

**USER MANUAL  
FOR  
NHC20/QST30G5 (2006)  
CSA Approved  
Document M02.0238 (Appendix to M02.0237)**



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Document No.  
G080305 SHT. 1 to 3  
G080306 SHT. 1 to 3

Rev.  
B for Plant Nos XATL001 PLUS  
B for Plant Nos XATM001 PLUS

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### **Plant Nos XATM Only**

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### **Plant Nos XATL & XATM**

<u>Drawing No.</u>	<u>Rev.</u>	<u>Title</u>
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D080853 SHT. 4 of 8	B	Electrical Schematic for Cooling Fan(s) Schematic
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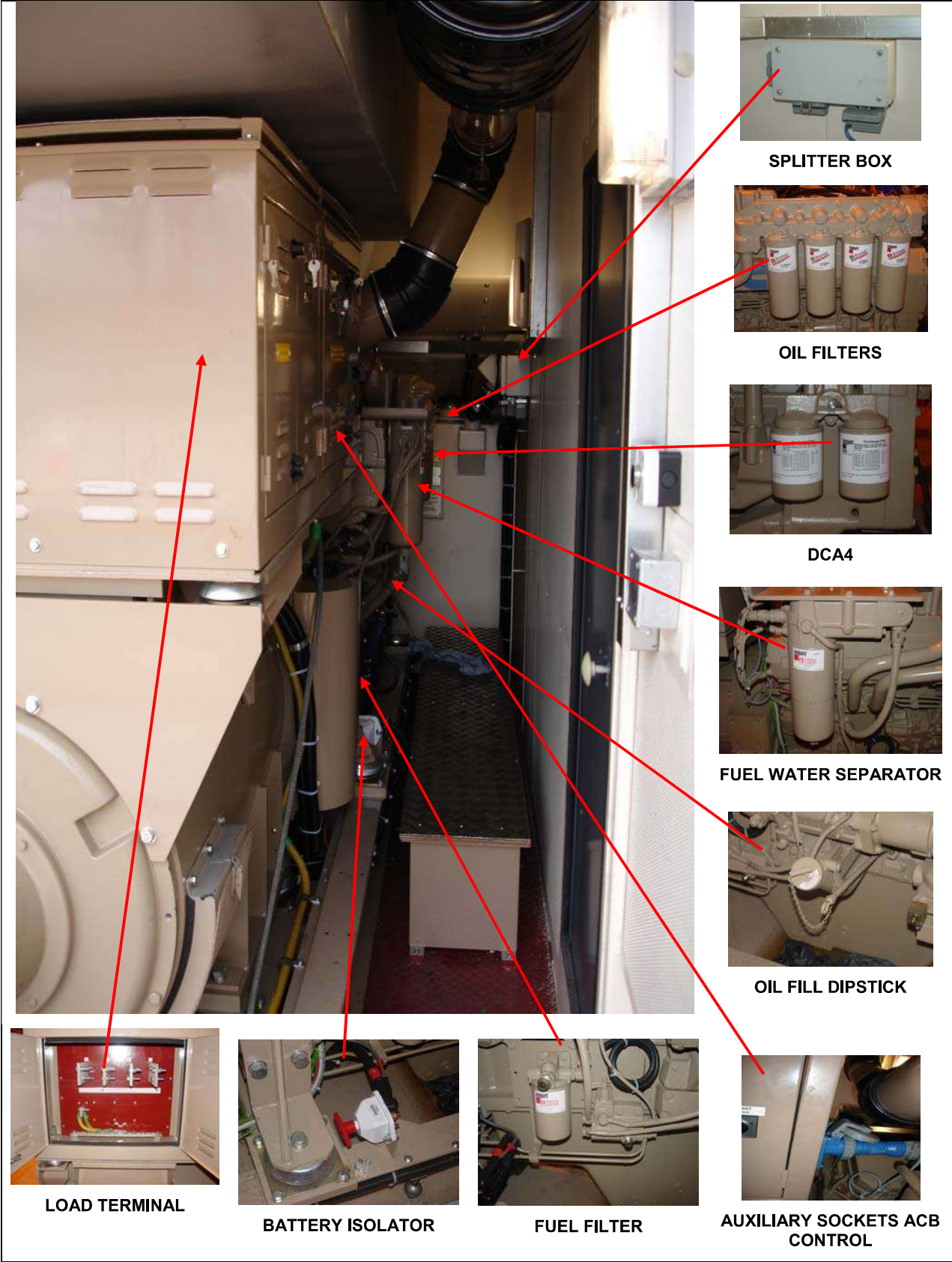
**APPENDIX G: Livery Layout (see M02.0237)**

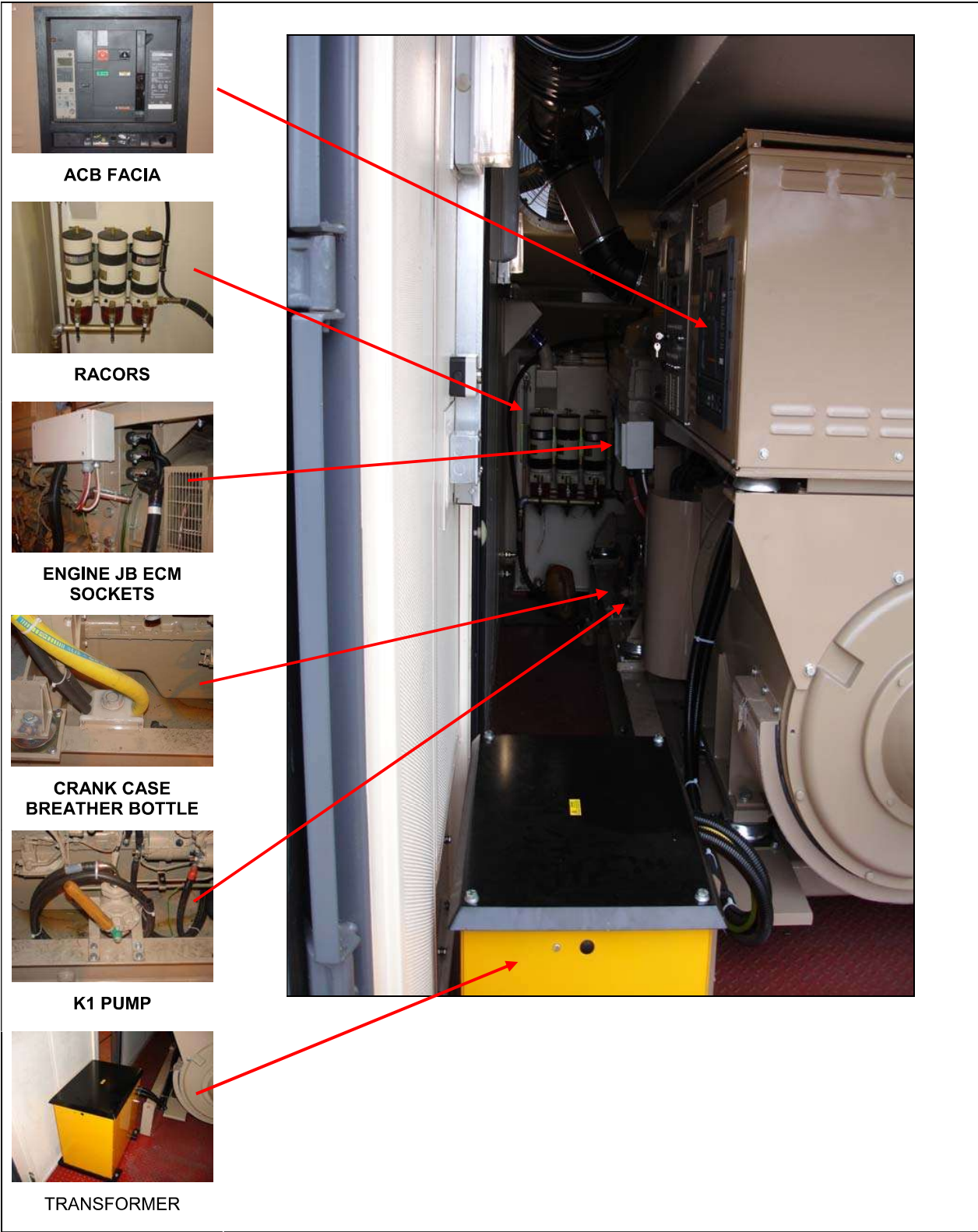
**APPENDIX H: Manufacturers Component Data (see M02.0237)**

