



QUOTED SERVICE REPORT

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Service Request Number: 1-48130592782

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: 6501729020

Blanket Purchase Order:

Customer Authorization:

Customer Work Order:

Quoted Amount: \$16,216.01

Service Requested:

CHILLER #7 ANNUAL MAINTENANCE (2017)

REMOVE REFRIGERANT SAMPLE / Send to Lab for CHEMICAL ANALYSIS
REFRIGERANT LEAK TEST Chiller and Document Leaks found (repair minor leaks, if possible)
TRANSFER R134A Charge to Storage Tank & Record Total Weight (Leaving 5psi on Chiller)
FURNISH and INSTALL Compressor Oil Filters, and ALL REFRIG FILTERDRIERS
FURNISH and INSTALL Gearbox Oil Filters and Oil (*Gear/Motor Oil furnished by DuPont*)
INSPECT Gears and Internal Gearbox Components
DISASSEMBLE Motor Coupling, CLEAN, MEASURE/RECORD Cold Alignment
REPACK Motor Coupling with Grease and REASSEMBLE
DISASSEMBLE Compressor Coupling and CLEAN
MEASURE/RECORD Compressor Axial Thrust & Coupling cold Alignment, REASSEMBLE Coupling
VACUUM out Compressor Motor
BRUSH CLEAN all Oil Cooler Tubes (Gear & Compressor)
TRANSFER R134A Charge back into Chiller & RECORD Quantity of Transfer
DOCUMENT all Tasks and Provide DuPont with a Comprehensive Report

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Lynn Dolphin

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Date	Activity Number	Activity Status	Work Performed	By
03/17/2017	1-M3ZTC25	Completed	CHILLER #7 ANNUAL MAINTENANCE DUPONT PO#: 6501729020 JCI QUOTE#: 1-LP24C0S • Removed Refrigerant Sample from Evaporator, and shipped out to Lab for Chemical Analysis	Kevin Frazee
04/10/2017	1-MBP7L98	Completed	• Parts Order • Oil Samples • Job Prep	Kevin Frazee
04/14/2017	1-MBP7LBC	Completed	• Parts Order • Job Prep	Kevin Frazee
04/17/2017	1-MBA01D4	Completed	• Removed Gearbox Oil Charge • Removed Old & Installed New Gearbox Oil Filters • Performed Refrigerant Leak Test with 71psig Refrig. Static Pressure LEAKS FOUND: [1] Refrig. Sample Valve, Bottom of Evaporator [2] 1/2" Pipe Thread in Compressor Discharge Line for Transducer [3] Threaded Well in Compressor Discharge Line for RTD [4] Drain Valves on Bottom of Comp. Volutes [5] 1/4" Threaded 45L for Balance Piston Transducer • Started Liquid Refrigerant Recovery from Chiller into YORK Central Recovery Tank for weighing	Kevin Frazee

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Date	Activity Number	Activity Status	Work Performed	By
04/18/2017	1-MBP7LC8	Completed	<ul style="list-style-type: none"> Disassembled Low Speed Coupling Guard & Degreased Area Completed Transfer of Chiller Charge into YORK Central Recovery Tank <ul style="list-style-type: none"> - TOTAL R-134A RECOVERED: 8,700 LBS (05/18/2017) - TOTAL DESIGN CHARGE: 8,970 LBS - DEFICIT = 270 LBS (3% LOSS) - LAST DATE OF CONFIRMED FULL CHARGE: 03/07/2016 (437 Days) 	Kevin Frazee
04/28/2017	1-MBP7LAG	Completed	<ul style="list-style-type: none"> Disassembled Low Speed Coupling Removed Old Grease, Cleaned Hubs & Sleeves, Inspected O-Ring and Gasket Seals Removed HIGH Speed Coupling Guard Disassembled, Inspected, & Cleaned the 3" YORK-FLEX Coupling 	Kevin Frazee
05/01/2017	1-MP7RB5J	Completed	<ul style="list-style-type: none"> Disabled Compressor Oil Sump Heaters & Removed Oil Charge from Sump <p>Started DRIVELINE INSPECTION:</p> <ul style="list-style-type: none"> COMPRESSOR AXIAL THRUST= 0.014" @ 0 PSIG H.S. AXIAL SPACERS= 0.190" (0.095" + 0.095") COMP/GEAR RIM SEPARATION (W/O SPACERS, SHAFTS PUSHED IN)= 0.255" PINION GEAR FLOAT*= 0.093" BULL GEAR FLOAT*= 0.050" MOTOR SHAFT FLOAT*= 0.509" <ul style="list-style-type: none"> - CALCULATED AXIAL MISALIGNMENT= -0.0045" (Within SPEC) - MOTOR SHAFT FLOAT= 1.8% Over SPEC - All Other Measurements Within Design SPEC <p>*FLOAT Measurements were taken with BOTH Couplings UNCOUPLED*</p>	Kevin Frazee

