



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0594 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Kohler Power Systems

Manufacturer's Technical Representative: Brady Eifrid

Mailing Address: N7650 CTH LS, Sheboygan, WI 53083

Telephone: 920-457-4441

Email: Brady.eifrid@kohler.com

Product Information

Product Name: Kohler Diesel

Product Type: Diesel Generator Sets

Product Model Number: KD800, KD900, KD1000, KD1250, KD1350, KD1500, KD1600, KD1750, KD2000, KD2250, KD2500, KD2800, KD3000, KD3250

(List all unique product identification numbers and/or part numbers)

General Description: Diesel generator sets mounted on and off tank with or without external spring isolators.

Mounting Description: Generator sets may be mounted both rigid or spring vibration isolated, on or off fuel tanks, and with or without enclosures.

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John Giuliano, P.E.

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: 973-838-1780

Email: john.giuliano@thvmcgroup.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant:  Date: 3/11/19

Title: President Company Name: The VMC Group

"Access to Safe, Quality Healthcare Environments that Meet California's



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California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: The VMC Group
Name: Mr. Ken Tarlow California License Number: SE2851
Mailing Address: 113 Main Street, Bloomingdale, NJ 07403
Telephone: 973-838-1780 Email: ken.tarlow@thvmcgroup.com

Supports and Attachments Preapproval

- ☐ Supports and attachments are preapproved under OPM-
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- ☒ Supports and attachments are not preapproved

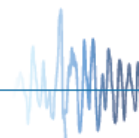
Certification Method

- ☒ Testing in accordance with: ☒ ICC-ES AC156
☐ Other (Please Specify): OSP-0594-10
BY: Timothy J Piland
DATE: 09/25/2019

Testing Laboratory

Company Name: Construction Engineering Research Laboratory
Contact Name: James Wilcoski
Mailing Address: 2902 Newmark Drive, Champaign, IL 61826-9005
Telephone: 217-352-6511 Email: james.wilcoski@usace.army.mil

Company Name: Dynamic Certification Laboratories
Contact Name: Kelly Laplace
Mailing Address: 1315 Greg St. Suite 109 Sparks, NV 89431
Telephone: 775-385-5085 Email: Kelly@shaketest.com





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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 0.90 (Rigid); 1.50 (Spring Isolated)

S_{DS} (Design spectral response acceleration at short period, g) = 2.00

a_p (In-structure equipment or component amplification factor) = 1.0 (Rigid); 2.5 (Spring Isolated)

R_p (Equipment or component response modification factor) = 2.5 (Rigid); 2.0 (Spring Isolated)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 0

Equipment or Component Natural Frequencies (Hz) = See Attachment

Overall dimensions and weight (or range thereof) = See Attachment

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (V/W) = _____

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = OSP-0594-10

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = BY: Timothy J Piland

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = DATE: 09/25/2019

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2015: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☒ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☐ Other(s) (Please Specify): _____

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: Timothy J. Piland Date: September 25, 2019

