



QUOTED SERVICE REPORT

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Service Request Number: 1-84255915067

Status: Completed

Requestor: Raul Cozza

JOHNSON CONTROLS SALISBURY WILMINGTON CB - 0N28

812 First State Blvd

Wilmington, DE 19804-3573

(866) 589-9275

Service Site:

DUPONT EXPERIMENTAL STATION

DUPONT EXPERIMENTAL

Rt 141 Lancaster Pike

Wilmington, DE 19880-0000

Bill To:

E I DUPONT DENEMOURS CO

1325779

Attn Accounts Payable Department

Po Box 80040

Wilmington, DE 19880-0040

Purchase Order: 6501959950

Blanket Purchase Order:

Customer Authorization:

Customer Work Order:

Quoted Amount: \$4,971.71

Service Requested:

6501959950

CHILLER #8 ANNUAL MAINTENANCE (2019 YEAR-START)

Refrigerant Leak Test chiller and Document Leaks Found (repair minor leaks, if possible)

Furnish and Change Compressor Oil Filter, and Oil Return Filter-Drier

Disassemble Compressor Coupling, Clean, & Check Cold Alignment

Measure & Record Compressor Low-Speed Axial Thrust

Reassemble Coupling and Re-Check Compressor Cold Alignment

Vacuum out Compressor Motor and Change Air Filters

Check all Chiller Controls, Safeties, and Low Voltage Electrical Connections

Document all tasks and Provide DuPont with a Comprehensive Report

Refrigerant & Oil Samples will be performed under a separate Quote

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Lynn Dolphin

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Date	Activity Number	Activity Status	Work Performed	By
01/31/2019	1-12PFSO8U	Completed	<p>CHILLER #8 ANNUAL MAINTENANCE (2019 YEAR-START)</p> <p>RUN HOURS: 52,417 TOTAL STARTS: 2281</p> <ul style="list-style-type: none"> • REMOVED REFRIGERANT & OIL SAMPLES, SHIPPED TO LAB FOR ANALYSIS. CONDITION of BOTH is NORMAL. ANALYTICAL REPORTS WILL BE SENT TO DUPONT (Expense covered under QUOTE# 1-1280MMMWW) • REPLACED MAIN OIL FILTER w/ 3 Micron (026-32386-000) • REPLACED OIL RETURN FILTER-DRIER (C-413) (026-13508-000) • CHECKED OIL HEATER OPERATION. VERIFIED OFFLINE SUMP SETTING @ 135F • OIL SUMP LEVEL w/ PUMP RUNNING: 1/4" TSG • CHECKED ALL CHILLER CONTROLS, SAFETIES, & LOW VOLTAGE ELECTRICAL CONNECTIONS **(see last page for HGPB issues)** • CHECKED BOTH HIGH PRESSURE SWITCH CUTOFF PRESSURES OF 180PSIG & ALARM POINT ACTIVATION ON THE POWERHOUSE MAIN CONTROL SYSTEM • VERIFIED RUPTURE DISK PRESSURE SWITCH CLOSURE AT 50PSIG & ALARM POINT ACTIVATION ON THE POWERHOUSE MAIN CONTROL SYSTEM • REFRIG. LEAK TESTED ENTIRE CHILLER w/ ELECTRONIC DETECTOR <p>LEAKS DISCOVERED (01/30/19):</p> <ol style="list-style-type: none"> 1) RUPTURE DISK GASKETS (BOTTOM OF BOTH DISKS) (SMALL) 2) OIL COOLER REFRIG VAPOR RETURN LINE 1/2" ANGLE VALVE THREADS (SMALL) 3) VAPOR RECOVERY ANGLE VALVE PACKING (SMALL) <p>** ALL LEAKS WERE REPAIRED 02/22/19 UNDER SR#: 1-84701513778</p>	Kevin Frazee

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			<ul style="list-style-type: none"> • SHAFT SEAL OIL LEAKAGE RATE CALCULATED TO BE BETWEEN 2.58 - 3.61 ML/HR (OVER 74 HRS RUNTIME, BEFORE SHUTDOWN) 	
02/20/2019	1-12SRMEFU	Completed	<p>COMPRESSOR ALIGNMENT CHECK: 67 PSIG / OIL SUMP @ 137F</p> <ul style="list-style-type: none"> • DISASSEMBLED 1-7/8" YORK-FLEX COUPLING & CLEANED • AXIAL SHIMS= 0.110" + 0.115" = 0.225" • MEASURED MOTOR SHAFT FLOAT= 0.528" (ACCEPTABLE) <p>MOTOR TO COMP SHAFT CLEARANCE: Motor Full Forward= 3.463" Motor Full Back= 3.991" Float Total= 0.528" (0.500-0.565) (Min-Max)</p> <ul style="list-style-type: none"> • MEASURED MOTOR COUPLING RIM RUNOUT= 0.005" / FACE RUNOUT= 0.002" • MEASURED COMP SHAFT RADIAL RUNOUT: 0.002" / FACE RUNOUT= 0.000" • MEASURED COMP AXIAL THRUST= 0.010"* (@ 67 PSIG) / 0.020" (@ 1 PSIG) <p>* SHAFT SEAL STARTED TO LEAK AT THIS DEPTH INTO THE COMPRESSOR * * ACTUAL THRUST COULD ONLY BE MEASURED AFTER REFRIGERANT RECOVERY * * THRUST DESIGN SPEC: 0.009" - 0.021" *</p> <ul style="list-style-type: none"> • CHECKED TORQUE OF MOTOR FEET BOLTS • MEASURED & RECORDED ALIGNMENT W/ DIALS (OFFSET, ANGLE, & AXIAL) ARE ALL WITHIN ACCEPTABLE TOLERANCE 	Kevin Frazee

