Instructions

This report must be completed and signed by an MTU Onsite Energy certified commissioning technician in order to accomplish all requirements of the MTU Onsite Energy Limited Warranty. This report includes the physical installation checkups and commissioning procedures for all control versions as well as open and enclosed generator sets.

After completion, a signed copy must be provided to each of the following:

- 1. Distributor/Dealer
- 2. Owner

MTU Onsite Energy Regional Warranty Department 3.

Applicant Contact Details

Distributor/Company:				Model Numbe
Name:				Serial Number
Telephone:				Voltage:
Email:				Poles:
Project Details Project Name: Project Number:				ATS (□ Yes Manufacturer: Model Numbe
Site Address:				Serial Number
				Voltage:
Start-Up and Commissioning Start Date:				Poles:
Start-Up and Commissioning Completion Date:				Manufacturer: Model Numbe
				Serial Number
Engine Generator Set N Model Number:	lameplate			Firmware Vers
Serial Number:				General
Rating:				Application:
Hz:	kW:			
kVA:	Volts:			
Phase:	Amps:			Load test type site:
Engine Model Number:				Load test not p
Serial Number:				
Power:	RPM:			
Fuel Type:	LP Vapor	Liquid LP	□ Other	Engine Gener

	mtu energy
Generator Manufacturer:	
Model Number:	
Serial Number:	
AVR Type:	
kVA:	Hz:
Voltage:	Current:
Phase Rotation:	
Breaker (MTU Deliv	very 🗆 Yes 🛛 No)
Manufacturer:	
Model Number:	
Serial Number:	
Voltage:	Current:
Poles:	

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∖TS (□ Ye	s 🗆 No)
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1odel Number:		
erial Number:		
oltage:	Current:	
oles:		
ontroller		
lanufacturer:		
1odel Number:		
erial Number:		
irmware Version:		
eneral		
pplication:	□ 3A Continuous	🛛 3B Prime
	3D Standby	□ 3F DCCP
	□	
oad test type on	Building load	Load bank
te:	□ Grid parallel	□ None

not possible because:

enerator Set Application

- ed in building
- Containerized
- Enclosed



	Yes	No	N/A
Commissioning performed by an MTU Onsite Energy certified commissioning technician			
Personal protection equipment is available and functional			
Access only for authorized personnel			
Emergency escape routes are unobstructed (no loose materials, parts, or tools) and labeled			
Danger spots are indicated (e.g. trip hazards, beams, pipes)			
Control panel/engine area is unobstructed			
All warning plates and instruction labels are properly in place			
Genset room is free of debris, dirt, dust, loose materials, parts, and tools			
Air ducts are free and clean			
Engine generator set is leveled; mounting bolts secure			
Shipping blocks are removed			
For two-bearing generators, check for proper alignment			
Heat protection covers are installed			

Engine Generator Set Room (Equipment)

	Yes	No	N/A
Battery powered emergency light is installed			
Eire extinguishers are in place			
First aid kit is in place	브	<u> </u>	<u> </u>
Oil resistant floor coating			
Spill containment system in place			
Fire extinguishing system			
\Box Water \Box CO ₂ \Box Chemical \Box None			

Engine Room Requirements (Open Power Units)

Engine room is located as close as practical to the main	Yes	No □	N/A
Space for maintenance is left around the engine generator set			
Battery powered back-up lights available			
Engine Generator Set Room Ventilation			
Intake and exhaust opening properly sized and louvers	Yes	No □	N/A
Flexible duct section installed			
Radiator duct properly sized to louver			
Proper air flow direction past alternator and then the engine			
Engine room inlet air filter in place			
Weather/animal guard is fitted to intake and outlet			

Self-Contained Engine Generator Set Ventilation

Sell-Contained Engine Generator Set Ventilation			
-	Yes	No	N/A
Engine generator set intake positioned away from			
obstruction to airflow			
Radiator discharge positioned away from prevailing			
winds			
Sufficient clearance around self-contained engine			
generator set for airflow			



