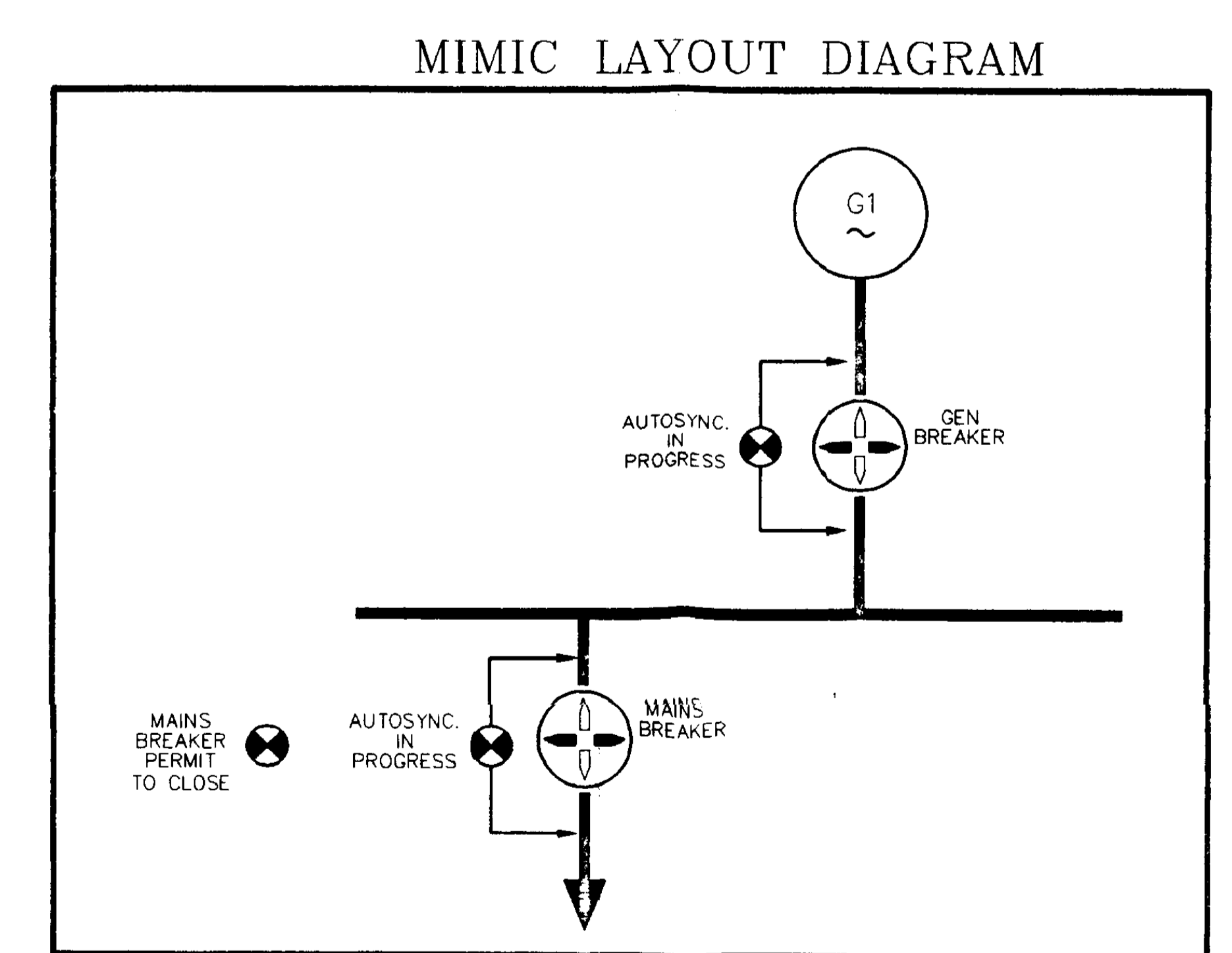
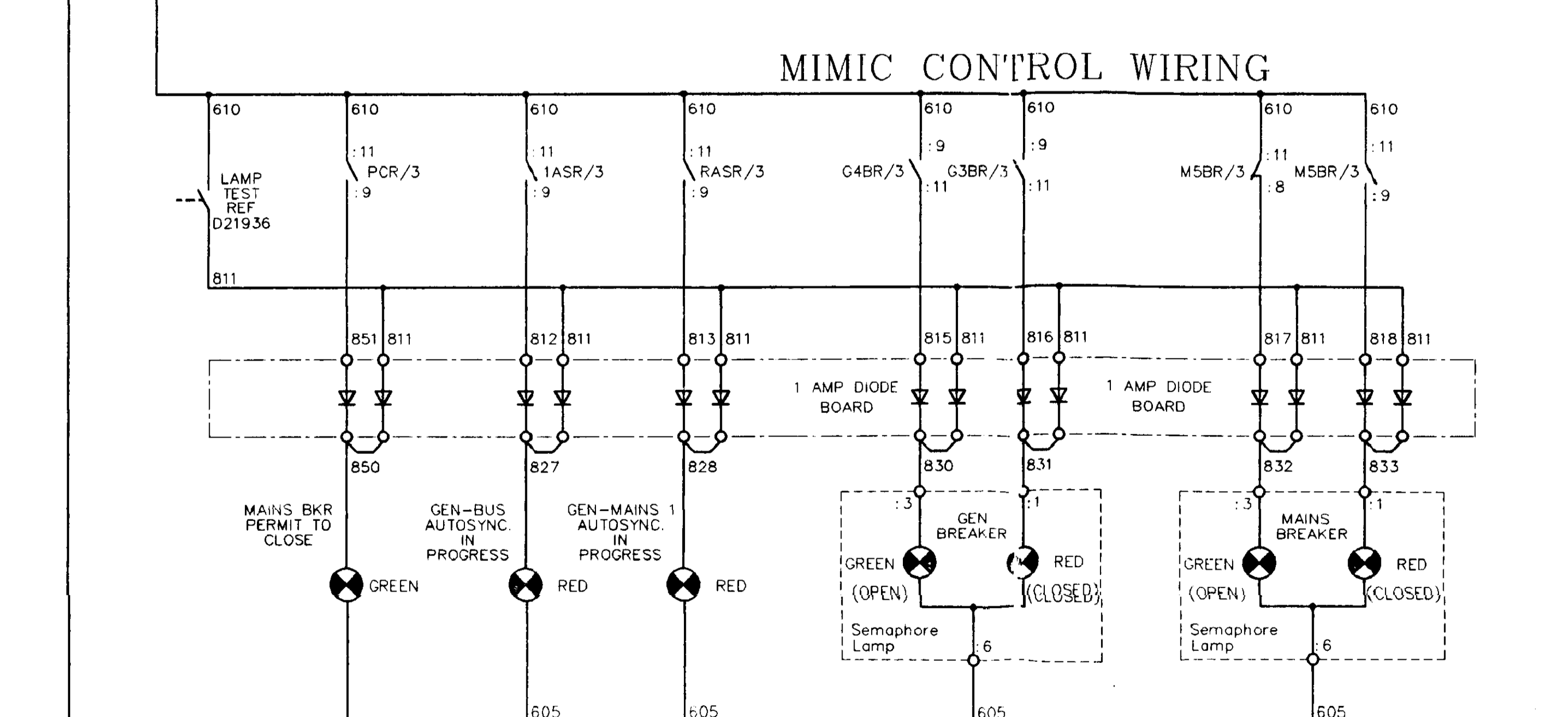
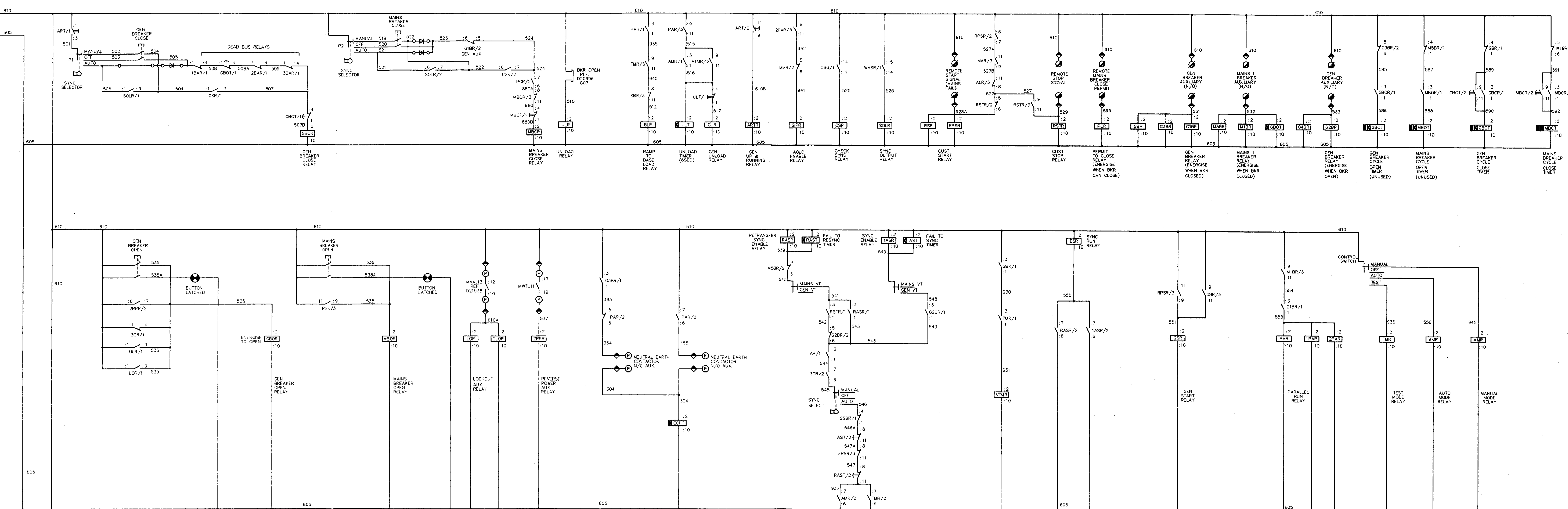


TO CUSTOMER EQUIPMENT



AS BUILT

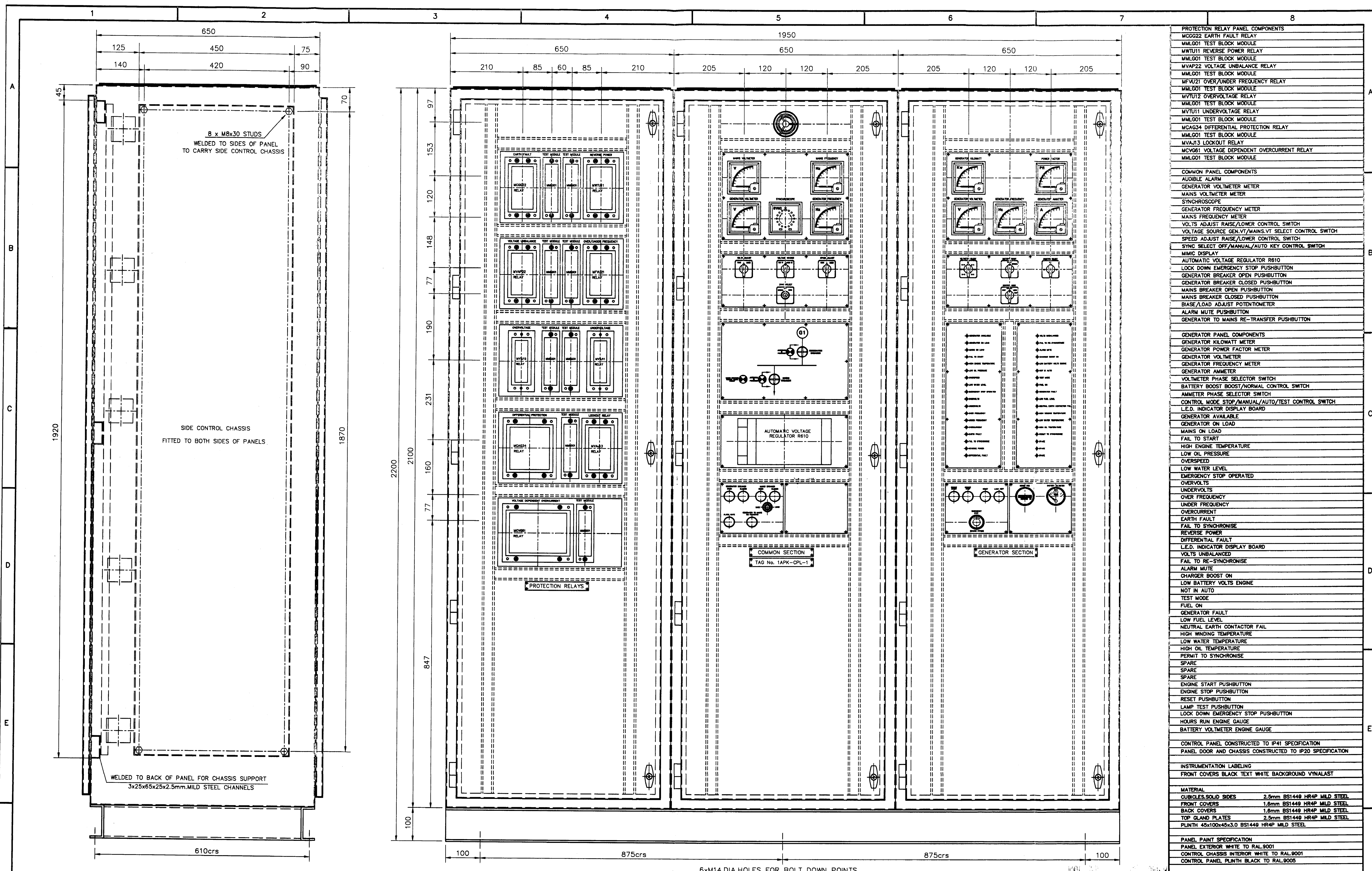
G	FINAL, AS BUILT	J.D.	29-6-98
F	DRAWING REVISED FOLLOWING SITE MODIFICATIONS	J.D.	9-3-98
E	DRAWING REVISED FOLLOWING ENGINE TEST	J.D.	26-1-98
D	DRAWING REVISED FOLLOWING PANEL TEST	J.D.	12-12-97
C	REVISED FOLLOWING CUSTOMER REQUEST TO ADD FIRE PROTECTION TRIP	J.D.	2-12-97
B	REVISED FOLLOWING CUSTOMER COMMENTS	J.D.	16-10-97
A	FIRST ISSUE	-	-

- ⊙ ENGINE CHANCE PANEL TERMINAL
- ⊙ GENERATOR 1 CONTROL SECTION TERMINAL
- ⊙ INTERNAL PANEL TERMINAL
- ⊙ POWER TERMINAL
- ⊙ NEUTRAL EARTH RESISTOR PANEL TERMINAL

DESIGNED AND BUILT FOR	CUSTOMER	AES BARRY LIMITED
TBV POWER BY	PROJECT	AES BARRY POWER STATION
F.G. WILSON ENGINEERING	TBV PROJECT	28719
UNDER REFERENCE C3161.	TAG	TBC

F.G. WILSON (ENGINEERING) LTD.
 OLD GLENARM ROAD, LARNY, BT40 1EA, U.K.
 Telephone: (01574) 281000 Telex: (01574) 261111
 Telex: 747448/747008 GENSET G

DRN. BY	J.D.	TITLE	WIRING DIAGRAM OF DC CONTROL (INCLUDING BREAKER CONTROL, SYNCHRONISING AND MIMIC PANEL.)
DATE	28-8-97	APPD. BY	<i>Oliver</i>
SHEET	1	ORIGINAL	SCALE
DRAWING NO.		ISSUE	



- PROTECTION RELAY PANEL COMPONENTS**
- MCG22 EARTH FAULT RELAY
 - MMLG01 TEST BLOCK MODULE
 - MWTU11 REVERSE POWER RELAY
 - MMLG01 TEST BLOCK MODULE
 - MVAF22 VOLTAGE UNBALANCE RELAY
 - MMLG01 TEST BLOCK MODULE
 - MVFU21 OVER/UNDER FREQUENCY RELAY
 - MMLG01 TEST BLOCK MODULE
 - MVTU12 OVERVOLTAGE RELAY
 - MMLG01 TEST BLOCK MODULE
 - MVTU11 UNDERVOLTAGE RELAY
 - MMLG01 TEST BLOCK MODULE
 - MCA634 DIFFERENTIAL PROTECTION RELAY
 - MMLG01 TEST BLOCK MODULE
 - MVAJ13 LOCKOUT RELAY
 - MCV681 VOLTAGE DEPENDENT OVERCURRENT RELAY
 - MMLG01 TEST BLOCK MODULE
- COMMON PANEL COMPONENTS**
- AUDIBLE ALARM
 - GENERATOR VOLTMETER METER
 - MAINS VOLTMETER METER
 - SYNCHROSCOPE
 - GENERATOR FREQUENCY METER
 - MAINS FREQUENCY METER
 - VOLTS ADJUST RAISE/LOWER CONTROL SWITCH
 - VOLTAGE SOURCE GEN./VT/MAINS.VT SELECT CONTROL SWITCH
 - SPEED ADJUST RAISE/LOWER CONTROL SWITCH
 - SYNC SELECT OFF/MANUAL/AUTO KEY CONTROL SWITCH
 - MIMIC DISPLAY
 - AUTOMATIC VOLTAGE REGULATOR R610
 - LOCK DOWN EMERGENCY STOP PUSHBUTTON
 - GENERATOR BREAKER OPEN PUSHBUTTON
 - GENERATOR BREAKER CLOSED PUSHBUTTON
 - MAINS BREAKER OPEN PUSHBUTTON
 - MAINS BREAKER CLOSED PUSHBUTTON
 - BIASE/LOAD ADJUST POTENTIOMETER
 - ALARM MUTE PUSHBUTTON
 - GENERATOR TO MAINS RE-TRANSFER PUSHBUTTON
- GENERATOR PANEL COMPONENTS**
- GENERATOR KILOWATT METER
 - GENERATOR POWER FACTOR METER
 - GENERATOR VOLTMETER
 - GENERATOR FREQUENCY METER
 - GENERATOR AMPMETER
 - VOLTMETER PHASE SELECTOR SWITCH
 - BATTERY BOOST BOOST/NORMAL CONTROL SWITCH
 - AMPMETER PHASE SELECTOR SWITCH
 - CONTROL MODE STOP/MANUAL/AUTO/TEST CONTROL SWITCH
 - L.E.D. INDICATOR DISPLAY BOARD
 - GENERATOR AVAILABLE
 - GENERATOR ON LOAD
 - MAINS ON LOAD
 - FAIL TO START
 - HIGH ENGINE TEMPERATURE
 - LOW OIL PRESSURE
 - OVERSPEED
 - LOW WATER LEVEL
 - EMERGENCY STOP OPERATED
 - OVERVOLTS
 - UNDERVOLTS
 - OVER FREQUENCY
 - UNDER FREQUENCY
 - OVERCURRENT
 - EARTH FAULT
 - FAIL TO SYNCHRONISE
 - REVERSE POWER
 - DIFFERENTIAL FAULT
 - L.E.D. INDICATOR DISPLAY BOARD
 - VOLTS UNBALANCED
 - FAIL TO RE-SYNCHRONISE
 - ALARM MUTE
 - CHARGER BOOST ON
 - LOW BATTERY VOLTS ENGINE
 - NOT IN AUTO
 - TEST MODE
 - FUEL ON
 - GENERATOR FAULT
 - LOW FUEL LEVEL
 - NEUTRAL EARTH CONTACTOR FAIL
 - HIGH WINDING TEMPERATURE
 - LOW WATER TEMPERATURE
 - HIGH OIL TEMPERATURE
 - PERMIT TO SYNCHRONISE
 - SPARE
 - SPARE
 - ENGINE START PUSHBUTTON
 - ENGINE STOP PUSHBUTTON
 - RESET PUSHBUTTON
 - LAMP TEST PUSHBUTTON
 - LOCK DOWN EMERGENCY STOP PUSHBUTTON
 - HOURS RUN ENGINE GAUGE
 - BATTERY VOLTMETER ENGINE GAUGE
- CONTROL PANEL CONSTRUCTED TO IP41 SPECIFICATION**
PANEL DOOR AND CHASSIS CONSTRUCTED TO IP20 SPECIFICATION
- INSTRUMENTATION LABELING**
FRONT COVERS BLACK TEXT WHITE BACKGROUND VYNALAST
- MATERIAL**
- CUBICLES/SOLID SIDES 2.5mm BS1449 HR4P MILD STEEL
 - FRONT COVERS 1.6mm BS1449 HR4P MILD STEEL
 - BACK COVERS 1.6mm BS1449 HR4P MILD STEEL
 - TOP GLAND PLATES 2.5mm BS1449 HR4P MILD STEEL
 - PLINTH 45x100x45x3.0 BS1449 HR4P MILD STEEL
- PANEL PAINT SPECIFICATION**
PANEL EXTERIOR WHITE TO RAL9001
CONTROL CHASSIS INTERIOR WHITE TO RAL9001
CONTROL PANEL PLINTH BLACK TO RAL9005

B	PANEL REVISED FOLLOWING CUSTOMERS COMMENTS	D.M.	14-10-97
A	FIRST ISSUE	-	-
ISSUE	DESCRIPTION	BY	DATE

DESIGNED AND BUILT FOR TEV POWER BY F.G. WILSON ENGINEERING UNDER REFERENCE CS161.	CUSTOMER ABS BARRY LIMITED	PROJECT ABS BARRY POWER STATION	TEV PROJECT 88719	PAGE 2/3
TOLERANCES EXCEPT WHERE OTHERWISE STATED 0 - 500mm ± 1mm 500 - 2000mm ± 2mm OVER 2000mm ± 3mm STRUCTURAL ± 3mm ANGULAR ± 1.0°				
DO NOT SCALE				

