Diesel Generator Set
Model DQAD 60 Hz

250.0 kW, 313 kVA Standby
220.0 kW, 275 kVA Prime

Description

The Cummins Power Generation DQ-series commercial diesel generator set is a fully integrated power generation system providing optimum performance, reliability, and versatility for stationary standby or prime power applications.

A primary feature of the DQ GenSet is strong motor-starting capability and fast recovery from transient load changes. The torque-matched system includes a heavy-duty Cummins 4-cycle diesel engine, an AC alternator with high motor-starting kVA capacity, and an electronic voltage regulator with three-phase sensing for precise regulation under steady-state or transient loads. The DQ GenSet accepts 100% of the nameplate standby rating in one step, in compliance with NFPA 110 requirements.

Optional weather-protective enclosures and coolant heaters shield the generator set from extreme operating conditions. Environmental concerns are addressed by low exhaust emission engines, sound-attenuated enclosures, exhaust silencers, and dual-wall fuel tanks. A wide range of options, accessories, and services are available, allowing configuration to your specific power generation needs.

Every production unit is factory tested at rated load and power factor. This testing includes demonstration of rated power and single-step rated load pickup. Cummins Power Generation manufacturing facilities are registered to ISO9001 quality standards emphasizing our commitment to high quality in the design, manufacture, and support of our products. The generator set is CSA certified and is available as UL2200 Listed. The PowerCommand control is UL508 Listed.

All Cummins Power Generation systems are backed by a comprehensive warranty program and supported by a worldwide network of 170 distributors and service branches to assist you with warranty, service, parts, and planned maintenance support.

Features

UL Listed Generator Set - The complete generator set assembly is available Listed to UL2200.

Low Exhaust Emissions - Engine certified to U.S. EPA Nonroad Source Emission Standards, CFR 40, Tier 2.

Cummins Heavy-Duty Engine - Rugged 4-cycle industrial diesel engine delivers reliable power, low emissions, and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor-starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads, fault-clearing short-circuit capability, and class H insulation. The alternator electrical insulation system is UL1446 Recognized.

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault-clearing short circuit capability.

Control System - The PowerCommand electronic control is standard equipment and provides total genset system integration, including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown at fault detection, and NFPA 110 compliance. PowerCommand control is Listed to UL508.

Cooling System - Provides reliable running at the rated power level, at up to 50°C ambient temperature.

Integral Vibration Isolation - Robust skid base supports the engine, alternator, and radiator on isolators, minimizing transmitted vibration.

E-Coat Finish - Dual electro-deposition paint system provides high resistance to scratching, corrosion, and fading.

Enclosures - Optional weather-protective and sound-attenuated enclosures are available.

Fuel Tanks - Dual wall sub-base fuel tanks are also offered.

Certifications - Generator sets are designed, manufactured, tested, and certified to relevant UL, NFPA, ISO, IEC, and CSA standards.

Warranty and Service - Backed by a comprehensive warranty and worldwide distributor network.

Generator Set

The general specifications provide representative configuration details. Consult the outline drawing for installation design.

Specifications – General

See outline drawing 0500-3372 for installation design specifications.

Unit Width, in (mm)	50.0 (1270)
Unit Height, in (mm)	65.4 (1661)
Unit Length, in (mm)	134.0 (3404)
Unit Dry Weight, lb (kg)	5650 (2563)
Unit Wet Weight, lb (kg)	5840 (2649)
Rated Speed, rpm	1800
Voltage Regulation, No Load to Full Load	±0.5%
Random Voltage Variation	±0.5%
Frequency Regulation	Isochronous
Random Frequency Variation	±0.25%
Radio Frequency Interference	IEC 801.2, Level 4 Electrostatic Discharge IEC 801.3, Level 3 Radiated Susceptibility IEC 801.4, Level 4 Electrical Fast Transients IEC 801.5, Level 5 Voltage Surge Immunity MIL STD 461C, Part 9 Radiated Emissions (EMI)

Cooling	**Standby**	**Prime**
Standard Set-Mounted Radiator Cooling (Dwg. 0500-3372)		
Fan Load, HP (kW)	11.4 (8.5)	11.4 (8.5)
Set Coolant Capacity, US Gal (L)	10.5 (39.7)	10.5 (39.7)
Total Heat Rejected from Cooling System, BTU/min (MJ/min)	7316.0 (7.8)	6498.0 (6.9)
Heat Radiated to Room, BTU/min (MJ/min)	2032.0 (2.2)	1877.0 (2.0)

Air		
Combustion Air, scfm (m^3/min)	815.0 (23.1)	770.0 (21.8)
Alternator Cooling Air, scfm (m^3/min)	1240.0 (35.1)	1240.0 (35.1)
Radiator Cooling Air, scfm (m^3/min)	13320.0 (377.0)	13320.0 (377.0)
Max. Static Restriction, in H_2O (Pa)	0.5 (124.5)	0.5 (124.5)

Rating Definitions

Standby Rating based on: Applicable for supplying emergency power for the duration of normal power interruption. No sustained overload capability is available for this rating. (Equivalent to Fuel Stop Power in accordance with ISO3046, AS2789, DIN6271 and BS5514). Nominally rated.

Prime (Unlimited Running Time) Rating based on: Applicable for supplying power in lieu of commercially purchased power. Prime power is the maximum power available at a variable load for an unlimited number of hours. A 10% overload capability is available for limited time. (Equivalent to Prime Power in accordance with ISO8528 and Overload Power in accordance with ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models.

Base Load (Continuous) Rating based on: Applicable for supplying power continuously to a constant load up to the full output rating for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO8528, ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models.

Site Derating Factors

Engine power available up to 2100 m (6890 ft) at ambient temperature up to 40 C (104 F), or up to 1350 m (4429 ft) at ambient temperatures up to 50 C (122 F). Engine power derate for altitude and temperature conditions outside those listed: derate 4% per 300 m (984 ft), and 10% per 10 deg C (18 F).

Engine

Cummins heavy duty diesel engines use advanced combustion technology for reliable and stable power, low emissions, and fast response to sudden load changes.