Air Inlet and Outlet

Air ducts are clean and clear Ducts are installed properly Weather protection guards are installed Silencers are installed properly Louvers open and close automatically Manual operation of louvers is possible Structure air flows are correct (no thermal short circuit) Unrestricted airflow over the engine	Yes		
Cooling System	Yes	No	N/A
Cooling system is free of leakages Pipelines and connections undamaged Radiator fan(s) are clear and clean Venting pipes have gradient toward expansion tank Overflow is free and spillage is avoided System is filled to proper level Filling cap is freely accessible Coolant-preheater is functional Coolant type and concentration as specified in MTU manual:			
Frame-Mounted Radiator		N -	
Check belt tension and alignment Radiator clean and free from obstruction Radiator air outlet connected to outlet duct Check for possibility of hot air recirculation Engine generator set vent pipes routed upward toward radiator avaparian task			
Pipelines secure and undamaged Overflow clear and routed to avoid spillage			
Remote-Mounted Cooling System			
Pipelines cleaned and painted Device(s) aligned and fixed properly Pipelines fixed properly Expansion tank is of adequate size Pipelines isolated from generator set vibration Static head pressure is within system capability Auxiliary power supply is installed correctly Potential equalization is installed properly Fan rotational direction correct Overflow clear and routed to avoid spillage Engine generator set vent pipes routed upward toward radiator expansion tank	Yes	$\overset{NO}{=} \square \square$	
Avoid air locks in pipelines – air bleed valves provided All proper electrical connections made			
Heat Exchanger and Cooling Tower			_
Pipelines cleaned and painted Device(s) aligned and fixed properly Pipelines fixed properly	Yes	No 	N/A



Yes No N/A

Heat Exchanger and Cooling Tower (continued)

Expansion tank is of adequate size Pipelines isolated from generator set vibration Vent valves installed Static head pressure is within system capability Secondary circuit pump direction is accurate Secondary circuit pump is functional Potential equalization is functioning properly Overflow lines are clear and routed to avoid spillage Engine generator set vent pipes routed upward toward expansion tank	Yes	\mathbf{N}	
Air bleed valves installed Cooling tower make up supply is complete Auxiliary power supply to fans is correctly installed All proper electrical connections made			
Mounting/Foundation			
Engine generator set is installed on proper mounts Static deflection area of mounts not blocked by	Yes	No □ □	N/A □ □
Surface is level Support structure is adequate to support engine			
Engine generator set is supported at each mounting location			

Lube Oil System

Engine is filled with oil to proper level	
No oil leaks present	
Flexible lines installed in make-up lube-oil system	
Oil type as specified in MTU manual (record type):	

Yes No N/A

Starting System

	Yes	No	N/A
Battery and cables are free from damage			
Battery and cables installed, mounted, and wired properly			
Batteries filled up to appropriate level			
Idle charging voltage min. 27.6 VDC for 24 V system or 13.7 VDC for 12 V system			
Battery charger properly installed and wired			
Battery is located near starter with shortest cable run as possible			

Diesel Fuel System

	Yes	No	N/A
Fuel system is free of leakages			
Flexible lines installed at engine			
Pipeline size adequate to system			
Pipelines and connections undamaged			
Flow and return lines connected correctly			
Fuel lines free of tension, scuffing, or kinks			
Potential equalization is installed properly			
Adequate room is left for fuel tank inspections			

Diesel Fuel System (continued)