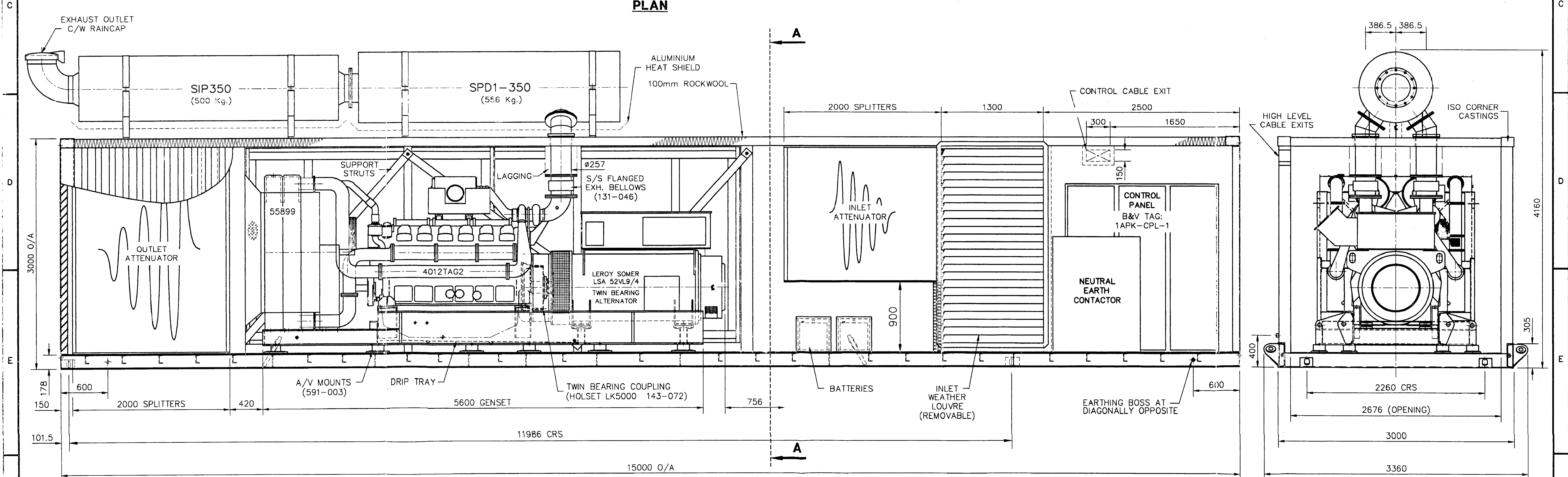
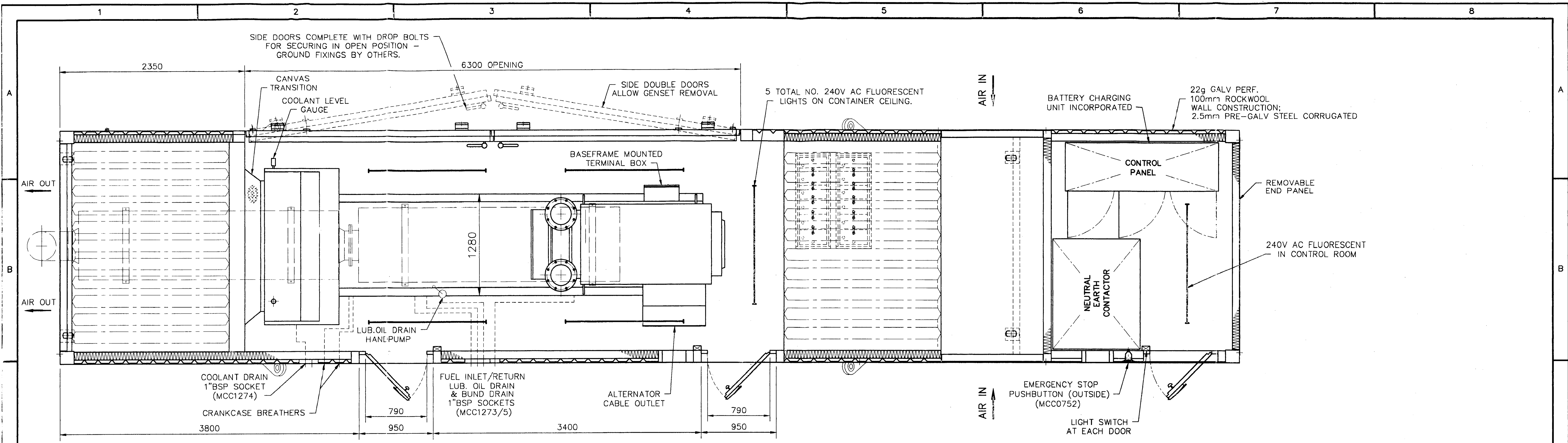
F. G. WILSON (ENGINEERING) LTD.
 OLD GLENARM ROAD, LARNE, BT40 1EJ, U.K.
 Telephone: (01574) 261000 Telex: (01574) 261111
 Telex: 747448/747008 GENSET G

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3rd ANGLE PROJECTION

DRN. BY D.MEZZA	DATE 08-09-97
APPD. BY D.Morris	DATE 15-10-97

TITLE GENERAL ARRANGEMENT OF AUTO SYNCHRONISING CONTROL PANEL	SHEET SIZE A1	ORIGINAL SCALE 1:5	DRAWING NO. MDA1766	ISSUE B
--	-------------------------	------------------------------	-------------------------------	-------------------



PAINT FINISH : (1) ENGINE & ALTERNATOR : RAL 5010 (GENTIAN BLUE)
 (2) GENSET BASEFRAME : RAL 9001 (WHITE)
 (3) GENSET ENCLOSURE : RAL 7038 (GOOSEWING GREY)

NOTE : EXTERNAL FREE STANDING FUEL TANK (8HR.) C/W FUEL PUMP HOUSING
 FGW SUPPLY - SEE MTA0577

GENSET MASS APPROX. :- 13000 Kg
 TOTAL MASS APPROX. :- 38000 Kg

ELEVATION

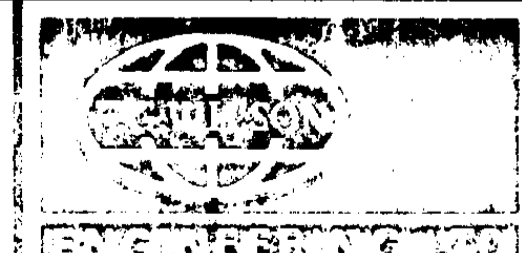
SECTION A-A

AS BUILT C3161A - TBV POWER LTD.

E	AS BUILT	D.McV.	29-6-98
D	CUSTOMER TAG NOS. ADDED	A.P.M.	25-9-97
C	CONTROL PANEL DIMS. REVISED & RELOCATED ACCORDINGLY	A.P.M.	4-9-97
B	DIMENSIONS REVISED OF ENCL. LENGTH, CONTROL PANEL & NEUTRAL EARTH RESISTOR	A.P.M.	19-8-97
A	FIRST ISSUE		
ISSUE	DESCRIPTION	BY	DATE

AES BARRY POWER STATION
 TBV PROJECT : 28719
 TAG NO : 1APK-GEN-1

TOLERANCES EXCEPT WHERE OTHERWISE STATED
 0 - 500mm ± 1mm
 500 - 2000mm ± 2mm
 OVER 2000mm ± 3mm
 STRUCTURAL ± 3mm
 ANGULAR ± 1'



F.G. WILSON (ENGINEERING) LTD.
 OLD GLENARM ROAD, LARNE, BT40 1EL, U.K.
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 Telex: 747448/747008 GENSET G

DRN. BY ALAN MURPHY
 DATE 27-6-97

TITLE
 G.A. OF P1500X-4012TAG2 & LSA 52VL9/4
 IN SOUND ATTENUATED ENCLOSURE (85dBA @ 1M)

DO NOT SCALE

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED



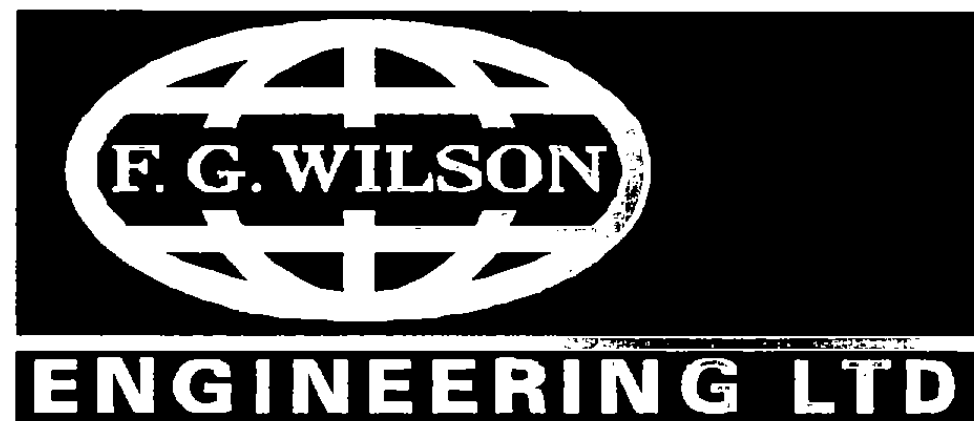
APPD. BY
 DATE 29/6/98

SHEET SIZE
 A1

ORIGINAL SCALE
 1:25

DRAWING NO.
MGA3145

ISSUE
E



F.G. WILSON (ENGINEERING) LTD.

AES BARRY POWER STATION

PERKINS ENGINE 4012TAG2 DATA SHEET

JOB REF. 28719
SPEC. REF. 65.0401



Notes:

- Perkins advise that starting is possible at temperatures between 15°C and 52°C without starting aids, however this engine is fitted with a jacket water heater which will enable starting at -10°C.

PERKINS ENGINES (STAFFORD)

4012 TAG2

ISO 3046
TECHNICAL DATA
SHEET 1 OF 11

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M. ELEY
CHECKED	A.K. [Signature]
APPROVED	[Signature]

Standard Industrial Gen-Set Build

BUILD SPECIFICATION:

- 1000 r/min. 332/100212/000/012/2
- 1200 r/min. 332/100212/000/012/2
- 1500 r/min. 332/100112/000/012/2
- 1800 r/min. 332/100312/000/012/2

ENGINE DETAILS:

- Cylinder bore..... 160.00 mm
- Crankshaft stroke.. 190.00 mm
- Engine capacity.... 45.842 litre
- Compression ratio.. 13.6 : 1

Twelve cylinder V-form 4-stroke turbocharged water cooled diesel engine, with radiator incorporating an air-cooled aftercooler.

Rotation is ANTICLOCKWISE looking on the flywheel end.

Firing order: 1A 6B 5A 2B 3A 4B 6A 1B 2A 5B 4A 3B with cylinders 1 furthest from the flywheel. Cylinders designated A are on the LEFT side of the engine when viewed from the end furthest from the flywheel.

NOTE: Operating temperature range (without using starting aids) 15 °C to 52 °C. For temperatures outside this range refer to Perkins Engines (Stafford).

Operating altitude range: Sea level up to 2500 m (75 kPa) with appropriate derate.

DEFINITION OF PARAMETERS FOR ISO3046 (BS5514) at INLET conditions

Ambient temperature..... 25 °C Barometric pressure..... 100 kPa

Refer to Perkins Engines (Stafford) for Charge Coolant temperature.

Ratings are for engines fitted with air cleaner, fresh water pump, and radiator cooling fan, but less battery charging alternator and exhaust silencer. Deduct from given figures for any accessories fitted and for site conditions different to standard. (See below for details).

NOTE: The engine builds have been optimised for fixed speed operation. Engine power is guaranteed from new, but the other data may not reach the quoted values, including tolerance, until the mating parts have fully bedded-in.

DERATE FOR SITE CONDITIONS TO ISO3046/1-1986 (BS5514: Part 1: 1987)

Refer to sheets 8, 9, 10 and 11 for a graphical aid to derating requirements.

POWER AT SITE IS:

NETT kW_b x (100 - % derating) / 100 less kW_m to drive additional accessories

Tolerance on all engine kW_b figures will be ± 3%

Tolerance on fuel consumption + 5%

NOTE ON IDENTIFICATION OF UNITS OF POWER

kW_b indicates the power available at the engine flywheel (or brake).

kW_t used in the energy balance to indicate thermal power (1 kW_t = 1000 J/s)

kW_m used to indicate kW of mechanical power to drive auxiliaries.

NETT FLYWHEEL RATINGS, FIXED SPEED INDUSTRIAL APPLICATIONS radiator fan fitted

	Speed:	1500	r/min
Standby rating.....		1382	kW _b
Overload rating.....		1382	kW _b
Engine power.....		1256	kW _b

OVERLOAD rating - (Cont + 10%) For 1 hour in 12 hours, Gen-set applications only.

STANDBY rating (No overload available) - 1000 hours per year on varying load during mains failure and maintenance of normally mains driven equipment.

PERKINS ENGINES (STAFFORD)

DATA SHT.	SE40AD
DATE	1/5/95
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CHECKED	A.R. [Signature]
APPROVED	[Signature]

4012 TAG2

ISO 3046
TECHNICAL DATA
SHEET 2 OF 11

Standard Industrial Gen-Set Build

POWER REQUIRED TO DRIVE STANDARD AUXILIARIES

	Speed	1500	r/min
Cooling Fan up to 25 °C ambient.....		41.7	kW _m
Cooling Fan up to 38 °C ambient.....		41.7	kW _m
Cooling Fan up to 45 °C ambient.....		41.0	kW _m
Cooling Fan up to 52 °C ambient.....		40.2	kW _m
Battery charging alt. PRESTOLITE A4024/26....		1.0	kW _m

FUEL SYSTEM

Fuel specification : BS2869: Class A1 & A2
Lower calorific value : 42540 kJ/kg (Minimum)

Fuel pump details : BRYCE..... 97/12T
Perkins (Stafford) Part No : 858/12

Speed droop at any fixed speed (max)..... 5.0 %
Governing class at any single fixed speed.... A1

LOAD ACCEPTANCE - percentage of rated load which can be applied in one step.
Engine at CONTINUOUS rating (HOT)..... 50 %

Various devices are available to provide greater load steps. Consult Perkins Engines (Stafford) for details.

NETT FUEL CONSUMPTION standard conditions (Stafford factory, test results)

S.F.C. at STANDBY rating.....	213	g/kWh
S.F.C. at OVERLOAD rating.....	213	g/kWh
S.F.C. at CONTINUOUS rating.....	208	g/kWh
S.F.C. at 75% of cont. rating.....	206	g/kWh
S.F.C. at 50% of cont. rating.....	209	g/kWh
S.F.C. at 25% of cont. rating.....	240	g/kWh
Estimated consumption on NO LOAD.....	26.1	kg/hr

WARNING: Excess fuel is pumped to the unit injectors to act as cooling. The heat contained in the returned fuel must be taken into account when sizing the day tank. Up to 9.5 kW_t. Temperature at lift pump inlet to be less than 58°C

TURBOCHARGER BUILDS & SPILL TIMING

	Speed	1500	r/min
TV94 40/T18A 1.00G PE (ST) L N2 SE652AJ (x2) ...			deg BTDC
TV94 48/T18A 1.32G PE (ST) L N2 SE652Q (x2)		16	deg BTDC
TV94 48/T18A 1.50G PE (ST) L N2 SE652AA (x2) ...			deg BTDC

LUBRICATION OIL SYSTEM

Recommended oil: MIL-L-2104C API CD
Temperature range: -15 0 32°C
SAE No: 10W/30 | 20 | 30 | 40

Oil consumption (continuous rating): -
new engine after commissioning..... 1.84 l/hr
after RUNNING-IN typically 250 hours..... 0.77 l/hr
Oil flow rate from engine oil pump..... 6.00 l/s

Minimum oil pressure at rated speed and at oil temperature to bearings of 80°C..... 0.34 MPa

Maximum oil temperature to bearings 105 °C
Oil capacity (dipstick maximum) 159.0 litre (35.1 gal)
Oil capacity (dipstick minimum) 136.0 litre (30.0 gal)

PERKINS ENGINES (STAFFORD)

4012 TAG2

ISO 3046
TECHNICAL DATA
SHEET 3 OF 11

Standard Industrial Gen-Set Build

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M.ELEY
CHECKED	A.K. Strutt
APPROVED	

ENERGY BALANCE DATA (100m Altitude 25 °C ambient) STANDBY rating

	Speed	
Energy in fuel.....	1500	r/min
Energy to work (output).....	3477	kW _t
Energy to cooling fan.....	1382	kW _b
Energy to jacket water.....	42	kW _m
Energy to oil cooler water.....	348	kW _t
Energy to charge air coolers.....	104	kW _t
Energy to radiation (dry manifolds).....	358	kW _t
Energy to exhaust (dry manifolds).....	139	kW _t
	1105	kW _t

For temperatures in excess of 25 °C the energy balance should be modified in line with the derating data given on pages 8, 9, 10 and 11.

WARNING: DO NOT USE ABOVE FIGURES FOR HEAT RECOVERY PURPOSES.

For remote radiator applications please consult Perkins Engines (Stafford) for engine room ventilation requirements.

COOLING SYSTEMS

For ambient temp. up to 25 °C	Radiator Part No 584/...	342	
Temp. into rad. = 33 °C	Airflow through matrix only...	30.50	m ³ /s
	Max. external resistance.....	38.00	mmH ₂ O
	Airflow at max. resistance....	25.70	m ³ /s
	Temp. rise at 0/load rating...	27.4	°C
For ambient temp. up to 38 °C	Radiator Part No 584/...	342	
Temp. into rad. = 43 °C	Airflow through matrix only...	30.50	m ³ /s
	Max. external resistance.....	38.00	mmH ₂ O
	Airflow at max. resistance....	25.70	m ³ /s
	Temp. rise at 0/load rating...	28.4	°C
For ambient temp. up to 45 °C	Radiator Part No 584/...	342	
Temp. into rad. = 50 °C	Airflow through matrix only...	30.50	m ³ /s
	Max. external resistance.....	30.50	mmH ₂ O
	Airflow at max. resistance....	25.70	m ³ /s
	Temp. rise at 0/load rating...	27.1	°C
For ambient temp. up to 52 °C	Radiator Part No 584/...	342	
Temp. into rad. = 55 °C	Airflow through matrix only...	30.50	m ³ /s
	Max. external resistance.....	33.00	mmH ₂ O
	Airflow at max. resistance....	29.00	m ³ /s
	Temp. rise at 0/load rating...	23.6	°C

CLOSED CIRCUIT COOLANT SYSTEM

	Speed	1500	r/min
Coolant circuit flow (minimum).....		17.0	kg/s
Maximum recommended coolant temperature from engine.....			93 °C
Maximum recommended coolant temperature into engine.....			85 °C
Coolant capacity (engine block only).....			73 litre

PERKINS ENGINES (STAFFORD)

4012 TAG2

Standard Industrial Gen-Set Build

ISO 3046
TECHNICAL DATA
SHEET 4 OF 11

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
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CHECKED	A.R. Shurtell
APPROVED	

TOTAL ASPIRATED AIR REQUIREMENTS

	Speed.	1500	r/min
Air consumption (STANDBY rating)		2.100	kg/s
		3831	C.F.M.
Air consumption (OVERLOAD rating)		2.100	kg/s
		3831	C.F.M.
Air consumption (CONTINUOUS rating)		1.980	kg/s
		3612	C.F.M.
Maximum air intake depression		28	mmHg

EXHAUST GAS FLOW AND TEMPERATURE

DATA FOR STANDBY RATING

Exhaust mass flow	2.180	kg/s
Exhaust volume flow at 20mmHg exhaust back pressure and exhaust gas temperature after T/C	274.0	m ³ /min
Exhaust gas temp immediately after the T/C ...	466	°C
Max. exhaust back press immediately after T/C.	45	mmHg

DATA FOR OVERLOAD RATING

Exhaust mass flow	2.180	kg/s
Exhaust volume flow at 20mmHg exhaust back pressure and exhaust gas temperature after T/C	274.0	m ³ /min
Exhaust gas temp immediately after the T/C ...	466	°C
Max. exhaust back press immediately after T/C.	45	mmHg

NOTE: above data is within ISO3046 tolerances.

