

Technical Report on Diesel Power Station

Date of visit: 21.3.2004

There are 6 engines of Make SWD, Holland

Specifications of engine no. 3 'A'

Engines: Make: SWD, Amsterdam, Holland Type: 18 TM 410 V engine 18 cylinder RPM: 500 MW: 7.0 MI5 Serial Nr / year: No. 11: 3287 / 1975 No. 12: 3288 / 1975 No. 13: 3302 / 1976	Alternators for all four engines: Make: BRUSH Kva: 9387.5 Volts: 6600 Amp: 811 RPM: 500 PF: 0.8 Hz: 50 Hz Overspeed: 613 Phase: 3
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These engines were running with load of about 7.5 MW each on diesel fuel only.

Specifications of engine no. 3 'B'

Engines: Make: SWD, Amsterdam, Holland Type: 9 TM 620 Line engine 9 cylinder RPM: 428 Bhp: 14020 MW: 10 MI5 Serial Nr / year: No. 16: 3366 / 1976 No. 17: 3400 / 1977 No. 18:	Alternators for all engine No. 15 and 16: Make: Siemens Kva: 12500 Volts: 6600 RPM: 428 PF: 0.8 Hz: 50 Hz Exitation: 93 V, 430 A Phase: 3 IP 21 Thyristor control with out brush
Alternators for engine No. 17 and 18	
Make: Output: 12500 Kva RPM: 428.6 Amps: 1093 Exitation volts: 168 Exitation amps: 271	Temp: 52 deg C Rotor insulation: F PF: 0.8 Brush less exitor

These four engines were running with a load of 10 MW each on diesel fuel only

Remarks:

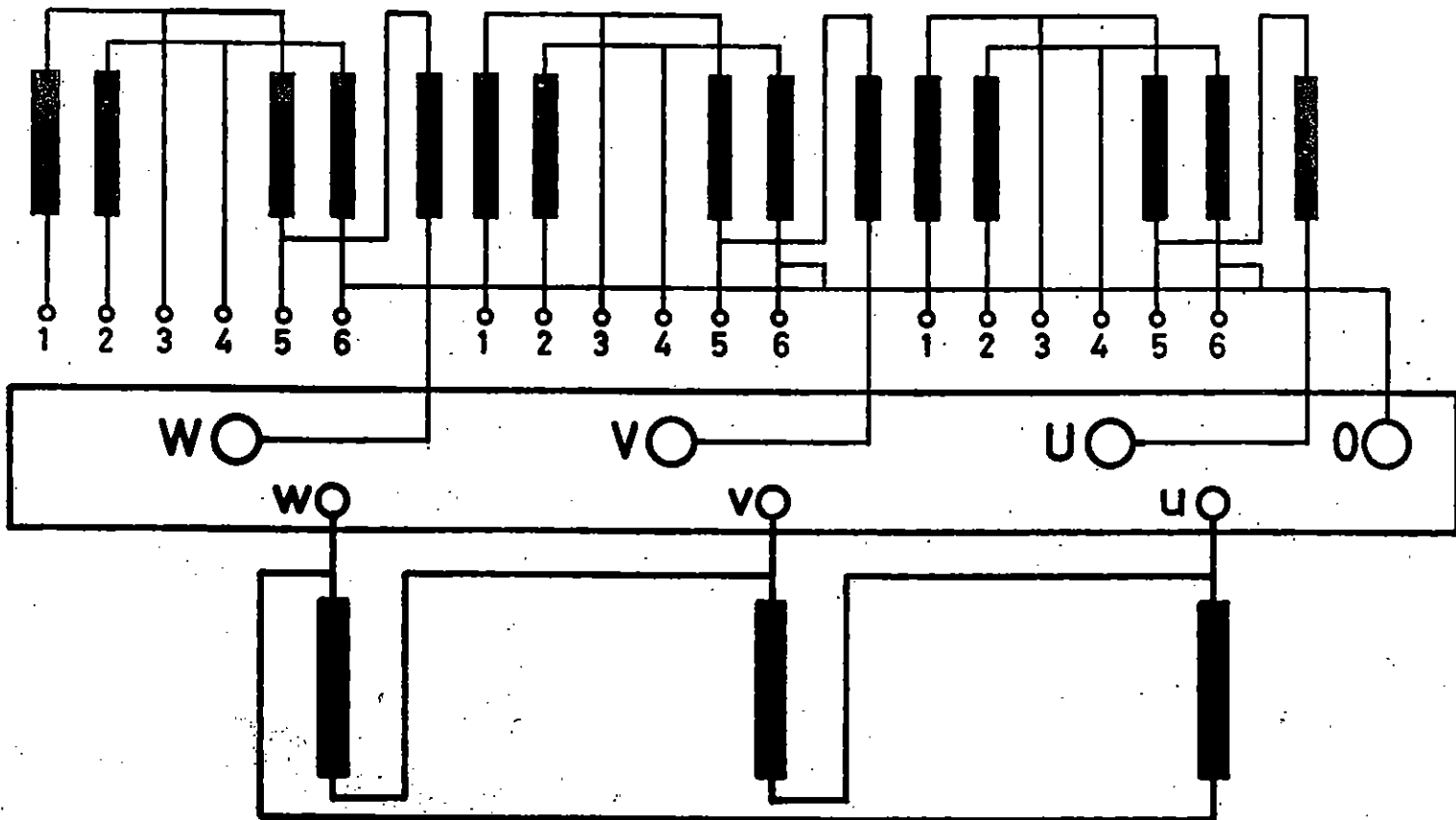
1. Last major overhaul for the last engine was around 4 years ago.
2. Engine 'B' have main bearing temperature sensors.
3. Engine radiators are in three parts:
 - a) Jacket water cooler
 - b) Oil cooler
 - c) Air CoolerJacket cooler and oil cooler were cooled by air. The jacket water cooler is under the oil cooler. The oil is directly circulated in the radiator and there is no raw water.
4. Every engine have lub oil separator Alfalaval MAB 206, directly running with oil from engine oil sump tank
5. All the V type engines have no cylinder head covers.
6. Auxiliary control panels are available for engine auxiliaries.
7. Every engine have two transformers, auxiliary and power transformers 6.6 to 33 Kv.
8. Engines have batteries Ni-Cd, two systems
 - a) 48 V for control system and tripping
 - b) 24 V for alarm system
9. The alternator is coupled with the engine.
10. Weight of each engine and alternator is around 150 Ton
11. All engines are running with diesel (gas oil) only and there is no heavy fuel oil system like viscometer, heater, boiler etc.
12. Engine running hours are not available. CE informed it is about 55000 hrs for each engine.
13. The engines are capable of generating 4 to 4.5 units of one litre of fuel

