



POWER SYSTEMS USER MANUAL



Meeting today's power challenges



INTRODUCTION

Hello, and welcome to Milton CAT! This is your manual; our team has developed it so you can easily access information that will help you meet your power challenges and stay ahead of new opportunities.

A privately owned company and one of the top Caterpillar dealers in the world, we are uniquely positioned to be your partner and support you today, and tomorrow, too. Since we were founded in 1960, our company has continuously grown, and we've expanded our network as well as our range of products and services. Today we have state-of-the-art locations in upstate New York, Maine, Vermont, New Hampshire, Rhode Island and Massachusetts, staffed by dedicated professionals who understand how power impacts business. They are ready to spend the time to come up with solutions that make sense, and to back you up with expert commitment.

We appreciate your interest and we look forward to working with you.



- Standby/Emergency Power Generation Units
- Prime/Continuous Power
- Combined Heat and Power (CHP) and Biogas
- Rental Power
- Electrical Distribution
 - Automatic Transfer Switches (ATSs)
 - Uninterruptible Power Supply (UPS)
 - Generator Connection Boxes
 - Paralleling Switchgear
- Portable Rental Power Ancillaries
 - Load Banks
 - Cable Ramps
 - Transformers
 - Power Cables
 - Fuel Tanks
 - Temporary Distribution Boxes or Panels
- Temperature Control
 - Air Conditioners
 - Heaters
 - Chillers
- Used Equipment/Take-in-Trade Options

STANDBY/ EMERGENCY POWER GENERATION UNITS

Do you want to be absolutely, 100% sure that you'll have power even if your utility fails? Not a problem. When it comes to turnkey, fixed units for standby power, Milton CAT is your source.

You'll find at Milton CAT the most reliable solutions for data centers, hospitals, office buildings, commercial and industrial complexes, and educational institutions. We carry the entire CAT line of power generation equipment and ancillaries, including switchgear, transfer switches and UPS.

BENEFITS

With Milton CAT on your team, standby power is never a problem.

- We can provide a turnkey solution if desired.
- You'll get a project manager focused on your account.
- Your own Product Support Consultant (PSC) will be dedicated to helping you after installation.
- A preventive maintenance agreement will be developed to fit your application.
- Our in-house expertise in the field of power generation and our knowledge of emissions regulations are unparalleled in the industry.