ENGINE INERTIAS (WR²) AND CYCLIC IRREGULARITY

INERTIAS: -

Engine with 20 inch Holset damper	7.26	kgm ²
Flywheel SEV250/1	9.10	kgm ²
Number of teeth on the gear ring	156	teeth

CYCLIC IRREGULARITY: -

With flywheel SEV250/1	1: 541
------------------------------	--------

STARTING ARRANGEMENTS

24 Volt BUTEC MS1/108 starter motor powered by rechargable batteries.	
Recommended battery capacity at ambient temperature 0°C	356 Ah
Inrush current to starter at ambient temperature 0°C	1600 A
Cranking current to start at ambient temperature 0°C	810 A
Cranking current to start at ambient temperature 27°C	690 A
Cranking speed at ambient temperature of 0°C	120 r/min
Starter cable maximum length	7 m

NOTE: The above data applies to direct driven equipment carrying NO LOAD at startup. For complex applications (gears, etc.) or ON LOAD STARTS, (eg. pumps without clutches), refer to Perkins Engines (Stafford)

GENERAL ARRANGEMENT

Drawing number	Z12103
Current issue	D
Date of issue	14th December 1989

PERKINS ENGINES (STAFFORD)

4012 TAG2

ISO 3046
TECHNICAL DATA
SHEET 5 OF 11

Standard Industrial Gen-Set Build

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M. ELEY
CHECKED	A. K. [Signature]
APPROVED	[Signature]

EXHAUST EMISSIONS DATA

Ambient temperature of 25 °C

Diesel specification : BS2869: Class A1 & A2

	Speed	1500	r/min
<u>OXIDES OF NITROGEN (NO_x)</u>			
Emissions at continuous rating.....		8.4	g/kWh
<u>HYDROCARBONS (HC)</u>			
Emissions at continuous rating.....		0.26	g/kWh
<u>CARBON MONOXIDE (CO)</u>			
Emissions at continuous rating.....		2.40	g/kWh

PERKINS ENGINES (STAFFORD)

4012 TAG2

Standard Industrial Gen-Set Build

ISO 3046
TECHNICAL DATA
SHEET 6 OF 11

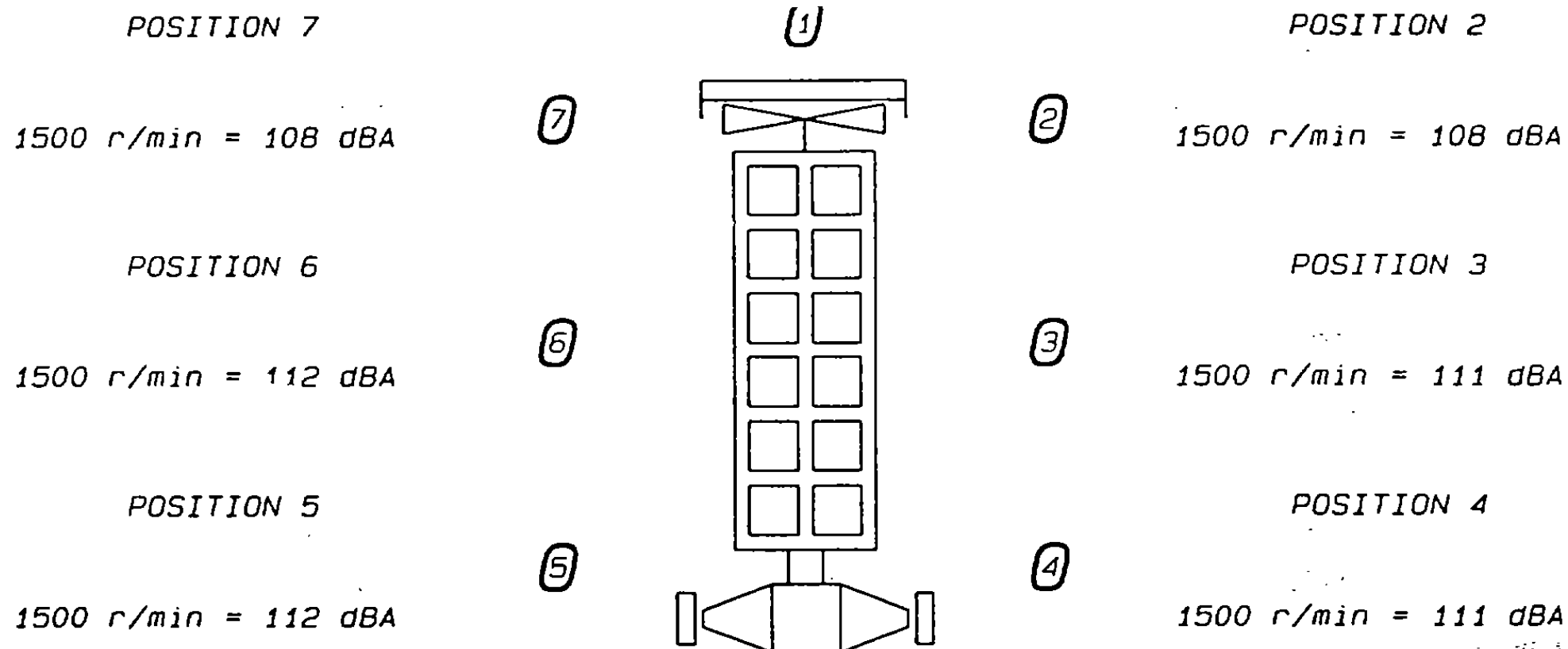
DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M.ELEY
CHECKED	A.R. [Signature]
APPROVED	[Signature]

TOTAL NOISE LEVEL (Sound pressure level re: -20×10^{-6} pa)

Speed	1500	r/min
Ambient noise level.....	84	dB

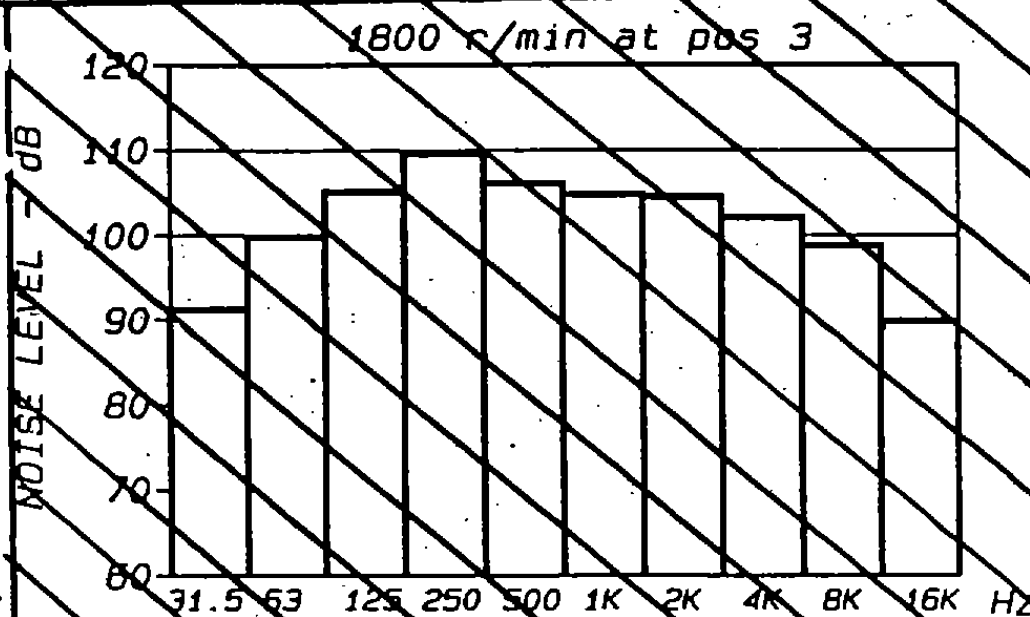
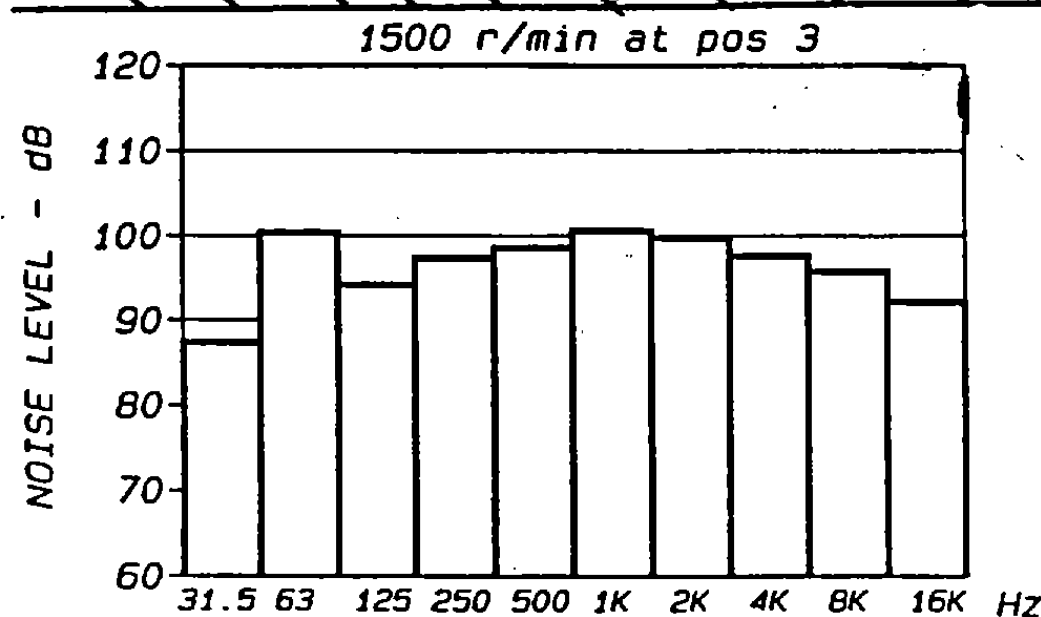
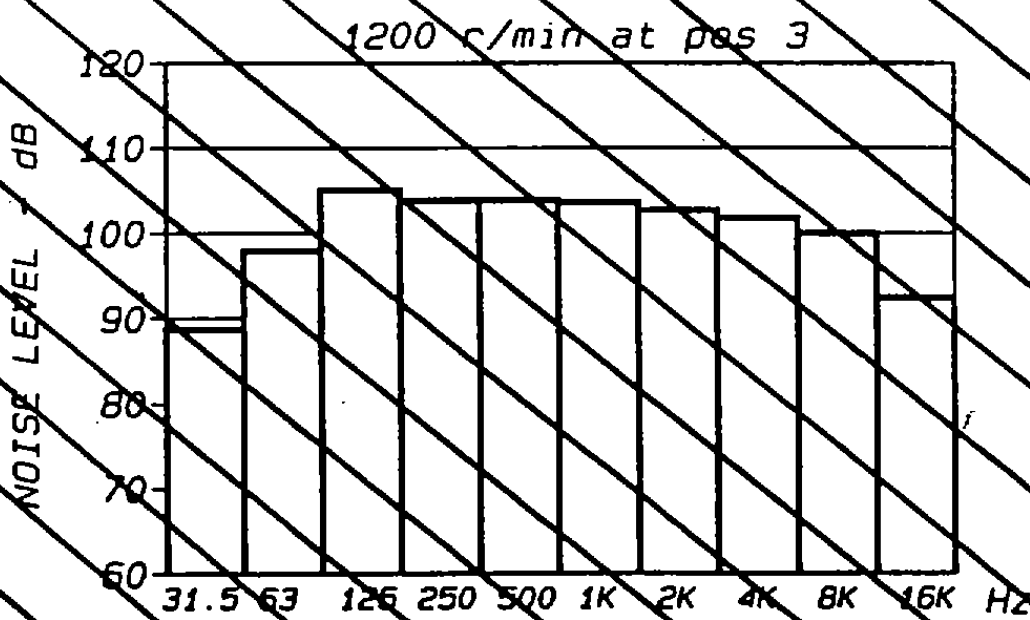
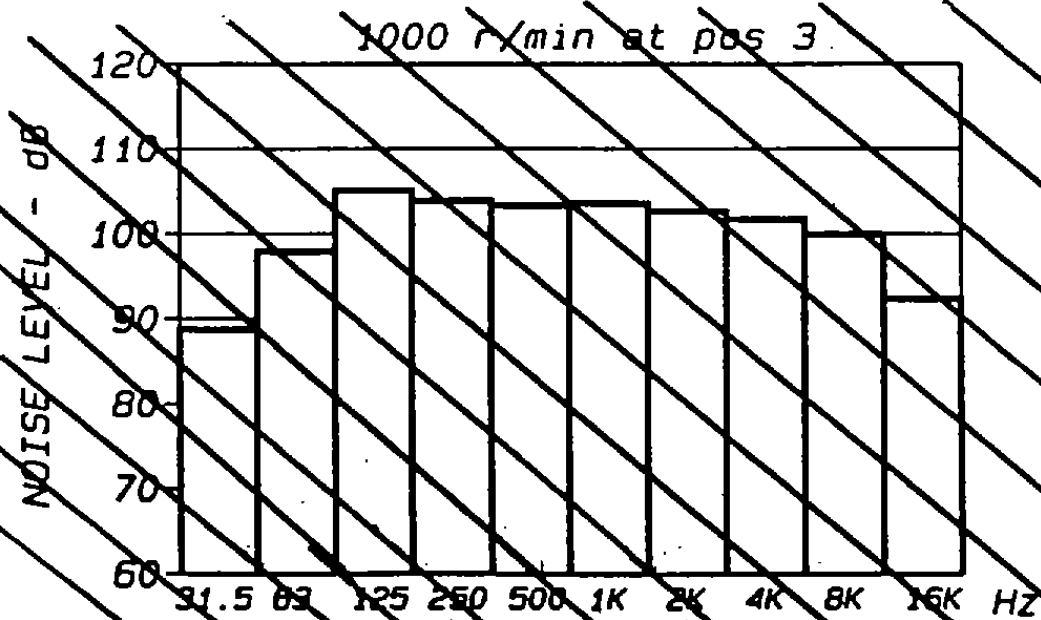
POSITION 1

1500 r/min = 106 dBA



NOISE LEVELS: The figures for total noise levels are typical for an engine running at rated continuous load in a semi-reverberant environment and measured at a distance of one metre from the periphery of the engine.

OCTAVE ANALYSIS: The following histograms show an octave band analysis for each speed at the position of maximum noise level.



PERKINS ENGINES (STAFFORD)

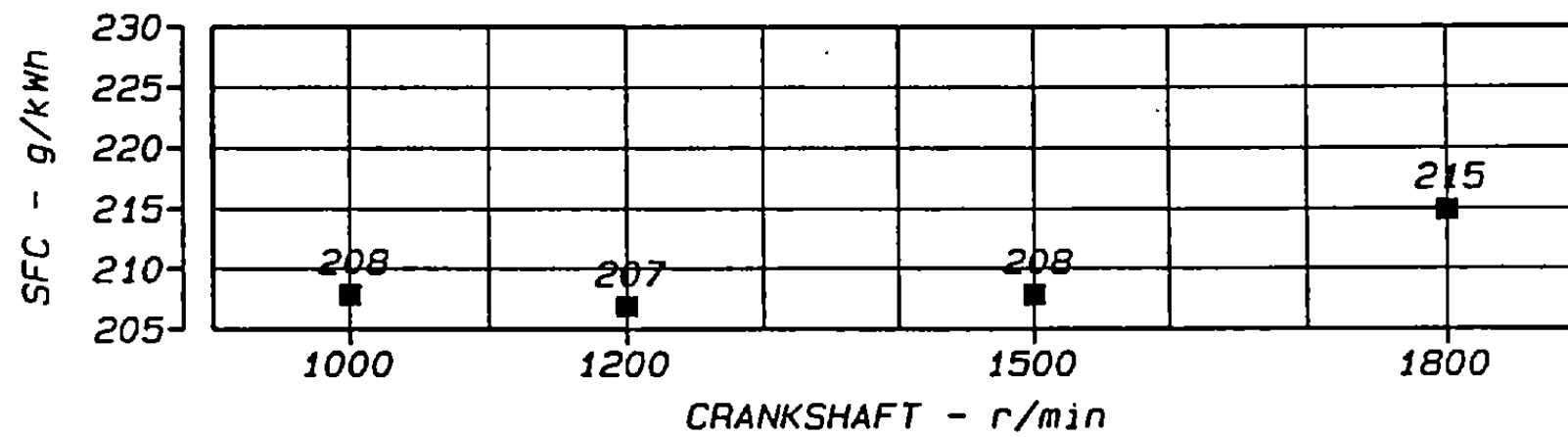
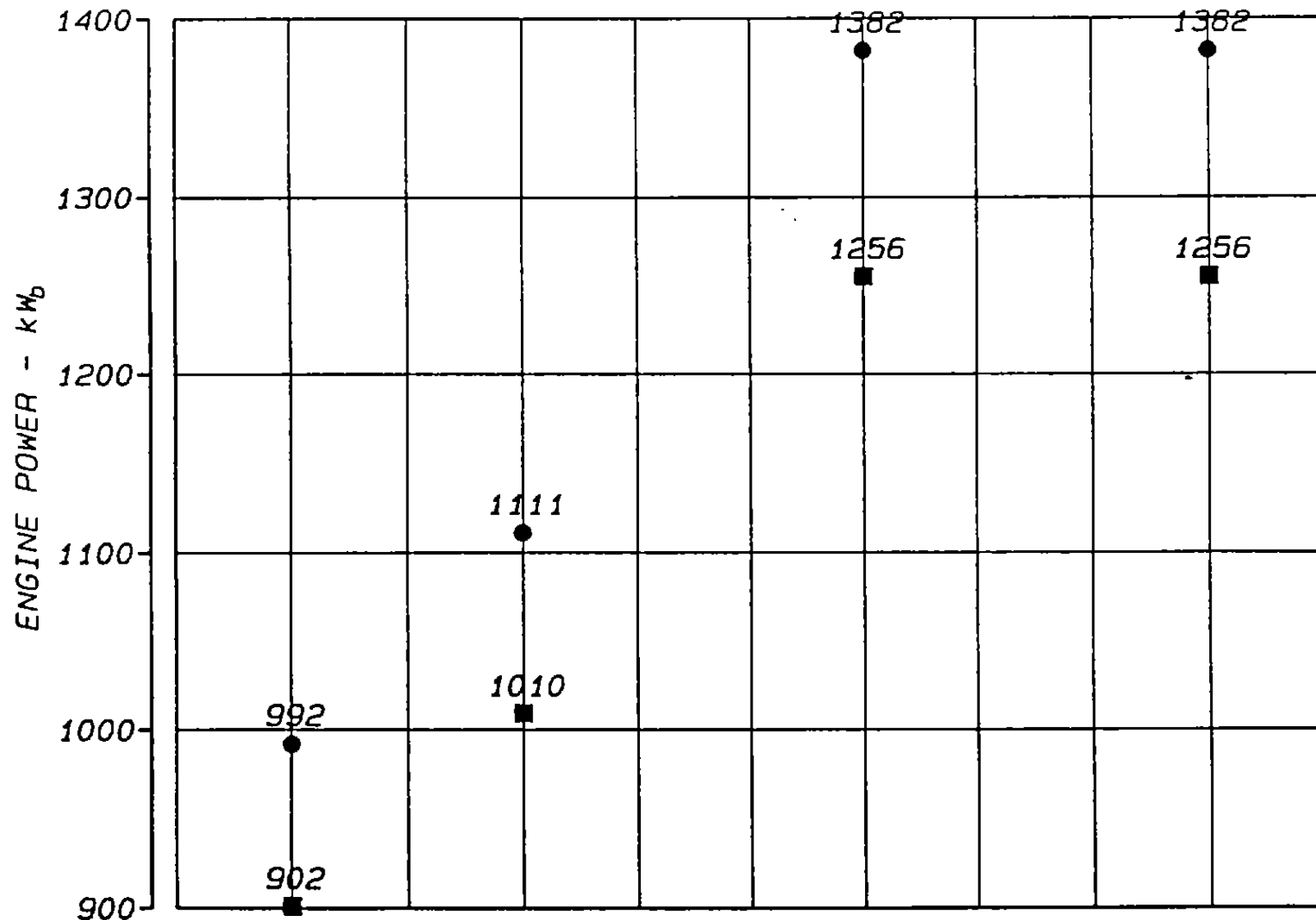
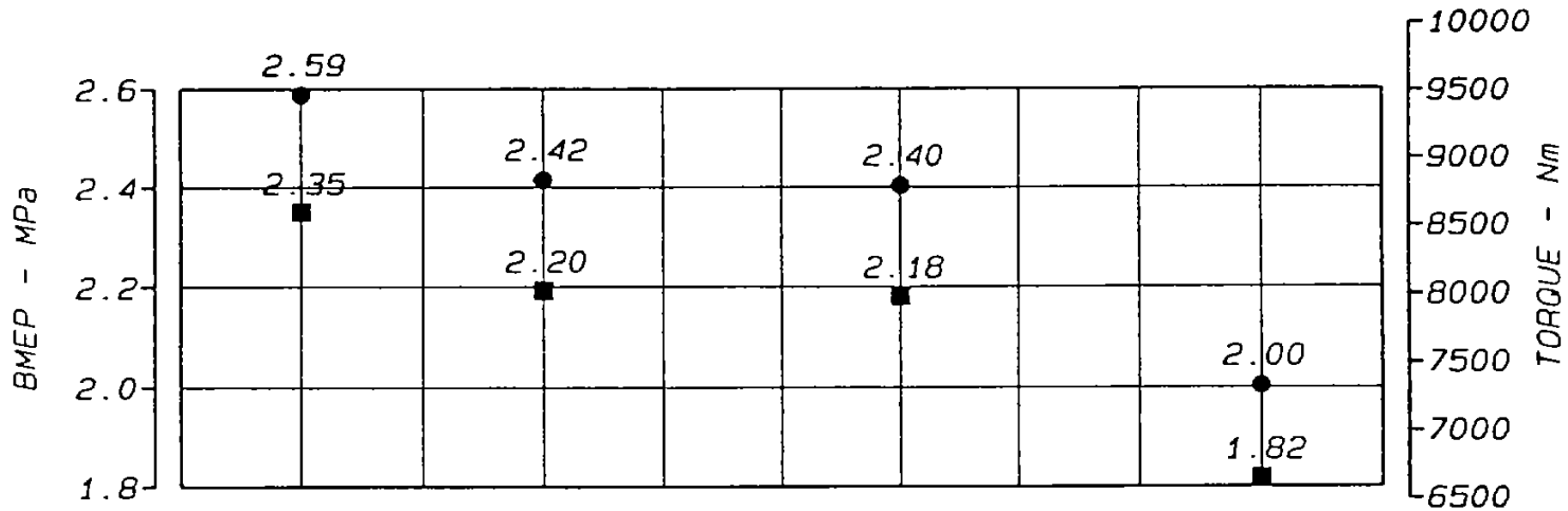
4012 TAG2

Standard Industrial Gen-Set Build

ISO 3046
TECHNICAL DATA
SHEET 7 OF 11

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M. ELEY
CHECKED	A.R. [Signature]
APPROVED	[Signature]

FIXED SPEED RATINGS



■ Continuous data ● Overload data

PERKINS ENGINES (STAFFORD)