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.00 z/h = 0

Condition of Approval (if applicable): _____

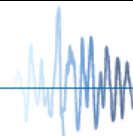


Table 1 - Certified Gensets

Model	Max Rating [kW]	Tank	Enclosure	Isolated	EPA Rating	Dimensional Data				UUT
						Max Length [in]	Max Width [in]	Max Height [in]	Max Weight ¹ [lbs]	
KD800	800				Tier 2	167.2	82.7	92.2	16,440	Extrapolated
	800		X		Tier 2	303.4	103.0	131.9	23,340	
	800	X			Tier 2	360.0	99.8	146.2	62,589	
	800	X	X	No	Tier 2	360.0	103.0	171.9	74,052	UUT-01
KD900	900				Tier 2	167.2	82.7	92.2	17,131	Interpolated
	900		X		Tier 2	303.4	103.0	131.9	24,031	
	900	X			Tier 2	435.0	99.8	146.2	72,636	
	900	X	X		Tier 2	435.0	103.0	171.9	77,928	
KD1000	1000				Tier 2	167.2	82.7	92.2	17,821	
	1000		X		Tier 2	303.4	103.0	131.9	24,721	
	1000	X			Tier 2	435.0	99.8	146.2	73,326	
	1000	X	X		Tier 2	435.0	103.0	171.9	78,618	
KD1250	1250				Tier 2	222.0	86.0	98.0	30,191	
	1250		X		Tier 2	410.2	119.2	140.9	41,671	
	1250	X			Tier 2	438.9	116.3	147.0	95,023	
	1250	X	X		Tier 2	438.9	119.2	180.9	104,120	
KD1250-A	1250				Tier 2	203.9	86.0	98.0	30,191	
	1250		X		Tier 2	410.2	119.2	140.9	41,671	
	1250	X			Tier 2	438.9	116.3	147.0	95,023	
	1250	X	X		Tier 2	438.9	119.2	180.9	104,120	
KD1350	1350				Tier 2	203.9	86.0	98.0	30,191	
	1350		X		Tier 2	410.2	119.2	140.9	41,671	
	1350	X			Tier 2	438.9	116.3	147.0	95,023	
	1350	X	X		Tier 2	438.9	119.2	180.9	104,120	
KD1500	1500				Tier 2	222.0	86.0	98.0	30,191	
	1500		X		Tier 2	410.2	119.2	140.9	41,671	
	1500	X			Tier 2	438.9	116.3	148.0	95,023	
	1500	X	X		Tier 2	438.9	119.2	180.9	104,120	
KD1600	1600				Tier 2	222.0	93.7	101.6	30,191	
	1600		X		Tier 2	410.2	119.2	140.9	41,671	
	1600	X			Tier 2	438.9	116.3	148.0	95,023	
	1600	X	X		Tier 2	438.9	119.2	180.9	104,120	
KD1750	1750				Tier 2	222.0	93.7	101.6	30,191	
	1750		X		Tier 2	410.2	119.2	140.9	41,671	
	1750	X			Tier 2	438.9	116.3	148.0	95,023	
	1750	X	X		Tier 2	438.9	119.2	180.9	104,120	
KD2000	2000				Tier 2	273.9	126.1	130.2	53,000	
	2000		X		Tier 2	505.5	137.0	182.0	70,349	
	2000	X			Tier 2	535.5	134.3	165.2	107,396	
	2000	X	X		Tier 2	535.5	137.0	207.0	120,603	
KD2250	2250				Tier 2	273.9	126.1	130.2	53,000	
	2250		X		Tier 2	505.5	137.0	182.0	70,349	
	2250	X			Tier 2	535.5	134.3	165.2	107,396	
	2250	X	X		Tier 2	535.5	137.0	207.0	120,603	
KD2500	2500				Tier 2	273.9	126.1	130.2	56,000	
	2500		X		Tier 2	505.5	137.0	182.0	73,349	
	2500	X			Tier 2	535.5	134.3	165.2	110,396	
	2500	X	X	Yes	Tier 2	535.5	137.0	207.0	119,997	UUT-02
KD2800	2800				Tier 2	301.0	125.0	136.0	69,240	Interpolated
KD3000	3000				Tier 2	301.0	125.0	136.0	69,240	
KD3250	3250			Yes	Tier 2	301.0	125.0	136.0	69,240	UUT-07

NOTE 1: Maximum weight includes Wet Genset + Full Fuel Tank (Weight calculated with #2 Diesel)

NOTE 2: All Units are Certified on External Vibration Isolators

Table 2 - Enclosures

Range [kW]	Models	Enclosure		Manufacturer	UUT
		Type	Customer Part No.		
800-2500	KD800-1000	Aluminum Sound Level 1	114010157XX	Kohler	Extrapolated
		Aluminum Sound Level 2	114010035XX	Kohler	UUT-01
	KD1250-1750	Aluminum Sound Level 1	114010354XX	Kohler	Interpolated
		Aluminum Sound Level 2	114010204XX	Kohler	
	KD2000-2500	Aluminum Sound Level 1	114010319XX	Kohler	UUT-02
		Aluminum Sound Level 2	114010263XX	Kohler	Extrapolated

Table 3 - Certified Tanks

Range [kW]	Models	Tank			Manufacturer	UUT
		Usable Capacity [gallons]	Fillable Capacity [gallons]	Tank Style		
800-2500	KD <u>800</u> -1000	829	918	UCT	Kohler	Extrapolated
		1658	1749	UCT		
		2690	2793	UCT		
		3316	3426	UKL		
		4035	4158	UKL		
		4973	5120	UKL		UUT-01
	KD1250-1750	1411	1549	UCT	Kohler	Interpolated
		2456	2605	UCT		
		2821	2960	UCT		
		4911	5076	UKL		
		5641	5808	UKL		
		2072	2266	UKL		
	3533	3733	UKL			
	4143	4346	UKL			

Table 4 - Certified Subcomponents: Engines

Range [kW]	Model	Manufacturer Model	Manufacturer	UUT
800-3250	<u>KD800</u> , KD900, KD1000	KD27V12	Kohler	UUT-01
	KD1250-A, KD1350	KD36V16	Kohler	Interpolated
	KD1250, 1500, 1600, 1750	KD45V20	Kohler	
	KD2000, KD2250, <u>KD2500</u>	KD62V12	Kohler	UUT-02
	KD2800, KD3000, <u>KD3250</u>	KD83V16	Kohler	UUT-07

