



CUSTOM AIR PRODUCTS & SERVICES, INC.

35 Southbelt Industrial Drive • Houston, Texas 77047

(713) 460-9009 • Fax (713) 460-9499

www.customairproducts.com

HERC

HERC CANADA

5349096, 5349099

18F-0177

**(4) 227 TON CHILLER PACKAGE
WITH SKID MOUNT, 4" CONNECTIONS
& PUMP RATED 600 GPM @ 100 TBH**

-

**460V/3PH/60HZ
GENERAL PURPOSE**

8/10/2018

INSTALLATION & OPERATION MANUAL

**Table
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18F-0177**

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SECTION

01

JOB SCOPE



Quote No:	DW18-03-05-02 (Final)
Quote Date:	03-05-2018
Project Type:	(4) 227 Ton Industrial Chillers & Pump Packages
Drawing Delivery:	2 weeks after receipt of order
Equipment Delivery:	18 weeks After Receipt of Approved Drawings (ARAD)
Freight Terms:	FOB HERC
Payment Terms:	Net 45 *100% upon completion

Item	Qty	Description
1.	4	<p>CAPS Model # PCHH-227TC-0NN0NN-5E5-0-PG2CEUP Provide one (1) York model # YCIV-0227 air cooled with the following features:</p> <ul style="list-style-type: none"> • VSD Power/Control Panel includes VSD and fan motor contactors, current overloads, and factory wiring. Standard design includes NEMA 3R (IP55) rating • Compressors are direct drive, semi-hermetic, rotary twin-screw type, including: muffler, temperature actuated 'off-cycle' heater, rain-tight terminal box, discharge shut-off service valve, and precision machined cast iron housing mounted on elastomeric isolators • Compressor motors are regulated by a variable-speed drive. Therefore, motor current never exceeds the rated load amps (RLA), providing soft starts with no electrical inrush. This eliminates the motor heating and stress always found with conventional motor starters. In addition, by eliminating the heat buildup during starting, the required off-time between starts is reduced to a maximum of two minutes • CRN Certified for Ontario, Quebec, Alberta and British Columbia • Refrigerant Type-134a • Dual circuit machine for staging and efficiency • Variable speed-drive compressors for dynamic staging control and energy conservation. • 460-3-60 application • Single point power connection • Control transformer power • Integrated non-fused disconnect-" thru the panel operator" • TEAO fan motors • Low sound fans • Insulated evaporator & protective aluminum jacketing • 1 year York parts, labor and refrigeration warranty • Service isolation valves • Condenser coil guards • Phase monitor and phase fail indicator light (red) • Main power on indicator (green) • Master on switch

Item	Qty	Description
		<ul style="list-style-type: none"> • Common trouble alarm terminal • Installed flow switch safety • Condenser coil corrosion protection applied (Energy Guard) • Temperature and pressure gauges provided • Chiller will be provided with standalone York DDC temperature controls. • Chilled water barrel heaters for freeze protection • Chiller provided with hydronic isolation and drain valves. • Main power wiring will include dual (2) Cam Lok electrical connections and associated wiring. The Cam Lok connectors shall be repositioned on the main high voltage panel to provide additional connection clearance • Chiller shall be furnished with a 2" x 4" label with white backing and black lettering stating "NOTE: 480 volt power should be applied a minimum of 1 hour before starting chiller. Compressor oil heaters utilize 480 volt power." • Minimum warm up timer shall be installed for cold start protection with shore power connection. • York factory start up provided at the CAPS campus in Houston, Texas • Provide and install pump rated @ 600 GPM @ 100 foot/head. Pump will be mounted to the chiller skid. The close coupled pump will be integrated into the interconnecting piping and hydronic components. Installation to include a pump starter, overload, control switch and breaker. <p>Internal chiller piping package to include:</p> <ul style="list-style-type: none"> • Integrated bypass to provide operation of local or remote pumps • All pipe, valves and applicable components to be flanged. • Piping will be provided with 4" quick connect style pipe connections. • Chiller to be provided with isolation/balancing valves, bypass valve for remote pump operation, in-line strainer with blow down valve, and low level drain valve. • Entering and leaving fluid temperature ports and thermometers • Entering and leaving pressure ports and gauges • Drain valves at chiller barrel, pump housing and at the piping manifold lowest point. • Chiller will be provided with an additional differential pressure safety switch. This pressure switch is independent of the factory installed safety switch. The pump differential flow switch shall have a "delay on make" timer installed to air in chiller operation during start up for the purpose of bleeding air from the system without interruption. • Provide two (2) additional ¼" access ports for field pressure/temperature testing. • Perform hydrostatic pressure testing to 125 PSIG of the entire pump, piping and component assembly to verify no leaks are present. • Apply specified urethane coating on the piping manifold and component assembly. • Provide structural mounting frame for the pump on chiller skid. Hot dipped galvanized structural members. • Provide and install all required electrical power wiring and control devices. • Provide all required starters, overloads and disconnects. • The skid shall be fabricated from 1/4" thick, 8" X 4" rectangular steel tube. The skid size is length and width plus piping headers so that no

Item	Qty	Description
		<p>part of the unit is outside of the rack. The fork truck lifting slots are 6" X 10" X 1/4" and made of the same material and are incorporated into the design on 54" centers apart. The skid components are continuously welded at all joints. All tubing ends are capped and continuously welded. The skid incorporates 4" X 4" tie-down holes in each corner of the tubing and is welded solid. All unit serial numbers and weight tags shall be cutout on a steel plate and attached to the skid at diagonal corner locations. Center of gravity will be clearly marked on the upper and lower portion of the skid / frame assembly.</p> <ul style="list-style-type: none"> • The lifting frame material shall be 4" X 4" square steel tubing. This frame is designed for overhead lifting and stacking of the units. All tubing ends are capped and continuously welded. The tubing is cut and fit to the height, width, and length of the unit. All corners have a 45 degree, 3/8" steel plate gusset. The top of the frame has a 3/8" steel plate superman gusset welded to the horizontal tubing and incorporates a 1½ inch hole that aligns with the drag eye to secure stacking of units. • The entire skid/lifting frame assembly shall be hot dipped galvanized before component installation. • The chiller shall be attached to the structure along all sides. • The unit shall be manufactured in accordance with NEC codes, ETL requirements and labeled with the appropriate 3rd party NRTL as requested. • Chiller / pump assembly shall be provided with a certified skid / lifting frame structural calculations and certificates issued by a 3rd party engineering firm. • All painting of these components to be Herc specified color. • CAPS will provide and install the Herc decal package as per provided layout drawing by Herc. • Unit to be tested and verified for proper operation at Custom Air Products & Services prior to shipment. • Herc Representatives will also have full access to schedules and production progress as units are being manufactured.
		<p><u>EXCLUSIONS</u></p> <ul style="list-style-type: none"> • Extended warranty (available at an additional cost) • Installation, Equipment and Start-up Commissioning by others • Hose • Sales tax not included • Freight not included • Overtime not included • Proposal valid for 30 days • Any items not listed in the above scope of work to be performed



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SECTION

02

UNIT SUBMITTAL

BID DATE: March 6, 2018
PROJECT: CAPS- 2018 PHASE 3
TO: Custom Air Products & Services

LAST ADDENDUM: None
NOTE(S):
Revision:

EQUIPMENT PROPOSAL

We are pleased to provide equipment pricing for the above referenced project in accordance with the standard terms and condition of sale attached to this document.

<u>ITEM</u>	<u>QTY</u>	<u>TAGS</u>	<u>DESCRIPTION</u>
I	4	CH120T	YLAA- AIR COOLED SCROLL CHILLER
II	4	CH197	YCIV - DX - AIR COOLED SCREW CHILLERS
III	6	CH227	YCIV - DX - AIR COOLED SCREW CHILLERS

EQUIPMENT DESCRIPTIONS

I AIR-COOLED SCROLL CHILLER

Items Included:

- Model: YLAA0120SE Qty:4
- Compressors:
 - Multiple Scroll Compressors
 - R-410A Refrigerant
 - Dual Refrigerant Circuit
- Electrical
 - 460/3/60
 - Single Point Power Connection
 - Factory Mounted Circuit Breaker
 - Factory Mounted 115V Control Transformer
 - Native BACnet BAS Interface
- Evaporator:
 - Plate & Frame Heat Exchanger
 - 3/4" Insulation
 - Victaulic Groove Connections
 - Flow Sensor
- Condenser:
 - Microchannel Condenser Coil
 - Epoxy post coating
 - TEAO Low Sound Condenser Fan Motors

- Unit Options & Accessories
 - Refrigerant Service Isolation Valves
 - Louvered (Condenser Only) enclosure panels.
- Chiller start-up by York technician.
- **Lowest Available LFT**
- **CRN Certified For Ontario, Quebec, Alberta and British Columbia**
- Warranty:
 - Entire unit Parts, Labor, and Refrigerant warranty: 18 months from shipment or 12 months from start-up, whichever occurs first.

Items Included by York to be Installed By Others:

- Chilled liquid flow switch.

Items not Included

- Hauling or rigging equipment into place.
- External vibration isolation, seismic restraints, anchor bolts, or calculations.

II 200T YCIV DX - AIR COOLED SCREWCHILLERS

Items Included by Johnson Controls

- Provide Model **YCIV0227PA46VAB**: Qty: 4
- Refrigerant Type: **R134a**
- **460/3/60** Application
- **Control Transformer supplied.**
- Power Connection: **Single Point Breaker w/Lockable Handle**
- Starter Type: **VSD**
- TEAO Fan Motors
- Low Sound/Noise Fans
- 3/4 inch Thick Insulation of Evaporator
- **Louvered Condenser Coil Guards**
- **Service Isolation Valves**
- **Water Connections with grooves for mechanical couplings.**
- **Shell and Tube Evaporator**
- **Copper Tube and Aluminum Fin Condenser**
- **Lowest Available LFT Option Included**
- **Condenser Coils with Epoxy Coated Fins (Pre-Coated Fin Stock (Houston Standard))**
- **Freeze Protection to -20 Degrees F**
- **1 Year Parts / Labor / Refrigeration Warranty**
- **JCI Factory Start Up**
- **ASHRAE 90.1 Compliance**
- **U.L. / cU.L Listed**
- **ARI Standard 550/590**
- **ANSI/NFPA Standard 70**
- **CRN Certified for the following Provinces: Ontario, Quebec, Alberta and BC**

Items Included but INSTALLED BY OTHERS:

Items NOT Included

- **Hauling or Rigging Equipment Into Place.**
- **Vibration Isolators**
- **Flow Switch**

III **200T YCIV DX - AIR COOLED SCREW CHILLERS**

Items Included by Johnson Controls

- Provide Model **YCIV0197EA46VAB**: Qty: 6
- Refrigerant Type: **R134a**
- **460/3/60** Application
- **Control Transformer supplied.**
- Power Connection: **Single Point Breaker w/Lockable Handle**
- Starter Type: **VSD**
- TEAO Fan Motors
- Low Sound/Noise Fans
- 3/4 inch Thick Insulation of Evaporator
- **Louvered Condenser Coil Guards**
- **Service Isolation Valves**
- **Water Connections with grooves for mechanical couplings.**
- **Shell and Tube Evaporator**
- **Copper Tube and Aluminum Fin Condenser**
- **Lowest Available LFT Option Included**
- **Condenser Coils with Epoxy Coated Fins (Pre-Coated Fin Stock (Houston Standard))**
- **Freeze Protection to -20 Degrees F**
- **1 Year Parts / Labor / Refrigeration Warranty**
- **JCI Factory Start Up**
- **ASHRAE 90.1 Compliance**
- **U.L. / cU.L Listed**
- **ARI Standard 550/590**
- **ANSI/NFPA Standard 70**

Items Included but INSTALLED BY OTHERS

Items NOT Included

- **Hauling or Rigging Equipment Into Place.**
- **Vibration Isolators**
- **Flow Switch**

PRICING: All pricing is FOB factory with full freight allowed to jobsite, not including any taxes, fees or storage. Price is valid for 30 days after quotation.