Electronic governing provides precise speed regulation, especially useful for applications requiring constant (isochronous) frequency regulation such as Uninterruptible Power Supply (UPS) systems, non-linear loads, or sensitive electronic loads. Optional coolant heaters are recommended for all emergency standby installations or for any application requiring fast load acceptance after start-up.

Specifications – Engine

Base Engine	Cummins Model QSM11-G1, Turbocharged, Charge Air Cooled, diesel-fueled
Displacement in^3 (L)	661.0 (10.8)
Overspeed Limit, rpm	2100 ±50
Regenerative Power, kW	30.60
Cylinder Block Configuration	Cast iron with replacable wet cylinder liners, In-line 6 cylinder
Battery Capacity	550 amps minimum at ambient temperature of 32°F (0°C)
Battery Charging Alternator	70 amps
Starting Voltage	24-volt, negative ground
Lube Oil Filter Types	Single spin-on, combination full flow/bypass
Standard Cooling System	122°F (50°C) ambient radiator

Power Output	**Standby**	**Prime**
Gross Engine Power Output, bhp (kWm)	395.0 (294.7)	359.0 (267.8)
BMEP at Rated Load, psi (kPa)	250.0 (1723.7)	221.0 (1523.7)
Bore, in. (mm)	4.92 (125.0)	4.92 (125.0)
Stroke, in. (mm)	5.79 (147.1)	5.79 (147.1)
Piston Speed, ft/min (m/s)	1737.0 (8.8)	1737.0 (8.8)
Compression Ratio	16.3:1	16.3:1
Lube Oil Capacity, qt. (L)	38.4 (36.3)	38.4 (36.3)
Fuel Flow		
Fuel Flow at Rated Load, US Gal/hr (L/hr)	75.0 (283.9)	75.0 (283.9)
Maximum Inlet Restriction, in. Hg (mm Hg)	4.0 (101.6)	4.0 (101.6)
Maximum Return Restriction, in. Hg (mm Hg)	2.5 (63.5)	2.5 (63.5)
Air Cleaner		
Maximum Air Cleaner Restriction, in. H_2O (kPa)	25.0 (6.2)	25.0 (6.2)
Exhaust		
Exhaust Flow at Rated Load, cfm (m^3/min)	1900.0 (53.8)	1700.0 (48.1)
Exhaust Temperature, °F (°C)	870.0 (465.6)	800.0 (426.7)
Max Back Pressure, in. H_2O (kPa)	41.0 (10.2)	41.0 (10.2)

Fuel System	Direct injection, number 2 diesel fuel; fuel filter; automatic electric fuel shutoff.

Fuel Consumption		**Standby**				**Prime**			
60 Hz Ratings, kW (kVA)		**250.0 (313)**				**220.0 (275)**			
	Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
	US Gal/hr	5.5	9.3	13.2	17.3	4.9	8.3	11.8	15.3
	L/hr	21	35	50	65	19	31	45	58

Alternator

Several alternators are available for application flexibility based on the required motor-starting kVA and other requirements. Larger alternator sizes have lower temperature rise for longer life of the alternator insulation system. In addition, larger alternator sizes can provide a cost-effective use of engine power in across-the-line motor-starting applications and can be used to minimize voltage waveform distortion caused by non-linear loads.

Single-bearing alternators couple directly to the engine flywheel with flexible discs for drivetrain reliability and durability. No gear reducers or speed changers are used. Two-thirds pitch windings eliminate third-order harmonic content of the AC voltage waveform and provide the standardization desired for paralleling of generator sets. The standard excitation system is a PMG excited system.

Alternator Application Notes

Separately Excited Permanent Magnet Generator (PMG) System - This standard system uses an integral PMG to supply power to the voltage regulator. A PMG system generally has better motor-starting performance, lower voltage dip upon load application, and better immunity from problems with harmonics in the main alternator output induced by non-linear loads. This system provides improved performance over self-excited regulators in applications that have large transient loads, sensitive electronic loads (especially UPS applications), harmonic content, or that require sustained short-circuit current (sustained 3-phase short circuit current at approximately 3 times rated for 10 seconds).

Alternator Sizes - On any given model, various alternator sizes are available to meet individual application needs. Alternator sizes are differentiated by maximum winding temperature rise, at the generator set standby or prime rating, when operated in a 40°C ambient environment. Available temperature rises range from 80°C to 150°C. Not all temperature rise selections are available on all models. Lower temperature rise is accomplished using larger alternators at lower current density. Lower temperature rise alternators have higher motor-starting kVA, lower voltage dip upon load application, and they are generally recommended to limit voltage distortion and heating due to harmonics induced by non-linear loads.

Alternator Space Heater - is recommended to inhibit condensation.

Available Output Voltages

Three Phase Reconnectable

[ ] 110/190
[ ] 115/200
[ ] 120/208
[ ] 127/220
[ ] 139/240
[ ] 120/240
[ ] 220/380
[ ] 240/416
[ ] 254/440
[ ] 277/480

Three Phase Non-Reconnectable

[ ] 277/480
[ ] 347/600

Specifications – Alternator

Design	Brushless, 4 pole, drip proof revolving field
Stator	2/3 pitch
Rotor	Direct coupled by flexible disc
Insulation System	Class H per NEMA MG1-1.65
Standard Temperature Rise	125°C Standby, 105°C @ Prime
Exciter Type	Permanent Magnet Generator (PMG)
Phase Rotation	A (U), B (V), C (W)
Alternator Cooling	Direct drive centrifugal blower
AC Waveform Total Harmonic Distortion	<5% total no load to full linear load <3% for any single harmonic
Telephone Influence Factor (TIF)	<50 per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	<3

Three Phase Table[1]		**80° C**	**80° C**	**105° C**	**105° C**	**125° C**	**125° C**	**125° C**	**125° C**				
Feature Code		B260	B302	B259	B301	B258	B252	B246	B300				
Alternator Data Sheet Number		304	303	303	302	303	302	301	301				
Voltage Ranges		110/190 Thru 139/240 220/380 Thru 277/480	347/600	110/190 Thru 139/240 220/380 Thru 277/480	347/600	110/190 Thru 139/240 220/380 Thru 277/480	120/208 Thru 139/240 240/416 Thru 277/480	277/480	347/600				
Surge kW		267	269	266	267	266	265	265	265				
Motor Starting kVA (at 90% sustained voltage)	PMG	1372	1210	1210	1028	1210	1028	904	904				

Full Load Current - Amps at Standby Rating	120/208	127/220	139/240	220/380	240/416	254/440	277/480	347/600
	867	820	752	475	434	410	376	301

Notes:
Single phase power can be taken from a three phase generator set at up to 40% of the generator set nameplate kW rating at unity power factor.

