



Public Works Committee
8:00 a.m., Thursday, January 16, 2020
City Hall Conference Room
1207 Palm Boulevard
Isle of Palms, South Carolina

Agenda

1. **Call to order** and acknowledgment that the press and the public have been duly notified of the meeting in accordance with the Freedom of Information Act.
2. **Election of Chair and Vice Chair**
3. **Approval of previous meeting's minutes – November 14, 2019**
4. **Citizens' Comments** – Comments shall be limited to 3 minutes
5. **Department Reports** – Director Pitts and Assistant Robert Asero
Vehicle maintenance, trash collection and building maintenance tracking reports
6. **Old Business**
 - a. Update on Phase III Drainage and small internal projects
 - b. Update on IOP Connector and Palm Boulevard sidewalk extension project
 - c. Update on drainage project on Ocean Boulevard between 1st and 3rd Avenue
 - d. Update on ongoing drainage assessments, improvements and maintenance
 - e. Update on improvements to the multi-use path on Waterway Boulevard
7. **New Business**
 - a. Consideration of renewing the beach garbage collection contract
 - b. Consideration of projects to submit as priorities for funding from the Transportation Sales Tax Program (TST)
 - c. Discussion of solar trash compacting stations
 - d. Consideration of approval of a contract to Bohicket Construction LLC in the amount of \$64,136.00 for a diesel generator and transfer switch for the Public Works workshop [FY20 Budget, Capital Projects, Public Works, Capital Outlay- \$37,500; State ATAX, Public Works, Capital Outlay- \$37,500]
 - e. Review of the Public Works Department's 10-year Capital Plan and discussion of new initiatives and projects for consideration
8. **Miscellaneous Business**
Next meeting date: 8:00 a.m., Thursday, February 6, 2020
9. **Executive Session** – If needed
10. **Adjournment**

PUBLIC WORKS COMMITTEE
8:00am, Thursday, November 14, 2019
City Hall Council Chambers
1207 Palm Boulevard, Isle of Palms, SC

MINUTES

1. Call to Order

Present: Council Member Rice (chair), Council Members Kinghorn and Smith

Staff Present: Administrator Fragoso, Director Pitts, Assistant Director Asero

2. Approval of the Previous Meeting's Minutes

Council Member Smith made a motion to approve the minutes of the October 3, 2019 meeting, and Council Member Kinghorn seconded the motion. The minutes passed unanimously.

3. Citizen's Comments – None

4. Department Reports for October 2019

Director Pitts gave a brief report, stating he did not yet have access to his monthly budget information. Garbage, yard debris, and D&C collection are all up over 2018 totals. Assistant Director Asero reviewed the work being done with regards to facilities maintenance including roof repair at City Hall and winterizing two of the showers on front beach. He shared work has begun on the clearing of the beach path and that he has attended several meetings with regards to the drainage projects.

Discussion ensued about the landscaping and beautification efforts at the front beach. Assistant Director Asero said the focus has been on making the area better functioning (irrigation and lighting) ahead of making it prettier. However, he said the area will be cleaned up for the Holiday Festival. Council Member Kinghorn suggested staff look into the matching grants previously given by SCE&G for municipal lighting projects. He said lighting would be helpful at Bunch Park. Council Member Rice suggested staff look at solar energy options with regards to lighting.

5. Old Business

A. Update on Phase III Drainage project and small internal projects

Administrator Fragoso shared the design process is underway for the smaller projects and that all residents in those areas have been notified of the upcoming work. She also shared that City staff has met with the Water & Sewer Commission and Wild Dunes to discuss potential infrastructure conflicts in the Phase III project. The City is waiting to hear from OCRM about where they will draw their jurisdictional line and how that will impact the City's requirement for any mitigation.

She believes they will get that answer in a few weeks, noting that OCRM and the Army Corps of Engineers is receiving a lot of pressure from Columbia to move through their numerous applications more quickly.

B. Update on IOP Connector and Palm Boulevard sidewalk expansion project

Administrator Fragoso reported that the agreement to allow the work to commence has been executed, and the next step is waiting for the bids, which are due in early December. County Council has required that the project be completed within 60 days of it starting or by March 1. When the work begins depends on how the bids come back. Council Member Smith noted how long this project has taken to come to fruition. Administrator Fragoso said that delays in projects like this are often as a result of waiting until the off season when there are less people and traffic on the island. Council Member Kinghorn suggested lining up these sorts of projects more strategically so that improvements constantly being made.

C. Update on CTC Program Funding for improvements to the Waterway Boulevard multi-use path

Administrator Fragoso reported that request for the funding of this project has been denied. Council Member Kinghorn suggested applying to multiple places for funding of these sorts of projects in the future. Council Member Smith noted there is money in the FY20 budget to complete this project.

D. Update on project to replace cross-line culverts on Ocean Boulevard between 1st and 3rd Avenues

Administrator Fragoso reported this project is out for RFP through the county and the project is being partially funded by the City's stormwater fee. The City is funding the materials at a cost of \$25,000 for the project, and FEMA is going reimburse the county for the actual construction. A pre-bid meeting is planned for January. This project is also expected to take approximately 60 days.

E. Discussion of questions related to the Isle of Palms Water & Sewer Commission becoming a department of the City

Council Member Kinghorn said he is waiting to hear answers to the questions he posed about this issue at the last City Council Meeting. Council Member Rice said she would like to how the new members of Water & Sewer Commission affect the Commission as a whole. Council Member Kinghorn would like for the Mayor to directly address his questions at the Ways & Means Committee meeting next week, adding that this issue directly affects the health and safety of all island residents. He asked for the City Administrator and City Clerk to provide those questions to the Mayor and Council Member Rice so they can be answered. Council Member Smith said she is open to discussion about the Water & Sewer Commission becoming a department of the City and would like more information about it.

6. **New Business**

A. **Consideration of an ordinance to ban smoking on the beach**

Council Member Rice made a motion to suspend the rules of order to allow Kelly Thorbelson from the South Carolina Aquarium to speak to the Committee. Council Member Kinghorn seconded the motion. The motion passed unanimously.

Ms. Thorbelson provided additional statistics about cigarette butts on the Isle of Palms beaches. She encouraged the Committee to support a smoking ban on the beach front. Council Member Smith spoke to the arguments made against the smoking ban at the October 22 City Council meeting. She would like to see a revised smoking ban ordinance focus solely on banning smoking on the front beach and providing additional trash receptacles in other City-owned areas to include proper disposal messaging. She would like for this revised ordinance to be on the November City Council agenda for First Reading and have second reading at the December 3 meeting or call a Special Meeting to enact this ban by January 1, 2020. She believes that since the smoking ban has been the work of this council that this council should be the one to vote on it.

Council Member Kinghorn disagreed with reducing the scope of the original ordinance and said the focus must be on the litter and not on the smoking. He added, "It is no wonder that cigarette butts have drawn attention. The vast majority of the 5.6 trillion -- and let's stop counting cigarette butts on the beach. We know it is a problem. It is a waste of energy. There are a lot of cigarette butts on the beach. It does not matter if there are 3,000 or 25,000. It is a problem. The vast majority of the 5.6 trillion manufactured worldwide each year come with filters made with cellulose acetate, a form of plastic that can take a decade or more to decompose. A decade or more. If you don't do the entire beach, it does not matter if it is on 3rd Avenue or 49th, it is going to end up in the ocean and or it is going to accrete down one island or the other... As many as two-thirds of those filters are dumped irresponsibly each year," according to a study done by the Cigarette Butt Foundation Project. He encouraged Council members Rice and Smith to speak with their fellow Council members to ascertain their support of this effort prior to the meeting.

MOTION: Council Member Smith made a motion reintroduce a new ordinance "that targets beachfront smoking and bans smoking on the beach" to be effective January 1, 2020. Additionally, the ordinance should appear on the agenda of the November 19, 2019 City Council meeting for First Reading and Second Reading appear on the agenda of the December 3, 2019 City Council Meeting. Council Member Rice seconded the motion.

Council Member Kinghorn expressed concern that this motion "dilutes" the previously introduced ordinance. Council Member Smith said she believes this more targeted ordinance will help with messaging and better clarifies the area in which smoking is prohibited. Council Member Rice shared that the Marina has severely restricted the allowable smoking area and agrees more trash receptacles are needed. Council Member Kinghorn said he does not support this motion but does support the previous one. Both Council members Rice and Smith agreed this version is a step in the right direction.

VOTE: **Ayes: Smith, Rice**
 Nays: Kinghorn

7. Miscellaneous Business

Council Member Kinghorn said it has been a pleasure to serve with the staff. Administrator Fragoso noted the Committee's support of the Assistant Director of Public Works position and is glad Assistant Director Asero is in the position. Director Pitts said he knows he selected the right person for that position.

The next meeting of the Public Works Committee will be Thursday, January 16, 2020 at 8am.

8. Executive Session – none needed

9. Adjournment

The meeting was adjourned at 8:57am.

Respectfully submitted,

Nicole DeNeane
City Clerk

DEPARTMENT OF PUBLIC WORKS NOVEMBER/DECEMBER 2019

Assistant director of Stormwater and Facilities

Drainage

- Review of Charleston county storm water maps for buried storm water inlet boxes.
- Uncovered storm water inlet box at 2600 Palm Blvd.
- Uncovered 2 storm water inlet boxes at Frank Sottile Lane.
- Inspection of 29th Ave flooding, found clogged drainage ditch and driveway pipes.
- Eadies services hydro- vac cleaning of 29th Ave. ditch and blocked pipes.
- Working with the Charleston County Storm water data base list.
- SCDOT proposed drainage plan for Charleston Blvd.
- SCDOT drainage cleaning between 2500-2700 Palm Blvd start date Jan. 20th -24th.
- SCDOT ditch cleaning between 55-57 Palm Blvd. start date Jan. 20th - 24th.
- SCDOT 25th Ave proposed flap valve installation.
- SCDOT 25th Ave. drop inlet clean out.
- Site visit to 2300-2400 Hartnett Blv. flooding, requesting SCDOT involvement.
- Charleston County repair of separated pipes on #24-#26 25th Ave.
- Meeting with Eddies industrial services for utilities potholes for internal project and outfall projects.
- 4th Quarter stormwater meeting in Columbia SC.
- Inspection of DEHEC critical line on 25th- 31st - Forest Trail, and 41st Ave. for outfall projects.

Facilities

- Completed monthly reports.
- Replacement of DPW fencing.
- Roofing repair completed at City Hall.
- Repair of exterior flood lighting at City Hall.

Front beach / Restrooms

- Repair of broken streetlight fixture at 14th Ave. Dominion energy.
- Replace GFI electrical outlets at Front beach.
- Preparation for Holiday street festival.
- Repair of Municipal lot irrigation.
- Palm tree pruning at front beach.
- Repair palm tree irrigation at front beach.

Landscaping / Rights of way / Connector

- Maintenance of waterway Blvd.
- Sweeping south cleaning of the connector every other Sunday.
- Clean up of debris on the connector every Friday.

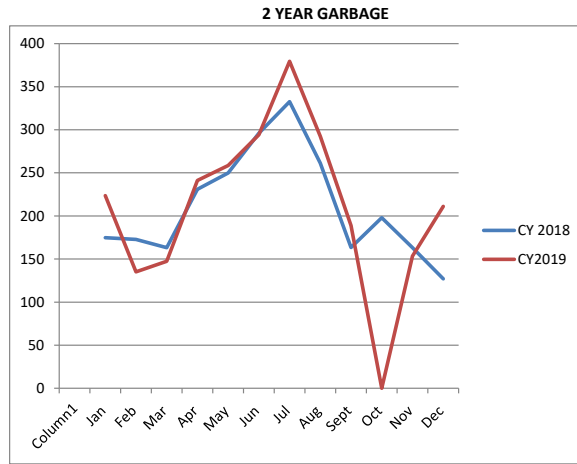
Compactor / Dumpster

- Cleaned compactor pad and recycling area every Friday.

Certifications, training and meetings

- Meeting with Isle of palms water and sewer.
- Ways and means.
- Meeting with Charleston county.
- Monthly UST testing of Marina and DPW.
- FEMA training.
- MASC risk management training in Columbia SC.
- Prepared surplus DPW vehicles for auction.