Please contact your JCI HVAC Sales Representative in regards to our discount option for pre-payment, prior to equipment shipment.

Standard Terms and Conditions – U.S.A.

References to “products”, “equipment” or “services” herein shall mean those to be furnished by Seller as identified on the applicable Seller Quotation

(1) **AGREEMENT AND LIMITATIONS.** Buyer accepts these Standard Terms and Conditions by signing and returning Seller's Quotation, by sending a purchase order in response to the Quotation, or Buyer's instructions to Seller to begin work, including shipment of product or performance of services. Upon Buyer's acceptance, Seller's Quotation and the related terms and conditions referred to in the Quotation shall constitute the entire agreement relating to the products, equipment and services covered by the Quotation (the “Agreement”). No terms, conditions or warranties other than those identified in the Quotation and no agreement or understanding, oral or written, in any way purporting to modify such terms and conditions whether contained in Buyer's purchase order or shipping release forms, or elsewhere, shall be binding on Seller unless hereafter made in writing and signed by Seller's authorized representative. Buyer is hereby notified of Seller's express rejection of any terms inconsistent with these Standard Terms and Conditions or to any other terms proposed by Buyer in accepting Seller's Quotation. Neither Seller's subsequent lack of objection to any such terms, nor the delivery of the products or services, shall constitute an agreement by Seller to any such terms.

(2) **TERMINATION OR MODIFICATION.** If either party materially breaches this agreement, the other party may notify the breaching party in writing, setting out the breach, and the breaching party will have 60 days following such notice to remedy the breach. If the breaching party fails to remedy the breach during that period, the other party may by written notice terminate the Agreement. These Standard Terms and Conditions may be modified or rescinded only by a writing signed by authorized representatives of both Seller and Buyer. Accepted orders may be cancelled or modified by Buyer only with Seller's express written consent. If cancellation or modification is allowed, Buyer agrees to pay to Seller all expenses incurred and damage sustained by Seller on account of such cancellation or modification, plus a reasonable profit.

(3) **PRICE, SHIPMENT, AND PAYMENT.** Prices on accepted orders are firm for a period of 90 days from date of acceptance. Price and delivery is F.O.B. point of manufacture, unless otherwise provided. Unless otherwise agreed to in writing by Seller, all payments are due net thirty (30) days from the date of invoice. Seller may, at its sole option, have the right to make any delivery under this Agreement payable on a cash or payment guarantee before-shipment basis. In the case of export sales, unless otherwise agreed to in writing by Seller, all payments are to be made by means of a confirmed irrevocable letter of credit.

(4) **TAXES.** All prices exclude state and local use, sales or similar taxes. Such taxes, if applicable, will appear as separate items on the invoice unless Buyer provides a tax exemption certificate that is acceptable to taxing authorities.

(5) **DELIVERY.** The delivery date(s) provided by Seller for the product and equipment is only an estimate and is based upon prompt receipt of all necessary information from Buyer. The delivery date(s) is subject to and shall be extended by delays caused by strikes, fires, accidents, shortages of labor or materials, embargoes, or delays in transportation, compliance with government agency or official requests, or any other similar or dissimilar cause beyond the reasonable control of Seller. FAILURE TO DELIVER WITHIN THE TIME ESTIMATED SHALL NOT BE A MATERIAL BREACH OF CONTRACT ON SELLER'S PART. If Buyer causes Seller to delay shipment or completion of the product or equipment, Seller shall be entitled to any and all extra cost and expenses resulting from such delay.

(6) **LIMITED WARRANTY.** Seller warrants that the product and equipment furnished by Seller under the Agreement will be of good quality and that the services provided by Seller will be provided in a good and workmanlike manner. If Seller installs or furnishes product or equipment under the Agreement, and such product or equipment, or any part thereof, is covered by a manufacturer's warranty, Seller will transfer the benefits of that manufacturer's warranty to Buyer. This limited warranty does not cover failures caused in whole or in part by (i) improper installation or maintenance performed by anyone other than Seller; (ii) improper use or application; (iii) corrosion; (iv) normal deterioration; (v) operation beyond rated capacity; (vi) the use of replacement parts or lubricants which do not meet or exceed Seller's specifications; or (vii) if Seller's serial numbers or warranty date decals have been removed or altered. To qualify for warranty consideration for products or equipment, at the earlier of the Buyer's discovery of the defect or the time at which the Buyer should have discovered the defect; Buyer must immediately notify Seller in writing for instructions on warranty procedures. Seller's sole obligation for defective services shall be to repair or to replace defective parts or to properly redo defective services. All replaced equipment becomes Seller's property. **THIS WARRANTY IS EXCLUSIVE AND IS PROVIDED IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED.**

(7) **INDEMNIFICATION, REMEDIES AND LIMITATIONS OF LIABILITY.** In addition to Paragraph 8 below regarding patents, Buyer agrees that Seller shall be responsible only for such injury, loss, or damage caused by the intentional misconduct or the negligent act or omission of Seller. In the event Buyer claims Seller has breached any of its obligations, whether of warranty or otherwise, Seller may request the return of the goods and tender to Buyer the purchase price theretofore paid by Buyer, and in such event, Seller shall have no further obligation under the Agreement except to refund such purchase price upon redelivery of the goods. If Seller so requests the return of the goods, the goods shall be redelivered to Seller in accordance with Seller's instructions and at Seller's expense. The remedies contained in these Standard Terms and Conditions shall constitute the sole recourse of Buyer against Seller for breach of any of Seller's obligations under the Agreement, whether of warranty or otherwise. **In no event shall Seller be liable for special, indirect, incidental, or consequential damages, including loss of anticipated profit, or other economic loss, or for any damages arising in tort, whether by reason of strict liability, negligence, or otherwise, regardless of whether Seller has been apprised of the possibility of such.**

(8) **PATENTS.** Seller shall indemnify, defend, or at its option settle, and hold Buyer and its directors, officers, employees, agents, subsidiaries, affiliates, subcontractors and assignees, harmless from and against any

and all claims, suits, actions or proceeds (“Claims”) against such parties based upon the infringement or alleged infringement, or violation or alleged violation, of (a) any United States patent and (b) any copyright, trademark, trade secret or other proprietary right of a third party which is enforceable in the United States, as a result of Buyer's use of the product or equipment within the United States, provided that: (i) Buyer gives Seller prompt written notice of any such Claim, (ii) Buyer gives Seller full authority to defend or settle any such Claim, and (iii) Buyer gives Seller proper and full information and assistance, at Seller's expense (except for Buyer's employees' time) to defend or settle any such Claim. **THE FOREGOING IS IN LIEU OF ANY WARRANTIES OF NONINFRINGEMENT, WHICH ARE HEREBY DISCLAIMED.** The foregoing obligation of Seller does not apply with respect to products or equipment or portions or components thereof (a) not supplied by Seller, (b) made in whole or in part in accordance with Buyer or owner specifications, (c) which are modified after shipment by Seller, if the alleged infringement related to such modification, (d) combined with other products, processes or materials where the alleged infringement relates to such combination, (e) where Buyer continues allegedly infringing activity after being notified thereof and/or after being informed of modifications that would have avoided the alleged infringement without significant loss of performance or functionality, or (f) where Buyer's use of the product or equipment is incident to an infringement not resulting primarily from the product or equipment; Buyer will indemnify Seller and its officers, directors, agents, and employees from all damages, settlements, attorneys' fees and expenses related to a claim of infringement, misappropriation, defamation, violation of rights of publicity or privacy excluded from Seller's indemnity obligation herein.

(9) **GOVERNING LAW.** The formation and performance of the Agreement shall be governed by the laws of the State of Wisconsin, U.S.A. Any action for breach of the Agreement or any covenant or warranty must be commenced within one year after the cause of action has accrued unless such provision is not permitted by applicable law.

(10) **DISPUTE RESOLUTION.** Seller shall have the sole and exclusive right to determine whether any dispute, controversy or claim arising out of or relating to the Agreement, or the breach thereof, shall be submitted to a court of law or arbitrated. The venue for any such arbitration shall be in Milwaukee, Wisconsin. The arbitrator's award may be confirmed and reduced to judgment in any court of competent jurisdiction. In the event the matter is submitted to a court, Seller and Buyer hereby agree to waive their right to trial by jury and covenant that neither of them will request trial by jury in any such litigation.

(11) **SOFTWARE LICENSE.** To the extent software is provided by Seller under the Agreement, Buyer agrees that such software may only be used in accordance with the terms and conditions of the software license agreement that accompanies the software. Buyer agrees not to directly or indirectly decompile, disassemble, reverse engineer or otherwise derive the source code for the software. If Buyer is a U.S. Government agency, Buyer acknowledges that the software licensed under the Agreement is a commercial item that has been developed at private expense and not under a Government contract. The Government's rights relating to the software are limited to those rights applicable to Buyer's as set forth herein and its binding on Government users in accordance with Federal Acquisition Regulation 48 C.F.R. Section 12.212 for non-defense agencies and/or Defense FAR Supplement 48 C.F.R. Section 227.7202-1 for defense agencies.

(12) **MISCELLANEOUS**

(a) **CHANGES OF CONSTRUCTION AND DESIGN:** Seller reserves the right to change or revise the construction and design of the products or equipment purchased by Buyer, without liability or obligation to incorporate such changes to products or equipment ordered by Buyer unless specifically agreed upon in writing reasonably in advance of the delivery date for such products or equipment. Buyer agrees to bear the expense of meeting any changes or modifications in local code requirements which become effective after Seller has accepted Buyer's order.

(b) **CHARACTER OF PRODUCT AND SECURITY INTEREST:** The goods delivered by Seller under the terms of the Agreement shall remain personal property and retain its character as such no matter in what manner affixed or attached to any structure or property. Buyer grants Seller a security interest in said goods, any replacement parts and any proceeds thereof until all sums due Seller have been paid to it in cash. This security interest shall secure all indebtedness or obligations of whatsoever nature now or hereafter owing Buyer to Seller. Buyer shall pay all expenses of any nature whatsoever incurred by Seller in connection with said security interest.