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**Figure 5.2 – Left Bank Side 1000kW Generator Part Location**


**EQUIPMENT DATA SHEET**


 Manufacturing Birch Road Dumbarton, G82 2RF Tel: 0044 (0)1389 742214 Fax: 0044 (0)1389 742554		EQUIPMENT DATA SHEET		No. <b>G080305</b>
		Diesel Generating Set		Rev. <b>B</b>
		60Hz	1000kW	Date <b>05/03/2007</b>
				Page <b>1 of 3</b>
1	Model	Ref	NHC20/QST30G5 NR2 (600V UL) CSA	
2	Part Number	Ref	602106	
3	Specification	Ref	G32.0016	
4	Installation Drawing	Ref	A05.0001	
5	Maximum Ambient	°C (°F)	45 (113)	
6	Electrical Output	Hz	60	
	ISO 8528-1			
	- Continuous Power (COP)	kW (kVA)	774 (968)	
	- Prime Power (PRP)	kW (kVA)	942 (1178)	
	- Permissible average of PRP	%	70	
	ISO3046/1			
	- Fuel Stop Power/Standby	kW (kVA)	1042 (1303)	
	Single Step load application	%	56	
7	Alternator			
	Class F Temp. Rise (105°C)			
	- Three phase	kW (kVA)	1050 (1313)	
	- Single phase	kW (kVA)	-	
	Ends Out		6	
	Make & Type		Newage AVK-SEG	HCI634K2
	AVR		MX321	
	Regulation	%	±0.5	
8	Circuit Breaker			
	Make & Type		Merlin Gerin	Masterpact NW25
	Number of poles		4	
	Rating	Amps	2500	
	Trip Unit Type		Micrologic 5.0	
	Overload Protection Range	Amps	1000 – 2500 (adjustable by selector)	
	Short Circuit Protection Range	Amps	1000 – 25000 (adjustable by selector)	
Technical Department – Dumbarton Approved by W Telfer 06.03.07 / J A Casey 08.03.07				


 Manufacturing Birch Road Dumbarton, G82 2RF Tel: 0044 (0)1389 742214 Fax: 0044 (0)1389 742554		EQUIPMENT DATA SHEET		No.	G080305
		Diesel Generating Set		Rev.	B
		60Hz	1000kW	Date	05/03/2007
				Page	2 of 3
9	Load Terminals				
	Type	Busbar M12			
10	Fuel Consumption				
	Standby/Fuel Stop	lit/hr(US gal/hr)		267 (70.5)	
	100% Prime Power	" "		240 (63.4)	
	75%	" "		177 (46.7)	
	50%	" "		119 (31.4)	
11	Running Hours				
	100% Prime Power	Hours		5.4	
	75%	"		7.3	
	50%	"		10.8	
12	Exhaust Emissions				
	Measurement Method	EPA Tier 2			
	Specific Load	ISO8178-1			
	NOx – Oxides of Nitrogen	6.0g/kW.h			
	PM - Particulate Matter	0.2g/kW.h			
	CO - Carbon Monoxide	3.5g/kW.h			
	HC - Unburnt Hydrocarbons + NOx	6.4g/kW.h			
13	Exhaust Silencer				
	Make & Type	Universal Silencers			
	Certificate	No	M-9561		
	Permissible back pressure	mm (ins) Hg	13 (0.5")	13 (0.5")	
14	Noise				
	Sound Power – EEC	dBA (Lw)	N/A		
	Certificate	No	Not available		
	Sound Pressure at 1 metre	dBA	88		
	Sound Pressure at 7 metre	dBA	81		
Technical Department – Dumbarton Approved by W Telfer 06.03.07 / J A Casey 08.03.07					



 <b>Manufacturing</b> <b>Birch Road</b> <b>Dumbarton, G82 2RF</b> <b>Tel: 0044 (0)1389 742214</b> <b>Fax: 0044 (0)1389 742554</b>	<b>EQUIPMENT DATA SHEET</b>		<b>No.</b>	<b>G080305</b>
	<b>Diesel Generating Set</b>		<b>Rev.</b>	<b>B</b>
	<b>60Hz</b>	<b>1000kW</b>	<b>Date</b>	<b>05/03/2007</b>
			<b>Page</b>	<b>3 of 3</b>
15	Engine			
	Make & Type		QST30G5 NR2 CPL 41175	
	Cylinders & Form		V12 50°	
	Aspiration		Turbocharged & Aftercooled	
	Fuel Pump		Bosch P8500 LLA Direct Injection	
	Governor Type		Electronic	
	Make & Model		Cummins Dominion	
	Steady State frequency	%	±0.25	
	Battery Voltage	Volts	24	
16	Overall Dimensions			
	- Length	Metres (feet)	6.06 (20'0")	
	- Width	Metres (feet)	2.44 (8'0")	
	- Height	Metres (feet)	2.60 (8'6")	
17	Weight			
	- Without fuel	Kg (lbs)	16500 (36376)	
	- With fuel	Kg (lbs)	17716 (39057)	
18	Capacities			
	- Fuel	gross	Litres (US gall)	1431 (378.1)
		usable		1288 (340.3)
	- Lub oil	total		154 (40.7)
		pan		133-114 (35-30)
	- Coolant			271 (71.6)
19	External fuel supply			
	- maximum above base	Metres (feet)	2.40 (7'10")	
	- maximum below base	Metres (feet)	1.50 (4'11")	
Technical Department – Dumbarton Approved by W Telfer 06.03.07 / J A Casey 08.03.07				

