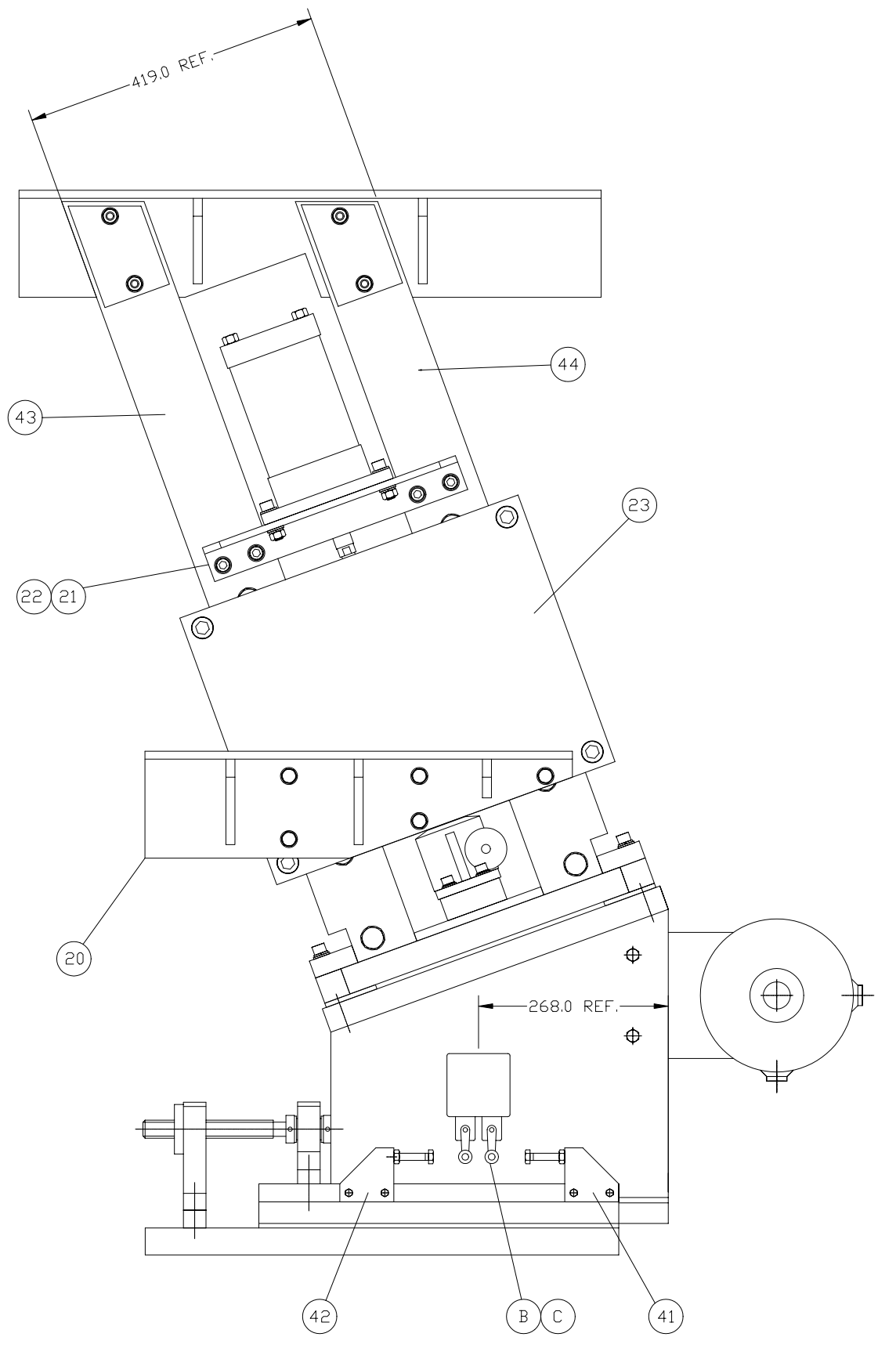
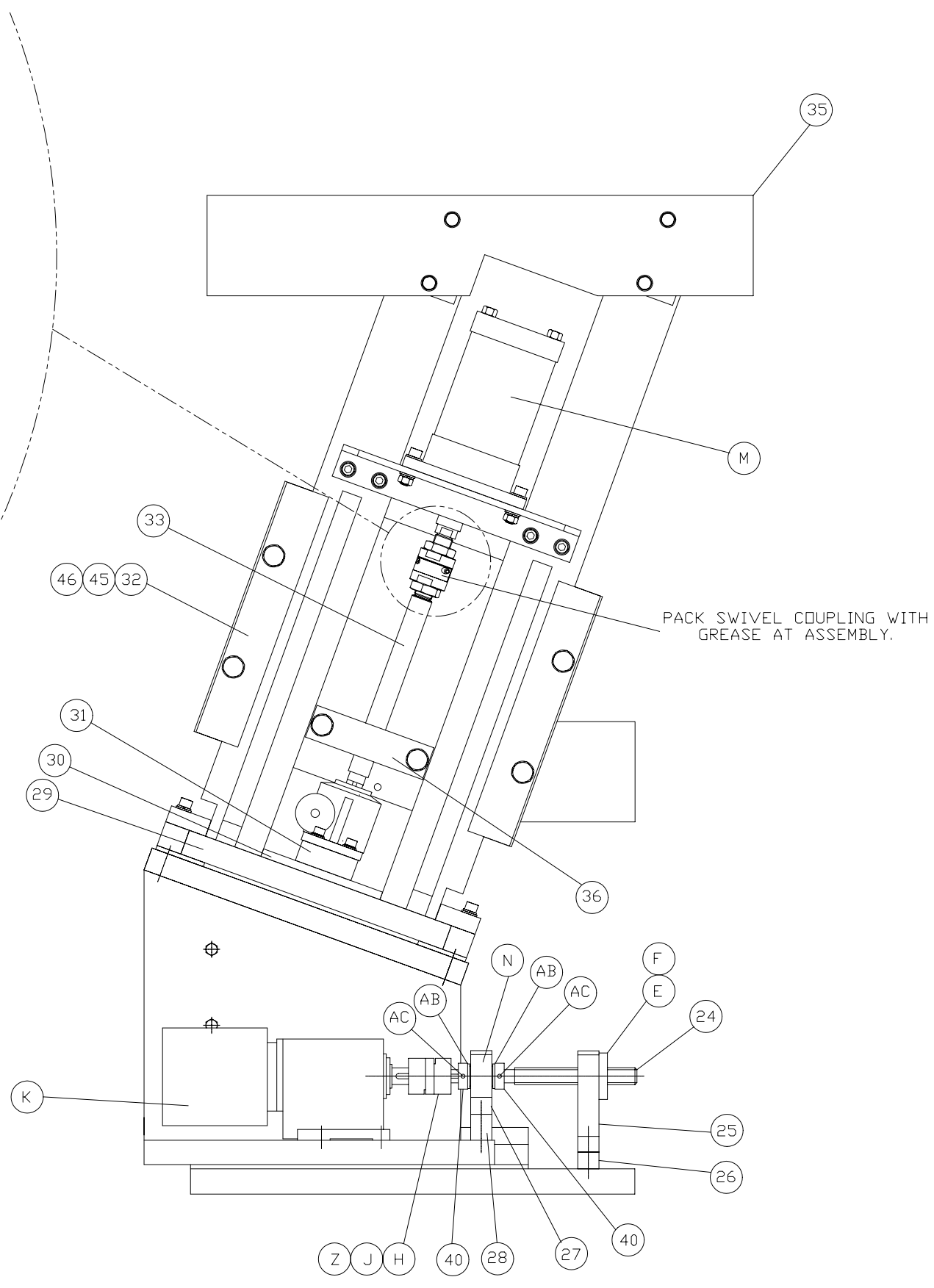
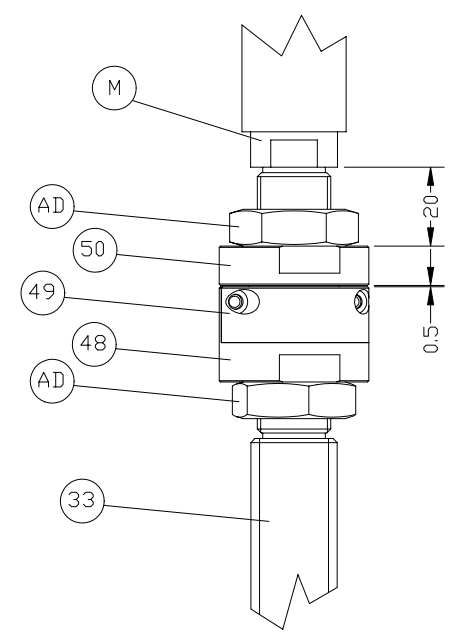


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TITLE
ASSEMBLY WELD TABLE SPIRAL FIN

SIZE	DIV NO	DWG NO	REV
A0	3	WL2168	F
SCALE	1:3		DO NOT SCALE DRAWING COPY SHEET
ENG-REF.	2	1	2

REVISIONS							
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY
D	00012	FIRST ISSUE		MWT			05/00
A	00236	CORRECTIONS / UPDATES		MWT			04/01
C	03112	SEE SHEET 1 OF 3		MWT			05/03
D	03181	SEE SHEET 1 OF 3		MWT			02/04
E	04088	ITEMS AB & AC ADDED		MWT			25FEB05
F	07038	REFER TO ECN		MWT			16/02/07
G	07241	DIM 20MM WAS 30MM & PLACEMENT CHANGED ELSE PNU CYL M27 SHAFT PROTRUDES OUT OF TOP SWIVEL	14J	TAT			12/05/07