4012 TAG2

Standard Industrial Gen-Set Build

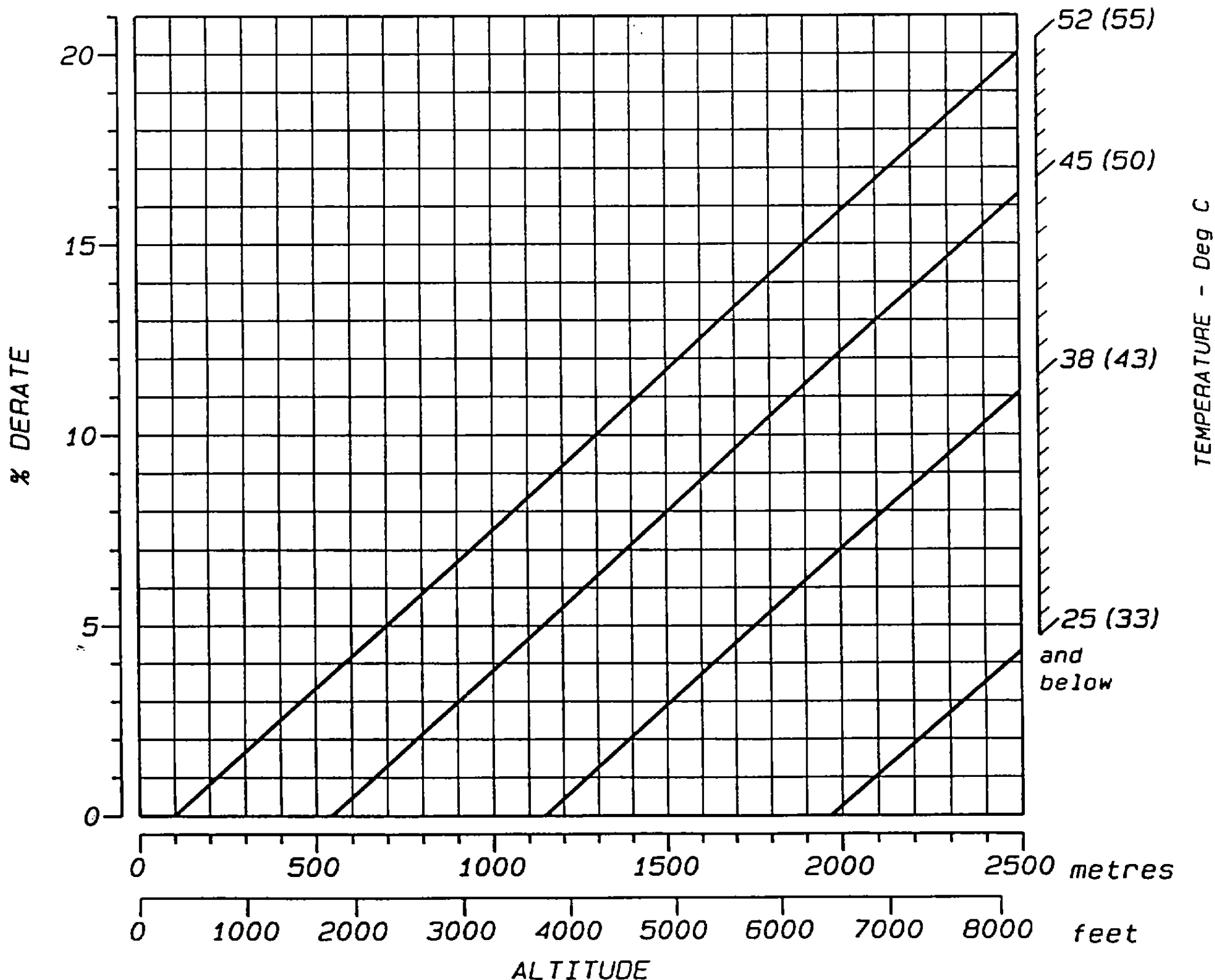
ISO 3046
TECHNICAL DATA
SHEET 8 OF 11

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M. ELEY
CHECKED	<i>A. R. [Signature]</i>
APPROVED	<i>[Signature]</i>

DERATING FROM ISO 3046 STANDARD CONDITIONS FOR SPEED BUILD 1000 r/min

NOT APPLICABLE

Air temp. into radiator
Ambient temperature
(at air cleaner inlet)



PERKINS ENGINES (STAFFORD)

4012 TAG2

Standard Industrial Gen-Set Build

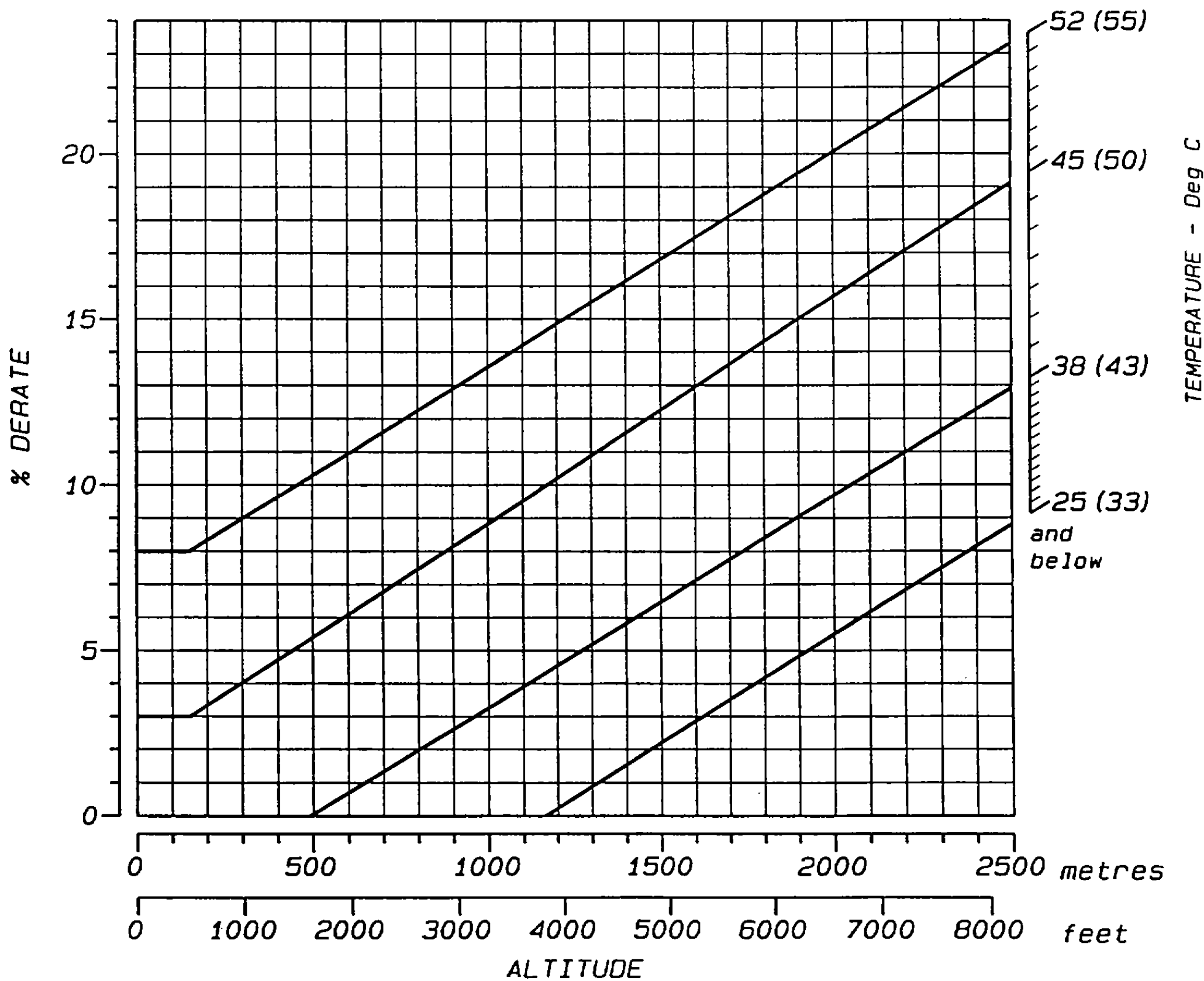
ISO 3046
TECHNICAL DATA
SHEET 9 OF 11

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M.ELEY
CHECKED	A. K. [Signature]
APPROVED	[Signature]

DERATING FROM ISO 3046 STANDARD CONDITIONS FOR SPEED BUILD 1200 r/min

NOT APPLICABLE

Air temp. into radiator
Ambient temperature
(at air cleaner inlet)



PERKINS ENGINES (STAFFORD)

4012 TAG2

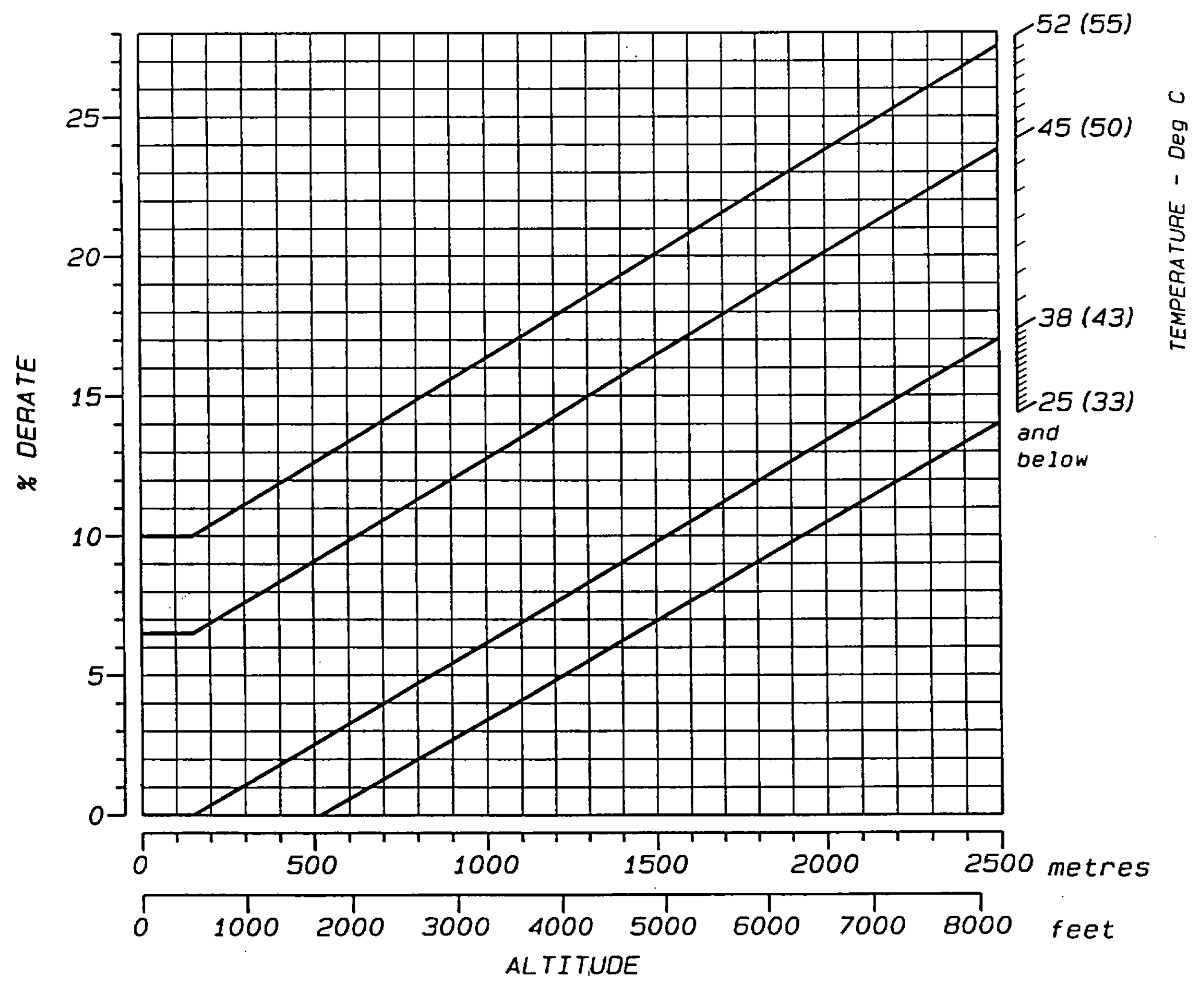
Standard Industrial Gen-Set Build

ISO 3046
TECHNICAL DATA
SHEET 10 OF 11

DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M.ELEY
CHECKED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>

DERATING FROM ISO 3046 STANDARD CONDITIONS FOR SPEED BUILD 1500 r/min

Air temp. into radiator
Ambient temperature
(at air cleaner inlet)



PERKINS ENGINES (STAFFORD)

4012 TAG2

Standard Industrial Gen-Set Build

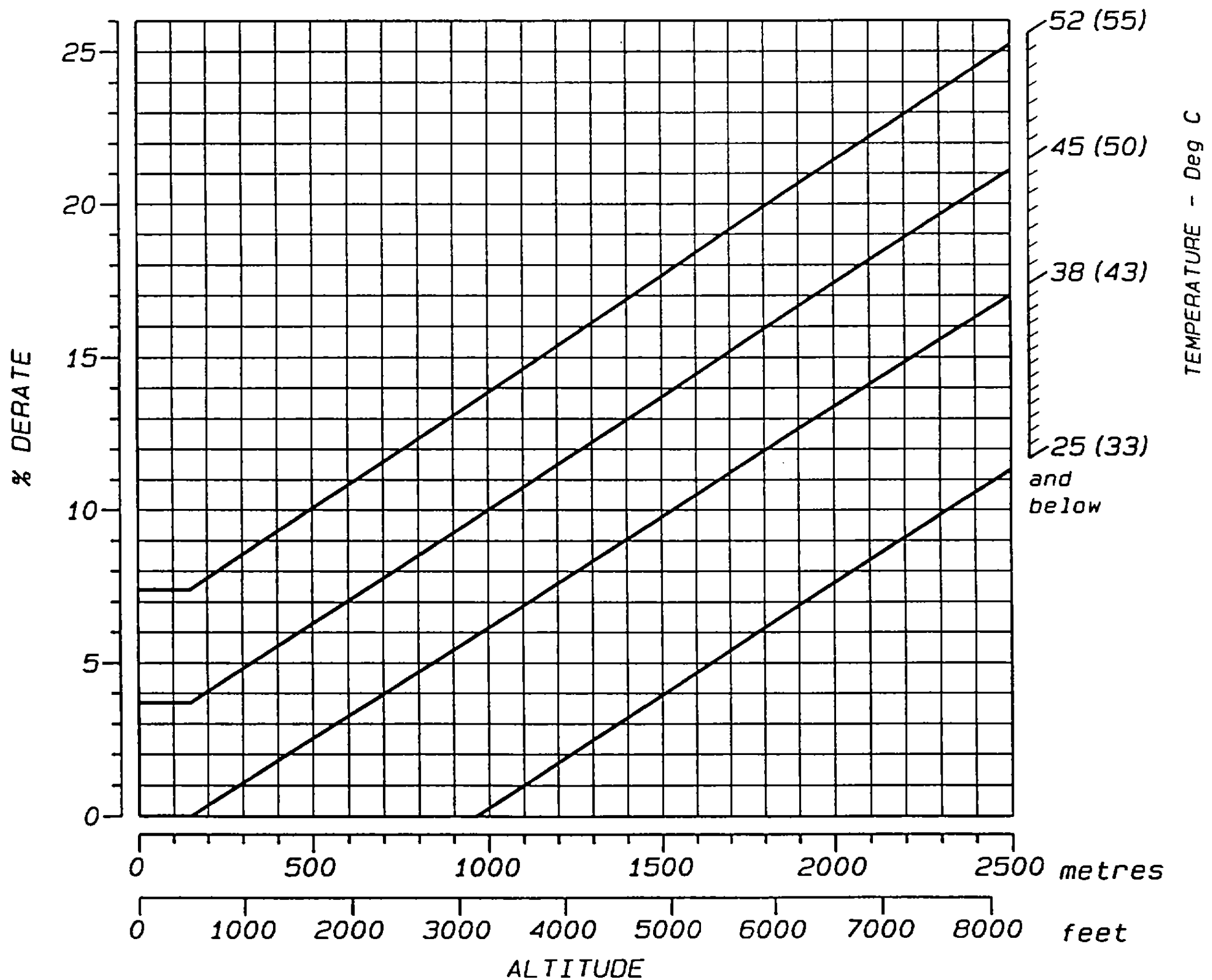
ISO 3046
TECHNICAL DATA
SHEET 11 OF 11

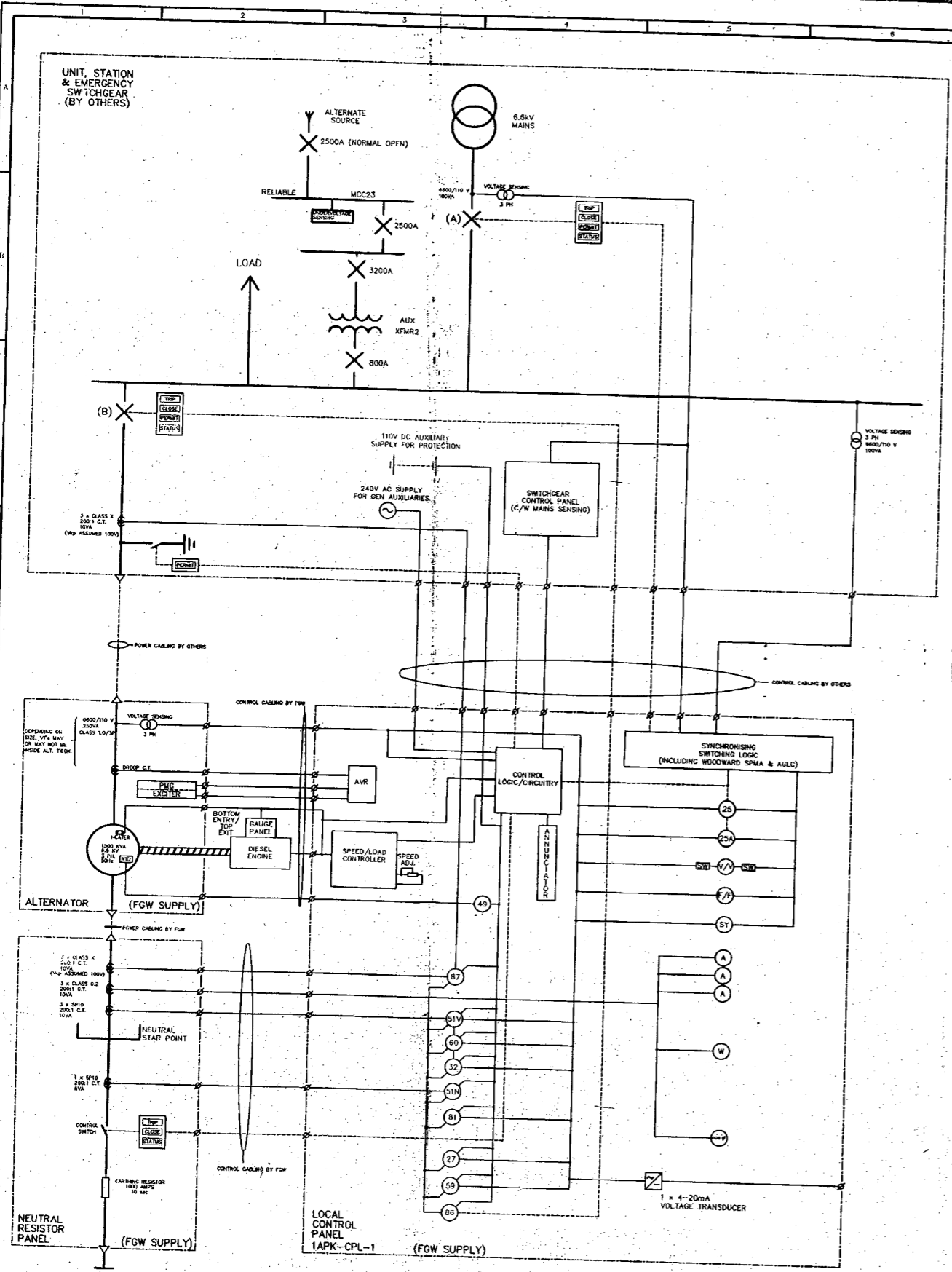
DATA SHT.	SE40AD
DATE	1/5/95
ISSUE	5
COMPILED	M. ELEY
CHECKED	A. R. Smith
APPROVED	[Signature]

DERATING FROM ISO 3046 STANDARD CONDITIONS FOR SPEED BUILD 1800 r/min

NOT APPLICABLE

Air temp. into radiator
Ambient temperature
(at air cleaner inlet)





MODE OF OPERATION

1 - MAINS SUPPLY ONLY

- 1A - MAINS HEALTHY
 - 1A1 - BREAKER A CLOSED (MAINS ON LOAD)
 - 1A2 - BREAKER B OPEN
 - 1A3 - GENERATOR ON STANDBY

2 - GENERATOR SUPPLY ONLY

- 2A - 6600V FAILURE
 - 2A1 - 6600V SWITCHGEAR FAILURE DETECTED AT SWITCHGEAR (UV RELAY)
 - 2A2 - 6600V SWITCHGEAR MAIN BREAKER A OPENS
 - 2A3 - GENERATOR DOES NOT START AUTOMATICALLY, GENERATOR MUST BE STARTED MANUALLY BY THE OPERATOR

- 2B - RELIABLE MCC 23 UNDERVOLTAGE
 - 2B1 - POWER FAILURE DETECTED ON RELIABLE MCC23 (UV RELAY)
 - 2B2 - BREAK-BEFORE-MAKE TRANSFER TO RELIABLE MCC 23 ALTERNATE SOURCE, IF TRANSFER SUCCESSFUL AND BUS UNDERVOLTAGE NO LONGER EXISTS, NO EMERGENCY GENERATOR START REQUIRED.
 - 2B3 - AUTO START SIGNAL WILL BE ISSUED (DRY CONTACT CLOSURE) FROM PLANT DCIS TO GENERATOR CONTROL PANEL AFTER UNDERVOLTAGE CONDITION ON MCC 23 EXISTS FOR 5 CONSECUTIVE SECONDS AND UNDER VOLTAGE CONDITION ON 6600V SWITCHGEAR. AUTO START SIGNAL TO BE REMOVED UPON CLOSURE OF GENERATOR BREAKER B.