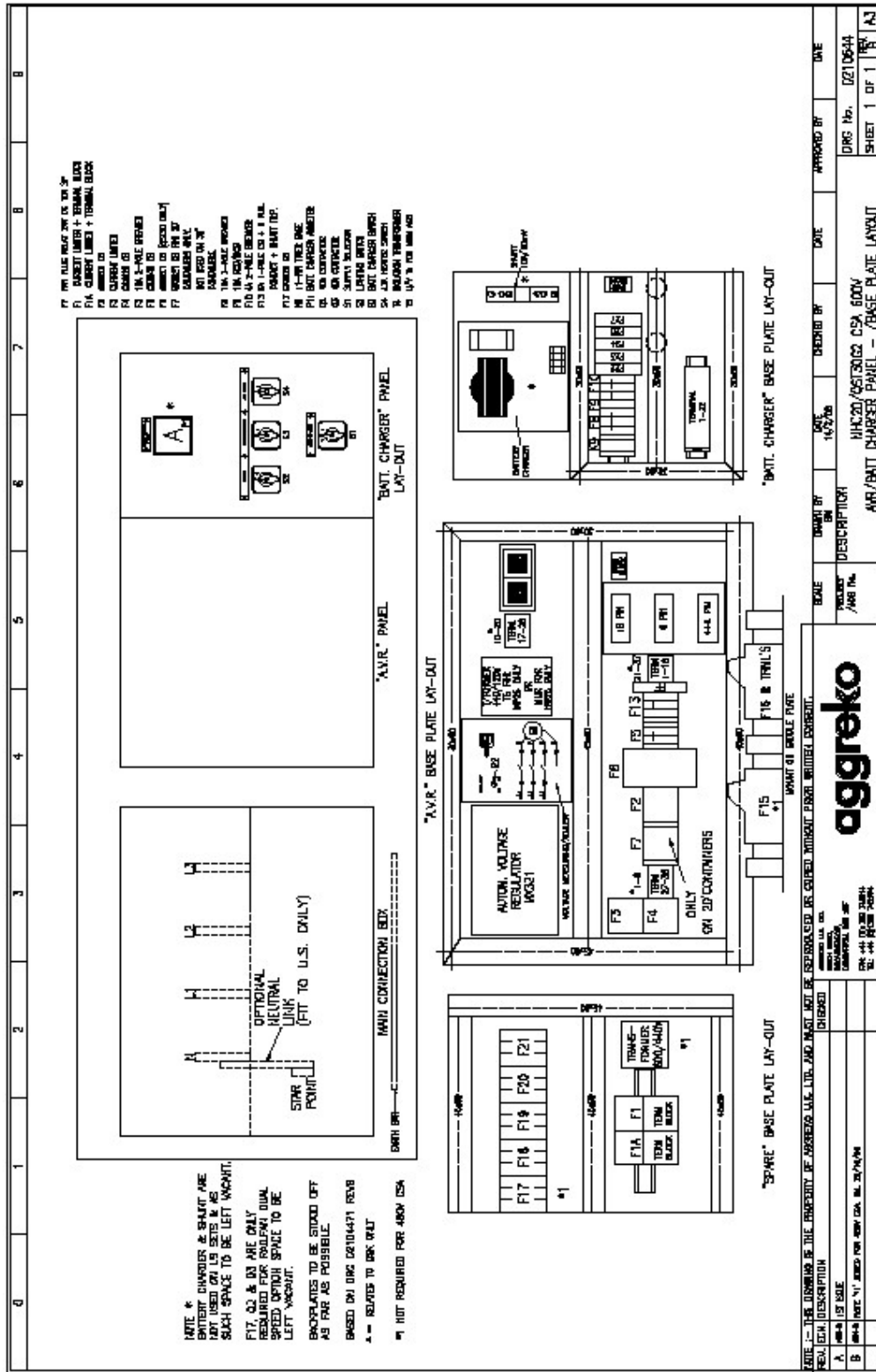
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		Diesel Generating Set		Rev. <b>B</b>
		60Hz	1000kW	Date <b>05/03/2007</b>
				Page <b>1 of 3</b>
1	Model	Ref	NHC20/QST30G5 NR2 (480V UL) CSA	
2	Part Number	Ref	602107	
3	Specification	Ref	G32.0016	
4	Installation Drawing	Ref	A05.0001	
5	Maximum Ambient	°C (°F)	45 (113)	
6	Electrical Output	Hz	60	
	ISO 8528-1			
	- Continuous Power (COP)	kW (kVA)	772 (965)	
	- Prime Power (PRP)	kW (kVA)	938 (1173)	
	- Permissible average of PRP	%	70	
	ISO3046/1			
	- Fuel Stop Power/Standby	kW (kVA)	1038 (1298)	
	Single Step load application	%	56	
7	Alternator			
	Class F Temp. Rise (105°C)			
	- Three phase	kW (kVA)	1050 (1313)	
	- Single phase	kW (kVA)	-	
	Ends Out		6	
	Make & Type		Newage AVK-SEG	HCI634K2
	AVR		MX321	
	Regulation	%	±0.5	
8	Circuit Breaker			
	Make & Type		Merlin Gerin	Masterpact NW25
	Number of poles		4	
	Rating	Amps	2500	
	Trip Unit Type		Micrologic 5.0	
	Overload Protection Range	Amps	1000 – 2500 (adjustable by selector)	
	Short Circuit Protection Range	Amps	1000 – 25000 (adjustable by selector)	
Technical Department – Dumbarton Approved by W Telfer 06.03.07 / J A Casey 08.03.07				

 Manufacturing Birch Road Dumbarton, G82 2RF Tel: 0044 (0)1389 742214 Fax: 0044 (0)1389 742554		EQUIPMENT DATA SHEET		No. <b>G080306</b>
		Diesel Generating Set		Rev. <b>B</b>
		60Hz	1000kW	Date <b>05/03/2007</b>
				Page <b>2 of 3</b>
9	Load Terminals			
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	Standby/Fuel Stop	lit/hr(US gal/hr)	267 (70.5)	
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12	Exhaust Emissions			
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	Specific Load	ISO8178-1		
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	Certificate	No	M-9561	
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	<b>Diesel Generating Set</b>		<b>Rev.</b>	<b>B</b>
	<b>60Hz</b>	<b>1000kW</b>	<b>Date</b>	<b>05/03/2007</b>
			<b>Page</b>	<b>3 of 3</b>
15	Engine			
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Technical Department – Dumbarton Approved by W Telfer 06.03.07 / J A Casey 08.03.07				

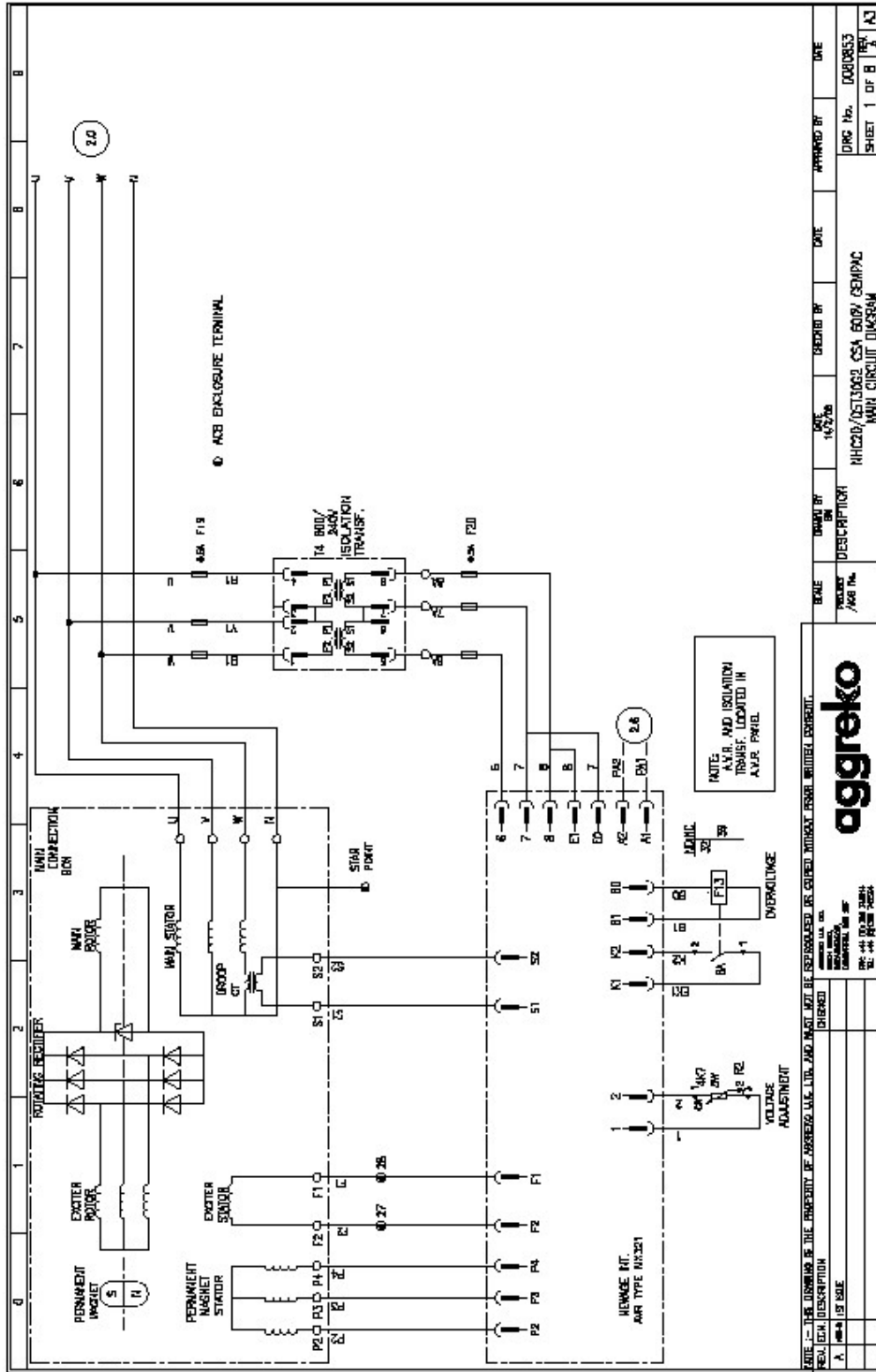
## **CONTROL PANEL LAYOUT**





**ELECTRICAL SCHEMATICS**





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1	REVISED	11/12/06	EN	EN	11/12/06	EN	11/12/06