Table 5A - Certified Subcomponents: Fuel/Water Separators

Range [kW]	Models	Fuel / Water Separator		
		Manufacturer	Customer Part Number	UUT
800-3250	KD800	Parker/Racor	LDP160	UUT-01
	KD900	Parker/Racor	LDP160	Interpolated
	KD1000	Parker/Racor	LDP160	
	KD1250, KD1250-A	Parker/Racor	LDP160	
	KD1350	Parker/Racor	LDP160	
	KD1500	Parker/Racor	LDP160	
	KD1600	Parker/Racor	LDP160	
	KD1750	Parker/Racor	LDP160	
	KD2000	Parker/Racor	DLDP160	
	KD2250	Parker/Racor	DLDP160	
	KD2500	Parker/Racor	DLDP160	UUT-02
	KD2800	Parker/Racor	DLDP160	Interpolated
	KD3000	Parker/Racor	DLDP160	
	KD3250	Parker/Racor	DLDP160	UUT-07

Table 5B - Certified Subcomponents: Block Heaters

Range [kW]	Models	Block Heater			Block Heater		
		Manufacturer	Customer Part Number	UUT	Manufacturer	Customer Part Number	UUT
800-3250	KD800 - KD3250	Kim Hotstart	CSM Series	UUT-01, UUT-02, UUT-07	Carlor	Topstart Series	UUT-01, UUT-02

Table 5C - Certified Subcomponents: Air Filters

Range [kW]	Models	Standard Duty Air Filter Assembly			Heavy Duty Air Filter Assembly		
		Manufacturer	Customer Part Number	UUT	Manufacturer	Customer Part Number	UUT
800-3250	KD800	Kohler	10801001001	Extrapolated (Lower Mass than Heavy Duty)	Kohler	30801086201	UUT-01
	KD900	Kohler	10801001001		Kohler	30801086201	
	KD1000	Kohler	10801001001		Kohler	30801086201	
	KD1250, KD1250-A	Kohler	10801001001		Kohler	30801086201	Interpolated
	KD1350	Kohler	10801001001		Kohler	30801086201	
	KD1500	Kohler	10801001001		Kohler	30801086201	
	KD1600	Kohler	10801001001		Kohler	30801086201	
	KD1750	Kohler	10801001001		Kohler	30801086201	
	KD2000	Kohler	30801168701		Kohler	10801002801	UUT-02
	KD2250	Kohler	30801168701		Kohler	10801002801	
	KD2500	Kohler	30801168701		Kohler	10801002801	
	KD2800	Kohler	30801168701		Kohler	10801002801	Interpolated
	KD3000	Kohler	30801168701		Kohler	10801002801	
	KD3250	Kohler	30801168701		Kohler	10801002801	UUT-07

Table 6A - Certified Subcomponents: Alternators

Range [kW]	Manufacturer	Part Number	Power Rating [kW]	UUT
800-1750	MeccAlte (branded Kohler)	ECO40-VL / ALT-KH03544TO4D	800	Interpolated
		ECO43-1S / ALT-KH02970TO4D	800	
		ECO43-2S / ALT-KH03450TO4D	800, 900	UUT-01
		ECO43-2M / ALT-KH04070TO4D	800, 900, 1000	Interpolated
		ECO43-2L / ALT-KH04830TO4D	900, 1000, 1250	
		ECO43-VL / ALT-KH05520TO4D	1000	
		ECO43-VL / KH05520TO4D	1250, 1350	
		ECO46-1S / KH03850TO4D	1250, 1350, 1500	
		ECO46-1.5S / KH04590TO4D	1250, 1500, 1600	
		ECO46-2L / KH06810TO4D	1250, 1350, 1500, 1600, 1750	
		ECO46-1L / KH05740TO4D	1350, 1500, 1600, 1750	
		ECO46-1.5L / KH06400TO4D	1750	
		ECO46-2S / KH04920TO4D	1350, 1500, 1600, 1750	
		ECO46-VL / KH08200TO4D	1750	UUT-03