	CY 2018	CY2019
Column1		
Jan	174.69	223.61
Feb	172.71	135.17
Mar	163.25	147.4
Apr	230.87	241.17
May	249.85	258.45
Jun	296.1	294.31
Jul	332.64	379.48
Aug	261.2	292.36
Sept	163.41	188.86
Oct	198	Dorian
Nov	163.27	153.27
Dec	127.02	211.04



General duties

Sanitation:

31.41 tons, 46.61 tons and 19.92 tons of misc. were transported to Bees Ferry in Sept. , Oct. and Nov. 2019

Landscaping/Road Maintenance:

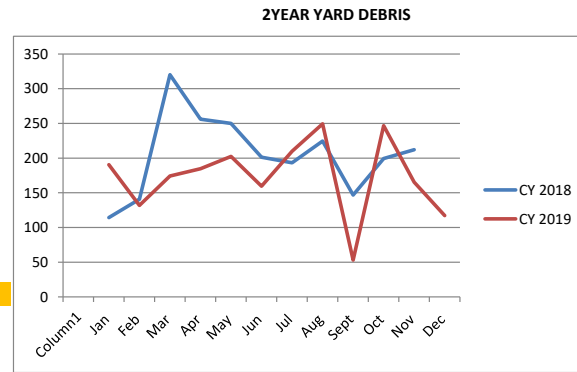
Cleaned the IOP connector of heavy debris

Mowed the Right of Way from 21st – 41st one time in October.

Storm Water:

Eadie's drain and vac continues to clean the drainage systems on the island.

	CY 2018	CY 2019
Column1		
Jan	114.3	190.61
Feb	140.72	131.74
Mar	320.2	174.3
Apr	256.24	184.59
May	249.91	202.48
Jun	201.29	159.4
Jul	193.36	209.97
Aug	224.47	249.39
Sept	146.88	53.11
Oct	199.28	246.75
Nov	212.21	165.36
Dec		117.26



VEHICLE MAINTENANCE

Beginning Budget \$85,000.00

02/01/2019	10-4620.5017	VEHICLE MAINTENANCE BEG. BALANCE		37,247.68
12/01/2019	AP INV	PW-16 2016 MACK PM SERVICE, 39,547 MILES	1,693.08	38,940.76
12/01/2019	AP INV	PW-2 2006 MACK - PM SERVICE WITH VARIOUS	3,968.10	42,908.86
12/01/2019	AP INV	PW-26 2014 MACK - PTO REPAIRS, COOLANT	1,923.52	44,832.38
12/04/2019	AP INV	PW9 HYDRAULIC HOSE 495225	303.12	45,135.50
12/04/2019	AP INV	PW21 REBUILD 2 HYDRAULIC CYLINDERS	1,758.40	46,893.90
12/04/2019	AP INV	PW23 COMBINATION SWITCH	41.41	46,935.31
12/04/2019	AP INV	PW22 3 BATTERIES	417.99	47,353.30
12/20/2019	AP INV	PW-24 (5) TIRES REPLACED & PW-22 VALVE S	2,960.34	50,313.64
12/26/2019	AP INV	PW10 (2) "SOL 12V CONT 4 STUD HN20 UL"	104.34	50,417.98
12/31/2019	10-4620.5017	END BALANCE	13,170.30	50,417.98

02/28/2019	10-4620.5017	END BALANCE	13,170.30	24,077.33
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Action Items

See See Storm water Facilities maint. Report



Devri DeToma
Construction Project Manager II

Phone: 843.202.6144
Fax: 843.202.6152
ddetoma@charlestoncounty.org
Lonnie Hamilton III Public Services Building
4045 Bridge View Drive, Suite B232
North Charleston, SC 29405

December 23, 2019

The Honorable Jimmy Carroll
Mayor City of Isle of Palms
P.O. Box 508
Isle of Palms, SC 29451

Subject: Project Requests - FY 2021 Transportation Sales Tax (TST) Annual Allocation Program

Dear Mayor Carroll:

The Transportation Development staff once again will be preparing lists of resurfacing and new construction projects to be funded under the FY 2021 Annual Allocations portion of the TST program. Prioritizing the resurfacing of existing paved roads will be done utilizing our computerized Pavement Management System which is based on the technical evaluation of the overall condition of each road. This eliminates the need for requests for resurfacing of specific roads. If you should have questions regarding the County's resurfacing program or the Pavement Management System, you may contact County staff at (843) 202-6140.

The annual allocations approved by County Council for new projects includes \$4 million for resurfacing, \$2 million for Local Paving (earth road improvements), \$2 million for Intersection Improvements, and \$1 million for Pedestrian/Bike Enhancement Projects.

Beginning in 2009, the Charleston County Council adopted the use of an Objective Evaluation and Prioritization Process for the Allocation projects. This process is used to identify those projects that are most needed and will represent the best utilization of available funds. The benefits attributed to a project are compared to the cost of the project to determine a Project Rating. These Project Ratings are ranked for all projects within each of the above described Allocation Categories. The funding available within each Allocation Category is then applied to the highest ranked projects, with the goal of accomplishing as many projects as possible. It should be noted that some larger projects are funded over multiple years in order to complete them within the annual allocation funding levels.

The benefits considered within each Allocation Category vary to reflect the specific type of improvements the category is intended to address, but generally include measures relating to the number of persons served by a project, the average daily traffic on the road, the degree to which the project would address operational and/or safety problems in the area of the project, the technical

difficulty of designing and/or constructing the project, whether the project will connect to similar adjacent projects, and the measure of public support for the project.

While all of the above mentioned benefits are important in evaluating the project, **we have found public support to be critical** in the successful completion of this program. We would like to ask that you provide some type of evidence that the project is supported by the citizens it is intended to serve. This could be accomplished by submitting letters of support, petitions, and/or a resolution(s) passed by your city or town council. This information is also important to demonstrate that the residents of the area affected by a project are aware of, and not opposed to, the project.

In order to assist you in preparing a request this year, we have again attached a checklist containing information we will need to process each of your requested projects.

We are asking that your request(s) for proposed new construction projects be forwarded to us on or before March 1, 2020. We ask that you submit a fully completed checklist for each project requested and include a statement from the governmental entity having jurisdiction accepting perpetual maintenance responsibilities for the project if selected. Please keep our funding limits in mind as you prepare your list of requested projects.

TST staff members may contact you for additional information as they complete the processing of the requested projects.

If you have any questions regarding details of the program or if any questions arise in the development of your project requests, please contact me at (843) 202-6144.

Sincerely,



Devri DeToma, P.E.
Construction Project Manager

cc: Jim Armstrong, Deputy County Administrator Transportation/Public Works
Steve Thigpen, Director of Public Works
Richard Turner, Deputy Director of Public Works

Attachment

PROJECT CHECKLIST
CHARLESTON COUNTY TRANSPORTATION SALES TAX PROGRAM
FY 2019 ANNUAL ALLOCATIONS PROJECTS

Providing as much of the following information as is known, or is applicable, will assist the Transportation Sales Tax Staff in completing the Objective Evaluation and Prioritization Process for each project requested. The Transportation Sales Tax staff acknowledges that not all requesting entities will have access to every item listed below, but accurate and complete information for as many of the items listed as possible will ensure that the benefits of each project are computed properly when all other projects within each category are evaluated.

GENERAL

Requesting Agency: _____

Project Name: _____

Allocation Category Requested:

___ Intersection Improvements

___ Local Paving

___ Pedestrian/Bike Enhancement

Description of Project:

Brief explanation of the need for the project:

Project Location (attach map showing location)

Name of Municipality (if applicable): _____

County Council District: _____

Road Name: _____

Second Road Name: _____
(if Intersection Improvement Project)

Specific Beginning point: _____
(Intersecting street name, specific landmark, distance to closest road, etc.)

Specific Ending point: _____
(Intersecting street name, specific landmark, distance to closest road, etc.)

TECHNICAL PROJECT INFORMATION

For Local Paving Projects-

Number of homes or businesses being served by the project: _____

Average Daily Traffic (VPD) using the road: _____

Does the road serve a school bus route? _____

Does project provide relief to a congested road? _____

Does the project tie to an artery? _____

Does the project tie to a local paved road? _____

Does the project impact significant right of way, known wetlands, grand trees, or
other resources? _____

For Intersection Improvements-

Total number of accidents at this intersection in the last five (5) years: _____

Is the project intended to improve: _____ Safety
_____ Capacity
_____ Access

Does the project impact significant right of way, known wetlands, grand trees, or
other resources? _____

For Pedestrian/Bike Enhancements-

Will the project tie to another similar facility? _____
Total number of accidents at this intersection in the last five (5) years: _____
What type of road will the project serve? _____ Artery
_____ Collector
_____ Neighborhood Street
How many schools are there within the project limits? _____
How many parks are there within the project limits? _____
Is transit present within the project limits? _____
Will the project connect to a Greenbelt? _____

ADDITIONAL PROJECT INFORMATION

If requesting more than one project, the total number of projects being requested: _____

Of the projects being requested, this project ranks as the number _____ priority.
(1 being the highest, 2 being the second highest, etc.)

If available, please provide any cost estimates that you may have prepared for the project for:

_____ Design Services
_____ Right of Way Acquisition
_____ Construction
_____ TOTAL

Please attach any documentation of public support for the project you may have. Also, please provide the dates of such documentation of support.
(Letters of support, petition(s), resolution(s) by city or town council, etc.)

OFFICIAL SEALED BID OPENING
RFB 2019-07 Diesel Generator and Transfer Switch
11:00 p.m., January 3, 2019
Council Chambers in City Hall
1207 Palm Boulevard, Isle of Palms, South Carolina

Present: Assistant City Administrator Hanna

Assistant Administrator Hanna announced the sealed bid opening of the RFB 2019-07 Diesel Generator and Transfer Switch for Public Works Building. He stated that the Request for Bid (RFB) was advertised in accordance with the City's Procurement Code.

Proposals:

1. PAGE Power Systems, Inc. - submitted a bid including the following: Mobilization and Demobilization (\$3,000.00), Demolition and Disposal (\$6,000.00), Site Preparation and New Foundation (\$10,000.00), New Generator and Installation (\$45,494.00), and New Transfer Switch and Installation (\$4,871.00) for a total of (\$69,365.00)

2. Electric Supply Co., Inc. - submitted a bid including the following: Mobilization and Demobilization (\$7,000.00), Demolition and Disposal (\$8,000.00), Site Preparation and New Foundation (\$12,500.00), New Generator and Installation (\$38,000.00), and New Transfer Switch and Installation (\$7,500.00) for a total of (\$73,000.00)

3. Bohicket Construction, LLC.- submitted a bid including the following: Mobilization and Demobilization (\$11,518.00), Demolition and Disposal (\$1,321.00), Site preparation and New Foundation (\$12,538.00), New Generator and Installation (\$34,249.00), and New Transfer Switch and Installation (\$4,510.00) for a total of (\$64,136.00).

Assistant Administrator Hanna indicated that the proposal will be evaluated for accuracy and compliance with the specification as defined in the RFB. A contract will be executed in accordance with the instructions included in the RFB.



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Chattanooga, Gainesville, Atlanta, Augusta, Savannah, Albany, Tallahassee,
Jacksonville, Ocala, Orlando, Tampa, Ft. Myers, West Palm Beach, Miami Lakes, P.R.