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DIRG No.	000853
SHEET 1 OF 8	A A

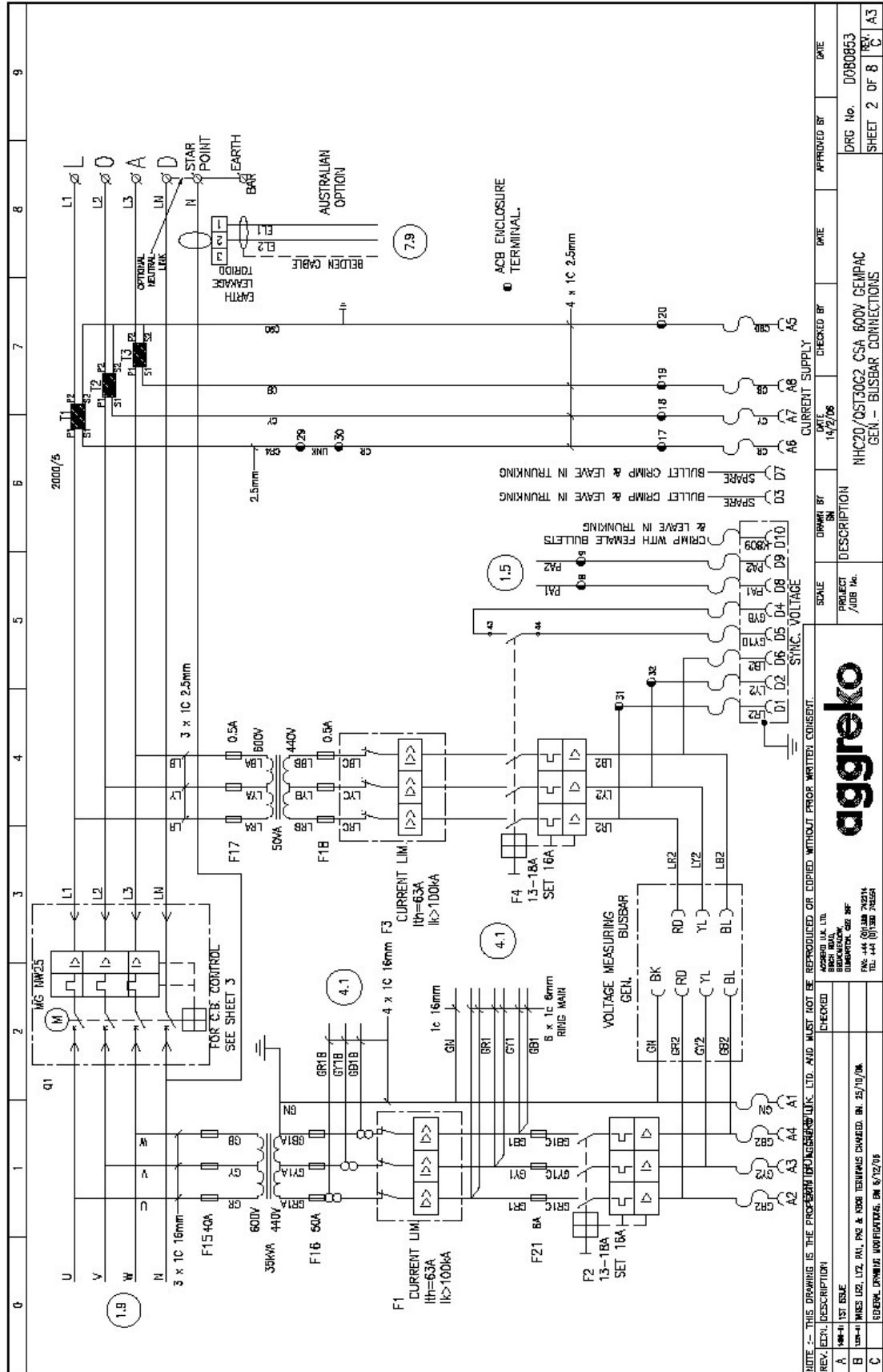
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REV.	DESCRIPTION	CHECKED	DATE	APPROVED BY	DATE
A	ISSUE				
B	ISSUE				
C	ISSUE				