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Date	Activity Number	Activity Status	Work Performed	By
02/27/2019	1-12WBJXZ1	Completed	<ul style="list-style-type: none"> • CLEANED MOTOR. VACUUMED OUT & INSPECTED INTERNALS • CHANGED BEARING OIL & AIR FILTERS (16x25x2 QTY-4) ** DISCOVERED 3 FILTERS STUCK IN BOTH DRIVE & OPPOSITE END AIR PLENUMS HEADING TOWARDS THE MOTOR'S STATOR / ROTOR. THESE FILTERS WERE RETRIEVED & REMOVED ** • REASSEMBLED DRIVE COUPLING, TORQUED HUBS TO SPEC (23 FT/LB) • REASSEMBLED COUPLING GUARD • CLEANED CHILLER & PREPPED FOR STARTUP ** DISCOVERED LEAVING CHILLED WATER TEMP SENSOR, FOR THE HOT GAS BYPASS CONTROLLER, OUT OF RANGE. ATTEMPTED REPLACEMENT OF SENSOR, BUT IT IS STUCK IN THE THERMOWELL. LEFT HGPB CONTROL DISABLED UNTIL REPAIRS CAN BE SCHEDULED AND COMPLETED ** • CHILLER WAS UNLOCKED AND STARTED BY DUPONT OPERATORS • OIL PRESSURE REGULATOR WAS ADJUSTED TO 38 PSID • CONDUCTED A THOROUGH INSPECTION AFTER SEVERAL HOURS OF RUN TIME • PERFORMANCE IS CURRENTLY NORMAL 	Kevin Frazee

Materials Used:	
Description	
DEHY 3/8 MALE FLA**C-413 / 026 13508 000	
KIT, FILTER / 392 10719 000	
KIT, REPL GASKETS & / 028 08312 001	

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Refrigerant Tracking:											
Activity #	Action Taken	Type	Amount	Asset ID	Customer Tag	Serial Number	Model Number	Circuit ID	Circuit Tag	Leak Location	Leak Rate
No Refrigerant Activity Recorded To Date											

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Service Order Warranty Terms and Conditions

PARTS WARRANTY:

Johnson Controls, Inc. (JCI) warrants that original equipment, parts or components manufactured or labeled by JCI shall be free from defects in material and workmanship under normal usage and proper installation and maintenance for a period of one (1) year from the date of shipment. Equipment, parts or components not manufactured or labeled by JCI shall carry a warranty from defects in material and workmanship under normal usage and proper installation and maintenance for a period of ninety (90) days from the date of shipment. Notwithstanding the foregoing, in the event JCI is reasonably able to identify a warranty for a period longer than the ninety (90) days applicable to equipment, parts or components not manufactured or labeled by JCI, it will assign all assignable rights under such warranty to Customer and reasonably cooperate in the enforcement of any warranty claim. Recertified or replacement parts installed on equipment and still under the original equipment manufacturer's warranty are covered for ninety (90) days or the remainder of the original equipment manufacturer warranty period, whichever is longer. For large tonnage chillers, JCI will warrant under normal usage and proper installation and maintenance for a period of one (1) year from the date of shipment: screw compressors, motors, control panels and components, VFD's and components and Liquid Cooled Solid State Starters and components. For small tonnage chillers, JCI will warrant under normal usage and proper installation and maintenance for a period of one (1) year from the date of shipment: scroll compressors, condenser coils, control panels and components, screw compressors (DXS and Mustang), and fan motors. In the event of a valid warranty claim, the Customer's remedy shall, at JCI's sole discretion and subject to the exclusions herein, be limited to repair or replacement of the subject equipment, part or component conditioned upon the return to JCI of any defective equipment, part or component. This Parts Warranty does not cover any shipping, handling or transportation charges or any associated labor costs.

LABOR WARRANTY:

Johnson Controls, Inc. (JCI) warrants its workmanship or that of its agents in relation to installation of materials for a period of ninety (90) days from date of installation or with respect to service work for a period of ninety (90) days from the date of service. Customer acknowledges that re-performance shall be its exclusive and only remedy with regards to any services provided by JCI. Customer shall bear all labor costs associated with the repair or replacement of failed material that is outside the scope of this express labor warranty. All warranty labor shall be executed during JCI normal business hours.

These warranties do not extend to any equipment which has been repaired by others, abused, altered, or misused in any way, or which has not been properly and reasonably maintained.

THESE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE OF MERCHANTABILITY AND FITNESS FOR A SPECIFIC PURPOSE. UNDER NO CIRCUMSTANCES SHALL JCI BE LIABLE FOR ANY SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES ARISING FROM OR RELATING TO ANY DEFECT IN MATERIAL OR WORKMANSHIP OF EQUIPMENT OR THE PERFORMANCE OF SERVICES.

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