

SECTION 01730

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Format and content of manuals.
- B. Instruction of Owner's personnel.
- C. Submittals.

1.2 RELATED SECTIONS

- A. Section 01300 - Submittals
- B. Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.4 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Electronic: Provide two (2) CDs or DVDs of the O&M manuals in PDF format for with indexing activated for review. Submit one (1) final approved O&M manual.
- C. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 3 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings. Fill binders to no more than 75% capacity. Provide six (6) bound copies of the final, approved O&M manual.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; Volume number, General Contractor name and address and Engineer name and address.
- E. Provide tabbed indexes for each separate product and system, with typed description of product and system.
- F. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

- H. Arrange content by process flow under section numbers and sequence of Table of Contents of this Project Manual.

1.5 CONTENTS, GENERAL FOR EACH VOLUME

- A. Table of Contents: Provide title of Projects and the names, addresses, and telephone numbers of Engineer, Subconsultants, and Contractor in the heading. Next, provide a schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information. Identify specific model numbers, size, etc.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- F. Warranties and Bonds: Bind in copy of each.
- G. Start-up documentation. Provide a binder tab for inclusion following start-up.

1.6 MANUFACTURERS MANUALS FOR EQUIPMENT AND SYSTEMS

- A. Each Item of Equipment and Each System: Include description of unit or system, and component parts with diagrams, charts, capabilities, etc. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, complete nomenclature and model number of replaceable parts, and catalog data or literature with correct model number of equipment noted where literature covers more than one model.
- B. Shipping, storage and handling: Include all necessary requirements.
- C. Storage maintenance: Include all necessary rotation, lubrication, heating or other provisions required during storage.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions and drawings; and alignment, adjusting, balancing, calibration and checking instructions.

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- F. Provide preventive maintenance recommendations servicing and lubrication schedule, and list of lubricants required. Include manufacturer's printed storage and installation instructions with alignment instructions and tolerances.
- G. Include manufacturer's printed operation and maintenance instructions. Provide trouble shooting guide for equipment and system components.
- H. Provide original manufacturer's detailed parts list and parts drawing, illustrations, assembly/disassembly drawings and instructions, and diagrams required for maintenance. Provide a cross reference to all individual component manuals for all parts lists and illustrations provide correct parts numbers. All bearing numbers shall be listed.
- I. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage and how to obtain them.
- J. Include test and balancing reports.
- K. Include start-up documentation.
- L. Additional Requirements: As specified in individual Product specification sections.
- M. Provide a listing in Table of Contents for design data, with tabbed indexed and space for insertion of data.

1.7 INSTRUCTION OF OWNER PERSONNEL

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. For equipment requiring seasonal operation, perform instructions for other seasons.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.
- E. Refer to individual equipment specification section for instruction and training requirements.

1.8 SUBMITTALS

- A. Submittals for review and approval must be submitted 6 weeks prior to shipment.
- B. Submit revised volumes prior to equipment start-up. These copies will be used during training. Revise content of all document sets where required following training within 60 days.
- C. Submit revisions of final documents following training where required.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF TEXT SECTION 01730

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O&M MANUAL CHECKLIST

Note to Contractor: This form must be submitted with all O&M manuals.

 Equipment Name

 Specification Number

I, _____ do hereby certify that the O&M Manual for the referenced equipment:
 (Print / Type Name) _____
 meets requirements and specification for 01730 as noted below:

Format	<u>yes</u>	<u>no</u>		<u>yes</u>	<u>no</u>
Table of Contents:	<input type="checkbox"/>	<input type="checkbox"/>	Annotated Format:	<input type="checkbox"/>	<input type="checkbox"/>
Provide 3-Ring Binder:	<input type="checkbox"/>	<input type="checkbox"/>	Tabs:	<input type="checkbox"/>	<input type="checkbox"/>
Cover/Spine					
Equip. Title:	<input type="checkbox"/>	<input type="checkbox"/>	Owner:	<input type="checkbox"/>	<input type="checkbox"/>
Project Title:	<input type="checkbox"/>	<input type="checkbox"/>	Contractor:	<input type="checkbox"/>	<input type="checkbox"/>
Date:	<input type="checkbox"/>	<input type="checkbox"/>	Engineer:	<input type="checkbox"/>	<input type="checkbox"/>
			Representative:	<input type="checkbox"/>	<input type="checkbox"/>
			Manufacturer:	<input type="checkbox"/>	<input type="checkbox"/>
General					
Design Data:	<input type="checkbox"/>	<input type="checkbox"/>	Expanded Views:	<input type="checkbox"/>	<input type="checkbox"/>
Spare Parts List:	<input type="checkbox"/>	<input type="checkbox"/>	Complete Parts List:	<input type="checkbox"/>	<input type="checkbox"/>
Equip. Drawings:	<input type="checkbox"/>	<input type="checkbox"/>			
Operations:					
Handling & Storage:	<input type="checkbox"/>	<input type="checkbox"/>	Start-Up:	<input type="checkbox"/>	<input type="checkbox"/>
Installation Procedures:	<input type="checkbox"/>	<input type="checkbox"/>	Trouble Shooting:	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance					
Maintenance Procedures:	<input type="checkbox"/>	<input type="checkbox"/>	Preventive Maint. Req.:	<input type="checkbox"/>	<input type="checkbox"/>
Lubrication Specs.:	<input type="checkbox"/>	<input type="checkbox"/>	Preventive Maint. Sched.:	<input type="checkbox"/>	<input type="checkbox"/>
Electrical					
Motor Data:	<input type="checkbox"/>	<input type="checkbox"/>	Control Wiring Diagram:	<input type="checkbox"/>	<input type="checkbox"/>
Wiring Diagrams:	<input type="checkbox"/>	<input type="checkbox"/>			
Test / Field Reports					
Balance Report:	<input type="checkbox"/>	<input type="checkbox"/>	Noise (dB) Readings:	<input type="checkbox"/>	<input type="checkbox"/>
Certif. of Installation:	<input type="checkbox"/>	<input type="checkbox"/>	Pressure Tests:	<input type="checkbox"/>	<input type="checkbox"/>
Miscellaneous					
Extended Warranty:	<input type="checkbox"/>	<input type="checkbox"/>	MSDS Sheets:	<input type="checkbox"/>	<input type="checkbox"/>

Comments: _____

 Signature

 Date