SCALE	DRWNR	CHKD	DATE
			14/2/06

PROJECT /JOB No.	DESCRIPTION
NHC20/QST30G2 CSA 600V GEMPAC	GEN. - BUSBAR CONNECTIONS

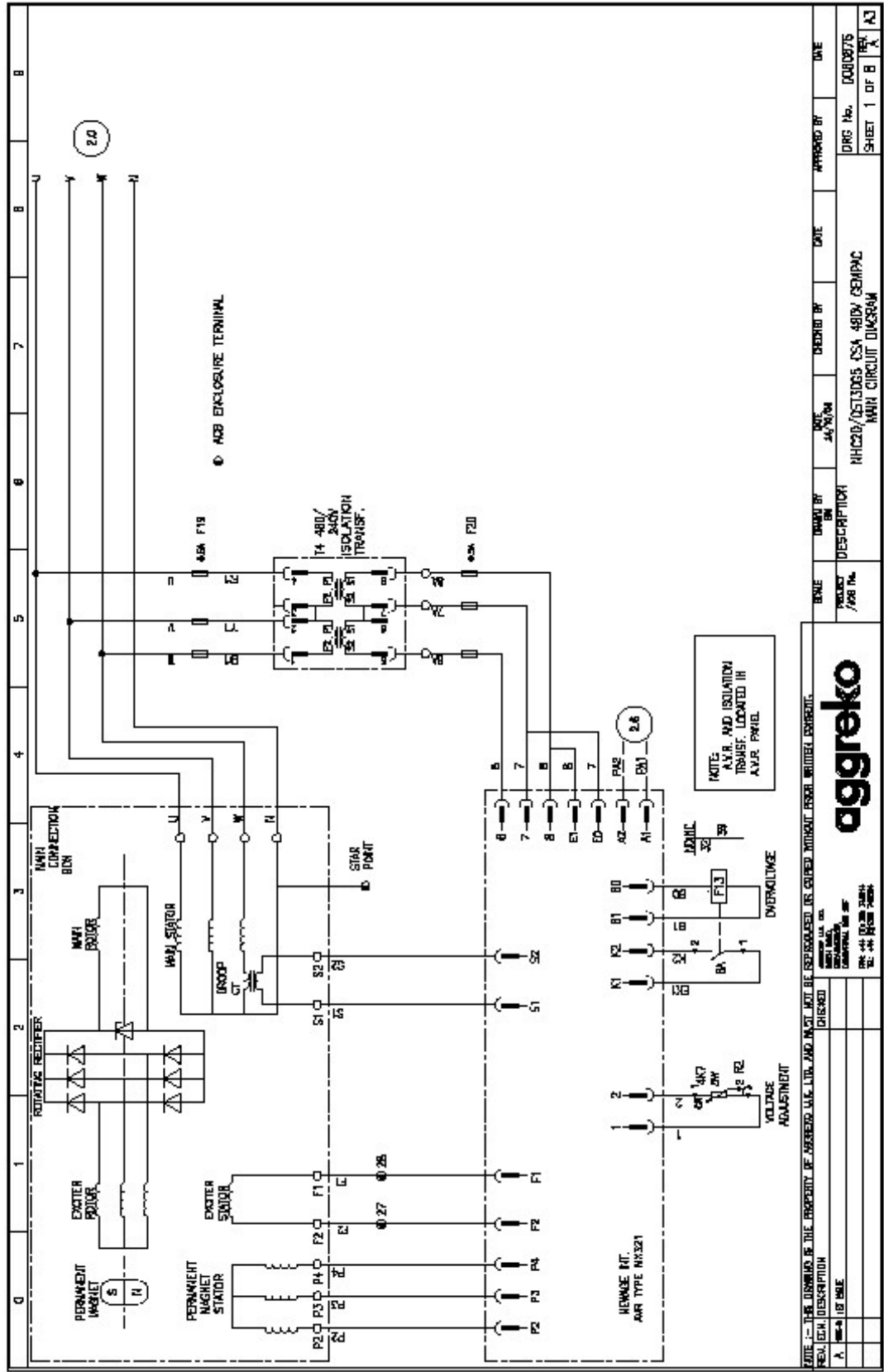
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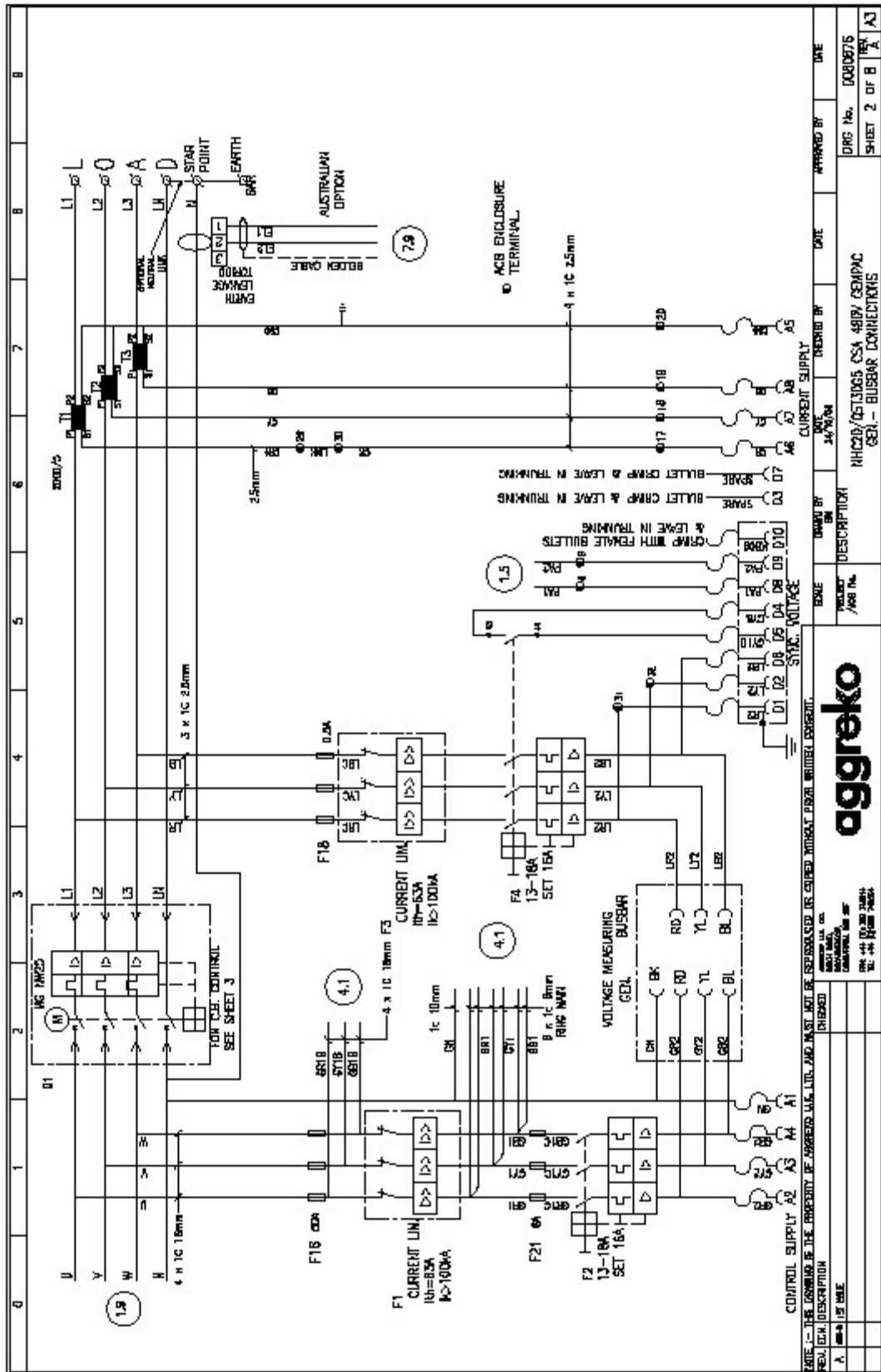
  

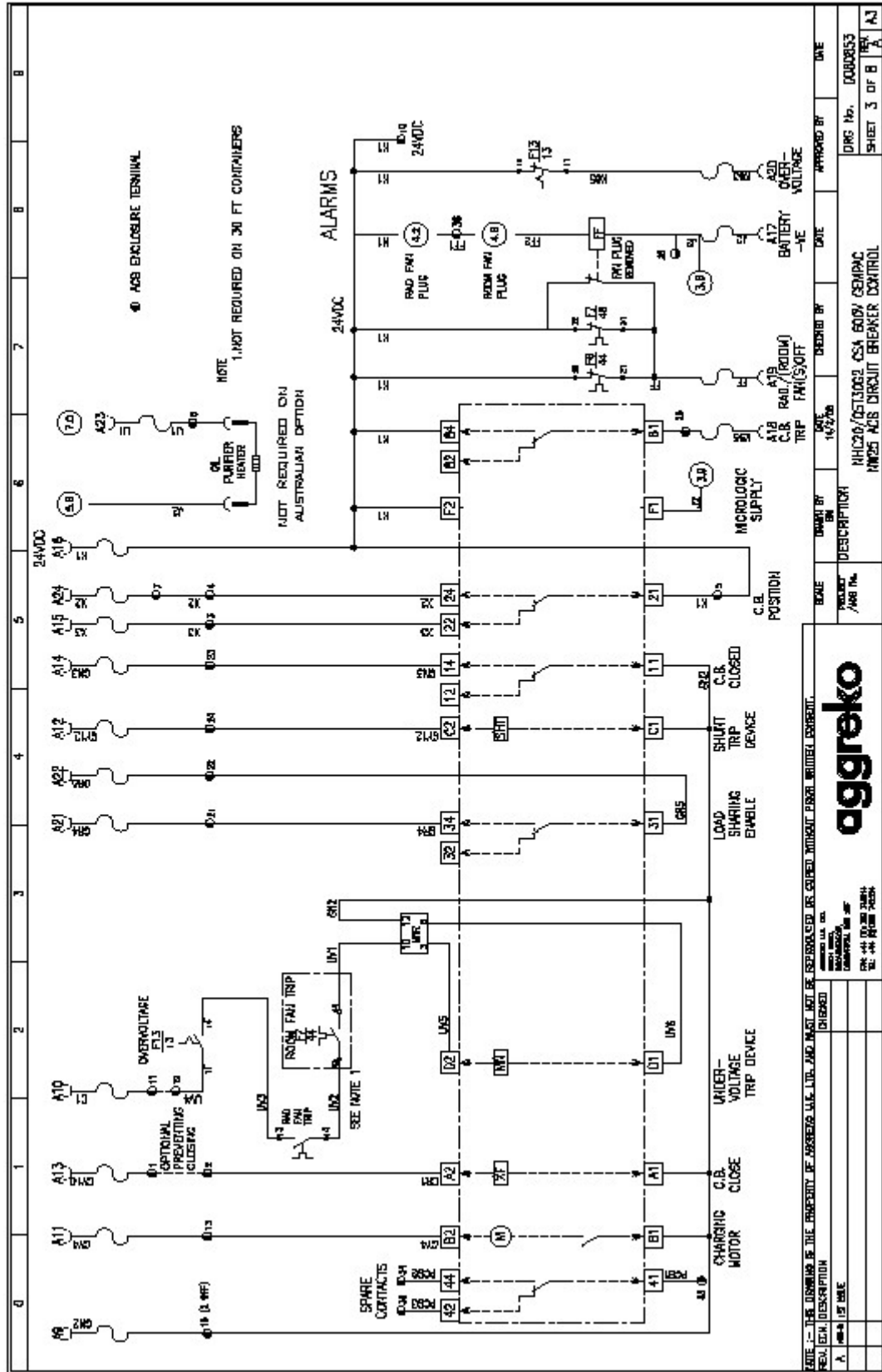
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2	OF	8