Tank is not overfilled Tank is not in the vicinity of exhaust or other heat			
sources For electric fan driven fuel coolers: Fuel cooler plumbed			
and wired correctly Fuel returns to fuel tank without restriction, proper sized			
pipe Fuel prefilter installed before engine inlet Electronic day tank pump used from main storage to day			
Tank Day tank controls/pumps installed Fuel transfer pump connected to emergency power Level indicator used for checking tank contents Leak sensors are in place All proper control and sensor connections are made Spill containment procedure in place per code			
Diesel Fuel System (Main Storage Tank)	X		
Isolating valves correctly positioned Transfer pump and controls operational Pipeline/tank heating system operational Fuel level monitoring system operational Check for leaks	res		
Day Tank	Voc	No	NI/A
Tank is fixed properly and mounted to substructure Tank vent line is plumbed to safe area Tank filling line is of adequate size All unused fittings are plugged Mechanical fuel level indicator installed Electrical fuel level indicator installed and tested Fuel level switches installed and adjusted System pump(s) connected to emergency power Potential equalization is installed properly System pump(s) installed correctly (flow direction) Refill function checked Leakage sensor in place Adequate space available for inspections Isolating and solenoid valves checked Tank filled Check for leaks Fire valves present			
Gas Fuel System (Americas Only)	Yes	No	N/A
Dedicated gas supply line of proper size and material Check for gas filter/screen Check gas solenoid valve operation Check supply lines for leaks Check manual shut-off valve operation Solenoid valves correctly positioned Regulator set to correct pressure Gas leak detection equipment operational Shut-off devices operational			

Exhaust System

	Yes	No	N/A
Piping is installed and secured properly Flexible connectors installed at engine exhaust outlet Flexible connectors installed correctly Exhaust line condensate trap with drain installed Silencer is installed and secure Exhaust thimble installed per local codes Exhaust system below back pressure limit Exhaust piping diameter properly sized for length of run No diameter reductions downstream on exhaust pipes All exhaust system weight is properly supported Proper pipe wall thickness is maintained Exhaust lines are properly insulated Exhaust line protected from natural elements (rain cap installed)			
Exhaust gas prevented from re-entry to building Hot parts safety decals/guards are present			
Fire Alarm/Suppression System			
Fire alarm/suppression system present	Yes	No □	N/A
Engine Management System (Engine Governor)	Yes	No	N/A
Engine Control Unit box is free of damage Engine Control Unit box is securely mounted to engine Electrical connections securely fastened			
Grounding	۷۵۶	No	Ν/Δ
Grounding Engine and generator are properly grounded	Yes	No □	N/A
Grounding Engine and generator are properly grounded Electrical and Control System	Yes D Yes	No □ No	N/A □ N/A
Grounding Engine and generator are properly grounded Electrical and Control System Remote wiring connected correctly Cables free of tension, scuffing, or kinks All connections clean and secure Bus bar phase sequence, voltage, and frequency checked Control cables routed in separate conduits from phase	Yes P Yes	No	N/A
Grounding Engine and generator are properly grounded Electrical and Control System Remote wiring connected correctly Cables free of tension, scuffing, or kinks All connections clean and secure Bus bar phase sequence, voltage, and frequency checked Control cables routed in separate conduits from phase leads Engine generator set controls energized and functional Software version of engine generator set controller	Yes Yes C C C C C C C C C C C C C	N₀ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
Grounding Engine and generator are properly grounded Electrical and Control System Remote wiring connected correctly Cables free of tension, scuffing, or kinks All connections clean and secure Bus bar phase sequence, voltage, and frequency checked Control cables routed in separate conduits from phase leads Engine generator set controls energized and functional Software version of engine generator set controller recorded All LEDs on panel illuminate when LED test is pressed Emergency stop control operational Test certificates available for all cables Utility service breaker capacity verified Small power and lighting circuits operational	Yes		
Grounding Engine and generator are properly grounded Electrical and Control System Remote wiring connected correctly Cables free of tension, scuffing, or kinks All connections clean and secure Bus bar phase sequence, voltage, and frequency checked Control cables routed in separate conduits from phase leads Engine generator set controls energized and functional Software version of engine generator set controller recorded All LEDs on panel illuminate when LED test is pressed Emergency stop control operational Test certificates available for all cables Utility service breaker capacity verified Small power and lighting circuits operational Switchgear/Transfer Switch	Yes		
Grounding Engine and generator are properly grounded Electrical and Control System Remote wiring connected correctly Cables free of tension, scuffing, or kinks All connections clean and secure Bus bar phase sequence, voltage, and frequency checked Control cables routed in separate conduits from phase leads Engine generator set controls energized and functional Software version of engine generator set controller recorded All LEDs on panel illuminate when LED test is pressed Emergency stop control operational Test certificates available for all cables Utility service breaker capacity verified Small power and lighting circuits operational Switchgear/Transfer Switch	Yess		
Grounding Engine and generator are properly grounded Electrical and Control System Remote wiring connected correctly Cables free of tension, scuffing, or kinks All connections clean and secure Bus bar phase sequence, voltage, and frequency checked Control cables routed in separate conduits from phase leads Engine generator set controls energized and functional Software version of engine generator set controller recorded All LEDs on panel illuminate when LED test is pressed Emergency stop control operational Test certificates available for all cables Utility service breaker capacity verified Small power and lighting circuits operational Switchgear/Transfer Switch Cables installed to correct torque specification Phase cables to switchgear/transfer switch are correctly sized and clearly identified	Yess		