DELETE → 2B4 - EMERGENCY GENERATOR PERMIT TO START CONTACT FROM DCIS MUST BE CLOSED (OPEN CONTACT INHIBITS START)

- 2B5 - GENERATOR STARTS AND RUNS UP TO SPEED AND VOLTAGE
- 2B6 - BREAKER B CLOSING ENERGIZING 6600V SWITCHGEAR.

2C - 6600V MAINS RESTORATION

- 2C1 - GENERATOR CONTINUES TO RUN ON LOAD
- 2C2 - OPERATOR SELECTS SYNC OF 6600V SWITCHGEAR MAIN BREAKER A FROM GEN CONTROL PANEL.
- 2C3 - 6600V SWITCHGEAR MAIN BREAKER PERMIT TO SYNC DRY CONTACT OUTPUT FROM DCIS MUST BE CLOSED FOR PERMIT TO SYNC MAIN BREAKER FROM GEN CONTROL PANEL (OPEN CONTACT INHIBITS BREAKER SYNC). DRY CONTACT OUTPUT FROM THE DCIS WILL CLOSE TO LIGHT AN AMBER LIGHT ON GEN CONTROL PANEL (BY FGW) FOR INDICATION OF PERMIT TO SYNC 6600V MAIN BREAKER (OPEN CONTACT TO EXTINGUISH AMBER LIGHT). **GREEN**
- 2C4 - GENERATOR SYNC'S TO UNIT AUXILIARY TRANSFORMER SUPPLY AND CLOSING 6600V MAIN BREAKER A. **ALSO BE UTILIZED TO**
- 2C5 - STOP SIGNAL SENT FROM DCIS
- 2C6 - LOAD RAMPED FROM GENERATOR TO 6600V MAIN BREAKER
- 2C7 - EMERGENCY GENERATOR BREAKER B OPENS
- 2C8 - GENERATOR COOL DOWN AND STOP
- 2C9 - GENERATOR ON STANDBY

3 - TEST OPERATION

- AES BARRY LIMITED
AES BARRY POWER STATION
EMERGENCY GENERATOR
1APK-DG-1**
- 3A1 - GENERATOR MANUALLY PUT INTO TEST POSITION AT CONTROL PANEL (PUSHBUTTON START/STOP REQUIRED)
 - 3A2 - GENERATOR STARTS AND RUNS UP TO SPEED AND VOLTAGE
 - 3A3 - BREAKER B CLOSING WHEN GEN AND MAINS IN SYNC
 - 3A4 - LOAD RAMPED FROM MAINS TO GEN UNTIL BASE LOAD LEVEL HAS BEEN REACHED
 - 3A5 - GEN AND MAINS IN PARALLEL
 - 3A6 - WHEN TEST OPERATION IS NO LONGER REQUIRED IT MUST BE MANUALLY TAKEN OUT OF THE TEST POSITION
 - 3A7 - OPERATION AS PER 2B7 TO 2B10 ABOVE

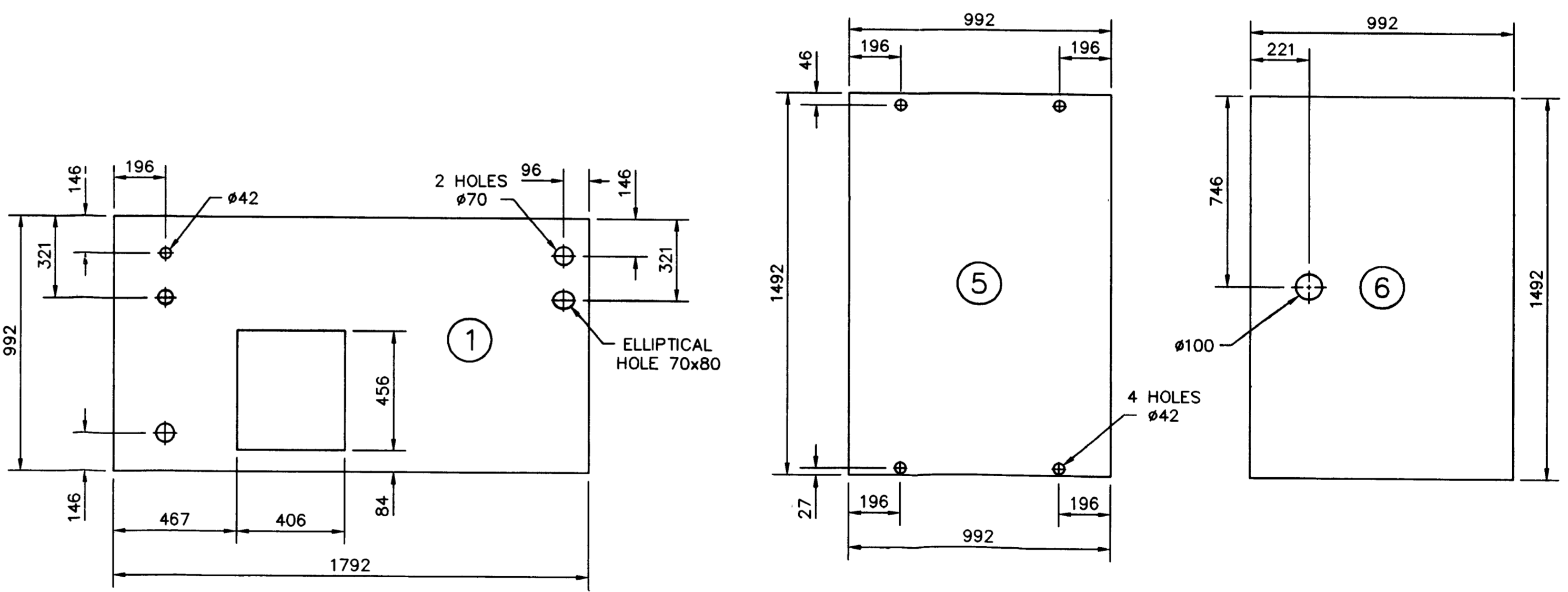
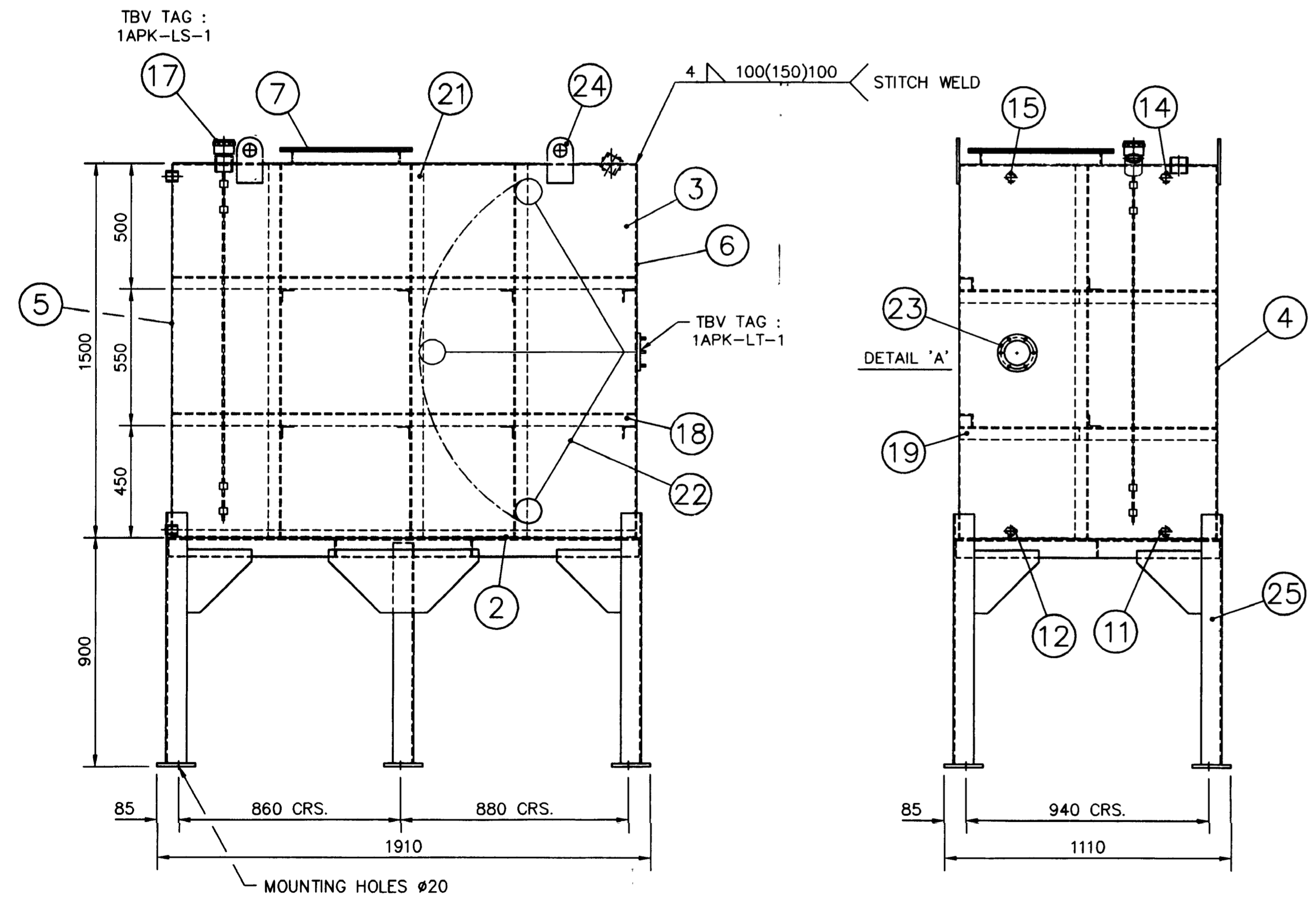
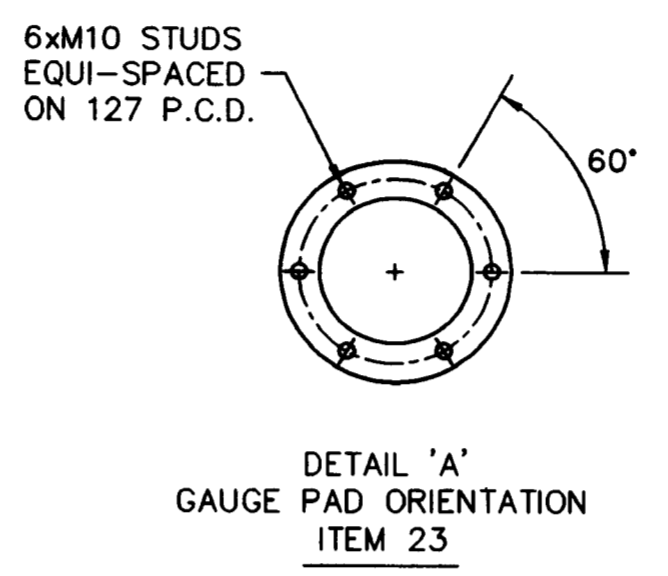
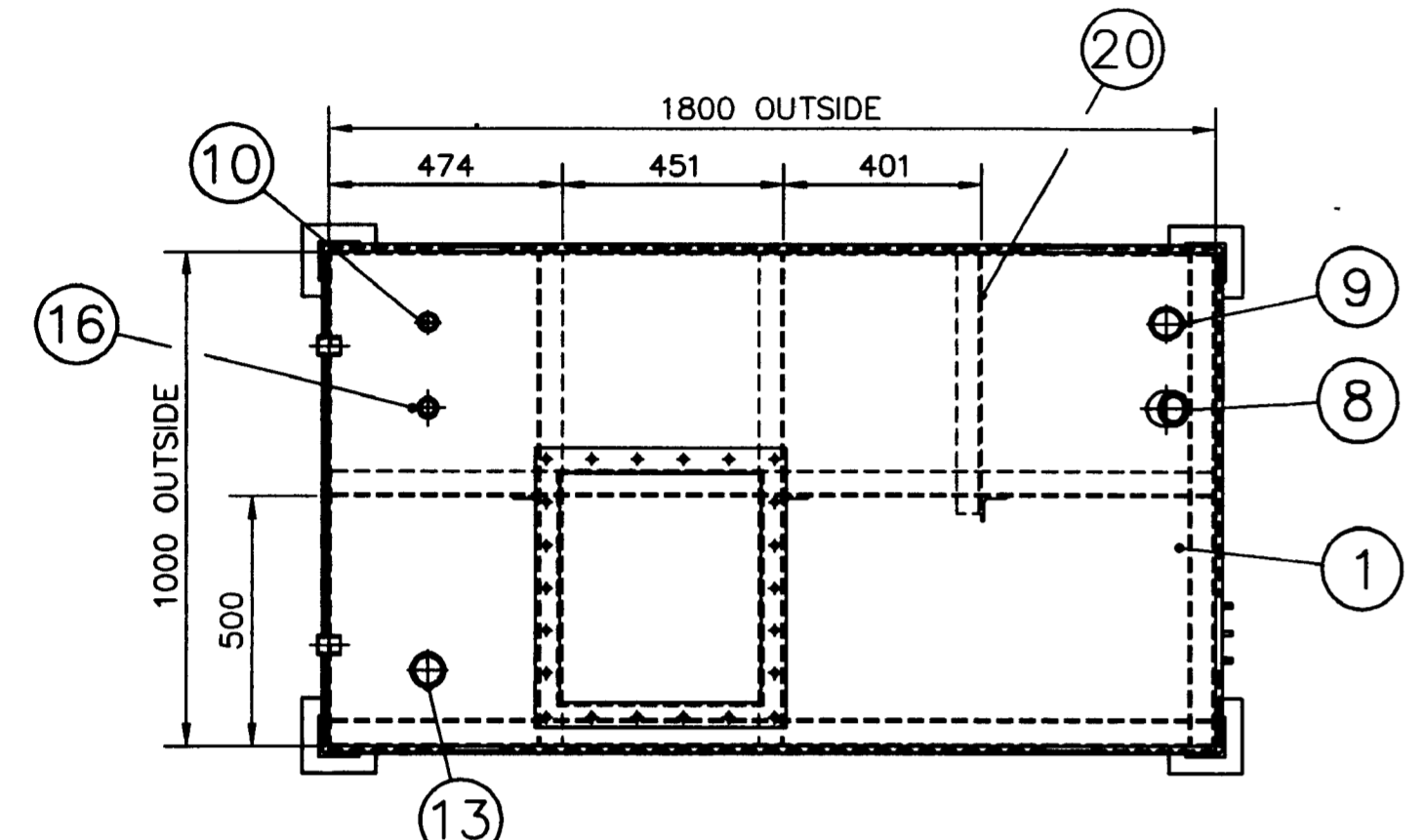
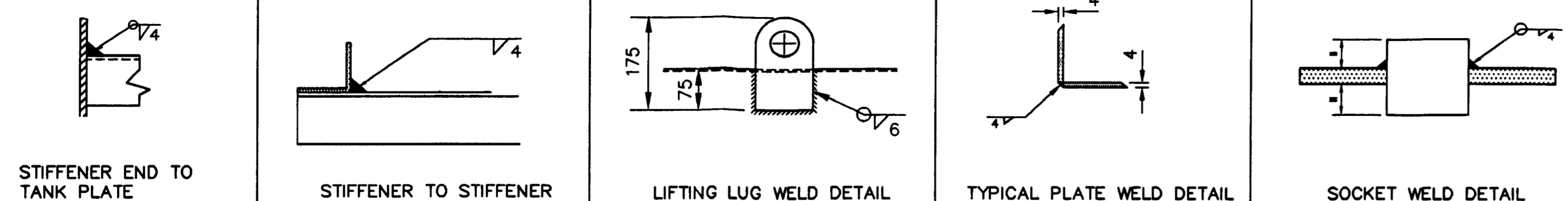
FOR INFORMATION ONLY
ISSUED
- 3 SEP 1987
F. G. WILSON (Engineering) LTD

DESIGNED AND BUILT FOR	CUSTOMER	AES BARRY LIMITED
TBV POWER BY	PROJECT	AES BARRY POWER STATION
F.G. WILSON ENGINEERING	TBV PROJECT	88710
UNDER REFERENCE C3161.	TAG	TBC

ANSI - IEEE STANDARD ELECTRICAL POWER SYSTEM DEVICE FUNCTION NUMBERS	
27 - UNDER VOLTAGE RELAY	60 - VOLTAGE UNBALANCE
32 - REVERSE POWER RELAY	61 - UNDER/OVER FREQ. RELAY
45 - TEMPERATURE RELAY	51N - TIME DELAYED EARTH FAULT
25 - CHECK SYNC	51V - VOLTAGE CONTROLLED O/C
	59 - OVER VOLTAGE RELAY
	81 - UNDER/OVER FREQ. RELAY
	86 - TRIP LOCKOUT
	87 - DIFFERENTIAL PROTECTION

8. DRAWING REVISED FOLLOWING CUSTOMER COMMENTS
A. FIRST ISSUE
DATE DESCRIPTION

F. G. WILSON (ENGINEERING) LTD.
SHEET NO. 021506
ISSUE NO. B
DATE 2-7-87
SCALE N.T.S.



ITEM	QTY.	DESCRIPTION	MATERIAL SPECIFICATION		DRG./PART NO.
1	1	TOP PLATE	1792x992x4mm PLT	BS1449-HR4	-
2	1	BASE PLATE	1792x992x4mm PLT	BS1449-HR4	-
3	1	FRONT PLATE	1792x1492x4mm PLT	BS1449-HR4	-
4	1	BACK PLATE	1792x1492x4mm PLT	BS1449-HR4	-
5	1	END PLATE-LH	1492x992x4mm PLT	BS1449-HR4	-
6	1	END PLATE-RH	1492x992x4mm PLT	BS1449-HR4	-
7	1	MANHOLE (COMPLETE)	-	-	SK598-664
8	1	MANUAL FILL	2" BSP SOCKET	-	523-009
9	1	VENT	2" BSP SOCKET	-	523-009
10	1	SPARE SKT.	1" BSP SOCKET	-	523-006
11	1	FUEL SUPPLY	1" BSP SOCKET	-	523-006
12	1	DRAIN	1" BSP SOCKET	-	523-006
13	1	SPARE SKT.	2" BSP SOCKET	-	523-009
14	1	FUEL RETURN	1" BSP SOCKET	-	523-006
15	1	SPARE SKT.	1" BSP SOCKET	-	523-006
16	1	FLOAT SWITCH SKT.	1 1/2" BSP SOCKET	-	523-013
17	1	FLOAT SWITCH	4 POSITION	-	609-603
18	4	HORIZONTAL STIFFENER	50x50 RSAx1792 LONG	BS4360-43A	-
19	6	HORIZONTAL STIFFENER	50x50 RSAx992 LONG	BS4360-43A	-
20	2	HORIZONTAL STIFFENER	50x50 RSAx530 LONG	BS4360-43A	-
21	3	VERTICAL STIFFENER	50x50 RSAx1496 LONG	BS4360-43A	-
22	1	CONTENTS GAUGE	'BAYSEND' LOCAL GAUGE & REMOTE SIGNAL	-	-
23	1	CONTENTS GAUGE PAD	B15 PAD	-	623-027
24	4	LIFTING LUG	100x10 F/BARx175L	BS4360-43A	-
25	1	SUPPORT STAND	-	-	MTS0130
* 26	1	GOOSE NECK VENT	2" BSP VENT PIPEx600mm HIGH	-	-
* 27	1	FILLER NECK C/W CAP	-	-	590-048
* 28	1	DRAIN VALVE	1" BSP	-	596-060
29	-	-	-	-	-

* NOT SHOWN

- NOTE :
- DESIGNED TO BS799:PART 5:1987: TYPE III
 - TO BE CLEANED, COATED & PAINTED AS PER CUSTOMER SPECIFICATION.
 - MAX. VENT HEIGHT 600mm ABOVE TANK TOP.
 - TANK TEST PRESSURE 3.75 PSI
 - STITCH WELD INTERNALLY BEFORE TANK TOP IS ADDED.