Cummins Inc. – South Region

231 Farmington Rd.
Summerville, SC 29483
Direct: (843) 877-1773

DATE: December 18, 2019

Kenneth Luther
Power Generation
Territory Manager
Email: kenneth.luther@cummins.com

Isle of Palms – Public Works Building Generator

**One (1) Cummins Power Generation Diesel Generator model C60D6C, Rated 60 kW
Standby, 120/208 VAC, 3 Phase, 4 wire, with the following options:**

- U.S. EPA, Stationary Emergency Application
- 60HZ
- Duty Rating-Standby Power
- Listing-UL 2200
- NFPA 110 Type 10 Level 1 Capable
- Emissions Certification, EPA, Tier 3, NSPS CI Stationary Emergency
- Enclosure-Aluminum, Weather Protective, w/ Exhaust System
- Enclosure Color-Green, Aluminum Enclosure
- Enclosure - Wind Load 180MPH, ASCE7-10
- Voltage-120/208,3 Phase,Wye,4 Wire
- Alternator-60Hz,Reconnect,Full Output,105C,40C amb, IMS
- Generator Set Control-Power Command 2.3
- Exciter/Regulator-PMG, 3 Phase Sensor
- Engine Governor-Electronic, Isochronous Only
- Gauge-Oil Pressure
- Meters-AC Output, Analog
- Amp Sentry TM Protective Relay
- Stop Switch-Emergency
- Relays-Auxiliary, Quantity 2, (25A-15V DC)/(10A-30V DC)
- Signals - Auxiliary, 8 Inputs/8 Outputs
- Control Mounting-Left Facing
- Load Connection-Single
- Circuit Breaker, 225A,3P,600VAC,80%,UL
- Fuel Tank-Basic, 2 Wall, Sub Base, 24Hr Minimum
- Separator-Fuel/Water
- Switch-Low, 40% Fuel
- Mechanical Fuel Gauge
- Riser-Fuel Tank, 2 inch
- Switch-Fuel Tank, Rupture Basin, Installed
- Engine Starter - 12 VDC Motor
- Battery Charging Alternator-Normal Output
- Engine Cooling-High Ambient Air Temperature
- Warning-Low Coolant Level



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Roanoke, Richmond, Chesapeake, Winchester, Manassas, Knoxville, Nashville,
Chattanooga, Gainesville, Atlanta, Augusta, Savannah, Albany, Tallahassee,
Jacksonville, Ocala, Orlando, Tampa, Ft. Myers, West Palm Beach, Miami Lakes, P.R.**

-
-
- Extension-Engine Coolant Drain
 - Engine Coolant-50% Antifreeze, 50% Water Mixture
 - Coolant Heater, Cold Ambient
 - Engine Air Cleaner-Normal Duty
 - Genset Warranty- Base (2 Year / 1000 Hours)
 - Rack, Larger Battery
 - Extension-Oil Drain
-
-

One (1) Cummins Model OTEC Automatic Transfer Switch

- Open Transition
 - Electronic Control
 - 225Amp
 - Poles-3
 - Listing-UL 1008/CSA Certification
 - Frequency-60 Hertz
 - System-3 Phase, 3 Wire Or 4 Wire
 - Voltage-208 Vac
 - Cabinet-Type 1
 - Battery Charger-15 Ampere, 12 Volt, 50/60 Hertz
 - Auxiliary Relay-12 Vdc Coil-Installed Only
 - Auxiliary Relay-Switch In Emergency Position-12VDC
 - Auxiliary Relay-Switch In Normal Position-12VDC
 - Genset Starting Battery-12VDC
 - Clock-Exercise, External
 - Transfer Switch Warranty - 1 Year Comprehensive
-
-

Generator Start-Up, Testing, & Commissioning

- One hour building load test
- One hour O&M training
- Start-up & alarm verification with a factory trained technician

Delivery

- FOB factory with freight allowed to jobsite, offloading by others.

Current Standard Lead Time

- Generator Set—Twelve (12) weeks after approved submittals
- ATS-Nine (9) weeks after approved submittals



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Chattanooga, Gainesville, Atlanta, Augusta, Savannah, Albany, Tallahassee,
Jacksonville, Ocala, Orlando, Tampa, Ft. Myers, West Palm Beach, Miami Lakes, P.R.**

*****Notes & Clarifications:**

1. The above proposal is based on bid document ***City of Isle of Palms, South Carolina Request for Bids (RFB) 2019-07 Diesel Generator and Transfer Switch for Public Works Workshop; II. Product Scope and Specifications, A, B, D, and E.***
2. All installation shall be provided by others.
3. All permits shall be provided by others.
4. All diesel fuel shall be provided by others.

TERMS AND CONDITIONS FOR SALE OF POWER GENERATION EQUIPMENT

These Terms and Conditions for Sale of Power Generation Equipment, together with the Quote, Sales Order, and/or Credit Application on the front side or attached hereto, are hereinafter referred to as this "Agreement" and shall constitute the entire agreement between the customer identified in the quote ("Customer") and Cummins Inc. ("Cummins") and supersede any previous representation, statements, agreements or understanding (oral or written) between the parties with respect to the subject matter of this Agreement. In the event of any inconsistency between this Agreement and any purchase order or document produced or delivered by Customer, the terms and conditions of this Agreement shall take precedence.

SCOPE. Cummins shall supply power generation equipment and any related parts, materials and/or services expressly identified in this Agreement (collectively, "Equipment"). No additional services, parts or materials are included in this Agreement unless agreed upon by the parties in writing. Any Quote is valid for 60 days. The price is firm provided drawings are approved and returned within 60 days after submission and ship date is not extended beyond published lead times. Any delays may result in escalation charges. A Sales Order for Equipment is accepted on hold for release basis. The Sales Order will not be released and scheduled for production until written approval to proceed is received. A Quote is limited to plans and specifications section set forth in the Quote. No other sections shall apply. Additional requirements for administrative items may require additional costs. The Quote does not include off unit wiring, off unit plumbing, offloading, rigging, installation, exhaust insulation or fuel, unless otherwise stated.

SHIPPING; DELIVERY; DELAYS. Unless otherwise agreed in writing by the parties, Equipment shall be delivered FOB origin, freight prepaid to first destination. For consumer and mobile products, freight will be charged to Customer. Unless otherwise agreed to in writing by the parties, packaging method, shipping documents and manner, route and carrier and delivery shall be as Cummins deems appropriate. Cummins may deliver in installments. A reasonable storage fee, as determined by Cummins, may be assessed if delivery of the Equipment is delayed, deferred, or refused by Customer. Offloading, handling, and placement of Equipment and crane services are the responsibility of Customer and not included unless otherwise stated. All shipments are made within normal business hours, Monday through Friday. Any delivery, shipping, installation, or performance dates indicated in this Agreement are estimated and not guaranteed. Further, delivery time is subject to confirmation at time of order and will be in effect after engineering drawings have been approved for production. Cummins shall use best efforts to meet estimated dates, but shall not be liable to customer or any third party for any delay in delivery, shipping, installation, or performance, however occasioned, including any delays in performance that result directly or indirectly from acts of Customer or any unforeseen event, circumstance, or condition beyond Cummins' reasonable control including, but not limited to, acts of God, actions by any government authority, civil strife, fires, floods, windstorms, explosions, riots, natural disasters, embargos, wars, strikes or other labor disturbances, civil commotion, terrorism, sabotage, late delivery by Cummins' suppliers, fuel or other energy shortages, or an inability to obtain necessary labor, materials, supplies, equipment or manufacturing facilities.

PAYMENT TERMS; CREDIT; RETAINAGE. Unless otherwise agreed to by the parties in writing and subject to credit approval by Cummins, payments are due thirty (30) days from the date of the invoice. If Customer does not have approved credit with Cummins, as solely determined by Cummins, payments are due in advance or at the time of supply of the Equipment. If payment is not received when due, in addition to any rights Cummins may have at law, Cummins may charge Customer eighteen percent (18%) interest annually on late payments, or the maximum amount allowed by law. Customer agrees to pay Cummins' costs and expenses (including reasonable attorneys' fees) related to Cummins' enforcement and collection of unpaid invoices, or any other enforcement of this Agreement by Cummins. Retainage is not acceptable nor binding, unless required by statute or accepted and confirmed in writing by Cummins prior to shipment.

TAXES; EXEMPTIONS. Unless otherwise stated, the Quote excludes all applicable local, state and federal sales and/or use taxes, permits and licensing. Customer must provide a valid resale or exemption certificate prior to shipment of Equipment or applicable taxes will be added to the invoice.

TITLE; RISK OF LOSS. Unless otherwise agreed in writing by the parties, title and risk of loss for the Equipment shall pass to Customer upon delivery of the Equipment by Cummins to freight carrier or to Customer at pickup at Cummins' facility.

INSPECTION AND ACCEPTANCE. Customer shall inspect the Equipment upon delivery, before offloading, for damage, defects, and shortage. Any and all claims which could have been discovered by such inspection shall be deemed absolutely and unconditionally waived unless noted by Customer on the bill of lading. Where Equipment is alleged to be non-conforming or defective, written notice of defect must be given to Cummins within three (3) days from date of delivery after which time Equipment shall be deemed accepted. Cummins shall have a commercially reasonable period of time in which to correct such non-conformity or defect. If non-conformity or defect is not eliminated to Customer's satisfaction, Customer may reject the Equipment (but shall protect the Equipment until returned to Cummins) or allow Cummins another opportunity to undertake corrective action. In the event startup of the Equipment is included in the services, acceptance shall be deemed to have occurred upon successful startup.



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LIEN; SECURITY AGREEMENT. Customer agrees that Cummins retains all statutory lien rights. To secure payment, Customer grants Cummins a Purchase Money Security Interest in the Equipment. If any portion of the balance is due to be paid following delivery, Customer agrees to execute and deliver such security agreement, financing statements, deed of trust and such other documents as Cummins may request from time to time in order to permit Cummins to obtain and maintain a perfected security interest in the Equipment; or in the alternative, Customer grants Cummins a power of attorney to execute and file all financing statements and other documents needed to perfect this security interest. Cummins may record this Agreement, bearing Customer's signature, or copy of this Agreement in lieu of a UCC-1, provided that it shall not constitute an admission by Cummins of the applicability or non-applicability of the UCC nor shall the failure to file this form or a UCC-1 in any way affect, alter, or invalidate any term, provision, obligation or liability under this Agreement. The security interest shall be superseded if Customer and Cummins enter into a separate security agreement for the Equipment. Prior to full payment of the balance due, Equipment will be kept at Customer's location noted in this Agreement, will not be moved without prior notice to Cummins, and is subject to inspection by Cummins at all reasonable times.

CANCELLATION; CHARGES. Orders placed with and accepted by Cummins may not be cancelled except with Cummins' prior written consent. If Customer seeks to cancel all or a portion of an order placed pursuant to this Agreement, and Cummins accepts such

cancellation in whole or in part, Cummins may charge Customer a cancellation charge in accordance with current Cummins policy which is available upon request, in addition to the actual, non-recoverable costs incurred by Cummins.

MANUALS. Unless otherwise stated, electronic submittals and electronic operation and maintenance manuals will be provided, and print copies may be available upon Customer's request at an additional cost.

TRAINING; START UP SERVICES; INSTALLATION. Startup services, load bank testing, and owner training are not provided unless otherwise stated. Site startup will be subject to the account being current and will be performed during regular Cummins business hours, Monday to Friday. Additional charges may be added for work requested to be done outside standard business hours, on weekends, or holidays. One visit is allowed unless specified otherwise in the Quote. A minimum of two-week prior notice is required to schedule site startups and will be subject to prior commitments and equipment and travel availability. A signed site check sheet confirming readiness will be required, and Cummins personnel may perform an installation audit prior to the startup being completed. Any issues identified by the installation audit shall be corrected at the Customer's expense prior to the start-up. Portable load banks for site test (if offered in the Quote) are equipped with only 100 feet of cable. Additional lengths may be arranged at an extra cost. Cummins is not responsible for any labor or materials charged by others associated with start-up and installation of Equipment, unless previously agreed upon in writing. Supply of fuel for start-up and/or testing, fill-up of tank after start up, or change of oil is not included unless specified in the Quote. All installation/execution work at the site including, but not limited to: civil, mechanical, electrical, supply of wall thimbles, exhaust extension pipe, elbows, hangers, expansion joints, insulation and cladding materials, fuel/oil/cooling system piping, air ducts, and louvers/dampers is not included unless specified in the Quote. When an enclosure or sub-base fuel tank (or both) are supplied, the openings provided for power cable and fuel piping entries, commonly referred to as "stub-ups", must be sealed at the site by others before commissioning. All applications, inspections and/or approvals by authorities are to be arranged by Customer.

MANUFACTURER'S WARRANTY. Equipment purchased hereunder is accompanied by an express written manufacturer's warranty ("Warranty") and, except as expressly provided in this Agreement, is the only warranty offered on the Equipment. A copy of the Warranty is available upon request. While this Agreement and the Warranty are intended to be read and applied in conjunction, where this Agreement and the Warranty conflict, the terms of the Warranty shall prevail.

WARRANTY PROCEDURE. Prior to the expiration of the Warranty, Customer must give notice of a warrantable failure to Cummins and deliver the defective Equipment to a Cummins location or other location authorized and designated by Cummins to make the repairs during regular business hours. Cummins shall not be liable for towing charges, maintenance items such as oil filters, belts, hoses, etc., communication expenses, meals, lodging, and incidental expenses incurred by Customer or employees of Customer, "downtime" expenses, overtime expenses, cargo damages and any business costs and losses of revenue resulting from a warrantable failure.

