Power Generation

Chapter 8
Checklists

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CHAPTER 8 CHECKLISTS

Project & Installation Questionnaire

In order to accurately estimate the labour, materials and equipment costs for any project, it is essential that all available data relating to the generator and its environment are itemised and documented before contacting the supplier. This service may alternatively be provided by your local distributor.

* - Delete where not applicable

Project details

Project name ..……

……..……

Customer (end user) ..……...

……..……

Address of site ……...……

……

……...……

Tel. No ……..……

Email…….

Consultant / specifier / achitect ..……..……..

Address ……..……..

……..……

……..……

Tel No ....……

Email……..

Site drawing nos...……..……

Application

Prime power	☐	Standby	☐
Continuous	☐	Co-generation	☐
Rental	☐	Overload required	☐
Fuel: Diesel	☐	Bio-diesel	☐
Mains gas	☐	Bio-gas	☐

Other fuel……..

Voltage…….. Frequency……...

No. of phases…….. Rated Power Factor……..

Site maximum temperature..…….....°C/ °F*

Site minimum temperature..…….....°C/ °F*

Site altitude ……..……metres/ft* above sea level

Distance from coast……..…….km/miles*

Site hazardous classification level (if any)……..

Pollution level:

Clean	☐	Normal	☐
Dusty	☐	Mine / Quarry	☐
Saline	☐	Corrosive	☐
Oil / Petroleum	☐	Flammable gas	☐

Type of Pollutant……..……..…

Emissions requirements…….……..……..…..

Load Characteristics:

Total load to be supported kW……kVA……

Load primary constituents:

Misc. loads	☐	kW……kVA……
UPS loads	☐	kW……kVA……
Motor starting	☐	kW……kVA……
Regenerative loads	☐	kW……kVA……
IT equipment	☐	kW……kVA……
Discharge lighting	☐	kW……kVA……
Medical equipment	☐	kW……kVA……
Welding	☐	kW……kVA……
RF Transmission	☐	kW……kVA……
Traction	☐	kW……kVA……
Power factor correction	☐	kVAr……

Other……..……..

Special load characteristics……...

……

Number of generators in parallel…….

Number of utility supplies to control……

Load shedding control required……

Redundancy requirement……No of sets

Site details

Position of set(s):

Ground level	☐	Basement	☐
Intermediate	☐	Roof top	☐

Height above ground level……..…..…...…...m/ft*

Site Access limitations……...

……..

Underground / Overhead services checked……...

Crane reach required……..……..……m/ft*

Crane height required……m/ft*

Road access to site: Asphalt ☐

Road closures/ transport escort……

Site ground conditions…..……

Language for instructions……..

Generator accommodation

Housing: Room ☐ Enclosure ☐

Set mounting:

Concrete floor	☐	Concrete plinth	☐
Steel Rails	☐	Concrete rails	☐

Other……..……..……

……

Special vibration isolation requirements: Yes / No*

Cooling system

Set mounted: Radiator ☐ Heat exchanger ☐

Remote cooling installations:
Remote radiator ☐ Heat exchanger ☐
Cooling tower - open ☐ Closed ☐

Heat exchanger & cooling tower: secondary circuit coolant

……

Special radiator requirements:
Tinned cores ☐ Coated cores ☐

Static head at engine for remote installations:……..….m/ft*

Pipe route length…….....m/ft*

Number of bends…….

Standard coolant is ethylene glycol 25% concentration.

State any special coolant requirements:……..

……

Pipework: Painted ☐ Galvanised ☐
Welded ☐ Screwed/flanged ☐
Lagged ☐ Pipeline heating ☐

Flange type……..

Fuel system

Fuel bulk storage

Type of tank: cylindrical ☐ Rectangular ☐
Underground ☐ Above ground ☐

Tank capacity…….…….litres/gallons/hours run*

Height of top of tank above ground……...……m/ft*

Height of bottom of tank above ground……...……m/ft*

Tank construction: Thickness ……mm/in*

Construction standards…….

Spillage containment: Yes / No*
Double skinned tank ☐ Bunded ☐
Tank vent: Local ☐ Remote ☐

Type of pipe connection……..

Tank contents gauge:
Hydrostatic ☐ Electronic ☐
Mechanical ☐ Dipstick ☐

Contents gauge position……..

Fill point cabinet Yes / No*
Overfill alarm Yes / No*

Tank alarm contacts:
Low level ☐ High Level ☐
Spillage alarm ☐

Standard paint ☐
Special paint……..