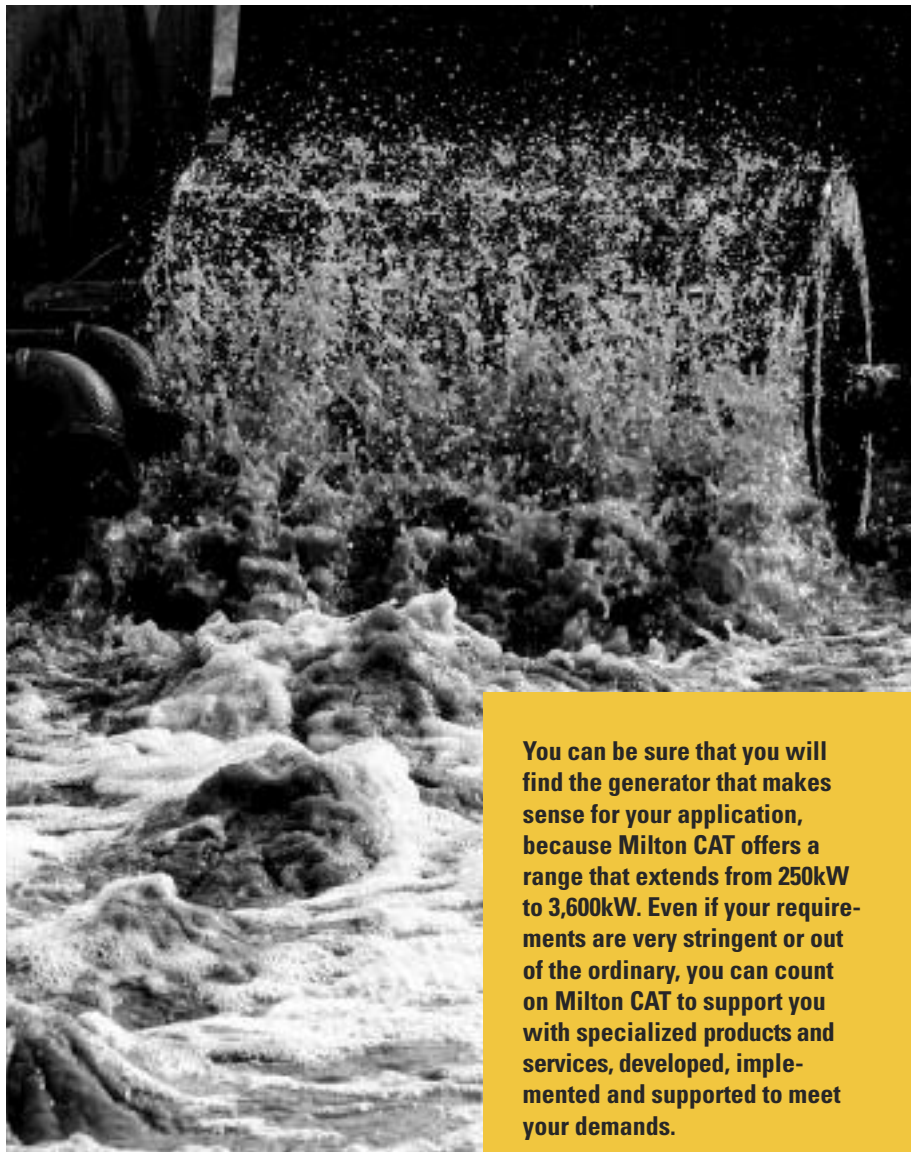
No need to settle for just any standby generator when you have the most complete range of top-of-the-line CAT generators, available at your closest Milton CAT location. Choose from 40kW generators to 4,000kW units plus switchgear, transfer switches or any of the ancillaries and equipment to make sure your generator is always ready to go.



Get in touch with the Power Systems team at Milton CAT to learn more about standby power to fit your application. (800-821-6412)

PRIME/ CONTINUOUS POWER

Your Generator Set needs are completely covered at Milton CAT. You can choose from gas or Diesel models, and get features such as sound attenuated or weatherproof enclosures, switchgear and uninterruptible power supplies. Your Milton CAT team will oversee engineering procurement and construction elements of the project, including the training of your employees to operate and maintain the system once the site is commissioned. All Caterpillar Generator Sets deliver clean emissions for compliance with air quality standards.



You can be sure that you will find the generator that makes sense for your application, because Milton CAT offers a range that extends from 250kW to 3,600kW. Even if your requirements are very stringent or out of the ordinary, you can count on Milton CAT to support you with specialized products and services, developed, implemented and supported to meet your demands.

OUR EXPERTISE INCLUDES:

- Industrial Process and Controls Design
- Environmental Design
- Alternative Fuels Processing
- CNG Fueling Station Design
- Developing and implementing working plans with your existing electrical contractors.
- Success in demanding industries such as landfills, sawmills, paper mills, aggregates and crushing and screening.



Looking at the future Partnering with global experts, Caterpillar is focusing on energy production solutions such as photovoltaic, inverter technology and microgrid as well as energy storage options.

You're just a phone call away from expert answers to any of your power questions. (800-821-6412)

COMBINED HEAT AND POWER (CHP) AND BIOGAS

The list of facilities installing Combined Heat and Power or CHP continues to grow. It now ranges from industrial manufacturers, data centers, medical facilities, commercial buildings and municipalities, to educational and residential institutions.

Their reasons include lower and more predictable energy bills; local and national incentives such as direct grants, tax incentives and low-interest loans; environmental benefits, since your carbon footprint will be reduced; reliability; and of course, efficiency – as it provides power, your Milton CAT CHP system also generates steam and hot water.

BENEFITS

- First-hand knowledge of the facilities and institutions suitable for CHP.
- Expert CHP system planning and engineering, before, during and after installation.
- Ability to work with other existing systems such as heating, water and electrical.
- Emissions expertise.
- Flexible and responsive field crew.
- Solid and deep backup that can be tapped without being exhausted.



Implementing a CHP system requires top-notch equipment and proven, robust components. The Milton CAT CHP team has solid expertise with all the facets of this specialty; we can work with your in-house engineering staff, or team up with your outside consulting firm. In addition, our wide range of products allows you to choose exactly the sizes and components that fit your needs. Reliable and trustworthy, Caterpillar power generating products and accessories are often familiar to facility managers that may already count on them for traditional emergency backup.

The Milton CAT CHP advantage can work for you, too. Contact us at chp@miltoncat.com. (800-821-6412)

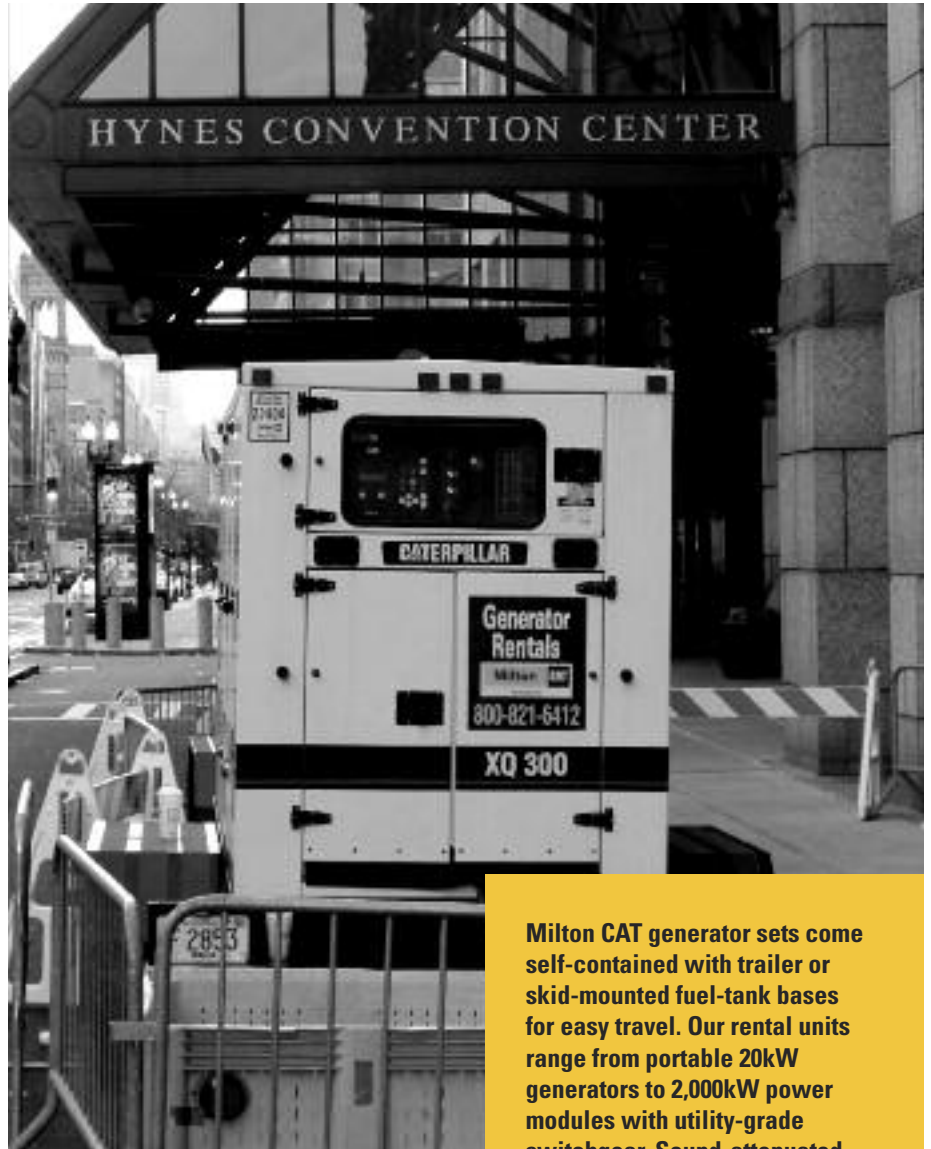
RENTAL POWER

Whether you're facing an emergency, preparing for scheduled shutdown or planning to take advantage of a new opportunity, if you're looking to rent power generation or temperature control equipment your first concern is availability. You need to know that all you have to do is make one call, and we will take care of it, because the company will have all the equipment you require, as many units as you want, all of them top-of-the-line, meeting the latest emissions requirements, in perfect working condition and ready to go. But that's not all.

Price is also a concern. You may have an urgent need, but renting air, temperature control or power equipment is only one of the many costs you're facing, and you are committed to financial responsibility. Milton CAT can work with you so you can meet your goals and stay within your budget.

APPLICATIONS

- Power during weather emergency.
- Preparing for scheduled shutdown.
- Power or air conditioning for a special event.
- Temporary heating for a building.



Milton CAT generator sets come self-contained with trailer or skid-mounted fuel-tank bases for easy travel. Our rental units range from portable 20kW generators to 2,000kW power modules with utility-grade switchgear. Sound-attenuated XQ modules are quiet and all our equipment is EPA-certified. We offer gas-powered generators and our own line of environmentally friendly power generators.



We're ready to take your call, and to take care of your rental needs! 800-821-6412

ELECTRICAL DISTRIBUTION

Milton CAT is your complete source of power generation equipment and ancillaries, your one-stop for all your needs. Our product range includes automatic transfer switches, distribution boxes, generator connection boxes and paralleling switchgear.



Automatic Transfer Switches (ATSs) Choose from our 100 amp to 3,000 amp transfer switch range when you're looking for a safe way to distribute power.

Uninterruptible Power Supply (UPS) You know this better than anyone else – eliminating the slightest power disturbance can save you from lost productivity and business. Whether supporting your critical processes or defending your servers from harmful power problems, Milton CAT's UPS Systems will provide years of reliable maintenance protection. With the lowest operating costs in the industry, a Milton CAT UPS system will provide priceless peace of mind.

A closer look at Milton CAT connection boxes:

- Cam-style inputs.
- Completely bused with lugs.
- Lockable rake systems.
- Custom-colored cables.
- Sizes and configurations to fit any application.

Generator connection boxes Power up whenever you need, simply, quickly and safely.



Our connection boxes offer cam-style inputs; lockable rake systems; custom-colored cables; sizes and configurations to meet your application.

Paralleling switchgear For multiple generator power generation and electrical distribution system performance in critical applications, Milton CAT paralleling utility switchgear includes protective functions to



provide the ultimate peace of mind. With simple-to-use CAT switchgear, you can monitor, process, compare, display and transmit data with a high degree of precision.



Get your questions answered, and renew your peace of mind 800-821-6412

PORTABLE RENTAL POWER ANCILLARIES

Are all the components in your power generation system reliable and robust? Remember the old saying, "A chain is only as strong as its weakest link". Don't let a seemingly small but actually crucial link be the cause of a failure. Talk to the Milton CAT team to find out more about our complete range of power generator ancillaries.



Load banks

These devices are designed to provide electrical loads for testing power sources

such as generators and Uninterruptible Power Supplies (UPSs). Load banks are also used to reduce "wet stacking" problems in Diesel engines of backup generating systems. Portable resistive load banks range in size from 10kW to our 5,000kW line.



Transformers A complete range from 50kVA to 5000kVA. Transformers provide multiple voltage connections. They can be used to increase or decrease voltage, supply power to your power grid and isolate your critical loads.



Fuel tanks We carry 500 to 2,5000 gallon tanks, and 500 and 2,500 gallon Diesel fuel tanks.



Power cables Milton CAT's 4/0 cam-lock single conductor cables provide up to 400 amp loads and can be used individually and also in parallel for larger load requirements. Our

size #2 cam-lock single conductor cables are used when you need up to 150 amp loads. Quad box strings and Quad box extensions are used for 120 v., 20 amp power circuits.

Temporary distribution boxes or panels

They are available from 60 to 1,200 amp, with outlets for applications including plant maintenance or scheduled shutdown.



Cable ramps Used with interlocking design, these ramps provide robust protection for cables up to 1.25" in diameter.

We're here to answer your questions. 800-821-6412

TEMPERATURE CONTROL

If you're looking for state-of-the-art, reliable, temperature control options, you'll find them at Milton CAT. Whether you need air-conditioners, chillers or heaters, we have a complete range of top notch units and we back them up with the level of support that you expect from Milton CAT.



Air conditioners Milton CAT carries a complete line of air-conditioner units, including 1- and 5-ton models; 12-ton models, 20-ton entertainment units; 30-ton and 30-ton optional heater attachment; and 80-ton units.

Our smaller air conditioning units are self-contained, and provide conditioned air for indoor or outdoor applications. These units are sound attenuated and equipped with high-efficiency scroll-type compressors, allowing for cold starting – no preheat is required. 12-ton and under models have user-friendly controls for non-technical operators.

Our 30-ton air conditioners offer a perfect

solution for cooling or optional heating at confined spaces. Dense air injection and large motor cooling are features of these robust units. We carry 150kW heater attachments especially designed for use with these air conditioners; they come with a flanged opening that connects to the supply air output and use the 100,000 CFM VFD blower of the 30-ton unit as the airflow source.

80-ton air conditioners from Milton CAT feature dense air injection, large motor cooling and furnace cooling.



Heaters Our heaters have a range of discharge from 85° to 600°. We carry thermo-

statically controlled natural gas and propane units from 300kW to 4M BTU, and electric units from 40kW to 150kW.

Chillers, air-cooled and water-cooled

These well-designed, highly efficient units are particularly appropriate for alkylation, wet gas, turbine inlets and compressor cooling; environmental control; plastic production processes as well as for waste water treatment applications.



Milton CAT accessories include water hose, reducers, elbows and manifolds, so you can get chilled water where you need it, quickly and efficiently.



Don't let a temperature control challenge discourage you! The Milton CAT expert team is here to work with you. They will listen to your concerns, ask questions about your goals, your budget and your timetable and will come up with an option that makes business sense – and that can be implemented cost-effectively.

Waiting to hear from you! Call us at 800-821-6412

USED EQUIPMENT AND TAKE-IN-TRADE OPTIONS



In a very specialized environment that requires solid experience, financial muscle and an impeccable reputation, Milton CAT is recognized as a top player. We're one of the most important sellers and buyers of quality used power equipment in the Northeast, across the US, and around the world.

Besides our own inventory, our good relationships with the network of CAT dealers also give us access to their own used power equipment inventories. In addition, our knowledge of the marketplace and of the many potential financing options helps us help you. We take your equipment in trade, and we can often propose solutions you may not have known were available.

We stand behind our products, and we have an extensive product line and product availability, so your options are not limited to a few units – you really have choices; units at many price points and in a range of conditions and hours. Our returned-from-rent units can be purchased with an extended warranty, and many of the available previously-owned units have been maintained by Milton CAT experts.

**Largest inventory.
Latest models. Lowest hours.**

www.miltoncatused.com

Check out this continuously updated site to see the outstanding inventory of top used equipment available from Milton CAT. It's easy, convenient and fast, and allows you to take a quick look at the existing options from your office, your jobsite or your home.



Your Milton CAT used equipment experts look forward to working with you. (800-821-6412)



- Service

- Customer Service Agreements (CSAs)
- Extended Oil Drain Intervals/PM1, PM1.5, PM2 and PM3
- Extended Service Coverage (ESC)
- Fuel, Oil and Coolant Analysis
- Load Testing
- 24-hour Emergency Service
- Technical Helpline
- Parts

SERVICE

SERVICE

When you buy from a top Caterpillar dealer, you take unparalleled product quality for granted. But where you should really see the difference is in the level of service you receive after the sale. The Milton CAT diagnosis, repair and maintenance crew has practical in-depth understanding of every component in your equipment. Whether your problem is handled in the field or at one of our locations, it will be solved efficiently by a team who's committed to your uptime.

Customer service agreements or CSAs

A Milton CAT CSA is a planned preventive maintenance program tailored to the needs of your company. It can be implemented annually, semi-annually, quarterly or monthly, depending on your requirements, and the services are always performed by our team of expert technicians.

Extended Oil Drain Intervals/PM1, PM1.5, PM 2 and PM3 These are very good preventive maintenance options for large engines that are already covered by a CSA, and are located in hard-to-reach places.

Extended Service Coverage or ESC An option built to protect your investment and your peace of mind by helping you budget for unexpected repair costs, ensuring your repairs are performed by factory-trained technicians and getting you back to work fast. When you choose ESC you can be confident knowing your investment is protected by the power of Caterpillar. ESCs are offered by Caterpillar to owners of new and used CAT prime and standby generators, switchgear, automatic transfer switches (ATSs), uninterruptible power supplies (UPSs), and engine paralleling and integration controls (EPIC). Combine Extended Service Coverage with a Customer Service Agreement (CSA) for complete maintenance and repair protection.

Fuel, oil and coolant analysis Performed by our technicians efficiently and expertly, fluid analysis gives you a perfect window into the health of your power equipment.



Some of the key advantages of a Milton CAT CSA include the fact that scheduling is not your concern, we contact you when maintenance is due; you know that we'll have immediate access to any needed parts and you can count on the availability of rental equipment if your own will be out of commission. In addition, compliant waste disposal is a given, as is the high level of training of the technicians performing the service.

Load testing This important preventive maintenance test monitors the engine system and generator outputs.

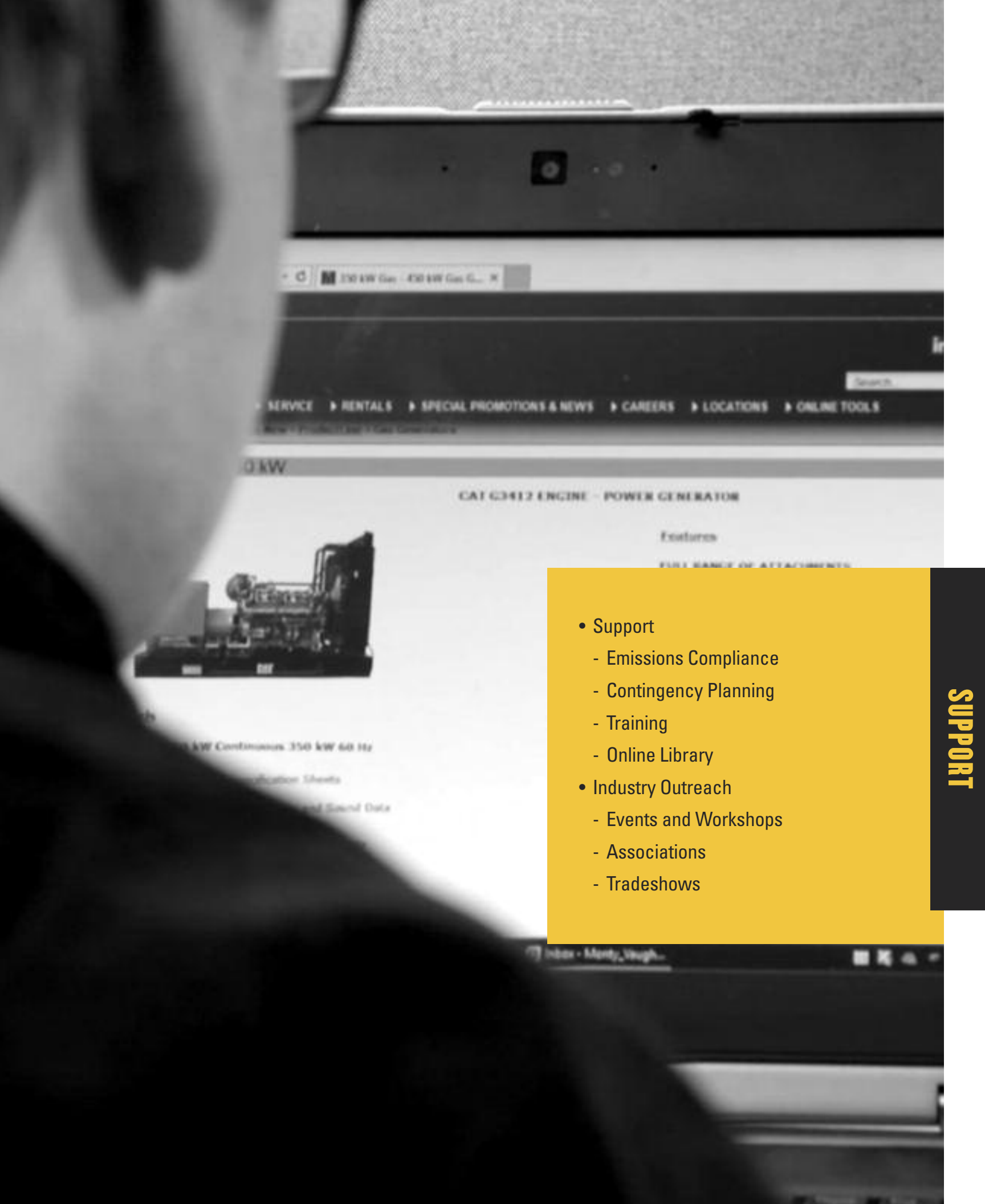
24-hour emergency service When your service needs to be up, no matter what, we'll back you up, no matter when. That's what our 24-hour Field Service means, and we stand by it.

Technical helpline Staffed by expert, dedicated technicians, our call line is an efficient way to quickly receive free information and advice on how to handle hundreds of technical problems that may be solved by you or your staff.

Parts There's a reason why we boast a total of 300,000 square feet in Parts Warehouse space. At Milton CAT, 90% of parts orders are filled from inventory; 99% are filled within 24 hours.



Service questions? Call us at 800-821-6412, or email pscса@miltoncat.com for more information.
Technical help line questions? Call 1-518-877-6802



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0 kW

CAT G3412 ENGINE - POWER GENERATOR

Features

FULL RANGE OF ATTACHMENTS



350 kW Continuous 350 kW 60 Hz

Application Sheets

Sound Data

- Support
 - Emissions Compliance
 - Contingency Planning
 - Training
 - Online Library
- Industry Outreach
 - Events and Workshops
 - Associations
 - Tradeshows

SUPPORT

Inbox - Marty_Vaugh...

SUPPORT



You know it will happen – your power requirements unexpectedly change; that big new customer turns out to come with a big set of new problems; the competitive situation turns tight... Those are the realities of today's business environment, and you want to count on the kind of support that takes them into account.

At Milton CAT, we're committed to remaining proactive, staying in touch with your industry, helping you learn from your peers how they handle their own challenges and developing ways to provide you with the right Power Systems products and services, today, and tomorrow.

Emissions compliance We stay ahead of changing emissions regulations, so we can develop the best answers for our customers.

Contingency planning

As you know, disaster recovery and business continuity plans need constant updating. Our engineering staff can work with you to make sure you have taken into account potential problems, and are aware of the latest solutions.

Training Our Training and Development Center is one of only five CAT-Certified Training centers in North America. Staff and customers can review and practice troubleshooting and diagnostic procedures, installation testing and setup, maintenance and evaluation.

Online library

Access to Caterpillar's vast technical specification and user information sources, at your convenience, is another benefit of working with Milton CAT.

Spotlight on emissions compliance:

- **Active Diesel particulate filters**
- **Oxidation catalysts**
- **Selective catalytic reduction**
- **Tier 4 generators**
- **Emissions testing**
- **Filter cleaning**
- **State and Federal regulation interpretation**

Interested in our support options? Please call us at 800-821-6412

INDUSTRY OUTREACH

A silo is not a good place for conducting business.

The Power Systems industry is constantly evolving, and our customers must find ways to handle new challenges and to take advantage of different opportunities. They know that they can count on their Milton CAT team to stay connected, and stay ahead.



Lessons Learned - Most Common Failures

- Diesel Fuel Issues
 - Fuel Filter Flooding
 - Run-out of Fuel
- Weak Starting Batteries
 - Defective Charge
 - Defective Batteries
- Overheating
 - Popping Radiators
 - Low Coolant Level
- Lack Of Maintenance and Testing
 - No testing under load
 - Low Fuel Levels and Dirty Filters
- Generator End Failure
 - Location of the Generator End



Our active participation and leading presence in professional associations, trade shows and industry events helps us help you remain on top of relevant news and aware of the latest regulations and technology.

Events and workshops Throughout the year, we invite industry experts to our locations, to make presentations on a wide range of subjects – from the latest on emissions regulations, to developing and updating your contingency plan. Attending these events allows Milton CAT customers to learn from the best sources and to network with their peers.

Association involvement The Milton CAT team members are active participants in professional associations, and Milton CAT often hosts association meetings. This is another way for us to make sure we remain in touch with what matters to our customers.

Trade shows Whether as exhibitors, presenters or visitors, we attend the top trade shows in our region. These are great opportunities for our staff to meet with customers and share views on the latest products and services being exhibited.

Interested in our support options? Please call us at 800-821-6412



CLIENT LIST

Albany Medical Center
St. Peter's Hospital
Regeneron Pharmaceuticals
Bassett Healthcare
St. Elizabeth Hospital
Norwich Pharmaceuticals
Noyes Hospital
UHS Wilson Medical Center
Saratoga Hospital
Hudson Valley Community College
CR Bard
Iberdrola
National Grid
Corning Incorporated
Wegmans
Golub Corporation
MassMutual
Berkshire Medical Center
Samaritan Hospital
Corning Hospital
National Fuel Gas
Oneida Hospital
Cortland Hospital
Upstate Medical Center
St. Joseph's Hospital
Rapid Response Monitoring
Tioga Downs Casino
Lago Casino
Rivers Casino
Erie County Medical Center
Geneva General Hospital
Highland Hospital
University of Rochester
Medical Center
Arnot Ogden Hospital
Cayuga Medical Center
Crouse Irving Hospital
Jones Memorial Hospital
The Hartford
Time Warner Cable
Beech Nut Nutrition Corporation
Chobani Yogurt
Computer Sciences Corporation
Siena College
Skidmore College



Cornell University
Syracuse University
Glens Falls Hospital
Catholic Health East
Columbia Memorial Hospital
Ellis Hospital
Fage Yogurt
University at Albany - SUNY
University at Buffalo - SUNY
Albany Memorial Hospital
Lockheed Martin
M&T Bank
Key Bank
University at Binghamton - SUNY

There are many reasons you'll find Milton CAT behind the successful operation of industrial, educational, commercial, healthcare and entertainment organizations in the Northeastern United States.



www.miltoncat.com

Milford, MA 508-634-5559	North Reading, MA 978-276-2400	Wareham, MA 508-291-1200	Cranston, RI 401-946-6350	Richmond, VT 802-434-4228	Londonderry, NH 603-665-4500
Scarborough, ME 207-883-9586	Brewer, ME 207-989-1890	Syracuse, NY 315-476-9981	Batavia, NY 585-815-6200	Binghamton, NY 607-772-6500	Clifton Park, NY 518-877-8000