

ab **POWER**
SYSTEMS
Limited



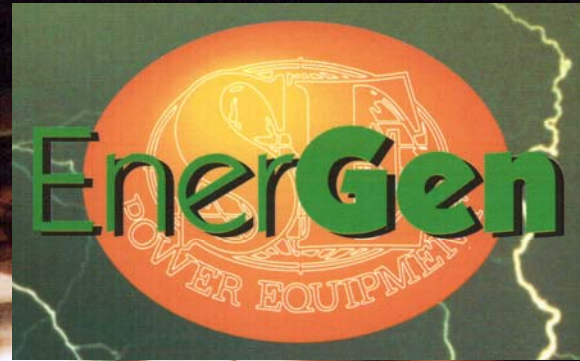
Dave
Wallace

- **After completing education - 2 yrs Forestry Gang**
- **Joined Family Business – ab industries**
- **Engine rebuilds installations, maintenance**
- **Only ISO 9001 repair shop in NZ**
- **Managed 25 staff and sub-trades**
- **Dyno tested diesel and gas engines**
- **Installed and commissioned gas engines into compression packages – Caterpillar**
- **Specialist bearing repairs and services to virtually all hydro and steam turbines throughout NZ and Pacific Islands.**
- **17 years in this role !!!**

Who is AB Power Systems?

- Was division of AB Industries
- Now owned by Dave Wallace
- Focussed on providing NZ with a competent and reliable source of gas and diesel power generation packages.
- Design, manufacture, install, commission and maintain packages.

Alliance



**Gas Engine Division of
SE Power**

**A leading implementer of Gas Engines and
“Energy from Bio-Gas” Solutions in Australia
and New Zealand.**

Bio Gas Projects

- Shoalhaven Landfill NSW 1 MW
- Northshore Waste Water NZ 970 kW
- Melbourne Water Treatment 3 MW
- Sydney Malabar Sewerage 3 MW
- Sydney Cronulla Water Treat 1.5 MW
- Townsville Water Treat 440 kW
- Eastern Creek Landfill 2 MW
- Camelia Food Waste 4 MW
- Palmerston North – 2005 1 MW

Experience

- **Standby, peaklopping, loadsharing, paralleling and baseload power systems**
- **Natural gas, landfill, sewage, coal seam methane, producer gas, bio-diesel and diesel**