(c) **INSURANCE:** Buyer agrees to insure the goods delivered under the Agreement in an amount at least equal to the purchase price against loss or damage from fire, wind, water or other causes. The insurance policies are to be made payable to Seller and Buyer in accordance with their respective interests, and when issued are to be delivered to Seller and held by it. Failure to take out and maintain such insurance shall entitle Seller to declare the entire purchase price to be immediately due and payable and shall also entitle Seller to recover possession of said goods.

(d) **INSTALLATION:** If installation by the Seller is included within the Seller's Quotation, Buyer shall provide all of the following at its own expense and at all times pertinent to the installation: i) free, dry, and reasonable access to Buyer's premises; and ii) proper foundations, lighting, power, water and storage facilities reasonably required.

(e) **COMPLIANCE WITH LAWS:** Seller's obligations are subject to the export administration and control laws and regulations of the United States. Buyer shall comply fully with such laws and regulation in the export, resale or disposition of purchased products or equipment. Quotations or proposals made, and any orders accepted by Seller from a Buyer outside the United States are with the understanding that the ultimate destination of the products or equipment is the country indicated therein. Diversion of the products or equipment to any other destination contrary to the United States is prohibited. Accordingly, if the foregoing understanding is incorrect, or if Buyer intends to divert the products or equipment to any other destination, Buyer shall immediately inform Seller of the correct ultimate destination.



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SECTION

03

PUMP SUBMITTAL



Submittal Data Information

KV Series Vertical Close Coupled Pumps

301-1058

EFFECTIVE: JANUARY 8, 2010

SUPERSEDES: NOVEMBER 1, 2009

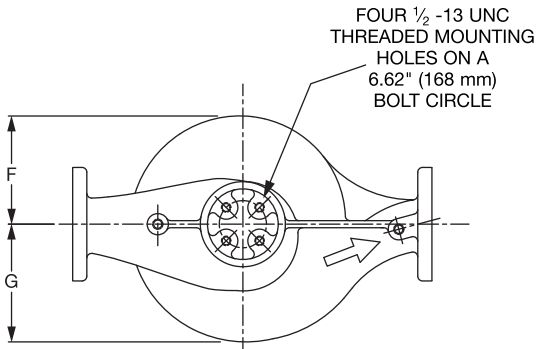
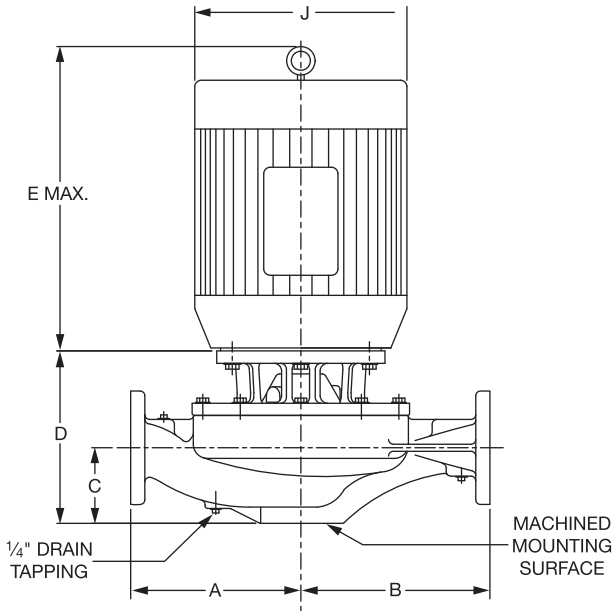
1760 RPM MODEL 6011

JOB _____ ENGINEER _____

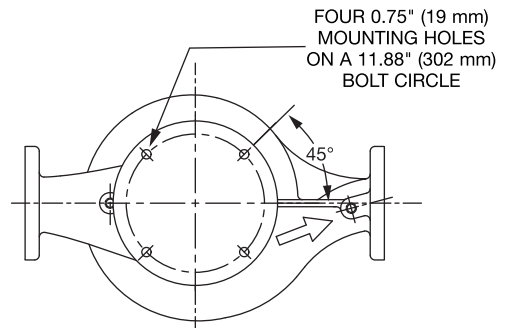
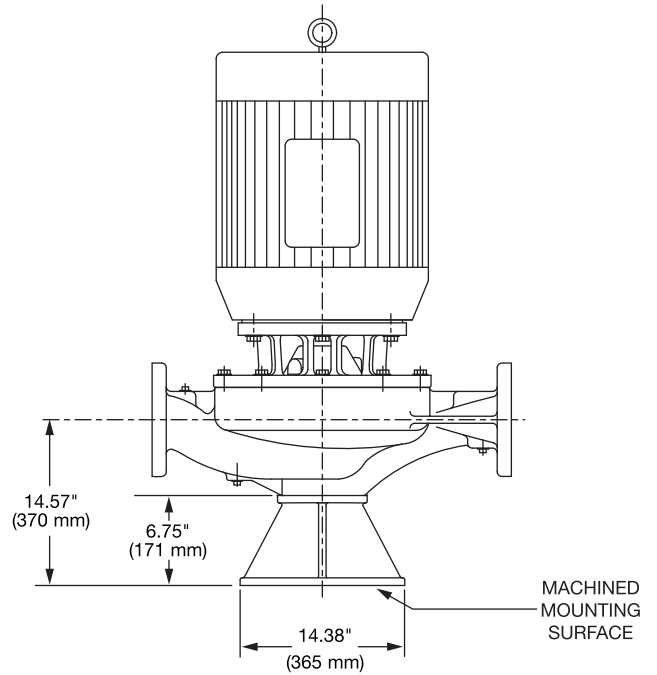
CONTRACTOR _____ REP. _____

ITEM NO.	MODEL NO.	IMPELLER DIA.	G.P.M.	HEAD/FT.	H.P.	ELEC. CHAR.
----------	-----------	---------------	--------	----------	------	-------------

WEIGHT _____ PUMP/MOTOR _____



PUMP WITH OPTIONAL SUPPORT STAND



DIMENSIONS

*A & B Dimensions apply for all pump sizes.

Model No.	Conn.	Motor Frame	HP 1760 RPM	Flange Size ASA	A*	B*	C	D	E MAX	F	G	H	J DIA
6011	6 x 6 (152 x 152)	215JM	10	6 (152)	16.00 (406) if ANSI Class 125	17.50 (445) if ANSI Class 125	7.82 (199)	12.68 (322)	18.18 (462)	8.61 (219)	10.25 (260)	0.25 (6)	9.56 (234)
		254JM	15					13.33 (338)	17.83 (453)				12.94 (329)
		256JM	20					13.33 (338)	19.91 (506)				12.94 (329)
		284JM	25					13.33 (338)	23.39 (594)				15.29 (388)
		286JM	30					13.33 (338)	23.39 (594)				15.29 (388)
		324JM	40					13.33 (338)	25.28 (642)				17.85 (453)

English dimensions are in inches. Metric dimensions are in millimeters. Metric data is presented in (). Do not use for construction purposes unless certified.

MATERIALS OF CONSTRUCTION

Item	BRONZE FITTED		ALL IRON	
	Standard Pump Construction	Optional	Standard	Optional
Casing	Cast Iron ASTM A48 Class 30A	N/A	Cast Iron ASTM A48 Class 30A	N/A
Impeller	Bronze ASTM B584-836	CF	Cast Iron ASTM A48 Class 30A	CF
Wear Ring	None	Bronze ASTM B584-932 SAE660	None	N/A
Shaft	Carbon Steel	St. Steel AISI 416 ASTM A582	Carbon Steel	St. Steel AISI 416 ASTM A582
Shaft Sleeve	Bronze ASTM B584-932 SAE660	St. Steel AISI 303 ASTM A276	St. Steel AISI 303 ASTM A276	CF
Mechanical Seal	Ceramic / EPT	Tungsten Carbide / EPT	Ceramic / EPT	Tungsten Carbide / EPT
Seal Flush Line	Copper	CF	Stainless Steel	CF
Support Stand	N/A	Ductile Iron ASTM A536-84 Grade: 65-45-12	N/A	Ductile Iron ASTM A536-84 Grade: 65-45-12

CF - Consult Factory

N/A - Not Available

OPERATING SPECIFICATIONS

	Standard		Optional
	ANSI Class 125	ANSI Class 250	
Flange	ANSI Class 125	ANSI Class 250	
Pressure	175 PSIG* (1210 KPA)	300 PSIG** (2070 KPA)	CF
Temperature	250°F (120°C)	250°F (120°C)	CF

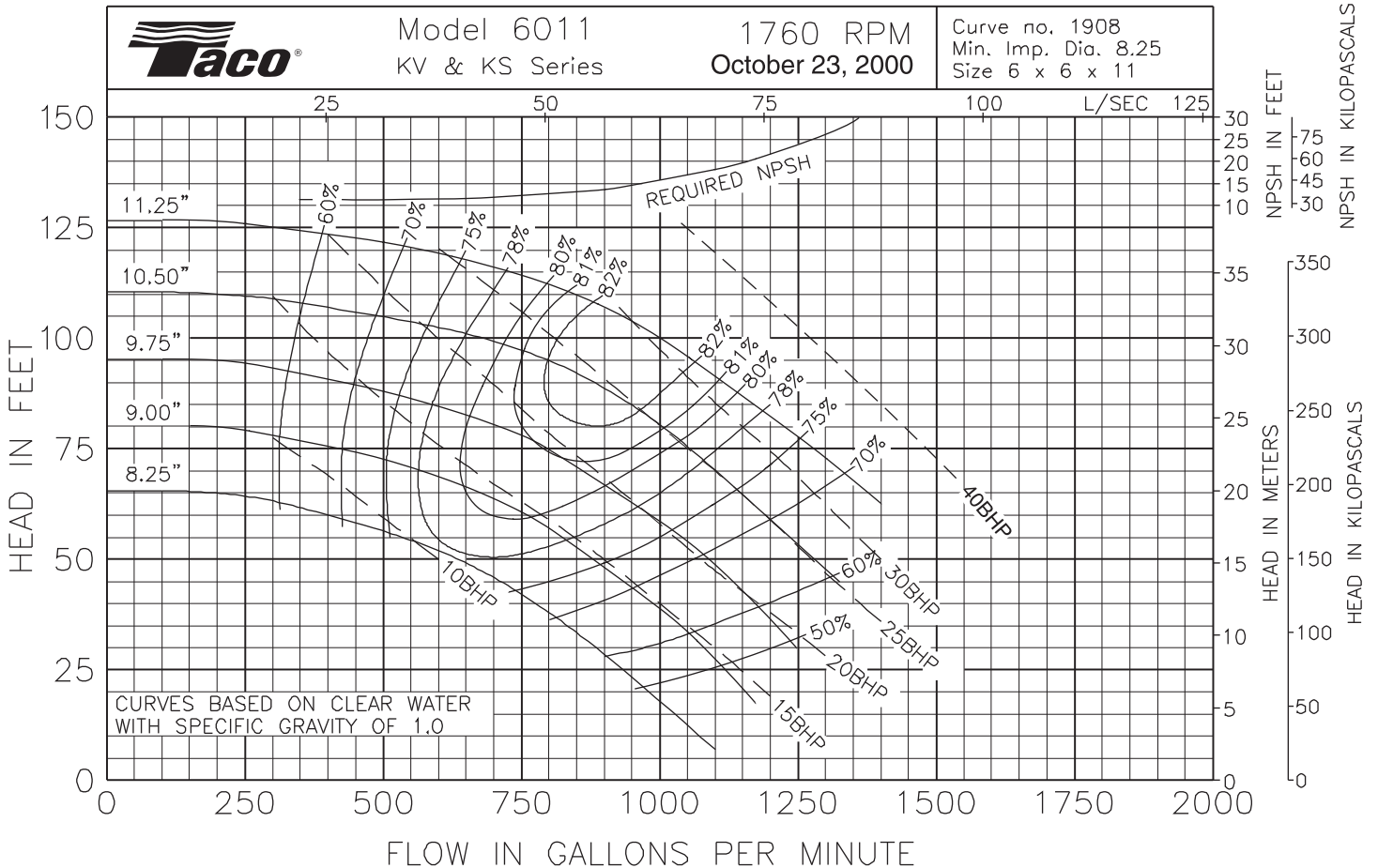
Motors: All NEMA Standard (T Frame)