Fuel day service storage

Base tank ☐ Free standing ☐

Day tank capacity…….…….litres/gallons/hours run*

Height of top of tank above ground……...……m/ft*

Height of bottom of tank above ground……...……m/ft*

Head of fuel at engine inlet - Max……Min…….m/ft*

Tank construction: Thickness ……..…mm/in*

Construction standards…….

Spillage containment: Yes / No*
Double skinned ☐ Bund ☐
Tank vent: Local ☐ Remote ☐

Alarm contacts:
Low level ☐ High Level ☐
Spillage ☐

Type of pipe connection……..……..……..

Route overflow to bulk tank: Yes / No*
Dump valve & line to main tank: Yes / No*
Fire valve: Yes / No* Electrical / Mechanical*

Standard paint ☐
Special paint……..

Fuel pipework:

Route length between fill point and bulk tank……..…m/ft*

Number of bends…….

Route length between bulk & service tanks…….……m/ft*

Number of bends…….

Route length between service tank & engine……m/ft*

Number of bends…….(Remote tanks only)

Wall thickness……mm/in*

Route: Above ground ☐ Below ground ☐
Single skinned ☐ Double skinned ☐
Pipeline heated ☐ Wrapped* / lagged*
Welded ☐ Flanged ☐
Fuel pre-filters ☐ Duplex filters ☐

Automatic fuel transfer system

Pump voltage…….....V Frequency……....Hz

Single pump ☐ Duplex pumps ☐

Gravity feed with solenoid valve: Yes / No*
Double shut-off requirement: Yes / No*

Special requirements……..

……

Lubrication oil system

Duplex lube oil filters ☐
Oil pan evacuation pump: Hand ☐ Electric ☐

Lubrication oil make-up tank Yes / No*

Capacity…….litres/gallons*

Double skinned pipework Yes / No*

Route length between tank & engine…….....m/ft*

Alarm contacts: Low level ☐ High Level ☐
Fill pump: Hand ☐ Electric ☐

Special requirements……..

……

Starting system

Battery Electric ☐ Compressed air ☐
Hydraulic ☐

Dual start method required: Yes / No*

Number of start attempts required……

Battery type:

Std Lead Acid ☐ Sealed Lead Acid ☐
NiCad ☐

Battery charger: Normal ☐ Heavy Duty ☐

Special requirements……..

……

Exhaust system

Muffler

Noise level……dB(A) @ ……m/ft*

Material: Steel ☐ Stainless steel ☐
Floor mounted ☐ Wall mounted ☐
Ceiling mounted ☐ Other……

Condensate drainage pipework: Yes / No*

Lagging: Rockwool ☐ Other ……
Cladding: Aluminium ☐ Stainless steel ☐

Pipework

Flue material: Steel ☐ Stainless steel ☐
Prefabricated flue ☐ Twin wall ☐

Type/Manufacturer……

Overall length of exhaust: Horiz……m/ft* Vert……..m/ft*

Number of bends: ……..

Number of expansion bellows……..

Flanged connections ☐ Butt-welded ☐
Supports: Roller ☐ Spring ☐
Weathering in: Wall ☐ Roof ☐
Termination: Tailpipe ☐ Cowl / rain-flap ☐
Spark arrestor ☐
Paint finish: Black ☐ Silver ☐

Length of pipe to be lagged and clad……..…m/ft*

Lagging type……thickness……..mm/in
Cladding: Aluminium ☐ Stainless steel ☐

Explosion relief valve: Yes / No*

Emission control system (e.g. SCR)……

……

Ventilation and attenuation

Noise level……dB(A) @.....m/ft*

Noise survey required: Yes / No*

Colour of inlet & outlet termination……

Inlet duct:

Length……..m/ft* Area……..…..m^2/ft^2*

No. of bends…… Fan assistance: Yes / No*

Fire damper ☐ Inlet louver ☐
Attenuator ☐ Canvas duct ☐

Louver type:
Fixed blade ☐ Gravity ☐
Motorised ☐ Spring return ☐
Gas retention ☐ Sand-trap ☐
Duct position: Low level ☐ High level ☐

Outlet duct:

Length……..m/ft* Area……..…… m^2/ft^2*

No. of bends…… Fan assistance: Yes / No*

Fire damper ☐ Outlet louver ☐
Attenuator ☐ Canvas duct ☐

Louver type:
Fixed blade ☐ Gravity ☐
Motorised ☐ Spring return ☐
Gas retention ☐

Duct position: Low level ☐ High level ☐

Design duct restriction……..mm/in* H_2O

Generator enclosure

Acoustic enclosure ☐ Weather enclosure ☐

ISO Container ☐ Drop-over ☐
Walk-around ☐ Close-fit ☐
Internal muffler ☐ Internal lighting ☐
Internal power ☐ Emergency lighting ☐
Outboard attenuators ☐

Internal tanks:
Internal fuel tank ☐ Lub. oil tank ☐
Spillage containment ☐ Spill alarm ☐

Capacity……...litres/galls Capacity...…...litres/galls

Fire suppression system……

……

Noise limitation……dB(A) @.....m/ft*

Special lifting arrangements……..