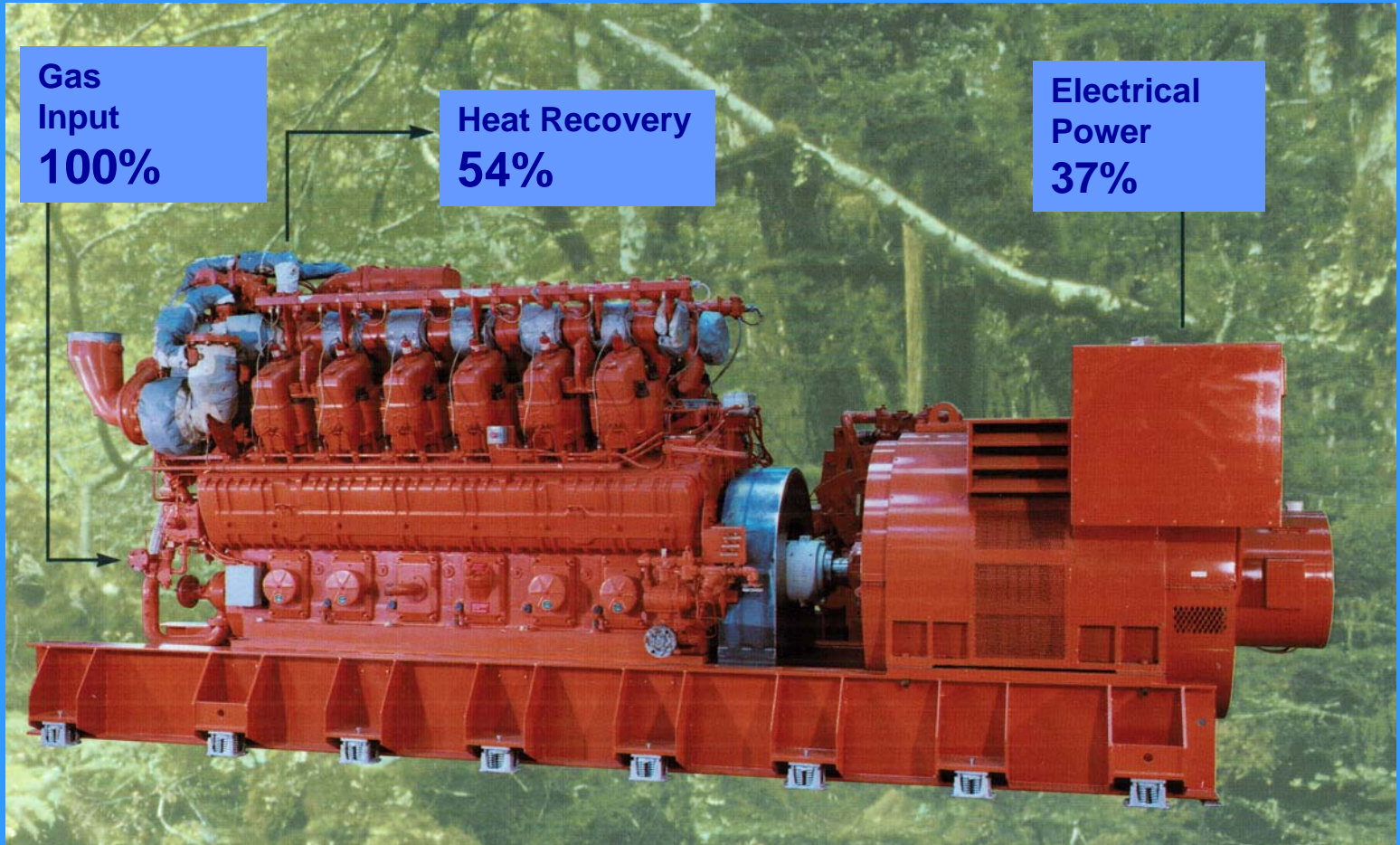
Familiar with

- Caterpillar
- Cummins
- Deutz
- Ford
- Jenbacher
- Jenbacher
- Guascor
- MAN
- MTU
- Waukesha

All differ in:

- **Capital Cost, Operating Cost and Life Cycle Cost**
 - **Operating parameters / Efficiencies**
 - **Tuning methods**
 - **Emissions and emission controls**
 - **Engine management**
 - **Maintenance intervals**
 - **Capital cost**
 - **Parasitic loads**
 - **Compression Ratio**

Efficiency



Engine Protection / Monitoring

- **Anti-knock governor**
- **Governor engine cooling circuit**
- **Governor intercooler circuit**
- **Air inlet pre-heating**
- **Monitoring exhaust gas temp – turbocharger**
- **Exhaust gas temp after engine**
- **Temp after lube oil heat exchanger**

Heat utilization

- Heating circuit control
- Emergency cooler control
- Dry Cooler control
- Exhaust bypass control
- Temperature after exhaust gas heat exchanger



ignition

M4-6



indicators and actual values

enable ignition	on
internal enable	on
ignition ready	on
ignition ignites	yes
type of motor	55 620/2 V16
actual engine speed	1538,0 min ⁻¹
limit value ZA-overspeed	1760,0 min ⁻¹
collective fault, fault code	0

ignition fault at cylinder

ignition fault at cylinder

manual mode

test mode	off
test cylinder	A1
feedback test cylinder	

timed advance

A1	0,0 °	B1	0,0 °
A2	0,0 °	B2	0,0 °
A3	0,0 °	B3	0,0 °
A4	0,0 °	B4	0,0 °
A5	0,0 °	B5	0,0 °
A6	0,0 °	B6	0,0 °
A7	0,0 °	B7	0,0 °
A8	0,0 °	B8	0,0 °
average			0,0 °
ignition angle			25 °