LIMITATIONS ON WARRANTIES

THE REMEDIES PROVIDED IN THE WARRANTY AND THIS AGREEMENT ARE THE SOLE AND EXCLUSIVE WARRANTIES AND REMEDIES PROVIDED BY CUMMINS TO THE CUSTOMER UNDER THIS AGREEMENT. EXCEPT AS SET OUT IN THE WARRANTY AND THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY LAW, CUMMINS EXPRESSLY DISCLAIMS ALL OTHER REPRESENTATIONS, WARRANTIES, ENDORSEMENTS, AND CONDITIONS OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY STATUTORY OR COMMON LAW IMPLIED REPRESENTATIONS, WARRANTIES AND CONDITIONS OF FITNESS FOR A PURPOSE OR MERCHANTABILITY.

The limited warranty does not cover Equipment failures resulting from: (a) inappropriate use relative to designated power rating; (b) inappropriate use relative to application guidelines; (c) inappropriate use of an EPA-SE application generator set relative to EPA's standards; (d) normal wear and tear; (e) improper and/or unauthorized installation; (f) negligence, accidents, or misuse; (g) lack of maintenance or unauthorized or improper repair; (h) noncompliance with any Cummins published guideline or policy; (i) use of improper or contaminated fuels, coolants, or lubricants; (j) improper storage before and after commissioning; (k) owner's delay in making Equipment available after notification of potential Equipment problem; (l) replacement parts and accessories not authorized by Cummins; (m) use of battle short mode; (n) owner or operator abuse or neglect such as: operation without adequate coolant, fuel, or lubricants; over fueling; over speeding; lack of maintenance to lubricating, fueling, cooling, or air intake systems; late servicing and maintenance; improper storage, starting,



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warm-up, running, or shutdown practices, or for progressive damage resulting from a defective shutdown or warning device; or (o) damage to parts, fixtures, housings, attachments and accessory items that are not part of the generating set.

INDEMNITY. Customer shall indemnify, defend and hold harmless Cummins from and against any and all claims, actions, costs, expenses, damages and liabilities, including reasonable attorneys' fees, brought against or incurred by Cummins related to or arising out of this Agreement or the Equipment supplied under this Agreement (collectively, the "Claims"), where such Claims were caused or contributed to by, in whole or in part, the acts, omissions, fault or negligence of the Customer. Customer shall present any Claims covered by this indemnity to its insurance carrier unless Cummins directs that the defense will be handled by Cummins' legal counsel at Customer's expense.

LIMITATION OF LIABILITY

NOTWITHSTANDING ANY OTHER TERM OF THIS AGREEMENT, IN NO EVENT SHALL CUMMINS, ITS OFFICERS, DIRECTORS, EMPLOYEES, OR AGENTS BE LIABLE TO CUSTOMER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING WITHOUT LIMITATION DOWNTIME, LOSS OF PROFIT OR REVENUE, LOSS OF DATA, LOSS OF OPPORTUNITY, DAMAGE TO GOODWILL, ENHANCED DAMAGES, MONETARY REQUESTS RELATING TO RECALL EXPENSES AND REPAIRS TO PROPERTY, AND/OR DAMAGES CAUSED BY DELAY) IN ANY WAY RELATED TO OR ARISING FROM CUMMINS' SUPPLY OF EQUIPMENT UNDER THIS AGREEMENT OR THE USE OR PERFORMANCE OF EQUIPMENT SUPPLIED UNDER THIS AGREEMENT. IN NO EVENT SHALL CUMMINS' LIABILITY TO CUSTOMER OR ANY THIRD PARTY CLAIMING DIRECTLY THROUGH CUSTOMER OR ON CUSTOMER'S BEHALF UNDER THIS AGREEMENT EXCEED THE TOTAL COST OF EQUIPMENT SUPPLIED BY CUMMINS UNDER THIS AGREEMENT GIVING RISE TO THE CLAIM. BY ACCEPTANCE OF THIS AGREEMENT, CUSTOMER ACKNOWLEDGES CUSTOMER'S SOLE REMEDY AGAINST CUMMINS FOR ANY LOSS SHALL BE THE REMEDY PROVIDED HEREIN EVEN IF THE EXCLUSIVE REMEDY UNDER THE WARRANTY IS DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE.

DEFAULT; REMEDIES. Customer shall be in breach and default if: (a) any of the payments or amounts due under this Agreement are not paid; (b) Customer fails to comply, perform, or makes any misrepresentation relating to any of the Customer's obligations or covenants under this Agreement; or (c) prior to full payment of the balance due, Customer ceases to do business, becomes insolvent, makes an assignment for the benefit of its creditors, appoints a receiver, commences an action for dissolution or liquidation, or becomes subject to bankruptcy proceedings, or the Equipment is attached, levied upon, seized under legal process, is subjected to a lien or encumbrance, or transferred by operation of law or otherwise to anyone other than Cummins.

Upon the occurrence of any event of Customer's default, Cummins, at its sole option and without notice, shall have the right to exercise concurrently or separately any one or all of the following remedies, which shall be cumulative and not alternative: (a) to declare all sums due, and to become due, under this Agreement immediately due and payable; (b) to commence legal proceedings, including collection actions and specific performance proceedings, to enforce performance by Customer of any and all provisions of this Agreement, and to be awarded damages or injunctive relief for the Customer's breach; (c) to require the Customer to deliver the Equipment to Cummins' branch specified on the face of this Agreement; (d) to exercise one or more of the rights and remedies available to a secured party under applicable law; and (e) to enter, without notice or liability or legal process, onto any premises where the Equipment may be located, using force permitted by law, and there to disconnect, remove and repossess the Equipment, the Customer having waived further right to possession after default. A waiver of any event of default by Cummins shall not be a waiver as to any other or subsequent default.

CUSTOMER REPRESENTATIONS; RELIANCE. Customer is responsible for obtaining, at its cost, permits, import licenses, and other consents in relation to the Equipment, and if requested by Cummins, Customer shall make these permits, licenses, and consents available to Cummins prior to shipment. Customer represents that it is familiar with the Equipment and understands operating instructions and agrees to perform routine maintenance services. Until the balance is paid in full, Customer shall care for the Equipment properly, maintain it in good operating condition, repair and appearance; and Customer shall use it safely and within its rated capacity and only for purpose it was designed. Even if Customer's purchase of Equipment from Cummins under this Agreement is based, in whole or in part, on specifications, technical information, drawings, or written or verbal advice of any type from third parties, Customer has sole responsibility for the accuracy, correctness and completeness of such specifications, technical information, drawings, or advice. Cummins make no warranties or representations respecting the accuracy, correctness and completeness of any specifications, technical information, drawings, advice or other information provided by Cummins. Cummins makes no warranties or representations respecting the suitability, fitness for intended use, compatibility, integration or installation of any Equipment supplied under this Agreement. Customer has sole responsibility for intended use, for installation and design and performance where it is part of a power, propulsion, or other system. Limitation of warranties and remedies and all disclaimers apply to all such technical information, drawings, or advice. Customer acknowledges and agrees by accepting delivery of the Equipment that the Equipment purchased is of the size, design, capacity and manufacture selected by the Customer, and that Customer has relied solely on its own judgment in selecting the Equipment.

CONFIDENTIALITY. Each party shall keep confidential any information received from the other that is not generally known to the public and at the time of disclosure, would reasonably be understood by the receiving party to be proprietary or confidential, whether disclosed in oral, written, visual, electronic, or other form, and which the receiving party (or agents) learns in connection with this Agreement including, but not limited to: (a) business plans, strategies, sales, projects and analyses; (b) financial information, pricing,



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and fee structures; (c) business processes, methods, and models; (d) employee and supplier information; (e) specifications; and (f) the terms and conditions of this Agreement. Each party shall take necessary steps to ensure compliance with this provision by its employees and agents.

GOVERNING LAW AND JURISDICTION. This Agreement and all matters arising hereunder shall be governed by and construed in accordance with the laws of the State of Indiana without giving effect to any choice or conflict of law provision. The parties agree that the courts of the State of Indiana shall have exclusive jurisdiction to settle any dispute or claim arising in connection with this Agreement.

INSURANCE. Upon Customer's request, Cummins will provide to Customer a Certificate of Insurance evidencing Cummins' relevant insurance coverage.

ASSIGNMENT. This Agreement shall be binding on the parties and their successors and assigns. Customer shall not assign this Agreement without the prior written consent of Cummins.

INTELLECTUAL PROPERTY. Any intellectual property rights created by either party, whether independently or jointly, in the course of the performance of this Agreement or otherwise related to Cummins pre-existing intellectual property or subject matter related thereto, shall be Cummins' property. Customer agrees to assign, and does hereby assign, all right, title, and interest to such intellectual property to Cummins. Any Cummins pre-existing intellectual property shall remain Cummins' property. Nothing in this Agreement shall be deemed to have given Customer a licence or any other rights to use any of the intellectual property rights of Cummins.

MISCELLANEOUS. Cummins shall be an independent contractor under this Agreement.

All notices under this Agreement shall be in writing and be delivered personally, mailed via first class certified or registered mail, or sent by a nationally recognized express courier service to the addresses set forth in this Agreement.

No amendment of this Agreement shall be valid unless it is writing and signed by the parties hereto. Failure of either party to require performance by the other party of any provision hereof shall in no way affect the right to require such performance at any time thereafter, nor shall the waiver by a party of a breach of any of the provisions hereof constitute a waiver of any succeeding breach.

Any provision of this Agreement that is invalid or unenforceable shall not affect the validity or enforceability of the remaining terms hereof.

These terms are exclusive and constitute entire agreement. Customer acknowledges that the provisions were freely negotiated and bargained for and Customer has agreed to purchase of the Equipment pursuant to these terms and conditions. Acceptance of this Agreement is expressly conditioned on Customer's assent to all such terms and conditions. Neither party has relied on any statement, representation, agreement, understanding, or promise made by the other except as expressly set out in this Agreement. In the event of a conflict in the terms of this Agreement with any Customer terms or conditions or agreement (whether referenced in an order submitted by Customer as the terms that govern the purchase of the Equipment or otherwise) or any terms set forth in any other documentation of Customer with respect to the Equipment, the terms of this Agreement shall govern.

Cummins may incur additional charges which will be passed on to the Customer, as applicable.

COMPLIANCE. Customer shall comply with all laws applicable to its activities under this Agreement, including, without limitation, any and all applicable federal, state, and local anti-bribery, environmental, health, and safety laws and regulations then in effect. Customer acknowledges that the Equipment, and any related technology that are sold or otherwise provided hereunder may be subject to export and other trade controls restricting the sale, export, re-export and/or transfer, directly or indirectly, of such Equipment or technology to certain countries or parties, including, but not limited to, licensing requirements under applicable laws and regulations of the United States, the United Kingdom and other jurisdictions. It is the intention of Cummins to comply with these laws, rules, and regulations. Any other provision of this Agreement to the contrary notwithstanding, Customer shall comply with all such applicable all laws relating to the cross-border movement of goods or technology, and all related orders in effect from time to time, and equivalent measures. Customer shall act as the importer of record with respect to the Equipment and shall not resell, export, re-export, distribute, transfer, or dispose of the Equipment or related technology, directly or indirectly, without first obtaining all necessary written permits, consents, and authorizations and completing such formalities as may be required under such laws, rules, and regulations. In addition, Cummins has in place policies not to distribute its products for use in certain countries based on applicable laws and regulations including but not limited to UN, U.S., UK, and European Union regulations. Customer undertakes to perform its obligations under this Agreement with due regard to these policies. Strict compliance with this provision and all laws of the territory pertaining to the importation, distribution, sales, promotion and marketing of the Equipment is a material consideration for Cummins entering into this Agreement with Customer and continuing this Agreement for its term. Customer represents and warrants that it has not and shall not, directly or through any intermediary, pay, give, promise to give or offer to give anything of value to a government official or representative, a political party official, a candidate for political office, an officer or employee of a public international organization or any other person, individual or entity at the suggestion, request or direction or for the benefit of any of the above-described persons and entities for the purposes of inducing such person to use his influence to assist Cummins in obtaining or retaining business or to benefit Cummins or any other person in any way, and will not otherwise breach any applicable laws relating to anti-bribery. Any failure by Customer to comply with these provisions will constitute a default giving Cummins the right to immediate termination of this Agreement and/or the right to elect not to recognize the warranties associated with the Equipment. Customer shall accept full responsibility for any and all civil or criminal liabilities and costs arising from any breaches of those laws and regulations and will defend, indemnify, and hold Cummins harmless from and against any and all fines, penalties, claim, damages, liabilities, judgments, costs, fees, and expenses incurred by Cummins or its affiliates as a result of Customer's breach.