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 DENVER, CO 80231  
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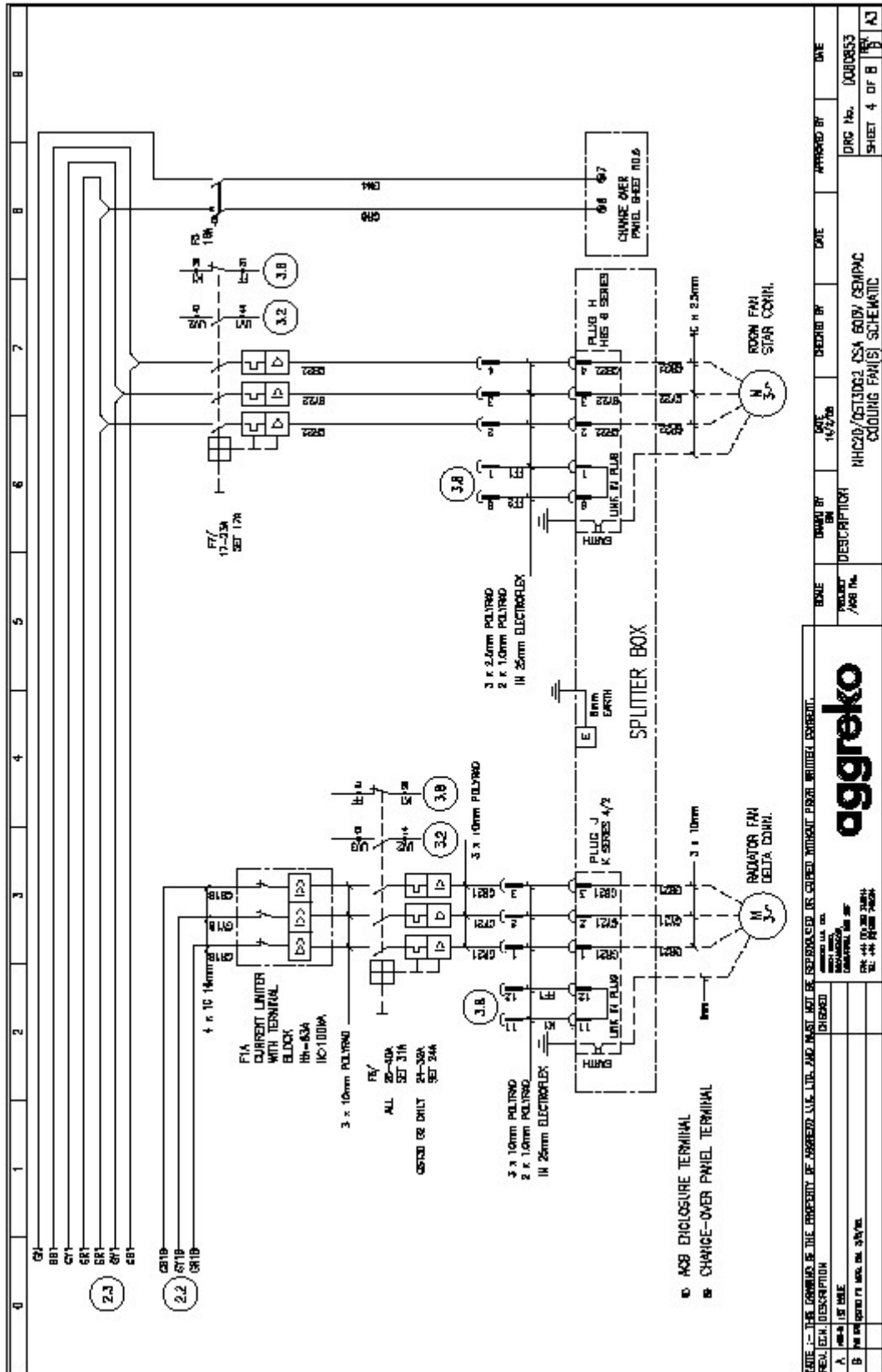


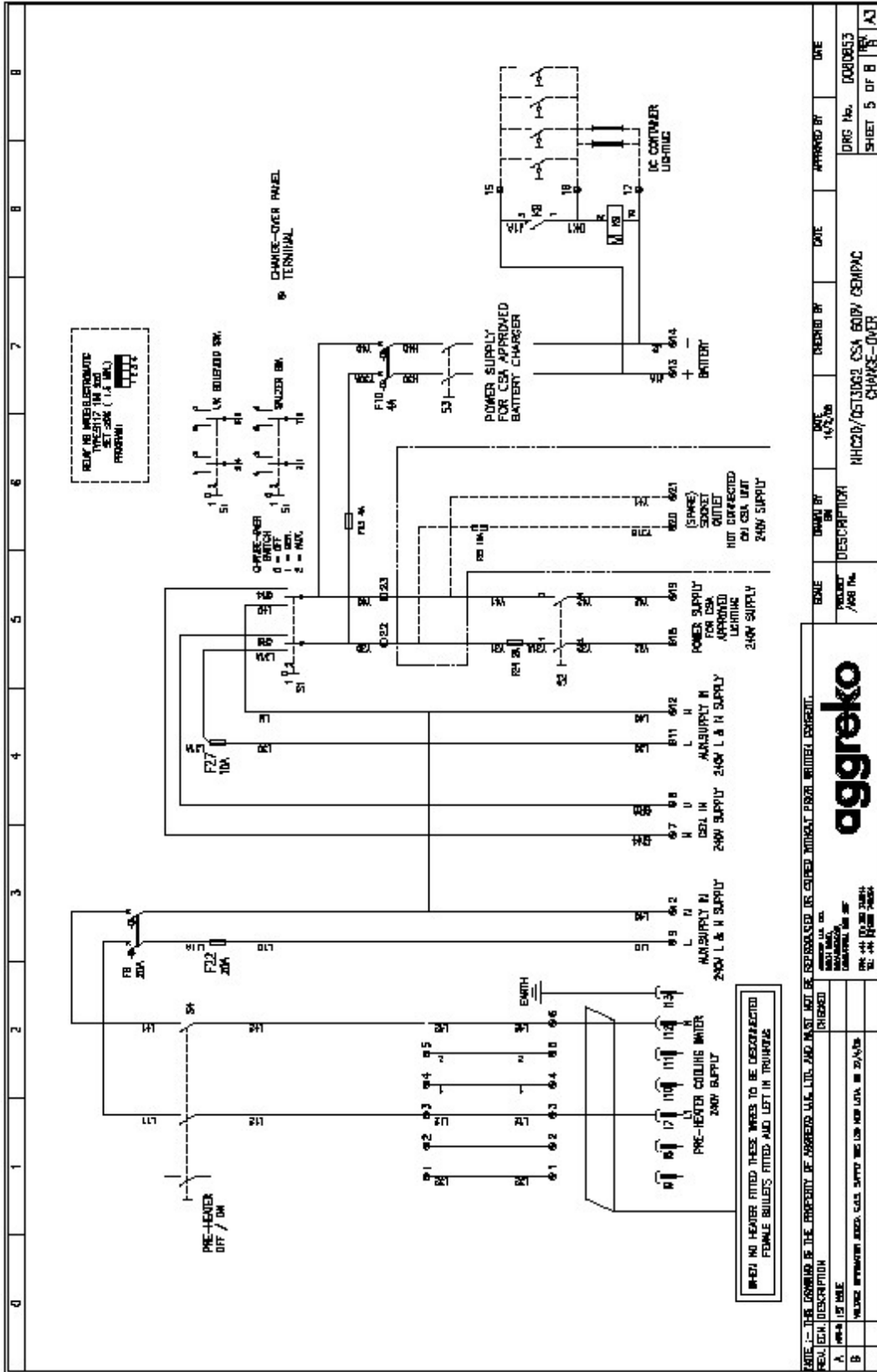


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3	REVISION					
4	REVISION					
5	REVISION					
6	REVISION					
7	REVISION					
8	REVISION					

REV	DESCRIPTION	DATE	DESIGNED BY	CHECKED BY	APPROVED BY	DATE
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6	REVISION					
7	REVISION					
8	REVISION					