Control System

Optional Features Shown

PowerCommand® Control with AmpSentry™ Protection

- AmpSentry Protection guards the electrical integrity of the alternator and power system from the effects of overcurrent, over/under voltage, under frequency and overload conditions.
- Control components are designed to withstand the vibration levels typical in generator sets.
- Integrated automatic voltage regulator and engine speed governor

Standard Control Description

- Analog % of current meter (amps)
- Analog % of load meter (kW)
- Analog AC frequency meter
- Analog AC voltage meter
- Cycle cranking control
- Digital display panel
- Emergency stop switch
- Idle mode control
- Menu switch
- Panel backlighting
- Remote starting, 24 V, 2 wire
- Reset switch
- Run-Off-Auto switch
- Sealed front panel, gasketed door
- Self diagnostics
- Separate customer interconnection box
- Voltmeter/Ammeter phase selector switch

Standard Protection Functions

Warnings

- High coolant temperature
- High DC voltage
- Low coolant temperature
- Low DC voltage
- Low fuel-day tank
- Low oil pressure
- Oil pressure sender fault
- Overcurrent
- Overload load shed contacts
- Temperature sender fault
- Up to four customer fault inputs
- Weak battery

Shutdowns

- Emergency stop
- Fail to crank
- High AC voltage
- High coolant temperature
- Low AC voltage
- Low coolant level (option for alarm only)
- Low oil pressure
- Magnetic pickup failure
- Overcrank
- Overcurrent
- Overspeed
- Short circuit
- Underfrequency

Standard Performance Data

AC Alternator

- Current by phase
- Kilowatts
- Kilowatt hours
- Power factor
- Voltage line to line
- Voltage line to neutral

Engine Data

- Battery voltage
- Coolant temperature
- Engine running hours
- Engine starts counter
- Oil pressure
- Oil temperature
- RPM

Generator Set Options

Engine

[ ] 208/240/480 V thermostatically controlled coolant heater for ambient above 40°F (4.5°C)
[ ] 208/240/480 V thermostatically controlled coolant heater for ambient below 40°F (4.5°C)
[ ] Heavy duty air cleaner with safety element

Fuel System

[ ] 300 Gal (1136 L) Sub-base tank
[ ] 400 Gal (1514 L) Sub-base tank
[ ] 500 Gal (1893 L) Sub-base tank
[ ] 600 Gal (2271 L) Sub-base tank
[ ] 660 Gal (2498 L) Sub-base tank
[ ] 720 Gal (2725 L) Sub-base tank
[ ] 1470 Gal (5565 L) Sub-base tank

Alternator

[ ] 80°C rise alternator
[ ] 105°C rise alternator
[ ] 120/240 V, 300 W anti-condensation heater

Control Panel

[ ] 120/240 V, 100 W control anti-condensation heater
[ ] Exhaust pyrometer
[ ] Ground fault indication
[ ] Remote fault signal package
[ ] Run relay package

Exhaust System

[ ] Critical grade exhaust silencer
[ ] Exhaust packages
[ ] Industrial grade exhaust silencer
[ ] Residential grade exhaust silencer

Generator Set

[ ] AC entrance box
[ ] Batteries
[ ] Battery charger
[ ] Export box packaging
[ ] Isolation pads
[ ] UL2200 Listed
[ ] Main line circuit breaker
[ ] Paralleling accessories
[ ] PowerCommand Network
[ ] Remote annunciator panel
[ ] Sound-attenuated enclosure (2 levels) with internal silencers
[ ] Spring isolators
[ ] Weather-protective enclosure with internal silencer
[ ] 2 year prime power warranty
[ ] 2 year standby warranty
[ ] 5 year basic power warranty
[ ] 10 year major components warranty

Available Products and Services

A wide range of products and services is available to match your power generation system requirements. Cummins Power Generation products and services include:

Diesel and Spark-Ignited Generator Sets

Transfer Switches

Bypass Switches

Parallel Load Transfer Equipment

Digital Paralleling Switchgear

PowerCommand Network and Software

Distributor Application Support

Planned Maintenance Agreements

Warranty

All components and subsystems are covered by an express limited one-year warranty. Other optional and extended factory warranties and local distributor maintenance agreements are available. Contact your distributor/dealer for more information.

Certifications

ISO9001 - This generator set was designed and manufactured in facilities certified to ISO9001.

CSA - This generator set is CSA certified to product class 4215-01.

PTS - The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Products bearing the PTS symbol have been subjected to demanding tests in accordance to NFPA 110 to verify the design integrity and performance under both normal and abnormal operating conditions including short circuit, endurance, temperature rise, torsional vibration, and transient response, including full load pickup.

UL - The generator set is available Listed to UL2200, Stationary Engine Generator Assemblies. The PowerCommand control is Listed to UL508 - Category NITW7 for U.S. and Canadian usage.

See your distributor for more information

Cummins Power Generation
1400 73rd Avenue N.E.
Minneapolis, MN 55432
763.574.5000
Fax: 763.574.5298
www.cumminspower.com

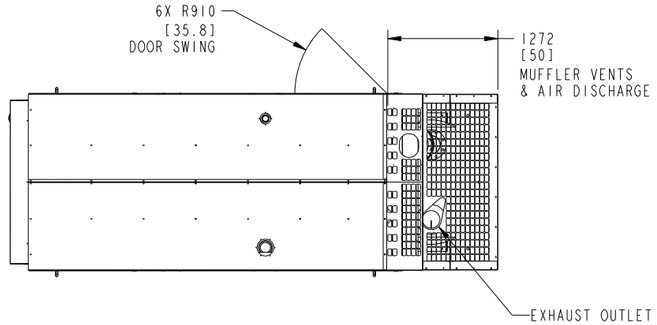
Important: Backfeed to a utility system can cause electrocution and/or property damage. Do not connect generator sets to any building electrical system except through an approved device or after building main switch is open.