……

Load cable termination internal* / external*

Paint finish: Standard ☐ Special ☐

Specify paint colour & finish..……

……

Electrical installation

Control systems

Single generator ☐ Parallel generators ☐
Base load ☐ Standby ☐
Parallel with utility ☐ Short term <5 mins ☐
Utility sensing ☐ Remote contact start ☐

Additional features

Break transfer ☐ No-break transfer ☐
Soft transfer ☐ Peak lopping ☐

Utility export limit…….

No. of generator circuit breakers controlled…..…… …….

No. of utility circuit breakers controlled…..……..……

Master control ☐ Type……..
Network controls ☐ Type……..

Control wiring:

PVC/SWA/PVC ☐ EPR/CSP ☐
Tri-rated ☐ LSF ☐

Method of installation: On tray ☐
Wall mounted ☐ Floor mounted ☐
Suspended from ceiling ☐ In sunlight ☐
In open trench ☐ Enclosed trench ☐
Buried direct ☐ In conduit ☐

Special wiring requirements:…….

Interface requirements

Clean contacts for interface to: BMS……...
Remote control……. Remote switchgear…….
SCADA system……. Telemetry …….

Network interface to BMS ☐
Remote control ☐ Remote switchgear ☐
SCADA system ☐ Telemetry ☐

Special interface requirements……..

Switchgear

Fitted on set: ☐ Circuit breaker ☐
Switch-disconnector ☐ None ☐

Load Terminal Box: ☐ Circuit breaker ☐
Switch-disconnector ☐ None ☐

Remote switchgear: ☐ Circuit breaker ☐
Switch-disconnector ☐ Changeover ☐
Transfer switch ☐ Paralleling s/board ☐

Incoming utility fault level……MVA/kA

Breaking capacity specified……..kA

Making capacity specified……..kA

Special protection requirements……

……

Generator systems

Type of load cables

PVC/SWA/PVC ☐ EPR/CSP ☐
Tri-rated ☐ LSF ☐

Method of installation: On tray ☐
Wall mounted ☐ Floor mounted ☐
Suspended from ceiling ☐ In sunlight ☐
In open trench ☐ Enclosed trench ☐
Buried direct ☐ In single-way ducts ☐

Other……..……..

Cross sectional area……..……mm^2/in^2*

Number of cables per phase……

Number of cables per neutral……

Free-standing load box (no circuit breaker): Yes / No*

Route length of load cables……...……...m/ft*

Special cabling requirements:……...

……

Earthing systems (grounded neutral assumed)

Ungrounded neutral ☐ Neutral switchgear ☐
Grounding resistor ☐ Ground fault prot'n ☐

Factory tests / documentation

Standard tests ☐ Witnessed tests ☐

Special tests…….

Rec. spare parts lists ☐ Parts catalogue ☐
Hard copy manuals ☐ Electronic manuals ☐

No. of copies…….. Format……

Language……

Start-up services

Pre-start-up first fills

Coolant ☐ Quantity…….
Lubrication oil ☐ Quantity…….
Fuel – service tank ☐ Quantity…….
Fuel – bulk tank ☐ Quantity…….

Special pre-start-up tests:……..……

……

……

Start-up tests

Provide fuel for tests ☐ Witnessed testing ☐

Load bank required ☐ Rating……..kW
Resistive only ☐ Resistive / Reactive ☐

Distance from generator……..……..m/ft*

Special start-up tests:…….....

……

……

Special handover requirements……

……

……

Maintenance contract ☐ No of visits / year……

Extended warranty ☐ Extension period…..years

Compiled……Date……..

Generator set installation checklist

Open generator set installed in building

This checklist should be used to validate the completion of a generator set installation, prior to commissioning. A check-list should be completed for each generator set of a multiple installation.

Project Details

Project Name ..……

……..…..……

Customer (End User)……..……...

……..……..

Address of Site ……..……

……

……..……

Tel. No ……..……

Email…….

Generator set details

Generator set model……..……..

Generator set serial number…….Set no…….

Control type……...

Control serial number……..

System control type (if applicable)……

Generator set building and services

Building & installation work complete ☐

Site clean & access clear from obstruction ☐

Building services complete & commissioned ☐
(lightning, lighting, electrical auxiliary supplies, water, etc.)

Observations……....