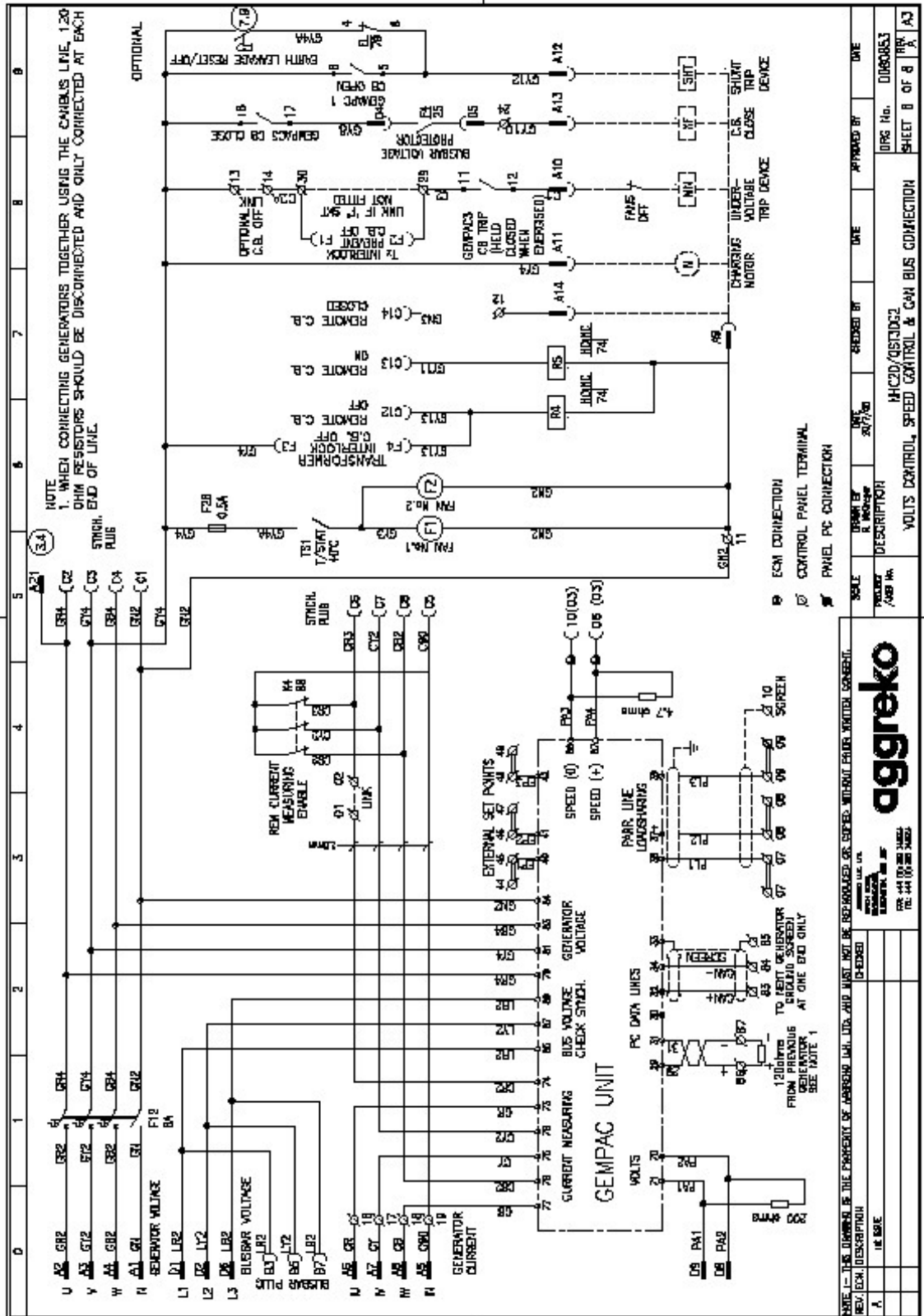




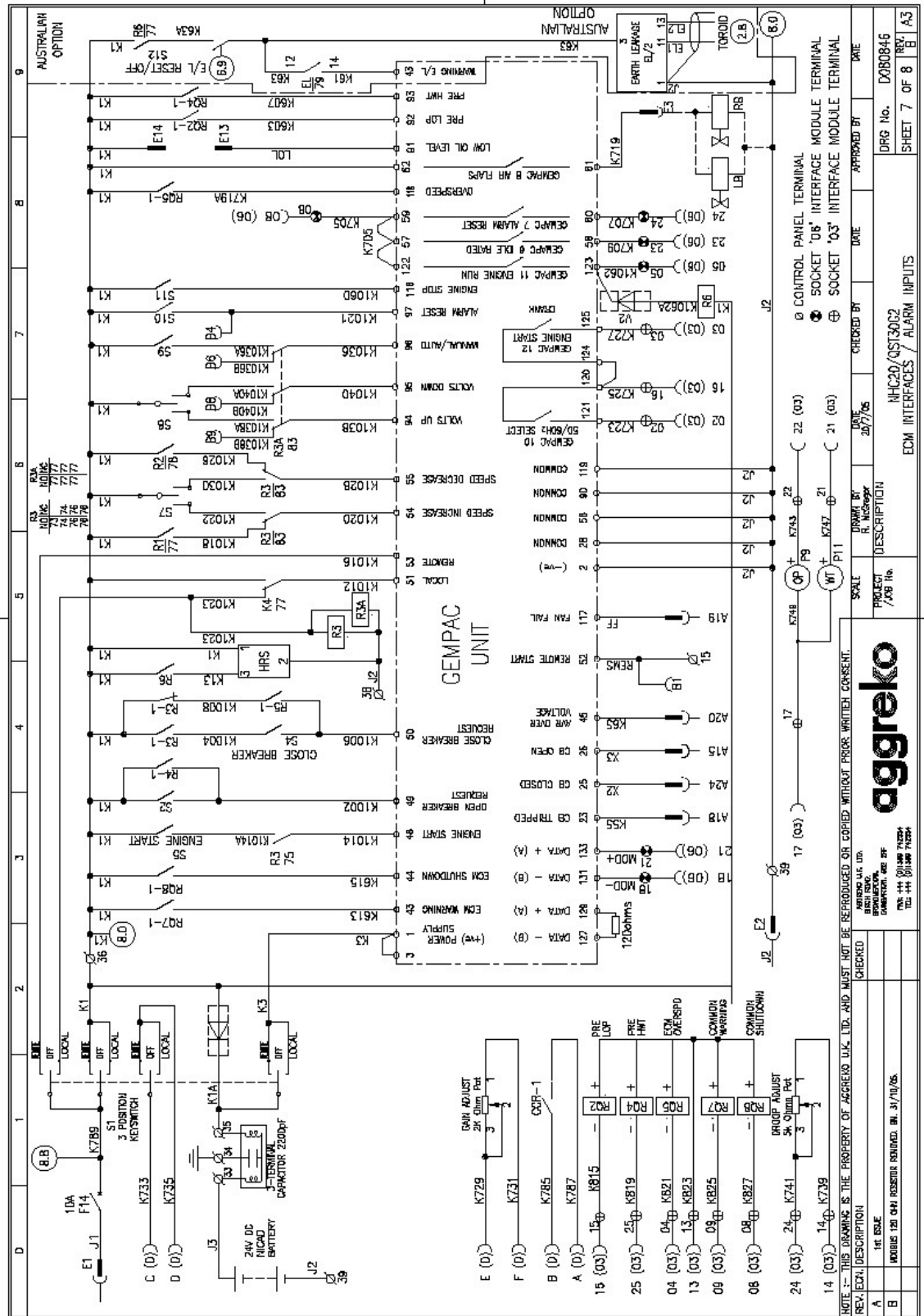
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14/5/06	BN				

DATE	11/12/06	APPROVED BY	DATE
DESIGNER	BN	DRG No.	0000653
CHECKED	BN	SHEET	5 OF 8
DESCRIPTION	NHC20/QST30G5 CSA 500V GENPAC CHARGE-OVER		
PAGE		OF	8

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REV. NO.	1
REV. DATE	11/12/06
REV. BY	BN
REV. DESCRIPTION	