Pro/ENGINEER

REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-112134	P	1	NOTES UPDATED; SEE ECO FOR DETAIL	SM	BS	A_FELBER	06SEP10
		2	ZONE B5; DIMENSION 217 WAS 214	SM	BS	A_FELBER	06SEP10
		3	SEE SHEET 4	SM	BS	A_FELBER	06SEP10

TABULATION										
TANK/LIFT BASE FEATURE CODE	TANK CAPACITY	TANK WEIGHT DRY KG (LBS)	DIM_D	DIM_E	DIM_F	DIM_G	DIM_H	DIM_I	DIM_J	DIM_K
C201	300	953 (2100)	2643 (104)	183 (7.2)	305 (12)	1171 (46.1)	526 (20.7)	1126 (44.3)	1122 (44.2)	614.7 (24.2)
C202/C242	400/270	1036 (2285)	2694 (106)	234 (9.2)	356 (14)	1222 (48.1)	577 (22.7)	1177 (46.3)	1173 (46.2)	665 (26.2)
C203	500	1083 (2387)	2743 (108)	284 (11.2)	406 (16)	1273 (50.1)	627 (24.7)	1228 (48.3)	1224 (48.2)	716.3 (28.2)
C204	600	1153 (2541)	2819 (111)	361 (14.2)	483 (19)	1349 (53.1)	704 (27.7)	1304 (51.3)	1300 (51.2)	792.5 (31.2)
C205	660	1188 (2618)	2858 (112.5)	399 (15.7)	521 (20.5)	1387 (54.6)	742 (29.2)	1343 (52.8)	1339 (52.7)	830.6 (32.7)
C206	720	1247 (2750)	2895 (114)	437 (17.2)	559 (22)	1425 (56.1)	780 (30.7)	1381 (54.3)	1377 (54.2)	868.7 (34.2)
C207	850	1296 (2858)	2997 (118)	538 (21.2)	660 (26)	1527 (60.1)	881 (34.7)	1481 (58.3)	1478 (58.2)	970.3 (38.2)
F214	NA	NA	2540 (100)	81 (3.2)	203 (8)	1069 (42.1)	424 (16.7)	1024 (40.3)	1021 (40.2)	513.1 (20.2)

OPTIONAL FEATURE
F202,F205

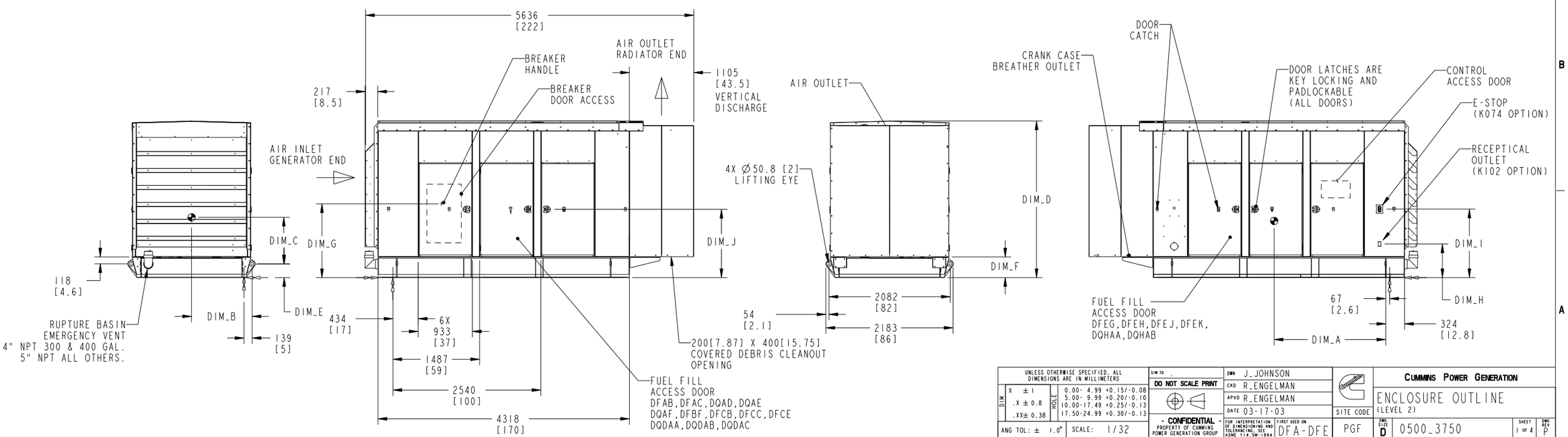


TABULATION						
MODEL	KW	CG_DIM "A"	CG_DIM "B"	CG_DIM "C"	WEIGHT KG (LBS)	WEIGHT IBC ENCLOSURE WITH L161-2 FEATURE CODE KG (LBS)
DFAB	230	2111 [83.1]	1041 [41]	869 [34.2]	5755 (12688)	
DFAC	250	2103 [82.8]			5823 (12838)	
DQAD	250			866 [34.1]		
DQAE	275	2093 [82.4]		869 [34.2]	5914 (13038)	
DQAF	300	2085 [82.1]		871 [34.3]	6027 (13288)	
DFBF	275	2049 [80.7]		881 [34.7]	6387 (14078)	
DFCB	300	2035 [80.1]		884 [34.8]	6522 (14378)	
DFCC	350	2014 [79.3]		886 [34.9]	6635 (14628)	
DFCE	400	1999 [78.7]		889 [35.0]	6735 (14848)	
DFEG	350	1994 [78.5]		734 [28.9]	7386 (16284)	7585 (16723)
DFEH	400	1976 [77.8]			7516 (16570)	7715 (17009)
DFEJ	450	1956 [77.0]		737 [29.0]	7669 (16908)	7868 (17347)
DFEK	500	1933 [76.1]			7805 (17208)	8004 (17647)
DQDAA	250	1927 [75.9]		723 [28.5]	5600 (12300)	5799 (12739)
DQDAB	275					
DQDAC	300	1945 [76.6]		724 [28.5]	5700 (12600)	5899 (13039)
DQHAA	275	2093 [82.4]		869 [34.2]	5914 (13038)	6113 (13477)
DQHAB	300	2085 [82.1]		871 [34.3]	6027 (13288)	6226 (13727)