……

Room general

Generator set clean with all guards in place ☐

No loose materials near to generator set ☐

Air ducts clear and clean ☐

Access & egress routes unobstructed & labelled ☐

Control & maintenance positions unobstructed ☐

Room secure – no unauthorised access ☐

Generator set is level – holding down bolts secure ☐

Pipework and cables are secure with no trip hazards ☐

Overhead obstructions clearly marked and labelled ☐

All key components are labelled ☐

Pipework and services colour coded & labelled ☐

Electrical bonding complete ☐

Cooling System

Set mounted radiator

Radiator clean, free from obstruction ☐

Radiator air outlet connected to outlet duct ☐

Check for possibility of hot air recirculation ☐

Access to coolant top-up clear ☐

Engine vent pipes inclined toward radiator / header ☐

Pipework secure and undamaged ☐

Overflow clear and routed to avoid spillage ☐

Remote mounted radiator systems

Header tank is of adequate size ☐

Overflow is clear and routed to avoid spillage ☐

Static/friction head is within engine/system capability ☐

Engine vent pipes inclined toward radiator / header ☐

Fuel cooler installed if required ☐

Pipework avoids air locks – air bleed valves provided ☐

Pipework isolated from generator set vibration ☐

Pipework complete, cleaned, tested & painted ☐

Auxiliary supply to fans correctly installed ☐

Electrical bonding completed ☐

Heat exchanger & cooling tower systems

Header tank is of adequate size ☐

Overflow is clear and routed to avoid spillage ☐

Static/friction head is within engine/system capability ☐

Engine vent pipes inclined toward header tank ☐

Fuel cooler installed if required ☐

Pipework avoids air locks – air bleed valves provided ☐

Pipework isolated from generator set vibration ☐

Pipework complete, cleaned, tested & painted ☐

Secondary cooling system is complete ☐

Cooling tower make up supply is complete ☐

Auxiliary supply to fans correctly installed ☐

Electrical bonding completed ☐

Liquid fuel system

Bulk storage facility

Bulk storage tank installation complete ☐

Bulk tank incorporates water trap ☐

Spillage containment complete ☐

Isolating valves correctly positioned ☐

Tank contents gauge installed ☐

Content alarm contacts fitted & wired ☐

Transfer pump installed and connected ☐

Solenoid & pre-filter between bulk & service tank ☐

Pipework correct material, cleaned tested & painted ☐

Vent installed, piped to safe area and open ☐

Electrical bonding complete ☐

Insulation & pipeline heating installed ☐
Fill point installed & alarm fitted ☐
Storage facility secure ☐

Day tank (if none, complete check for bulk supply)

Positive head at engine for critical applications ☐
Fuel inlet head/restriction within engine limits ☐
Fuel return head/restriction within engine limits ☐
Isolating and solenoid valves fitted ☐
Check for no valves in spill return ☐
Flexible connections to engine ☐
Connection to fill, overflow & vent lines completed ☐
Overflow head of fuel within tank pressure limits ☐
Tank contents gauge installed ☐
Contents alarm contacts fitted & wired ☐
Electrical bonding complete ☐
Spillage containment complete & alarms wired ☐
Fire valves & contacts installed & wired ☐

Gaseous fuel system

Pipework complete, material and construction correct ☐
Regulator and shut off valves in correct locations ☐
Leak test and certification complete ☐

Fire alarm / suppression system

Fire alarm / suppression system complete ☐
Sensors protected from radiant heat ☐
Labelling and lock off system complete ☐

Starting system

Battery starting

Starting batteries correct & installed on tray or stand ☐
Battery cables routed correctly ☐
Battery charger installed & wired ☐

Compressed air / hydraulic starting

Compressor set installed and wired ☐
Compressed air pipework correctly rated & installed ☐
Isolating valves correctly positioned & labelled ☐
Pipework tested, painted & labelled ☐
Correct pressure regulator & HP/LP safety valves ☐
Flexible connection to engine fitted ☐

Exhaust system

Installation design prevents exhaust recirculation ☐
Flexible connection to engine ☐
Support prevents load on turbocharger/manifold ☐
Installation allows for pipework expansion ☐
Pipework / muffler supported at required intervals ☐
Joints welded or flanges secure with correct gaskets ☐
Stack/tail pipe prevents rain/snow ingress ☐
Flues are not combined in stack ☐
Condensate drain provided ☐
Exit directed away from buildings / personnel ☐
System is lagged & clad as required ☐
Building penetration & weathering complete & sealed ☐
Flammable materials properly protected ☐