I hereby accept and agree to the terms and conditions stated above and accept the proposal as quoted:



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Acceptance: _____

Date: _____

**Hard Copy PO; No _____ Yes _____, PO # _____ (Please attach hard
copy PO to proposal if supplying)**

—We appreciate your interest in Cummins Power Generation and look forward to serving you.

Kenneth Luther

Power Generation, Territory Manager

Direct: (843) 877-1773

Email: kenneth.luther@cummins.com

A regional power leader, Cummins is a corporation of complementary business units that design, up-fit, distribute, and service electric power generation systems, engines, and related technologies, including fuel systems, controls, air handling, filtration, and emissions solutions. Cummins serves the markets of; Automotive, Trucking, Power Generation, Construction, Marine, Logging, Agriculture. When you buy a Cummins diesel engine, natural gas engine or Onan generator from Cummins, you can be sure you have a dependable product backed by a reliable service team. Together we make people's lives better by unleashing the power of Cummins. Cummins Standards are Safety, Caring, Dependability, and Responsiveness. Our Customer Support Philosophy is "We create confidence by delivering dependable solutions through industry leading products, support, and experience."



Diesel generator set

QSB5 series engine

50-125 kW Standby

EPA Tier 3 emissions



Description

Cummins® generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby applications.

Features

Heavy duty engine - Rugged 4-cycle industrial diesel delivers reliable power 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 and fault clearing short-circuit capability.

Control system - The PowerCommand® 1.1 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance. The PowerCommand 2.3 control is also optional and is UL 508 Listed and provides AmpSentry™ protection.

Cooling system - Standard cooling package provides reliable running at up to 50 °C (122 °F) ambient temperature.

Enclosures - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminium material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been evaluated to withstand 180 MPH wind loads in accordance with ASCE7 -10. The design has hinged doors to provide easy access for service and maintenance.

Fuel tanks - Dual wall sub-base fuel tanks are offered as optional features, providing economical and flexible solutions to meet extensive code requirements on diesel fuel tanks.

NFPA - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

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

Model	Standby 60 Hz		Prime 60 Hz		Data sheets
	kW	kVA	kW	kVA	
C50D6C	50	63	45	56	NAD-6212-EN
C60D6C	60	75	54	68	NAD-6213-EN
C80D6C	80	100	72	90	NAD-6214-EN
C100D6C	100	125	90	113	NAD-6215-EN
C125D6C	125	156	112.5	141	NAD-6216-EN

Generator set specifications

Governor regulation class	ISO8528 Part 1 Class G3
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.50%
Radio frequency emissions compliance	FCC code title 47 part 15 class A and B

Engine specifications

Design	Turbocharged and charge air cooled
Bore	107 mm (4.21 in.)
Stroke	124 mm (4.88 in.)
Displacement	4.5 L (272 in³)
Cylinder block	Cast iron, in-line 4 cylinder
Battery capacity	850 amps per battery at ambient temperature of 0 °C (32 °F)
Battery charging alternator	100 amps
Starting voltage	2 x 12 volt in parallel, negative ground
Lube oil filter type(s)	Spin-on with relief valve
Standard cooling system	High ambient radiator
Rated speed	1800 rpm

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120 °C (248 °F) Standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
AC waveform Total Harmonic Distortion (THDV)	< 5% 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%

Available voltages

1-phase		3-phase			
• 120/240	• 120/208	• 120/240	• 277/480	• 347/600	• 127/220

Generator set options

Fuel system

- Basic fuel tanks
- Regional fuel tanks

Engine

- Engine air cleaner – normal or heavy duty
- Shut down – low oil pressure
- Extension – oil drain
- Engine oil heater

Alternator

- 120 °C temperature rise alternator
- 105 °C temperature rise alternator
- PMG excitation
- Alternator heater, 120 V
- Reconnectable full 1 phase output alternator

Control

- AC output analog meters
- Stop switch – emergency
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)

Electrical

- One, two or three circuit breaker configurations
- 80% rated circuit breakers
- 80% or 100% rated LSI circuit breakers
- Battery charger

Enclosure

- Aluminium enclosure Sound Level 1 or Level 2, sandstone or green color
- Aluminium weather protective enclosure with muffler installed, green color

Cooling system

- Shutdown – low coolant level
- Warning – low coolant level
- Extension – coolant drain
- Coolant heater options:
 - <4 °C (40 °F) – cold weather
 - <-18 °C (0 °F) – extreme cold

Exhaust system

- Exhaust connector NPT
- Exhaust muffler mounted

Generator set application

- Base barrier – elevated genset
- Radiator outlet duct adapter

Warranty

- Base warranty – 2 year/1000 hours, Standby
- Base warranty – 1 year/unlimited hours, Prime
- 3 year Standby warranty options
- 5 year Standby warranty options

Generator set accessories

- Coolant heater
- Battery heater kit
- Engine oil heater
- Remote control displays
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)
- Annunciator – RS485
- Audible alarm
- Remote monitoring device – PowerCommand 500/550
- Battery charger – stand-alone, 12 V
- Circuit breakers
- Enclosure Sound Level 1 to Sound Level 2 upgrade kit
- Base barrier – elevated generator set
- Mufflers – industrial, residential or critical
- Alternator PMG excitation
- Alternator heater

Control system PowerCommand 1.1



PowerCommand control is an integrated generator set control system providing voltage regulation, engine protection, operator interface and isochronous governing (optional). Major features include:

- Battery monitoring and testing features and smart starting control system.
- Standard PCCNet interface to devices such as remote annunciator for NFPA 110 applications.
- Control boards potted for environmental protection.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.

Operator/display panel

- Manual off switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating generator set running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -40 °C to +70 °C
- Bargraph display (optional)

AC protection

- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload

Engine protection

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown

- Low coolant temperature warning
- High, low and weak battery voltage warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown

Alternator data

- Line-to-Line and Line-to-neutral AC volts
- 3-phase AC current
- Frequency
- Total kVA

Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Engine speed

Other data

- Generator set model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 2-phase Line-to-Line sensing
- Configurable torque matching

Control functions

- Time delay start and cooldown
- Cycle cranking
- PCCNet interface
- (2) Configurable inputs
- (2) Configurable outputs
- Remote emergency stop
- Automatic Transfer Switch (ATS) control
- Generator set exercise, field adjustable

Options

- Auxiliary output relays (2)
- Remote annunciator with (3) configurable inputs and (4) configurable outputs
- PMG alternator excitation
- PowerCommand 500/550 for remote monitoring and alarm notification (accessory)
- Auxiliary, configurable signal inputs (8) and configurable relay outputs (8)

- AC output analog meters (bargraph)
 - Color-coded graphical display of:
 - 3-phase AC voltage
 - 3-phase current
 - Frequency
 - kVa
- Remote operator panel
- PowerCommand 2.3 control with AmpSentry protection

Ratings definitions

Emergency Standby Power (ESP):

Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time Running Power (LTP):

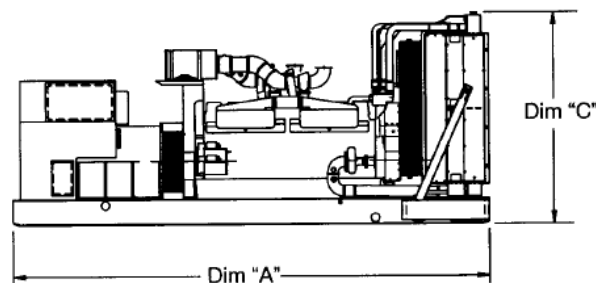
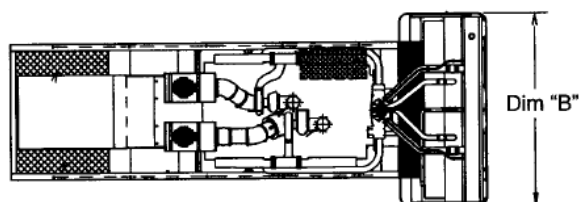
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.





Do not use for installation design

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set weight* kg (lbs.)
Open set				
C50D6C	2482 (98)	965 (38)	1321 (52)	958 (2113)
C60D6C	2482 (98)	965 (38)	1321 (52)	1006 (2217)
C80D6C	2482 (98)	965 (38)	1321 (52)	1054 (2324)
C100D6C	2482 (98)	965 (38)	1321 (52)	1106 (2439)
C125D6C	2482 (98)	965 (38)	1321 (52)	1173 (2586)
Weather protective enclosure				
C50D6C	2482 (98)	1016 (40)	1473 (58)	1039 (2290)
C60D6C	2482 (98)	1016 (40)	1473 (58)	1087 (2396)
C80D6C	2482 (98)	1016 (40)	1473 (58)	1135 (2503)
C100D6C	2482 (98)	1016 (40)	1473 (58)	1187 (2618)
C125D6C	2482 (98)	1016 (40)	1473 (58)	1254 (2765)
Sound attenuated enclosure Level 1				
C50D6C	3016 (119)	1016 (40)	1473 (58)	1221 (2693)
C60D6C	3016 (119)	1016 (40)	1473 (58)	1137 (2507)
C80D6C	3016 (119)	1016 (40)	1473 (58)	1185 (2614)
C100D6C	3016 (119)	1016 (40)	1473 (58)	1237 (2729)
C125D6C	3016 (119)	1016 (40)	1473 (58)	1304 (2876)
Sound attenuated enclosure Level 2				
C50D6C	3456 (136)	1016 (40)	1473 (58)	1228 (2708)
C60D6C	3456 (136)	1016 (40)	1473 (58)	1144 (2522)
C80D6C	3456 (136)	1016 (40)	1473 (58)	1192 (2629)
C100D6C	3456 (136)	1016 (40)	1473 (58)	1244 (2744)
C125D6C	3456 (136)	1016 (40)	1473 (58)	1311 (2891)

* Weights above are average. Actual weight varies with product configuration.

Codes and standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.		The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies.
	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.	U.S. EPA	Engine certified to U.S. EPA SI Stationary Emission Regulation 40 CFR, Part 60.
	All low voltage models are CSA certified to product class 4215-01.	International Building Code	The generator set is certified to International Building Code (IBC) 2012.

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit power.cummins.com

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Generator set data sheet

Model: C60D6C
Frequency: 60 Hz
Fuel type: Diesel
KW rating: 60 standby
54 prime
Emissions level: EPA Tier 3, Stationary emergency

Exhaust emission data sheet:	EDS-2027
Exhaust emission compliance sheet:	EPA-3034
Sound performance data sheet:	MSP-1301
Cooling performance data sheet:	MCP-1401
Prototype test summary data sheet:	PTS-450

Fuel consumption	Standby				Prime			
	kW (kVA)				kW (kVA)			
Ratings	60 (75)				54 (68)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	2.20	3.30	4.60	6.10	2.1	3.00	4.20	5.50
L/hr	8.33	12.49	17.41	23.09	7.95	11.36	15.90	20.82

Engine	Standby rating	Prime rating
Engine manufacturer	Cummins Inc.	
Engine model	QSB5-G13	
Configuration	Cast iron, in-line, 4 cylinder	
Aspiration	Turbocharged and charge air cooled	
Gross engine power output, kWm (bhp)	129 (173)	113 (152)
BMEP at set rated load, kPa (psi)	1205 (174.7)	1083 (157.1)
Bore, mm (in)	107 (4.21)	
Stroke, mm (in)	124 (4.88)	
Rated speed, rpm	1800	
Piston speed, m/s (ft/min)	7.44 (1464)	
Compression ratio	17.3:1	
Lube oil capacity, L (qt)	12.2 (12.9)	
Overspeed limit, rpm	2250	

Fuel flow

Maximum fuel flow, L/hr (US gph)	133 (35.0)
Maximum fuel inlet restriction with clean filter, mm Hg (in Hg)	127 (5.0)

Air	Standby rating	Prime rating
Combustion air, m ³ /min (scfm)	9.63 (340)	9.34 (330)
Maximum air cleaner restriction with clean filter, kPa (in H ₂ O)	1.25 (5)	

Exhaust

Exhaust flow at set rated load, m ³ /min (cfm)	20 (696)	18.52 (654)
Exhaust temperature, °C (°F)	370 (697)	341 (645)
Maximum back pressure, kPa (in H ₂ O)	10 (40.18)	10(40.18)
Available exhaust back pressure with CPG sound level 2 enclosure muffler, kPa (in H ₂ O)	3.5 (14.1)	4.5 (18.1)
Available exhaust back pressure with CPG weather enclosure muffler, kPa (in H ₂ O)	4.5 (18.1)	5 (20.1)

Standard set-mounted radiator cooling

Ambient design, °C (°F)	50 (122)	
Fan load, kW _m (HP)	5.22 (7)	
Coolant capacity (with radiator), L (US Gal)	16 (4.2)	
Cooling system air flow, m ³ /min (scfm)	218.04 (7700)	
Total heat rejection, MJ/min (Btu/min)	8.96 (8491)	8.38 (7943)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)	

Weight²

Unit wet weight kgs (lbs)	1006 (2217)
---------------------------	-------------

Notes:

¹ For non-standard remote installations contact your local Cummins Power Generation representative.

