



#7, 415 60 Ave SE Calgary Ab,
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GENERATOR BUILDING PACKAGE QUALITY CHECKS

AND

LOAD TEST

Client: Arc Resources / Schneider Electric .

Project Number: CPG-2018-ANOC08

Project Name: Dawson 4 .

CPG WO: 6142

CPG Sales Order: CPG-2018-ANOC08.

Test Date: Jan 16, 2019 - Custom Power Generation's
Acheson facility

Witnessed By:

(Internal CPG) Name: Ryan Mikkelsen

(Internal CPG) Name: _____

(Internal CPG) Name: _____

(Client / Representative) Name: _____

(Client / Representative) Name: _____

(Client / Representative) Name: _____

(Client / Representative) Name: _____

GENERATOR #1 DETAILS

Alternator

Make STAMFORD Model H3634G1 Serial # X18D()()1703

Engine

Make WAUKESHA Model L36GL Serial# 5283705338
Fuel N.G. R.P.M 1800

Control Panel

Make TPS Model N/A Serial# N/A

Battery Charger

Make LAMARCHE Model ESCR-10-24V-AV1 Serial# 367907-7(3718)

Genset

Make N/A Model N/A Serial# N/A

GENERATOR #2 DETAILS

Alternator

Make STAMFORD Model HCI634G1 Serial # X17C101703

Engine

Make WAUKESHA Model L36GL Serial# 5283705339
Fuel N.G. R.P.M 1800

Control Panel

Make TPS Model GCS Serial# W-097256

Battery Charger

Make LAMARCHE Model ESCR-10-24V-AV1 Serial# 367906-8 (3718)

Genset

Make N/A Model N/A Serial# N/A

GENERATOR ACCEPTANCE TEST

Mounting System:

- vibration isolators installed adjusted

Complete: Notes: N/A

Fuel System:

- Natural gas fuel lines installed per P&ID
- Instrumentation per CSA B149.1 or B149.3
- Instrumentation per line list
- Fuel flex installed
- Correct pressure and volume to engine

Complete: Notes: N/A

Cooling system

- Radiator installed per drawings
- Instrumentation installed per line lists
- Instrumentation readable and accessible
- Supply and return lines sized correctly

Complete: Notes: N/A

Exhaust system:

- flex connection installed
- muffler installed.
- exhaust thimble through wall.
- muffler and exhaust pipe insulated.
- rain cap or protection shroud.
- Exhaust stack present / installed

Complete: RM Notes: EXPANSION JOINT TO BE ADDED ON EACH UNIT.

Room ventilation

- Exhaust fans installed per drawings
- Intake louvers installed per drawings

Complete: RM Notes: N/A

DC Electrical system

- battery cables properly connected.
- battery charger connected
- battery racks in place.

Complete: RM Notes: N/A

AC Electrical System:

- block heater connected and operating properly.
- system ground properly.
- neutral connection in place.
- proper cable connections made
- Cables sized according to CEC
- Junction Box terminated per drawings
- Load bank Controller installed
- Control wiring per drawings
- Electrical tagging per drawings

Complete: **RM** Notes: **N/A**

Pre-Start Checklist:

- Inspect hoses and wiring for deficiencies.
- check belt alignment and tension
- check run solenoid operation (fuel).
 - fluid levels:
 - oil.
 - anti-freeze
 - battery.

Complete: **RM** Notes: **N/A**

FULL LOAD TEST

Perform load test with load bank for 4 hours of which the unit will be loaded to 100% for three hours and 110% for one hour. (2 hours genset 1 and 2 hours Genset 2)

Load Steps _ record actual steps applied

GENSET #1 Serial Number: 5283705338

- Add load
- Add load
- Add load
- Add load
- Add load
- Drop load
- Drop load
- Drop load
- Drop load
- Drop load

GENSET #2 Serial Number: 5283707339

- Add load
- Add load
- Add load
- Add load
- Add load
- Drop load
- Drop load
- Drop load
- Drop load
- Drop load

Complete: RM Notes: LOADED TO 100% ONLY. LOADED PER LOAD BANK STEPS.

Paralleling:

Parallel operation can be initiated by pressing GEN EXERCISE PUSH TO INITIATE pulse button. Provided MGCB is open and plant load is energized by the utility, an indication LED will come on and a signal to start both generators will be issued. MGCB close function is disabled in Gen Exercise mode. The first generator that reaches rated voltage and frequency will close its breaker on the dead generator bus. The second generator will be synchronized to the generator load bus and close its breaker on the live bus. We will utilize the package 600kw load bank

Complete: RM Notes: FULLY FUNCTIONED WITH EXCEPTION OF BASE LOADING.