Ventilation & attenuation

Air intake is at least 150% area of air outlet ☐
Design prevents hot air recirculation & rain ingress ☐
Design accounts for prevailing wind ☐
Air flow direction is from alternator to radiator ☐
Radiator outlet is ducted to attenuator / louver ☐
Attenuator / louvers complete & sealed to building ☐
Louver mechanisms complete & wired as required ☐
Electrical bonding completed ☐
Forced ventilation provided for remote cooled sets ☐
Bird guard is fitted to intake & outlet ☐

Electrical system

Control system

Field wiring to set mounted control complete ☐
Customer wiring to set mounted control complete ☐
Interconnection to remote control complete ☐
Emergency stop controls wired ☐

Set / Switchgear / Changeover / Transfer

Means of disconnection / isolation provided ☐
Switchgear installation & pre-testing completed ☐
Cables installed correctly, marked, allow movement ☐
Power connections complete & torque-marked ☐
Cable tests complete & certificates available ☐

Electrical general

All electrical boxes clean & covers replaced ☐
Auxiliary electrical supply complete ☐
Grounding system complete & tested ☐
Electrical bonding of services / assemblies complete ☐
Utility supply available as required ☐
Small power & lighting circuits tested & certificated ☐

Checklist completed by ……

Date……..

Print Name……

Company……..

Note: Completion of this checklist does not relieve the installer of contract obligations.

Generator set installation checklist

Enclosed or containerized generator

This checklist should be used to validate the completion of a generator set installation, prior to commissioning. A check-list should be completed for each generator of a multiple installation.

Project Details

Project Name ..……

……..…..……

Customer (End User)……..……...

……..……..

Address of Site ……..……

……

……..……

Tel. No ……..……

Email…….

Generator set details

Generator set model……..

Generator set serial number…….Set no…….

Control type……...

Control serial number……..

System control type (if applicable)……

Generator site and services

Installation work complete	☐
Site clean & clear from obstruction & secure	☐
Site services complete & commissioned (lightning, electrical auxiliary supplies, water, etc.)	☐

Observations……....

……

Site general

Enclosure sited in open air on level, firm ground	☐
No loose materials near to generator set	☐
Air intake / exit paths clear and clean	☐
Access & egress routes unobstructed	☐
Soil / sand covered to prevent dust (gravel, etc)	☐
Site drainage adequate	☐
Pipework and cables are secure with no trip hazards	☐
Electrical bonding complete	☐
All key components are labelled	☐
Pipework and services colour coded & labelled	☐
External spillage control adequate for fluid capacity	☐

Cooling System

Set mounted radiator

Radiator air outlet clean, free from obstruction	☐
Coolant overflow clear and routed to avoid pollution	☐
Check for possibility of hot air recirculation	☐

Remote / roof mounted radiator systems

Header tank is of adequate size	☐
Overflow is clear and routed to avoid spillage	☐
Static/friction head is within engine/system capability	☐
Engine vent pipes inclined toward radiator / header	☐
Fuel cooler installed if required	☐
Pipework avoids air locks – air bleed valves provided	☐
Pipework isolated from generator set vibration	☐
Pipework complete, cleaned, tested & painted	☐
Enclosure penetrations properly sealed	☐
Auxiliary supply to fans correctly installed	☐
Electrical bonding completed	☐

Heat exchanger & cooling tower systems

Header tank is of adequate size	☐
Overflow is clear and routed to avoid spillage	☐
Static/friction head is within engine/system capability	☐
Engine vent pipes inclined toward radiator / header	☐
Fuel cooler installed if required	☐
Pipework avoids air locks – air bleed valves provided	☐
Pipework isolated from generator set vibration	☐
Pipework complete, cleaned, tested & painted	☐
Enclosure penetrations properly sealed	☐
Secondary cooling system is complete	☐
Cooling tower make-up supply is complete	☐
Auxiliary supply to fans correctly installed	☐
Electrical bonding completed	☐

Fuel System

Bulk storage facility

Bulk storage tank installation complete	☐
Bulk tank incorporates water trap	☐
Spillage containment complete	☐
Isolating valves correctly positioned	☐
Tank contents gauge installed	☐
Content alarm contacts fitted & wired	☐
Transfer pump installed and connected	☐
Solenoid & pre-filter between bulk & service tank	☐
Pipework correct material, cleaned, tested & painted	☐
Vent installed, piped to safe area and open	☐
Electrical bonding completed	☐
Insulation & pipeline heating installed	☐
Fill point installed & alarm fitted	☐

Storage facility secure ☐

Installation with day tank (within / near enclosure)

Positive head at engine for critical applications ☐
Connection to fill, overflow & vent lines completed ☐
Overflow head of fuel within tank pressure limits ☐
Enclosure penetrations properly sealed ☐
Fire valves & contacts installed & wired ☐