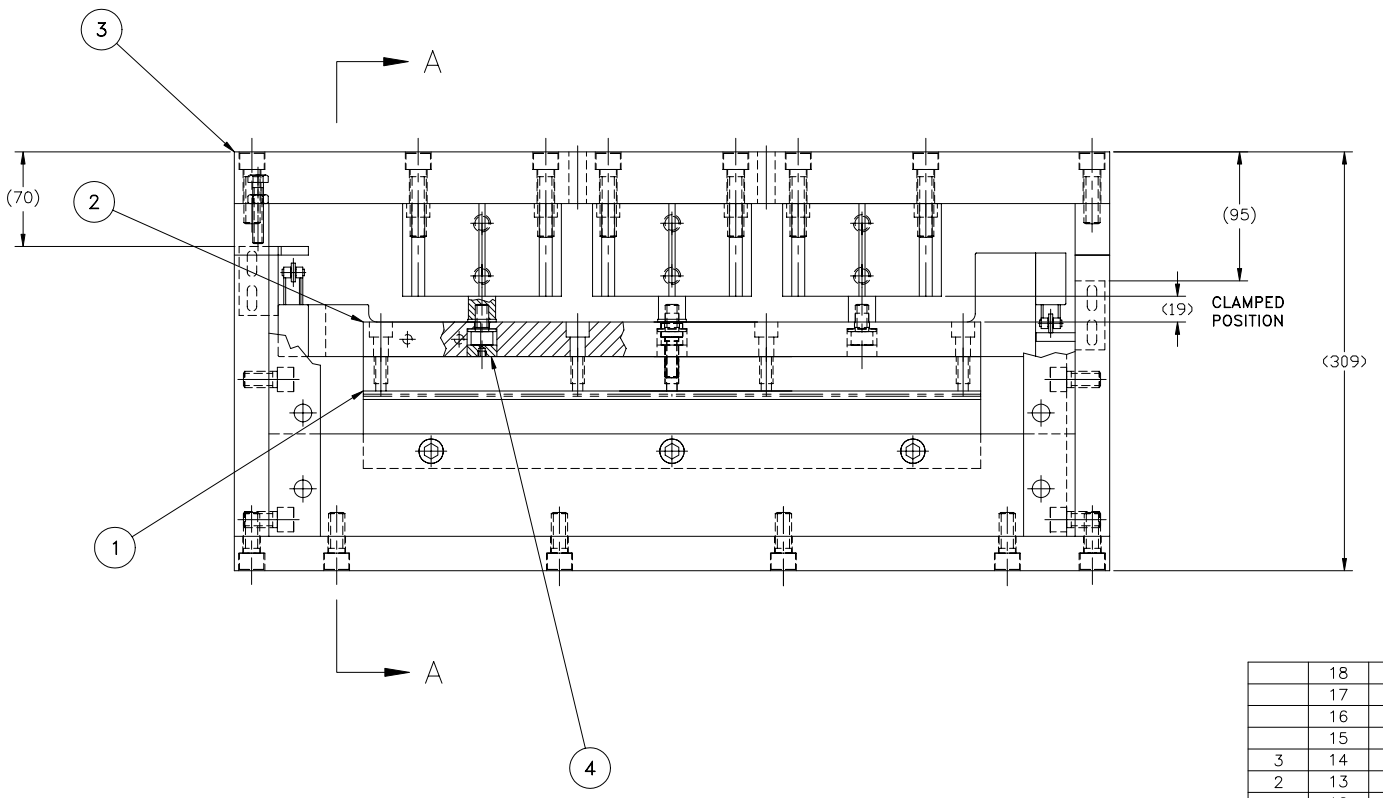
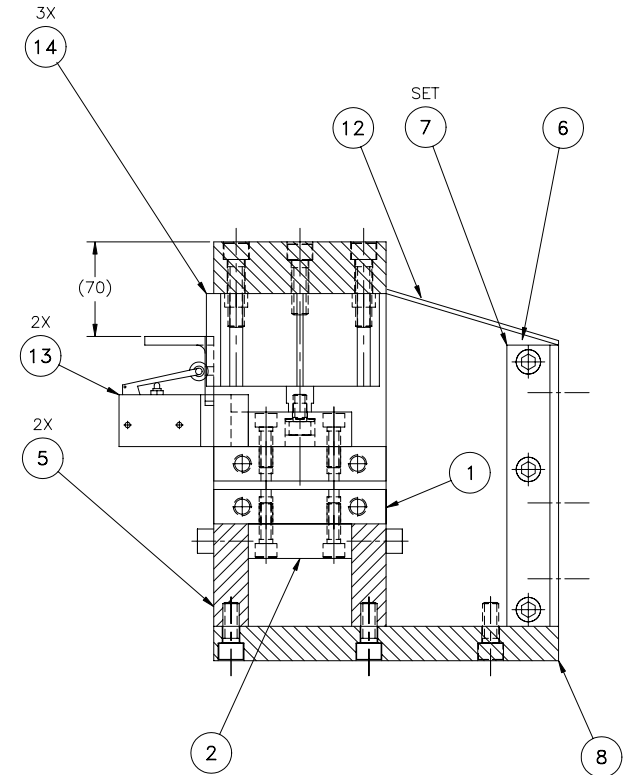
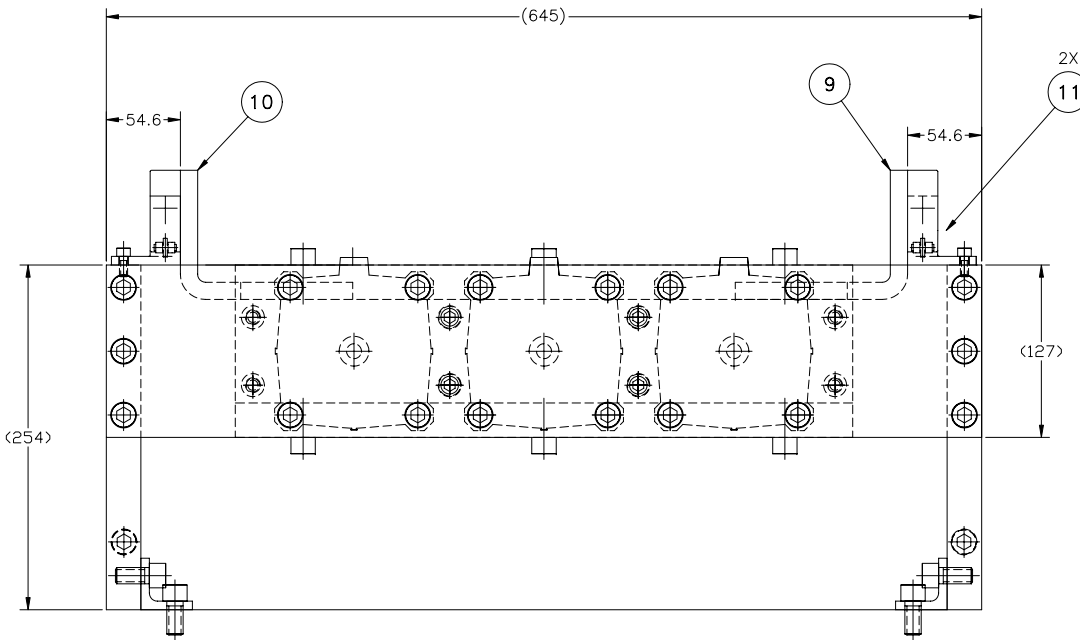


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TITLE
**ASSEMBLY WELD TABLE
 SPIRAL FIN**