* In accordance with ANSI Standard B16.1 Class 125

** In accordance with ANSI Standard B16.1 Class 250 Dim.

MAXIMUM ASSEMBLY WEIGHT

Motor Frame	Weight without Optional Stand Lbs (Kg)	Weight with Optional Stand Lbs (Kg)
213JM - 215JM	560 (254)	626 (284)
254JM - 256JM	600 (272)	666 (302)
284JM - 286JM	751 (341)	817 (371)
324JM - 326JM	874 (396)	940 (426)



Comments:

Do it Once. Do it Right.®

TACO, INC., 1160 Cranston Street, Cranston, RI 02920 Telephone: (401) 942-8000 FAX: (401) 942-2360.
 TACO (Canada), Ltd., 8450 Lawson Road, Unit #3, Milton, Ontario L9T 0J8. Telephone: 905/564-9422. FAX: 905/564-9436.

Visit our web site at: <http://www.taco-hvac.com>

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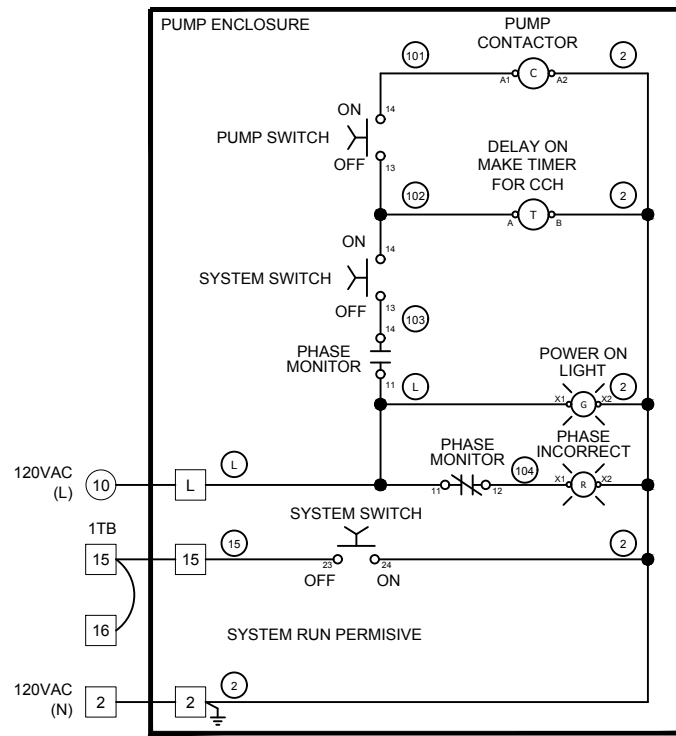


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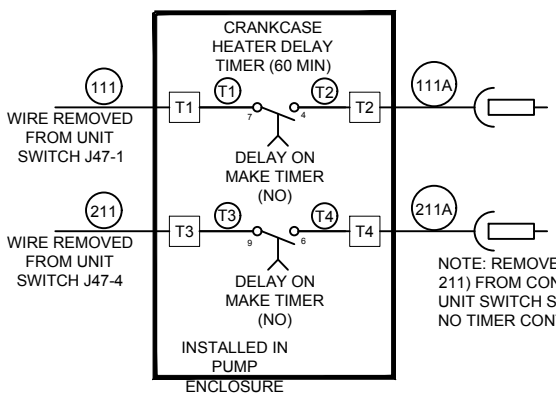
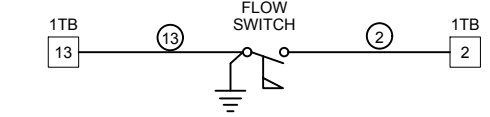
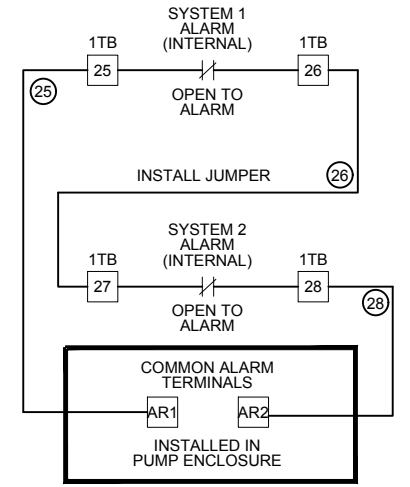
SECTION

04

ELECTRICAL DRAWINGS



NOTE: ADD JUMPER FROM TERMINAL 15 AND 16 ON 1TB TERMINAL BOARD ON CHILLER.



DANGER
HIGH VOLTAGE
TURN OFF POWER
BEFORE SERVICING

WHITE ON RED, TEXT SIZE 0.2" / 0.15"
LOCATION: RIGHT TOP OF OUTSIDE
DOOR

CAUTION
RISK OF ELECTRIC SHOCK
MORE THAN ONE DISCONNECT
SWITCH MAY BE REQUIRED TO
DE-ENERGIZE THE EQUIPMENT
BEFORE SERVICING.

WHITE ON RED, TEXT SIZE 0.2" / 0.15"
LOCATION: RIGHT TOP OF OUTSIDE
DOOR

USE COPPER
CONDUCTOR ONLY.
60C (140F)
3.5-5.5 LBS. IN.
TORQUE

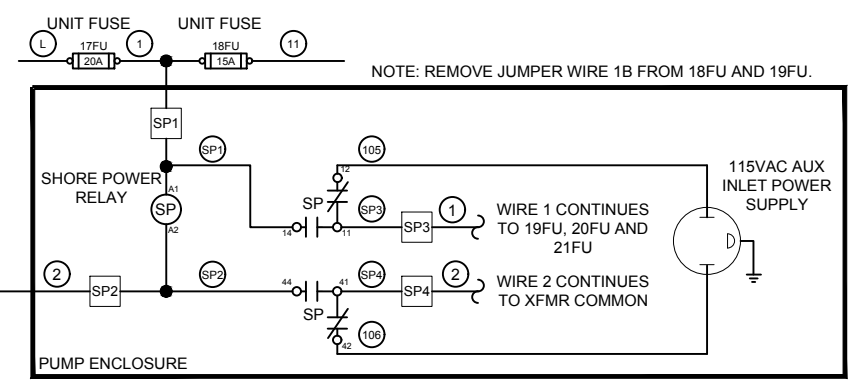
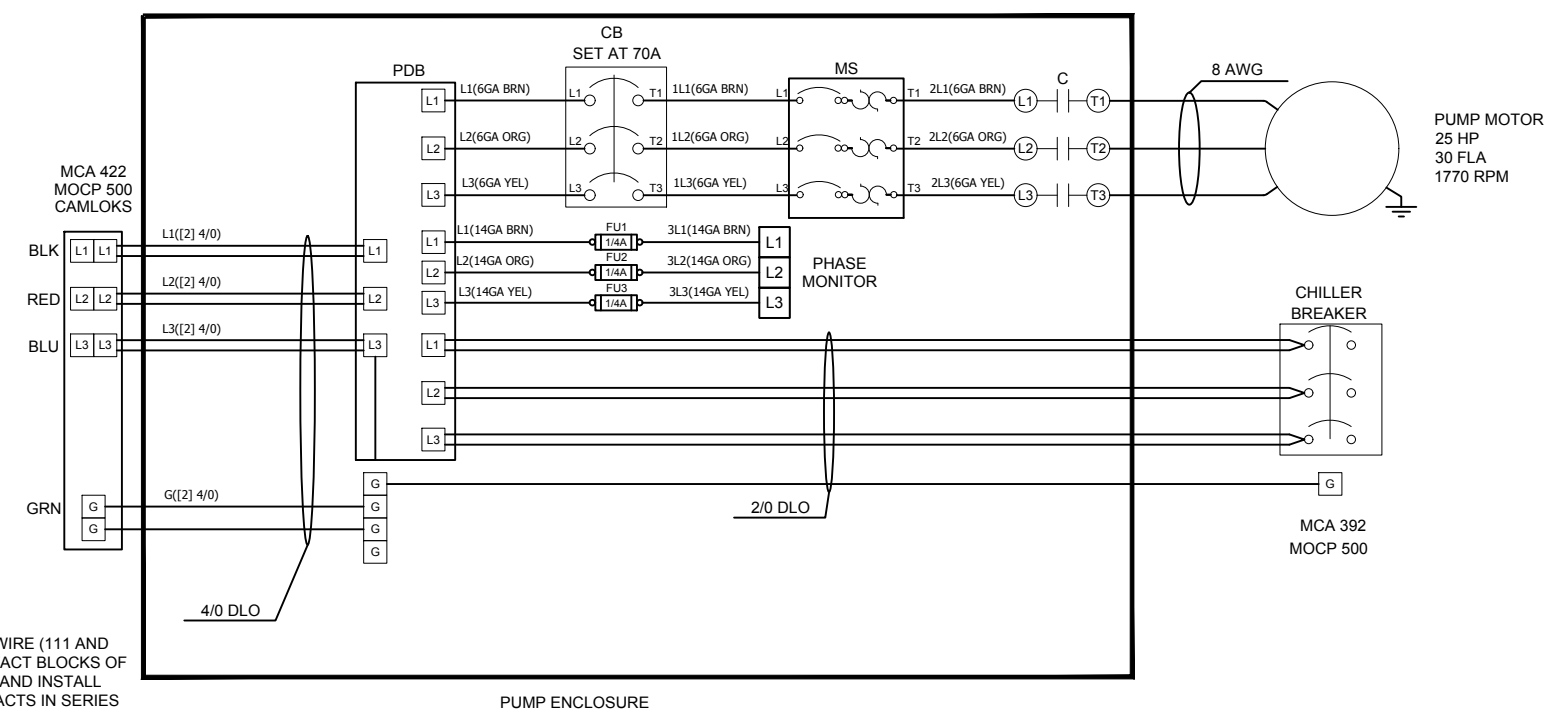
BLACK ON WHITE, TEXT SIZE 0.15"
LOCATION: BACK PANEL ON FIELD SIDE
OF TERMINAL BLOCK STRIP

USE COPPER
CONDUCTOR ONLY.
60C (140F)
INCOMING LUG 375
LBS. IN. TORQUE

BLACK ON WHITE, TEXT SIZE 0.15"
LOCATION: BACK PANEL ON FIELD SIDE
OF TERMINAL BLOCK STRIP

ENCLOSURE RATING: TYPE 1
MAX VOLTAGE: 480VAC
PHASE: 3
FREQUENCY: 60Hz
SHORT CIRCUIT CURRENT: 5KAIC
RMS SYMMETRICAL: 480VAC
LARGEST MOTOR FLA:
TOTAL PANEL FLA:
MFG DATE: XX/XX/XX

LOCATION: EXTERIOR DOOR INSIDE WALL



NOTE: REMOVE JUMPER WIRE 1B FROM 18FU AND 19FU.

