GENERATOR COMMISSIONING CHECKLIST

CUSTOMER DETAILS			
CUSTOMER:	SOUTH REGION HEADQUARTERS - 96	**DATE:**	12/04/23
ADDRESS:	710 LAKE JEFFERY RD LAKE CITY FL 32055	**SERVICE ORDER #:**	118067
		FA JOB ID:	J1498318
SITE NAME:	CELLXION FDOT LAKE CITY	**TECHNICIAN:**	Dave Hileman
CONTACT NAME:		**CONTACT EMAIL:**	
ASSET NAME:	CELLXION	**CONTACT TEL:**	
PRODUCT DETAILS		**SECONDARY PRODUCT DETAILS:**	
PRODUCT MANUFACTURER:	ONAN : C40N6	**MANUFACTURER:**	CPS
PRODUCT MODEL:	C40N6	**MODEL:**	QSJ2.4
PRODUCT SERIAL:	F230240037	**SERIAL:**	F230240037
PROD HOURS / MILES / KM:	.4	**HOURS / MILES / KM:**	

GENSET SPEC:	A	**ENGINE CPL:**	
GENSET CONTROL TYPE:	PCC1302	**DATE START UP COMPLETE:**	12/4/23
AUTOMATIC TRANSFER SWITCH 1		**AUTOMATIC TRANSFER SWITCH 2**	
ATS MAKE/MODEL:	OTECB-2271988	**ATS MAKE/MODEL:**	
ATS SPEC:	B	**ATS SPEC:**	
ATS AMPS:	225	**ATS AMPS:**	
ATS SERIAL:	A23M199480	**ATS SERIAL:**	
AUTOMATIC TRANSFER SWITCH 3		**AUTOMATIC TRANSFER SWITCH 4**	
ATS MAKE/MODEL:		**ATS MAKE/MODEL:**	
ATS SPEC:		**ATS SPEC:**	
ATS AMPS:		**ATS AMPS:**	
ATS SERIAL:		**ATS SERIAL:**	

PASS	N/A	NEEDS ATTN	
✔			**A. PRE-JOB PLANNING**
		✔	**B. ON SITE / SITE PREPAREDNESS**
✔			**C. STARTING BATTERIES**

PASS	N/A	NEEDS ATTN	
✔			**D. EQUIPMENT PREPAREDNESS**

Verify Genset and ATS power and grounding/bonding and identify where: Ground rod

✔			**E. ELECTRICAL CONNECTIONS – POWER & CONTROL**

Battery float voltage:	13.2	Watt:	
Coolant heater breaker size:	20	Qty. of heaters:	1
Generator VAC:	240		

✔			**F. MOUNTING AND ALIGNMENT**
✔			**G. EXHAUST SYSTEM**
✔			**H. COOLING SYSTEM**

Coolant properties:

Check coolant level, add as needed:	0	Gallons added
DCA concentration:		Units per gallon
Freeze protection:	-32	Degrees F

✔			**I. LUBRICATION AND FILTRATION**

Check crankcase level, add as needed:	0	Quarts added

✔			**J. FUEL AND SPEED GOVERNING SYSTEMS**
✔			**K. MISCELLANEOUS ENGINE ITEMS**
✔			**L. AUTOMATIC TRANSFER SWITCHES**

	ATS 1	ATS 2	ATS 3	ATS 4
Time delay settings:				
Start:	3 sec			
Transfer:	1 sec			
Retransfer:	10 min			
Cooldown:	5 min			
Program Transition:	0			
Elevator pre-signal:	0			
Exercise clock settings:				
On / Off::	On			
Day of week:	Tuesday			
Even start:	8:00 am			
Duration:	20 min			
Load / No load:	No load			

PASS	N/A	NEEDS ATTN	START UP EN ENGINE WARM-UP PERIOD WITHOUT LOAD
✔			**M. MAIN BREAKER OFF / OPEN**

✔			**N. MAIN BREAKER ON / CLOSEED – WITH ATS MOTOR DISABLED**

Genset frequency (0.03 - 0.10 offset for in-phase or closed transition):

Hertz: 60

Verify Genset rotation matches utility at ATS ✔

PASS	N/A	NEEDS ATTN	AUTOMATIC SYSTEMS TEST
✔			**O. SOURCE / BUILDING MAIN FAILURE TEST / LOSS OF SOURCE 1**

✔ **P. RECORD LOADED OPERATIONAL VALUES**

Oil pressure:	42	Oil Temperature:		Coolant temp:	183
Battery Voltage:	14.3	Engine speed:	1800	Exhaust temp:	
Coolant press:		Blowby flow:		LTA temp:	
Voltage AB:		Voltage AC:	240	Voltage BC:	
Current A:	1	Current B:		Current C:	1
Load kW:		Load kVA:		Load kVAR:	
Fuel pressure:	10” WC	Genset freq/Hz	60	Load PF:	