SIZE	DIV NO	DWG NO	REV
A0	3	WL2168	G
SCALE	1:3		DO NOT SCALE DRAWING COPY SHEET
ENG-REF.	2	1	3

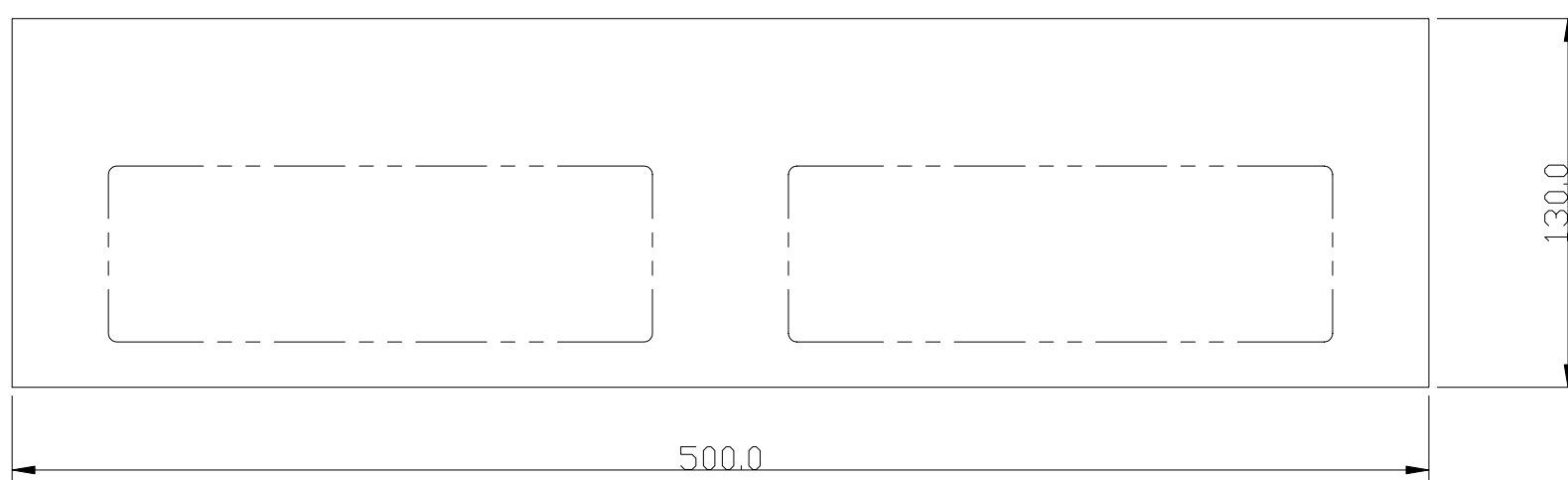
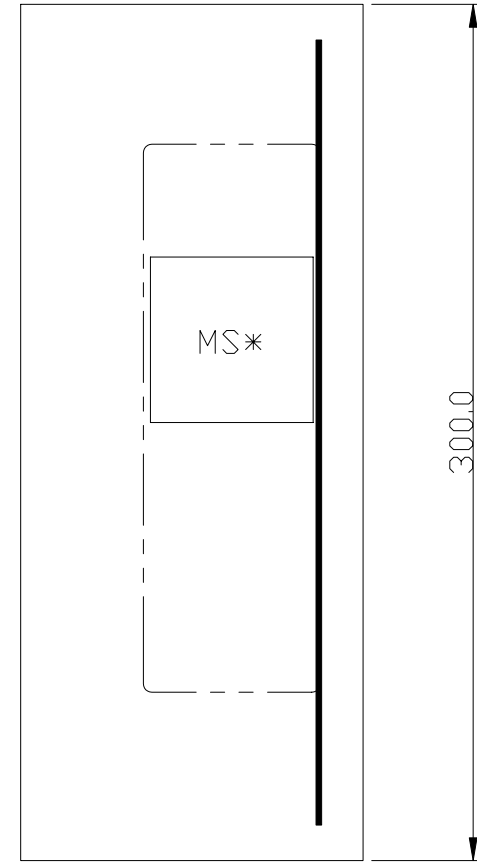
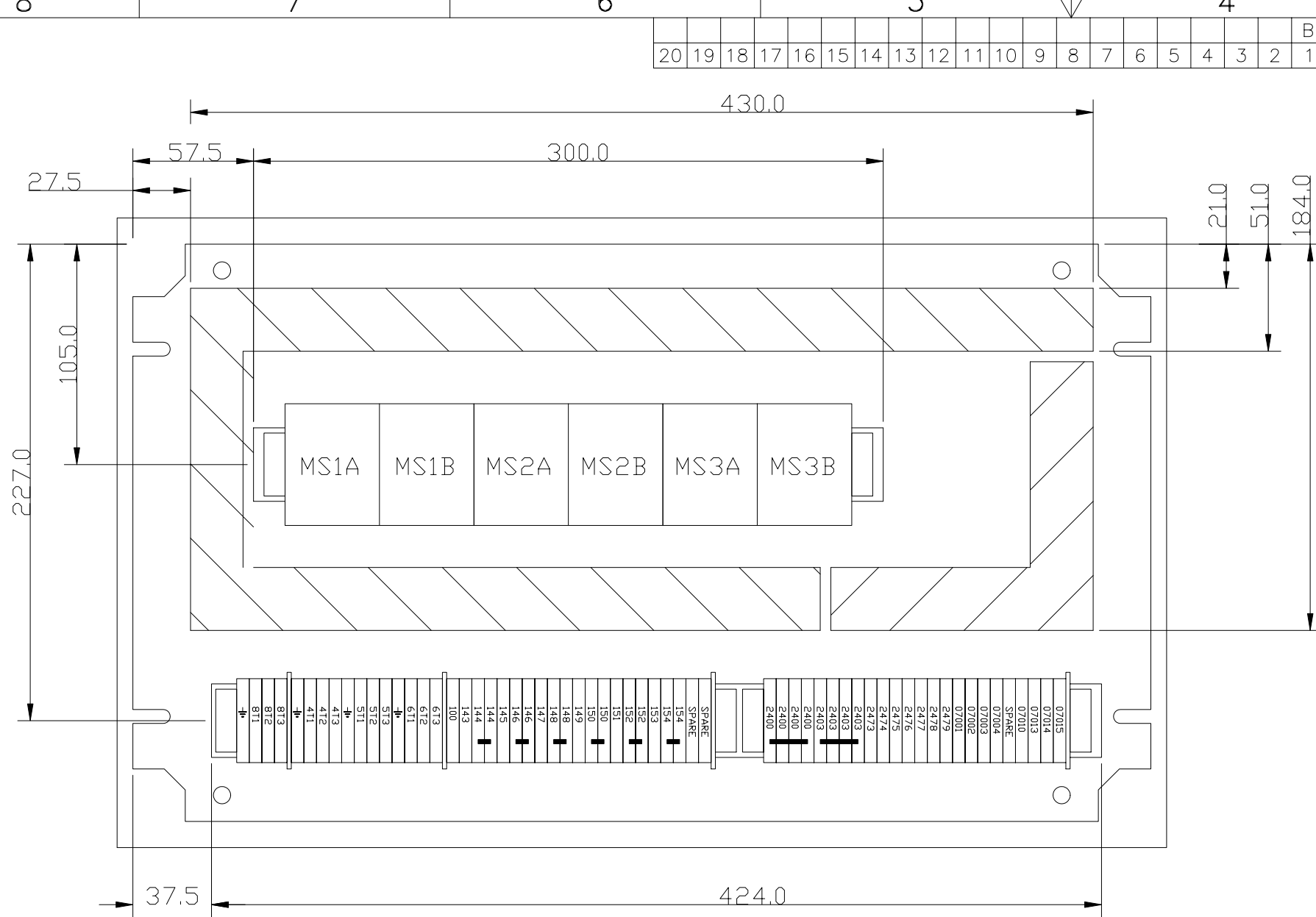
REVISIONS														
REV	NO	DESCRIPTION	ZONE	DWN	CHK	APPD	DO/AM/YY							
A	N509	UPDATE BOM WITH UK DRAWING NUMBERS		MR			18/01/00							



QTY.	ITEM	PART NUMBER	DESCRIPTION
	18		
	17		
	16		
	15		
3	14		SERIES 2700 COMPACT CYLINDER
2	13		LIMIT SWITCH
1	12	WL1091	COVER PLATE
2	11	WL1095	LIMIT SWITCH TRIP BRACKET UPPER CLAMP
1	10	WL1094	LIMIT SWITCH BRACKET - R.H. UPPER CLAMP
1	9	WL1093	LIMIT SWITCH BRACKET - L.H. UPPER CLAMP
1	8	WL1088	BOTTOM PLATE
1	7	WL1092	MOUNTING BRACKET
2	6	WL1087	SIDE PLATE
2	5	WL1086	SUPPORT BLOCK
3	4	WL1085	INSULATION PLUG
1	3	WL1084	CYLINDER SUPPORT PLATE
2	2	WL1083	INSULATION / CLAMP BAR (TOP)
2	1	WL1082	CLAMP / MANIFOLD (COPPER)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON:		APPROVALS		DS/AM/YY
0 PLACE (X)	± 0.5	ANGLE ± 0°30'	DWN	MWT 06/12/99
1 PLACE (XX)	± 0.3	SURFACE FINISH	CHK	
2 PLACE (XXX)	± 0.15	BREAK AND DEBURR ALL SHARP EDGES	ENR/APPD	
UNIT: SPIRAL FIN		MATERIAL: SEE BOM		TITLE: ASSEMBLY, HORIZONTAL CLAMP
©Copyright THERMATOOL EUROPE LTD		THIRD ANGLE PROJECTION		SCALE: 1:2
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				DWG NO: WL1066
				REV: A
				SHEET: 1 OF 1

REV		REV		REVISIONS							
REV	ECR	DESCRIPTION		ZONE	DWN	CHK	APPD	DD/MM/YY			
A	486	INCREASE QTY OF TERMS 2400,2403		5D	TAT	APB		12/17/99			
B	00130	USE 1 SPARE TERM NO'S 2479 ADDED		5D	TAT	APB		07/26/00			



ITEM	REFERENCE	QUANTITY	DESCRIPTION
14	CABLE	1 MTRS	1.5 Cu TRI-RATED WHITE
13	CABLE	3 MTR	1.5 Cu TRI-RATED RED
12	CABLE	6 MTR	1.5 Cu TRI RATED BLACK
11			
10	CDNS	2 MTRS	TRUNKING 30Wx84H SLATTED GREY PLASTIC
9	CDNS	1 MTR	DIN RAIL
8	CDNS	6	END STDP (T DIN RAIL)
7	TERMINALS	4	TERMINAL PARTIDN 4MM
6	TERMINALS	57	TERMINAL 4MM SCREW TYPE
5	TERMINALS	4	TERMINAL EARTH 4MM
4			
3	MS1, MS2, MS3	3	2.2KW@380V AC3, 115V COIL CONTACTOR (MINI) REVERSING + AUX N/C
2	ENCLOSURE	1	ENCLOSURE BACKPLATE (ZINC PLATED)
1	ENCLOSURE	1	ENCLOSURE (IN PRIMER) 500W 300H 120D
	ALL		
ITEM	REFERENCE	MACHINE	DESCRIPTION
		QUANTITY	

