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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | February 19, 2010 | Modified ‘Related Sections’ |
| 3 | July 15, 2013 | Final Draft – Consolidated Comments Spec Update Project |
| 4 | August 6, 2014 | Changes to reflect renaming of commissioning specification and final review (AV) |
| **5** | **February 4, 2015** | **Updated, Finalized Specification – Reference eDOCS #5630500 v9 (AV)** |
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NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# GEneral

## General

### Supplier: [\_\_\_\_\_\_].

### Specification No.: [\_\_\_\_\_\_].

### Order No.: [\_\_\_\_\_\_].

### Requisition No.: [\_\_\_\_\_\_].

### Tender file No.: [\_\_\_\_\_\_].

### Site file: [\_\_\_\_\_\_].

### Unit serial No.: [\_\_\_\_\_\_].

### Destination: [\_\_\_\_\_\_].

### Against material specification and shop drawings:

#### Complies: [\_\_\_\_\_\_].

#### Does not comply: [\_\_\_\_\_\_].

#### Not checked: [\_\_\_\_\_\_].

### Against specified performance:

#### Tested OK: [\_\_\_\_\_\_].

#### Tested not OK: [\_\_\_\_\_\_].

#### Not tested: [\_\_\_\_\_\_].

## Related Sections

### *[Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements—not to define the scope of the Section.*

### *Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.*

### *Contractor is responsible for coordination of the Work. Contractor is responsible for being familiar with and incorporating all required elements of cross-referenced Specifications cited.*

### *This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the section for the specific project it may be deleted.]*

### *[List Sections specifying installation of products supplied but not installed under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Execution requirements for ...[item]... specified under this Section.

### *[List Sections specifying products installed but not supplied under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Product requirements for ...[item]... for installation under this Section.

### *[List Sections specifying related requirements.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

### Section 01425 - Computerized Maintenance Management System Data Requirements

### Section 01810 – Equipment Testing and Facility Commissioning

### *[Division 13 – SCADA and Instrumentation -insert applicable specifications]*

### Product requirements for [item]... for installation under this Section.

## Measurement and Payment

*[Choose one of the following payment language provisions that best suits the individual project.*

*If this Section is not specifically referenced by an item in the Bid Form, please use the following language:*

### The work of this Section will not be measured separately for payment. All costs associated with the work of this Section shall be included in the Contract Price.

*OR If this Section is specifically referenced in the Bid Form, use the following language and identify the relevant item in the Bid Form:*

### All costs associated with the work of this Section shall be included in the price(s) for Item No(s). \_\_\_ in the Bid Form.

*If the work of this Section is to be measured and paid for by several different methods, please amend the standard wording given above to reflect the different methods of measurement and payment.*]