diagnostic values

	min.	max.		min.	max.
A1	0	0	B1	0	0
A2	0	0	B2	0	0
A3	0	0	B3	0	0
A4	0	0	B4	0	0
A5	0	0	B5	0	0
A6	0	0	B6	0	0
A7	0	0	B7	0	0
A8	0	0	B8	0	0

no. 1	since 26.01.1999 10:57:37 load run	1354 kW	13:34:35
man.	26.01.1999 11:06:40 GK dry cooler stage 2	off	26.01.99

F1 data and manual control	F3	F5 operation log	F7 service menu	F9 history menu
F2 —	F4	F6 +	F8 test cylinder	F10

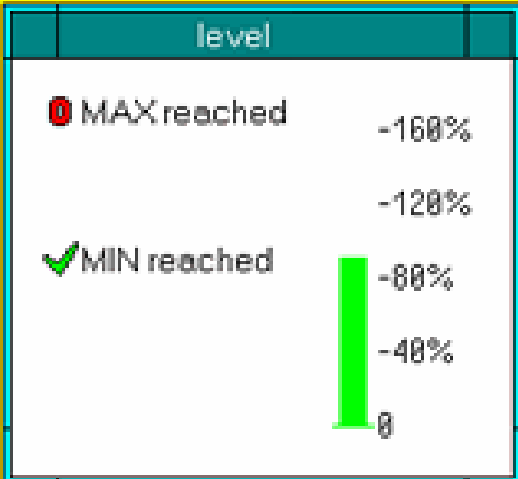


oil change

M4-4



condition
waiting
oil is being pumped off
oil level dropped below minimum
pump off finished
refilling: oil valves are open
refill-level reached
pre-lubrication
oil change finished
alarm
oil change aborted
oil change not possible
operating mode 'auto'



working hours
since last oil change: 25 h
last oil change: on : 05.09.2000 at : 21527 h

no. 1	since 07.09.2000 13:25:25 load run	1359 kW	18:34:49
auto	07.09.2000 14:51:18 gas mixer A limit stop rich		07.09.00

F1 data and manual control	F3 system control	F5 operation log	F7 service menu	F9 history menu
F2 pump off oil	F4 oil pan empty	F6 refill	F8 pre-lubrication	F10 quit oil change



operating information

M2-3



operating information	
working hours natural gas	21553,81 h
working hours complete	21553,81 h
last oil change:	05.09.2008
at working hours	21527 h
working hours since oil change	25 h
	1303

pre-heating	
type of pre-heating	heating device
enable of pre-heating	enabled
condition of pre-heating	off
limit value low	33,0 °C
limit value high	38,0 °C
T206 jacket water engine outlet	71,9 °C

working hours (analysis)	
load value	natural gas
> 105 %	2,7 %
80 .. 105 %	78,9 %
50 .. 80 %	9,7 %
25 .. 50 %	3,0 %
< 25 %	5,7 %

data of commission	
place: DEUTZ AG	
key word: Motorenprüfstand	
comm.-no.:	
type of engine: TBG 620	
press 'K' to enter commission data	

no. 1	since 07.09.2008	13:25:25	load run	1359 kW	18:32:13
auto	07.09.2008	14:51:18	gas mixer A limit stop rich		07.09.00

F1 data end manual control	F3 ...	F5 operation log	F7 service menu	F9 history menu
F2 ...	F4 language + printer	F6 system setup	F8 ...	F10 pre-heating disable

Gas Treatment

- **Pre-treatment scrubbing**
- **Compression**
- **Cooling**
- **Drying**
- **Gas train**
- **Engines require 0psi to 70psi**

Gas Knock Characteristics