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Date	Activity Number	Activity Status	Work Performed	By
05/02/2017	1-MPLFMCV	Completed	<ul style="list-style-type: none"> Replaced Main Refrigerant Liquid Filter-Driers, Oil Return Line Filter, and Compressor Oil Filters (All with New O-rings and/or Gaskets) Torqued Evaporator 6" Sight Glass by evenly tightening packing gland screws to 11Ft/Lb spec. 	Kevin Frazee
05/03/2017	1-MQBPGXV	Completed	<ul style="list-style-type: none"> Inspected Oil Return System Components Disassembled, Inspected, & Cleaned Oil Return Educator Removed Corroded Educator Solenoid, Repaired Piping Threads, and Installed New Valve w/ Coil Reassembled Oil Return Components, Verified Leak-Free, Painted, and had Re-insulated 	Kevin Frazee
05/04/2017	1-MQQBTL	Completed	<ul style="list-style-type: none"> CHECKED for "SOFT-FOOT" on MOTOR (GOOD: Below 0.002") RE-TIGHTENED MOTOR FEET MEASURED COLD ALIGNMENT of LOW SPEED SHAFTS with both LASER and DIALS RECORDED for RECORDS <p>**HOT ALIGNMENT CHECK RECOMMENDED**</p>	Kevin Frazee
05/05/2017	1-MRKL4W	Completed	<ul style="list-style-type: none"> CHECKED for "SOFT-FOOT" on GEARBOX (GOOD: Below 0.002") RE-TIGHTENED GEARBOX FEET MEASURED COLD ALIGNMENT of HIGH SPEED SHAFTS with both LASER and DIALS RECORDED for RECORDS <p>**HOT ALIGNMENT CHECK RECOMMENDED**</p>	Kevin Frazee

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Date	Activity Number	Activity Status	Work Performed	By
05/08/2017	1-MS6F000	Completed	<ul style="list-style-type: none"> • ADDED 35 Gals. of NEW York "K" Oil to Comp. (Customer Supplied) • Re-Engaged Oil Sump Heaters & Set to 150F • Began Transfer of Charge back to Chiller. Broke 250 micron Vacuum w/ R-134a from Central Recovery Tank, to 3 psig static on Chiller 	Kevin Frazee
05/09/2017	1-MSK4IDH	Completed	<ul style="list-style-type: none"> • Completed Charge Transfer back into CHILLER <p>CURRENT TOTAL CHILLER CHARGE = 8,700LBS (270lbs BELOW Design)</p>	Kevin Frazee
05/11/2017	1-MT183BH	Completed	<ul style="list-style-type: none"> • Drained, Cleaned, Flushed, Filled, & Vented Air on all Oil Coolers (Gear & Compressor) 	Kevin Frazee
05/12/2017	1-MV2OUU7	Completed	<ul style="list-style-type: none"> • Inspected Control System • Checked Calibration (Zero/Span) of PRV E/P Transducer (Good) • Checked Vane Actuator Signal-to-Position Calibration (Not Good) <p>***Further Investigation Revealed that the CONOFLOW Internal Piston Seals were Leaking past, which was Inaccurately Positioning the Actuator Stem***</p> <p>***Actuator Position will have to be MANUALLY Set and FIXED, until Replacement Parts Arrive***</p>	Kevin Frazee
05/15/2017	1-MVKXTLZ	Completed	<ul style="list-style-type: none"> • Repacked Low Speed Coupling with Fresh Grease • Reassembled Coupling and Evenly Torqued to Rated Spec • Re-Installed Motor Coupling Guard • Cleaned Motor <p>Cleaned YORK-FLEX High Speed Coupling, Reassembled, Torqued to Rated Spec (100Ft/lbs)</p> <ul style="list-style-type: none"> • Re-Installed High Speed Coupling Guard 	Kevin Frazee

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Date	Activity Number	Activity Status	Work Performed	By
05/26/2017	1-MVY5XDL	Completed	<ul style="list-style-type: none"> • Visually Inspected Gearbox Gears • Filled Gearbox with NEW DuPont Supplied Gear Oil • Visually Checked Gear Oil Spray Pattern (Good) (Spray Pressure @ 11psig) • Set Motor Oil Supply Pressure to 15psig <p>PRE-STARTUP on 05/16/2017: CHILLER RUNTIME TOTAL= 3551 DAYS / 22 HRS / 39 MINS LAST START: 02/07/2017 @ 09:41:58</p> <ul style="list-style-type: none"> • DuPont Operators Started Chiller • Vanes were Manually Fixed to 25% (Capacity will have to be controlled Manually with Hot Gas Valve until CONOFLOW Actuator Parts are Replaced) • Chiller Performance is currently STABLE <p>***Further Adjustments will likely be Required and Recommended once Vane Actuator is back in Automatic Control in order to Achieve Peak Chiller Performance***</p>	Kevin Frazee
05/31/2017	1-NAGIJV9	Completed	<ul style="list-style-type: none"> • Tasking Records & Documentation • Cleaned up Job 	Kevin Frazee

Materials Used:
Description
Elbow,45 Deg,1/4 In,304 Stainless Stee
Close Nipple,1/4 In,Fully Thrd,316
Tape,Reflective
Reflective Tape,23 In by 5/8 In,PK10
OIL FILTER ELEMENT
LOCTITE 567 TB 50ML

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Materials Used:
Description
R/T BIG BLU LEAK DETECT
SPORLAN HIGH CAPACITY
ELEM FLT / 026 11255 000
OIL ANALYSIS KITS / TSTIRC

Refrigerant Tracking:											
Activity #	Action Taken	Type	Amount	Asset ID	Customer Tag	Serial Number	Model Number	Circuit ID	Circuit Tag	Leak Location	Leak Rate

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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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