² Weights represent a set with standard features. See outline drawing for weights of other configurations.

Derating factors

Standby	Engine power available to 3581 m (11750 ft) and ambient temperatures up to 40°C (104°F). Above these conditions, derate at 2.2% per 300 m (1000 ft) and 16.1% per 10°C (18°F)
Prime	Engine power available to 4343 m (14250 ft) and ambient temperatures up to 40°C (104°F). Above these conditions, derate at 2.3% per 300 m (1000 ft) and 18.8% per 10°C (18°F)

Ratings definitions

Emergency standby power (ESP):	Limited-time running power (LTP):	Prime power (PRP):	Base load (continuous) power (COP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

Alternator data

Standard Alternators	Single phase ²		Three phase ¹				
Maximum temperature rise above 40 °C ambient	120 °C	120 °C	120 °C	120 °C	120 °C	120 °C	120 °C
Feature code	BB88-2 ³	BB90-2	B946-2	B986-2	B943-2	B952-2	BB86-2
Alternator data sheet number	ADS-205	ADS-204	ADS-204	ADS-204	ADS-204	ADS-202	ADS-204
Voltage ranges	120/240	120/240	120/208	120/240	277/480	347/600	127/220
Voltage feature code	R104-2	R104-2	R098-2	R106-2	R002-2	R114-2	R020-2
Surge kW	69.3	71.0	73.3	73.3	73.9	72.6	73.5
Motor starting kVA (at 90% sustained voltage) Shunt			231	231	231	188	231
Motor starting kVA (at 90% sustained voltage) PMG			272	272	272	221	272
Full load current amps at standby rating	250	250	208	181	90	72	197

Alternator data

Standard Alternators	Single phase ²		Three phase ¹				
Maximum temperature rise above 40 °C ambient	105 °C	105 °C	105 °C	105 °C	105 °C	105 °C	105 °C
Feature code	BB87-2 ³	BB91-2	BB93-2	BB94-2	BB95-2	BB92-2	BB85-2
Alternator data sheet number	ADS-207	ADS-205	ADS-204	ADS-204	ADS-204	ADS-204	ADS-204
Voltage ranges	120/240	120/240	120/208	120/240	277/480	347/600	127/220
Voltage feature code	R104-2	R104-2	R098-2	R106-2	R002-2	R114-2	R020-2
Surge kW	70.2	71.7	73.3	73.3	73.9	73.9	73.5
Motor starting kVA (at 90% sustained voltage) Shunt			231	231	231	231	231
Motor starting kVA (at 90% sustained voltage) PMG			272	272	272	272	272
Full load current amps at standby rating	250	250	208	181	90	72	197

Notes:

¹ Single phase power can be taken from a three phase generator set at up to 2/3 set rated 3-phase kW at 1.0 power factor

² Full single phase output up to full set rated 3-phase kW at 1.0 power factor

³ Reconnectable option

Formulas for calculating full load currents:

Three phase output	Single phase output
$\frac{\text{kW} \times 1000}{\text{Voltage} \times 1.73 \times 0.8}$	$\frac{\text{kW} \times \text{SinglePhaseFactor} \times 1000}{\text{Voltage}}$

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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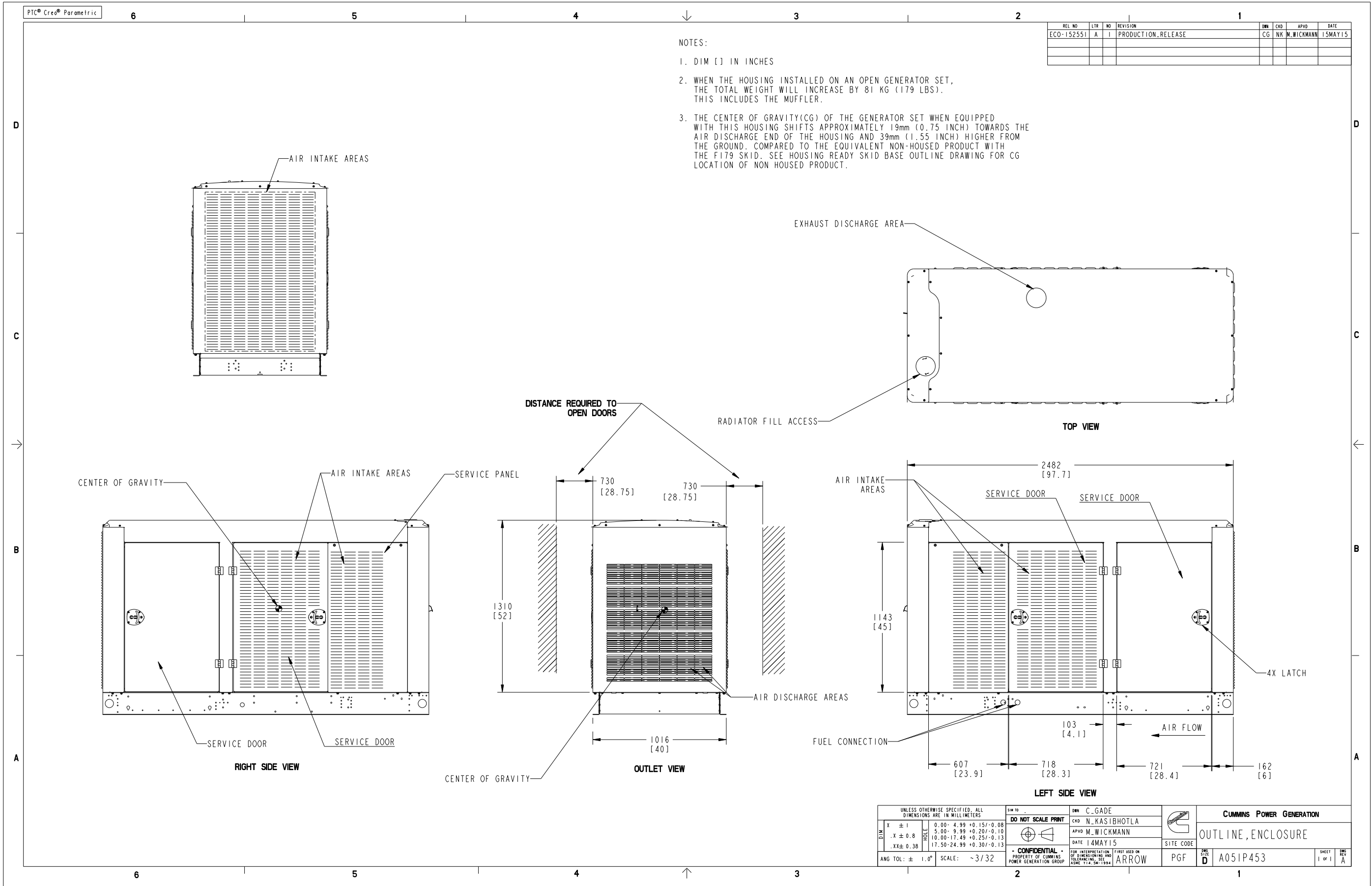
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Fax 763 574 5298

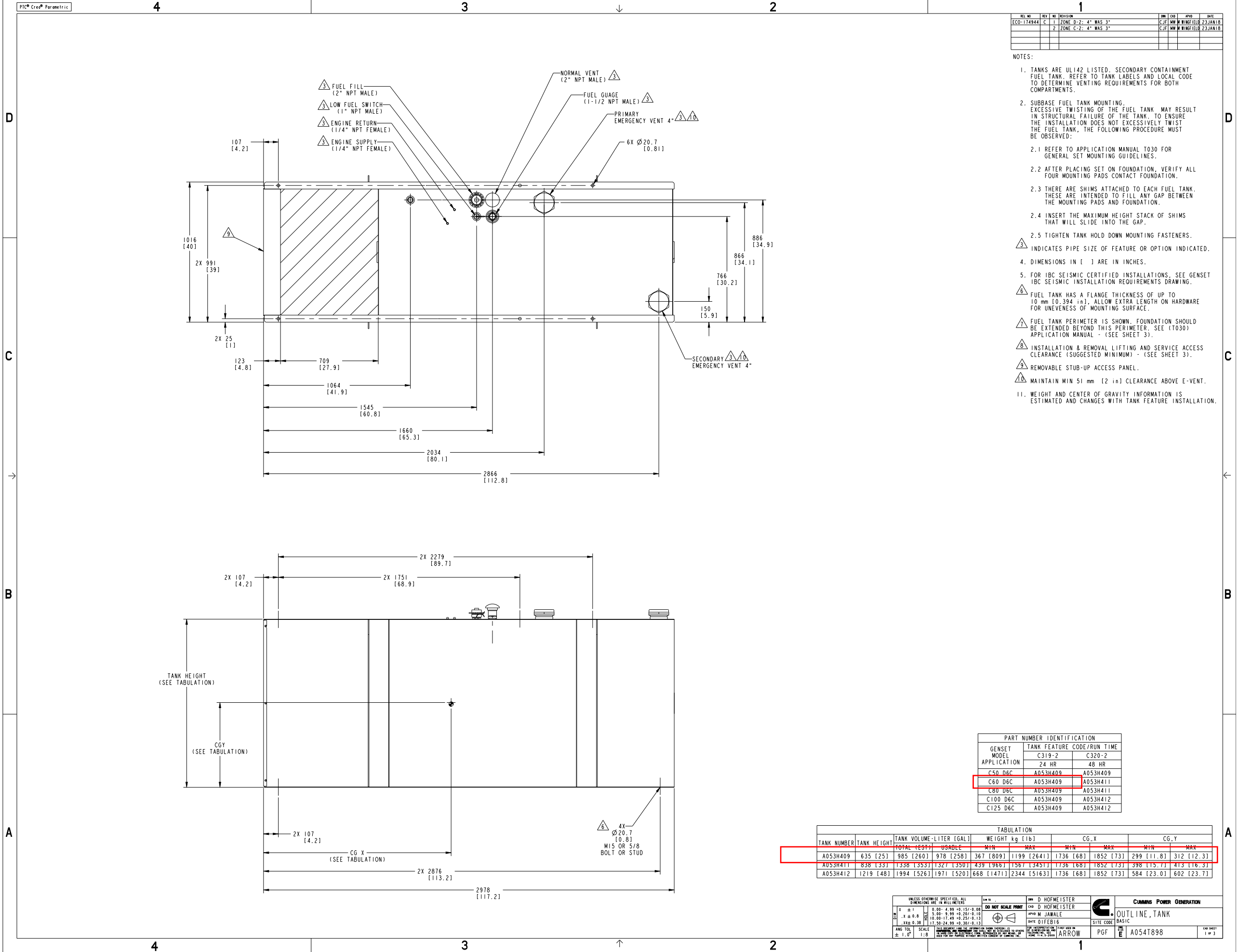
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NAD-6334-EN (03/18) A059X434



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REL NO	REV	NO	REVISION	REV	NO	APPRO	DATE
ECO-174944	C	1	ZONE D-2: 4" WAS 3"	C	JF	M WINGFIELD	23 JAN 18
		2	ZONE C-2: 4" WAS 3"	C	JF	M WINGFIELD	23 JAN 18