WIRING NOTES

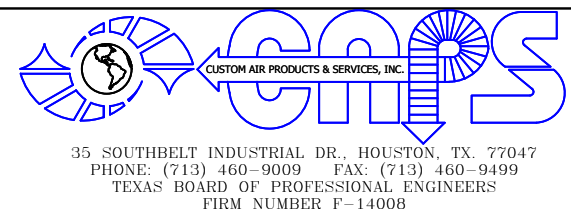
208/120VAC	480/277VAC	24VDC
PHASE A - BLACK	PHASE A - BROWN	POSITIVE - DARK BLUE
PHASE B - RED	PHASE B - ORANGE	NEGATIVE - GRAY
PHASE C - BLUE	PHASE C - YELLOW	
NEUTRAL - WHITE	NEUTRAL - GRAY	24VAC
GROUND - GREEN	GROUND - GREEN	PHASE A - RED
		NEUTRAL - BROWN

INTRINSICALLY SAFE WIRING 18AWG LIGHT BLUE AND MUST BE SEPARATED FROM OTHER WIRING BY MINIMUM OF 2". IF CABLE USED IT MUST BE SHIELDED.

IF VAC WIRING GAUGE NOT SPECIFIED USE 18 AWG
IF VDC WIRING GAUGE NOT SPECIFIED USE 18 AWG

- NOTES:**
- SEE NC-REF001-C001 FOR FIELD WIRING SPECIFICATION.
 - ALL DEVICES SHOWN DE-ENERGIZED.
 - WIRE POINT TO POINT PER WIRE CHART.
 - EACH END OF EACH CONTROL AND POWER WIRE TO BE MARKED WITH HEAT SHRINK MARKERS.

REV#	DATE	DESIGNER	DESCRIPTION
0	04/03/2018	B. LANDRY	FOR CUSTOMER'S APPROVAL
1	04/09/2018	B. LANDRY	ISSUE FOR CONSTRUCTION



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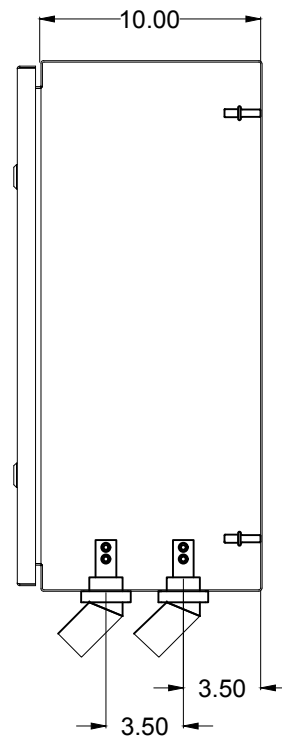
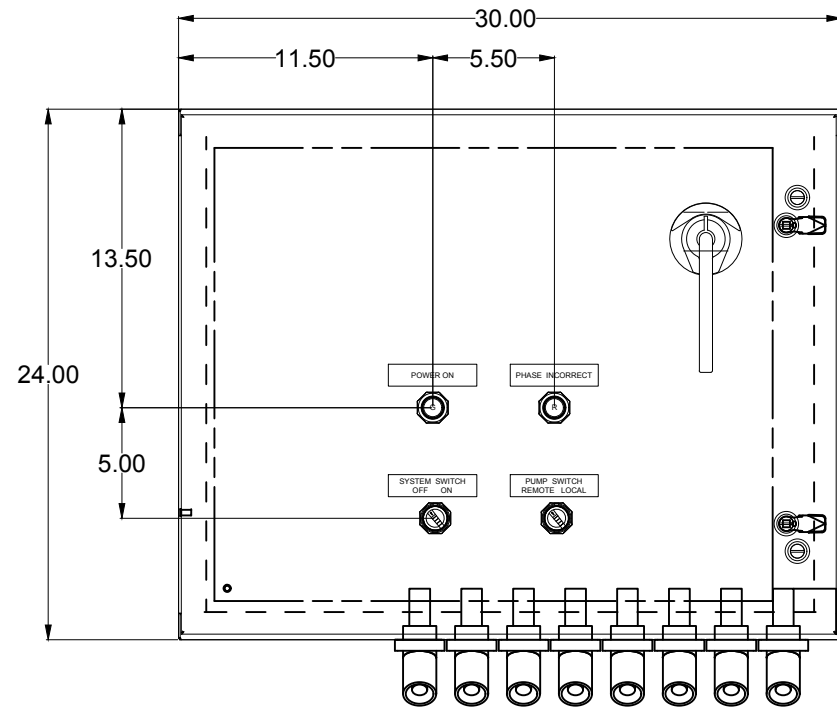
CAPS NO.: 18F-0177
DRAWING: E1
DRAWN BY: B. LANDRY
DATE: 04/03/2018

CUST. PO#: 1087073
SHEET: 1 OF 4
CHECKED BY: DAVID NGUYEN
DATE: 04/09/2018

SIZE: B
REV: 1
APPROVED BY: LARRY NOVAK
DATE: 04/09/2018

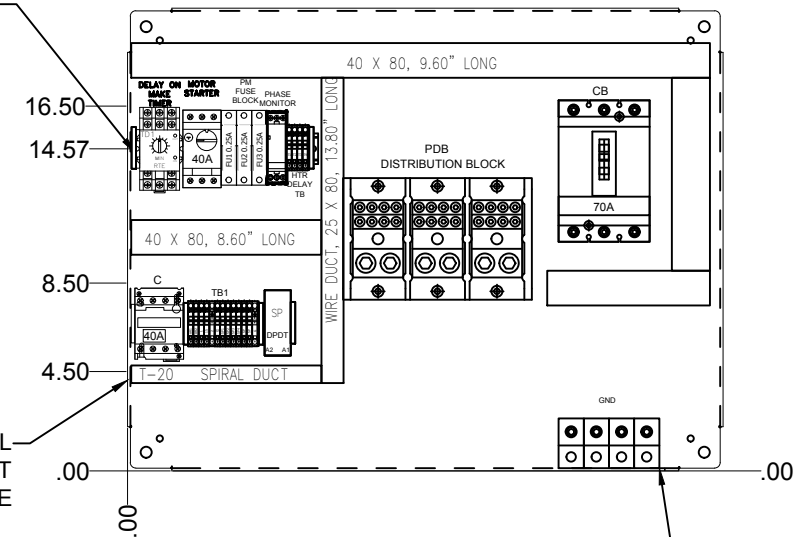
CUSTOMER: HERC

227 TON SKID MOUNTED & CAGED CHILLER
GALV. SKID, GALV. CAGE, 4" CONNECTIONS
600 GPM @ TDH, 460V/3PH/60HZ GP
ELECTRICAL DESIGN
POWER SCHEMATIC

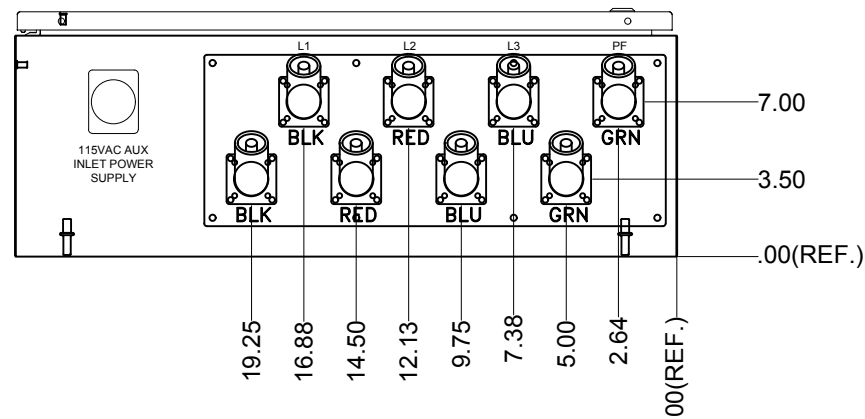


8.5 DIN RAIL
(2)10-32X1/2TT
ALIGN W/ EDGE

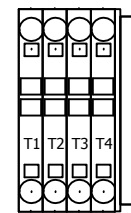
8.0 TALL DIN RAIL
(2)10-32X1/2TT
ALIGN W/ EDGE



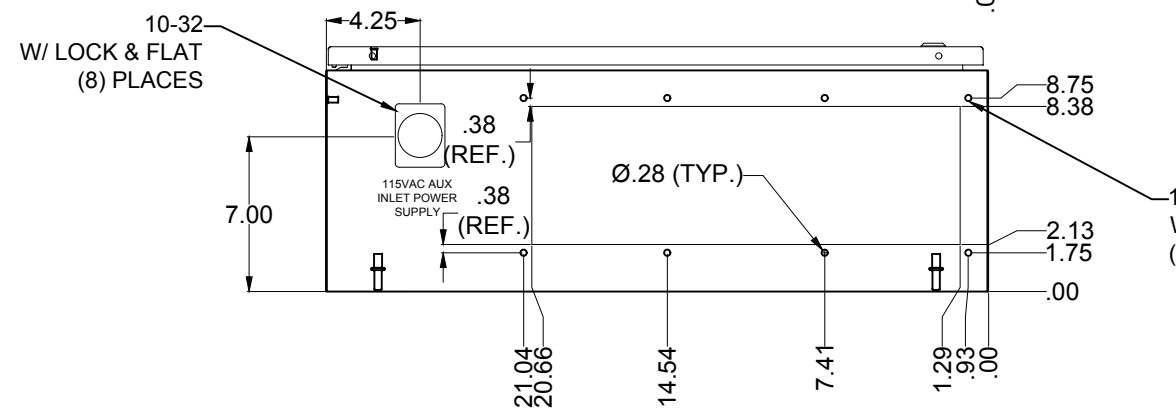
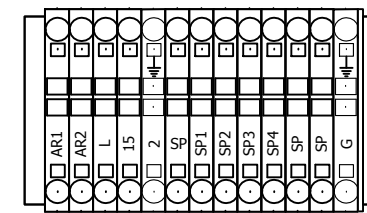
(2)3/8-16X7/8
W/FLAT & LOCK



HTR DELAY TB



TB1



CUTOUT DETAIL

1/4-20 KEPS
W/ FLAT
(8) PLACES

NOTES:

1. TERMINAL MARKER FOR TERMINALS MARKED "SP" WILL BE BLANK.
2. EACH DEVICE TO HAVE (2) LABELS. ONE ON DEVICE, ONE ON PANEL BEHIND DEVICE.