Installations without day tank

Positive head at engine for critical applications ☐
Fuel inlet head/restriction within engine limits ☐
Fuel return head/restriction within engine limits ☐
Isolating and solenoid valves fitted ☐
Check for no valves in spill return ☐
Flexible connections to engine ☐
Electrical bonding complete ☐
Enclosure penetrations properly sealed ☐
Spillage containment complete & alarms wired ☐
Fire valves & contacts installed & wired ☐

Gaseous fuel system

Pipework complete, material and construction correct ☐
Regulator and shut-off valves in correct locations ☐
Enclosure penetrations properly sealed ☐
Leak test and certification complete ☐

Fire alarm / suppression system

System installation + remote alarms complete ☐
Sensors protected from radiant heat ☐
Labelling and lock off system complete ☐

Starting system

Battery starting

Starting batteries correct & installed on tray or stand ☐
Battery cables to engine routed correctly ☐
Battery charger installed & wired ☐

Compressed air / hydraulic starting

Compressor set installed and wired ☐
Compressed air pipework correctly rated & installed ☐
Isolating valves correctly positioned & labelled ☐
Pipework tested, painted & labelled ☐
Correct pressure regulator & LP safety valve ☐
Flexible connection to engine fitted ☐

Exhaust system

Installation design prevents exhaust recirculation ☐
Installation allows for pipework expansion ☐
Joints welded or flanges secure with correct gaskets ☐
Muffler correctly supported ☐
Stack/tail pipe prevents rain/snow ingress ☐
Condensate drain provided ☐
Exit directed away from buildings / personnel ☐
System is lagged & clad as required ☐
Enclosure weathering complete & sealed ☐
Flammable materials properly protected ☐

Ventilation & attenuation

Installation design prevents hot air recirculation ☐
Installation design accounts for prevailing wind ☐
Air exit directed away from buildings / personnel ☐
Forced ventilation systems wired ☐
Louver mechanisms complete & wired as required ☐
Bird guard is fitted to intake & outlet ☐

Electrical system

Control system

Field wiring to set mounted control complete ☐
Customer wiring to set mounted control complete ☐
Interconnection to remote control complete ☐
Remote emergency stop controls wired ☐

Generator / Switchgear / Changeover / Transfer

Means of disconnection / isolation provided ☐
Switchgear installation & pre-testing completed ☐
Cables installed correctly, marked, allow movement ☐
Enclosure penetrations properly sealed ☐
Power connections complete & torque-marked ☐
Cable tests complete & certificates available ☐

Enclosure

All electrical boxes clean & covers replaced ☐
Auxiliary electrical supply complete ☐
Grounding system complete & tested ☐
Electrical bonding of services / assemblies complete ☐
Utility supply available as required ☐
Small power & lighting circuits tested & certificated ☐

Checklist completed by ……

Date……..

Print Name……

Company……..

Note: Completion of this checklist does not relieve the installer of contractual obligations.

Generator set pre-start-up checklist

Open & enclosed generator sets

This checklist should be used to validate the completion of generator set pre-commissioning. A check-list should be completed for each generator set of a multiple installation.

Project Details

Project Name ..……

……..……

Customer (End User)..……..……...

……..……..

Address…….……..……

……

……..……..

Customer representative…….

Tel. No ……..……

Email……..

Generator set details

Generator set model……

Generator set serial number…….Set no…….

Control type……...

Control serial number……..

System control type (if applicable)……

Generator set environment and services

Installation work & checklist complete ☐

Surroundings clean & clear from obstruction ☐

Services to generator set complete ☐

Observations……....

……

Safety Checks

Ensure starting is inhibited ☐

Set clean and fully assembled ☐

No loose materials near generator set ☐

Air ducts clear and clean ☐

Access & egress routes unobstructed & labelled ☐

Control & maintenance positions unobstructed ☐

Room secure – no unauthorised access ☐

Generator set is level – holding down bolts secure ☐

Pipework and cables are secure with no trip hazards ☐

Overhead obstructions clearly marked and labelled ☐

Electrical bonding complete ☐

Warn personnel of impending equipment start-up ☐

Cooling System

Coolant type…….