- NOTES:
- TANKS ARE UL142 LISTED. SECONDARY CONTAINMENT FUEL TANK. REFER TO TANK LABELS AND LOCAL CODE TO DETERMINE VENTING REQUIREMENTS FOR BOTH COMPARTMENTS.
 - SUBBASE FUEL TANK MOUNTING. EXCESSIVE TWISTING OF THE FUEL TANK MAY RESULT IN STRUCTURAL FAILURE OF THE TANK. TO ENSURE THE INSTALLATION DOES NOT EXCESSIVELY TWIST THE FUEL TANK, THE FOLLOWING PROCEDURE MUST BE OBSERVED:
 - REFER TO APPLICATION MANUAL T030 FOR GENERAL SET MOUNTING GUIDELINES.
 - AFTER PLACING SET ON FOUNDATION, VERIFY ALL FOUR MOUNTING PADS CONTACT FOUNDATION.
 - THERE ARE SHIMS ATTACHED TO EACH FUEL TANK. THESE ARE INTENDED TO FILL ANY GAP BETWEEN THE MOUNTING PADS AND FOUNDATION.
 - INSERT THE MAXIMUM HEIGHT STACK OF SHIMS THAT WILL SLIDE INTO THE GAP.
 - TIGHTEN TANK HOLD DOWN MOUNTING FASTENERS.
 - INDICATES PIPE SIZE OF FEATURE OR OPTION INDICATED.
 - DIMENSIONS IN [] ARE IN INCHES.
 - FOR IBC SEISMIC CERTIFIED INSTALLATIONS, SEE GENSET IBC SEISMIC INSTALLATION REQUIREMENTS DRAWING.
 - FUEL TANK HAS A FLANGE THICKNESS OF UP TO 10 mm [0.394 in], ALLOW EXTRA LENGTH ON HARDWARE FOR UNEVENNESS OF MOUNTING SURFACE.
 - FUEL TANK PERIMETER IS SHOWN. FOUNDATION SHOULD BE EXTENDED BEYOND THIS PERIMETER. SEE (T030) APPLICATION MANUAL - (SEE SHEET 3).
 - INSTALLATION & REMOVAL LIFTING AND SERVICE ACCESS CLEARANCE (SUGGESTED MINIMUM) - (SEE SHEET 3).
 - REMOVABLE STUB-UP ACCESS PANEL.
 - MAINTAIN MIN 51 mm [2 in] CLEARANCE ABOVE E-VENT.
 - WEIGHT AND CENTER OF GRAVITY INFORMATION IS ESTIMATED AND CHANGES WITH TANK FEATURE INSTALLATION.

PART NUMBER IDENTIFICATION		
GENSET MODEL	TANK FEATURE CODE/RUN TIME	
C319-2	C320-2	
APPLICATION	24 HR	48 HR
C50 D6C	A053H409	A053H409
C60 D6C	A053H409	A053H411
C80 D6C	A053H409	A053H411
C100 D6C	A053H409	A053H412
C125 D6C	A053H409	A053H412

TABULATION									
TANK NUMBER	TANK HEIGHT	TANK VOLUME-LITER [GAL]		WEIGHT kg [lb]		CG-X		CG-Y	
		TOTAL (EST)	USABLE	MIN	MAX	MIN	MAX	MIN	MAX
A053H409	635 [25]	985 [260]	978 [258]	367 [809]	1199 [2641]	1736 [68]	1852 [73]	299 [11.8]	312 [12.3]
A053H411	838 [33]	1338 [353]	1327 [350]	439 [966]	1567 [3451]	1736 [68]	1852 [73]	398 [15.7]	413 [16.3]
A053H412	1219 [48]	1994 [526]	1971 [520]	668 [1471]	2344 [5163]	1736 [68]	1852 [73]	584 [23.0]	602 [23.7]

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS		DO NOT SCALE PRINT	BY: D HOFWEISTER	CUMMINS POWER GENERATION	
X ± 1	0.00-4.99 ±0.15/-0.00		CD: D HOFWEISTER	OUTLINE, TANK	
-X ± 0.8	5.00-9.99 ±0.20/-0.10		APPD: M JAWALE	BASIC	
2X ± 0.38	10.00-17.49 ±0.25/-0.13		DATE: 01 FEB 16	SITE CODE	
	17.50-24.99 ±0.30/-0.13			PGF	
ANG TOL	SCALE	DATE: 01 FEB 16	DATE: 01 FEB 16	E	
± 1.0°	1:8	DATE: 01 FEB 16	DATE: 01 FEB 16	A054T898	

A



OTEC Transfer Switch Open Transition

40 – 1200 amp



Description

OTEC transfer switches are designed for operation and switching of electrical loads between primary power and Standby generator sets. They are suitable for use in emergency, legally required, and optional Standby applications. The switches monitor both power sources, signal generator set startup, automatically transfer power, and return the load to the primary power source once a stable utility is available. The fully integrated controller is designed for practical functionality, with LED indicators and digital pushbuttons for ease of operator use.

Features

Microprocessor control - Easy-to-use, standard control. LEDs display transfer switch status; pushbuttons allow operator to activate control test, exercise timing and transfer mode.

Programmed transition – Open transition timing can be adjusted to completely disconnect the load from both sources for a programmed time period, as recommended by NEMA MG-1 for transfer of inductive loads.

Advanced transfer switch mechanism – Unique bi-directional linear actuator provides virtually frictionfree, constant force, straight-line transfer switch action during automatic operation.

Manual operation - Manual operating handles, shielded termination, and over-center contact mechanisms allow effective manual operation under deenergized conditions.

Positive interlocking - Mechanical and electrical interlocking prevent source-to-source connection through the power or control wiring.

Main contacts - Heavy-duty silver alloy contacts and multi-leaf arc chutes are rated for motor loads or total system load transfer. They require no routine contact maintenance. Continuous load current not to exceed 100% of switch rating and Tungsten loads not to exceed 30% of switch rating.

Easy service/access - Single-plug harness connection and compatible terminal markings simplify servicing. Access space is ample. Door-mounted controls are field-programmable; no tool is required.

Complete product line - Cummins offers a wide range of equipment, accessories and services to suit virtually any backup power application.

Warranty and service - Products are backed by a comprehensive warranty and a worldwide network of distributors with factory-trained service technicians.

Transfer switch mechanism



- Transfer switch mechanism is electrically operated and mechanically held in the Source 1 and Source 2 positions. The transfer switch incorporates electrical and mechanical interlocks to prevent inadvertent interconnection of the sources.
- Independent break-before-make action is used for both 3-pole and 4-pole/switched neutral switches. This design allows use of sync check operation when required, or control of the operating speed of the transfer switch for proper transfer of motor and rectifier-based loads (programmed transition feature).
- True 4-pole switching allows for proper ground (earth) fault sensing and consistent, reliable operation for the life of the transfer switch. The neutral poles of the transfer switch have the same ratings as the phase poles and are operated by a common crossbar mechanism, eliminating the possibility of incorrect neutral operation at any point in the operating cycle, or due to failure of a neutral operator.
- Electrical interlocks prevent simultaneous closing signals to normal and emergency contacts and interconnection of normal and emergency sources through the control wiring
- High pressure silver alloy contacts resist burning and pitting. Separate arcing surfaces further protect the main contacts. Contact wear is reduced by multiple leaf arc chutes that cool and quench the arcs. Barriers separate the phases to prevent interphase flashover. A transparent protective cover allows visual inspection while inhibiting inadvertent contact with energized components.
- Switch mechanism, including contact assemblies, is third-party certified to verify suitability for applications requiring high endurance switching capability for the life of the transfer switch. Withstand and closing ratings are validated using the same set of contacts, further demonstrating the robust nature of the design.

Specifications

Voltage rating	Transfer switches rated from 40 A through 1200 A are rated up to 600 VAC, 50 or 60 Hz.
Arc interruption	Multiple leaf arc chutes cool and quench the arcs. Barriers prevent interphase flashover.
Neutral bar	A full current-rated neutral bar with lugs is standard on enclosed 3-pole transfer switches.
Auxiliary contacts	Two contacts (one for each source) are provided for customer use. Wired to terminal block for easy access. Rated at 10A Continuous and 250 VAC maximum.
Operating temperature	-22 °F (-30 °C) to 140 °F (60 °C)
Storage temperature	-40 °F (-40 °C) to 140 °F (60 °C)
Humidity	Up to 95% relative, non-condensing
Altitude	Up to 10,000 ft (3,000 m) without derating
Total transfer time (source-to-source)	Will not exceed 6 cycles at 60 Hz with normal voltage applied to the actuator and without delayed transition enabled.
Manual operation handles	Transfer switches are equipped with permanently attached operating handles and quickbreak, quick-make contact mechanisms suitable for manual operation under de-energized conditions.

Transition Modes

Open transition/programmed – Controls the time required for the device to switch from source to source, so that the load-generated voltages decay to a safe level before connecting to an energized source. Recommended by NEMA MG-1 to prevent nuisance tripping breakers and load damage. Adjustable 0-10 seconds, default 0 seconds.

Open transition/in-phase – Initiates open transition transfer when in-phase monitor senses both sources are in phase. Operates in a break-before-make sequence. Includes ability to enable programmed transition as a backup. If sources are not in phase within 120 seconds, the system will transfer using programmed transition.

Microprocessor control

- Simple, easy-to-use control provides transfer switch information and operator controls
- LED lamps for source availability and source connected indication, exercise mode, and test mode. LED status lamps also provided for control set-up and configuration.
- Pushbutton controls for initiating test, overriding time delays and setting exercise time.
- Field-configurable for in-phase open or programmed open transition.
- Integral exerciser clock
- Control is prototype-tested to withstand voltage surges per EN60947-6-1.
- Gold-flashed generator start contacts



Control functions

Voltage sensing: All phases on the normal source and single phase on generator source. Normal Source Pickup: adjustable 90-95%, Dropout: adjustable 70-90% of nominal voltage; Generator Source Pickup: 90%, dropout: 75% of nominal voltage.

Frequency sensing: Generator Source Pickup: 90% of nominal frequency; Dropout: 75% of nominal frequency.

Exerciser clock: Switch is furnished with an integral engine exerciser configurable for operation on a 7, 14, 21, or 28-day cycle with a fixed exercise period duration of 20 minutes. A 12-hr exerciser time offset allows for the convenient setting of exercise time without the need to activate the timer at the exact time that you need to schedule the generator exercise for. Software selectable capability allows for the exercising of the generator with or without load.

Time-delay functions

Engine start: Prevents nuisance genset starts due to momentary power system variation or loss. Adjustable: 0-10 seconds; default: 3 seconds

Transfer normal to emergency: Allows genset to stabilize before application of load. Prevents power interruption if normal source variation or loss is momentary. Allows staggered transfer of loads in multiple transfer switch systems. Adjustable 0-300 seconds, default 5 seconds.

Retransfer emergency to normal: Allows the utility to stabilize before retransfer of load. Prevents needless power interruption if return of normal source is momentary. Allows staggered transfer of loads in multiple transfer switch systems. Adjustable 0-30 minutes, default 10 minutes.

Genset stop: Maintains availability of the genset for immediate reconnection in the event that the normal source fails shortly after transfer. Allows gradual genset cool down by running unloaded. Adjustable 0-30 minutes, default 10 minutes.

Delayed (programmed) transition: Controls the speed of operation of the transfer switch power contacts to allow load generated voltages from inductive devices to decay prior to connecting a live source. Adjustable 0-10 seconds, default 0 seconds.

Elevator signal: Provides a relay output contact for the elevator signal relay (load disconnect). The signal can also be configured to provide a post transfer delay of the same duration. Adjustable: 0-300 seconds (requires optional elevator signal relay for use).

Options

Elevator signal relay: Provides a relay output contact for the signal relay function

Programmable exerciser clock: Provides a fully-programmable 7-day clock to provide greater flexibility in scheduling exercise periods than standard integral exerciser. Time-of-day setting feature operates generator during periods of high utility rates.

UL withstand and closing ratings

The transfer switches listed below must be protected by circuit breakers or fuses. Referenced drawings include detailed listings of specific breakers or fuse types that must be used with the respective transfer switches. Consult with your distributor/dealer to obtain the necessary drawings. Withstand and Closing Ratings (WCR) are stated in symmetrical RMS amperes..