APPROVALS	DD/MM/YY
DWN TAT	11/03/99
CHK	11/03/99
ENG/APPD APB	11/03/99
MATL	
SEE BOM	
FINISH/HEAT TREAT	
N.A.	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON
0 PLACE(X) ±0.5 ANGLE ±0°30'
1 PLACE(X.X) ±0.3 SURFACE N8/ FINISH
2 PLACE(X.XX) ±0.15 BREAK AND DEBURR ALL SHARP EDGES
UNIT
SPIRAL FIN
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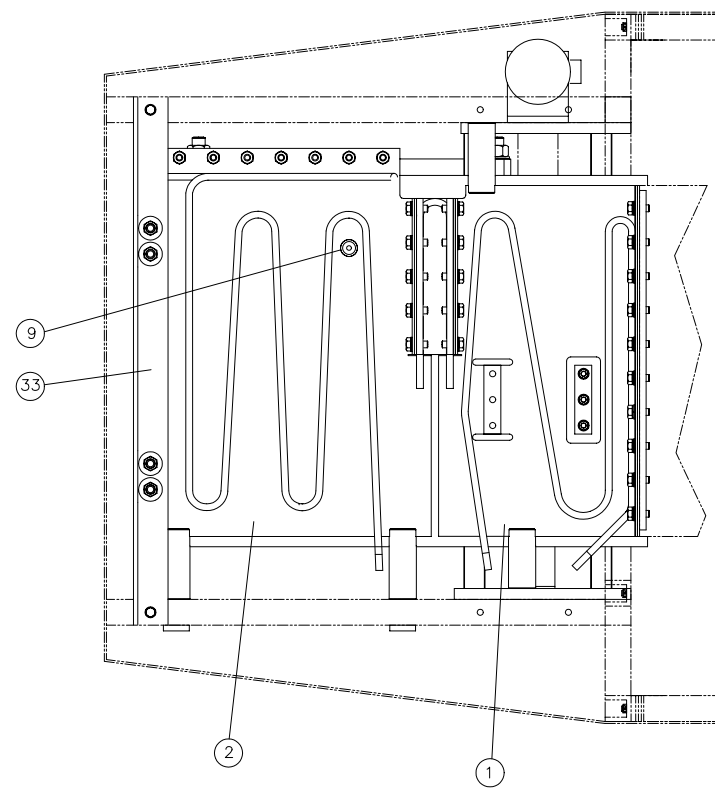
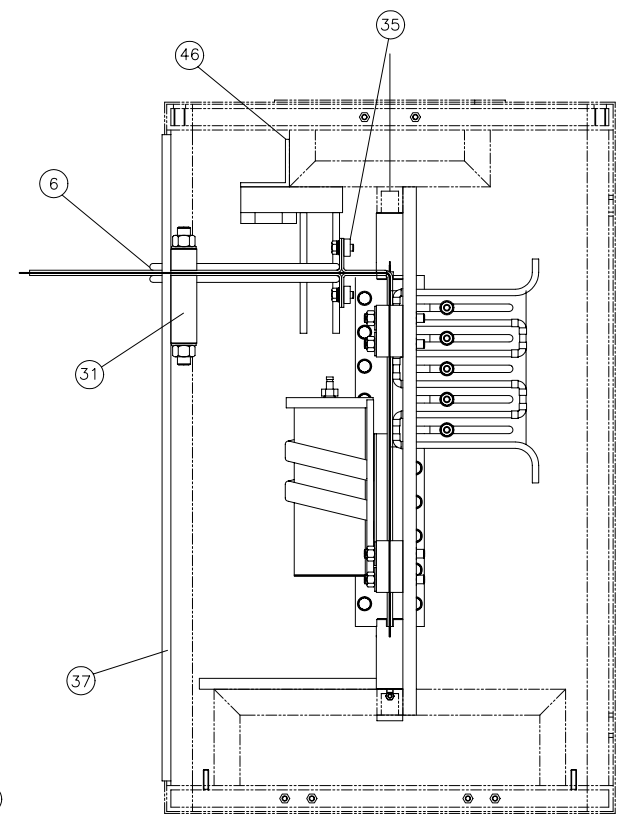
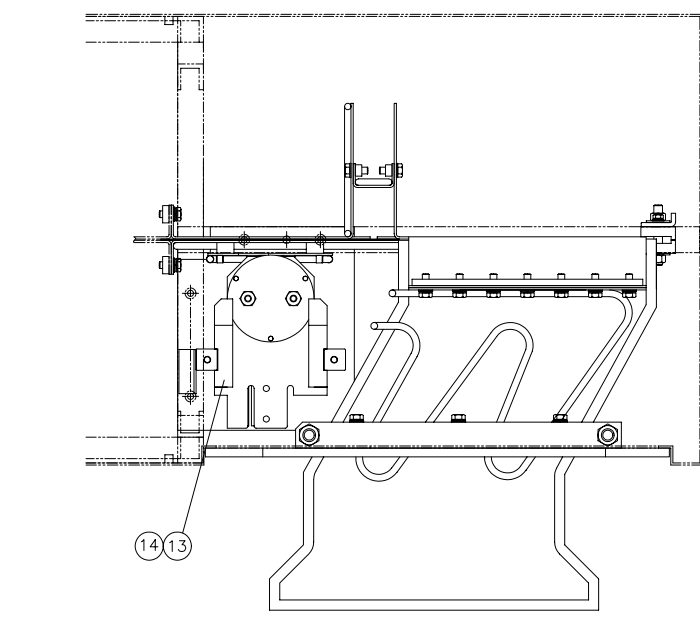
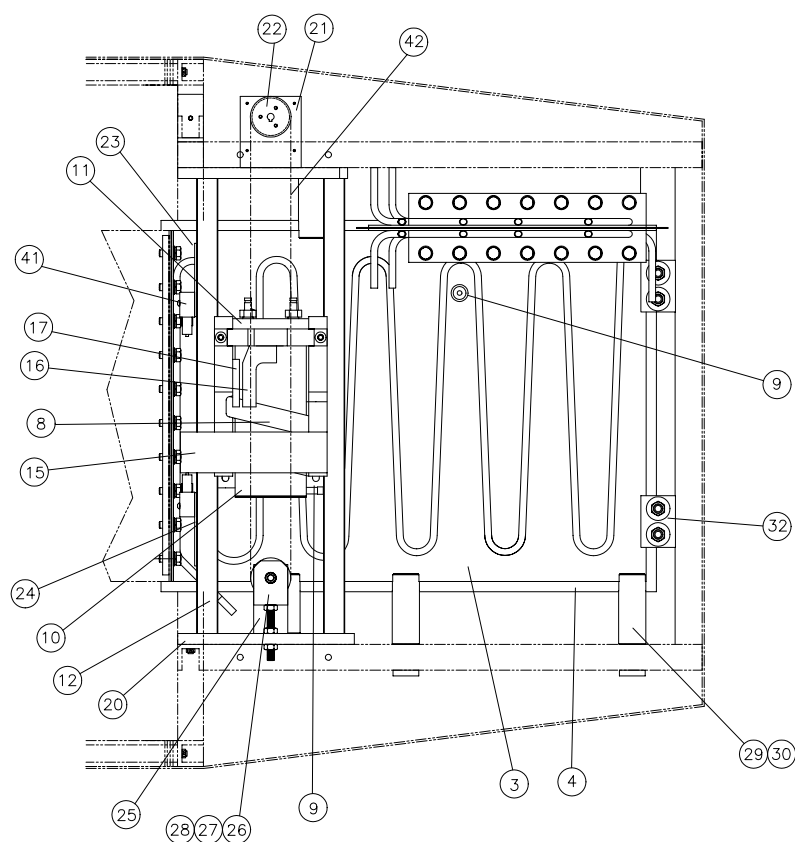
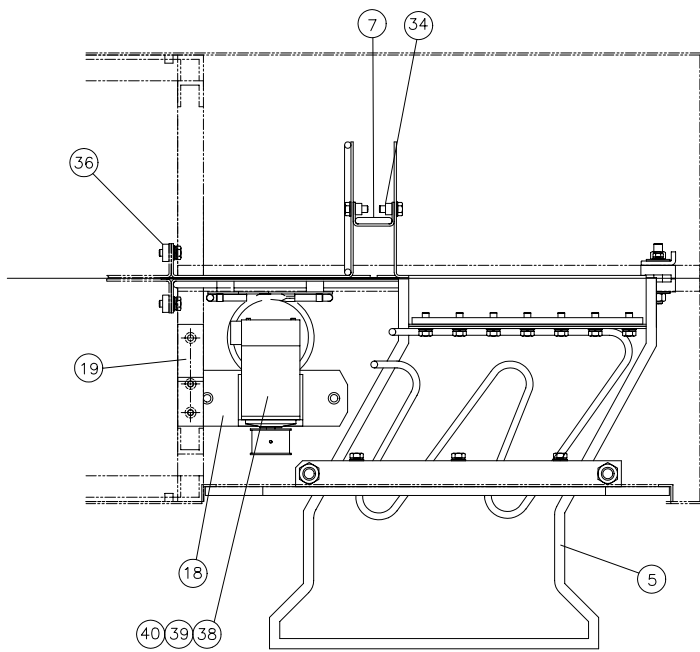
THERMATOOL®