Q. SITE PRE-DEPARTURE VERIFICATION

Comments:

Drove to job site, gain access to unit, do JSA and site inspection. Found that there was not enough wires from generator to ATS and after customer notified that they needed multiple alarms they were short some of those. Connect load bank and install low pressure gauge to fuel line, set pressure to 10” WC at no load and start load bank and at full load had 8.3” WC. Do 2 hour full load test, disconnect load bank, connect control wires that were there and program AUX101 for customers alarms. Test low oil pressure, high engine temp, over speed, low coolant level, gen running, not in auto, on emergency power. Return to shop. Return to job site after all wires were installed, do JSA, connect wires for annunciator, ATS. Connect to ATS control and program time delays and exercise time, set clock to proper time. Use main to start system test, all worked properly, retest for customer and all worked properly again, clean up work area and return to shop.

Cummins OneBMS US 11101 Nations Ford Road Charlotte NC 28241	**TECHNICIAN NAME:** Dave Hileman	**TECHNICIAN SIGNATURE:**	**DATE:** 12/04/23
	CUSTOMER NAME:	**CUSTOMER SIGNATURE:**	**DATE:**

GENERATOR COMMISIONING CHECKLIST

Below is the scope of work performed during Generator Commissioning. Any additional repairs, parts, or service which are required will be brought to the attention of the owner. Repairs will only be made after proper authorization from the owner is given to Cummins Sales and Service. Any additional repairs, maintenance or service performed by Cummins Sales and Service for a Generator Commissioning will be at Cummins Sales and Service labor rates.

A. PRE-JOB PLANNING

1. Ensure you have the necessary paperwork from Service Supervisor and parts prior to beginning job
2. Contact site contact prior to leaving to go to job site

B. ON SITE/ SITE PREPAREDNESS

1. Check in with appropriate site personnel (Electrical/General Contractor)
2. Perform a site walk through
3. Perform Job Safety Assessment (JSA) and evaluate PPE requirements
4. Review Install Requirements Manual located on Quick Serve On-Line
5. Lock Out/Tag Out Procedures followed

C. STARTING BATTERY(S)

1. Install and note the proper size and quantity of required battery(s)
2. Check battery electrolyte level in the starting battery system
3. Insure battery is isolated from floor in suitable container or tray
4. Insure correct polarity and connections - ECM Controlled engines require ECM energized 1st before switched B+ or accessory supply voltage from Genset control to ECM. (Activate E-Stop or Follow Procedures specific to controller in use)

D. EQUIPMENT PREPAREDNESS

1. Verify that all fluid levels including oil, coolant, diesel or gaseous fuel supply is adequate.
2. Verify there is adequate room ventilation
3. Determine location of the service disconnect
4. Verify generator and transfer switch(s) power and grounding/bonding and identify where.
5. Insure Battery readiness
6. Shipping blocks removed and correct vibration isolators installed
7. Power supply to block heaters and battery chargers available and de- energized
8. Adequate clearance of fire protection equipment in relation to exhaust system
9. Insure all control interconnect wiring is terminated and/or isolated

E. ELECTRICAL CONNECTIONS - POWER & CONTROL

1. Check Battery charger DC Wiring to battery or starter terminals
2. Verify AC Connection to battery charger
3. Verify the battery charger settings are correct as per site requirements
4. Verify the engine water jacket heater wired to normal power
5. Verify adequate voltage supply to water jacket heater
6. Verify the heater is operational
7. Verify the oil sump heater is operational
8. Verify control panel heater(s) is operational
9. Verify alternator heater(s) is operational
10. Visual check of fuel solenoid valve wired to run circuit/switched battery
11. Visually inspect generator output connections for desired voltage and note volts
12. Determine generator neutral in use* mandatory entry required
13. Control wiring terminated as required
14. Inspect for proper connections at generator breaker(s) to transfer switch(s)
15. Remote annunciation wiring terminated
16. Record the battery float voltage, and breaker size.
17. Record the jacket water heater voltage, wattage, and quantity of heaters.

F. MOUNTING & ALIGNMENT

1. Verify all connections secured and supported
2. Verify that the generator frame skid is secured to level surface
3. Verify oil drainage clearance
4. Verify water available nearby
5. Verify courtesy power nearby
6. Angular Alignment (where required)
7. Axial Alignment (where required)
8. Verify flexible connections exist as needed such as: fuel, exhaust, electrical, and radiator cooling

G. EXHAUST SYSTEM

1. Verify exhaust flex connections are correctly installed and secured
2. Verify seamless tubing is appropriate type per installation
3. Inspect exhaust condensation trap
4. Verify muffler and rain caps correct type and is free to move
5. Verify adequate exhaust piping size (visual)
6. Inspect that elbows are of long radius design (visual)
7. Verify that thimbles are present at Wall/Ceiling penetrations (visual)