Table 6B - Certified Subcomponents: Alternators

Range [kW]	Manufacturer	Part Number	Power Rating [kW]	UUT
800-3000	Leroy Somer (branded Kohler)	LS641-L65 / KH05641TO4D	1250, 1350, 1500, 1600, 1750	Interpolated
		LS641-VL75 / KH06721TO4D	1250, 1350, 1500, 1600, 1750	
		LSA 52.3 S7 / KH04970TO4D	2000	UUT-04
		LS842 S60 / KH06220TO4D	2000, 2250	Interpolated
		LSA52.3 L9 / KH05790TO4D	2250	
		LS842 M70 / KH07000TO4D	2000, 2250, 2500	
		LS842 VL85 / KH08430TO4D	2000, 2250, 2500, 2800, 3000	
		LSA52.3 L12 / KH06930TO4D	2000, 2250, 2500	
		LS842 L75 / KH07770TO4D	2000, 2250, 2500 , 2800	UUT-06

Table 6C - Certified Subcomponents: Alternators

Range [kW]	Manufacturer	Part Number	Power Rating [kW]	UUT
2000-3250	Kato (branded Kohler)	4P6.6-2600 / KH07080TO4D	2000	UUT-05
		4P6.6-2800 / KH07630TO4D	2000, 2250	Interpolated
		4P6.7-2975 / KH08100TO4D	2250, 2500	
		4P6.7-3400 / KH09270TO4D	2000, 2250, 2500 , 2800	UUT-02
		4P9.X-2100 / KH06670TO4D	2800, 3000	Interpolated
		4P9.X-2400 / KH07631TO4D	2800, 3000, 3250	
		4P9.X-2700 / KH07632TO4D	2800, 3000, 3250	
		4P9.X-2950 / KH09370TO4D	2800, 3000, 3250	UUT-07

Table 7 - Certified Subcomponents: Radiators

Range [kW]	Model	Customer Part Number	Manufacturer	UUT
800-3250	KD800	40C <u>50C</u>	WABTEC, branded Kohler	UUT-01
	KD900	40C 50C	WABTEC, branded Kohler	Interpolated
	KD1000	40C 50C	WABTEC, branded Kohler	
	KD1250, KD1250-A	40C 50C	WABTEC, branded Kohler	
	KD1350	40C 50C	WABTEC, branded Kohler	
	KD1500	40C 50C	WABTEC, branded Kohler	
	KD1600	40C 50C	WABTEC, branded Kohler	
	KD1750	40C 50C	WABTEC, branded Kohler	
	KD2000	40C 50C	WABTEC, branded Kohler	
	KD2250	40C 50C	WABTEC, branded Kohler	
	KD2500	40C <u>50C</u>	WABTEC, branded Kohler	UUT-02
	KD2800	40C 50C	WABTEC, branded Kohler	Interpolated
	KD3000	40C 50C	WABTEC, branded Kohler	
	KD3250	40C <u>50C</u>	WABTEC, branded Kohler	UUT-07

Table 8 - Certified Subcomponents: Skids

Range [kW]	Model	Material	Manufacturer	UUT
800-3250	KD800	Carbon Steel	Kohler	UUT-01
	KD900		Kohler	Interpolated
	KD1000		Kohler	
	KD1250, KD1250-A		Kohler	
	KD1350		Kohler	
	KD1500		Kohler	
	KD1600		Kohler	
	KD1750		Kohler	
	KD2000		Kohler	
	KD2250		Kohler	
	KD2500		Kohler	UUT-02
	KD2800		Kohler	Interpolated
	KD3000		Kohler	
	KD3250		Kohler	UUT-07

Table 9 - Certified Subcomponents: Controllers

Range [kW]	Customer Model	Customer Part Number	Manufacturer	UUT
800-3250	APM802	11601003301	Kohler	UUT-01, UUT-02
	APM603	GM99582-1	Kohler	UUT-08, UUT-09

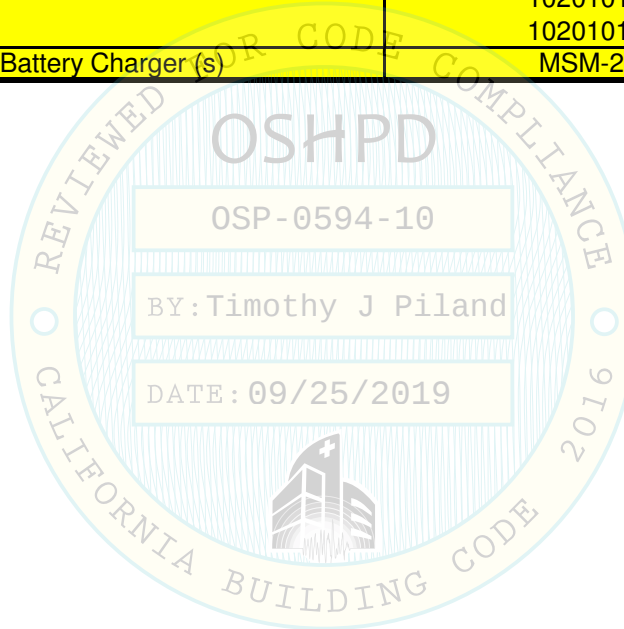
Note: UUT-8 and UUT-9 tested both rigid and isolated, allowing for installation on any support.