TITLE
ASSEMBLY CONTROL ENCLOSURE 3 AXIS TABLE

SIZE **A2** DIV NO **3** DWG NO **WL1074** REV **B**

SCALE 1:2 DO NOT SCALE DRAWING COPY SHEET 1 OF 1

REV		REV STATUS		REVISIONS										ZONE	DWN	CHK	APPD	DD/MM/YY
REV	ECR	DESCRIPTION	ZONE	DWN	CHK	APPD	DD/MM/YY											
A	00236	UPDATED. ITEMS 29/30 NO. OFF CHANGE ITEM 43 ADDED		MWT			04/01											
B	03071	ITEM 8 WAS WL2102, ITEM 9 DELETED		BWH			15MAR03											
C	03116	ITEM 9 ADDED		BWH			15MAR03											
D	03149	PICTORIAL CHANGES. ITEMS 16/17		MWT			4/8/03											
E	06186	CORRECTIONS/UPDATES ADDED ITEM 46																
F	08059	ITEM 30 NOW 4 OFF. ITEM 32 NOW 3 OFF PARTS LIST UPDATED INLINE WITH MASTER BOM		MWT			01AUG06											



REF	QTY.	ITEM	PART NUMBER	DESCRIPTION
1	46	WL5538		SUPPORT ANGLE
45		WG0579		CABINET MODIFICATION DETAILS
1	43	WL0709		BUS SUPPORT
1	42	BELT-TIM-10A1550		TIMING BELT, 10A1550.16-K
2	41	SWIT-LIM-A2/7N		LIMIT SWITCH, A2/7N
1	40	CONN-PLUG-633		3 PIN CONNECTOR, WAG0231-633
1	39	CONN-PLUG-303		3 PIN CONNECTOR, WAG0231-303/037-000
1	38	MOTO-GM-800698		G SERIES GEARED MOTOR 20W, P8-800698.3
1	37	WL2041		OUTPUT SIDE PANEL
2	36	WL2086		BACKUP BAR, 10 X 50MM PITCH
2	35	WL2063		BACKUP BAR, 7 X 50MM PITCH
2	34	WL2085		BACKUP BAR, 5 X 45MM PITCH
1	33	WL1282		BUSBAR CLAMP MOUNTING ANGLE
4	32	WL2101		BUSBAR CLAMP
1	31	WL2049		HORIZONTAL OUTPUT BUS CLAMP
3	30	WL2093		BUS SUPPORT SPACER
3	29	WL0709-002		BUS SUPPORT
1	28	WL5162		TENSIONER WHEEL
1	27	WL0734		TENSIONER BLOCK
1	26	WL5369		TENSIONER PIN
1	25	WL0735		TENSIONER GUIDE
1	24	WL0759-002		LIMIT SWITCH BRACKET, LOWER
1	23	WL0759-001		LIMIT SWITCH BRACKET, UPPER
1	22	WL0903		PULLEY, 18 TOOTH MODIFIED
1	21	WL0760		MOTOR MOUNTING BRACKET
1	20	WL2151		BOTTOM PLATE
1	19	WL2150		TOP PLATE SPACER
1	18	WL2149		TOP PLATE
1	17	WL5165-002		CLAMP PLATE
1	16	WL5165-001		CLAMP BRACKET
1	15	WL5139		SLIDE PLATES BRACE
1	14	WL0752-002		SLIDE PLATE
1	13	WL0752-001		SLIDE PLATE
2	12	WL2152		VERTICAL GUIDE
1	11	WL2153		TOP PLATE, SLUG ASSEMBLY
1	10	WU5120		PARALLEL SLUG ASSEMBLY
2	9	WL1039		INSULATION CLAMP
1	8	WL1998		PARALLEL COIL ASSEMBLY
1	7	WL2106		ADJUSTMENT BUS, SERIES SIDE
1	6	WL2110		FIXED HORIZONTAL BUS SET
1	5	WL2091		FIXED HORIZONTAL BUS INSULATION
1	4	WL2087		AUTOMATCH BUS INSULATION
1	3	WL5206		FIRST BUS, POSITIVE
1	2	WL2109		SECOND BUS, SERIES SIDE
1	1	WL2154		FIRST BUS, SERIES SIDE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ON:

0 PLACE (X) ± 0.5 ANGLE ± 0°30'

1 PLACE (XX) ± 0.3 SURFACE NS/√

2 PLACE (XXX) ± 0.15 FINISH

BREAK AND DEBURR ALL SHARP EDGES

SI-METRIC

THIRD ANGLE PROJECTION

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APPROVALS: DWN MWT 03/03/00

TITLE: MATCHING SYSTEM ASSEMBLY SLUG DRIVE ASSY.

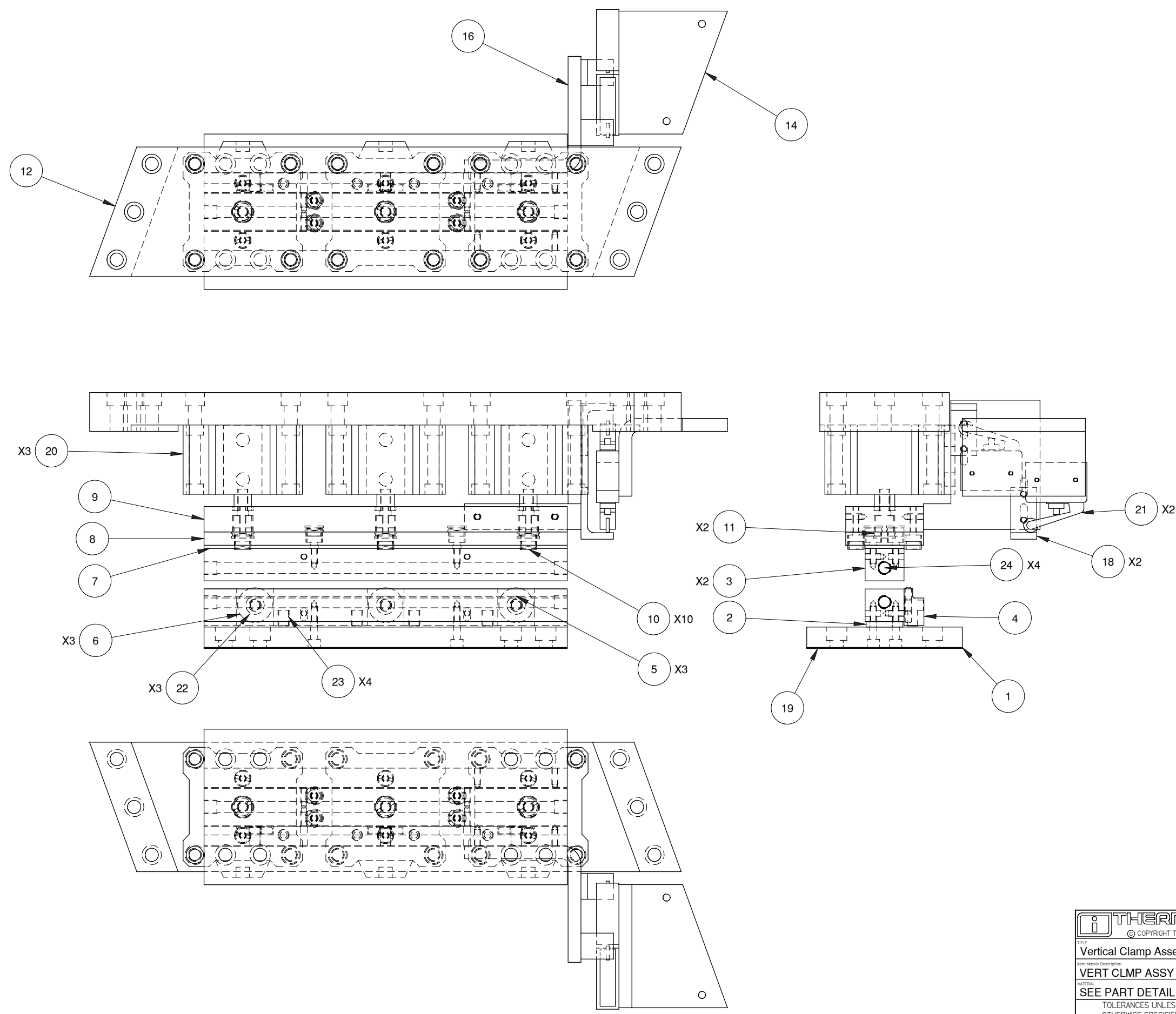
SIZE: A0 3

DWG NO: WL2156

SCALE: 1:4

DO NOT SCALE DRAWING COPY SHEET 1 OF 1

REVISIONS					
REV	ECR	DESCRIPTION	ZONE	DWN BY	MM/DD/YY
0	03063	FIRST ISSUE		MWT	01/04/03
A	03079	CORRECTED VIEWS, ITEM 19 ADDED.		MWT	03/31/03