Transformers Trafo - Union

TYPE: TS 5941 C	No. K2 35642	Year 77	VDE0532/71
RAT. CAPACITY 800 kVA	MODEL PT	FREQUENCY 50 c/s	
	ST 1 6930 V	V	DUTY CONT
	ST 2 6765 V	V	VECTOR GROUP Dvo5
RAT. VOLT	ST 3 6600 V	400 V	KV CLASS 10 S/0.6
	ST 4 6435 V	V	TYPE OF COOLONAN
	ST 5 6270 V	V	TOTAL WT. 2.93 t
RAT. CURRENT 70.0 A	1 155 A	WT. OF LIQUID 0.81 t	
IMPED. VOLT 5.93 %	INSULATING LIQUID		
SH.-CIRC.- CURRENT KA	MAX.SH.-CIRC.- DURATION 4 s		

0 212 006

SMIT TRANSFORMATOREN 9(Nos)



DATA

RATING ONAN	13100 kVA
NUMBER OF PHASES	3
VECTOR GROUP	YN d11
FREQUENCY	50Hz
INSULATION LEVEL HV/LV	70 / 22 kV
TEMP. RISE TO OIL/WINDING	50/ 55 K

HIGH TENSION U-V-W-0

POSITION	VOLTAGE V	TO CONNECT
1	35700	1 - 2
2	34850	2 - 3
3	34000	3 - 4
4	33150	4 - 5
5	32300	5 - 6

WEIGHTS kg

CORE AND COILS	11000
TRANSFORMERTANK	2800
TRANSFORMER(INCL.COOLER+OIL)	27400
TRANSPORT	27400
COOLER (INCL. OIL)	7800
CONSERVATOR	300
OIL IN TRANSFORMER	3800
OIL IN COOLER	2600
OIL IN CONSERVATOR	600
TOTAL OIL	7000

LOW TENSION U-V-W

VOLTAGE V	CURRENT A
6600	11459

SHORT CIRCUIT IMPEDANCE (13100 kVA)