Genset Exercise Procedure:

- ☒ Complete the Prestart checks on Unit A and Unit B.
- ☒ Turn the Load Bank control power to off.
- ☒ Place Gen A Panel in manual and start
- ☒ Place Gen B Panel in manual and start
- ☒ Activate the Breaker close symbol on the Gen B panel, unit A & B should now begin synchronizing, once Gen A and Gen B have synchronized the Load Bank can be switched from off to on and should automatically start applying load to both Gen A and Gen B, once the predetermined interval of recording values for both Gen A and Gen B and test run time has been completed proceed to the next step.
- ☒ Return Gen A and Gen B to Auto from a Manual position and the units will go into a cool down mode disabling the load bank.
- ☒ Genset A and Genset B should now be ready for Emergency backup service.
- ☒ Genset A in Auto Genset B in Auto, The load bank controller power switch on and in automatic position.

GENERATOR LOAD TEST REPORT



Date: 16-Jan-19
 Project Name: Arc Dawson 4
 Work Order: n/a
 Technician: Ryan Mikkelsen
 Customer: Arc Resources / Schneider

Genset Make: Stamford
 Genset Model: H363461
 Genset SN: X18D 001703
 Engine Make: Waukesha
 Engine Model: L36GL
 Engine SN: S283705338

Rated kW: 600kW
 Rated kVA: 750kVA
 Rated Hz: 60Hz
 Phase: 3ph
 Rated Volts: 480V
 Rated RPM: 1800rpm

	0:15	0:30	0:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	2:45	3:00	3:15	3:30	3:45	4:00
Time	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Run Time Meter	15:50	16:05	16:20	16:35	16:50	17:05	17:20	17:35	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
kW	604	603	605	604	603	602	604	602	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Frequency Hz	60	59.9	60.1	59.9	60	60	60.1	60	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Power Factor	1	1	1	1	1	1	1	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
RPM	1800	1797	1803	1797	1800	1800	1803	1800	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fuel Consumption (L/Hr)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fuel Level (%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A-B Voltage (V)	479	479	479	478	479	480	479	479	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
B-C Voltage (V)	480	481	480	480	480	480	480	480	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C-A Voltage (V)	480	481	481	481	480	481	481	480	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A-N Voltage (V)	277	277	277	277	277	277	277	277	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
B-N Voltage (V)	277	277	277	277	277	277	277	277	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C-N Voltage (V)	277	277	277	277	277	277	277	277	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A Current (A)	725	726	728	727	726	726	727	726	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
B Current (A)	726	726	726	727	726	725	727	725	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C Current (A)	727	726	729	729	727	727	728	727	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ambient/Intake Temp. C	18	16	14	13	20	24	14	19	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coolant Temp C	86.7	86.4	87.7	87.5	86	86	87.5	86	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Exhaust Temp C	443	441	443	443	441	441	443	442	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Alternator Cooling Air Outlet Temp C	27	27	23	21	27	33	22	27	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Oil Temp C	93.9	93.7	93	93	93	93	92.5	93	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Oil Pressure kPa	473	474	475	474	474	474	475	474	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Battery Voltage (V)	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Battery Charger Current (A)	4.4	4	3.9	3.9	3.9	4	4.2	4.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
DC Alternator Amperage (A)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
 > Unit does not have a local mounted charging alternator.
 > Package load bank utilized for testing.
 > Highest exterior ambient temperature during test was -12 degrees C.

GENERATOR LOAD TEST REPORT



Date: 16-Jan-19
 Project Name: Arc Dawson 4
 Work Order: n/a
 Technician: Ryan Mikkelsen
 Customer: Arc Resources / Schneider

Genset Make: Stamford
 Genset Model: HCI634G1
 Genset SN: X17C101703
 Engine Make: Waukesha
 Engine Model: L36GL
 Engine SN: 5283705339

Rated kW: 600kW
 Rated kVA: 750kVA
 Rated Hz: 60Hz
 Phase: 3ph
 Rated Volts: 480V
 Rated RPM: 1800rpm