## Engine and Accessories

### Engine:

#### Make and type: [\_\_\_\_\_\_].

#### Model: [\_\_\_\_\_\_].

#### Serial No.: [\_\_\_\_\_\_].

#### Speed: [\_\_\_\_\_\_] rpm.

#### Cycles: [\_\_\_\_\_\_].

#### No. of cylinders: [\_\_\_\_\_\_].

#### Cylinder arrangement: [\_\_\_\_\_\_].

#### Bore and stroke: [\_\_\_\_\_\_] mm, [\_\_\_\_\_\_] mm.

#### kW [\_\_\_\_\_\_] at normal temperature and pressure.

#### Governor: make and type: [\_\_\_\_\_\_].

#### Base plate, including anchor bolt holes location: [\_\_\_\_\_\_].

#### Aspiration: natural/pressure: [\_\_\_\_\_\_].

#### Engine wiring: [\_\_\_\_\_\_].

### Fuel system:

#### Make and type: [\_\_\_\_\_\_].

#### Number of filters: [\_\_\_\_\_\_], make and type: [\_\_\_\_\_\_].

#### Recommended fuel oil: [\_\_\_\_\_\_].

#### Pumps: [\_\_\_\_\_\_].

#### Injectors: [\_\_\_\_\_\_].

#### Transfer pump: [\_\_\_\_\_\_].

#### Lines and fittings: [\_\_\_\_\_\_].

### Lubricating oil system:

#### Lubricating oil cooler:

##### Make and type: [\_\_\_\_\_\_].

#### Filters:

##### Number: [\_\_\_\_\_\_].

##### Make and type: [\_\_\_\_\_\_].

#### Gauges:

##### Number: [\_\_\_\_\_\_].

##### Make and type: [\_\_\_\_\_\_].

#### Lubricating oil:

##### Total capacity: [\_\_\_\_\_\_].

##### Recommended oil: [\_\_\_\_\_\_].

##### Recommended operating temperature: [\_\_\_\_\_\_].

##### Recommended operating pressure: [\_\_\_\_\_\_].

##### Drain valve: [\_\_\_\_\_\_].

##### Lines and fittings: [\_\_\_\_\_\_].

##### Leaks: [\_\_\_\_\_\_].

### Exhaust system:

#### Silencer: make and type: [\_\_\_\_\_\_].

#### Exhaust pipe size: [\_\_\_\_\_\_].

#### Silencer and fittings: [\_\_\_\_\_\_]

#### Manifold guard: [\_\_\_\_\_\_].

### Air intake system:

#### Air cleaner: make and type: [\_\_\_\_\_\_].

#### Air required for combustion: [\_\_\_\_\_\_] m/min.

#### Turbo charger: make and type: [\_\_\_\_\_\_].

### Cooling system:

#### Make: [\_\_\_\_\_\_].

#### Fan: number [\_\_\_\_\_\_], type of belts: [\_\_\_\_\_\_].

#### Radiator capacity: [\_\_\_\_\_\_].

#### Air required for cooling: [\_\_\_\_\_\_].

#### Engine heater: make and type [\_\_\_\_\_\_], wattage: [\_\_\_\_\_\_].

#### Aquastat: make and type [\_\_\_\_\_\_].

#### Thermostat: open [\_\_\_\_\_\_], close: [\_\_\_\_\_\_].

#### Drains: valves [\_\_\_\_\_\_], leaks [\_\_\_\_\_\_].

#### Gauges: make and type [\_\_\_\_\_\_].

### Starting system:

#### Starting motor:

##### Make and type: [\_\_\_\_\_\_].

##### Voltage: [\_\_\_\_\_\_].

##### F.L. Amps: [\_\_\_\_\_\_].

##### Serial No.: [\_\_\_\_\_\_].

#### Battery:

##### Make and type: [\_\_\_\_\_\_].

##### Nominal volts: [\_\_\_\_\_\_].

##### No. of cells: [\_\_\_\_\_\_].

##### A.H. capacity: [\_\_\_\_\_\_].

##### Cables: [\_\_\_\_\_\_].

#### Battery charger:

##### Make and type: [\_\_\_\_\_\_].

##### DC Volts - float: [\_\_\_\_\_\_], DC Volts - equalize: [\_\_\_\_\_\_].

##### Equalize time: [\_\_\_\_\_\_].

##### DC Amps: [\_\_\_\_\_\_].

##### AC Volts: [\_\_\_\_\_\_].

##### AC Amps: [\_\_\_\_\_\_].

##### Serial No.: [\_\_\_\_\_\_].

### Vibration isolators:

#### Make and type: [\_\_\_\_\_\_].

#### Spring cap: [\_\_\_\_\_\_].

### Flexible couplings:

#### Make and type: [\_\_\_\_\_\_].

### Other accessories:

#### Make and type/contact arrangement: [\_\_\_\_\_\_].

#### Fuel rack solenoid (FRS): [\_\_\_\_\_\_].

#### Speed switch (SS): [\_\_\_\_\_\_].

#### Low oil pressure switch (LOPS): [\_\_\_\_\_\_].

#### High coolant temperature switch (HCTS): [\_\_\_\_\_\_].

#### Engine control switch: [\_\_\_\_\_\_].

### Associated instruction books and sheets, parts books and drawings:

#### Tool kit: [\_\_\_\_\_\_].

#### Spare parts: [\_\_\_\_\_\_].

## Generator and Controls

### Alternators:

#### Make and type: [\_\_\_\_\_\_].

#### Frame: [\_\_\_\_\_\_].

#### Model: [\_\_\_\_\_[\_\_\_\_\_\_]\_].

#### Serial No.: [\_\_\_\_\_\_].

#### Phase and wire: [\_\_\_\_\_\_] PF, [\_\_\_\_\_\_] Volts, [\_\_\_\_\_\_] Amps, [\_\_\_\_\_\_] KVA, [\_\_\_\_\_\_] kW, [\_\_\_\_\_\_] Speed, [\_\_\_\_\_\_] Cycles.