VERTICAL CLAMP ASSY. -001 LEFT TO RIGHT

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Vertical Clamp Assembly

Item Master Description: **VERT CLMP ASSY** Approximate Weight: **24.8 kg**

MATERIAL: **SEE PART DETAIL**

TOLERANCES UNLESS OTHERWISE SPECIFIED: ANGLE ±0.5°

0 PLACE (XX) ± 1.0
 1 PLACE (XXX) ± 0.5
 2 PLACE (XXXX) ± 0.25 SURFACE N8/
 3 PLACE (XXXXX) ± 0.100 FINISH

SI-METRIC

THIRD ANGLE PROJECTION

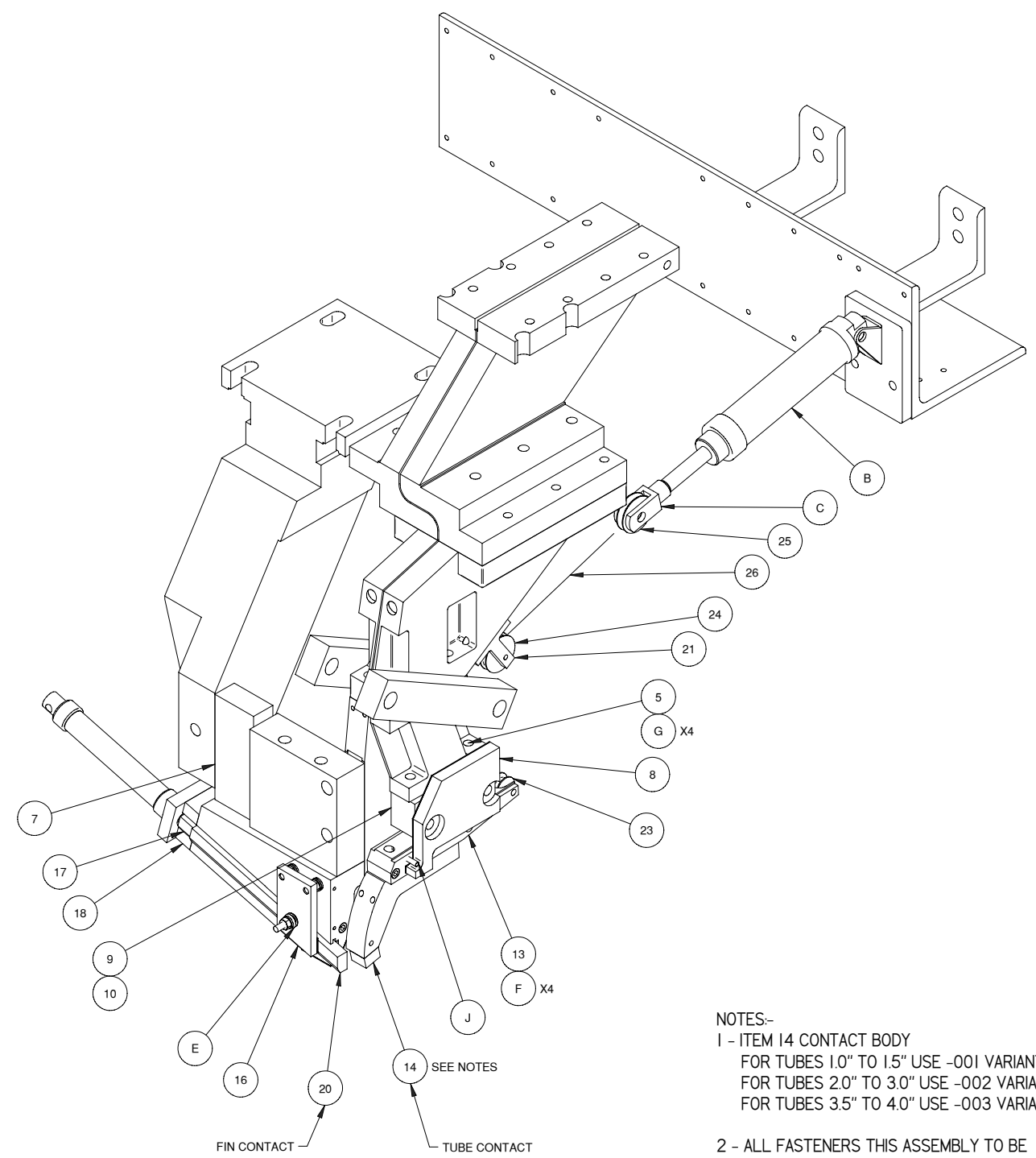
Vertical Clamp SHEET 1 OF 2 DIVISION NO 3

DRG NO: **WU5048** Revision: **A**

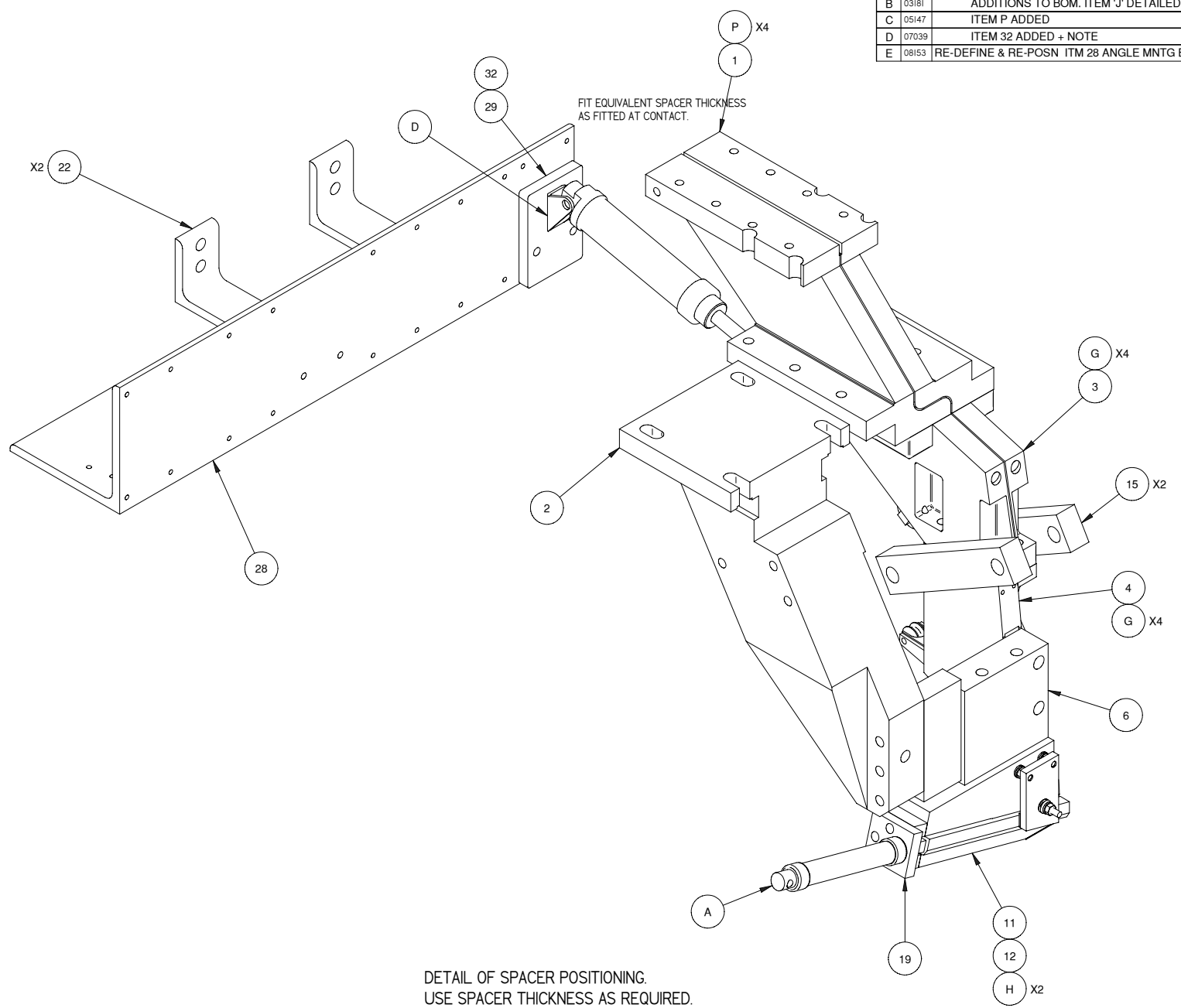
DATE: **01/04/03**

Title		VERTICAL CLAMP ASSEMBLY					B.O.M. No. WU5048								
Machine Type		SPIRAL FIN					Revision A								
For Assy. Drg. See		WU5048					Date 31/03/03								
							QUANTITY								
Item No.	Drawing No.	Warehouse No.	TT Part No.	DESCRIPTION	Supplier Part No.	Circuit Reference	Comm								
								L/R 001	R/L 002						
1	WL5196	-	WL5196	FIXED CLAMP MOUNTING PLATE	-	-	1	-	-						
2	WL5197	-	WL5197	FIXED CLAMP SPACER	-	-	1	-	-						
3	WL5097	-	WL5097	LEAD CONTACT BAR	-	-	2	-	-						
4	WL5200	-	WL5200	SLIDE BODY	-	-	1	-	-						
5	WL5201	-	WL5201	ROLLER PIN	-	-	3	-	-						
6	WL5104	-	WL5104	ROLLER WHEEL	-	-	3	-	-						
7	WL5103	-	WL5103	ALIGNMENT SPACER	-	-	1	-	-						
8	WL5198	-	WL5198	MOVING CLAMP SPACER	-	-	1	-	-						
9	WL5199	-	WL5199	MOVING CLAMP MOUNTING PLATE	-	-	1	-	-						
10	WL5202	-	WL5202	M16 PLUG	-	-	10	-	-						
11	WL5203	-	WL5203	M20 PLUG	-	-	3	-	-						
12	WL2175	-	WL2175	FIXED CLAMP CYLINDER MOUNTING L/R	-	-	-	1	-						
13	WL1099	-	WL1099	FIXED CLAMP CYLINDER MOUNTING R/L	-	-	-	-	1						
14	WL1559	-	WL1559	LIMIT SWITCH BRACKET, UPPER L/R	-	-	-	1	-						
15	WL1098	-	WL1098	LIMIT SWITCH BRACKET, UPPER R/L	-	-	-	-	1						
16	WL1549	-	WL1549	LIMIT SWITCH BRACKET, LOWER L/R	-	-	-	1	-						
17	WL1386	-	WL1386	LIMIT SWITCH BRACKET, LOWER R/L	-	-	-	-	1						
18	WL2010	-	WL2010	LIMIT SWITCH TRIP BRACKET	-	-	2	-	-						
19	WL5222	-	WL5222	INSULATION SHEET	-	-	1	-	-						
20	-	-	-	COMPACT CYLINDER 100 BORE 25 STROKE	-	-	3	-	-						
21	-	-	-	LIMIT SWITCH	-	-	2	-	-						
22	-	-	-	FLANGE BEARING	-	-	3	-	-						
23	-	-	-	LIGHT DUTY COMPRESSION SPRING	-	-	4	-	-						
24	-	-	-	SWIVEL ELBOW 90 DEG, 10MM X 1/4"	-	-	4	-	-						