***WEIGHT & CG'S ARE SHOWN WITH HIGHEST GALLON FUEL TANK, F202 ENCLOSURE, AND STANDARD WET GENSET. ADDITION OF OTHER FEATURES MAY CHANGE THE WEIGHT. FOR F205 ENCLOSURE(ALUMINUM) REDUCE WEIGHT BY 490 (1090)

NOTES:

1. DIMENSIONS SHOWN IN [ ] ARE INCHES.
2. FOUNDATION REFERENCE POINT (⊂⊃). SEE FOUNDATION DRAWING FOR DETAILS.
3. FOR FEATURE CODE L116 (FLORIDA TANKS) ADD 105.6 [4.16"] TO DIMS D-J
4. SEE SHEET 2 FOR TANK VENT LOCATIONS.
5. EXCESSIVE TWISTING OF THE FUEL TANK, WHEN FASTENING IT TO A FOUNDATION, MAY RESULT IN STRUCTURAL FAILURE OF THE TANK. TO INSURE THE INSTALLATION DOES NOT EXCESSIVELY TWIST THE FUEL TANK, THE FOLLOWING PROCEDURE MUST BE OBSERVED:
   - 5.1 REFER TO ONAN APPLICATION MANUAL T030 FOR GENERAL GENSET/TANK MOUNTING GUIDELINES.
   - 5.2 AFTER PLACING SET ON FOUNDATION, VERIFY ALL MOUNTING PADS CONTACT FOUNDATION.
   - 5.3 INSERT THE MAXIMUM HEIGHT STACK OF SHIMS THAT WILL SLIDE INTO THE GAP.
   - 5.4 TIGHTEN TANK HOLD DOWN MOUNTING FASTENERS.



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS	SIM TO .	DWN J_JOHNSON	CUMMINS POWER GENERATION
DIM: X ±1, .X ±0.8, .XX± 0.38 — HOLE: 0.00- 4.99 +0.15/-0.08, 5.00- 9.99 +0.20/-0.10, 10.00-17.49 +0.25/-0.13, 17.50-24.99 +0.30/-0.13	DO NOT SCALE PRINT	CKD R_ENGELMAN	ENCLOSURE OUTLINE (LEVEL 2)
ANG TOL: ± 1.0° SCALE: 1/32	- CONFIDENTIAL - PROPERTY OF CUMMINS POWER GENERATION GROUP	APVD R_ENGELMAN DATE 03-17-03	SITE CODE PGF
	FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5M-1994	FIRST USED ON DFA-DFE	DWG SIZE D 0500_3750 SHEET 1 OF 4 DWG REV P

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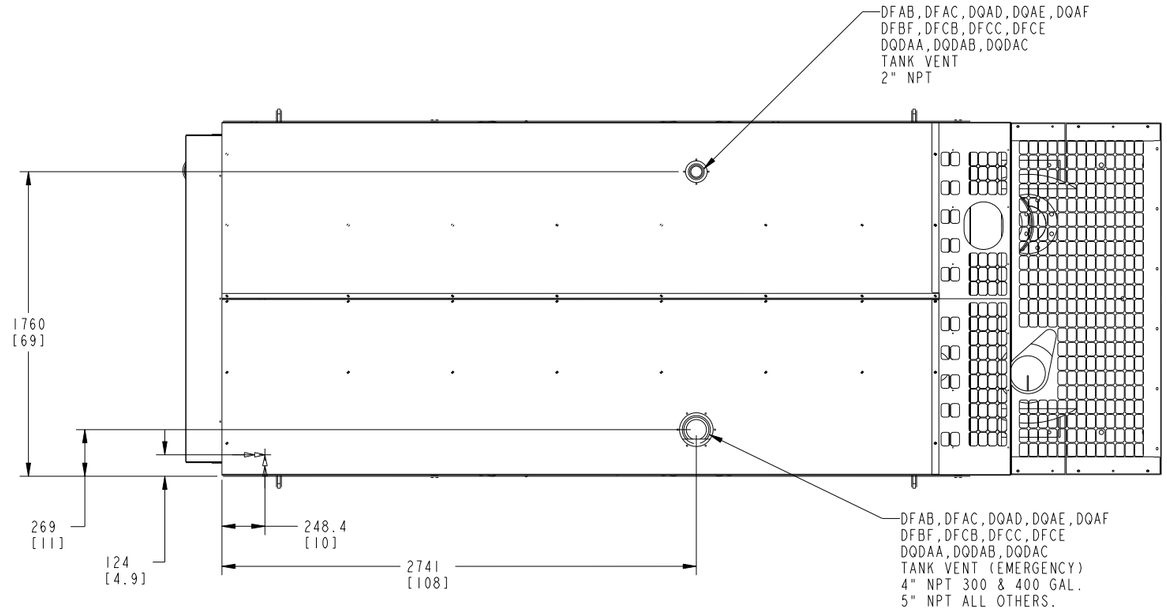
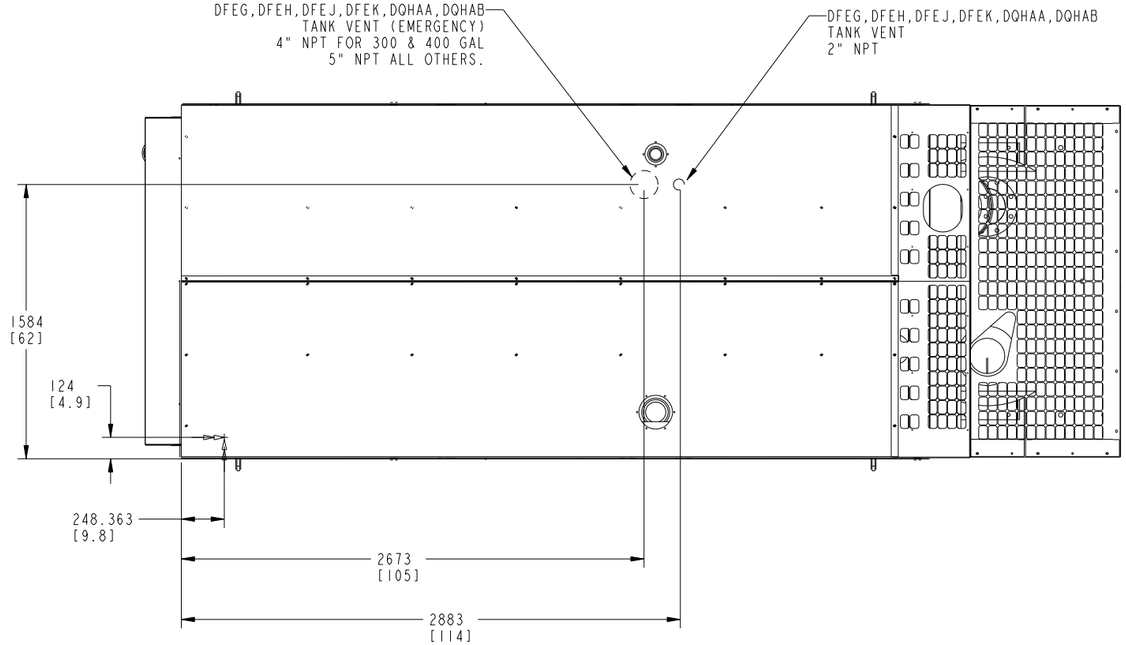
REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-112134	P	--	----	SM	BS	W_BALSHE	06SEP10





UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS	SIM TO .	DWN J_JOHNSON	CUMMINS POWER GENERATION
DIM: X ±1, .X ±0.8, .XX± 0.38 — HOLE: 0.00- 4.99 +0.15/-0.08; 5.00- 9.99 +0.20/-0.10; 10.00-17.49 +0.25/-0.13; 17.50-24.99 +0.30/-0.13	DO NOT SCALE PRINT	CKD R_ENGELMAN	ENCLOSURE OUTLINE (LEVEL 2)
ANG TOL: ± 1.0° SCALE: 1/16	- CONFIDENTIAL - PROPERTY OF CUMMINS POWER GENERATION GROUP	APVD R_ENGELMAN	
	FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5M-1994	DATE 03-17-03	SITE CODE: PGF
	FIRST USED ON DFA-DFE		DWG SIZE: D — 0500_3750 — SHEET 2 of 4 — DWG REV: P

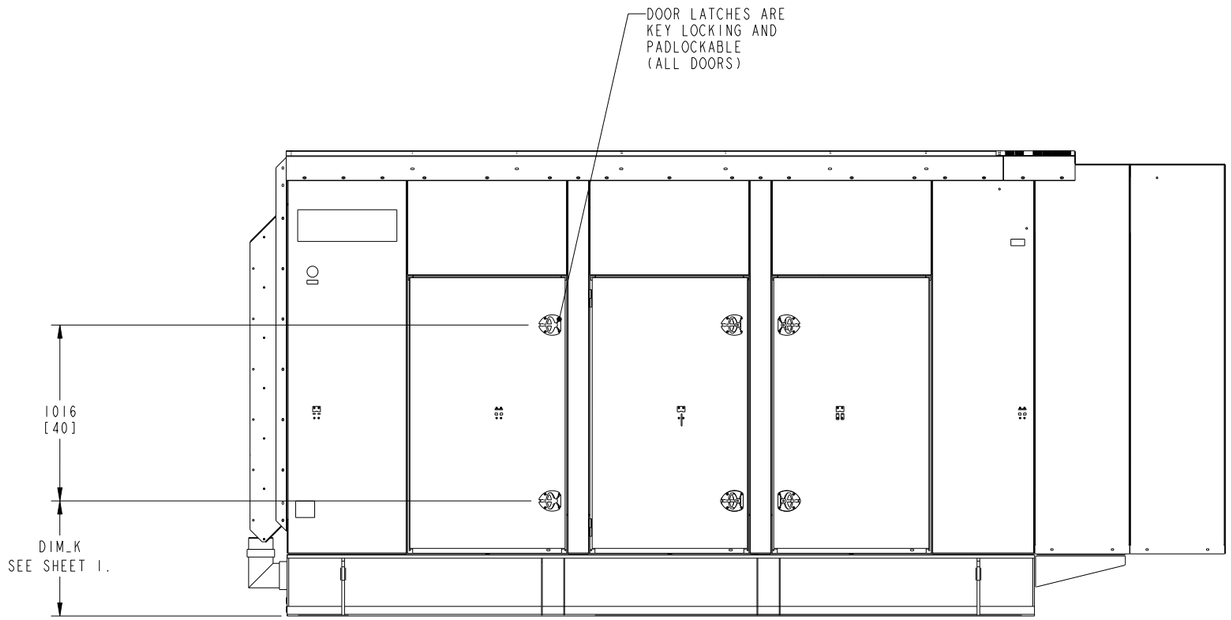
Pro/ENGINEER

REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-112134	P	--	----	SM	BS	W_BALSHE	06SEP10

OPTIONAL FEATURE
150 MPH RATING
F206

NOTES:

1. ALL DIMENSIONS NOT SHOWN ARE INDENTICAL TO THOSE SHOWN ON SHEET 1.
2. THE ENCLOSURE IS ENGINEERED TO MAINTAIN IT'S INTEGRITY WITH A 150 MPH WIND LOAD CONDITION.



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS

DIM: X ±1; .X ±0.8; .XX± 0.38

HOLE: 0.00- 4.99 +0.15/-0.08; 5.00- 9.99 +0.20/-0.10; 10.00-17.49 +0.25/-0.13; 17.50-24.99 +0.30/-0.13

ANG TOL: ± 1.0° SCALE: 1/32

SIM TO .