H. COOLING SYSTEM

1. Verify coolant properties and add as need. Record the coolant added, DCA concentration, and freeze point per gallon or unit.
2. Inspect all hoses, clamps, etc.
3. Verify proper duct and damper sizing for exhaust, intake, and combustion
4. Verify damper and louver operations

I. LUBRICATION AND FILTRATION

1. Check crankcase level, add as needed. Record oil added.
2. Check crankcase ventilation system
3. Check Air Cleaner, Adapters, and Clamps
4. Check Filters
5. Verify No Fluid Leaks

GENERATOR COMMISIONING CHECKLIST

J. FUEL AND SPEED GOVERNING SYSTEMS

1. Visually inspect governor linkage movement/clearance

GASEOUS SYSTEMS

1. Verify manual shutoff valve is installed and turned off
2. Verify primary gas pressure regulator is installed
3. Verify dry fuel strainer is installed
4. Verify fuel solenoid valve is installed
5. Bleed Fuel System
6. Visually inspect spark ignited ignition system
7. Visually inspect the fuel mixer and trim valve settings

DIESEL SYSTEMS

1. Visually inspect day tank piping
2. Inspect and test operation of day tank fuel transfer pump(s)
3. Inspect and test operation of day tank controls, switches, ETC
4. Inspect and test operation of base tank
5. Inspect and test operation of Base Tank Floats, Senders, ETC
6. Inspect and test operation of Other Fuel Tank
7. Inspect and test operation of all tank accessories installed including vents
8. Bleed and prime fuel system

K. MISC ENGINE ITEMS

1. Inspect drive belts (Fan, Alternator, ETC)
2. Insure all drain valves are closed
3. Connect laptop with InPower and take capture file (where applicable)

L. AUTOMATIC TRANSFER SWITCHES

1. Control wiring terminated (Remote start, Elevator/Motor load controls, Remote test, ETC
2. Correct wiring to normal/utility, Load and emergency/generator
3. Correct voltage and current rating for connected sources
4. Visual Check of main contacts
5. Clear of debris and metal chips
6. Cabinet free of installation debris
7. Conduit Sealed
8. Service disconnects for normal and emergency power connections
9. Prepare transfer switch for operation
10. Connect laptop with InPower and take capture file (where applicable)

M. MAIN BREAKER OFF/OPEN

1. Start generator set with local run selector switch
2. Record oil pressure
3. Verify operation of rain cap and exhaust
4. Record coolant temperature
5. Record battery charge rate
6. Record fuel pressure (where applicable)
7. Record operating frequency/hertz
8. Record engine speed
9. Record output voltage L-L/L-N
10. Record engine stability
11. Record voltage stability
12. Note any unusual noises/vibrations

N. MAIN BREAKER ON/CLOSED- WITH ATS MOTOR DISABLED

1. Re-Start generator with local run selector switch
2. Verify Genset rotation matches utility at ATS
3. Verify Genset voltage and utility voltage match
4. Verify Genset frequency (.03-.10 offset for In-phase or closed transition), record Hertz
5. Verify sources come in-phase/in-synch in acceptable time frame

O. SOURCE/BUILDING MAINS FAILURE TEST/ LOSS OF SOURCE 1

1. Verify Lube Oil Level
2. Verify no fluid leaks from previous unit r
3. Verify unit in 'Remote/ Auto'
4. Verify unit Breakers On/ Closed
5. Open/ Trip Utility Service feed to ATS
6. Unit Started OK
7. Within Acceptable Time Limits per Application
8. Load Transferred OK
9. Engine/ Generator Assumed Load OK
10. Governor, Carburetor, Pump Adjustments
11. Voltage Regulator Adjustments

P. RECORD LOADED OPERATIONAL VALUES

Record loaded operation values for the below (as applicable):

Oil Pressure	Coolant Pressure	Load PF Oil
Temperature	Blowby Flow	Load KW Coolant
Temperature	LTA Temperature	Load KVA
Battery Voltage	Genset Voltage A/B/C	Load KVAR
Engine Speed	Genset Frequency/Hertz	Fuel Pressure
Exhaust Temp	Current A/B/C	

1. Restore Source 1
2. Perform Loss of Source 2 (optional)
3. Test with Local Test Switch
4. All Functions/ Timers Operated OK
5. Retransfer Loads OK
6. Engine Cooldown OK

Q. SITE PRE-DEPARTURE VERIFICATION

1. All applied energy source lock out devices removed
2. All controls and components in AUTO/REMOTE
3. All GENSET breakers ON/CLOSED (except power operated paralleling breakers
4. Battery Charger operational/ breaker ON
5. Component heaters enabled/ breaker ON
6. Site Cleanup
7. Cummins Service Sticker applied
8. Unit locked
9. **Customer notified of completion and site departure**