AES BARRY POWER STATION
TBV PROJECT : 28719
TAG NO : 1APK-TNK-1

TOLERANCES EXCEPT WHERE OTHERWISE STATED
0 - 500mm ± 1mm
500 - 2000mm ± 2mm
OVER 2000mm ± 3mm
STRUCTURAL ± 3mm
ANGULAR ± 0.5°

F. G. WILSON (ENGINEERING) LTD.
OLD GLENARW ROAD, LARNE, BT40 1EJ, U.K.
Tel: (0574) 261000 Telex: 747448/747008 GENSET G
ENGINEERING LTD. Telefax: (0574)261111

THIS DRAWING AND THE DESIGN SHOWN ARE THE PROPERTY OF F.G.WILSON (ENGINEERING) LTD. AND MUST NOT BE USED OR COPIED WITHOUT THEIR PERMISSION

DRN. BY A.MURPHY
DATE 4-3-94

APPD. BY [Signature]
DATE 29/1/94

TITLE
FUEL TANK 2600 LITRE WITH STAND

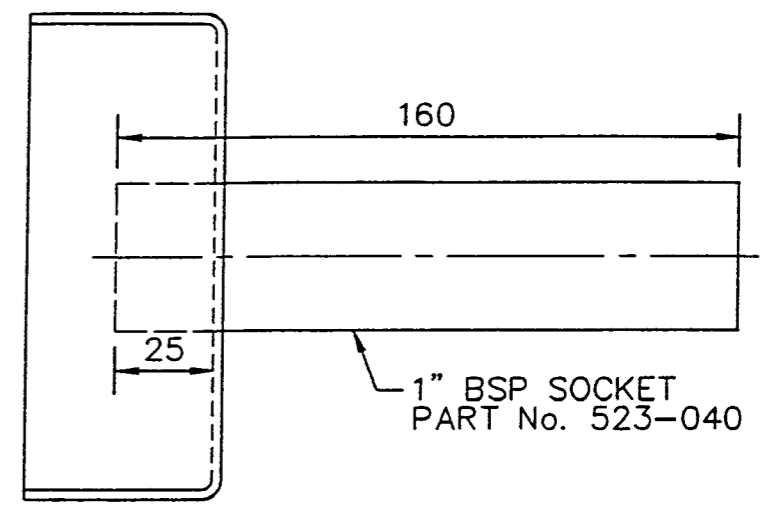
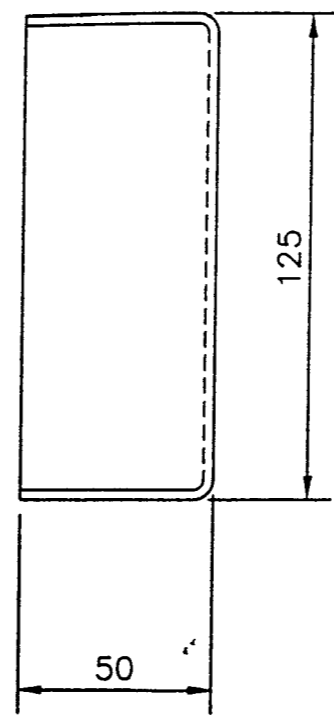
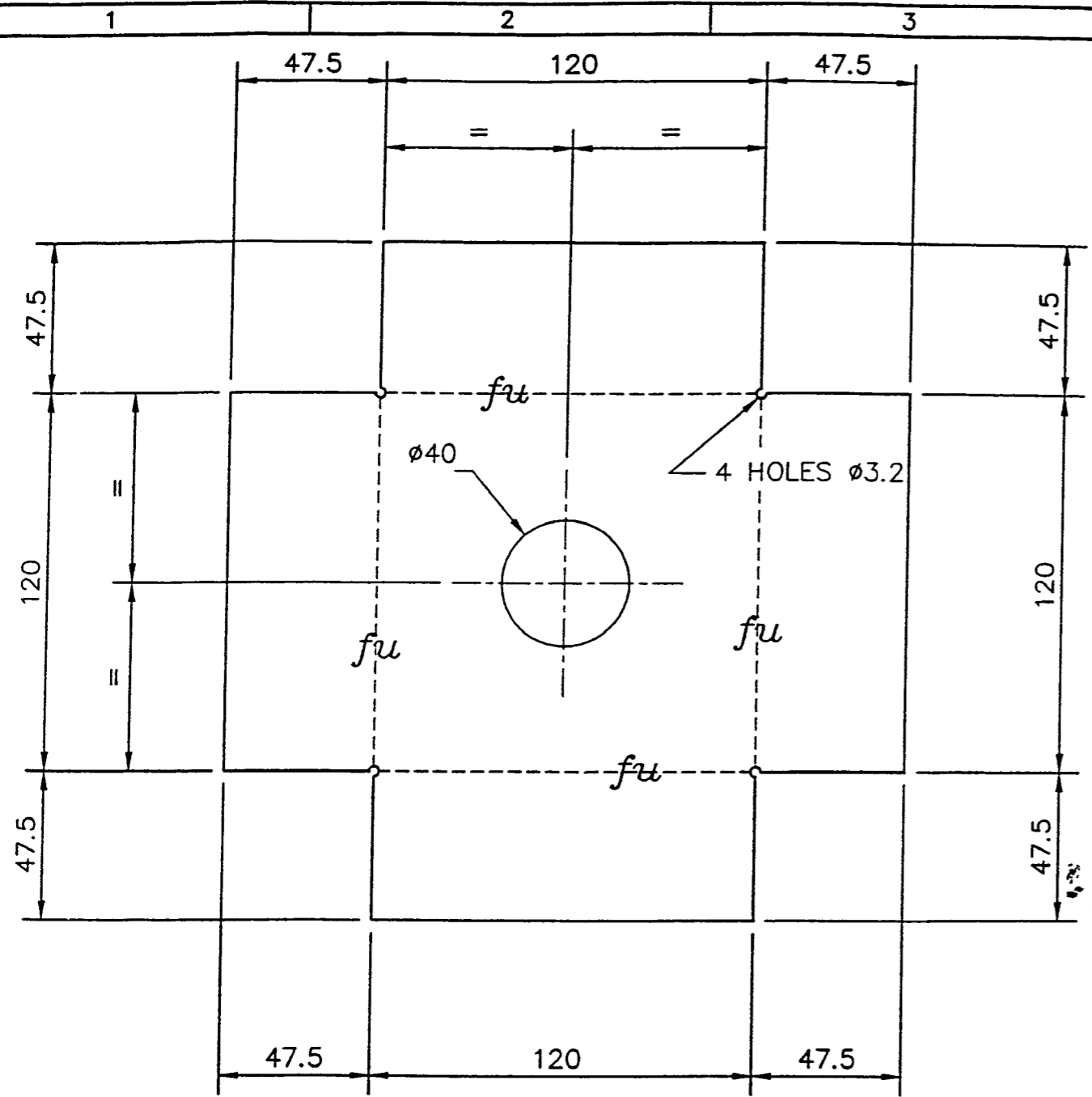
SHEET SIZE A1
ORIGINAL SCALE 1:15
DRAWING NO. MTA0577
ISSUE B

CERTIFIED FINAL
Signed [Signature]
Date 31.7.98

C3161 - TBV POWER LTD.

B	CUSTOMER TAG NOS. ADDED	A.P.M.	25-9-97
A	FIRST ISSUE	-	-
ISSUE	DESCRIPTION	BY	DATE

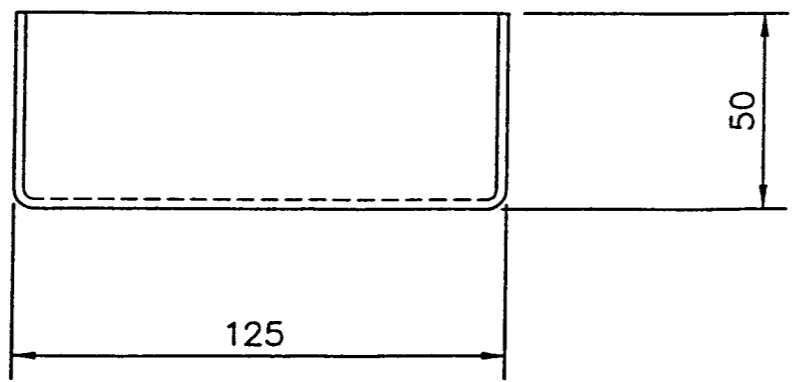
MATERIAL SPECIFICATION
2.5mm PLT. GALV. BS2989-Z2



ASSEMBLY DRAWING

NOTE : WELD AND DRESS ALL
FOUR CORNERS

CERTIFIED FIN
Signed *A. Murphy*
Date *31.7*



TITLE 1" BSP SOCKET PANEL (SINGLE) & ASSEMBLY DRAWING
FOR GENSET ENCLOSURES

TOLERANCES EXCEPT WHERE OTHERWISE STATED 0 - 500mm ± 1mm 500 - 2000mm ± 2mm OVER 2000mm ± 3mm STRUCTURAL ± 3mm ANGULAR ± 0.5°	SHEET SIZE A3	ORIGINAL SCALE 1:2	
	THIS DRAWING & THE DESIGN SHOWN ARE THE PROPERTY OF F.G.WILSON (ENG.) LTD. AND MUST NOT BE USED OR COPIED BY A THIRD PARTY WITHOUT PERMISSION	DRN BY R.R.	DATE 04-01-95
APPD BY K.C.		DATE 20.09.95	

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

DO NOT SCALE

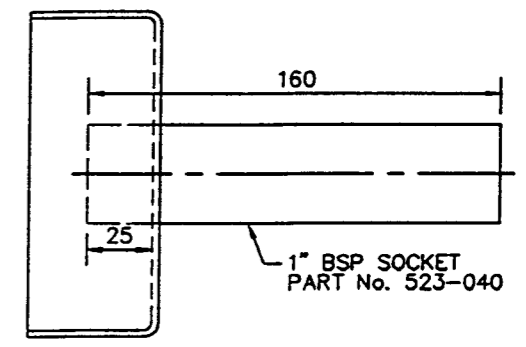
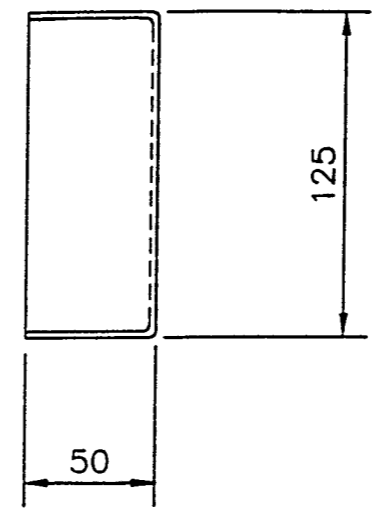
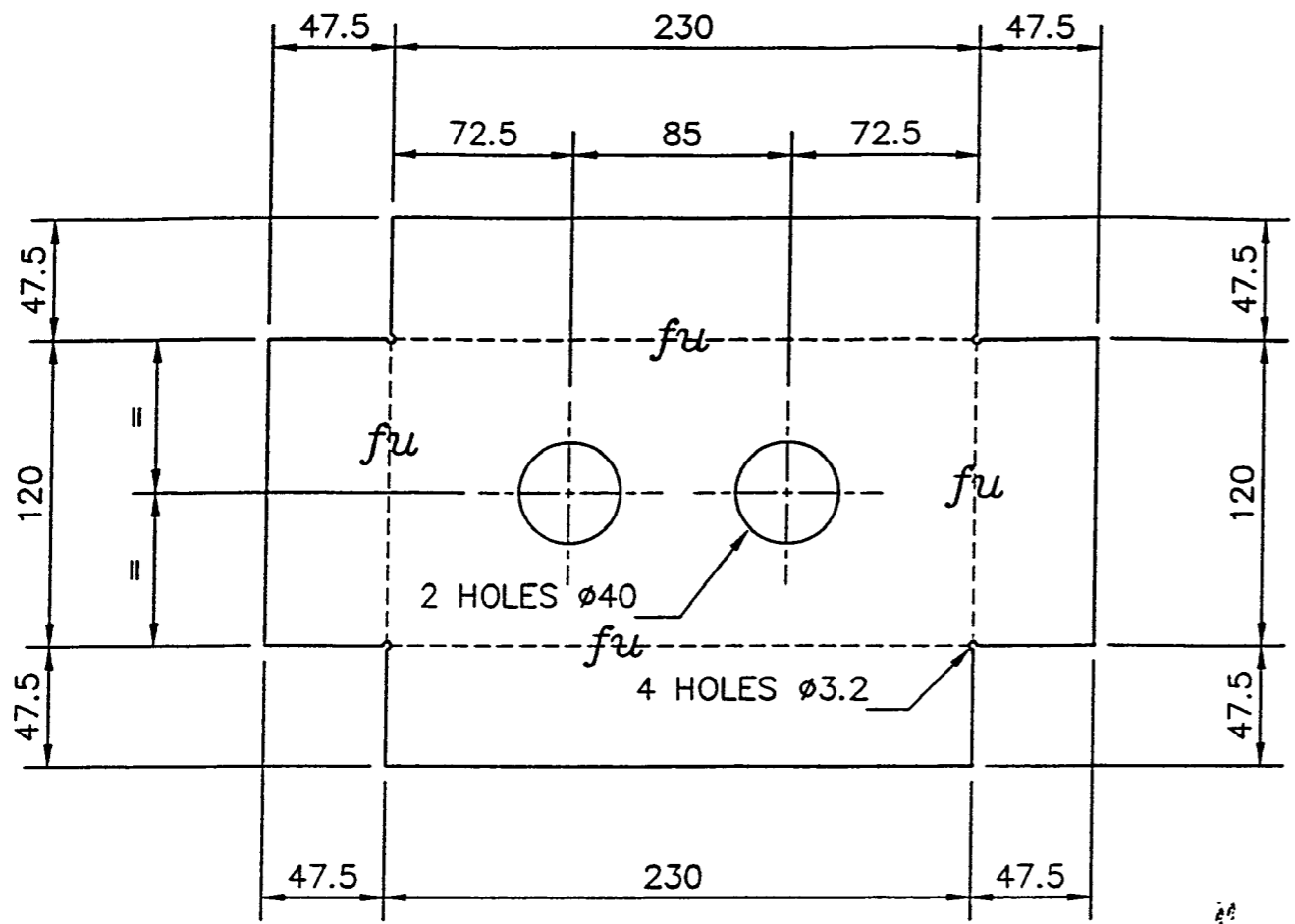
3rd ANGLE PROJECTION



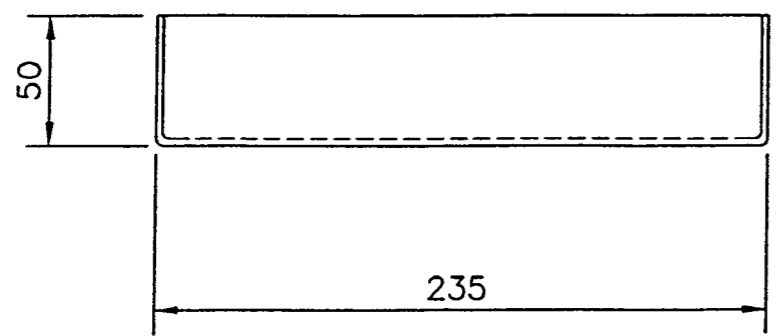
DRAWING NO. **MCC1273** ISSUE **C**

C	G.A. ADDED	JPT	20/9/95
B	DIA. OF HOLE 40 WAS 42	S.H.	19/05/95
A	FIRST ISSUE	-	-
ISSUE	DESCRIPTION	BY	DATE

MATERIAL SPECIFICATION
2.5mm PLT. GALV. BS2989-Z2



ASSEMBLY DRAWING



NOTE : WELD AND DRESS ALL
FOUR CORNERS

CERTIFIED FINAL
Signed *A. Murphy*
Date *31.7.98*

TITLE 1" BSP SOCKET PANEL (DOUBLE) & ASSEMBLY DRAWING
FOR GENSET ENCLOSURES

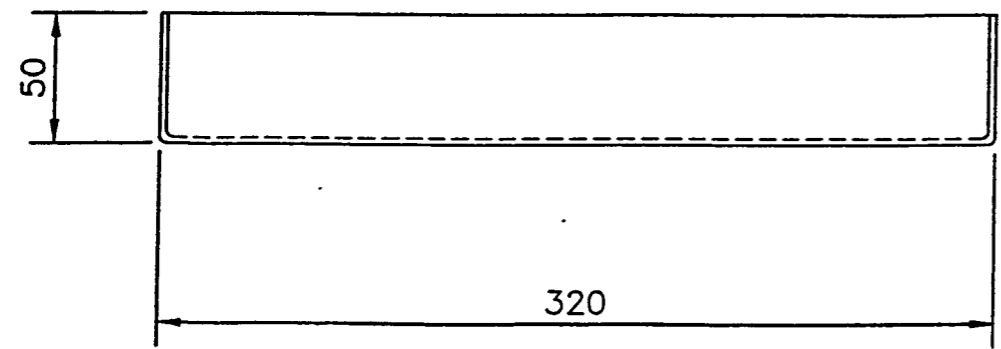
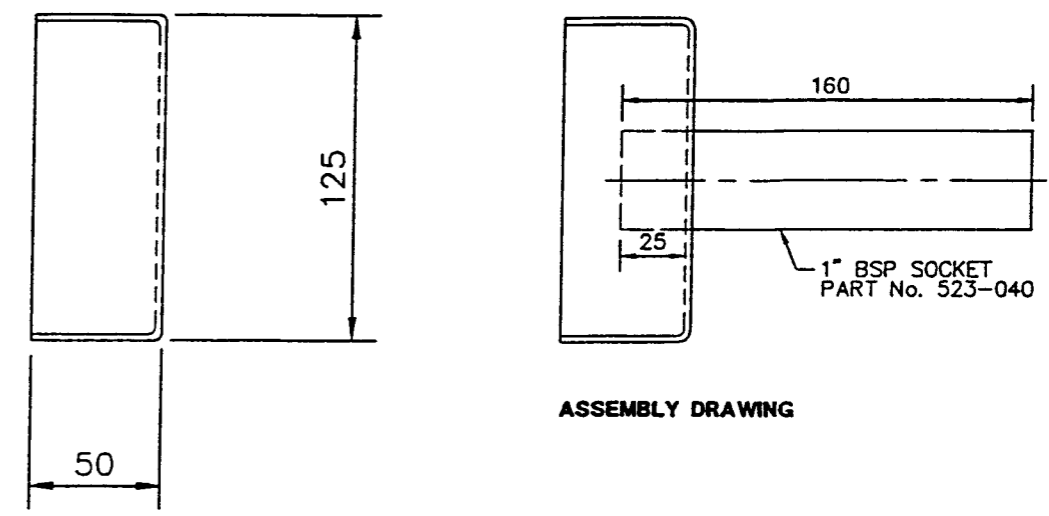
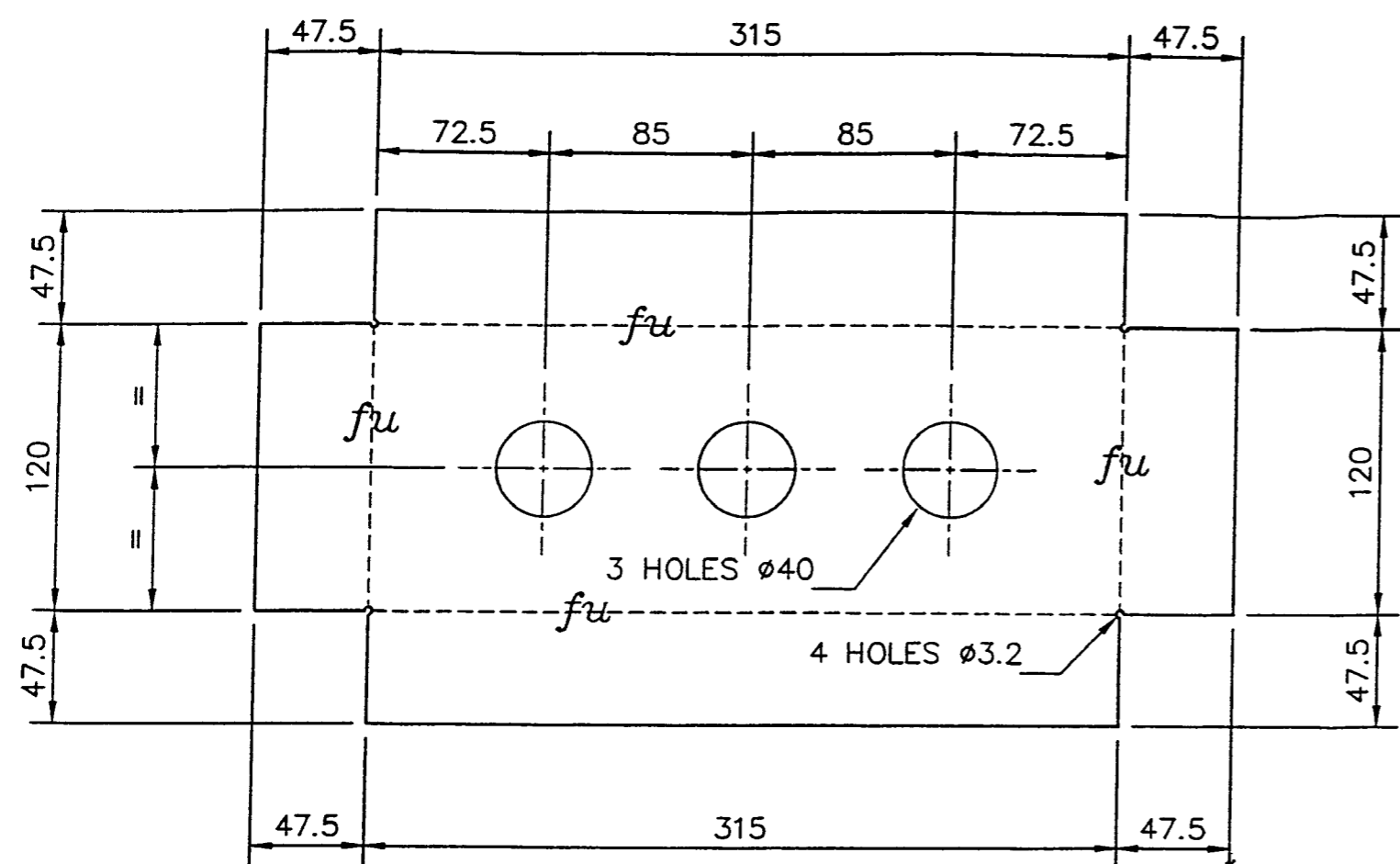
TOLERANCES EXCEPT WHERE OTHERWISE STATED 0 - 500mm ± 1mm 500 - 2000mm ± 2mm OVER 2000mm ± 3mm STRUCTURAL ± 3mm ANGULAR ± 0.5°	SHEET SIZE A3	ORIGINAL SCALE 1:3
	THIS DRAWING & THE DESIGN SHOWN ARE THE PROPERTY OF F.G.WILSON (ENG.) LTD. AND MUST NOT BE USED OR COPIED BY A THIRD PARTY WITHOUT PERMISSION	DRN BY R.R.
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED	DO NOT SCALE	APPD BY K.C.
		DATE 20.9.95