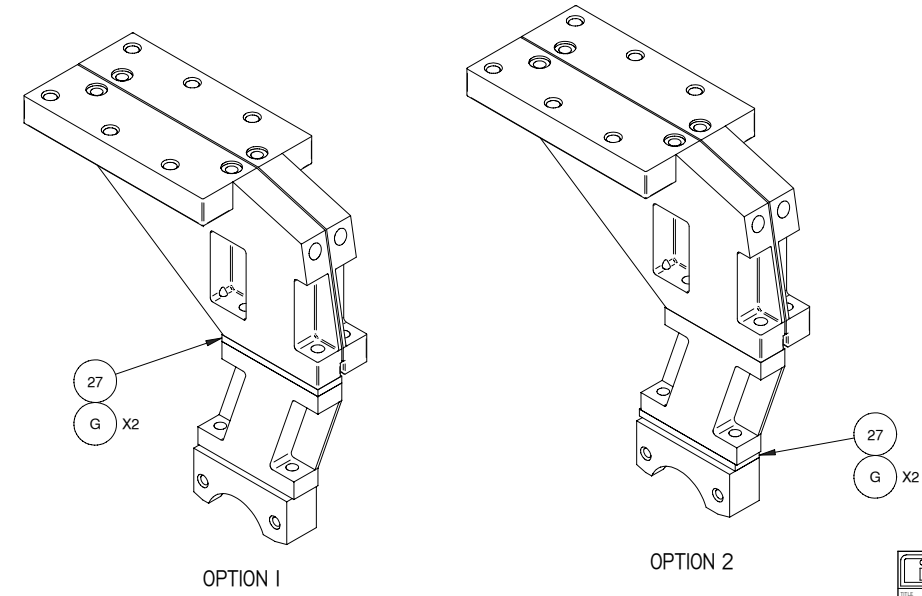
REVISIONS				
REV	ECR	DESCRIPTION	DATE	BY
0	03287	FIRST ISSUE	27/11/03	MWT
A	04023	UPDATES TO BOM	03/02/04	MWT
B	03181	ADDITIONS TO BOM. ITEM 'J' DETAILED	13/02/04	MWT
C	05147	ITEM P ADDED	01/04/06	MWT
D	07039	ITEM 32 ADDED + NOTE	02/21/07	MWT
E	08153	RE-DEFINE & RE-POSN ITM 28 ANGLE MNTG BRKT	09/10/08	TAT



NOTES--
 1 - ITEM 14 CONTACT BODY
 FOR TUBES 1.0" TO 1.5" USE -001 VARIANT
 FOR TUBES 2.0" TO 3.0" USE -002 VARIANT
 FOR TUBES 3.5" TO 4.0" USE -003 VARIANT
 2 - ALL FASTENERS THIS ASSEMBLY TO BE
 NON-MAGNETIC STAINLESS STEEL OR BRASS.



DETAIL OF SPACER POSITIONING.
 USE SPACER THICKNESS AS REQUIRED.
 2 'O' RINGS REQUIRED PER SPACER.



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Contact Assembly L/R		13/02/04	
CNTCT ASSY L/R		SEE PART DETAIL	
TOLERANCES UNLESS OTHERWISE SPECIFIED:		SI-METRIC	
0 PLACE 00	+1	ANGLE	+0.5°
1 PLACE 0.00	+0.05	SURFACE	N8
2 PLACE 0.000	+0.025	FINISH	✓
3 PLACE 0.0000	+0.0100	THIRD ANGLE PROJECTION	
Spiral Fin		SHEET 1 OF 1 AO 3 WU5105	

WU5105

Contact Assembly L/R
BOM (Bill of Material)

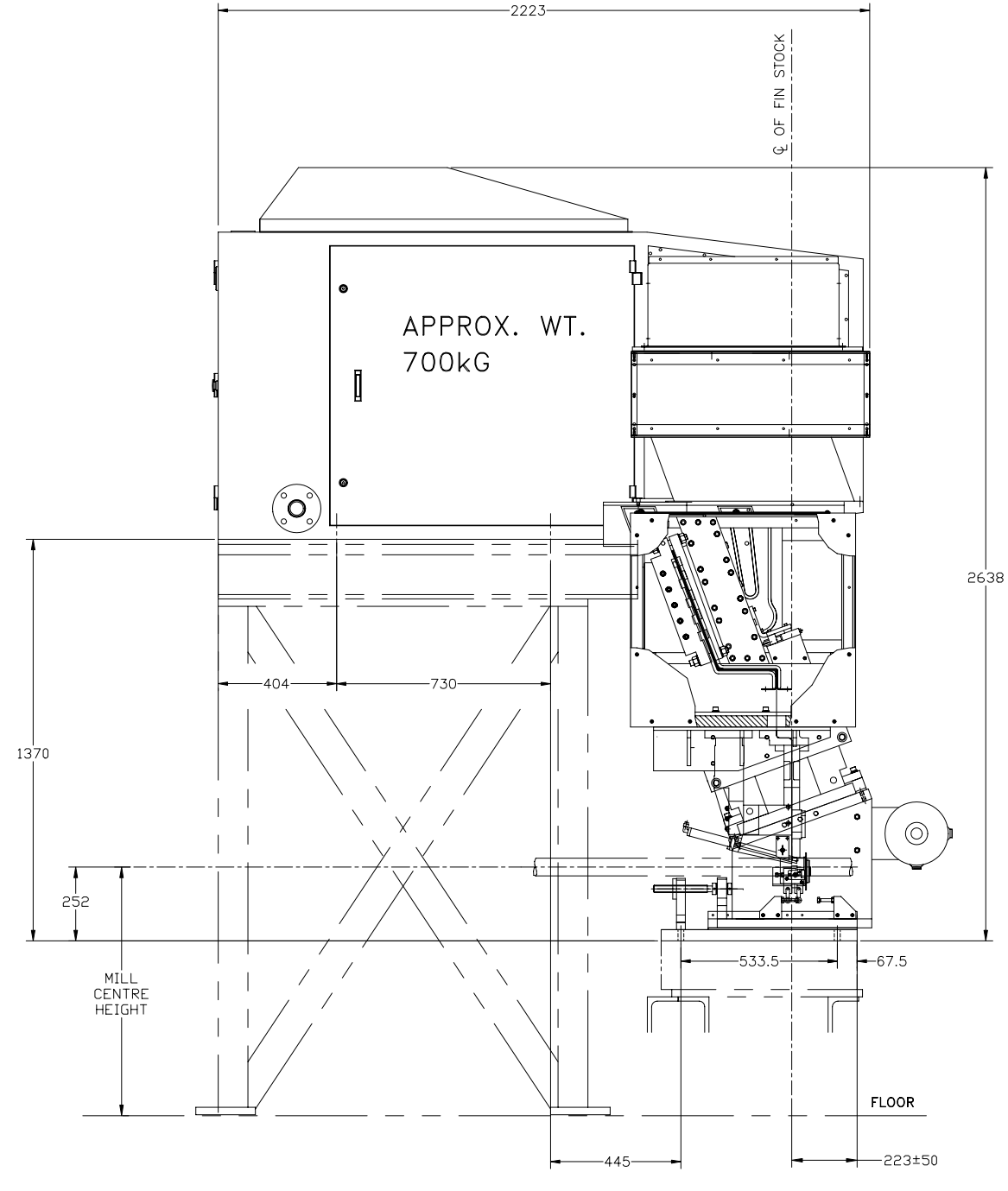
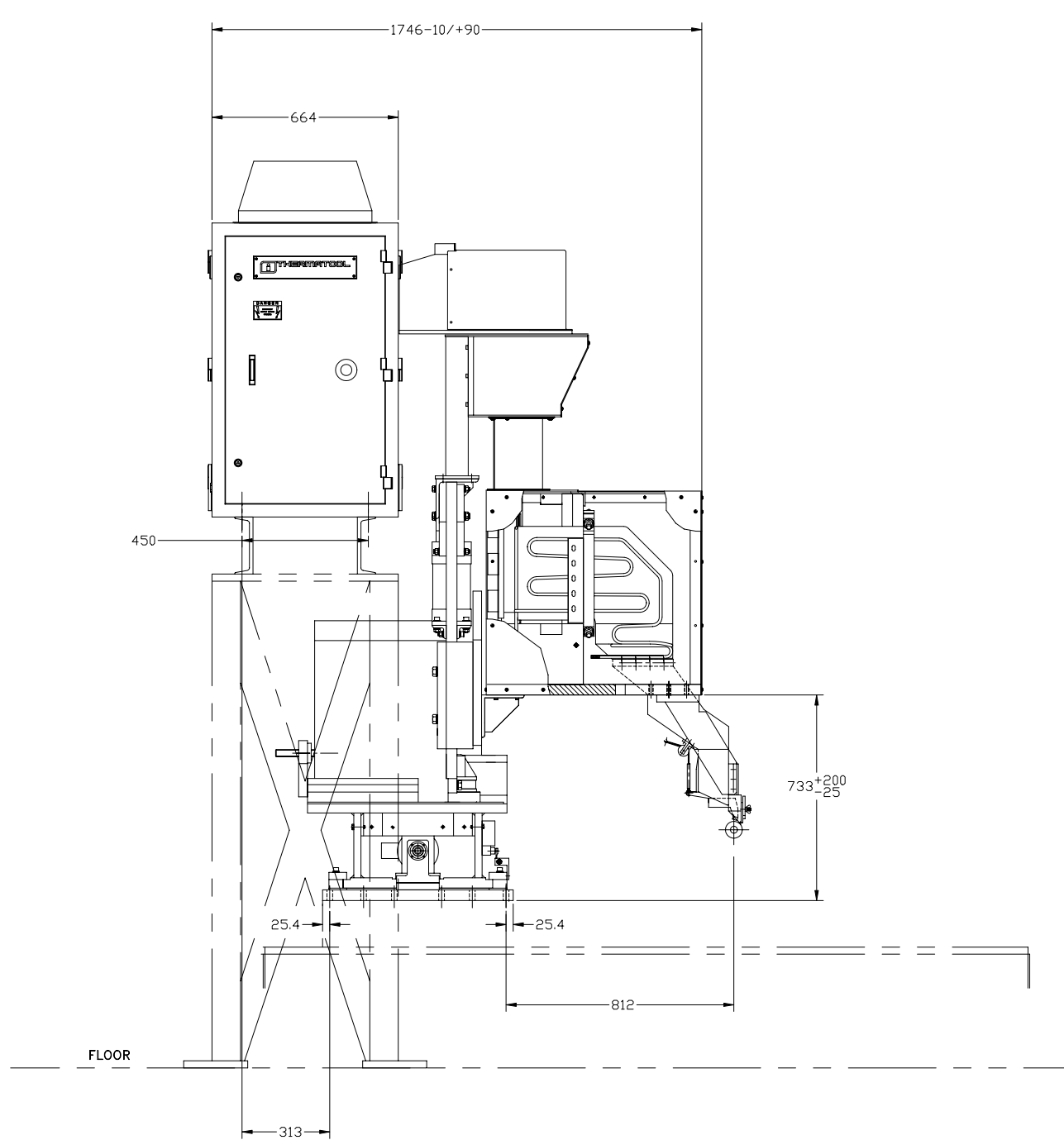
Sheet 1 – *Contact Assembly - BOM*