DO NOT SCALE PRINT

- CONFIDENTIAL -
PROPERTY OF CUMMINS POWER GENERATION GROUP

DRN J_JOHNSON
CKD R_ENGELMAN
APVD R_ENGELMAN
DATE 03-17-03

FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5M-1994 — FIRST USED ON DFA-DFE

SITE CODE PGF

CUMMINS POWER GENERATION

ENCLOSURE OUTLINE
(LEVEL 2)

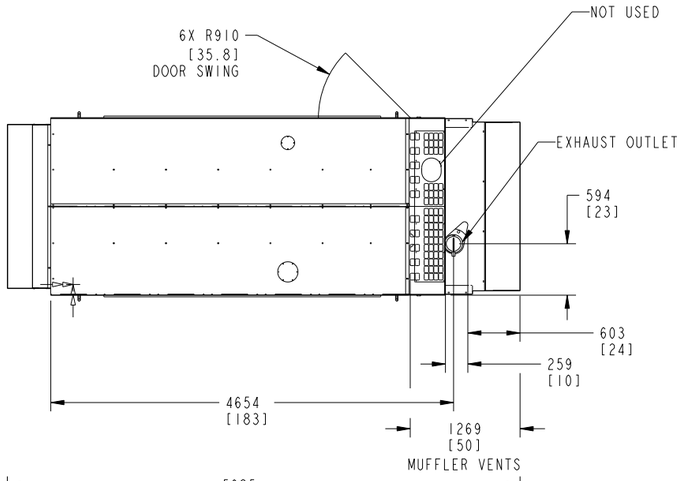
DWG SIZE D 0500_3750 SHEET 3 of 4 DRG REV P

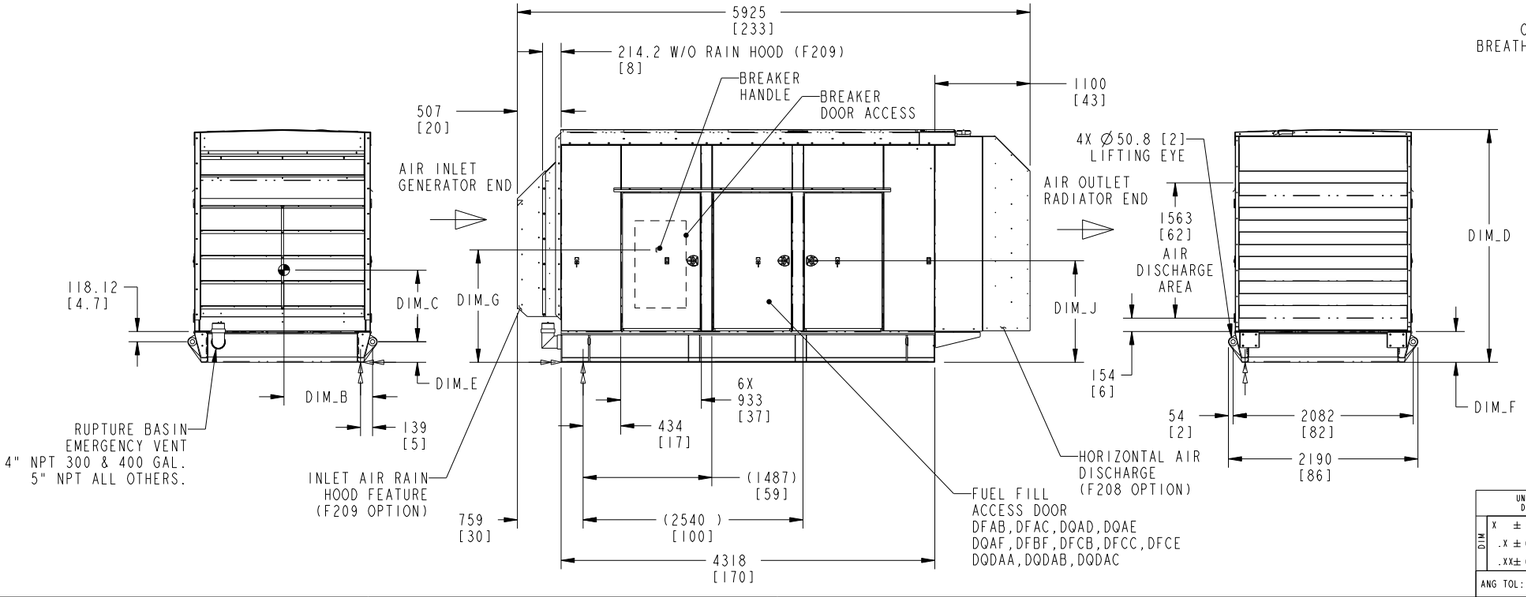
Pro/ENGINEER

REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-112134	P	3	NOTES UPDATED; SEE ECO FOR DETAIL	SM	BS	W_BALSHE	06SEP10

TABULATION										
TANK/LIFT BASE FEATURE CODE	TANK CAPACITY	TANK WEIGHT DRY KG (LBS)	DIM_D	DIM_E	DIM_F	DIM_G	DIM_H	DIM_I	DIM_J	DIM_K
C201	300	953 (2100)	2643 (104)	183 (7.2)	305 (12)	1171 (46.1)	526 (20.7)	1126 (44.3)	1122 (44.2)	614.7 (24.2)
C202/C242	400/270	1036 (2285)	2694 (106)	234 (9.2)	356 (14)	1222 (48.1)	577 (22.7)	1177 (46.3)	1173 (46.2)	665 (26.2)
C203	500	1083 (2387)	2743 (108)	284 (11.2)	406 (16)	1273 (50.1)	627 (24.7)	1228 (48.3)	1224 (48.2)	716.3 (28.2)
C204	600	1153 (2541)	2819 (111)	361 (14.2)	483 (19)	1349 (53.1)	704 (27.7)	1304 (51.3)	1300 (51.2)	792.5 (31.2)
C205	660	1188 (2618)	2858 (112.5)	399 (15.7)	521 (20.5)	1387 (54.6)	742 (29.2)	1343 (52.8)	1339 (52.7)	830.6 (32.7)
C206	720	1247 (2750)	2895 (114)	437 (17.2)	559 (22)	1425 (56.1)	780 (30.7)	1381 (54.3)	1377 (54.2)	868.7 (34.2)
C207	850	1296 (2858)	2997 (118)	538 (21.2)	660 (26)	1527 (60.1)	881 (34.7)	1481 (58.3)	1478 (58.2)	970.3 (38.2)
F214	NA	NA	2540 (100)	81 (3.2)	203 (8)	1069 (42.1)	424 (16.7)	1024 (40.3)	1021 (40.2)	513.1 (20.2)