#### Alt. field amps: [\_\_\_\_\_\_].

#### Temperature rise: [\_\_\_\_\_\_].

#### Bearing: front [\_\_\_\_\_\_], rear [\_\_\_\_\_\_].

#### Junction box: [\_\_\_\_\_\_].

#### Signs: DOT # [\_\_\_\_\_\_], warning [\_\_\_\_\_\_], air gap [\_\_\_\_\_\_], terminals [\_\_\_\_\_\_].

### Exciter:

#### Make and type: [\_\_\_\_\_\_].

#### Model: [\_\_\_\_\_\_].

#### Serial No. [\_\_\_\_\_\_].

#### Volts: [\_\_\_\_\_\_] kW, [\_\_\_\_\_\_] Amps.

#### Field Amps: [\_\_\_\_\_\_], field winding: [\_\_\_\_\_\_].

#### Temperature rise: [\_\_\_\_\_\_].

#### Brushless/brush/static: [\_\_\_\_\_\_].

### Voltage regulator:

#### Make and type: [\_\_\_\_\_\_].

#### Serial No.: [\_\_\_\_\_\_].

### Regulator accessories:

#### EFR/EFT: [\_\_\_\_\_\_].

#### VAR: [\_\_\_\_\_\_].

#### Transformers: [\_\_\_\_\_\_].

#### Change-over SW: [\_\_\_\_\_\_].

#### PMG: [\_\_\_\_\_\_].

#### Overload and short circuit test: [\_\_\_\_\_\_].

### Associated instruction books and sheets, parts books and drawings:

#### [\_\_\_\_\_\_].

## Control Panel and Components

### Control panel:

#### Dimensions: [\_\_\_\_\_\_].

#### Weight: [\_\_\_\_\_\_].

#### Construction: [\_\_\_\_\_\_].

#### Wiring: [\_\_\_\_\_\_].

### Transfer switch:

#### Make and type: [\_\_\_\_\_\_].

### Overcurrent relay:

#### Make and type: [\_\_\_\_\_\_].

### Meters:

#### Make and type: [\_\_\_\_\_\_].

#### Scale and accuracy: [\_\_\_\_\_\_].

#### Ampmeter: [\_\_\_\_\_\_].

#### Voltmeter: [\_\_\_\_\_\_].

#### Elapsed time meter: [\_\_\_\_\_\_].

#### Hz meter: [\_\_\_\_\_\_].

#### kW meter: [\_\_\_\_\_\_].

### Transformers: [\_\_\_\_\_\_].

#### Fuses: [\_\_\_\_\_\_].

### Engine - generator - controller:

#### Make and type: [\_\_\_\_\_\_].

### Associated instruction books and sheets, parts books and drawings:

#### [\_\_\_\_\_\_].

## Instrument Control Settings

### High coolant temperature switch (HCTS): [\_\_\_\_\_\_].

### Low oil pressure switch (LOPS): [\_\_\_\_\_\_].

### Over-speed switch (SS High): [\_\_\_\_\_\_].

### Cranking output switch (SS Low): [\_\_\_\_\_\_].

### Normal supply overcurrent: timed [\_\_\_\_\_\_], inst. [\_\_\_\_\_\_].

### Emergency supply overcurrent: timed [\_\_\_\_\_\_], inst. [\_\_\_\_\_\_].

### Normal supply voltage limits: [\_\_\_\_\_\_].

### Emergency supply voltage limits: [\_\_\_\_\_\_].

### Frequency limits: [\_\_\_\_\_\_].

### Time delay settings:

#### Crank delay: [\_\_\_\_\_\_].

#### Restart: [\_\_\_\_\_\_].

#### Bypass: [\_\_\_\_\_\_].

#### Anticipated fail: [\_\_\_\_\_\_].

#### Engine start: [\_\_\_\_\_\_].

#### Emergency to normal: [\_\_\_\_\_\_].

#### Dead bus: [\_\_\_\_\_\_].

#### Cool down: [\_\_\_\_\_\_].

## Regulation

### No load, steady state regulation [\_\_\_\_\_\_].

### Full load, stead state regulation [\_\_\_\_\_\_].

### Transient response 0 – 100% [\_\_\_\_\_\_]. 0 – 75 % [\_\_\_\_\_\_]. 0 – 50% [\_\_\_\_\_\_]. 0 – 25% [\_\_\_\_\_\_].

### Engine Temperature: [\_\_\_\_\_\_].

### Room Temperature: [\_\_\_\_\_\_].

### Resistances

#### Stator winding:

##### Phase A: cold [\_\_\_\_\_\_], hot [\_\_\_\_\_\_].

##### Phase B: cold [\_\_\_\_\_\_], hot [\_\_\_\_\_\_].

##### Phase C: cold [\_\_\_\_\_\_], hot [\_\_\_\_\_\_].

#### Rotor winding: cold [\_\_\_\_\_\_], hot [\_\_\_\_\_\_].

#### Exciter field winding: cold [\_\_\_\_\_\_], hot [\_\_\_\_\_\_].

#### Field rheostat: cold [\_\_\_\_\_\_], hot [\_\_\_\_\_\_].

### Voltage regulation:

#### Maximum [\_\_\_\_\_\_]%, steady state [\_\_\_\_\_\_]%, 4 hour drift [\_\_\_\_\_\_]%.

### Speed reduction:

#### Maximum [\_\_\_\_\_\_]%, steady state [\_\_\_\_\_\_]%, 24 hour drift [\_\_\_\_\_\_]%.

### Voltage adjustment ranges:

#### With regulator rheostat: [\_\_\_\_\_\_].