Mix ratio……..….or factory installed ☐

Set mounted radiator

Radiator clean, free from obstruction ☐

Overflow clear and routed to avoid pollution ☐

Radiator filled with correct coolant & cap replaced ☐

Radiator, engine & pipework checked for leaks ☐

Belts checked for alignment, tension and damage ☐

Guards in place & secure ☐

Energise coolant heater supplies & check function ☐

Remote mounted radiator systems

Radiator clean, free from obstruction ☐

Overflow clear and routed to avoid pollution ☐

Header tank filled with coolant & cap replaced ☐

System & auxiliary tank (if fitted) filled ☐

Radiator, engine & pipework checked for leaks ☐

Air bled from system ☐

Energise coolant heater supplies ☐

Auxiliary supply to fans, pumps correctly installed ☐

Auxiliary supplies phase rotation / voltage check ☐

Heat exchanger & cooling tower systems

Header tank filled with coolant & cap replaced ☐

Auxiliary tank (if fitted) commissioned ☐

System, engine & pipework checked for leaks ☐

Air bled from system ☐

Energise coolant heater supplies ☐

Secondary cooling system is complete & filled ☐

Secondary cooling systems pumps commissioned ☐

Cooling tower make up supply commissioned ☐

Auxiliary supply to fans, pumps correctly installed ☐

Auxiliary supply to fans etc., phase / voltage check ☐

Record coolant concentration used…….....

Fuel System

Bulk storage facility

Bulk storage tank filled ☐

Isolating valves correctly positioned ☐

Tank contents gauge and alarm contacts checked ☐

Transfer pump & controls tested ☐

Electrical bonding complete ☐

Pipeline/tank heating system tested & commissioned ☐

Fill point installed & alarm tested & commissioned ☐

Bulk system checked for leaks ☐

Vent and overflow pipes open ☐

Storage facility secure ☐

Day tank

- Isolating and solenoid valves checked for operation ☐
- Engine fuel return open ☐
- Day tank filled ☐
- Air purged from system ☐
- Tank contents gauge and alarm contacts checked ☐
- Spillage containment alarms checked ☐
- Transfer pump functions checked ☐
- Fire valves & contacts installed & wired ☐

Gas fuel System

- Visual check completed & test certificates present ☐
- Gas present at shut off valves ☐

Fire alarm / suppression system

- Fire alarm / suppression system commissioned ☐
- Fire wire & solenoid quick release commissioned ☐
- Suppression system lock off commissioned ☐

Lubrication system

- Engine oil pan filled to correct level ☐
- Level alarms checked ☐
- Pre-lubrication system commissioned ☐
- Oil make up system filled & commissioned ☐

Starting system

Battery starting

- Batteries filled, installed and connected ☐
- Battery charger commissioned ☐
- Boost / float controls & instruments checked ☐

Compressed air / hydraulic starting

- Isolating valves correctly positioned & labelled ☐
- Pressure regulator & LP safety valve checked ☐
- Compressor commissioned ☐
- HP & LP air / hydraulic pressures checked ☐
- Condensate drained ☐

Exhaust system

- Check security of bellows, pipework & muffler ☐
- Check all flanges, joints & welds ☐
- Check stack/tail pipe and rain cap are clear ☐
- Drain water from system ☐
- Pre-lubricate turbo charger if required ☐

Ventilation & attenuation

- Check louvers are clear and free to operate ☐
- Louver mechanisms checked and supply energised ☐
- Commission forced ventilation system if applicable ☐

Electrical system

Control systems

- Visual check completed ☐
- Energise set control and check functionality ☐
- Energise system controls and check functionality ☐
- Check software versions and upload as required ☐
- Select set parameters on set/system control ☐
- Check remote control signals to set control ☐
- Check set control signals to remote control ☐
- Check signals to system control and switchgear ☐
- Check emergency stop controls ☐
- Enter / verify engine & alternator protection settings ☐

Set / Switchgear / Changeover / Transfer

- Visual check completed ☐
- Check cables installed correctly & torque marked ☐
- Verify cable flexibility at generator set ☐
- Energise auxiliary supplies and check functionality ☐
- Enter switchgear protection settings and record ☐
- Utility sensing commissioned ☐

Electrical general

- Test certificates available for all cables ☐
- Check auxiliary supply protection settings ☐
- Check auxiliary electrical supplies voltage & phase ☐
- Commission auxiliary supplies ☐
- Check utility supply protection settings ☐
- Check utility supply for voltage & phase ☐
- Commission utility supplies ☐
- Small power & lighting circuits test & commissioned ☐

Comments on any item that may affect commissioning

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Checklist completed by ……

Date……..

Print Name……

Company……..

Note: Completion of this checklist does not relieve the installer of contract obligations.

Generator set start-up checklist

Open & enclosed generator sets

This checklist should be used to validate the completion of generator set start-up procedure. A check-list should be completed for each generator set of a multiple installation.

Project Details

Project Name .....

.....

Customer (End User).....

.....

Address.....

.....

.....

Customer representative.....

Tel. No .....

Email.....

Generator set details

Generator set model.....

Generator set serial number.....Set no.....

Control type.....

Control serial number.....

System control type (if applicable).....