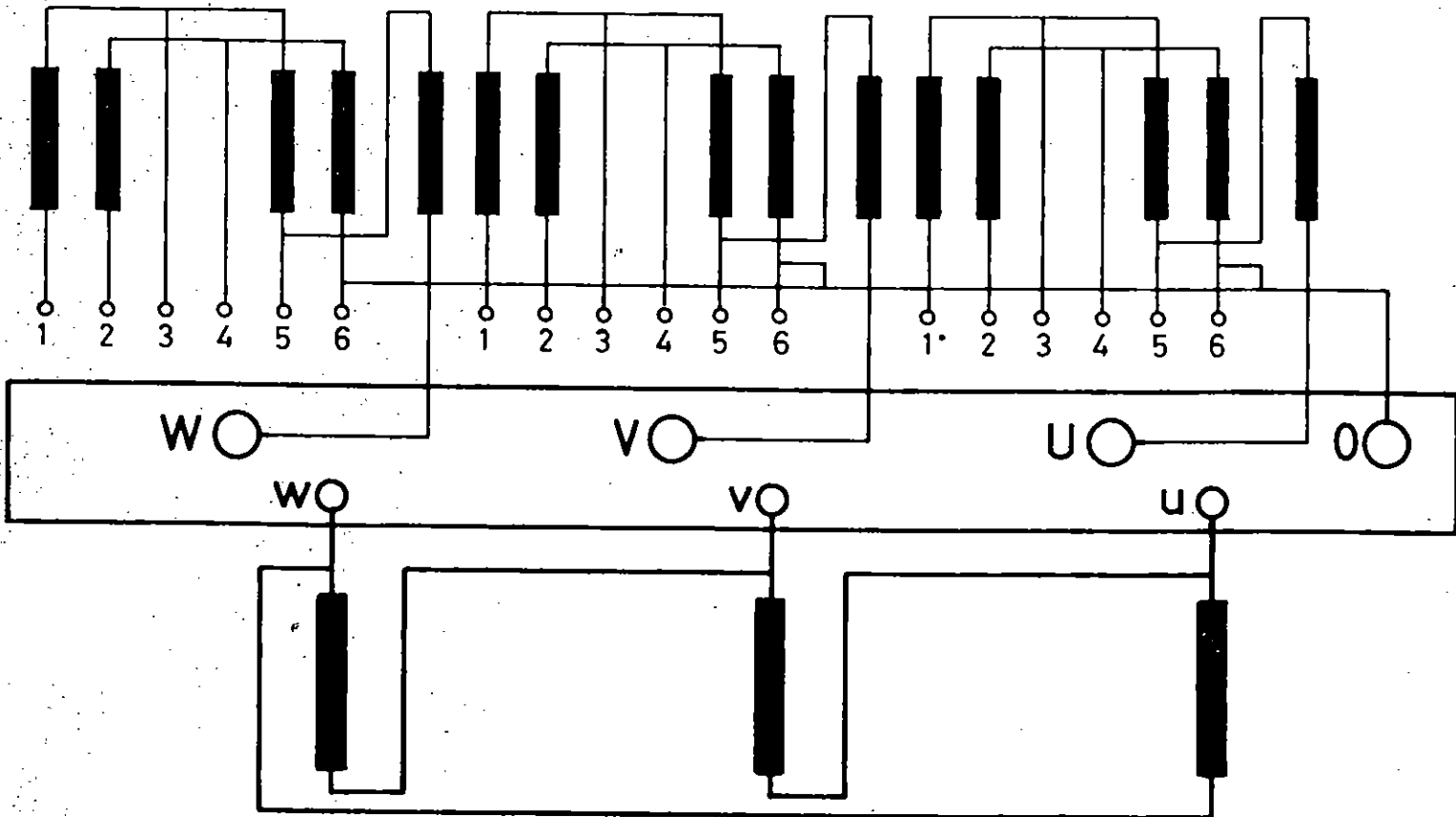
POSITION	VOLTAGE V	VOLTAGE %	REACTANCE Ω / PHASE
3	2747	8,08	7,13

YEAR OF MANUFACTURE 1976

TRANSFORMERNUMBER 218999

SMIT TRANSFORMATOREN

3



DATA

RATING ONAN	13100 kVA
NUMBER OF PHASES	3
VECTOR GROUP	YN d11
FREQUENCY	50 Hz
INSULATION LEVEL HV/LV	70 / 22 kV
TEMP. RISE TOPOIL/WINDING	50 / 55 K

HIGH TENSION U - V - W - 0

POSITION	VOLTAGE V	TO CONNECT
1	35700	1 - 2
2	34850	2 - 3
3	34000	3 - 4
4	33150	4 - 5
5	32300	5 - 6

WEIGHTS kg

CORE AND COILS	11000
TRANSFORMERTANK	2800
TRANSFORMER(INCL.COOLER+OIL)	26000
TRANSPORT	26000
COOLER (INCL. OIL)	7300
CONSERVATOR	300
OIL IN TRANSFORMER	3800
OIL IN COOLER	2600
OIL IN CONSERVATOR	600
TOTAL OIL	6700

LOW TENSION u - v - w

VOLTAGE V	CURRENT A
6600	11459

SHORT CIRCUIT IMPEDANCE (13100 kVA)

POSITION	VOLTAGE V	VOLTAGE %	REACTANCE Ω / PHASE
3	2717	7,99	7,05

YEAR OF MANUFACTURE	1977
TRANSFORMERNUMBER	219107

BRUSH

A.C. GENERATOR

Output K.V.A. - 9387.5

R.P.M. - 500

Volts - 6600

AMPS - 811

Over speed

EXC.Volts - 173.5

EXC. AMPS - 229

PHASE / HZ - 3

PHASE CONN - STAR

OSD140/144 - FRAME

75082 - Machine No.

CONT - Rating

2613/70 - SPEC

52°C - AMB. TEMP

1000M - Altitude

F - Rotor Insul

F - Stator Insul

0.8 - P.F.

1975 - Date

**BRUSH ELECTRICAL MACHINES LIMITED
OUGHBOROUGH ENGLAND A HAWK SIDDELEY COMPANY**

SIEMENS

Type 1DK 5927 -3 DE 07-Z					1976
3-ph Syn. Gen			No. D 75 200 477 01		
V	A	Kva	Service	cos φ	r.p.m.
6600 Y	1093	12500		0,8	428
				← VUW	50 c/s
Excitation	93V	430 A			
Insul - Cl. F/B	IP 21/IP 44		t		
Air	13m ³ /s	50°C			
VDE 0530/72					

MADE IN GERMANY