C	G.A. ADDED	JPT	20/9/95
B	DIA. OF HOLES 40 WAS 42	S.H.	19/05/95
A	FIRST ISSUE	-	-
SSUE	DESCRIPTION	BY	DATE



DRAWING NO. **MCC1274** ISSUE **C**

MATERIAL SPECIFICATION
2.5mm PLT. GALV. BS2989-Z2

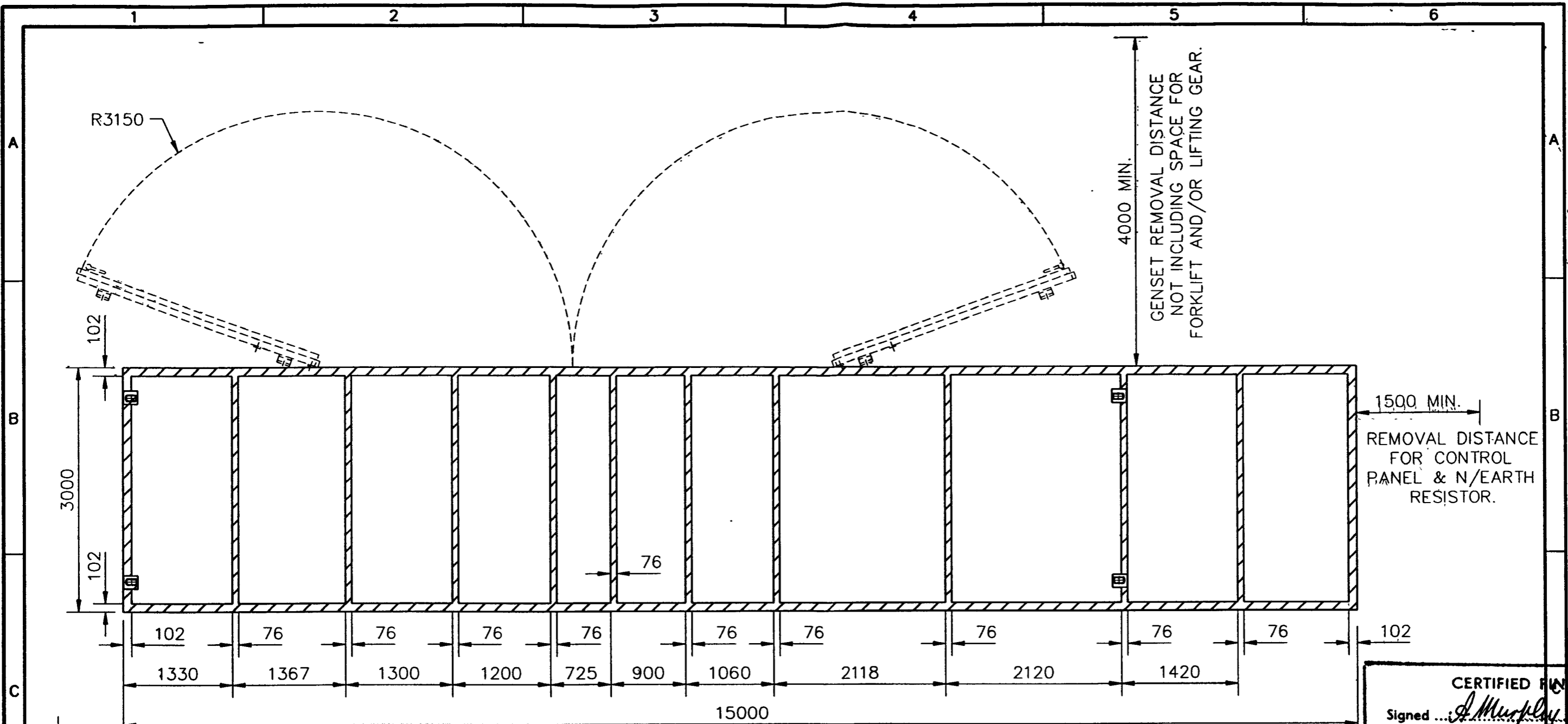


NOTE : WELD AND DRESS ALL
FOUR CORNERS

CERTIFIED FINAL
Signed *A. Murphy*
Date *31.7.98*

TITLE 1" BSP SOCKET PANEL (TRIPLE) & ASSEMBLY DRAWING FOR GENSET ENCLOSURES		SHEET SIZE A3		ORIGINAL SCALE 1:3	
TOLERANCES EXCEPT WHERE OTHERWISE STATED 0 - 500mm ± 1mm 500 - 2000mm ± 2mm OVER 2000mm ± 3mm STRUCTURAL ± 3mm ANGULAR ± 0.5°		THIS DRAWING & THE DESIGN SHOWN ARE THE PROPERTY OF F.G.WILSON (ENG.) LTD. AND MUST NOT BE USED OR COPIED BY A THIRD PARTY WITHOUT PERMISSION		DRN BY R.R.	DATE 04-01-95
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED		APPD BY K.C.		DATE 20.9.95	
DO NOT SCALE		DRAWING NO. MCC1275		ISSUE C	
3rd ANGLE PROJECTION					

C	G.A. ADDED	JPT	20/9/95
B	HOLES DIA. 40 CHANGED FROM DIA. 42	S.H.	19/05/95
A	FIRST ISSUE	-	-
ISSUE	DESCRIPTION	BY	DATE



CERTIFIED FINA
 Signed *A. Murphy*
 Date *31/7/97*

NOTE : (1) APPROX. AVERAGE LOAD/BEARING AREA = 6555 Kg./m²
 (2) LEVELING OF ENCLOSURE UNIT WITH 25mm
 OF GROUT (BY OTHERS)

AES BARRY POWER STATION
 TBV PROJECT : 28719
 TAG NO : 1APK-DG-1

C3161 - TBV POWER LTD.

TITLE FOUNDATION PLAN FOR P1500X
 ENCLOSED GENSET - MGA3145

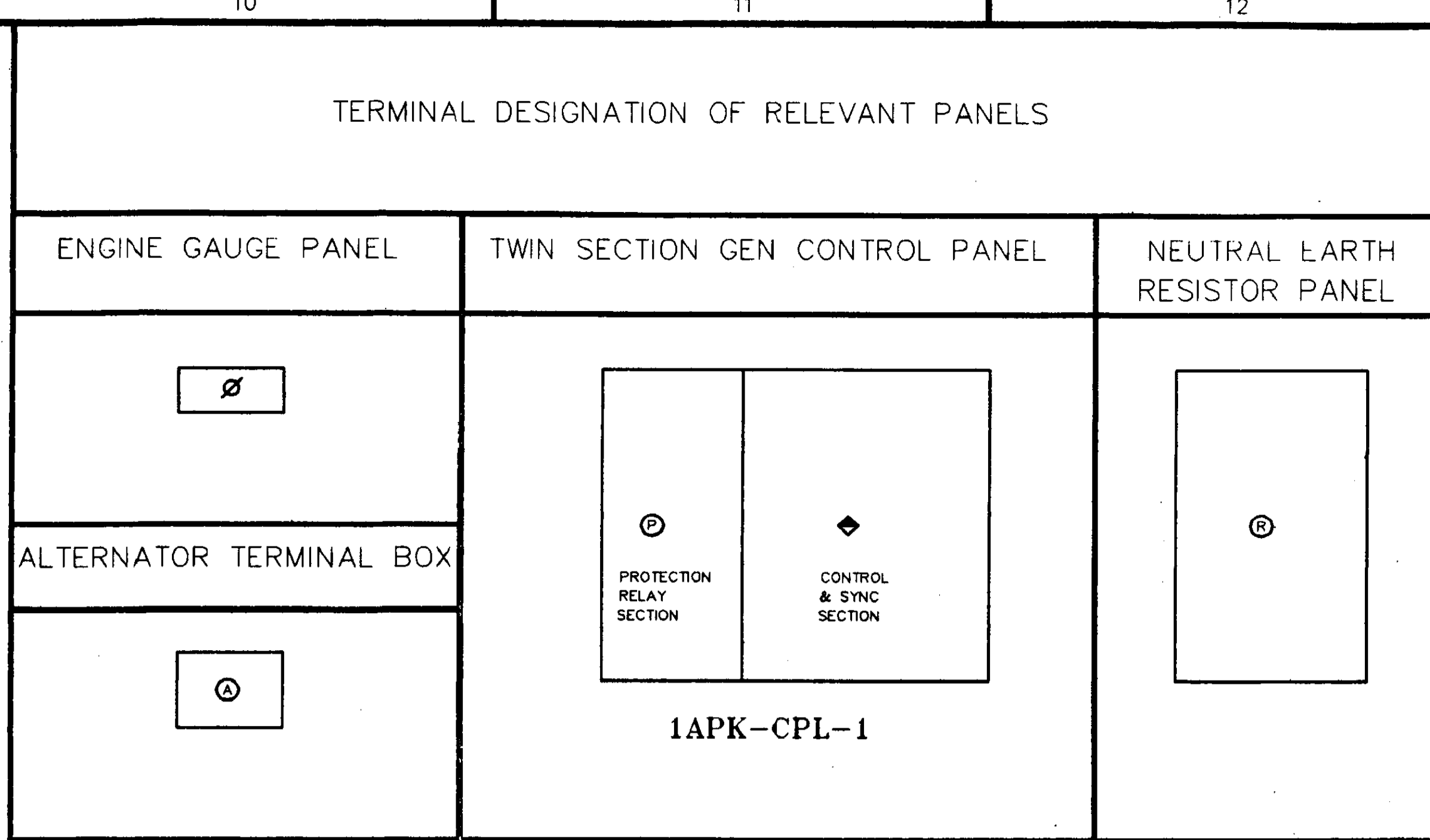
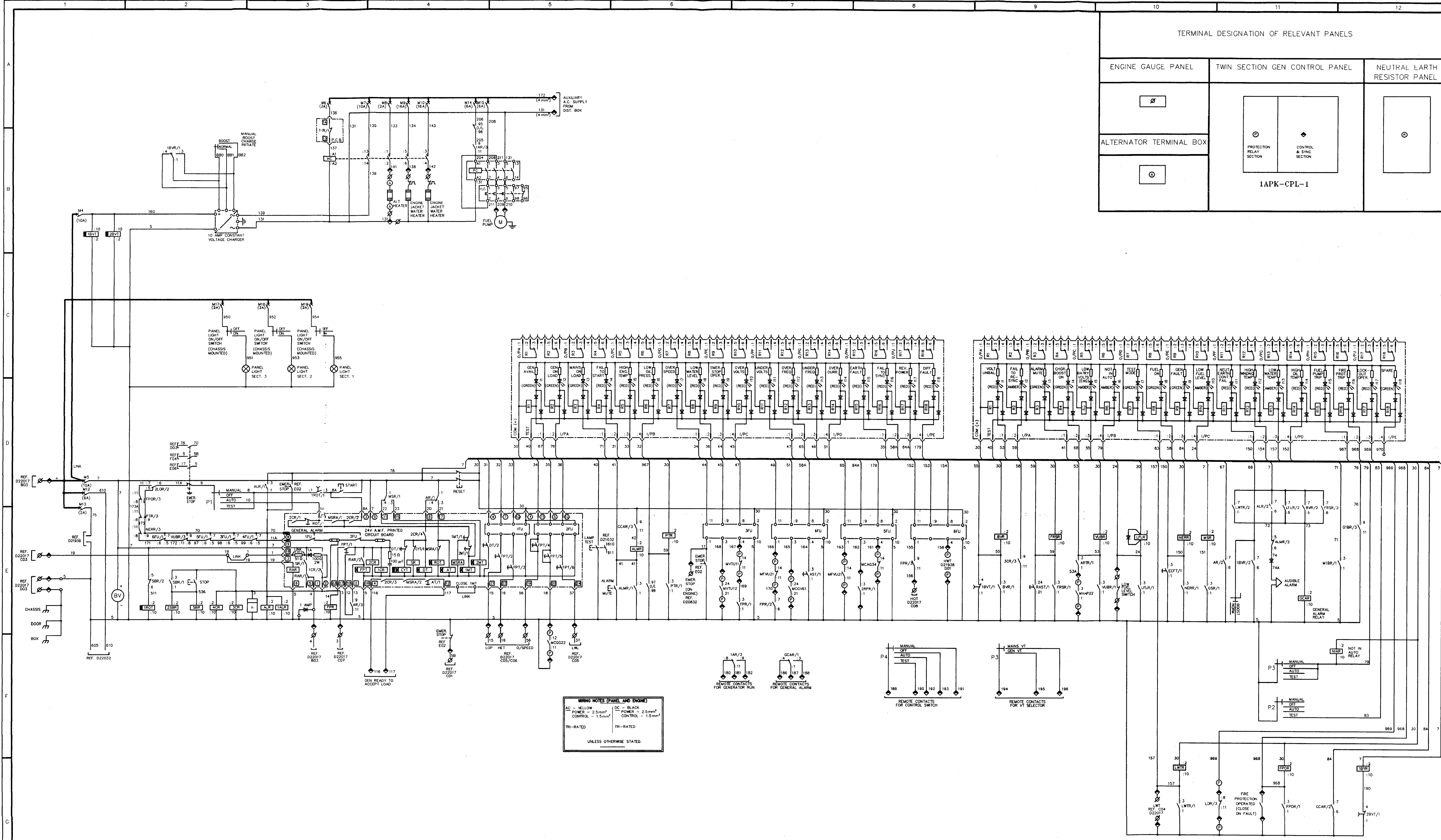
TOLERANCES EXCEPT WHERE OTHERWISE STATED	SHEET SIZE	ORIGINAL SCALE	
0 - 500mm ± 1mm	A3	1:50	
500 - 2000mm ± 2mm	THIS DRAWING & THE DESIGN SHOWN ARE THE PROPERTY OF F.G. WILSON (ENG) LTD. AND MUST NOT BE USED OR COPIED BY A THIRD PARTY WITHOUT PERMISSION	DRN BY	DATE
OVER 2000mm ± 3mm		A. MURPHY	1-9-97
STRUCTURAL ± 3mm		APPD BY	DATE
ANGULAR ± 1°	ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED	C. CARSON	25/9/97

B	CUSTOMER TAG NO. ADDED	A.P.M.	25-9-97
A	FIRST ISSUE	-	-
ISSUE	DESCRIPTION	BY	DATE

DO NOT SCALE

3rd ANGLE PROJECTION

DRAWING NO. **MSK2530** ISSUE **B**



WIRING NOTES (PANEL AND ENGINE)

AC - YELLOW POWER - 2.5mm ² CONTROL - 1.5mm ² TRI-RATED	SC - BLACK POWER - 2.5mm ² CONTROL - 1.5mm ² TRI-RATED
--	---

UNLESS OTHERWISE STATED.

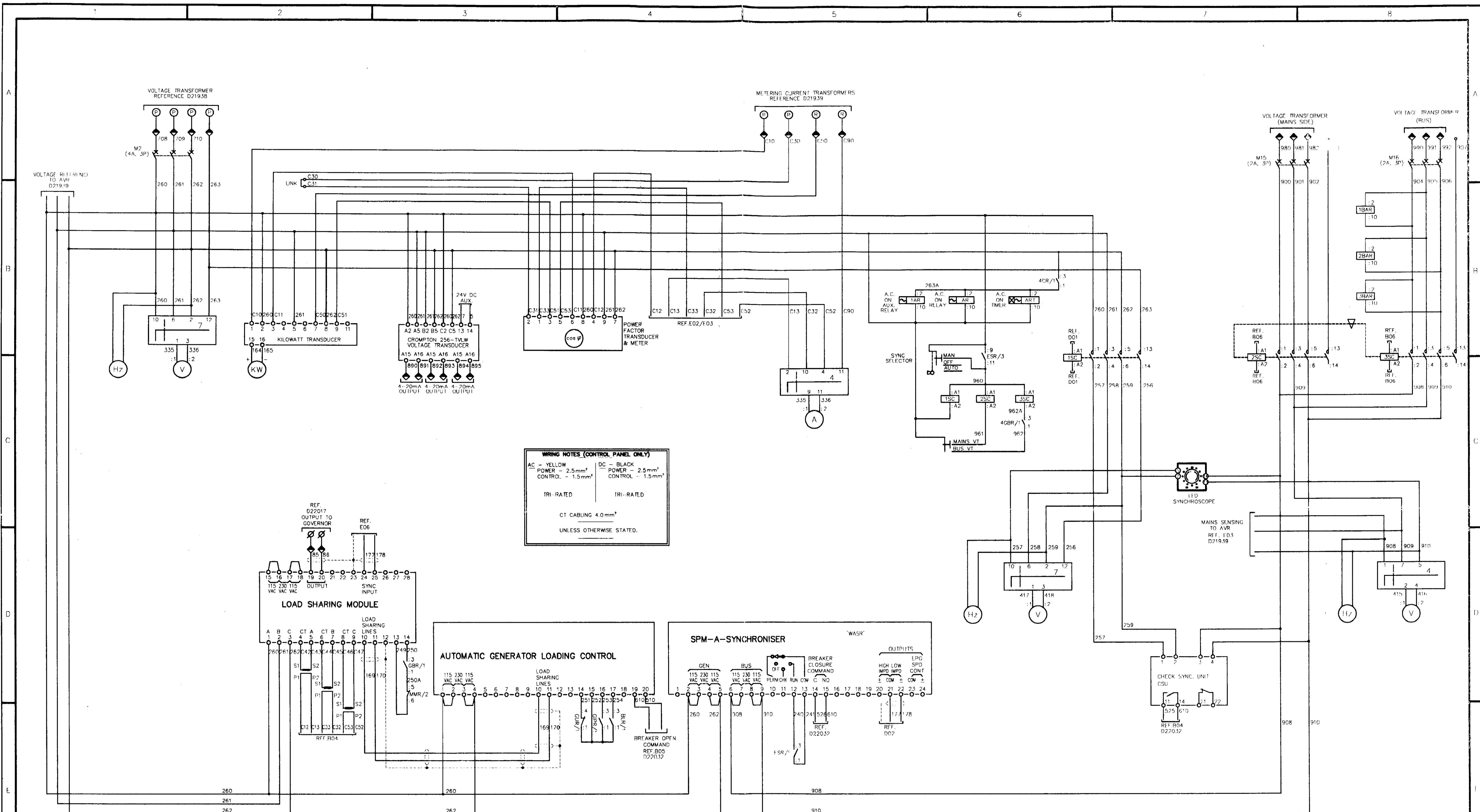
AS BUILT

DESIGNED AND BUILT FOR TBV POWER BY F.G. WILSON ENGINEERING UNDER REFERENCE C3161.	CUSTOMER	AES BARRY LIMITED
	PROJECT	AES BARRY POWER STATION
	TBV PROJECT	28719
	TAG	TBC

F	ON SITE MODIFICATIONS	J.D.	9-3-98
E	DRAWING REVISED FOLLOWING ENGINE TEST	J.D.	28-1-98
D	DRAWING REVISED FOLLOWING PANEL TEST	J.D.	12-12-97
C	FIRE PROTECTION TRIPPED SHUTDOWN ADDED FOLLOWING CUSTOMER REQUEST	J.D.	2-12-97
B	REVISED FOLLOWING CUSTOMER COMMENTS	J.D.	20-10-97
A	FIRST ISSUE		

F.G. WILSON (ENGINEERING) LTD.
 OLD GLENARM ROAD, LARNE, BT40 1EJ, U.K.
 Telephone: (01574) 261000 Telefax: (01574) 261111
 Telex: 7427449/7470008 GENSET G

DRN. BY: J.D. TITLE: WIRING DIAGRAM OF DC CONTROL FOR A 24V 12 CYLINDER DIESEL ENGINE
 DATE: 31-8-97
 APPD. BY: *D'Arcy* SHEET SIZE: ORIGINAL SCALE: DRAWING NO. ISSUE