Transfer switch ampere	MCCB protection			Special circuit breaker protection		
	WCR @ volts max with specific manufacturers MCCBs	Max MCCB ratings	Drawing reference	With specific current limiting breakers (CLB)	Max CLB rating	Drawing reference
40, 70, 125 3-pole	14,000 at 600	225 A	A050J441	200,000 @ 600	225 A	A048J566
40, 70, 125 4-pole	30,000 at 600	400 A	A048E949	200,000 @ 600	400 A	A051D533
150, 225, 260	30,000 at 600	400 A	A048E949	200,000 @ 600	400 A	A051D533
300, 400, 600	65,000 at 600	1200 A	A056M829	200,000 @ 600	1200 A	A048J564
800, 1000	65,000 @ 480	1400 A	A056M821	200,000 @ 600	1400 A	A048J562
	50,000 @ 600					
1200	85,000 @ 480	1600 A	A056M825	200,000 @ 600	1600 A	A048P186
	65,000 @ 600					

Fuse Protection

Transfer switch ampere	WCR @ volts max. with current limiting fuses	Max fuse, size and type	Drawing reference
40, 70, 125 3- and 4-pole	200,000 at 600	200 A Class, J, RK1, RK5, T	A050J441
150, 225, 260	200,000 at 600	1200 A Class L or T, or 600 A class J, RK1, RK5	A048E949
300, 400, 600	200,000 at 600	1200 A Class L or T, or 600 A Class, J, RK1, RK5	A056M829
800, 1000	200,000 at 600	2000 A Class L or 1200 A class T or 600 A class J, RK1, RK5	A056M821
1200	200,000 at 600	2000 A Class L or 1200 A class T or 600 A class J, RK1, RK5	A056M825

3-cycle ratings

Transfer switch ampere	WCR @ volts max 3 cycle rating	Max MCCB rating	Drawing reference
300, 400, 600	25,000 at 600	1200 A	A056M829
800, 1000	35,000 at 600	1400 A	A056M821
1200	42,000 at 600	1600 A	A056M825
	50,000 at 480		

Enclosures

The transfer switch and control are wall-mounted in a key-locking enclosure. Wire bend space complies with 2008 NEC.

Dimensions - transfer switch in UL type 1 enclosure

Amp rating	Height		Width		Depth				Weight		Outline drawing
					Door closed		Door open				
	in	mm	in	mm	in	mm	in	mm	lb	kg	
40, 70, 125 3-pole	27.0	686	20.5	521	12.0	305	31.5	800	82	37	0310-0544
40, 70, 125 4-pole	35.5	902	26.0	660	16.0	406	41.0	1042	165	75	0500-4896
150, 225	35.5	902	26.0	660	16.0	406	41.0	1042	165	75	0310-0414
260	43.5	1105	28.5	724	16.0	406	43.0	1093	170	77	0310-0540
300, 400, 600	54.0	1372	25.5	648	18.0	457	42.0	1067	225	102	0310-1307
800, 1000	68.0	1727	30.0	762	19.5	495	48.5	1232	360	163	0310-0417
1200	90.0	2286	39.0	991	27.0	698	63.0	1600	730	331	A030L411

Dimensions - transfer switch in UL type 3R, 4, 4x, or 12 enclosure

Amp rating	Height		Width		Depth				Weight		Cabinet type	Outline drawing
					Door closed		Door open					
	in	mm	in	mm	in	mm	in	mm	lb	kg		
40, 70, 125 3-pole	34.0	864	26.5	673	12.5	318	36.5	927	125	57	3R, 12	0310-0453
											4	0310-0445
	46.0	1168	32.0	813	16.0	406	46.0	1168	255	102	4X	0500-4184
40, 70, 125 4-pole	42.5	1080	30.5	775	16.0	406	44.0	1118	215	97	3R, 12	0500-4896
											4	0500-4896
	46.0	1168	32.0	813	16.0	406	46.0	1168	215	102	4X	0500-4184
150, 225	42.5	1080	30.5	775	16.0	406	44.0	1118	215	97	3R, 12	0310-0453
											4	0310-0446
	46.0	1168	32.0	813	16.0	406	46.	1168	255	102	4X	0500-4184
260											3R, 12	0310-0455
	46.0	1168	32.0	813	16.0	406	46.0	1168	255	102	4	0310-0447
											4X	0500-4184
300, 400, 600	59.0	1499	27.5	699	16.5	419	41.5	1054	275	125	3R, 12	0310-1315
											4	0310-1316
	73.5	1867	32.5	826	19.5	495	49.5	1257	410	186	4X	0500-4185
800, 1000											3R, 12	0310-0457
	73.5	1867	32.5	826	19.5	495	49.5	1257	410	186	4	0310-0449
											4X	0500-4185
1200	90.0	2286	39.0	991	27.0	698	63.0	1600	730	331	3R, 12	A030L411
											4, 4X	A041N370

Transfer switch lug capacities

All lugs 90°C rated and accept copper or aluminum wire unless indicated otherwise.

Transfer switch ampere	Cables per phase	Size
40, 70, 125 3-pole	1	#12 AWG-2/0
40 4-pole	1	#12 AWG-2/0
70, 125 4-pole	1	#6 AWG - 300 MCM
150, 225	1	#6 AWG - 300 MCM
260	1	#6 AWG - 400 MCM
300, 400	2	One accepts 3/0 AWG - 600 MCM and One #4 AWG - 250 MCM
600	2	250 - 500 MCM
800, 1000	4	250 - 500 MCM
1200	4	#2 AWG to 600 MCM standard (feature N045) 1/0 AWG to 750 MCM optional (feature N066) Compression Lug Adapter optional (feature N032)

Certification



All switches are UL 1008 Listed with UL Type Rated cabinets and UL Listed CU-AL terminals.



All switches comply with NEMA ICS 10.



All switches are certified to CSA 282 Emergency Electrical Power Supply for Buildings, up to 600 VAC.



All switches comply with IEEE 446 Recommended Practice for Emergency and Standby Power Systems.

NEC

Suitable for use in emergency, legally required and Standby applications per NEC 700, 701 and 702.



This transfer switch is designed and manufactured in facilities certified to ISO9001.



All switches comply with NFPA 70, 99 and 110 (Level 1).

Submittal detail

Amperage ratings

- 40
- 70
- 125
- 150
- 225
- 260
- 300
- 400
- 600
- 800
- 1000
- 1200

Voltage ratings

- R020 120
- R038 190
- R021 208
- R022 220
- R023 240
- R024 380
- R025 416
- R035 440
- R026 480
- R027 600

Pole configuration

- A028 Poles - 3 (solid neutral)
- A029 Poles - 4 (switched neutral)

Frequency

- A044 60 Hertz
- A045 50 Hertz

Application

- A035 Utility-to-genset

System options

- A041 Single phase, 2-wire or 3-wire
- A042 Three phase, 3-wire or 4-wire

Enclosure

- B001 Type 1: general purpose indoor (similar to IEC Type IP30)
- B002 Type 3R: intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC Type IP34)
- B003 Type 4: indoor or outdoor use, provides some protection from wind-blown dust and water spray (similar to IEC Type IP65)
- B010 Type 12: indoor use, some protection from dust (similar to IEC Type IP61)
- B025 Type 4X: stainless steel, indoor or outdoor use, provides some protection from corrosion (similar to IEC Type IP65)

Standards

- A046 UL 1008/CSA certification
- A080 Seismic certification

Control voltage

- M033 12V, Genset starting voltage
- M034 24V, Genset starting voltage

Control options

- J030 External exercise clock
- M032 Elevator signal relay

Battery chargers

- K001 2 Amps, 12/24 Volts
- KB59 15 Amps, 12 Volts
- KB60 12 Amps, 24 Volts

Auxiliary relays

Relays are UL Listed and factory installed. All relays provide (2) normally closed isolated contacts rated 10A @ 600 VAC. Relay terminals accept (1) 18 gauge to (2) 12 gauge wires per terminal.

- L101 24 VDC coil - installed, not wired (for customer use).
- L102 24 VDC coil - emergency position – relay energized when switch is in source 2 (emergency) position.
- L103 24 VDC coil - normal position - relay energized when switch is in source 1 (normal) position
- L201 12 VDC coil installed, not wired (for customer use)
- L202 12 VDC coil - emergency position – relay energized when switch is in source 2 (emergency) position
- L203 12 VDC coil - normal position - relay energized when switch is in source 1 (normal) position

Miscellaneous options

- C027 Cover - guard
- M003 Terminal block - 30 points (not wired)

Optional lug kits

- N032 Lug adapters, compression, ½ stab (1200A only)
- N045 Cable lugs, mechanical, 600 MCM, 4 per pole (1200A only)
- N066 Cable lugs, mechanical, 750 MCM, 4 per pole (1200A only)

Warranty

- G009 1 year comprehensive
- G004 2 year comprehensive
- G006 5 year basic
- G007 5 year comprehensive
- G008 10 year major components

Shipping

- A051 Packing – export box (800-1000 A)

Accessories

- AC-170 Accessories specifications sheet

Specifications are subject to change without notice.

**For more information contact your local Cummins distributor
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Drawing Name: 0310-0544 Revision: F
Part Name: 0310-0544 Revision: A
Sheet 1 of 2

	A	B	C	D	E	F	G	H	I	J	K	L	M
1		City of Isle of Palms 10-Year Capital Plan											
2		Expenditures for assets or special projects > \$5000 **Expenditures less than \$5,000 are included in operating budgets**											
3				Total Needs from All Funds									
4													
5	Total		FY 20										
6	Fleet		DEPARTMENT		FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29
7			REQUESTS										
8													
117		Public Works Department											
118													
119	1	1998 Mack <i>(PW14) (currently used for miscellaneous work, will not be replaced when it fails)</i>	** These purchases to be funded with savings or loans. See "Assign Fund Balance" section below **										
120	1	Replace 2006 Mack w/ 20yd Packer <i>(PW2)</i>	170,000										
121	1	Replace 2008 Mack w/ 31yd Loadmaster Packer <i>(PW22)</i>	255,000										
122	1	Replace 2009 Mack w/ 31yd Loadmaster Packer <i>(PW24)</i>	270,000										
126	1	Replace 2006 Caterpillar trash loader	158,000										
127													
128	1	2002 Mack Flatbed (PW 18) <i>(keep as spare to help with yard debris, re-evaluate before replacing)</i>											
129	1	Replace 2003 Mack Flatbed (PW 21)			110,000								
130	1	Replace 2018 Mack Flatbed (PW 27) (repl in approx FY33)											
131	1	Replace 2008 F250 4x4 <i>(currently used as a spare, need to evaluate before replacing)</i>			34,000						35,000		
132	1	Replace 2018 4x4 pickup truck							35,000				
133	1	Replace 2014 F150 4x4	34,000							35,000			
134	1	Replace 2016 Ford F350 4x4 with hopper				48,000						50,000	
135	1	Replace 2017 Ford F250 with hopper					35,000						
136	1	Add Ford F150 for Asst Director	-							35,000			
138		Replace four 4-in flood water pumps as needed				20,000							
139		Replace z-track mower for rights of way			15,000						20,000		
140		Rehabilitate Waterway Blvd multi-use path			275,000								
141		Replace Skid Steer purchased in FY16				60,000							
142		Replace Fuel management system purchased in FY12						40,000					
143		Repl front beach trash compactor purchased in FY15									60,000		
144		<i>Building maintenance contingency - per PWD Director, the major components of the Hill Report will be addressed in FY19. Calculated as 1% of Public Wks Building insured value.</i>	7,990		7,990	7,990	7,990	7,990	7,990	7,990	7,990	7,990	7,990
145	17	Subtotal Capital	41,990		441,990	135,990	212,990	205,990	297,990	77,990	122,990	327,990	7,990
146													
147		Special Projects											
148		General drainage contingency for small projects	70,000		70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
149		Small drainage projects as prioritized by Thomas & Hutton	500,000										
150		Repeat drainage work based on 3-year maintenance rotation	184,538		198,288	187,038	184,538	198,288	187,038	184,538	198,288	187,038	184,538
151		Phase 3 Drainage (eng & permitting in FY20, construction in FY21)	200,000		3,900,000	-	-	-	-	-	-	-	-
152													
153		Subtotal Special Projects	954,538		4,168,288	257,038	254,538	268,288	257,038	254,538	268,288	257,038	254,538
154													
155		Assign Fund Balance for Future Expenditures											
156		- In past years the City has "saved" for future large Public Works Truck purchases. No provision in FY20-FY29 given cash needs for other projects.											
157		Subtotal Assignment of Fund Balance	-		-	-	-	-	-	-	-	-	-
158													
159		Grand Total Public Works Department	996,528		4,610,278	393,028	467,528	474,278	555,028	332,528	391,278	585,028	262,528