Generator set environment and services

Precommissioning work & checklist complete ☐
Surroundings clean & clear from obstruction ☐
Lighting / heating, etc., systems operational ☐
Observations.....

.....

Safety Checks

Ensure starting is inhibited until start-up is required ☐
Set clean and fully assembled ☐
No loose materials near set ☐
Air ducts clear and clean ☐
Access & egress routes unobstructed & labelled ☐
Control & maintenance positions unobstructed ☐
Room secure – no unauthorised access ☐
Personnel warned of start-up process ☐

Cooling System

Set mounted radiator

Radiator, engine & pipework checked for leaks ☐
Belts & guards checked for security / slipping ☐
Coolant heater operational ☐
Leak check ☐
DCA dosing cartridges fitted & valves open ☐

Remote mounted radiator systems

Radiator, engine & pipework checked for leaks ☐
Coolant heater operational ☐
Fans, pumps and controls checked ☐
Leak check ☐
DCA dosing cartridges fitted & valves open ☐

Heat exchanger & cooling tower systems

System, engine & pipework checked for leaks ☐
Coolant heater operational ☐
Secondary cooling system checked ☐
Fans, pumps and controls checked ☐
DCA dosing cartridges fitted & valves open ☐
Legionnella dosing checked where applicable ☐
Record dosing chemical & concentration.....

Diesel Fuel System

Bulk storage facility

Isolating valves correctly positioned ☐
Transfer pump & controls operational ☐
Pipeline / tank heating system operational ☐
Fill point alarm operational ☐
Leaks check ☐
Storage facility secure ☐

Day tank

Isolating and solenoid valves checked ☐
Tank filled ☐
Spillage containment & alarms operational ☐
Transfer pump operational ☐
Leak check ☐
Fire valves & release tested and operational ☐

Gas Fuel System

Isolating valves correctly positioned ☐
Regulator set to correct pressure ☐
Gas leak detection equipment operational ☐
Double shut-off device operational ☐
Leak test complete ☐
Purging complete ☐

Fire alarm / suppression system

Fire alarm / suppression system operational ☐
Suppression system lock-off operational ☐
Operator instructed in fire system operation ☐

Lubrication system

Engine oil pan filled to correct level ☐
Oil make up system operational ☐

Starting system

Battery starting

Batteries installed, filled and connected ☐
Battery charger commissioned ☐

Compressed air / hydraulic starting

Isolating valves correctly positioned ☐
Compressor operational ☐
HP & LP air / hydraulic pressures checked ☐
Condensate drained ☐

Exhaust system

Check security of pipework & muffler ☐
Check cowl and/or rain cap are operational ☐
Check water drain pipework and valves correct ☐
Leak check ☐
Check for exhaust gas recirculation ☐

Ventilation & attenuation

Check louvers are clear and operational ☐
Forced ventilation system operational if applicable ☐
Check for hot air recirculation ☐

Electrical system

Control systems

Auxiliary supplies energised ☐
Generator set local controls checked ☐
Generator set remote controls checked ☐
Generator set system controls checked ☐
Customer remote indication / controls checked ☐

Changeover switchgear / transfer switch

Auxiliary supplies energised ☐
Utility supply energised ☐
Voltage / phase rotation checked ☐
Indications correct ☐
All covers in position ☐

Paralleling switchgear

Auxiliary supplies energised ☐
Indications correct ☐
All covers in position ☐

Initial start-up

Manual start-up, idle & full speed checks complete ☐
Generator set voltage & frequency correct to order ☐
Control system calibrations checked ☐
Phase rotation checked ☐
Paralleling sets phase coincidence check ☐
Generator set switchgear manual operation correct ☐
Local stop / emergency stop control checked ☐
Remote start / stop / emergency stop checked ☐

Generator set load test

Note: Load test is carried out on customer's site load unless agreed in writing prior to start-up. Artificial load bank test will be performed using resistive load unless otherwise specified.

Load test completed using customer's load ☐
Record load achieved……kW

Load bank test (if applicable)

Check load bank voltage & power capability ☐
Check cables installed correctly & tightened ☐
Energise auxiliary supplies and check functionality ☐
Load test completed ☐
Result sheet completed ☐
Record load achieved……kW
Record power factor……

System start-up completion

Generator set operational ☐
Changeover / transfer switch operational ☐
Paralleling switchgear operational ☐
Automatic operations checked ☐
Master control operational ☐
All safety shutdowns and warnings operational ☐
Electrical HV/MV/LV rules and procedures in place ☐

Comments on any item that may affect acceptance:

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Checklist completed by ……
Date……
Print Name……
Company……

Note: Completion of this checklist does not relieve the installer of contract obligations.