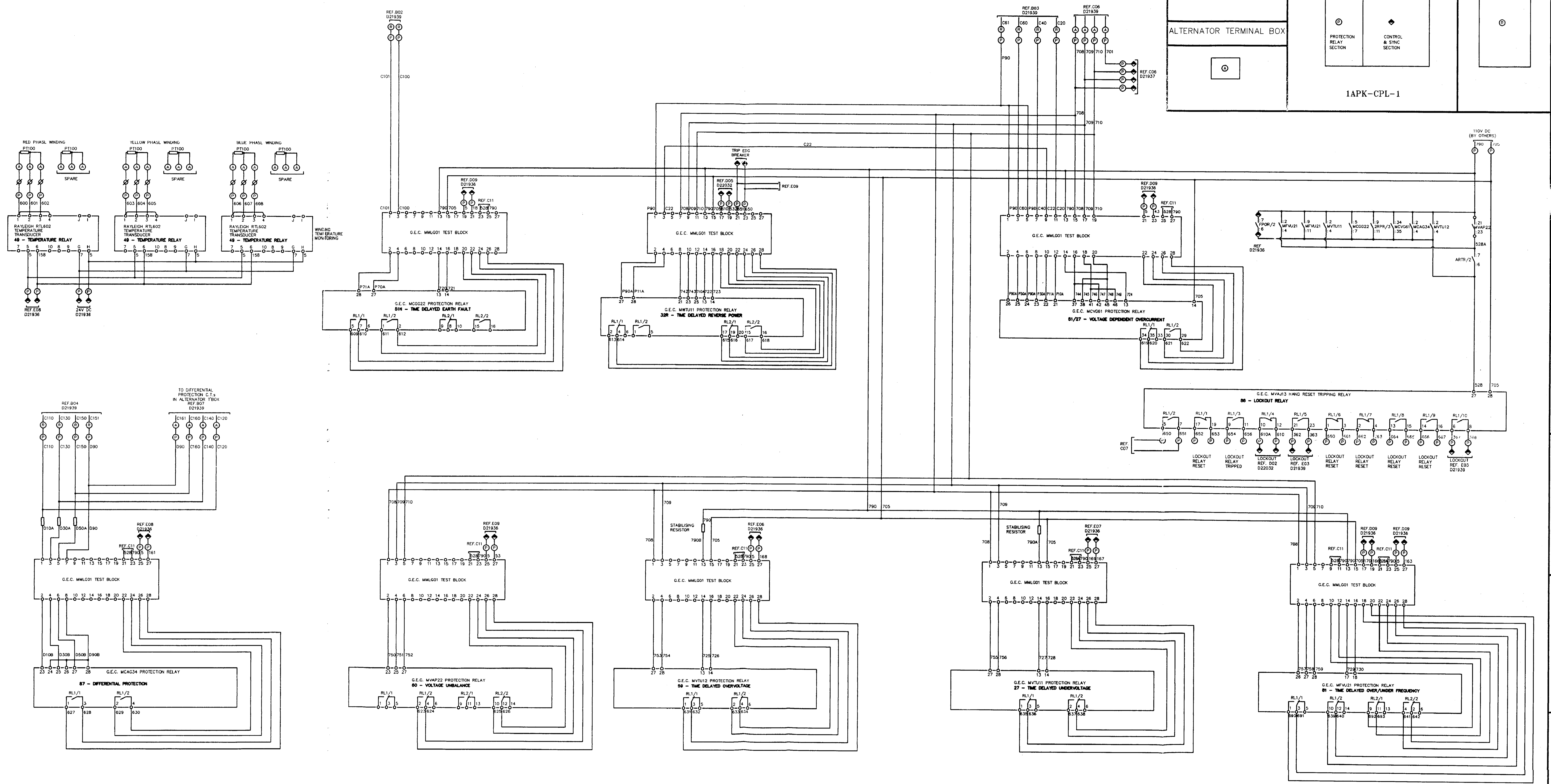
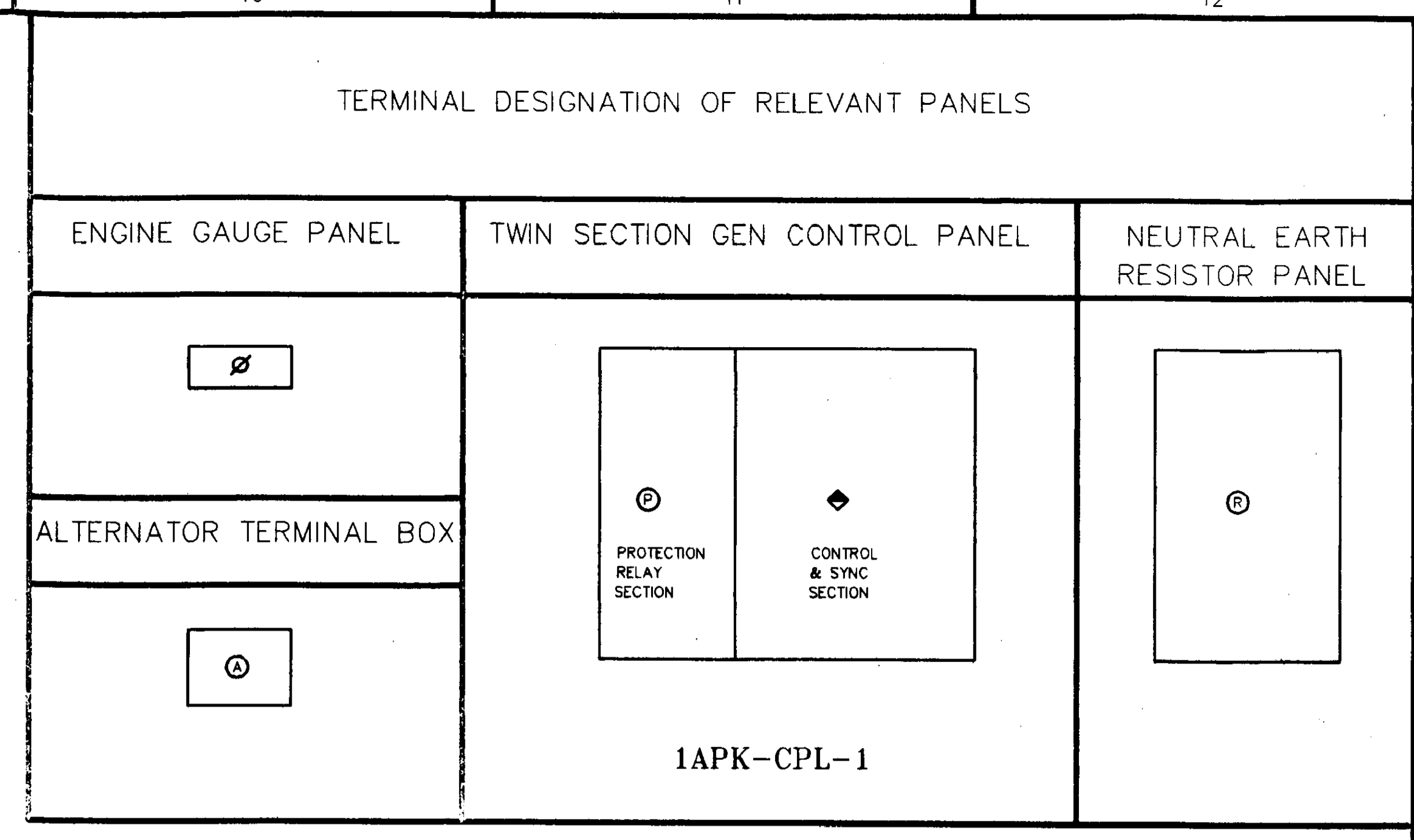
WIRING NOTES (CONTROL PANEL ONLY)

AC - YELLOW	DC - BLACK
POWER - 2.5mm ²	POWER - 2.5mm ²
CONTROL - 1.5mm ²	CONTROL - 1.5mm ²
IRI-RATED	IRI-RATED
CT CABLING 4.0mm ²	
UNLESS OTHERWISE STATED.	

AS BUILT

DESIGNED AND BUILT FOR	CUSTOMER	AES BARRY LIMITED
TBV POWER BY	PROJECT	AES BARRY POWER STATION
F.G. WILSON ENGINEERING	TBV PROJECT	28719
UNDER REFERENCE C3161.	TAG	TBC

F	FINAL, AS BUILT	J.D.	29-6-98	ENGINE GAUGE PANEL TERMINAL	CUSTOMER POWER CONNECTION	F.G. WILSON (ENGINEERING) LTD.	DRN. BY	J.D.	TITLE	WIRING DIAGRAM OF THE SYNCHRONISING
E	DRAWING REVISED FOLLOWING ON SITE MODIFICATIONS	J.D.	9-3-98							



WIRING NOTES (CONTROL PANEL ONLY)

AC - YELLOW DC - BLACK
 POWER - 2.5mm² POWER - 2.5mm²
 CONTROL - 1.5mm² CONTROL - 1.5mm²

TRN-RATED TRN-RATED

ALL CT WIRING 4.0 mm²

UNLESS OTHERWISE STATED.

AS BUILT

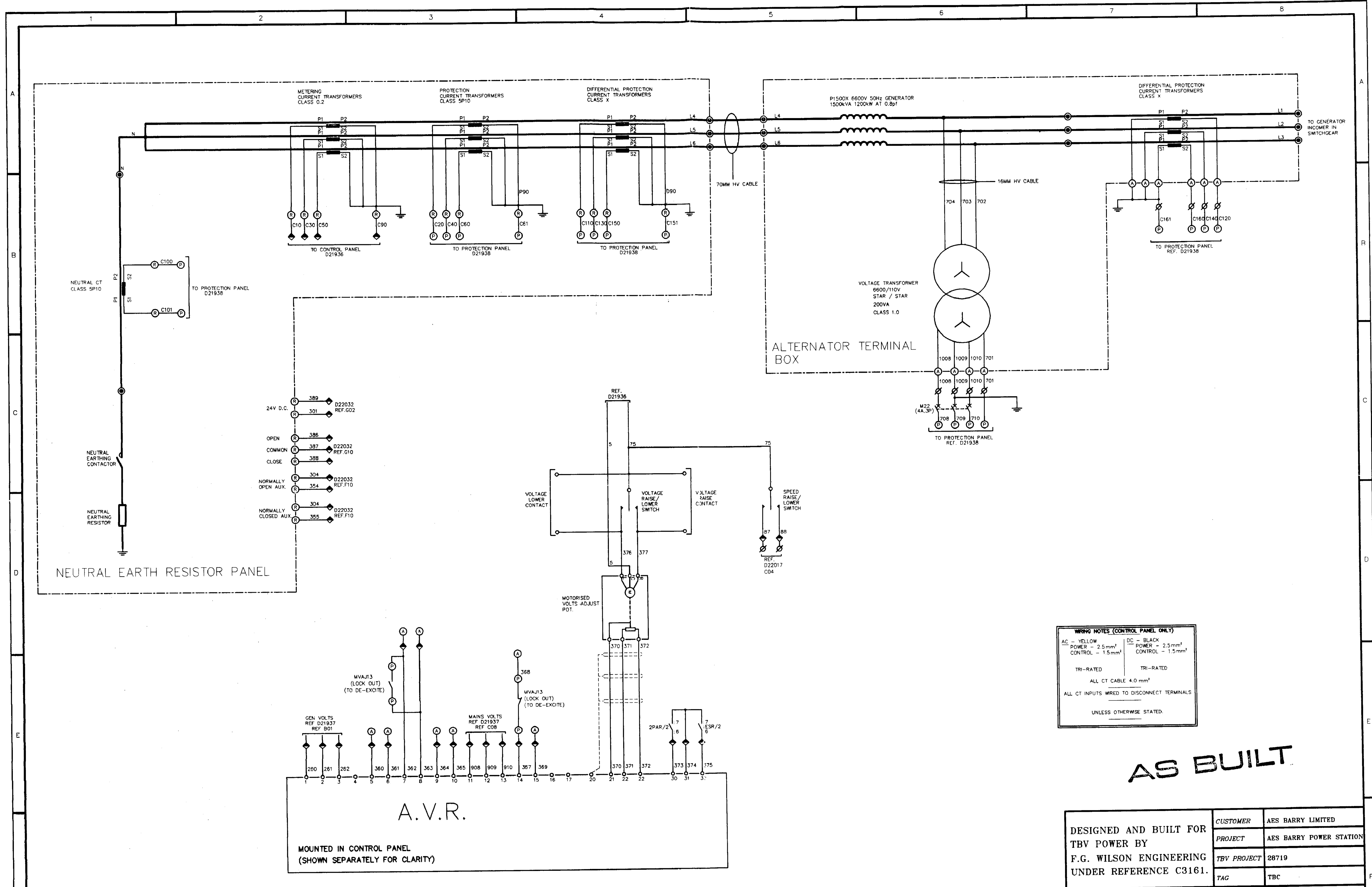
DESIGNED AND BUILT FOR	CUSTOMER	AES BARRY LIMITED
TBV POWER BY	PROJECT	AES BARRY POWER STATION
F.G. WILSON ENGINEERING	TBV PROJECT	28719
UNDER REFERENCE C3161.	TAG	TBC

F	FINAL AS BUILT	J.D.	28-6-98
E	DRAWING REVISED FOLLOWING ON SITE MODIFICATIONS	J.D.	9-3-98
D	DRAWING REVISED FOLLOWING PANEL TEST	J.D.	26-1-98
C	DRAWING REVISED TO SHOW ADDITIONAL LOCK OUT INPUT - FIRE PROTECTION OPERATED	J.D.	2-12-97
B	DRAWING REVISED FOLLOWING CUSTOMER COMMENTS	J.D.	20-10-97
A	FIRST ISSUE	-	-

⊙	CONTROL PANEL INCOMING/OUTGOING TERMINAL
⊘	ENGINE TERMINAL BOX TERMINAL
⊙	INTERNAL PANEL TERMINAL
⊙	TERMINAL IN ALTERNATOR T.BOX
⊙	PROTECTION PANEL TERMINAL

F.G. WILSON (ENGINEERING) LTD
 OLD GLENARM ROAD, LARNE, BT40 1EJ, U.K.
 Telephone: (01574) 261000. Telex: (01574) 261111
 Telex: 747448/747008 CENSET G

DRN. BY	J.D.	TITLE	WIRING DIAGRAM OF PROTECTION RELAYS
DATE	25-8-97	SHEET	ORIGINAL
APPD. BY	D.Mars	SCALE	DRAWING NO.
			ISSUE

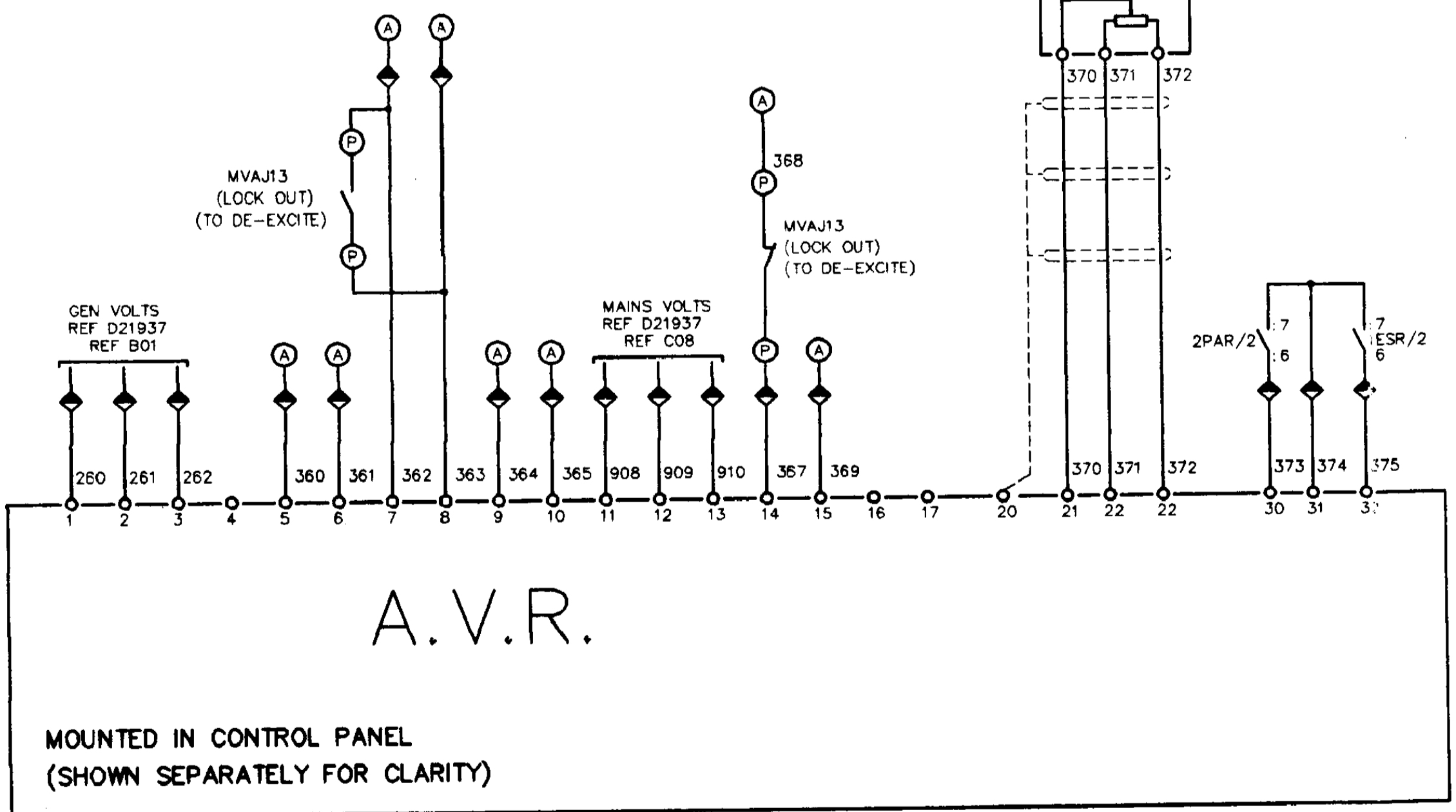


WIRING NOTES (CONTROL PANEL ONLY)

AC - YELLOW POWER - 2.5mm ² CONTROL - 1.5mm ²	DC - BLACK POWER - 2.5mm ² CONTROL - 1.5mm ²
TRI-RATED	TRI-RATED
ALL CT CABLE 4.0mm ²	
ALL CT INPUTS WIRED TO DISCONNECT TERMINALS	
UNLESS OTHERWISE STATED.	

AS BUILT

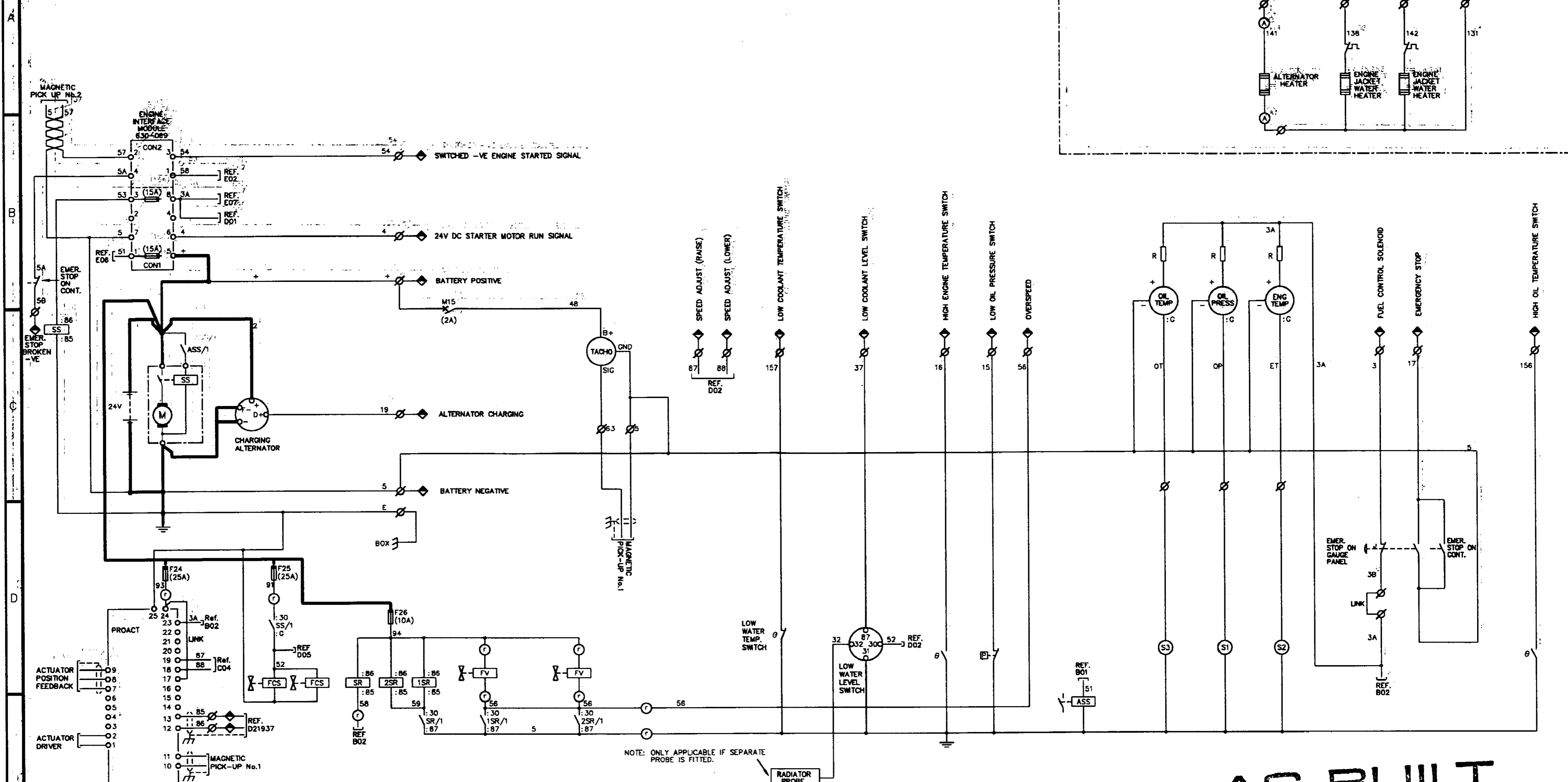
DESIGNED AND BUILT FOR TBV POWER BY F.G. WILSON ENGINEERING UNDER REFERENCE C3161.	CUSTOMER	AES BARRY LIMITED
	PROJECT	AES BARRY POWER STATION
	TBV PROJECT	28719
	TAG	TBC



D	DRAWING REVISED FOLLOWING SITE MODIFICATIONS	J.D.	9-3-98			F.G. WILSON (ENGINEERING) LTD. OLD GLENARM ROAD, LARNE, BT40 1EJ, U.K. Telephone: (01574) 261000 Telefax: (01574) 261111 Telex: 727248/74701R (FNSFT G)	DRN. BY	J.D.	TITLE	WIRING DIAGRAM SHOWING CT AND VT WIRING AND ALSO AVR CONNECTIONS.
J.D.	26-1-98	DATE	27-8-97	ADDN. BY	J.A.J.	SHEET	ORIGINAL	DRAWING NO.	ISSUE	

DC SECTION

AUXILIARY SECTION



WIRING NOTES (CONTROL PANEL ONLY)

AC - YELLOW POWER - 2.5mm ² CONTROL - 1.5mm ²	DC - BLACK POWER - 2.5mm ² CONTROL - 1.5mm ²
TRI-RATED	TRI-RATED

UNLESS OTHERWISE STATED.

NOTE: ONLY APPLICABLE IF SEPARATE PROBE IS FITTED.

AS BUILT

DESIGNED AND BUILT FOR TBV POWER BY F.G. WILSON ENGINEERING UNDER REFERENCE C3161.		CUSTOMER	AES BARRY LIMITED		
		PROJECT	AES BARRY POWER STATION		
		TBV PROJECT	28719		
		TAG	TBC		
DRN. BY	J.D.	TITLE	WIRING DIAGRAM OF THE ENGINE GAUGE PANEL		
DATE	27-8-97	APPD. BY	D. Mans	SHEET SIZE	A3
DATE	26-1-98	ORIGINAL SCALE	N.T.S.	DRAWING NO.	D22017
DO NOT SCALE		ISSUE	B		

B	DRAWING REVISED FOLLOWING ENGINE TEST	J.D.	26-1-98
A	FIRST ISSUE	-	-
ISSUE	DESCRIPTION	BY	DATE
○ OUTGOING/INCOMING ENGINE GAUGE PANEL TERMINAL ⊕ ALTERNATOR TERMINAL BOX TERMINAL ⊙ RELAY BOX TERMINAL		⊕ OUTGOING/INCOMING PANEL TERMINAL	

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