Table 10 - Certified Subcomponents: Miscellaneous Components

Range [kW]	Model Range	Description	Model Number	Manufacturer	UUT
800-3250	KD800-3250	REN Oil Level Regualtor	Real Series	Cummins Filtration	UUT-01, UUT-02
	KD800-3250	Redundant Starter(s)	KD27V12: 10702004501 KD36V16 and KD45V20: 10702004301 KD62V12: 10702003701 KD83V16: 10702003701	Kohler	UUT-01
	KD800-3250	Battery Rack (for redundant starters)	10701000345-MA1 10701000445-MA1	Kohler	UUT-01, UUT-02
	KD800-3250	Generator Heater	10210000101-KA1 10210000101-KA2	Kohler	UUT-01, UUT-02
	KD800-3250	Basic Electrical Package	K135V12: 11412000000-KA1 and KA2 K135V20/K175V12: 11600000101-KA1, 11600000201-KA1 K175V16: 11600001001-KA1 and KA2	Kohler	UUT-01, UUT-02
	KD800-2500	DC Light Package	11412000300-KA1	Kohler	UUT-01, UUT-02
	KD800-2500	Ventilating Fan	11412006400-KA1 11412004000-KA1 11412000500-KA1	Kohler	UUT-01, UUT-02
	KD800-2500	Enclosure Heater	11412006300-KA1 11412000400-KA1 11412003900-KA1	Kohler / Berko	UUT-01, UUT-02
	KD800-2500	Motorized Air Inlet, Aluminum	Series 1000	Tamco	UUT-02
	KD800-2500	Motorized Air Inlet, Insulated Aluminum	Series 9000	Tamco	UUT-01
	KD800-2500	Motorized Air Outlet, Aluminum	Series 1000	Tamco	Interpolated
	KD800-2500	Motorized Air Outlet, Insulated Aluminum	Series 9000	Tamco	UUT-01
	KD800-2500	Gravity Air Outlet, Aluminum	Series 7000	Tamco	UUT-02
	KD800-2500	External Emergency Stop	11412006500-KA1 for UUT-01 11412004100-KA1 for UUT-02	Kohler	UUT-01, UUT-02
	KD1250-2500	Stepdown Transformer	11412007700-KA2	Square D	UUT-02
	KD1250-2500	Transformer Disconnect Switch	11412007700-KA4	Square D	UUT-02
	KD800-2500	5 gal OSHPD/IBC Spill Containment with 95% shutoff	GM58956-TA71	Kohler	UUT-01, UUT-02
	KD800-2500	3 Alarm Fuel Tank Panel, FDEP, 220" Hrns (24V)	GM61192-TA34	Kohler	UUT-01, UUT-02
	KD800-2500	High Fuel Switch (FDEP approved)(24V)	GM61192-TA26	Kohler	UUT-01, UUT-02
	KD800-2500	Fuel in Basin switch (FDEP approved)	GM61276-TA33	Kohler	UUT-01, UUT-02
	KD800-2500	Emergency Vent, IBC	GM84330-TA4	Clay and Bailey	UUT-01, UUT-02

Table 10 - Certified Subcomponents: Miscellaneous Components Continued...

Range [kW]	Model Range	Description	Model Number	Manufacturer	UUT
	KD800-3250	Alternator Air Filter	10801001401-KA1 10801001501-KA1 10801002601-KA1 10201012801-KA1 10201013001-KA1 10201012801-KA1 10201013201-KA1 10201013001-KA1	Kohler	UUT-01, UUT-02
	KD800-3250	Battery Charger (s)	MSM-20-24V-U1	LaMarche	UUT-01, UUT-02





UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-1

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KD800	Kohler

Product Construction Summary

Diesel powered electrical generator set 800 kW, Aluminum Enclosure and 4,973 gal Carbon Steel Tank

Options / Subcomponent Summary

Enclosure: Kohler, Fuel Tank: Kohler, Engine: Kohler, Alternator: MeccAlte, Radiator: Wabtec

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
74,050	360.0	103.0	171.9	4.0	3.8	9.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Sub-Base Fuel Tank is Mounted Directly to the Fixture Using (18) 7/8"x3" Grade A490 Bolts. Engine and alternator were internally isolated with mounts provided by the manufacturer.