	0:15	0:30	0:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	2:45	3:00	3:15	3:30	3:45	4:00
Time	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Run Time Meter	23.23	23.38	23.53	24.08	24.23	24.38	24.53	25.08	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
kW	600	600	600	599	600	599	600	605	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Frequency Hz	60.1	59.9	60	60.2	60	59.9	60.2	60.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Power Factor	1	1	1	1	1	1	1	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
RPM	1803	1797	1800	1806	1800	1797	1806	1803	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fuel Consumption [L/Hr]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fuel Level [%]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A-B Voltage [V]	480	479	480	479	479	479	480	480	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
B-C Voltage [V]	479	479	480	479	479	479	479	480	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C-A Voltage [V]	480	479	480	479	479	479	479	480	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A-N Voltage [V]	277	277	277	277	277	277	277	277	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
B-N Voltage [V]	277	277	277	277	277	277	277	277	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C-N Voltage [V]	277	277	277	277	277	277	277	277	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A Current [A]	724	722	722	724	722	723	723	729	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
B Current [A]	725	724	725	724	724	724	724	730	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C Current [A]	725	725	725	725	724	725	724	730	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ambient/Intake Temp. C	6	5.5	7	8	7	7	7	7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coolant Temp C	88.8	88.8	88.9	88.8	88.8	88.8	88.8	88.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Exhaust Temp C	473	473	473	474	473	473	474	474	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Alternator Cooling Air Outlet Temp C	15	16	17	17	17	17	17	18	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Oil Temp C	89.3	89.6	89.7	89.6	89.9	89.6	89.5	89.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Oil Pressure kPa	463	462	460	462	261	459	462	461	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Battery Voltage [V]	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Battery Charger Current [A]	4	3.9	3.7	3.6	3.6	3.6	3.6	3.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
DC Alternator Amperage [A]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
 > Unit does not have a local mounted charging alternator.
 > Package load bank utilized for testing.
 > Highest exterior ambient temperature during test was -12 degrees C.

Customer
Project
Project Number



GENSET LOAD TEST

ALARM AND PROTECTION / ANNUNCIATION (add as necessary)

GENERAL INFORMATION	ENGINE	ALTERNATOR
CUSTOMER:	MAKE WAUKESHA	MAKE STAMFORD
MODEL:	MODEL L36GL	MODEL H3634G1 / HCI634G1
SERIAL #:	SERIAL # 5283705338 / 5283705339	SERIAL # X18D()1703 / X17C101703
		VOLTS 480
		AMPS 902
		KW 600

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> HIGH LUBE OIL TEMP.	N/A FIRE ALARM	<input checked="" type="checkbox"/> ENGINE FAIL	<input type="checkbox"/>
<input checked="" type="checkbox"/> OVERCRANK	N/A FIRE ALARM TROUBLE	<input checked="" type="checkbox"/> COMMON ALARM	<input type="checkbox"/>
<input checked="" type="checkbox"/> OVERSPEED	N/A FIRE SUPPRESSION DISCHARGE	<input checked="" type="checkbox"/> EMERGENCY STOP	<input type="checkbox"/>
<input checked="" type="checkbox"/> UNDERSPEED	N/A ENCLOSURE INTRUSION ALARM	N/A LOW FUEL LEVEL	<input type="checkbox"/>
<input checked="" type="checkbox"/> OVERVOLTAGE	N/A VENTILATION DAMPER FAIL	N/A LOW-LOW FUEL LEVEL	<input type="checkbox"/>
<input checked="" type="checkbox"/> UNDERVOLTAGE	N/A LOAD BANK FAIL	N/A HIGH FUEL LEVEL	<input type="checkbox"/>
<input checked="" type="checkbox"/> HIGH ENGINE TEMP.	N/A BATTERY CHARGER FAIL	N/A FUEL LEAK	<input type="checkbox"/>
	<input checked="" type="checkbox"/> HI/LOW BATTERY		<input type="checkbox"/>
	<input checked="" type="checkbox"/> GENERATOR BREAKER OPEN		<input type="checkbox"/>
	<input checked="" type="checkbox"/> ENGINE RUN		<input type="checkbox"/>

WORK ORDER:

SALES ORDER:

TESTED BY: Ryan Mikkelsen
CPG Representative

SIGNATURE: *Ryan Mikkelsen*

DATE: 16-Jan-2019

WITNESSED BY:

OF (COMPANY):

SIGNATURE:

DATE:

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WORK ORDER:

SALES ORDER:

SM001

TESTED BY:	CPG Representative	WITNESSED BY:
		OF (COMPANY):
SIGNATURE:		SIGNATURE:
DATE:		DATE: