gas | drive

Full-cycle engine reliability.

Encana Cavalier Power Plant Quotation Attention: Ward Gegolick Waukesha P9394GSI – Enginator GDC13006-3 – August 12, 2013

IIII



gas drive





EnCana – Cavalier Power Plant

Gas Drive Quote GDC13006-3

August 12, 2013

1.0 COMMERCIAL SECTION

1.1 CONDITIONS OF SALE

This offer is subject to Gas Drive Global. standard "Conditions of Sale" attached.

1.2 **CHANGE MANAGEMENT**

- a) Gas Drive Global and the Customer shall each nominate a designated individual who has the authority to request and approve change requests.
- b) If a Customer requests a change altering the scope of work offered, the Customer shall issue specific written instructions to Gas Drive Global defining clear action to be taken. Gas Drive Global shall be obligated to respond in writing with a Change Request/Notice (CRN) highlighting the cost impact, delivery impact, or both, to the Customer within five (5) working days. When not reasonable or practical to fulfil this timing, within five (5) working days Gas Drive Global shall notify the Customer of planned date of submission.
- c) The Customer, upon receipt of the Change Request/Notice, has a maximum of five (5) working days to respond in writing to Gas Drive Global Notice by signing the Change Request/Notice approval to proceed or by a decline notification to the Notice. The absence of a written approval by the Customer within five (5) working days will result in the cancellation of the Change Request/Notice. Any delay in such response, above give (5) days, will automatically absolve Gas Drive Global of its obligation to such extent. For changes requiring urgent attention, Gas Drive Global shall indicate the required approval date, less than five (5) working days, on the Change Request/Notice.
- d) Adjustments to the Delivery Schedule or Contract Value are not negotiable. Such adjustments shall be deemed to include all cumulative effect of all Changes approved by the Customer.

1.3 FREE ISSUED ITEMS

All free issued items supplied to Gas Drive Global must be marked with appropriate Gas Drive Global project reference information as advised upon project award. Items delivered without proper Gas Drive Global project reference information shall be rejected. Full description of materials including supplied, model number, dimensional drawings, and any other pertinent information as deemed necessary shall be provided in accordance with Gas Drive Global



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project schedule requirements. Delays in supply of actual goods or information may result in cost impact, delivery impact, or both.

1.4 FREE ISSUED ENGINEERING DESIGNS

All free issued engineering designs specifically related to pressure containing components (i.e. vessels and pipe spools) and structural lifting devices that are to be fabricated, tested and/or used under the direction of Gas Drive Global, are to be supplied with certified engineering drawings and calculations stating the design meets the necessary project and code requirements. Gas Drive Global, at its sole discretion, will validate the mechanical design, resulting in cost impact, delivery impact, or both. In the event the design is deemed unsuitable, design will be placed on hold until a mutually acceptable solution is reached. Design changes as a result of this analysis may result in cost impact, delivery impact or both.

1.5 TERMS OF PAYMENT

Gas Drive Global's terms of payment for items offered are "Net 30 days" from date of invoice as specifically outlined in our conditions of sale, paragraph 6 and below.

- a) The Customer shall nominate a designated individual who has the authority to approve invoices for payment at time of contract award.
- Upon fulfilling the requirements of payment milestones, as agreed within the b) contract, Gas Drive Global shall submit its invoice and supporting documentation (as required).
- c) The Customer, upon receipt of the invoice and supporting documentation (as required), has a maximum of five (5) working days to approve the invoice for payment. The absence of written approval by the Customer within five (5) working days shall result in the invoice being deemed approved by all parties.
- d) In the event that modifications to the invoice and / or supporting documentation (as required) are requested and mutually agreed, Gas Drive Global shall make such changes and resubmit. The effective date of the invoice shall remain as the original date of invoice.

Payment schedule shall be as follows:

- a) 25% upon issuance of Purchase Order.
- 25% upon issuance of IFC drawings. b)
- 25% upon receipt of engine/generator at the packagers. c)
- d) 15% upon ready to ship date.
- 10% upon commissioning of unit. e)

Notes:

Holdbacks will not be permitted on progress invoices. a)



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Interest will be charged at a rate 1.5% per month compounding on all b) holdbacks from original due date to time of payment, without exception.

CANCELLATION

The contract shall not be subject to cancellation or delay by the Customer except with the written consent of Gas Drive Global. In the event of cancellation or delay is occasioned by the customer, then the Customer shall reimburse Gas Drive Global based on the following schedule:

0 – 30 days	30% of contract value
30 – 60 days	60% of contract value
60 – 90 days	90% of contract value
Over 90 days	100% of contract value

1.6 VALIDITY

This offer is open for acceptance for thirty (30) days from the date above written.

1.7 DAMAGES

Gas Drive Global shall not be liable to the Customer for any consequential, indirect or special damages whatsoever.

1.8 **EXCISE TAXES**

Federal, Provincial Sales Tax and Goods and Services Tax (GST) are not included in the prices shown and may be applicable, depending on end use and purchaser's ability to provide certification that the above taxes do not apply.

Any applicable GST will be calculated and charged at the prescribed rates on accepted item(s) or portion(s) thereof occurring, including Progress Billings.

The GST, for your convenience, and any other applicable taxes will be shown separately on Invoices.

1.9 THIRD PARTY CONTRACT

Third Party contractors may be used at Gas Drive Global's discretion. These third party contractors will be bound to the same terms and conditions specified in the purchase order.

SHOP INSPECTION



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Gas Drive Global will be pleased to provide assistance to the client's third party inspector at times mutually agreed upon.

1.10 Q.A. MANUAL

Gas Drive Global is a certified and registered designer/manufacturer of Oil and Gas Power Generation Systems. Our Quality Assurance/Quality Control Manual is available for review at all times on our premises, by clients and their appointed representatives.

DELIVERY

Delivery is quoted EXW Enerflex Barlow facility Calgary Alberta. Lead time is 28 weeks after A.R.A.D.

*ARAD = After receipt of "approved for construction" General Arrangement Drawings

- a) Delivery and timing indicated is based upon engineering, drafting and shop workloads as at the date of this Offer and as can be reasonably foreseen for the period indicated. The delivery is subject to confirmation prior to contract award.
- b) Acceptance of this offer will indicate purchaser's acceptance of the major component sizing and instrumentation as specifically outlined herein. To maintain stated delivery, Gas Drive Global will proceed with the purchase of pressure vessel shells, heads and large nozzles, instrumentation and all other materials and components which it feels are critical to the overall delivery. However, fabrication will not proceed without the purchaser's "approved for construction" drawings.
- c) Selection of Alternate and Optional Cost Items will alter the above pricing as shown and may also affect delivery indicated.



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1.11 PRICING SUMMARY

Item	Description	Unit Cost	QTY.	Totals
1	1x Waukesha P9394GSI Enginator, 1600 kWe (Excluding a required exhaust system)	\$1,320,100	1	\$1,325,650
2	Oilfield Type Enclosure	Included	1	Included
3	Ball valve(s) for access to cooling loop	Included	1	Included
4	Radiator – Please see option #1 for the 105°F ambient option.	Included	1	Included
5	EXW Calgary, Alberta	Included	1	Included
6	Site Commissioning	Extra	10	\$2100 / day
	Total Price		1	\$1,325,650 CDN

- a) Please note that the above price applies only to the items specifically outlined in the main body of the Technical Section.
- b) Selection of Alternate and Optional Cost Items will alter the above pricing as shown and may also affect delivery indicated.
- c) The above pricing has been quoted in Canadian dollars (CND). The base price above and subsequent optional pricing includes a foreign exchange rate at \$1.07 CAD = \$1.00 USD. Upon receipt of an order, our pricing will be adjusted to account for any difference in US exchange rate at date of the purchase order.
- d) The break out prices provided above are for information / clarity only and are not provided for ordering separable pieces of equipment. It is our understanding that all of the above pieces of equipment will be ordered as a lump sum through a single purchase order.
- e) It is Gas Drive Global's expectation that all equipment will be picked up by the Buyer on the Gas Drive Global completion date. This offer does not include additional crane costs for Gas Drive Global to move the equipment to a temporary location between fabrication completion and final load out.



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2. ALTERNATIVES & OPTIONS

ltem	Description	Price/Delivery Impact
1	105°F ambient design Radiator	\$10,850.00 CDN

3. DOCUMENTATION

- 2.1 One (1) week review time has been allowed for all documents that have been issued for approval.
- 2.2 Electronic documents will be provided in.pdf format only. AutoCAD versions of drawings are not normally supplied.
- 2.3 Additional hardcopy manuals can be provided at \$450 CDN each.
- 2.4 Any changes made after drawing are "IFC" (issued for construction) may not be incorporated until "As Built" and are issued at the discretion of Gas Drive Global.
- 2.5 All drawings are prepared strictly on Gas Drive Global's design standards, Inhouse fabrication requirements, and control systems.
- 2.6 Additional detailing to meet specific customer requirements, unknown to Gas Drive at time of award will be chargeable based upon Gas Drive Global's hourly rate schedule.



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- 1. Warranty Gas Drive Global LP (hereinafter referred to as "Gas Drive") warrants new products designed, manufactured and sold by Gas Drive, separately or as part of packaged equipment to be free of defects in material or workmanship. This warranty is limited in duration for a period of twelve (12) months from the date of initial start-up or eighteen (18) months from the date the equipment is ready to ship, whichever comes first. The Customer is responsible for all costs associated with the extension of the major equipment OEM warranty including unit preservation prior to and during storage. Failure to extend OEM warranty will result in loss of coverage for major equipment.
- 2. **Commissioning** In order to validate full warranty coverage on the equipment, an initial start-up service must be performed by an authorized agent of Gas Drive.
- 3. Repair & Replacement Gas Drive's Power Equipment Warranty is limited to repair or replacement of defective parts or components. This does not apply if the equipment has been damaged as a result of excessive loading, over or under speeding, heating, fire or abnormal combustion, ingestion of foreign materials, inadequate maintenance, misalignment, accident, improper installations, improper storage, improper use or any other condition or event not within the control of Gas Drive. The warranty on replacement parts or components is limited in duration for a period of twelve (12) months from the replacement date or the duration of the original warranty period, whichever is longer. Customer is responsible to pay for any equipment and transportation costs to and from the equipment location. Customer is also responsible to pay Gas Drive's out-of-pocket costs for transportation, lodging and subsistence, as well as travel and premium labour for any repairs taking place on-site and/or being performed outside of normal business hours.
- 4. Third Party Performance Guarantees Gas Drive's Power Equipment Warranty includes all performance guarantees provided from third party product supplier(s) to Gas Drive wherein that supplier's product is distributed or resold separately or as part of an Gas Drive product. Copies of formal written performance guarantees of third party supplier(s) to Gas Drive are available on request.
- 5. Limited Warranty The warranty provided herein by Gas Drive is the sole and exclusive warranty provided to the Customer and is in lieu of all other warranties, whether expressed or implied, including those found in the Sale of Goods Act (Alberta). Gas Drive is not responsible for any consequential, incidental, indirect or special damages whatsoever. In addition, Gas Drive shall not be liable for, including without limitation, lost revenues, downtime, diminished goodwill and damage to, or replacement of other equipment and property, whether such damages are consequential, incidental, indirect, special or otherwise, Gas Drive is not responsible for any punitive damages that may arise due to damage or loss.
- 6. Modifications and Repair by Others Gas Drive shall not be responsible for modifications or repairs made to the equipment by others unless Gas Drive authorizes such actions in writing prior to the time such modifications or repairs are made. Such modifications and repairs made by other than Gas Drive shall, unless authorized by Gas Drive, void Gas Drive's Power Equipment Warranty on the equipment.
- 7. **Transferability** Subject to Gas Drive's approval, which shall not unreasonably be withheld, Gas Drive's Power Equipment Warranty may be transferred to subsequent owners within the original warranty period.
- 8. Claims All warranty claims must be filed with Gas Drive in writing within thirty (30) days after the claim arises.
- 9. Unit Storage Gas Drive's Power Equipment Warranty specifically excludes damage, deterioration and theft as a result of equipment storage regardless of storage location. The Customer will be responsible to ensure that the unit is properly stored and the equipment properly secured, protected and preserved. Damage due to water ingress, rust, dust, debris or improper security will not be covered by the Power Equipment Warranty.
- Free-Issued and Customer-Issued Equipment Gas Drive's Power Equipment Warranty specifically excludes coverage on all parts not purchased by Gas Drive and specifically excludes all parts free-issued by the Customer or others. The Customer will be responsible for all performance issues, incidental, direct and indirect damages caused by free-issued components.



GAS DRIVE TERMS AND CONDITIONS OF SALE

1. Quotation and Contract - The quotation from Gas Drive Global LP (hereinafter referred to as "Gas Drive"), is the document to which these terms and conditions are attached and apply. Other documents which are now or may be attached to or form part of the quotation, including addenda, specifications and drawings, and these terms and conditions, form an integral part of the quotation and resulting contract for the provision of parts or service to the Customer.

2. Conflicting Terms - These terms and conditions take priority over any conflicting terms of any contract or order issued, or other document forming part of the contract between the parties. No modifications of any order accepted by Gas Drive or these terms and conditions of sale shall be binding on Gas Drive unless specifically modified in writing and signed by an authorized representative of Gas Drive. All communications written and verbal, between the parties hereto with reference to the subject of the sale prior to the date of its acceptance are merged herein and this contract shall constitute the sole and entire agreement and contract between the parties as to the subject matter thereof.

3. Price - The final price for the sale of the goods or services shall be Gas Drive's quoted price as adjusted for any changes in scope or supply. The price is exclusive of all applicable Federal and Provincial custom tariffs, duties, sales taxes, value added taxes and other direct and similar taxes of every nature and kind whatsoever imposed. The risk of foreign currency exchange fluctuations in the cost of supplying parts or shall be passed on to and assumed by the Customer.

4. Payment - Terms of payment shall be net cash within 30 days from the date of invoice, unless otherwise stated in the invoice. Invoices will be issued upon provision of service and/or upon each shipment of parts from the f.o.b. point. No holdbacks are applicable after delivery unless otherwise agreed to in writing by both parties. Payments not received by the due date shall be subject to interest at the prevailing rate on the outstanding balance until payment is received, plus any expenses incurred by Gas Drive in collecting overdue amounts.

5. Warranty - Gas Drive Service, warrants parts, rebuilt parts and service provided by Gas Drive to be free of defects in material or workmanship. This warranty is limited to the details put fourth in this quotation

5.1 Repair & Replacement - Gas Drive's Parts and Services Warranty is limited to the repair or replacement of defective parts or components at Gas Drive's nearest repair facility. The warranty on replacement parts or services is limited in duration for a period of 90 days from the replacement date or the duration of the original warranty period, whichever is longer. Customer is responsible to pay for any transportation costs to and from a Gas Drive repair facility. Customer is also responsible to pay Gas Drive's out-of-pocket costs for transportation, lodging and subsistence, as well as additional and premium labor for any repairs taking place at other than a Gas Drive repair facility and/or being performed outside of normal business hours.

5.2 Repairs Not Covered - This Warranty shall not apply to a rebuilt engine or power unit and any rebuilt parts used therein which in the opinion of Gas Drive have been damaged as a result of excessive loading, over or under speeding, heating, fire or abnormal combustion, ingestion of foreign materials, inadequate



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maintenance, misalignment, accident, improper installations, improper storage, improper use or any other condition or event not within the control of Gas Drive. Engine failures caused by REGROUND or CHROME PLATED crankshafts or failures caused by fatigue or outside force misalignment with other equipment are not covered by this Warranty. This Warranty does not obligate Gas Drive to provide "tune-up service" for any rebuilt engine or power unit.

5.3 Limited Warranty - The warranty provided herein by Gas Drive is the sole and exclusive warranty provided to theCustomer and is in lieu of all other warranties, whether expressed or implied, including those found in the *Sale of Goods Act* (Alberta). Gas Drive is not responsible for any consequential, incidental, indirect or special damages whatsoever. In addition, Gas Drive shall not be liable for, including without limitation, lost revenues, downtime, diminished goodwill and damage to, or replacement of other equipment and property whether such damages are consequential, incidental, indirect, special or otherwise. Gas Drive is not responsible for any punitive damages that may arise due to damage or loss.

5.4 Modifications and Repair by Others - Gas Drive shall not be responsible for modifications or repairs made by others unless Gas Drive authorizes such actions in writing prior to the time such modifications or repairs are made. Such modifications and repairs made by other than Gas Drive shall, unless authorized by Gas Drive, void Gas Drive's Parts and Services Warranty on the equipment.

5.5 Claims - All warranty claims must be filed with Gas Drive in writing within thirty (30) days after the claim arises.

6. Security Interest - The parts shall remain the property of Gas Drive until the price is fully paid, and the Customer hereby grants to Gas Drive a security interest in the parts (and all proceeds thereof) to secure the Customer's obligation to pay for the parts. Until the price of the parts is paid in full, the Customer covenants: (a) to keep the parts (or any proceeds thereof) free and clear of all security interests, mortgages, charges, liens and other encumbrances except as hereafter approved in writing by Gas Drive prior to their creation or assumption; (b) to pay Gas Drive all reasonable costs and expenses incurred in connection with enforcing Gas Drive security interests in the parts, or any other remedies which Gas Drive is entitled to exercise; and (c) not to sell, lease or otherwise dispose of the parts or any proceeds thereof, without prior written consent of Gas Drive. The parts shall be entirely at the Customer's risk and will be insured by the Customer with all loss payable to Gas Drive, between the date of notification of readiness for delivery by Gas Drive, and the date of full payment. In the event of default of any payment, the unpaid balance of the price shall become due and payable immediately, and Gas Drive may enter the premises where the parts are located and repossess them without further demand, and may resell them notwithstanding that a part of the price may have been paid. In the event of any such default, Gas Drive will be entitled to exercise any additional rights and remedies available to it at law, or in equity, or under the Personal Property Security Act of Alberta, or otherwise arising. The Customer waives the benefit of any laws which restrict Gas Drive from exercising the remedies outlined herein and waives its right to receive a copy of a financing statement, financing change statement, or verification statement relating to the security interest granted herein.



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7. Delivery and Completion - Delivery and completion dates in the quotation are approximate only and are subject to confirmation by Gas Drive within fifteen (15) days of time of order. Gas Drive may adjust delivery dates in its sole and unfettered discretion if, at any time during the currency of the contract, Gas Drive does not receive from the Customer in a timely fashion, all necessary information with respect to the parts or services. Upon notification of readiness to ship by Gas Drive, any delay of Customer in accepting delivery shall cause storage charges for Customer's account. If any parts are shipped in error, then Gas Drive's sole liability to Customer is to ship correct parts or material f.o.b. original point of shipment as soon as such parts or material is available. This is Gas Drive's sole remedy for any mis-shipment.

8. Substitutions and Additions - In the event that any drawings or specifications do not specify parts and/or specific services, Gas Drive shall be at liberty to utilize such materials and methods as it may deem advisable, consistent with reasonable industry practices. Any costs associated with additions, deletions or revisions to Gas Drive normal design required by local codes or their application or interpretation shall be for the Customer's account.

9. Intellectual Property - All right, title and interest in and to any intellectual property disclosed by, embedded in or necessary for the operation of the parts shall at all times remain with Gas Drive and its suppliers and Customer shall acquire no right whatsoever to all or any part of such intellectual property except the right to use same in connection with the operation of the parts.

10. Force Majeure - Failure on the part of Gas Drive to perform any contract of sale or deliver the services thereunder on or about the required date shall not constitute default, or give rise to a claim for damages if caused by Force Majeure. Force Majeure includes acts of God, strikes, lockouts or other significant industrial disturbances, sabotage, fire, civil disturbances, explosions, breakage of or accidents to machinery, inability to obtain the necessary materials, parts or equipment, any legislative, administrative or judicial restrictions, road conditions, weather, or any other act, omission or event outside the control of Gas Drive, which could not have been prevented by the exercise of due diligence by Gas Drive. Gas Drive shall advise the Customer of any difficulty in performing under the contract by reason of Force Majeure and the parties shall agree to either cancel the contract as provided in Clause 10 or complete the contract with such adjustments as are reasonably compelled by the Force Majeure.

11. Cancellation and Delay - The contract shall not be subject to cancellation or delay by the Customer except with the written consent of Gas Drive. Customer's cancellation of contract is subject to a cancellation charge of 10% of the total price of the contract, plus Gas Drive's actual expenses to which Gas Drive has become committed for fulfilment of the contract before notice of cancellation is received. In the event cancellation or delay is occasioned by the Customer, then the Customer shall indemnify and save harmless Gas Drive from all direct and indirect costs, losses, liabilities and commitments, including loss of profit arising from the cancellation or delay.

12. Damages - Subject to the balance of the provisions of this clause, Gas Drive shall only be liable for the cost of replacement of any defective parts or services provided under this contract. Gas Drive shall not be liable to the Customer for any consequential, indirect or special damages whatsoever. In addition, Gas Drive shall not be liable for, including without limitation, loss of profits or revenue, loss of use of equipment and



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facilities, and claims by or payments to customers, suppliers or other parties who have a relationship with the Customer, whether such damages are consequential, indirect, special or otherwise. The disclaimer applies to consequential, indirect or special damages based upon any cause of action whatever asserted against Gas Drive including causes of action arising out of any breach of warranty, express or implied, guarantee, product liability, negligence, tort, or any other cause pertaining to the performance or non-performance of this contract by Gas Drive. Gas Drive shall not be responsible for losses or damages arising out of the negligence of the Customer, its employees, agents or third party contractors. In no event will Gas Drive's maximum liability to the Customer in connection with this contract, including without limitation resulting from breach of contract or any other performance or non-performance of this contract, exceed the aggregate amount of the price paid to Gas Drive for the parts or services provided hereunder.

13. Applicable Laws and Forum - This contract shall be interpreted in accordance with and shall be governed by the laws of the Province of Alberta, and the parties agree that any disputes hereunder or with respect to this quotation or the resulting contract between the parties shall be determined exclusively by the Courts in the Province of Alberta, and the parties hereby expressly attorn to the exclusive jurisdiction of the Courts in the Province of Alberta.

PRIVACY NOTICE: By requesting Gas Drive's products and services, or by supplying products and services to Gas Drive, you hereby consent to the collection, use and disclosure of your personal information for the purposes described in GasDrive's External Privacy Policy including for the purpose of providing the products and services described in this document. For further information, please refer to Gas Drive's External Privacy Policy or Contact Gas Drive Privacy Officer by phone (403) 387- 6300



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Waukesha* gas engines Express Limited Warranty

1) STANDARD EXPRESS LIMITED WARRANTY ("ELW").

Dresser, Inc., a wholly owned subsidiary of General Electric Company doing business through its Waukesha gas engines business ("Waukesha"), warrants that it will repair or replace, AT ITS SOLE ELECTION AND EXPENSE, any component of a Waukesha manufactured engine, Enginator*, Cooperative Fuel Research Product ("Equipment") or Genuine Waukesha Service Part installed in or on Equipment ("Genuine Waukesha Part(s)") (Equipment and Parts collectively referred to as "Product(s)") that fails, or is damaged, as the direct result of a defect in material or workmanship. This warranty is made to the original owner of the Product and transfers to subsequent owner(s) ("Owner") until the expiration of the applicable warranty period.

2) CONDITIONS OF THE ELW.

A. WAUKESHA'S RESPONSIBILITIES. Waukesha shall be responsible for the reasonable cost to repair or replace, at Waukesha's election and expense, defective Product(s) during the applicable warranty period, including:

1. Labor if provided by Waukesha or an independent authorized Waukesha Distributor ("Distributor") or independent authorized service provider ("Service Provider");

2. Travel expenses incurred by Distributor or Service Provider as necessary to complete the warranty repair or replacement;

3. Required freight, customs and duties; and

4. The cost to replace lubricating oil, coolant, filter elements, or other normal Product maintenance items that are contaminated and/or damaged as a direct result of a warranted defect.

B. OWNER'S RESPONSIBILITIES. Owner shall be responsible for:

1. The proper operation, repair and maintenance of the Product(s) documented by keeping accurate and complete records of operation, repair and maintenance during the warranty period and providing Waukesha, Distributor and/or Service Provider access to those records.

2. If Products do not meet this warranty, Owner shall promptly notify Waukesha, Distributor or Service Provider in writing within thirty (30) days of becoming aware of a possible warranty claim.

3. Making the Product(s) available during normal business hours to Waukesha, Distributor or Service Provider for any warranty repair or replacement.

4. All costs for premium or overtime labor incurred due to owner's request that warranty repairs or replacements be made on a premium or overtime schedule.

5. All labor costs in excess of what is allowed in the current Waukesha Labor Guide.

6. All transporting, towing or other costs incurred in the removal or reinstallation of Equipment as may be required to affect any warranted repair or replacement.

7. Its administrative costs and expenses associated with a warranty claim.

8. Providing Waukesha, Distributor and/or Service Provider access to and download of the Product's electronically stored engine controls data.

Form No. 4503 rev 8-10-2012. Effective for orders acknowledged by Waukesha on or after September 1, 2012. This ELW consists of 5 pages which all together make up the entire express limited warranty.

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3) EXCLUSIONS.

All obligations of Waukesha under this ELW shall be waived and rendered void, and Waukesha shall not thereafter, be responsible for:

A. Any damage or failure to a Product:

1. Resulting from owner, operator or third party abuse or neglect, including but not limited to, any operation, installation, application, maintenance, or assembly practice not in accordance with the applicable laws, regulations or the guidelines and specifications established by Waukesha; or

2. Resulting from an unauthorized modification or repair of a Product(s); or

3. Resulting from overload, over speed, overheat or accident; or

4. That is not reported to a Distributor or Service Provider within thirty (30) days of becoming aware of a possible warranty claim; or

5. For which Waukesha did not receive proper documentation concerning the start-up of the Equipment or purchase and installation of the Genuine Waukesha Part(s) from the owner, Distributor or Service Provider; or

6. Caused by or related to a part that is not a Genuine Waukesha Part; or

7. Installed in any application or product other than Equipment; or

8. Where the repair or replacement is performed by anyone other than Waukesha, Distributor or Service Provider; or

9. Where the allegedly defective Product(s) is/are not made available to Waukesha, Distributor or Service Provider; or

10. Where the necessary documents, such as drawings and specifications relating to the specific application of the Product(s), are not provided to Waukesha, Distributor or Service Provider in a timely manner ; or

11. Resulting from misapplication or improper repair of a Product; or

12. Resulting from the improper or extended storage of a Product.

B. Any cost for freight, customs, brokers fees, and/or import duties if appropriate documentation is not provided; or

C. Normal wear, maintenance or consumable parts that may need to be routinely replaced, rebuilt or otherwise maintained during the applicable warranty period such as belts, spark plugs, lubricating oil filters, air filters, etc.; or

D. Loss of revenue and/or loss of or damage to real and/or personal property.

4) WARRANTY PERIODS

A. EQUIPMENT IN CONTINUOUS DUTY APPLICATIONS operate at the highest load and speed which can be applied, subject to Waukesha's approved ratings in effect at time of sale ("Continuous Duty Engines").

Warranty coverage shall commence on the initial new Continuous Duty Engine's start-up date and shall expire upon the earlier of the following:

(a) 12 months after the initial Continuous Duty Engine's start-up date; or

(b) 24 months after the original shipment date of the Continuous Duty Engine from Waukesha's facility.

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B. EQUIPMENT OPERATED IN EXCESS OF CONTINUOUS DUTY RATING is Equipment operated in accordance with Waukesha's published intermittent, standby or peak shaving power ratings ("Excess Engine(s)").

Warranty coverage for Excess Engines shall commence on the initial new Excess Engine start-up date and shall expire upon the earlier of the following:

(a) 60 months after the initial Excess Engine start-up date; or

(b) 3500 hours of operation of the Excess Engine; or

(c) 72 months after the original shipment date of the Excess Engine from Waukesha's facility.

C. EQUIPMENT APPROVED FOR DEFERRED START-UP is Equipment that meets all of the following requirements:

1. Distributor must inspect and re-preserve the Equipment in accordance with the long term storage and preservation requirements set forth in the most current version of Service Bulletin 16-1855 prior to 12 months from the date of shipment and then at least annually thereafter. Waukesha is not responsible for any costs associated with storing, inspecting and/or preserving the Equipment.

2. Supporting documentation of this work (C.1) must be sent to Waukesha.

3. Waukesha shall review the documentation and, in its sole discretion, approve or reject the deferred start-up request. A deferred start-up must be approved by Waukesha in writing in order for the deferred start-up warranty period under this subsection to apply. ("Stored Engines").

Warranty coverage for Stored Engines shall commence upon the date of the written approval for deferred start-up and shall expire upon the earlier of the following:

- (a) 12 months from the date of an approved deferred start-up; or
- (b) 12 months after the initial start-up date: or
- (c) 48 months from the original shipment date of the Stored Engines from Waukesha's facility.

D. GENUINE WAUKESHA PARTS AND WAUKESHA FACTORY REMANUFACTURED SERVICE PARTS, include assemblies and short blocks used for repair, maintenance or overhaul of Products ("Service Part(s)") Warranty coverage for Service Part(s) shall commence upon the date the Service Part is installed in the Product and shall expire upon the earlier of the following:

- (a) 12 months after the date the Service Part is installed in the Product; or
- (b) 24 months after the purchase date of the Service Part from an authorized Waukesha Distributor.

D. GENUINE WAUKESHA PARTS USED IN A CERTIFIED ENGINE OVERHAUL OR CERTIFIED CYLINDER HEAD OVERHAUL are those parts identified in the then current policy manual ("Certified Part(s)").

Warranty coverage for Certified Parts shall commence upon the initial start-up date of the overhauled Product and shall expire upon the earlier of the following:

(a) 18 months after the certified overhauled Product start-up date; or

(b) 24 months after the purchase date of Genuine Waukesha Part(s) used in the certified overhaul.

E. SPECIFIC FORGED AND CAST COMPONENTS include the cylinder block casting, cylinder head casting, connecting rod forging, and crankshaft forging in Equipment or when sold separately as a Genuine Waukesha Part(s) ("Cast Components").

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Notwithstanding the foregoing, warranty coverage for these Cast Components only shall expire upon the earlier of the following:

(a) 60 months after the initial Equipment start-up date or date the Genuine Waukesha Part(s) is installed in the Equipment; or

(b) 25,000 hours of operation of the covered Equipment or Genuine Waukesha Part(s); or

(c) 72 months after the original shipment date of the covered Equipment from Waukesha's facility or purchase date of Genuine Waukesha Part(s) from an authorized Waukesha Distributor.

1. No damage from other sources, such as damage from the loss of a crankshaft bearing, shall be considered a forging defect.

2. Owner shall be responsible for all labor, travel, mileage and other related costs and expenses associated with a forged or cast warrantable failure occurring more than 12 months from the commencement of the warranty period.

F) A Service Part(s) used in the repair or replacement under this ELW assumes the remaining warranty coverage of the replaced part(s) if any.

5) GRATUITOUS ADVICE

If Waukesha furnishes Owner, Distributor or Service Provider with advice or assistance concerning any Product, system or work which is not required pursuant to a contract, the furnishing of such advice or assistance will not subject Waukesha to any liability, whether in contract, warranty, indemnity, tort (including negligence), strict liability or otherwise.

6) EXPIRATION

The warranties and obligations of Waukesha shall expire and be of no further effect upon the respective dates of expiration of the applicable warranty periods.

7) MODIFICATIONS OF THE ELW

This ELW is and shall remain the complete and exclusive agreement between the parties with respect to warranties, superseding all prior agreements, written or oral, and all other communications between the parties relating to warranties, except as modified in writing and signed by the parties. No person or entity other than Waukesha is authorized to give any other warranty or to assume any other obligation on behalf of Waukesha, either orally or in writing.

8) WARRANTY ADMINISTRATION

A. Distributors administer the warranty policies and procedures established by Waukesha and submit warranty claims on the customer's behalf to Waukesha for warranty consideration. Waukesha determines, AT ITS SOLE DISCRETION, if and to what extent the ELW applies to the claim.

B. Proper documentation, including but not limited to, certified overhaul invoices and/or invoices for the Genuine Waukesha Part(s) and/or start-up report, must accompany any warranty claim. Contact the nearest Distributor or Service Provider for assistance with warranty matters or questions. To locate the nearest Distributor or Service Provider, visit our website at www.dresser.com/waukesha or contact Waukesha at (262) 547-3311.

9) OWNER'S REMEDIES UNDER THIS ELW

This ELW provides the exclusive remedies for all claims based on defect in material or workmanship in Product(s), regardless of when the failure or defect is discovered, and whether a claim, however described, is based on contract, warranty, indemnity,

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tort/extra-contractual liability (including negligence), strict liability or otherwise. The warranties provided in this ELW are exclusive and are in lieu of all other warranties, conditions and guarantees whether written, oral, implied or statutory. NO IMPLIED OR STATUTORY WARRANTY, OR WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLIES.

10) GOVERNING LAW AND DISPUTE RESOLUTION

A. This ELW shall be governed by and construed in accordance with the laws of (i) the State of New York if Owner's place of business is in the U.S. or (ii) England and Wales if the Owner's place of business is outside the U.S., in either case without giving effect to any choice of law rules that would cause the application of laws of any other jurisdiction (the "Governing Law"). The United Nations Convention on Contracts for the International Sale of Goods shall apply to Products sold to Owners outside of the USA.

B. All disputes arising in connection with this ELW, including any question regarding its existence or validity shall be resolved in accordance with this Article 10. If a dispute is not resolved by negotiations, either party may, by giving written notice, refer the dispute to a meeting of appropriate higher management, to be held within twenty (20) business days after the giving of notice. If the dispute is not resolved within thirty (30) business days after the giving of notice, or such later date as may be mutually agreed, either party may commence arbitration or court proceedings, depending upon the location of the Owner, in accordance with the following:

(a) if the Owner's pertinent place of business is in the U.S., legal action shall be commenced in federal court with jurisdiction applicable to, or state court located in New York County, New York; or (b) if the Owner's pertinent place of business is outside the U.S., the dispute shall be submitted to and finally resolved by arbitration under the Rules of Arbitration of the International Chamber of Commerce ("ICC"). The number of arbitrators shall be one, selected in accordance with the ICC rules, unless the amount in dispute exceeds the equivalent of U.S. \$5,000,000, in which event it shall be three. When three arbitrators are involved, each party shall appoint one arbitrator, and those two shall appoint the third within thirty (30) days, who shall be the Chairman. The seat, or legal place, of arbitrators shall be London, England. The arbitration shall be conducted in English. In reaching their decision, the arbitrators shall give full force and effect to the intent of the parties as expressed in the ELW, and if a solution is not found in the ELW, shall apply the Governing Law of the ELW. The decision of the arbitrator(s) shall be final and binding upon both parties, and neither party shall seek recourse to a law court or other authority to appeal for revisions of the decision.

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Scope of Supply Information

Hazardous location	General Purpose
Electrical Systems	Meets CSA Standard

Major Equipment:

Engine/Generator	Waukesha P9394GSI, Leroy Somers LS661-06	
	1200 rpm, 480 V, 3 phase, 60 Hz, 1600 kW, continuous duty rated	
Radiator	Harsco Air-X-Changer, remote mounted (front of building), on main skid	
	• Option for 105°F ambient Radiator has been offered, and drawn on the revised G.A.	
Main Breaker	Remote mounted (rear of building package)	
Battery Charger	Waukesha 20 Amp, wall mounted	
Air Starter	Waukesha	
NGR & Relay	Startco SE-330	
Pre/Post Lube	Pneumatic pump	
Control panel	Waukesha – ECP8006E, mounted at rear of building	
Chid.	Puilt to CMP standards	
Skiu:	Built to CWB standards	
Size	14' x 44' x 18" (Approximate)	
Mounting	Designed for installation on piles	
Floor	1/4" checker plate with 2" containment lip, with door ramps	
Handling	8 point lifting lugs – 4 on each side-MPI certified	
Waste oil	Tank 5000 L, double wall, shipped loose for site installation, by others.	
Make-up oil	Kenco 55 gal, day tank with stand	



4700 47 Street SE, Calgary, Alberta, T2B 3R1

Phone: 403.387.6300Email: info@gasdriveglobal.comFax: 403.279.7649www.gasdriveglobal.com



Paint	Warm grey, prepped to SSPC-SP6, Epoxy primer & (2) coats Marine enamel
Sandblast	Commercial Grade
Insulation	80 mil, (3") spray urethane fire retardant foam insulation on underside of skid
Isolators	None, genset rigid mounted to main skid
Silencer/Catalyst	Not included in this proposal, and is required. The exhaust system past the building wall will need to be purchased in a separate purchase order. This allows for continued exhaust design time without delaying genset fabrication.
Cooling System	Drain valves, vent valves, three way valves (thermostatically controlled both circuits) (4) isolation valves between cooler & engine and all associated piping, including flex connections
Surge tank	Installation of coolant surge tank, Air-X mounted, low level alarm / shutdown, J/W, and Aux. circuits.
Oil Heater	Engine oil heater, mounted, piped and wired
Pre/Post Lube	Pneumatic pump, installation included, piped to skid edge connection
Starter	Pneumatic starter, installation included, piped to skid edge connection
Crane	5 ton manual hoist, carriage & supports
Fuel train:	Coalescing fuel filter, fuel pressure gauge on inlet and outlet ports. Knockdown fuel pressure regulator and pressure relief valve mounted outside of building. Electric solenoid fuel shut-off valves & vent line to

atmosphere. Fuel Gas piping embedded in the skid.(designed to meet CSA B149-10) ABSA certified

Building:

Warwick Self Framing

- 14' wide x 30' long x 17' eave, gable style roof with a 4:12 slope •
- 22 gauge pre-painted exterior Customer specified colors, TBD. •
- Insulation Roxul mineral wool R20 walls, Roxul mineral wool • R35 ceiling, 6 ml vapor barrier



Gas Engines

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- 20 ga white perforated aluminum interior liner (10% free area) above 3' with 24 gauge white fluted aluminum below 3'
- 2 6' x 7' double man door & (20 ga doors, 18 ga frames, R4 • insulated) c/w locking panic hardware, hydraulic door closures and IWG windows on both leafs, barrel bolts (floor & header) on inactive leafs, check chains, weather-stripping, and aluminum thresholds
- $1 3' \times 6'$ removable transom, to facilitate genset extraction • (side)
- 2 x 6' x 4' ventilation louvers with Belimo actuators & storm hoods
- 2 x 12" exhaust fans, back draft louvers, screens & hoods.
- Intake combustion air ducting, with automated diverter boxes for • winter / summer operation.
- Manually operated ridge vent with screen & dampener
- Ice rakes at lower eaves •
- Continuous eaves trough with 2 downspouts
- Climaseal fasteners c/w neoprene washers
- Design sound attenuated to 85 dBA @ 7 M in free field condition
- 2 x 60,000 BTU Catadyne 12V DC NG heaters C/W vent hoods, to maintain minimum temperature of 10°C for the stated site temperature range of -47°C to +38°C
- Designed to accommodate wind and snow (environmental) loads • of central Alberta, CBA

Skid / Building Electrical:

- Supply & install (1) 45kva 480:120/208v 3-phase step • down transformer & 42cct distribution panel for all listed devices:
 - (2) 12" Exhaust Fans, back draft dampers & • hoods, thermostat controlled
 - (8) Interior fluorescent lights c/w 3-way switches
 - (2) Exterior Lights (photo cell controlled 70 W) (wall mount)
 - (2) Exit / Emergency light packs, minimum 1 hour battery
 - (2) Receptacles (duplex 15A, 120VAC)
 - (1) Battery Chargers 20amp wiring
 - (1) Engine block heater wiring
 - (1) Generator heater
 - (1) Engine oil heater



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Distributor Gas Engines



- Interior grounding grid, terminated externally @ opposite corners
- (2) VS2 Vibration switches, on engine & one @ radiator
- (2) ESD's, 1 outside each man door, with clear • weather guards (open)
- Main breaker mounted on rear wall & interconnected •
- Enginator Control panel, mounted and interconnected •
- Customer controls JB exterior rear of building, and main • output terminated externally (splitter)
- Supply & Install radiator fan motor VFD and controls •
- Supply & Installation of wiring to remote radiator for • motor, local disconnect and shutdown devices.
- Supply & Install supplied NGR / Startco SE-330 relay ٠
- EMT surface mount conduit, wiring to CEC Code
- Cable pass through tray/ladder as required, built into the • skid
- Fire & Gas Detection
 - LEL
 - Fire eyes
 - Beacons (strobes)
 - Horns
 - Interconnected to a skid edge J/B
 - Exterior devices removed, and packed for shipping
- CSA inspection included

Drawings:

- P&ID Drawing AB, P.Eng stamped •
- Skid Civil Drawings AB, P.Eng stamped •
- Skid General Arrangement Drawings AB, P.Eng • stamped
- Skid Crane drawings & certificates AB P.Eng stamped
- **Electrical Drawings** •
 - Single Line
 - 120/208 panel drawings
 - Radiator Motor Control Schematics
 - 120/208 control wiring schematics
 - Waukesha control panel drawings, and interconnections

Notes:

- Approximate dimensions and weight of the genset building.
 - 44' long x 14' wide x 17' eave height



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Distributor Gas Engines



- 95,000 lbs (Dry estimated weight) 0
- Storm hoods, and awnings shipped loose for site installation 0
- Foundations / pile layout, to be designed by others. Recommended pile ٠ location can be provided.
- Design conditions can change, depending on final dimensions, specification, • at the time of IFC drawings. IFA drawings are issued before start of package construction.
- EXW, Enerflex Barlow fabrication facility, Calgary Alberta

Packager start-up:

(5) Eight hour days have been provided for pre-commissioning testing in • Calgary, Alberta.

Field Start-up & Commissioning:

• (10) Eight hour days have been recommended for site start-up & commissioning.



Distributor Gas Engines 4700 47 Street SE, Calgary, Alberta, T2B 3R1

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Performance Data: P9394GSI Gas Engine - Intercooler Water Temperature 130°F (54°C)					
	Fuel WKI	93	70	65	53
	Fuel BTU/ft3 LHV	921	1070	1108	1300
	Power bhp	2250	2250	2190	2050
	RPM	1200	1200	1200	1200
	BSFC Btu/bhp-hr LHV -0/+5%	7008	7270	7314	7473
	Fuel Flow (SCFM) based on LHV -0/+5%	285	255	241	196
	NOx g/bhp-hr		14.5	14.4	14.8
s	CO g/bhp-hr	5.9	5.7	5.9	6.0
sior	NMHC g/bhp-hr	0.600	0.610	0.700	0.720
nis	THC g/bhp-hr	1.30	1.20	1.20	1.10
^Ξ CO2 g/bhp-hr		473	508	512	533
	CO2e g/bhp-hr	488	520	522	541
	Heat Rejection to Jacket Water BTU/hr *1000	4356	4523	4480	4353
eat	Heat to Lube Oil Btu/hr *1000 Heat to Intercooler Btu/hr * 1000		628	628	619
He 3ala			563	537	479
	Total Heat to Auxiliary BTU/hr * 1000	1188	1191	1165	1098
e/E st m	Induction Air Flow SCFM	2800	2896	2819	2698
ake nau ste	Exhaust Gas Flow Rate lb/hr	13624	14102	13726	13141
ビネ ふ Exhaust Temperature after Turbine °F		1124	1172	1176	1180

Note: CO shown at highest NOx case. Highest NOx case does not occur at same time as highest CO case. Recommend using 10 g/bhp-hr CO as worst-case for catalyst input. CH20 = 0.05 g/bhp-hr for VHP Series Four rich-burn engines.

The following tolerances should be used in additional to any allowances made for fouling factors:

- Heat rejection +/- 12%
- Radiation +/-40%
- Exhaust temps +/- 100F
- Intake/exhaust flows +/-10%

P9394GSI TURBOCHARGED AND INTERCOOLED GAS ENGINE 9.375 Inch (238 mm) Bore x 8.5 Inch (216 mm) Stroke – 16 Cylinders 9388 Cubic Inch (153.9 Litre) Displacement STANDARD EQUIPMENT

AIR CLEANER – Engine mounted. Dry type, including pad type pre-cleaner and service indicator. For sheltered installation and average dust environment. AIR FUEL RATIO CONTROL (AFR) – Integrated ESM* - AFR catalyst rich-burn control, main fuel gas regulator actuators, exhaust O2 sensor(s), and post turbocharger exhaust thermocouple. Factory mounted and tested. AFR maintains emissions through load and speed changes. The ESM AFR meets Canadian Standards Association Class 1, Division 2, Group A, B, C & D (Canada & US) hazardous location requirements.

BARRING DEVICE – Manual.

BATTERY BOX – Ship loose battery box designed to accommodate two series 31 12 VDC batteries. Includes power disconnect switch and 20 foot (6.1 m) cable for connection to ESM Power Distribution Box.

BEARINGS – Heavy duty, replaceable, precision type.

BREATHER – Self-regulating, closed system.

CONNECTING RODS – Drop forged steel, rifle drilled.

CONTROL SYSTEM – Waukesha Engine System Manager (ESM) integrates spark timing control, speed governing, detonation detection, start-stop control, diagnostic tools, fault logging and engine safeties. Engine Control Unit (ECU) is central brain of the control system and main customer interface. Interface with ESM is through 25 foot (7.6 m) harness to local panel, through MODBUS RTU slave connection RS-485 multidrop hardware, and through the Electronic Service Program (ESP). Customer connections are only required to the local panel, fuel valve, and 24V DC power supply. Compatible with Woodward load sharing module. ESM meets Canadian Standards Association Class I, Division 2, Group A, B, C & D (Canada & US) hazardous location requirements.

CRANKCASE – Integral crankcase and cylinder frame. Main bearing caps drilled and tapped for temperature sensors. Does not include sensors.

CRANKSHAFT – Counterweighted, forged steel, ten main bearings, and dynamically balanced.

CRANKSHAFT PULLEY, FRONT SEGMENT – 9.5 inch (241 mm) pitch diameter pulley, with six c-section drive grooves, front end drive assembly, and outboard bearing. Outboard bearing not mounted. Includes engine mounted stub shaft and coupling guard.

CYLINDERS – Removable wet type bainitic cast iron cylinder liners, chrome plated on outer diameter.

CYLINDER HEADS – Sixteen interchangeable. Four valves per cylinder, with water cooled exhaust valve seats. Roller valve lifters and hydraulic push rods. Flange mounted ignition coils.

ELECTRONIC SERVICE PROGRAM (ESP) – Microsoftò Windows-based program provided on CD-ROM for programming and interface to ESM. Includes E-Help for troubleshooting any ESM faults. Serial harness is provided for connection of a customer supplied laptop to the ECU RS-232 port.

ENGINE MONITORING DEVICES – Factory mounted and wired sensors for lube oil pressure, pressure differential across oil filter, and temperature; intake manifold temperature and pressure; overspeed; and jacket water temperature; all accessible through ESMâ. ESM continually monitors combustion performance through accelerometers to provide detonation protection. Dual magnetic pick-ups are used for accurate engine speed monitoring. ESM provides predictive spark plug diagnostics as well as advanced diagnostics of engine and all ESM sensors and logs any faults into non-volatile flash memory. Sensors meet Canadian Standards Association Class 1, Division 2, Group A, B, C, & D (Canada & US) hazardous location requirements.

ENGINE ROTATION – Counterclockwise when facing flywheel.

EXHAUST OUTLET – Single vertical at center. Flexible stainless steel connection with 14" (356 mm) ANSI flange.

FLYWHEEL – Approx. WR2 = 155000 lb-in2; with ring gear (208 teeth), machined to accept two drive adapters; 31.88" (810 mm) pilot bore, 30.25" (768 mm) bolt circle, (12) .75" – 10 tapped holes, or 28.88" (734 mm) pilot bore, 27.25" (692 mm) bolt circle, (12) 0.625" – 11 tapped holes and (12) 0.75"–10 tapped holes. FLYWHEEL GUARD

FUEL SYSTEM – Dual. Two natural gas, 4" (102 mm) downdraft carburetors and two mounted Fisher 99, 2" (51 mm) gas regulators, 30-60 psi (207-414 kPa) fuel inlet pressure required. 10 foot (3 m) harness provided for ESM control of customer supplied fuel shutoff valve

Wire the customer-supplied fuel gas shutoff valve to be controlled by ESM. If the fuel valve is controlled independently of ESM, fault codes will occur when the fuel valve is not actuated in sequence with the ESM.

GOVERNOR – Electric throttle actuator controlled by ESM with throttle position feedback. Governor tuning is performed using ESP. ESM includes option of a load-coming feature to improve engine response to step loads.

IGNITION SYSTEM – Ignition Power Module (IPM) controlled by ESM, with spark timing optimized for any speed-load condition. Dual voltage energy levels automatically controlled by ESM to maximize spark plug life. Shielded ignition components meet Canadian Standard Association Class 1, Division 2, Group A, B, C & D (Canada & US) hazardous location requirements.

INTERCOOLER – Air–to–water.

LEVELING BOLTS

LIFTING EYES

LUBRICATION – Full pressure, gear type pump. Engine mounted full flow lube oil micro-fiberglass filters. Oil pressure differential across filter monitored by ESM. MICROSPIN* bypass filter, engine mounted. Air/gas motor driven prelube pump, requires final piping.

MANIFOLDS – Exhaust, (2) water cooled.

OIL COOLER – Plate type. Mounted. With thermostatic temperature controller.

OIL PAN – Deep sump type. 250 gallon (946 litres) capacity including filter and cooler.

PAINT – Oilfield orange topcoat.

PISTONS – Aluminum with floating pin. Oil cooled. 9.7:1 compression ratio.

SHIPPING SKID – For domestic truck or rail.

TURBOCHARGERS – (2) with water-cooled bearing housings. Wastegate controlled—no customer adjustments.

VIBRATION DAMPER – Dual. Viscous type. Guard included...

WATER CIRCULATING SYSTEM, AUXILIARY CIRCUIT – Belt-driven water circulating high capacity pump for intercooler and lube oil cooler. See performance curve for use with standard 10" diameter crankshaft pulley.

WATER CIRCULATING SYSTEM, ENGINE JACKET – Belt driven water circulating pump. Cluster type thermostatic temperature regulating valve, full flow bypass type. Inlet water pump header with (3) 8" (203 mm) flanges; customer chooses front, right, or left inlet flange and blocks off other two with blocking plates provided. Water outlet (1) 8" (203 mm) ANSI flange.

Code	Description
	Requested Option Codes to be Available on 9394 Genset for Encana
1140	Omit Front End Drive Assembly: front shaft drive/pulley assembly, pillow block and coupling
1164	Flywheel – Machined for 24" generator coupling
4367	Auxiliary water circuit thermostatic valve for 130° F (54° C) intercooler water temp. Standard on GL and LT
5022B	Regulator – Lubricating oil level. Kenco model LCE with explosion-proof electric low level SPDT safety switch and Fire Safe features. Meets CSA Class I, Division 2, Group A, B, C & D (Canada & US) requirements. For oil supply with up to 15ft. of static head. Mounted in place of standard crankcase inspection door
6012C	Valve – BICERA crankcase explosion relief. Quantity six (6)
6527A	Exhaust Thermocouples – 18 K-type. One for each cylinder exhaust. Includes pre-turbine exhaust thermocouples and 25 foot (7.6 m) harness. Terminated in customer-connection bulkhead
9208B	Starter – High pressure, air or gas TDI T112, pre-engaged, mounted with strainer and valve. Minimum supply pressure 90 psi. Maximum supply pressure 150 psi
1130	Breather System Modification – Required for any turbocharged gas engine equipped with a catalytic converter or heat recovery silencer. Requires customer piping to the exhaust stack on the downstream side of the converter or silencer. Can be used on turbocharged engines without catalytic converter where exhaust system calculated backpressure exceeds published allowable limits. Refer to WAUKESHA Technical Data Manual
1150	Dual Vibration Dampers for operation above 145 BMEP
4292A	Header – Inlet water, and connections. Includes single front inlet water pump header with 8" (203 mm) flange connection
4341A	Connection – Water outlet. Single 8" (203 mm) flange, for remote cooling
5114	Waukesha Microspin Oil Filtration System – Microspin centrifugal bypass oil filter includes shutoff valve and special crankcase door for oil return (Not for 7100GL).
6190G	Magnetic Pickup - Mounted. Meets Canadian Standards Association Class 1, Division 2, Group A, B, C, & D hazardous location requirements
STD	ECP Control Panel (Non-CSA) w/ switchgear
STD	Genset Base for Rigid Mount
STD	480V 2-Bearing Generator w/CSA cert
STD	Coupling
STD	Coupling Guard





GENERATOR DATA

Catalog No.: Stator Winding: Machine Constants at:	LS661-06 2/3 Pitch, Form Wound 1675 kW, 2093.3 kVA, 0.8 p.f., 480 volt, 60 Hz	Serial No.: WPS P/N:	TBD
SYMBOL	MACHINE CONSTANTS		VALUE (p.u.)
X _d	Direct Axis Synchronous Reactance		2.22
X' _d	Direct Axis Transient Reactance		0.24
X" _d	Direct Axis Subtransient Reactance		0.207
X ₂	Negative Sequence Reactance		0.252
X ₀	Zero Sequence Reactance		0.041
X q	Quadrature Axis Synchronous Reactance		1.127
X" _q	Quadrature Axis Sub-Transient Reactance		0.297
T' _{d0}	Transient Direct Axis Open Circuit Time Constant	(secs)	3.297
T' _d	Transient Direct Axis Short Circuit Time Constant	(secs)	0.36
Τ _a	Armature Time Constant (secs)		0.039
Short Circuit Character	istics:		40

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270

Efficiencies:

Load %	6	Efficie	ncy (%)
100% = (kW)	1675	Power Factor: 0.8 Lag.	Power Factor: 1.0
25		92.7%	93.2%
50		95.1%	95.9%
75		95.5%	96.5%
100		95.3%	96.7%
125		94.6%	96.6%

CERTIFIÈD			
Project Number	PO Number	Date:	Signed:
Not Applicable	TBD	August 19, 2011	Louis R Myers





DECS-100 Digital Excitation Control System

Basler Electric offers a high powered, low-cost digital excitation control system, the DECS-100. This environmentally rugged product is ideally suited for controlling the output of brushless excited synchronous generators up to 5MW. The DECS-100 has a very impressive 7Adc output from a pulse width modulated power stage. The DECS-100 is perfect for machines that will be paralleled to other generators and/or to the utility system. It is ideal for distributed generation, co-generation and peak shaving applications. The DECS-100 is easy to use, and it has communications capability with a PC. The DECS-100 utilizes microprocessor technology and control algorithms pioneered by Basler Electric for longer than a decade. It shares many features and functions of our larger excitation control systems. The DECS-100 is Basler Electric's fifth generation of microprocessor-based excitation system.

FEATURES

- Microprocessor based
- 0.25% Voltage Regulation Accuracy
- 0.5% accuracy up to 40% THD (harmonics associated with 6 SCR load)
- 63Vdc @ 7Adc PWM output
- 0-3X V/Hz limiting
- · Soft Start capability
- · 20 standard stability selections and one customizable selection
- VAR/PF control
- Overexcitation limiting
- Underexcitation limiting
- Voltage Matching
- · Manual Mode (Field current regulation)
- · Paralleling input from 1 or 5A CT secondaries
- Nominal sensing inputs of 120, 240, 480 and 600Vac
- Power Input from 50/60Hz shunt connections or PMGs operating at 50 to 400Hz
- · Five generator protection functions including Loss of Sensing transfer to manual
- Alarm Contact Output
- Accessory input
- · LED Annunciation of operating conditions
- Setup via PC using BESTCOMS software (included)
- cURus recognition per UL 508 and CSA Standard C22.2 No. 14
- DNV Standard for Certification 2.4
- · CE compliant

WINDOWS[®] SOFTWARE

Interface for setting and communicating with Basler products Request DECS-100-CD

ADDITIONAL INFORMATION

INSTRUCTION MANUAL

Request Publication 9287500991



FEATURES and FUNCTIONS Page 4

DESCRIPTION and

SPECIFICATIONS

Pages 2 and 3

DIAGRAM Page 6

DIMENSIONS Page 7



DESCRIPTION

The DECS-100 is a microprocessor-based regulation system designed to control the output of a brushless excited synchronous generator. The DECS-100 is perfect for paralleling applications where generator to generator and/or generator to utility paralleling occurs with VAR/PF control and Over- and Underexcitation Limiting. The DECS-100 offers high functionality, communications, and performance at an extremely affordable price. The DECS-100 is very rugged and offers an extremely robust mechanical design that is cURus recognized, CE compliant, and DNV certified.

SPECIFICATIONS

INPUTS

Power Input*	
Voltage:	88-250Vac
Phase:	Single- or three-phase
Burden:	650VA
Frequency:	50 to 400Hz
Minimum Build-up Voltage:	6.0Vac

* NOTE: For Station Power application, refer to Accessories (page 8) regarding ICRM-7.

Sensing Input

Nominal Voltage Input: Burden: Current Input: Burden: Frequency: 100/120, 200/240, 400/480, 600Vac, Single- or three-phase <1VA 1 or 5 Amp (two models) <1 VA 50/60Hz

Accessory Input

 \pm 1Vdc creates a \pm 10% adjustment (respectively) for AVR, FCR and VAR set point. \pm 1Vdc creates a \pm 0.1PF adjustment (respectively) in the PF mode set point. (adjusts only the active regulation mode)

OUTPUTS

DC Output

Continuous voltage:	63Vdc
Continuous current:	7.0Adc
10 second Forcing Voltage:	135Vdc (with nominal input applied)
10 second Forcing Current:	15.0Adc
Minimum Field Resistance:	9 Ohms

Alarm Contact Output

Dry Contact Rated:

120/240Vac - make 30A for 0.2S, carry 7A continuously, break 0.1A inductive

REGULATION ACCURACY

Regulation accuracy: Temperature drift: Response time: THD: $\pm 0.25\%$ no load to full load $\pm 0.5\%$ for a 40°C change in one hour <1 cycle to the limit of the A/D converter $\pm 0.25\%$ for 20% THD and $\pm 0.5\%$ for 40% THD (distortion as seen with a 6 SCR load)

SPECIFICATIONS, continued

AGENCY APPROVALS cURus

CE DNV

UL 508 and CSA Standard C22.2 No. 1	14
EMC and LVD	
Standard for Certification 2.4	

MECHANICAL SPECIFICATIONS

Operating temperature:	-40°C to +70°C
Storage temperature:	-40°C to +80°C
Shock:	20 Gs in three mutually perpendicular planes
Vibration:	5-26Hz, 1.2Gs
	27-52Hz, 0.036 inch double amplitude
	53-500Hz, 5.0G
Salt Fog:	Per MIL-STD-810E, Method 509.3, 48 hours of testing
Weight:	2.42 lbs. (1.10 kg)
Shipping weight:	2.88 lbs. (1.31 kg)
Dimensions:	5.34" (135.6mm) wide x 10.82" (274.8mm) high x 2.84" (72.1mm) deep

ADJUSTMENTS

Adjustment Ranges

AVR Mode: Fine Voltage Adjustment: Manual (FCR) Mode: VAR Mode: Power Factor Mode: Overexcitation Limiter:

Underexcitation Limiter: Volts per Hertz:

Parallel Droop: Softstart:

Voltage Matching Speed:

Adjustment Methods

- 100/120, 200/240, 400/480, 600Vac 0-15% of nominal in 0.1% steps 0-7Adc in 0.01Adc steps -100 lead VAR to +100 lag VAR in 0.1% steps -0.6PF lead to +0.6PF lag in 0.001PF steps Instantaneous limit: 15A in 0.001Adc steps Time Delay to shutdown: 0-10 seconds in integer steps 0-100% of rated VARs Slope, 0-3V/Hz in 0.1V/Hz increments (See Figure 1) UF kneepoint, 40-65Hz in 0.1Hz increments 0-10% in 0.01% increments Generator Bias (beginning generator voltage) Time: 0-7200 seconds in 1 second steps 0-300 seconds in 0.01 second steps
- · Contact inputs (one for raise and one for lower)
- Auxiliary input ±3Vdc
- PC via BESTCOMS

FEATURES/FUNCTIONS

PWM Power Stage

A 7.0Adc power stage provides fast response and great immunity to noise and sinewave distortion created by non-linear loads and makes the DECS-100 tolerant to many applications previously considered uncontrollable.

Sensing Input

The sensing input takes nominal voltage up to 600Vac without requiring expensive potential transformers. The adjustment range is capable of being controlled in 0.1Vac steps. This means that circulating current on paralleled generations, due to overly coarse adjustment steps, is no longer an issue.

Stability

20 standard stability ranges are provided, as well as one customizable stability range for customized performance. The PC BESTCOMS software provides PID selection software and a sophisticated response time program to facilitate verification of stability performance.

Front Panel Annunciation

The DECS-100 provides seven LEDs to indicate generator system and DECS-100 conditions without requiring connection to the communications device.

Protection

Five protection functions have the ability to be userprogrammed to shut down the DECS-100 and close the alarm contact. They are:

- Generator Overvoltage
- Loss of Generator Voltage*
- · Field Overvoltage
- Overexcitation Limiting
- Underexcitation Limiting
- * Loss of sensing transfer is also selectable by the user in lieu of shutdown due to Loss of Sensing.

Overexcitation Limiting

This feature limits the output current of the DECS-100 to predetermined levels that are safe for the exciter/ generator. There are adjustments for current threshold and time delays to customize the performance of the DECS-100 to meet the system's needs. The DECS-100 also provides two types of overexcitation limiting characteristics: Summing Point and Takeover.

Summing Point OEL. The summing point type of OEL will provide a smooth transition into and out of the limit condition. This is because it is controlled through the voltage regulator's main control algorithm. However, this type may be influenced by terminal voltage.

Takeover OEL. The takeover type provides direct control of the field current without being conditioned by the voltage regulator's main control algorithm. However, transitioning into and out of an actual limit condition may result in a more responsive characteristic.

Underexcitation Limiting

The minimum excitation limiter will adjust the amount of excitation supplied to the exciter field of the generator from dropping below an unsafe operating level. This prevents the machine from possibly slipping poles and from damaging the machine. This is accomplished by monitoring the Vars being absorbed by the generator based on user-defined settings.

Voltage Matching

This function allows the DECS-100 to match the generator voltage. This feature replaces the same function in the automatic synchronizer, thereby saving money by allowing the use of a less expensive synchronizing device.

Softstart

Softstart functions as a voltage limiter during generator build-up. It limits the generator voltage overshoot typically present when machines are initially started.

VAR/PF Control

Integrated VAR/PF controls save the user the cost of purchasing and installing remote devices that perform the same functions. This function is typically used on utility-paralleled generators that cannot control the grid voltage. Once set, the VAR or PF of the generator output will be regulated.

External Adjustments

The DECS-100 allows for multiple points and methods of external adjustment of the active regulation mode. There are four methods for adjustment: contact input, auxiliary voltage input or PC adjustment. The PC communication also allows operating modes and set points changes.

Communications

PC (Windows® compatible) communications software is provided by Basler Electric with the DECS-100. The PC BESTCOMS allows for total setup, control, and monitoring of all parameters of the DECS-100. The PC BESTCOMS allows for custom PID selection and has a monitoring screen for viewing all of the generator parameters in actual machine levels. The communication interface uses the RS-232 DB9 connector located on the DECS-100. The software package is provided with every DECS-100 on a single CD-ROM along with the instruction manual and product bulletin.



FEATURES/FUNCTIONS, continued

Typical BESTCOMS PC Software Screen



Power must be removed below this frequency.

Figure 1 - Typical Volts per Hertz Curve



CONNECTIONS

NITA TARAN MANANA M

Figure 2 - Typical Connections for PMG Application with ABC Rotation and Three-Phase Sensing



Figure 4 - Cutout and Drilling Dimensions

1,41 (35.8)

4.00 (101.6)

4.00 (101.6)

ŵ 1,41 (35.8)

0.38 (9.65)



	NOZZELS J-150 N								
REV.	DESCRIPTION	BY	DATE	APP'D	DATE	JOB STATUS:	CUSTOMER: GAS DRIVE - POWER GENERATION	Air-X-Changers	
						DDELIMINADY	TAG:	Here	
						PRELIMINARY	P.O. NO.:	Harsco	Tules, CK
						SALES DRAWING		MODEL 120EH	
								AXC JOB NO.: 136050-A1R0	
								DRAWN BY: AICS-V062807 DATE: 04	+/02/13
							NOTICE: THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND IT SHALL NOT BE USED OR REPRODUCED OR CONTENTS	CHECKED BY: CHK_INTDATE: CHK_D	ATE REV.
]	DISCLOSED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT FROM AIR-X-CHANGERS.	DRAWING NO .: SALES SCALE: 1:	:1 0

	HABSCO		PO Box	1804	PROPOS	SAL NO.	136050-A1	R0
	INDUSTRIAL		Phone:	918-619-8000	Date		4/2/2013	
	Air-X-Changers		Fax: 918	8-384-5202	Page		1 of 1	
1	Purchaser GAS DRIVE - POW	ER GENERATI	ON	Ultimate User	ENCANA			
2	Inquiry		•	Destination	CAVALIER			
3	No. Units 1	Model:	120EH- 92-18	Reference	P9394GSI -	GENSET @ 225	0 BHP	
4	Assembly: PACKAGED	Draft:	FORCED	Overall Size (WxLxH),	~8.33x19	.00x11.61 Est.	. Wt., Ibs.	13,950
			PERFORMAN	CE		-		
5	Service	EJW	TAW/ELOW					
6	Flow	700GPM	101GPM					
7	Fluid	50%GLY	50%GLY					
8	Temp. In / Out, f	180.0 / 165.0	159.5 / 130.0					
9	Pressure, psia							
10	Pressure Drop, psi	3.4	2.7					
11	Heat Load, btu/hr	4,878,720	1,331,680					
12	True LMTD, f	43.6	29.5					
13	Overall Rate, U, btu/hr ft ² f	156.9	127.4					
14	Fouling Factor, ft ² hr f / btu	0.0005	0.0005					
15	Surface, Bare / Extended, sq.ft.	703 / 11175	354 / 5634					
16	Sections, No./Connected (1) Co	DMBINED w/2	(1) COMBINED w/1					
17	Design Temp. (Max / Min), f	300/-40	300/-40					
18	Design / Test Press., psig	*14 / 65	*14 / 65					
19	Pass Allangement	LRUSSFLOW	CRUSSFLOW					
∠∪ 21	NO. TUDE NOWS/TUDE Passes	4/1	4/2 Combined w/4					
21 22	Tubes OD x BWG 5/8	0200 X16(060MIN)	5/8X16(060MIN)					
23	Material	SA214	SA214					
24	No.Per Section / Lenath. ft	242/18	122 / 18					
25	Retarders							
26	Accelerators							
27	Fins, Type L-TENS	ION / WHEEL	L-TENSION / WHEEL					
28	Material	ALUMINUM	ALUMINUM					
29	Nozzles, Rating/Type	150 RF	150 RF					
30	Material	SA350 LF2	SA350 LF2					
31	(No.Inlets) / Size, in	(1) / 8IN	(1) / 3IN					
32	(No.Outlets) / Size, in	(1) / 8IN	(1) / 3IN					
33	Headers, Type B	OX W/PLUGS	BOX W/PLUGS					
34	Material	SA516 70(N)	SA516 70(N)					
30 36	Convol Tuboshoot							
30 37	Plugs Type		SHOUL DER					
38	Plugs Material	SA350 F2	SA350 F2					
39	Industry Specifications	AXC-STD	AXC-STD					
40	ASME Code Stamp / N.B.							
41	Canadian Registration #							
42	PWHT							
43	NACE							
44	Inspection/NDT							
	F= 100% R.T of all header seam & noz	zzle butt welds F	PLUS 100% U.T. of all at	tachment welds. S= Spo	ot R.T. of 1 lo	ong seam & 1 end	closure, per h	neader
	U = 100% UT of all header seam, attac	chment & nozzle	e butt welds. B= 100% F	R.T. of all nozzle butt weld	ls.			
	SB= S PLUS B as each are described	above. UB= U	PLUS B as each are d			DEDU		
45	AIR-SIDE PERFORMANCE					REDU		
45 40	Amblent Air Temp., In, T 10	0 NO. / Make	1/MOORE-CL10K-HD	Type ELECTR		Туре	V-BELIS/SF	IEAVES
40 17	Air Flow SCEM			INIAKE ANC	31 ANDARD			
48	Air Temp Out f 143	9 Dia in / No	Blades 120/8	RPM	1800			
49	Min. Ambient. f	0 Blade Angle	. Deg 14 @ Clevis	Enclosure TFFC-C	HEM DUTY			
50		Series/Blade	Adj. 48-HDVT/Manual	Volt/Ph/Hz	460-3-60			
51		Fan Hub Bu	shing TAPER	Speed I-SPD(VFD C	compatible)			
52	* Actually built to standard 50# design	. Designated 1	4# to eliminate necess	ity of Provincial registra	ation.			
53		-		Č.				
54			-					
55	9,770 FPM fan noise: 85 dBA @ 1 m	eter, 67 dBA @	@ 15 m.					
56 57								
ວ/ 52								
59								



Waukesha^{*} Enginator^{*} Control Panel (ECP)

Free standing control for Enginators equipped with ESM*

ECP8000E

SINGLE/MULTIPLE UNIT CONTROL FOR PARALLELING Contact factory if paralleling with utility

The Model ECP8000E panel consists of one free standing steel enclosure for controlling single or multiple units in parallel. Panel dimensions: 764mm \times 459mm \times 1830mm (30"W \times 18"D \times 72"H). Rated for indoor use: operating



temperature -20°C to +70°C (-4°F to +158°F), relative humidity 0-95% (non-condensing). The HMI (Human Machine Interface), control switches and indicating lights are mounted through the hinged door.



control panel outline for model ECP8000E



Consult your local GE Energy's representative for system application assistance. The manufacturer reserves the right to change or modify without notice, the design or equipment specifications as herein set forth without incurring any obligation either with respect to equipment previously sold or in the process of construction except where otherwise specifically guaranteed by the manufacturer.



imagination at work

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8059 1211 GEA-19307



MODEL ECP8006E ENGINATOR* CONTROL PANEL FREE STANDING 600 V SWITCHGEAR FOR APG1000 GAS ENGINATORS

SINGLE/MULTIPLE UNIT CONTROL FOR PARALLELING 2000 AMP CONTACT FACTORY IF PARALLELING WITH UTILITY

The Model ECP8006E panel consists of one free standing steel enclosure with dead front construction for controlling single or multiple units in parallel (one ECP8006E panel per genset). Panel dimensions: 34"W × 60"D × 96"H (812mm × 1524mm × 2438mm). Rated for indoor use: operating temperature 32-122F (0-50C), relative humidity 0-95% (non-condensing) and constructed to meet UL1558 standard. The ECP8006E is based on the ComAp InteliSys-NT genset controller, which handles start/stop, synchronizing, CB control, kW and KVAR loading, and generator and utility protective relay functions. The upper section contains the metering potential transformers and control power transformer. The middle section contains the InteliSys base unit, voltage regulator, synch check relay, terminal blocks and other control components. The HMI (Human Machine Interface), Emergency stop switch, and indicating lights are mounted through the hinged door. The lower section contains the main circuit breaker. The rear section contains the neutral, ground and main bus bar (4KA rated) and allows for primary cable entrance from the top or bottom. All sections are accessible through hinged doors which have provisions for-locking. A separate I/O module box is shipped loose for floor mounting near the Enginator skid, and all engine wiring to the box is accomplished with harnesses. This minimizes the customer wiring necessary to connect the ECP8006E panel to the Enginator

BASIC COMPONENTS

- ALARM HORN 100dB Sounded on any shutdown or warning signal. Silencing touchpad switch in the HMI.
- **CIRCUIT BREAKER** 2000 amp breaker, 100 kA interrupting rating, rms symmetrical amps @ 508V maximum. Electronic trip unit with LCD display (backlit with 24 VDC engine battery source). L,S,I,G with adjustable pickup and time-delay. Trip indication LED. MODBUS communication capable.
- CONTROL POWER TRANSFORMER One (1) for circuit breaker operation.

CONTROLS - ComAp InteliSys-NT genset controller based.

www.comap.cz

- CURRENT TRANSFORMERS Three (3) for metering and cross current compensation.
- **ENCLOSURE** NEMA 1 for general indoor use with provisions for lifting, handling and transporting.

ENGINATOR CONTROL - Includes:

- A. Standalone or Utility Parallel
- B. Emergency Stop Switch (Red Pushbutton)
- C. Red summary shutdown LED.
- D. Amber summary warning LED.
- E. Three (4) isolated signal output contacts for customer, wired to terminal block for remote indication of circuit breaker status, engine running, warning and safety shutdown.
- F. Two (2) additional warning and two (2) additional shutdown isolated input contacts from customer wired to terminal block.
- G. All ESM generated warnings and shutdowns are displayed and logged on the HMI.
- H. Remote start/stop and baseload kw setpoint capability.
- Integrated PLC programmable functions can be configured to control various customer supplied components such as system pumps, valves, fans, etc.
- HMI (Human Machine Interface) 8" color display with user-friendly controls. The display is capable of displaying graphical languages (e.g. Chinese).

INTEGRATED AC Metering – Monitors generator AC parameters (current, frequency, voltage, power, power factor) and generator bus synchronizing information. 2% accuracy.

LIFTING CHANNELS - For handling.

MODBUS RTU SERIAL COMMUNICATION – RS232 port for customer SCADA access to all genset parameters.

PAINT - Color is ANSI 61 gray.

POTENTIAL TRANSFORMERS – Two (2) for generator and two (2) for bus metering.

GENERATOR PROTECTIVE FUNCTIONS - Controller based. Includes;

- A. #27 Under-voltage, 3 phase
- B. #32 Reverse Power
- C. #46 Current Unbalance
- D. #47 Voltage Unbalance
- E. #50/51 Phase Overcurrent
- F. #59 Over-voltage, 3 phase
- G. #810/U Over/Underfrequency
- SYNCHRONIZING CHECK RELAY #25

UTILITY PROTECTIVE FUNCTIONS - Controller based. Includes;

- A. #27 Under-voltage, 3 phase
- 8. #47 Voltage Unbalance
- C. #59 Over-voltage, 3 phase
- D. #78 Vector Shift
- E. #810/U Over/Underfrequency
- TERMINAL BLOCKS Spring-cage style.

VOLTAGE REGULATOR - Mounting of voltage regulator.

- **DOCUMENTATION** The following items are supplied as standard with every order:
 - Electronic notification and access to drawings for review and or approval.
 - One Enginator[®] Control Panel manual consisting of:
 - Instructions on major items.

Code	Description	Weight lb. (kg)
ECP8006E	Basic Model ECP5006E – 24 Volt DC for 50 or 60 Hz	2200lbs (998 kg)

PROPRIETARY INFORMATION - KEEP CONFIDENTIAL. The manufacturer reserves the right to change prices, specifications and design at any time without notice, and without incurring abligation. All prices quoted U.S. Dollars, EXW Waukesha, Wisconsin unless otherwise indicated. JANUARY 2013



Accessories installed as original equipment on Models ECP8000E/ECP8006E/ECP8050E/ECP8150E ENGINATOR* CONTROL PANEL

X (after code number) indicates item applicable only to model designated.

	Code		ECP8006E]	MODELS ECP8000E/ECP8006E/ ECP8050E/ECP8150E	
						CONTROLS Cvcle Crank	
	6212B	х	X	X	х	15 second Crank and 15 second rest. Maximum of three (3) attempts before overcrank shutdown	
						Warning Logic – provides logic to warn of any unusual condition to the amber summary warning light. Requires a corresponding engine sensing device as a signal.	
	6217A	X	X	X	X	Low water temperature warning	
1 N N	6217C	Х	X	Х	Х	Vibration warning	
		х	X	Х	Х		
		х	X	Х	Х		
	6217G	Х	X	Х	Х	Generator bearing temperature warning	
· · · · 3/-	6217H	Х	X	х	Х	Generator winding temperature warning	
N.	6217T	Х	X	Х	Х	Low jacket water level warning	
	6217U	X	X	Х	Х	Low auxiliary water level warning	
which is bolling on the						Shutdown Logic – provides logic to stop the unit on any shutdown signal and light red summary shutdown light. Requires a corresponding engine sensing device as a signal.	
ļ	62188	X	X	Х	Х	Low fuel pressure shutdown	
() - C 414	6218C	Х	X	Х	Х	Vibration shutdown	
and the second		Х	X	Х	Х		
1 Y Y	6218E	Х	X	Х	Х	Low lube oil level shutdown	
10000	6218G	X	X	Х	Х	Generator bearing temperature shutdown	
Second Second	6218H	X	X	Х	Х	Generator winding temperature shutdown	
1. A	6218N	Х	X	Х	Х	Low jacket water level shutdown	
1. 61mm	6218P	х	X	Х	Х	Low auxiliary water level shutdown	
		Х	X	Х	х		
	6238		x	x	x	Current transformers for differential protection, quantity 6, shipped loose	
18	6239			X	x	Mount Code 6238 CT's, Qty. [3] in switchgear, Qty. [3] in generator junction box	
Active - Southward -	0200					MAIN BUS – One {1) required for each interconnect between two panels bolted together. Three (3) phase, 4000A, with full neutral and ground bus.	
			X				
			X				
Sec. 1				Х	х		
	6302A	x	x	x	x	Battery Charger 20 amp - Shipped Laose DIN rail mount 100-230V AC 1 pb 50/60 Hz input	
		x	X	x	x		
100 at 11 at 1							
11 11 11 11 11	6480	х	×	х	x	Load Dump Circuitry – Provides a three step load shed on occurrences of unit overload. This circuit gives a signal to remote circuit breakers or similar equipment for load control	: -



Cod	e		ECP8006E		1	MODELS ECP8000E/ECP8006E/ ECP8050E/ECP8150E	
			x X			, , , , , , , , , , , , , , , , , , ,	
						PROTECTIVE RELAYS Dedicated protection relays in lieu of the standard ComAp InteliSys protections.	
692	6		х	x	 X	Industrial Grade – Dedicated Generator Management Relay – GE Multilin SR489. For Enginator monitoring and metering. The SR489 includes the following ANSI protection functions: 12, 21, 24, 27, 50/27, 32, 38, 39, 40, 400, 46, 47, 49, 50, 50BF, 50/51GN, 51V, 59, 59GN/27TN, 60FL, 67, 76, 81, 86, 87G. Not all of the items will function in the standard panel. Contact Sales Engineering for item descriptions and to verify the required input devices to allow the items to function. Requires Codes 6238 and 6239 for 87G function. Visit Geindustrial.com/multilin for a complete description.	
692	7		x	x	x	UTILITY GRADE Intertie Protective System – Beckwith Electric M-3520-25. Provides protection, control and monitoring. The M-3520-25 includes the following ANSI protective functions: 25, 27, 27G/59G, 32, 46, 47, 50, 50G, 51V, 51G, 59, 59, 60FL, 67, 67N, 79, 81O/U, 81R. Contact Sales Engineering for item descriptions and optional function descriptions and pricing. Visit beckwithelectric.com/relays/m3520/3520IB for a complete description. Shipped loose. Note: For other relays/devices, contact Sales Engineering for pricing and availability.	
6994	ιA	$\times \times \times \times \times$	XXXXX	****	XXXXX	Remote Connectivity - Communicate with the ECP8000E via Ethernet or Dial-up connection. Monitor and control from a remote PC running ComAp software. Send alarm messages to up to 3 email addresses Remote Connectivity – 1 Unit	
	6	×	×	X	×	Utility Mains CB Controller Utility Mains Controller for up to 32 units in Utility Mains Parallel mode. Only required if control of the utility CB is desired. Shipped loose for installation in customer supplied utility tie breaker panel. Contact factory if a Dresser Waukesha supplied utility tie breaker panel is needed. Includes the following features: -Import / Export control -Utility Mains CB control and synchronizing generator bus to utility -Start / Stop units based on kW demand (Import/Export mode only) -Load shedding (3-step) -Utility Mains electrical protections	









Α	B		С		D	E		F	G		H .	JI	к	Ι	LI	м	Ι	N		P	R		S	T	•
L-08049-109																				ITE	N PART NO). REO'D		NAME	
						ENGINE	CON	NECTION INDEX																	
		Ι.	FUEL GAS SHIPPED	AS SHOW	3.00 RAISED F. N, LEFT BANK	ACE 150 LB. LOCATION (R	A.N.S. EVERSIB	I. PIPE FLANGE. E LE TO RIGHT BANK A	NGINE LLOWED).										B						
			NOTE : F	LEXIBLE	CONNECTION R	EQUIRED AT	THE FUE	LINLET											c.	ENGINE WAT	TFR DRAIN	(4)			
			P	IPING L	OCATE AS CLOS	E ENGINE VI E TO ENGINE	AS POS	SIBLE.											D.	GOVERNOR / /	ACTUATOR.	ELECTRIC			
		2.	STARTING	MOTOR	PAD (3) .625-	II UNC-2B T	HRU HOL	ES FOR											Ε.	SAFETY GU/	ARD				
		4	JACKET W	ATER OIL	TIFT 8 00 FLA	T FACE 150	IR AN	S I PIPE FLANGE											F.	LUBE OIL (DIPSTICK	(BOTH SIDE	S)		
		5	FRONT	ETING E	YES (2) 50	138 11 DIA	HOLES												G.	LUBE OIL F	FILLER				
		6.	RFAR LIF	TING FY	FS (2) 1.50 F	38.11 DIA.	HOLES												J.	AIR / GAS	MOTORIZE	D PRELUBE	PUMP		
		7.	CRANKSHA	FT PULL	EY (6) 12.00	[304.8] PIT	CH DIAM	ETER "C" SECTION	GROOVES										К.	LUBE OIL F	FILTER EL	EMENTS (5)			
			- 1.00 [25.4] G	ROOVE SPACING	(SHIPPED L	00SE).												L.	CRANKCASE	BREATHER				
		9.	ENGINE M	IOUNTING	HOLES (12) .	88 [22.5] D	IA. HOL	ES.											Μ.	AIR CLEANE	ERS (2)				
		10.	LUBE OIL	DRAIN	(2) 2.00-11.5	NPT.													Ρ.	MANUAL BAF	RRING DEV	ICE			
		11.	FLYWHEEL	HOLES	(12) .750-10	JNC-2B, I.2	5 [3].8	J DEEP, EQUALLY SP	ACED HOLES.										Q.	ENGINE LEV	VELING BO	LTS (6)			
		12.	FLYWHEEL	HOLES	(12) .750-10	JNC-28, 1.2	5 [3].8	J DEEP, EQUALLY SP	ACED HOLES.										۷.	LUBE OIL (COOLER				
		13.	START CO	HULES	(12) .020-11	JNC-2D, I.U S VENT 250	U L25.4	J DEEP, EQUALLI SP	NOTE IN										₩.	FLEXIBLE E	EXHAUST C	ONNECTION	(SHIPPEI	LOOSE)	
		14.	START CO		ALVE AND DDEL	185 CONTROL		AID / GAS SUDDLY	NOTE 17.										Υ.	ENGINE JAC	CKET WATE	R PUMP			
		15.	. 500 - 14	NPT (SE	E VIEW A) (SE	E NOTE I).	TALTL	AIN / OKS SUITET											Ζ.	OIL COOLEF	R (AUXILI	ARY) WATER	PUMP		
		17.	START CO	NTROL V	ALVE TO AIR / F VIEW A) (SE	GAS STARTE	R RELAY												AA.	ENGINE LUE	BE OIL PU	мР 			
		19.	JACKET W	ATER IN	LET FLANGE (R	IGHT INLET.	LEFT I	NLET. OR FRONT CEN	TER INLET)										EE.	AIR CLEANE	ER RESTRI	CITION IND	ICATOR	2)	
			- FITS 8	.00 FLA	T FACE 150 LB	. A.N.S.I.	PIPE FL	ANGE.											++. 	REAR PLAIE	E (REAK F.	ACE)			
		25.	EXAUST O	UTLET -	FITS 14.00 F	LAT FACE 12	5 LB. A	.N.S.I. PIPE FLANG	Ε.										<u>и</u> и	DIFFERENTI	JUARD		TOP		
			NOTE: E	XHAUST	SYSTEM MUST S	JPPORT ITS	OWN WEI	GHT BEYOND THIS PO	INT.										пп.	(EXHAUST W	NASTEGATE) (2)	IUK		
		27.	01L COOL 2.50 FLA	ER (AUX T FACE	ILIARY) WATER 125 LB. A.N.S	INLET FROM	COOLIN ANGE.	G SYSTEM											00.	INTERCOOLE	ER (2)				
		28.	AIR / GA	S PRELU	BE MOTOR EXHA	JST (VENT)	. 375-18	NPT (SEE NOTE I).											RR.	TURBOCHARC	GER (2)				
		29.	TURBOCHA	RGER CO	OLANT VENT TO	SURGE TANK	CONNEC	TION (2) .375-18 N	PT.										UU.	EMERGENCY	STOP SWI	TCH (2)			
		30.	PRELUBE	CONTROL	VALVE AIR /	GAS VENT .5	00-14 N	PT (SEE VIEW A) (S	EE NOTE I).										ΧХ.	IGNITION F	POWER MOD	ULE - DIAGNC	STIC (II	M - D)	
		36.	OIL COOL	ER (AUX	ILIARY) WATER	OUTLET TO	COOL ING	SYSTEM HEAT EXCHA	NGER										DA.	CRANKSHAF	T END (FL	ANGE FACE)			
		40	CLEARANC	F REQUI	RED TO REMOVE	IUBE OIL E	ILTER F	LEMENT											FA.	MICROSPIN	LUBE OIL	FILTER			
		50.	CLEARANC	E REQUI	RED TO REMOVE	AIR FILTER	ELEMEN	Τ.											GA.	ESM ENGINE	E CONTROL	UNII - MC	DULE (EC	0)	
		57.	FRONT FA	CE OF C	RANKCASE.														HA.	DATIERT BU		ED LOOSE)			0.C
		59.	POWER DI	STRIBUT	ION BOX (JUNC	TION BOX) 2	4 VOLT	DC CONNECTION (BAT	TERY CABLE										JA. KA		ESS MANIE			.) 24 VOLT L	<i>i</i> c
			CONNECTI	ON, (+)	POSITIVE AND	(-) NEGATI	VE .375	-16 UNC STUD SIZE)											LA	GAS REGULA	ATOR (WIT	H STEPPER	MOTOR	2)	
		60.	SUPPLIED	WITH 2	5 FT. CUSTOME	SS CONNECTI R LOCAL CON	ON. TROL HA	RNESS (SHIPPED LOO	SE) (SEE VIE	₩В).									MA.	PRELUBE MO	DTOR			- /	
		61.	CUSTOMER	INTERF	ACE HARNESS F	OR ENGINE C	ONTROL	UNIT - MODULE (ECU) CONNECTION	Ι.									NA.	PRELUBE CO	ONTROL VA	LVE			
		62	CUSTOMED		T THERMOCOURI	T INTERFACE	ONNECTI	ON CONTRACTOR	(SEE VIEW D)		NOTES:								PA.	START CONT	TROL VALV	E	. 0.		
		VL.	SUPPLIED	WITH 2	5 FT. CUSTOME	R INTERFACE	HARNES	S (SHIPPED LOOSE)	(SEE VIEW B)		I. AL Mu	L GAS VENTED ST BE PIPED	DAND / OR D TO A SAFE AF	ISCHARGED FRO REA TO MEET A	M ENGINE EQU PPLICABLE CO	I I PMENT DES.			QA.	ENGINE SH	IPPING SK	ID and	2-27-10		
		63	CUSTOMER	MAIN R	EARING THERMO	COUPLE HARN	ESS CON	NECTION.			2. RC	TATIONS ARE	VIEWED FROM	THE REAR (FL	YWHEEL END).							Preliminar		ECO 0000 REV NO I	00-00
			SUPPLIED	WITH 2 RY CODF	5 FT. CUSTOME 6020) (SEE V	R INTERFACE IEW B).	HARNES	S (SHIPPED LOOSE).				THIS PR BASIS	NOT TO BE USED IN	A RESTRICTED ANY WAY DETRI-							PRO/E	CAD CA	UTION;	NAME INSTALLATIO	
. NEVERE	ENCE ,	64.	CLEARANC	E REQUI	RED TO REMOVE	MICROSPIN	LUBE OI	L FILTER ELEMENT.		THI TO	E MANUFACTURER RESERVES THE CHANGE OR MODIFY THE DESIGN	MENTAL ENGINE OR MODELS	TO THE INTEREST OF DIVISION. REFERENCE OR			UNLESS OT	ERWISE SPECIFIED DIM	ENSIONS ARE IN I	NCHES. ENILLI	METERSI.	01 THIS BE	REVISIONS THIS DA PRODUCIBLE ANGLE PI	NOJECTION. (⊖©)	DRAWING	
Luuluui	тапа	65.	CLEARANC	E REQUI	RED TO REMOVE	CRANKCASE	BREATHE	R ELEMENT.		EQ FO E I	NUIPMENT SPECIFICATIONS AS HE RTH WITHOUT INCURRING ANY OB ITHER WITH RESPECT TO ENGINES IOUSLY SOLD OR IN THE PROCESS PRICTION	REIN SET P9394GSI IGATION P9394GSI PRE- OF CON-	L - 08049 - 107	HEAT TREATM	ENT				CK,	- DATE	-	D DRE	SSER	L-08049	- 109





	FOR
B	ID PURPOSES
-	ONLY
NAME	PERRY NOBLE DATE 12/06/13

					UAIE 12/06/13	SCALE	N/A	
					DRAWN BY CHEC	KED BY	APPROVED BY	FNCANA
					P. NOBLE R.	HESKETH	R. HESKETH	
					PROJECT MANAGER	PROJECT E	NGINEER	
					CUST PO	-		
A	ISSUED FOR BID	12/06/13	RH	HT		-	Letter	10001/
REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT NO: P8	551	CODE -	ORDER -

 A C/O GAS DIRIVE
P9394GSI
GENSET
 ENERFLEX
Calgary, Alberta,
Canada
 PLOT PLAN

 DWG
NO
 Q1130190-200
 SHT
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						DAIE 12/06/13	SCALE	N/A	
						DRAWN BY CHECKE	D BY A	PPROVED BY	FNCANA
						P. NOBLE R. H	ESKETH	R. HESKETH	P
) PURPOSES						PRUJECT MANAGER	PROJECT ENG	INEER _	i ',
						CUST PO			l i
ERRI NUBLE DATE 12/06/13	A	ISSUED FOR BID	12/06/13	RH	HT			Letter	WODY
	REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT NO: P865	1	CODE -	ORDER -







NA C/O GAS DIRIVE P9394GSI GENSET	ENERFLEX Calgary, Alberta, Canada		PLOT PLAN		
-	^{DWG} Q1130190−20	0	SHT	4	^{rev} A





OPTIONS



Distributor Gas Engines 4700 47 Street SE, Calgary, Alberta, T2B 3R1

Phone: 403.387.6300 Fax: 403.279.7649 Email: info@gasdriveglobal.com www.gasdriveglobal.com



ESTIMATED DRY WEIGHT: 15,950#

	EJW (85 GALS) D.P. 14 D.P. 14 NOZZLES 8"-150 RF TAW/FLOW (54 GALS) D.P. 14 D.P. 14 D.P. 14 D.P. 14 D.P. 14 D.P. 14 D.P. 150 RF								
REV.	DESCRIPTION	BY	DATE	APP'D	DATE	JOB STATUS:	CUSTOMER: GAS DRIVE - POWER GENERATION	Air-X-Changers	
							TAG:	Hamas	
						PRELIMINARY	P.O. NO.:	Harsco	Tules, CIK
						SALES DRAWING		MODEL 132EH	
								AXC JOB NO .: 136050-A1R1	
								DRAWN BY: AICS-V062807 DATE: 05/	/28/13
							NOTICE: THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND IT SHALL NOT BE USED OR REPRODUCED OR CONTENTS	CHECKED BY: CHK_INTDATE: CHK_DAT	TE REV.
							DISCLOSED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT FROM AIR-X-CHANGERS.	DRAWING NO .: SALES SCALE: 1:1	0