UUT-1



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-2

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KD2500	Kohler

Product Construction Summary

Diesel powered electrical generator set 2500 kW, Aluminum Enclosure and 4,143 gal Carbon Steel Tank

Options / Subcomponent Summary

Enclosure: Kohler, Fuel Tank: Kohler, Engine: Kohler, Alternator: Kato, Radiator: Wabtec

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
119,997	535.5	137.0	207.0	7.3	2.8	5.3

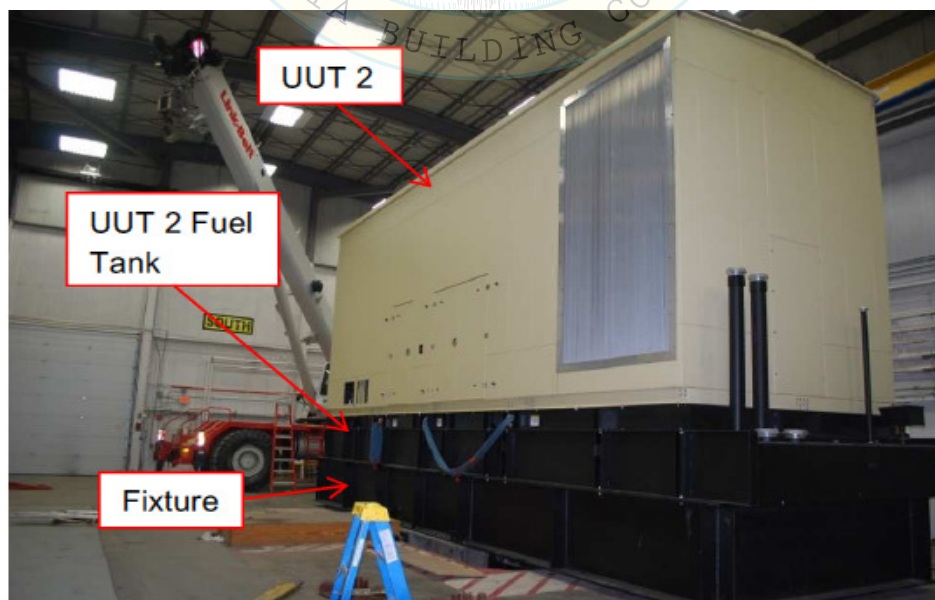
UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Sub-Base Fuel Tank is Mounted Directly to the Fixture Using (20) 7/8"x3' Grade A490 Bolts. Additionally , UUT Skid was Attached to the Fuel Tank with (12) VMC M2SSH-1E-6500N spring vibration isolators.

UUT-2



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-3A

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	ECO46-VL	MeccAlte

Product Construction Summary

Alternator manufactured by MeccAlte

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
11,600	81.1	37.8	57.1	25.5	23.3	25

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 20mm Class 10 bolts.

UUT-3A



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-3B

VMA-50771-01E, UUT 3B

Model Line	Model Number	Manufacturer
KD	ECO46-VL	MeccAlte

Product Construction Summary

Alternator manufactured by MeccAlte

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
11,600	81.1	37.8	57.1	29.5	24.3	29.8

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 20mm Class 10 bolts. Alternator was also attached to shaft fixture connection using (16) 20mm Class 10 bolts and (6) 20mm Class 10 bolts.

UUT-3B



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-4A

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KH04970TO4D	Leroy Somer

Product Construction Summary

Alternator manufactured by Leroy Somer

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
8,800	64.0	42.5	58.5	13.0	11.0	30.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 20mm Class 10 bolts.

UUT-4A



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-4B

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KH04970TO4D	Leroy Somer

Product Construction Summary

Alternator manufactured by Leroy Somer

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
8,800	64.0	42.5	58.5	>33.3	29.0	5.0

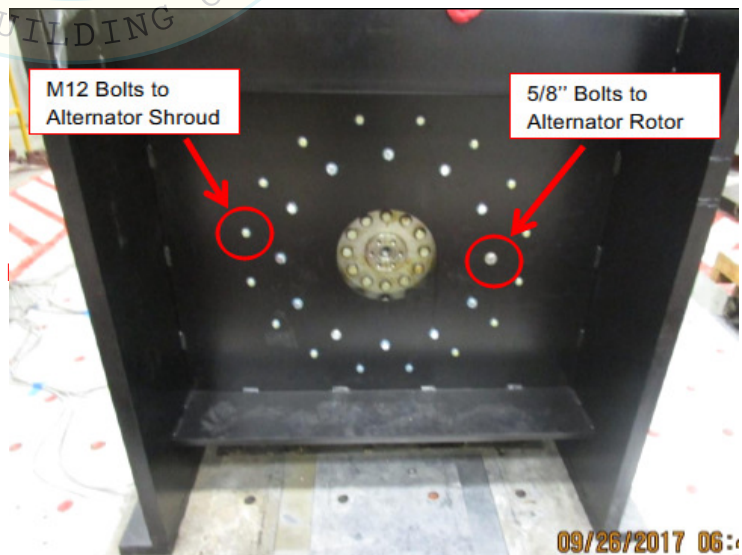
UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 3/4 diameter Grade 8 bolts. Alternator was also attached to shaft fixture connection using (12) 5/8" Grade 5 bolts and (16) M12 Class 10.9 bolts.