REV#	DATE	DESIGNER	DESCRIPTION
0	04/03/2018	B. LANDRY	FOR CUSTOMER'S APPROVAL
1	04/09/2018	B. LANDRY	ISSUE FOR CONSTRUCTION



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PHONE: (713) 460-9009 FAX: (713) 460-9499
TEXAS BOARD OF PROFESSIONAL ENGINEERS
FIRM NUMBER P-14008

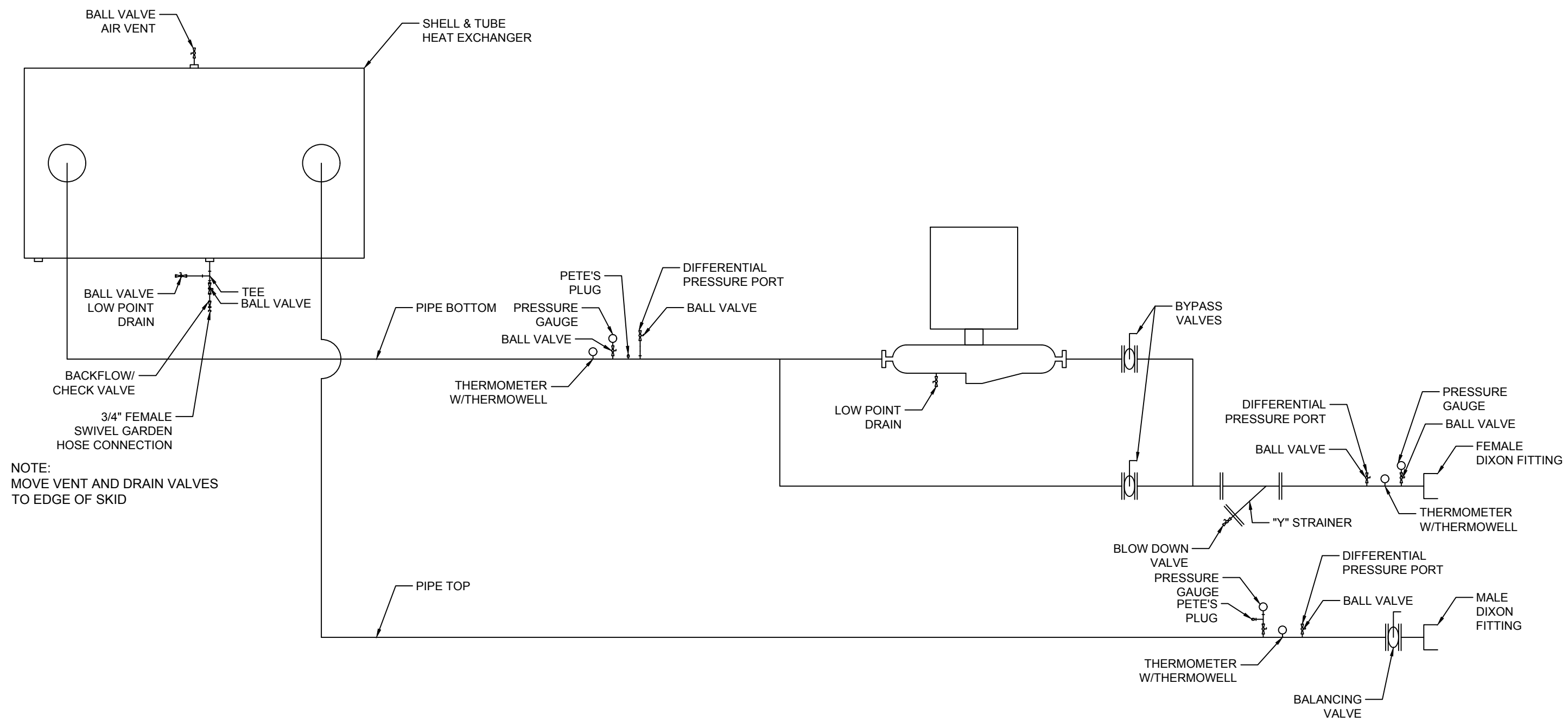
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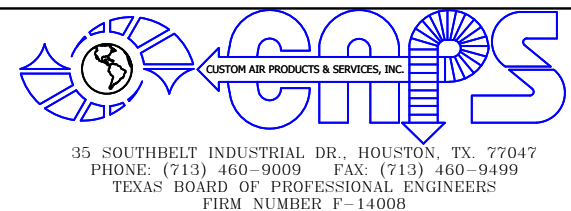
CAPS NO.:	DRAWING:	DRAWN BY:	DATE:
18F-0177	E2	B. LANDRY	04/03/2018
CUST. PO#:	SHEET:	CHECKED BY:	DATE:
1087073	2 OF 4	DAVID NGUYEN	04/09/2018
SIZE:	REV:	APPROVED BY:	DATE:
B	1	LARRY NOVAK	04/09/2018

CUSTOMER:	HERC
227 TON SKID MOUNTED & CAGED CHILLER GALV. SKID, GALV. CAGE, 4" CONNECTIONS 600 GPM @ TDH, 460V/3PH/60HZ GP ELECTRICAL DESIGN PANEL LAYOUT DIAGRAM	



NOTE:
MOVE VENT AND DRAIN VALVES
TO EDGE OF SKID

REV#	DATE	DESIGNER	DESCRIPTION
0	04/03/2018	B. LANDRY	FOR CUSTOMER'S APPROVAL
1	04/09/2018	B. LANDRY	ISSUE FOR CONSTRUCTION



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CHECKER: _____ DATE: _____
APPROVER: _____ DATE: _____

CAPS NO.:	DRAWING:	DRAWN BY:	DATE:
18F-0177	E3	B. LANDRY	04/03/2018
CUST. PO#:	SHEET:	CHECKED BY:	DATE:
1087073	3 OF 4	DAVID NGUYEN	04/09/2018
SIZE:	REV:	APPROVED BY:	DATE:
B	1	LARRY NOVAK	04/09/2018

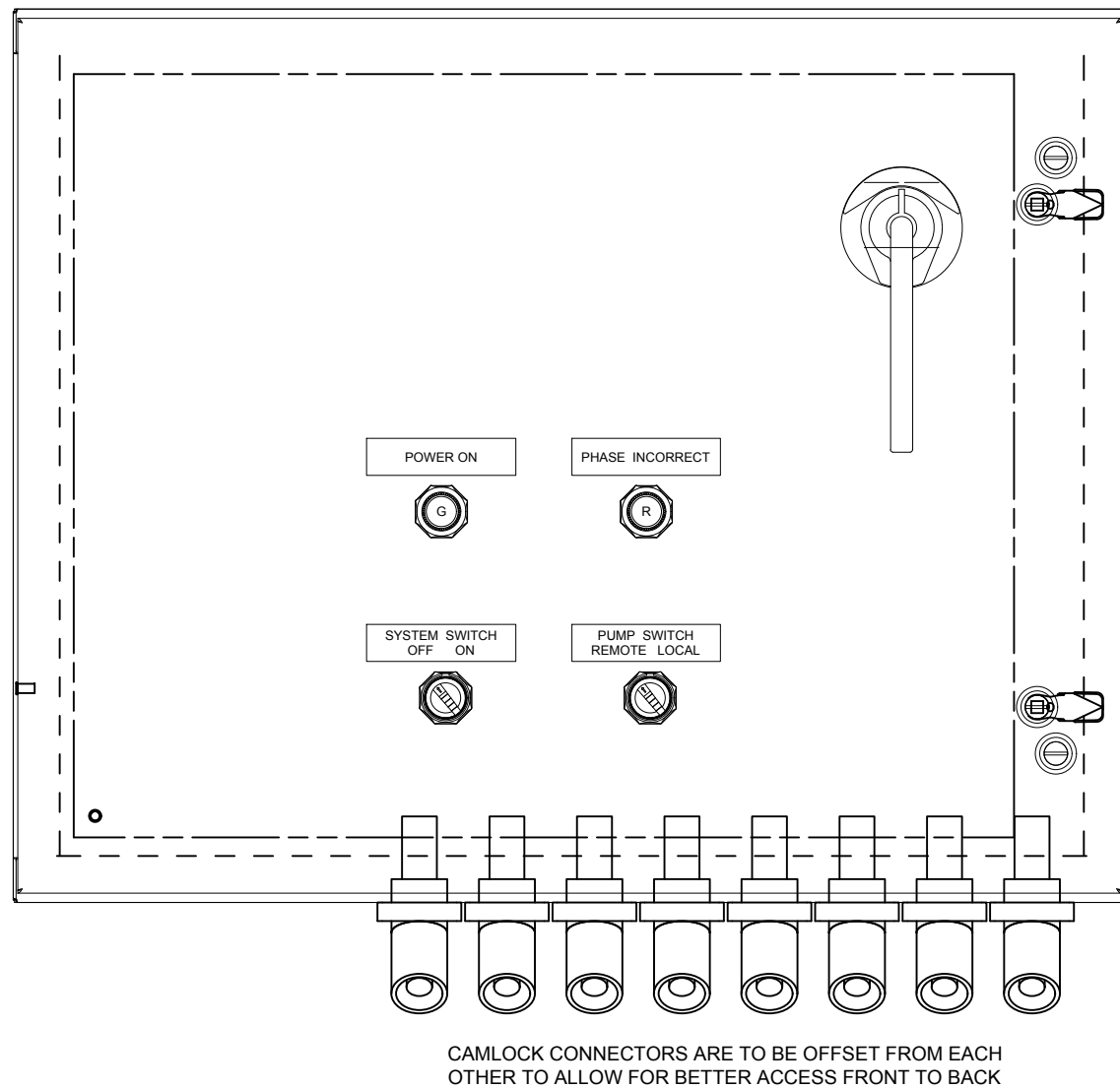
CUSTOMER: **HERC**

**227 TON SKID MOUNTED & CAGED CHILLER
GALV. SKID, GALV. CAGE, 4" CONNECTIONS
600 GPM @ TDH, 460V/3PH/60HZ GP
ELECTRICAL DESIGN
PIPING & INSTRUMENTATION DIAGRAM**

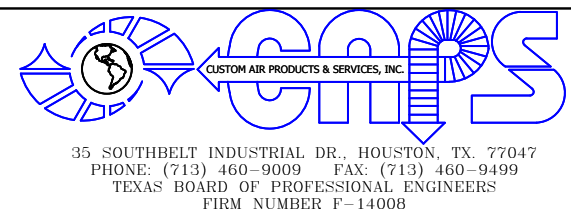
SEQUENCE OF OPERATION

The system is placed into initial operation as follows:

- Turn Master Switch and Pump Switch to "OFF"
- Turn Pump and Chiller Circuit Breakers "ON"
 - If the "Phase Incorrect" light is on, turn off the circuit breakers; reverse two (2) phases of incoming power for proper phase sequencing then check the incoming power source to be sure the unit has a good power source - 460V/3P/60HZ
 - If the "Main Power On" light is on and the "Phase Incorrect" light is off, turn Master Switch to "ON": Chiller will be ready for Crankcase Heater pre-heat and can be operated after 60 minute time delay
- Turn Pump Switch to "ON"
- Turn Chiller Switch to "ON" then set chilled leaving water setpoint
- To shut down Chiller and Pump:
 - 1- Raise setpoint to 70F
 - 2- Turn off Chiller Switch
 - 3- Turn off Pump Switch
 - 4- Turn off Master Switch



REV#	DATE	DESIGNER	DESCRIPTION
0	04/03/2018	B. LANDRY	FOR CUSTOMER'S APPROVAL
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CAPS NO.: 18F-0177	DRAWING: E4	DRAWN BY: B. LANDRY	DATE: 04/03/2018
CUST. PO#: 1087073	SHEET: 4 OF 4	CHECKED BY: DAVID NGUYEN	DATE: 04/09/2018
SIZE: B	REV: 1	APPROVED BY: LARRY NOVAK	DATE: 04/09/2018

CUSTOMER: **HERC**

**227 TON SKID MOUNTED & CAGED CHILLER
 GALV. SKID, GALV. CAGE, 4" CONNECTIONS
 600 GPM @ TDH, 460V/3PH/60HZ GP
 ELECTRICAL DESIGN
 SEQUENCE OF OPERATION**



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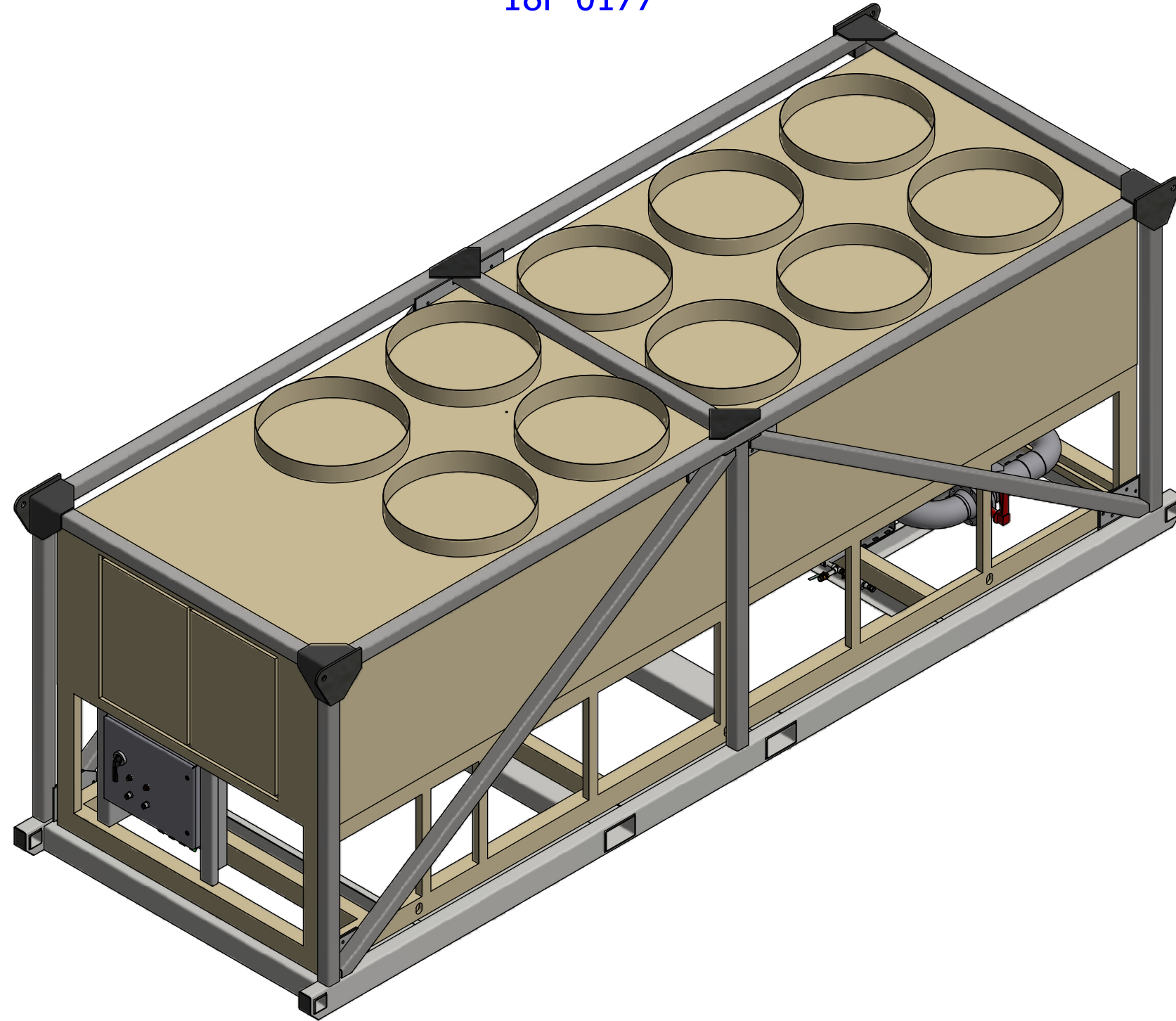
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SECTION

05

MECHANICAL DRAWINGS

HERC RENTALS
227 TON SKID MOUNTED & CAGED YORK CHILLER PACKAGE
GALVANIZED SKID & CAGE, 4" DIXON CONNECTIONS
600 GPM @ 100 TDH, 460V/3PH/60HZ GP
18F-0177