Generator Circuit Breaker

	Yes	No	N/A
ON/OFF function			
Auxiliary contact			
Adjust over-current protection			
Adjust the trip unit			
Phase rotation checked			

Preparation for Running Checks

□ Follow appropriate lockout/tagout procedure

Running Checks

C C	Yes	No	N/A
Engine generator set engine control switch in the RUN position. Start engine and verify whether there is sufficient oil pressure			
Allow engine to run for five minutes Check coolant level, add as necessary, and reinstall cap Allow engine to run for at least 20 minutes and check			
engine operating temperature Check the battery charger for proper operation If the speed is unstable, adjust to specifications Adjust the AC output voltage to match the utility voltage			
using the voltage adjusting control Check for oil, coolant, and exhaust leaks/recirculation Check temperature on city water-cooled models and			
Engine generator set engine control switch in the OFF			
position Permission must be obtained from the building authority			
Test transfer switch test is performed Test transfer switch Record the current phase for the three phase systems			
Set the engine generator set exerciser with load to the			
customer's required exercise period Verify that all options on the transfer switch are adjusted and functional to the customer's requirements			
TDES (Time Delay to Engine Start) TNE (Time Delay Normal to Emergency) TDN (Time Delay to Normal) TDEC (Time Delay Engine Cooldown)		r	sec. sec. nin. nin.
Mains Failure Test Number of start trials: Duration between mains failure and generator circuit breaker (GCB) closed (until emergency power source supplies load)			sec.
	Yes	No	N/A
Static voltage drift during operation within limit of			
Static frequency drift during operation within limit of ISO 8528-5			



Running Checks (record on chart)

Unless otherwise specified by local or state regulations, run the engine-generator set at full expected system load in excess of 30% of the nameplate rating). Record data at 15 minute intervals.



Shutdowns

	Yes	No	N/A
Emergency stop (also external)			
Over-frequency/over speed			
Under-frequency			
Over-voltage			
Under-voltage			
Oil pressure Lo Lo			
Engine temperature Hi Hi			

Check and verify any additional protective devices and list:

Additional Comments/Notes:



Customer Acknowledgement (Literature and Instructions)

Verify that the customer has the appropriate engine/engine-generator set and transfer switch (if provided by MTU Onsite Energy) literature. Instruct the customer in the operation and maintenance of the power system.

I	received in	nstructions on
Please print name of person receiving instr	ions.	Date
	(signature	2)
To be filled out by the commissioning tee	nician only.	
Completed by (signature):		
Print Name:		
Company:		
Date:		
Note: Completion of this checklist does not relieve the installer of	tract obligations.	
To be filled out by the customer/client.		
Witnessed by (signature):		
Print Name:		
Company:		
Location:		
Date:		