UUT-4B



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-5A

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KH05790TO4D	Kato

Product Construction Summary

Alternator manufactured by Kato

Options / Subcomponent Summary

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UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
13,850	69.0	101.0	73.0	30.0	23.0	30.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 20mm Class 10 bolts.

UUT-5A



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-5B

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KH05790TO4D	Kato

Product Construction Summary

Alternator manufactured by Kato

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
13,850	69.0	101.0	73.0	>33.3	21.0	31.0

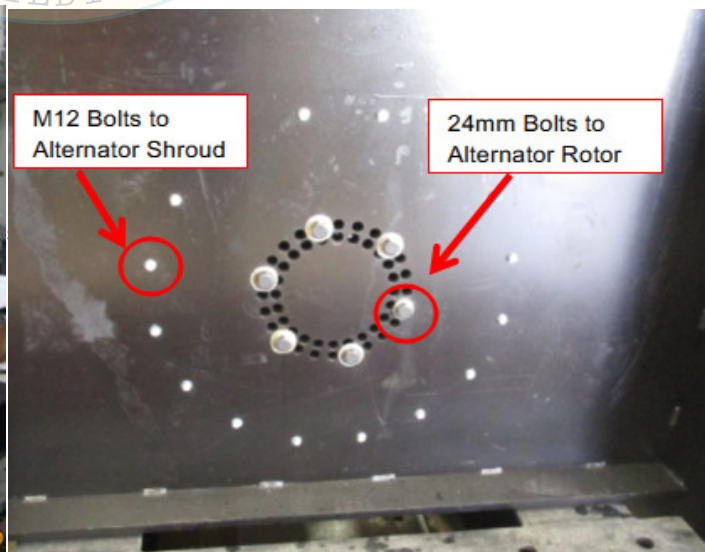
UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 3/4 diameter Grade 8 bolts. Alternator was also attached to shaft fixture connection using (12) 5/8" Grade 5 bolts and (16) M12 Class 10.9 bolts.

UUT-5B



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-6A

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KH06930TO4D	Leroy Somer

Product Construction Summary

Alternator manufactured by Leroy Somer

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
12,290	53.0	95.0	59.0	12.0	27.0	20.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 20mm Class 10 bolts.

UUT-6A



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-6B

VMA-50771-01E

Model Line	Model Number	Manufacturer
KD	KH06930TO4D	Leroy Somer

Product Construction Summary

Alternator manufactured by Leroy Somer

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
12,290	53.0	95.0	59.0	>33.3	21.5	19.0

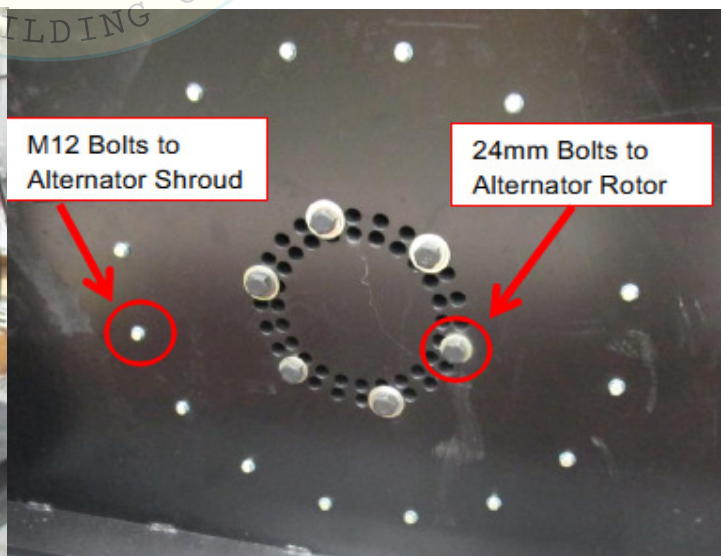
UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

Alternator is bolted directly to a steel base fixture using (4) 3/4 diameter Grade 8 bolts. Alternator was also attached to shaft fixture connection using (12) 5/8" Grade 5 bolts and (16) M12 Class 10.9 bolts.