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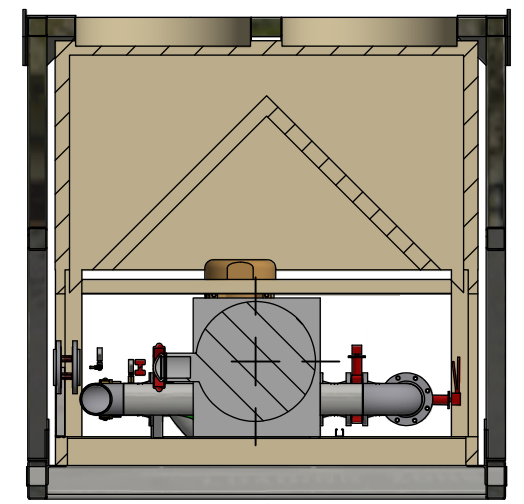
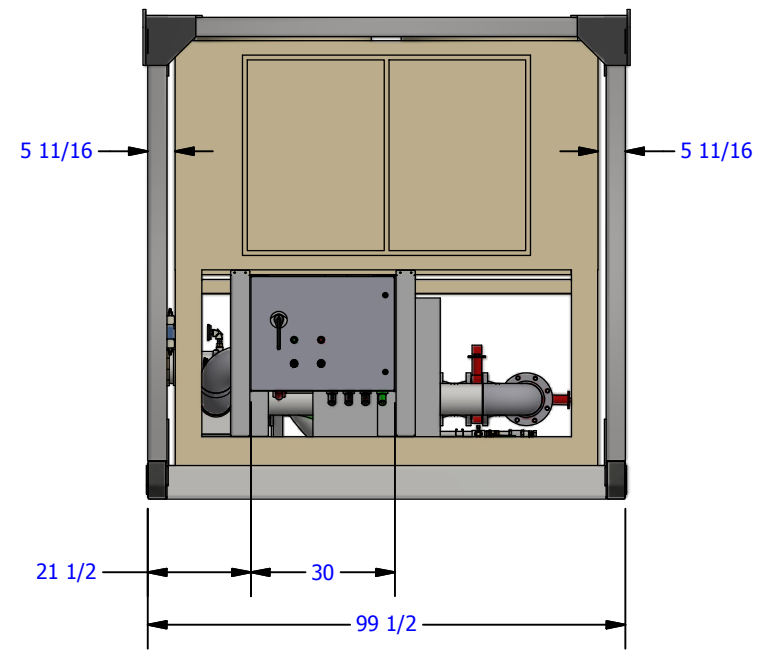
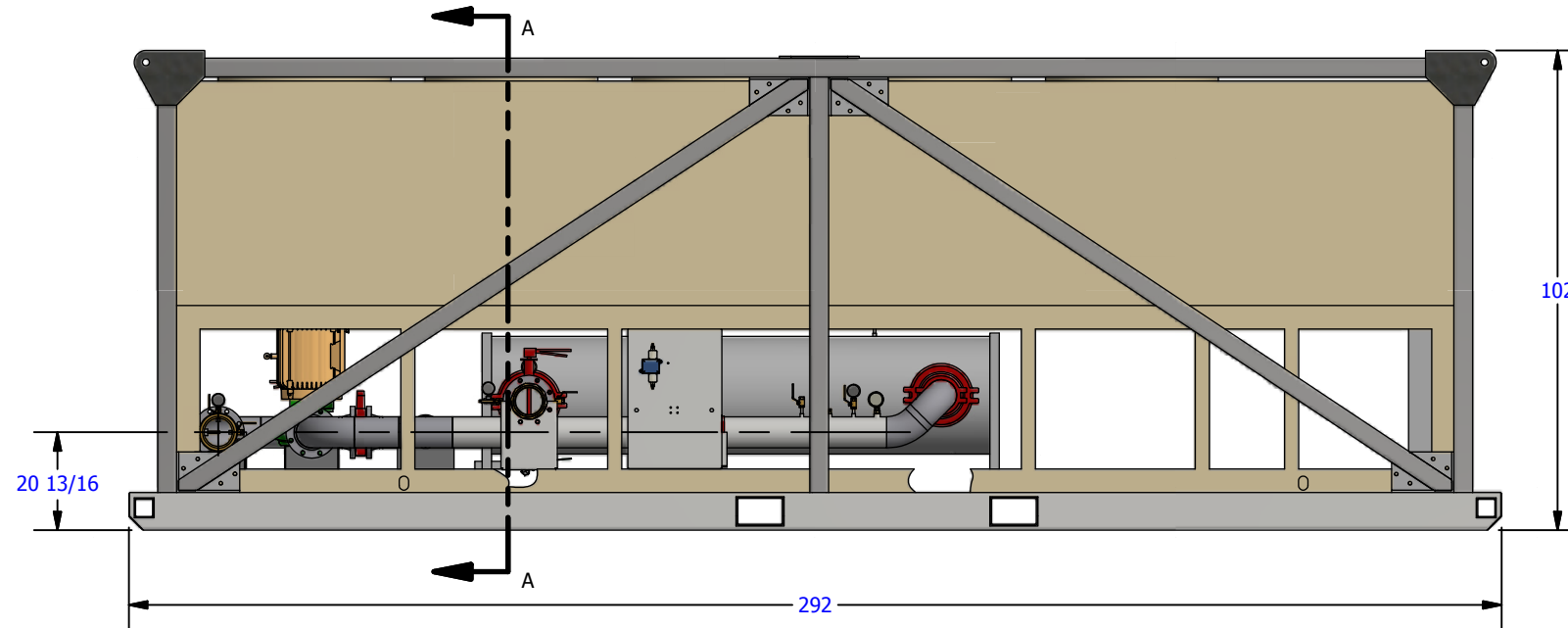
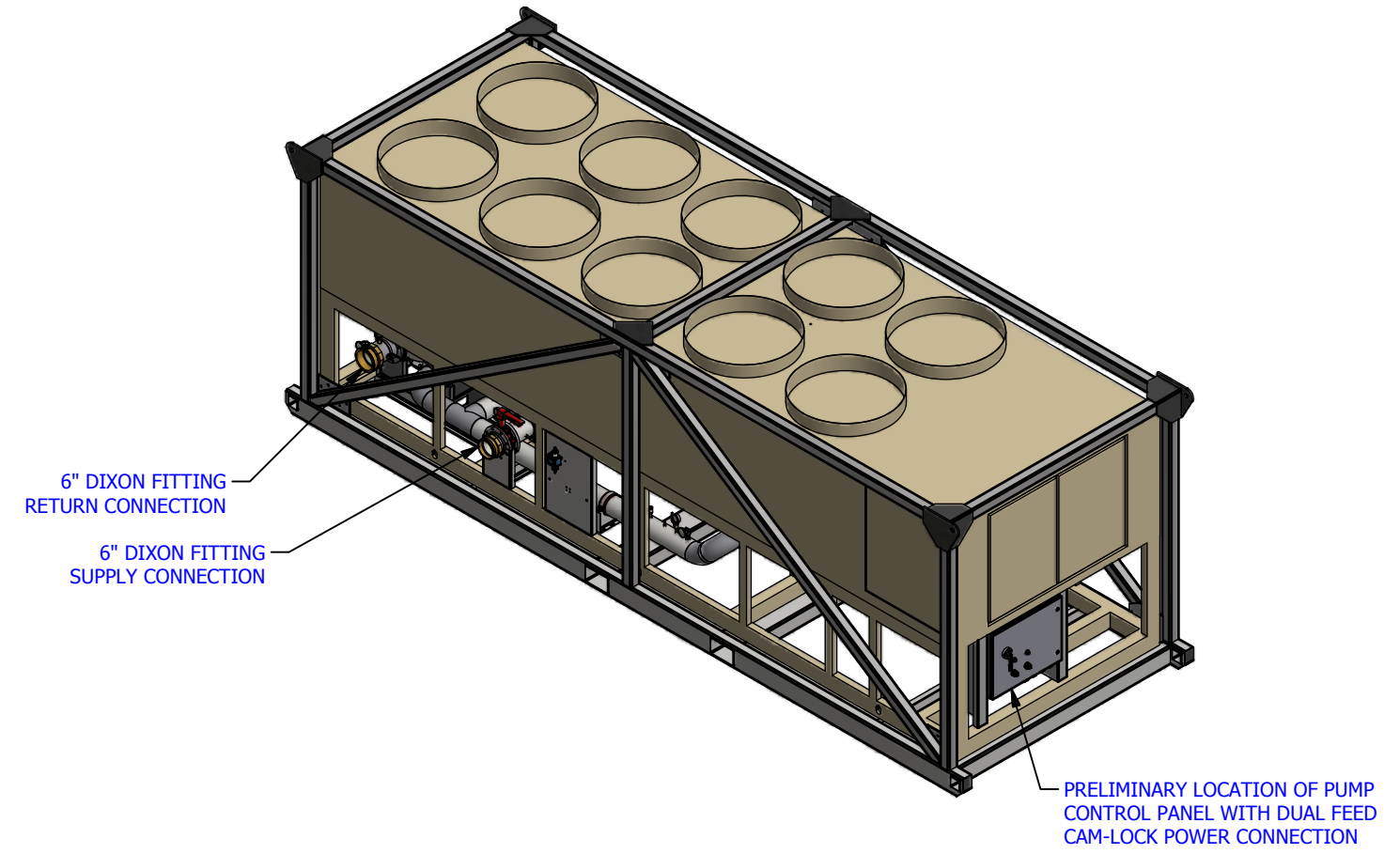
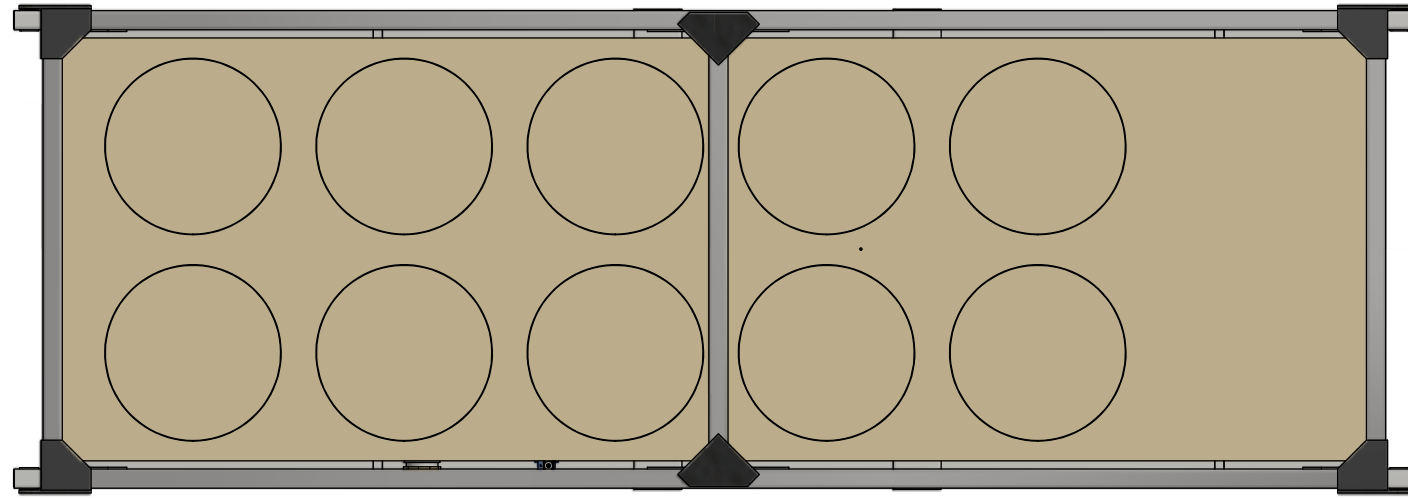
CHECKER: _____ DATE: _____

APPROVER: _____ DATE: _____

CAPS NO.: 18F-0177	DRAWING: 200T-ACC-000	DESIGNER: DAVID POTTS	DATE: 4/10/2018
CUST. PO#: 5349096, 5349099	SHEET: 1 OF 2	CHECKER: ALEX BANNISTER	DATE: 4/10/2018
SIZE: B	REV:	APPROVER: LARRY NOVAK	DATE: 4/10/2018

CUSTOMER: **HERC RENTALS**

227 TON SKID MOUNTED & CAGED YORK CHILLER PACKAGE
GALVANIZED SKID & CAGE, 4" DIXON CONNECTIONS
600 GPM @ 100 TDH, 460V/3PH/60HZ GP
MECHANICAL DESIGN
COVER SHEET



SECTION A-A
SCALE 1 / 40

200T-ACC-000
GENERAL LAYOUT



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CHECKER: _____ DATE: _____

APPROVER: _____ DATE: _____

CAPS NO.:	DRAWING:	DESIGNER:	DATE:
18F-0177	200T-ACC-000	DAVID POTTS	4/10/2018
CUST. PO#:	SHEET:	CHECKER:	DATE:
5349096, 5349099	2 OF 2	ALEX BANNISTER	4/10/2018
SIZE:	REV:	APPROVER:	DATE:
B		LARRY NOVAK	4/10/2018

CUSTOMER: **HERC RENTALS**

**227 TON SKID MOUNTED & CAGED YORK CHILLER PACKAGE
GALVANIZED SKID & CAGE, 4" DIXON CONNECTIONS
600 GPM @ 100 TDH, 460V/3PH/60HZ GP
MECHANICAL DESIGN**



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SECTION

06

SPARE PARTS LIST

SUGGESTED SPARE PARTS

SUGGESTED SPARE PARTS						
JOB #:	18F-0177	REVISION #:	0	REV. DATE:	8/10/2018	
CUSTOMER	HERC					
PROJECT	HERC CANADA					
ITEM #	DESIGNATION	BRAND	MODEL/PART #	DESCRIPTION	QTY	CAPS#
1	PUMP	TACO	KV6011	600 GPM @ 100' TDH, 25 HP, 460V/3PH/60HZ	1	
2	CIRCUIT BREAKER	SCHNEIDER ELECTRIC	HDL36070	70 AMP, 3 POLE CIRCUIT BREAKER	1	
3	CONTACT BLOCK	SCHNEIDER ELECTRIC	9001KA2	NO CONTACT BLOCK	1	
4	CONTACTOR	SCHNEIDER ELECTRIC	LC1D40G7	CONTACTOR 40A, 120V COIL	1	
5	DISTRIBUTION BLOCK	MARATHON	1453411	PDB,840A,3P,(2)600-2GA X (4)3/0-6 & (4)4-14GA	1	
6	LIGHT	SCHNEIDER ELECTRIC	9001KP1G31	POWER ON PILOT LIGHT, 120V, GREEN	1	
7	LIGHT	SCHNEIDER ELECTRIC	9001KP1R31	ROTATION INCORRECT PILOT LIGHT, 120V, RED	1	
8	MANUAL STARTER	SCHNEIDER ELECTRIC	GV2P40	MANUAL MOTOR STARTER 30-40A (25hp) WITH ROTARY SWITCH	1	
9	SYSTEM SWITCH	SCHNEIDER ELECTRIC	9001KS11B	2 POSITION SWITCH	1	
10	SP RELAY	EATON	D2RR2A	RELAY DPDT 120VAC COIL eaton	1	
11	FLOW SWITCH	UNITED ELECTRIC	J21K-150	DIFFERENTIAL PRESSURE SWITCH FOR CHILLERS (FLOW SWITCH)	1	
12	SHORE POWER PLUG	HUBBELL	HBL61CM64	15A, 125V 2 POLE, 3 WIRE GROUNDING RECEPTACLE, WEATHERPROOF	1	
13	TIMER	IDEC	RTE-B1AF20	DELAY ON MAKE TIMER	1	
14	BASE	IDEC	SR3B-05	TIMER BASE	1	
15	FU1-3	MERSEN	ATQR1/4	1/4 AMP, 600 VAC, 200KA I.R. TIME DELAY CC TYPE FUSE	1	
16	FB	ABB	E93/30CC	FUSE BLOCK, 3P, CLASS CC ULTRASAFE (2)	1	
17	REPLACEMENT FUSE	MERSEN	ATQR15	15 AMP REPLACEMENT FUSE, PLACE BETWEEN L1-L2 & 90 & 91	1	
18	MMP	SCHNEIDER ELECTRIC	GV3P40	MMP 30 - 40A TYPE-E	1	
19	PHASE MONITOR	SCHNEIDER ELECTRIC	RM17TU00	RELAY 5AMP 3P 208-480VAC	1	