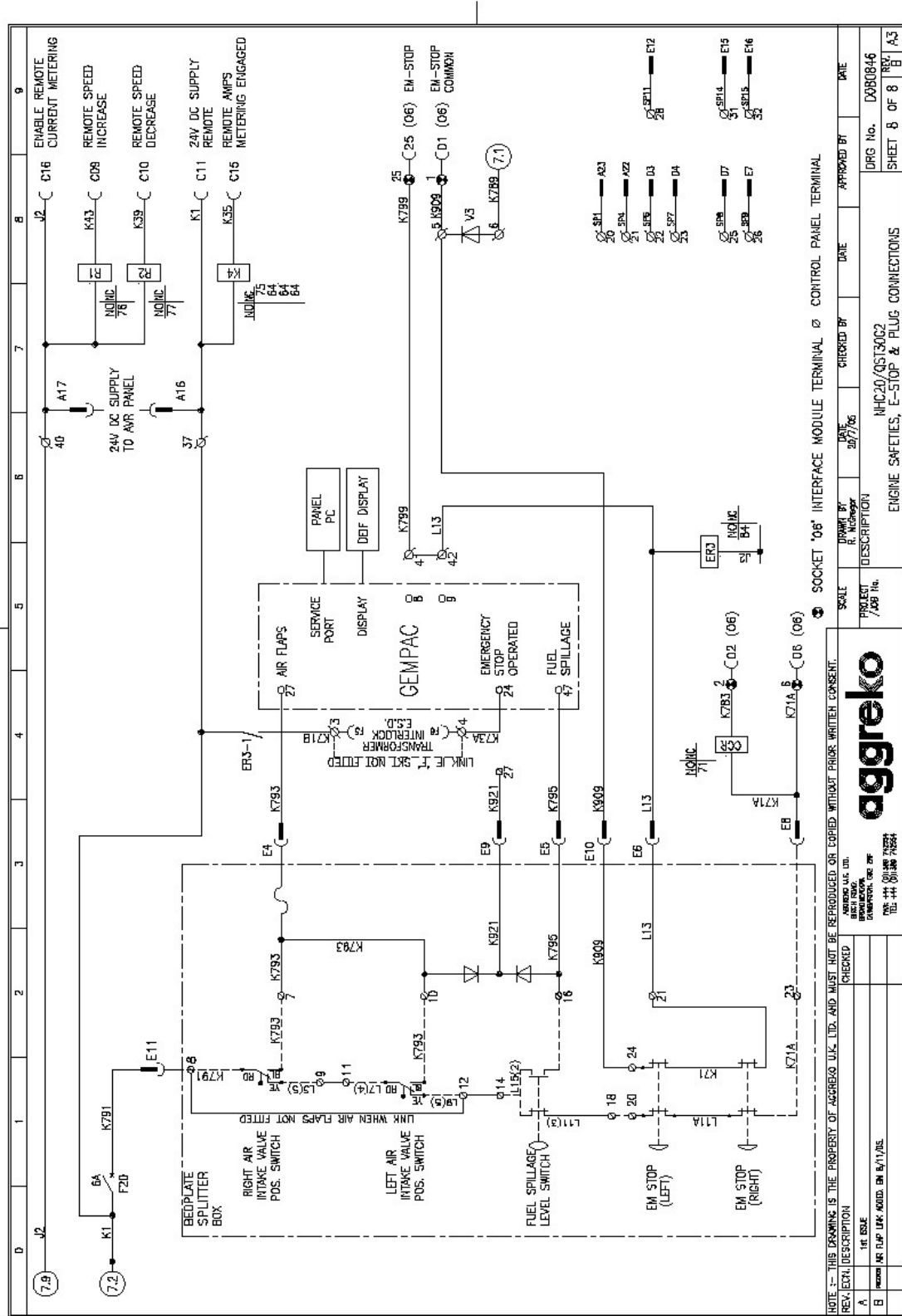
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B	ISSUES FOR CHG REVISION REQUIRED. IN. 31/10/06					

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NHC20/QST30G2	EDM INTERFACES / ALARM INPUTS				28/07/06

DRG No.	REV.
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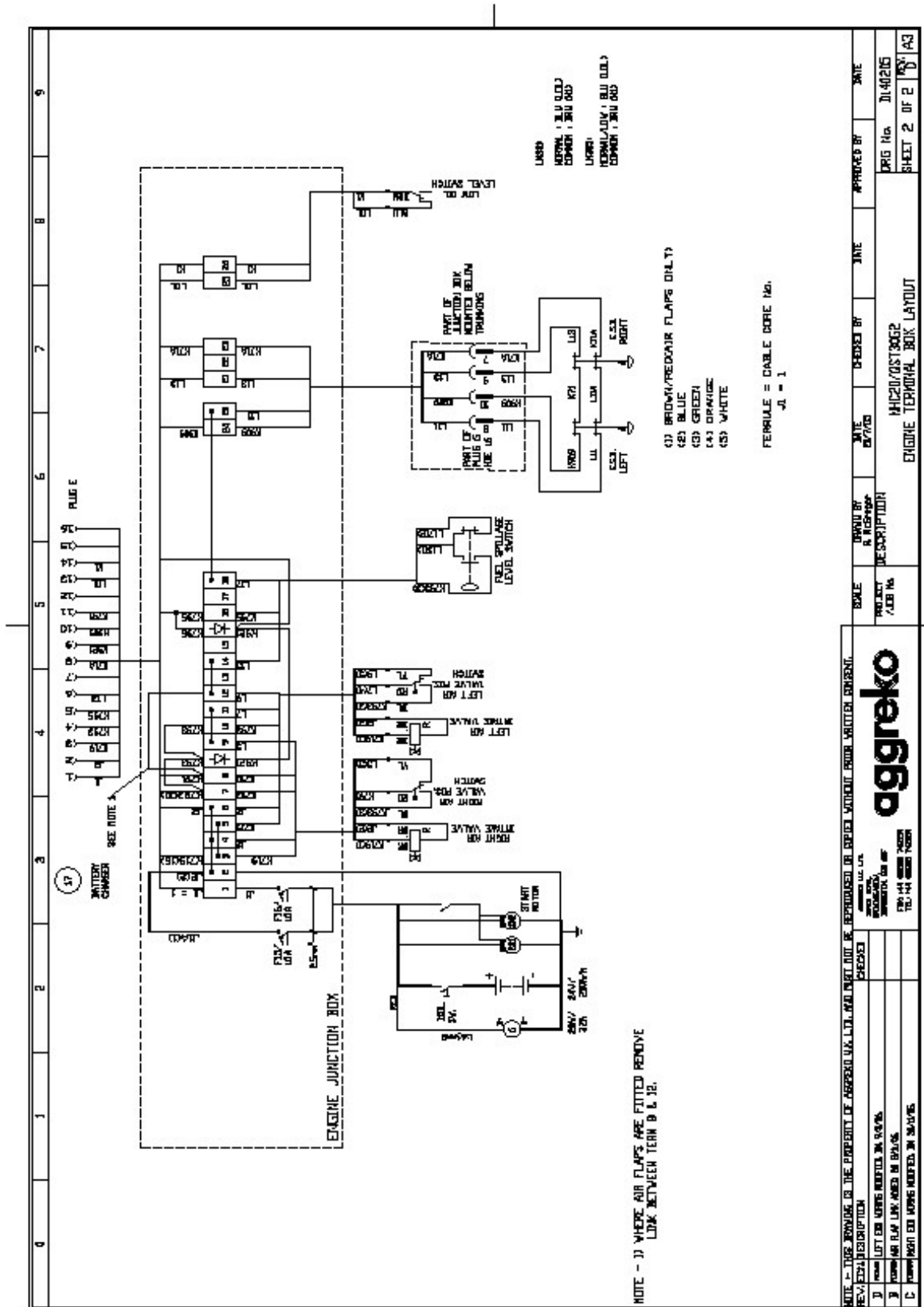
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A	1st ISSUE		
B	FOR FLAP LINK MOD. ON 6/11/05		

SCALE: DRAWN BY: R. NICHOLSON  
 PROJECT: NHC20/QST30G2  
 DESCRIPTION: ENGINE SAFETIES, E-STOP & PLUG CONNECTIONS

DATE: 25/7/06  
 CHECKED BY: DATE: APPROVED BY: DATE:

DRG No. D380846  
 SHEET 8 OF 8





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PROJECT DESCRIPTION: NHC20/QST30G2 ENGINE TERMINAL BOX LAYOUT						
DRAWING No. 01-40205 SHEET 2 OF 2						