UUT-6B



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-7

30561-1701

Model Line	Model Number	Manufacturer
KD	KD3250	Kohler

Product Construction Summary

Diesel powered electrical generator set 3250 kW, No Enclosure and No Tank

Options / Subcomponent Summary

Engine: Kohler, Alternator: Kato, Radiator: Wabtec

UUT Properties

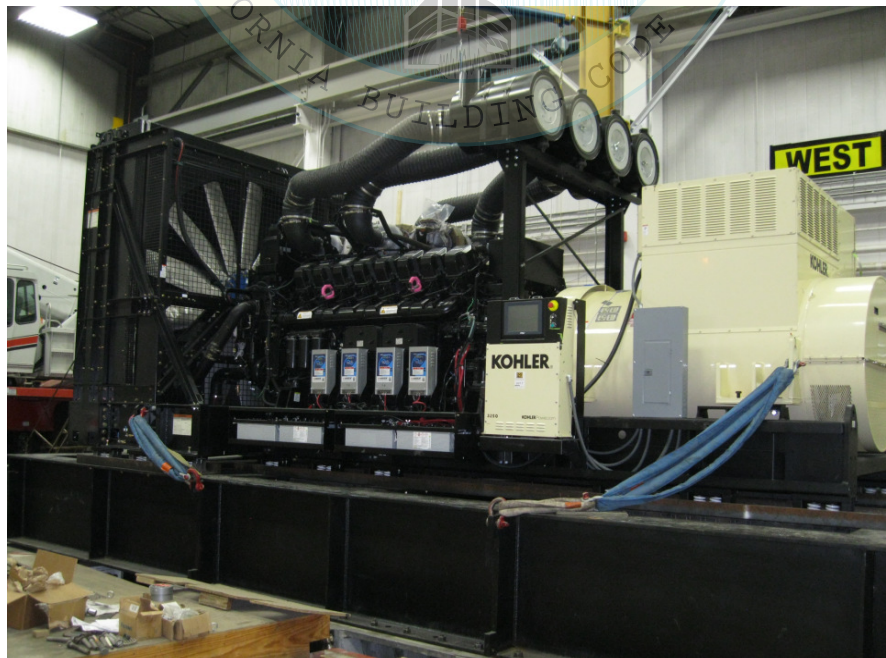
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
69,240	301.0	125.0	136.0	3.0	3.5	6.5

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	0.00	1.50	2.00	0.80	1.34	0.54

Test Mounting Details

UUT-7 Skid is attached to (18) VMC M2SSH-1E-6500N spring vibration isolators using (18) 3/4" Grade 8 Bolts. Isolators are attached to (4) C15x50 Channel Adaptors via 1/4" fillet weld. C-Channel Adaptors are mounted directly to the fixture using (48) 3/4" Grade 8 Bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-8A

30827-1801; UUT-5A

Model Line	Model Number	Manufacturer
KD	APM603	Kohler

Product Construction Summary

Kohler APM603: KD Pedestal Small

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
108	8.0	29.0	54.0	32.5	11.0	>33.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.68	0.68

Test Mounting Details

UUT-8A mounted to table interface fixture via attached C-channel with (4) 1/2" diameter, grade 8 bolts and washers.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-8B

30827-1801; UUT-5B

Model Line	Model Number	Manufacturer
KD	APM603	Kohler

Product Construction Summary

Kohler APM603: KD Pedestal Small

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
108	8.0	29.0	54.0	7.0	4.0	7.5

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.68	0.68

Test Mounting Details

UUT-8B mounted to table interface fixture via attached C-channel with (4) 1/2" diameter, grade 8 bolts and washers. Table interface mounted to (4) VMC MSSH-1E-825N isolators using (4) 3/4" grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-9A

30827-1801; UUT-6A

Model Line	Model Number	Manufacturer
KD	APM603	Kohler

Product Construction Summary

Kohler APM603: KD Pedestal Large

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
135	13.0	30.0	48.0	9.0	7.5	18.5

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.68	0.68

Test Mounting Details

UUT-9A mounted to table interface fixture via attached C-channel with (4) 3/8" diameter, grade 8 bolts and washers.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-9B

30827-1801; UUT-6B

Model Line	Model Number	Manufacturer
KD	APM603	Kohler

Product Construction Summary

Kohler APM603: KD Pedestal Large

Options / Subcomponent Summary

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
135	13.0	30.0	48.0	9.0	4.0	5.5

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.68	0.68

Test Mounting Details

UUT-9B mounted to table interface fixture via attached C-channel with (4) 3/8" diameter, grade 8 bolts and washers. Table interface mounted to (4) VMC MSSH-1E-825N isolators using (4) 3/4" grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test