	HARSCO		PO Box	PROPOSAL NO. 136050-A1R1			R1		
	INDUSTRIAL		Phone:	918-619-8000	Date		5/28/2013	5/28/2013	
	Air-X-Changers		Fax: 91	8-384-5202	Page		1 of 1		
1	Purchaser GAS DRIVE - POWE	R GENERATI	ON	Ultimate User	ENCANA		-		
2	Inquiry			Destination	CAVALIER				
3	No. Units 1	Model:	132EH-102-20	Reference	P9394GSI -	GENSET @ 2250) BHP		
4	Assembly: PACKAGED	Draft:	FORCED	Overall Size (WxLxH),	~8.92x21	.00x12.77 Est.	Wt., Ibs.	15,950	
		•	PERFORMAN	CE		·			
5	Service	EJW	TAW/ELOW						
6	Flow	700GPM	101GPM						
7	Fluid	50%GLY	50%GLY						
8	Temp. In / Out, f	180.0 / 165.0	159.5 / 130.0						
9	Pressure, psia								
10	Pressure Drop, psi	5.1	10.2						
11	Heat Load, btu/hr	4,878,720	1,331,680						
12	True LMTD, f	45.7	25.8						
13	Overall Rate, U, btu/hr ft ² f	165.2	142.0						
14	Fouling Factor, ft ² hr f / btu	0.0005	0.0005						
15	Surface, Bare / Extended, sq.ft.	646 / 10276	368 / 5489						
16	Sections, No./Connected (1) CO	MBINED w/2	(1) COMBINED w/1						
17	Design Temp. (Max / Min), f	300/-40	300/-40						
18	Design / Test Press., psig	*14 / 65	*14 / 65						
19	Pass Arrangement C	ROSSFLOW	CROSSFLOW						
20	No.Tube Rows/Tube Passes	3/1	3/4						
21	Section Weight, Ibs	6250	Combined w/1						
22	Tubes, OD x BWG 5/8>	(16(.060MIN)	3/4X16(.060MIN)						
23	Material	SA214	SA214						
24	No.Per Section / Length, ft	200 / 20	95 / 20						
25	Retarders								
20 27									
21	Motorial								
20 29									
30	Material	SA350 F2	SA350 F2						
31	(No Inlets) / Size, in	(1) / 8IN	(1)/3IN						
32	(No.Outlets) / Size, in	(1) / 8IN	(1) / 3IN						
33	Headers, Type BC	DX W/PLUGS	BOX W/PLUGS						
34	Material	SA516 70(N)	SA516 70(N)						
35	Corrosion Allow., in								
36	Grooved Tubesheet								
37	Plugs, Type	SHOULDER	SHOULDER						
38	Plugs Material	SA350 LF2	SA350 LF2						
39	Industry Specifications	AXC-STD	AXC-STD						
40	ASME Code Stamp / N.B.								
41	Canadian Registration #								
42 42									
ч3 ⊿л									
44	F- 100% R T of all header seam & not	zla hutt walds l	PILIS 100% LLT of all at	tachment welds S- Sno	TRT of 1 lo	na seem & 1 end	closure per h	eader	
	U = 100% UT of all header seam, attack	r = 100% N. For all header search a trozzle but welds $r = 100%$ 0.1. Or all attachment welds. S = Spot R. F. OF Floring Search a Fend Closure, per header II = 100% LT of all header search attachment & nozzle but welds R = 100% R T of all nozzle but welds						cauci	
	SB= S PLUS B as each are described above. UB= U PLUS B as each are described above.								
	AIR-SIDE PERFORMANCE	F F	AN DATA	DRIVER DAT	A	REDU	CER DATA		
45	Ambient Air Temp., In, f 105	No. / Make	1 / MOORE-CL10K-HD	Type ELECTR	IC MOTOR	Туре	V-BELTS/SH	IEAVES	
46	Elevation, ft 3180	Blade Mater	ial ALUMINUM	Make AXC S	STANDARD				
47	Air Flow, SCFM 159,272	HP@RPM	35.68 @ 259	HP / SF	40 / 1.15				
48	Air Temp., Out, f 140.4	Dia., in / No.	Blades 132 / 10	RPM	1800				
49	Min. Ambient, f -40	Blade Angle	, Deg 16.5 @ Clevis	Enclosure TEFC C	HEM DUTY				
50		Series/Blade	e Adj. 48-HDVT/Manual	Volt/Ph/Hz	460-3-60				
51		Fan Hub Bu	shing TAPER	Speed I-SPD(VFD C	ompatible)				
52	* Actually built to standard 50# design.	Designated 1	4# to eliminate necess	ity of Provincial registra	ation.				
53									
54 55	9 050 EDM for poice: 94 dPA @ 4	tor 66 dDA 4	ର 15 m						
00 56		1100 UBA (u ای ااا.						
57									
58									
59									





GAS DRIVE CANADA LOCATIONS

HEAD OFFICE

4700 – 47th Street SE, Calgary, AB T2B 3R1 Tel: 403.387.6300 Fax: 403.279.7649

BONNYVILLE, AB

5208 55 Street, Bonnyville, AB T9N 2K7 Tel: 780.826 4442 Fax: 780.826.4420 Branch Manager: David Fuerbringer Account Representative: Cory Brow – Cell: 780.214.2356

CALGARY, AB

102, 85 Freeport Blvd., NE, Calgary, AB T3J 4X8 Toll Free: 800.382.8199 Tel: 403.736.2700 Fax: 403.736.2772 Branch Manager: Glen Croteau Account Representative: Justin Francois – Cell: 403.512.1039

DRAYTON VALLEY, AB

Bay 4, 5619 50 Avenue, Drayton Valley, AB T7A 1S4 Tel: 780.514.7886 Fax: 780.514.7875 Branch Manager: David Fuerbringer Account Representative: Jon Lewis – Cell: 403.352.7359

EDMONTON, AB

4703 92 Avenue, Edmonton, AB T6B 2J4 Toll Free: 800.272.5669 Tel: 780.465.5371 Fax: 780.466.8433 Branch Manager: David Fuerbringer Account Representative: Cory Brow - Cell: 780.214.2356

EDSON, AB

4439 2 Avenue, Edson, AB T7E 1C1 Tel: 780.723.7292 Fax: 780.723.3324 Branch Manager: Dave Maurer Account Representative: Terry Isherwood – Cell: 780.517.1046

FORT NELSON, BC

4704 Nahanni Drive, Fort Nelson, BC V0C 1R0 Tel: 250.774.2895 Fax: 250.774.4619 Branch Manager: Dale Prevost Account Representative: Gillies MacDonald – Cell 250.261.1146

FORT ST. JOHN, BC

10303 Alaska Road, Fort St. John, BC V1J 1B1 Toll Free: 866.785.9181 Tel: 250.785.1171 Fax: 250.785.5936 Branch Manager: Dale Prevost Account Representative: Gillies MacDonald – Cell 250.261.1146

GRANDE PRAIRIE, AB

8410 113 Street, Grande Prairie, AB T8V 6T9 Toll Free: 866.539.5974 Tel: 780.539.5974 Fax: 780.539.0370 Branch Manager: Dave Maurer Account Representative: Glen Cross – Cell: 250.261.1146

ACCOUNTING

4700 47 Street SE Calgary Alberta T2B 3R1 Phone: 403.387.6300 Fax: 403.720.1735 Controller: Karen Hyde – Cell: 403.828.2278

LEDUC, AB

3905 Allard Avenue, Leduc, AB T9E 0R8 Tel: 780.980.8855 Fax: 780.980.2630

LONDON, ON

343 Sovereign Road, Unit 2, London, ON M6M 1A6 Toll Free: 877.966.5600 Tel: 519.455.5600 Fax: 519.455.2701 Service Manager: Kris Betts – Cell :226.378.3612

MANNING, AB

Box 1330, Manning, AB T0H 2M0 Toll Free: 877.837.2939 Tel: 780.836.2939 Fax: 780.836.2931 Branch Manager: Dave Maurer Account Representative: Rob Sorensen – Cell: 780.836.9440

MEDICINE HAT, AB

1269 Brier Park Drive NW, Medicine Hat, AB T1C 1T1 Toll Free: 866.526.1866 Tel: 403.526.1866 Fax: 403.529.6537 Customer Service Manager: Trent Foster

MISSISSAUGA, ON

1510 Drew Road, Unit 9 Tel: 1.905.612.0514 Fax: 1.905.612.8556 Service Manager: Kris Betts – Cell 226.378.3612

STE-JULIE (MONTREAL)

2091A, Leonard-de Vinci Street Branch Manager: Frederic Lebel – Cell: 418.670.8654

RED DEER, AB

8036 Edgar Industrial Green, Red Deer, AB T4P 3S2 Toll Free: 866.341.2111 Tel: 403.341.3900 Fax: 403.341.3908 Branch Manager: David Fuerbringer Account Representative: Jon Lewis – Cell: 403.352.7359

SLAVE LAKE, AB

Box 295, 7 – 300 Birch Road, Slave Lake, AB T0G 2A3 Toll Free: 800.272.5669 Tel: 780.849.6555 Fax: 780.849.1937 Branch Manager: David Fuerbringer Account Representative: Cory Brow Cell: 780.214.2356

WHITECOURT, AB

Bay 3, 3320 34 Avenue Whitecourt, Alberta T7S 1X3 Tel: 780.778.4017 Branch Manager: Dave Maurer Account Representative: Terry Isherwood – Cell: 780.517.1046

TECHNICAL SERVICES

4700 – 47th Street SE, Calgary, AB T2B 3R1 Tel: 403.387.6300 Fax: 403.279.7649 Tech Services Manager: Dave Tkachuk – Cell: 403.519.6720

Regional Manager Canada: Rob Krauss -403.801.6063



Edson, Edmonton, Whitecourt, Drayton Valley, Lac La Biche, Lloydminster, Bonnyville Red Deer, Stettler, Drumheller, Calgary, Medicine Hat, Lethbridge, Saskatchewan

PUBLISHED RATE SCHEDULE - E	FFECTIVE March 15, 2012				
Field Labour					
Field REG	\$110.00				
Field OT	\$148.50				
Field DT	\$172.92				
Travel Labour					
Travel REG	\$110.00				
Travel OT	\$110.00				
Travel DT	\$110.00				
Shop Labour					
Shop REG	\$110.00				
Shop OT	\$148.50				
Shop DT	\$172.92				
OT Specifications					
After 8 hours Monday through Friday starti	ng at 8:00 a.m.				
First 4 hours worked on Saturday starting	at 8:00 a.m.				
DT Specifications					
After first 4 hours worked on Saturday					
Applies All day Sunday and Holidays					
After 4 hours Overtime worked on Monday	v through Saturday starting at 8:00 a.m.				
Other Charges					
Truck Kilometer Charge	\$1.40				
Mechanics' meal expense per diem (12 hour min.)	\$35.00				
Mechanics' meal expense per diem (Overnight)	\$70.00				
Accommodations	Cost + 15%				
Consumables	5%				
Enviro	3%				
PST & GST ARE EXTRA—PRICES ARE SUBJ	ECT TO CHANGE WITHOUT NOTICE				

Gas Drive 4700 47 Street SE Calgary AB Canada T2B 3R1 Tel 1 (403) 387.6300 Fax 1 (403) 279.7649 www.gasdriveglobal.com





Our Vision LEADING THE ENERGY INDUSTRY IN NATURAL GAS POWERED SOLUTIONS.

Óur Values

Integrity... Do the right thing

- Be ethical
- Be trustworthy
- Be respectful
- Be socially responsible

Commitment... Deliver on our promises

- Be a health and safety leader
- Anticipate and meet customer needs
- Establish common goals and deliver results
- Attract, develop and retain the best people

Creativity... Lead with innovation

- Be collaborative
- Value creative thinking
- Embrace change

Success... Achieve sector leading results

- Create and sustain customer loyalty
- Optimize growth and business performance
- Listen and communicate effectively
- Recognize and celebrate achievement



Gas Drive is committed to conducting its business activities, in a manner that will safeguard the health, safety and environment of our employees, visitors, customers and our communities.

Our goal is to achieve and maintain HSE performance excellence as measured by our organization, its stakeholders and government regulators.

A successful HSE program depends on a team effort and full cooperation from all employees. Enerflex employees at all levels, including executive management, are responsible and accountable for the success of our HSE performance targets and the implementation of the HSE program into our daily business.

Compliance with all applicable governmental HSE regulations is considered the minimum acceptable standard of HSE performance. We will seek to continuously improve HSE performance and meet or exceed industry best practices.

Active support of this policy is a condition of employment and an expectation of all with whom we do business.

Our constant HSE goal is:

- no harm to people;
- no damage to the environment; and
- effective control of all identifiable risks.

Bradley Beebe President Gas Drive

Date: October 1, 2011



Distributor Gas Engines 4700 47 Street SE, Calgary, Alberta, T2B 3R1

Phone: 403.387.6300 Fax: 403.279.7649 Email: info@gasdriveglobal.com www.gasdriveglobal.com Certificate ^{of} Recognition Paymenships IN INJURY REDUCTION

This certificate recognizes that GAS DRIVE GLOBAL LTD.

In keeping with the principles of *fartnerships* has:

developed and implemented an occupational health and safety program and,

met the standard for *Failnerships* through an independent evaluation of their health and safety program.

Carol X

Alberta Association For Safety Partnerships Certifying Partner

Certificate # 20120914-6576 WCB Industry Code(s):62304

Government of Alberta

Expiry Date: September 14, 2015

Government of Alberta

gas drive

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Head Office

4700 47 Street SE Calgary, AB Canada T2B 3R1 Office: 1.403.387.6300 Fax: 1.403.279.7649 gasdriveglobal.com



Distributor Gas Engines