#### With field rheostat: [\_\_\_\_\_\_].

### Governor adjustment ranges:

#### Speed changer: [\_\_\_\_\_\_].

#### Speed droop: [\_\_\_\_\_\_].

### Cold start - full load application:

#### Time since run: [\_\_\_\_\_\_].

#### Lube oil temperature: [\_\_\_\_\_\_].

#### Fuel oil temperature: [\_\_\_\_\_\_].

#### Water temperature: [\_\_\_\_\_\_].

#### Generator iron temperature: [\_\_\_\_\_\_].

#### Room temperature: [\_\_\_\_\_\_].

#### Level of voltage overshoot: [\_\_\_\_\_\_].

#### Level of frequency overshoot: [\_\_\_\_\_\_].

#### Time to steady state: Volt [\_\_\_\_\_\_], Frequency [\_\_\_\_\_\_].

#### Time load applied from start: [\_\_\_\_\_\_].

#### Transient levels: volts [\_\_\_\_\_\_], Frequency [\_\_\_\_\_\_], Amps [\_\_\_\_\_\_].

#### Time to settled levels: Volts [\_\_\_\_\_\_], Frequency [\_\_\_\_\_\_], Amps [\_\_\_\_\_\_].

#### Settled levels: Volts [\_\_\_\_\_\_], Frequency [\_\_\_\_\_\_], Amps [\_\_\_\_\_\_].

## Heat Run

### Record the following in 15 minute intervals:

#### kW load.

#### Generator volts and Amp, L1, L2, L3.

#### Engine JW temperature [\_\_\_\_\_\_]°C.

#### Ambient air temperature [\_\_\_\_\_\_]°C.

#### Exhaust temperature [\_\_\_\_\_\_]°C.

#### Oil pressure [\_\_\_\_\_\_] kPa.

### Remarks:

#### Exhaust colour: [\_\_\_\_\_\_].

#### Lube, oil consumption: [\_\_\_\_\_\_].

#### Fuel consumption: [\_\_\_\_\_\_].

#### Atmospheric conditions:

##### Temp/press/humidity: [\_\_\_\_\_\_].

## Coupling Alignment

### [\_\_\_\_\_\_].

## Miscellaneous

### Manuals:

#### Received: [\_\_\_\_\_\_] copies.

#### Distributed: [\_\_\_\_\_\_] copies, [\_\_\_\_\_\_] site (with cabinet), [\_\_\_\_\_\_] copies [\_\_\_\_\_\_] region, [\_\_\_\_\_\_] copies, [\_\_\_\_\_\_] maintenance, [\_\_\_\_\_\_] copies, [\_\_\_\_\_\_] headquarters.

#### Provide all relevant information in accordance with Section 01425 - Computerized Maintenance Management System Data Requirements.

### Shipping:

#### Crate: [\_\_\_\_\_\_].

#### No. of pieces: [\_\_\_\_\_\_].

#### Dimensions: [\_\_\_\_\_\_].

#### Weight: [\_\_\_\_\_\_].

#### Valuation: [\_\_\_\_\_\_].

#### Date: [\_\_\_\_\_\_].

#### Carrier [\_\_\_\_\_\_].

### Factory acceptance:

#### Date: [\_\_\_\_\_\_].

#### Signature: [\_\_\_\_\_\_].

## Commissioning

### For all commissioning activities on systems where components of this Section are integral to functionality, refer to Section 01810 – Equipment Testing and Facility Commissioning. All inspection and testing activities shall be completed in accordance with the commissioning plan that shall be provided to the Consultant prior to the commencement of commissioning activities.

### The factory testing shall be performed under the designed operating conditions and requirements as defined in Factory Acceptance Testing procedures detailed in Division 13 – SCADA and Instrumentation Process Narratives. Any deviations from such must be submitted in writing to the Consultant for approval.

### If applicable, factory tests shall be conducted with two or more diesels running concurrently and properly synchronized in accordance with the operational requirements set out in Division 13 - SCADA and Instrumentation and the Process Narrative/Process Control Narratives included in the Contract’s SCADA appendices. *[Consultant/project team to ensure that the Process Narrative/Process Control Narratives are attached as appendix documents to the Contract].*

### The Contractor shall submit to the Consultant a report on factory test results comparison with expected performance criteria. The Consultant shall review the report and approve the equipment for installation.

**END OF SECTION**