Sheet 2 – *Contact Assembly - BOM*

Title		CONTACT ASSEMBLY LEFT TO RIGHT					B.O.M. No. WU5105							
Machine Type		SPIRAL FIN					Revision D							
For Assy. Drg. See		WU5105					Date 21/02/07							
								QUANTITY						
Item No.	Drawing No.	Warehouse No.	TT Part No.	DESCRIPTION	Supplier Part No.	Notes	Comm							
1	WL5260	-	WL5260	LOWER LEAD SET, UPPER	-	-	1							
2	C0717C	-	C0717C	LEAD SUPPORT BRACKET	-	-	1							
3	WL1663	-	WL1663	LOWER LEAD SET, LOWER	-	-	1							
4	103091	-	103091	LEAD EXTENSION	-	-	1							
5	WL5284	-	WL5284-002	LEAD SPACER	-	-	1							
6	103137	-	103137-001	LEAD EXTENSION	-	-	1							
7	WL1686	-	WL1686	SUPPORT SPACER	-	-	1							
8	WL5286	-	WL5286-002	FLEXIBLE RETAINER	-	-	1							
9	WL5261	-	WL5261-002	FLEXIBLE BODY, UPPER	-	-	1							
10	WL5261	-	WL5261-001	FLEXIBLE BODY, LOWER	-	-	1							
11	WL5285	-	WL5285-002	FIN BAR HOUSING	-	-	1							
12	WL1684	-	WL1684	INSERT PAD	-	1 AS SPARE	2							
13	C0769-D	-	C0769-2D	ADAPTOR BAR, LOWER	-	-	1							
14	WL5288	-	WL5288-001	CONTACT BODY & TIP (1.0 TO 1.5" TUBE)	-	1 AS SPARE	2							
	WL5288	-	WL5288-002	CONTACT BODY & TIP (2.0 TO 3.0" TUBE)	-	1 AS SPARE	2							
	WL5288	-	WL5288-003	CONTACT BODY & TIP (3.5 TO 4.0" TUBE)	-	1 AS SPARE	2							
15	WL1838	-	WL1838	LOWER LEAD CLAMP	-	-	2							
16	103141	-	103141-001	PRESSURE BRACKET	-	-	1							
17	WL1836	-	WL1836	ROD END	-	-	1							
18	WL1834	-	WL1834	CYLINDER SPACER	-	-	1							
19	WL1835	-	WL1835	CYLINDER BRACKET	-	-	1							
20	103142	-	103142-001	FIN CONTACT BAR	-	1 AS SPARE	2							
21	WL1690	-	WL1690	PULLEY BRACKET	-	-	1							
22	WL1840	-	WL1840	SUPPORT ANGLE	-	-	2							
23	C1060B	-	C1060B	CABLE COLLAR	-	-	1							
24	WL1837	-	WL1837-001	CABLE PULLEY	-	-	1							
25	WL1837	-	WL1837-002	CABLE PULLEY	-	-	1							
26	WL1845	-	WL1845	TENSIONER CABLE	-	-	1							
27	C0738-B	-	C0738-1B	SPACER (3.175MM)	-	LOOSE ITEM	1							
	C0738-B	-	C0738-2B	SPACER (4.7625MM)	-	LOOSE ITEM	1							
	C0738-B	-	C0738-3B	SPACER (6.35MM)	-	LOOSE ITEM	1							
	C0738-B	-	C0738-4B	SPACER (9.525MM)	-	LOOSE ITEM	1							
28	WL1839	-	WL1839	MOUNTING ANGLE	-	-	1							
29	WL1841	-	WL1841	CYLINDER MOUNTING PLATE	-	-	1							
30	WL1843	-	WL1843	MANIFOLD CLAMP	-	REF	2							
31	WL1844	-	WL1844	COOLANT MANIFOLD ASSEMBLY	-	REF	1							
32	WL5611	-	WL5611-001	SPACER PLATE (3.175MM)	-	LOOSE ITEM	1							
	WL5611	-	WL5611-002	SPACER PLATE (4.7625MM)	-	LOOSE ITEM	1							
	WL5611	-	WL5611-003	SPACER PLATE (6.35MM)	-	LOOSE ITEM	1							

Title		CONTACT ASSEMBLY LEFT TO RIGHT					B.O.M. No. WU5105										
Machine Type		SPIRAL FIN					Revision D										
For Assy. Drg. See		WU5105					Date 21/02/07										
							QUANTITY										
Item No.	Drawing No.	Warehouse No.	TT Part No.	DESCRIPTION	Supplier Part No.	Notes	Comm										
	WL5611	-	WL5611-004	SPACER PLATE (9.525MM)	-	LOOSE ITEM	1										
33																	
34																	
A	-	-	-	CYLINDER, SINGLE ACTING	-	-	1										
B	-	-	-	CYLINDER, SINGLE ACTING	-	-	1										
C	-	-	-	FRONT CLEVIS	-	-	1										
D	-	-	-	CYLINDER MOUNTING	-	-	1										
E	-	-	-	GROMMET 14.2 X 6.4 X 7MM	-	-	2										
F	-	-	-	O RING 9.6 ID	-	-	8										
G	-	-	-	O RING 12.6 ID	-	-	20										
H	-	-	-	O RING 11.6 ID	-	-	4										
J	-	-	-	3/16" X 1.0" ROLL PIN S/STL	-	-	1										
K	-	-	-	1/8" NPT BRASS PLUG (HEADLESS)	-	-	5										
L	-	-	-	M8 BRASS PLUG	-	-	1										
M	-	-	-	3/8"UNC X 1.0" SHCS S/STL	-	-	3										
P	-	-	-	1/4 X 10MM SWIVEL ELBOW	-	-	4										

REV		REV STATUS		REV DESCRIPTION		REV DATE		REV BY		REV CHECK		REV APPD		REV DO/AM/YY	
NO	REV	NO	REV	NO	REV	NO	REV	NO	REV	NO	REV	NO	REV	NO	REV
0	REV	1	SH	0	REV	1	SH	0	REV	1	SH	0	REV	1	SH
0	REV	1	SH	0	REV	1	SH	0	REV	1	SH	0	REV	1	SH
0		08167		FIRST ISSUE										24SEP08	



NOTES:

1. GENERATOR AND CONTACT SUPPORT PLATFORMS SUPPLIED BY CUSTOMER.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		APPROVALS		DD/MM/YY	
0 PLACE (X)	± 0.5	ANGLE ± 0°30'	DWN	BWH	24SEP08
1 PLACE (XX)	± 0.3	SURFACE FINISH	CHK		
2 PLACE (XXX)	± 0.15	BREAK AND DEBURR ALL SHARP EDGES	ENG/APPD		
TOLERANCES ON:		MATERIAL		TITLE	
SI-METRIC		N.A.		INSTALLATION DIMENSIONS SPIRAL FIN WELDER LEFT/RIGHT	
THIRD ANGLE PROJECTION		FINISH/HEAT TREAT		SCALE	
N.A.		N.A.		A0 3	
DIV NO		DWG NO		REV	
3		WD5159		0	
SCALE		DO NOT SCALE DRAWING COPY SHEET		1 OF 1	
1:8					



ENG-REF:	2	1
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