OPTIONAL FEATURE
F208, F209



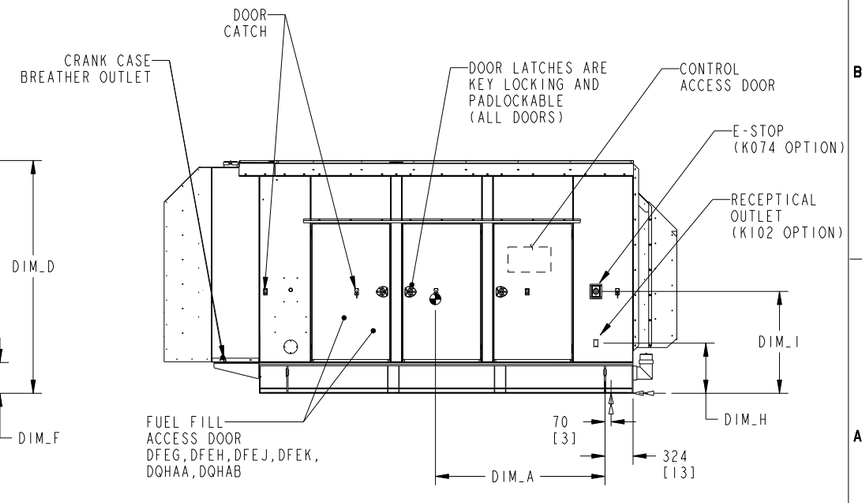


TABULATION						
MODEL	KW	CG_DIM "A"	CG_DIM "B"	CG_DIM "C"	WEIGHT KG (LBS)	WEIGHT IBC ENCLOSURE WITH L161-2 FEATURE CODE KG (LBS)
DFAB	230	2111 [83.1]	1041 [41]	869 [34.2]	5755 (12688)	
DFAC	250	2103 [82.8]			5823 (12838)	
DQAD	250			866 [34.1]		
DQAE	275	2093 [82.4]		869 [34.2]	5914 (13038)	
DQAF	300	2085 [82.1]		871 [34.3]	6027 (13288)	
DFBF	275	2049 [80.7]		881 [34.7]	6387 (14078)	
DFCB	300	2035 [80.1]		884 [34.8]	6522 (14378)	
DFCC	350	2014 [79.3]		886 [34.9]	6635 (14628)	
DFCE	400	1999 [78.7]		889 [35.0]	6735 (14848)	
DFEG	350	1994 [78.5]		734 [28.9]	7386 (16284)	7585 (16723)
DFEH	400	1976 [77.8]			7516 (16570)	7715 (17009)
DFEJ	450	1956 [77.0]		737 [29.0]	7669 (16908)	7868 (17347)
DFEK	500	1933 [76.1]			7805 (17208)	8004 (17647)
DQDAA	250	1927 [75.9]		723 [28.5]	5600 (12300)	5799 (12739)
DQDAB	275					
DQDAC	300	1945 [76.6]		724 [28.5]	5700 (12600)	5899 (13039)
DQHAA	275	2093 [82.4]		869 [39.4]	5914 (13038)	6113 (13477)
DQHAB	300	2085 [82.1]		871 [34.3]	6027 (13288)	6226 (13727)

***WEIGHT & CG'S ARE SHOWN WITH HIGHEST GALLON FUEL TANK, F202 ENCLOSURE, AND STANDARD WET GENSET. ADDITION OF OTHER FEATURES MAY CHANGE THE WEIGHT. FOR F205 ENCLOSURE(ALUMINUM) REDUCE WEIGHT BY 490 (1090)

NOTES:

1. DIMENSIONS SHOWN IN [ ] ARE INCHES.
2. FOUNDATION REFERENCE POINT (⌐◇¬). SEE FOUNDATION DRAWING FOR DETAILS.
3. FOR FEATURE CODE L116 (FLORIDA TANKS) ADD 105.6 [4.16"] TO DIMS D-J
4. SEE SHEET 2 FOR TANK VENT LOCATIONS.
5. EXCESSIVE TWISTING OF THE FUEL TANK, WHEN FASTENING IT TO A FOUNDATION, MAY RESULT IN STRUCTURAL FAILURE OF THE TANK. TO INSURE THE INSTALLATION DOES NOT EXCESSIVELY TWIST THE FUEL TANK, THE FOLLOWING PROCEDURE MUST BE OBSERVED:
   - 5.1 REFER TO ONAN APPLICATION MANUAL T030 FOR GENERAL GENSET/TANK MOUNTING GUIDELINES.
   - 5.2 AFTER PLACING SET ON FOUNDATION, VERIFY ALL MOUNTING PADS CONTACT FOUNDATION.
   - 5.3 INSERT THE MAXIMUM HEIGHT STACK OF SHIMS THAT WILL SLIDE INTO THE GAP.
   - 5.4 TIGHTEN TANK HOLD DOWN MOUNTING FASTENERS.



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS

DIM		HOLE	
X	±1	0.00- 4.99	+0.15/-0.08
.X	±0.8	5.00- 9.99	+0.20/-0.10
.XX	±0.38	10.00-17.49	+0.25/-0.13
		17.50-24.99	+0.30/-0.13

ANG TOL: ± 1.0° SCALE: 1/32

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CUMMINS POWER GENERATION

ENCLOSURE OUTLINE (LEVEL 2)

SITE CODE: PGF

DWG SIZE: D — 0500_3750 — SHEET 4 OF 4 — DRG REV: P